IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Daniel SauFu Mui

Assignee: UEI Cayman Inc.

Title: "Relaying Key Code Signals Through a Remote Control Device"

Atty. Doc. No.: ZIL-568-2C Filed: May 21, 2011

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

37 CFR 3.73(b) STATEMENT

The assignee, UEI Cayman Inc., a corporation organized under the laws of the Cayman Islands, states that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of:

1. An assignment in the parent case 10/737,029 dated December 15, 2003, from the sole inventor (Daniel SauFu Mui) to Zilog, Inc. This assignment was recorded on December 16, 2003, at reel/frame 014806/0254 and on August 4, 2009 at reel/frame 023086/0176.

2. An assignment in the parent case 10/737,029 dated February 18, 2009, from Zilog, Inc. to the assignee. This assignment was recorded on March 4, 2009, at reel/frame 022343/0395 and on August 4, 2009, at reel/frame 023084/0357.

The undersigned is authorized to act on behalf of the assignee by virtue of the attached power of attorney and signs on behalf of the assignee this 21st day of May 2011.

I hereby certify that this amendment is being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" service under 37 CFR § 1.10 on the date indicated below and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By Darien K. Wallace
Darien K. Wallace

Express Mail Label No.: EG 421229038 US

Date of Deposit: May 21, 2011

Respectfully submitted,

Darien K. Wallace

Darien K. Wallace
Attorney for Applicant
Reg. No. 53,736
Customer No. 47,713

PTO/SB/80 (11-08)
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I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☑ Practitioners associated with the Customer Number: 47,713

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

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Assignee Name and Address:

Universal Electronics Inc.
6101 Gateway Drive
Cypress, CA 90630

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	11/18/2010
Name	Patrick H. Hayes	Telephone	(714) 820-1056
Title	Vice President, Intellectual Property		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/SB/35 (09-04)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE

NONPUBLICATION REQUEST UNDER 35 U.S.C. 122(b)(2)(B)(i)		
	First Named Inventor	Daniel SauFu Mui
	Title	RELAYING KEY CODE SIGNALS THROUGH A REMOTE CONTROL DEVICE
	Attorney Docket Number	ZIL-568-2C

I hereby certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing.

I hereby request that the attached application not be published under 35 U.S.C. 122(b).

Darien K. Wallace
Signature

May 21, 2011
Date

Darien K. Wallace
Typed or printed name

53,736
Registration Number, if applicable

(925) 550-5067
Telephone Number

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing.**

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under 35 U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant **must** notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Daniel SauFu Mui

Assignee: UEI Cayman Inc.

Title: "Relaying Key Code Signals Through a Remote Control Device"

Docket No.: ZIL-568-2C Filing Date: August 4, 2009

May 21, 2011

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Dear Sir:

Before examination on the merits, please amend the claims in the above-identified application as shown in the following listing of claims.

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

Claims 1 – 24 (canceled)

25. (new) A method comprising:

(a) receiving a keystroke indicator signal from a remote control device, wherein the keystroke indicator signal indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indictor signal;

(c) formatting the key code for transmission and thereby generating a key code signal; and

(d) transmitting the key code signal from the key code generator device to an electronic consumer device.

26. (new) The method of claim 25, wherein the key code signal is transmitted in (d) via a hardwired connection.

27. (new) The method of claim 25, wherein the key code signal is transmitted in (d) via a wireless connection.

28. (new) The method of claim 25, wherein the formatting in (c) comprises converting the key code into the key code signal by forming bursts of digital ones and zeros.

29. (new) The method of claim 25, wherein the key code generator device is part of a second electronic consumer device taken from the group consisting of: a television, a stereo radio, a digital video disk player, a video cassette recorder, a personal computer, a set-top cable television box and a set-top satellite box.

30. (new) The method of claim 25, wherein the key code generator device is part of a set-top box, and wherein the electronic consumer device is a television.

31. (new) The method of claim 25, further comprising:

(e) pressing a key of the remote control device so as to cause the remote control device to transmit the keystroke indicator signal that is received in (a), wherein the pressing causes the electronic consumer device to perform a function associated with the key.

32. (new) The method of claim 31, wherein the function is taken from the group consisting of: power on, power off, channel advance, channel back, volume up, volume down, cursor up, cursor down, cursor right, cursor left, select, play, record, stop, forward, back and pause.

33. (new) The method of claim 25, wherein the key code generated in (b) is part of a codeset, and wherein the codeset is not stored on the remote control device.

34. (new) The method of claim 25, wherein the key code generated in (b) is part of a codeset, and wherein the codeset comprises timing information that describes a digital one and a digital zero.

35. (new) The method of claim 25, wherein the formatting in (c) is performed using a protocol, and wherein the transmitting in (d) is performed via a hardwired connection.

36. (new) A method comprising:

(a) receiving a keystroke indicator signal from a remote control device, wherein the keystroke indicator signal indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indictor signal;

(c) generating a first key code signal by modulating the key code onto a first carrier signal, wherein the first carrier signal is in a radio frequency band;

(d) generating a second key code signal by modulating the key code onto a second carrier signal, wherein the second carrier signal is in an infrared frequency band;

(e) transmitting the first key code signal from the key code generator device to a first electronic consumer device; and

(f) transmitting the second key code signal from the key code generator device to a second electronic consumer device.

37. (new) The method of claim 36, further comprising:

(g) receiving an indication of a type, a brand and a model of the first electronic consumer device, wherein a user of the remote control device uses an on-screen display to generate the indication of the type, the brand and the model of the first electronic consumer device.

38. (new) The method of claim 36, wherein the first key code signal conforms to a first protocol, and wherein the second key code signal conforms to a second protocol.

39. (new) A method comprising:

(a) receiving a keystroke indicator signal from a remote control device, wherein the keystroke indicator signal indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indictor signal;

(c) formatting the key code for transmission and thereby generating a key code signal;

(d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique; and

(e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique.

40. (new) The method of claim 39, wherein the key code signal is transmitted in (d) in the form of a radio frequency transmission, and wherein the key code signal is transmitted in (e) in the form of an infrared frequency transmission.

41. (new) The method of claim 39, wherein the electronic consumer device is not capable of receiving the radio frequency transmission, and wherein the transmitting in (e) is performed after the transmitting in (d).

42. (new) The method of claim 39, wherein the formatting in (c) comprises converting the key code from the key code signal based on the first modulation technique into the key code signal based on the second modulation technique.

43. (new) The method of claim 39, wherein the first modulation technique is performed in a radio frequency band, and wherein the second modulation technique is performed in an infrared frequency band.

44. (new) The method of claim 39, further comprising, before the transmitting in (e):

(f) determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device.

45. (new) The method of claim 39, wherein the formatting in (c) is performed using a first protocol when the key code signal is transmitted using the first modulation technique, and wherein the formatting in (c) is performed using a second protocol when the key code signal is transmitted using the second modulation technique.

46. (new) The method of claim 39, wherein the key code signal is transmitted in (d) via a hardwired connection.

47. (new) The method of claim 39, wherein the key code signal is transmitted in (d) via a wireless connection.

Applicant: Daniel SauFu Mui
Filing Date: May 21, 2011
Docket No.: ZIL-568-2C

REMARKS

In this preliminary amendment of this continuation application, Applicant cancels claims 1-24 of the parent application and presents for examination new claims 25-47. The undersigned may be contacted at (925) 550-5067 concerning this continuation application.

I hereby certify that this correspondence is being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated below and addressed to: Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By Darien K. Wallace
Darien K. Wallace

Express Mail No: EG 421229038 US

Date of Deposit: May 21, 2011

Respectfully submitted,

Darien K. Wallace
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PTO Form 1449

U.S. Department of Commerce, Patent and Trademark Office	
	Filing date: May 21, 2011
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Inventor: Daniel SauFu Mui
	Group Art Unit: 2612
Relaying Key Code Signals Through a Remote Control Device	Examiner name: Vernal U. Brown
Express Mail Receipt No. EG 421229038 US	Attorney Docket No. ZIL-568-2C

U.S. Patent Documents

*Examiner Initial		Number	Date	Applicants	Class	Subclass	Filing Date, If Appropriate
	A	4,005,428	1/25/77	Graham	340	825.75	5/15/1975
	B	5,410,326	4/25/95	Goldstein	348	134	12/4/1992
	C	5,595,342	1/21/97	McNair et al.	236	51	5/24/1994
	D	5,671,267	9/23/97	August et al.	379	61	12/30/1994
	E	5,963,624	10/5/99	Pope	379	110.01	12/5/1997
	F	6,747,568	6/8/04	Teskey	340	825.72	12/19/1997
	G	6,819,259	11/16/04	Yamaguchi	340	825.69	11/20/2001
	H	6,915,109	7/5/05	Wouters et al.	455	45	10/2/2002
	I	7,525,855	4/28/2009	Kagan	365	189.17	6/16/2006
	J	2002/0130803	9/19/02	Conway et al.	341	176	4/14/2001
	K	2005/0151726	7/14/05	Wouters	345	172	9/24/2004

Foreign Patent Documents

							Translation	
		Document Number	Priority Date	Country	Applicant	Pub. Date	Yes	No

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

Examiner	Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

Sheet 1 of 1

PATENT APPLICATION SERIAL NO._____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

05/24/2011 JADD01 00000023 13068820

01 FC:1011		330.00 OP
02 FC:1111		540.00 OP
03 FC:1311		220.00 OP
04 FC:1202		156.00 OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002- 489-267/69033

UTILITY PATENT APPLICATION TRANSMITTAL (New Nonprovisional Application Under 37 CFR § 1.53(b))	Attorney Docket No. ZIL-568-2C

TO THE COMMISSIONER FOR PATENTS:

Attached for filing is a patent application identified as follows:

Inventor: Daniel SauFu Mui
Assignee: UEI Cayman Inc.
Title: "Relaying Key Code Signals Through a Remote Control Device"

( ) Original Patent Application;
(X) Continuing Application (prior applications not abandoned):
(X) Continuation ( ) Divisional ( ) Continuation-in-part (CIP) of application serial number 12/462,526 filed on August 4, 2009, which in turn is a continuation of application serial number 10/737,029 filed on December 16, 2003;
( ) The specification contains a statement claiming the benefit of 35 USC § 119(e);

and including attachments as noted below:

x	This transmittal letter	1	Page Recordation Cover Sheet Assignment #2
21	Pages of Specification	6	Pages Assignment #2 in parent case (signed)
6	Pages of Claims	2	Pages 3.73(b) Statement w/ power of attorney
1	Page Abstract	1	Page Non-Publication Request
4	Pages of Drawings (formal)	1	Page of form PTO-1449 citing 11 references
2	Pages Declaration in parent case (signed)	7	Pages Preliminary Amendment
1	Page Recordation Cover Sheet Assign #1	x	A check for filing fee ($1326.00)
1	Page Assignment #1 in parent case (signed)	x	A return-receipt postcard

CLAIMS AS FILED (after preliminary amendment)				
FOR	NO. FILED	NO. EXTRA	RATE	FEE
Total Claims	23	3	$52.00	$156.00
Independent Claims	3	0	$220.00	$0.00
Basic Filing Fee				$330.00
Utility Search Fee				$540.00
Utility Examination Fee				$220.00
Assignment Recording Fee (2 assignment documents) 2 x $40				$80.00
			Total Filing Fee	$1326.00

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By: Darien K. Wallace
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Express Mail Label No.: EG 421229038 US

Date of Deposit: May 21, 2011

Respectfully submitted,

By: Darien K. Wallace
Darien K. Wallace, Attorney for Applicant
Reg. No. 53,736
Customer No. 47,713

Date: May 21, 2011

Send correspondence to address associated with customer number 47,713

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RELAYING KEY CODE SIGNALS THROUGH A REMOTE CONTROL DEVICE

Daniel SauFu Mui

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application is a continuation of, and claims priority under 35 U.S.C. §120 from, nonprovisional U.S. patent application serial number 12/462,526 entitled "Relaying Key Code Signals Through a Remote Control Device," filed on August 4, 2009, the subject matter of which is incorporated herein by reference. Application serial number 12/462,526, in turn, is a continuation of U.S. patent application serial number 10/737,029 entitled "Relaying Key Code Signals Through a Remote Control Device," now U.S. Patent No. 7,589,642, filed on December 16, 2003, the subject matter of which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present invention relates generally to remote control devices and, more specifically, to relaying key code signals through a remote control device to operate an electronic consumer device.

BACKGROUND

[0003] Most households today possess multiple types of electronic consumer devices, such as televisions, stereo radios, digital video disk players, video cassette recorders, set-top cable television boxes and set-top

satellite boxes. Manufacturers of such electronic devices typically supply a remote control device along with each electronic device. It is, therefore, common for a consumer who has multiple electronic devices to have multiple remote control devices.

[0004] A remote control device typically controls a selected electronic consumer device by transmitting infrared key code signals to the selected electronic consumer device. The infrared signals contain key codes of a codeset associated with the selected electronic consumer device. Each key code corresponds to a function of the selected electronic device, such as power on, power off, volume up, volume down, play, stop, select, channel up, channel down, etc. In order to avoid the situation where a remote control device unintentionally operates an electronic consumer device that is associated with a different remote control device, manufacturers sometimes use distinct codesets for the communication between various electronic consumer devices and their associated remote control devices. The codesets can differ from each other not only by the bit patterns assigned to various functions of the associated electronic consumer device, but also by the timing information that describes how the key codes should be modulated onto carrier signals to generate key code signals.

[0005] Consumers may find it inconvenient to operate their electronic devices using multiple remote control devices. Thus, a consumer may wish to operate multiple electronic consumer devices using a single remote control device. A single remote control device can store many codesets so that the remote control device can control a corresponding large number of different electronic consumer devices.

There are, however, thousands of codesets in use in electronic consumer devices today. Manufacturers of remote control devices, however, may wish to limit the memory on their remote control devices to a size that is insufficient to store the thousands of existing codesets.

[0006] A system is sought for enabling a remote control device to control a selected one of multiple different electronic consumer devices without requiring the codeset associated with the selected electronic consumer device to be stored on the remote control device.

SUMMARY

[0007] A system for relaying a key code through a remote control device to an electronic consumer device allows the electronic consumer device to be controlled without storing the associated codeset on the remote control device. Upon receiving a keystroke indicator signal from a remote control device, a key code generator device, such as a set-top box, identifies the particular codeset usable to communicate with the selected electronic consumer device. The keystroke indicator signal contains an indication of a key on the remote control device that was pressed, which corresponds to a function of the selected electronic consumer device. Using the identified codeset and the indication of the pressed key, the key code generator device generates a key code and modulates that key code onto a radio frequency carrier signal, thereby generating a first key code signal. The remote control device receives the first key code signal from the key code generator device and modulates the key code onto an infrared frequency carrier signal, thereby generating a second key code signal. The remote control device relays the key code

to the selected electronic consumer device in the second key code signal. The key code causes the selected electronic consumer device to perform the desired function. The key code is not stored on the remote control device in a permanent manner, but rather the key code is relayed through the remote control device.

[0008] In another embodiment, a third key code signal (which may, for example, be a radio frequency signal) is communicated directly from the key code generator device to an electronic consumer device. A key code contained in the third key code signal causes the electronic consumer device to perform a desired function.

[0009] In yet another embodiment, the system automatically determines which codeset is usable to communicate with a selected electronic consumer device. The key code generator device sends key codes for one particular function from among a series of codesets one-by-one to the selected electronic consumer device. When the key code from one of the codesets causes the electronic consumer device to perform the desired function, electromagnetic noise is introduced into electrical power wiring through which both the electronic consumer device and the key code generator device receive power. When the key code generator device detects this noise on the electrical power wiring, the key code generator device identifies the codeset corresponding to the last transmitted key code to be the codeset usable to communicate with the selected electronic consumer device.

[0010] Other embodiments and advantages are described in the detailed description below. This summary does not purport to define the invention. The invention is defined by the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The accompanying drawings, where like numerals indicate like components, illustrate embodiments of the invention.

[0012] Figure 1 is a schematic diagram of a system for relaying key code signals through a remote control device.

[0013] Figure 2 is a flowchart of a method for relaying key code signals through a remote control device.

[0014] Figure 3 is an illustration of a key code transmitted within a key code signal.

[0015] Figure 4 is a waveform diagram of a first example of a key code signal transmitted by a remote control device in the system of figure 1.

[0016] Figure 5 is a waveform diagram of a second example of a key code signal transmitted by a remote control device in the system of figure 1.

[0017] Figure 6A is an illustration of a modulated digital zero and digital one within the key code signal of figure 5.

[0018] Figure 6B is a more detailed illustration of a mark of a modulated digital zero within the key code signal of figure 5.

DETAILED DESCRIPTION

[0019] Reference will now be made in detail to some embodiments of the invention, examples of which are illustrated in the accompanying drawings.

[0020] Figure 1 is a diagram of a system 10 for relaying a key code through a remote control device 11 to an electronic consumer device in accordance with the present invention. Figure 2 is a flowchart that illustrates a

method of operation of system 10. System 10 includes a key code generator device 12, remote control device 11, a first electronic consumer device 13 and a second electronic consumer device 14. In this example, second electronic consumer device 14 is a television set.

[0021] In a first step (step 100), key code generator device 12 determines the appropriate codeset that controls the type, brand and model of the particular electronic consumer device that is to be controlled. A user uses remote control device 11 to respond to an on-screen display 15 on the screen of television set 14 to step through a sequence of menu screens to identify the codeset corresponding to the device that is to be controlled. The user does this by identifying, on on-screen display 15, the type, brand and model of the particular electronic consumer device. In this example, the user is identifying first electronic consumer device 13, which is a video cassette recorder (VCR) manufactured by Sony with model number 8000. In figure 1, the user is identifying the device type by highlighting the choice "VCR" on the on-screen display. In another example, subsequent to controlling VCR 13, the user may wish to control television set 14, which is a "Gold" model manufactured by RCA. In that case, the user begins identifying television set 14 by highlighting the choice "TV".

[0022] In the present example, key code generator device 12 is a set-top box. Key code generator device 12 generates the on-screen displays and communicates with television set 14 such that key code generator device 12 identifies one of a plurality of codesets that corresponds to one of the electronic consumer devices identified by the user, such as VCR 13 or television set 14. System 10 uses the

appropriate codeset to enable remote control device 11 to communicate with VCR 13 and television set 14.

[0023] Next (step 101), the user presses a key on remote control device 11. This key is associated with a function that the user wants performed by an electronic consumer device. For example, the function may be to turn on the power of VCR 13. When the user presses the "VCR power-on" key on remote control device 11, remote control device 11 transmits a keystroke indicator signal 16 from a radio frequency (RF) transmitter 17 on remote control device 11. Alternatively, two or more keys on remote control device 11 may be associated with a single function, such as turning on the power of VCR 13. In that case, the user presses a "VCR" key and then a "power-on" key to cause remote control device 11 to transmit keystroke indicator signal 16. Keystroke indicator signal 16 is transmitted as a signal in a radio frequency band to an RF receiver 18 on key code generator device 12.

[0024] There are multiple forms in which an indication of the pressed key, as well as the identity of the electronic consumer device that is to perform the associated function, can be communicated in keystroke indicator signal 16 from remote control device 11 to key code generator device 12. In one embodiment, the indication of the pressed key is a key code comprised of a standardized system code and standardized key data. In the present example, the standardized system code identifies the type of electronic consumer device that is to be controlled, such as a TV, a VCR, a DVD player, a stereo amplifier, a satellite receiver or a cable receiver. The standardized system code and key data are part of a commonly used codeset that is stored on remote control device 11. Remote control device 11 uses

any one of a number of commonly used modulation techniques to modulate the system code and key data to form keystroke indicator signal 16. For example, a microcontroller on remote control device 11 uses timing information associated with the commonly used codeset to generate a pulse width modulated keystroke indicator signal 16.

[0025] In another embodiment, the indication of the pressed key includes a proprietary identification code identifying the pressed key, as well as a proprietary identification code corresponding to the type of the electronic consumer device that is to be controlled. The proprietary identification codes are understood by key code generator device 12, but are not standardized codes that are understood by electronic consumer devices. Remote control device 11 uses any one of a number of commonly used modulation techniques to modulate the proprietary identification codes onto keystroke indicator signal 16.

[0026] Whether remote control device 11 communicates with key code generator device 12 through a standardized codeset or through proprietary identification codes, codes may be included that do not correspond to pressed keys or functions that are to be performed on electronic consumer devices. For example, in response to receiving any signal from remote control device 11, key code generator device 12 may return a code to remote control device 11 causing a light emitting diode (LED) display on remote control device 11 to turn on.

[0027] Next (step 102), key code generator device 12 determines which key code of the codeset previously identified in step 100 corresponds to the pressed key.

[0028] Figure 3 illustrates one example of a key code from a commonly used codeset. The key code is comprised of a

standardized system code and standardized key data. Both the system code and the key data are digital values. The 12-bit key code includes a 4-bit system code [0101] and 8-bit key data [00011100]. In the present example, the key code is the key code in the identified codeset that corresponds to the "VCR power-on" key of remote control device 11.

[0029] Next (step 103), key code generator device 12 modulates the key code for the power-on function of VCR 13 onto a first carrier signal, thereby generating a first key code signal 19. In this example, the first carrier signal is an RF signal. An RF signal for purposes of this patent document is an electromagnetic signal having a frequency between thirty hertz and three hundred gigahertz.

[0030] Figure 4 and figure 5 illustrate key code signal 19 in two specific embodiments. In both embodiments, the key code is transmitted as a stream of digital values 010100011100, where the system code is transmitted first immediately followed by the key data without any place holders between them. The standardized system code determined in step 102 need not identify the brand or model of VCR 13, but only the fact that first electronic consumer device 13 is a VCR. The key code is modulated in step 103 using timing information associated with the codeset for VCR 13. Thus, the particular brand and model of VCR 13 is able to understand the key code modulated using the appropriate timing information.

[0031] In the embodiment of figure 4, key code signal 19 is a 15-bit binary transmission whose bit pattern appears as a universal asynchronous receiver and transmitter (UART) type communication. The binary transmission begins with a start bit and ends with a parity bit and a stop bit. The parity

bit is calculated based on the 12-bit key code within the binary transmission. In this example, the value of the parity bit is a digital zero. An intermediary signal is transmitted over the first carrier signal at an intermediary frequency (for example, 100 kHz) to communicate a digital one. The absence of the intermediary signal indicates a digital zero. The intermediary signal has a lower frequency than the first carrier signal.

[0032] In the embodiment of figure 5, the 12-bit key code is modulated onto key code signal 19 using pulse width modulation. Digital ones and zeros are characterized by pairs of marks and spaces. The period between successive leading edges of the bursts in a mark is the period of an intermediary signal. The intermediary signal has an intermediary frequency. In a space, there are no bursts.

[0033] Figure 6A shows a digital zero and a digital one in key code signal 19 of figure 5 in more detail. A "mark/space" pair represents a digital zero and another "mark/space" pair represents a digital one. The marks and spaces of each pair have predetermined lengths. In the embodiment of figure 5, the mark length of a digital zero is 490 microseconds, and the mark length of a digital one is 3940 microseconds. The space length of a digital zero is 950 microseconds, and the space length of a digital one is 2000 microseconds.

[0034] Figure 6B shows the bursts of the first carrier signal that comprise the intermediary signal in more detail. In the embodiment of figure 5, the bursts that comprise the intermediary signal occur every ten microseconds, resulting in an intermediary frequency of 100 kilohertz. The duty cycle of the intermediary signal is characterized by an "on time" of four microseconds and an

"off time" of six microseconds. There are forty-nine bursts of the carrier signal within each mark length of 490 microseconds.

[0035] Timing information other than that shown in the embodiment of figure 5 can also be used. For example, one common form of pulse width modulation uses an intermediary signal having a frequency of about 38.5 kilohertz. Each period of the intermediary signal has an "on time" of ten microseconds and an "off time" of sixteen microseconds. If such an intermediary signal were used to generate a 490 microsecond mark length of a digital zero shown in figure 6A, there would be 19 bursts of the intermediary signal in the mark. Similarly, if such an intermediary signal were used to generate a 3940 microsecond mark length of a digital one shown in figure 6A, there would be 151 bursts of the intermediary signal in the mark.

[0036] Next (step 104), an RF transmitter 20 of key code generator device 12 transmits first key code signal 19 in the form of an RF transmission to an RF receiver 21 on remote control device 11.

[0037] Next (step 105), remote control device 11 receives first key code signal 19 and relays the key code communicated by first key code signal 19 to VCR 13 in the form of a second key code signal 22. Remote control device 11 is a slave to key code generator device 12. Remote control device 11 relays the key code by receiving first key code signal 19 in RF form and translating the communicated key code so that the key code is modulated onto a second carrier signal resulting in second key code signal 22. In this example, the second carrier signal is an infrared signal with a frequency in the range between three hundred gigahertz and three hundred terahertz.

Second key code signal 22 is transmitted by an IR transmitter 23 on remote control device 11 to VCR 13. In the embodiment of figure 5, key code signal 19 is converted into key code signal 22 by forming the bursts of the intermediary signal using the second carrier signal with an infrared frequency in the place of the first carrier signal with a radio frequency. For both key code signal 19 and key code signal 22, digital ones and digital zeros are modulated using the same timing for "mark/space" pairs. The waveform diagram of key code signal 22 appears the same as the waveform diagram shown in figure 5 for key code signal 19; only the frequency of the carrier signal that forms the bursts is different.

[0038] Next (step 106), second key code signal 22 is received onto electronic consumer device (VCR) 13 by an IR receiver 24.

[0039] Next (step 107), IR receiver 24 on VCR 13 recovers the key code from second key code signal 22. VCR 13 is thereby instructed to perform the function desired by the user. In this example, the function is to power on VCR 13. Other key codes, however, correspond to other functions, such as power off, channel advance, channel back, volume up, volume down, cursor up, cursor down, cursor right, cursor left, select, play, record, stop, forward, rewind and pause.

[0040] In a second example, an electronic consumer device is controlled by an RF key code signal transmitted from key code generator device 12. Subsequent to controlling VCR 13, the user wishes to control second electronic consumer device 14, which is a "Gold" model RCA television set. In the second example, the user uses the on-screen display 15 to identify the type (TV), brand (RCA) and model (Gold) of

second electronic consumer device 14. Key code generator device 12 determines the appropriate codeset that controls television set 14. The user then presses a key on remote control device 11 associated with a function that the user wants performed by television set 14. For example, the function is to advance the channel of television set 14. When the user presses the channel advance key on remote control device 11, an indication of the pressed key is transmitted in an RF keystroke indicator signal from remote control device 11 to key code generator device 12.

[0041] Key code generator device 12 then determines which key code of the identified codeset corresponds to the pressed key. Key code generator device 12 modulates the key code for the channel advance function onto an RF carrier signal, thereby generating a third key code signal 25. Key code generator device 12 uses the same modulation technique to generate both third key code signal 25 and first key code signal 19. Third key code signal 25 is modulated using timing information associated with the codeset that controls RCA Gold television set 14.

[0042] In this second example, television set 14 has an RF receiver 26 and is capable of receiving RF key code signals. RF transmitter 20 of key code generator device 12 transmits third key code signal 25 directly to television set 14. Third key code signal 25 is received onto television set 14 by RF receiver 26, and RF receiver 26 recovers the key code from third key code signal 25. Television set 14 is thereby instructed to advance the channel.

[0043] Although remote control device 11 in the first example stores either a proprietary codeset or a standardized codeset and uses that codeset to generate

keystroke indicator signal 16, remote control device 11 stores only that single codeset. This codeset is the codeset used by key code generator device 12 to receive communications from remote control device 11. Remote control device 11 can therefore be made inexpensively and may contain a relatively small amount of memory. The memory may, for example, be read only memory (ROM) on a microcontroller integrated circuit (for example, a Z8 microcontroller available from Zilog, Inc. of San Jose, CA.)

[0044] Even though remote control device 11 stores only a single codeset, system 10 of figure 1 nevertheless allows remote control device 11 to control the desired electronic consumer device 13, which may use any one of thousands of different codesets. Key code generator device 12 may, for example, include a hard disk or other mass storage device that stores thousands of possible codesets. The user may use remote control device 11 to select any one of those codesets for communication with the particular electronic consumer device 13. In comparison to some conventional systems where codesets are downloaded into a universal remote control device from a personal computer or other device that is not normally part of an entertainment system, system 10 uses preexisting hardware of the entertainment system (such as the on-screen display functionality, data storage capability, and wireless communication ability of the set-top box) to source and identify codesets.

[0045] Although the specific embodiments of figures 1 and 2 are explained above in connection with the codesets being identified to the key code generator device 12 using an on-screen display, the codeset usable to communicate with an

electronic consumer device may be identified to key code generator device 12 in other ways in other embodiments. In one embodiment, for example, the key code generator device includes autoscan functionality. Key code generator device 12 includes an EMI detector 27 that detects electromagnetic interference (EMI) or noise on power cord 28. Power cord 28 is a power cord through which key code generator device 12 receives electrical power from a wall socket 29. Similarly, television set 14 receives power from another wall socket 30 via a power cord 31. VCR 13 receives power from a wall socket 32 via another power cord 33. In accordance with the autoscan functionality, key code generator device 12 identifies the codeset used to communicate with a particular electronic consumer device by generating and transmitting a sequence of key code signals relayed through remote control device 11 to the electronic consumer device to be controlled (in this case VCR 13). Each of these key code signals contains a different key code corresponding to the same desired function on different device types, brands and models.

[0046] In one example, the desired function is the function of powering on VCR 13. The key code generator device 12 sends the power-on key codes for each of a series of codesets one-by-one to VCR 13. When the key code for one of the codesets causes VCR 13 to perform the desired function (in this case, to power on), VCR 13 introduces noise or other electromagnetic interference via cord 33 into wall socket 32. The power terminal within wall socket 32 is connected through wiring 34 to the power terminal in wall socket 29. The noise generated by VCR 13 is therefore communicated through wiring 34, the power terminal of wall socket 29 and power cord 28 to EMI detector 27 on key code

generator device 12. When key code generator device 12 detects the electromagnetic interference on power cord 28, key code generator device 12 automatically identifies the codeset used by VCR 13 as the codeset used to communicate the last key code signal for the power-on function.

[0047] Multiple electronic consumer devices may have the same key data for a particular function, for example, the power-on function. A key code, however, also contains a system code (see figure 3) that corresponds to a particular type of electronic consumer device. For example, the system code used for a television set will typically be different than the system code used for a video cassette recorder. Thus, different device types that use the same key data for the power-on function will not respond to a key code containing an incorrect system code. Each of the power-on key codes transmitted in this example by key code generator device 12 contains the system code for a video cassette recorder, so television set 14 does not recognize the key codes. Because key code generator device 12 is aware of the system code communicated, key code generator device 12 determines that it was VCR 13 that was powered on and not television 14.

[0048] In another example, the codeset usable to communicate with VCR 13 is identified to key code generator device 12 using autoscan functionality that does not involve key code generator device 12 having a specialized EMI detection circuit. In that case, the user may be prompted by successive screens of on screen display 15 to push the power-on key on remote control device 11 multiple times. Each time the power-on key is pressed, keystroke indicator signal 16 communicates this to key code generator device 12. Key code generator device 12 in turn generates

and transmits a key code signal containing a power-on key code using a different codeset. Each key code signal is relayed through remote control device 11 to the particular electronic consumer device to be controlled. One by one the user is prompted to push the power-on key, and key code generator device 12 in turn generates key codes using different codesets until the electronic consumer device performs a desired function. In this case, first electronic consumer device 13 turns on. The user is prompted not to press the power-on key once the user sees the desired function being performed by first electronic consumer device 13. In the present example, light emitting diodes (LEDs) on the face of VCR 13 may be illuminated to indicate to the user that VCR 13 has powered on. When the user stops pressing the power-on key, then the key code generator device 12 identifies the codeset of the last transmitted key code to be the codeset used by the electronic consumer device.

[0049] In another example, the user presses keys on remote control device 11 to communicate to key code generator device 12 a 3-digit codeset identification number identifying the codeset. The user may determine this codeset identification number by looking up the codeset identification number in a booklet supplied along with the electronic consumer device to be controlled. Alternatively, a table of manufacturers, model numbers and their associated codesets may be used to lookup the codeset identification number.

[0050] In an embodiment where key code generator device 12 is a set-top box, the set-top box receives a video input signal 35 from a cable television coaxial cable 36. Video input signal 35 is ultimately delivered to television set

30

14 through cables 37. Coaxial cable 36 is also used to provide networking connectivity between the set-top box and a network 38. Network 38 may, for example, be or include the Internet. A database of codesets 39 is maintained at a remote location. As new electronic consumer devices are introduced onto the market, new codesets may be necessary to communicate with these new devices. So that one such new codeset can be distributed from database of codesets 39 when a new electronic consumer device is introduced into the market, this new codeset is communicated via network 38 and coaxial cable 36 to key code generator device 12. The new codeset is then stored on a mass storage hard disk within the set-top box. In this way, the pre-existing and inexpensive remote control device 11 can be used to control a new electronic consumer device whose required codeset did not exist at the time remote control device 11 and key code generator device 12 were delivered to the user.

[0051] In yet another embodiment, remote control device 11 is a learning remote control device that includes an IR detector 40. In accordance with one method, the learning remote control device 11 is placed so that IR detector 40 can receive an IR transmission from an IR transmitter of another remote control device. Keys corresponding to key codes to be learned are pressed on the other remote control device such that successive key code signals are transmitted from the IR transmitter of the other remote control device to IR detector 40 of the learning remote control device 11. Learning remote control device 11 detects when the envelope of the bursts of the received IR signal changes from low to high and high to low. The time duration between each successive transition is stored such that a key code signal is recorded as timing information

for a series of mark lengths and space lengths. As the various keys of the remote control device to be learned are pressed, learning remote control device 11 records successive strings of timing information. The resulting strings of timing information, once collected on learning remote control device 11, are automatically transmitted from learning remote control device 11 in the form of RF signals to key code generator device 12. Key code generator device 12 in turn communicates the captured strings of timing information through coaxial cable 36 and network 38 to database of codesets 39. Personnel maintaining database of codesets 39 then analyze the timing information and generate a codeset that describes the key codes captured by learning remote control device 11. In this way, a new codeset containing key data, systems codes and timing information is added to database of codesets 39. Rather than storing the information as a new codeset that includes separate key codes and timing information, the information for each keystroke can be stored in database of codesets 39 in the form of interval times.

[0052] A single system 10 is therefore described that can support numerous different types of electronic consumer devices that can use multiple different codesets. The remote control device 11 of the system need not include a large memory and stored many codesets. Rather, the remote control device 11 need only relay individual key codes. Remote control device 11 can therefore be a relatively inexpensive device that includes only a small amount of memory. In addition to requiring only a small amount of memory, the very same remote control device 11 can control an electronic consumer device that uses a codeset or protocol that was not in existence at the time the remote

control device 11 was delivered to the user. The amount of writable memory (for example, random access memory (RAM) or flash memory) on the remote control device 11 may be so little that it may not be adequate to store a conventional codeset. The bulk of the memory of the remote control device 11 may be relatively inexpensive mask-programmable read only memory (ROM). By reducing the amount of writable memory on remote control device 11, the cost of remote control device 11 is reduced.

[0053] Although the present invention has been described in connection with certain specific embodiments for instructional purposes, the present invention is not limited thereto. Although the method is described above in connection with an inexpensive remote control device whose primary purpose is to control an electronic consumer device, the method can be employed in connection with other types of devices. Due to the limited amount of memory and intelligence required of the remote control device in the present method, the functionality of remote control device 11 can be incorporated into an RF-enabled device (such as a cell phone or RF-enabled personal digital assistant (PDA) or RF-enabled wrist watch or RF-enabled keyboard) without significantly increasing the cost of the device. The first carrier signal used to communicate between the remote control device and the key code generator device need not be an RF signal, and the second carrier signal used to communicate between the remote control device and the electronic consumer device need not be an IR signal. Both the first and second carrier signals can be the same type of signals, for example IR signals. The key code generator device can transmit key codes to the electronic consumer device to be controlled via a hardwired connection rather

than a wireless link. The type of key code signal relayed through the remote control device is not limited to any particular protocol.

[0054] Although key code generator device 12 is a set-top box in the embodiment of figure 1 above, in other embodiments the key code generator device 12 is another type of electronic consumer device such as, for example, a television, a stereo radio, a digital video disk player, a video cassette recorder, a personal computer, a set-top cable television box or a set-top satellite box. Although the keystroke indicator signal can be an indication of a pressed key where there is a one-to-one relationship between the key and a function to be performed, in other embodiments a keystroke indicator signal indicates a selected function that is not associated with a specific key on the remote control device. For example, a function can be selected choosing a function from a menu that is displayed on the remote control device. Accordingly, various modifications, adaptations, and combinations of various features of the described embodiments can be practiced without departing from the scope of the invention as set forth in the claims.

CLAIMS

What is claimed is:

1. A method comprising:

(a) receiving a keystroke indicator signal from a remote control device;

(b) generating a key code within a key code generator device;

(c) modulating said key code onto a carrier signal, thereby generating a key code signal; and

(d) transmitting said key code signal from said key code generator device.

2. The method of Claim 1, wherein said key code signal is transmitted in (d) from said key code generator device to said remote control device.

3. The method of Claim 1, wherein said key code signal is transmitted in (d) from said key code generator device to an electronic consumer device.

4. The method of Claim 1, wherein said key code consists of a binary number.

5. The method of Claim 1, wherein said key code comprises a binary number and timing information, and wherein said timing information defines how said binary number is modulated in (c) onto said carrier signal.

6. The method of Claim 1, further comprising:

(e) pressing a power-on key of said remote control device causing said remote control device to transmit said keystroke indicator signal that is received in (a), wherein said key code signal transmitted in (d) is received onto an electronic consumer device, and wherein said pressing in (e) causes said electronic consumer device to turn on.

7. The method of Claim 1, wherein said carrier signal is in a radio frequency band, wherein said key code signal is received by said remote control device, and wherein said method further comprises:

(e) modulating said key code onto a second carrier signal, thereby generating a second key code signal, said modulating being performed on said remote control device wherein said second carrier signal is in an infrared frequency band; and

(f) transmitting said second key code signal from said remote control device to an electronic consumer device.

8. The method of Claim 7, further comprising:

(g) pressing a power-on key of said remote control device causing said remote control device to transmit said keystroke indicator signal that is received in (a), wherein the pressing in (g) causes said electronic consumer device to turn on.

9. The method of Claim 1, wherein said key code generated in (b) is part of a codeset, and wherein said remote control device does not store said codeset.

10. The method of Claim 9, wherein said codeset comprises timing information and a plurality of key codes, and wherein said timing information describes a digital one and a digital zero.

11. The method of Claim 1, wherein a codeset comprises a plurality of key codes, each one of said plurality of key codes corresponding to a function of an electronic consumer device, and wherein no more than a single one of said plurality of key codes is present on said remote control device at any given time.

12. The method of Claim 11, wherein said function of said electronic consumer device is taken from the group consisting of: power on, power off, channel advance, channel back, volume up, volume down, cursor up, cursor down, cursor right, cursor left, select, play, record, stop, forward, back and pause.

13. A device comprising:

a receiver that receives a first key code signal, wherein said first key code signal is generated by modulating a key code onto a first carrier signal, said first carrier signal falling within a radio frequency band;

a transmitter that transmits a second key code signal, wherein said second key code signal is generated by modulating said key code onto a second carrier signal, said second carrier signal falling within an infrared frequency band; and

a keypad that includes a key that corresponds to said key code, wherein said key code corresponds to a function of an electronic consumer device.

14. The device of Claim 13, wherein said key code corresponds to a second function of a second electronic consumer device, as well as to said function of said electronic consumer device.

15. The device of Claim 14, wherein said transmitter transmits a third key code signal, and wherein said third key code signal is generated by modulating said key code onto a third carrier signal.

16. The device of Claim 14, wherein said key code comprises a first binary number and a second binary number, said first binary number corresponding to said function, and said second binary number corresponding to said second function.

17. The device of Claim 13, wherein said keypad includes a second key that corresponds to a second key code, wherein a third key code signal is generated by modulating said second key code onto a third carrier signal, wherein said third key code signal is received by said receiver, and wherein both said first key code and said second key code are not both stored in said device at the same time.

18. The device of Claim 13, wherein a codeset comprises timing information and a plurality of key codes, wherein each of said plurality of key codes corresponds to a different function of said electronic consumer device, wherein said key code is a binary number, and wherein said timing information defines how said binary number is modulated onto said first carrier signal.

19. A system comprising:

a key code generator device that generates a first key code and a second key code, wherein a codeset is stored on said key code generator device, said codeset including said first key code and said second key code, wherein said first key code corresponds to a selected function of a first electronic consumer device, and wherein said second key code corresponds to said selected function of a second electronic consumer device; and

means for relaying said first key code and said second key code from said key code generator device to said first electronic consumer device and to said second electronic consumer device without simultaneously storing both said first key code and said second key code on said means.

20. The system of Claim 19, wherein said selected function is taken from the group consisting of: power on, power off, channel advance, channel back, volume up, volume down, cursor up, cursor down, cursor right, cursor left, select, play, record, stop, forward, back and pause.

21. The system of Claim 19, wherein said selected function is power on, and wherein said system automatically determines when said first electronic consumer device powers on.

22. A remote control device, comprising:

an RF receiver;

an IR transmitter; and

means for receiving a key code from said RF receiver and for sending said key code to said IR transmitter such

that said key code is modulated onto an IR carrier signal, said IR carrier signal with said key code modulated thereon being transmitted from said remote control device by said IR transmitter.

23. The remote control device of Claim 22, wherein said key code is not stored on said remote control device immediately prior to said means receiving the key code.

24. The remote control device of Claim 22, wherein said means is a microcontroller.

RELAYING KEY CODE SIGNALS THROUGH A REMOTE CONTROL DEVICE

Daniel SauFu Mui

ABSTRACT

Upon receiving a keystroke indicator signal from a remote control device, a key code generator device identifies a codeset usable to communicate with a selected consumer device. The keystroke indicator signal contains an indication of a pressed key, which corresponds to a function of the selected consumer device. Using the identified codeset and the key indication, the key code generator device generates a key code and modulates that key code onto a radio frequency carrier signal, thereby generating a first key code signal. The remote control device receives the first key code signal from the key code generator device and modulates the key code onto an infrared frequency carrier signal, thereby generating a second key code signal. The remote control device relays the key code to the selected consumer device in the second key code signal. The key code causes the selected consumer device to perform the desired function.

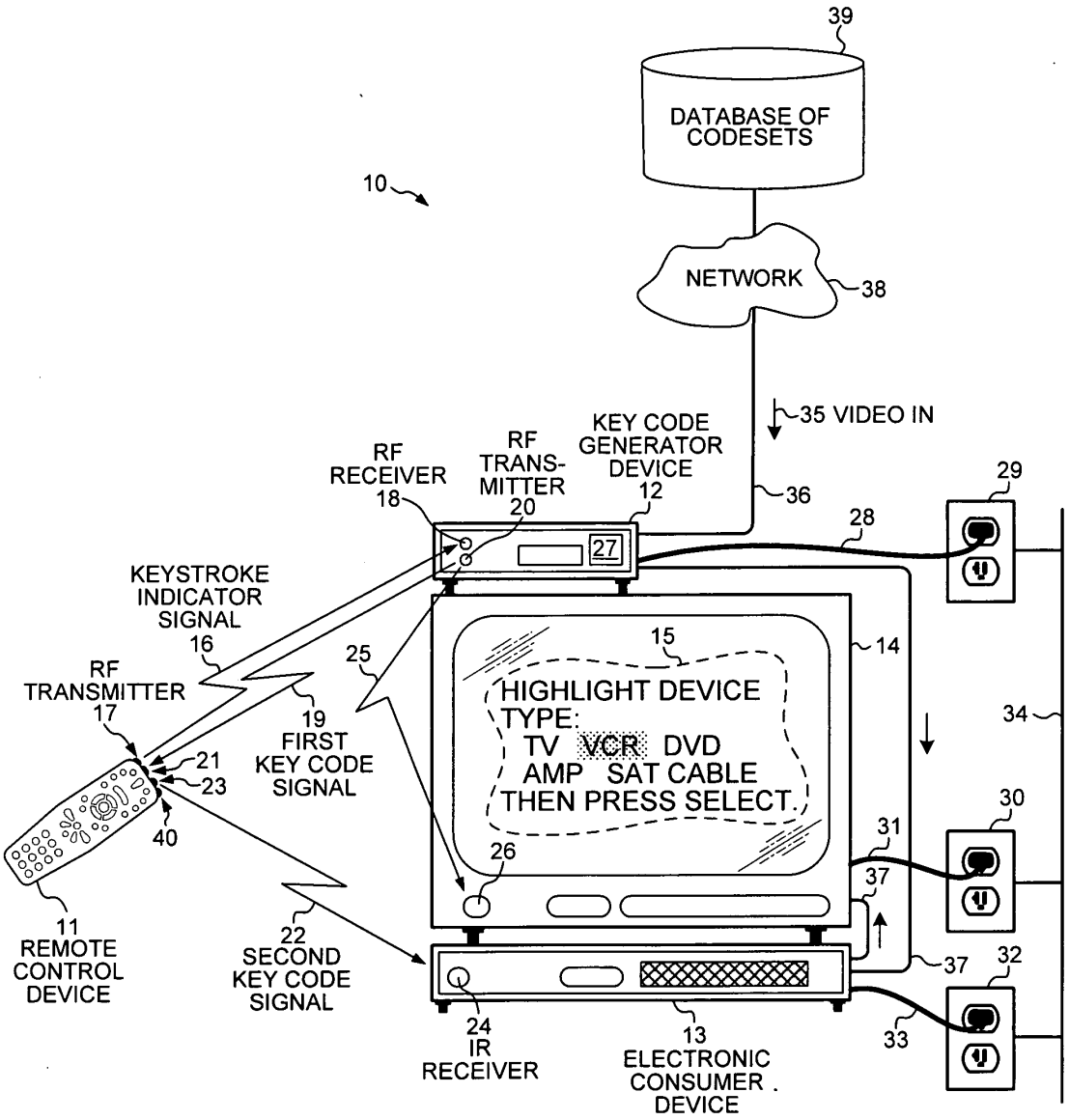


FIG. 1

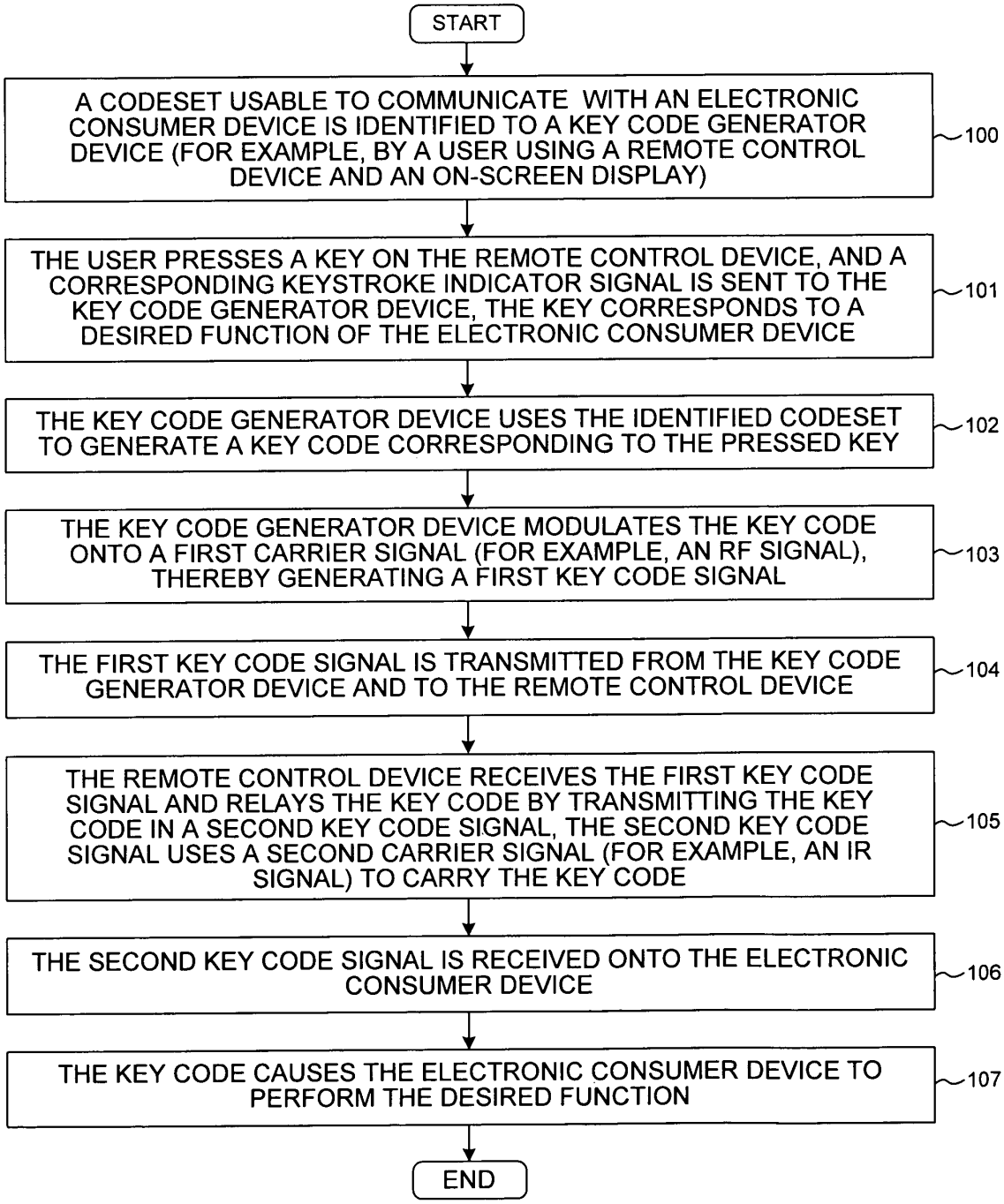
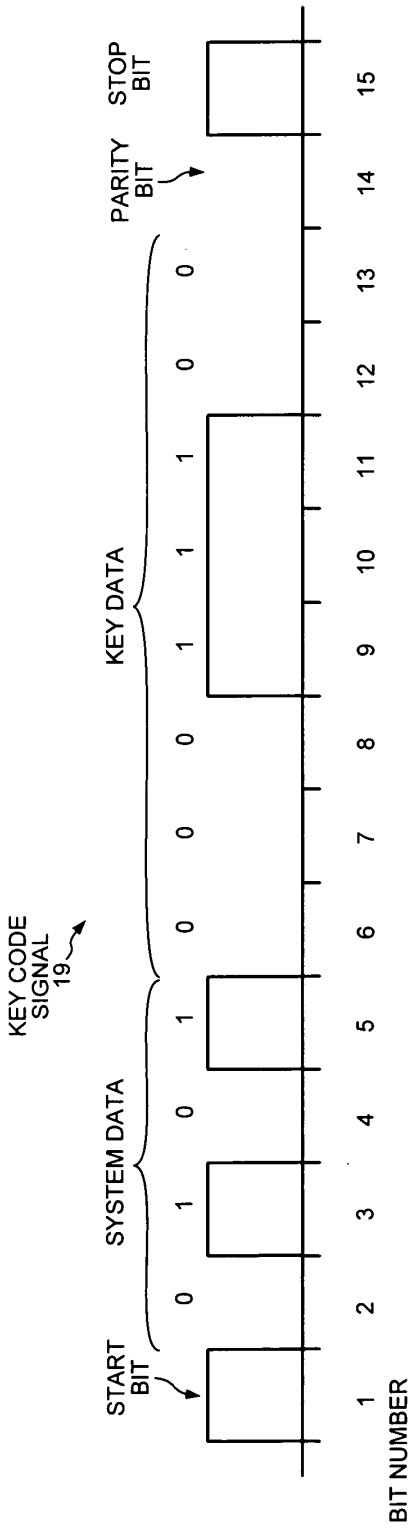
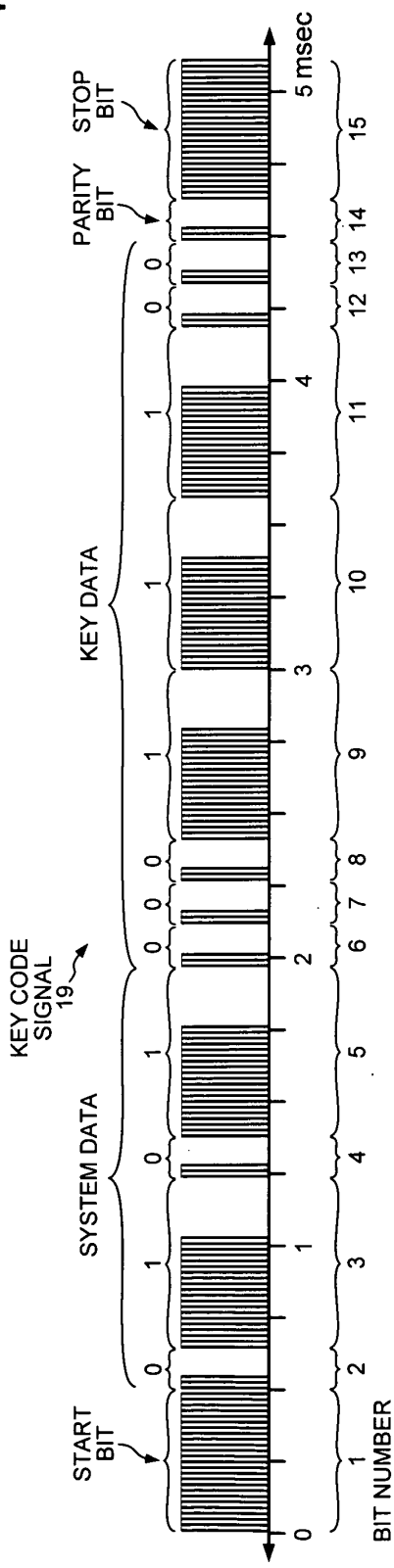


FIG. 2



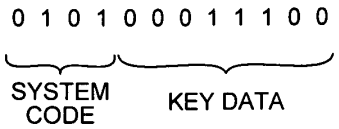
BINARY TRANSMISSION

FIG. 4



PULSE WIDTH MODULATION

FIG. 5



KEY CODE
FIG. 3

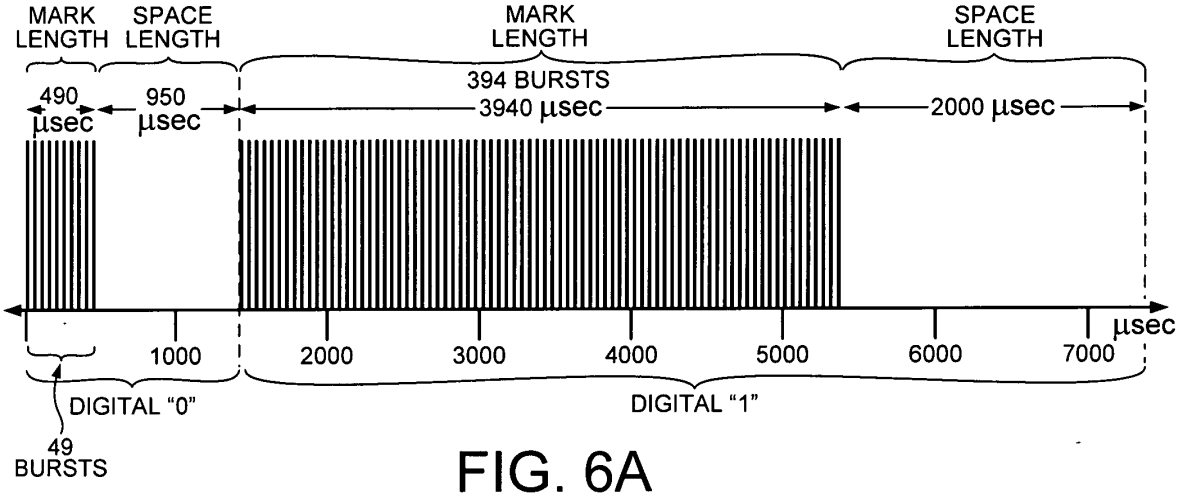


FIG. 6A

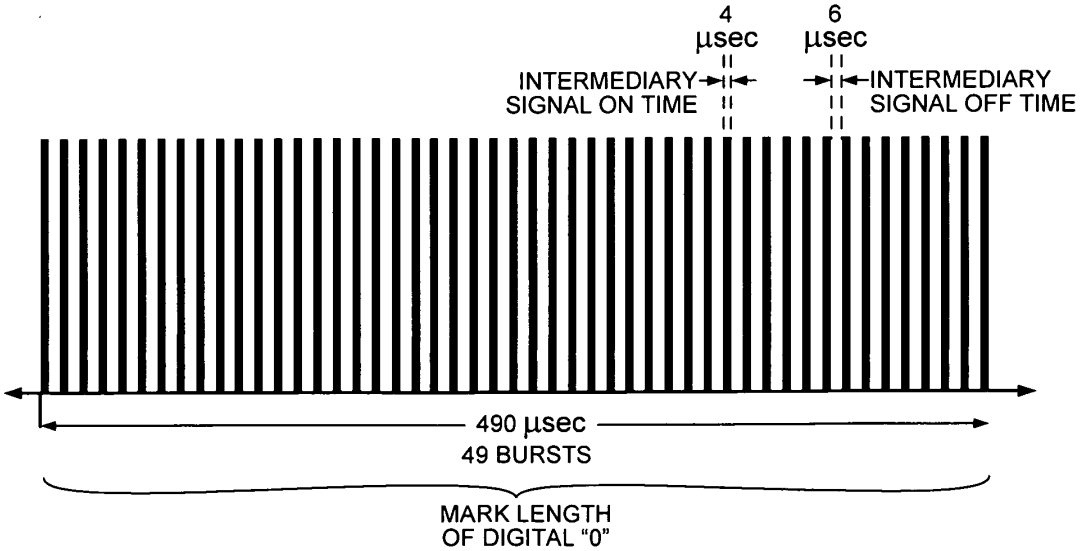


FIG. 6B

ATTORNEY DOCKET NO. ZIL-568

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post-office address, and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below), or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought by way of the application entitled:

"RELAYING KEY CODE SIGNALS THROUGH A REMOTE CONTROL DEVICE"

which (check)
- _X_ is attached hereto.
- ____ and is amended by the Preliminary Amendment attached hereto.
- ____ was filed on _____ as Application Serial No. _____.
- ____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understood the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR 1.56.

Foreign Application(s) and/or Claim of Foreign Priority

I hereby claim foreign priority benefits under Title 35, United States Code Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate, or any PCT international application(s) designating at least one country other than the United States of America listed below, and have also identified below any foreign application(s) for patent or inventor's certificate or an PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) on which priority is claimed:

APPLICATION NUMBER	COUNTRY	DAY/MONTH/YEAR FILED	PRIORITY CLAIMED UNDER 35 U.S.C. 119
N/A			YES:___ NO:___
			YES:___ NO:___

Provisional Application

I hereby claim the benefit under Title 35, United States Code Section 119(e) of any United States provisional application(s) listed below:

APPLICATION SERIAL NUMBER	FILING DATE
N/A	

U.S. Priority Claim

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) or PCT international application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application(s) in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application:

APPLICATION SERIAL NUMBER	FILING DATE	STATUS (patented/pending/abandoned)
N/A		

ATTORNEY DOCKET NO. ZIL-568

POWER OF ATTORNEY:
As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) listed below to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

T. Lester Wallace, Reg. No. 34,748
Darien K. Wallace, Reg. No. 53,736

Send Correspondence to:	Direct Telephone Calls To:
Silicon Edge Law Group LLP **Attn: T. Lester Wallace** **6601 Koll Center Parkway, Suite 245** **Pleasanton, CA 94566**	**Lester Wallace** **Tel: (925) 621-2115** **Fax: (925) 621-2119**

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Inventor: Daniel SauFu Mui **Citizenship:** Singapore

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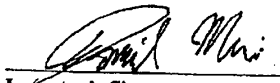

Inventor's Signature

12/15/2003.
Date

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/068,820

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	330
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	540
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	220
TOTAL CLAIMS (37 CFR 1.16(i))	23 minus 20 =	* 3			OR	x 52 =	156
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 220 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $270 ($135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1246

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/068,820	05/21/2011	2612	1246	ZIL-568-2C	23	3

CONFIRMATION NO. 7302

47713
IMPERIUM PATENT WORKS
P.O. BOX 607
Pleasanton, CA 94566

FILING RECEIPT

OC000000048168328

Date Mailed: 06/14/2011

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Daniel SauFu Mui, San Jose, CA;

Assignment For Published Patent Application

UEI Cayman Inc.

Power of Attorney: The patent practitioners associated with Customer Number 47713

Domestic Priority data as claimed by applicant

This application is a CON of 12/462,526 08/04/2009
which is a CON of 10/737,029 12/16/2003 PAT 7,589,642

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)

If Required, Foreign Filing License Granted: 06/13/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/068,820**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

Title

Relaying key code signals through a remote control device

Preliminary Class

340

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C

CONFIRMATION NO. 7302

47713
IMPERIUM PATENT WORKS
P.O. BOX 607
Pleasanton, CA 94566

POA ACCEPTANCE LETTER

OC000000048168203

Date Mailed: 06/14/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/21/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/bphe/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C	7302

47713 7590 11/03/2011

IMPERIUM PATENT WORKS
P.O. BOX 607
Pleasanton, CA 94566

EXAMINER	
BROWN, VERNAL U	
ART UNIT	PAPER NUMBER
2612	
MAIL DATE	DELIVERY MODE
11/03/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	Application No.	Applicant(s)	
	13/068,820	MUI, DANIEL SAUFU	
	Examiner	Art Unit	
	VERNAL BROWN	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 May 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *25-47* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *25-47* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *21 May 2011* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The application of Daniel Mui for Relaying Key Code Signals Through a Remote Control Device filed 5/21/11 has been examined. Claims 25-47 are pending.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 25 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 7589642. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 2 of the instant application recites all the limitation of claim 2 of US Patent 7589642 except for the modulation of the key code signal for transmission. Claim 25 recites the broader limitation of formatting the key code signal for transmission and the examiner considers modulating the key code signal for transmission as a means of formatting the key code for transmission.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 25, 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Graham US Patent 4005428.

Regarding claim 25, Pope teaches transmitting appliance control codes (i.e., keystroke indicator) from handset 10, 50 (i.e., remote control) to base unit 12 (i.e., key code generator). The base unit (12) which the examiner considers as the key code generator therefore receives the keystroke indicator indicating a key on the remote control. Pope teaches generating a key code within a key code generator device using the keystroke indicator signal by the base

unit processor retrieving an infrared control code from memory (86) base on the appliance control code (keystroke indicator signal) and transmitting the key code from the key code generator device to the appliance (col. 3 lines 35-40). Pope is however silent on teaching modulating the key code onto a carrier signal. Graham in an analogous art discloses modulating a digital code or binary code onto a carrier signal (col. 2 lines 7-21). Graham describes that doing so offers the advantages of precluding unauthorized or accidental activation of a control associated with the receiving means and provides an exceptional degree of security and privacy (abstract).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the method of Pope to include modulating the key code onto a carrier signal since doing so offers the advantages of precluding unauthorized or accidental activation of a control associated with the receiving means and provides an exceptional degree security and privacy.

Regarding claim 27, Pope teaches the key code signal is transmitted via wireless connection (figure 1).

Regarding claim 28, Pope teaches the key the code is indicated by low and high (col. 3 lines 45-47) implying the key code signal includes ones and zeroes.

Regarding claims 29-30, Pope teaches the key code generator (12) is part of a television and a set top box because it is used to transmit control code to the television and set top box (col. 3 lines 35-40).

Regarding claim 31, Pope teaches pressing a key of the remote control device so as to cause the remote control device to transmit the keystroke indicator and the pressing causes the device to perform a function associated with the key (col. 3 lines 35-40).

Regarding claim 32, Pope teaches the key code signal causes the consumer device to perform volume control (col. 1 lines 51-63).

Regarding claim 33, Pope teaches the code generated by the code generator 12 is transmitted to the appliances (col. 3 lines 36-40). The code generated by the code generator is not store in the remote control because it is transmitted to the appliances.

Claims 26 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Graham US Patent 4005428 and further in view of Autry et al. US Patent 5724106.

Regarding claims 26 and 35, Pope in view of Graham is silent on teaching the key code signal is transmitted by hardwired connection. Autry et al. in an analogous art teaches transmitting remote control signal over hardwired means as an alternative to the use of wireless means (col. 6 lines 7-15).

It would have been obvious to one of ordinary skill in the art to modify the system of Pope in view of Graham as disclosed by Autry et al. because the system of Pope in view of Graham transmit signal from the remote control using wireless means and wireless means represents an alternative to the wired means.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Graham US Patent 4005428 and further in view of Teskey US Patent 6747568.

Regarding claim 34, Pope teaches generating a key code for controlling the consumer appliances (col. 3 lines 35-40) but is silent on teaching the key code comprises timing information defining the binary number is modulated. Teskey in an art related remote control system teaches the format of the remote control signal having the necessary timing and modulation information (col. 3 line 60-col. 4 line 8).

It would have been obvious to one of ordinary skill in the art for the key code to include comprises timing information defining the binary number is modulated in Pope in view of Graham because the timing information defining the binary number is modulated represent information regarding the format of the remote control signal that enables the decoding and demodulating of the receive key code signals.

Claims 36, 38-45, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Grube et al. US Patent 5201067 and further in view of Graham US Patent 4005428

Regarding claims 36, 38-45, Pope teaches transmitting appliance control codes (i.e., keystroke
indicator) from handset 10, 50 (i.e., remote control) to base unit 12 (i.e., key code generator). The base unit (12) which the examiner considers as the key code generator therefore receives the keystroke indicator indicating a key on the remote control. Pope teaches generating

a key code within a key code generator device using the keystroke indicator signal by the base unit processor retrieving an infrared control code from memory (86) base on the appliance control code (keystroke indicator signal) and transmitting the key code from the key code generator device to the appliance (col. 3 lines 35-40). Pope is silent on teaching modulating a key code signal unto a first radio frequency carrier signal and a modulating a second key code signal onto a radio frequency signal. Grube et al. in an analogous art teaches modulating a first key code signal unto an infrared signal (col. 4 lines 9-16) and transmitting a second key code unto radio frequency carrier signal (col. 4 lines 17-24) but is not explicit in teaching modulating the second key code signal onto a RF carrier frequency. Graham in an analogous art discloses modulating a

digital code or binary code onto a carrier signal (col. 2 lines 7-21).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the method of Pope as disclosed by Grube et al. in view of Graham because having a radio frequency transmitter and an infrared transmitter on the remote control provide for a more versatile remote control for controlling devices of different interfaces and modulating the key code onto a carrier signal offers the advantages of precluding unauthorized or accidental activation of a control associated with the receiving means and provides an exceptional degree security and privacy.

Regarding claim 47, Pope teaches the key code signal is transmitted via wireless connection (figure 1).

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Grube et al. US Patent 5201067 in view of Graham US Patent 4005428 and further in view of Chiloyan et al. US Patent 6008735.

Regarding claim 37, Pope in view of Grube et al. is silent on teaching receiving an indication of a type, a brand and a model of the first electronic consumer device and the user use a on screen display to generate an indication of the type, the brand and model number. Chiloyan et al. in an analogous art teaches receiving an indication of a type, a brand and a model of the first electronic consumer device (col. 1 lines 54-65) and the user use a on screen display to generate an indication of the type, the brand and model number (col. 6 lines 17-32).

It would have been obvious to one of ordinary skill in the art to modify the system of Pope in view of Grube et al. as disclosed by Chiloyan et al. because allowing the user to input the a type, a brand and a model of the first electronic consumer device allows the remote control to be configured for controlling a particular device and the on-screen display provide for a more friendlier user interface.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Grube et al. US Patent 5201067 in view of Graham US Patent 4005428 and further in view of Autry et al. US Patent 5724106.

Regarding claim 46, Pope in view of Grube is silent on teaching the key code signal is transmitted by hardwired connection. Autry et al. in an analogous art teaches transmitting remote control signal over hardwired means as an alternative to the use of wireless means (col. 6 lines 7-15).

It would have been obvious to one of ordinary skill in the art to modify the system of Pope in view of Grube et al. as disclosed by Autry et al. because the system of Pope in view of Grube transmit signal from the remote control using wireless means and wireless means represents an alternative to the wired means.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VERNAL BROWN whose telephone number is (571)272-3060. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on 571-272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vernal U Brown/
Primary Examiner, Art Unit 2612

Notice of References Cited	Application/Control No. 13/068,820	Applicant(s)/Patent Under Reexamination MUI, DANIEL SAUFU	
	Examiner VERNAL BROWN	Art Unit 2612	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,008,735	12-1999	Chiloyan et al.	340/12.24
*	B	US-5,201,067	04-1993	Grube et al.	455/556.1
*	C	US-5,724,106	03-1998	Autry et al.	348/734
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	Art Unit
	VERNAL BROWN	2612

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	10/31/2011								
	1	-								
	2	-								
	3	-								
	4	-								
	5	-								
	6	-								
	7	-								
	8	-								
	9	-								
	10	-								
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	21	-								
	22	-								
	23	-								
	24	-								
	25	✓								
	26	✓								
	27	✓								
	28	✓								
	29	✓								
	30	✓								
	31	✓								
	32	✓								
	33	✓								
	34	✓								
	35	✓								
	36	✓								

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	Art Unit
	VERNAL BROWN	2612

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	10/31/2011								
	37	✓								
	38	✓								
	39	✓								
	40	✓								
	41	✓								
	42	✓								
	43	✓								
	44	✓								
	45	✓								
	46	✓								
	47	✓								

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /VB/

PTO Form 1449

U.S. Department of Commerce, Patent and Trademark Office	
	Filing date: May 21, 2011
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Inventor: Daniel SauFu Mui
	Group Art Unit: 2612
Relaying Key Code Signals Through a Remote Control Device	Examiner name: Vernal U. Brown
Express Mail Receipt No. EG 421229038 US	Attorney Docket No. ZIL-568-2C

U.S. Patent Documents

*Examiner Initial		Number	Date	Applicants	Class	Subclass	Filing Date, If Appropriate
	A	4,005,428	1/25/77	Graham	340	825.75	5/15/1975
	B	5,410,326	4/25/95	Goldstein	348	134	12/4/1992
	C	5,595,342	1/21/97	McNair et al.	236	51	5/24/1994
	D	5,671,267	9/23/97	August et al.	379	61	12/30/1994
	E	5,963,624	10/5/99	Pope	379	110.01	12/5/1997
	F	6,747,568	6/8/04	Teskey	340	825.72	12/19/1997
	G	6,819,259	11/16/04	Yamaguchi	340	825.69	11/20/2001
	H	6,915,109	7/5/05	Wouters et al.	455	45	10/2/2002
	I	7,525,855	4/28/2009	Kagan	365	189.17	6/16/2006
	J	2002/0130803	9/19/02	Conway et al.	341	176	4/14/2001
	K	2005/0151726	7/14/05	Wouters	345	172	9/24/2004

Foreign Patent Documents

							Translation	
		Document Number	Priority Date	Country	Applicant	Pub. Date	Yes	No

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

Examiner /Vernal Brown/	Date Considered 10/31/2011

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

Sheet 1 of 1

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	Art Unit
	VERNAL BROWN	2612

SEARCHED			
Class	Subclass	Date	Examiner
340	13.24	10/31/11	VB

SEARCH NOTES		
Search Notes	Date	Examiner

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

	/VERNAL BROWN/ Primary Examiner.Art Unit 2612

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Daniel SauFu Mui	
Assignee:	UEI Cayman Inc.	
Title:	"Relaying Key Code Signals Through a Remote Control Device"	
Appl. No.:	13/068,820	Filing Date: May 21, 2011
Examiner:	Vernal U. Brown	Art Unit: 2612
Docket No.:	ZIL-568-2C	Confirmation No.: 7302

January 23, 2012

Mail Stop Amendment
COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Dear Sir:

In response to the non-final Office action dated November 3, 2011 ("Office Action"), Applicant responds as follows and requests the examiner to amend the above-identified application as follows.

There are no amendments to the specification in this Amendment.

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this Amendment.

There are no amendments to the drawings in this Amendment.

The **Remarks** begin on page 7 of this Amendment.

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Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

Claims 1 – 24 (canceled)

25. (currently amended) A method comprising:

(a) receiving a keystroke indicator ~~signal~~ from a remote control device, wherein the keystroke indicator ~~signal~~ indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indictor ~~signal~~;

(c) formatting the key code for transmission and thereby generating a key code signal; and

(d) transmitting the key code signal from the key code generator device to an electronic consumer device.

26. (previously presented) The method of claim 25, wherein the key code signal is transmitted in (d) via a hardwired connection.

27. (previously presented) The method of claim 25, wherein the key code signal is transmitted in (d) via a wireless connection.

28. (previously presented) The method of claim 25, wherein the formatting in (c) comprises converting the key code into the key code signal by forming bursts of digital ones and zeros.

29. (previously presented) The method of claim 25, wherein the key code generator device is part of a second electronic consumer device taken from the group consisting of: a television, a stereo radio, a digital video disk player, a video cassette recorder, a personal computer, a set-top cable television box and a set-top satellite box.

30. (previously presented) The method of claim 25, wherein the key code generator device is part of a set-top box, and wherein the electronic consumer device is a television.

31. (currently amended) The method of claim 25, further comprising:

(e) pressing a key of the remote control device so as to cause the remote control device to transmit ~~the~~a keystroke indicator signal containing the keystroke indicator that is received in (a), wherein the pressing causes the electronic consumer device to perform a function associated with the key.

32. (previously presented) The method of claim 31, wherein the function is taken from the group consisting of: power on, power off, channel advance, channel back, volume up, volume down, cursor up, cursor down, cursor right, cursor left, select, play, record, stop, forward, back and pause.

33. (previously presented) The method of claim 25, wherein the key code generated in (b) is part of a codeset, and wherein the codeset is not stored on the remote control device.

34. (previously presented) The method of claim 25, wherein the key code generated in (b) is part of a codeset, and wherein the codeset comprises timing information that describes a digital one and a digital zero.

35. (previously presented) The method of claim 25, wherein the formatting in (c) is performed using a protocol, and wherein the transmitting in (d) is performed via a hardwired connection.

36. (currently amended) A method comprising:

(a) receiving a keystroke indicator ~~signal~~ from a remote control device, wherein the keystroke indicator ~~signal~~ indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indicator~~indictor signal~~;

(c) generating a first key code signal by modulating the key code onto a first carrier signal, wherein the first carrier signal is in a radio frequency band;

(d) generating a second key code signal by modulating the key code onto a second carrier signal, wherein the second carrier signal is in an infrared frequency band;

(e) transmitting the first key code signal from the key code generator device to a first electronic consumer device; and

(f) transmitting the second key code signal from the key code generator device to a second electronic consumer device.

37. (previously presented) The method of claim 36, further comprising:

(g) receiving an indication of a type, a brand and a model of the first electronic consumer device, wherein a user of the remote control device uses an on-screen display to generate the indication of the type, the brand and the model of the first electronic consumer device.

38. (previously presented) The method of claim 36, wherein the first key code signal conforms to a first protocol, and wherein the second key code signal conforms to a second protocol.

39. (currently amended) A method comprising:

(a) receiving a keystroke indicator ~~signal~~ from a remote control device, wherein the keystroke indicator ~~signal~~ indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indicator~~indictor signal~~;

(c) formatting the key code for transmission and thereby generating a key code signal;

(d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique; and

(e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique.

40. (previously presented) The method of claim 39, wherein the key code signal is transmitted in (d) in the form of a radio frequency transmission, and wherein the key code signal is transmitted in (e) in the form of an infrared frequency transmission.

41. (currently amended) The method of claim [[39]]40, wherein the electronic consumer device is not capable of receiving the radio frequency transmission, and wherein the transmitting in (e) is performed after the transmitting in (d).

42. (previously presented) The method of claim 39, wherein the formatting in (c) comprises converting the key code from the key code signal based on the first modulation technique into the key code signal based on the second modulation technique.

43. (previously presented) The method of claim 39, wherein the first modulation technique is performed in a radio frequency band, and wherein the second modulation technique is performed in an infrared frequency band.

44. (previously presented) The method of claim 39, further comprising, before the transmitting in (e):

(f) determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device.

45. (previously presented) The method of claim 39, wherein the formatting in (c) is performed using a first protocol when the key code signal is transmitted using the first modulation technique, and wherein the formatting in (c) is performed using a second protocol when the key code signal is transmitted using the second modulation technique.

46. (previously presented) The method of claim 39, wherein the key code signal is transmitted in (d) via a hardwired connection.

47. (previously presented) The method of claim 39, wherein the key code signal is transmitted in (d) via a wireless connection.

48. (new) The method of claim 25, wherein the keystroke indicator is not a code that is understood by the electronic consumer device.

49. (new) The method of claim 39, wherein the keystroke indicator is not a code that is understood by the electronic consumer device.

REMARKS

Before entry of this amendment, claims 25-47 were pending. In the Office Action, claims 25-47 were rejected. In the present amendment, claims 25, 31, 36, 39 and 41 are amended, and claims 48-49 are added. After entry of the amendment, claims 25-49 are pending.

I. Double-patenting rejection

Claim 25 is rejected under the doctrine of obviousness-type double patenting over claim 2 of U.S. Patent No. 7,589,642. (Office Action, p. 3, lines 4-5) Applicant submits herewith a terminal disclaimer of the above-referenced patent application over U.S. Patent No. 7,589,642 in order to overcome the double-patenting rejection. A check accompanies this amendment which includes the $160.00 statutory disclaimer fee under 37 CFR 120(d) for the terminal disclaimer. Withdrawal of the double-patenting rejection is respectfully requested.

II. Claims 25 and 27-33

Claims 25 and 27-33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope (U.S. Pat. No. 5,963,624) in view of Graham (U.S. Pat. No. 4,005,428) (Office Action, p. 3, lines 19-20).

A. Independent claim 25

Claim 25 is similar to allowed claim 1 of U.S. Pat. No. 7,589,642. Claim 25 is reproduced below to show the changes compared to claim 1 of U.S. Pat. No. 7,589,642.

25. A method comprising:

(a) receiving a keystroke indicator ~~signal~~ from a remote control device, wherein the keystroke indicator ~~signal~~ indicates a key on ~~said~~the remote

control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indictor ~~signal~~;

(c) ~~modulating said~~formatting the key code ~~onto a carrier signal,~~for transmission and thereby generating a key code signal; and

(d) transmitting ~~said~~the key code signal from ~~said~~the key code generator device to ~~said remote control device~~an electronic consumer device.

Claim 1 of the '642 Patent was allowed over Pope in view of Graham. The changes in claim 25 as compared to claim 1 of the '642 Patent do not negate the reasons why claim 1 of the '642 Patent was allowable over Pope and Graham.

In the appeal of a rejection of a prior version of claim 1 of the '642 Patent, the Board of Patent Appeals and Interferences ("Board") raised its own rejection of the prior version of claim 1 over Pope and Graham. The Board based its rejection of the prior version of claim 1 on a broad interpretation of the claim term "keystroke indicator signal." The Board acknowledged that Applicant had argued for "a narrow interpretation of the term 'keystroke indicator signal' to mean an indication of a selected key while precluding a control code." (11/14/08 Decision on Appeal 2008-4830, p. 16, lines 5-7). But the Board interpreted the recited "keystroke indicator signal" to have a broad meaning that covers Pope's appliance control codes.

Applicant overcame the Board's rejection by amending claim 1 explicitly to limit the scope of the term "keystroke indictor signal" to indicate a key on a remote control device that a user has selected. The appliance control codes of Pope are not keystroke indicators that indicate which keys on a remote control device that a user has selected. Claim 25 of the current application retains the claim language that precludes the recited "keystroke indicator" from including Pope's command codes. Thus, claim 25 is not rendered unpatentable by the combination of Pope in view of Graham. For the sake of completeness, Applicant presents below the complete argument as to why a command code of Pope does not teach the recited "keystroke indicator."

The combination of Pope and Graham does not form the basis for a valid rejection of claim 25 under § 103(a) because neither Pope nor Graham teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator signal as well as a key code signal.

(i) Neither Pope nor Graham teaches generating a key code within a key code generator device.

The examiner states that "Pope teaches generating a key code within a key code generator device ..." (Office Action, p. 3, lines 24-25). Pope does not, however, teach generating a key code within base unit 12. The appliance control code that is transmitted by base unit 12 of Pope is not generated within base unit 12. Instead, base unit 12 receives the appliance control code from handset 10. In Pope, a digital cordless telephone handset 10 is used as a universal remote control device to control electrical appliances. Pope explains:

> "The present invention uses a digital cordless telephone handset to store a variety of appliance control codes. These appliance control codes can be transmitted to a base unit. The base unit can translate the appliance control codes to control signals such as infrared control signals, to control an electrical appliance" (Pope, col. 1, lines 31-36) (emphasis added). *See also* Pope, col. 2, lines 48-52 and 63-65.

The appliance control codes of Pope are not generated within the base unit 12. Instead, the appliance control codes are transmitted from the handset 10 to the base unit 12, where they are then translated onto control signals. Base unit 12 of Pope does not receive a keystroke indicator and then generate a key code. Thus, Pope does not teach the recited "receiving a keystroke indicator from a remote control device" (emphasis added). Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, col. 4, lines 49-51) (emphasis added). Thus, in Pope, the same control code that is received by base unit 12 is later transferred to an appliance. The appliance control code is not generated within

base unit 12.

(ii) Neither Pope nor Graham teaches both a keystroke indicator and a key code.

The examiner states, "The base unit (12) . . . receives the keystroke indicator indicating a key on the remote control" (Office Action, p. 3, lines 23-24). Applicant respectfully disagrees. The base unit of Pope receives a control code indicating a function as opposed to a keystroke indicator indicating which key a user has selected on a remote control device.

The handset 10 of Pope uses a display 32 to scroll through a menu of functions. When the transmit key XMIT is pressed, the control code for the selected function is transmitted to base unit 12. No keystroke indicator is transmitted because the fact that the transmit key XMIT was selected is not conveyed to base unit 12. Alternatively, instead of using display 32, "shift," "alt," and "control" keys can be used to assign functions to the buttons "0" to "9," "star," and "pound," as explained in the passage from Pope reproduced below.

Keypad **30** includes the numbers **1–9**, the "star" and the "pound" key. Additionally, "up arrow" key **30***a* and "down arrow" key **30***b* can be used to scroll through a menu. A "transmit" key **30***c* can be used to transmit the appliance control code once the appliance control has been selected. In one embodiment, the user gets into the menu by pressing an "up arrow" or a "down arrow" key. Alternately a "menu" button (not shown) is used. The keys for numbers **1–9** can have different meanings once the user is in the menu. Menu functions can be printed above the normal telephone control keys. FIG. **1** shows compact disc, television, cable and AC signal control menu-function buttons. The setup menu can be entered, one of these buttons pressed, and then using the up and down arrows, the specific controls for a given electrical appliance can be scrolled through. The different appliance controls can be listed in the order of frequency of use. For example, the "mute" function could be the first function listed in each menu selection.

Alternately, individual functions can be mapped with the associated buttons of the keypad, and a display **32** need not be used. Buttons similar to a "shift," "alt," and "control" on a normal computer keypad can be used to change the meanings of buttons "**0**" to "**9**," "star," and "pound." The different meanings associated with different buttons can be printed in different colors, which are the same colors of the associated buttons "shift," "alt," or "control."

(Pope, col. 2, line 61 – col. 3, line 19) (emphasis added) The correspondence of the keys on handset 10 to various functions can be changed without requiring the base unit 12 to know of the correspondence. For example, the mute function could be assigned to the keys "pound" plus "9." But when the keys #, 9 and XMIT are pressed, handset 10 would not transmit any indication to base unit 12 that the #, 9 and XMIT keys were pressed. Instead, handset 10 would transmit a control code to base unit 12 corresponding to the mute function.

Pope teaches that display 68 and keypad 70 are used to select an appliance control code out of memory 66 on handset 10, and then the appliance

control code is transmitted to base unit 12. (Pope, col. 4, lines 30-33) Thus, Pope does not teach a keystroke indicator that indicates which key a user has selected on a remote control device.

Moreover, it is improper to construe an appliance control code of Pope to teach both a keystroke indicator and a key code. According to the tenets of claim differentiation, the claim term "keystroke indicator" cannot be interpreted to have the same meaning as the claim term "key code". Such a claim interpretation is presumptively unreasonable. See, e.g., *Karlin Tech. Inc. v. Surgical Dynamics Inc.*, 177 F.3d 968, 50 USPQ2d 1465, 1468 (Fed. Cir. 1999). In addition, such a claim interpretation would render claim 25 internally inconsistent because a "key code" that was already received by the key code generator device would later be generated by the key code generator device. Thus, Pope does not teach both a keystroke indicator and a key code. The handset 10 of Pope transmits an appliance control code as opposed to a keystroke indicator to base unit 12.

Pope and Graham do not form the basis for a valid rejection under § 103(a) because neither Pope nor Graham teaches either (i) generating a key code within a key code generator device, or (ii) receiving a keystroke indicator from a remote control device. Reconsideration of the § 103(a) rejection and allowance of claim 25 are requested.

B. Dependent claims 27-33

Claim 31 recites, "pressing a key of the remote control device so as to cause the remote control device to transmit a keystroke indicator signal containing the keystroke indictor." The examiner contends that Pope teaches this limitation. (Office Action, p. 5, lines 1-3) As explained above, handset 10 of Pope transmits an appliance control code as opposed to a keystroke indicator to base unit 12. The signal transmitted from handset 10 to base unit 12 does not contain a keystroke indicator indicating which key or keys on handset 10 the user

selected. The signal transmitted from handset 10 to base unit 12 indicates only the function that the user has selected.

Claim 33 recites, "the key code generated in (b) is part of a codeset, and wherein the codeset is not stored on the remote control device." The examiner argues that the control code of Pope "is not stored in the remote control because it is transmitted to the appliances" (Office Action, p. 5, lines 6-8). Applicant disagrees with the examiner's logic. Merely because a control code is transmitted to an appliance does not preclude that control code from being stored in handset 10. In fact, the control codes of Pope are stored in handset 10 and are then transmitted via base unit 12 to the appliances. Pope teaches that the appliance control codes are stored in memory 66 of handset 10 and are then transmitted to base unit 12. (Pope, col. 2, lines 48-52; col. 4, 27-28)

Claims 27-33 depend directly or indirectly from claim 25. In addition to the reasons explained above, dependent claims 27-33 are allowable for at least the same reasons for which claim 25 is allowable. Reconsideration of the § 103(a) rejections and allowance of claims 27-33 are requested.

III. Claims 26 and 35

Claims 26 and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham and further in view of Autry et al. (U.S. Pat. No. 5,724,106) (Office Action, p. 5, lines 9-11).

Claims 26 and 35 depend from claim 25 and incorporate the following limitations of base claim 25, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor".

None of Pope, Graham or Autry teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected. As explained above with regard to claim 25, neither Pope nor Graham teaches these limitations, and the examiner does not contend that Autry teaches these limitations. Autry does

not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device.

Because the combination of Pope, Graham and Autry does not teach either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected, the § 103(a) rejection of claims 26 and 35 should be withdrawn.

IV. Claim 34

Claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham and further in view of Teskey et al. (U.S. Pat. No. 6,747,568) (Office Action, p. 6, lines 1-3).

Claim 34 depends from claim 25 and incorporates the following limitations of base claim 25, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor".

None of Pope, Graham or Teskey teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected. As explained above with regard to claim 25, neither Pope nor Graham teaches these limitations, and the examiner does not contend that Teskey teaches these limitations. Teskey does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device.

In addition, claim 34 recites "timing information that describes a digital one and a digital zero". The Examiner admits that Pope "is silent on teaching the key code comprises timing information defining the binary number is modulated." But the Examiner states that Teskey "teaches the format of the remote control signal having the necessary timing and modulation information (col. 3 line 60-col. 4 line 8)" (Office Action, p. 6, lines 7-8). Teskey does not, however, teach "the

necessary timing and modulation information." The passage of Teskey cited by the examiner does not teach timing information that defines a digital one or a digital zero. In fact, Teskey does not mention a digital one, a digital zero or any type of mark/space representation.

Because the combination of Pope, Graham and Teskey does not teach any of (i) generating a key code within a key code generator device, (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (iii) timing information that defines a digital one or a digital zero, the § 103(a) rejection of claim 34 should be withdrawn.

V. Claims 36, 38-45 and 47

Claims 36, 38-45 and 47 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham and further in view of Grube et al. (U.S. Pat. No. 5,201,067) (Office Action, p. 6, lines 14-16).

A. Independent claims 36 and 39

Similar to claim 25, claims 36 and 39 also recite, "receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indicator" (emphasis added). The combination of Pope, Graham and Grube does not form the basis for a valid rejection of claims 36 and 39 under § 103(a) because none of Pope, Graham or Grube teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator signal as well as a key code signal.

(i) None of Pope, Graham or Grube teaches generating a key code within a key code generator device.

With regard to claims 36 and 39, the examiner states that "Pope teaches generating a key code within a key code generator device ..." (Office Action, p. 6,

line 21 – p. 7, line 1). But as explained above with regard to claim 25, Pope does not teach generating a key code within base unit 12. The appliance control code that is transmitted by base unit 12 of Pope is not generated within base unit 12. Instead, base unit 12 receives the appliance control codes from handset 10. In Pope, a digital cordless telephone handset 10 is used as a universal remote control device to control electrical appliances. Pope explains:

> "The present invention uses a digital cordless telephone handset to store a variety of appliance control codes. These appliance control codes can be transmitted to a base unit. The base unit can translate the appliance control codes to control signals such as infrared control signals, to control an electrical appliance" (Pope, col. 1, lines 31-36) (emphasis added). *See also* Pope, col. 2, lines 48-52 and 63-65.

Instead of being generated within the base unit 12, the appliance control codes of Pope are transmitted from the handset 10 to the base unit 12, where they are translated onto control signals. Base unit 12 of Pope does not receive a keystroke indicator and then generate a key code. Thus, Pope does not teach the recited "receiving a keystroke indicator from a remote control device" (emphasis added). Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, col. 4, lines 49-51) (emphasis added). Thus, in Pope, the same control code that is received by base unit 12 is later transferred to an appliance. The appliance control code is not generated within base unit 12.

(ii) None of Pope, Graham or Grube teaches both a keystroke indicator and a key code.

With regard to claims 36 and 39, the examiner states, "The base unit (12) . . . receives the keystroke indicator indicating a key on the remote control" (Office Action, p. 6, lines 20-21). Applicant disagrees. The base unit of Pope receives a control code indicating a function as opposed to a keystroke indicator indicating which key a user has selected on the handset 10.

The handset 10 of Pope uses a display 32 to scroll through a menu of functions. When the transmit key XMIT is pressed, the control code for the selected function is transmitted to base unit 12. No keystroke indicator is transmitted because the fact that the transmit key XMIT was selected is not conveyed to base unit 12. Alternatively, instead of using display 32, "shift," "alt," and "control" keys can be used to assign functions to the buttons "0" to "9," "star," and "pound". (Pope, col. 2, line 61 – col. 3, line 19) The correspondence of the keys on handset 10 to various functions can be changed without requiring the base unit 12 to know of the correspondence. For example, handset 10 transmits a code corresponding to the mute function without transmitting to base unit 12 any indication that display 32 was used to select the mute function or that the keys #, 9 and XMIT, for example, were used to select the mute function. Base unit 12 just receives a command code corresponding to the mute function. Pope teaches that display 68 and keypad 70 are used to select the control code out of memory 66 on handset 10, and then the control code is transmitted to base unit 12. (Pope, col. 4, lines 30-33) Thus, Pope does not teach a keystroke indicator that indicates which key a user has selected on a remote control device.

Moreover, it is improper to construe an appliance control code of Pope to teach both a keystroke indicator and a key code. According to the tenets of claim differentiation, the claim term "keystroke indicator" cannot be interpreted to have the same meaning as the claim term "key code". Such a claim interpretation is presumptively unreasonable. See, e.g., *Karlin Tech. Inc. v. Surgical Dynamics Inc.*, 177 F.3d 968, 50 USPQ2d 1465, 1468 (Fed. Cir. 1999). In addition, such a claim interpretation would render claim 36 internally inconsistent because a "key code" that was already received by the key code generator device would later be generated by the key code generator device. Thus, Pope does not teach both a keystroke indicator and a key code. The handset 10 of Pope transmits an appliance control code as opposed to a keystroke indicator to base unit 12.

Grube also does not teach either (i) generating a key code within a key code generator device using a keystroke indicator, or (ii) receiving a keystroke

indicator that indicates a key on a remote control device that a user has selected. And the examiner does not contend that Grube teaches these limitations.

Pope, Graham and Grube do not form the basis for valid rejections of claims 36 and 39 under § 103(a) because none of Pope, Graham or Grube teaches either (i) generating a key code within a key code generator device, or (ii) receiving a keystroke indicator from a remote control device. Reconsideration of the § 103(a) rejections and allowance of claims 36 and 39 are requested.

B. Dependent claims 38, 40-45 and 47

Claim 38 depends from claim 36 and is allowable for at least the same reasons for which claim 36 is allowable.

Claim 41 recites that "the electronic consumer device is not capable of receiving the radio frequency transmission, and wherein the transmitting in (e) is performed after the transmitting in (d)." The examiner contends that Grube teaches modulating a first key code onto an IR signal and transmitting a second key code on an RF signal. (Office Action, p. 7, lines 6-8) The examiner does not, however, present a *prima facie* case of obviousness against claim 41 because the examiner does not contend that any of Pope, Graham or Grube teaches transmitting an RF transmission to an electronic consumer device and then transmitting an IR transmission to the electronic consumer device after the device is not capable of receiving the RF transmission. Although Grube teaches a communication device with both an IR and an RF transmitter, the RF transmitter is for garage door openers and the like, whereas the IR transmitter is used for conventional IR remote control signaling. (Grube, col. 4, lines 9-24) Grube does not transmit an RF transmission to an electronic device and then transmit an IR transmission to the electronic device if the device was not capable of receiving the RF transmission.

Claim 42 recites that "the formatting in (c) comprises converting the key code from the key code signal based on the first modulation technique into the key code signal based on the second modulation technique" The examiner

contends that Grube teaches modulating a first key code onto an IR signal and transmitting a second key code on an RF signal. (Office Action, p. 7, lines 6-8) The examiner does not, however, present a *prima facie* case of obviousness against claim 42 because the examiner does not contend that any of Pope, Graham or Grube teaches converting a key code that is formatted for a first modulation technique into a key code signal based on a second modulation technique. Although Grube teaches a communication device with both IR and RF transmissions, the codes from one transmission are not reformatted for the other transmission.

Claim 44 recites "determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device." The examiner does not present a *prima facie* case of obviousness against claim 44 because the examiner does not contend that any of Pope, Graham or Grube teaches determining that the key code signal using a particular modulation technique cannot be used to communicate with an electronic consumer device.

In addition to the reasons explained above, dependent claims 40-45 and 47 depend from claim 39 and are allowable for at least the same reasons for which claim 39 is allowable. Reconsideration of the § 103(a) rejections and allowance of claims 38, 40-45 and 47 are requested.

VI. Claim 37

Claim 37 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham in view of Grube and further in view of Chiloyan et al. (U.S. Pat. No. 6,008,735) (Office Action, p. 8, lines 1-3).

Claim 37 depends from claim 36 and incorporates the following limitations of base claim 36, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor".

None of Pope, Graham, Grube or Chiloyan teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected. As explained above with regard to claims 36 and 39, none of Pope, Graham or Grube teaches these limitations, and the examiner does not contend that Chiloyan teaches these limitations. Chiloyan does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device. In Chiloyan, the code sets are stored in the remote control unit.

Because the combination of Pope, Graham, Grube and Chiloyan does not teach either of (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected, the § 103(a) rejection of claim 37 should be withdrawn.

VII. Claim 46

Claim 46 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham in view of Grube and further in view of Autry (Office Action, p. 8, lines 15-17).

Claim 46 depends from claim 39 and incorporates the following limitations of base claim 39, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor".

None of Pope, Graham, Grube or Autry teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected. As explained above with regard to claims 36 and 39, none of Pope, Graham or Grube teaches these limitations, and the examiner does not contend that Autry teaches these limitations. Autry does not teach either a keystroke indicator used

to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device.

Because the combination of Pope, Graham, Grube and Chiloyan does not teach either of (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected, the § 103(a) rejection of claim 46 should be withdrawn.

VIII. Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully submits that the entire application (claims 25-49 are pending) is in condition for allowance. Applicant respectfully requests that a timely Notice of Allowance be issued in this case. If the Examiner would like to discuss any aspect of this application, the Examiner is requested to contact the undersigned at (925) 550-5067.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By _____
Darien K. Wallace

Date of Deposit: January 23, 2012

Respectfully submitted,

Darien K. Wallace
Attorney for Applicant
Reg. No. 53,736
Customer No. 47,713

AMENDMENT TRANSMITTAL LETTER

January 23, 2012

MAIL STOP AMENDMENT
COMMISSIONER FOR PATENTS
P.O. Box 1450
ALEXANDRIA, VA 22313-1450

Re: Applicant: Daniel SauFu Mui
Assignee: UEI Cayman Inc.
Title: "Relaying Key Code Signals Through a Remote Control Device"
Serial No.: 13/068,820 Filed: May 21, 2011
Examiner: Vernal U. Brown Art Unit: 2612
Atty. Docket No.: ZIL-568-2C Confirmation No.: 7302

Dear Sir:

Transmitted herewith are the following documents:

(1) Amendment (20 pages);
(2) Terminal Disclaimer over U.S Pat. No. 7,589,642 (1 page);
(3) A check for statutory disclaimer fee and add'l claim fees ($280.00)
(4) Return Postcard; and
(5) This transmittal sheet.

☐ No additional Fee is required.
☒ The fee has been calculated as shown below:

CLAIMS AS AMENDED						
	REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR	EXTRA CLAIMS PRESENT	RATE	ADDITIONAL FEE
TOTAL CLAIMS	25	minus	23	2	$60	$120.00
INDEP. CLAIMS	3	minus	3	0	$250	$0.00
Total Additional Claim Fee						$120.00
A statutory disclaimer fee under 37 CFR 1.20(d)						$160.00
					TOTAL	$280.00
☒ A check is attached for the amount of:						$280.00

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By Darien K. Wallace
Darien K. Wallace

Date of Deposit: January 23, 2012

Respectfully submitted,

Darien K. Wallace
Attorney for Applicant
Reg. No. 53,736
Customer No. 47,713

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C	7302

47713 7590 04/11/2012
IMPERIUM PATENT WORKS
P.O. BOX 607
Pleasanton, CA 94566

EXAMINER	
BROWN, VERNAL U	
ART UNIT	PAPER NUMBER
2612	
MAIL DATE	DELIVERY MODE
04/11/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	Application No.	Applicant(s)	
	13/068,820	MUI, DANIEL SAUFU	
	Examiner	Art Unit	
	VERNAL BROWN	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 January 2012*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *25-49* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *25-49* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to communication filed 1/27/12.

Response to Amendment

The examiner acknowledges the amendment of claims 1, 31, 36, 39, 41, and the addition of claims 48-49.

Response to Arguments

Applicant's arguments filed 1/27/12 have been fully considered but they are not persuasive.

Applicant argues on page 9 that the reference of Pope does not teach generating key code in the base unit because the appliance control code that is transmitted by the base unit (12) is not generated in the base unit. It is the examiner's position that the reference of Pope teaches generating the key code by translating the received key code indicator signal into a format to be used for controlling the particular appliance (col. 3 lines 36-40, col. 5 lines 6-10). It is also the examiner's position that although the appliance control codes are also store in the mobile phone, the base use is used for converting the control code into an infrared format that will be accepted by the appliance.

Applicant argues that the reference of Pope does not teach receiving a key stroke indicator and then generate a key code. It is the examiner's position that as claimed, the keystroke indicator indicates a key on the remote control device that a user selects. Pope teaches the signal transmitted from the remote control to the base unit indicates the pressed key base on the desired control function (col. 2 line 57-col. 3 line 9) and therefore reads on the keystroke

indicator signal as claimed. It is also the examiner's position that the argued limitation of the appliance control code not generated in the base unit is not a claimed limitation.

Applicant argues on page 11 that it is improper to construe an appliance control code of Pope to teach both a keystroke indicator and a key code. It is the examiner's position that Pope teaches transmitting the control code indicating the desired appliance control function to the base unit and the base unit is use to convert the receive control code into an infrared format for transmission to the appliance (col. 3 lines 36-40).

Regarding applicant's argument regarding claim 33, it is the examiner's position that the infrared control code generated by the base unit is not store in the remote control device because the base unit is required to translate the received code from the remote control into code for controlling the appliance (col. 3 lines 35-36, col. 5 lines 6-10).

Regarding applicant argument regarding claim 34, it is the examiner's position that the reference of Pope teaches stripping the control code from the received digital data at the base unit and the processor look at the memory 86 to get the corresponding infrared code (col. 5 lines 6-10). The reference of Teskey is further relied upon for teaching the generation of the infrared code is based on the timing and other related information codeset comprising timing and modulation information generating of a signal format (col. 3 line 60-col. 4 line 8) and it is also the examiner's position that the generated code inherently include ones and zeroes.

Applicant argues that the reference of Pope teaches the base unit receiving a control code indicating a function as opposed to a keystroke indicator indicating which key a user has selected. It is the examiner's position that the selected function is based on the key that was

pressed on the remote control (col. 2 lines 57-60) and the control code receive by the base unit is therefore an indication of the pressed key on the remote control.

Regarding applicant's argument regarding claim 41, the limitation of transmitting a RF transmission to the electronic consumer device and then transmitting an IR transmission to the electronic device after the device is not cable of receiving the RF transmission is not claimed. Claim 41 recites the limitation of the electronic device not capable of receiving the radio frequency transmission and the transmission in the form of infrared frequency transmission is performed before transmission in the form of radio frequency transmission. The reference of Grube et al. is further relied upon for teaching a communication device transmitting an infrared and radio frequency control signals (col. 4 lines 9-24) in order to facilitate the control of electronic appliances having infrared of RF control interface.

Regarding applicant's regarding claim 42, Pope teaches the data received by the base unit from the remote control is modulated using a type of spread spectrum type of modulation (col. 2 lines 52-57) and the data transmitted from the base unit to the appliance is converted into an infrared format (col. 3 lines 35-40). Although, the reference of Pope is silent on teaching modulating the infrared signal the modulation of an infrared control signal is considered a conventional practice and the reference of Graham is further relied upon for teaching the use of a modulation scheme.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 25 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 7589642. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 2 of the instant application recites all the limitation of claim 2 of US Patent 7589642 except for the modulation

of the key code signal for transmission. Claim 25 recites the broader limitation of formatting the key code signal for transmission and the examiner considers modulating the key code signal for transmission as a means of formatting the key code for transmission.

Claim Rejections - 35 USC § 112

Claims 48-49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 48-49, the limitation of the keystroke indicator is not a code that is understood by the electronic consumer device is not disclose in the specification.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 25, 27-33, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Graham US Patent 4005428.

Regarding claim 25, Pope teaches transmitting appliance control codes (i.e., keystroke indicator) from handset 10, 50 (i.e., remote control) to base unit 12 (i.e., key code generator). The base unit (12) which the examiner considers as the key code generator therefore receives the keystroke indicator indicating a key on the remote control. Pope teaches generating a key code within a key code generator device using the keystroke indicator signal by the base unit processor retrieving an infrared control code from memory (86) base on the appliance control code (keystroke indicator signal) and transmitting the key code from the key code generator device to the appliance (col. 3 lines 35-40). Pope is however silent on teaching modulating the key code onto a carrier signal. Graham in an analogous art discloses modulating a digital code or binary code onto a carrier signal (col. 2 lines 7-21). Graham describes that doing so offers the advantages of precluding unauthorized or accidental activation of a control associated with the receiving means and provides an exceptional degree of security and privacy (abstract).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the method of Pope to include modulating the key code onto a carrier signal since doing so offers the advantages of precluding unauthorized or accidental activation of a control associated with the receiving means and provides an exceptional degree security and privacy.

Regarding claim 27, Pope teaches the key code signal is transmitted via wireless connection (figure 1).

Regarding claim 28, Pope teaches the key the code is indicated by low and high (col. 3 lines 45-47) implying the key code signal includes ones and zeroes.

Regarding claims 29-30, Pope teaches the key code generator (12) is part of a television and a set top box because it is used to transmit control code to the television and set top box (col. 3 lines 35-40).

Regarding claim 31, Pope teaches pressing a key of the remote control device so as to cause the remote control device to transmit the keystroke indicator and the pressing causes the device to perform a function associated with the key (col. 3 lines 35-40).

Regarding claim 32, Pope teaches the key code signal causes the consumer device to perform volume control (col. 1 lines 51-63).

Regarding claim 33, Pope teaches the code generated by the code generator 12 is transmitted to the appliances (col. 3 lines 36-40). The code generated by the code generator is not store in the remote control because it is transmitted to the appliances.

Regarding claim 48, Pope teaches the appliance code receive from the remote control (keystroke indicator) is converted to an infrared signal format and transmitted to the appliance (col. 3 lines 35-40). The code from the remote control is therefore not understood by the appliance because it is not in a format acceptable by the appliance.

Claims 26 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Graham US Patent 4005428 and further in view of Autry et al. US Patent 5724106.

Regarding claims 26 and 35, Pope in view of Graham is silent on teaching the key code signal is transmitted by hardwired connection. Autry et al. in an analogous art teaches transmitting remote control signal over hardwired means as an alternative to the use of wireless means (col. 6 lines 7-15).

It would have been obvious to one of ordinary skill in the art to modify the system of Pope in view of Graham as disclosed by Autry et al. because the system of Pope in view of Graham transmit signal from the remote control using wireless means and wireless means represents an alternative to the wired means.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Graham US Patent 4005428 and further in view of Teskey US Patent 6747568.

Regarding claim 34, Pope teaches generating a key code for controlling the consumer appliances (col. 3 lines 35-40) but is silent on teaching the key code comprises timing information defining the binary number is modulated. Teskey in an art related remote control system teaches the format of the remote control signal having the necessary timing and modulation information (col. 3 line 60-col. 4 line 8).

It would have been obvious to one of ordinary skill in the art for the key code to include comprises timing information defining the binary number is modulated in Pope in view of Graham because the timing information defining the binary number is modulated represent

information regarding the format of the remote control signal that enables the decoding and demodulating of the receive key code signals.

Claims 36, 38-45, 47, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Grube et al. US Patent 5201067 and further in view of Graham US Patent 4005428

Regarding claims 36, 38-45, Pope teaches transmitting appliance control codes (i.e., keystroke
indicator) from handset 10, 50 (i.e., remote control) to base unit 12 (i.e., key code generator). The base unit (12) which the examiner considers as the key code generator therefore receives the keystroke indicator indicating a key on the remote control. Pope teaches generating a key code within a key code generator device using the keystroke indicator signal by the base unit processor retrieving an infrared control code from memory (86) base on the appliance control code (keystroke indicator signal) and transmitting the key code from the key code generator device to the appliance (col. 3 lines 35-40). Pope is silent on teaching modulating a key code signal unto a first radio frequency carrier signal and a modulating a second key code signal onto a radio frequency signal. Grube et al. in an analogous art teaches modulating a first key code signal unto an infrared signal (col. 4 lines 9-16) and transmitting a second key code unto radio frequency carrier signal (col. 4 lines 17-24) but is not explicit in teaching modulating the second key code signal onto a RF carrier frequency. Graham in an analogous art discloses modulating a
digital code or binary code onto a carrier signal (col. 2 lines 7-21).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the method of Pope as disclosed by Grube et al. in view of Graham because having a radio frequency transmitter and an infrared transmitter on the remote control provide for a more versatile remote control for controlling devices of different interfaces and modulating the key code onto a carrier signal offers the advantages of precluding unauthorized or accidental activation of a control associated with the receiving means and provides an exceptional degree security and privacy.

Regarding claim 42, Pope teaches the data received by the base unit from the remote control is modulated using a type of spread spectrum type of modulation (col. 2 lines 52-57) and the data transmitted from the base unit to the appliance is converted into an infrared format (col. 3 lines 35-40). Pope is not explicit in teaching modulating the infrared formatted signal. Graham in an analogous art discloses modulating a digital code or binary code onto a carrier signal (col. 2 lines 7-21). Graham describes that doing so offers the advantages of precluding unauthorized or accidental activation of a control associated with the receiving means and provides an exceptional degree of security and privacy (abstract).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the method of Pope to include modulating the key code onto a carrier signal since doing so offers the advantages of precluding unauthorized or accidental activation of a control associated with the receiving means and provides an exceptional degree security and privacy.

Regarding claim 47, Pope teaches the key code signal is transmitted via wireless connection (figure 1).

Regarding claim 49, Pope teaches the appliance code receive from the remote control (keystroke indicator) is converted to an infrared signal format and transmitted to the appliance (col. 3 lines 35-40). The code from the remote control is therefore not understood by the appliance because it is not in a format acceptable by the appliance.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Grube et al. US Patent 5201067 in view of Graham US Patent 4005428 and further in view of Chiloyan et al. US Patent 6008735.

Regarding claim 37, Pope in view of Grube et al. is silent on teaching receiving an indication of a type, a brand and a model of the first electronic consumer device and the user use a on screen display to generate an indication of the type, the brand and model number. Chiloyan et al. in an analogous art teaches receiving an indication of a type, a brand and a model of the first electronic consumer device (col. 1 lines 54-65) and the user use a on screen display to generate an indication of the type, the brand and model number (col. 6 lines 17-32).

It would have been obvious to one of ordinary skill in the art to modify the system of Pope in view of Grube et al. as disclosed by Chiloyan et al. because allowing the user to input the a type, a brand and a model of the first electronic consumer device allows the remote control to be configured for controlling a particular device and the on-screen display provide for a more friendlier user interface.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pope US Patent 5963624 in view of Grube et al. US Patent 5201067 in view of Graham US Patent 4005428 and further in view of Autry et al. US Patent 5724106.

Regarding claim 46, Pope in view of Grube is silent on teaching the key code signal is transmitted by hardwired connection. Autry et al. in an analogous art teaches transmitting remote control signal over hardwired means as an alternative to the use of wireless means (col. 6 lines 7-15).

It would have been obvious to one of ordinary skill in the art to modify the system of Pope in view of Grube et al. as disclosed by Autry et al. because the system of Pope in view of Grube transmit signal from the remote control using wireless means and wireless means represents an alternative to the wired means.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VERNAL BROWN whose telephone number is (571)272-3060. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on 571-272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vernal U Brown/
Primary Examiner, Art Unit 2612

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	Art Unit
	VERNAL BROWN	2612

SEARCHED			
Class	Subclass	Date	Examiner
340	13.24	10/31/11	VB

SEARCH NOTES		
Search Notes	Date	Examiner

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	Art Unit
	VERNAL BROWN	2612

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	10/31/2011	04/07/2012							
	1	-	-							
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	22	-	-							
	23	-	-							
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	25	✓	✓							
	26	✓	✓							
	27	✓	✓							
	28	✓	✓							
	29	✓	✓							
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	31	✓	✓							
	32	✓	✓							
	33	✓	✓							
	34	✓	✓							
	35	✓	✓							
	36	✓	✓							

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	Art Unit
	VERNAL BROWN	2612

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	10/31/2011	04/07/2012							
	37	✓	✓							
	38	✓	✓							
	39	✓	✓							
	40	✓	✓							
	41	✓	✓							
	42	✓	✓							
	43	✓	✓							
	44	✓	✓							
	45	✓	✓							
	46	✓	✓							
	47	✓	✓							
	48		✓							
	49		✓							

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Daniel SauFu Mui	
Assignee:	UEI Cayman Inc.	
Title:	"Relaying Key Code Signals Through a Remote Control Device"	
Appl. No.:	13/068,820	Filing Date: May 21, 2011
Examiner:	Vernal U. Brown	Art Unit: 2612
Docket No.:	ZIL-568-2C	Confirmation No.: 7302

Via EFS-Web April 28, 2012
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COMMISSIONER FOR PATENTS
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Alexandria, VA 22313-1450

RESPONSE TO FINAL OFFICE ACTION

Dear Sir:

In response to the final Office action dated April 11, 2012 ("Office Action"), Applicant responds as follows and requests the examiner to amend the above-identified application as follows.

There are no amendments to the specification in this Response.

A listing of the most current version of the claims begins on page 2 of this Response.

There are no amendments to the drawings in this Response.

The **Remarks** begin on page 7 of this Response.

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

Claims 1 – 24 (canceled)

25. (previously presented) A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indictor;

(c) formatting the key code for transmission and thereby generating a key code signal; and

(d) transmitting the key code signal from the key code generator device to an electronic consumer device.

26. (previously presented) The method of claim 25, wherein the key code signal is transmitted in (d) via a hardwired connection.

27. (previously presented) The method of claim 25, wherein the key code signal is transmitted in (d) via a wireless connection.

28. (previously presented) The method of claim 25, wherein the formatting in (c) comprises converting the key code into the key code signal by forming bursts of digital ones and zeros.

29. (previously presented) The method of claim 25, wherein the key code generator device is part of a second electronic consumer device taken from the group consisting of: a television, a stereo radio, a digital video disk player, a video cassette recorder, a personal computer, a set-top cable television box and a set-top satellite box.

30. (previously presented) The method of claim 25, wherein the key code generator device is part of a set-top box, and wherein the electronic consumer device is a television.

31. (previously presented) The method of claim 25, further comprising:

(e) pressing a key of the remote control device so as to cause the remote control device to transmit a keystroke indicator signal containing the keystroke indicator that is received in (a), wherein the pressing causes the electronic consumer device to perform a function associated with the key.

32. (previously presented) The method of claim 31, wherein the function is taken from the group consisting of: power on, power off, channel advance, channel back, volume up, volume down, cursor up, cursor down, cursor right, cursor left, select, play, record, stop, forward, back and pause.

33. (previously presented) The method of claim 25, wherein the key code generated in (b) is part of a codeset, and wherein the codeset is not stored on the remote control device.

34. (previously presented) The method of claim 25, wherein the key code generated in (b) is part of a codeset, and wherein the codeset comprises timing information that describes a digital one and a digital zero.

35. (previously presented) The method of claim 25, wherein the formatting in (c) is performed using a protocol, and wherein the transmitting in (d) is performed via a hardwired connection.

36. (previously presented) A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indicator;

(c) generating a first key code signal by modulating the key code onto a first carrier signal, wherein the first carrier signal is in a radio frequency band;

(d) generating a second key code signal by modulating the key code onto a second carrier signal, wherein the second carrier signal is in an infrared frequency band;

(e) transmitting the first key code signal from the key code generator device to a first electronic consumer device; and

(f) transmitting the second key code signal from the key code generator device to a second electronic consumer device.

37. (previously presented) The method of claim 36, further comprising:

(g) receiving an indication of a type, a brand and a model of the first electronic consumer device, wherein a user of the remote control device uses an on-screen display to generate the indication of the type, the brand and the model of the first electronic consumer device.

38. (previously presented) The method of claim 36, wherein the first key code signal conforms to a first protocol, and wherein the second key code signal conforms to a second protocol.

39. (previously presented) A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indicator;

(c) formatting the key code for transmission and thereby generating a key code signal;

(d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique; and

(e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique.

40. (previously presented) The method of claim 39, wherein the key code signal is transmitted in (d) in the form of a radio frequency transmission, and wherein the key code signal is transmitted in (e) in the form of an infrared frequency transmission.

41. (previously presented) The method of claim 40, wherein the electronic consumer device is not capable of receiving the radio frequency transmission, and wherein the transmitting in (e) is performed after the transmitting in (d).

42. (previously presented) The method of claim 39, wherein the formatting in (c) comprises converting the key code from the key code signal based on the first modulation technique into the key code signal based on the second modulation technique.

43. (previously presented) The method of claim 39, wherein the first modulation technique is performed in a radio frequency band, and wherein the second modulation technique is performed in an infrared frequency band.

44. (previously presented) The method of claim 39, further comprising, before the transmitting in (e):

(f) determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device.

45. (previously presented) The method of claim 39, wherein the formatting in (c) is performed using a first protocol when the key code signal is transmitted using the first modulation technique, and wherein the formatting in (c) is performed using a second protocol when the key code signal is transmitted using the second modulation technique.

46. (previously presented) The method of claim 39, wherein the key code signal is transmitted in (d) via a hardwired connection.

47. (previously presented) The method of claim 39, wherein the key code signal is transmitted in (d) via a wireless connection.

48. (previously presented) The method of claim 25, wherein the keystroke indicator is not a code that is understood by the electronic consumer device.

49. (previously presented) The method of claim 39, wherein the keystroke indicator is not a code that is understood by the electronic consumer device.

REMARKS

Before entry of this response, claims 25-49 were pending. In the Office Action, claims 25-49 were rejected. In the present response, not claims are amended, added or canceled. After entry of the response, claims 25-49 are pending.

I. Double-patenting rejection

Claim 25 is rejected under the doctrine of obviousness-type double patenting over claim 2 of U.S. Patent No. 7,589,642. (Office Action, p. 5, lines 19-20) Applicant submits herewith a terminal disclaimer of the above-referenced patent application over U.S. Patent No. 7,589,642 in order to overcome the double-patenting rejection. (The Office Action does not acknowledge receipt of the terminal disclaimer submitted with the last amendment.) The statutory disclaimer fee under 37 CFR 120(d) for the terminal disclaimer was already submitted with the last amendment. Withdrawal of the double-patenting rejection is respectfully requested.

II. Section 112 rejection of claims 48-49

Claims 48-49 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Regarding claims 48-49, the Examiner states that "the limitation of the keystroke indicator is not a code that is understood by the electronic consumer device is not disclosed in the specification" (Office Action, p. 6, lines 10-11). Applicant respectfully disagrees.

Each of claims 48 and 49 recites that "the keystroke indicator is not a code that is understood by the electronic consumer device" to which the key code generator device transmits the key code signal. The subject matter of claims 48-49 is described in paragraph [0025] of the specification, which states:

> "[0025] In another embodiment, the indication of the pressed key includes a proprietary identification code identifying the pressed key, as

> well as a proprietary identification code corresponding to the type of the electronic consumer device that is to be controlled. The proprietary identification codes are understood by key code generator device 12, but are not standardized codes that are understood by electronic consumer devices. Remote control device 11 uses any one of a number of commonly used modulation techniques to modulate the proprietary identification codes onto keystroke indicator signal 16." (Specification, ¶[0025])

Withdrawal of the § 112 rejection and allowance of claims 48-49 are requested.

III. Claims 25, 27-33 and 48

Claims 25, 27-33 and 48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope (U.S. Pat. No. 5,963,624) in view of Graham (U.S. Pat. No. 4,005,428) (Office Action, p. 7, lines 1-2).

A. Independent claim 25

Claim 25 recites, "the keystroke indicator indicates a key on the remote control device that a user has selected . . . generating a key code within a key code generator device using the keystroke indictor" (emphasis added). The combination of Pope and Graham does not form the basis for a valid rejection of claim 25 under § 103(a) because neither Pope nor Graham teaches either (i) a keystroke indicator signal as well as a key code signal, or (ii) generating a key code within a key code generator device.

(i) Neither Pope nor Graham teaches both a keystroke indicator and a key code.

The Board of Patent Appeals and Interferences ("Appeals Board") has already determined in the parent case 10/737,029 (now U.S. Pat. No. 7,589,642) that neither Pope nor Graham teaches the narrower construction of "keystroke indicator" as recited in claim 25, which indicates a key on the remote control device that a user has selected. The examiner does not refute this in the examiner's "Responses to Arguments."

Claim 25 of this application is similar to the allowed claim 1 of the '642 Patent. Claim 25 is reproduced below to show the changes compared to claim 1 of U.S. Pat. No. 7,589,642.

> 25. A method comprising:
>
> (a) receiving a keystroke indicator ~~signal~~ from a remote control device, wherein the keystroke indicator ~~signal~~ indicates a key on ~~said~~the remote control device that a user has selected;
>
> (b) generating a key code within a key code generator device using the keystroke indictor ~~signal~~;
>
> (c) ~~modulating said~~formatting the key code ~~onto a carrier signal,~~for transmission and thereby generating a key code signal; and
>
> (d) transmitting ~~said~~the key code signal from ~~said~~the key code generator device to ~~said remote control device~~an electronic consumer device.

Claim 1 of the '642 Patent was allowed over Pope in view of Graham. The changes in claim 25 as compared to claim 1 of the '642 Patent do not negate the reasons why claim 1 of the '642 Patent was allowable over Pope and Graham. Claim 1 was allowable over Pope and Graham because the term "keystroke indicator" was narrowed to indicate a key on a remote control device that a user has selected, which precludes the control codes of Pope.

In the appeal of a rejection of a prior version of claim 1 of the '642 Patent, the Appeals Board raised its own rejection of the prior version of claim 1 over Pope and Graham. The Board based its rejection of the prior version of claim 1 on a broad interpretation of the claim term "keystroke indicator signal." The Appeals Board acknowledged that Applicant had argued for "a narrow interpretation of the term 'keystroke indicator signal' to mean an indication of a selected key while precluding a control code." (11/14/08 Decision on Appeal 2008-4830, p. 16, lines 5-7) (emphasis added). But the Appeals Board interpreted the recited "keystroke indicator signal" to have the broad meaning that covers Pope's appliance control codes.

Applicant overcame the Appeals Board's rejection by amending claim 1

explicitly to limit the scope of the term "keystroke indictor signal" to indicate a key on a remote control device that a user has selected. The appliance control codes of Pope are not keystroke indicators that indicate which keys on a remote control device that a user has selected. The examiner does not dispute this fact. Claim 25 of the current application retains the claim language that precludes the recited "keystroke indicator" from including Pope's command codes. Thus, claim 25 is not rendered unpatentable by the combination of Pope in view of Graham because the command code of Pope does not teach the recited "keystroke indicator."

In the Office Action, the examiner states, "The base unit (12) . . . receives the keystroke indicator indicating a key on the remote control" (Office Action, p. 7, lines 5-6) (emphasis added). This is incorrect. The base unit of Pope receives a control code indicating a function as opposed to a keystroke indicator indicating which key a user has selected on a remote control device. The control code of Pope does not teach the recited keystroke indicator.

The handset 10 of Pope uses a display 32 to scroll through a menu of functions. When the transmit key XMIT is pressed, the control code for the selected function is transmitted to base unit 12. No keystroke indicator is transmitted because the fact that the transmit key XMIT was selected is not conveyed to base unit 12. Alternatively, instead of using display 32, "shift," "alt," and "control" keys can be used to assign functions to the buttons "0" to "9," "star," and "pound," as explained in the passage from Pope reproduced below.

Keypad **30** includes the numbers **1–9**, the "star" and the "pound" key. Additionally, "up arrow" key **30***a* and "down arrow" key **30***b* can be used to scroll through a menu. A "transmit" key **30***c* can be used to transmit the appliance control code once the appliance control has been selected. In one embodiment, the user gets into the menu by pressing an "up arrow" or a "down arrow" key. Alternately a "menu" button (not shown) is used. The keys for numbers **1–9** can have different meanings once the user is in the menu. Menu functions can be printed above the normal telephone control keys. FIG. **1** shows compact disc, television, cable and AC signal control menu-function buttons. The setup menu can be entered, one of these buttons pressed, and then using the up and down arrows, the specific controls for a given electrical appliance can be scrolled through. The different appliance controls can be listed in the order of frequency of use. For example, the "mute" function could be the first function listed in each menu selection.

Alternately, individual functions can be mapped with the associated buttons of the keypad, and a display **32** need not be used. Buttons similar to a "shift," "alt," and "control" on a normal computer keypad can be used to change the meanings of buttons "**0**" to "**9**," "star," and "pound." The different meanings associated with different buttons can be printed in different colors, which are the same colors of the associated buttons "shift," "alt," or "control."

(Pope, col. 2, line 61 – col. 3, line 19) (emphasis added) The correspondence of the keys on handset 10 to various functions can be changed without requiring the base unit 12 to know of the correspondence. For example, the mute function

could be assigned to the keys "pound" plus "9." But when the keys #, 9 and XMIT are pressed, handset 10 would not transmit any indication to base unit 12 that the #, 9 and XMIT keys were pressed. Instead, handset 10 would transmit a control code to base unit 12 corresponding to the mute function.

In the Response to Arguments section, the examiner contends that each control code received by base unit 12 indicates the pressed key based on the desired function that the control code represents. (Office Action, p. 2, lines 20-21) This is untrue. As explained above, various keys or combinations of keys can be assigned to a function. In the example above, when base unit 12 receives the control code for mute, the base unit 12 would not know that the keys #, 9 and XMIT were pressed. Another key or combination of keys could just as likely have been pressed to transmit the control code for the mute function. Moreover, Pope teaches that display 68 is used to select an appliance control code out of memory 66 on handset 10, and then the appliance control code is transmitted to base unit 12. (Pope, col. 4, lines 30-33) So the code is selected based on what appears on the display as opposed to which key was pressed. Thus, Pope does not teach a keystroke indicator that indicates which key a user has selected on a remote control device.

Moreover, it is improper to construe an appliance control code of Pope to teach both a keystroke indicator and a key code. According to the tenets of claim differentiation, the claim term "keystroke indicator" cannot be interpreted to have the same meaning as the claim term "key code". Such a claim interpretation is presumptively unreasonable. See, e.g., *Karlin Tech. Inc. v. Surgical Dynamics Inc.*, 177 F.3d 968, 50 USPQ2d 1465, 1468 (Fed. Cir. 1999). The examiner's comment to this argument in the "Response to Arguments" section is nonresponsive. In response to Applicant's argument that two separate claim terms may not be taught by a single element in Pope, namely an appliance control code, the examiner states that "Pope teaches transmitting the control code indicating the desired appliance control function to the base unit and the base unit is use[d] to convert the receive[d] control code into an infrared format

for transmission to the appliance" (Office Action, p. 3, lines 4-7) (emphasis added). The examiner's statement merely affirms the reason why a control code of Pope is not a keystroke indicator that indicates which key on a remote control device a user has selected. The control code does not indicate the selected key but rather indicates the function that the appliance is to perform.

In addition, interpreting both the recited keystroke indicator and the recited key code to be taught by the control code of Pope would render claim 25 internally inconsistent because a "key code" that was already received by the key code generator device would later be generated by the key code generator device. Thus, Pope does not teach both a keystroke indicator and a key code. The handset 10 of Pope transmits an appliance control code as opposed to a keystroke indicator to base unit 12.

(ii) Neither Pope nor Graham teaches generating a key code within a key code generator device.

Claim 25 is also allowable over the combination of Pope and Graham for a second reason. Neither Pope nor Graham teaches generating a key code within a key code generator device. As explained above, the examiner's interpretation of the claim terms requires the recited key code to be generated by the key code generator device after the key code has already been received by the key code generator device. That would be impossible.

The examiner states that "Pope teaches generating a key code within a key code generator device" (Office Action, p. 7, lines 6-7). Pope does not, however, teach generating a key code within base unit 12. The appliance control code that is transmitted by base unit 12 of Pope is not generated within base unit 12. Instead, base unit 12 receives the appliance control code from handset 10 and then transfers the appliance control code to the appliance. Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, col. 4, lines 49-51) (emphasis added). The handset transmits the control codes to the base unit, so

the base unit cannot generate those codes. Pope explains:

> "The present invention uses a digital cordless telephone handset to store a variety of appliance control codes. These appliance control codes can be transmitted to a base unit. The base unit can translate the appliance control codes to control signals such as infrared control signals, to control an electrical appliance" (Pope, col. 1, lines 31-36) (emphasis added). *See also* Pope, col. 2, lines 48-52 and 63-65.

The appliance control codes of Pope are not generated within the base unit 12. Instead, the appliance control codes are transmitted from the handset 10 to the base unit 12, where they are then translated onto control signals and transferred to the appliance. Moreover, translating the codes onto control signals is not the equivalent of generating the codes. The codes are merely transferred in a translated form by the base unit to the appliance. The same control code that is received by base unit 12 is later transferred to the appliance. Base unit 12 of Pope does not receive a keystroke indicator and then generate a key code using the keystroke indicator. Thus, Pope does not teach the recited "receiving a keystroke indicator from a remote control device" (emphasis added).

In the Response to Arguments section, the examiner argues that the base unit 12 generates the key code that it has already been received in the key code indicator signal. As explained above, this is impossible. A device that receives a key code does not generate that key code. Yet the rejection of claim 25 is based on the examiner's position that the base unit 12 of Pope generates "the key code by translating the received key code indicator signal into a format to be used for controlling the particular appliance." (Office Action, p. 2, lines 11-13) This is incorrect. In fact, Pope teaches that a control code is transmitted to the base unit, which then translates the received control code onto a control signal and thereby transfers the control code to an appliance. (Pope, col. 1, lines 31-36; col. 2, lines 48-52 and 63-65; col. 4, lines 49-51) So the control codes are not generated within base unit 12 using a received keystroke inductor. Rather, base unit 12 receives the control codes from handset 10, and the examiner admits

this. The examiner admits, "the appliance control codes are also stored in the mobile phone, [and] the base [unit] is used for converting the control codes into an infrared format that will be accepted by the appliance" (Office Action, p. 2, lines 14-16) (emphasis added). Converting the received control codes into an infrared format is not the same as generating the control codes. So the control codes that are stored in the mobile phone and that are sent to the base unit cannot be generated within the base unit. Thus, Pope does not teach "generating a key code within a key code generator device using the keystroke indicator."

Pope and Graham do not form the basis for a valid rejection under § 103(a) because neither Pope nor Graham teaches either (i) a keystroke indicator signal as well as a key code signal, or (ii) generating a key code within a key code generator device. Reconsideration of the § 103(a) rejection and allowance of claim 25 are requested.

B. Dependent claims 27-33 and 48

Claim 31 recites, "pressing a key of the remote control device so as to cause the remote control device to transmit a keystroke indicator signal containing the keystroke indictor." The examiner contends that Pope teaches this limitation. (Office Action, p. 8, lines 8-10) As explained above, handset 10 of Pope transmits an appliance control code as opposed to a keystroke indicator to base unit 12. The signal transmitted from handset 10 to base unit 12 does not contain a keystroke indicator indicating which key or keys on handset 10 the user selected. The signal transmitted from handset 10 to base unit 12 indicates only the function that the user has selected.

Claim 33 recites, "the key code generated in (b) is part of a codeset, and wherein the codeset is not stored on the remote control device." The examiner argues that the control code of Pope "is not stored in the remote control because it is transmitted to the appliances" (Office Action, p. 8, lines 14-15). Applicant

disagrees with the examiner's logic. Merely because a control code is transmitted to an appliance does not preclude that control code from being stored in handset 10. In fact, the control codes of Pope are stored in handset 10 and are then transmitted via base unit 12 to the appliances. Pope teaches that the appliance control codes are stored in memory 66 of handset 10 and are then transmitted to base unit 12. (Pope, col. 2, lines 48-52; col. 4, 27-28) In fact, the examiner admits that the control codes of Pope are stored in handset 10. The examiner states, "It is also the examiner's position that . . . that appliance control codes are also store[d] in the mobile phone" (Office Action, p. 2, lines 13-14).

In the Response to Arguments section, the examiner argues that an "infrared control code" generated by base unit 12 of Pope teaches the recited key code. (Office Action, p. 3, line 9) But an infrared control code sent to an appliance does not teach the recited key code because the infrared control code is not associated with the particular key that was pressed. Rather, the infrared control code is associated with "the desired appliance control function" as the examiner admits. (*See* Office Action, p. 3, line 5)

Claim 48 recites that "the keystroke indicator is not a code that is understood by the electronic consumer device." The examiner contends that a control code of Pope teaches the recited keystroke indicator this is not a code understood by the appliance "because it is not in a format acceptable by the appliance" (Office Action, p. 8, line 19). The control code is, of course, understood by the appliance when it is formatted. The examiner's interpretation of the word "understood" is inconsistent with the usage of that term in the claims. Base claim 25 recites that the key code is formatted for transmission to an electronic consumer device. It would be unreasonable to interpret the key code as not being understood by the electronic consumer device. Similarly, the command codes of Pope that are transmitted by handset 10 to base unit 12 and then transferred to the appliance are indeed understood by the appliance. Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, col. 4, lines 49-

51) (emphasis added). The rejection of claim 48 should be withdrawn because the interpretation of "understood" that is the basis for the rejection is unreasonable.

In addition to the reasons explained above, claims 27-33 and 48 depend directly or indirectly from claim 25 and are allowable for at least the same reasons for which claim 25 is allowable. Reconsideration of the § 103(a) rejections and allowance of claims 27-33 and 48 are requested.

IV. Claims 26 and 35

Claims 26 and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham and further in view of Autry et al. (U.S. Pat. No. 5,724,106) (Office Action, p. 9, lines 1-3).

Claims 26 and 35 depend from claim 25 and incorporate the following limitations of base claim 25, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor".

None of Pope, Graham or Autry teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected. As explained above with regard to claim 25, neither Pope nor Graham teaches these limitations, and the examiner does not contend that Autry teaches these limitations. Autry does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device.

Because the combination of Pope, Graham and Autry does not teach either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected, the § 103(a) rejection of claims 26 and 35 should be withdrawn.

V. Claim 34

Claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham and further in view of Teskey et al. (U.S. Pat. No. 6,747,568) (Office Action, p. 9, lines 12-14).

Claim 34 depends from claim 25 and incorporates the following limitations of base claim 25, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor".

None of Pope, Graham or Teskey teaches either (i) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (ii) generating a key code within a key code generator device. As explained above with regard to claim 25, neither Pope nor Graham teaches these limitations, and the examiner does not contend that Teskey teaches these limitations. Teskey does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device.

In addition, claim 34 recites "timing information that describes a digital one and a digital zero". The Examiner admits that Pope "is silent on teaching the key code comprises timing information defining the binary number is modulated." But the Examiner states that Teskey "teaches the format of the remote control signal having the necessary timing and modulation information (col. 3 line 60-col. 4 line 8)" (Office Action, p. 9, lines 16-19). Teskey does not, however, teach the recited timing information that defines a digital one or a digital zero. In fact, Teskey does not mention a digital one, a digital zero or any type of mark/space representation. In the Response to Arguments section, the examiner does not refute that Teskey does not mention a digital one, a digital zero or any type of mark/space representation. Instead, the examiner argues that the infrared signals generated in Teskey "inherently include ones and zeroes" (Office Action, p. 3, line 18). The general reference in Teskey to "overall signal timing information" is insufficient to teach the recited codeset comprises timing information that describes a digital

one and a digital zero. "To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991)" *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004) (emphasis added). The Examiner has not established a *prima facie* case of obviousness because the Examiner has provided no extrinsic evidence that the overall signal timing information of Teskey, such as carrier frequency, pulse width and pulse modulation, necessarily includes describes digital ones and digital zeros. The general modulation onto a carrier signal, such a frequency modulation or amplitude modulation, does not require knowledge of the mark/space table that defines the digital ones and zeros that are being modulated.

Because the combination of Pope, Graham and Teskey does not teach any of (i) generating a key code within a key code generator device, (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (iii) timing information that defines a digital one or a digital zero, the § 103(a) rejection of claim 34 should be withdrawn.

VI. Claims 36, 38-45, 47 and 49

Claims 36, 38-45, 47 and 49 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham and further in view of Grube et al. (U.S. Pat. No. 5,201,067) (Office Action, p. 10, lines 3-5).

A. Independent claims 36 and 39

Similar to claim 25, claims 36 and 39 also recite, "receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key

code within a key code generator device using the keystroke indicator" (emphasis added). The combination of Pope, Graham and Grube does not form the basis for a valid rejection of claims 36 and 39 under § 103(a) because none of Pope, Graham or Grube teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator signal as well as a key code signal.

(i) None of Pope, Graham or Grube teaches generating a key code within a key code generator device.

With regard to claims 36 and 39, the examiner states that "Pope teaches generating a key code within a key code generator device" (Office Action, p. 10, lines 10-11). But as explained above with regard to claim 25, Pope does not teach generating a key code within base unit 12. The appliance control code that is transmitted by base unit 12 of Pope is not generated within base unit 12. Instead, base unit 12 receives the appliance control codes from handset 10 and translates the control codes onto infrared control signals. Pope explains:

> "The present invention uses a digital cordless telephone handset to store a variety of appliance control codes. These appliance control codes can be transmitted to a base unit. The base unit can translate the appliance control codes to control signals such as infrared control signals, to control an electrical appliance" (Pope, col. 1, lines 31-36) (emphasis added). *See also* Pope, col. 2, lines 48-52 and 63-65.

Instead of being generated within the base unit 12, the appliance control codes of Pope are transmitted from the handset 10 to the base unit 12, where they are translated onto control signals. Base unit 12 of Pope does not receive a keystroke indicator and then generate a key code. Thus, Pope does not teach the recited "receiving a keystroke indicator from a remote control device" (emphasis added). Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, col. 4, lines 49-51) (emphasis added). So the same control code that is

received by base unit 12 is later transferred to an appliance. The appliance control code is not generated within base unit 12.

(ii) None of Pope, Graham or Grube teaches both a keystroke indicator and a key code.

With regard to claims 36 and 39, the examiner states, "The base unit (12) . . . receives the keystroke indicator indicating a key on the remote control" (Office Action, p. 10, lines 9-10). Applicant disagrees. The base unit of Pope receives a control code indicating a function as opposed to a keystroke indicator indicating which key a user has selected on the handset 10.

The handset 10 of Pope uses a display 32 to scroll through a menu of functions. When the transmit key XMIT is pressed, the control code for the selected function is transmitted to base unit 12. No keystroke indicator is transmitted because the fact that the transmit key XMIT was selected is not conveyed to base unit 12. Alternatively, instead of using display 32, "shift," "alt," and "control" keys can be used to assign functions to the buttons "0" to "9," "star," and "pound". (Pope, col. 2, line 61 – col. 3, line 19) The correspondence of the keys on handset 10 to various functions can be changed without requiring the base unit 12 to know of the correspondence. For example, handset 10 transmits a code corresponding to the mute function without transmitting to base unit 12 any indication that display 32 was used to select the mute function or that the keys #, 9 and XMIT, for example, were used to select the mute function. Base unit 12 just receives a command code corresponding to the mute function. Pope teaches that display 68 and keypad 70 are used to select the control code out of memory 66 on handset 10, and then the control code is transmitted to base unit 12. (Pope, col. 4, lines 30-33)

The examiner's argument in the Response to Arguments section is therefore incorrect that the code received by base unit 12 is an indication of the pressed key because "the selected function is based on the key that was pressed on the remote control" (Office Action, p. 3, line 21 – p. 4, line 1). There is no

established association between any particular key and the selected function. Thus, Pope does not teach a keystroke indicator that indicates which key a user has selected on a remote control device.

Moreover, it is improper to construe an appliance control code of Pope to teach both a keystroke indicator and a key code. According to the tenets of claim differentiation, the claim term "keystroke indicator" cannot be interpreted to have the same meaning as the claim term "key code". Such a claim interpretation is presumptively unreasonable. See, e.g., *Karlin Tech. Inc. v. Surgical Dynamics Inc.*, 177 F.3d 968, 50 USPQ2d 1465, 1468 (Fed. Cir. 1999). In addition, such a claim interpretation would render claim 36 internally inconsistent because a "key code" that was already received by the key code generator device would later be generated by the key code generator device. Thus, Pope does not teach both a keystroke indicator and a key code. The handset 10 of Pope transmits an appliance control code as opposed to a keystroke indicator to base unit 12.

Grube also does not teach either (i) generating a key code within a key code generator device using a keystroke indicator, or (ii) receiving a keystroke indicator that indicates a key on a remote control device that a user has selected. And the examiner does not contend that Grube teaches these limitations.

Pope, Graham and Grube do not form the basis for valid rejections of claims 36 and 39 under § 103(a) because none of Pope, Graham or Grube teaches either (i) generating a key code within a key code generator device, or (ii) receiving a keystroke indicator from a remote control device. Reconsideration of the § 103(a) rejections and allowance of claims 36 and 39 are requested.

B. Dependent claims 38, 40-45, 47 and 49

Claim 38 depends from claim 36 and is allowable for at least the same reasons for which claim 36 is allowable.

Claim 41 recites that "the electronic consumer device is not capable of receiving the radio frequency transmission, and wherein the transmitting in (e) is performed after the transmitting in (d)." The examiner contends that Grube

teaches modulating a first key code onto an IR signal and transmitting a second key code on an RF signal. (Office Action, p. 10, lines 16-18) The examiner does not, however, present a *prima facie* case of obviousness against claim 41 because the examiner does not contend that any of Pope, Graham or Grube teaches transmitting an RF transmission to an electronic consumer device and then transmitting an IR transmission to the electronic consumer device after the device is not capable of receiving the RF transmission. Although Grube teaches a communication device with both an IR and an RF transmitter, the RF transmitter is for garage door openers and the like, whereas the IR transmitter is used for conventional IR remote control signaling. (Grube, col. 4, lines 9-24) Grube does not transmit an RF transmission to an electronic device and then transmit an IR transmission to the electronic device if the device was not capable of receiving the RF transmission.

In the Response to Arguments section, the examiner contends that claim 41 does not recite transmitting an IR transmission after a device is not capable of receiving an RF transmission. (Office Action, p. 4, lines 3-5) The examiner's summary of what he believes claim 41 to recite incorrectly states that claim 41 recites that the IR transmission is performed before the RF transmission. (Office Action, p. 4, lines 6-8) In fact, intervening claim 40 recites that (d) relates to transmitting an RF transmission, and (e) relates to transmitting an IR transmission. Thus, the recitation in claim 41 that (e) is performed after (d) means that the IR transmission is performed after the RF transmission. The rejection of claim 41 should be withdrawn because it is based on an incorrect claim interpretation.

Claim 42 recites that "the formatting in (c) comprises converting the key code from the key code signal based on the first modulation technique into the key code signal based on the second modulation technique" (emphasis added). The examiner contends that Pope teaches the limitations of claim 42. The examiner argues that the signal from handset 10 to base unit 12 teaches the key code signal based on a first modulation technique, whereas the signal from base

unit 12 to the appliance teaches the key code signal based on the second modulation technique. (Office Action, p. 11, lines 8-11) But the signal transmitted from handset 10 to base unit 12 does not teach the recited key code signal that is transmitted to the recited electronic consumer device. A signal that is not transmitted to the appliance of Pope cannot teach the recited key code signal. The appliance control codes of Pope that are transmitted from handset 10 to base unit 12 do not control an electrical appliance and are never transmitted to an electrical appliance. All of the infrared control signals that are transmitted from base unit 12 to an appliance in Pope are in the "infrared format." (Office Action, p. 11, line 10) None of the infrared control signals that are transmitted from base unit 12 to an appliance in Pope use a "spread spectrum type of modulation," which the examiner contends is a second type of modulation. (Office Action, p. 11, line 9) Thus, Pope does not teach converting a key code signal from a first modulation technique to a second modulation technique.

Claim 44 recites "determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device." The examiner does not present a *prima facie* case of obviousness against claim 44 because the examiner does not contend that any of Pope, Graham or Grube teaches determining that the key code signal using a particular modulation technique cannot be used to communicate with an electronic consumer device.

Claim 49 recites that "the keystroke indicator is not a code that is understood by the electronic consumer device." The examiner contends that a control code of Pope teaches the recited keystroke indicator this is not a code understood by the appliance "because it is not in a format acceptable by the appliance" (Office Action, p. 12, line 6). The examiner's interpretation of the word "understood" is inconsistent with the usage of that term in the claims. The code is understood by the appliance when the code is properly formatted. Base claim 39 recites that the key code is formatted for transmission to an electronic consumer device. It would be unreasonable to interpret the key code as not

being understood by the electronic consumer device. The command codes of Pope that are transmitted by handset 10 to base unit 12 and then transferred to the appliance are indeed understood by the appliance. Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, col. 4, lines 49-51) (emphasis added). The rejection of claim 48 should be withdrawn because the interpretation of "understood" that is the basis for the rejection is unreasonable.

In addition to the reasons explained above, dependent claims 40-45, 47 and 49 depend from claim 39 and are allowable for at least the same reasons for which claim 39 is allowable. Reconsideration of the § 103(a) rejections and allowance of claims 38, 40-45, 47 and 49 are requested.

VII. Claim 37

Claim 37 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham in view of Grube and further in view of Chiloyan et al. (U.S. Pat. No. 6,008,735) (Office Action, p. 12, lines 7-9).

Claim 37 depends from claim 36 and incorporates the following limitations of base claim 36, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor".

None of Pope, Graham, Grube or Chiloyan teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected. As explained above with regard to claims 36 and 39, none of Pope, Graham or Grube teaches these limitations, and the examiner does not contend that Chiloyan teaches these limitations. Chiloyan does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device. In Chiloyan, the code sets are stored in the remote control unit.

Because the combination of Pope, Graham, Grube and Chiloyan does not teach either of (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected, the § 103(a) rejection of claim 37 should be withdrawn.

VIII. Claim 46

Claim 46 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham in view of Grube and further in view of Autry (Office Action, p. 13, lines 1-3).

Claim 46 depends from claim 39 and incorporates the following limitations of base claim 39, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor".

None of Pope, Graham, Grube or Autry teaches either (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected. As explained above with regard to claims 36 and 39, none of Pope, Graham or Grube teaches these limitations, and the examiner does not contend that Autry teaches these limitations. Autry does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device.

Because the combination of Pope, Graham, Grube and Chiloyan does not teach either of (i) generating a key code within a key code generator device, or (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected, the § 103(a) rejection of claim 46 should be withdrawn.

IX. Conclusion

In view of the foregoing remarks, Applicant respectfully submits that the entire application (claims 25-49 are pending) is in condition for allowance. Applicant respectfully requests that a timely Notice of Allowance be issued in this

case. If the Examiner would like to discuss any aspect of this application, the Examiner is requested to contact the undersigned at (925) 550-5067.

I hereby certify that this correspondence is being submitted electronically via EFS-Web to the United States Patent and Trademark Office.

By /Darien K. Wallace/
Darien K. Wallace

Date of Deposit: April 28, 2012

Respectfully submitted,

/Darien K. Wallace/

Darien K. Wallace
Attorney for Applicant
Reg. No. 53,736
Customer No. 47,713

PTO/SB/26 (08-11)
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TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) ZIL-568-2C

In re Application of: Daniel SauFu Mui

Application No.: 13/068,820

Filed: May 21, 2011

For: Relaying Key Code Signals Through a Remote Control Device

The owner*, UEI Cayman Inc., of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 7,589,642 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

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1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 53,736

Signature — 4/28/2012 Date

Darien K. Wallace
Typed or printed name

(925) 550-5067
Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) submitted with prior response

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Electronic Acknowledgement Receipt	
EFS ID:	12655867
Application Number:	13068820
International Application Number:	
Confirmation Number:	7302
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Customer Number:	47713
Filer:	Darien Kenneth Wallace
Filer Authorized By:	
Attorney Docket Number:	ZIL-568-2C
Receipt Date:	28-APR-2012
Filing Date:	21-MAY-2011
Time Stamp:	21:40:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AMND.pdf	156713 4afe24fb59d95157f5d20b0f45a81298d31d675f	yes	26

	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment After Final		1	1	
	Claims		2	6	
	Applicant Arguments/Remarks Made in an Amendment		7	26	
Warnings:					
Information:					
2	Statutory disclaimers per MPEP 1490.	DSCLM.pdf	324272 e158d5c8806b7e8fada9feca01e651b956a044ff	no	1
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		Total Files Size (in bytes):	480985		

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/068,820	Filing Date 05/21/2011	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐ RATE ($)	SMALL ENTITY ☐ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
FOR	NUMBER FILED	NUMBER EXTRA					
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 04/28/2012	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 23	Minus	** 23	= 0	X $ =		OR	X $60=	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $ =		OR	X $250=	0
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
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/DEBRA SAVOY/

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Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/068,820	MUI, DANIEL SAUFU	

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Date Filed : 4/28/12	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

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The disclaimer fee under 37 CFR 1.20(d) has not been submitted, nor is there any pre authorization in the application to charge to a deposit account. (See FP 14.24 and 14.26.07.)

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Applicant:	Daniel SauFu Mui	
Assignee:	UEI Cayman Inc.	
Title:	"Relaying Key Code Signals Through a Remote Control Device"	
Appl. No.:	13/068,820	Filing Date: May 21, 2011
Examiner:	Vernal U. Brown	Art Unit: 2612
Docket No.:	ZIL-568-2C	Confirmation No.: 7302

Via EFS-Web April 28, 2012
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RESPONSE TO FINAL OFFICE ACTION

Dear Sir:

In response to the final Office action dated April 11, 2012 ("Office Action"), Applicant responds as follows and requests the examiner to amend the above-identified application as follows.

There are no amendments to the specification in this Response.

A listing of the most current version of the claims begins on page 2 of this Response.

There are no amendments to the drawings in this Response.

The **Remarks** begin on page 7 of this Response.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C	7302

47713 7590 05/11/2012

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EXAMINER	
BROWN, VERNAL U	
ART UNIT	PAPER NUMBER
2612	
MAIL DATE	DELIVERY MODE
05/11/2012	PAPER

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The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Advisory Action Before the Filing of an Appeal Brief	**Application No.** *13/068,820*	**Applicant(s)** MUI, DANIEL SAUFU
	Examiner VERNAL BROWN	**Art Unit** 2612

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 28 April 2012 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☒ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires _____months from the mailing date of the final rejection.
   b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANT'S FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): (a) ☐ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

STATUS OF CLAIMS

14. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed: .
    Claim(s) objected to: .
    Claim(s) rejected: .
    Claim(s) withdrawn from consideration: .

/Vernal U Brown/
Primary Examiner, Art Unit 2612

Continuation of 11. does NOT place the application in condition for allowance because: Regarding applicant's argument regarding the similarity between the allowed claim 25 in US Patent 7589642 and the instant claims with reference to the keystroke indicator signal, it is the examiner's position that claim 25 of US Patent 7,7589642 was allowed because the claim recited the limitation of transmitting the key code to the remote control from the key code generator. The instant claims recites the limitation of transmitting the key code from the key code generator to the electronic consumer device as disclosed by Pope (col. 3 lines 35-40). The decision by the Board of Appeal and interference on 11/14/08 on the parent application (ser. # 10737029) rules that the key code indicator signal can be considered as a key code and appellant own specification description of a keycode indicator signal also include a keycode (see page 16 of the Decision on the appeal). Applicant's arguments are similar to the arguments that were presented in the applicant response to the Non-Final office action which the examiner previously responded to and the examiner still considered such arguments to be unpersuasive based on the reason provided in the response to the Non-Final office action. The rejection under 35 U.S.C 112 first paragraph has been withdrawn. The terminal disclaimer was disapproved because there was no fee charged/no authorization to charge fee.
.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/068,820	MUI, DANIEL SAUFU	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 4/28/12	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

Felicia D. Roberts

7,589,642 (TD was originally charged under the incorrect fee code which has now been corrected by the office of finance).

U.S. Patent and Trademark Office

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Daniel SauFu Mui	
Assignee:	UEI Cayman Inc.	
Title:	"Relaying Key Code Signals Through a Remote Control Device"	
Appl. No.:	13/068,820	Filing Date: May 21, 2011
Examiner:	Vernal U. Brown	Art Unit: 2612
Docket No.:	ZIL-568-2C	Confirmation No.: 7302

Via EFS-Web July 10, 2012

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P.O. Box 1450
Alexandria, VA 22313-1450

NOTICE OF APPEAL FROM THE PRIMARY EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the Primary Examiner dated April 11, 2012, finally rejecting claims 25-49 of the above-referenced application.

The payment of the Notice of Appeal fee required under 37 CFR §41.20(b)(1) is submitted along with this notice.

I hereby certify that this correspondence is being submitted electronically via EFS Web to the United States Patent and Trademark Office.

By /Darien K. Wallace/
Darien K. Wallace

Date submitted: July 10, 2012

Respectfully submitted,

/Darien K. Wallace/

Darien K. Wallace
Attorney for Applicant
Reg. No. 53,736
Customer No. 47,713

Electronic Patent Application Fee Transmittal	
Application Number:	13068820
Filing Date:	21-May-2011
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Filer:	Darien Kenneth Wallace
Attorney Docket Number:	ZIL-568-2C
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Notice of appeal	1401	1	620	620
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**620**

Electronic Acknowledgement Receipt	
EFS ID:	13219421
Application Number:	13068820
International Application Number:	
Confirmation Number:	7302
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Customer Number:	47713
Filer:	Darien Kenneth Wallace
Filer Authorized By:	
Attorney Docket Number:	ZIL-568-2C
Receipt Date:	10-JUL-2012
Filing Date:	21-MAY-2011
Time Stamp:	19:31:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$620
RAM confirmation Number	6610
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Notice of Appeal Filed	ZIL-568-2C_Notice_of_Appeal.pdf	13604 8ce50ff4fc08facdc9d4e37f9b07856a32ee8595	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	29960 8b263f929e8fd0787bfc201db9737fa9495d324c	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	43564		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Daniel SauFu Mui	
Assignee:	UEI Cayman Inc.	
Title:	"Relaying Key Code Signals Through a Remote Control Device"	
Appl. No.:	13/068,820	Filing Date: May 21, 2011
Examiner:	Vernal U. Brown	Art Unit: 2612
Docket No.:	ZIL-568-2C	Confirmation No.: 7302

Mail Stop Appeal Brief - Patents July 16, 2012
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APPEAL BRIEF

This Appeal Brief is filed pursuant to 37 CFR § 41.37 in support of the Notice of Appeal filed on July 10, 2012.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee, UEI Cayman Inc., as named in the caption above. UEI Cayman Inc. is affiliated with Universal Electronics Inc.

II. RELATED APPEALS AND INTERFERENCES

There are no other pending appeals or interferences known to Appellant that relate to, directly affect or are directly affected by the Board's decision in this appeal. However, a decision dated November 14, 2008, in the appeal 2008-4830 in the parent application 10/737,029, is directly applicable to this appeal.

III. STATUS OF CLAIMS

The continuation application at issue, filed on May 21, 2011, included 23 claims filed with a preliminary amendment (claims 25-47). In an amendment dated January 23, 2012, Appellant added claim 48-49. In a final Office action

("Office Action") dated April 11, 2012, claims 25-49 were rejected. The rejected claims, namely claims 25-49, are subject to the present appeal.

IV. STATUS OF AMENDMENTS

A Response dated August 3, 2011, was filed in response to a the final Office action dated April 11, 2012. The Response contained no claim amendments. The examiner responded to the Response with an advisory action dated May 11, 2012. No amendments were filed subsequent to the final rejection in the final Office action dated April 11, 2012.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following summary pursuant to 37 CFR § 41.37(c)(1)(v) is a "concise explanation of the subject matter defined in each of the independent claims involved in the appeal" (MPEP § 1205.02(v)). The explanation of the subject matter defined in independent claims 25, 36 and 39 is to be read in light of the disclosure and does not limit the claims. (See MPEP §1206).

A. Independent claim 25

Independent claim 25 is directed to a method of transmitting a key code signal 25. In a first step, a keystroke indicator is received from a remote control device 11. The keystroke indicator indicates a key on remote control device 11 that a user has selected. The keystroke indicator is received onto a key code generator device 12 in a keystroke indicator signal 16 from remote control device 11, as shown in FIG. 1 (below). (Specification, ¶¶ [0025], [0040]) For example, key code generator device 12 is a set-top box. (Specification, ¶[0022]) In a next step, a key code is generated within key code generator device 12 using the keystroke indicator. (Specification, ¶[0027]) Steps 101 through 102 in the flowchart of FIG. 2 describe generating the key code using the keystroke indicator. Using the indication of the pressed key and the codeset corresponding to the selected electronic consumer device 14, key code generator 12 generates

the key code. (Specification, ¶[0041])

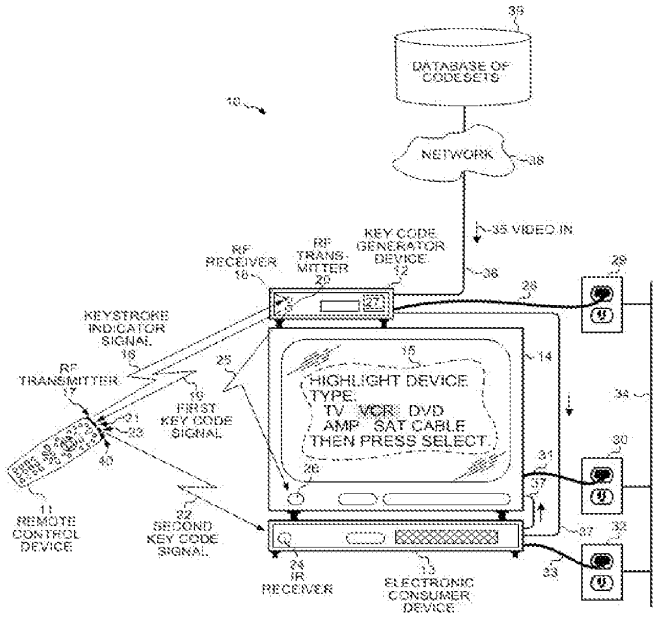

FIG. 1

In a next step, the key code is formatted for transmission. (Specification, ¶[0041]) For example, the key code is modulated onto a carrier signal. (Specification, ¶[0029]) When the key code is formatted for transmission, a key code signal 25 is generated. The key code signal 25 is transmitted from key code generator device 12 to electronic consumer device 14. (Specification ¶¶[0037], [0041]-[0042]; FIG. 1). The key code causes the selected electronic consumer device 14 to perform the desired function.

B. Independent claim 36

Independent claim 36 is directed to a method of transmitting key code signals to electronic consumer devices. In a first step, a keystroke indicator is received from a remote control device 11. (Specification, ¶[0023]; FIG. 1) The keystroke indicator indicates a key on remote control device 11 that a user has selected. (Specification, ¶¶[0024]-[0025]) The keystroke indicator is received

onto a key code generator device 12 in a keystroke indicator signal 16 from remote control device 11. (Specification, ¶¶[0025], [0040]; FIG. 1(16)) For example, key code generator device 12 is a set-top box. (Specification, ¶[0022])

In a next step, a key code is generated within key code generator device 12 using the keystroke indicator. (Specification, ¶[0027]) Steps 101 through 102 in the flowchart of FIG. 2 (below) describe generating the key code using the

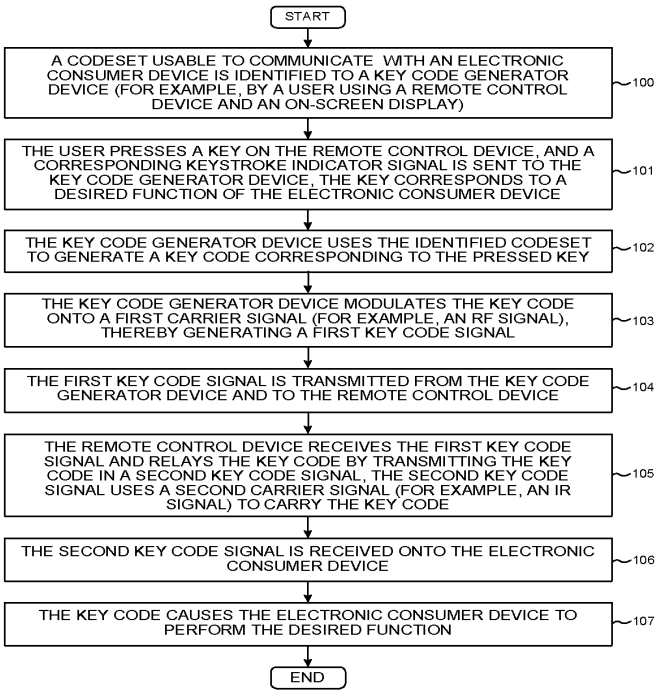

FIG. 2

keystroke indicator. Using the indication of the pressed key and the codeset corresponding to the selected electronic consumer device 14, key code generator 12 generates the key code. (Specification, ¶[0041])

In a next step, a first key code signal 25 is generated by modulating the key code onto a first carrier signal. (Specification, ¶[0029]; FIG. 2(103)) The first carrier signal is in a radio frequency band. (Specification, ¶[0029]) A second key code signal 25 is then generated by modulating the key code onto a second carrier signal. The second carrier signal is in an infrared frequency band.

(Specification, ¶[0037]) The first key code signal 25 is transmitted from key code generator device 12 to a first electronic consumer device 13, such as a VCR. The second key code signal 25 is transmitted from key code generator device 12 to a second electronic consumer device 14, such as a television set. (Specification ¶[0020]; FIG. 1 (13, 14))

C. Independent claim 39

Independent claim 39 is directed to a method of transmitting a key code signal 25 to an electronic consumer device 14. In a first step, a keystroke indicator is received from a remote control device 11. (Specification, ¶[0023]; FIG. 1) The keystroke indicator indicates a key on remote control device 11 that a user has selected. (Specification, ¶¶[0024]-[0025]) The keystroke indicator is received onto a key code generator device 12 in a keystroke indicator signal 16 from remote control device 11. (Specification, ¶¶[0025], [0040]; FIG. 1 (16)) For example, key code generator device 12 is a set-top box. (Specification, ¶[0022])

In a next step, a key code is generated within key code generator device 12 using the keystroke indicator. (Specification, ¶[0027]) Steps 101 through 102 in the flowchart of FIG. 2 describe generating the key code using the keystroke indicator. (Specification, ¶[0041]) The key code is then formatted for transmission. (Specification, ¶[0041]) When the key code is formatted for transmission, a key code signal 25 is generated. The key code signal 25 is transmitted from key code generator device 12 to electronic consumer device 14. (Specification ¶¶[0037], [0041]-[0042]; FIG. 1). In one embodiment, key code signal 25 is transmitted to electronic consumer device 14 via a hardwired connection, whereas in another embodiment key code signal 25 is transmitted to electronic consumer device 14 via a wireless connection. (Specification, ¶[0053])

The key code is first modulated onto a carrier signal using a first modulation technique to generate key code signal 25 and is then transmitted to electronic consumer device 14. (Specification, ¶[0029]) For example, the first modulation technique is performed in a radio frequency band. (Specification,

¶[0042]) The key code causes the selected electronic consumer device 14 to perform a desired function. However, if the electronic consumer device 14 does not respond to key code signal 25, then the key code is modulated onto the carrier signal using a second modulation technique and retransmitted to electronic consumer device 14. For example, the second modulation technique is performed in an infrared frequency band. (Specification ¶¶[0037], [0053])

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 25, 27-33 and 48 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Pope (U.S. Pat. No. 5,963,624) in view of Graham (U.S. Pat. No. 4,005,428).[1]

B. Whether claims 26 and 35 are unpatentable under 35 U.S.C. § 103(a) over Pope in view of Graham and further in view of Autry et al. (U.S. Pat. No. 5,724,106).

C. Whether claim 34 is unpatentable under 35 U.S.C. § 103(a) over Pope in view of Graham and further in view of Teskey et al. (U.S. Pat. No. 6,747,568).

D. Whether claims 36, 38-45, 47 and 49 are unpatentable under 35 U.S.C. § 103(a) over Pope in view of Graham and further in view of Grube et al. (U.S. Pat. No. 5,201,067).

E. Whether claim 37 is unpatentable under 35 U.S.C. § 103(a) over Pope, Graham and Grube and further in view of Chiloyan et al. (U.S. Pat. No. 6,008,735).

F. Whether claim 46 is unpatentable under 35 U.S.C. § 103(a) over Pope, Graham and Grube and further in view of Autry.

[1] The written description rejection of claims 48-49 under 35 U.S.C. § 112, first paragraph, was withdrawn in the Advisory Action dated May 11, 2012.

VII. ARGUMENT

A. Claims 25, 27-33 and 48

Claims 25, 27-33 and 48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope (U.S. Pat. No. 5,963,624) in view of Graham (U.S. Pat. No. 4,005,428) (Office Action, 7:1-2)[2].

1. Independent claim 25

Claim 25 recites, "the keystroke indicator indicates a key on the remote control device that a user has selected . . . generating a key code within a key code generator device using the keystroke indictor" (emphasis added). The combination of Pope and Graham does not form the basis for a valid rejection of claim 25 under § 103(a) because neither Pope nor Graham teaches either (i) a keystroke indicator as well as a key code, or (ii) generating a key code within a key code generator device.

(i) Neither Pope nor Graham teaches both a keystroke indicator and a key code.

The Board of Patent Appeals and Interferences (the "Board") has already determined in the parent case 10/737,029 (now U.S. Pat. No. 7,589,642) that neither Pope nor Graham teaches the narrower construction of "keystroke indicator," as now recited in claim 25, in which "keystroke indicator" indicates which key on a remote control device that a user has selected. The version of claim 25 considered by the Board in the original 2008 appeal ("first claim version") recited:

> 1. A method comprising:
>
> (a) receiving a keystroke indicator signal from a remote control device;
>
> (b) generating a key code within a key code generator device;
>
> (c) modulating said key code onto a carrier signal, thereby generating a key code signal; and
>
> (d) transmitting said key code signal from said key code generator device.

[2] Citation to pages and lines of documents in the form X:Y-Z denotes lines Y-Z on page X.

The Board found that Examiner Vernal Brown erred in rejecting the first claim version over Pope and McNair (U.S. Pat. No. 5,595,342). (11/14/08 Decision on Appeal 2008-4830, 13:10-11) Yet the Board raised its own new grounds of rejection of the first claim version over Pope and Graham. The Board based its rejection of the first claim version on a broad interpretation of the claim term "keystroke indicator signal." The Board acknowledged that Applicant had argued for "a narrow interpretation of the term 'keystroke indicator signal' to mean an indication of a selected key while precluding a control code." (11/14/08 Decision on Appeal 2008-4830, 16:5-7) (emphasis added). But the Board interpreted the recited "keystroke indicator signal" to have a broad meaning that covers Pope's appliance control codes because, with regard to one embodiment at one location in the specification, Applicant inartfully used the term "keycode." (11/14/08 Decision on Appeal 2008-4830, 16:10-11)

Applicant overcame the Board's rejection by amending the first claim version explicitly to limit the scope of the term "keystroke indictor signal" to indicate a key on a remote control device that a user has selected. The amendments that rendered the first claim version allowable over the Board's rejection were made in an amendment dated January 6, 2009, and recited:

> 1. A method comprising:
>
> (a) receiving a keystroke indicator signal from a remote control device, wherein the keystroke indicator signal indicates a key on said remote control device that a user has selected;
>
> (b) generating a key code within a key code generator device using the keystroke indictor signal;
>
> (c) modulating said key code onto a carrier signal, thereby generating a key code signal; and
>
> (d) transmitting said key code signal from said key code generator device.

These claim amendments made it clear that the keystroke indicator signal is used to generate the key code and, therefore, the keystroke indicator cannot be synonymous with the key code. Moreover, these claim amendments made it clear that the keystroke indicator indicates a key on a remote control that a user

has selected and, therefore, is not taught by a control code of Pope. The appliance control codes of Pope are not keystroke indicators that indicate which keys on a remote control device that a user has selected.

But in the examination following the Board's decision, the examiner refused to accept the finding of the Board that Pope's appliance control codes would not teach a narrower interpretation of a keystroke indicator signal that means an indication of a selected key. (See 11/14/08 Decision on Appeal 2008-4830, 16:3-15) Applicant eventually canceled the first claim version to put the application in a condition for allowance with other claims allowed by the examiner.

Claim 25 of this application is similar to the amended first claim version and retains the limitations that preclude an appliance control code of Pope from teaching the recited "keystroke indicator." Claim 25 of this application is reproduced below to show the changes compared to the amended first claim version.

> 25. A method comprising:
>
> (a) receiving a keystroke indicator ~~signal~~ from a remote control device, wherein the keystroke indicator ~~signal~~ indicates a key on ~~said~~the remote control device that a user has selected;
>
> (b) generating a key code within a key code generator device using the keystroke indictor ~~signal~~;
>
> (c) ~~modulating said~~formatting the key code ~~onto a carrier signal,~~for transmission and thereby generating a key code signal; and
>
> (d) transmitting ~~said~~the key code signal from ~~said~~the key code generator device to an electronic consumer device.

Claim 25 is allowable over Pope and Graham because the term "keystroke indicator" has been narrowed to indicate a key on a remote control device that a user has selected, which precludes the control codes of Pope. Claim 25 is not rendered unpatentable by the combination of Pope in view of Graham because a command code of Pope does not teach the recited "keystroke indicator."

The examiner's current rejection of claim 25 should be overruled because

it remains based on the argument that a command code of Pope teaches the recited "keystroke indicator." In the Advisory Action dated May 11, 2012, the examiner relies on the finding of the Board that the broadest interpretation of the term "keystroke indicator" in the first claim version reads on a command code of Pope. The examiner ignores the fact that the current version of claim 25 has been amended explicitly to narrow the scope so as to preclude reading on a control code. Moreover, the examiner obfuscates the clear recitation in the current version of claim 25 that "the keystroke indicator indicates a key" by rewording the finding of the Board regarding the first claim version to have ruled "that the key code indicator signal can be considered as a key code" (Advisory Action, 2:6-7) (emphasis added). Claim 25 does not recite a "key code indicator" as the examiner contends, and no claim in the present application or in the parent application has ever recited a "key code indicator." The recited "keystroke indicator" indicates a key as opposed to a code.

In the Office Action, the examiner states, "The base unit (12) . . . receives the keystroke indicator indicating a key on the remote control" (Office Action, 7:5-6) (emphasis added). This mischaracterizes the teachings of Pope; a control code of Pope does not indicate a key. The base unit of Pope receives a control code indicating a function instead of receiving a keystroke indicator that indicates which key a user has selected on a remote control device. Because the control code of Pope indicates a function to be performed as opposed to which key was pressed, the control code of Pope does not teach the recited keystroke indicator.

The handset 10 of Pope uses a display 32 to scroll through a menu of functions. When the transmit key XMIT is pressed, the control code for the selected function is transmitted to base unit 12. No keystroke indicator is transmitted because the fact that the transmit key XMIT was selected is not conveyed to base unit 12. Alternatively, "shift," "alt," and "control" keys can be used instead of using display 32 to assign functions to the buttons "0" to "9," "star," and "pound," as explained in the passage from Pope reproduced below.

Keypad **30** includes the numbers **1–9**, the "star" and the "pound" key. Additionally, "up arrow" key **30***a* and "down arrow" key **30***b* can be used to scroll through a menu. A "transmit" key **30***c* can be used to transmit the appliance control code once the appliance control has been selected. In one embodiment, the user gets into the menu by pressing an "up arrow" or a "down arrow" key. Alternately a "menu" button (not shown) is used. The keys for numbers **1–9** can have different meanings once the user is in the menu. Menu functions can be printed above the normal telephone control keys. FIG. **1** shows compact disc, television, cable and AC signal control menu-function buttons. The setup menu can be entered, one of these buttons pressed, and then using the up and down arrows, the specific controls for a given electrical appliance can be scrolled through. The different appliance controls can be listed in the order of frequency of use. For example, the "mute" function could be the first function listed in each menu selection.

Alternately, individual functions can be mapped with the associated buttons of the keypad, and a display **32** need not be used. Buttons similar to a "shift," "alt," and "control" on a normal computer keypad can be used to change the meanings of buttons "**0**" to "**9**," "star," and "pound." The different meanings associated with different buttons can be printed in different colors, which are the same colors of the associated buttons "shift," "alt," or "control."

(Pope, 2:61–3:19) (emphasis added) The correspondence of the keys on handset 10 to various functions can be changed without requiring the base unit 12 to know of the correspondence. For example, the mute function could be assigned to the keys "pound" plus "9." But when the keys #, 9 and XMIT are pressed, handset 10 would not transmit any indication to base unit 12 that the #, 9 and XMIT keys were pressed. Instead, handset 10 of Pope would transmit a control code to base unit 12 corresponding to the mute function.

In the Response to Arguments section, the examiner contends that each control code received by base unit 12 indicates the pressed key based on the desired function that the control code represents. (Office Action, 2:20-21) This is untrue. As explained above, various keys or combinations of keys can be assigned to a function. In the example above, when base unit 12 receives the control code for mute, the base unit 12 would not know that the keys #, 9 and XMIT were pressed. Another key or combination of keys could just as likely have been pressed to transmit the control code for the mute function. Moreover, Pope teaches that display 68 is used to select an appliance control code out of memory 66 on handset 10, and then the appliance control code is transmitted to base unit 12. (Pope, col. 4, lines 30-33) So the code is selected based on what appears on the display as opposed to which key was pressed. Thus, Pope does not teach a keystroke indicator that indicates which key a user has selected on a remote control device.

Moreover, it is improper to construe an appliance control code of Pope to teach both a keystroke indicator and a key code. According to the tenets of claim differentiation, the claim term "keystroke indicator" cannot be interpreted to have the same meaning as the claim term "key code" in the same claim. Such a claim

interpretation is presumptively unreasonable. See, e.g., *Karlin Tech. Inc. v. Surgical Dynamics Inc.*, 177 F.3d 968, 50 USPQ2d 1465, 1468 (Fed. Cir. 1999). The examiner's comment to this argument in the "Response to Arguments" section is nonresponsive. In response to Applicant's argument that two separate claim terms may not be taught by a single element in Pope, namely an appliance control code, the examiner states that "Pope teaches transmitting the control code indicating the desired appliance control function to the base unit and the base unit is use[d] to convert the receive[d] control code into an infrared format for transmission to the appliance" (Office Action, 3:4-7) (emphasis added). The examiner's statement merely affirms the reason why a control code of Pope is not a keystroke indicator that indicates which key on a remote control device a user has selected. The control code does not indicate the selected key but rather indicates the function that the appliance is to perform.

In addition, interpreting both the recited keystroke indicator and the recited key code to be taught by the control code of Pope would render claim 25 internally inconsistent because a "key code" that has already been received by the key code generator device would later be generated by the key code generator device. Thus, Pope does not teach both a keystroke indicator and a key code. The handset 10 of Pope transmits an appliance control code as opposed to a keystroke indicator to base unit 12.

(ii) Neither Pope nor Graham teaches generating a key code within a key code generator device.

Claim 25 is also allowable over the combination of Pope and Graham for a second reason. Neither Pope nor Graham teaches generating a key code within a key code generator device. As explained above, the examiner's interpretation of the claim terms requires the recited key code to be generated by the key code generator device after that key code has already been received by the key code generator device. That would be impossible.

The examiner states, "Pope teaches generating a key code within a key

code generator device" (Office Action, 7:6-7). Pope does not, however, teach generating a key code within base unit 12, which the examiner contends teaches the recited key code generator. (Office Action, 7:4-5) The appliance control code that is transmitted out of base unit 12 of Pope is not generated within base unit 12. Instead, base unit 12 receives the appliance control code from handset 10 and then transfers that appliance control code to the appliance. Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, 4:49-51) (emphasis added). Because the handset transmits the control codes to the base unit, the base unit cannot generate those codes. Pope explains:

> "The present invention uses a digital cordless telephone handset to store a variety of appliance control codes. These appliance control codes can be transmitted to a base unit. The base unit can translate the appliance control codes to control signals such as infrared control signals, to control an electrical appliance" (Pope, 1:31-36) (emphasis added). See also Pope, 2:48-52 and 63-65.

Thus, the appliance control codes of Pope are not generated within the base unit 12, but are rather transmitted from the handset 10 to the base unit 12, where they are translated onto control signals and transferred to the appliance. Translating the codes onto control signals is not the equivalent of generating the codes. The codes are merely transferred in a translated form by the base unit to the appliance. The same control code that is received by base unit 12 is later transferred to the appliance. Base unit 12 of Pope does not receive a keystroke indicator and then generate a key code using the keystroke indicator. Thus, Pope does not teach the recited "generating a key code within a key code generator device."

In the Response to Arguments section, the examiner continues the argument that the base unit 12 generates the same key code that it has already received in a "key code indicator signal." The examiner's argument is based on base unit 12 "generating the key code by translating the received key code indicator signal into a format to be used for controlling the particular appliance."

(Office Action, 2:11-13) The examiner's argument fails for three reasons. First, claim 25 does not recite a "key code indicator," so a teaching of using a "key code indicator" to generate a key code does not teach the recitations of claim 25. Instead, claim 25 recites a "keystroke indicator" that indicates a key. Second, Pope cannot teach generating a key code by translating the same key code that it has already received. As explained above, this is impossible. A device that receives a key code does not generate that key code. And third, Pope teaches something else. Pope teaches that a control code is transmitted to the base unit, which then translates the received control code onto a control signal and thereby transfers the control code to an appliance. (Pope, 1:31-36; 2:48-52 and 63-65; 4:49-51) So the control codes of Pope are not generated within base unit 12 by using a received keystroke indicator. Rather, base unit 12 receives the control codes from handset 10, and the examiner admits this. The examiner admits, "the appliance control codes are also stored in the mobile phone, [and] the base [unit] is used for converting the control codes into an infrared format that will be accepted by the appliance" (Office Action, 2:14-16) (emphasis added). Converting the received control codes into an infrared format is not the same as generating the control codes. So the control codes that are stored in the mobile phone and that are sent to the base unit cannot be generated within the base unit. Thus, Pope does not teach "generating a key code within a key code generator device using the keystroke indicator."

Pope and Graham do not form the basis for a valid rejection of claim 25 under § 103(a) because neither Pope nor Graham teaches either (i) a keystroke indicator as well as a key code, or (ii) generating a key code within a key code generator device. The § 103(a) rejection of claim 25 should be overruled.

2. Dependent claims 27-33 and 48

Claim 31 recites, "pressing a key of the remote control device so as to cause the remote control device to transmit a keystroke indicator signal

containing the keystroke indictor." The examiner contends that Pope teaches this limitation. (Office Action, 8:8-10) As explained above, handset 10 of Pope transmits an appliance control code as opposed to a keystroke indicator to base unit 12. The signal transmitted from handset 10 to base unit 12 does not contain a keystroke indicator indicating which key or keys on handset 10 the user selected. The signal transmitted from handset 10 to base unit 12 indicates only the function that the user has selected.

Claim 33 recites, "the key code generated in (b) is part of a codeset, and wherein the codeset is not stored on the remote control device." The examiner argues that the control code of Pope "is not stored in the remote control because it is transmitted to the appliances" (Office Action, 8:14-15). Applicant disagrees with the examiner's logic. Merely because a control code is transmitted to an appliance does not preclude that control code from being stored in handset 10. In fact, the control codes of Pope are stored in handset 10 and are then transmitted via base unit 12 to the appliances. Pope teaches that the appliance control codes are stored in memory 66 of handset 10 and are then transmitted to base unit 12. (Pope, 2:48-52; 4:27-28) In fact, the examiner admits that the control codes of Pope are stored in handset 10. The examiner states, "It is also the examiner's position that . . . that appliance control codes are also store[d] in the mobile phone" (Office Action, 2:13-14).

In the Response to Arguments section, the examiner argues that an "infrared control code" generated by base unit 12 of Pope teaches the recited key code. (Office Action, 3:9) But an infrared control code sent to an appliance does not teach the recited key code because the infrared control code is not associated with the particular key that was pressed. Rather, the infrared control code is associated with "the desired appliance control function" as the examiner admits. (See Office Action, 3:5) Thus, the control codes transmitted from mobile phone to base unit 12 are stored in the mobile phone, and Pope does not teach that a key code generated by a key code generator device is not stored on a remote control device.

Claim 48 recites that "the keystroke indicator is not a code that is understood by the electronic consumer device." The examiner contends that a control code of Pope teaches the recited keystroke indicator this is not a code understood by the appliance "because it is not in a format acceptable by the appliance" (Office Action, 8:19). The control code is, of course, understood by the appliance when it is formatted. The examiner's interpretation of the word "understood" is inconsistent with the usage of that term in the claims. Base claim 25 recites that the key code is formatted for transmission to an electronic consumer device. It would be unreasonable to interpret the key code as not being understood by the electronic consumer device. Similarly, the command codes of Pope that are transmitted by handset 10 to base unit 12 and then transferred to the appliance are indeed understood by the appliance. Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, 4:49-51) (emphasis added). The rejection of claim 48 should be overruled because the interpretation of "understood" that is the basis for the rejection is unreasonable.

In addition to the reasons explained above, claims 27-33 and 48 depend directly or indirectly from claim 25 and are allowable for at least the same reasons for which claim 25 is allowable. The § 103(a) rejections of claims 27-33 and 48 should be overruled.

B. Claims 26 and 35

Claims 26 and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham and further in view of Autry et al. (U.S. Pat. No. 5,724,106) (Office Action, 9:1-3).

Claims 26 and 35 depend from claim 25 and incorporate the following limitations of base claim 25, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor."

None of Pope, Graham or Autry teaches either (i) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (ii) generating a key code within a key code generator device. As explained above with regard to claim 25, neither Pope nor Graham teaches these limitations, and the examiner does not contend that Autry teaches these limitations. Autry does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device.

Because the combination of Pope, Graham and Autry does not teach either (i) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (ii) generating a key code within a key code generator device, the § 103(a) rejection of claims 26 and 35 should be overruled.

C. Claim 34

Claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham and further in view of Teskey et al. (U.S. Pat. No. 6,747,568) (Office Action, 9:12-14).

Claim 34 depends from claim 25 and incorporates the following limitations of base claim 25, “the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor”.

None of Pope, Graham or Teskey teaches either (i) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (ii) generating a key code within a key code generator device. As explained above with regard to claim 25, neither Pope nor Graham teaches these limitations, and the examiner does not contend that Teskey teaches these limitations. Teskey does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device.

In addition, claim 34 recites "timing information that describes a digital one and a digital zero". The Examiner admits that Pope "is silent on teaching the key code comprises timing information defining the binary number is modulated." (Office Action, 9:16-17) But the Examiner states that Teskey "teaches the format of the remote control signal having the necessary timing and modulation information (col. 3 line 60-col. 4 line 8)" (Office Action, p. 9, lines 18-19). Teskey does not, however, teach the recited timing information that defines a digital one or a digital zero. In fact, Teskey does not mention a digital one, a digital zero or any type of mark/space representation. In the Response to Arguments section, the examiner does not refute that Teskey does not mention a digital one, a digital zero or any type of mark/space representation. Instead, the examiner argues that the infrared signals generated in Teskey "inherently include ones and zeroes" (Office Action, 3:18). The general reference in Teskey to "overall signal timing information" is insufficient to teach that the recited codeset comprises timing information describing a digital one and a digital zero. "To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991)" *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004) (emphasis added). The examiner has not established a *prima facie* case of obviousness because the examiner has provided no extrinsic evidence that the overall signal timing information of Teskey, such as carrier frequency, pulse width and pulse modulation, necessarily describes digital ones and digital zeros. The general modulation onto a carrier signal, such a frequency modulation or amplitude modulation, does not require knowledge of a mark/space table that defines the digital ones and zeros that are being modulated. Thus, Teskey does not teach timing information that defines digital ones and zeros.

Because the combination of Pope, Graham and Teskey does not teach any of (i) generating a key code within a key code generator device, (ii) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (iii) timing information that defines a digital one or a digital zero, the § 103(a) rejection of claim 34 should be overruled.

D. Claims 36, 38-45, 47 and 49

Claims 36, 38-45, 47 and 49 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham and further in view of Grube et al. (U.S. Pat. No. 5,201,067) (Office Action, 10:3-5).

1. Independent claims 36 and 39

Similar to claim 25, claims 36 and 39 also recite, "receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indicator" (emphasis added). The combination of Pope, Graham and Grube does not form the basis for a valid rejection of claims 36 and 39 under § 103(a) because none of Pope, Graham or Grube teaches either (i) a keystroke indicator as well as a key code, or (ii) generating a key code within a key code generator device.

(i) None of Pope, Graham or Grube teaches both a keystroke indicator and a key code.

With regard to claims 36 and 39, the examiner states, "The base unit (12) . . . receives the keystroke indicator indicating a key on the remote control" (Office Action, 10:9-10). But as explained above with regard to claim 25, a control code of Pope does not teach the narrower interpretation of term "keystroke indicator" that indicates a selected key. Claim 36 explicitly limits the scope of the term "keystroke indictor" to indicate a key on a remote control device that a user has selected. The base unit of Pope receives a control code

indicating a function as opposed to receiving a keystroke indicator indicating which key that a user has selected on the handset 10.

The handset 10 of Pope uses a display 32 to scroll through a menu of functions. When the transmit key XMIT is pressed, the control code for the selected function is transmitted to base unit 12. No keystroke indicator is transmitted because the fact that the transmit key XMIT was selected is not conveyed to base unit 12. Alternatively, instead of using display 32, "shift," "alt," and "control" keys can be used to assign functions to the buttons "0" to "9," "star," and "pound". (Pope, col. 2, line 61 – col. 3, line 19) The correspondence of the keys on handset 10 to various functions can be changed without requiring the base unit 12 to know of the correspondence. For example, handset 10 transmits a code corresponding to the mute function without transmitting to base unit 12 any indication that display 32 was used to select the mute function or that the keys #, 9 and XMIT, for example, were used to select the mute function. Base unit 12 just receives a command code corresponding to the mute function. Pope teaches that display 68 and keypad 70 are used to select the control code out of memory 66 on handset 10, and then the control code is transmitted to base unit 12. (Pope, 4:30-33)

The examiner's argument in the Response to Arguments section is therefore incorrect that the code received by base unit 12 is an indication of the pressed key because "the selected function is based on the key that was pressed on the remote control" (Office Action, 3:21–4:1). There is no established association between any particular key and the selected function. Thus, Pope does not teach a keystroke indicator that indicates which key a user has selected on a remote control device.

Moreover, it is improper to construe an appliance control code of Pope to teach both the recited keystroke indicator and the recited key code. According to the tenets of claim differentiation, the claim term "keystroke indicator" cannot be interpreted to have the same meaning as the claim term "key code" in the same claim. Such a claim interpretation is presumptively unreasonable. See, e.g.,

Karlin Tech. Inc. v. Surgical Dynamics Inc., 177 F.3d 968, 50 USPQ2d 1465, 1468 (Fed. Cir. 1999). In addition, such a claim interpretation would render claim 36 internally inconsistent because a "key code" that was already received by the key code generator device would later be generated by the key code generator device. Thus, Pope does not teach both a keystroke indicator and a key code. The handset 10 of Pope transmits an appliance control code as opposed to a keystroke indicator to base unit 12.

(ii) None of Pope, Graham or Grube teaches generating a key code within a key code generator device.

With regard to claims 36 and 39, the examiner states that "Pope teaches generating a key code within a key code generator device" (Office Action, 10:10-11). But as explained above with regard to claim 25, Pope does not teach generating a key code within base unit 12. The appliance control code that is transmitted by base unit 12 of Pope is not generated within base unit 12. Instead, base unit 12 receives the appliance control codes from handset 10 and translates the control codes onto infrared control signals. Pope explains:

> "The present invention uses a digital cordless telephone handset to store a variety of appliance control codes. These appliance control codes can be transmitted to a base unit. The base unit can translate the appliance control codes to control signals such as infrared control signals, to control an electrical appliance" (Pope, 1:31-36) (emphasis added). See also Pope, 2:48-52 and 63-65.

Instead of being generated within the base unit 12, the appliance control codes of Pope are transmitted from the handset 10 to the base unit 12, where they are translated onto control signals. Base unit 12 of Pope does not receive a keystroke indicator and then generate a key code. Thus, Pope does not teach the recited "receiving a keystroke indicator from a remote control device" (emphasis added). Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, col. 4, lines 49-51) (emphasis added). So the same control code that is

received by base unit 12 is later transferred to an appliance. The appliance control code is not generated within base unit 12.

Grube also does not teach either (i) receiving a keystroke indicator that indicates a key on a remote control device that a user has selected, or (ii) generating a key code within a key code generator device using a keystroke indicator. And the examiner does not contend that Grube teaches these limitations.

Pope, Graham and Grube do not form the basis for valid rejections of claims 36 and 39 under § 103(a) because none of Pope, Graham or Grube teaches either (i) receiving a keystroke indicator from a remote control device, or (ii) generating a key code within a key code generator device. The § 103(a) rejections of claims 36 and 39 should be overruled.

2. Dependent claims 38, 40-45, 47 and 49

Claim 38 depends from claim 36 and is allowable for at least the same reasons for which claim 36 is allowable.

Claim 41 recites that "the electronic consumer device is not capable of receiving the radio frequency transmission, and wherein the transmitting in (e) is performed after the transmitting in (d)." The examiner contends that Grube teaches modulating a first key code onto an IR signal and transmitting a second key code on an RF signal. (Office Action, 10:16-18) The examiner does not, however, present a *prima facie* case of obviousness against claim 41 because the examiner does not contend that any of Pope, Graham or Grube teaches transmitting an RF transmission to an electronic consumer device and then transmitting an IR transmission to the electronic consumer device after the device is not capable of receiving the RF transmission. Although Grube teaches a communication device with both an IR and an RF transmitter, the RF transmitter is for garage door openers and the like, whereas the IR transmitter is

used for conventional IR remote control signaling. (Grube, 4:9-24) Grube does not transmit an RF transmission to an electronic device and then transmit an IR transmission to the electronic device if the device was not capable of receiving the RF transmission. Grube also does not transmit an RF transmission to a garage door opener and then transmit an IR transmission to the garage door opener if the opener was not capable of receiving the RF transmission.

In the Response to Arguments section, the examiner contends that claim 41 does not recite transmitting an IR transmission after a device is not capable of receiving an RF transmission. (Office Action, 4:3-5) The examiner's summary of what he believes claim 41 to recite incorrectly states that claim 41 recites that the IR transmission is performed before the RF transmission. (Office Action, 4:6-8) In fact, intervening claim 40 recites that (d) relates to transmitting an RF transmission, and (e) relates to transmitting an IR transmission. Thus, the recitation in claim 41 that (e) is performed after (d) means that the IR transmission is performed after the RF transmission. The rejection of claim 41 should be withdrawn because it is based on an incorrect claim interpretation.

Claim 42 recites that "the formatting in (c) comprises converting the key code from the key code signal based on the first modulation technique into the key code signal based on the second modulation technique" (emphasis added). The examiner contends that Pope teaches the limitations of claim 42. The examiner argues that the signal from handset 10 to base unit 12 teaches the key code signal based on a first modulation technique, whereas the signal from base unit 12 to the appliance teaches the key code signal based on the second modulation technique. (Office Action, 11:8-11) But a signal that is transmitted from handset 10 to base unit 12 cannot teach the recited key code signal that is transmitted using a first modulation technique because that signal is not a key code signal for two reasons. First, a signal transmitted from handset 10 to base unit 12 is not a key code signal because claim 39 recites that the key code is generated within the key code generator device, which the examiner contends is taught by base unit 12. (Office Action, 10:8-9) There can be no key code in

handset 10 because claim 39 requires the key code to be generated within base unit 12. Second, a signal transmitted from handset 10 to base unit 12 is not a key code signal because claim 39 recites that the key code signal is transmitted to an electronic consumer device. Thus, regardless of whether the examiner contends that a "spread spectrum type of modulation" is the recited first modulation technique by which a signal from handset 10 to base unit 12 is modulated, that signal cannot teach the recited key code signal. In addition, the examiner admits that all of the signals in Pope that are transmitted to an appliance (and thereby could potentially teach the recited key code signal) are transmitted from base unit 12 to the appliance in the "infrared format." (Office Action, 11:10) Thus, Pope does not teach converting a key code signal from a first modulation technique into a second modulation technique, as recited in claim 42.

Claim 44 recites, "determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device." The examiner does not present a *prima facie* case of obviousness against claim 44 because the examiner does not contend that any of Pope, Graham or Grube teaches determining that the key code signal using a particular modulation technique cannot be used to communicate with an electronic consumer device.

Claim 49 recites, "the keystroke indicator is not a code that is understood by the electronic consumer device." The examiner contends that a control code of Pope teaches the recited keystroke indicator this is not a code understood by the appliance "because it is not in a format acceptable by the appliance" (Office Action, 12:6). The examiner's interpretation of the word "understood" is inconsistent with the usage of that term in the claims. The code is understood by the appliance when the code is properly formatted. Base claim 39 recites that the key code is formatted for transmission to an electronic consumer device. It would be unreasonable to interpret the key code as not being understood by the electronic consumer device. The command codes of Pope that are transmitted

by handset 10 to base unit 12 and then transferred to the appliance are indeed understood by the appliance. Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, 4:49-51) (emphasis added). The rejection of claim 48 should be overruled because the interpretation of "understood" that is the basis for the rejection is unreasonable.

In addition to the reasons explained above, dependent claims 40-45, 47 and 49 depend from claim 39 and are allowable for at least the same reasons for which claim 39 is allowable. The § 103(a) rejections of claims 38, 40-45, 47 and 49 should be overruled.

E. Claim 37

Claim 37 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope, Graham and Grube and further in view of Chiloyan et al. (U.S. Pat. No. 6,008,735) (Office Action, 12:7-9).

Claim 37 depends from claim 36 and incorporates the following limitations of base claim 36, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor."

None of Pope, Graham, Grube or Chiloyan teaches either (i) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (ii) generating a key code within a key code generator device. As explained above with regard to claims 36 and 39, none of Pope, Graham or Grube teaches these limitations, and the examiner does not contend that Chiloyan teaches these limitations. Chiloyan does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device. In Chiloyan, the code sets are stored in the remote control unit.

Because the combination of Pope, Graham, Grube and Chiloyan does not teach either of (i) a keystroke indicator that indicates a key on a remote control

device that a user has selected, or (ii) generating a key code within a key code generator device, the § 103(a) rejection of claim 37 should be overruled.

F. Claim 46

Claim 46 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope, Graham and Grube and further in view of Autry (Office Action, 13:1-3).

Claim 46 depends from claim 39 and incorporates the following limitations of base claim 39, "the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indictor".

None of Pope, Graham, Grube or Autry teaches either (i) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (ii) generating a key code within a key code generator device. As explained above with regard to claims 36 and 39, none of Pope, Graham or Grube teaches these limitations, and the examiner does not contend that Autry teaches these limitations. Autry does not teach either a keystroke indicator used to generate a key code, or a key code generator device that receives a keystroke indicator and then transmits the key code to an electronic consumer device.

Because the combination of Pope, Graham, Grube and Autry does not teach either of (i) a keystroke indicator that indicates a key on a remote control device that a user has selected, or (ii) generating a key code within a key code generator device, the § 103(a) rejection of claim 46 should be overruled.

VIII. CONCLUSION

In the Advisory Action, the examiner disapproved a terminal disclaimer used to overcome the nonstatutory double-patenting rejection of claim 25 because the terminal disclaimer fee was allegedly not paid. (See Office Action, 5:19-20; Advisory Action, 2:10-11) The terminal disclaimer fee was, however, paid as indicated by the approval from Felicia D. Roberts in the image file

wrapper that immediately precedes the Notice of Appeal. The double-patenting rejection should be withdrawn.

For the reasons set forth above, Appellant respectfully requests that the Board reverse the examiner's rejections of claims 25-49. Accordingly, Appellant respectfully requests that all pending claims (claims 25-49 are pending) be allowed.

The $620 appeal brief fee required under 37 CFR §41.37(a)(2) is submitted along with this Appeal Brief.

I hereby certify that this correspondence is being submitted electronically via EFS Web to the United States Patent and Trademark Office.

By /Darien K. Wallace/
Darien K. Wallace

Date submitted: July 16, 2012

Respectfully submitted,

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IX. CLAIMS APPENDIX

Claims 1 – 24 (canceled)

25. (previously presented) A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indictor;

(c) formatting the key code for transmission and thereby generating a key code signal; and

(d) transmitting the key code signal from the key code generator device to an electronic consumer device.

26. (previously presented) The method of claim 25, wherein the key code signal is transmitted in (d) via a hardwired connection.

27. (previously presented) The method of claim 25, wherein the key code signal is transmitted in (d) via a wireless connection.

28. (previously presented) The method of claim 25, wherein the formatting in (c) comprises converting the key code into the key code signal by forming bursts of digital ones and zeros.

29. (previously presented) The method of claim 25, wherein the key code generator device is part of a second electronic consumer device taken from the group consisting of: a television, a stereo radio, a digital video disk player, a video cassette recorder, a personal computer, a set-top cable television box and a set-top satellite box.

30. (previously presented) The method of claim 25, wherein the key code generator device is part of a set-top box, and wherein the electronic consumer device is a television.

31. (previously presented) The method of claim 25, further comprising:

(e) pressing a key of the remote control device so as to cause the remote control device to transmit a keystroke indicator signal containing the keystroke indicator that is received in (a), wherein the pressing causes the electronic consumer device to perform a function associated with the key.

32. (previously presented) The method of claim 31, wherein the function is taken from the group consisting of: power on, power off, channel advance, channel back, volume up, volume down, cursor up, cursor down, cursor right, cursor left, select, play, record, stop, forward, back and pause.

33. (previously presented) The method of claim 25, wherein the key code generated in (b) is part of a codeset, and wherein the codeset is not stored on the remote control device.

34. (previously presented) The method of claim 25, wherein the key code generated in (b) is part of a codeset, and wherein the codeset comprises timing information that describes a digital one and a digital zero.

35. (previously presented) The method of claim 25, wherein the formatting in (c) is performed using a protocol, and wherein the transmitting in (d) is performed via a hardwired connection.

36. (previously presented) A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user

has selected;

(b) generating a key code within a key code generator device using the keystroke indicator;

(c) generating a first key code signal by modulating the key code onto a first carrier signal, wherein the first carrier signal is in a radio frequency band;

(d) generating a second key code signal by modulating the key code onto a second carrier signal, wherein the second carrier signal is in an infrared frequency band;

(e) transmitting the first key code signal from the key code generator device to a first electronic consumer device; and

(f) transmitting the second key code signal from the key code generator device to a second electronic consumer device.

37. (previously presented) The method of claim 36, further comprising:

(g) receiving an indication of a type, a brand and a model of the first electronic consumer device, wherein a user of the remote control device uses an on-screen display to generate the indication of the type, the brand and the model of the first electronic consumer device.

38. (previously presented) The method of claim 36, wherein the first key code signal conforms to a first protocol, and wherein the second key code signal conforms to a second protocol.

39. (previously presented) A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indicator;

(c) formatting the key code for transmission and thereby generating a key

code signal;

(d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique; and

(e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique.

40. (previously presented) The method of claim 39, wherein the key code signal is transmitted in (d) in the form of a radio frequency transmission, and wherein the key code signal is transmitted in (e) in the form of an infrared frequency transmission.

41. (previously presented) The method of claim 40, wherein the electronic consumer device is not capable of receiving the radio frequency transmission, and wherein the transmitting in (e) is performed after the transmitting in (d).

42. (previously presented) The method of claim 39, wherein the formatting in (c) comprises converting the key code from the key code signal based on the first modulation technique into the key code signal based on the second modulation technique.

43. (previously presented) The method of claim 39, wherein the first modulation technique is performed in a radio frequency band, and wherein the second modulation technique is performed in an infrared frequency band.

44. (previously presented) The method of claim 39, further comprising, before the transmitting in (e):

(f) determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device.

45. (previously presented) The method of claim 39, wherein the formatting in (c) is performed using a first protocol when the key code signal is transmitted using the first modulation technique, and wherein the formatting in (c) is performed using a second protocol when the key code signal is transmitted using the second modulation technique.

46. (previously presented) The method of claim 39, wherein the key code signal is transmitted in (d) via a hardwired connection.

47. (previously presented) The method of claim 39, wherein the key code signal is transmitted in (d) via a wireless connection.

48. (previously presented) The method of claim 25, wherein the keystroke indicator is not a code that is understood by the electronic consumer device.

49. (previously presented) The method of claim 39, wherein the keystroke indicator is not a code that is understood by the electronic consumer device.

X. EVIDENCE APPENDIX

No evidence has been submitted pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132. No affidavit or declaration has been submitted under § 1.130 to disqualify a commonly owned patent or a published application as prior art. No affidavit or declaration of a prior invention has been submitted under § 1.131. No affidavit or declaration traversing rejections or objections has been submitted under § 1.132. No such evidence was entered by the examiner and relied upon by Appellant in this appeal.

In the rejections that are the grounds to be reviewed in this appeal, the examiner has not relied upon any non-patent documents.

XI. RELATED PROCEEDINGS APPENDIX

The decision dated November 14, 2008, of the Board in the appeal 2008-4830 of the parent application 10/737,029 is attached.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DANIEL SAUFU MUI

Appeal 2008-4830
Application 10/737,029
Technology Center 2600

Decided: November 14, 2008

Before JAMESON LEE, RICHARD TORCZON and SALLY C. MEDLEY, *Administrative Patent Judges*.

MEDLEY, *Administrative Patent Judge*.

DECISION ON APPEAL

A. Statement of the Case

ZiLOG, Inc. ("Zilog"), the real party in interest, seeks review under 35 U.S.C. § 134(a) of a Final Rejection of claims 1-10, 13-16 and 18-26. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part and enter a new ground of rejection.

Zilog's invention is related to a system and associated method that includes a key code generator that receives a keystroke from a remote

control device. The key code generator generates a key code and transmits the key code. Spec. 2-3, 6-8, 11-12.

Representative claim 1, reproduced from the Claim Appendix of the Appeal Brief, reads as follows:

> A method comprising:
> (a) receiving a keystroke indicator signal from a remote control device;
> (b) generating a key code within a key code generator device;
> (c) modulating said key code onto a carrier signal, thereby generating a key code signal; and
> (d) transmitting said key code signal from said key code generator device.

The Examiner relies on the following prior art in rejecting the claims on appeal:

Goldstein	5,410,326	Apr. 25, 1995
McNair et al. ("McNair")	5,595,342	Jan. 21, 1997
August et al. ("August")	5,671,267	Sep. 23, 1997
Pope	5,963,624	Oct. 5, 1999
Teskey	6,747,568	Jun. 8, 2004
Wouters et al. ("Wouters")	6,915,109	Jul. 5, 2005

The Examiner rejected claims 13-16, 19, 22 and 24-26 under 35 U.S.C. § 102(e) as anticipated by Wouters.

The Examiner rejected claims 1-10, 18, 20-21 and 23 under 35 U.S.C. § 103(a) as follows:

1. Claim 18 as unpatentable over Wouters and Teskey;
2. Claims 20 and 21 as unpatentable over Wouters and August;
3. Claim 23 as unpatentable over Wouters and Pope;
4. Claims 1, 3-4 and 9 as unpatentable over Pope and McNair;
5. Claim 2 as unpatentable over Pope, McNair and Goldstein;
6. Claims 5 and 10 as unpatentable over Pope, McNair and Teskey;

7. Claim 6 as unpatentable over Pope, McNair and August;
8. Claim 7 as unpatentable over Pope, McNair and Wouters;
9. Claim 8 as unpatentable over Pope, McNair, Wouters and August.

B. Findings of Fact ("FF")

Zilog's Specification

1. Zilog's specification describes "[i]n one embodiment, the indication of a pressed key is a keycode . . .". Spec. 7.

Wouters

2. Wouters depicts a remote control unit 3 including an infrared (IR) transmitter 4; and a radio frequency (RF) transmission system 6 including an IR receiver 7 and a radio transmitter 8 in a first room 1. Fig. 1; col. 3, ll. 23-30.
3. In a second room 2, there is a RF receiving system 12 which includes radio receiver 13 and IR transmitter 14; and an IR receiver 16 coupled to a device such as a VCR in room 2. Fig. 1; col. 3, ll. 31-36; claim 1.
4. A radio signal 10 is received via antenna 11 by radio receiver 13, which is coupled to IR transmitter 14 for generating IR signal 15. Fig. 1, col. 3, ll. 31-32.
5. When a user taps a key on the remote control device 3, the central processing unit (CPU) inside the remote control device determines which code needs transmitting and fetches the required data from its memory that comprises a database. Col. 4, ll. 53-58.
6. The invention may be used in a variety of systems and devices such as systems comprising or using remote control, VCR, TV, Internet-enabled TV, Set-top boxes, PC-TV, PC and home control. Col. 1, ll. 23-26.

Pope

7. Pope describes transmitting appliance control codes from a cordless digital telephone handset 10, 50 to base unit 12 in response to selection of the appliance control via the handset keypad 30. Figs. 1, 2; col. 2, ll. 48-col. 3, ll. 19.
8. The base unit processor 84 gets an infrared control code from memory 86 based on a received appliance control code. Fig. 3, col. 4, l. 62-col. 5, l. 11.
9. Base unit 12 transmits infrared control code through outer window 36 to electrical appliances 14-22. Fig. 1, col. 3, ll. 35-41.

McNair

10. McNair describes that wireless transmission between a room temperature sensor and a receiver can be around 173 MHz using frequency modulation techniques including frequency shift keying. Col. 2, ll. 9-18, 61-65.

Graham[1]

11. Graham describes modulating a digital code or binary code onto a carrier signal. Abs., Col. 2, ll. 11-16.
12. Modulating a digital code onto a carrier signal precludes unauthorized or accidental activation of a control of the receiving means. Spec. Abs.
13. Modulating a digital code or a binary code onto a carrier signal provides an exceptional degree of security and privacy. Col. 2, ll. 7-11.

C. Principles of Law

"It would be inconsistent with the role assigned to the PTO in issuing a patent to require it to interpret claims in the same manner as judges who,

[1] Graham, U.S. Patent No. 4,005,428 (issued Jan. 25, 1977).

post-issuance, operate under the assumption the patent is valid." *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). "[A]s an initial matter, the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." *Id.*

A claim undergoing examination is given its broadest reasonable construction consistent with the specification. *In re Prater*, 415 F.2d 1393, 1404-05 (CCPA 1969). But, "limitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (citation omitted).

"[A]n indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase 'comprising.'" *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000) (citations omitted).

"Anticipation under 35 U.S.C. § 102(e) requires that 'each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.'" *In re Robertson*, 169 F.3d. 743, 745 (Fed. Cir. 1999) (quoting *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987)).

D. Analysis

Rejection of claims 13-16, 19, 22 and 24-26 as anticipated by Wouters

Claims 13 and 22

Independent claims 13 and 22 stand or fall together. App. Br. 11. Representative claim 13 recites "A remote control device comprising: a receiver . . . a transmitter . . .". App. Br. 34.

The Examiner finds that Wouters' system of devices depicted in room 1 and room 2 comprising an RF receiver, and an IR transmitter meets the claim limitations. Final Rejection 4, Ans. 3-4; citing Wouters col. 4, ll. 25-33, 48-57; fig. 1; FF[2]s 2-3.

Zilog argues that Wouters' system of devices depicted in room 1 and room 2 is not a single device. App. Br. 11-12; Reply Br. 7-8. Zilog argues that the Examiner's interpretation is improper and is contrary to how the term is used in the claims and specification. App. Br. 12; Reply Br. 7-8. Zilog asserts that it disavows the claim scope of a remote control so as to exclude a system and cites case law in support of its position. App. Br. 12

We are unpersuaded by Zilog's arguments. As made clear in *Morris,* the PTO does not interpret claims in the same manner as judges who operate under the assumption that the patent is valid. Instead, during patent prosecution before the PTO, the broadest reasonable interpretation applies. We broadly interpret "[a] remote control device" as an apparatus that includes one or more components. The claim does not require the components to be contained or housed within a single structure. Therefore, the Examiner's finding that Wouters' system of devices meets Zilog's "[a]

[2] FF denotes Finding of Fact.

remote control device" is consistent with the broadest reasonable interpretation of a remote control device.

For all these reasons we find that Zilog has not sustained its burden of showing that the Examiner erred in rejecting claims 13 and 22 as anticipated by Wouters.

Claims 14-16

Claim 14 is dependent on claim 13 and recites "said keycode corresponds to a second function of a second electronic consumer device, as well as to said function of said electronic consumer device." App. Br. 34.

The Examiner finds that when a remote control is used to activate two devices of the same kind (e.g., VCRs of the same brand name) the same key code is used for separate functions of turning on different electronic consumer devices. Ans. 12-13.

Zilog argues that Wouters does not describe one key code that corresponds to two separate functions of two different electronic consumer devices. App. Br. 13. Zilog further argues that the Examiner's interpretation is inconsistent with the tenets of claim interpretation and the use of the term "second function" in the claims and specification. Reply Br. 8. Zilog argues that under the tenets of claim interpretation "said function" and "a second function" used in the same claim cannot be interpreted to be the same function.

We agree with Zilog. Within the same claim, the Examiner interprets "said function" and "a second function" as the same function, yet interprets "said electronic consumer device" and "a second electronic consumer device" as different devices. The Examiner's interpretation of the claim terms within a single claim is inconsistent. To be consistent, both "a second

function" and "a second electronic consumer device" must either be the same as or different from both "said function" and "said electronic consumer device". Moreover, it would be counterintuitive for a claim drafter to use the term "a second function" if the intent was for it to be interpreted the same as "said function". For these reasons, we find that the Examiner's interpretation of "said function" and "a second function" as the same function to be unreasonable. We therefore find that the Examiner erred in finding claim 14 anticipated by Wouters.

Claims 15 and 16 are dependent on claim 14. App. Br. 34-35. For the same reasons explained above regarding claim 14, we find that the Examiner erred in rejecting claims 15 and 16 as anticipated by Wouters.

Claim 24

Claim 24 is dependent on claim 22 which recites "means for receiving a key code from said RF receiver and for sending said keycode to said IR transmitter. . .". App. Br. 14, 37. Claim 24 further recites "said means in a microcontroller." Both Zilog and the Examiner interpret a microcontroller as a processor. Reply Br. 9, Final Rejection 5.

Zilog argues that Wouters does not disclose that radio receiver 13 is a microcontroller and does not mention a microcontroller, microprocessor or processor of any kind. Reply Br. 9.

We agree with Zilog's arguments. The Examiner has not directed us to, and we can not find, where Wouters explicitly or inherently discloses that radio receiver 13 is a microcontroller or a processor. Instead, the Examiner relies on a citation to Wouters which describes that radio receiver 13 receives a radio signal via antenna 11. Ans. 4, 13; citing Wouters col. 3, ll. 31-32; FF 4.

For this reason, we find that the Examiner erred in rejecting claim 24 as anticipated over Wouters.

Claim 19

Independent claim 19 recites "a codeset is stored on said key code generator device, said codeset including said first key code and said second key code, wherein said first key code corresponds to a selected function of a first electronic consumer device, and wherein said second key code corresponds to said selected function of a second electronic consumer device . . .". App. Br. 35-36.

Zilog argues that Wouters does not describe two key codes included in a codeset stored on a key code generator (i.e., remote control unit 3). App. Br. 15-16; Reply Br. 10.

While Wouters describes that a set of codes are stored in the memory of the remote control device 3 (FF 5), the Examiner has not sufficiently explained how Wouters' stored codeset includes a first key code corresponding to a selected function of a first electronic consumer device and a second key code corresponding to said selected function of a second consumer device. The Examiner also has not sufficiently explained how Wouters explicitly or inherently describes the disputed claim limitations. Instead, the Examiner relies on Wouters description that IR receiver 16 is coupled to a VCR and the general statement that the invention can be used with a variety of systems and devices comprising or using a remote control, VCR, TV, etc. Final Rejection 4; Ans. 4, 13; citing Wouters col. 1, ll. 24-26; col. 3, ll. 21-35; FFs 3, 6. This is insufficient to establish a prima facie case of anticipation.

For these reasons we find that the Examiner erred in erred in rejecting claim 19 as anticipated over Wouters.

Claims 25 and 26

Independent claim 25 recites "receiving a keystroke indicator from a remote control device . . . transmitting said key code signal from said key code generator device to said remote control device . . .". App. Br. 16, 37. We interpret "said remote control device" to refer to, and be the same as, the aforesaid "a remote control device".

Zilog argues that Wouters does not describe (1) receiving a signal from a remote control device and (2) transmitting a second signal to the remote control device. App. Br. 16. Zilog argues that it is improper to ignore the structure of the "remote control device" and find that the claimed "remote control device" is met by separate structures for separate limitations within a claim. Reply Br. 11.

Zilog's arguments are persuasive and consistent with our interpretation that "said remote control device" is the same as the aforesaid "a remote control device". The Examiner has not directed us to, and we can not find, where Wouters describes receiving a keystroke indicator from a remote control device and transmitting a keycode signal to the *same* remote control device. Instead, the Examiner has directed us to Wouters' description of sending a keystroke indicator signal from one device (i.e., remote control unit 3) and transmitting the keycode to a different device (i.e., RF receiving system 12). Final Rejection 5, Ans. 5; citing Wouters col. 3, ll. 21-34; col. 4, ll. 25-37; fig 1.

For these reasons, we find that the Examiner erred in rejecting claim 25 as anticipated over Wouters.

Our interpretation of claim 25 may appear to be inconsistent with our interpretation of claims 13 and 22 because with respect to claim 25 we interpret the remote control as a singular device. However, claim 25 is a method claim that requires receiving a keystroke indicator from the remote control and also sending a keycode to the *same* remote control. In contrast, claims 13 and 22 are apparatus claims that do not include any additional structural recitations that require the remote control to be a single device or require the components to be encased in a single housing.

Claim 26 is dependent on claim 25. App. Br. 37. For the same reason as explained above regarding claim 25, we find that the Examiner erred in rejecting claim 26 as anticipated over Wouters.

Rejection of claim 18 as unpatentable over Wouters and Teskey

Claim 18 is dependent on claim 13. App. Br. 34. Claim 18 stands or falls with claim 13 since Zilog did not argue the limitations of claim 18 separately. App. Br. 29. For the same reasons explained above with respect to claim 13, we find that Zilog has not sustained its burden of showing that the Examiner erred in rejecting claim 18 as unpatentable over Wouters and Teskey.

Rejection of claims 20 and 21 as unpatentable over Wouters and August

Claims 20 and 21 are dependent on claim 19. Zilog does not argue the specific limitations of claims 20 or 21, but instead argues the limitations of claim 19. App. Br. 29. As applied by the Examiner, August does not remedy the deficiencies of Wouters. For the same reasons as explained above with respect to claim 19, we find that the Examiner erred in rejecting claims 20 and 21 as unpatentable over Wouters and August.

Rejection of claim 23 as unpatentable over Wouters and Pope

Claim 23 is dependent on claim 22. App. Br. 36. Zilog does not argue the specific limitations of claim 23, but, instead, argues the limitations of claim 22.

Zilog argues that Wouters' RF receiver, IR transmitter and keypad are not on the same device. App. Br. 30. Zilog further argues that Wouters' remote control unit 3 does not include an RF receiver. App. Br. 30. Zilog also argues that Pope teaches against including an IR transmitter on the handset. App. Br. 30.

As explained above with respect to claims 13 and 22, the broadest reasonable interpretation of "[a] remote control device" is an apparatus that includes one or more components or devices. The Examiner's finding that Wouters' remote control device comprises a system of devices is consistent with the broadest reasonable interpretation of the claims. Since "[a] remote control device" can include more than one device, Zilog's arguments that Wouters' remote control unit 3 (i.e., single unit) does not include an RF receiver is not commensurate in scope with the limitations of claims 22 and 23. Pope's teaching against including an IR transmitter on a handset is irrelevant since the claim language does not require all the components to be included in a single remote control device.

For all these reasons, we find that Zilog has not sustained its burden of showing that the Examiner erred in rejecting claim 23 as unpatentable over Wouters and Pope.

Rejection of claims 1, 3-4 and 9 as unpatentable over Pope and McNair

Representative claim 1 is independent and recites "modulating said key code onto a carrier signal . . .". App. Br. 32.

Zilog argues that McNair does not teach modulating a key code onto a carrier signal. App. Br. 21.

The Examiner finds that Pope does not describe modulating a key code onto a carrier signal, but instead relies on McNair for describing modulation of a carrier signal. Final Rejection 6; Ans. 6, 15; citing McNair col. 2, ll. 61-65.

We agree that McNair does not describe modulating a key code, or any code, onto a carrier signal. McNair merely describes frequency modulation including frequency shift keying modulation. FF 10.

For this reason, we find that the Examiner erred in determining that claims 1, 3, 4 and 9 are unpatentable over Pope and McNair.

Rejection of claim 2 as unpatentable over Pope, McNair and Goldstein

Claim 2 is dependent on and includes all of the limitations of claim 1. App. Br. 32. As applied by the Examiner, Goldstein does not make up for the deficiencies of the Pope and McNair references. For the same reasons as explained with respect to claim 1, we find that the Examiner has erred in determining that claim 2 is unpatentable over Pope, McNair and Goldstein.

Rejection of claims 5 and 10 as unpatentable over Pope, McNair and Teskey

Claims 5 and 10 are directly or indirectly dependent on and include all of the limitations of claim 1. App. Br. 32-33. As applied by the Examiner, Teskey does not make up for the deficiencies of the Pope and McNair references. For the same reasons as explained with respect to claim 1, we find that the Examiner has erred in determining that claims 5 and 10 are unpatentable over Pope, McNair and Teskey.

Rejection of claim 6 as unpatentable over Pope, McNair and August

Claim 6 is dependent on and includes all of the limitations of claim 1. App. Br. 32. As applied by the Examiner, August does not make up for the deficiencies of the Pope and McNair references. For the same reasons as explained with respect to claim 1, we find that the Examiner has erred in determining that claim 6 is unpatentable over Pope, McNair and August.

Rejection of claim 7 as unpatentable over Pope, McNair and Wouters

Claim 7 is dependent on and includes all of the limitations of claim 1. App. Br. 32. As applied by the Examiner, Wouters does not make up for the deficiencies of the Pope and McNair references. For the same reasons as explained with respect to claim 1, we find that the Examiner has erred in determining that claim 7 is unpatentable over Pope, McNair and Wouters.

Rejection of claim 8 as unpatentable over Pope, McNair, Wouters and August

Claim 8 is dependent on and includes all of the limitations of claim 1. App. Br. 32. As applied by the Examiner, Wouters and August do not make up for the deficiencies of the Pope and McNair references. For the same reasons as explained with respect to claim 1, we find that the Examiner has erred in determining that claim 8 is unpatentable over Pope, McNair, Wouters and August.

New Ground of Rejection

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a

> person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pope in view of Graham.

Pope's description of transmitting appliance control codes (i.e., keystroke indicator) from handset 10, 50 (i.e., remote control) to base unit 12 (i.e., key code generator) in response to selection of the appliance control via keypad 30 meets the limitation of "receiving a keystroke indicator signal from a remote control device. . . ". FF 7. Pope's description that base unit (i.e., key code generator) processor 84 gets an infrared control code (i.e., key code) from memory 86 based on a received appliance control code (key stroke indicator signal) meets the limitation of "generating a key code within a key code generator device . . .". FF 8. Pope's description of base unit 12 (i.e., key code generator) transmitting infrared control code (i.e., key code) through outer window 36 to electrical appliances 14-22 meets the limitation of "transmitting said key code signal from said key code generator device". FF 9.

Although Pope does not describe modulating the keycode onto a carrier signal, attention is directed to Graham which describes modulating a digital code or binary code onto a carrier signal. FF 11. Graham describes that doing so offers the advantages of precluding unauthorized or accidental activation of a control associated with the receiving means and provides an exceptional degree of security and privacy. FFs 12-13. It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the method of Pope to include modulating the key code onto a carrier signal since doing so offers the advantages of precluding

unauthorized or accidental activation and provides an exceptional degree of security and privacy.

Zilog argues that Pope's appliance control codes transmitted by handset 10, 50 are not a keystroke indicator signal. App. Br. 20-21, Reply Br. 11-12. Zilog urges a narrow interpretation of the term "keystroke indicator signal" to mean an indication of a selected key while precluding a control code. App. Br. 20-21, Reply Br. 11-12. During prosecution, claims are subject to the broadest reasonable interpretation consistent with the specification. Zilog's narrow interpretation is inconsistent with its specification. Zilog's specification describes "[i]n one embodiment, the indication of a pressed key is a keycode . . .". FF 1. Since Zilog's own specification indicates that the keystroke indicator can be a code (i.e. a key code), the finding that Pope's appliance control codes meet the limitation of a keystroke indicator signal is consistent with the broadest reasonable interpretation.

E. Decision

Upon consideration of the appeal, and for the reasons given herein, it is

ORDERED that the decision of the Examiner rejecting claims 13 and 22 under 35 U.S.C. § 102(e) as anticipated by Wouters is affirmed.

ORDERED that the decision of the Examiner rejecting claims 14-16, 19 and 24-26 under 35 U.S.C. § 102(e) as anticipated by Wouters is reversed.

ORDERED that the decision of the Examiner rejecting claim 18 under 35 U.S.C. § 103(a) as unpatentable over Wouters and Teskey is affirmed.

ORDERED that the decision of the Examiner rejecting claims 20-21 under 35 U.S.C. § 103(a) as unpatentable over Wouters and August reversed.

ORDERED that the decision of the Examiner rejecting claim 23 under 35 U.S.C. § 103(a) as unpatentable over Wouters and Pope is affirmed.

ORDERED that the decision of the Examiner rejecting claims 1, 3, 4 and 9 under 35 U.S.C. § 103(a) as unpatentable over Pope and McNair is reversed.

ORDERED that the decision of the Examiner rejecting claim 2 under 35 U.S.C. § 103(a) as unpatentable over Pope, McNair and Goldstein is reversed.

ORDERED that the decision of the Examiner rejecting claims 5 and 10 under 35 U.S.C. § 103(a) as unpatentable over Pope, McNair and Teskey is reversed.

ORDERED that the decision of the Examiner rejecting claim 6 under 35 U.S.C. § 103(a) as unpatentable over Pope, McNair and August is reversed.

ORDERED that the decision of the Examiner rejecting claim 7 under 35 U.S.C. § 103(a) as unpatentable over Pope, McNair and Wouters is reversed.

ORDERED that the decision of the Examiner rejecting claim 8 under 35 U.S.C. § 103(a) as unpatentable over Pope, McNair, Wouters and August is reversed.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 CFR § 41.50(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .
>
> (2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

AFFIRMED IN-PART
New Ground of Rejection - 37 C.F.R. § 41.50(b)

ack

cc:

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Electronic Patent Application Fee Transmittal	
Application Number:	13068820
Filing Date:	21-May-2011
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Filer:	Darien Kenneth Wallace
Attorney Docket Number:	ZIL-568-2C
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Filing a brief in support of an appeal	1402	1	620	620
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**620**

Electronic Acknowledgement Receipt	
EFS ID:	13263786
Application Number:	13068820
International Application Number:	
Confirmation Number:	7302
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Customer Number:	47713
Filer:	Darien Kenneth Wallace
Filer Authorized By:	
Attorney Docket Number:	ZIL-568-2C
Receipt Date:	16-JUL-2012
Filing Date:	21-MAY-2011
Time Stamp:	17:46:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		ZIL-568-2C_Appeal_Brief.pdf	4492095 9c4dc792be53faa984939a87f0cf6449694f74d2	yes	52

	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Appeal Brief Filed		1	33	
	Affidavit/Dec/Exhibit after Notice of Appeal		34	52	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	29992 f5b66c4996f233837ea8249f2a8fe629f9a8cc0b	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	4522087		

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National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Patent Application Fee Transmittal	
Application Number:	13068820
Filing Date:	21-May-2011
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Filer:	Darien Kenneth Wallace
Attorney Docket Number:	ZIL-568-2C
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Filing a brief in support of an appeal	1402	1	620	620
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**620**

Electronic Acknowledgement Receipt	
EFS ID:	13263974
Application Number:	13068820
International Application Number:	
Confirmation Number:	7302
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Customer Number:	47713
Filer:	Darien Kenneth Wallace
Filer Authorized By:	
Attorney Docket Number:	ZIL-568-2C
Receipt Date:	16-JUL-2012
Filing Date:	21-MAY-2011
Time Stamp:	17:56:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (SB06)	fee-info.pdf	29994 457699e4c0ba031abfb7b997c690495ca4c7a2f7	no	2
Warnings:					
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Total Files Size (in bytes):	29994

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Electronic Patent Application Fee Transmittal	
Application Number:	13068820
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First Named Inventor/Applicant Name:	Daniel SauFu Mui
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Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Filing a brief in support of an appeal	1402	1	620	620
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**620**

Electronic Acknowledgement Receipt	
EFS ID:	13265770
Application Number:	13068820
International Application Number:	
Confirmation Number:	7302
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Customer Number:	47713
Filer:	Darien Kenneth Wallace
Filer Authorized By:	
Attorney Docket Number:	ZIL-568-2C
Receipt Date:	16-JUL-2012
Filing Date:	21-MAY-2011
Time Stamp:	20:55:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$620
RAM confirmation Number	7186
Deposit Account	
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Fee Worksheet (SB06)	fee-info.pdf	29992 598676d025d339adb648e52537e9a028deb0e923	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	29992	

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C	7302

47713 7590 10/02/2012

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EXAMINER	
BROWN, VERNAL U	
ART UNIT	PAPER NUMBER
2681	
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10/02/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 13/068,820
Filing Date: 5/21/2011
Appellant(s): Daniel SauFu Mui

Darien K. Wallace
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/16/12.

(1) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner.

The rejection of claim 42 over Pope (US Pat. 5,963,624) in view of Graham (US Pat. 4,005,428) and further in view of Grube et al. US Patent 5,201, 067.

(2) Response to Argument

Appellant argues on page 7 that the prior art of record fail to teach or suggest the use of a keystroke signal to generate a key code within a key code generator. It is the examiner's position that the reference of Pope teaches the signal transmitted from the remote control to the base unit indicates the pressed key based on the desired control function (col. 2 line 57-col. 3 line 9). The signal transmitted from the remote control (10) to the base unit (12) provides an indication of which key is pressed (keystroke indicator) on the remote control because the signal transmitted from the remote control to the base unit depends on which key is pressed on the remote control.

The reference of Pope further teaches the base unit (code generator) receiving the signal from the remote control (key stroke indicator) and generating a key code in the form of an infrared control codes that are transmitted to the electronic devices (col. 3 lines 35-40).

Regarding appellant argument on pages 7-9 regarding the ruling of the Board of Patents Appeal and Interferences regarding the keystroke indicator signal, it is the examiner's position that Board of Patents Appeal and Interferences ruled that Pope appliance control code reads on the limitation of a keystroke indicator signal based on the broadest reasonable interpretation of the claimed limitation (see pages 15-16 of BPAI decision on parent case 10/737,029).

Appellant argues that the BPAI rejection was overcome by amending the claim to limit the scope of the "keystroke indicator" to indicate a key on a remote control device that the user has selected. It is the examiner's position that the claim limitation of "wherein the keystoke indicator signal indicates a key on said remote control device that a user has selected" was never presented to the Board of Appeal and Interferences. The teaching of Pope further reads on this claim limitation because the key indicator signal as disclosed by the reference of Pope indicates a key on the remote control device that is selected by the user (col. 2 line 57-col. 3 line 9).

Appellant argues on page 9 that the examiner refused to accept the finding of the Board of Appeal and Interference that Pope's appliance control codes would not teach a narrower interpretation of a keystroke indicator signal that means an indication of a selected key. It is the examiner's position that the BPAI decision on parent case 10/737,029 provided no assertion that that Pope's appliance control codes would not teach a narrower interpretation of a keystroke indicator signal that means an indication of a selected key.

Appellant argues that the base unit of Pope receives a control code indicating a function instead of receiving a keystroke indicator that indicates which key a user has selected on a remote control device. It is the examiner's position that although the signal receive by the base unit from the remote control indicates the desired function, the signal receive by the base unit from the remote control also provides an indication of the key pressed because the signal transmitted to the base unit from the remote control is based on the selected key on the remote control (col. 3 lines 35-40). The appellant specification defines the keystroke indicator as corresponding to a function of a selected electronic consumer device (paragraph 0007 of appellant specification). The examiner interpretation of the keystroke indicator as claimed is therefore consistent with the appellant specification. The claims provides no description of a keystroke indicator other than that the keystroke indicator indicates a key on the remote control that a user has selected and the appliance control code that is transmitted to the code generator (12) as disclosed by Pope (col. 2 lines 57-60) reads on this limitation.

Appellant argues on pages 10-11 that no keystroke indicator signal is transmitted because the selection of the XMIT key is not conveyed to the base unit and the correspondence of the keys on the remote control 10 can be changed without requiring the base unit to know of the correspondence. It is the examiner's position that the reference of Pope teaches the appliance control code can be selected from a menu or there can be dedicated keys for some or all the appliance control functions (col. 2 line 57-col. 3 line 19). It is therefore the examiner's position that even the pressing of all of the keys on the remote control does not result in the transmission of the keystroke signal, the selection of the function keys result in the transmission of the keystroke indicator signal.

Appellant argues on pages 11-14 that it is improper to construe that the appliance control code of Pope to teach both a keystroke indicator and a key code. It is the examiner's position that the reference of Pope teaches receiving a keystroke indicator signal which is the RF signal transmitted from the remote control containing an indication of a key on the remote control device 10 that was pressed (col. 2 lines 61-col. 3 line 19). Pope teaches based on the received RF signal, generating a key code (codes for communicating the control function to the appliances) within the code generator 12 and transmitting the key codes to the appliances (col. 3 lines 35-40). The key code generated is the IR signal that is transmitted through IR window 36. The conversion of the RF signal received from the remote control into IR codes (col. 3 lines 36-40) is considered the generation of the key code. The generation of the key code in the key code generator is broadly claimed and recites no particular means by which the key code is generated. The method disclosed by Pope of generating the key code by converting the RF signal receive from the remote control into IR codes therefore reads on the claim limitation.

Regarding appellant argument regarding claim 33, Pope teaches the processor of the remote control receive infrared signal from an existing remote control and the processor assign an appliance control code corresponding to this control information and store this code in memory (col. 4 lines 52-57). Pope teaches the control information is received by the base unit from the remote control and the control information is used to generate an infrared control code to be transmitted to the consumer electronic device base on the code store in memory 86 (col. 5 lines 3-10). The examiner considers the codeset as the infrared codes stores in memory 86 of the base unit and is therefore not stored in the remote control (10) because the remote control store controls code corresponding to the control information.

Regarding appellant argument regarding claims 48-49, the examiner interpreted the term "not understood by the electronic consumer device" as meaning a function is not generated by the consumer device if the keystroke indicator is received by the electronic consumer device because the signal is not formatted in a form that is usable by the consumer electronic device. Pope teaches the appliance code receive from the remote control (keystroke indicator) is converted to an infrared signal format and transmitted to the appliance (col. 3 lines 35-40). The code from the remote control is therefore not understood by the appliance because it is not in a format acceptable by the appliance.

Appellant argument regarding the generation of the key code from the keystroke indicator signal in claims 26 and 35 represents argument that was previously addressed in the examiner's answer.

Regarding appellant argument on page 18 regarding claim 34, it is the examiner's position that the reference of Pope teaches the infrared signal transmitted from the base unit (code generator) is a pulse train and the train of pulses is 1.6 microsecond indicating a high (ones) or low bit (zeroes) (col. 3 lines 40-47). The reference of Teskey is further relied upon for teaching the transmitted IR codes provides the necessary timing information each bits of the infrared code (col. 3 line 60-col. 4 line 8).

Appellant argument regarding claims 36, 38-45, 47, and 49 on pages 19-22 represents argument that was previously addressed in the examiner's answer.

Regarding appellant argument regarding claim 41, it is the examiner's position that the reference of Pope teaches the consumer device receive IR code from the base unit (col. 3 lines

36-40, col. 5 lines 35-40). The consumer device therefore does not have the ability to receive RF signal. Grube et al. teaches modulating a first key code signal unto an infrared signal (col. 4 lines 9-16) and transmitting a second key code unto radio frequency carrier signal (col. 4 lines 17-24) The reference of Grube et al. teaches a control device providing a RF transmitter and a IR transmitter and the RF and IR transmitter is selected based on the requirement of the remote control signal (col. 6 lines 1-11). The examiner consider the transmitting of the remote control signal using a first modulation technique after transmitting the key code using a second technique as requiring only routine skill in the art because Grube teaches selecting the appropriate transmitter with a particular modulation.

Regarding Appellant argument regarding claim 44, it is the examiner's position that the reference of Grube is relied upon for teaching the limitation of determining that the key code signal using the first modulation technique cannot be used to communicate with electronic consumer device. The reference of Grube teaches selecting the modulation scheme of the key code signal according to the requirement of the remote control signal (col. 6 lines 1-11). Grube et al. teaches modulating a first key code signal unto an infrared signal (col. 4 lines 9-16) and transmitting a second key code unto radio frequency carrier signal (col. 4 lines 17-24). It is therefore the examiner's position that it is determined that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device based on the information from the remote control signal requirement.

Appellant argument regarding claim 37 and 46 represents argument that was previously addressed in the examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Vernal Brown

/Vernal U Brown/
Primary Examiner, Art Unit 2612

Conferees:

/Brian A Zimmerman/
Supervisory Patent Examiner, Art Unit 2612

/George A Bugg/
Supervisory Patent Examiner, Art Unit 2612

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Daniel SauFu Mui	
Assignee:	UEI Cayman Inc.	
Title:	"Relaying Key Code Signals Through a Remote Control Device"	
Appl. No.:	13/068,820	Filing Date: May 21, 2011
Examiner:	Vernal U. Brown	Art Unit: 2612
Docket No.:	ZIL-568-2C	Confirmation No.: 7302

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November 30, 2012

REPLY BRIEF

This Reply Brief is filed pursuant to 37 CFR § 41.41 in response to an Examiner's Answer Brief mailed on October 2, 2012.

Appellant: Daniel SauFu Mui
Serial No.: 13/068,820
Filing Date: May 21, 2011
Docket No.: ZIL-568-2C

I. REAL PARTY IN INTEREST

The real party in interest is the assignee, UEI Cayman Inc., as named in the caption above. UEI Cayman Inc. is affiliated with Universal Electronics Inc.

II. STATUS OF CLAIMS

The final Office action dated April 11, 2012 ("Office Action") finally rejected claims 25-49. In the Examiner's Answer, the rejection of claim 42 was withdrawn. (Answer Brief, 3:9-12) The rejected claims, namely claims 25-41 and 43-49, are subject to the present appeal.

III. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following are grounds of rejection to be reviewed on appeal:

A. Whether claims 25, 27-33 and 48 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Pope (U.S. Pat. No. 5,963,624) in view of Graham (U.S. Pat. No. 4,005,428).

B. Whether claims 26 and 35 are unpatentable under 35 U.S.C. § 103(a) over Pope in view of Graham and further in view of Autry et al. (U.S. Pat. No. 5,724,106).

C. Whether claim 34 is unpatentable under 35 U.S.C. § 103(a) over Pope in view of Graham and further in view of Teskey et al. (U.S. Pat. No. 6,747,568).

D. Whether claims 36, 38-41, 43-45, 47 and 49 are unpatentable under 35 U.S.C. § 103(a) over Pope in view of Graham and further in view of Grube et al. (U.S. Pat. No. 5,201,067).

E. Whether claim 37 is unpatentable under 35 U.S.C. § 103(a) over Pope, Graham and Grube and further in view of Chiloyan et al. (U.S. Pat. No. 6,008,735).

F. Whether claim 46 is unpatentable under 35 U.S.C. § 103(a) over Pope, Graham and Grube and further in view of Autry.

IV. ARGUMENT

A. Introduction

The Examiner's Answer does not include any rejection designated as a new ground of rejection.

B. Independent claim 25

Claim 25 is allowable over Pope and Graham because the term "keystroke indicator" in the new version of claim 25 has been narrowed to recite a key on a remote control device that a user has selected, which precludes the control codes of Pope. In the Examiner's Answer, however, the examiner argues that the control codes of Pope teach the recited "keystroke signal" of the prior broader version of claim 25 that was rejected by the Board of Patent Appeals and Interferences (BPAI). (Answer Brief, 3:14-17) But the version of the claim that is subject to the present appeal no longer recites a "keystroke indicator signal", as the examiner implies. The emphasis is now on an indicator of a keystroke as opposed to on a signal. Compared to the version in the prior appeal, claim 25 has been amended as follows, "(a) receiving a keystroke indicator ~~signal~~ from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected; (b) generating a key code within a key code generator device using the keystroke indicator".

With regard to Appellant's arguments on page 7 of the Appeal Brief, the examiner contends that the passage of Pope from line 57 of column 2 through line 9 of column 3 teaches that a signal transmitted from handset 10 of Pope to base unit 12 "indicates the pressed key based on the desired control function" (Answer Brief, 3:17). However, the cited passage of Pope teaches that the signal received by base unit 12 from handset 10 indicates the desired control function as opposed to the key or keys that were pressed or the arrows that were scrolled through. The passage cited by the examiner states, "The keys for

numbers 1-9 can have different meanings once the user is in the menu." (Pope, 3:1-2) Thus, the number keys can correspond to different desired functions. Moreover, the passage cited by the examiner states that specific control functions for an electrical appliance can be scrolled through using the up and down arrows. (Pope, 3:5-8) So multiple selectable functions correspond to the up and down arrow keys and to the key that is currently used to select a function from the menu. A selected function can be reached with multiple combinations of pressing the up and down arrow keys. Thus, the desired control function transmitted in a signal from handset 10 to base unit 12 does not indicate which key on handset 10 the user selected. As Pope notes, there are "different meanings associated with different buttons" (Pope, 3:17). Base unit 12 does not receive a keystroke indicator from handset 10 that indicates which key on handset 10 a user has selected. Instead, the signal received by base unit 12 indicates the appliance control function that the user has selected.

Later in the Examiner's Answer and in response to Appellant's comment that only the selected function is conveyed from handset 10 to base unit 12 as opposed to the fact that the XMIT key was selected, the examiner appears to admit that the cited passage of Pope (2:57-3:19) does not teach the recited keystroke indicator. The examiner admits that "even the pressing of all of the keys on the remote control does not result in the transmission of the keystroke signal, the selection of the function keys result in the transmission of the keystroke indicator signal" (Answer Brief, 5:19-22) (emphasis added). So the only information conveyed in the signal from handset 10 to base unit 12 is that the indicated function has been selected by pressing an unspecified key, combination of keys or by scrolling.

With regard to Appellant's arguments on page 7 of the Appeal Brief, the examiner further argues that Pope teaches "receiving the signal from the remote control (key stroke indicator) and generating a key code in the form of an infrared control codes that are transmitted to the electronic devices (col. 3 lines 35-40)" (Answer Brief, 4:1-3) (emphasis added). In fact, the passage of Pope cited by

the examiner mentions nothing about keys or key codes. Instead, the cited passage (below) explains that base unit 12 receives an appliance control code from handset 10 and translates that appliance control code into a pulse train of

> Base unit **12** also translates the appliance control code to control the appliance. For example, an appliance control code can be converted into an infrared control code, and transmitted through outer window **36** to the electrical appliances **14**–**22**. The infrared control code is a pulse train used to control the infrared transmitter.

an infrared control code. The appliance control codes indicate the appliance function that the user has selected and do not indicate which keys on handset 10 the user pressed or scrolled in order to select that function.

In the Examiner's Answer, the examiner notes that the claim limitation "wherein the keystroke indicator signal indicates a key on said remote control device that a user has selected" was not presented to the BPAI. (Answer Brief, 4:11-12) Yet the examiner draws no conclusion from this observation. Of course this limitation was not before the BPAI; it was the BPAI itself that suggested this limitation as a consequence of the new rejection that the BPAI raised. It was the BPAI that declined to interpret the original version of claim 25 as having "a narrow interpretation of the term 'keystroke indicator signal' to mean an indication of a selected key while precluding a control code." (11/14/08 Decision on Appeal 2008-4830, 16:5-7) (emphasis added). In response to the decision of the BPAI, Appellant added the limitation of an indication of a selected key to the new version of claim 25. Thus, the examiner's arguments in the Examiner's Answer are directed to the old, broader version of claim 25 that was presented to the BPAI. This appeal, however, is directed to the version of claim 25 that recites, "the keystroke indicator indicates a key on the remote control device that a user has selected". This additional recitation that the keystroke indicator indicates a key that the user has selected cannot now be disregarded in the interpretation of the claim term "keystroke indicator". And, of course, this additional recitation was

not included in the version of claim 25 that was before the BPAI in the prior appeal, otherwise the BPAI would have allowed the claim.

On page 5 of the Answer Brief, the examiner proposes an interpretation of the claim term "keystroke indicator" that better supports the examiner's rejection of claim 25. The examiner argues that the term "keystroke indicator" should be interpreted as indicating a selected function as opposed to the recited indicating a selected key. The examiner states, "The appellant specification defines the keystroke indicator as corresponding to a function of a selected electronic consumer device (paragraph 0007 of appellant specification). The examiner interpretation of the keystroke indicator as claimed is therefore consistent with the appellant specification" (Answer Brief, 5:7-10) (emphasis added). The examiner's interpretation of the term "keystroke indicator" as indicating a selected function as opposed indicating a selected key should be rejected for two reasons.

First, the examiner's proposed claim interpretation conflicts with established law on how claims are to be interpreted. It is impermissible to interpret a claim term by disregarding other recitations in the claim and then choosing a meaning based on a single use of the claim term in the specification. Claim terms are to be interpreted based on the following hierarchy of intrinsic evidence: (i) the claim terms themselves, (ii) meaning based on other words of the claim, (iii) use of the claim terms in other claims of the application, (iv) use of the claim terms in the specification, and (v) used of the claim terms in the prosecution history. A claim term may not be interpreted based on the specification without first looking to the claim terms themselves, then other words in the claim, and then use of the claim terms in other claims. See *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582, 39 USPQ2d 1573 (Fed.Cir. 1996) (One interpreting a claim term first looks to the words of the claims themselves.). Claim construction "begins and ends in all cases with the actual words" used by the patentee. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248, 48 USPQ2d 1117 (Fed. Cir. 1998). "A claim construction analysis must begin and remain centered on the claim language itself." *Innova/Pure Water, Inc.*

v Safari Water Filtration Systems, Inc., 381 F.3d 1111, 72 USPQ2d 1001 (Fed.Cir. 2004). "The written description part of the specification does not delimit the right to exclude. That is the function and purpose of the claims." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980, 34 USPQ2d 1321 (Fed.Cir. 1995). Thus, it is improper for the examiner to interpret the term "keystroke indicator" as indicating a function that the user has selected when claim 25 recites that "the keystroke indicator indicates a key on the remote control device that a user has selected".

Second, paragraph [0007] of the specification does not disclose that a "keystroke indicator" indicates a selected function instead of a selected key. Thus, the examiner's assertion that the specification "defines the keystroke indicator as corresponding to a function" is misleading. (See Answer Brief, 5:7-8) In fact, paragraph [0007] states, "The keystroke indicator signal contains an indication of a key on the remote control device that was pressed, which corresponds to a function of the selected electronic consumer device" (emphasis added). The keystroke indicator indicates a key, and that key corresponds to a function. But the keystroke indicator does not indicate the function. Depending on the codeset used, each key can correspond to various different functions. But each keystroke indicator always indicates the same key.

On page 6 of the Examiner's Answer, the examiner responds to Appellant's argument that the examiner's rejection of claim 25 is based on interpreting an appliance control code of Pope as teaching both the recited "keystroke indicator" and the recited "key code". Starting on the bottom of page 11 of the Appeal Brief, Appellant explains why two separate claim terms may not be taught by the single element of Pope's appliance control code. In the Examiner's Answer, the examiner now attempts to argue that the rejection of claim 25 is not based on Pope's appliance control code teaching both the recited "keystroke indicator" and the recited "key code" because the indicator and the code are actually taught by the RF and IR signals in Pope.

This new rebuttal argument fails because it is inconsistent with the claim limitations. The examiner now argues that the recited "keystroke indicator signal . . . is the RF signal" transmitted from handset 10 to base unit 12 (6:3), while the recited "key code . . . is the IR signal" transmitted from base unit 12 to an electrical appliance 14-22 (Answer Brief, 6:8). The examiner's new argument should be rejected because (i) the version of claim 25 currently under appeal no longer recites a "keystroke indicator signal" and (ii) neither the keystroke indicator nor the key code is a signal. The version of claim 25 being appealed recites that the keystroke indicator, as opposed to a signal, indicates a selected key. Thus, the RF signal of Pope cannot teach the recited keystroke indicator. The keystroke indicator is distinct from a keystroke indicator signal that contains the keystroke indicator (even though no keystroke indicator signal is recited in claim 25)[1]. And the key code is distinct from the key code signal that is generated by formatting the key code for transmission. So Pope does not teach transmitting a keystroke indicator in the RF signal from handset 10 to base unit 12, and then generating a key code in base unit 12 using the keystroke indicator so that the key code can be formatted for transmission onto the IR signal. Instead, Pope teaches that an appliance control code is transmitted in an RF signal from handset 10 to base unit 12, and then the appliance control code (in the translated form of an infrared control code) is transmitted in an IR signal from base unit 12 to an electrical appliance 14-22. (See Pope, 3:35-40) Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, 4:49-51) (emphasis added). So there is no keystroke indicator in Pope, and the RF signal of Pope does not teach the recited keystroke indicator.

C. Dependent claim 33

Claim 33 recites that the key code generated using the keystroke indicator

[1] But claim 31 recites "a keystroke indicator signal containing the keystroke indicator".

is part of a codeset that is not stored on the remote control device. In the Examiner's Answer, the examiner now argues that the recited key code is taught by an infrared control code stored in memory 86 of base unit 12, and that therefore the infrared control code is not part of a codeset stored on handset 10. (Answer Brief, 6:14-22) But handset 10 of Pope does store the codesets of the function codes for all of the functions of the electrical appliances 14-22.

The examiner's rebuttal argument is based on the incorrect conclusion that the key code recited in claims 25 and 33 is taught by an infrared control code of Pope. A key code associates a function of an electronic consumer device with a key or keys of a remote control device. That association is not present on base unit 12 of Pope. The selected function is already indicated by the appliance control code received by base unit 12, so no association is made between a pressed key and a function in base unit 12. The association between a pressed key and a function is made in handset 10 of Pope. Thus, handset 10 of Pope stores a codeset that includes the control codes for controlling each function. Pope teaches, "the digital handset is provided with a variety of stored appliance control codes." (Pope, 5:16-17) The control codes of Pope are stored in memory 66 of handset 10 and are then transferred via base unit 12 to the appliances. Base unit 12 merely translates the control codes into infrared pulse trains. (Pope, 5:31-33) But the codeset of control codes that associate functions with pressed keys is stored in handset 10.

D. Dependent claims 48-49

Claims 48-49 recite that "the keystroke indicator is not a code that is understood by the electronic consumer device." In the Examiner's Answer, the examiner argues that an appliance control code of Pope teaches the recited keystroke indicator that is not understood by the appliance "because it is not in a format acceptable by the appliance" (Answer Brief, 7:7-8). But the examiner again confuses a code with a signal that transmits that code. It is the format of the signal as opposed to the code being transmitted that is not understood. The

examiner argues that the appliance control code transmitted from handset 10 to base unit 12 is not understood by the appliance "because the signal is not formatted in a form that is usable by the electronic consumer device" (Answer Brief, 7:4) (emphasis added).

The appliance control code itself, however, is understood by the appliance after it is correctly formatted. Pope states, "Once an appliance control code is received by the base unit, the base unit will know to transfer the control code to an appliance" (Pope, 4:49-51) (emphasis added). The appliance control code that has been reformatted into an infrared pulse train and then transferred to the appliance is indeed understood by the appliance. Thus, the appliance control code of Pope does not teach the recited keystroke indicator that is not understood by the electronic consumer device to which the recited key code signal has been transmitted.

E. Dependent claim 34

Claim 34 recites, "the codeset comprises timing information that describes a digital one and a digital zero". In the final Office action dated 4/11/12, the examiner admitted regarding claim 34 that Pope "is silent on teaching the key code comprises timing information defining the binary number is modulated." (4/11/12 Office Action, 9:16-17) The examiner cited Teskey for teaching this limitation. In the Appeal Brief, Appellant explained why Teskey does not teach this limitation. Now in the Examiner's Answer, the examiner argues that Pope does indeed teach a codeset comprising "timing information that describes a digital one and a digital zero". The examiner argues that lines 40-47 of column 3 of Pope teach "the infrared signal transmitted from the base unit (code generator) is a pulse train and the train of pulses is 1.6 microsecond indicating a high (ones) or low bit (zeroes)" (Answer Brief, 7:13-15) (emphasis added). But the cited passage of Pope does not teach a codeset that includes the timing information that describes digital ones and zeros. The cited passage (below) just states that an infrared signal is transmitted as a train of pulses that indicate high and low bits.

> The infrared control code is a pulse train used to control the infrared transmitter.
>
> In a preferred embodiment, the infrared transmitter is a conventional transistor attached to an infrared bulb. When the signal at the base of the transistor is high, the bulb draws current and glows in an infrared region. The infrared code is typically a train of pulses, each pulse being 1.6 microseconds long, indicating a high or low bit.

(Pope, 3:40-47) But Pope does not teach a codeset that includes the timing information that describes digital ones and zeros. The fact that an infrared signal is transmitted as a train of pulses indicating high and low bits does not teach that timing information in a codeset is used to describe digital ones and zeros. Pope suggests that memory 86 stores an equivalent infrared control code for each appliance control code. When the processor in base unit 12 receives an appliance control code, the processor looks up the corresponding IR code in memory 86. (Pope, 5:7-10) The IR code is stored as a train of pulses in memory 86. Pope memorizes the entire pulse train for each appliance control code. Pope does not use a codeset that includes timing information to recreate the digital ones and zeros that make up the IR code for each appliance control code.

The examiner also relies on Teskey in the Examiner's Answer for teaching the recited codeset comprising timing information that describes digital ones and zeros. The examiner relies on the same passage of Teskey he cited in the final Office action. (Answer Brief, 7:15-17 citing Teskey 3:60-4:8) But the cited passage of Teskey does not teach a codeset that includes timing information that defines digital ones and zeros. Teskey does not mention a digital one, a digital zero or any type of mark/space representation. Moreover, and as explained in the Appeal Brief, the examiner may not rely on inherency for teaching the missing limitation of a codeset that includes timing information describing digital ones and zeros. The examiner may not rely on inherency because Teskey does not make clear that the missing codeset with timing information is necessarily

present in Teskey. See *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991)" *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004) (emphasis added). A codeset with timing information is not necessarily present in Teskey because the signal timing information of Teskey, such as carrier frequency, pulse width and pulse modulation, does not necessarily describe digital ones and zeros. The general modulation onto a carrier signal, such a frequency modulation or amplitude modulation, does not require knowledge of a mark/space table that defines the digital ones and zeros that are being modulated. Thus, Teskey does not teach timing information that defines digital ones and zeros.

F. Dependent claim 41

Claim 41 recites that "the electronic consumer device is not capable of receiving the radio frequency transmission, and wherein the transmitting in (e) is performed after the transmitting in (d)." The rejection of claim 41 in the final Office action dated 4/11/12 was based on an incorrect interpretation that claim 41 recites the IR transmission as being performed before the RF transmission. (4/11/12 Office Action, 4:6-8) In fact, the recitation in claim 41 that (e) is performed after (d) means that the IR transmission is performed after the RF transmission. In the Examiner's Answer, the examiner seems to concede that the original rejection was based on an incorrect claim interpretation. (Answer Brief, 7:20-8:9)

In the Examiner's Answer, the examiner now argues that even though Grube does not teach transmitting an RF transmission to a device and then transmitting an IR transmission after the device is not capable of receiving the RF transmission, doing so would require "only routine skill in the art because Grube teaches selecting the appropriate transmitter with a particular modulation" (Answer Brief, 8:8-9). Appellant interprets the examiner's comments as alleging that modifying the teachings of Grube to perform the recited steps would have been obvious to one of ordinary skill. The amount of skill required to perform the

undisclosed recited steps is not dispositive of the §103 rejection of claim 41. It is only relevant whether one of ordinary skill would have found it obvious to perform the admittedly undisclosed steps.

However, it would not have been obvious to one of ordinary skill when presented with the teachings of Grube to transmit an RF transmission to an electronic consumer device and then to transmit an IR transmission to the same electronic consumer device after the device is not capable of receiving the RF transmission. Grube only transmits one type of transmission to each device. There would have been no apparent reason for Grube to transmit two types of transmissions to a single device because Grube does not determine whether a device was capable of receiving one type of transmission. So there would have been no reason to send a different type of transmission because Grube did not determine that the first type of transmission was not capable of being received. For example, Grube does not transmit an RF transmission to a garage door opener and then transmit an IR transmission to the garage door opener because Grube does not determine that the garage door opener was not capable of receiving the RF transmission. The new rejection of claim 41 raised in the Examiner's Answer based on "requiring only routine skill" should be overruled.

G. Dependent claim 44

Claim 44 recites, "determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device." In the Appeal Brief, Appellant stated that the examiner had failed to present a *prima facie* case of obviousness against claim 44 because the examiner did not allege in the final Office action that any of Pope, Graham or Grube teaches determining that the key code signal using a particular modulation technique cannot be used to communicate with an electronic consumer device. The examiner did not specifically address the limitations of claim 44 in the final Office action.

Now in the Examiner's Answer, the examiner alleges that Grube teaches

the limitations of claim 44. (Answer Brief, 8:10-19) However, the examiner does not indicate where Grube teaches determining that a key code signal using a modulation technique cannot be used to communicate with a device. The examiner states only that Grube teaches (i) selecting a modulation scheme, (ii) modulating a first signal onto an infrared signal, and (iii) transmitting a second signal onto a radio frequency carrier signal. (Answer Brief, 8:13-16) Then the examiner concludes that Grube's teachings of selecting a modulation scheme, modulating onto an IR signal and transmitting onto an RF signal to also teach determining that one of the modulation techniques cannot be used. The examiner states, "It is therefore the examiner's position that it is determined that the key code signal using the first modulation technique cannot be used to communicate" (Answer Brief, 8:16-18) (emphasis added). But the examiner's position misrepresents the teachings of Grube. Grube makes no determination that any modulation technique cannot be used or that a device is not capable of receiving a transmission. This rejection of claim 44 that is first raised in the Examiner's Answer should be overruled.

V. CONCLUSION

For at least the reasons set forth in this Reply Brief and in the Appeal Brief, Appellant respectfully requests that the Appeal Board reverse the examiner's rejections of claims 25-41 and 43-49. The rejection of claim 42 has been withdrawn.

I hereby certify that this correspondence is being submitted electronically via EFS Web to the United States Patent and Trademark Office.

By /Darien K. Wallace/
Darien K. Wallace

Date submitted: November 30, 2012

Respectfully submitted,

/Darien K. Wallace/

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Electronic Acknowledgement Receipt	
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Application Number:	13068820
International Application Number:	
Confirmation Number:	7302
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Customer Number:	47713
Filer:	Darien Kenneth Wallace
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C	7302

47713 7590 12/12/2012

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Appeal No: 2013-002303
Application: 13/068,820
Appellant: Daniel SauFu Mui

Patent Trial and Appeal Board Docketing Notice

Application 13/068,820 was received from the Technology Center at the Board on December 04, 2012 and has been assigned Appeal No: 2013-002303.

In all future communications regarding this appeal, please include both the application number and the appeal number.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DANIEL SAUFU MUI[1]

Appeal 2013-002303
Application 13/068,820
Technology Center 2600

Before JAMESON LEE, SALLY C. MEDLEY, and
KRISTEN L. DROESCH, *Administrative Patent Judges*.

DROESCH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant seeks review under 35 U.S.C. § 134(a) of a Final Rejection of claims 25–41 and 43–49.[2] We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM–IN–PART.

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[1] Appellant indicates the real party-in-interest is UEI Cayman Inc. App. Br. 1.

[2] The rejection of claim 42 has been withdrawn. Ans. 3. The rejection of claims 48 and 49 under 35 U.S.C. § 112, first paragraph has been withdrawn. Advisory Action 2 (May 11, 2012). The rejection of claim 25 as unpatentable under the judicially created obviousness-type double patenting was rendered moot by the filing of a terminal disclaimer and

BACKGROUND

The disclosed invention is related to a remote control system and associated methods that includes a key code generator that receives a keystroke from a remote control device. The key code generator generates a key code and transmits the key code. Spec. ¶¶ 2, 7–9.

Illustrative independent claims 25 and 39, reproduced from the Claim Appendix, read as follows:

> 25. A method comprising:
> (a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;
> (b) generating a key code within a key code generator device using the keystroke indicator;
> (c) formatting the key code for transmission and thereby generating a key code signal; and
> (d) transmitting the key code signal from the key code generator device to an electronic consumer device.
>
> 39. A method comprising:
> (a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;
> (b) generating a key code within a key code generator device using the keystroke indicator;
> (c) formatting the key code for transmission and thereby generating a key code signal;
> (d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique; and
> (e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique.

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payment of the terminal disclaimer fee. Terminal Disclaimer Review Decision (June 22, 2012).

REJECTIONS

Claims 25, 27–33, and 48 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pope (US 5,963,624; Oct. 5, 1999) and Graham (US 4,005,428; Jan. 25, 1977).

Claims 26 and 35 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pope, Graham, and Autry (US 5,724,106; Mar. 3, 1998).

Claim 34 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Pope, Graham, and Teskey (US 6,747,568 B1; June 8, 2004).

Claims 36, 38–41, 43–45, 47, and 49 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pope, Grube (US 5,201,067; Apr. 6, 1993), and Graham.

Claim 37 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Pope, Grube, Graham, and Chiloyan (US 6,008,735; Dec. 28, 1999).

Claim 46 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Pope, Grube, Graham, and Autry.

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellant's arguments in the Appeal Brief, and the Examiner's Answer in light of the arguments in the Reply Brief. We determine that Appellant has not shown error in the Examiner's rejections of claims 25–33, 35–41, 43, and 45–49, but has shown error in the rejections of claims 34 and 44. We highlight and address specific findings and arguments for emphasis below.

Unpatentability of Claims 25–32, 35–40, 43, and 45–47

"Keystroke Indicator"

The Examiner finds Pope's description of transmitting appliance codes from the handset (i.e., remote control) to the base unit (i.e., key code

generator) teaches "receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected," as recited in independent claim 25 ("the keystroke indicator limitation"). Final Act. 7. The Examiner further explains the signal transmitted from the handset to the base unit indicates the pressed key based on the desired control function. Final Act. 2 (citing Pope 2:57–3:9); Ans. 3 (citing Pope 2:57–3:9), Ans. 4 (Pope 3:35–40).

Appellant contends the Board "has already determined in the parent case 10/737,029 . . . that neither Pope nor Graham teaches the narrower construction of 'keystroke indicator,' as now recited in claim 25, in which 'keystroke indicator,' indicates which key on a remote control device that a user has selected." App. Br. 7; *see also id.* at 9 ("keystroke indicators that indicate which keys"), 10–12 ("a keystroke indicator that indicates which key"). Appellant also argues the narrow construction of "keystroke indicator," recited in claim 25, precludes the appliance control codes of Pope. *Id.* at 9–10; Reply Br. 5–6.

Appellant misapprehends our earlier Decision. *See Ex parte Mui*, Appeal 2008–4830, slip op. at 16 (BPAI Nov. 17, 2008). Our earlier Decision rejected the narrow construction of "keystroke indicator signal" urged by Appellant. *Id.* Contrary to Appellant's assertions, our earlier Decision did not endorse or adopt a specific construction for the term "keystroke indicator," or "keystroke indicator signal." *See id.*

Further, Appellant's arguments are not commensurate in scope with the claim language because claim 25 does not require an indication of "which key" that was selected by a user. For example, we disagree with Appellant's arguments on page 11 of the Appeal Brief that claim 25 requires

that when a user presses the "9" key, for example, that the keystroke indicator signal contains a "9" in the signal. All that is required by claim 25 is that the keystroke indicator indicates *a key* (i.e., one or more keys) on the remote control device that a user has selected. We agree with the Examiner that the keystroke indicator, when interpreted in light of the specification, need only contain, for example, a function associated with a key or a code associated with a key in order to meet the claim language. Ans. 5. For these reasons, we are not persuaded that claim 25 precludes Pope's appliance control code because claim 25 does not exclude explicitly an appliance control code from the scope of "keystroke indicator."

Related to the above arguments, Appellant contends Pope's base unit receives a control code indicating a function instead of receiving a keystroke indicator that indicates which key a user has selected on a remote control device. App. Br. 10; Reply Br. 5–6. Specifically, Appellant asserts Pope discloses the use of the handset to scroll through a menu of functions on a display, and that when transmit key XMIT on the handset is pressed, the control code for the selected function is transmitted to the base unit. App. Br. 10. Appellant argues that it is not true that each control code received by the base unit indicates the pressed key based on the desired function that the control code represents because various keys or combinations of keys can be assigned to a function, and the base unit could not know the particular keys that were selected. *Id.* at 10–11.

We are not persuaded by Appellant's arguments regarding Pope's appliance control code indicating a function because claim 25 does not exclude explicitly the keystroke indicator from indicating a selected function as explained above. We agree with the Examiner's broad but reasonable

construction of "keystroke indicator" as including an indicator of a desired function, based on the Specification disclosure of the keystroke indicator signal corresponding to a function. Ans. 5 (citing Spec. ¶ 7); Spec. ¶¶ 23, 24. The Examiner's construction is reasonable in light of the Specification which discloses "the keystroke indicator signal can be an indication of a pressed key where there is a one-to-one relationship between the key and a function to be performed." Spec. ¶ 54. As pointed out by Appellant, Pope discloses an appliance control code for a selected function which is transmitted to the base unit when transmit key XMIT on the handset is pressed (*see* App. Br. 10, Pope 2:57–3:4). Pope further discloses "there can be dedicated keys for some or all of the appliance control functions," and "individual functions can be mapped with the associated buttons of the keypad." Pope 2:57–60, 3:12–19. We agree the keystroke indicator limitation is met by Pope's teaching of receiving an appliance control code from the handset, because the receipt of the appliance control code indicates a key (i.e., one or more keys, the XMIT key) on the remote control device that a user has selected. For these same reasons, we are not persuaded that Pope does not teach the keystroke indicator limitation "because the fact that transmit key XMIT was selected is not conveyed to the base unit []." *See* App. Br. 10; *see also* Reply Br. 6 ("the only information conveyed in the signal . . . is that the indicated function has been selected").

"Generating a Key Code"

The Examiner finds Pope's description of the base unit processor retrieving an infrared control code from the base unit memory based on the appliance control code, and transmitting the infrared control code from the base unit to an appliance teaches "generating a key code within a key code

generator device using the keystroke indicator . . . and transmitting the key code signal from the key code generator to an electronic consumer device," as recited in claim 25. Final Act. 7; Ans. 4 (both citing Pope 3:35–50). The Examiner further explains that Pope's appliance control code teaches a keystroke indicator, and Pope's infrared (IR) control code teaches the key code. Final Act. 3, 7; Ans. 6.

Appellant argues the keystroke indicator cannot be synonymous with the key code. App. Br. 9; *see* Reply Br. 5. Appellant contends it is improper to construe Pope's appliance control code to teach both a keystroke indicator and a key code, and would render claim 25 internally inconsistent. *Id.* at 11–12. Appellant further argues that the Examiner's position that the keystroke indicator is the RF signal transmitted from the handset, and the generated key code is the IR code transmitted from the base unit to an appliance (*see* Ans. 6) is erroneous because claim 25 does not require a signal. Reply Br. 10. Appellant asserts: (1) neither the keystroke indicator nor the key code is a signal, and (2) the keystroke indicator is distinct from a keystroke indicator signal that contains the keystroke indicator. *Id.*

We are not persuaded by Appellant's arguments because the Examiner does not rely on Pope's appliance control code to teach both a keystroke indicator and a key code. Appellant also does not meaningfully explain, or direct us to a Specification disclosure explaining, how a keystroke indicator is distinct from a keystroke indicator signal. The term "key stroke indicator" is broader than and includes within its scope the narrower term "keystroke indicator signal." In other words, the term keystroke indicator encompasses a keystroke indicator signal and other

means for conveying the keystroke indicator. We further observe that the Specification utilizes repeatedly the term "keystroke indicator signal."

Appellant further contends Pope does not teach generating a key code within the base unit (i.e., a key code generator device) because the base unit receives the appliance control code from the handset and transmits or transfers the appliance control code to an appliance. App. Br. 12–13 (quoting Pope 1:31–36, 4:49–51). Appellant argues: (1) Pope cannot teach generating a key code by translating the same key code that it has already received; and (2) converting received control codes into an infrared format is not the same as generating the control codes. *Id*. at 13–14 (citing Pope 1:31–36, 2:48–52, 2:63–65, 4:49–51).

Appellant's arguments do not address sufficiently the teachings of Pope relied upon by the Examiner. We agree with and adopt the Examiner's finding that Pope teaches the base unit using the received appliance control code to retrieve the infrared code from the base unit memory. Final Act. 3 (citing Pope 5:6–10), 7; Ans. 6 (citing Pope 5:3–10); *see also* Pope 6:14–18, claim 5 (describing the received appliance control code as a pointer to the infrared control codes stored in the memory of the base unit).

For all of the foregoing reasons, we are not persuaded of error in the rejection of claim 25 as unpatentable over Pope and Graham. Appellant presents arguments under separate headings addressing independent claims 36 and 39, which are substantially identical to the arguments presented addressing independent claim 25. *Compare* App. Br. 19–22, *with* App. Br. 7–14. Therefore, for the same reasons provided with respect to claim 25, we are not persuaded of error in the rejection of independent claims 36 and 39 as unpatentable over Pope, Graham, and Grube.

Claims 27–32 and 35 depend from claim 25, claims 37 and 38 depend from claim 36, and claims 40, 43, and 45–47 depend from claim 39. Appellant does not present separate substantive arguments addressing the limitations of dependent claims 27–32, 35, 37, 38, 40, 43, and 45–47. *See* App. Br. 14–17, 22–26. Accordingly, for the same reasons provided with respect to claims 25, 36 and 39, we are not persuaded of error in the rejections of: (1) claims 27–32 as unpatentable over Pope and Graham; (2) claims 26 and 35 as unpatentable over Pope, Graham, and Autry; (3) claims 38, 40, 43, 45, and 47 as unpatentable over Pope, Grube, and Graham (4) claim 37 as unpatentable over Pope, Grube, Graham, and Chiloyan; and (5) claim 46 as unpatentable over Pope, Grube, Graham, and Autry.

Unpatentability of Claim 33

Claim 33 depends from claim 25 and recites "the key code generated in (b) is part of a codeset, and wherein the codeset is not stored on the remote control device." The Examiner finds Pope's infrared control code generated by the base unit is not stored in the handset (i.e., remote control) because the base unit is required to translate the received code from the handset (i.e., remote control) into code for controlling the appliance. Final Act. 3 (citing Pope 3:35–36, 5:6–10); *see* Ans. 6. The Examiner further explains the claimed codeset is taught by the infrared codes stored in the memory of the base unit. Ans. 6 (citing Pope 5:3–10).

Appellant argues Pope's appliance control codes transmitted from handset to base unit are stored in memory of handset. App. Br. 15 (citing Pope 2:48–52, 4:27–28). Appellant argues Pope's infrared control code sent to an appliance does not teach the recited key code because the infrared control code is not associated with the particular key that was pressed, but is

associated with a desired appliance control function. *Id*. Appellant further asserts a key code associates a function of an electronic consumer device with a key or keys of a remote control device. Reply Br. 11. Appellant asserts this association is not present on Pope's base unit, but is present on Pope's handset as the appliance control codes stored in the handset memory. *Id.* (citing Pope 5:16–17, 31–33).

We are not persuaded by Appellant's arguments because they are not commensurate in scope with the claim limitations. Claim 33 (and claim 25 from which it depends) does not recite or require the key code to associate a function of an electronic consumer device with a key or keys of a remote control. We agree with and adopt the Examiner's finding that Pope teaches generating the infrared key code from a codeset stored in the base unit memory, and not stored on the handset. We further observe that Pope teaches the received appliance control code is a pointer to the infrared control codes stored in the memory of the base unit. Pope 6:14–18, claim 5.

For these reasons, in addition to those addressing claim 25 above, we are not persuaded of error in the rejection of claim 33 as unpatentable over Pope and Graham.

Unpatentability of Claims 48 and 49

Claim 48 depends from claim 25, and claim 49 depends from independent claim 39. Claims 48 and 49 each recite "the keystroke indicator is not a code that is understood by the electronic consumer device." We agree with and adopt the Examiner's finding that Pope teaches the appliance control code (i.e., keystroke indicator) received from the handset is converted to an infrared signal format and transmitted to the appliance, and therefore, the appliance control code is not understood by the appliance

because it is not in a format acceptable by the appliance. Final Act. 8, 12 (both citing Pope 3:35–40).

Appellant argues Pope's appliance control code is understood by the appliance when it is formatted. App. Br. 16, 24–25 (both citing Pope 4:49–51). We are not persuaded by Appellant's arguments. As explained above addressing claim 25, the Examiner relies on Pope's appliance control codes received from the handset for teaching the keystroke indicator limitation, and Pope's infrared control codes from base unit memory for teaching the generated key code. We agree with and adopt the Examiner's finding that Pope's appliance control code received by the handset is not in a format acceptable by the appliance. Appellant does not direct us to evidence sufficient to demonstrate that Pope's appliance control codes received from handset (i.e., remote control) is a code that is understood by Pope's appliances (i.e., TV, Cable, CD, etc.).

For these reasons, in addition to those addressing claims 25 and 39 above, we are not persuaded of error in the rejections of claim 48 as unpatentable over Pope and Graham, and claim 49 as unpatentable over Pope, Grube, and Graham.

Unpatentability of Claim 41

Claim 41 depends from claim 40, which depends from claim 39. Intervening claim 40 recites "the key code signal is transmitted in (d) in the form of a radio frequency transmission, and wherein the key code signal is transmitted in (e) is in the form of an infrared frequency transmission." Claim 41 recites "the electronic consumer device is not capable of receiving the radio frequency transmission, and wherein the transmitting in (e) is performed after the transmitting in (d)." The Examiner relies on the

combined teachings of Pope, Grube, and Graham to teach or suggest all of the limitations of claim 41. Final Act. 4 (citing Grube 4:9–24), 10–11 (citing Pope 3:35–40; Grube 4:9–24; Graham 2:7–21); Ans. 7–8 (citing Pope 3:35–40, 5:35–40; Grube 4:9–24, 6:1–11).

Appellant argues the Examiner does not present a prima facie case of obviousness because the Examiner "does not contend that any of Pope, Graham or Grube teaches transmitting an RF transmission to an electronic consumer device and then transmitting an IR transmission to the electronic device after the device is not capable of receiving the RF transmission." App. Br. 22; *see* Reply Br. 14–15. Specifically, Appellant contends "Grube does not transmit an RF transmission to an electronic device and then transmit an IR transmission to the electronic device *if* the device was not capable of receiving the RF transmission." App. Br. 23 (emphasis added); *see also* Reply Br. 15 ("Grube does not determine whether a device was capable of receiving one type of transmission."). In other words, Appellant contends "wherein the electronic consumer device is not capable of receiving the radio frequency transmission" recited in claim 41, requires a determination step that is performed as part of step (d) of claims 39 and 40.

We agree with the Examiner that claim 41 does not recite or require transmitting an infrared frequency transmission after there is a determination that the electronic consumer device is not capable of receiving an RF transmission. Final Act. 4. When considering the limitations of claims 39 through 41 together, there is no requirement that transmitting the IR signal must occur after there is a determination that a consumer device is not capable of receiving the RF transmission. Appellant does not direct us to language in claims 39 through 41 connecting the subsequent transmission of

the infrared key code signal to any determination that the electronic consumer device is not capable of receiving a first radio frequency key code transmission.

For these reasons, in addition to the reasons addressing claims 25, 36 and 39, we are not persuaded of error in the rejection of claim 41 as unpatentable over Pope, Grube, and Graham.

Unpatentability of Claim 44

Claim 44 depends from claim 39 and recites "before the transmitting in (e): (f) determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device." The Examiner relies on the combined teachings of Pope, Grube, and Graham to teach or suggest all of the limitations of claim 44. Final Act. 10–11 (citing Pope 3:35–40; Grube 4:9–24; Graham 2:7–21). Specifically, the Examiner relies on Grube for teaching the limitation of claim 44 based on Grube's teaching of selecting the modulation scheme of the code signal according to the requirement of the remote control signal. Ans. 8 (citing Grube 4:9–24, 6:1–11).

Appellant argues the Examiner does not indicate where Grube teaches determining that a key code signal using a modulation technique cannot be used to communicate with a device. Reply Br. 15. Appellant contends Grube makes no determination that any modulation technique cannot be used or that a device is not capable of receiving a transmission. *Id.*

We are persuaded of error in the rejection of claim 44. The Examiner does not provide sufficient explanation, or direct us to sufficient supporting evidence, demonstrating that Grube's selection of the appropriate transmitter in accordance with the requirement of the remote control signal requested

(*see* Grube 6:1–10) teaches or suggests determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device**.**

For these reasons, we cannot sustain the rejection of claim 44 as unpatentable over Pope, Grube, and Graham.

Unpatentability of Claim 34

Claim 34 depends from claim 25 and recites: "the key code generated in (b) is part of a codeset, and wherein the codeset comprises timing information that describes a digital one and a digital zero." The Examiner finds "Pope teaches the infrared signal [(i.e., key code)] transmitted from the base unit (code generator) is a pulse train and the train of pulses is 1.6 microsecond indicating a high (ones) or low bit (zeroes)." Ans. 7 (citing Pope 3:40–47). The Examiner finds that Teskey teaches "the transmitted IR codes provides the necessary timing information each bits of the infrared code." *Id.* (citing Teskey 3:60–4:8).

Appellant contends Pope's teaching of an infrared signal transmitted as a train of pulses indicating high and low bits does not teach that codeset timing information is used to describe digital ones and zeroes. Reply Br. 13. For example, Appellant's Specification discloses the use of 19 bursts of a 38.5 kHz intermediary signal having an "on-time" of ten microseconds and an "off time" of sixteen microseconds to generate a 490 microsecond mark length representing a digital zero, and generating 151 bursts of the 38.5 kHz signal to generate a 3940 microsecond mark length representing a digital one. Spec. ¶ 35, Fig. 6A. Appellant argues Teskey does not make clear that a codeset with timing information describing digital ones and zeroes is

necessarily present in Teskey because the signal timing information of Teskey does not necessarily describe digital ones and zeroes. *Id.* at 13–14.

We are persuaded of error in the rejection of claim 34. The Examiner does not provide sufficient explanation, or direct us to sufficient supporting evidence, demonstrating that Pope's infrared code comprising a train of pulses with each pulse being 1.6 microseconds long, and indicating a one or a zero (Pope 3:45–47), combined with Teskey's remote control signal format characteristics including overall signal timing information (Teskey 3:60–4:8), teaches or suggests a codeset comprising timing information that describes a digital one and a digital zero. Specifically, it is not clear how Pope's train of 1.6 microsecond pulses, with each pulse indicating a high ("1") or low ("0") bit, as modified in view of Teskey's general teaching of signal timing information, teaches or suggests that it is the timing information of the codeset pulses or signals that describes digital ones and digital zeroes.

For these reasons, we cannot sustain the rejection of claim 34 as unpatentable over Pope, Graham, and Teskey.

DECISION

We AFFIRM the rejections of claims 25–33, 35–41, 43, and 45–49.

We REVERSE the rejections of claims 34, and 44.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

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NOTICE OF ALLOWANCE AND FEE(S) DUE

47713 7590 04/18/2016
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EXAMINER
BROWN, VERNAL U

ART UNIT	PAPER NUMBER
2686	

DATE MAILED: 04/18/2016

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C	7302

TITLE OF INVENTION: Relaying key code signals through a remote control device

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	07/18/2016

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

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PTOL-85 (Rev. 02/11)

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(Signature)
(Date)

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nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	07/18/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
BROWN, VERNAL U	2686	340-013240

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NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
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PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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EXAMINER	
BROWN, VERNAL U	
ART UNIT	PAPER NUMBER
2686	

DATE MAILED: 04/18/2016

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/068,820	Applicant(s) MUI, DANIEL SAUFU	
	Examiner VERNAL BROWN	Art Unit 2686	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *7/16/12*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *34 and 44*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☒ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/VERNAL BROWN/
Primary Examiner, Art Unit 2686

The present application is being examined under the pre-AIA first to invent provisions.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below based on the decision by the board of appeal rendered on 2/03/16. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR1.312 to ensure consideration of such an amendment, it must be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Donald L. Dennison on April 4, 2003.

The claims are amended as follows:

Claims 25-33 and claim 35-43, and 45-49

Claim 34 is amended as follows:

A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indictor;

(c) formatting the key code for transmission and thereby generating a key code signal; and

(d) transmitting the key code signal from the key code generator device to an electronic consumer device. wherein the key code generated in (b) is part of a codeset, and wherein the codeset comprises timing information that describes a digital one and a digital zero.

Claim 44 is amended as follows:

A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indicator;

(c) formatting the key code for transmission and thereby generating a key code signal;

(d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique; and

(e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique;

further comprising, before the transmitting in (e):

(f) determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VERNAL BROWN whose telephone number is (571)272-3060. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lim Steven can be reached on 571-270-1210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VERNAL BROWN/
Primary Examiner, Art Unit 2686

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	**Art Unit**
	VERNAL BROWN	2686

CPC						
Symbol					**Type**	**Version**
G08C		15	/	04	F	2013-01-01
G08C		17	/	02	I	2013-01-01
			/			
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			/			
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			/			

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	2	
/VERNAL BROWN/ Primary Examiner.Art Unit 2686	4/13/16	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No. 20160413

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	**Art Unit**
	VERNAL BROWN	2686

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
340	13.24	G	0	8	C	19 / 12 (2006.01.01)						

CROSS REFERENCE(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	2	
/VERNAL BROWN/ Primary Examiner.Art Unit 2686	4/13/16	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No. 20160413

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	**Art Unit**
	VERNAL BROWN	2686

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17		33		49								
	2		18	1	34										
	3		19		35										
	4		20		36										
	5		21		37										
	6		22		38										
	7		23		39										
	8		24		40										
	9		25		41										
	10		26		42										
	11		27		43										
	12		28	2	44										
	13		29		45										
	14		30		46										
	15		31		47										
	16		32		48										

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 2	
/VERNAL BROWN/ Primary Examiner.Art Unit 2686	4/13/16	O.G. Print Claim(s) 1	O.G. Print Figure 1
(Primary Examiner)	(Date)		

U.S. Patent and Trademark Office

Part of Paper No. 20160413

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13068820	MUI, DANIEL SAUFU
	Examiner	Art Unit
	VERNAL BROWN	2612

CPC- SEARCHED		
Symbol	Date	Examiner
G08C 15/04, G08C 17/02, G08C 19/22	04/13/16	VB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
340	13.24, 12.5, 12.22	10/31/11	VB

SEARCH NOTES		
Search Notes	Date	Examiner
update search	4/13/16	VB

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
same as above		4/13/16	VB

	/VERNAL BROWN/ Primary Examiner.Art Unit 2612

UNITED STATES PATENT AND TRADEMARK OFFICE

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BIB DATA SHEET

CONFIRMATION NO. 7302

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/068,820	05/21/2011	340	2686	ZIL-568-2C

APPLICANTS

INVENTORS

Daniel SauFu Mui, San Jose, CA;

**** CONTINUING DATA ***************************

This application is a CON of 12/462,526 08/04/2009 PAT 8004389
which is a CON of 10/737,029 12/16/2003 PAT 7589642

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

06/13/2011

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /VERNAL U BROWN/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	4	23	3

ADDRESS

IMPERIUM PATENT WORKS
P.O. BOX 607
Pleasanton, CA 94566
UNITED STATES

TITLE

Relaying key code signals through a remote control device

FILING FEE RECEIVED		
1366	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Daniel SauFu Mui	
Assignee:	UEI Cayman Inc.	
Title:	"Relaying Key Code Signals Through a Remote Control Device"	
Appl. No.:	13/068,820	Filing Date: May 21, 2011
Examiner:	Vernal U. Brown	Art Unit: 2612
Docket No.:	ZIL-568-2C	Confirmation No.: 7302

Via EFS-Web April 25, 2016

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

RULE §1.312 AMENDMENT AFTER ALLOWANCE

Dear Sir:

Following the issuance of a Notice of Allowability on April 18, 2016, Applicant requests the examiner to amend the above-identified application as follows.

There are no amendments to the specification in this Amendment.

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this Amendment.

There are no amendments to the drawings in this Amendment.

The **Remarks** begin on page 4 of this Amendment.

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

Claims 1 – 33 (canceled)

34. (currently amended) ~~The method of claim 25~~A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indictor;

(c) formatting the key code for transmission and thereby generating a key code signal; and

(d) transmitting the key code signal from the key code generator device to an electronic consumer device, wherein the key code generated in (b) is part of a codeset, and wherein the codeset comprises timing information that describes a digital one and a digital zero.

Claims 35 – 41 (canceled)

42. (currently amended) ~~The method of claim 39~~A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indicator;

(c) formatting the key code for transmission and thereby generating a key code signal;

(d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique; and

(e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique, wherein the formatting in (c) comprises converting the key code from the key code signal based on the first modulation technique into the key code signal based on the second modulation technique.

Claims 43 – 43 (canceled)

44. (currently amended) ~~The method of claim 39, further comprising, before the transmitting in (e):~~A method comprising:

(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;

(b) generating a key code within a key code generator device using the keystroke indicator;

(c) formatting the key code for transmission and thereby generating a key code signal;

(d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique;

(f) determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device; and

(e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique.

Claims 45 – 49 (canceled)

Inventor: Daniel SauFu Mui
Serial No.: 13/068,820
Filing Date: May 21, 2011
Docket No.: ZIL-568-2C

REMARKS

The notice of allowance does not account for the fact that the rejection of claim 42 was withdrawn in the Examiner's Answer dated October 2, 2012. Before entry of this Rule §1.312 amendment, claims 25-49 were pending. In the decision of the Appeal Board dated February 3, 2016, the rejections of claims 34 and 44 were reversed, and the rejections of claims 25-33, 25-41, 43 and 45-49 were affirmed. There was no rejection of claim 42 to either reverse or affirm.

In this amendment, claims 34, 42 and 44 are amended to incorporate the limitations of the base claims 25 and 39. Claims 25-33, 25-41, 43 and 45-49 are canceled. After entry of the amendment, claims 34, 42 and 44 are pending and allowable. The examiner is requested to contact the undersigned at (925) 550-5067 with any questions regarding this Rule §1.312 amendment.

I hereby certify that this correspondence is being submitted electronically via EFS Web to the United States Patent and Trademark Office.

By /Darien K. Wallace/
Darien K. Wallace

Date submitted: April 25, 2016

Respectfully submitted,

/Darien K. Wallace/

Darien K. Wallace
Attorney for Applicant
Reg. No. 53,736
Customer No. 47,713

Electronic Acknowledgement Receipt	
EFS ID:	25592827
Application Number:	13068820
International Application Number:	
Confirmation Number:	7302
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Customer Number:	47713
Filer:	Darien Kenneth Wallace
Filer Authorized By:	
Attorney Docket Number:	ZIL-568-2C
Receipt Date:	25-APR-2016
Filing Date:	21-MAY-2011
Time Stamp:	19:55:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment after Notice of Allowance (Rule 312)	ZIL-568-2C_312_amendment.pdf	23102 1e90076283320c56afc44e481c6b148a70f32c1c	no	4
Warnings:					
Information:					

Total Files Size (in bytes):	23102

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

47713 7590 04/18/2016
IMPERIUM PATENT WORKS
P.O. BOX 607
Pleasanton, CA 94566

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Darien K. Wallace	(Depositor's name)
Darien K. Wallace	(Signature)
April 26, 2016	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C	7302

TITLE OF INVENTION: Relaying key code signals through a remote control device

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	07/18/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
BROWN, VERNAL U	2686	340-013240

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Imperium Patent Works
2 Darien K. Wallace
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: UEI Cayman Inc.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Cayman Islands

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed
☒ Payment by: EFS online payment
☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
☐ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature: Darien K. Wallace
Typed or printed name: Darien K. Wallace
Date: April 26, 2016
Registration No.: 53,736

Electronic Patent Application Fee Transmittal					
Application Number:	13068820				
Filing Date:	21-May-2011				
Title of Invention:	Relaying key code signals through a remote control device				
First Named Inventor/Applicant Name:	Daniel SauFu Mui				
Filer:	Darien Kenneth Wallace				
Attorney Docket Number:	ZIL-568-2C				
Filed as Large Entity					
Filing Fees for Utility under 35 USC 111(a)					
Description		**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:					
Pages:					
Claims:					
Miscellaneous-Filing:					
Petition:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Utility Appl Issue Fee		1501	1	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**960**

Electronic Acknowledgement Receipt	
EFS ID:	25593752
Application Number:	13068820
International Application Number:	
Confirmation Number:	7302
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Customer Number:	47713
Filer:	Darien Kenneth Wallace
Filer Authorized By:	
Attorney Docket Number:	ZIL-568-2C
Receipt Date:	26-APR-2016
Filing Date:	21-MAY-2011
Time Stamp:	00:16:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$960
RAM confirmation Number	11885
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	ZIL-568-2C_issue_fee_paid.pdf	451563 8dffb9a6409edd080dd44e80ad972a4669f491fd	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30292 b97ec6b90b935a087243a6c9396bea33ab00f4e5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	481855		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C	7302

47713 7590 05/05/2016
IMPERIUM PATENT WORKS
P.O. BOX 607
Pleasanton, CA 94566

EXAMINER	
BROWN, VERNAL U	

ART UNIT	PAPER NUMBER
2686	

MAIL DATE	DELIVERY MODE
05/05/2016	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Response to Rule 312 Communication	Application No.	Applicant(s)
	13/068,820	MUI, DANIEL SAUFU
	Examiner	Art Unit
	VERNAL BROWN	2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

1. ☒ The amendment filed on *25 April 2016* under 37 CFR 1.312 has been considered, and has been:

a) ☒ entered.

b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

/VERNAL BROWN/
Primary Examiner, Art Unit 2686

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/31/2016	9355553	ZIL-568-2C	7302

47713 7590 05/11/2016

IMPERIUM PATENT WORKS
P.O. BOX 607
Pleasanton, CA 94566

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 1150 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Daniel SauFu Mui, San Jose, CA;

IR103 (Rev. 10/09)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Daniel SauFu Mui	Primary Examiner:	Vernal Brown
Patent No.:	9,355,553		
Issue Date:	May 31, 2016	Group Art Unit:	2686
Title:	RELAYING KEY CODE SIGNALS THROUGH A REMOTE CONTROL DEVICE	Docket No.:	81230.708US3

REQUEST FOR CERTIFICATE OF CORRECTION OF OFFICE MISTAKE (37 CFR §1.322)

Via EFS-Web

Attention Certificate of Correction Branch
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Upon review of U.S. Patent No. 9,355,553, we noticed that Claim 3 is missing from the Patent.

On May 5, 2016, Examiner Vernal Brown mailed a Response to Rule 312 Communication indicating that the amendment filed on April 25, 2016 under 37 CFR 1.312 had been considered and entered.

In the Amendment of April 25, 2016, Applicant amended claim 44, which should have been included in the Patent as claim 3.

Applicant hereby respectfully request that the attached Certificate of Correction (Form PTO/SB/44), which adds missing claim 3, be considered and issued on U.S. Patent No. 9,355,553.

Certificate of Electronic Transmission: The undersigned hereby certifies that this document and its attachments are being transmitted via EFS-Web to: Attention Certificate of Correction Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 26 day September 2016.

By: /Gladys Negron-Munoz/
Name: Gladys Negron-Munoz

CHI 67413290v1

While it is believed that no fee is due, the Commissioner is hereby authorized to charge any fee deficiency to deposit account number 502428 in the name of Greenberg Traurig.

Respectfully submitted,

/Gary R. Jarosik/

Date: September 26, 2016 By: _____

Gary Jarosik, Reg. No. 35,906
Greenberg Traurig, LLP
77 W. Wacker Drive - Suite 3100
Chicago, Illinois 60601
(312) 456-8400

CHI 62,817,896v1

CHI 67413290v1

PTO/SB/44 (09-07)
Approved for use through 08/31/2013. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 9,355,553

APPLICATION NO.: 13/068,820

ISSUE DATE : May 31, 2016

INVENTOR(S) : Daniel SauFu Mui

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

add missing claim 3:

3. A method comprising:
(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;
(b) generating a key code within a key code generator device using the keystroke indicator;
(c) formatting the key code for transmission and thereby generating a key code signal;
(d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique;
(f) determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device; and
(e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Greenberg Traurig, LLP
77 W. Wacker Drive, Suite 3100
Chicago, IL 60601-1732

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/80 (01-06)
Approved for use through 12/31/2008. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☒ Practitioners associated with the Customer Number: 34018

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address:
Universal Electronics Inc.
201 E. Sandpointe Avenue, 8th Floor
Santa Ana, California 92707

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date July 21, 2006
Name	Patrick H. Hayes	Telephone (714) 820-1000
Title	Vice President of Core Technology	

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/96 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Universal Electronics Inc.

Application No./Patent No.: 9,355,553 Filed/Issue Date: May 31, 2016

Titled: RELAYING KEY CODE SIGNALS THROUGH A REMOTE CONTROL DEVICE

Universal Electronics Inc. , a corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;

2. ☐ an assignee of less than the entire right, title, and interest in (The extent (by percentage) of its ownership interest is _____ %); or

3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made) the patent application/patent identified above, by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Daniel SauFu Mui To: Zilog, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 026450, Frame 0349, or for which a copy thereof is attached.

2. From: Zilog, Inc. To: UEI Cayman Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 026565, Frame 0884, or for which a copy thereof is attached.

3. From: UEI Cayman Inc. To: C.G. Development Limited
The document was recorded in the United States Patent and Trademark Office at
Reel 039768, Frame 0121, or for which a copy thereof is attached.

☒ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Gary R. Jarosik/ September 26, 2016
Signature Date

Gary R. Jarosik, Reg. No. 35,906 Attorney of Record
Printed or Typed Name Title

Form PTO/SB/96 -- Statement Under 37 CFR 3.73(b)

Supplemental Sheet

B. x A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

4. From: C.G. Development Limited/UEI Cayman Inc. To: Universal Electronics Inc.

The document was recorded in the USPTO at

Reel 039768, Frame 0252

CHI 67441096v1

Electronic Acknowledgement Receipt	
EFS ID:	27026079
Application Number:	13068820
International Application Number:	
Confirmation Number:	7302
Title of Invention:	Relaying key code signals through a remote control device
First Named Inventor/Applicant Name:	Daniel SauFu Mui
Customer Number:	47713
Filer:	Gary R. Jarosik/Gladys Negron-Munoz
Filer Authorized By:	Gary R. Jarosik
Attorney Docket Number:	ZIL-568-2C
Receipt Date:	26-SEP-2016
Filing Date:	21-MAY-2011
Time Stamp:	09:04:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	TransmittalForm_uei_708US3.pdf	148102 64d0b99f114c422dd6f24d46771ae2d14721fba0	no	1
Warnings:					

Information:					
2	Request for Certificate of Correction	ReqCertCorrection_uei_708us3_9355553.pdf	82025 a7cb3b3cfb79b04160d2a90fcac0654ab207363a	no	2
Warnings:					
Information:					
3	Request for Certificate of Correction	CertCorrections_USPN9355553_uei_708us3.pdf	156695 808b5b52f947dbdc52b8af5349043e7c4ae2036b	no	2
Warnings:					
Information:					
4	Power of Attorney	UEI_POA_73b.pdf	493537 c44ea04655843b1b85e90222d975154cc417915f	no	1
Warnings:					
Information:					
5	Assignee showing of ownership per 37 CFR 3.73	Stat73b_uei_708us3.pdf	380382 2f03cf84df55391778b78974c3e34caa3d0401a5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1260741		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: TRAN.LET
Document Description: Transmittal Letter

PTO/SB/21 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	USPN 9,355,553
Filing Date	Issue Date: May 31, 2016
First Named Inventor	Daniel SauFu Mui
Art Unit	2686
Examiner Name	Vernal Brown
Attorney Docket Number	81230.708US3

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☑ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please identify below):
  - Certificate of Correction
  - Request for Certificate of Correction
  - Statement Under 37 CFR 3.73(b)

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Greenberg Traurig, LLP - Customer No. 34018		
Signature	/Gary R. Jarosik/		
Printed name	Gary R. Jarosik		
Date	September 26, 2016	Reg. No.	35,906

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	/Gladys Negron-Munoz/		
Typed or printed name	Gladys Negron-Munoz	Date	September 26, 2016

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C

CONFIRMATION NO. 7302

47713
IMPERIUM PATENT WORKS
P.O. BOX 607
Pleasanton, CA 94566

POWER OF ATTORNEY NOTICE

OC000000086130991

Date Mailed: 09/30/2016

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/26/2016.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sleutchit/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C

CONFIRMATION NO. 7302

34018
GREENBERG TRAURIG, LLP
77 WEST WACKER DRIVE
SUITE 3100
CHICAGO, IL 60601-1732

POA ACCEPTANCE LETTER

OC000000086131016

Date Mailed: 09/30/2016

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/26/2016.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sleutchit/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/068,820	05/21/2011	Daniel SauFu Mui	ZIL-568-2C	7302

34018 7590 11/22/2016

GREENBERG TRAURIG, LLP
77 WEST WACKER DRIVE
SUITE 3100
CHICAGO, IL 60601-1732

EXAMINER	
BROWN, VERNAL U	

ART UNIT	PAPER NUMBER
2686	

NOTIFICATION DATE	DELIVERY MODE
11/22/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jarosikg@gtlaw.com
chiipmail@gtlaw.com
escobedot@gtlaw.com

PTOL-90A (Rev. 04/07)

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Patent No. 9355553
Issued Date: 31 May, 2016
Appl. No: 13/068,820
Filed.: 21 May 2011

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed 26 September 2016.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)
☒ Approved ☐ Approved in Part ☐ Denied

Comments:

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

☐ This is a decision on the petition filed to correct inventorship under 37 CFR 1.324.

☐ This is a decision on the request under 37 CFR 1.48, petition filed . In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: ☐ Granted ☐ Dismissed

Comment:

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/STEVEN LIM/
Supervisory Patent Examiner, Art Unit 2686
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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 9,355,553 B1
APPLICATION NO.	: 13/068820
DATED	: May 31, 2016
INVENTOR(S)	: Daniel SauFu Mui

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the title page, under abstract "2 Claims, 4 Drawing Sheets" should read --3 Claims, 4 Drawing Sheets--

In the Claims,

Column 10, line 62, please insert,

--3. A method comprising:
(a) receiving a keystroke indicator from a remote control device, wherein the keystroke indicator indicates a key on the remote control device that a user has selected;
(b) generating a key code within a key code generator device using the keystroke indicator;
(c) formatting the key code for transmission and thereby generating a key code signal;
(d) transmitting the key code signal from the key code generator device to an electronic consumer device using a first modulation technique;
(f) determining that the key code signal using the first modulation technique cannot be used to communicate with the electronic consumer device; and
(e) transmitting the key code signal from the key code generator device to the electronic consumer device using a second modulation technique.--

Signed and Sealed this
Twentieth Day of December, 2016

Michelle K. Lee

Michelle K. Lee
Director of the United States Patent and Trademark Office