

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the Eastern District of Texas on the following

Trademarks or Patents. (the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:15-cv-00300	DATE FILED 3/2/2015	U.S. DISTRICT COURT for the Eastern District of Texas
PLAINTIFF OPTIS WIRELESS TECHNOLOGY, LLC and PANOPTIS PATENT MANAGEMENT, LLC		DEFENDANT ZTE CORPORATION and ZTE (USA) INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 See attached		
2		
3		
4		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY <input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT It is hereby ORDERED that all claims brought by Plaintiffs and all counterclaims brought by Defendants in the above-captioned action are dismissed without prejudice.

CLERK <i>David A. O'Toole</i>	(BY) DEPUTY CLERK Nakisha Love	DATE 5/13/16
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

PATENT NUMBER	DATE OF PATENT	HOLDER OF PATENT
8,064,919	November 22, 2011	Optis Wireless
8,199,792	June 12, 2012	Optis Wireless
8,411,557	April 2, 2013	Optis Wireless
6,356,631	March 12, 2002	Optis Wireless
6,865,191	March 8, 2005	Optis Wireless

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PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 See attached		
2 8,064,919		
3 8,199,792		
4 8,411,557		
5 6,356,631		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY <input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK
1 6,865,191	
2	
3	
4	
5	

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
-------	-------------------	------

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy



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
13/333,805	12/21/2011	Daichi Imamura	

23117
NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

CONFIRMATION NO. 7898
POA ACCEPTANCE LETTER



Date Mailed: 07/09/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/18/2014.

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.

/dtvernon/

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



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
13/333,805	12/21/2011	Daichi Imamura	733156.428C1

CONFIRMATION NO. 7898

POWER OF ATTORNEY NOTICE

96896
Seed Intellectual Property Law Group PLLC
701 Fifth Avenue, Suite 5400
Seattle, WA 98104



Date Mailed: 07/09/2014

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/18/2014.

- 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).

/dtvernon/

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

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.

**CHANGE OF
CORRESPONDENCE ADDRESS
Patent**

Address to:
Mail Stop Post Issue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Patent Number	8411557
Issue Date	2-Apr-13
Application Number	13/333805
Filing Date	12-21-2011
First Named Inventor	Daichi Imamura
Attorney Docket Number	6103-1

Please change the Correspondence Address for the above-identified patent to:

The address associated with Customer Number:

OR

Firm or Individual Name

Address

City

State

ZIP

Country

Telephone

Email

This form cannot be used to change the data associated with a Customer Number. To change the data associated with an existing Customer Number use "Request for Customer Number Data Change" (PTO/SB/124).

This form will not affect any "fee address" provided for the above-identified patent. To change a "fee address" use the "Fee Address Indication Form" (PTO/SB/47).

I am the:

- Patentee.
- Assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).
- Attorney or agent of record. Registration Number 33,149

Signature /John R. Lastova/

Typed or Printed Name John R. Lastova

Date July 2, 2014

Telephone 703-816-4000

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

*Total of _____ forms are submitted.

This collection of information is required by 37 CFR 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: Mail Stop Post Issue, 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.

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.

Electronic Acknowledgement Receipt

EFS ID:	19491446
Application Number:	13333805
International Application Number:	
Confirmation Number:	7898
Title of Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD
First Named Inventor/Applicant Name:	Daichi Imamura
Customer Number:	96896
Filer:	John R. Lastova/Margaret Grey
Filer Authorized By:	John R. Lastova
Attorney Docket Number:	733156.428C1
Receipt Date:	03-JUL-2014
Filing Date:	21-DEC-2011
Time Stamp:	14:15:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Change of Address	557-sb0123_fill.pdf	201589 b21139e1c18b81946af11869ada54f386f80bc9a	no	2

Warnings:

Information:

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.

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: 23117

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: 23117

OR

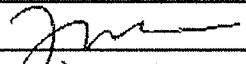
<input type="checkbox"/> Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone	Email		

Assignee Name and Address:
Optis Wireless Technology, LLC
P.O. Box 250649
Plano, Texas 75025

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
Name	James W. Ribman	Telephone
Title	President	

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.

Electronic Acknowledgement Receipt

EFS ID:	19339372
Application Number:	13333805
International Application Number:	
Confirmation Number:	7898
Title of Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD
First Named Inventor/Applicant Name:	Daichi Imamura
Customer Number:	96896
Filer:	John R. Lastova/Margaret Grey
Filer Authorized By:	John R. Lastova
Attorney Docket Number:	733156.428C1
Receipt Date:	18-JUN-2014
Filing Date:	21-DEC-2011
Time Stamp:	13:46:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Assignee showing of ownership per 37 CFR 3.73.	557-sb0096.pdf	423636 6f88466658189fa66b9d5fd8423ca5d47e453218	no	2

Warnings:

Information:

2	Maintenance Fee Address Change	577-sb0047.pdf	203840 be822216366ada7ea443df5d48ba6180388d70880	no	2
Warnings:					
Information:					
3	Power of Attorney	OPTISWIRELESSPOA.pdf	218416 13c919e23f444e259c181a13a9137b6425ce92cc	no	1
Warnings:					
Information:					
Total Files Size (in bytes):				845892	
<p>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.</p> <p><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.</p> <p><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.</p> <p><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.</p>					

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Imamura , et al.

Application No./Patent No.: 8411557

Filed/Issue Date: 2-Apr-13

Titled: Mobile station apparatus and random access method

OPTIS WIRELESS TECHNOLOGY, LLC, 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: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: Panasonic Corporation To: OPTIS WIRELESS TECHNOLOGY, LLC

The document was recorded in the United States Patent and Trademark Office at Reel 032326, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, 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.

/John R. Lastova/
Signature

June 18, 2014
Date

John R. Lastova
Printed or Typed Name

Attorney
Title

This collection of information is required by 37 CFR 3.73(b). 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 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, 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.

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.

"FEE ADDRESS" INDICATION FORM

Address to:
Mail Stop M Correspondence
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Fax to:
571-273-6500

- OR -

INSTRUCTIONS: The issue fee must have been paid for application(s) listed on this form. In addition, only an address represented by a Customer Number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application. **When to check the first box below:** If you have a Customer Number to represent the fee address. **When to check the second box below:** If you have no Customer Number representing the desired fee address, in which case a completed Request for Customer Number (PTO/SB/125) must be attached to this form. For more information on Customer Numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.

For the following listed application(s), please recognize as the "Fee Address" under the provisions of 37 CFR 1.363 the address associated with:

Customer Number: **000204**

OR

The attached Request for Customer Number (PTO/SB/125) form.

PATENT NUMBER (if known)	APPLICATION NUMBER
8411557	13/333805

Completed by (check one):

Applicant/Inventor /John R. Lastova/
 Signature

Attorney or Agent of record 33,149 John R. Lastova
 (Reg. No.) Typed or printed name

Assignee of record of the entire interest. See 37 CFR 3.71.
 Statement under 37 CFR 3.73(b) is enclosed. 703-816-4000
 (Form PTO/SB/96) Requester's telephone number

Assignee recorded at Reel _____ Frame _____ June 18, 2014
 Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

* Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.363. 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 5 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 COMPLETE D FORMS TO THIS ADDRESS. SEND TO: Mail Stop M Correspondence, 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.

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.



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UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/333,805	04/02/2013	8411557	733156.428C1	7898

96896 7590 03/13/2013
 Seed Intellectual Property Law Group PLLC
 701 Fifth Avenue, Suite 5400
 Seattle, WA 98104

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 0 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):

Daichi Imamura, Kanagawa, JAPAN;
 Sadaki Futagi, Ishikawa, JAPAN;
 Atsushi Matsumoto, Ishikawa, JAPAN;
 Takashi Iwai, Ishikawa, JAPAN;
 Tomofumi Takata, Ishikawa, JAPAN;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

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)

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.

96896 7590 01/08/2013
Seed Intellectual Property Law Group PLLC
701 Fifth Avenue, Suite 5400
Seattle, WA 98104

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.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/333,805	12/21/2011	Daichi Imamura	733156-428C1	7898

TITLE OF INVENTION: MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD

APPL. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEES DUE	DATE DUE
nonprovisional	NO	\$1770	\$300	\$0	\$2070	01/08/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEE, CHI HO A	2472	370-208000

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. Seed IP Law Group PLLC
2. _____
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:

Panasonic Corporation

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Osaka, Japan

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 1

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- A check is enclosed.
 Payment by credit card. Form PTO-2038 is attached.
 The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 19-1090 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature

Date February 28, 2013

Typed or printed name Shoko I. Leek

Registration No. 43,746

This collection of information 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.

Electronic Patent Application Fee Transmittal				
Application Number:	13333805			
Filing Date:	21-Dec-2011			
Title of Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD			
First Named Inventor/Applicant Name:	Daichi Imamura			
Filer:	Shoko I. Leek/Tracy Taylor			
Attorney Docket Number:	733156.428C1			
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:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	1770	1770
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Printed copy of patent - no color	8001	1	3	3
Total in USD (\$)				2073

Electronic Acknowledgement Receipt

EFS ID:	15084789
Application Number:	13333805
International Application Number:	
Confirmation Number:	7898
Title of Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD
First Named Inventor/Applicant Name:	Daichi Imamura
Customer Number:	96896
Filer:	Shoko I. Leek/Tracy Taylor
Filer Authorized By:	Shoko I. Leek
Attorney Docket Number:	733156.428C1
Receipt Date:	28-FEB-2013
Filing Date:	21-DEC-2011
Time Stamp:	17:22:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 2073
RAM confirmation Number	6408
Deposit Account	191090
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Issue Fee Payment (PTO-85B)	733156_428C1_Issue_Fee_Transmittal.pdf	140387 cd1155ec9da37e45975ed544ec2f382c607d2bf	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	33442 4692fd8c:d7e0347353d69ac8c50954735ee08211	no	2
Warnings:					
Information:					
Total Files Size (in bytes):				173829	
<p>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.</p> <p><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.</p> <p><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.</p> <p><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.</p>					



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 United States Patent and Trademark Office
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NOTICE OF ALLOWANCE AND FEE(S) DUE

96896 7590 01/08/2013
 Seed Intellectual Property Law Group PLLC
 701 Fifth Avenue, Suite 5400
 Seattle, WA 98104

EXAMINER

LEE, CHI HO A

ART UNIT

PAPER NUMBER

2472

DATE MAILED: 01/08/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/333,805	12/21/2011	Daichi Imamura	733156.428C1	7898

TITLE OF INVENTION: MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1770	\$300	\$0	\$2070	04/08/2013

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.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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)

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.

96896 7590 01/08/2013
Seed Intellectual Property Law Group PLLC
701 Fifth Avenue, Suite 5400
Seattle, WA 98104

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.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/333,805	12/21/2011	Daichi Imamura	733156.428C1	7898

TITLE OF INVENTION: MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1770	\$300	\$0	\$2070	04/08/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEE, CHI HO A	2472	370-208000

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address Form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "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.</p>	<p>2. For printing on the patent front page, list</p> <p>(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____</p> <p>(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. 2 _____</p> <p>3 _____</p>
---	---

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 _____ (B) RESIDENCE: (CITY and STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

<p>4a. The following fee(s) are submitted:</p> <p><input type="checkbox"/> Issue Fee</p> <p><input type="checkbox"/> Publication Fee (No small entity discount permitted)</p> <p><input type="checkbox"/> Advance Order - # of Copies _____</p>	<p>4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)</p> <p><input type="checkbox"/> A check is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).</p>
---	--

5. Change in Entity Status (from status indicated above)

a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____	Date _____
Typed or printed name _____	Registration No. _____

This collection of information 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.

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UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
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 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/333,805	12/21/2011	Daichi Imamura	733156.428C1	7898

96896 7590 01/08/2013
 Seed Intellectual Property Law Group PLLC
 701 Fifth Avenue, Suite 5400
 Seattle, WA 98104

EXAMINER

LEE, CHI HO A

ART UNIT	PAPER NUMBER
----------	--------------

2472

DATE MAILED: 01/08/2013

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
 (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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.

Notice of Allowability	Application No.	Applicant(s)	
	13/333,805	IMAMURA ET AL.	
	Examiner	Art Unit	
	ANDREW LEE	2472	

-- 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 11/12/12.
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 1-10. 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).
- 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)

- | | |
|--|---|
| <p>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____</p> <p>3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material</p> <p>4. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____</p> | <p>5. <input type="checkbox"/> Examiner's Amendment/Comment</p> <p>6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance</p> <p>7. <input type="checkbox"/> Other ____.</p> |
|--|---|

/ANDREW LEE/
Primary Examiner, Art Unit 2472

Issue Classification 	Application/Control No. 13/333,805	Applicant(s)/Patent under Reexamination IMAMURA ET AL.	
	Examiner ANDREW LEE	Art Unit 2472	

ISSUE CLASSIFICATION											
ORIGINAL					CROSS REFERENCE(S)						
CLASS		SUBCLASS			CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					
370		208			370	335	342				
INTERNATIONAL CLASSIFICATION											
H	0	4	J	11/00							
H	0	4	B	7/216							
				/							
				/							
				/							
(Assistant Examiner) (Date)					/ANDREW LEE/ Primary Examiner, Art Unit 2472 12/26/12 (Primary Examiner) (Date)					Total Claims Allowed: 10	
(Legal Instruments Examiner) (Date)										O.G. Print Claim(s) 1	O.G. Print Fig. 10

<input checked="" type="checkbox"/> Claims renumbered in the same order as presented by applicant		<input type="checkbox"/> CPA		<input checked="" type="checkbox"/> T.D.		<input type="checkbox"/> R.1.47			
Final	Original	Final	Original	Final	Original	Final	Original		
	1		31		61		121		181
	2		32		62		122		182
	3		33		63		123		183
	4		34		64		124		184
	5		35		65		125		185
	6		36		66		126		186
	7		37		67		127		187
	8		38		68		128		188
	9		39		69		129		189
	10		40		70		130		190
	11		41		71		131		191
	12		42		72		132		192
	13		43		73		133		193
	14		44		74		134		194
	15		45		75		135		195
	16		46		76		136		196
	17		47		77		137		197
	18		48		78		138		198
	19		49		79		139		199
	20		50		80		140		200
	21		51		81		141		201
	22		52		82		142		202
	23		53		83		143		203
	24		54		84		144		204
	25		55		85		145		205
	26		56		86		146		206
	27		57		87		147		207
	28		58		88		148		208
	29		59		89		149		209
	30		60		90		150		210

Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed		PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce
Electronic Petition Request	TERMINAL DISCLAIMER TO OBTAIN A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	
Application Number	13333805	
Filing Date	21-Dec-2011	
First Named Inventor	Daichi Imamura	
Attorney Docket Number	733156.428C1	
Title of Invention	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD	
<input checked="" type="checkbox"/> Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action <input checked="" type="checkbox"/> This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.		
Owner	Percent Interest	
Panasonic Corporation	100%	
<p>The owner(s) with percent interest listed above 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 number(s)</p> <p>8139473</p> <p>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.</p> <p>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:</p> <ul style="list-style-type: none"> - 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. <p><input checked="" type="radio"/> Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.</p>		

I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

Applicant(s) status remains as SMALL ENTITY.

Applicant(s) status remains as other than SMALL ENTITY.

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.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Registration Number 43746

A sole inventor

A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors

A joint inventor; all of whom are signing this request

The assignee of record of the entire interest that has properly made itself of record pursuant to 37 CFR 3.71

Signature	/Shoko Leek/
Name	Shoko I. Leek

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner). Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal				
Application Number:	13333805			
Filing Date:	21-Dec-2011			
Title of Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD			
First Named Inventor/Applicant Name:	Daichi Imamura			
Filer:	Shoko I. Leek/Tracy Taylor			
Attorney Docket Number:	733156.428C1			
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Statutory or terminal disclaimer	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				160

Doc Code: DISQ.E.FILE

Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 13333805

Filing Date: 21-Dec-2011

Applicant/Patent under Reexamination: Imamura et al.

Electronic Terminal Disclaimer filed on November 12, 2012

APPROVED

This patent is subject to a terminal disclaimer

DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	14201969
Application Number:	13333805
International Application Number:	
Confirmation Number:	7898
Title of Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD
First Named Inventor/Applicant Name:	Daichi Imamura
Customer Number:	96896
Filer:	Shoko I. Leek/Tracy Taylor
Filer Authorized By:	Shoko I. Leek
Attorney Docket Number:	733156.428C1
Receipt Date:	12-NOV-2012
Filing Date:	21-DEC-2011
Time Stamp:	15:43:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$160
RAM confirmation Number	12827
Deposit Account	191090
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Electronic Terminal Disclaimer-Filed	eTerminal-Disclaimer.pdf	33587 3f3c0b09b5c80c0bca5f995d1fee94eb1091baa	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30026 806767a575de94975a34dc8831eb8ca0b2006758	no	2
Warnings:					
Information:					
Total Files Size (in bytes):				63613	
<p>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.</p> <p><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.</p> <p><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.</p> <p><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.</p>					

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Daichi Imamura et al.
Application No. : 13/333,805
Filed : December 21, 2011
For : MOBILE STATION APPARATUS AND RANDOM ACCESS
METHOD

Examiner : Chi Ho A. Lee
Art Unit : 2472
Docket No. : 733156.428C1
Date : November 12, 2012

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE

Commissioner for Patents:

This is filed in response to the Office Action mailed November 2, 2012, in which claims 1-10 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 8,139,473. In response, applicants electronically submit herewith a duly executed terminal disclaimer relative to U.S. Patent No. 8,139,473 to obviate this basis of rejection.

Application No. 13/333,805
Reply to Office Action dated November 2, 2012

All of the claims remaining in the application are now clearly allowable.
Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
SEED Intellectual Property Law Group PLLC

/Shoko Leek/
Shoko I. Leek
Registration No. 43,746

SIL:tt

Enclosure:

Terminal Disclaimer relative to U.S. Patent No. 8,139,473 (submitted via eProcessing)

701 Fifth Avenue, Suite 5400
Seattle, Washington 98104-7092
Phone: (206) 622-4900
Fax: (206) 682-6031

2314454_1.DOCX

Electronic Acknowledgement Receipt

EFS ID:	14204732
Application Number:	13333805
International Application Number:	
Confirmation Number:	7898
Title of Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD
First Named Inventor/Applicant Name:	Daichi Imamura
Customer Number:	96896
Filer:	Shoko I. Leek/Tracy Taylor
Filer Authorized By:	Shoko I. Leek
Attorney Docket Number:	733156.428C1
Receipt Date:	12-NOV-2012
Filing Date:	21-DEC-2011
Time Stamp:	17:19:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	733156_428C1_Response.pdf	58469 <small>34df161ec6a603e0167a6e9e191e31e23237edc7</small>	no	2

Warnings:

Information:

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.



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.
13/333,805	12/21/2011	Daichi Imamura	733156.428C1	7898
96896	7590	11/02/2012	EXAMINER	
Seed Intellectual Property Law Group PLLC 701 Fifth Avenue, Suite 5400 Seattle, WA 98104			LEE, CHI HO A	
			ART UNIT	PAPER NUMBER
			2472	
			NOTIFICATION DATE	DELIVERY MODE
			11/02/2012	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):

patentinfo@seedip.com

Office Action Summary	Application No. 13/333,805	Applicant(s) IMAMURA ET AL.	
	Examiner ANDREW LEE	Art Unit 2472	

-- 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 December 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) 1-10 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) 1-10 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***Double Patenting***

1. 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. See *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) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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).

2. Claims 1-10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 8,139,473. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1-14 of U.S. Patent No. 8,139,473 encompasses the limitations of claims 1-10 of instant application. Moreover, omission of a reference element whose function is not needed would be obvious to one of ordinary skill in the art. It is well settled that the omission of an element and its functions is an obvious expedient if the remaining elements performs the same function as before *In re Karlson*, 163 USPQ 184 (CCPA 1963). Also note *Ex parte Rainu*, 168 USPQ 375 (Bd. App. 1969).

Application/Control Number: 13/333,805
Art Unit: 2472

Page 3

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW LEE whose telephone number is (571)272-3130. The examiner can normally be reached on Monday to Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, HASSAN KIZOU can be reached on 571-272-3088. 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.

/ANDREW LEE/
Primary Examiner, Art Unit 2472

Notice of References Cited	Application/Control No. 13/333,805	Applicant(s)/Patent Under Reexamination IMAMURA ET AL.	
	Examiner ANDREW LEE	Art Unit 2472	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-2012/0079330	03-2012	KAWAGUCHI et al.	714/718
*	B US-2011/0310940	12-2011	Ozluturk, Fatih M.	375/219
*	C US-2011/0235529	09-2011	Zetterberg et al.	370/248
*	D US-2011/0007825	01-2011	Hao et al.	375/259
*	E US-2010/0278114	11-2010	KWON et al.	370/328
*	F US-2009/0003308	01-2009	BAXLEY et al.	370/350
*	G US-2008/0192678	08-2008	BERTRAND et al.	370/328
	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.



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
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BIB DATA SHEET

CONFIRMATION NO. 7898

SERIAL NUMBER 13/333,805	FILING or 371(c) DATE 12/21/2011	CLASS 370	GROUP ART UNIT 2472	ATTORNEY DOCKET NO. 733156.428C1		
APPLICANTS Daichi Imamura, Kanagawa, JAPAN; Sadaki Futagi, Ishikawa, JAPAN; Atsushi Matsumoto, Ishikawa, JAPAN; Takashi Iwai, Ishikawa, JAPAN; Tomofumi Takata, Ishikawa, JAPAN;						
** CONTINUING DATA ***** This application is a CON of 12/293,530 09/18/2008 PAT 8,139,473 which is a 371 of PCT/JP2007/055695 03/20/2007						
** FOREIGN APPLICATIONS ***** JAPAN 2006-076995 03/20/2006						
** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 01/04/2012						
Foreign Priority claimed <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	35 USC 119(a-d) conditions met <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY JAPAN	SHEETS DRAWINGS 11	TOTAL CLAIMS 10	INDEPENDENT CLAIMS 2
Verified and Acknowledged /CHIHO A LEE/ Examiner's Signature						
ADDRESS Seed Intellectual Property Law Group PLLC 701 Fifth Avenue, Suite 5400 Seattle, WA 98104 UNITED STATES						
TITLE MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD						
FILING FEE RECEIVED 1250	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	
	Filing Date	2011-12-21
	First Named Inventor	Daichi Imamura
	Art Unit	
	Examiner Name	
	Attorney Docket Number	733156.428C1

U.S. PATENTS

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
/A.L./	1	6519462	B1	2003-02-11	Lu et al.	
/A.L./	2	6859445	B1	2005-02-22	Moon et al.	Corresponds to WO 01/05050

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/A.L./	1	20020041578	A1	2002-04-11	Kim et al.	Corresponds to CN 1381107
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/A.L./	1	1381107	CN	A	2002-11-20	Samsung Electronics Co., Ltd.	Corresponds to US 2002/0041578	<input type="checkbox"/>

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
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	First Named Inventor	Daichi Imamura		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		733156.428C1	

/A.L./	2	01/05050	WO	A1	2001-01-18	Samsung Electronics Co., Ltd.	Corresponds to US 6859445	<input type="checkbox"/>
/A.L./	3	2006/019710	WO	A1	2006-02-23	Qualcomm Incorporated		<input type="checkbox"/>

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NON-PATENT LITERATURE DOCUMENTS

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
/A.L./	1	"3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Physical layer procedures (FDD) (Release 6)," 3GPP TS 25.214 V6.7.1, December 2005, 60 pages.	<input type="checkbox"/>
/A.L./	2	Chinese Office Action, for Chinese Application No. 200780010212.6, dated June 11, 2010, 5 pages.	<input type="checkbox"/>
/A.L./	3	International Search Report, for International Application No. PCT/JP2007/055695, mailed June 12, 2007, 2 pages.	<input type="checkbox"/>
/A.L./	4	Motorola, "RACH Design for EUTRA," R1-060025, Agenda Item: 5.2.3.1, 3GPP TSG RAN1#43, Helsinki, Finland, January 23-25, 2006, 11 pages.	<input type="checkbox"/>
/A.L./	5	Motorola, "RACH Design for EUTRA," R1-060387, Agenda Item: 13.2.3.1, 3GPP TSG RAN1#44, Denver, CO, USA, February 13-17, 2006, 13 pages.	<input type="checkbox"/>
/A.L./	6	Notice of the Reasons for Rejection, for Japanese Application No. 2010-265294, received January 18, 2011, 5 pages.	<input type="checkbox"/>
/A.L./	7	NTT DoCoMo, NEC, Sharp, "Orthogonal Pilot Channel Structure in E-UTRA Uplink," R1-060046, Agenda Item: 5.2.2.2, 3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, Helsinki, Finland, January 23-25, 2006, 8 pages.	<input type="checkbox"/>

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2011-12-21
First Named Inventor	Daichi Imamura	
Art Unit		
Examiner Name		
Attorney Docket Number		733156.428C1

/A.L./	8	NTT DoCoMo, NEC, Sharp, "Random Access Transmission in E-UTRA Uplink," R1-060047, Agenda Item: 5.2.3.1, 3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, Helsinki, Finland, January 23-25, 2006, 8 pages.	<input type="checkbox"/>
/A.L./	9	NTT DoCoMo, Fujitsu, Mitsubishi Electric, NEC, Panasonic, Sharp, Toshiba Corporation, "Orthogonal Pilot Channel Structure for E-UTRA Uplink," R1-060319, Agenda Item: 13.2.2.2, 3GPP TSG RAN WG1 Meeting #44, Denver, CO, USA, February 13-17, 2006, 7 pages.	<input type="checkbox"/>
/A.L./	10	Qualcomm Europe, "Principles of RACH," R1-060480, Agenda Item: 13.2.3.1, 3GPP TSG-RAN WG1 LTE, Denver, CO, USA, February 13-17, 2006, 7 pages.	<input type="checkbox"/>

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EXAMINER SIGNATURE

Examiner Signature	/Andrew Lee/	Date Considered	10/10/2012
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¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
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	First Named Inventor	Daichi Imamura	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		733156.428C1

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

- That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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- See attached certification statement.
- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Shoko Leek/	Date (YYYY-MM-DD)	2011-12-21
Name/Print	Shoko I. Leek	Registration Number	43,746

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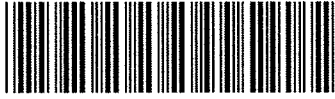
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Search Notes



Application/Control No.

13/333,805

Examiner

ANDREW LEE

Applicant(s)/Patent under
Reexamination

IMAMURA ET AL.

Art Unit

2472

SEARCHED

Class	Subclass	Date	Examiner

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
See EAST	10/15/2012	AL

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	600	MAMURA ADJ DAICHI.IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:08
L2	228	FUTAGI ADJ SADAHI.IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:08
L3	1160	MATSUMOTO ADJ ATSUSHI.IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:08
L4	350	IWAI ADJ TAKASHI.IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:08
L5	81	TAKATA ADJ TOMOFUMI.IN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:09
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L20	13929	370/342	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18
L21	4413	370/441	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18
L22	26257	18 19 20 21	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18
L23	3	22 AND 15	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18

10/ 10/ 2012 5:27:28 PM

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	600	IAMAMURA ADJ DAI CHI.I.N.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:08
L2	228	FUTAGI ADJ SADA KI.I.N.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:08
L3	1160	MATSUMOTO ADJ ATSUSHI.I.N.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:08
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L5	81	TAKATA ADJ TOMOFUMI.I.N.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:09
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L15	24	((SELECT\$4 CHOOS\$4) WITH RANDOM\$4 WITH SEQUENCE WITH (GROUP SET	US-PGPUB; USPAT;	OR	OFF	2012/10/10 17:13

		POOL) WITH (CYCLIC SHIFTS\$4)).CLM.	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L16	1	15 AND (1 2 3 4 5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:13
L17	2	"8139473"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:17
L18	6445	370/208	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18
L19	15181	370/335	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18
L20	13929	370/342	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18
L21	4413	370/441	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18
L22	26257	18 19 20 21	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18
L23	3	22 AND 15	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/10/10 17:18

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/333,805	12/21/2011	Daichi Imamura	733156.428C1

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NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publicly available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

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MAILED

FEB 28 2012

OFFICE OF PETITIONS

In re Application of**IMAMURA et al.****Application No.: 13/333,805****Filed: December 21, 2011****Attorney Docket No.: 09544/LH****For: MOBILE STATION APPARATUS
 AND RANDOM ACCESS METHOD**

**: DECISION ON REQUEST TO
 : PARTICIPATE IN THE PATENT
 : PROSECUTION HIGHWAY
 : PROGRAM AND PETITION
 : TO MAKE SPECIAL UNDER
 : 37 CFR 1.102(a)**

This is a decision on the request to participate in the Patent Prosecution Highway (PPH) program and the petition under 37 CFR 1.102(a), filed December 22, 2011, to make the above-identified application special.

The request and petition are **GRANTED**.

Discussion

A grantable request to participate in the PPH pilot program and petition to make special require:

1. The U.S. application is
 - a. a Paris Convention application which either
 - i. validly claims priority under 35 U.S.C. 119(a) and 37 CFR 1.55 to one or more applications filed in the JPO, or
 - ii. validly claims priority to a PCT application that contains no priority claims, or
 - b. a national stage application under the PCT (an application which entered the national stage in the U.S. from a PCT international application after compliance with 35 U.S.C. 371), which PCT application
 - i. validly claims priority to an application filed in the JPO, or
 - ii. validly claims priority to a PCT application that contains no priority claims, or
 - iii. contains no priority claim, or
 - c. a so-called bypass application filed under 35 U.S.C. 111(a) which validly claims benefit under 35 U.S.C. 120 to a PCT application, which PCT application
 - i. validly claims priority to an application filed in the JPO, or
 - ii. validly claims priority to a PCT application that contains no priority claims, or
 - iii. contains no priority claim;

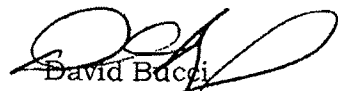
2. Applicant must submit a copy of:
 - a. The allowable/patentable claim(s) from the JPO application(s);
 - b. An English translation of the allowable/patentable claim(s) and
 - c. A statement that the English translation is accurate;
3. Applicant must:
 - a. Ensure all the claims in the U.S. application must sufficiently correspond or be amended to sufficiently correspond to the allowable/patentable claim(s) in the JPO application(s) and
 - b. Submit a claims correspondence table in English;
4. Examination of the U.S. application has not begun;
5. Applicant must submit:
 - a. Documentation of prior office action:
 - i. a copy of the office action(s) just prior to the "Decision to Grant a Patent" from each of the JPO application(s) containing the allowable/patentable claim(s) or
 - ii. if the allowable/patentable claims(s) are from a "Notification of Reasons for Refusal" then the Notification of Reasons for Refusal or
 - iii. if the JPO application is a first action allowance then no office action from the JPO is necessary should be indicated on the request/petition form;
 - b. An English language translation of the JPO Office action from (5)(a)(i)-(ii) above
 - c. A statement that the English translation is accurate;
6. Applicant must submit:
 - a. An IDS listing the documents cited by the JPO examiner in the JPO office action (unless already submitted in this application)
 - b. Copies of the documents except U.S. patents or U.S. patent application publications (unless already submitted in this application);

The request to participate in the PPH pilot program and petition comply with the above requirements. Accordingly, the above-identified application has been accorded "special" status.

Inquiries concerning this decision should be directed to JoAnne Burke at 571-272-4584.

All other inquiries concerning the examination or status of the application is accessible in the PAIR system at <http://www.uspto.gov/ebc.index.html>.

This application will be forwarded to the examiner for action on the merits commensurate with this decision once this application's formality reviews have been completed.


David Bucci
Petitions Examiner
Office of Petitions

日 本 国 特 許 庁
JAPAN PATENT OFFICE

別紙添付の書類に記載されている事項は下記の出願書類に記載されている事項と同一であることを証明する。

This is to certify that the annexed is a true copy of the following application as filed with this Office.

出 願 年 月 日
Date of Application: 2006年 3月20日

出 願 番 号
Application Number: 特願2006-076995

パリ条約による外国への出願
に用いる優先権の主張の基礎
となる出願の国コードと出願
番号
The country code and number
of your priority application,
to be used for filing abroad
under the Paris Convention, is

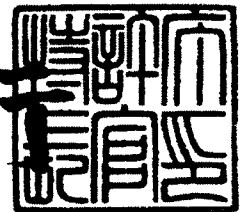
J P 2 0 0 6 - 0 7 6 9 9 5

出 願 人
Applicant(s): パナソニック株式会社

2012年 1月10日

特許庁長官
Commissioner,
Japan Patent Office

岩井良行



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 【整理番号】 2040880026
 【提出日】 平成18年 3月20日
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 H04J 1/00
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【書類名】特許請求の範囲

【請求項1】

通知すべき制御情報に対応する基本符号系列およびその対応する基本符号系列から派生した複数の派生符号系列の中、または、前記通知すべき制御情報に対応する基本符号系列から派生した複数の派生符号系列の中から、いずれか1つの符号系列を選択する選択手段と、

選択された符号系列をランダムアクセスチャネルにおいて送信する送信手段と、
を具備する無線通信移動局装置。

【請求項2】

複数の制御情報に対し、複数の基本符号系列およびそれら複数の基本符号系列からそれぞれ派生した複数の派生符号系列が基本符号系列毎に対応付けて設定されたテーブル、をさらに具備し、

前記選択手段は、前記通知すべき制御情報に基づいて前記テーブルを参照して前記いずれか1つの符号系列を選択する、

請求項1記載の無線通信移動局装置。

【請求項3】

複数の制御情報のうちの1つの制御情報に対し、1つの基本符号系列およびその1つの基本符号系列から派生した複数の派生符号系列が対応付けて設定されたテーブル、をさらに具備し、

前記選択手段は、前記通知すべき制御情報に基づいて前記テーブルを参照して前記いずれか1つの符号系列を選択する、

請求項1記載の無線通信移動局装置。

【請求項4】

複数の制御情報のうちの1つの制御情報に対し、複数の基本符号系列およびそれら複数の基本符号系列の少なくとも1つから派生したすべての派生符号系列が対応付けて設定されたテーブル、をさらに具備し、

前記選択手段は、前記通知すべき制御情報に基づいて前記テーブルを参照して前記いずれか1つの符号系列を選択する、

請求項1記載の無線通信移動局装置。

【請求項5】

複数の制御情報の各々に対し、互いに異なる数の基本符号系列または基本符号系列から派生した互いに異なる数の派生符号系列が対応付けて設定されたテーブル、をさらに具備し、

前記選択手段は、前記通知すべき制御情報に基づいて前記テーブルを参照して前記いずれか1つの符号系列を選択する、

請求項1記載の無線通信移動局装置。

【請求項6】

前記テーブルにおいて、発生率がより高い制御情報に対してより多くの基本符号系列またはより多くの派生符号系列が対応付けて設定される、

請求項5記載の無線通信移動局装置。

【請求項7】

変化する前記発生率に応じて、各制御情報に対して対応付ける基本符号系列の数または派生符号系列の数を変化させる制御手段、をさらに具備する、

請求項6記載の無線通信移動局装置。

【請求項8】

前記派生符号系列は、前記基本符号系列を巡回シフトして生成されるものである、

請求項1記載の無線通信移動局装置。

【請求項9】

前記基本符号系列はGCL系列である、

請求項1記載の無線通信移動局装置。

【請求項 1 0】

前記基本符号系列はC A Z A C系列である、
請求項 1 記載の無線通信移動局装置。

【請求項 1 1】

通知すべき制御情報に対応する基本符号系列およびその対応する基本符号系列から派生した複数の派生符号系列の中、または、前記通知すべき制御情報に対応する基本符号系列から派生した複数の派生符号系列の中から、いずれか1つの符号系列を選択し、
その選択した符号系列をランダムアクセスチャネルにおいて送信する、
無線通信方法。

【書類名】明細書

【発明の名称】無線通信移動局装置および無線通信方法

【技術分野】

【0001】

本発明は、無線通信移動局装置および無線通信方法に関する。

【背景技術】

【0002】

現在、3GPP RAN LTE (Long Term Evolution) において、無線通信移動局装置（以下、移動局と省略する）から無線通信基地局装置（以下、基地局と省略する）への初期アクセスにRACH (Random Access Channel) を用いることが検討されている（非特許文献1参照）。RACHは、基地局への接続要求 (Association Request)、基地局への帯域割当要求 (Resource Request)、および、上り送信タイミングの同期取得等を行う際の初期アクセスに利用される。

【0003】

RACH信号を送信する移動局は、RACH信号を送信する他の移動局と自局とを区別するために、RACHにおいて、複数の互いに異なるシグネチャの中からいずれか1つのシグネチャを選択して基地局へ送信する。

【0004】

また、RACHでは複数の移動局から同時に複数のシグネチャが送信されることを考慮し、それらのシグネチャを基地局にて分離・検出できるように、シグネチャとして、相互相関が低く、かつ、自己相関が高い符号系列を用いることが検討されている。このような特性を有する符号系列として、GCL系列 (Generalized Chirp-like) の1つであるCAZAC (Constant Amplitude Zero Auto-Correlation) 系列が知られている（非特許文献2参照）。

【0005】

さらに、初期アクセス以降の処理遅延を減少させるために、移動局ID、RACH送信理由、帯域割当要求情報 (QoS情報やデータ量等)、および、下り回線での受信品質情報等の制御情報をRACHにて通知することが検討されている（非特許文献3参照）。

【非特許文献1】3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, R1-060047, NTT DoCoMo, NEC, Sharp, "Random Access Transmission in E-UTRA Uplink", Helsinki, Finland, 23-25 January, 2006

【非特許文献2】3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, R1-060046, NTT DoCoMo, NEC, Sharp, "Orthogonal Pilot Channel Structure in E-UTRA Uplink", Helsinki, Finland, 23-25 January, 2006

【非特許文献3】3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, R1-060480, Qualcomm, "Principles of RACH", Denver, USA, 13-17 February, 2006

【発明の開示】

【発明が解決しようとする課題】

【0006】

現在、RACHにおける制御情報の通知方法については様々な検討がなされているところであり、RACHにおいて制御情報を効率よく通知することが強く求められている。

【0007】

本発明はかかる点に鑑みてなされたものであり、RACHにおける制御情報の通知を効率よく行うことができる移動局および無線通信方法を提供することを目的とする。

【課題を解決するための手段】

【0008】

本発明の移動局は、通知すべき制御情報に対応する基本符号系列およびその対応する基本符号系列から派生した複数の派生符号系列の中、または、前記通知すべき制御情報に対応する基本符号系列から派生した複数の派生符号系列の中から、いずれか1つの符号系列を選択する選択手段と、選択された符号系列をランダムアクセスチャネルにおいて送信す

る送信手段と、を具備する構成を採る。

【0009】

また、本発明の無線通信方法は、通知すべき制御情報に対応する基本符号系列およびその対応する基本符号系列から派生した複数の派生符号系列の中、または、前記通知すべき制御情報に対応する基本符号系列から派生した複数の派生符号系列の中から、いずれか1つの符号系列を選択し、その選択した符号系列をランダムアクセスチャネルにおいて送信するようにした。

【発明の効果】

【0010】

本発明によれば、RACHにおける制御情報の通知を効率よく行うことができる。

【発明を実施するための最良の形態】

【0011】

以下、本発明の実施の形態について、図面を参照して詳細に説明する。

【0012】

(実施の形態1)

本実施の形態に係る移動局10の構成を図1に示す。

【0013】

RACH生成部11は、シグネチャ選択部111および変調部112から構成され、以下のようにしてRACH信号を生成する。

【0014】

シグネチャ選択部111は、入力される制御情報に応じて、互いに異なる複数の符号系列の中からいずれか1つの符号系列をシグネチャとして選択して変調部112に出力する。シグネチャ選択(符号系列選択)の詳細については後述する。

【0015】

変調部112は、シグネチャ(符号系列)を変調してRACH信号を生成し多重部12に出力する。

【0016】

一方、符号化部13は、ユーザデータを符号化して変調部14に出力する。

【0017】

変調部14は、符号化後のユーザデータを変調して多重部12に出力する。

【0018】

多重部12は、RACH信号とユーザデータとを時間多重して無線送信部15に出力する。すなわち、多重部12は、RACH信号の送信完了後、ユーザデータを無線送信部15に出力する。

【0019】

無線送信部15は、RACH信号およびユーザデータに対しアップコンバート等の無線処理を行って、アンテナ16を介して基地局へ送信する。

【0020】

次いで、シグネチャ選択(符号系列選択)の詳細について説明する。

【0021】

本実施の形態では、シグネチャ(符号系列)としてGCL系列またはCAZAC系列を用いる。

【0022】

GCL系列 $C_k(n)$ は、式(1)および式(2)により与えられる。また、GCL系列は自己相関が高くかつ相互相関が低い符号系列であり、一定振幅の周波数応答特性を有する。ここで、 N は任意の整数で系列長を表す。また、 k は1から $N-1$ までのいずれかの整数である。また、 n は、系列長 N のうちの n 番目であることを示し、0から $N-1$ までのいずれかの整数である。そして、式(1)および式(2)により与えられるGCL系列が基本符号系列となる。

【数1】

$$C_k(n) = \alpha \cdot \exp\left(\frac{j2\pi k}{N} \left(\beta \cdot n + \frac{n(n+1)}{2}\right)\right) \quad N \text{が奇数の場合} \quad \dots \text{式 (1)}$$

【数2】

$$C_k(n) = \alpha \cdot \exp\left(\frac{j2\pi k}{N} \left(\beta \cdot n + \frac{n^2}{2}\right)\right) \quad N \text{が偶数の場合} \quad \dots \text{式 (2)}$$

【0023】

ここで、相互相関が低いGCL系列を数多く得るために、系列長Nは奇数かつ素数とするのが好ましい。そこで、系列長Nを奇数とした場合、式(1)により与えられる基本符号系列を式(3)に従って巡回シフトさせることにより、1つの基本符号系列 $C_k(n)$ から互いに巡回シフト数が異なる複数の派生符号系列 $C_{k,m}(n)$ を得ることができる。

【数3】

$$C_{k,m}(n) = \alpha \cdot \exp\left(\frac{j2\pi k}{N} \left(\beta \cdot (n+m \cdot \Delta) \bmod N + \frac{(n+m \cdot \Delta) \bmod N \cdot ((n+m \cdot \Delta) \bmod N + 1)}{2}\right)\right) \quad \dots \text{式 (3)}$$

【0024】

そして、式(1)～式(3)において $\alpha = \beta = 1$ としたときのGCL系列がCAZAC系列となり、CAZAC系列はGCL系列の中でも最も相互相関が低い符号系列となる。つまり、CAZAC系列 $C_k(n)$ の基本符号系列は式(4)および式(5)により与えられ、系列長Nを奇数とした場合、式(4)により与えられる基本符号系列を式(6)に従って巡回シフトさせることにより、CAZAC系列においても、GCL系列同様、1つの基本符号系列 $C_k(n)$ から互いに巡回シフト数が異なる複数の派生符号系列 $C_{k,m}(n)$ を得ることができる。

【数4】

$$C_k(n) = \exp\left(\frac{j2\pi k}{N} \left(n + \frac{n(n+1)}{2}\right)\right) \quad N \text{が奇数の場合} \quad \dots \text{式 (4)}$$

【数5】

$$C_k(n) = \exp\left(\frac{j2\pi k}{N} \left(n + \frac{n^2}{2}\right)\right) \quad N \text{が偶数の場合} \quad \dots \text{式 (5)}$$

【数6】

$$C_{k,m}(n) = \exp\left(\frac{j2\pi k}{N} \left((n+m \cdot \Delta) \bmod N + \frac{(n+m \cdot \Delta) \bmod N \cdot ((n+m \cdot \Delta) \bmod N + 1)}{2}\right)\right) \quad \dots \text{式 (6)}$$

【0025】

以下、シグネチャ（符号系列）としてCAZAC系列を用いた場合を一例として説明するが、上記説明からシグネチャ（符号系列）としてGCL系列を用いた場合も本発明を同様に実施できることは明らかである。

【0026】

図2に、CAZAC系列において、系列長 $N = 293$ 、巡回シフト量（Cyclic shift value） $\Delta = 36$ 、 $k = 1$ とした場合に、同一基本符号系列（CAZAC系列#1）から生成可能な巡回シフト数 $m = 0 \sim 7$ （シフト $0 \sim 7$ ）の8つの派生符号系列 $C_{1,0}(n) \sim C_{1,7}(n)$ を示す。 $k = 2$ 以上でも、同様に、同一基本符号系列からそれぞれ8つの派生符号系列が生成可能である。よって、基本符号系列としてCAZAC系列#1～#

8を用いる場合は、合計64の符号系列をシグネチャとして利用することができる。なお、基本符号系列とシフト0の派生符号系列とは同一のものになる。また、巡回シフト量 Λ は、シグネチャの最大伝搬遅延時間より大きく設定する必要がある。これは、複数の移動局から同時に複数のシグネチャが送信された場合に、遅延波の遅延時間が巡回シフト量 Λ を超えると、基地局において、遅延時間が大きいシグネチャを受信したのか、シフト量が互いに異なるシグネチャを受信したのかのいずれであるかの判断が困難となり、その結果、基地局においてシグネチャの誤検出が発生してしまうからである。この最大伝搬遅延時間は、セル半径、つまり移動局と基地局との間の最大伝搬経路長に依存する。

【0027】

そして、本実施の形態では、このようにして得られるCAZAC系列の基本符号系列および派生符号系列を制御情報に対応付けてシグネチャとして用いる。

【0028】

シグネチャ選択部111には、例えば図3に示すような受信品質情報が制御情報として入力される。制御情報‘000’～‘111’はそれぞれ図3に示す受信品質：SINRに対応し、制御情報‘000’～‘111’のいずれか1つが通知すべき制御情報としてシグネチャ選択部111に入力される。

【0029】

シグネチャ選択部111は、図4に示すテーブルを備え、入力された通知すべき制御情報に基づいて図4に示すテーブルを参照していずれか1つのシグネチャ（符号系列）を選択する。

【0030】

このテーブルでは、図4に示すように、制御情報‘000’～‘111’に対し、基本符号系列であるCAZAC系列#1～#8およびCAZAC系列#1～#8からそれぞれ派生したシフト0～7の派生符号系列がCAZAC系列#1～#8毎に対応付けて設定されている。なお、図4に示すテーブルを簡略化して示したものが図5である。

【0031】

図4に示すテーブルにおいて、例えば、制御情報‘000’に対しては、基本符号系列であるCAZAC系列#1およびCAZAC系列#1から派生したシフト0～7の派生符号系列が対応付けて設定されている。そして、CAZAC系列#1のシフト0～7の派生符号系列はそれぞれシグネチャ#1～#8に対応する。また、制御情報‘001’に対しては、基本符号系列であるCAZAC系列#2およびCAZAC系列#2から派生したシフト0～7の派生符号系列が対応付けて設定されている。そして、CAZAC系列#2のシフト0～7の派生符号系列はそれぞれシグネチャ#9～#16に対応する。制御情報‘010’～‘111’についても同様である。つまり、本実施の形態では、1つの制御情報に対し、1つの基本符号系列およびその1つの同一基本符号系列から派生した互いに異なる複数の派生符号系列が対応付けられている。また、互いに異なる64個の符号系列に対し、シグネチャ#1～#64が対応付けられている。

【0032】

そして、シグネチャ選択部111は、例えば通知すべき制御情報として‘000’が入力された場合は、CAZAC系列#1のシフト0～7の符号系列の中からいずれか1つの符号系列をシグネチャとして選択する。基本符号系列とシフト0の派生符号系列とは同一のものとなるため、つまりシグネチャ選択部111は、通知すべき制御情報に対応する基本符号系列およびその対応する基本符号系列から派生した複数の派生符号系列の中、または、通知すべき制御情報に対応する基本符号系列から派生した複数の派生符号系列の中から、いずれか1つの符号系列をシグネチャとして選択すると言える。

【0033】

よって、本実施の形態によれば、移動局は、RACHでの制御情報の通知にあたり、シグネチャを制御情報としても利用するため、シグネチャの他に別途制御情報を送信する必要がなくなる。また、シグネチャを受信した基地局では、シグネチャを検出することにより、同時に制御情報も検出することができる。このように、本実施の形態によれば、RA

CHにおける制御情報の通知を効率よく行うことができる。

【0034】

なお、本実施の形態では、複数の移動局が同一の制御情報を同時に送信する場合を考慮し、シグネチャ選択部111は、入力された制御情報に対応する8つの符号系列の中からいずれか1つの符号系列をランダムに選択するのが好ましい。例えば、シグネチャ選択部111は、制御情報‘000’が入力された場合には、複数の移動局が同一の制御情報‘000’を同時に通知することを考慮し、制御情報‘000’に対応するCAZAC系列#1のシフト0～7の符号系列（シグネチャ#1～#8）の中からいずれか1つをランダムに選択するのが好ましい。このようにランダムに選択することにより、複数の移動局が同一の制御情報を同時に送信する場合でも、各移動局にて同一の符号系列が選択される確率が減少するため、基地局にて各移動局から送信されたシグネチャを分離・検出できる確率を高めることができる。

【0035】

また、シグネチャ選択部111は、予め用意された符号系列（ここでは#1～#64の64個の符号系列）の中から通知すべき制御情報に対応する符号系列を選択する構成としてもよいし、または、通知すべき制御情報に対応するCAZAC系列番号 k およびシフト数 m を選択して、その都度式(6)より符号系列 $C_{k,m}(n)$ を生成する構成としてもよい。いずれの構成を採っても、結果として、シグネチャ選択部111は、通知すべき制御情報に基づいていずれか1つのシグネチャ（符号系列）を選択することになる。

【0036】

ここで、同一の基本符号系列から上記のようにして派生した複数の派生符号系列は完全に直交しており、それらの相互相関はゼロになる。

【0037】

一方で、複数の基本符号系列間での相互相関は比較的低いですが、それらは完全には直交しておらずそれらの相互相関はゼロとはならない。異なる基本符号系列から派生した派生符号系列間でも同様である。

【0038】

つまり、同一の基本符号系列から派生した複数の派生符号系列間での相互相関は、複数の基本符号系列間での相互相関、および、異なる基本符号系列から派生した派生符号系列間での相互相関よりも低いという特徴がある。

【0039】

よって、図4に示すテーブルでは、例えば制御情報‘000’に対応するCAZAC系列#1と制御情報‘001’に対応するCAZAC系列#2とにおいて、CAZAC系列#1のシフト0～7の符号系列間での相互相関は、CAZAC系列#1とCAZAC系列#2との間の相互相関、および、CAZAC系列#1のシフト0～7の符号系列とCAZAC系列#2のシフト0～7の符号系列との間の相互相関よりも低くなる。つまり、図4に示すような対応を採ることにより、同一制御情報間での相互相関を、異なる制御情報間での相互相関よりも低くすることができる。

【0040】

よって、図6に示すように、複数の移動局（移動局A～C）から同時に同一の制御情報（‘000’）が通知され、RACHにおいて複数のシグネチャが多重される場合でも、同一の基本符号系列（CAZAC系列#1）から派生した互いに異なるシフト数（シフト0, 3, 7）の符号系列がシグネチャとして多重される場合には、シグネチャ間での符号間干渉は理想的にはゼロとなり、多重数が増加しても、多重がなされない場合と比較して基地局でのシグネチャの分離・検出性能はほとんど劣化しない。

【0041】

一方で、図6に示すように、異なる制御情報（‘001’）を通知する移動局（移動局D）が存在する場合には、異なる基本符号系列（CAZAC系列#2）から派生した符号系列（シフト2）がシグネチャとして多重されるため、基地局でのシグネチャの分離・検出性能は多重数が増えるほど劣化してしまう。

【0042】

よって、本実施の形態は、複数の移動局から同時に同一の制御情報が通知される場合に特に有効である。そして、各制御情報の発生率に偏りがあるほど、ある特定の同一の制御情報が複数の移動局から同時に通知される可能性が高くなる。

【0043】

例えば、セル内に駅等が存在し、セル内の特定の箇所にも多数の移動局が存在するような状況では、その特定の箇所に位置する多数の移動局では受信品質がほぼ同一になると考えられるため、ある特定の同一の制御情報の発生率が高く、その特定の同一の制御情報が多数の移動局から同時に通知される可能性が高くなる。

【0044】

また、移動局での受信品質は基地局が位置するセル中心ほど高く、セル中心から離れるに従って徐々に低くなる。また、セル中心から離れるほど面積は増加する。よって、移動局がセル内に一様に分布しているような状況では、図7に示すように、より低い受信品質（SINR）ほど発生率が高く、より低い受信品質（SINR）を示す制御情報を通知する移動局ほどより多く存在すると考えられる。よって、このような状況では、より低い受信品質を示す制御情報ほど、多数の移動局から同時に同一の制御情報が通知される可能性が高くなる。つまり、このような状況でも、ある特定の同一の制御情報が多数の移動局から同時に通知される可能性が高くなる。

【0045】

このように、本実施の形態によれば、RACHにおいて同一の制御情報を通知する移動局が多数存在する状況において、特に基地局でのシグネチャおよび制御情報の検出率を高く維持することができる。

【0046】

なお、セル半径が小さい場合は、図4に示すテーブルに代えて図8に示すテーブルを用いてもよい。すなわち、セル半径が小さい場合はシグネチャの最大伝搬遅延時間も小さく、巡回シフト量 Δ を小さくできるため、異なる制御情報間での相互相関をより低くすべく、図8に示すように、複数の制御情報に対し1つの基本符号系列を対応付けてもよい。図8に示すテーブルでは、制御情報‘000’～‘011’に対しCAZAC系列#1を対応付けるとともに、制御情報‘000’にはCAZAC系列#1のシフト0～7の符号系列、制御情報‘001’にはCAZAC系列#1のシフト8～15の符号系列、制御情報‘010’にはCAZAC系列#1のシフト16～23の符号系列、制御情報‘011’にはCAZAC系列#1のシフト24～31の符号系列を対応付けた。また、制御情報‘100’～‘111’に対しCAZAC系列#2を対応付けるとともに、制御情報‘100’にはCAZAC系列#2のシフト0～7の符号系列、制御情報‘101’にはCAZAC系列#2のシフト8～15の符号系列、制御情報‘110’にはCAZAC系列#2のシフト16～23の符号系列、制御情報‘111’にはCAZAC系列#2のシフト24～31の符号系列を対応付けた。このような対応付けを行うことにより、異なる制御情報に対し同一基本符号系列からそれぞれ派生したシフト数の異なる派生符号系列を対応付けることのできるため、異なる制御情報間での相互相関をより低くでき、異なる制御情報を同時に通知する移動局が多数存在する状況においても基地局でのシグネチャおよび制御情報の検出率を高く維持することができる。

【0047】

(実施の形態2)

上記図7に示すように、セル内において各制御情報の発生率には偏りがある場合がある。よって、このような場合には、より多く発生する制御情報に対してより多くの符号系列を割り当てるのが好ましい。

【0048】

そこで、本実施の形態では、実施の形態1のように各制御情報に対し同一数の符号系列が対応付けて設定されたテーブル（図4，図5，図8）を用いるのではなく、図9に示すように、発生率がより高い制御情報に対してより多くの基本符号系列またはより多くの派

生符号系列が対応付けて設定されたテーブルを用いる。

【0049】

このようなテーブルを用いることにより、発生率が高い制御情報が複数の移動局から同時に通知される場合に、複数の移動局から同一符号系列が送信される確率を減少させることができるため、符号系列間での衝突確率を減少させて、基地局でのシグネチャおよび制御情報の検出率を高く維持することができる。

【0050】

また、この際、1つの制御情報に対し複数の基本符号系列が対応付けて設定される場合には、同一制御情報間での相互相関を低く維持するために、同一基本符号系列から派生した派生符号系列から優先的に対応付けるのが好ましい。例えば、図9の制御情報‘000’のように、1つの制御情報に対しCAZAC系列#1、#2が対応付けて設定される場合には、CAZAC系列#1から派生したすべての派生符号系列から優先的に対応付け、残りの部分は、CAZAC系列#2から派生した一部の派生符号系列を対応付ける。つまり、図9に示すテーブルでは、1つの制御情報に対し、複数の基本符号系列およびそれら複数の基本符号系列の少なくとも1つから派生したすべての派生符号系列が対応付けて設定されている。

【0051】

なお、本実施の形態では、各制御情報の発生率に応じて各制御情報に対し割り当てる符号系列の数を決めたと、例えば、各制御情報の重要度、優先度、再送回数、QoS等に応じて、各制御情報に対し割り当てる符号系列の数を決めてもよい。つまり、本実施の形態は、各制御情報に対し、互いに異なる数の基本符号系列または互いに異なる数の派生符号系列が対応付けて設定されたテーブルを用いるものである。

【0052】

(実施の形態3)

セル内において各制御情報の発生率は変化する場合がある。例えば、セル内における同一箇所でも、夜間より日中の方が存在する移動局の数が多い場合があり、このような場合には、ある特定の同一の制御情報であっても、夜間より日中の方が発生率が高くなる。

【0053】

そこで、本実施の形態では、制御情報の変化する発生率に応じて、各制御情報に対して対応付ける基本符号系列の数または派生符号系列の数を変化させる。

【0054】

本実施の形態に係る移動局30の構成を図10に示す。なお、図10において上記図1(実施の形態1)と同一の構成部分には同一符号を付し説明を省略する。

【0055】

無線受信部31は、基地局から送信された制御信号をアンテナ16を介して受信し、制御信号に対しダウンコンバート等の無線処理を行って復調部32に出力する。この制御信号は、基地局からブロードキャスト制御チャンネルで送信されるものであり、制御情報の発生率に応じて、テーブルにおける制御情報と符号系列との対応付けの変更を指示するものである。なお、各制御情報の発生率は、シグネチャを受信する基地局において測定される。

【0056】

復調部32は、制御信号を復調して制御部33に出力する。

【0057】

制御部33は、シグネチャ選択部111に備えられたテーブルでの対応付けを制御信号に従って変化させる。例えば、制御部33は、上記図9に示すテーブルでの対応付けを図11に示すように変化させる。図11では、制御情報‘000’の発生率が上がったため制御情報‘000’に対応付ける符号系列の数を増やすとともに、制御情報‘001’の発生率が下がったため制御情報‘001’に対応付ける符号系列の数を減らした場合を示す。

【0058】

このように、本実施の形態によれば、制御情報の変化する発生率に合わせて各制御情報に対して対応付ける符号系列の数を変化させるため、制御情報の発生率が変化しても基地局でのシグネチャおよび制御情報の検出率を高く維持することができる。

【0059】

以上、本発明の実施の形態について説明した。

【0060】

なお、上記実施の形態では、シグネチャ選択部111が上記テーブルを備える構成を採るものとして説明したが、上記テーブルはシグネチャ選択部111の外部に備えられていてもよい。また、制御情報と符号系列との対応付けが別の方法で行えるのであれば、特にテーブルを備える必要はない。

【0061】

また、上記実施の形態では、符号系列の一例としてGCL系列およびCAZAC系列を挙げたが、符号系列間で相互相関の高さにばらつきがあるものであればいかなる符号系列を用いてもよい。

【0062】

また、移動局から通知する制御情報は受信品質情報に限られない。他の制御情報としては、例えば、移動局ID、RACH送信理由、帯域割当要求情報(QoS情報やデータ量等)、RACH送信電力、RACH送信電力の最大値と現在の送信電力との差等がある。

【0063】

また、上記各実施の形態における移動局はUE、基地局はNode Bと表されることがある。

【0064】

また、上記各実施の形態では、本発明をハードウェアで構成する場合を例にとって説明したが、本発明はソフトウェアで実現することも可能である。

【0065】

また、上記各実施の形態の説明に用いた各機能ブロックは、典型的には集積回路であるLSIとして実現される。これらは個別に1チップ化されてもよいし、一部または全てを含むように1チップ化されてもよい。ここでは、LSIとしたが、集積度の違いにより、IC、システムLSI、スーパーLSI、ウルトラLSIと呼称されることもある。

【0066】

また、集積回路化の手法はLSIに限るものではなく、専用回路または汎用プロセッサで実現してもよい。LSI製造後に、プログラムすることが可能なFPGA(Field Programmable Gate Array)や、LSI内部の回路セルの接続や設定を再構成可能なリコンフィギュラブル・プロセッサを利用してよい。

【0067】

さらには、半導体技術の進歩または派生する別技術によりLSIに置き換わる集積回路化の技術が登場すれば、当然、その技術を用いて機能ブロックの集積化を行ってもよい。バイオ技術の適応等が可能性としてありえる。

【産業上の利用可能性】

【0068】

本発明は、RACH等の上り回線共通チャネルの伝送に好適である。

【図面の簡単な説明】

【0069】

【図1】 実施の形態1に係る移動局の構成を示すブロック図

【図2】 実施の形態1に係るCAZAC系列

【図3】 実施の形態1に係る制御情報

【図4】 実施の形態1に係る参照テーブル(テーブル例1)

【図5】 実施の形態1に係る参照テーブル(図4の参照テーブルの簡略版)

【図6】 実施の形態1に係る制御情報多重例

【図7】 実施の形態1に係る制御情報発生率

【図8】 実施の形態1に係る参照テーブル(テーブル例2)

【図9】実施の形態2に係る参照テーブル（テーブル例3）

【図10】実施の形態3に係る移動局の構成を示すブロック図

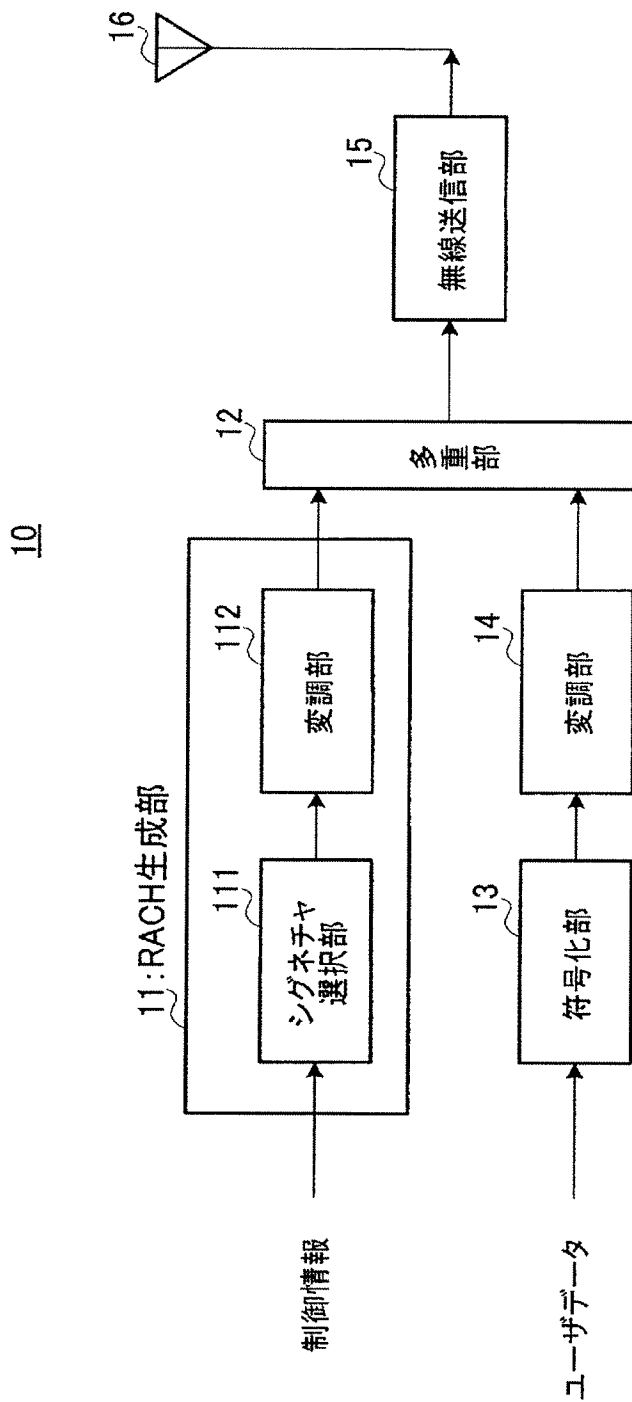
【図11】実施の形態3に係る参照テーブル（テーブル例4）

【符号の説明】

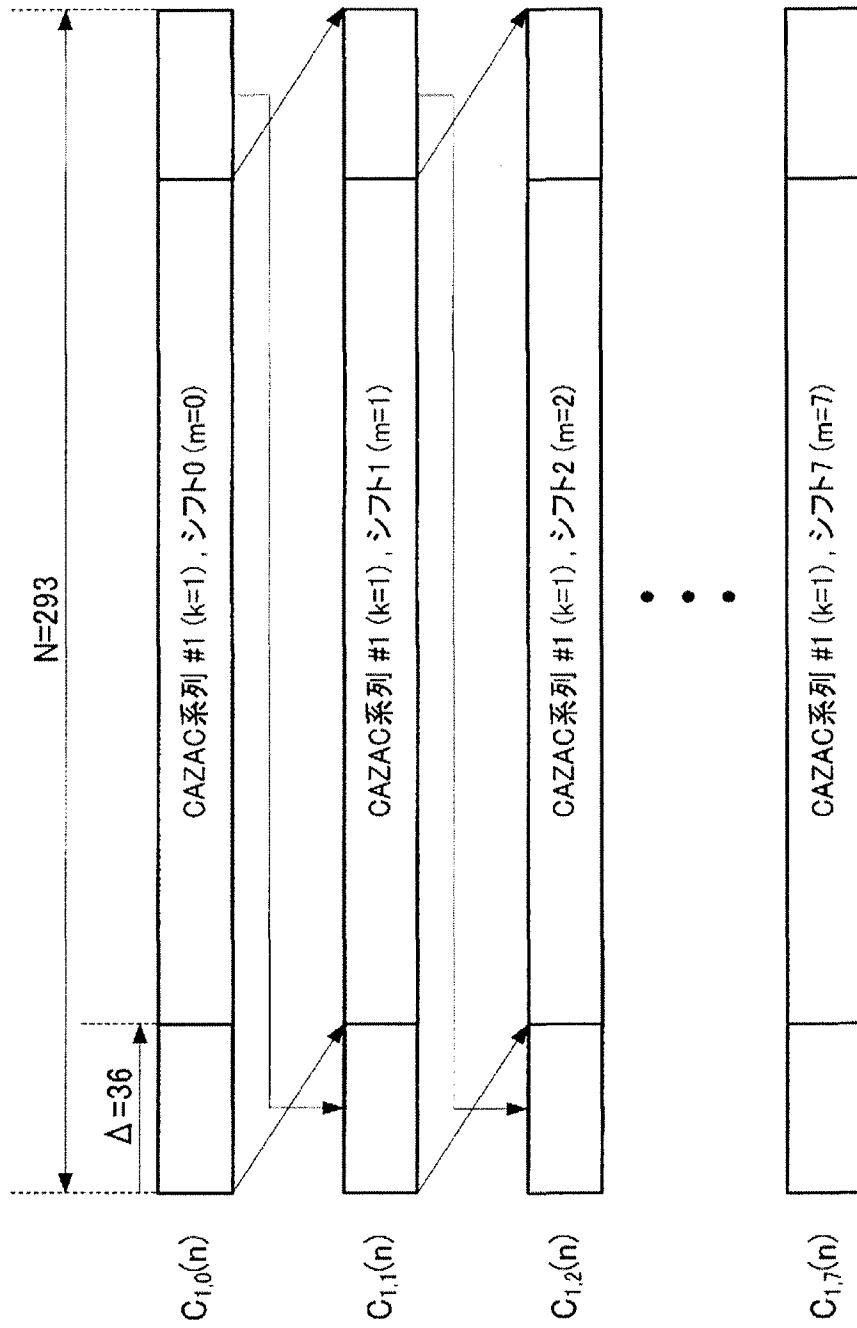
【0070】

- 10,30 移動局
- 11 RACH生成部
- 111 シグネチャ選択部
- 112 変調部
- 12 多重部
- 13 符号化部
- 14 変調部
- 15 無線送信部
- 16 アンテナ
- 31 無線受信部
- 32 復調部
- 33 制御部

【書類名】 図面
【図 1】



【図2】



【図 3】

受信品質	制御情報
$\text{SINR} < -5\text{dB}$	000
$-5\text{dB} \leq \text{SINR} < 0\text{dB}$	001
$0\text{dB} \leq \text{SINR} < 5\text{dB}$	010
$5\text{dB} \leq \text{SINR} < 10\text{dB}$	011
$10\text{dB} \leq \text{SINR} < 15\text{dB}$	100
$15\text{dB} \leq \text{SINR} < 20\text{dB}$	101
$20\text{dB} \leq \text{SINR} < 25\text{dB}$	110
$25\text{dB} \leq \text{SINR}$	111

【図4】

制御情報	CAZAC系列番号:k	シフト:m	シグネチャ番号
000	#1	0	#1
		1	#2
		⋮	⋮
		7	#8
001	#2	0	#9
		1	#10
		⋮	⋮
		7	#16
010	#3	0	#17
		1	#18
		⋮	⋮
		7	#24
011	#4	0	#25
		1	#26
		⋮	⋮
		7	#32
100	#5	0	#33
		1	#34
		⋮	⋮
		7	#40
101	#6	0	#41
		1	#42
		⋮	⋮
		7	#48
110	#7	0	#49
		1	#50
		⋮	⋮
		7	#56
111	#8	0	#57
		1	#58
		⋮	⋮
		7	#64

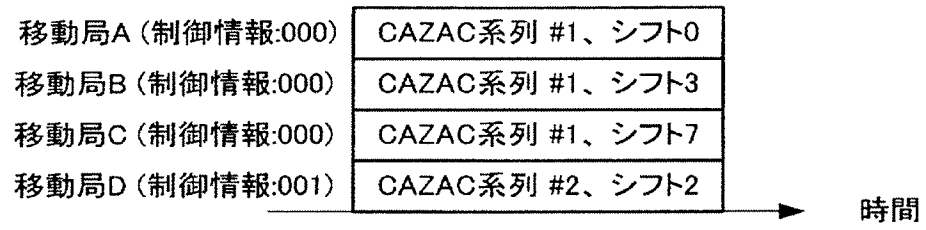
テーブル

【図5】

制御情報	CAZAC系列番号:k	シフト:m
000	#1	0~7
001	#2	0~7
010	#3	0~7
011	#4	0~7
100	#5	0~7
101	#6	0~7
110	#7	0~7
111	#8	0~7

テーブル

【図6】



【図8】

制御情報	CAZAC系列番号:k	シフト:m
000	#1	0~7
001		8~15
010		16~23
011		24~31
100	#2	0~7
101		8~15
110		16~23
111		24~31

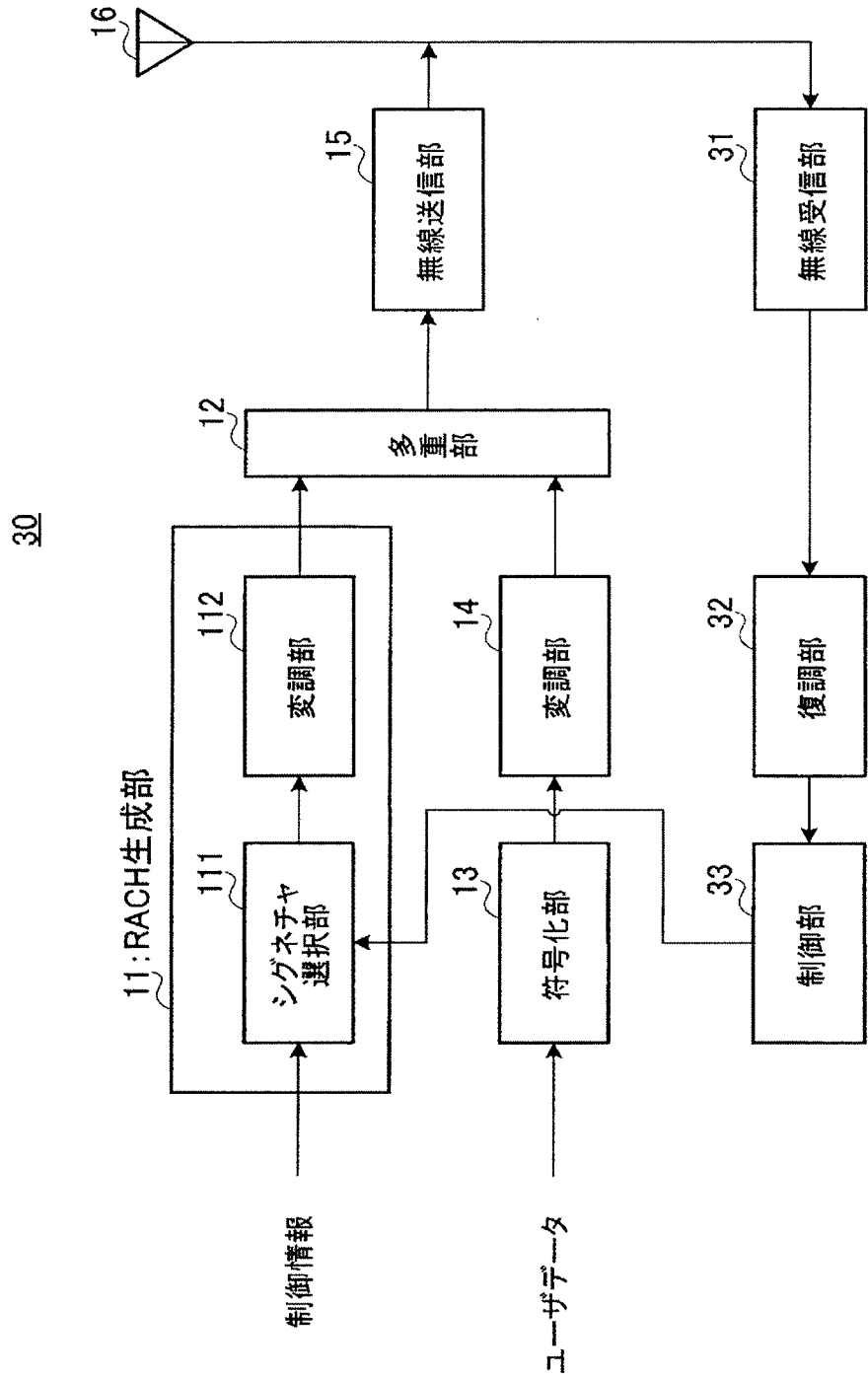
テーブル

【図9】

制御情報	CAZAC系列番号:k	シフト:m	シグネチャ番号
000	#1	0	#1
		1	#2
		2	#3
		3	#4
		4	#5
		5	#6
		6	#7
		7	#8
	#2	0	#9
		1	#10
		2	#11
		3	#12
		4	#13
		5	#14
001	#3	6	#15
		7	#16
		0	#17
		1	#18
		2	#19
		3	#20
		4	#21
		5	#22
⋮	⋮	6	#23
		7	#24
101	#8	0	#57
		1	#58
		2	#59
		3	#60
		4	#61
		5	#62
111	#8	6	#63
		7	#64

テーブル

【図10】



【図 1 1】

制御情報	CAZAC系列番号:k	シフト:m	シグネチャ番号
000	#1	0	#1
		1	#2
		2	#3
		3	#4
		4	#5
		5	#6
		6	#7
		7	#8
	#2	0	#9
		1	#10
		2	#11
		3	#12
		4	#13
		5	#14
		6	#15
		7	#16
001	#3	0	#17
		1	#18
		2	#19
		3	#20
		4	#21
		5	#22
⋮	⋮	6	#23
		7	#24
101	#8	0	#57
		1	#58
		2	#59
		3	#60
		4	#61
		5	#62
		6	#63
		7	#64
111			

テーブル

【書類名】要約書

【要約】

【課題】RACHにおける制御情報の通知を効率よく行うこと。

【解決手段】シグネチャ選択部111は入力される制御情報に応じて、互いに異なる複数の符号系列の中からいずれか1つの符号系列をシグネチャとして選択し、変調部112はシグネチャ（符号系列）を変調する。シグネチャ選択部111に備えられるテーブルでは、制御情報‘000’に対して、基本符号系列であるCAZAC系列#1およびCAZAC系列#1から派生したシフト0～7の派生符号系列が対応付けて設定され、CAZAC系列#1のシフト0～7の派生符号系列はそれぞれシグネチャ#1～#8に対応する。また、制御情報‘001’に対しては、基本符号系列であるCAZAC系列#2およびCAZAC系列#2から派生したシフト0～7の派生符号系列が対応付けて設定され、CAZAC系列#2のシフト0～7の派生符号系列はそれぞれシグネチャ#9～#16に対応する。

【選択図】図1

出願人履歴

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/333,805	12/21/2011	2473	1250	733156.428C1	10	2

CONFIRMATION NO. 7898

96896

Seed Intellectual Property Law Group PLLC
 701 Fifth Avenue, Suite 5400
 Seattle, WA 98104

FILING RECEIPT



Date Mailed: 01/06/2012

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)

Daichi Imamura, Kanagawa, JAPAN;
 Sadaki Futagi, Ishikawa, JAPAN;
 Atsushi Matsumoto, Ishikawa, JAPAN;
 Takashi Iwai, Ishikawa, JAPAN;
 Tomofumi Takata, Ishikawa, JAPAN;

Assignment For Published Patent Application

PANASONIC CORPORATION, Osaka, JAPAN

Power of Attorney: The patent practitioners associated with Customer Number 96896

Domestic Priority data as claimed by applicant

This application is a CON of 12/293,530 09/18/2008
 which is a 371 of PCT/JP2007/055695 03/20/2007

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.)
 JAPAN 2006-076995 03/20/2006

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 01/04/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/333,805**

Projected Publication Date: 04/12/2012

Non-Publication Request: No

Early Publication Request: No

Title

MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD

Preliminary Class

370

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.

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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).

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PATENT APPLICATION FEE DETERMINATION RECORD						Application or Docket Number 13/333,805			
Substitute for Form PTO-875									
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)	RATE(\$)	FEE(\$)			
BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A		N/A	380			
SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A		N/A	620			
EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A		N/A	250			
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	10	minus 20 =			x 60 =	0.00	OR		
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	2	minus 3 =			x 250 =	0.00	OR		
APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 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))									
* If the difference in column 1 is less than zero, enter "0" in column 2.									
				TOTAL			TOTAL		
							1250		
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(S)	ADDITIONAL FEE(S)	RATE(S)	ADDITIONAL FEE(S)		
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=	x	=	OR	x
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	x	=	OR	x
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
				TOTAL ADD'L FEE			TOTAL ADD'L FEE		
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(S)	ADDITIONAL FEE(S)	RATE(S)	ADDITIONAL FEE(S)		
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=	x	=	OR	x
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	x	=	OR	x
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
				TOTAL ADD'L FEE			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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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/333,805	12/21/2011	Daichi Imamura	733156.428C1

96896
Seed Intellectual Property Law Group PLLC
701 Fifth Avenue, Suite 5400
Seattle, WA 98104

CONFIRMATION NO. 7898
POA ACCEPTANCE LETTER



Date Mailed: 01/06/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/21/2011.

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.

/btschhatu/

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

REQUEST FOR PARTICIPATION IN THE PATENT PROSECUTION HIGHWAY (PPH) PROGRAM BETWEEN THE JAPAN PATENT OFFICE (JPO) AND THE USPTO			
Application No.:	13/333,805	Filing Date:	2011-12-21
First Named Inventor:	Daichi Imamura		
Attorney Docket No.:	733156.428C1		
Title of the Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD		
THIS REQUEST FOR PARTICIPATION IN THE PPH PROGRAM ALONG WITH THE REQUIRED DOCUMENTS MUST BE SUBMITTED VIA EFS-WEB. INFORMATION REGARDING EFS-WEB IS AVAILABLE AT HTTP://WWW.USPTO.GOV/EBC/EFS_HELP.HTML .			
APPLICANT HEREBY REQUESTS PARTICIPATION IN THE PATENT PROSECUTION HIGHWAY (PPH) PROGRAM AND PETITIONS TO MAKE THE ABOVE-IDENTIFIED APPLICATION SPECIAL UNDER THE PPH PROGRAM.			
The above-identified application (1) validly claims priority under 35 U.S.C. 119(a) and 37 CFR 1.55 to one or more corresponding JPO application(s) or to a PCT application that does not contain any priority claim, or (2) is a national stage entry of a PCT application that does not contain any priority claim.			
The JPO/PCT application JPSN 2006-076995 (based on which PCT/JP2007/055695 was filed on March 20, 2007, number(s) is/are: based on which JPSN 2008-506313 was filed as a JP national phase application thereof and was found allowable).			
The filing date of the JPO/PCT application(s) is/are: March 20, 2006			
I. List of Required Documents:			
a. A copy of the latest JPO office actions (<u>other than</u> "Decision to Grant a Patent"*) in the above-identified JPO application(s)			
<input checked="" type="checkbox"/> Is attached.			
<input type="checkbox"/> Is <u>not</u> attached because the JPO application was allowed in a first office action.			
*It is <u>not</u> necessary to submit a copy of the "Decision to Grant a Patent" and an English translation thereof.			
b. A copy of all claims which were determined to be patentable by the JPO in the above-identified JPO application(s)			
<input checked="" type="checkbox"/> Is attached.			
c. English translations of the documents in a. and b. above along with a statement that the English translations are accurate are attached (if the documents are not in the English language). An accuracy statement for the English translation of the documents in a. above is <u>not</u> required if the English translation is a machine translation provided by the JPO.			
d. (1) An information disclosure statement listing the documents cited in the JPO office actions			
<input type="checkbox"/> Is attached.			
<input checked="" type="checkbox"/> Has already been filed in the above-identified U.S. application on <u>2011-12-21</u>			
(2) Copies of all documents (except for U.S. patents or U.S. patent application publications)			
<input type="checkbox"/> Are attached.			
<input checked="" type="checkbox"/> Have already been filed in the above-identified U.S. application on <u>2011-12-21</u>			

**REQUEST FOR PARTICIPATION IN THE PATENT PROSECUTION HIGHWAY (PPH)
BETWEEN THE JAPAN PATENT OFFICE (JPO) AND THE USPTO**
(continued)

Application No.:	13/333,805
First Named Inventor:	Daichi Imamura

II. Claims Correspondence Table:

Claims in US Application	Patentable Claims in JPO Application	Explanation regarding the correspondence
1	1	the same
2	2	the same
3	3	the same, except multiple dependency in JP claim is removed
4	4	the same, except multiple dependency in JP claim is removed
5	5	the same, except multiple dependency in JP claim is removed
6	6	the same, except multiple dependency in JP claim is removed
7	7	the same, except multiple dependency in JP claim is removed
8	8	the same, except multiple dependency in JP claim is removed
9	9	the same, except multiple dependency in JP claim is removed
10	10	the same

III. All the claims in the US application sufficiently correspond to the patentable/allowable claims in the JPO application.

Signature /Shoko Leek/	Date 2011-12-22
Name (Print/Typed) Shoko I. Leek	Registration Number 43,746

Page 97 of 163
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.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Daichi Imamura et al.
Application No. : 13/333,805
Filed : December 21, 2011
Title : MOBILE STATION APPARATUS AND RANDOM ACCESS
METHOD

Docket No. : 733156.428C1
Date : December 22, 2011

**EXPLANATION REGARDING THE RELATIONSHIP BETWEEN THE JPO
PRIORITY APPLICATION AND THE JPO APPLICATION WITH ALLOWED
CLAIMS**

This paper is filed to provide an explanation regarding the relationship between the JPO priority application of the present application, in which a "REQUEST FOR PARTICIPATION IN THE PPH PROGRAM BETWEEN THE JPO AND THE USPTO" is concurrently filed herewith, and the JPO application with allowed claims.

The present U.S. application is a continuation of a national stage application of PCT/JP2007/055695, filed March 20, 2007, which PCT application validly claims priority to JPO application JPSN 2006-076995, filed March 20, 2006. Therefore, the present application falls under PPH Eligible Category (1)(b)(i) described in page 2 of the "Notice Regarding Full Implementation of Patent Prosecution Highway Program between the United States Patent and Trademark Office and the Japan Patent Office," dated December 15, 2007. (*See also* "Revised Requirements for Requesting Participation in the Patent Prosecution Highway Program in the USPTO," dated May 17, 2007, page 1, third paragraph, (1)(d).)

The JPO application with allowed claims (JPSN 2008-506313) is a national stage Japanese application of the same PCT application, on which the present U.S. application is also based. Thus, the allowed JPSN 2008-506313 corresponds to the JPO priority application.

If there should be any questions regarding the relationship between JPSN 2008-506313 and the JPO priority application, please contact the undersigned at the number set forth below.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC

 /Shoko Leek/
Shoko I. Leek
Registration No. 43,746

701 Fifth Avenue, Suite 5400
Seattle, Washington 98104
Phone: (206) 622-4900
Fax: (206) 682-6031

2060096_1.DOC

拒絶理由通知書

特許出願の番号	特願 2008-506313
起案日	平成23年 8月24日
特許庁審査官	佐藤 聡史 8943 5W00
特許出願人代理人	鷺田 公一 様
適用条文	第36条

この出願は、次の理由によって拒絶をすべきものです。これについて意見がありましたら、この通知書の発送の日から60日以内に意見書を提出してください。

理 由

この出願は、特許請求の範囲の記載が下記の点で、特許法第36条第6項第2号に規定する要件を満たしていない。

記

請求項1及び11に係る発明の「同一の前記基本系列から生成された系列が連続するように並べられた前記複数の系列を区分する」なる事項は、如何なる技術事項を特定しようとしているか不明であることから、該発明が明確でない。

請求項1に係る発明を引用する請求項2乃至10に係る発明も同様な不備を内在している。

よって、請求項1乃至11に係る発明は明確でない。

拒絶の理由が新たに発見された場合には拒絶の理由が通知される。

最後の拒絶理由通知とする理由

この拒絶理由通知は、最初の拒絶理由通知に対する応答時の補正によって通知することが必要になった拒絶理由のみを通知するものである。

TRANSLATOR'S STATEMENT

The undersigned is proficient in both English and the Japanese language and states that the attached is an accurate translation of the Japanese language Notice of Grounds for Rejection mailed August 30, 2011, in Japanese Patent Application No. JP 2008-506313.

Date: December 22, 2011

Translator's Name: /Shoko Leek/
Shoko I. Leek

TRANSLATION OF NOTICE OF GROUNDS FOR REJECTION

Patent Application Serial No. 2008-506313
Date Drafted: H23 (2011) August 30
Date Mailed: H23 (2011) August 24
JPO Examiner: Satoshi Satoh
Patent Applicant's Attorney/Agent: Kimihito Washida
Applicable Patent Law Sections: Section 36

This patent application should be rejected based on the following ground. The applicant may submit a statement regarding the rejection within sixty (60) days from the mailing date of this notice.

GROUND

The description of the scope of the patent claims of the present application does not meet the requirement under Patent Law Section 36, 6-2, for the following reason.

REMARKS

It is unclear what technical subject matter is specified by the recitation, in claims 1 and 11, of "partitioning the plurality of sequences, in which sequences generated from the same base sequence are arranged consecutively." Accordingly, the invention of claims 1 and 11 is unclear.

Claims 2-10 that depend from claim 1 contain similar defects therein.

Therefore, the invention of claims 1-11 is unclear.

If a further ground for rejection is newly found, such ground for rejection will be notified.

REASON FOR MAKING THIS NOTICE OF GROUNDS FOR REJECTION FINAL

The present action notifies only such ground for rejection that was necessitated by the amendments made responsive to the first notice of grounds for rejection.

整理番号: 特願2008-506313 (Proof) 提出日:平成23年10月17日 1

【書類名】 手続補正書
 【提出日】 平成23年10月17日
 【あて先】 特許庁長官殿
 【事件の表示】
 【出願番号】 特願2008-506313
 【補正をする者】
 【識別番号】 000005821
 【氏名又は名称】 パナソニック株式会社
 【代理人】
 【識別番号】 100105050
 【弁理士】
 【氏名又は名称】 鷺田 公一
 【電話番号】 03-5326-4300
 【発送番号】 582097
 【手続補正1】
 【補正対象書類名】 特許請求の範囲
 【補正対象項目名】 全文
 【補正方法】 変更
 【補正の内容】
 【書類名】 特許請求の範囲
 【請求項1】

制御情報を受信する受信手段と、

複数の基本系列から生成される所定数の系列であって、同一の前記基本系列から生成された巡回シフトが異なる複数の系列が前記巡回シフトの昇順に並べられた前記所定数の系列を区分することによって、前記所定数の系列が、それぞれが異なるデータ量又は受信品質に関連付けられた複数のグループにグループ化され、前記複数のグループのうちの一つのグループに含まれる複数の系列の中から、1つの系列をランダムに選択する選択手段と

、
 選択された前記系列を送信する送信手段と、

を具備し、

前記所定数の系列を区分する位置が、前記制御情報に基づいて特定され、

前記制御情報に応じて、前記複数のグループのそれぞれに含まれる系列の数が変化する

、
 移動局装置。

【請求項2】

前記送信手段は、ランダムアクセスチャネルにて、選択された前記系列を送信する、請求項1に記載の移動局装置。

【請求項3】

前記複数のグループのそれぞれに含まれる前記系列の数が異なる、請求項1又は2に記載の移動局装置。

【請求項4】

前記基本系列の番号の昇順に並べられた前記所定数の系列を区分することによって、前記所定数の系列がグループ化される、

請求項1から3のいずれかに記載の移動局装置。

【請求項5】

複数の異なる前記データ量又は前記受信品質のうちの1つに関連付けられた一つのグループは、前記複数の基本系列の少なくとも1つから生成されたすべての系列からなる、請求項1から4のいずれかに記載の移動局装置。

【請求項6】

複数の異なる前記データ量又は前記受信品質のうちの1つに関連付けられた一つのグル

ープは、前記複数の基本系列の少なくとも1つから生成された系列のみからなる、

請求項1から5のいずれかに記載の移動局装置。

【請求項7】

発生率がより高い前記データ量又は前記受信品質に関連付けられたグループは、より多くの系列からなる、

請求項1から6のいずれかに記載の移動局装置。

【請求項8】

前記データ量又は前記受信品質の発生率に応じて、前記複数のグループのそれぞれに含まれる前記系列の数が変化する、

請求項1から7のいずれかに記載の移動局装置。

【請求項9】

前記基本系列はG C L系列である、

請求項1から8のいずれかに記載の移動局装置。

【請求項10】

制御情報を受信し、

複数の基本系列から生成される所定数の系列であって、同一の前記基本系列から生成された巡回シフトが異なる複数の系列が前記巡回シフトの昇順に並べられた前記所定数の系列を区分することによって、前記所定数の系列を、それぞれが異なるデータ量又は受信品質に関連付けられた複数のグループにグループ化し、

前記複数のグループのうちの一つのグループに含まれる複数の系列の中から、1つの系列をランダムに選択する、

ランダムアクセス方法であって、

前記所定数の系列を区分する位置が、前記制御情報に基づいて特定され、

前記制御情報に応じて、前記複数のグループのそれぞれに含まれる系列の数が変化する

、ランダムアクセス方法。

TRANSLATOR'S STATEMENT

The undersigned is proficient in both English and the Japanese language and states that the attached is an accurate translation of the Japanese language claims as allowed in Japanese Patent Application No. JP 2008-506313.

Date: December 22, 2011

Translator's Name: /Shoko Leek/
Shoko I. Leek

TRANSLATION OF ALLOWED CLAIMS IN JPSN 2008-506313

1. A mobile station apparatus comprising:
 - a receiving unit configured to receive control information;
 - a selecting unit configured to randomly select a sequence from a plurality of sequences contained in one group of a plurality of groups, into which a predetermined number of sequences that are generated from a plurality of base sequences are grouped and which are respectively associated with different amounts of data or reception qualities, wherein the predetermined number of sequences are grouped by partitioning the predetermined number of sequences, in which sequences generated from the same base sequence and having different cyclic shifts are arranged in an increasing order of the cyclic shifts; and
 - a transmitting unit configured to transmit the selected sequence,wherein a position at which the predetermined number of sequences are partitioned is determined based on the control information, and a number of sequences contained in each of the plurality of groups varies in accordance with the control information.
2. The mobile station apparatus according to claim 1, wherein said transmitting unit transmits the selected sequence on a random access channel.
3. The mobile station apparatus according to claim 1 or 2, wherein the number of sequences contained in each of the plurality of groups is different.
4. The mobile station apparatus according to any of claims 1-3, wherein the predetermined number of sequences are grouped by partitioning the predetermined number of sequences, which are arranged in an increasing order of sequence indices of the base sequences.

5. The mobile station apparatus according to any of claims 1-4, wherein one group associated with one of the different amounts of data or reception qualities is comprised of all of sequences that are generated from at least one of the base sequences.

6. The mobile station apparatus according to any of claims 1-5, wherein one group associated with one of the different amounts of data or reception qualities is comprised only of sequences that are generated from at least one of the base sequences.

7. The mobile station apparatus according to any of claims 1-6, wherein a group associated with the amount of data or reception quality with higher probability of occurrence is comprised of a greater number of sequences.

8. The mobile station apparatus according to any of claims 1-7, wherein the number of the sequences contained in each of the plurality of groups varies in accordance with probability of occurrence of the amount of data or reception quality.

9. The mobile station apparatus according to any of claims 1-8, wherein the base sequence is a Generalized Chirp-like (GCL) sequence.

10. A random access method comprising:
 - receiving control information;
 - grouping a predetermined number of sequences that are generated from a plurality of base sequences into a plurality of groups, which are respectively associated with different amounts of data or reception qualities, by partitioning the predetermined number of sequences, in which sequences generated from the same base sequence and having different cyclic shifts are arranged in an increasing order of the cyclic shifts; and
 - randomly selecting a sequence from a plurality of sequences contained in one group of the plurality of groups,
 - wherein a position at which the predetermined number of sequences are partitioned is determined based on the control information, and a number of sequences contained in each of the plurality of groups varies in accordance with the control information.

Electronic Acknowledgement Receipt

EFS ID:	11690488
Application Number:	13333805
International Application Number:	
Confirmation Number:	7898
Title of Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD
First Named Inventor/Applicant Name:	Daichi Imamura
Customer Number:	96896
Filer:	Shoko I. Leek/Tracy Taylor
Filer Authorized By:	Shoko I. Leek
Attorney Docket Number:	733156.428C1
Receipt Date:	22-DEC-2011
Filing Date:	
Time Stamp:	15:05:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition to make special under Patent Prosecution Hwy	733156_428C1_PPH_Form.pdf	733170 <small>a2a016c1f8aa9680143264f70660826c2183 bcdf</small>	no	3

Warnings:

Information:

2	Miscellaneous Incoming Letter	733156_428C1_Explanation_of_Priority.pdf	78596 0f5ae4392670e03e61b37ca8778c5d0e494075ff	no	2
Warnings:					
Information:					
3	Miscellaneous Incoming Letter	733156_428C1_JP_OA.pdf	292386 7671146e0153f2f9e23b37d6edee25cd3348293d1	no	1
Warnings:					
Information:					
4	Miscellaneous Incoming Letter	733156_428C1_Translators_Statement_JP_OA.pdf	36340 3d6a58352e9205bee3898e84d1b032ca715acc	no	1
Warnings:					
Information:					
5	Miscellaneous Incoming Letter	733156_428C1_Translation_JP_OA.pdf	61949 126b94e6de87face0381b875aeddc1c12427aa52	no	1
Warnings:					
Information:					
6	Miscellaneous Incoming Letter	733156_428C1_JP_Allowed_Claims.pdf	583857 42284da5b6197bf75d59e458b12bec498c2ddef3	no	2
Warnings:					
Information:					
7	Miscellaneous Incoming Letter	733156_428C1_Translators_Statement_JP_Claims.pdf	36365 89a48da58b6a5603c09ec143ac3cd1ba36c9ccc	no	1
Warnings:					
Information:					
8	Miscellaneous Incoming Letter	733156_428C1_Translation_JP_Claims.pdf	61310 8c4453610a5ba1ecdb896811630dc4dbacbec90	no	3
Warnings:					
Information:					
Total Files Size (in bytes):			1883973		

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

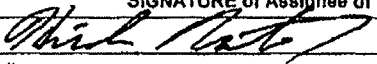
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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.

ELECTION AND 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:			
<input checked="" type="checkbox"/> Practitioners at Seed IP Law Group PLLC, Customer Number: 96896			
OR			
<input type="checkbox"/> Practitioner(s) named below:			
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 (and any continuation/divisional applications therefrom) assigned <u>only</u> 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:			
<input checked="" type="checkbox"/> The address associated with the above-mentioned Customer Number.			
OR			
<input type="checkbox"/> The address associated with Customer Number:			
OR			
<input type="checkbox"/> Firm or Individual Name			
Address			
Address			
City	State	ZIP	
Country			
Telephone	Email		
Assignee Name and Address: Panasonic Corporation 1006, Oaza Kadoma Kadoma-shi, Osaka, Japan 571-8501			
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.			
I am the:			
<input checked="" type="checkbox"/> Assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).			
<input checked="" type="checkbox"/> As assignee of record of the entire interest we hereby elect, under 37 CFR 3.71, to prosecute the application to the exclusion of the inventor(s).			
SIGNATURE of Assignee of Record			
Signature		Date	May 29, 2010
Name	Hiroki Naito		
Title and Company (Assignee)	Director, IP Development Center Authorized Signing Officer Panasonic Corporation		

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Daichi Imamura et al.
Filed : December 21, 2011
For : MOBILE STATION APPARATUS AND RANDOM
ACCESS METHOD

Docket No. : 733156.428C1
Date : December 21, 2011

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT TRANSMITTAL

Commissioner for Patents:

In accordance with 37 CFR 1.56 and 1.97 through 1.98, applicants wish to make known to the Patent and Trademark Office the 17 references set forth on the attached Information Disclosure Statement. This application relies, under 35 U.S.C. § 120, on the earlier filing date of prior Application No. 12/293,530, filed September 18, 2008. The references listed on the attached Information Disclosure Statement were submitted to and/or cited by the Patent and Trademark Office in this prior application and, therefore, are not required to be provided in this application. If the Examiner wishes, copies will be provided upon request. As to any reference supplied, applicants do not admit that it is "prior art" under 35 U.S.C. §§ 102 or 103, and specifically reserve the right to traverse or antedate any such reference, as by a showing under 37 CFR 1.131 or other method. Although the aforesaid references are made known to the Patent and Trademark Office in compliance with applicants' duty to disclose all information they are aware of which is believed relevant to the examination of the above-identified application, applicants believe that their invention is patentable.

Please acknowledge receipt of this Information Disclosure Statement and kindly make the cited references of record in the above-identified application.

Applicants believe this Information Disclosure Statement has been timely filed, however, the Director is authorized to charge any fee due by way of this Information Disclosure Statement to our Deposit Account No. 19-1090.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC

/Shoko Leek/

Shoko I. Leek

Registration No. 43,746

SIL:djs

Enclosure:

Information Disclosure Statement

701 Fifth Avenue, Suite 5400

Seattle, Washington 98104

Phone: (206) 622-4900

Fax: (206) 682-6031

2054787_1.DOCX

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

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 contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date		2011-12-21	
	First Named Inventor	Daichi Imamura		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		733156.428C1	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	6519462	B1	2003-02-11	Lu et al.	
	2	6859445	B1	2005-02-22	Moon et al.	Corresponds to WO 01/05050

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20020041578	A1	2002-04-11	Kim et al.	Corresponds to CN 1381107
	2	20070165567	A1	2007-07-19	Tan et al.	

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FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² j	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	1381107	CN	A	2002-11-20	Samsung Electronics Co., Ltd.	Corresponds to US 2002/0041578	<input type="checkbox"/>

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2011-12-21
First Named Inventor	Daichi Imamura
Art Unit	
Examiner Name	
Attorney Docket Number	733156.428C1

2	01/05050	WO	A1	2001-01-18	Samsung Electronics Co., Ltd.	Corresponds to US 6859445	<input type="checkbox"/>
3	2006/019710	WO	A1	2006-02-23	Qualcomm Incorporated		<input type="checkbox"/>

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NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	"3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Physical layer procedures (FDD) (Release 6)," 3GPP TS 25.214 V6.7.1, December 2005, 60 pages.	<input type="checkbox"/>
	2	Chinese Office Action, for Chinese Application No. 200780010212.6, dated June 11, 2010, 5 pages.	<input type="checkbox"/>
	3	International Search Report, for International Application No. PCT/JP2007/055695, mailed June 12, 2007, 2 pages.	<input type="checkbox"/>
	4	Motorola, "RACH Design for EUTRA," R1-060025, Agenda Item: 5.2.3.1, 3GPP TSG RAN1#43, Helsinki, Finland, January 23-25, 2006, 11 pages.	<input type="checkbox"/>
	5	Motorola, "RACH Design for EUTRA," R1-060387, Agenda Item: 13.2.3.1, 3GPP TSG RAN1#44, Denver, CO, USA, February 13-17, 2006, 13 pages.	<input type="checkbox"/>
	6	Notice of the Reasons for Rejection, for Japanese Application No. 2010-265294, received January 18, 2011, 5 pages.	<input type="checkbox"/>
	7	NTT DoCoMo, NEC, Sharp, "Orthogonal Pilot Channel Structure in E-UTRA Uplink," R1-060046, Agenda Item: 5.2.2.2, 3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, Helsinki, Finland, January 23-25, 2006, 8 pages.	<input type="checkbox"/>

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date		2011-12-21	
	First Named Inventor	Daichi Imamura		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		733156.428C1	

8	NTT DoCoMo, NEC, Sharp, "Random Access Transmission in E-UTRA Uplink," R1-060047, Agenda Item: 5.2.3.1, 3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, Helsinki, Finland, January 23-25, 2006, 8 pages.	<input type="checkbox"/>
9	NTT DoCoMo, Fujitsu, Mitsubishi Electric, NEC, Panasonic, Sharp, Toshiba Corporation, "Orthogonal Pilot Channel Structure for E-UTRA Uplink," R1-060319, Agenda Item: 13.2.2.2, 3GPP TSG RAN WG1 Meeting #44, Denver, CO, USA, February 13-17, 2006, 7 pages.	<input type="checkbox"/>
10	Qualcomm Europe, "Principles of RACH," R1-060480, Agenda Item: 13.2.3.1, 3GPP TSG-RAN WG1 LTE, Denver, CO, USA, February 13-17, 2006, 7 pages.	<input type="checkbox"/>

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2011-12-21
	First Named Inventor	Daichi Imamura	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	733156.428C1	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

- That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

- That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Shoko Leek/	Date (YYYY-MM-DD)	2011-12-21
Name/Print	Shoko I. Leek	Registration Number	43,746

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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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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 the Freedom of Information Act requires disclosure of these records.
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.
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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.
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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 inspections 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.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD		
First Named Inventor/Applicant Name:		Daichi Imamura		
Filer:		Shoko I. Leek/Tracy Taylor		
Attorney Docket Number:		733156.428C1		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	380	380
Utility Search Fee	1111	1	620	620
Utility Examination Fee	1311	1	250	250
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1250

Electronic Acknowledgement Receipt

EFS ID:	11682700
Application Number:	13333805
International Application Number:	
Confirmation Number:	7898
Title of Invention:	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD
First Named Inventor/Applicant Name:	Daichi Imamura
Customer Number:	96896
Filer:	Shoko I. Leek/Tracy Taylor
Filer Authorized By:	Shoko I. Leek
Attorney Docket Number:	733156.428C1
Receipt Date:	21-DEC-2011
Filing Date:	
Time Stamp:	19:10:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 1250
RAM confirmation Number	8675
Deposit Account	191090
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Application Data Sheet	733156_428C1_ADS.PDF	1032435 a9dcd3268e036069935258778925b7cb5a23116ec	no	6
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Information:					
2		733156_428C1_Application.pdf	147589 7ea25a96670a1bfff3a3751ec50f6761eeea358fb	yes	18
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	15	
	Claims		16	17	
	Abstract		18	18	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	733156_428C1_Drawings.pdf	223420 62cea7bc4fc1f9917ac2f5dac1da22ff587258eb	no	11
Warnings:					
Information:					
4		733156_428C1_Formals.pdf	322850 3a3204c968ac51ec1b880f66e59810a00905cfc	yes	5
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Oath or Declaration filed		1	3	
	Assignee showing of ownership per 37 CFR 3.73(b).		4	4	
	Power of Attorney		5	5	
Warnings:					
Information:					
5	Miscellaneous Incoming Letter	733156_428C1_FDA.pdf	45503 9f9ca96886b78bb501f79e256acb194d487d84427	no	1
Warnings:					
Information:					

6	Transmittal Letter	733156_428C1_IDS_Transmittal.pdf	48413 d99e383635achf8c32af2f9ba3377ec681b9e1648	no	2
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	733156_428C1_IDS_Form.PDF	613010 cb782c7705f31d03a99c8ef9e255041ca77d251	no	5
Warnings:					
Information:					
8	Fee Worksheet (SB06)	fee-info.pdf	32916 01251dc cabf88b0ba6d31b9d3ec558d9e3a18512	no	2
Warnings:					
Information:					
Total Files Size (in bytes):				2466136	
<p>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.</p> <p><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.</p> <p><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.</p> <p><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.</p>					

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	733156.428C1
		Application Number	
Title of Invention	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

- Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Applicant Information:

Applicant 1					<input type="button" value="Remove"/>		
Applicant Authority		<input checked="" type="radio"/> Inventor		<input type="radio"/> Legal Representative under 35 U.S.C. 117		<input type="radio"/> Party of Interest under 35 U.S.C. 118	
Prefix	Given Name	Middle Name	Family Name		Suffix		
	Daichi		Imamura				
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service							
City	Kanagawa		Country Of Residenceⁱ	JP			
Citizenship under 37 CFR 1.41(b)ⁱ			JP				
Mailing Address of Applicant:							
Address 1		c/o Panasonic Corporation					
Address 2		1006, Oaza Kadoma, Kadoma-shi					
City	Osaka		State/Province				
Postal Code		571-8501		Countryⁱ	JP		
Applicant 2					<input type="button" value="Remove"/>		
Applicant Authority		<input checked="" type="radio"/> Inventor		<input type="radio"/> Legal Representative under 35 U.S.C. 117		<input type="radio"/> Party of Interest under 35 U.S.C. 118	
Prefix	Given Name	Middle Name	Family Name		Suffix		
	Sadaki		Futagi				
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service							
City	Ishikawa		Country Of Residenceⁱ	JP			
Citizenship under 37 CFR 1.41(b)ⁱ			JP				
Mailing Address of Applicant:							
Address 1		c/o Panasonic Mobile Communications R&D Lab Co Ltd					
Address 2		5 Akedori 2-chome, Izumi-ku, Sendai-shi					
City	Miyagi		State/Province				
Postal Code		981-3206		Countryⁱ	JP		
Applicant 3					<input type="button" value="Remove"/>		
Applicant Authority		<input checked="" type="radio"/> Inventor		<input type="radio"/> Legal Representative under 35 U.S.C. 117		<input type="radio"/> Party of Interest under 35 U.S.C. 118	
Prefix	Given Name	Middle Name	Family Name		Suffix		
	Atsushi		Matsumoto				
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service							
City	Ishikawa		Country Of Residenceⁱ	JP			

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	733156.428C1
	Application Number	
Title of Invention	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD	

Citizenship under 37 CFR 1.41(b) i		JP
Mailing Address of Applicant:		
Address 1	c/o Panasonic Mobile Communications R&D Lab Co Ltd	
Address 2	5 Akedori 2-chome, Izumi-ku, Sendai-shi	
City	Miyagi	State/Province
Postal Code	981-3206	Country ⁱ JP
Applicant 4		<input type="button" value="Remove"/>
Applicant Authority	<input checked="" type="radio"/> Inventor	<input type="radio"/> Legal Representative under 35 U.S.C. 117
		<input type="radio"/> Party of Interest under 35 U.S.C. 118
Prefix	Given Name	Middle Name
	Takashi	
		Iwai
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service		
City	Ishikawa	Country Of Residence ⁱ JP
Citizenship under 37 CFR 1.41(b) i		JP
Mailing Address of Applicant:		
Address 1	c/o Panasonic Mobile Communications R&D Lab Co Ltd	
Address 2	5 Akedori 2-chome, Izumi-ku, Sendai-shi	
City	Miyagi	State/Province
Postal Code	981-3206	Country ⁱ JP
Applicant 5		<input type="button" value="Remove"/>
Applicant Authority	<input checked="" type="radio"/> Inventor	<input type="radio"/> Legal Representative under 35 U.S.C. 117
		<input type="radio"/> Party of Interest under 35 U.S.C. 118
Prefix	Given Name	Middle Name
	Tomofumi	
		Takata
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service		
City	Ishikawa	Country Of Residence ⁱ JP
Citizenship under 37 CFR 1.41(b) i		JP
Mailing Address of Applicant:		
Address 1	c/o Panasonic Mobile Communications R&D Lab Co Ltd	
Address 2	5 Akedori 2-chome, Izumi-ku, Sendai-shi	
City	Miyagi	State/Province
Postal Code	981-3206	Country ⁱ JP
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.		
		<input type="button" value="Add"/>

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
<input type="checkbox"/> An Address is being provided for the correspondence information of this application.	
Customer Number	96896

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	733156.428C1
		Application Number	
Title of Invention	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD		
Email Address	ShokoL.docketing@SeedIP.com	<input type="button" value="Add Email"/>	<input type="button" value="Remove Email"/>

Application Information:

Title of the Invention	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD		
Attorney Docket Number	733156.428C1	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	11	Suggested Figure for Publication (if any)	

Publication Information:

<input type="checkbox"/>	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/>	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and 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 international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.			
Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	96896		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.			
Prior Application Status	Pending	<input type="button" value="Remove"/>	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	12/293530	2008-09-18
Prior Application Status	Expired	<input type="button" value="Remove"/>	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12/293530	a 371 of international	PCT/JP2007/055695	2007-03-20

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	733156.428C1
	Application Number	
Title of Invention	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD	

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

<input type="button" value="Remove"/>			
Application Number	Country ⁱ	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
2006-076995	JP	2006-03-20	<input checked="" type="radio"/> Yes <input type="radio"/> No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Assignee Information:

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office.

<input type="button" value="Remove"/>			
Assignee 1			
If the Assignee is an Organization check here. <input checked="" type="checkbox"/>			
Organization Name	Panasonic Corporation		
Mailing Address Information:			
Address 1	1006, Oaza Kadoma, Kadoma-shi		
Address 2			
City	Osaka	State/Province	
Country ⁱ	JP	Postal Code	571-8501
Phone Number		Fax Number	
Email Address			
Additional Assignee Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.

Signature	/Shoko Leek/	Date (YYYY-MM-DD)	2011-12-21
First Name	Shoko I.	Last Name	Leek
		Registration Number	43746

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	733156.428C1
	Application Number	
Title of Invention	MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD	

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MOBILE STATION APPARATUS AND RANDOM ACCESS METHOD

TECHNICAL FIELD

[0001] The present invention relates to a radio communication mobile station apparatus and a radio communication method.

5 BACKGROUND ART

[0002] Presently, studies are underway to use RACH (Random Access Channel) for initial access from a radio communication mobile station apparatus (hereinafter simply “mobile station”) to a radio communication base station apparatus (hereinafter simply “base station”), in 3GPP RAN LTE (Long Term Evolution) (see Non-Patent Document 1).

10 The RACH is utilized, for example, to make an association request and a resource request to the base station, and in initial access upon acquiring uplink transmission timing synchronization.

[0003] A mobile station transmitting a RACH signal selects one of a plurality of unique signatures in the RACH and transmits the selected signature to the base station to
15 distinguish itself from other mobile stations transmitting RACH signals.

[0004] Moreover, in the RACH, taking into account that a plurality of signatures are transmitted from a plurality of mobile stations at the same time, studies are underway to use code sequences having low cross-correlation and high autocorrelation as signatures so as to demultiplex and detect those signatures in the base station. As a code sequence
20 having such characteristics, the CAZAC (Constant Amplitude Zero Auto-Correlation) sequence is known, which is one of GCL (Generalized Chirp-Like) sequences (see Non-Patent Document 2).

[0005] Furthermore, to reduce the processing delay after the initial access, studies are underway to report, in the RACH, control information including the mobile station ID, the
25 reason for RACH transmission, bandwidth allocation request information (QoS information, the amount of data, and so on), and downlink received quality information (see Non-Patent Document 3).

[0006] Non-patent Document 1: 3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, R1-060047, NTT DoCoMo, NEC, Sharp, "Random Access Transmission in E-UTRA Uplink," Helsinki, Finland, 23-25 Jan., 2006

[0007] Non-patent Document 2: 3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, R1-060046, NTT DoCoMo, NEC, Sharp, "Orthogonal Pilot Channel Structure in E-UTRA Uplink," Helsinki, Finland, 23-25 Jan., 2006

[0008] Non-patent Document 3: 3GPP TSG-RAN WG1 LTE Ad Hoc Meeting, R1-060480, Qualcomm, "Principles of RACH," Denver, USA, 13-17 Feb., 2006

DISCLOSURE OF INVENTION

10 [0009] Problems to be Solved by the Invention

[0010] Various studies are presently conducted for a method for reporting control information in the RACH, and efficient reporting of control information in the RACH meets a strong demand.

[0011] It is therefore an object of the present invention to provide a mobile station and radio communication method for efficiently reporting control information in the RACH.

[0012] Means for Solving the Problem

[0013] The mobile station of the present invention adopts a configuration including: a selecting section that selects one code sequence from a base code sequence associated with control information to be reported and a plurality of derived code sequences derived from the associated base code sequence, or from a plurality of derived code sequences derived from the base code sequence associated with the control information to be reported; and a transmitting section that transmits the selected code sequence in a random access channel.

[0014] The radio transmission method of the present invention includes steps of:
25 selecting one code sequence from a base code sequence associated with control information to be reported and a plurality of derived code sequences derived from the corresponding

base code sequence, or from a plurality of derived code sequences derived from the base code sequence associated with the control information to be reported; and transmitting the selected code sequence in a random access channel.

[0015] Advantageous Effect of the Invention

- 5 **[0016]** The present invention provides an advantage of reporting control information efficiently in the RACH.

BRIEF DESCRIPTION OF DRAWINGS

- [0017]** FIG. 1 is a block diagram showing the configuration of the mobile station according to Embodiment 1;
- 10 **[0018]** FIG. 2 illustrates the CAZAC sequences according to Embodiment 1;
- [0019]** FIG. 3 shows the control information according to Embodiment 1;
- [0020]** FIG. 4 is the reference table (table example 1) according to Embodiment 1;
- [0021]** FIG. 5 is the reference table (a simplified version of the reference table in FIG. 4) according to Embodiment 1;
- 15 **[0022]** FIG. 6 shows an example of control information multiplexing according to Embodiment 1;
- [0023]** FIG. 7 shows the rate of occurrence of control information according to Embodiment 1;
- [0024]** FIG. 8 shows the reference table (table example 2) according to
- 20 Embodiment 1;
- [0025]** FIG. 9 shows the reference table (table example 3) according to Embodiment 2;
- [0026]** FIG. 10 is a block diagram showing the configuration of the mobile station according to Embodiment 3; and
- 25 **[0027]** FIG. 11 is the reference table (table example 4) according to Embodiment 3.

BEST MODE FOR CARRYING OUT THE INVENTION

[0028] Now, embodiments of the present invention will be described in detail with reference to the accompanying drawings.

[0029] Embodiment 1

5 [0030] FIG. 1 shows the configuration of mobile station 10 of the present embodiment.

[0031] RACH generating section 11 is constructed of signature selecting section 111 and modulating section 112, and generates a RACH signal as follows.

10 [0032] Signature selecting section 111 selects one of a plurality of unique code sequences as a signature, according to inputted control information, and outputs the selected code sequence to modulating section 112.

[0033] The signature selection (code sequence selection) will be described later in detail.

15 [0034] Modulating section 112 modulates the signature (code sequence) to generate a RACH signal and outputs the RACH signal to multiplexing section 12.

[0035] On the other hand, encoding section 13 encodes user data and outputs the encoded user data to modulating section 14.

[0036] Modulating section 14 modulates the encoded user data and outputs the modulated user data to multiplexing section 12.

20 [0037] Multiplexing section 12 time-domain-multiplexes the RACH signal and the user data, and outputs the time-domain-multiplexed RACH signal and user data to radio transmitting section 15. That is, after the RACH signal transmission is completed, multiplexing section 12 outputs the user data to radio transmitting section 15.

25 [0038] Radio transmitting section 15 performs radio processing including up-conversion on the RACH signal and user data, and transmits the result to the base station via antenna 16.

[0039] Next, the signature selection (code sequence selection) will be described in detail.

[0040] In the present embodiment, GCL sequences or CAZAC sequences are used as signatures (code sequences).

[0041] GCL sequence $C_k(n)$ is given by equations 1 and 2. GCL sequence is a code sequence having high autocorrelation and low cross-correlation and having frequency response characteristics of constant amplitude. Here, N is an arbitrary integer and represents the sequence length. Moreover, k is an integer between 1 and $N-1$.

[0042] Further, n represents the n -th in the code sequence length N and is an integer between 0 and $N-1$. The GCL sequence found by equations 1 and 2 serves as the base code sequence.

10 [1]

$$C_k(n) = \alpha \cdot \exp\left(\frac{j2\pi k}{N} \left(\beta \cdot n + \frac{n(n+1)}{2}\right)\right) \text{ where } N \text{ is an odd number} \quad (\text{Equation 1})$$

[2]

$$C_k(n) = \alpha \cdot \exp\left(\frac{j2\pi k}{N} \left(\beta \cdot n + \frac{n^2}{2}\right)\right) \text{ where } N \text{ is an even number} \quad (\text{Equation 2})$$

[0043] Here, to acquire a large number of GCL sequences of low cross-correlations, the sequence length N is preferably an odd number and a prime number. Then, if the sequence length N is an odd number, by cyclically shifting, according to equation 3, the base code sequence given by equation 1, a plurality of derived code sequences $C_{k,m}(n)$ of respective numbers of cyclic shifts, can be acquired from a base code sequence $C_k(n)$.

[3]

20
$$C_{k,m}(n) = \alpha \cdot \exp\left(\frac{j2\pi k}{N} \left(\beta \cdot (n+m \cdot \Delta) \bmod N + \frac{(n+m \cdot \Delta) \bmod N \cdot ((n+m \cdot \Delta) \bmod N + 1)}{2}\right)\right)$$
 (Equation 3)

[0044] Then, the GCL sequence where α and β are 1 in equations 1 to 3 is a CAZAC sequence, and the CAZAC sequences are code sequences of the lowest cross-correlation among GCL sequences. That is, the base code sequence of CAZAC sequence $C_k(n)$ is found by equations 4 and 5. When the code sequence length N is an odd number, by

cyclically shifting, according to equation 6, the base code sequence found by equation 4, with CAZAC sequences similar to GCL sequences, a plurality of derived code sequences $C_{k,m}(n)$ of respective numbers of cyclic shifts can be acquired from a base code sequence $C_k(n)$.

5 [4]

$$C_k(n) = \exp\left(\frac{j2\pi k}{N} \left(n + \frac{n(n+1)}{2}\right)\right) \text{ where } N \text{ is an odd number} \quad (\text{Equation 4})$$

[5]

$$C_k(n) = \exp\left(\frac{j2\pi k}{N} \left(n + \frac{n^2}{2}\right)\right) \text{ where } N \text{ is an even number} \quad (\text{Equation 5})$$

[6]

$$10 \quad C_{k,m}(n) = \exp\left(\frac{j2\pi k}{N} \left((n+m \cdot \Delta) \bmod N + \frac{(n+m \cdot \Delta) \bmod N \cdot ((n+m \cdot \Delta) \bmod N + 1)}{2}\right)\right) \quad (\text{Equation 6})$$

[0045] Although an example of cases will be explained below where the CAZAC sequence is used as a signature (code sequence), it is obvious from the above explanation that the present invention is also implemented when the GCL sequence is used as a

15 signature (a code sequence).

[0046] FIG. 2 shows, in CAZAC sequences, eight derived code sequences $C_{1,0}(n)$ to $C_{1,7}(n)$ of the numbers of cyclic shifts $m=0$ to 7 (i.e., shift 0 to 7) that can be generated from a single base code sequence (CAZAC sequence #1), given that the sequence length N is 293, the cyclic shift value Δ is 36 and k is 1. If k is 2 or greater, equally, eight derived

20 code sequences may be generated from a single base code sequence. That is, if CAZAC sequences #1 to #8 are used as the base code sequences, sixty four code sequences in total can be utilized as signatures. A base code sequence and a derived code sequence where the shift is zero are the same. Moreover, the cyclic shift value Δ needs to be set greater than the maximum propagation delay time of signatures. This results from occurring error

25 detection of signatures in the base station, if a plurality of mobile stations transmit a

plurality of signatures at the same time and delay waves are received with delays beyond the cyclic shift value Δ , the base station is unable to decide whether it received signature with large delay time or it received signatures of different cyclic shift values. This maximum propagation delay time depends on the cell radius, that is, the distance of the maximum propagation path between the mobile station and the base station.

[0047] In the present embodiment, the base code sequences and derived code sequences acquired as such associated with control information are used as the signatures.

[0048] Signature selecting section 111 receives received quality information as, for example, control information shown in FIG. 3. Pieces of control information “000” to “111” are associated with received quality (i.e., SINRs) shown in FIG. 3, respectively, and one of pieces of the control information “000” to “111” is inputted to signature selecting section 111 as the control information to be reported.

[0049] Signature selecting section 111, which has the table shown in FIG. 4, selects one of the signatures (code sequences) with reference to the table shown in FIG. 4 based on the inputted control information to be reported.

[0050] In this table, as shown in FIG. 4, control information “000” to “111” are provided in association with CAZAC sequences #1 to #8, which are the base code sequences. Furthermore, for each CAZAC sequence #1 to #8, control information “000” to “111” are provided in association with derived code sequences of shifts 0 to 7 derived from each CAZAC sequence #1 to #8. FIG. 5 shows a simplified version of the table shown in FIG. 4.

[0051] In the table shown in FIG. 4, for example, the control information “000” is provided in association with CAZAC sequence #1 and derived code sequences of shifts 0 to 7 derived from CAZAC sequence #1. The derived code sequences of shifts 0 to 7 of CAZAC sequence #1 correspond to signatures #1 to #8, respectively. Moreover, control information “001” is provided in association with CAZAC sequence #2 and derived code sequences of shifts 0 to 7 derived from CAZAC sequence #2. The derived code sequences of shifts 0 to 7 of CAZAC sequence #2 correspond to signatures #9 to #16, respectively. The same applies to control information “010” to “111.” That is, in the present

embodiment, one piece of control information is associated with a single base code sequence and a plurality of unique derived code sequences derived from this single base code sequence. Moreover, the unique 64 code sequences are associated with signatures #1 to #64.

5 **[0052]** Then, when, for example, “000” is inputted as the control information to be reported, signature selecting section 111 selects one code sequence from code sequences of shifts 0 to 7 of CAZAC sequence #1 as the signature. The base code sequence and a derived code sequence of shift 0 are the same, so that signature selecting section 111 selects one code sequence as a signature from the base code sequence corresponding
10 control information to be reported and a plurality of derived code sequences derived from the corresponding base code sequence, or from a plurality of derived code sequences derived from the base code sequence corresponding to the control information to be reported.

[0053] Consequently, according to the present embodiment, the mobile station
15 utilizes signatures as control information upon reporting control information in the RACH, so that the mobile station does not need to transmit control information in addition to signatures.

[0054] Moreover, the base station that receives a signature can detect control information by detecting the signature at the same time. In this way, according to the
20 present embodiment, control information can be reported efficiently in the RACH.

[0055] In the present embodiment, taking into account that a plurality of mobile stations transmit the identical control information at the same time, it is preferable that signature selecting section 111 selects one of the eight code sequences corresponding to the inputted control information on a random basis. For example, when the control
25 information “000” is inputted, taking into account that a plurality of mobile stations report identical control information “000” at the same time, signature selecting section 111 preferably selects one of code sequences (signatures #1 to #8) of shifts #0 to #7 of CAZAC sequence #1 corresponding to the control information “000” on a random basis. Even when a plurality of mobile stations transmit the identical control information at the same

time, this random selection reduces the likelihood of selecting the same code sequence between separate mobile stations, so that the base station is more likely to improve the likelihood of demultiplexing and detecting the signatures transmitted from the individual mobile stations.

5 [0056] Moreover, a configuration may also be employed where signature selecting section 111 may select the code sequence associated with the control information to be reported from the code sequences prepared in advance (here, 64 code sequences #1 to #64), or select the CAZAC sequence number k and the number of shifts m associated with the control information to be reported to generate a code sequence $C_{k,m}(n)$ from equation 6
10 every selection.

[0057] Whichever configuration is employed, as a result, signature selecting section 111 selects one of signatures (code sequences) based on control information to be reported.

[0058] Here, a plurality of derived code sequences derived from a single base code
15 sequence are completely orthogonal, and the cross-correlation is zero between these derived code sequences.

[0059] On the other hand, although cross-correlation between a plurality of base code sequences is relatively low, these base code sequences are not completely orthogonal, and the cross-correlation is not zero. The same applies to derived code sequences derived from
20 different code sequences.

[0060] That is, a plurality of derived code sequences derived from a single base code sequence have a feature of having a lower cross-correlation than the cross-correlation between a plurality of base code sequences and the cross-correlation between derived code sequences derived from different code sequences.

25 [0061] That is, in the table shown in FIG. 4, with CAZAC sequence #1 corresponding to control information "000" and CAZAC sequence #2 corresponding to control information "001," the cross-correlation between the code sequences of shifts 0 to 7 of CAZAC sequence #1 is lower than the cross-correlation between CAZAC sequence #1 and CAZAC sequence #2 and the cross-correlation between the code sequences of shifts 0

to 7 of CAZAC sequence #1 and the code sequences of shifts 0 to 7 of CAZAC sequence #2. That is, the cross-correlation between the identical control information can be lower than the cross-correlation between different control information by adopting the associations shown in FIG. 4.

5 **[0062]** That is, as shown in FIG. 6, even when identical control information (“000”) is reported at the same time from a plurality of mobile stations (mobile stations A to C) and a plurality of signatures are multiplexed in the RACH, if code sequences with unique numbers of shifts (shifts 0, 3 and 7) derived from the same base code sequence (CAZAC sequence #1) are multiplexed as signatures, intersymbol interference between the
10 signatures is ideally zero, and the performance of demultiplexing and detecting signatures in the base station hardly degrades compared with a case where multiplexing is not performed, even when the number of multiplexing increases.

[0063] On the other hand, as shown in FIG. 6, when there is a mobile station (mobile station D) reporting different control information (“001”), code sequence (shift 2) derived
15 from the different base code sequence (CAZAC sequence #2) is multiplexed as a signature, and so the performance of demultiplexing and detecting signatures in the base station degrades when the number of multiplexing increases.

[0064] That is, the present embodiment is effective particularly when the identical control information is reported from a plurality of mobile stations at the same time. The
20 specific and identical control information is more likely to be reported from a plurality of mobile stations at the same time when the rate of occurrence of the pieces of control information is less uniform.

[0065] For example, in a situation where there is a train station in the cell and there are always a large number of mobile stations in a specific location in the cell, the mobile
25 stations in this specific location are likely to have nearly uniform received quality, so that the specific and identical control information is likely to have a high rate of occurrence and are reported from a plurality of mobile stations at the same time.

[0066] Moreover, received quality in a mobile station increases closer to the center of a cell where the base station is located and gradually decreases farther from the center of

the cell. Further, this area increases as farther from the center of the cell. Accordingly, in the situation where mobile stations are uniformly distributed in the cell, as shown in FIG. 7, it is possible that when the rate of occurrence is high at lower received quality (SINR), there are a large number of mobile stations reporting control information showing lower received quality (SINR). Accordingly, in the situation as such, for control information showing lower received quality, the identical control information is likely to be reported from a plurality of mobile stations at the same time.

[0067] That is, in this situation, the specific and identical control information is likely to be reported from a plurality of mobile stations at the same time.

[0068] In this way, according to the present embodiment, it is possible to keep the rate of detection of signatures and control information at the base station high, in the situation where there are a large number of mobile stations reporting the identical control information in the RACH.

[0069] When the cell radius is small, the table shown in FIG. 8 may be used instead of the table shown in FIG. 4. That is, the maximum propagation delay time of the signatures is small and the cyclic shift value Δ can be less when the cell radius is small, so that, to decrease the cross-correlation between different pieces of control information, as shown in FIG. 8, a plurality of pieces of control information may be associated with a single base code sequence. In the table shown in FIG. 8, control information “000” to “011” are associated with CAZAC sequence #1, and control information “000” is associated with the code sequence of shifts 0 to 7 of CAZAC sequence #1, control information “001” is associated with the code sequence of shifts 8 to 15 of CAZAC sequence #1, control information “010” is associated with the code sequence of shifts 16 to 23 of CAZAC sequence #1, and control information “011” is associated with the code sequence of shifts 24 to 31 of CAZAC sequence #1. Moreover, control information “100” to “111” are associated with CAZAC sequence #2, control information “100” is associated with the code sequence of shifts 0 to 7 of CAZAC sequence #2, control information “101” is associated with the code sequence of shifts 8 to 15 of CAZAC sequence #2, control information “110” is associated with the code sequence of shifts 16 to 23 of CAZAC

sequence #2, and control information “111” is associated with the code sequence of shifts 24 to 31 of CAZAC sequence #2. These associations make it possible to associate different pieces of control information with derived code sequences of different shift values derived from a single base code sequence, so that it is possible to decrease the cross-correlation
5 between different pieces of control information and keep the rate of detection of signatures and control information at the base station high even when there are a large number of mobile stations reporting the different control information at the same time.

[0070] Embodiment 2

[0071] As shown in FIG. 7 above, there are cases where the rate of occurrence is not
10 uniform between control information in the cell. That is, in such a case, it is preferable to assign more code sequences to control information occurred much.

[0072] Now, the present embodiment does not employ tables (FIGS. 4, 5 and 8) that provide various pieces of control information in association with the same number of code sequences as in Embodiment 1. Instead, the present embodiment employs a table that
15 associates control information of a higher rate of occurrence with more base code sequences or more derived code sequences, as shown in FIG. 9.

[0073] When control information of high rate of occurrence is reported from a plurality of mobile stations at the same time, use of this table reduces the rate of transmitting the same code sequences from a plurality of mobile stations, so that it is
20 possible to reduce the rate of collisions between code sequences and to keep the rate of detection of signatures and control information at the base station high.

[0074] Moreover, at this time, when one piece of control information is provided in association with a plurality of base code sequences, to keep the cross-correlation between the identical control information low, it is preferable to associate derived code sequences
25 derived from a single base code sequence preferentially. For example, when one piece of control information like control information “000” in FIG. 9 is provided in association with CAZAC sequences #1 and #2, control information “000” is preferentially associated with all derived code sequences derived from CAZAC sequence #1 and, the rest of the piece is

associated with part of the derived code sequences derived from CAZAC sequence #2. That is, in the table shown in FIG. 9, one piece of control information is provided in association with a plurality of base code sequences and all of the derived code sequences derived from at least one of a plurality of the base code sequences.

5 [0075] Moreover, although a case has been described above with the present embodiment where the number of code sequences assigned to each control information is determined according to the rate of occurrence of each control information, the number of code sequences assigned to each control information is determined according to, for example, the significance, priority, the number of retransmissions, and QoS of each control
10 information. That is, the present embodiment employs the table that provides the pieces of control information in association with different numbers of base code sequences or different numbers of derived code sequences.

[0076] Embodiment 3

[0077] The rate of occurrence of control information changes in a cell. For example,
15 at a single place in a cell, there are a number of mobile stations in daytime larger than in nighttime, and the rate of occurrence for the specific and identical control information is higher in daytime than nighttime in such a case.

[0078] Then, according to the present embodiment, the number of base code sequences or the number of derived code sequences associated with pieces of control
20 information change according to changes of the rate of occurrence of control information.

[0079] FIG. 10 shows the configuration of mobile station 30 according to the present embodiment. In FIG. 10, the same reference numerals will be assigned to the same component in FIG. 1 (Embodiment 1), and description thereof will be omitted.

[0080] Radio receiving section 31 receives control signal transmitted from the base
25 station via antenna 16, performs radio processing including down-conversion of the control signal, and outputs the control signal to demodulating section 32. This control signal is transmitted in the broadcast control channel from the base station and designates to change the associations between control information and the code sequences in the table according

to the rate of occurrence of control information. The rate of occurrence of control information is measured in the base station receiving signatures.

[0081] Demodulating section 32 demodulates the control signal and outputs the demodulated control signal to control section 33.

- 5 **[0082]** Control section 33 changes the associations in the table provided in the signature selecting section 111 according to the control signal. For example, control section 33 changes the associations in the table shown in FIG. 9 above as shown in FIG. 11. FIG. 11 shows a case where the number of code sequences associated with control information "000" is increased due to an increased rate of occurrence of control
10 information "000" and where the number of code sequences associated with control information "001" is decreased due to a decreased rate of occurrence of control information "001."

- [0083]** In this way, according to the present embodiment, the number of code sequences associated with each control information is changed according to changes of rate
15 of occurrence of control information, so that it is possible to keep the rate of detection of signatures and control information at the base station high even when the rate of occurrence of control information is changed.

[0084] The embodiments of the present invention have been explained.

- [0085]** Although cases have been explained above with the embodiments where
20 signature selecting section 111 adopts the configuration of the tables above, the tables above may also be adopted outside of signature selecting section 111. Moreover, the tables are not particularly required if the control information and the code sequence are associated in different manners.

- [0086]** Moreover, in the embodiments, although GCL sequence and CAZAC
25 sequence are explained as an example of code sequences, any code sequence may be used if levels of cross-correlations vary between the code sequences.

[0087] Moreover, control information reported from the mobile station is not limited to received quality information. Other control information includes, for example, a mobile station ID, a reason of RACH transmission, bandwidth allocation request information (Qos

information and an amount of data and so on), RACH transmission power, and difference between the maximum value of RACH transmission power and present transmission power.

5 [0088] Moreover, the mobile station and the base station according to the embodiments may be referred to as "UE" and "Node-B."

[0089] Moreover, although cases have been described with the embodiments above where the present invention is configured by hardware, the present invention may be implemented by software.

10 [0090] Each function block employed in the description of the aforementioned embodiment may typically be implemented as an LSI constituted by an integrated circuit. These may be individual chips or partially or totally contained on a single chip. "LSI" is adopted here but this may also be referred to as "IC," "system LSI," "super LSI" or "ultra LSI" depending on differing extents of integration.

15 [0091] Further, the method of circuit integration is not limited to LSI's, and implementation using dedicated circuitry or general purpose processors is also possible. After LSI manufacture, utilization of an FPGA (Field Programmable Gate Array) or a reconfigurable processor where connections and settings of circuit cells within an LSI can be reconfigured is also possible.

20 [0092] Further, if integrated circuit technology comes out to replace LSI's as a result of the advancement of semiconductor technology or a derivative other technology, it is naturally also possible to carry out function block integration using this technology. Application of biotechnology is also possible.

25 [0093] The disclosure of Japanese Patent Application No. 2006-076995, filed on Mar. 20, 2006, including the specification, drawings and abstract, is incorporated herein by reference in its entirety.

[0094] Industrial Applicability

[0095] The present invention is suitable for use in transmission of uplink common channels including a RACH.

CLAIMS

1. A mobile station apparatus comprising:
a receiving unit configured to receive control information;
a selecting unit configured to randomly select a sequence from a plurality of sequences contained in one group of a plurality of groups, into which a predetermined number of sequences that are generated from a plurality of base sequences are grouped and which are respectively associated with different amounts of data or reception qualities, wherein the predetermined number of sequences are grouped by partitioning the predetermined number of sequences, in which sequences generated from the same base sequence and having different cyclic shifts are arranged in an increasing order of the cyclic shifts; and
a transmitting unit configured to transmit the selected sequence,
wherein a position at which the predetermined number of sequences are partitioned is determined based on the control information, and a number of sequences contained in each of the plurality of groups varies in accordance with the control information.
2. The mobile station apparatus according to claim 1, wherein said transmitting unit transmits the selected sequence on a random access channel.
3. The mobile station apparatus according to claim 1, wherein the number of sequences contained in each of the plurality of groups is different.
4. The mobile station apparatus according to claim 1, wherein the predetermined number of sequences are grouped by partitioning the predetermined number of sequences, which are arranged in an increasing order of sequence indices of the base sequences.
5. The mobile station apparatus according to claim 1, wherein one group associated with one of the different amounts of data or reception qualities is comprised of all of sequences that are generated from at least one of the base sequences.

6. The mobile station apparatus according to claim 1, wherein one group associated with one of the different amounts of data or reception qualities is comprised only of sequences that are generated from at least one of the base sequences.

7. The mobile station apparatus according to claim 1, wherein a group associated with the amount of data or reception quality with higher probability of occurrence is comprised of a greater number of sequences.

8. The mobile station apparatus according to claim 1, wherein the number of the sequences contained in each of the plurality of groups varies in accordance with probability of occurrence of the amount of data or reception quality.

9. The mobile station apparatus according to claim 1, wherein the base sequence is a Generalized Chirp-like (GCL) sequence.

10. A random access method comprising:
receiving control information;
grouping a predetermined number of sequences that are generated from a plurality of base sequences into a plurality of groups, which are respectively associated with different amounts of data or reception qualities, by partitioning the predetermined number of sequences, in which sequences generated from the same base sequence and having different cyclic shifts are arranged in an increasing order of the cyclic shifts; and

randomly selecting a sequence from a plurality of sequences contained in one group of the plurality of groups,

wherein a position at which the predetermined number of sequences are partitioned is determined based on the control information, and a number of sequences contained in each of the plurality of groups varies in accordance with the control information.

ABSTRACT OF THE DISCLOSURE

A mobile station apparatus includes a receiving unit configured to receive control information; a selecting unit configured to randomly select a sequence from a plurality of sequences contained in one group of a plurality of groups, into which a predetermined number of sequences generated from a plurality of base sequences are grouped and which are respectively associated with different amounts of data or reception qualities; and a transmitting unit for transmitting the selected sequence. The predetermined number of sequences are grouped by partitioning the predetermined number of sequences, in which sequences generated from the same base sequence and having different cyclic shifts are arranged in an increasing order of the cyclic shifts. A position at which the predetermined number of sequences are partitioned is determined based on the control information, and a number of sequences contained in each of the plurality of groups varies in accordance with the control information.

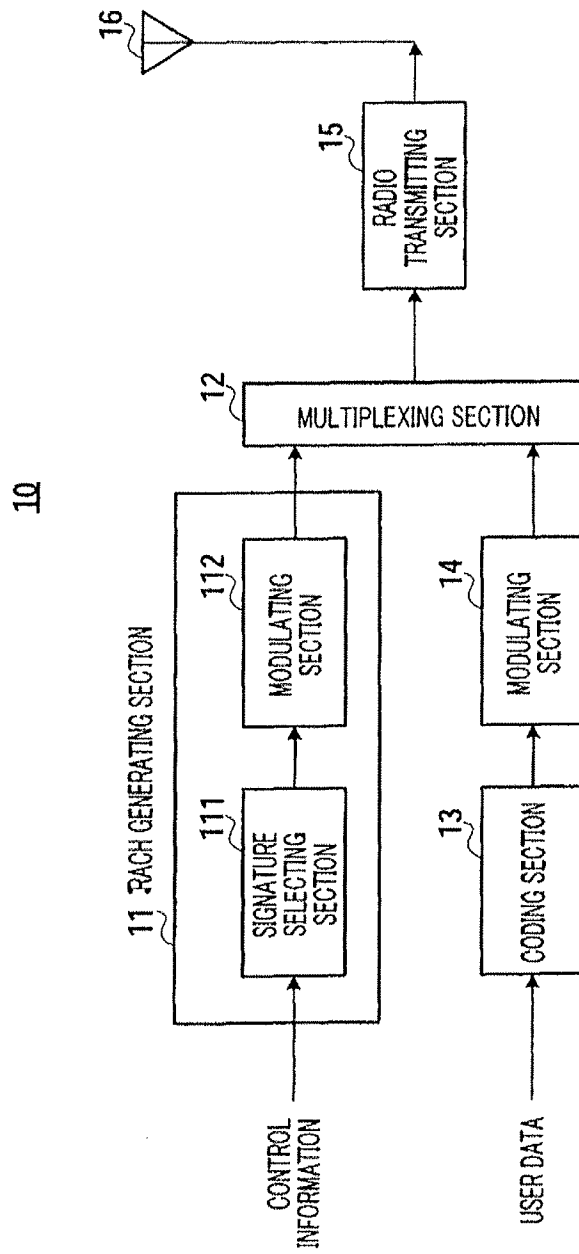


FIG.1

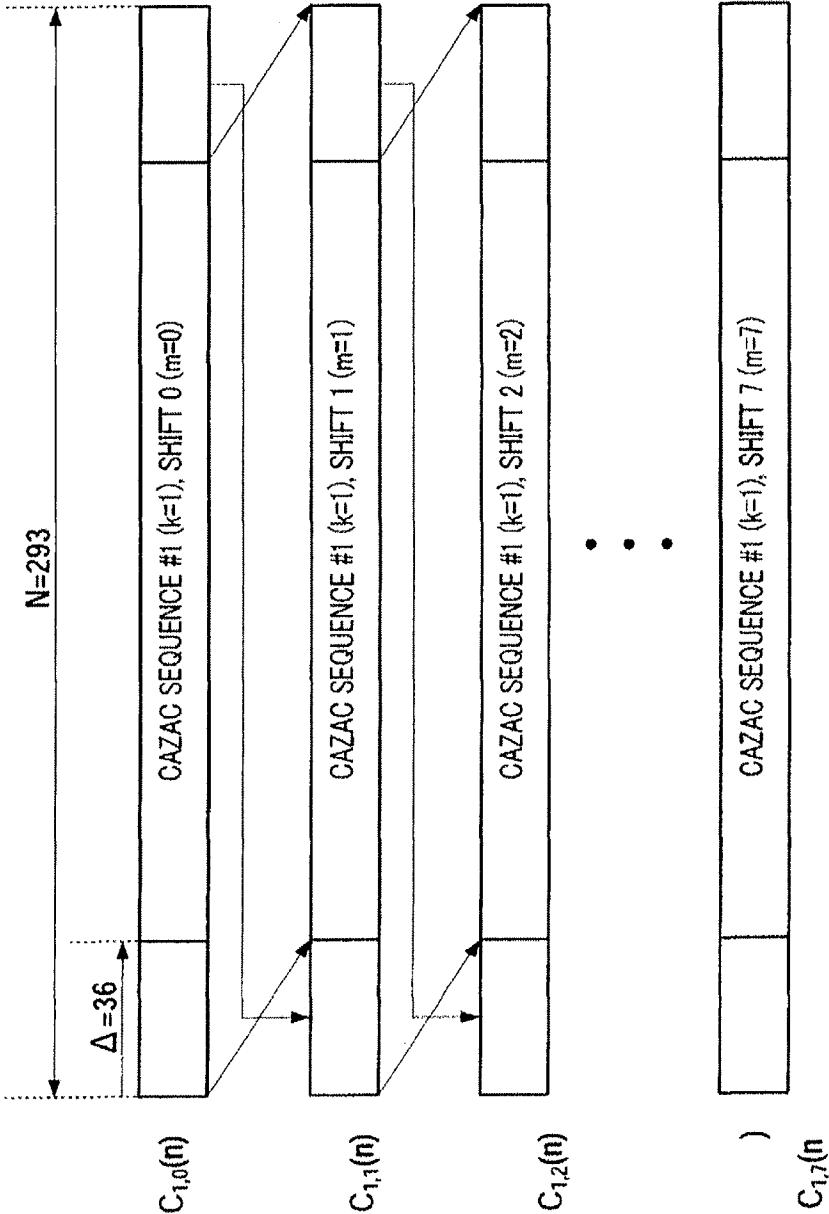


FIG.2

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RECEIVED QUALITY	CONTROL INFORMATION
$SINR < -5dB$	000
$-5dB \leq SINR < 0dB$	001
$0dB \leq SINR < 5dB$	010
$5dB \leq SINR < 10dB$	011
$10dB \leq SINR < 15dB$	100
$15dB \leq SINR < 20dB$	101
$20dB \leq SINR < 25dB$	110
$25dB \leq SINR$	111

FIG.3

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CONTROL INFORMATION	CAZAC SEQUENCE NUMBER: k	SHIFT: m	SIGNATURE NUMBER
000	#1	0	#1
		1	#2
		⋮	⋮
		7	#8
001	#2	0	#9
		1	#10
		⋮	⋮
		7	#16
010	#3	0	#17
		1	#18
		⋮	⋮
		7	#24
011	#4	0	#25
		1	#26
		⋮	⋮
		7	#32
100	#5	0	#33
		1	#34
		⋮	⋮
		7	#40
101	#6	0	#41
		1	#42
		⋮	⋮
		7	#48
110	#7	0	#49
		1	#50
		⋮	⋮
		7	#56
111	#8	0	#57
		1	#58
		⋮	⋮
		7	#64

TABLE

FIG.4

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CONTROL INFORMATION	CAZAC SEQUENCE NUMBER: k	SHIFT: m
000	#1	0~7
001	#2	0~7
010	#3	0~7
011	#4	0~7
100	#5	0~7
101	#6	0~7
110	#7	0~7
111	#8	0~7

TABLE

FIG.5

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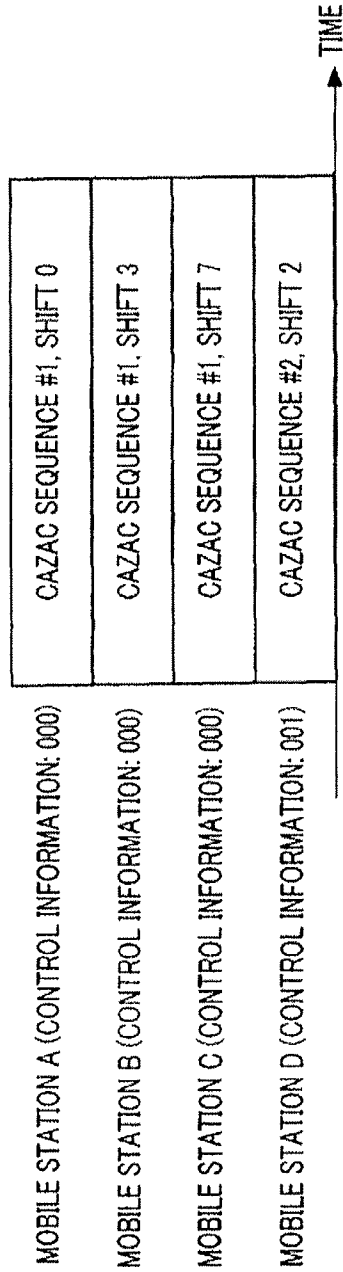


FIG.6

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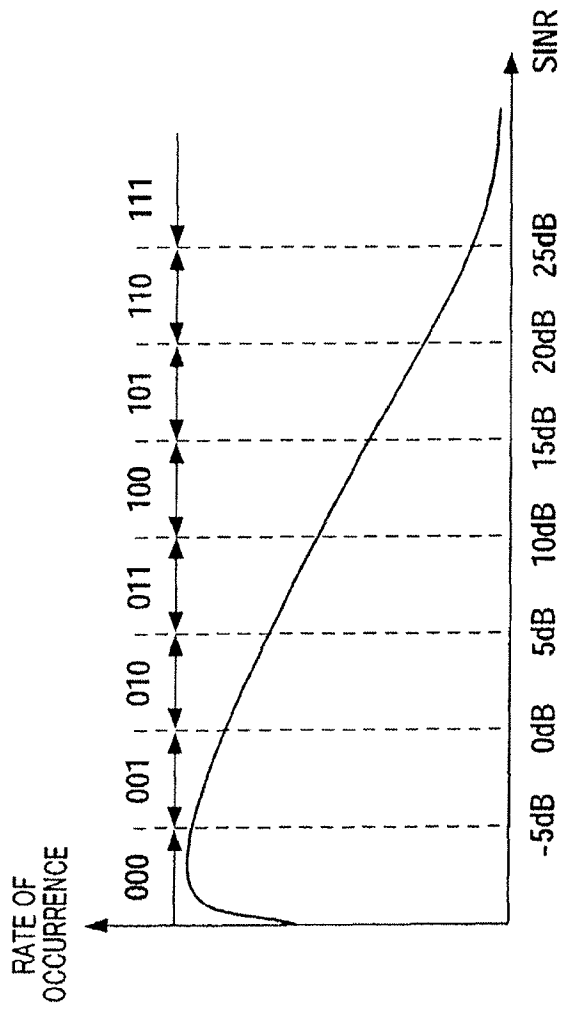


FIG.7

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CONTROL INFORMATION	CAZAC SEQUENCE NUMBER: k	SHIFT: m
000	#1	0~7
001		8~15
010		16~23
011		24~31
100	#2	0~7
101		8~15
110		16~23
111		24~31

TABLE

FIG.8

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CONTROL INFORMATION	CAZAC SEQUENCE NUMBER: k	SHIFT: m	SIGNATURE NUMBER
000	#1	0	#1
		1	#2
		2	#3
		3	#4
		4	#5
		5	#6
		6	#7
		7	#8
001	#2	0	#9
		1	#10
		2	#11
		3	#12
		4	#13
		5	#14
		6	#15
		7	#16
⋮	⋮	0	#17
		1	#18
		2	#19
		3	#20
		4	#21
		5	#22
		6	#23
		7	#24
101	#8	0	#57
		1	#58
		2	#59
		3	#60
		4	#61
		5	#62
		6	#63
		7	#64
111			

TABLE

FIG.9

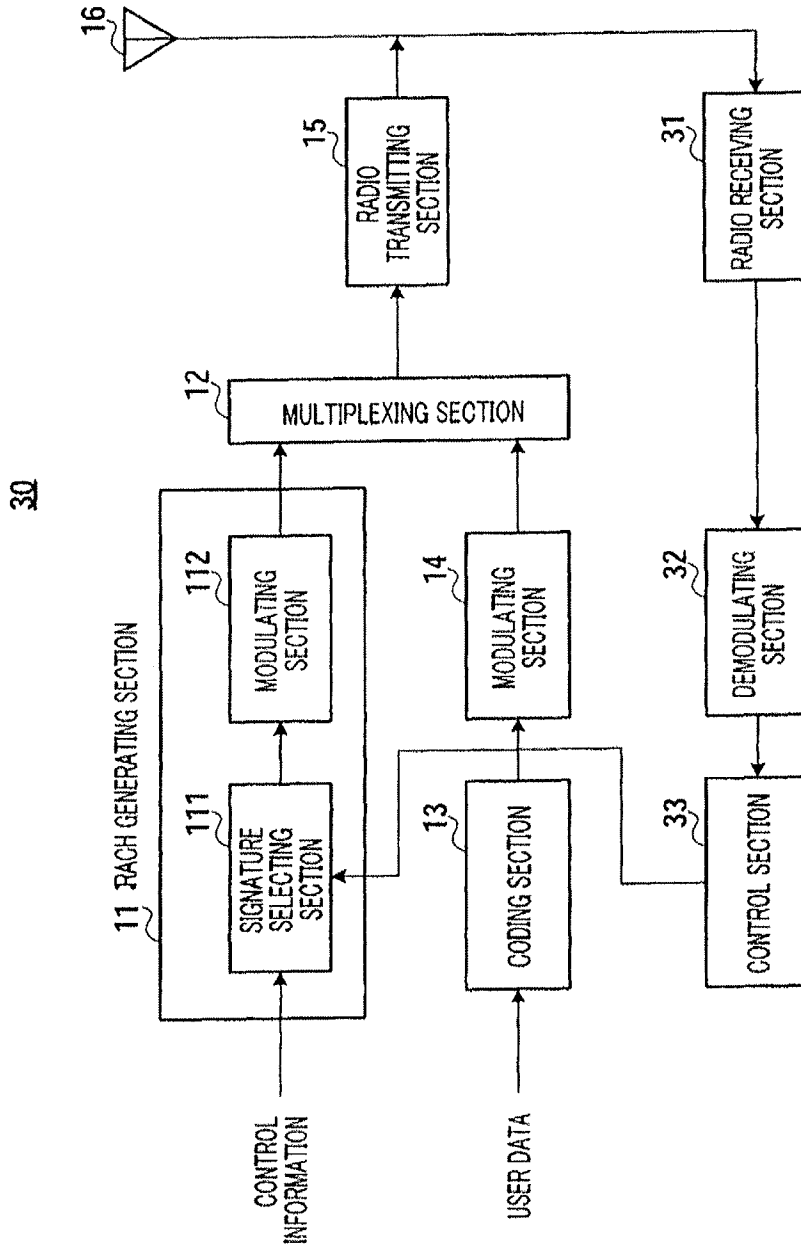


FIG.10

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CONTROL INFORMATION	CAZAC SEQUENCE NUMBER: k	SHIFT: m	SIGNATURE NUMBER
000	#1	0	#1
		1	#2
		2	#3
		3	#4
		4	#5
		5	#6
		6	#7
		7	#8
	#2	0	#9
		1	#10
		2	#11
		3	#12
		4	#13
		5	#14
		6	#15
		7	#16
001	#3	0	#17
		1	#18
		2	#19
		3	#20
		4	#21
		5	#22
		6	#23
⋮	⋮	7	#24
		⋮	⋮
101	#8	0	#57
		1	#58
		2	#59
		3	#60
		4	#61
		5	#62
		6	#63
111		7	#64

TABLE

FIG.11

MEI Form -2.1, (Sep, 2007)

Matsushita Ref: P044766-01
 Japan Firm Name: WASHIDA & ASSOCIATES
 US Firm Name: DW

Application Serial No. _____
 Japan Firm Ref: 2F06320-US-P
 US Firm Ref: _____

DECLARATION AND POWER OF ATTORNEY FOR U.S. PATENT APPLICATION

(a) Original (b) Supplemental (c) Substitute (d) PCT (e) Design

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; and I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Title of invention:
RADIO COMMUNICATION MOBILE STATION APPARATUS AND RADIO COMMUNICATION METHOD

which is described and claimed in (if the following box is not checked, the specification of which is attached hereto):

1. For use when submitting this Declaration prior to U.S. application filing date

(f) the attached specification, or

2. For use when submitting this Declaration after U.S. application filing date

(g) the specification in the U.S. Application:
 Application No. (if available) _____ filed on: (must be filled) _____
 and with amendments (if applicable): _____ filed on _____, or

3. For PCT-US national entry under 35 U.S.C. 371 (for use when filing this Declaration before and after the U.S. national entry date)

(h) the specification in the International Application:
 PCT Application No. **PCT/JP2007/055895** filed on: (PCT filing date) **March 20, 2007**,
 and with amendments (if applicable): _____ filed on: _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above.

I acknowledge my duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §118 (a-d), §172, or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below, and have also identified below any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed:

(Foreign Priority Information)

COUNTRY	APPLICATION NO.	DATE OF FILING	PRIORITY CLAIMED
JAPAN	2006-076995	March 20, 2006	Yes

Additional foreign or international application numbers are listed on a supplemental priority sheet attached hereto.

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States Provisional application(s) listed below.

(U.S. Provisional Application Information)

APPLICATION NO.	U.S. PROVISIONAL APPLICATION FILING DATE

Additional U.S. provisional application numbers are listed on a supplemental priority sheet attached hereto.

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(C) of any PCT international application 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 or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

(Domestic Priority Information)

APPLICATION NO.	U.S. FILING DATE	STATUS: PATENTED, PENDING, ABANDONED

Additional U.S. or international application numbers are listed on a supplemental priority sheet attached hereto.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the attorneys and agents associated with U.S. Patent and Trademark Office Customer Number identified below to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith, and direct that all correspondence be addressed to that customer number.

I hereby authorize the U.S. attorneys and agents associated with the customer number to accept and follow instructions from Matsushita Electric Industrial Co., Ltd., and any affiliated or subsidiary company thereof, received via their corporate representatives and/or their foreign patent attorneys or agents, if any, as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys or agents and myself.

Direct Correspondence to:
CUSTOMER NUMBER 52989

I further 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 issuing thereon.

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Full Name of Seventh Inventor	FIRST NAME	LAST NAME	SIGNATURE	DATE OF SIGNATURE
Residence & Citizenship	CITY, STATE or COUNTRY			CITIZENSHIP
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Full Name of Eighth Inventor	FIRST NAME	LAST NAME	SIGNATURE	DATE OF SIGNATURE
Residence & Citizenship	CITY, STATE or COUNTRY			CITIZENSHIP
Post office address	ADDRESS	CITY	STATE OR COUNTRY	ZIP CODE

Check if additional paper(s) is/are attached. Total of 3 pages are submitted.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Daichi Imamura et al.

Application No./Patent No.: 12/293,530 Filed/Issue Date: September 18, 2008

Entitled: RADIO COMMUNICATION MOBILE STATION APPARATUS AND RADIO COMMUNICATION METHOD

Panasonic Corporation 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 right, title and interest in the entirety of (a complete assignment from one or more 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 021792, Frame 0957, or for which a copy thereof 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:

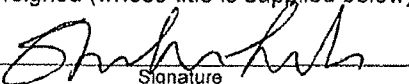
- 1. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- 2. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
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- 4. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, 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.


Signature

April 29, 2011
Date

Shoko I. Leek
Typed or printed name

Attorney of Record
Title