

Please type a plus sign (+) inside this box

PTO/SB/01 (11_00)

Approved for use through 10/31/2002. OMB 0651-0032

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

062805

0729 U.S. PTO

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	BP4637
First Inventor	Joonsuk Kim
Title	REDUCED FEEDBACK FOR BEAMFORMING IN A WIRELESS COMMUNICATION
Express Mail Label No.	EV725285492US

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents	ADDRESS TO: Assistant Commissioner for Patents Box Patent Application Washington, DC 20231
--	--

<p>1. <input checked="" type="checkbox"/> Fee Transmittal Form (e.g. PTO/SB/17) <i>(submit an original and a duplicate for fee processing)</i></p> <p>2. <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.</p> <p>3. <input checked="" type="checkbox"/> Specification [Total Pages <input]<br="" type="text" value="29"/><i>(preferred arrangement set forth below)</i> -Descriptive title of the invention -Cross Reference to Related Applications -Statement Regarding Fed sponsored R&D -Reference to sequence listing, a table, or a computer program listing appendix -Background of the Invention -Brief Summary of the Invention -Brief Description of the Drawings <i>(if filed)</i> -Detailed Description -Claim(s) -Abstract of the Disclosure</p> <p>4. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Pages <input]<="" p="" type="text" value="6"/> <p>5. Oath or Declaration [Total Pages <input]<="" p="" type="text" value="2"/> <p>a. <input checked="" type="checkbox"/> Newly executed (original or copy) Copy from a prior application (37 CFR 1.63 (d))</p> <p>b. <input type="checkbox"/> <i>(for continuation/divisional with Box 18 completed)</i></p> <p>i. <input type="checkbox"/> DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).</p> <p>6. <input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76</p> </p></p>	<p>7. <input type="checkbox"/> CD-ROM or CD-R in duplicate, large table or Computer Program <i>(Appendix)</i></p> <p>8. Nucleotide and/or Amino Acid Sequence Submission <i>(if applicable, all necessary)</i></p> <p>a. <input type="checkbox"/> Computer Readable Form (CRF)</p> <p>b. Specification Sequence Listing on:</p> <p>i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or</p> <p>ii. <input type="checkbox"/> paper</p> <p>c. <input type="checkbox"/> Statements verifying identity of above copies</p>
--	---

113261 U.S. PTO
11/168793

ACCOMPANYING APPLICATION PARTS	
9. <input type="checkbox"/> Assignment Papers (cover sheet & documents(s))	
10. <input type="checkbox"/> 37 CFR 3.73(b) Statement <input type="checkbox"/> Power of Attorney <i>(when there is an assignee)</i>	
11. <input type="checkbox"/> English Translation Document <i>(if applicable)</i>	
12. <input checked="" type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449 <input type="checkbox"/> Copies of IDS Citations	
13. <input type="checkbox"/> Preliminary Amendment	
14. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) <i>(Should be specifically itemized)</i>	
15. <input type="checkbox"/> Certified Copy of Priority Document(s) <i>(if foreign priority is claimed)</i>	
16. <input type="checkbox"/> Request and Certification under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.	
17. <input type="checkbox"/> Other:	

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

Continuation Divisional Continuation-in-part (CIP) of prior application No: _____

Prior application information: Examiner: _____ Group Art Unit: _____

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

Customer Number or Bar Code Label or Correspondence address below
insert customer no. or attach bar code label here

Name	Timothy W. Markison				
Address	P.O. Box 160727				
City	Austin	State	TX	Zip Code	78716-0727
Country	USA	Telephone	(512) 342-0612	FAX	(512) 342-1674

Name (Print/Type)	Timothy W. Markison	Registration No. (Atty/Agent)	33,534
Signature	<i>(Timothy W. Markison)</i>	Date	6/28/2005



062805

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.

01789 U.S. PTO	FEE TRANSMITTAL	Complete if Known	
	for FY 2005	Application Number	
		Filing Date	
		First Named Inventor	Joonsuk Kim
	<input type="checkbox"/> Applicant claims small entity status	Examiner Name	
		Group Art Unit	
TOTAL AMOUNT OF PAYMENT	(\$)	Atty Docket No.	BP4637
	\$1000.00		

METHOD OF PAYMENT (check all that apply)

Check
 Credit card
 Money Order
 None
 Other: _____

Deposit Account
 Deposit Account Number 50-2126
 Deposit Account Name Garlick, Harrison & Markison

For the above identified deposit account, the Director is hereby authorized to: (check all that apply)

Charge fee(s) indicated below
 Charge fee(s) indicated below, expect for the filing fee

Charge Any Additional Fee(s) or underpayment of fee(s) Under 37 CFR 1.16 and 1.17
 Credit any overpayments

Warning: Information on this form may become public. Credit card information should not be included on this form. Provide Credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES				
Application Type	FILING FEE	SEARCH FEE	EXAMINATION FEE	TOTAL
Utility	300.00	500.00	200.00	1000.00
Design	_____	_____	_____	_____
Plant	_____	_____	_____	_____
Reissue	_____	_____	_____	_____
Provisional	_____	_____	_____	_____

2. EXCESS CLAIM FEES							
	No. of Claims		Relavent # of Claims		Per Claim Fee		Total Fee
Total	16	-20 =	0	X	50	=	0.00
Independent	3	-3 =	0	X	200	=	0.00
Multiple Dependent				X	360	=	0.00

3. APPLICATION SIZE FEE							
Total Sheets	Extra Sheets		Extra sheet multiplier		Fee		Size fee due
35	0	/50 =	0		250.00		0.00

4. OTHER FEE(S)

Recording each patent assignment per property (times number of properties) _____

Other fee (specify) _____

SUBMITTED BY			Complete (if applicable)		
Name (Print Type)	Timothy W. Markison	Registration No.	33,534	Telephone	(512) 342-0612
Signature	/Timothy W. Markison/	(Attorney Agent)			6/28/2005

Please type a plus sign (+) inside this box

PTO/SB/01 (11_00)

Approved for use through 10/31/2002. OMB 0651-0032

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

062805

0729 U.S. PTO

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	BP4637
First Inventor	Joonsuk Kim
Title	REDUCED FEEDBACK FOR BEAMFORMING IN A WIRELESS COMMUNICATION
Express Mail Label No.	EV725285492US

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents	ADDRESS TO: Assistant Commissioner for Patents Box Patent Application Washington, DC 20231
--	--

<p>1. <input checked="" type="checkbox"/> Fee Transmittal Form (e.g. PTO/SB/17) <i>(submit an original and a duplicate for fee processing)</i></p> <p>2. <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.</p> <p>3. <input checked="" type="checkbox"/> Specification [Total Pages <input]<br="" type="text" value="29"/><i>(preferred arrangement set forth below)</i> -Descriptive title of the invention -Cross Reference to Related Applications -Statement Regarding Fed sponsored R&D -Reference to sequence listing, a table, or a computer program listing appendix -Background of the Invention -Brief Summary of the Invention -Brief Description of the Drawings <i>(if filed)</i> -Detailed Description -Claim(s) -Abstract of the Disclosure</p> <p>4. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Pages <input]<="" p="" type="text" value="6"/> <p>5. Oath or Declaration [Total Pages <input]<="" p="" type="text" value="2"/> <p>a. <input checked="" type="checkbox"/> Newly executed (original or copy) Copy from a prior application (37 CFR 1.63 (d))</p> <p>b. <input type="checkbox"/> <i>(for continuation/divisional with Box 18 completed)</i></p> <p>i. <input type="checkbox"/> DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).</p> <p>6. <input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76</p> </p></p>	<p>7. <input type="checkbox"/> CD-ROM or CD-R in duplicate, large table or Computer Program <i>(Appendix)</i></p> <p>8. Nucleotide and/or Amino Acid Sequence Submission <i>(if applicable, all necessary)</i></p> <p>a. <input type="checkbox"/> Computer Readable Form (CRF)</p> <p>b. Specification Sequence Listing on:</p> <p>i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or</p> <p>ii. <input type="checkbox"/> paper</p> <p>c. <input type="checkbox"/> Statements verifying identity of above copies</p>
--	---

113261 U.S. PTO
11/168793

ACCOMPANYING APPLICATION PARTS	
9. <input type="checkbox"/> Assignment Papers (cover sheet & documents(s))	
10. <input type="checkbox"/> 37 CFR 3.73(b) Statement <input type="checkbox"/> Power of Attorney <i>(when there is an assignee)</i>	
11. <input type="checkbox"/> English Translation Document <i>(if applicable)</i>	
12. <input checked="" type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449 <input type="checkbox"/> Copies of IDS Citations	
13. <input type="checkbox"/> Preliminary Amendment	
14. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) <i>(Should be specifically itemized)</i>	
15. <input type="checkbox"/> Certified Copy of Priority Document(s) <i>(if foreign priority is claimed)</i>	
16. <input type="checkbox"/> Request and Certification under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.	
17. <input type="checkbox"/> Other:	

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

Continuation Divisional Continuation-in-part (CIP) of prior application No: _____

Prior application information: Examiner: _____ Group Art Unit: _____

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

Customer Number or Bar Code Label or Correspondence address below
insert customer no. or attach bar code label here

Name	Timothy W. Markison				
Address	P.O. Box 160727				
City	Austin	State	TX	Zip Code	78716-0727
Country	USA	Telephone	(512) 342-0612	FAX	(512) 342-1674

Name (Print/Type)	Timothy W. Markison	Registration No. (Atty/Agent)	33,534
Signature	<i>(Timothy W. Markison)</i>	Date	6/28/2005



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.

062805

**FEE TRANSMITTAL
 for FY 2005**

Complete if Known

<input type="checkbox"/> Applicant claims small entity status		Application Number	
		Filing Date	
		First Named Inventor	Joonsuk Kim
		Examiner Name	
		Group Art Unit	
TOTAL AMOUNT OF PAYMENT (\$) \$1000.00		Atty Docket No.	BP4637

METHOD OF PAYMENT (check all that apply)

Check
 Credit card
 Money Order
 None
 Other:

Deposit Account
 Deposit Account Number 50-2126
 Deposit Account Name Garlick, Harrison & Markison

For the above identified deposit account, the Director is hereby authorized to: (check all that apply)

Charge fee(s) indicated below
 Charge fee(s) indicated below, expect for the filing fee

Charge Any Additional Fee(s) or underpayment of fee(s) Under 37 CFR 1.16 and 1.17
 Credit any overpayments

Warning: Information on this form may become public. Credit card information should not be included on this form. Provide Credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEE	SEARCH FEE	EXAMINATION FEE	TOTAL
Utility	300.00	500.00	200.00	1000.00
Design				
Plant				
Reissue				
Provisional				

2. EXCESS CLAIM FEES

	No. of Claims		Relavent # of Claims		Per Claim Fee		Total Fee
Total	16	-20 =	0	X	50	=	0.00
Independent	3	-3 =	0	X	200	=	0.00
Multiple Dependent				X	360	=	0.00

3. APPLICATION SIZE FEE

Total Sheets	Extra Sheets		Extra sheet multiplier	Fee	Size fee due
35	0	/50 =	0	250.00	0.00

4. OTHER FEE(S)

Recording each patent assignment per property (times number of properties) _____

Other fee (specify) _____

SUBMITTED BY

Complete (if applicable)

Name (Print Type)	Timothy W. Markison	Registration No.	33,534	Telephone	(512) 342-0612
Signature	/Timothy W. Markison/	(Attorney Agent)			6/28/2005

TITLE OF THE INVENTION
REDUCED FEEDBACK FOR BEAMFORMING IN A WIRELESS
COMMUNICATION

5

CROSS REFERENCE TO RELATED PATENTS

This invention is claiming priority under 35 USC § 119(e) to a provisionally filed patent application having the same title as the present patent application, a filing date of 4/21/2005, and an application number of 60/673,451.

10

BACKGROUND OF THE INVENTION
TECHNICAL FIELD OF THE INVENTION

This invention relates generally to wireless communication systems and more particularly to wireless communications using beamforming.

15

DESCRIPTION OF RELATED ART

Communication systems are known to support wireless and wire lined communications between wireless and/or wire lined communication devices. Such communication systems range from national and/or international cellular telephone systems to the Internet to point-to-point in-home wireless networks. Each type of communication system is constructed, and hence operates, in accordance with one or more communication standards. For instance, wireless communication systems may operate in accordance with one or more standards including, but not limited to, IEEE 802.11, Bluetooth, advanced mobile phone services (AMPS), digital AMPS, global system for mobile communications (GSM), code division multiple access (CDMA), local multi-point distribution systems (LMDS), multi-channel-multi-point distribution systems (MMDS), and/or variations thereof.

Depending on the type of wireless communication system, a wireless communication device, such as a cellular telephone, two-way radio, personal digital

30

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.