

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

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

- Fee Transmittal Form (e.g. PTO/SB/17)  
*(submit an original and a duplicate for fee processing)*
- Applicant claims small entity status.  
See 37 CFR 1.27.
- Specification [Total Pages   
*(preferred arrangement set forth below)*  
-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 *(if filed)*  
-Detailed Description  
-Claim(s)  
-Abstract of the Disclosure
- Drawing(s) (35 U.S.C. 113) [Total Pages
- Oath or Declaration [Total Pages - Newly executed (original or copy)  
Copy from a prior application (37 CFR 1.63 (d))
- (for continuation/divisional with Box 18 completed)*
  - 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).

- Application Data Sheet. See 37 CFR 1.76

- CD-ROM or CD-R in duplicate, large table or Computer Program *(Appendix)*
- Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
  - Computer Readable Form (CRF)
  - Specification Sequence Listing on:
    - CD-ROM or CD-R (2 copies); or
    - paper
  - Statements verifying identity of above copies

113261 U.S. PTO  
11/168793

### ACCOMPANYING APPLICATION PARTS

- Assignment Papers (cover sheet & documents(s))
- 37 CFR 3.73(b) Statement  Power of Attorney  
*(when there is an assignee)*
- English Translation Document *(if applicable)*
- Information Disclosure Statement (IDS)/PTO-1449  Copies of IDS Citations
- Preliminary Amendment
- Return Receipt Postcard (MPEP 503)  
*(Should be specifically itemized)*
- Certified Copy of Priority Document(s)  
*(if foreign priority is claimed)*
- Request and Certification under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
- 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 for FY 2005	Complete if Known	
		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	
Total	16	-20 =	0	X
Independent	3	-3 =	0	X
Multiple Dependent				X
				360 =
				0.00

  

3. APPLICATION SIZE FEE				
Total Sheets	Extra Sheets		Extra sheet multiplier	Fee
35	- 100 =	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
Signature	/Timothy W. Markison/	Telephone	(512) 342-0612
			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

<b>APPLICATION ELEMENTS</b> See MPEP chapter 600 concerning utility patent application contents	<b>ADDRESS TO:</b> 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&amp;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"/> <b>DELETION OF INVENTOR(S)</b> 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

<b>ACCOMPANYING APPLICATION PARTS</b>	
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 for FY 2005	Complete if Known	
		Application Number	
		Filing Date	
		First Named Inventor	Joonsuk Kim
	<input type="checkbox"/> Applicant claims small entity status	Examiner Name	
		Group Art Unit	
	<b>TOTAL AMOUNT OF PAYMENT</b> (\$) \$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	
Total	16	-20 =	0	X
Independent	3	-3 =	0	X
Multiple Dependent				X
				360 =
				0.00

  

3. APPLICATION SIZE FEE				
Total Sheets	Extra Sheets		Extra sheet multiplier	Fee
35	0	/50 =	0	250.00
				Size fee due
				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
Signature	/Timothy W. Markison/	(Attorney Agent)		(512) 342-0612
				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.