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First Named Inventor	Jae Heung KIM
Title	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM
Art Unit	
Examiner Name	
Attorney Docket Number	ESA-0002-CA-ET

SIGNATURE of Applicant or Patent Practitioner

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Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM		
First Named Inventor/Applicant Name:		Jae Heung KIM		
Filer:		Jae Y. Park		
Attorney Docket Number:		ESA-0002-CA-ET		
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Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
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Miscellaneous-Filing:				
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Post-Allowance-and-Post-Issuance:				
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1		SpecClaimsAbst_ESA0002CA.pdf	68254 38ffa10b84be2ddd96d7c7f13ea77cd5b0ec5d75	yes	22
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	Document Description		Start	End	
	Specification		1	20	
	Claims		21	21	
	Abstract		22	22	
Warnings:					
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2	Drawings-only black and white line drawings	Drawings_ESA0002CA.pdf	435292 c89074157d83481865a4012ac5fd1d42a7d72828	no	7
Warnings:					
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3	Oath or Declaration filed	Decl_Assmt_ESA0002.pdf	3749056 edba35e1517e662828f09e8d51403ebb104fdae3	no	4
Warnings:					
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4	Power of Attorney	POA_ESA0002CA.pdf	75006 017a971992a145f3a7156fd80d6785cbf6c1863e	no	1
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5	Application Data Sheet	ADS_ESA0002CA.pdf	79004 af99b67cf3536a3c5787847735660ed0306d25c1	no	7
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6	Transmittal of New Application	POA_AIA82_A_ESA0002CA.pdf	156804 ec149dd06652b3789b2243e2bbfb3d9d3f56c6b5	no	1
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METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation application of U.S.
5 Patent Application No. 12/298,227, filed October 23, 2008
(now pending), the disclosure of which is herein
incorporated by reference in its entirety. The U.S. Patent
Application No. 12/298,227 is a national entry of
International Application No. PCT/KR2007/001997, filed on
10 April 24, 2007, which claims priority to Korean Application
Nos. 10-2006-0037522 and 10-2007-0038849 filed on April 26,
2006 and April 20, 2007, respectively, the entire contents
of which are incorporated herein by reference.

15 TECHNICAL FIELD

The present invention relates to a method for
transmitting paging information in a cellular system; and,
more particularly, to a method for transmitting paging
information notifying generation of downlink information
20 from a base station to a terminal in a cellular system for
providing a packet service.

BACKGROUND ART

A conventional cellular system is operated by fixedly
25 allocating a transport channel and a physical channel for
paging information. In particular, in a 3rd Generation

Partnership Project (3GPP) system of a Wideband Code
Division Multiple Access (WCDMA) method, a paging channel
(PCH) is a transport channel and is transmitted through a
secondary common control physical channel (S-CCPCH), which
5 is a physical layer channel for transmitting common control
information. A forward access channel (FACH), which is a
transport channel having a similar attribute to the paging
channel, and a paging channel can be mapped to the S-CCPCH.

In a conventional WCDMA system, a radio resource is
10 assigned by allocating a code index of orthogonal variable
spreading factor (OVSF) with orthogonality. Therefore, an
individual OVSF code index is allocated to the S-CCPCH and
another physical layer channel may not use or share the OVSF
code index allocated to the S-CCPCH. Although there is no
15 information to be transmitted from a base station to a
terminal through the transport channel PCH and FACH at a
given time, the physical layer channel S-CCPCH exists.
Although there is no transmitted information in the S-CCPCH,
the OVSF code index and another radio resource, i.e., power,
20 are allocated and thus radio resources are wasted.

A general paging procedure is as follows. Terminals
are included in a specific paging group defined for an
efficient paging procedure in a system. Therefore, the base
station notifies that a paging message arrives at terminals
25 included in a corresponding group through the paging

indication channel (PICH), which is a physical layer channel.
The terminals monitor the paging indication channel every
monitoring cycle. As a result of monitoring, when it is
sensed that indication information corresponding to the
5 group including the terminal exists in the paging indication
channel, the terminals search PCH information transmitted to
the S-CCPCH channel and decode paging information that an
identifier (ID) such as international mobile subscriber
identity (IMSI), temporary mobile subscriber identity (TMSI),
10 UMTS terrestrial radio access network-radio network
temporary identifier (U-RNTI) exists. The terminals
decoding the paging information performs following
procedures corresponding to the paging information.

Also, a plurality of S-CCPCHs may be operated to obtain
15 a paging capability according to an environment of the base
station and the capacity for subscribers of the base station.
When the base station is installed based on a cell specific
parameter, the S-CCPCH is statically operated. The radio
resource allocating method, which is statically operated in
20 consideration of the maximum capacity, has a merit that a
circuit based-system is statically operated, but has a
problem that the limited radio resource is wasted.

A long term evolution (LTE) system standardized in 3GPP
to provide diverse packet services is a packet based-system.
25 An object of the LTE system is to provide a pure packet

service. Therefore, in the LTE system for providing a packet service having a burst characteristic, efficient and variable methods for utilizing radio resources are needed. Accordingly, a research for simplifying and integrating
5 diverse kinds of transport channels operated in the conventional WCDMA method are being progressed.

DISCLOSURE

TECHNICAL PROBLEM

10 An embodiment of the present invention is directed to providing a method for transmitting paging information which can improve applicability of a limited radio resource by variably and flexibly setting up and mapping a transport channel and a physical channel in order to transmit
15 information notifying start of downlink information from a base station to a terminal in a cellular system for packet transmission.

Other objects and advantages of the present invention can be understood by the following description, and become
20 apparent with reference to the embodiments of the present invention. Also, it is obvious to those skilled in the art of the present invention that the objects and advantages of the present invention can be realized by the means as claimed and combinations thereof.

25

TECHNICAL SOLUTION

In accordance with an aspect of the present invention, there is provided a method for transmitting paging information in a cellular system, including the steps of:
5 forming a paging channel (PCH) in a transport channel corresponding to generation of paging information; setting a paging indication channel (PICH) based on the paging information and forming the paging indication channel in a radio resource of a physical layer; and allocating the
10 paging channel to the radio resource of the physical layer.

In accordance with another aspect of the present invention, there is provided a method for transmitting paging information in a cellular system, including the steps of: creating a paging channel including a paging message (P-
15 MSG) correspondingly to generation of paging information; allocating the paging message to a radio resource of a physical channel; creating scheduling information corresponding to the paging message; and allocating the scheduling information to a physical layer control channel.

20

ADVANTAGEOUS EFFECTS

The present invention can improve applicability of a limited radio resource by variably and flexibly setting up and mapping a transport channel and physical channel in a
25 method for transmitting information notifying start of

downlink information from a base station to a terminal in a cellular system for packet transmission.

Also, the present invention can maximally apply a limited radio resource by variably operating a procedure of
5 notifying generation of downlink information to initiate or restart downlink information transmission from the base station to the terminal in a packet based-cellular system.

BRIEF DESCRIPTION OF THE DRAWINGS

10 Fig. 1 is a flowchart describing a paging information transmitting procedure in accordance with a first embodiment of the present invention.

Fig. 2 shows a transport channel and a physical channel in accordance with the first embodiment of the present
15 invention.

Fig. 3 is a flowchart describing a paging information transmitting procedure in accordance with a second embodiment of the present invention.

Fig. 4 shows the transport channel and the physical
20 channel in accordance with the second embodiment of the present invention.

Fig. 5 shows a group identifier (ID) to which a part of a terminal scheduling ID is allocated in accordance with an embodiment of the present invention.

25 Fig. 6 shows a physical layer control channel to which

scheduling ID information is allocated and a radio resource to which paging information is variably allocated in accordance with the second embodiment of the present invention.

5 Fig. 7 shows an example that the radio resource of the physical layer is variably allocated and operated corresponding to generation of the paging information in accordance with an embodiment of the present invention.

10 **BEST MODE FOR THE INVENTION**

The advantages, features and aspects of the invention will become apparent from the following description of the embodiments with reference to the accompanying drawings, which is set forth hereinafter. Therefore, those skilled in
15 the field of this art of the present invention can embody the technological concept and scope of the invention easily. In addition, if it is considered that detailed description on a related art may obscure the points of the present invention, the detailed description will not be provided
20 herein. A technology outline of a cellular system for providing a packet service to which the present invention is applied is will be described in brief, and the preferred embodiments of the present invention will be described in detail hereinafter with reference to the attached drawings.

25 The cellular system for the packet service may maximize

applicability of a limited radio resource by sharing the radio resource between a base station and a terminal in consideration of a burst characteristic of packet service data differently from a circuit. A 3rd Generation Partnership Project (3GPP) long term evolution (LTE) system, which is being standardized as the cellular system for the packet service should support bandwidth scalability of a bandwidth ranging 1.25MHz to 20MHz. In designing of a general system, scalability for 5MHz, 10MHz, and 20MHz bandwidths is assumed.

Conventional paging information is transmitted to the terminals in an idle state, i.e., the terminals performing low power consumption, through a paging channel, and the terminals providing a service through a dedicated channel. In the LTE system, the terminals are defined as following states in consideration of Radio Resource Control (RRC) and Medium Access Control (MAC).

In consideration of RRC, the terminal state is managed as RRC_Connected and RRC_Idle states. The RRC_Connected denotes a state that the RRC is connected between the base station and the terminal. In the RRC_Connected state, the base station manages mobility of the terminal, and stores and manages a RRC context. The RRC_Idle denotes a state that the RRC is not connected between the base station and the terminal. In the RRC_Idle state, access GateWay (aGW)

manages mobility of the terminal. The terminal in the RRC_Idle state performs a low power consumption, i.e., power saving operation, according to a discontinuous reception (DRX) cycle based on RRC configuration.

5 In the RRC_Connected state, an MAC mode is divided into a MAC_Active mode and an MAC_Dormant mode and is controlled for a low power consumption of the terminal according to activity factors occupying the radio resource between the terminal and the base station. The MAC_Active mode means
10 that uplink synchronization of the physical layer is maintained and packet information is transmitted/received between the base station and the terminal. The MAC_Dormant mode means that a buffer is empty without transmitting/receiving packet information between the base
15 station and the terminal in the MAC_Active. When a packet is not transmitted/received for a predefined time in the MAC_Active mode, the terminal transfers to the MAC_Dormant mode. In the MAC_Dormant mode, a low power consumption operation is performed according to discontinuous
20 reception(DRX)/discontinuous transmission (DTX) cycle by a scheduler. Also, it may not to maintain the uplink synchronization of the physical layer by control of the base station.

 When it is considered that paging notifying generation
25 of information to be transmitted on the downlink should be

performed on the terminals performing the low power consumption according to the DRX/DTX cycle, paging of the LTE system is applied to the terminals in the RRC_Idle state and the MAC_Dormant mode. In the present invention, paging
5 is performed on the terminals in the RRC_Idle state, and a method using a paging indication channel, which is a physical layer channel, and a method to be applied without the paging indication channel, are provided.

In the packet transmission system, since the terminals
10 in the base station share radio resources, scheduling information for addressing the radio resource allocated to a terminal or a terminal group should be transmitted such that the terminals in the base station can recognize the scheduling information. Accordingly, the present invention
15 provides a method for transmitting scheduling information through a physical layer control channel.

Fig. 1 is a flowchart describing a paging information transmitting procedure in accordance with a first embodiment of the present invention and Fig. 2 shows a transport
20 channel and a physical channel in accordance with the first embodiment of the present invention.

In the present embodiment, paging information is transmitted to the terminals in the RRC_Idle state through the paging indication channel, which is a physical channel.
25 A paging information transmitting procedure will be

described in detail according to the embodiment with reference to Figs. 1 and 2.

When paging information 1 on a terminal or a group of terminals at a predetermined time is generated at step S110,
5 the base station has a paging channel (PCH) included in the transport channel based on the generated paging information at step S120.

The scheduler performs scheduling on broadcasting channel (BCH) information, created paging channel
10 information and, traffic information to be transmitted to the terminal based on a transmission time interval (TTI) at step S130.

In consideration of a DRX cycle for a low power consumption of the terminals in the RRC_Idle state, the base
15 station sets up a paging indication channel 6 corresponding to the terminal or the terminal group indicated by the paging information and forms the paging indication channel 6 at step S140 such that the terminal in the system can be divided into groups.

20 The base station performs mapping on the paging channel with a radio resource block location 9 of a physical layer allocated at TTI 8 as a fixed size and location, e.g., a time index and a sub-carrier index, based on a $T_{\text{paging indication}}$
channel-PCH value 7 at step S150, modulates and codes a radio
25 resource based on the pre-set up modulating and coding

methods, and transmits the radio resource to the terminal at step S160. The $T_{\text{paging indication channel-PCH}}$ value is a parameter notifying a time difference between the paging indication channel and the TTI that the paging channel is transmitted.

- 5 The $T_{\text{paging indication channel-PCH}}$ value is set up as a multiple TTI.

In the present embodiment, a method for dividing a location of the physical layer radio resource block for paging channel transmission into paging indication channel groups, and fixing and allocating the location of the physical layer radio resource block according to each group is adopted. When no paging information is generated (see 2 of Fig. 2), the paging channel does not exist in the transport channel of the radio frame (see 5 of Fig. 2). In this case, the paging indication channel is not also set up.

10

15 Therefore, downlink shared channel (DL-SCH) information for user data transmission and not paging information of the paging channel is transmitted to the radio resource block location of the physical layer fixed and allocated for the paging channel.

20 Fig. 3 is a flowchart describing a paging information transmitting procedure in accordance with a second embodiment of the present invention and Fig. 4 shows the transport channel and the physical channel in accordance with the second embodiment of the present invention. A

25 paging information transmitting procedure will be described

in detail with reference to Figs. 3 and 4.

When paging information 1 for a terminal or a terminal group is generated at a given time at step S310, the base station creates a paging channel 10 including a paging message (P-MSG) based on the generated paging information at step S320.

A scheduler performs scheduling on broadcasting channel (BCH) information formed based on a radio frame unit, paging message information and traffic information to be transmitted to the terminals on the basis of TTI at step S330.

The paging message is variably allocated to a radio resource 12 of the physical channel at step S340.

Scheduling information is created at step S350, allocated to the physical layer control channel at step S360, and modulated and coded according to the pre-determined modulating and coding methods, and transmitted to the terminal at step S370.

The scheduling information is the minimum information for addressing the allocated radio resource and includes a terminal scheduling identifier (ID), radio resource allocation information indicating a location of the allocated radio resource block, modulation method information and coding method information. The scheduling information may further include additional information for

operation such as retransmission and multiple antenna application.

The terminal scheduling ID is an ID for identifying a specific terminal or a terminal group between the terminal and the scheduler of the base station. As shown in Fig. 5,
5 the present invention is operated by reserving and allocating a part of the information included in the terminal scheduling ID as a group ID for paging information. The group ID is an ID used by reserving and allocating a
10 part of a scheduling ID (i.e., a cell radio network temporary identifier (C-RNTI)) for uniquely identifying a terminal. A base station may operate by reserving at least one scheduling ID.

Meanwhile, the group ID may be used to indicate
15 downlink information transmission below.

The radio resource allocation contents inform a radio resource location or section of an Orthogonal Frequency Division Multiplexing (OFDM) method, which is divided into a frequency region and a time region. The modulation method
20 contents inform which modulation method among a plurality of modulation methods applied in the LTE system is applied. The coding method contents inform which coding method among a plurality of coding methods applied in the LTE system is applied.

25 According to the second embodiment of the present

invention, a paging procedure may be performed on the terminals in the RRC_Idle state without the physical paging indication channel (PICH). In the present embodiment, when paging information is not generated, radio resource applicability (utilizable level) can be maximized by
5 transmitting only scheduling information for the terminals without scheduling information for a paging message in the physical layer control channel information, and mapping and using available physical layer radio resources as DL-SCH for
10 data information transmission. Also, the radio resource applicability may be optimized through a method for flexibly allocating the radio resource of the physical layer based on the quantity of the generated paging information.

Part of the terminal scheduling ID may be reserved,
15 allocated and used by a group ID, and more than one group ID may be reserved and allocated according to the capability of the terminal. The group ID may be broadcasted through a system broadcasting channel. When the terminal is in a network, the group ID is managed according to each group and
20 managed through modification/update based on a network environment.

Fig. 6 shows a physical layer control channel to which scheduling ID information is allocated and a radio resource to which paging information is variably allocated in
25 accordance with the second embodiment of the present

invention.

According to a procedure in accordance with the embodiment described above, a radio resource as shown in Fig. 6 is formed and transmitted to the terminal. The terminal
5 receiving the radio resource searches a control channel 11 of the physical layer, recognizes the group ID reserved and allocated for transmission of paging information, which is given for the scheduler of the base station to identify the terminal or the terminal group in a cell, receives and
10 decodes paging information transmitted to the radio resource block 12 based on radio resource block addressing information. That is, the terminals may recognize whether the paging message on the terminal group exists by searching a control channel and checking existence of the group ID
15 reserved and allocated for transmission of the paging information in the scheduling information of the control channel transmitted from the base station. Therefore, when there is no group ID for the paging message indicating own group in the control channel, the terminals determine that
20 the paging message does not exist, and continuously performs a discontinuous reception operation. When the group ID exists, the terminals stop the discontinuous reception operation and receive the paging message that the base station transmits on the radio resource addressed by the
25 group ID.

In this case, a modulating and coding method of the block transmitting the paging message broadcasts the paging message to the entire cell based on the system information, or may transmit the paging message through the scheduling
5 information of the physical layer control channel as described above.

In the RRC_Connected state, when a state for low power consumption is controlled according to an activity factor occupying the radio resource between the terminal and the
10 base station in an MAC point of view, the terminal is operated by being divided into a duration of monitoring downlink data and a duration of sleeping for performing low power consumption according to the discontinuous reception/discontinuous transmission (DRX/TDX) cycle.

15 In the RRC_Connected state, when the terminal performs power saving operation of monitoring a downlink signal on monitoring duration according to the discontinuous reception/discontinuous transmission cycle, a paging procedure similar to the RRC_Idle state is required in the
20 monitoring duration of the terminal to start transmitting information on the downlink. The paging procedure is defined as indication to be differentiated from paging in the RRC_Idle state. Indication information is information notifying start of transmitting downlink information from
25 the base station to the terminal like the paging information.

Herein, in the RRC_Idle state, the RRC layer of the base station is in charge of control, but in the RRC_Connected state, the RRC layer or the MAC layer is in charge of control relatively to the function of the scheduler.

5 When indication information for downlink information transmission in the RRC_Connected state is transmitted, the paging information transmitting method according to the embodiment described above may be used without any change. That is, the paging information transmitting method is
10 adaptable by substituting indication information for downlink information transmission for the paging information in the embodiment described above.

 To be specific, the scheduler of the base station transmits scheduling information, which is transmitted to
15 the physical layer control channel according to the configured discontinuous reception/discontinuous transmission cycle, including the terminal scheduling ID and radio resource allocation information for the terminal which should receive indication information notifying downlink
20 information transmission, or the terminal group. Therefore, in the duration that the terminal in the RRC_Connected state performs monitoring according to the configured discontinuous reception/discontinuous transmission cycle, the terminal performing low power consumption operation
25 according to the activity factor of the terminal searches

the control channel of the physical layer transmitted from the base station, recognizes a scheduling ID for the terminal or the group ID reserved and allocated for indication allowed to identify a terminal or a group in the cell by the scheduler of the base station, and receives and decodes the indication message transmitted on the radio resource block using the radio resource allocation information. In this case, it is possible to broadcast the modulating and coding method of the block transmitting the indication to the entire cell through the system information, or to transmit the modulating and coding method through the scheduling information of the physical layer control channel.

It is also possible to include only the group ID reserved and allocated for the indication of downlink information in the physical layer control channel in order to reduce overhead due to control information transmission by reducing the size of the physical layer control channel information. In this case, the radio resource block 12 of the physical channel for the indication information can be fixed and operated in the inside of the corresponding TTI.

When the method of the second embodiment transmitting the indication message through the control channel and the DL-SCH of the physical layer to notify downlink information transmission for the terminals in the RRC_Connected state is applied, the DL-SCH and the physical layer control channel

can be used in the same method although the activity attribute of the terminal is different in the RRC_Connected state under control of the scheduler and the MAC.

Fig. 7 shows an example that the radio resource of the physical layer is variably allocated and operated
5 corresponding to generation of the paging information in accordance with an embodiment of the present invention.

As shown in Fig. 7, only when paging information for the terminals in the RRC_Idle state or downlink indication
10 information for the terminals in the RRC_Connected state is generated, the present invention occupies the radio resource of the physical layer and may efficiently operate the limited radio resource.

As described above, the technology of the present invention can be realized as a program and stored in a
15 computer-readable recording medium, such as CD-ROM, RAM, ROM, floppy disk, hard disk and magneto-optical disk. Since the process can be easily implemented by those skilled in the art of the present invention, further description will
20 not be provided herein.

While the present invention has been described with respect to certain preferred embodiments, it will be apparent to those skilled in the art that various changes and modifications may be made without departing from the
25 scope of the invention as defined in the following claims.

WHAT IS CLAIMED IS:

1. A method for decoding paging information at a terminal in a wireless communication system, the method
5 comprising:
 - receiving a control channel;
 - detecting an identifier indicating existence of a paging information in the control channel;
 - detecting a radio resource allocation information
10 indicating a paging channel (PCH) in the control channel;
 - and
 - decoding the paging information based on the radio resource allocation information in a downlink shared channel,
wherein the identifier is used by reserving and
15 allocating a part of scheduling identifiers.

ABSTRACT OF THE DISCLOSURE

Provided is a method for transmitting paging information in a cellular system. An object of the method is transmitting paging information which can improve applicability of a limited radio resource by variably and flexibly setting up and mapping a transport channel and a physical channel in order to transmit information notifying start of downlink information from a base station to a terminal in a cellular system for packet transmission. The method includes the steps of: forming a paging channel (PCH) in a transport channel corresponding to generation of paging information; setting a paging indication channel (PICH) based on the paging information and forming the paging indication channel in a radio resource of a physical layer; and allocating the paging channel to the radio resource of the physical layer.

FIG. 1

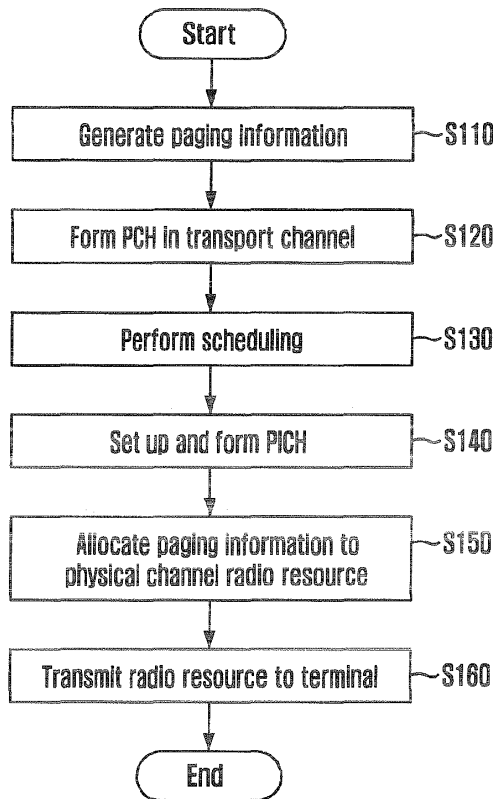


FIG. 2

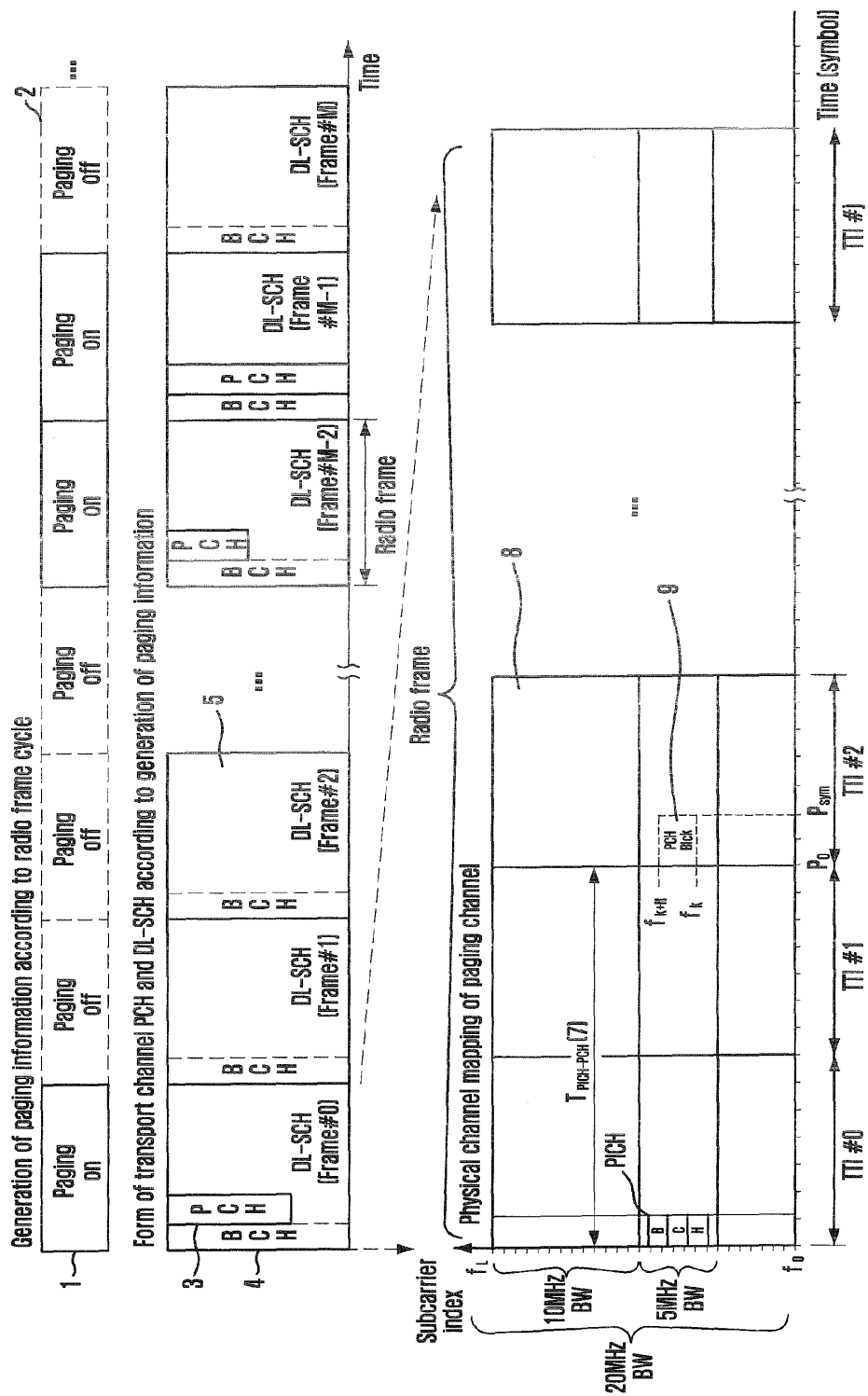


FIG. 3

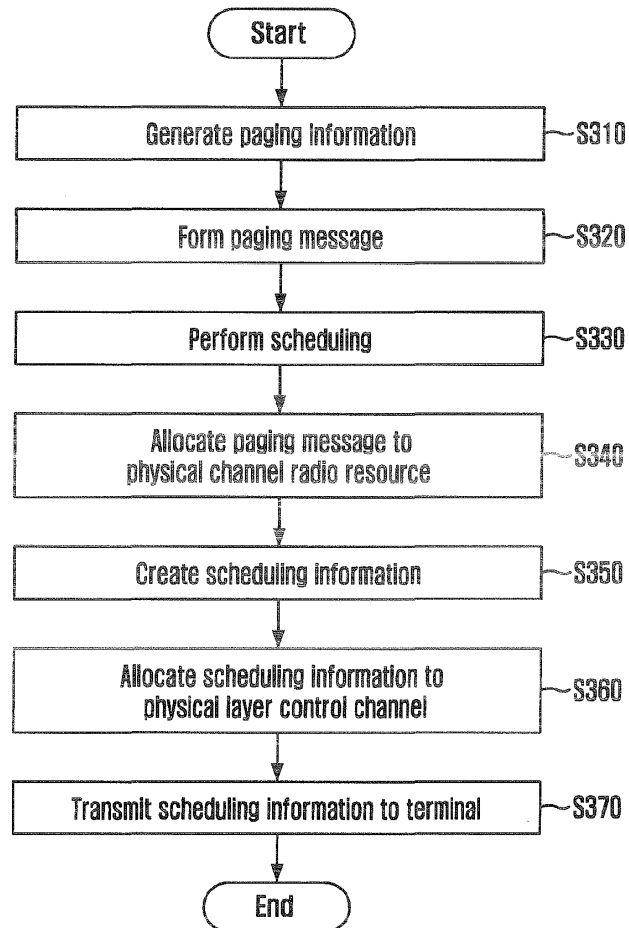


FIG. 4

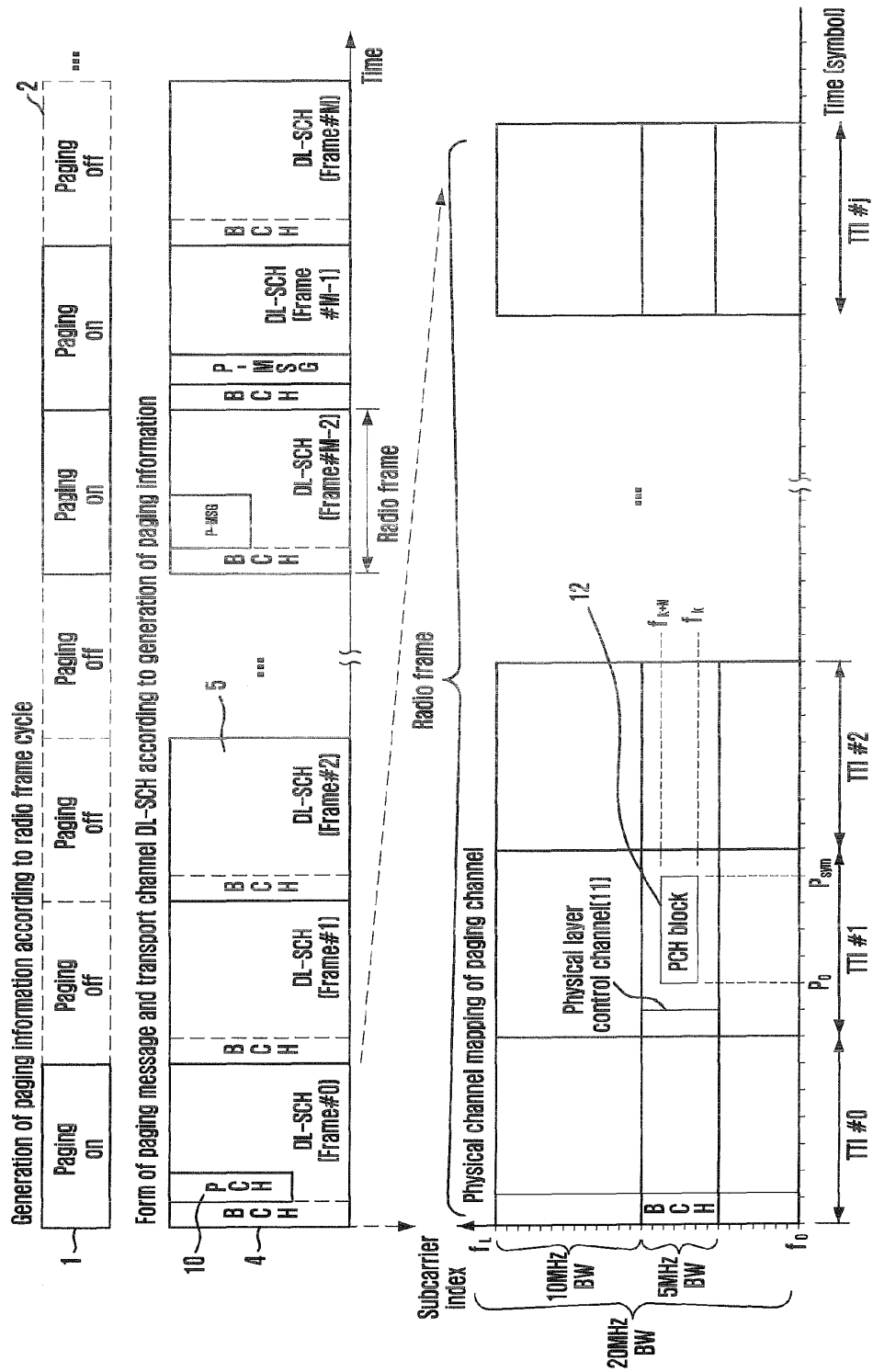


FIG. 5

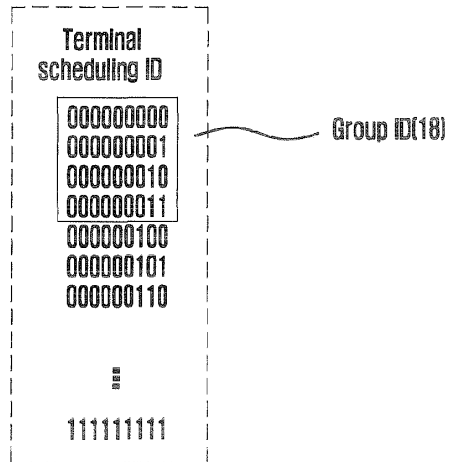
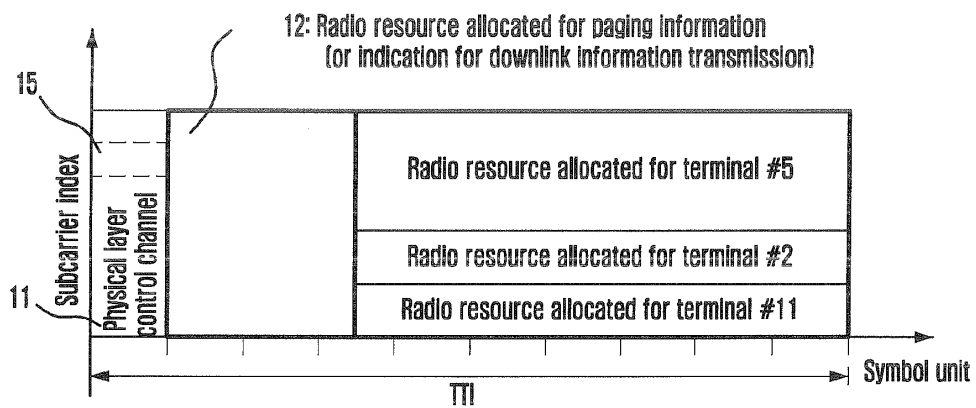
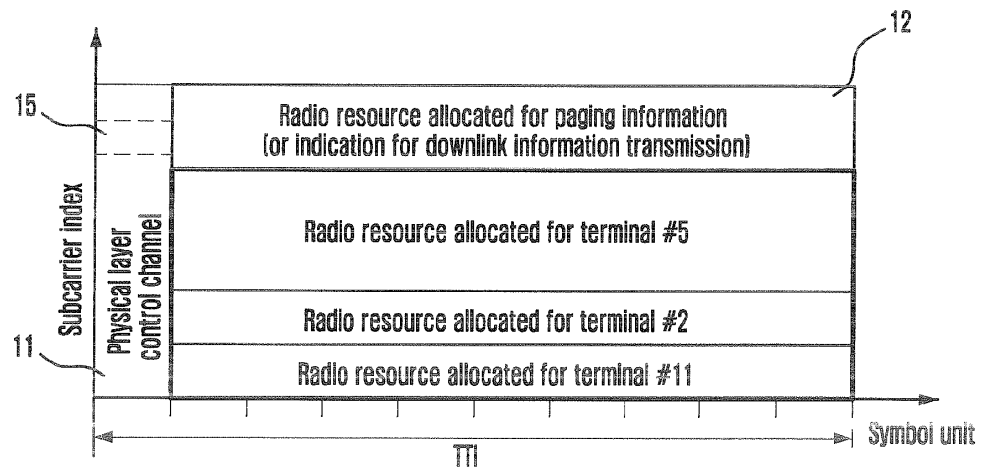
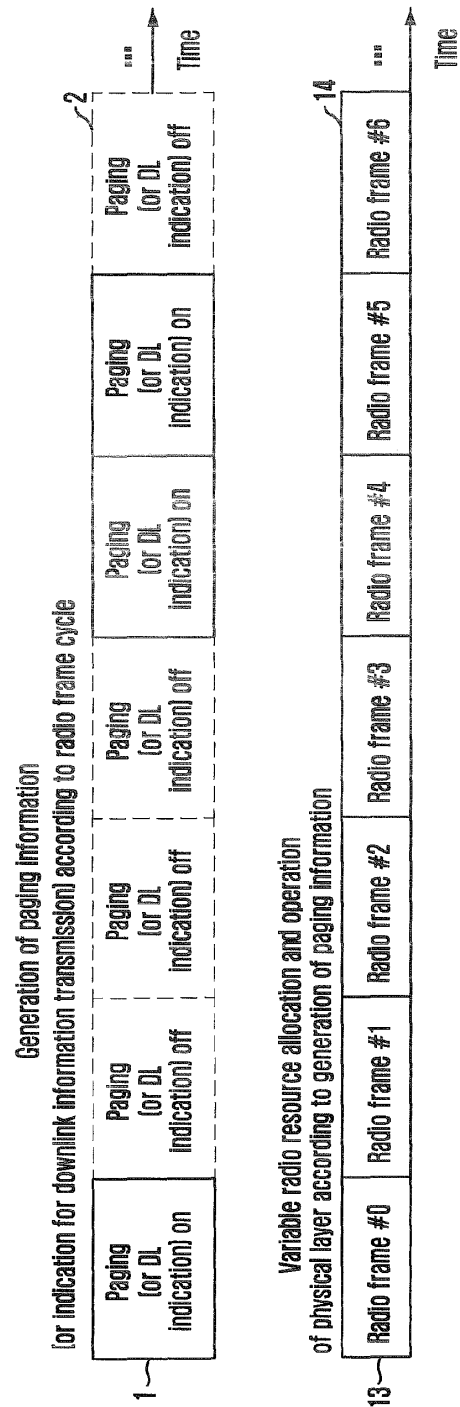


FIG. 6



76



**COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION
USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT**

Title of Invention	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration is directed to:</p> <p><input checked="" type="checkbox"/> The attached application,</p> <p><input type="checkbox"/> United States application number _____ filed on _____, or</p> <p><input checked="" type="checkbox"/> PCT international application number <u>PCT/KR2007/001997</u> filed on <u>April 24, 2007</u>.</p> <p>The above-identified application was made or authorized to be made by me.</p> <p>I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>I have reviewed and understand the contents of the above-identified application, including the claims. I am aware of the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.</p> <p>I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.</p> <p>WHEREAS, <u>Electronics & Telecommunications Research Institute</u> of <u>218, Gajeong-ro, Yuseong-gu, Daejeon, Republic of Korea</u>, its heirs, successors, legal representatives and assigns (hereinafter referred to as "ASSIGNEE") is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent(s) that may be granted therefore in the United States of America and in any foreign countries.</p> <p>NOW, THEREFORE, to all whom it may concern, be it known that, for good and valuable consideration paid to the undersigned, the receipt of which is hereby acknowledged, I have sold, assigned and transferred, and by these presents does sell, assign and transfer unto the Assignee the full and exclusive right to the said invention in the United States of America, its territories, dependencies and possessions and the entire right, title and interest in and to any and all Letters Patent(s) which may be granted therefore in the United States of America, its territories, dependencies and possessions, and in any and all foreign countries;</p> <p>and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full</p>	

Atty Docket No. ESA-0002-CA-ET

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WASHINGTON DC USA

Page 1 of 4

United States Patent and Trademark Office

Client Ref. No.: PR20061844USa (E-sang ET060203PCT-US-CA1)

term or terms for which the same may be granted.

I agree to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

I agree to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letter Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

I agree to execute all papers and documents and to perform any act which may be necessary in connection with claims and provisions of the International Convention for the Protection of Industrial Property or similar agreements.

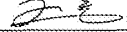
I agree to perform all affirmative acts which may be necessary to obtain a grant of a valid United States of America patent(s) and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by me if this Assignment and sale had not been made.

I hereby authorize and request the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patents resulting from said application or any continuing, divisional conversion or reissue applications thereof to the said Assignee, and hereby covenant that I have the full right to convey the entire interest herein assigned, and that I have not executed, and will not execute, any agreement in conflict herewith.

I declare that all statements made in the above assignment 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 18 U.S.C.1001 and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

LEGAL NAME OF INVENTOR

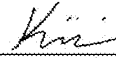
Inventor: Jae Heung KIM Citizenship: Republic of Korea
name *country*

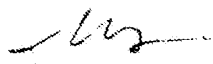
Date: May 09, 2014 Signature: 

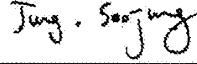
Atty Docket No. ESA-0002-CA-ET

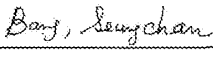
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WASHINGTON DC USA

**COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN
APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND
ASSIGNMENT**

LEGAL NAME OF INVENTOR	
Inventor: <u>Jung Im KIM</u> <i>name</i>	Citizenship: <u>Republic of Korea</u> <i>country</i>
Date: <u>May 09, 2014</u>	Signature: <u></u>

LEGAL NAME OF INVENTOR	
Inventor: <u>Kyoung Seok LEE</u> <i>name</i>	Citizenship: <u>Republic of Korea</u> <i>country</i>
Date: <u>May 09, 2014</u>	Signature: <u></u>

LEGAL NAME OF INVENTOR	
Inventor: <u>Soo Jung JUNG</u> <i>name</i>	Citizenship: <u>Republic of Korea</u> <i>country</i>
Date: <u>May 09, 2014</u>	Signature: <u></u>

LEGAL NAME OF INVENTOR	
Inventor: <u>Seung Chan BANG</u> <i>name</i>	Citizenship: <u>Republic of Korea</u> <i>country</i>
Date: <u>May 09, 2014</u>	Signature: <u></u>

Atty Docket No. ESA-0002-CA-ET

KILE PARK REED & HOUTTEMAN PLLC
WASHINGTON DC USA

LEGAL NAME OF INVENTOR

Inventor: Byung Han RYU Citizenship: Republic of Korea
name *country*

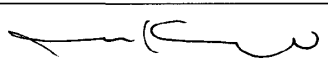
Date: May 09, 2014 Signature: Ryu, Byung Han

Atty Docket No. ESA-0002-CA-ET

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WASHINGTON DC USA

Page 4 of 4

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the above-identified patent application.			
<input checked="" type="checkbox"/> I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):			
<div style="border: 1px solid black; display: inline-block; padding: 10px 40px; font-size: 1.2em; font-weight: bold;">82727</div>			
Please recognize or change the correspondence address for the above-identified patent to:			
<input checked="" type="checkbox"/> The address associated with the above-mentioned Customer Number.			
I am the Applicant:			
<input type="checkbox"/> Inventor or Joint Inventor <input type="checkbox"/> Legal Representative of a Deceased or Legally Incapacitated Inventor <input checked="" type="checkbox"/> Assignee or Person to Whom the Inventor is Under an Obligation to Assign <input type="checkbox"/> Person Who Otherwise Shows Sufficient <i>Proprietary</i> Interest (e.g., a petition under 37 CFR 1.46 (b)(2) was granted in the application or is concurrently being filed with this document)			
SIGNATURE of Applicant for Patent			
Signature		Date	May 3, 2013
Name	KIM, Gilwon	Telephone	042-860-4908
Title and Company	Director , ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE		
NOTE: Signature - This form must be signed by the applicant or applicant's representative in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms for more than one signature, see below*.			
<input type="checkbox"/> *Total of _____ forms are submitted.			

KILE PARK PLLC, WASHINGTON DC, USA

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ESA-0002-CA-ET
		Application Number	
Title of Invention	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM		
<p>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.</p> <p>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.</p>			

Secrecy Order 37 CFR 5.2

<input type="checkbox"/> 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.)
--

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Jae Heung		KIM		
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Daejeon	Country of Residence	i	KR	
Mailing Address of Inventor:					
Address 1		108-302, 1741, Yuseong-daero, Yuseong-gu			
Address 2					
City	Daejeon	State/Province			
Postal Code		305-728	Country	i	KR
Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Jung Im		KIM		
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Daejeon	Country of Residence	i	KR	
Mailing Address of Inventor:					
Address 1		101-906, 11, Cheongsaseo-ro, Seo-gu			
Address 2					
City	Daejeon	State/Province			
Postal Code		302-750	Country	i	KR
Inventor 3					Remove
Legal Name					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		ESA-0002-CA-ET	
		Application Number			
Title of Invention		METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM			

Prefix	Given Name	Middle Name	Family Name	Suffix
	Kyoung Seok		LEE	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	Daejeon	Country of Residence	i	KR
Mailing Address of Inventor:				
Address 1		214-1704, 281, Cheongsu-ro, Seo-gu		
Address 2				
City	Daejeon	State/Province		
Postal Code	302-827	Country	i	KR
Inventor 4				Remove
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Soo Jung		JUNG	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	Daejeon	Country of Residence	i	KR
Mailing Address of Inventor:				
Address 1		705-401, 12, Gwanpyeong 1-ro, Yuseong-gu		
Address 2				
City	Daejeon	State/Province		
Postal Code	305-790	Country	i	KR
Inventor 5				Remove
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Seung Chan		BANG	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	Daejeon	Country of Residence	i	KR
Mailing Address of Inventor:				
Address 1		111-1102, 70, Cheongsu-ro, Seo-gu		
Address 2				
City	Daejeon	State/Province		
Postal Code	302-791	Country	i	KR

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ESA-0002-CA-ET
		Application Number	
Title of Invention	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM		

Inventor 6 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Byung Han		RYU	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	Daejeon	Country of Residence	i	KR
Mailing Address of Inventor:				
Address 1		1014-703, 61, Baeul 2-ro, Yuseong-gu		
Address 2				
City	Daejeon	State/Province		
Postal Code	305-793	Country	i	KR
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. 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	82727		
Email Address	jpark@kilepark.com	Add Email	Remove Email
Email Address	info@kilepark.com	Add Email	Remove Email

Application Information:

Title of the Invention	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM		
Attorney Docket Number	ESA-0002-CA-ET	Small Entity Status Claimed	<input checked="" 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)	7	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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ESA-0002-CA-ET
		Application Number	
Title of Invention	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM		

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). Either enter 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	82727		

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.			
Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	12298227	2008-10-23
Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12298227	a 371 of international	PCT/KR2007/001997	2007-04-24
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).			
Remove			
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Priority Claimed
10-2006-0037522	KR	2006-04-26	<input checked="" type="radio"/> Yes <input type="radio"/> No
Remove			
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Priority Claimed
10-2007-0038849	KR	2007-04-20	<input checked="" type="radio"/> Yes <input type="radio"/> No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ESA-0002-CA-ET
	Application Number	
Title of Invention	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM	

Authorization to Permit Access:

<input checked="" type="checkbox"/>	Authorization to Permit Access to the Instant Application by the Participating Offices
<p>If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.</p> <p>In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.</p> <p>In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.</p>	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.	
Applicant 1	
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p>	
<input checked="" type="radio"/> Assignee	<input type="radio"/> Legal Representative under 35 U.S.C. 117
<input type="radio"/> Person to whom the inventor is obligated to assign.	<input type="radio"/> Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:	
Name of the Deceased or Legally Incapacitated Inventor : 	
If the Assignee is an Organization check here. <input checked="" type="checkbox"/>	
Organization Name	Electronics & Telecommunications Research Institute

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ESA-0002-CA-ET
		Application Number	
Title of Invention	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM		

Mailing Address Information:			
Address 1		218, Gajeong-ro, Yuseong-gu	
Address 2			
City	Daejeon	State/Province	
Country	KR	Postal Code	
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/Jae Y. Park/			Date (YYYY-MM-DD)	2014-05-13
First Name	JAE	Last Name	PARK	Registration Number	62629
Additional Signature may be generated within this form by selecting the Add button.					

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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 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.
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 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.



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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
14/276,511	05/13/2014	2414	730	ESA-0002-CA-ET	1	1

CONFIRMATION NO. 1739

82727

KILE PARK REED & HOUTTEMAN PLLC

Jae Park

3957 Pender Drive

Suite 103

Fairfax, VA 22030

FILING RECEIPT



OC000000068654963*

Date Mailed: 05/28/2014

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**

Inventor(s)

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Applicant(s)

Electronics & Telecommunications Research Institute, Daejeon, KOREA, REPUBLIC OF

Assignment For Published Patent Application

Electronics & Telecommunications Research Institute, Daejeon, KOREA, REPUBLIC OF

Power of Attorney: The patent practitioners associated with Customer Number 82727

Domestic Priority data as claimed by applicant

This application is a CON of 12/298,227 10/23/2008
which is a 371 of PCT/KR2007/001997 04/24/2007

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.)

REPUBLIC OF KOREA 10-2006-0037522 04/26/2006

REPUBLIC OF KOREA 10-2007-0038849 04/20/2007

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

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: 05/27/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/276,511**

Projected Publication Date: 09/04/2014

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM

Preliminary Class

370

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

page 2 of 4

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 (1-866-999-4258).

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Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15**

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NOT GRANTED

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technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 14/276,511	
APPLICATION AS FILED - PART I						
(Column 1)		(Column 2)		SMALL ENTITY		OR
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	300		
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		
TOTAL CLAIMS (37 CFR 1.16(i))	1	minus 20 = *	x 40 =	0.00	OR	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *	x 210 =	0.00		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$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))				0.00		
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730	TOTAL	
APPLICATION AS AMENDED - PART II						
AMENDMENT A	(Column 1)		(Column 2)		(Column 3)	
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA			
	Total (37 CFR 1.16(i))	*	Minus **	=		
	Independent (37 CFR 1.16(h))	*	Minus ***	=		
	Application Size Fee (37 CFR 1.16(s))					
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
			SMALL ENTITY	OTHER THAN SMALL ENTITY		
			RATE(\$)	ADDITIONAL FEE(\$)		
			x	=	OR	
			x	=	OR	
					OR	
					OR	
			TOTAL ADD'L FEE		TOTAL ADD'L FEE	
AMENDMENT B	(Column 1)		(Column 2)		(Column 3)	
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA			
	Total (37 CFR 1.16(i))	*	Minus **	=		
	Independent (37 CFR 1.16(h))	*	Minus ***	=		
	Application Size Fee (37 CFR 1.16(s))					
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
			SMALL ENTITY	OTHER THAN SMALL ENTITY		
			RATE(\$)	ADDITIONAL FEE(\$)		
			x	=	OR	
			x	=	OR	
					OR	
					OR	
			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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PRIORITY DOCUMENT EXCHANGE

FAILURE STATUS REPORT

An attempt by the Office to electronically retrieve, under the Priority Document Exchange programs (PDX and DAS), 10-2007-0038849 to which priority is claimed has FAILED on 06/11/2014.

For further questions or assistance, please contact our EBC Customer Support Center at

1-866-217-9197 (toll-free)

571-272-4100 (local)

M-F 6AM - Midnight (Eastern Time)

pdx@uspto.gov (email)

Priority Document Exchange Website: http://www.uspto.gov/patents/process/file/pdx/pdx_index.jsp



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PRIORITY DOCUMENT EXCHANGE

FAILURE STATUS REPORT

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/276,511	05/13/2014	Jae Heung KIM	ESA-0002-CA-ET	1739
82727	7590	08/01/2014		
KILE PARK REED & HOUTTEMAN PLLC			EXAMINER	
Jae Park			HONG, DUNG	
3957 Pender Drive				
Suite 103			ART UNIT	PAPER NUMBER
Fairfax, VA 22030			2643	
			NOTIFICATION DATE	DELIVERY MODE
			08/01/2014	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):

info@kilepark.com
jpark@kilepark.com

Office Action Summary	Application No. 14/276,511	Applicant(s) KIM ET AL.	
	Examiner DUNG HONG	Art Unit 2643	AIA (First Inventor to File) Status No

-- 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 MONTHS 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 05/13/2014.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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 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 is/are rejected.

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

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

* If any claims have been determined allowable, 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.

Application Papers

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

11) ☒ The drawing(s) filed on 05/13/2014 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).

Priority under 35 U.S.C. § 119

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

Certified copies:

a) ☒ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 12/298,227.
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) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

4) ☐ Other: _____.

DETAILED ACTION

1. This is in response to applicant's communication filed on 05/13/2014, wherein:

Claim 1 is pending.

Double Patenting

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

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

activities undertaken within the scope of a joint research agreement. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit <http://www.uspto.gov/forms/>. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to <http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp>.

3. **Claim 1** is rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. US 8761814 B2. Although the claims at issue are not identical, they are not patentably distinct from each other because the scope and content of claim 1 is a broader recitation of the scope of claim 1 of US 8761814 B2, therefore, their scope overlapped as presented below:

App 14/276-511	Pat. No. US 8761814 B2
Claim 1: 1. A method for decoding paging information at a terminal in a wireless communication system, the method	Claim 1: 1. A method for decoding paging information at a terminal in a wireless communication system, the method

comprising: receiving a control channel;	comprising: receiving a physical layer frame comprising a control channel and a radio resource channel, when paging information is generated at a base station, a paging channel including the paging information and a downlink shared channel for user data transmission are mapped into the radio resource channel, and the method further comprises:
detecting an identifier indicating existence of a paging information in the control channel;	detecting an identifier for notifying existence of the paging channel, the identifier being transmitted through the control channel;
detecting a radio resource allocation information indicating a paging channel (PCH) in the control channel; and	detecting radio resource allocation information for the paging channel in the control channel; and
decoding the paging information based on the radio resource allocation information in	decoding the paging information on the paging channel indicated by the radio

a downlink shared channel,	resource allocation information, when paging information is not generated at the base station, the downlink shared channel is mapped into the radio resource channel, wherein the paging channel and the downlink shared channel are transport channels, and the control channel and the radio resource channel are physical channels,
wherein the identifier is used by reserving and allocating a part of scheduling identifiers.	wherein the identifier is used by reserving and allocating a part of scheduling identifiers.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claim 1** is rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by 3GPP RAN1/RAN2 joint meeting on LTE R2-060988, "PCH mapping and paging control" (disclosed by applicant, hereafter as "**3GPP**")

Regarding **claim 1**, 3GPP discloses a method for decoding paging information at a terminal in a wireless communication system, the method comprising:

receiving a control channel (**section 1 – discloses UE listen to the paging indicator in downlink shared control channel DSCCH; section 2 fig. 2 discloses UE monitoring DSCCH**);

detecting an identifier indicating existence of a paging information in the control channel (**section 1 – discloses UE listen to the paging indicator in downlink shared control channel DSCCH; Section 3 – Fig. 2 discloses UE read PI-ID and paging indicator which is the PI-ID on control channel DSCCH**);

detecting a radio resource allocation information indicating a paging channel (PCH) in the control channel (**Section 1 discloses the PCH is mapped on to downlink physical shared channel DPSCH and the scheduling information - resource allocation information - is carried on the downlink shared control channel DSCCH; Section 3 and fig. 2 disclose UE read resource indicating of DPSCH in DSCCH**); and

decoding the paging information based on the radio resource allocation information in a downlink shared channel (**Section 3 and Fig. 2 discloses read PCH data in DPSCCH - decoding paging message based on scheduling information since scheduling information is obtained from DPSCCH in DSCCH**),

wherein the identifier is used by reserving and allocating a part of scheduling identifiers (**Section 2 discloses the PI-ID is temporary assigned to UE, therefore, the PI-ID is scheduling identifier which is reserved temporarily to mobile device**).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG HONG whose telephone number is (571) 270-7928. The examiner can normally be reached on Monday-Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JINSONG HU, can be reached on (571) 272-3965. 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.

Application/Control Number: 14/276,511

Page 8

Art Unit: 2643

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).

/DUNG HONG/
Examiner, Art Unit 2643

Notice of References Cited	Application/Control No. 14/276,511	Applicant(s)/Patent Under Reexamination KIM ET AL.	
	Examiner DUNG HONG	Art Unit 2643	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	"PCH mapping and paging control", 3GPP RAN1/RAN2 meeting on LTE, 27-31 March 2006
	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.



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BIB DATA SHEET

CONFIRMATION NO. 1739

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/276,511	05/13/2014	455	2643	ESA-0002-CA-ET

APPLICANTS
 Electronics & Telecommunications Research Institute, Daejeon, KOREA, REPUBLIC OF, Assignee (with 37 CFR 1.172 Interest);

INVENTORS
 Jae Heung KIM, Daejeon, KOREA, REPUBLIC OF;
 Jung Im KIM, Daejeon, KOREA, REPUBLIC OF;
 Kyoung Seok LEE, Daejeon, KOREA, REPUBLIC OF;
 Soo Jung JUNG, Daejeon, KOREA, REPUBLIC OF;
 Seung Chan BANG, Daejeon, KOREA, REPUBLIC OF;
 Byung Han RYU, Daejeon, KOREA, REPUBLIC OF;

**** CONTINUING DATA *******
 This application is a CON of 12/298,227 10/23/2008 PAT 8761814
 which is a 371 of PCT/KR2007/001997 04/24/2007

**** FOREIGN APPLICATIONS *******
 REPUBLIC OF KOREA 10-2006-0037522 04/26/2006
 REPUBLIC OF KOREA 10-2007-0038849 04/20/2007


**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ****
 05/27/2014

Foreign Priority claimed 35 USC 119(a-d) conditions met Verified and Acknowledged	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No /DUNG HONG/ Examiner's Signature	<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY KOREA, REPUBLIC OF	SHEETS DRAWINGS 7	TOTAL CLAIMS 1	INDEPENDENT CLAIMS 1
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ADDRESS
 KILE PARK REED & HOUTTEMAN PLLC
 Jae Park
 3957 Pender Drive
 Suite 103
 Fairfax, VA 22030
 UNITED STATES

TITLE
 METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM

FILING FEE RECEIVED 730	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 _____

Search Notes 	Application/Control No. 14276511	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner DUNG HONG	Art Unit 2643

CPC- SEARCHED		
Symbol	Date	Examiner
H04W68/00, H04W68/02, H04W24/00, H04W72/082	7/26/2014	DH

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
H04W68/00, H04W68/02, H04W68/025, H04W52/02, H04W68/12	7/26/2014	DH
H04W24/00, H04W72/082, H04W16/10, H04W72/04, H04W28/04	7/26/2014	DH

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	426.1, 458, 515, 450, 452.1, 509	7/26/2014	DH

SEARCH NOTES		
Search Notes	Date	Examiner
Inventor search, google search, class/subclass search, text search, CPC search	7/26/2014	DH

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L37	39	paging indicat\$4 and resource with (allocat\$4 or reserv\$6 or schedul\$5) and L36 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:45
L36	31193	L34 OR L35	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:45
L35	25913	(H04W24/00 or H04W72/082 or H04W16/10 or H04W72/04 or H04W28/04).cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:44
L34	5891	(H04W68/00 or H04W68/02 OR H04W68/025 or H04W52/02 or H04W68/12).cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:42
L33	0	L31 and (paging with resource allocat\$4).clm. and indicator.clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:40
L32	4	L31 and (paging with resource allocat\$4).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:40
L31	12559	L29 OR L30	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:39
L30	11768	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:39
L29	1061	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2	US-PGPUB;	ADJ	ON	2014/07/28 12:39

		Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	USPAT; USOCR; EPO; JPO; DERWENT			
L28	12559	L26 OR L27	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
L27	11768	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
L26	1061	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
L25	2	"12298227"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
L11	6	L9 AND (@ad<"20060426" OR @rlad<"20040626") and (paging OR PCH) with (reserv\$8 OR allocat\$4)	US- PGPUB; USPAT; USOCR	ADJ	OFF	2014/07/28 11:22
L10	166	L9 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR	ADJ	OFF	2014/07/28 11:22
L9	184	("20010024956" "20010046864" "20020009129" "20020021698" "20020021714" "20020028690" "20020032884" "20020044527" "20020071480" "20020090004" "20020093940" "20020126629" "20020131375" "20020160744" "20020181436" "20020187789" "20020191559" "20030003920" "20030007510" "20030035440" "20030043741" "20030050097" "20030054829" "20030076812" "20030078046" "20030103476" "20030131124" "20030137931" "20030139170" "20030147371" "20030156624" "20030210669" "20030223393" "20030236085" "20040001452" "20040002334" "20040004954" "20040006643" "20040008658" "20040008659" "20040014452" "20040028078" "20040057387" "20040077357" "20040097192" "20040103435" "20040114606" "20040116143" "20040117860" "20040125772" "20040127223" "20040143676"	US- PGPUB; USPAT; USOCR	ADJ	OFF	2014/07/28 11:21

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L7	3	"12159841"	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	ADJ	OFF	2014/07/28 11:21

			DERWENT			
S227	23	resource with (allocat\$4 OR schedul\$4 OR information) with (paging channel OR PCH) with (read\$4 OR process\$4 OR receiv\$4) and (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:51
S226	5	resource with allocat\$4 with (paging channel OR PCH) with (read\$4 OR process\$4 OR receiv\$4) and (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:50
S225	64	resource with allocat\$4 with (paging channel OR PCH) with (read\$4 OR process\$4 OR receiv\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:50
S224	5	(paging channel OR PCH) with MAP and ofdm\$1 and (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:49
S223	9	(paging channel OR PCH) with ofdm\$1 and paging AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:44
S222	14013	paging channel OR PCH with ofdm\$1 and paging	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:44
S221	93	(paging channel OR PCH or paging (information or data)) with (MAP\$4 or allocat\$4 OR schedul\$4) with (resource or frequency OR location) AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:33
S219	39	ofdm\$1 and (paging channel OR PCH or paging (information or data)) with (MAP\$4 or allocat\$4) AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:20
S218	34	ofdm\$1 and (paging channel OR PCH) with (MAP\$4 or allocat\$4) AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2014/07/24 21:19

			FPRS; EPO; JPO; DERWENT			
S217	1505	ofdm\$1 and (paging channel OR PCH) with (MAP\$4 or allocat\$4)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:19
S216	76	(allocat\$4 or map\$4) with resource with paging with (channel or data or information) AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:11
S215	1606	allocat\$4 with resource with paging	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:11
S214	3	allocat\$4 with paging with channel and S212	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:09
S213	950	resource with allocat\$4 with paging with channel	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:09
S212	41	control channel with paging (indicator or exist\$4 or identifier) AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:08
S211	567	control channel with paging (indicator or exist\$4 or identifier)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:08
S201	30163	((375/260) OR (455/426.1,458,515,450,452.1,509)).ccls.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 18:45
S199	6	S194 and (map\$5 or allocat\$4) with (paging) with resource	US- PGPUB; USPAT;	ADJ	ON	2014/02/07 14:20

			USOCR; EPO; JPO; DERWENT			
S198	0	S197 and ((downlink shared channel) and (resource channel) and frame).clm.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S197	11526	S195 OR S196	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S196	10765	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S195	1015	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S194	59	(identifier or identity) with paging near4 (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S193	37	identifier with paging near4 (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S192	97	identifier with paging with (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 12:45
S191	1	"12298227" and identifier	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 12:14
S190	19	(identifier OR identity) with paging with (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426") and (reserv\$4 OR allocat\$4) with (identifier OR identity)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 11:57
S189	19	(identifier OR identity) with paging with (exist\$4 OR available) AND (@ad<"20060426" OR	US- PGPUB; USPAT;	ADJ	ON	2013/08/27 02:37

		@rlad<"20060426") and (reserv\$4 OR allocat\$4) with (identifier OR identity)	USOCR; EPO; JPO; DERWENT			
S187	176	identifier with paging with (exist\$4 OR available)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:36
S186	0	S185 and ((downlink shared channel) and (resource channel) and frame).clm.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S185	10666	S183 OR S184	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S184	9946	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S183	948	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S182	270	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND S181	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:09
S181	15497	((375/260) OR (455/426.1,458,515)).ccls.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:09
S180	0	(identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))).clm. and S179	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S179	10666	S177 OR S178	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S178	9946	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT;	ADJ	ON	2013/08/27 01:53

			USOCR; EPO; JPO; DERWENT			
S177	948	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S176	122	identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:52
S175	4	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4) with (available OR need\$4) with paging AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/26 23:43
S174	18	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4) with (available OR need\$4) with paging	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/26 20:39
S173	198	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4) with (available OR need\$4)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/26 20:38
S172	0	S171 and ((downlink shared channel) and (resource channel) and frame).clm.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S171	9486	S169 OR S170	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S170	8817	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S169	860	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S168	106	downlink shared channel WITH physical channel and shared channel with transport channel and @ad<"20060426"	US- PGPUB; USPAT;	ADJ	ON	2013/03/09 18:23

			EPO; JPO; DERWENT			
S167	200	downlink shared channel WITH physical channel and transport channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:23
S166	9	(LTE or E\$utran) and downlink shared channel and physical channel and transport channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:17
S165	222	downlink shared channel with transport channel and @ad<"20060426" and transport channel with physical channel	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:15
S164	136	downlink shared channel with transport channel and @ad<"20060426" and paging	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:12
S163	380	downlink shared channel with transport channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:11
S162	273	transport channel with shared channel and (paging or pch) and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:54
S161	1809	transport channel with shared channel	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:53
S160	47	OFDM\$ and paging and pch and shar\$6 with (resource or channel) and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:51
S159	1206	OFDM\$ and paging and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:50
S158	232	transport channel and paging and pch and physical channel and shar\$4 channel AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:49
S157	8	transport channel and paging and pch and physical channel and share channel AND (@ad<"20060426" OR	US-PGPUB; USPAT;	ADJ	ON	2013/03/09 15:48

		@rlad<"20040626")	USOCR; EPO; JPO; DERWENT			
S156	435	transport channel and paging and pch and physical channel AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:48
S155	0	transport channel and physical channel and paging and pch and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:38
S154	56	ofdm\$1 and pch and paging and control channel and (@ad<"20060426" or @rlad<"20060426")	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 22:45
S152	2	(paging channel or pch) with mapping and ofdm and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:17
S151	22	(paging channel or pch) with mapping and ofdm	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:17
S150	3	(paging channel or pch) with shared channel and ofdm and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:17
S149	119	(paging channel or pch) with shared channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:16
S148	0	(paging channel or pch) with share channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:16
S147	232	pch and bch and frame and paging and @ad<"20060426"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 23:53
S146	3	"20050153715"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 20:09
S145	1	US20050153715A1	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 20:08

S144	1	WO "2005046087"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 20:08
S143	25	paging WITH (allocat\$4 OR map\$6) and (resource or channel) with (dynamic\$5 or flexible or flexibility) and physical channel and (@ad<"20060426" or @rlad<"20060426") and (paging (indicator or identifier or notification) or pich)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 19:53
S142	120	paging WITH (allocat\$4 OR map\$6) and (resource or channel) with physical channel and (@ad<"20060426" or @rlad<"20060426") and (paging (indicator or identifier or notification) or pich)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 19:50
S141	27	(paging channel OR pch) with (map\$4 OR allocat\$5) with (radio resource channel or physical channel) and shared channel and (@ad<"20060426" and @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 16:10
S140	10	(paging or pch) with mapping with (radio resource channel or physical channel) and shared channel and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 16:07
S139	2	US "20050101351" A1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 13:50
S138	2	ep "1530395"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 13:49
S137	120	paging WITH (allocat\$4 OR map\$6) and (resource or channel) and physical channel and (@ad<"20060426" or @rlad<"20060426") and (paging (indicator or identifier or notification) or pich)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 13:24
S136	26	paging WITH (allocat\$4 OR map\$6) WITH resource and ofdm AnD (@ad<"20060426" or @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 03:00
S135	5	S131 AND RRC with idle	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:51
S134	4	S131 AND RRC with connected	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:50

S133	0	S131 AND RRC with connect	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:50
S132	4	S131 AND RNTI	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:19
S131	30	(US-20070173269-\$ or US-20040180675-\$ or US-20050277429-\$ or US-20100062795-\$ or US-20060029011-\$ or US-20090010219-\$ or US-20040253959-\$ or US-20050090262-\$ or US-20050101351-\$ or US-20050192021-\$ or US-20060116136-\$ or US-20080119199-\$ or US-20040023672-\$ or US-20040087320-\$ or US-20050096017-\$ or US-20070254679-\$ or US-20050063331-\$ or US-20080171520-\$ or US-20100248753-\$ or US-20050169203-\$ or US-20040008679-\$ or US-20040087330-\$ or US-20050113087-\$).did. or (US-6438375-\$ or US-7751356-\$ or US-5842141-\$ or US-6216004-\$ or US-6393295-\$ or US-6434393-\$ or US-6711413-\$).did.	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:19
S130	11	S129 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/27 11:27
S129	223	(flexible OR dynamic\$4 OR adaptive) WITH (resource OR channel) WITH (allocat\$4 OR assign\$6) WITH paging WITH message	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/27 11:26
S128	202	S127 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:28
S127	907	rrc WITH idle WITH state	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:28
S126	1515	rrc WITH idle	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:28
S125	90	S124 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:11
S124	353	(flexible OR dynamic\$4 OR adaptive) WITH (resource OR channel) WITH	US-PGPUB;	ADJ	ON	2012/02/21 17:11

		(allocat\$4 OR assign\$6) WITH paging	USPAT; EPO; JPO; DERWENT			
S123	242	S122 AND paging WITH (indicat\$8 OR notif\$8)	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 23:23
S122	403	paging message WITH (resource OR channel) WITH (allocat\$4 OR assign\$5) AND (@ad<"20070424" OR @rlad<"20070424")	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 23:23
S121	629	paging message WITH (resource OR channel) WITH (allocat\$4 OR assign\$5)	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 23:22
S120	3	"20040253959"	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 17:51
S119	268	(resource OR channel OR sub\$carrier OR carrier) WITH (allocat\$4 OR assign\$5 OR map\$4) WITH paging AND (@ad<"20070424" OR @rlad<"20070424") AND (OFDM OR OFDMA)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 17:43
S118	203	S102 AND (@ad<"20070424" OR @rlad<"20070424") AND (channel OR resource) WITH (allocat\$4 OR assign\$7) WITH (information)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 17:43
S117	119	(S100 OR S105) AND (resource OR channel) WITH (allocat\$5 OR assign\$5) WITH (paging channel OR paging message OR paging information OR PCH)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 17:28
S116	28	LG.as. AND MBMS AND MOCH AND PICH and drx	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:27
S115	47	LG.as. AND MBMS AND MOCH AND PICH	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:27
S114	47	LG AND MBMS AND MOCH AND PICH	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:27
S113	2	"20050044981"	US-	ADJ	ON	2012/02/17

			PGPUB; USPAT; USOCR; EPO; JPO; DERWENT			16:26
S112	123	(resource OR channel OR sub\$carrier OR carrier) WITH (allocat\$4 OR assign\$5 OR map\$4) WITH paging AND (@ad<"20060426" OR @rlad<"20040626") AND (OFDM OR OFDMA)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:10
S111	2558	(resource OR channel OR sub\$carrier OR carrier) WITH (allocat\$4 OR assign\$5 OR map\$4) WITH paging AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:10
S110	83	S109 AND S97 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:09
S109	1193	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging AND S108	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:08
S108	12138	(resource OR channel OR carrier) WITH (allocat\$4 OR assign\$5) WITH (control channel)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:08
S107	150	paging WITH indicator AND S106	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:05
S106	910	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging AND (receiv\$4 OR decod\$4 OR reception) WITH (paging OR message) WITH (allocat\$5 OR assign\$6) WITH (channel OR resource) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:05
S105	123	S102 AND (@ad<"20060426" OR @rlad<"20040626") AND (carrier OR OFDM OR OFDMA OR sub\$carrier)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:06
S104	154	S102 AND (@ad<"20060426" OR @rlad<"20040626") AND (channel OR resource) WITH (allocat\$4 OR assign\$7) WITH (information)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:05

S103	276	S102 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:05
S102	651	paging WITH indicator AND S101	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:05
S101	3594	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:04
S100	157	S97 AND (@ad<"20060426" OR @rlad<"20040626") AND (carrier OR OFDM\$ OR MAP)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:58
S99	157	S97 AND (@ad<"20060426" OR @rlad<"20040626") AND (carrier OR OFDM OR MAP)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S98	265	S97 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S97	607	paging WITH indicator AND S96	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S96	3072	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging WITH channel	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S95	19	(paging) AND S93 AND (@ad<"20060426" OR @rlad<"20060426") AND (id OR identity OR identifier)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/12 11:49
S94	24	(paging) AND S93 AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/12 11:49

S93	822	(resource OR carrier) WITH (allocat\$3 OR assign\$5 OR map\$4) WITH (control channel OR "CCH" OR "C-CH") WITH (physical OR S92)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/12 11:48
S91	72	(S82 OR S85) AND paging AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:10
S90	238	(S82 OR S85) AND paging	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:10
S89	72	(S82 OR S85) AND (OFDM) AND paging	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:10
S88	226	(S82 OR S85) AND (OFDM)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:09
S86	398	S82 OR S85	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:08
S85	182	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND ("370").clas. AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:07
S84	1	"12393193"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:06
S83	1206	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND ("370").clas.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:41
S82	230	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND S80	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:41

S80	9544	((375/260) OR (455/426.1,458,515)).cls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:39
S79	18	S71 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:24
S78	21	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND paging AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:23
S76	35	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND (@ad<"20060426" OR @rlad<"20060426") AND (pag\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:16
S75	164	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:26
S74	604	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:26
S73	2442	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:26
S72	8	paging indicator AND OFDM AND (@ad<"20060426" OR @rlad<"20060426") AND (resource) WITH (allocat\$3 OR map\$5)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:24
S71	289	paging indicator AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:23
S70	24	(DRX OR discontinuous reception) AND (paging OR page) WITH (indicator OR ID OR identifier) AND ((resource OR carrier) WITH (map\$4 OR allocat\$3) SAME (page OR paging)) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 16:27

S69	14	(paging indicat\$3) AND OFDM AND map\$4 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:30
S67	325	paging indicat\$3 AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:29
S66	224	S65 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:03
S65	714	(PI OR paging (indicat\$3 OR notif\$7 OR inform\$3)) SAME (resource OR channel) WITH (allocat\$3 OR map\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:03
S64	58	(resource mapping OR mapping information) SAME (page OR paging) AND (ID OR identifier OR identity) SAME (page OR paging) AND (wireless OR cellular) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:52
S63	353	(resource mapping OR mapping information) SAME (page OR paging) AND (ID OR identifier OR identity) SAME (page OR paging)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:51
S62	904	(resource mapping OR mapping information) SAME (page OR paging)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:51
S61	25	S58 AND ("455" OR "370" OR "375").clas. AND (discontinuous reception OR DRX)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:37
S60	634	S58 AND ("455" OR "370" OR "375").clas.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:36
S59	102	S58 AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:36

S58	967	S55 AND (@ad< "20060426" OR @rlad< "20060626") AND (wireless OR cellular)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:35
S55	2578	(id OR identification OR notif\$8 OR inform\$7) WITH (paging OR page) AND (paging OR page) SAME (resource OR channel) WITH (map\$4 OR schedul\$5 OR allocat\$3) WITH (information OR data)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:34
S37	25	OFDM\$ AND paging (message OR indicat\$3) SAME (resource) WITH (map\$4 OR schedul\$5 OR allocat\$3) AND (ID OR identifier OR identity) AND (@ad< "20060426" OR @rlad< "20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:59
S36	183	OFDM\$ AND paging (message OR indicat\$3) SAME (resource) WITH (map\$4 OR schedul\$5 OR allocat\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:59
S35	0	"10200300778891"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:49
S34	0	"1020050044981"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:49
S33	0	"10200500044981"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:48
S32	0	"1020050044981"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:48
S31	3	"9949626"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:47
S30	2	"20030152044"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:46

S28	5	"2005071985"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:45
S27	3	"20030088695"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S26	0	"200300088695"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S25	0	"2003000088695"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S24	0	"200300088695"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S23	168	OFDM\$ AND (paging message) SAME (resource) WITH (map\$4 OR schedul\$5 OR allocat\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:29
S22	163	S21 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:38
S21	285	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:34
S20	7246	paging message	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:33
S19	165	S18 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:21

S18	281	paging SAME identifier AND ((allocation OR schedul\$5) WITH information) AND physical WITH channel	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:21
S17	306	(identifier OR ID OR notification) WITH paging AND (resource OR carrier) WITH (allocat\$3) AND (control channel) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:53
S16	957	(identifier OR ID OR notification) WITH paging AND (resource OR carrier) WITH (allocat\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:53
S15	35	S14 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S14	121	OFDM\$ AND paging AND identifier WITH paging AND resource WITH allocat\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S13	558	OFDM\$ AND paging AND identifier AND resource WITH allocat\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S12	401	OFDM\$ SAME paging	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S11	2403	OFDM AND paging	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:39
S7	10	S6 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:34
S6	57	identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:34

S5	158	identifier WITH (physical control channel OR PCH)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:32
S4	5932	S2 OR S3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 13:10
S3	5381	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 13:10
S2	655	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 13:09
S1	1	"12298227"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 11:33

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S210	0	S203 and S209	USPAT; UPAD	ADJ	ON	2014/02/07 18:45
S209	2	S208 and S205	USPAT; UPAD	ADJ	ON	2014/02/07 18:45
S208	14093	((375/260) OR (455/426.1,458,515,450,452.1,509)).ccls.	USPAT; UPAD	ADJ	ON	2014/02/07 18:45
S207	0	S204 and S205	USPAT; UPAD	ADJ	ON	2014/02/07 17:57
S206	0	S203 and S205	USPAT; UPAD	ADJ	ON	2014/02/07 17:57
S205	4	(allocation (information or data) with (paging) with (channel or information)).clm.	USPAT; UPAD	ADJ	ON	2014/02/07 17:32
S204	12	S202 and S203	USPAT; UPAD	ADJ	ON	2014/02/07 17:31
S203	30	((identifier OR identity or id) with (existence OR available OR notify\$4 or indicat\$4) with paging (channel or information)).clm.	USPAT; UPAD	ADJ	ON	2014/02/07 17:30
S202	8313	((375/260) OR (455/426.1,458,515)).ccls.	USPAT; UPAD	ADJ	ON	2014/02/07 17:28

7/ 28/ 2014 1:05:47 PM

C:\Users\dhong\Documents\WIP\276511-14.wsp

<p align="center"><i>Index of Claims</i></p> 	Application/Control No. 14276511	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner DUNG HONG	Art Unit 2643

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

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47									
CLAIM		DATE							
Final	Original	07/28/2014							
	1	✓							



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/276,511	05/13/2014	Jae Heung KIM	ESA-0002-CA-ET

CONFIRMATION NO. 1739

PUBLICATION NOTICE



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82727
KILE PARK REED & HOUTTEMAN PLLC
Jae Park
3957 Pender Drive
Suite 103
Fairfax, VA 22030

Title:METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM

Publication No.US-2014-0247788-A1

Publication Date:09/04/2014

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.

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In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 14/276,511

Filing Date: May 13, 2014

First Inventor: Jae Heung KIM

Group Art Unit: 2643

Examiner: HONG, DUNG

Title: METHOD FOR PAGING INFORMATION IN CELLULAR
SYSTEM

Attorney Docket: ESA-0002-CA-ET

**REPLY TO NON-FINAL OFFICE ACTION
UNDER 37 CFR 1.111 WITH AMENDMENT**

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

Dear Sir:

In response to the Office Action mailed August 1, 2014, the following amendments and remarks are respectfully submitted in connection with the above-identified application.

AMENDMENTS TO THE CLAIMS begin on page 2 of this paper; and
REMARKS begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for decoding paging information, ~~at performed in a terminal, in a wireless communication system,~~ the method comprising:
 - receiving a control channel and a downlink shared channel;
 - detecting an identifier indicating existence of a paging information in the downlink shared channel, the identifier is transmitted on the control channel;
 - when the identifier is detected, detecting a radio resource allocation information indicating a radio resource to which the paging channel (PCH) in information is allocated, the radio resource allocation information is transmitted on the control channel; and
 - decoding the paging information, based on indicated by the radio resource allocation information, in a the downlink shared channel,
 - ~~wherein the identifier is used by reserving and allocating a part of scheduling identifiers~~when the paging information does not exist in the downlink shared channel, the identifier is not detected.
2. (New) The method of claim 1, wherein the control channel and the downlink shared channel are physical channels.
3. (New) The method of claim 1, wherein the identifier is used by reserving and allocating a part of scheduling identifiers.
4. (New) The method of claim 3, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs).
5. (New) The method of claim 1, wherein the terminal performs a discontinuous reception (DRX) operation.

6. (New) The method of claim 1, wherein the terminal performs detecting whether the identifier is transmitted on the control channel according to a DRX cycle.

7. (New) The method of claim 1, wherein the terminal is in an idle state.

8. (New) The method of claim 1, wherein the terminal is in Radio Resource Control (RRC)_Connected state.

9. (New) The method of claim 1, wherein the terminal is in RRC_idle state.

10. (New) The method of claim 1, the radio resource for the paging information is flexibly allocated according to whether or not the paging information is generated.

11. (New) A method for transmitting paging information, performed in a base station, the method comprising:

when a paging information is generated, allocating the paging information to a downlink shared channel;

allocating a identifier indicating existence of the paging information and a radio resource allocation information indicating radio resource to which the paging information is allocated to a control channel; and

transmitting the control channel and the downlink shared channel to a terminal,

when the paging information is not generated, the identifier is not allocated to the control channel.

12. (New) The method of claim 11, wherein the control channel and the downlink shared channel are physical channels.

13. (New) The method of claim 11, wherein the identifier is used by reserving and allocating a part of scheduling identifiers.

14. (New) The method of claim 13, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs).

15. (New) The method of claim 11, wherein the terminal performs a discontinuous reception (DRX) operation.

16. (New) The method of claim 11, wherein the terminal performs detecting whether the identifier is transmitted on the control channel according to a DRX cycle.

17. (New) The method of claim 11, wherein the terminal is in an idle state.

18. (New) The method of claim 11, wherein the terminal is in Radio Resource Control (RRC)_Connected state.

19. (New) The method of claim 11, wherein the terminal is in RRC_idle state.

20. (New) The method of claim 11, the radio resource for the paging information is flexibly allocated according to whether or not the paging information is generated.

REMARKS

The above amendment is made in response to the Office action of August 1, 2014. Examiner's reconsideration is respectfully requested in view of the above amendment and the following remarks.

Claim 1 has been amended, and new claims 2-20 have been added in this submission. The present amendment introduces no new matter, as support is found throughout the originally filed specification and claims. Claims 1-20 are pending in the present application upon entry of the above amendment.

Double Patenting Rejection

The Examiner has rejected claim 1 on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 8,761,814 commonly owned with the instant application.

Applicant has amended claim 1 by changing and adding more limitations, as shown above, to original claim 1. Thus it is believed that amended claim 1 patentably distinct from and nonobvious over claim 1 of U.S. Patent No. 8,761,814.

Accordingly, Examiner's reconsideration and withdrawal of the double patenting rejection are respectfully requested.

Rejections of Claims under 35 U.S.C. §102(e)

Claim 1 stands rejected under pre-AIA 35 U.S.C. §102(e) as being anticipated by 3GPP RAN1/RAN2 joint meeting on LTE R2-060988, PCH mapping and paging control (hereinafter "3GPP"). It is indicated in the Office Action that 3GPP discloses all the elements of claim 1.

In order to anticipate a claim under 35 U.S.C. §102, a single source must contain all of the elements of the claim. *Lewmar Marine v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements "arranged as in the claim." *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1274 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985). Applicant traverses the rejections based upon 3GPP because 3GPP does not

teach or disclose every element of the claimed invention as provided in the above amended claims.

Applicant has amended claim 1 to recite, *inter alia*,

receiving a control channel and a downlink shared channel;
detecting an identifier indicating existence of a paging information in the downlink shared channel, the identifier is transmitted on the control channel;
when the identifier is detected, detecting a radio resource allocation information indicating radio resource to which the paging information is allocated, the radio resource allocation information is transmitted on the control channel; and
decoding the paging information, indicated by the radio resource allocation information, in the downlink shared channel,
when the paging information does not exist in the downlink shared channel, the identifier is not detected.
[emphasis added]

Applicant respectfully submits that 3GPP neither discloses nor suggests the limitations of amended claim 1, for example, detecting an identifier indicating existence of a paging information and when the paging information does not exist in the downlink shared channel, the identifier is not detected.

More specifically, 3GPP discloses a paging indicator, for example, on pages 1-2 as follows:

So, PCH can be mapped on the downlink physical shared channel (named as DPSCCH for short). While no paging, the DPSCCH doesn't carry any content of PCH to save the radio resource. Additionally, the data amount of PCH is much usually, UE will spend more time and power for reading it. For supporting UE power saving, a paging indicating channel in physical layer should be configured to indicate whether having PCH. UEs will listen to the paging indicating signal in DRX mode. As PCH is mapped on DPSCCH and the scheduling information of DPSCCH is carried on the downlink shared control channel (named as DSCCH for short), we can combined the paging indicating channel into DSCCH. The occasion of paging indicator appears on the DSCCHs with DTX period. Which DSCCH carry the paging indicator and the DTX period is broadcasted on the BCH.

The location of resource using by PCH is fixed with paging indicator, which can be broadcasted in BCH of determined by specification.

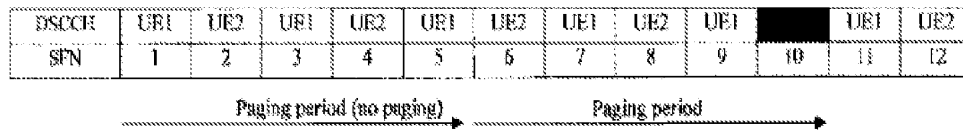


Figure 1: PCH mapping

In Figure 1, SFN #5, 10 in DSCCH are the paging indicator occasion. But in the SFN #5, there is no paging information, so the scheduling information to UE1 is carried on DSCCH, in subsequent SFN, i.e. SFN #6, UE1 transmits/receives data. In the SFN #10, paging indicator is presented on DSCCH, and the PCH information appears in SFN #11.

[emphasis added]

In 3GPP, the paging indicating channel to which the paging indicator is allocated indicates whether having PCH. Thus, the paging indicator is always allocated to radio resources. In other words, the paging indicator is allocated to the radio resources if there is the paging information as well as if there is no the paging information.

In contrast, in the present invention the identifier is flexibly allocated to the radio resources. In other words, the identifier is allocated to the radio resources if there is the paging information. However, the identifier is not allocated to the radio resources if there is no the paging information.

Thus, it is respectfully submitted that the paging indicator of 3GPP teaches away from the identifier of the claimed invention.

Further, Applicant also submits that PI-ID of 3GPP teaches away from the identifier of the claimed invention. 3GPP describes the use of PI-ID on pages 2-3 as follows:

3. Paging control procedure

The paging control procedure is depicted as following in detail according to each structure of DSCCH frame:

1). Using a PI-ID

If there is no paging, the eNodeB transfers scheduling information on the DSCCHs with a C-RNTI allocated to a UE, then transfers data on the related DPSCCH. If there is paging message coming from MGW, the eNodeB sends paging indicator and resources indicating of DPSCCH on DSCCH when the paging occasion comes, and set the PI-ID in the DSCCH frame instead of C-RNTI at the same time.

UEs in LTE-IDLE monitor the DSCCHs that may carry paging indicators with DRX period. UEs will inspect the UE-ID information firstly once receiving the DSCCHs frame. If the UE-ID is not the PI-ID, it means there is no paging information. These UEs will return to dormant state, and monitor paging indicator in the next DRX occasion.

When the UE-ID is PI-ID, UEs will read the paging indicator belonging to themselves. The UE will return to dormant state and monitor DSCCH in next DRX occasion, if no exact paging information associated with it. Otherwise, the UE reads scheduling information; and receives the paging data carried on DPSCCH, and then deals with paging message. The procedure depicted above is shown in Figure 2.

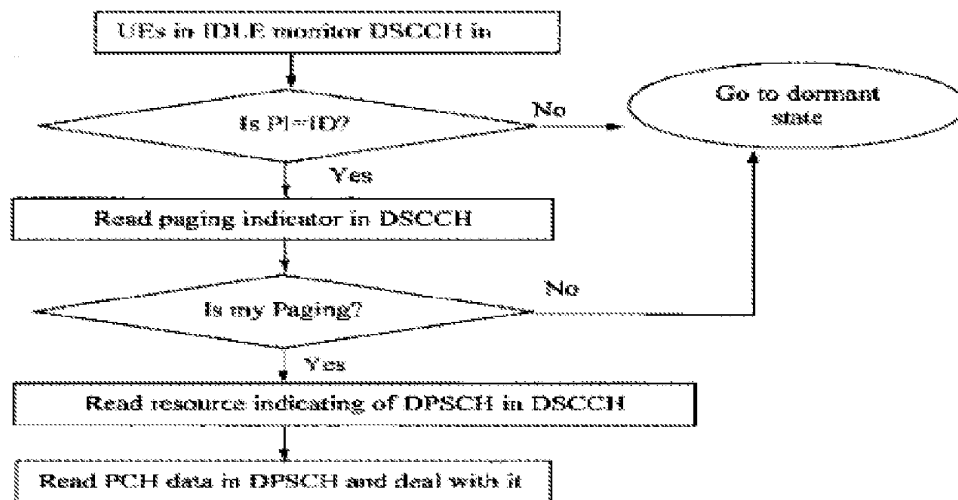


Figure 2: The control procedure of Idle UE

In 3GPP, the PI-ID indicates existence of the paging information. For example, the PI-ID is identical to the UE-ID if there is the paging information. The PI-ID is not identical to the UE-ID if there is no the paging information. In other words, the PI-ID is always allocated to the radio resources.

In contrast, in the present invention the identifier is flexibly allocated to the radio resources. In other words, the identifier is allocated to the radio resources if there is the paging information, but the identifier is not allocated to the radio resources if there is no the paging information.

Further more, in 3GPP UE receives the paging information through three steps procedure. In first step, UE decodes the PI-ID to identify existence of the paging information. In second step, UE decodes the paging indicator if there is the paging information. In third step, UE receives the paging information based on resource allocation information.

In contrast, in the present invention UE receives the paging information through two steps procedure. For example, UE detects the identifier in the first step, and UE receives the paging information based on the resource allocation information if the identifier is detected in the second step.

Thus, it is also submitted that the receiving procedure of the paging information of 3GPP is different and teaches away from the receiving procedure of the paging information of the claimed invention.

Thus, it is believed that amended claim 1 is patentably distinct and nonobvious over 3GPP. Accordingly, Examiner's reconsideration and withdrawal of the rejection of claim 1 under pre-AIA 35 U.S.C. §102(e) are respectfully requested.

Newly Added Claims

Applicant has also added new claims 2-20 which include no new matter and are fully supported by the specification and the drawings of the present application. The new claims further define the distinct subject matters of the present invention. The new claims have been carefully written to avoid any questions under 35 U.S.C. §112. Accordingly, it is believed that the new claims are in condition for allowance.

Conclusion

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued.

If the Examiner believes that a telephone conference with Applicant's attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicant's attorney hereby authorizes that such fee be charged to Deposit Account No. 50-5622.

Respectfully submitted,

Date: November 3, 2014

By: /Jae Y. Park/
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Electronic Acknowledgement Receipt	
EFS ID:	20594710
Application Number:	14276511
International Application Number:	
Confirmation Number:	1739
Title of Invention:	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM
First Named Inventor/Applicant Name:	Jae Heung KIM
Customer Number:	82727
Filer:	Jae Y. Park
Filer Authorized By:	
Attorney Docket Number:	ESA-0002-CA-ET
Receipt Date:	03-NOV-2014
Filing Date:	13-MAY-2014
Time Stamp:	18:35:40
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		Response_OA20140801_ESA0002CA.pdf	103031 d8c425a3094ba9c10799c99d44a743e9a652d997	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	4
	Applicant Arguments/Remarks Made in an Amendment	5	9
Warnings:			
Information:			
Total Files Size (in bytes):		103031	
<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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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 14/276,511		Filing Date 05/13/2014		<input type="checkbox"/> To be Mailed	
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ENTITY: <input type="checkbox"/> LARGE <input checked="" type="checkbox"/> SMALL <input type="checkbox"/> MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (j), or (m))	N/A	N/A	N/A	
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))			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).	
<input type="checkbox"/> 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	

APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					

AMENDMENT	11/03/2014	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(o))	* 20	Minus	** 20	= 0	x \$40 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	x \$210 =	0
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))						
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
	TOTAL ADD'L FEE					0	

(Column 1)		(Column 2)		(Column 3)					
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AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(o))	*	Minus	**	=	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))						
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
	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 number found in the appropriate box in column 1.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/276,511	05/13/2014	Jae Heung KIM	ESA-0002-CA-ET	1739
82727	7590	03/03/2015		
KILE PARK REED & HOUTTEMAN PLLC			EXAMINER	
Jae Park			HONG, DUNG	
3957 Pender Drive				
Suite 103				
Fairfax, VA 22030				
			ART UNIT	PAPER NUMBER
			2643	
			NOTIFICATION DATE	DELIVERY MODE
			03/03/2015	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):

info@kilepark.com
jpark@kilepark.com

Office Action Summary	Application No. 14/276,511	Applicant(s) KIM ET AL.	
	Examiner DUNG HONG	Art Unit 2643	AIA (First Inventor to File) Status No

-- 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 MONTHS 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 11/03/2014.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

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) 1-20 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) 1-20 is/are rejected.

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

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

* If any claims have been determined allowable, 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.

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).

Priority under 35 U.S.C. § 119

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

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

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

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

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

** 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) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.

4) ☐ Other: ____.

DETAILED ACTION

1. This is in response to applicant's communication filed on 11/03/2014, wherein:

Claim 1-20 are pending.

Claim 1 is amended.

Claim 2-20 are new.

Response to Arguments

2. Applicant's arguments with respect to claim 1-20 have been considered but are moot on new ground of rejection presented in the following section of this office action.
Examiner has revised office action to address amendment filed on 11/03/2014.
Since the same reference was used in the new rejection, examiner would like to address applicant arguments filed on 11/03/2014 to clarify the new ground of rejection presented below.

(1) On **page 5-8** of applicant response, applicant argues that 3GPP does not anticipate newly amended limitation "detecting an identifier indicating existence of a paging information... when the paging information does not exist in the downlink shared channel, the identifier is not detected" since 3GPP (pages 1-2) teaches that the location of resource using by PCH is fixed with paging indicator. In 3GPP, the paging indicator is always allocated to the radio resource if there is the paging information as well as if there is no paging information. In contrast, the present invention teaches that the identifier is flexibly allocated to radio resources.

(2) On **page 8** of applicant response, applicants indicate that the current invention is different with 3GPP in the aspect that the current invention is a two-step procedure: UE receiving paging identifier in the first step, and receiving paging information based on the resource allocation information on second step which is different with the three step process of Fig. 2 in 3GPP.

Applicant arguments have been carefully considered, however, examiner respectfully disagrees.

(1) Considering the current scope of claim 1:

“1. a method for decoding paging information performed in a terminal, the method comprising:

receiving a control channel and a downlink shared channel

detecting an identifier indicating existence of a paging information in the downlink shared channel, the identifier is transmitted on the control channel;

when the identifier is detected, detecting a radio resource allocation information indicating radio resource to which the paging information is allocated, the radio resource allocation information is transmitted on the control channel; and decoding the paging information indicated by the radio resource allocation information

when the paging information does not exist in the downlink shared channel, identifier is not detected.”

The scope and content above only indicate that the paging identifier is detected when there is paging information and the paging indicator is not detected when there is no paging information. Applicant arguments focus on details that the paging identifier is flexibly allocated and the radio resource is allocated for the paging indicator based on the existence as presented in page 5-8 are not found in the current scope of the claim.

3GPP (**Section 1, Section 3, Fig. 2**) teaching discloses that UE listening to paging indicator in DRX mode and monitor if the paging indicator match with the ID of the mobile device which indicate that there is existence of paging information for the mobile device, and proceed further by reading resource allocation of paging channel PCH and read PCH data. Therefore, the 3GPP teaching current address the current scope of claim 1.

(2) Applicant arguments regarding to two-step procedure is not accurate. In the claimed invention, there is actually three step procedure to detect the paging information (i.e. detecting paging identifier, detecting radio resource information, decoding paging information indicated by the radio resource allocation information): “when the identifier is detected, detecting a radio resource allocation information indicating radio resource to which the paging information is allocated, the radio resource allocation information is transmitted on the control channel; and decoding the paging information indicated by the radio resource allocation information”.

Therefore, the current claimed procedure is similar to the teaching presented in Fig. 2 of 3GPP teaching.

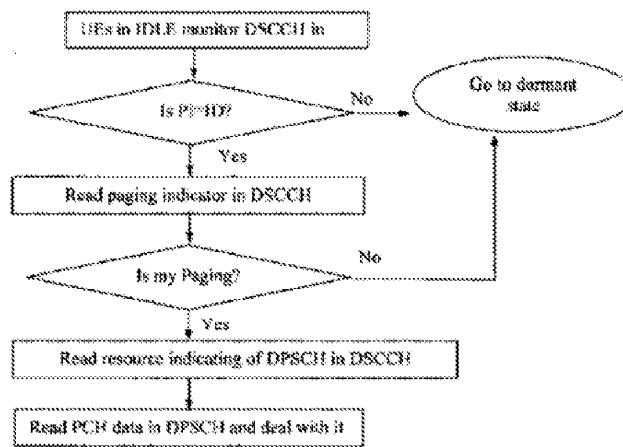


Figure 2: The control procedure of idle UE

Double Patenting

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

422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit <http://www.uspto.gov/forms/>. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to <http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp>.

4. **Claim 1-20** are rejected on the ground of nonstatutory double patenting as being unpatentable over **claim 1-3, 5, 7-12, 14, and 16-18** of U.S. Patent No. US 8761814 B2. Although the claims at issue are not identical, they are not patentably distinct from each other because the scope and content of claim 1-20 are overlapped with claim 1-3, 5, 7-12, 14 and 16-18 of US 8761814 B2 as presented below:

App 14/276-511	Pat. No. US 8761814 B2
<p>1. A method for decoding paging information performed in a terminal, the method comprising:</p> <p>receiving a control channel and a downlink shared channel</p> <p>detecting an identifier indicating existence of a paging information in the downlink shared channel, the identifier is transmitted on the control channel;</p> <p>when the identifier is detected, detecting a</p>	<p>1. A method for decoding paging information at a terminal in a wireless communication system, the method comprising:</p> <p>receiving a physical layer frame comprising a control channel and a radio resource channel, when paging information is generated at a base station, a paging channel including the paging information and a downlink shared channel for user data transmission are mapped into the radio resource channel, and the method further comprises:</p> <p>detecting an identifier for notifying existence of the paging channel, the identifier being transmitted through the control channel;</p> <p>detecting radio resource allocation</p>

radio resource allocation information indicating radio resource to which the paging information is allocated, the radio resource allocation information is transmitted on the control channel; and	information for the paging channel in the control channel; and
decoding the paging information indicated by the radio resource allocation information	decoding the paging information on the paging channel indicated by the radio resource allocation information,
when the paging information does not exist in the downlink shared channel, identifier is not detected.	when paging information is not generated at the base station, the downlink shared channel is mapped into the radio resource channel, wherein the paging channel and the downlink shared channel are transport channels, and the control channel and the radio resource channel are physical channels,
	wherein the identifier is used by reserving and allocating a part of scheduling identifiers.

<p>2. The method of claim 1, wherein the control channel and the downlink shared channel are physical channels (see claim 1 of Pat. No. US 8761814 B2, limitation “receiving a physical layer frame....”).</p> <p>3. The method of claim 1, wherein the identifier is used by reserving and allocating a part of scheduling identifiers (see claim 1 of Pat. No. US 8761814 B2).</p> <p>4. The method of claim 3, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs) (see claim 9 of Pat. No. US 8761814 B2).</p> <p>5. The method of claim 1, wherein the terminal performs a discontinuous reception (DRX) operation (see claim 2 of Pat. No. US 8761814 B2).</p>	<p>2. The method of claim 1, wherein the terminal performs a discontinuous reception (DRX) operation for low power consumption.</p> <p>3. The method of claim 1, wherein the terminal performs monitoring whether the identifier is transmitted on the control channel according to a DRX cycle.</p> <p>5. The method of claim 1, the radio resource for the paging channel is flexibly allocated according to whether or not the paging information is generated.</p> <p>7. The method of claim 1, the terminal is in RRC_Connected state.</p> <p>8. The method of claim 1, the terminal is in RRC_idle state.</p>
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<p>6. The method of claim 1, wherein the terminal performs detecting whether the identifier is transmitted on the control channel according to a DRX cycle (see claim 3 of Pat. No. US 8761814 B2).</p> <p>7. The method of claim 1, wherein the terminal is in an idle state (see claim 8 of Pat. No. US 8761814 B2).</p> <p>8. The method of claim 1, wherein the terminal is in Radio Resource Control (RRC)_Connected state (see claim 7 of Pat. No. US 8761814 B2).</p> <p>9. The method of claim 1, wherein the terminal is in RRC_idle state (see claim 8 of Pat. No. US 8761814 B2).</p> <p>10. The method of claim 1, the radio resource for the paging information is flexibly allocated according to whether or</p>	<p>9. The method of claim 1, the scheduling identifiers are RNTIs (Radio Network temporary identifiers).</p>
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<p>not the paging information is generated (see claim 5 of Pat. No. US 8761814 B2).</p> <p>11. A method for transmitting paging information, performed in a base station, the method comprising:</p> <p>when a paging information is generated, allocating the paging information to a downlink shared channel; allocating a identifier indicating existence of the paging information and a radio resource allocation information indicating radio resource to which the paging information is allocated to a control channel; and transmitting the control channel and the downlink shared channel to a terminal,</p>	<p>10. A method for transmitting paging information at a base station in a wireless communication system, the method comprising:</p> <p>when paging information is generated, mapping a paging channel including the paging information and a downlink shared channel for user data transmission into a radio resource channel; forming a physical layer frame comprising a control channel and the radio resource channel; and transmitting the physical layer frame to a terminal, wherein an identifier for notifying existence of the paging channel is transmitted through the control channel, and the control channel includes radio resource allocation information for the paging channel, and</p>
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<p>when the paging information is not generated, the identifier is not allocated to the control channel.</p>	<p>when paging information is not generated, mapping the downlink shared channel into the radio resource channel, wherein the paging channel and the downlink shared channel are transport channels, and the control channel and the radio resource channel are physical channels,</p> <p>wherein the identifier is used by reserving and allocating a part of scheduling identifiers.</p>
<p>12. The method of claim 11, wherein the control channel and the downlink shared channel are physical channels (see claim 10 of Pat. No. US 8761814 B2, limitation “forming a physical layer frame...”).</p>	<p>11. The method of claim 10, wherein the terminal performs a discontinuous reception (DRX) operation for low power consumption.</p>
<p>13. The method of claim 11, wherein the identifier is used by reserving and allocating a part of scheduling identifiers</p>	<p>12. The method of claim 10, wherein the terminal performs monitoring whether the identifier is transmitted on the control channel according to a DRX cycle.</p>

<p>(see claim 10 of Pat. No. US 8761814 B2).</p> <p>14. The method of claim 13, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs) (see claim 18 of Pat. No. US 8761814 B2).</p> <p>15. The method of claim 11, wherein the terminal performs a discontinuous reception (DRX) operation (see claim 11 of Pat. No. US 8761814 B2).</p> <p>16. The method of claim 11, wherein the terminal performs detecting whether the identifier is transmitted on the control channel according to a DRX cycle (see claim 12 of Pat. No. US 8761814 B2).</p> <p>17. The method of claim 11, wherein the terminal is in an idle state (see claim 17 of Pat. No. US 8761814 B2).</p>	<p>14. The method of claim 10, the radio resource for the paging channel is flexibly allocated according to whether or not the paging information is generated.</p> <p>16. The method of claim 10, the terminal is in RRC_Connected state.</p> <p>17. The method of claim 10, the terminal is in RRC_idle state.</p> <p>18. The method of claim 10, the scheduling identifiers are RNTIs (Radio Network temporary identifiers).</p>
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<p>18. The method of claim 11, wherein the terminal is in Radio Resource Control (RRC)_Connected state (see claim 16 of Pat. No. US 8761814 B2).</p> <p>19. The method of claim 11, wherein the terminal is in RRC_idle state (see claim 17 of Pat. No. US 8761814 B2).</p> <p>20. The method of claim 11, the radio resource for the paging information is flexibly allocated according to whether or not the paging information is generated (see claim 14 of Pat. No. US 8761814 B2).</p>	
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Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before

the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claim 1-7, 10-17, and 20** are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by 3GPP RAN1/RAN2 joint meeting on LTE R2-060988, "PCH mapping and paging control" (disclosed by applicant, hereafter as "**3GPP**").

Regarding **claim 1**, 3GPP discloses a method for decoding paging information performed in a terminal, the method comprising:

receiving a control channel and a downlink shared channel (**Section 1 and figure 1 disclose receiving frame comprising Downlink Shared Control Channel DSCCH and downlink physical share channel DPSCH**)

detecting an identifier indicating existence of a paging information in the downlink shared channel, the identifier is transmitted on the control channel (**section 1 – discloses UE listening to the paging indicator in downlink shared control channel DSCCH; Section 3 – Fig. 2 discloses UE read paging indicator which is the PI-ID on control channel DSCCH**);

when the identifier is detected, detecting a radio resource allocation information indicating radio resource to which the paging information is allocated, the radio resource allocation information is transmitted on the control channel (**Section 1 discloses the PCH is mapped on to downlink physical shared channel DPSCH and the scheduling information - resource allocation information - is carried on the downlink shared control channel DSCCH**);

Section 3 and fig. 2 disclose UE reading resource indicating of DPSCH in DSCCH); and

decoding the paging information indicated by the radio resource allocation information (**Section 3 and Fig. 2 discloses reading PCH data in DPSCH - decoding paging message based on scheduling information since scheduling information is obtained from DPCCH**),

when the paging information does not exist in the downlink shared channel, identifier is not detected (**Section 3.1 and Fig. 2 - "UE in LTE-IDLE monitor the DSCCHs that may carry paging indicator with DRX period, UEs will inspect the UE-ID information firstly once receiving the DSCCHs frame. If the UE-ID is not the PI-ID, it means there is no paging information"**).

Regarding **claim 2**, 3GPP discloses the method of claim 1, wherein the control channel and the downlink shared channel are physical channels (**Section 1 discloses the Downlink Shared Control Channel DSCCH is on broadcast channel BCH which are physical channel, and Downlink Physical Shared Channel DPSCH is also physical channel**).

Regarding **claim 3**, 3GPP discloses the method of claim 1, wherein the identifier is used by reserving and allocating a part of scheduling identifiers (**3GPP – section 2 “PI-ID equals to C-RNTI in size and isn’t assigned to any**

UE forever”. Therefore, the PI-ID is scheduling identifier which is reserved temporarily to UE).

Regarding **claim 4**, 3GPP discloses the method of claim 3, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs) **(3GPP – Section 2 discloses PI-ID is equal to RNTI).**

Regarding **claim 5**, 3GPP discloses the method of claim 1, wherein the terminal performs a discontinuous reception (DRX) operation **(3GPP - Section 1-2 discloses mobile device is in DRX operation).**

Regarding **claim 6**, 3GPP discloses the method of claim 1, wherein the terminal performs detecting whether the identifier is transmitted on the control channel according to a DRX cycle **(3GPP – Section 3.1 discloses “UEs in LTE-IDLE monitor the DSCCHs that may carry paging indicators with DRX period”).**

Regarding **claim 7**, 3GPP discloses the method of claim 1, wherein the terminal is in an idle state **(3GPP - Fig. 3 discloses mobile device is in idle state).**

Regarding **claim 10**, 3GPP discloses the method of claim 1, the radio resource for the paging information is flexibly allocated according to whether or not the paging information is generated **(3GPP – Section 1 and fig. 1 discloses the PCH is allocated according to whether or not the paging information is generated)**.

Regarding **claim 11**, 3GPP discloses a method for transmitting paging information, performed in a base station, the method comprising:
when a paging information is generated, allocating the paging information to a downlink shared channel **(Fig. 1 and Section 1 discloses paging channel PCH can be mapped to physical resource that can be used for traffic, further indicated that PCH is mapped to downlink physical shared channel DPSCCH – radio resource channel)**;

allocating a identifier indicating existence of the paging information **(section 1 – discloses UE listen to the paging indicator in downlink shared control channel DSCCH; Section 3 – Fig. 2 discloses UE read paging indicator which is the PI-ID on control channel DSCCH. Therefore, the identifier indicating existence of paging information is allocated)** and a radio resource allocation information indicating radio resource to which the paging information is allocated to a control channel **(Section 1 discloses the PCH is mapped on to downlink physical shared channel DPSCCH and the scheduling information - resource allocation information - is carried on the**

downlink shared control channel DSCCH; Section 3 and fig. 2 disclose UE read resource indicating of DPSCH in DSCCH); and

transmitting the control channel and the downlink shared channel to a terminal **(Section 1 and figure 1 disclose mobile device receiving frame comprising Downlink Shared Control Channel DSCCH and downlink physical share channel DPSCH. Therefore, the DSCCH and DPSCH are transmitted to UE),**

when the paging information is not generated, the identifier is not allocated to the control channel **(Section 3.1 and Fig. 2 - "UE in LTE-IDLE monitor the DSCCHs that may carry paging indicator with DRX period, UEs will inspect the UE-ID information firstly once receiving the DSCCHs frame. If the UE-ID is not the PI-ID, it means there is no paging information").**

Regarding **claim 12**, 3GPP discloses the method of claim 11, wherein the control channel and the downlink shared channel are physical channels **(Section 1 discloses the Downlink Shared Control Channel DSCCH is on broadcast channel BCH which are physical channel, and Downlink Physical Shared Channel DPSCH is also physical channel).**

Regarding **claim 13**, 3GPP discloses the method of claim 11, wherein the identifier is used by reserving and allocating a part of scheduling identifiers **(3GPP – section 2 “PI-ID equals to C-RNTI in size and isn’t assigned to any**

UE forever”. Therefore, the PI-ID is scheduling identifier which is reserved temporarily to UE).

Regarding **claim 14**, 3GPP discloses the method of claim 13, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs) **(3GPP – Section 2 discloses PI-ID is equal to RNTI).**

Regarding **claim 15**, 3GPP discloses the method of claim 11, wherein the terminal performs a discontinuous reception (DRX) operation **(3GPP – Section 3.1 discloses “UEs in LTE-IDLE monitor the DSCCHs that may carry paging indicators with DRX period”).**

Regarding **claim 16**, 3GPP discloses the method of claim 11, wherein the terminal performs detecting whether the identifier is transmitted on the control channel according to a DRX cycle **(3GPP – Section 3.1 discloses “UEs in LTE-IDLE monitor the DSCCHs that may carry paging indicators with DRX period”).**

Regarding **claim 17**, 3GPP discloses the method of claim 11, wherein the terminal is in an idle state **(3GPP - Fig. 3 discloses mobile device is in idle state).**

Regarding **claim 20**, 3GPP discloses the method of claim 11, the radio resource for the paging information is flexibly allocated according to whether or not the paging information is generated (**3GPP – Section 1 and fig. 1 discloses the PCH is allocated according to whether or not the paging information is generated**).

Claim Rejections - 35 USC § 103

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

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

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:
1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. **Claim 8-9 and 18-19** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **3GPP** in view of **Lee** et al. (US 20050192021 A1, "Lee" hereinafter).

Regarding **claim 8-9**, 3GPP discloses the method of claim 1, however, silent on further details of claim 8-9.

Lee discloses wherein the terminal is in Radio Resource Control (RRC)_Connected state or RRC_idle state (**0022 discloses mobile terminal is in RRC idle or connected mode**).

Therefore, it would be obvious for one of ordinary skill in the art at the time of the invention to modify 3GPP with Lee to applying a known technique to a known device (method, or product) ready for improvement to yield predictable results (MPEP §2141 –III) to improve energy usage for mobile device since discontinuous reception is used in idle state.

Regarding **claim 18-19**, 3GPP discloses the method of claim 11, however, silent on further details of claim 18-19.

Lee discloses wherein the terminal is in Radio Resource Control (RRC)_Connected state or RRC_idle state (**0022 discloses mobile terminal is in RRC idle or connected mode**).

Therefore, it would be obvious for one of ordinary skill in the art at the time of the invention to modify 3GPP with Lee to applying a known technique to a

known device (method, or product) ready for improvement to yield predictable results (MPEP §2141 –III) to improve energy usage for mobile device since discontinuous reception is used in idle state.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG HONG whose telephone number is (571) 270-

Art Unit: 2643

7928. The examiner can normally be reached on Monday-Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JINSONG HU, can be reached on (571) 272-3965. 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).

/DUNG HONG/
Examiner, Art Unit 2643

Notice of References Cited	Application/Control No. 14/276,511	Applicant(s)/Patent Under Reexamination KIM ET AL.	
	Examiner DUNG HONG	Art Unit 2643	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2005/0192021 A1	09-2005	Lee et al.	455/452.2
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L12	41	L11 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:20
L11	1222	OFDM\$ AND paging AND identifier WITH paging AND resource WITH allocat\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:20
L10	6	L9 AND (@ad<"20060426" OR @rlad<"20040626") and (paging OR PCH) with (reserv\$8 OR allocat\$4)	US-PGPUB; USPAT; USOCR	ADJ	OFF	2015/02/20 21:20
L9	184	("20010024956" "20010046864" "20020009129" "20020021698" "20020021714" "20020028690" "20020032884" "20020044527" "20020071480" "20020090004" "20020093940" "20020126629" "20020131375" "20020160744" "20020181436" "20020187789" "20020191559" "20030003920" "20030007510" "20030035440" "20030043741" "20030050097" "20030054829" "20030076812" "20030078046" "20030103476" "20030131124" "20030137931" "20030139170" "20030147371" "20030156624" "20030210669" "20030223393" "20030236085" "20040001452" "20040002334" "20040004954" "20040006643" "20040008658" "20040008659" "20040014452" "20040028078" "20040057387" "20040077357" "20040097192" "20040103435" "20040114606" "20040116143" "20040117860" "20040125772" "20040127223" "20040143676" "20040147266" "20040147271" "20040157602" "20040171395" "20040180675" "20040184437" "20040185860" "20040196861" "20040198369" "20040202140" "20040208160" "20040219920" "20040229626" "20040248600" "20040264497" "20040264550" "20050008035" "20050014508" "20050020260" "20050025039")	US-PGPUB; USPAT; USOCR	ADJ	OFF	2015/02/20 21:20

		"20050026623" "20050041573" "20050054368" "20050059407" "20050059421" "20050063336" "20050073987" "20050105482" "20050107036" "20050118947" "20050157696" "20050185608" "20050190728" "20050197134" "20050207374" "20050213605" "20050243767" "20050249141" "20050249222" "20050260997" "20050265301").PN. OR ("20050271025" "20050281212" "20050288026" "20060002367" "20060007886" "20060011953" "20060018289" "20060025079" "20060045047" "20060059186" "20060062196" "20060146745" "20060153232" "20060168343" "20060193282" "20060256818" "20060292982" "20070060146" "20070099619" "20070121543" "20070135080" "20070140115" "20070147326" "20070206531" "20080031253" "20080069031" "20080095105" "20080232291" "20090052388" "20090109912" "20090163211" "20090175241" "20090201948" "20090238141" "20090319850" "20090323646" "20100014430" "20100034095" "20100103899" "20100105334" "5659756" "5828677" "6088342" "6138158" "6317430" "6330448" "6381229" "6480525" "6571102" "6597668" "6597675" "6694148" "6717925" "6728225" "6785510" "6791963" "6795412" "6850504" "6859445" "6882727" "6907005" "6907015" "6934550" "6947394" "6950420" "6965580" "7016343" "7031708" "7075971" "7099309" "7145895" "7151758" "7184792" "7359345" "7359349" "7376424" "7385952" "7398108" "7426175" "7430206" "7436801" "7443816" "7496113" "7535886" "7590089" "7664059" "7778599" "7826859" "7848308" "7881724" "RE39454").PN.				
L7	29	allocat\$4 with resource with paging with (exist\$6 or available) AND (@ad< "20060426" OR @rlad< "20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:04
L6	78	allocat\$4 with resource with paging with (exist\$6 or available)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:04
L5	33	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND	US- PGPUB; USPAT;	ADJ	ON	2015/02/20 21:01

		paging AND (@ad<"20060426" OR @rlad<"20060426")	USOCR; EPO; JPO; DERWENT			
L4	181	identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:01
L3	291	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND L2	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 20:17
L2	21428	((375/260) OR (455/426.1,458,515)).ccls.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 20:17
L1	95	(paging channel OR PCH or paging (information or data)) with (MAP\$4 or allocat\$4 OR schedul\$4) with (resource or frequency OR location) AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2015/02/20 20:17
S250	8	(reserv\$4 or allocat\$4) with schedule (identifier or id or identity or indicator)	US- PGPUB; USPAT; JPO; DERWENT	ADJ	OFF	2015/02/20 18:21
S249	8	(reserv\$4 or allocat\$4) with schedule (identifier or id or identity)	US- PGPUB; USPAT; JPO; DERWENT	ADJ	OFF	2015/02/20 18:21
S247	3	"12298227"	US- PGPUB; USPAT; JPO; DERWENT	ADJ	OFF	2015/02/10 22:28
S246	1	"14276511"	US- PGPUB; USPAT; JPO; DERWENT	ADJ	OFF	2015/02/10 22:09
S245	39	paging indicat\$4 and resource with (allocat\$4 or reserv\$6 or schedul\$5) and S244 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:45
S244	31193	S242 OR S243	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:45

S243	25913	(H04W24/00 or H04W72/082 or H04W16/10 or H04W72/04 or H04W28/04).cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:44
S242	5891	(H04W68/00 or H04W68/02 OR H04W68/025 or H04W52/02 or H04W68/12).cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:42
S241	0	S239 and (paging with resource allocat\$4).clm. and indicator.clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:40
S240	4	S239 and (paging with resource allocat\$4).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:40
S239	12559	S237 OR S238	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:39
S238	11768	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:39
S237	1061	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:39
S236	12559	S234 OR S235	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
S235	11768	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
S234	1061	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28

S233	2	"12298227"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
S232	6	S230 AND (@ad<"20060426" OR @rlad<"20040626") and (paging OR PCH) with (reserv\$8 OR allocat\$4)	US- PGPUB; USPAT; USOCR	ADJ	OFF	2014/07/28 11:22
S231	166	S230 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR	ADJ	OFF	2014/07/28 11:22
S230	184	("20010024956" "20010046864" "20020009129" "20020021698" "20020021714" "20020028690" "20020032884" "20020044527" "20020071480" "20020090004" "20020093940" "20020126629" "20020131375" "20020160744" "20020181436" "20020187789" "20020191559" "20030003920" "20030007510" "20030035440" "20030043741" "20030050097" "20030054829" "20030076812" "20030078046" "20030103476" "20030131124" "20030137931" "20030139170" "20030147371" "20030156624" "20030210669" "20030223393" "20030236085" "20040001452" "20040002334" "20040004954" "20040006643" "20040008658" "20040008659" "20040014452" "20040028078" "20040057387" "20040077357" "20040097192" "20040103435" "20040114606" "20040116143" "20040117860" "20040125772" "20040127223" "20040143676" "20040147266" "20040147271" "20040157602" "20040171395" "20040180675" "20040184437" "20040185860" "20040196861" "20040198369" "20040202140" "20040208160" "20040219920" "20040229626" "20040248600" "20040264497" "20040264550" "20050008035" "20050014508" "20050020260" "20050025039" "20050026623" "20050041573" "20050054368" "20050059407" "20050059421" "20050063336" "20050073987" "20050105482" "20050107036" "20050118947" "20050157696" "20050185608" "20050190728" "20050197134" "20050207374" "20050213605" "20050243767" "20050249141" "20050249222" "20050260997" "20050265301").PN. OR ("20050271025" "20050281212" "20050288026" "20060002367" "20060007886"	US- PGPUB; USPAT; USOCR	ADJ	OFF	2014/07/28 11:21

		"20060011953" "20060018289" "20060025079" "20060045047" "20060059186" "20060062196" "20060146745" "20060153232" "20060168343" "20060193282" "20060256818" "20060292982" "20070060146" "20070099619" "20070121543" "20070135080" "20070140115" "20070147326" "20070206531" "20080031253" "20080069031" "20080095105" "20080232291" "20090052388" "20090109912" "20090163211" "20090175241" "20090201948" "20090238141" "20090319850" "20090323646" "20100014430" "20100034095" "20100103899" "20100105334" "5659756" "5828677" "6088342" "6138158" "6317430" "6330448" "6381229" "6480525" "6571102" "6597668" "6597675" "6694148" "6717925" "6728225" "6785510" "6791963" "6795412" "6850504" "6859445" "6882727" "6907005" "6907015" "6934550" "6947394" "6950420" "6965580" "7016343" "7031708" "7075971" "7099309" "7145895" "7151758" "7184792" "7359345" "7359349" "7376424" "7385952" "7398108" "7426175" "7430206" "7436801" "7443816" "7496113" "7535886" "7590089" "7664059" "7778599" "7826859" "7848308" "7881724" "RE39454").PN.				
S228	3	"12159841"	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 11:21
S227	23	resource with (allocat\$4 OR schedul\$4 OR information) with (paging channel OR PCH) with (read\$4 OR process\$4 OR receiv\$4) and (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:51
S226	5	resource with allocat\$4 with (paging channel OR PCH) with (read\$4 OR process\$4 OR receiv\$4) and (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:50
S225	64	resource with allocat\$4 with (paging channel OR PCH) with (read\$4 OR process\$4 OR receiv\$4)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:50

S224	5	(paging channel OR PCH) with MAP and ofdm\$1 and (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:49
S223	9	(paging channel OR PCH) with ofdm\$1 and paging AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:44
S222	14013	paging channel OR PCH with ofdm\$1 and paging	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:44
S221	93	(paging channel OR PCH or paging (information or data)) with (MAP\$4 or allocat\$4 OR schedul\$4) with (resource or frequency OR location) AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:33
S219	39	ofdm\$1 and (paging channel OR PCH or paging (information or data)) with (MAP\$4 or allocat\$4) AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:20
S218	34	ofdm\$1 and (paging channel OR PCH) with (MAP\$4 or allocat\$4) AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:19
S217	1505	ofdm\$1 and (paging channel OR PCH) with (MAP\$4 or allocat\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:19
S216	76	(allocat\$4 or map\$4) with resource with paging with (channel or data or information) AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:11
S215	1606	allocat\$4 with resource with paging	US-PGPUB; USPAT; USOCR; FPRS;	ADJ	OFF	2014/07/24 21:11

			EPO; JPO; DERWENT			
S214	3	allocat\$4 with paging with channel and S212	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:09
S213	950	resource with allocat\$4 with paging with channel	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:09
S212	41	control channel with paging (indicator or exist\$4 or identifier) AND (@ad< "20060426" OR @rlad< "20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:08
S211	567	control channel with paging (indicator or exist\$4 or identifier)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:08
S201	30163	((375/260) OR (455/426.1,458,515,450,452.1,509)).ccls.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 18:45
S199	6	S194 and (map\$5 or allocat\$4) with (paging) with resource	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 14:20
S198	0	S197 and ((downlink shared channel) and (resource channel) and frame).clm.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S197	11526	S195 OR S196	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S196	10765	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37

S195	1015	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S194	59	(identifier or identity) with paging near4 (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S193	37	identifier with paging near4 (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S192	97	identifier with paging with (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 12:45
S191	1	"12298227" and identifier	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 12:14
S190	19	(identifier OR identity) with paging with (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426") and (reserv\$4 OR allocat\$4) with (identifier OR identity)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 11:57
S189	19	(identifier OR identity) with paging with (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426") and (reserv\$4 OR allocat\$4) with (identifier OR identity)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:37
S187	176	identifier with paging with (exist\$4 OR available)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:36
S186	0	S185 and ((downlink shared channel) and (resource channel) and frame).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S185	10666	S183 OR S184	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10

S184	9946	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S183	948	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S182	270	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND S181	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:09
S181	15497	((375/260) OR (455/426.1,458,515)).cls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:09
S180	0	(identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))).clm. and S179	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S179	10666	S177 OR S178	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S178	9946	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S177	948	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S176	122	identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:52
S175	4	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4) with (available OR need\$4) with paging AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/26 23:43

S174	18	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4) with (available OR need\$4) with paging	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/26 20:39
S173	198	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4) with (available OR need\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/26 20:38
S172	0	S171 and ((downlink shared channel) and (resource channel) and frame).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S171	9486	S169 OR S170	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S170	8817	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S169	860	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S168	106	downlink shared channel WITH physical channel and shared channel with transport channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:23
S167	200	downlink shared channel WITH physical channel and transport channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:23
S166	9	(LTE or E\$utran) and downlink shared channel and physical channel and transport channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:17
S165	222	downlink shared channel with transport channel and @ad<"20060426" and transport channel with physical channel	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:15
S164	136	downlink shared channel with transport channel and @ad<"20060426" and paging	US-PGPUB; USPAT; EPO; JPO;	ADJ	ON	2013/03/09 18:12

			DERWENT			
S163	380	downlink shared channel with transport channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:11
S162	273	transport channel with shared channel and (paging or pch) and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:54
S161	1809	transport channel with shared channel	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:53
S160	47	OFDM\$ and paging and pch and shar\$6 with (resource or channel) and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:51
S159	1206	OFDM\$ and paging and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:50
S158	232	transport channel and paging and pch and physical channel and shar\$4 channel AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:49
S157	8	transport channel and paging and pch and physical channel and share channel AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:48
S156	435	transport channel and paging and pch and physical channel AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:48
S155	0	transport channel and physical channel and paging and pch and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:38
S154	56	ofdm\$1 and pch and paging and control channel and (@ad<"20060426" or @rlad<"20060426")	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 22:45
S152	2	(paging channel or pch) with mapping and ofdm and @ad<"20060426"	US-PGPUB;	ADJ	ON	2013/03/08 00:17

			USPAT; EPO; JPO; DERWENT			
S151	22	(paging channel or pch) with mapping and ofdm	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:17
S150	3	(paging channel or pch) with shared channel and ofdm and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:17
S149	119	(paging channel or pch) with shared channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:16
S148	0	(paging channel or pch) with share channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:16
S147	232	pch and bch and frame and paging and @ad<"20060426"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 23:53
S146	3	"20050153715"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 20:09
S145	1	US20050153715A1	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 20:08
S144	1	WO "2005046087"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 20:08
S143	25	paging WITH (allocat\$4 OR map\$6) and (resource or channel) with (dynamic\$5 or flexible or flexibility) and physical channel and (@ad<"20060426" or @rlad<"20060426") and (paging (indicator or identifier or notification) or pich)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 19:53
S142	120	paging WITH (allocat\$4 OR map\$6) and (resource or channel) with physical channel and (@ad<"20060426" or @rlad<"20060426") and (paging (indicator or identifier or notification) or pich)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 19:50
S141	27	(paging channel OR pch) with (map\$4 OR allocat\$5) with (radio resource channel or physical channel) and shared	US-PGPUB; USPAT;	ADJ	ON	2013/03/07 16:10

		channel and (@ad<"20060426" and @rlad<"20060426")	USOCR; EPO; JPO; DERWENT			
S140	10	(paging or pch) with mapping with (radio resource channel or physical channel) and shared channel and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 16:07
S139	2	US "20050101351" A1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 13:50
S138	2	ep "1530395"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 13:49
S137	120	paging WITH (allocat\$4 OR map\$6) and (resource or channel) and physical channel and (@ad<"20060426" or @rlad<"20060426") and (paging (indicator or identifier or notification) or pich)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 13:24
S136	26	paging WITH (allocat\$4 OR map\$6) WITH resource and ofdm AnD (@ad<"20060426" or @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 03:00
S135	5	S131 AND RRC with idle	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:51
S134	4	S131 AND RRC with connected	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:50
S133	0	S131 AND RRC with connect	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:50
S132	4	S131 AND RNTI	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:19
S131	30	(US-20070173269-\$ or US-20040180675-\$ or US-20050277429-\$ or US-20100062795-\$ or US-20060029011-\$ or US-20090010219-\$ or US-20040253959-\$ or US-20050090262-\$ or US-20050101351-\$ or US-20050192021-\$ or US-20060116136-\$ or US-20080119199-\$ or US-20040023672-\$ or US-20040087320-\$ or US-20050096017-\$ or US-20070254679-\$ or US-20050063331-\$ or US-20080171520-\$ or US-20100248753-\$ or US-20050169203-\$ or US-20040008679-\$ or US-20040087330-\$ or US-20050113087-\$).did. or (US-6438375-\$ or US-7751356-\$ or US-	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:19

		5842141-\$ or US-6216004-\$ or US-6393295-\$ or US-6434393-\$ or US-6711413-\$).did.				
S130	11	S129 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/27 11:27
S129	223	(flexible OR dynamic\$4 OR adaptive) WITH (resource OR channel) WITH (allocat\$4 OR assign\$6) WITH paging WITH message	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/27 11:26
S128	202	S127 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:28
S127	907	rrc WITH idle WITH state	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:28
S126	1515	rrc WITH idle	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:28
S125	90	S124 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:11
S124	353	(flexible OR dynamic\$4 OR adaptive) WITH (resource OR channel) WITH (allocat\$4 OR assign\$6) WITH paging	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:11
S123	242	S122 AND paging WITH (indicat\$8 OR notif\$8)	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 23:23
S122	403	paging message WITH (resource OR channel) WITH (allocat\$4 OR assign\$5) AND (@ad<"20070424" OR @rlad<"20070424")	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 23:23
S121	629	paging message WITH (resource OR channel) WITH (allocat\$4 OR assign\$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 23:22
S120	3	"20040253959"	US-PGPUB;	ADJ	ON	2012/02/20 17:51

			USPAT; EPO; JPO; DERWENT			
S119	268	(resource OR channel OR sub\$carrier OR carrier) WITH (allocat\$4 OR assign\$5 OR map\$4) WITH paging AND (@ad<"20070424" OR @rlad<"20070424") AND (OFDM OR OFDMA)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 17:43
S118	203	S102 AND (@ad<"20070424" OR @rlad<"20070424") AND (channel OR resource) WITH (allocat\$4 OR assign\$7) WITH (information)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 17:43
S117	119	(S100 OR S105) AND (resource OR channel) WITH (allocat\$5 OR assign\$5) WITH (paging channel OR paging message OR paging information OR PCH)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 17:28
S116	28	LG.as. AND MBMS AND MCOH AND PICH and drx	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:27
S115	47	LG.as. AND MBMS AND MCOH AND PICH	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:27
S114	47	LG AND MBMS AND MCOH AND PICH	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:27
S113	2	"20050044981"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:26
S112	123	(resource OR channel OR sub\$carrier OR carrier) WITH (allocat\$4 OR assign\$5 OR map\$4) WITH paging AND (@ad<"20060426" OR @rlad<"20040626") AND (OFDM OR OFDMA)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:10
S111	2558	(resource OR channel OR sub\$carrier OR carrier) WITH (allocat\$4 OR assign\$5 OR map\$4) WITH paging AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:10
S110	83	S109 AND S97 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT;	ADJ	ON	2012/02/17 16:09

			USOCR; EPO; JPO; DERWENT			
S109	1193	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging AND S108	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:08
S108	12138	(resource OR channel OR carrier) WITH (allocat\$4 OR assign\$5) WITH (control channel)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:08
S107	150	paging WITH indicator AND S106	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:05
S106	910	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging AND (receiv\$4 OR decod\$4 OR reception) WITH (paging OR message) WITH (allocat\$5 OR assign\$6) WITH (channel OR resource) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:05
S105	123	S102 AND (@ad<"20060426" OR @rlad<"20040626") AND (carrier OR OFDM OR OFDMA OR sub\$carrier)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:06
S104	154	S102 AND (@ad<"20060426" OR @rlad<"20040626") AND (channel OR resource) WITH (allocat\$4 OR assign\$7) WITH (information)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:05
S103	276	S102 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:05
S102	651	paging WITH indicator AND S101	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:05
S101	3594	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:04
S100	157	S97 AND (@ad<"20060426" OR @rlad<"20040626") AND (carrier OR	US- PGPUB;	ADJ	ON	2012/02/17 12:58

		OFDM\$ OR MAP)	USPAT; USOCR; EPO; JPO; DERWENT			
S99	157	S97 AND (@ad<"20060426" OR @rlad<"20040626") AND (carrier OR OFDM OR MAP)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S98	265	S97 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S97	607	paging WITH indicator AND S96	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S96	3072	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging WITH channel	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S95	19	(paging) AND S93 AND (@ad<"20060426" OR @rlad<"20060426") AND (id OR identity OR identifier)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/12 11:49
S94	24	(paging) AND S93 AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/12 11:49
S93	822	(resource OR carrier) WITH (allocat\$3 OR assign\$5 OR map\$4) WITH (control channel OR "CCH" OR "C-CH") WITH (physical OR S92)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/12 11:48
S91	72	(S82 OR S85) AND paging AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:10
S90	238	(S82 OR S85) AND paging	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:10
S89	72	(S82 OR S85) AND (OFDM) AND paging	US-PGPUB;	ADJ	ON	2011/05/11 19:10

			USPAT; USOCR; EPO; JPO; DERWENT			
S88	226	(S82 OR S85) AND (OFDM)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:09
S86	398	S82 OR S85	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:08
S85	182	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND ("370").clas. AND OFDM	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:07
S84	1	"12393193"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:06
S83	1206	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND ("370").clas.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:41
S82	230	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND S80	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:41
S80	9544	((375/260) OR (455/426.1,458,515)).ccls.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:39
S79	18	S71 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:24
S78	21	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND paging AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:23
S76	35	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3)	US- PGPUB;	ADJ	ON	2011/05/11 18:16

		WITH information AND OFDM AND (@ad<"20060426" OR @rlad<"20060426") AND (pag\$4)	USPAT; USOCR; EPO; JPO; DERWENT			
S75	164	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:26
S74	604	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:26
S73	2442	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:26
S72	8	paging indicator AND OFDM AND (@ad<"20060426" OR @rlad<"20060426") AND (resource) WITH (allocat\$3 OR map\$5)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:24
S71	289	paging indicator AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:23
S70	24	(DRX OR discontinuous reception) AND (paging OR page) WITH (indicator OR ID OR identifier) AND ((resource OR carrier) WITH (map\$4 OR allocat\$3) SAME (page OR paging)) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 16:27
S69	14	(paging indicat\$3) AND OFDM AND map\$4 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:30
S67	325	paging indicat\$3 AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:29
S66	224	S65 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:03
S65	714	(PI OR paging (indicat\$3 OR notif\$7 OR inform\$3)) SAME (resource OR channel)	US-PGPUB;	ADJ	ON	2011/05/11 12:03

		WITH (allocat\$3 OR map\$4)	USPAT; USOCR; EPO; JPO; DERWENT			
S64	58	(resource mapping OR mapping information) SAME (page OR paging) AND (ID OR identifier OR identity) SAME (page OR paging) AND (wireless OR cellular) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:52
S63	353	(resource mapping OR mapping information) SAME (page OR paging) AND (ID OR identifier OR identity) SAME (page OR paging)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:51
S62	904	(resource mapping OR mapping information) SAME (page OR paging)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:51
S61	25	S58 AND ("455" OR "370" OR "375").clas. AND (discontinuous reception OR DRX)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:37
S60	634	S58 AND ("455" OR "370" OR "375").clas.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:36
S59	102	S58 AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:36
S58	967	S55 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:35
S55	2578	(id OR identification OR notif\$8 OR inform\$7) WITH (paging OR page) AND (paging OR page) SAME (resource OR channel) WITH (map\$4 OR schedul\$5 OR allocat\$3) WITH (information OR data)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:34
S37	25	OFDM\$ AND paging (message OR indicat\$3) SAME (resource) WITH (map\$4 OR schedul\$5 OR allocat\$3) AND (ID OR identifier OR identity) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:59
S36	183	OFDM\$ AND paging (message OR indicat\$3) SAME (resource) WITH (map\$4	US-PGPUB;	ADJ	ON	2011/05/10 18:59

		OR schedul\$5 OR allocat\$3)	USPAT; USOCR; EPO; JPO; DERWENT			
S35	0	"10200300778891"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:49
S34	0	"1020050044981"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:49
S33	0	"10200500044981"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:48
S32	0	"1020050044981"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:48
S31	3	"9949626"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:47
S30	2	"20030152044"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:46
S28	5	"2005071985"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:45
S27	3	"20030088695"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S26	0	"200300088695"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S25	0	"200300088695"	US- PGPUB;	ADJ	ON	2011/05/10 18:43

			USPAT; USOCR; EPO; JPO; DERWENT			
S24	0	"200300088695"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S23	168	OFDM\$ AND (paging message) SAME (resource) WITH (map\$4 OR schedul\$5 OR allocat\$3)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:29
S22	163	S21 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:38
S21	285	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:34
S20	7246	paging message	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:33
S19	165	S18 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:21
S18	281	paging SAME identifier AND ((allocation OR schedul\$5) WITH information) AND physical WITH channel	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:21
S17	306	(identifier OR ID OR notification) WITH paging AND (resource OR carrier) WITH (allocat\$3) AND (control channel) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:53
S16	957	(identifier OR ID OR notification) WITH paging AND (resource OR carrier) WITH (allocat\$3)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:53
S15	35	S14 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB;	ADJ	ON	2011/05/10 15:40

			USPAT; USOCR; EPO; JPO; DERWENT			
S14	121	OFDM\$ AND paging AND identifier WITH paging AND resource WITH allocat\$3	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S13	558	OFDM\$ AND paging AND identifier AND resource WITH allocat\$3	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S12	401	OFDM\$ SAME paging	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S11	2403	OFDM AND paging	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:39
S7	10	S6 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:34
S6	57	identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:34
S5	158	identifier WITH (physical control channel OR PCH)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:32
S4	5932	S2 OR S3	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 13:10
S3	5381	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 13:10
S2	655	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2	US- PGPUB;	ADJ	ON	2011/05/10 13:09

EAST Search History


		Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	USPAT; USOCR; EPO; JPO; DERWENT			
S1	1	"12298227"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 11:33

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S210	0	S203 and S209	USPAT; UPAD	ADJ	ON	2014/02/07 18:45
S209	2	S208 and S205	USPAT; UPAD	ADJ	ON	2014/02/07 18:45
S208	14093	((375/260) OR (455/426.1,458,515,450,452.1,509)).ccls.	USPAT; UPAD	ADJ	ON	2014/02/07 18:45
S207	0	S204 and S205	USPAT; UPAD	ADJ	ON	2014/02/07 17:57
S206	0	S203 and S205	USPAT; UPAD	ADJ	ON	2014/02/07 17:57
S205	4	(allocation (information or data) with (paging) with (channel or information)).clm.	USPAT; UPAD	ADJ	ON	2014/02/07 17:32
S204	12	S202 and S203	USPAT; UPAD	ADJ	ON	2014/02/07 17:31
S203	30	((identifier OR identity or id) with (existence OR available OR notify\$4 or indicat\$4) with paging (channel or information)).clm.	USPAT; UPAD	ADJ	ON	2014/02/07 17:30
S202	8313	((375/260) OR (455/426.1,458,515)).ccls.	USPAT; UPAD	ADJ	ON	2014/02/07 17:28

2/ 20/ 2015 9:55:18 PM

C:\Users\dhong\Documents\WIP\276511-14.wsp

Search Notes 	Application/Control No. 14276511	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner DUNG HONG	Art Unit 2643

CPC- SEARCHED		
Symbol	Date	Examiner
H04W68/00, H04W68/02, H04W24/00, H04W72/082	7/26/2014	DH

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
H04W68/00, H04W68/02, H04W68/025, H04W52/02, H04W68/12	7/26/2014	DH
H04W24/00, H04W72/082, H04W16/10, H04W72/04, H04W28/04	7/26/2014	DH

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	426.1,458,515,450,452.1,509	7/26/2014	DH

SEARCH NOTES		
Search Notes	Date	Examiner
Inventor search, google search, class/subclass search, text search, CPC search	7/26/2014	DH
Updated inventor search, google search, class/subclass search, text search, CPC search	2/20/2015	DH

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/DUNG HONG/ Examiner, Art Unit 2643	
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<i>Index of Claims</i> 	Application/Control No. 14276511	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner DUNG HONG	Art Unit 2643

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

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47									
CLAIM		DATE							
Final	Original	07/28/2014	02/20/2015						
	1	✓	✓						
	2		✓						
	3		✓						
	4		✓						
	5		✓						
	6		✓						
	7		✓						
	8		✓						
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	10		✓						
	11		✓						
	12		✓						
	13		✓						
	14		✓						
	15		✓						
	16		✓						
	17		✓						
	18		✓						
	19		✓						
	20		✓						

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 14/276,511

Filing Date: May 13, 2014

First Inventor: Jae Heung KIM

Group Art Unit: 2643

Examiner: HONG, DUNG

Title: METHOD FOR PAGING INFORMATION IN CELLULAR
SYSTEM

Attorney Docket: ESA-0002-CA-ET

**REPLY TO FINAL OFFICE ACTION
AND AMENDMENT UNDER 37 CFR §1.116**

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

Dear Sir:

In response to the Final Office Action mailed March 3, 2015, please consider the attached Certification for Consideration Under the AFCP Program 2.0, and the following amendments and remarks in connection with the above-identified application along with a Terminal Disclaimer and requisite fee.

AMENDMENTS TO THE CLAIMS begin on page 2 of this paper; and
REMARKS begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for decoding paging information, performed in a ~~terminal~~, terminal, the method comprising:

receiving a control channel and a downlink shared channel;
detecting an identifier indicating existence of a paging information in the downlink shared channel, the identifier is transmitted on the control channel;
when the identifier is detected, detecting a radio resource allocation information indicating radio resource to which the paging information is allocated, the radio resource allocation information is transmitted on the control channel; and
decoding the paging information, indicated by the radio resource allocation information, in the downlink shared channel,
wherein when the paging information does not exist in the downlink shared channel, the identifier is not detected and is not allocated to the control channel, and
wherein the identifier is used by reserving and allocating a part of scheduling identifiers.

2. (Previously Presented) The method of claim 1, wherein the control channel and the downlink shared channel are physical channels.

3. (Cancelled)

4. (Previously Presented) The method of claim 3, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs).

5. (Previously Presented) The method of claim 1, wherein the terminal performs a discontinuous reception (DRX) operation.

6. (Previously Presented) The method of claim 1, wherein the terminal performs detecting whether the identifier is transmitted on the control channel according to a DRX cycle.

7. (Previously Presented) The method of claim 1, wherein the terminal is in an idle state.

8. (Previously Presented) The method of claim 1, wherein the terminal is in Radio Resource Control (RRC)_Connected state.

9. (Previously Presented) The method of claim 1, wherein the terminal is in RRC_idle state.

10. (Previously Presented) The method of claim 1, the radio resource for the paging information is flexibly allocated according to whether or not the paging information is generated.

11. (Currently Amended) A method for transmitting paging information, performed in a base station, the method comprising:

when a paging information is generated, allocating the paging information to a downlink shared channel;

~~allocating a identifier~~allocating an identifier indicating existence of the paging information and a radio resource allocation information indicating radio resource to which the paging information is allocated to a control channel; and

transmitting the control channel and the downlink shared channel to a terminal,

wherein when the paging information is not generated, the identifier is not allocated to the control channel, and

wherein the identifier is used by reserving and allocating a part of scheduling identifiers.

12. (Previously Presented) The method of claim 11, wherein the control channel and the downlink shared channel are physical channels.

13. (Cancelled)

14. (Previously Presented) The method of claim 13, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs).

15. (Previously Presented) The method of claim 11, wherein the terminal performs a discontinuous reception (DRX) operation.

16. (Previously Presented) The method of claim 11, wherein the terminal performs detecting whether the identifier is transmitted on the control channel according to a DRX cycle.

17. (Previously Presented) The method of claim 11, wherein the terminal is in an idle state.

18. (Previously Presented) The method of claim 11, wherein the terminal is in Radio Resource Control (RRC)_Connected state.

19. (Previously Presented) The method of claim 11, wherein the terminal is in RRC_idle state.

20. (Previously Presented) The method of claim 11, the radio resource for the paging information is flexibly allocated according to whether or not the paging information is generated.

REMARKS

The above amendment is made in response to the Office Action of March 3, 2015. The Examiner's reconsideration is respectfully requested in view of the above amendment and the following remarks.

Claims 1 and 11 have been amended. Support for the amendment to claims 1 and 11 can be found, at least, in claims 3 and 13; and Fig. 6 of the application as originally filed. Claims 3 and 13 are cancelled without prejudice to or disclaimer of the subject matter therein. The present amendment introduces no new matter, as support is found throughout the originally filed specification and claims.

Entry of the amendments is proper under 37 CFR §1.116 in view of the Patent Office's After Final Consideration Pilot (AFCP) because the amendments can be determined to place the application in condition for allowance, do not broaden the scope of the independent claim in any aspect, and require only a limited amount of further consideration or search.

Claims 1, 2, 4-12, and 14-20 are pending in the present application upon entry of the above amendment.

Double Patenting

On pages 5-14, the Office Action provisionally rejects claims 1-20 for alleged non-statutory obviousness-type double patenting over claims 1-3, 5, 7-12, 14, and 16-18 of U.S. Patent No. 8,761,814. Applicant respectfully traverses this rejection.

Applicant hereby files an appropriate terminal disclaimer in accordance with MPEP § 804.02. Applicant respectfully submits that the filing of a terminal disclaimer to obviate a rejection based on non-statutory double patenting is not an admission of the propriety of the rejection. *Quad Environmental Technologies Corp. v. Union Sanitary District*, 946 F.2d 870 (Fed. Cir. 1991). The filing of a terminal disclaimer simply serves the statutory function of removing the rejection of double patenting, and raises neither a presumption nor estoppels on the merits of the rejection.

Accordingly, as the terminal disclaimer performs the function of removal, Applicant respectfully requests a withdrawal of the non-statutory obviousness-type double patenting of claims 1-20.

Rejections of Claims under 35 U.S.C. §102(e)

On pages 7-11, the Office Action rejects claims 1-7, 10-17, and 20 under 35 U.S.C. §102(e) as allegedly being anticipated by 3GPP RAN1/RAN2 joint meeting on LTE R2-060988, PCH mapping and paging control (hereinafter “3GPP”). This rejection is respectfully traversed.

In order to anticipate a claim under 35 U.S.C. §102, a single source must contain all of the elements of the claim. *Lewmar Marine v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements “arranged as in the claim.” *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1274 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985). Applicant traverses the rejections based upon 3GPP because 3GPP does not teach or disclose every element of the claimed invention as provided in the above amended claims.

On page 4, the Office Action alleges that the scope and content of the claimed invention only indicate that the paging identifier is detected when there is paging information and the paging indicator is not detected when there is no paging information. Applicant arguments focus on details that the paging identifier is flexibly allocated and the radio resource is allocated for the paging indicator based on the existence is not found in the current scope of the claim.

Accordingly, Applicant has amended independent claim 1 to include, *inter alia*, the following:

wherein when the paging information does not exist in the downlink shared channel, the identifier is not detected, **and the identifier is not allocated to the control channel**,

[emphasis added]

Independent claim 11 contains similar recitations as independent claim 1.

Applicant submits that the asserted reference fails to disclose at least such feature of the claimed invention that “wherein when the paging information does not exist in the downlink shared channel, the identifier is not detected, and the identifier is not allocated to the control channel,” (emphasis added) as recited in independent claim 1 and similarly recited in independent claim 11.

More specifically, 3GPP discloses a paging indicator, for example, on pages 1-2 as follows:

So, PCH can be mapped on the downlink physical shared channel (named as DPSCCH for short). While no paging, the DPSCCH doesn't carry any content of PCH to save the radio resource. Additionally, the data amount of PCH is much usually, UE will spend more time and power for reading it. For supporting UE power saving, a paging indicating channel in physical layer should be configured to indicate whether having PCH. UEs will listen to the paging indicating signal in DRX mode. As PCH is mapped on DPSCCH and the scheduling information of DPSCCH is carried on the downlink shared control channel (named as DSCCH for short), we can combined the paging indicating channel into DSCCH. The occasion of paging indicator appears on the DSCCHs with DTX period. Which DSCCH carry the paging indicator and the DTX period is broadcasted on the BCH.

The location of resource using by PCH is fixed with paging indicator, which can be broadcasted in BCH of determined by specification.

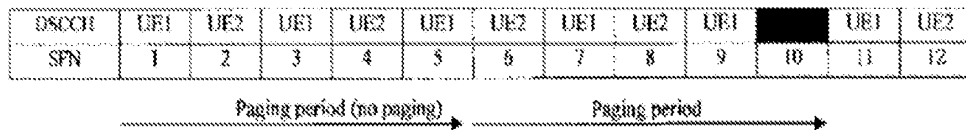


Figure 1: PCH mapping

In Figure 1, SFN #5, 10 in DSCCH are the paging indicator occasion. But in the SFN #5, there is no paging information, so the scheduling information to UE1 is carried on DSCCH, i.e. SFN #6, UE1 transmits/receives data. In the SFN #10, paging indicator is presented on DSCCH, and the PCH information appears in SFN #11.

[emphasis added]

In 3GPP, the paging indicating channel to which the paging indicator is allocated indicates whether having PCH. Thus, the paging indicator is always allocated to radio resources. In other words, the paging indicator is allocated to the radio resources if there is the paging information as well as if there is no the paging information.

In contrast, in the present invention the identifier is flexibly allocated to the radio resources. In other words, the identifier is allocated to the radio resources if there is the paging information. However, the identifier is not allocated to the radio resources if there is no the paging information.

Thus, it is respectfully submitted that the paging indicator of 3GPP teaches away from the identifier of the claimed invention.

Further, Applicant also submits that PI-ID of 3GPP teaches away from the identifier of the claimed invention. 3GPP describes the use of PI-ID on pages 2-3 as follows:

3. Paging control procedure

The paging control procedure is depicted as following in detail according to each structure of DSCCH frame:

1). Using a PI-ID

If there is no paging, the eNodeB transfers scheduling information on the DSCCHs with a C-RNTI allocated to a UE, then transfers data on the related DPSCCH. If there is paging message coming from aGW, the eNodeB sends paging indicator and resources indicating of DPSCCH on DSCCH when the paging occasion comes, and set the PI-ID in the DSCCH frame instead of C-RNTI at the same time.

UEs in LTE-IDLE monitor the DSCCHs that may carry paging indicators with DRX period. UEs will inspect the UE-ID information firstly once receiving the DSCCHs frame. If the UE-ID is not the PI-ID, it means there is no paging information. These UEs will return to dormant state, and monitor paging indicator in the next DRX occasion.

When the UE-ID is PI-ID, UEs will read the paging indicator belonging to themselves. The UE will return to dormant state and monitor DSCCH in next DRX occasion, if no exact paging information associated with it. Otherwise, the UE reads scheduling information; and receives the paging data carried on DPSCCH, and then deals with paging message. The procedure depicted above is shown in Figure 2.

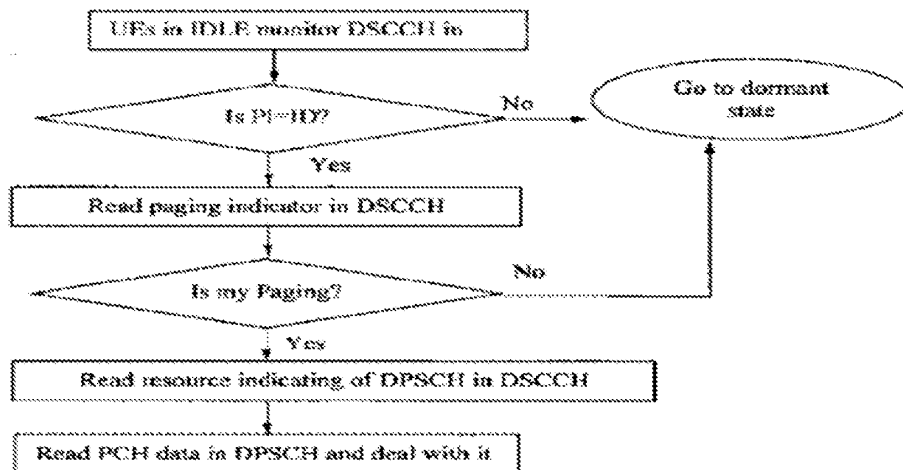


Figure 2: The control procedure of Idle UE

[emphasis added]

In 3GPP, the PI-ID indicates existence of the paging information. For example, the PI-ID is identical to the UE-ID if there is the paging information. The PI-ID is not identical to the UE-ID if there is no the paging information. In other words, the PI-ID is always allocated to the radio resources.

In contrast, in the present invention the identifier is flexibly allocated to the radio resources. In other words, the identifier is allocated to the radio resources if there is the paging information, but the identifier is not allocated to the radio resources if there is no the paging information.

Furthermore, Applicant has amended independent claims 1 and 11 to include, *inter alia*, the following:

wherein the identifier is used by reserving and allocating **a part of scheduling identifiers**.
[emphasis added]

Applicant submits that the asserted reference fails to disclose at least such feature of the claimed invention that “wherein the identifier is used by reserving and allocating a part of scheduling identifiers,” (emphasis added) as recited in independent claims 1 and 11.

The Office Action alleges 3GPP discloses the above-quoted feature in Section 2 where 3GPP discusses that PI-ID equals to C-RNTI in size and isn’t assigned to any UE forever. The Office Action alleges that the PI-ID is scheduling identifier which is reserved temporarily to UE. However, in 3GPP, the PI-ID equals to C-RNTI in size and is used in place of C-RNTI. Thus, in 3GPP, the PI-ID is not used by reserving and allocating a part of scheduling identifiers, but rather replaces C-RNTI. In contrast, in the claimed invention, as shown in Fig. 5, the present invention is operated by reserving and allocating a part of the information included in the terminal scheduling ID as a group ID for paging information. The group ID is an ID used by reserving and allocating a part of a scheduling ID (i.e., a cell radio network temporary identifier (C-RNTI)) for uniquely identifying a terminal. A base station may operate by reserving at least one scheduling ID.

Accordingly, the applied reference fails to disclose all the features recited in claims 1 and 11. Therefore, for at least the forgoing reasons, independent claims 1 and 11 are allowable in light of the reference of record. Claims 3 and 13 have been cancelled to render

their rejection under 35 U.S.C. §102(e) moot. Claims 2, 4-7, 10, 12, 14-17, and 20 depend from allowable claims 1 and 11. Therefore, claims 2, 4-7, 10, 12, 14-17, and 20 are allowable at least based on their respective dependencies.

For at least the forgoing reasons, Applicant respectfully requests that the rejection of claims 1-7, 10-17, and 20 under 35 U.S.C. §102(e) be withdrawn.

Rejections of Claims under 35 U.S.C. §103(a)

The Office Action rejects claims 8, 9, 18, and 19 under 35 U.S.C. §103(a) over 3GPP in view of U.S. Patent Publication No. 2005/0192021 to Lee et al. (hereinafter, “Lee”).

In order for an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996). See MPEP 2143. Applicant respectfully traverses the rejection based upon 3GPP and Lee because the cited references, either alone or in combination, do not teach or disclose every element of the claimed invention as provided in the above amended claims.

Claims 8, 9, 18, and 19 are dependent claims and thus are also patentable for their dependencies from independent claims 1 and 11, as well as for the additional features they recite. For at least the forgoing reasons, Applicant respectfully requests that the rejection of claims 8, 9, 18, and 19 under 35 U.S.C. §103(a) be withdrawn.

Conclusion

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued.

If the Examiner believes that a telephone conference with Applicant's attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicant's attorney hereby authorizes that such fee be charged to Deposit Account No. 50-5622.

Respectfully submitted,

Date: May 4, 2015

By: /Steve H. Lam/
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Document Description: After Final Consideration Pilot Program Request

PTO/SB/434 (05-13)

CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0		
Practitioner Docket No.: ESA-0002-CA-ET	Application No.: 14/276,511	Filing Date: May 13, 2014
First Named Inventor: Jae Heung KIM	Title: METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM	
<p>APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116.</p> <ol style="list-style-type: none">The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (<i>e.g.</i>, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).The above-identified application contains an outstanding final rejection.Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect.This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection.Applicant is willing and available to participate in any interview requested by the examiner concerning the present response.This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web).Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.]By filing this certification and request, applicant acknowledges the following:<ul style="list-style-type: none">Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0.The examiner will verify that the AFCP 2.0 submission is compliant, <i>i.e.</i>, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions:<ul style="list-style-type: none">The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, by mailing an advisory action.If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview.<ul style="list-style-type: none">The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate.If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116.		
Signature /Steve H. Lam/	Date May 4, 2015	
Name (Print/Typed) Steve H. Lam	Practitioner Registration No. 72,721	
<p>Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.</p>		
<input checked="" type="checkbox"/> * Total of <u>1</u> forms are submitted.		

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.

**TERMINAL DISCLAIMER TO OBTAIN A DOUBLE PATENTING
REJECTION OVER A "PRIOR" PATENT**

Docket Number (Optional)
ESA-0002-CA-ET

In re Application of: Jae Heung KIM

Application No.: 14/276,511

Filed: May 13, 2014

For: METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM

The owner*, Electronics and Telecommunications Research Institute, of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 8,761,814 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

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

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

Check either box 1 or 2 below, if appropriate.

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

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

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 72,721

/Steve H. Lam/
Signature

May 4, 2015
Date

Steve H. Lam
Typed or printed name

202-263-0805
Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

**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.**

*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.

This collection of information is required by 37 CFR 1.321. 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.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal				
Application Number:		14276511		
Filing Date:		13-May-2014		
Title of Invention:		METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM		
First Named Inventor/Applicant Name:		Jae Heung KIM		
Filer:		Jae Y. Park		
Attorney Docket Number:		ESA-0002-CA-ET		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Statutory or Terminal Disclaimer	1814	1	160	160

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

Electronic Acknowledgement Receipt	
EFS ID:	22240416
Application Number:	14276511
International Application Number:	
Confirmation Number:	1739
Title of Invention:	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM
First Named Inventor/Applicant Name:	Jae Heung KIM
Customer Number:	82727
Filer:	Jae Y. Park
Filer Authorized By:	
Attorney Docket Number:	ESA-0002-CA-ET
Receipt Date:	04-MAY-2015
Filing Date:	13-MAY-2014
Time Stamp:	11:38:51
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	9585
Deposit Account	505622
Authorized User	LAM, STEVE
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response_FOA20150303_ESA0002CA.pdf	5102578	yes	11
			0fe1f0022b64a265e31cc4d732a4ab434592a355		
	Multipart Description/PDF files in .zip description				
	Document Description		Start		End
	Response After Final Action		1		1
	Claims		2		4
	Applicant Arguments/Remarks Made in an Amendment		5		11
Warnings:					
Information:					
2	After Final Consideration Program Request	AFCP_ESA0002_CA.pdf	226482	no	2
			8b015bb19810956f6c8d59c4d74bfa7e06bd661		
Warnings:					
Information:					
3	Terminal Disclaimer Filed	TermDisc_ESA0002_CA.pdf	120699	no	1
			f9a7abccfb442de5051f356b37e65280c0f97c7f		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30327	no	2
			c0d29fa8bf768498871816a77588338f4d8b3f91		
Warnings:					
Information:					
Total Files Size (in bytes):			5480086		

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 14/276,511		Filing Date 05/13/2014		<input type="checkbox"/> To be Mailed	
ENTITY: <input type="checkbox"/> LARGE <input checked="" type="checkbox"/> SMALL <input type="checkbox"/> MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)			
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A					
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A		N/A					
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A					
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =		*	X \$		=			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =		*	X \$		=			
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))	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).								
<input type="checkbox"/> 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					
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	05/04/2015	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(o))	* 18	Minus	** 20	= 0	X \$40 =		0	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X \$210 =		0	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
	TOTAL ADD'L FEE							0	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(o))	*	Minus	**	=	X \$		=	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$		=	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
	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 number found in the appropriate box in column 1.									

This collection of information is required by 37 CFR 1.16. 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, 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.

Application Number 	Application/Control No. 14/276,511	Applicant(s)/Patent under Reexamination KIM ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL
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TERMINAL DISCLAIMER	<input checked="" type="checkbox"/> APPROVED	<input type="checkbox"/> DISAPPROVED
Date Filed : 5/4/15	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:	
Janice Ford	

U.S. Patent and Trademark Office



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

NOTICE OF ALLOWANCE AND FEE(S) DUE

82727 7590 06/05/2015
KILE PARK REED & HOUTTEMAN PLLC
Jae Park
3957 Pender Drive
Suite 103
Fairfax, VA 22030

EXAMINER

HONG, DUNG

ART UNIT

PAPER NUMBER

2643

DATE MAILED: 06/05/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/276,511	05/13/2014	Jae Heung KIM	ESA-0002-CA-ET	1739
TITLE OF INVENTION: METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM				

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	09/08/2015

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

82727 7590 06/05/2015
KILE PARK REED & HOUTTEMAN PLLC
 Jae Park
 3957 Pender Drive
 Suite 103
 Fairfax, VA 22030

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/276,511	05/13/2014	Jae Heung KIM	ESA-0002-CA-ET	1739

TITLE OF INVENTION: METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	09/08/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
HONG, DUNG	2643	455-436000

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, 1 _____
- (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 _____
- 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

(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

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

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

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

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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.
14/276,511	05/13/2014	Jae Heung KIM	ESA-0002-CA-ET	1739
82727	7590	06/05/2015	EXAMINER	
KILE PARK REED & HOUTTEMAN PLLC			HONG, DUNG	
Jae Park			ART UNIT	PAPER NUMBER
3957 Pender Drive			2643	
Suite 103				
Fairfax, VA 22030				

DATE MAILED: 06/05/2015

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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.

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Notice of Allowability	Application No. 14/276,511	Applicant(s) KIM ET AL.	
	Examiner DUNG HONG	Art Unit 2643	AIA (First Inventor to File) Status No

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/04/2015.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1,2,4-12 and 14-20. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
Certified copies:
a) ☒ All b) ☐ Some *c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 12/298,227.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____ 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material 4. <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date <u>05/28/2015</u> .	5. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 7. <input checked="" type="checkbox"/> Other <u>PTO-2323</u> .
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/DUNG HONG/ Examiner, Art Unit 2643	
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EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with STEVE H. LAM (REG. NO. #72,721) on 05/28/2015.

The claims have been amended as follows *(underlined details are added, details in the [] are removed)*:

Claim 4 (Currently Amended):

4. The method of claim **[3] 1**, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs).

Claim 14 (Currently Amended):

14. The method of claim **[13] 11**, wherein the scheduling identifiers are Radio Network Temporary Identifiers (RNTIs).

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

Claim 1 discloses method for decoding paging information, performed in a terminal, the method comprising:

receiving a control channel and a downlink shared channel;

detecting an identifier indicating existence of a paging information in the downlink shared channel, the identifier is transmitted on the control channel;

when the identifier is detected, detecting a radio resource allocation information indicating radio resource to which the paging information is allocated, the radio resource allocation information is transmitted on the control channel; and

decoding the paging information, indicated by the radio resource allocation information, in the downlink shared channel,

wherein when the paging information does not exist in the downlink shared channel, the identifier is not detected and is not allocated to the control channel,

wherein the identifier is used by reserving and allocating a part of scheduling identifiers.

Claim 11 discloses a method for transmitting paging information, performed in a base station, the method comprising:

when a paging information is generated, allocating the paging information to a downlink shared channel;

allocating an identifier indicating existence of the paging information and a radio resource allocation information indicating radio resource to which the paging information is allocated to a control channel; and

transmitting the control channel and the downlink shared channel to a terminal,
wherein when the paging information is not generated, the identifier is not
allocated to the control channel, and
wherein the identifier is used by reserving and allocating a part of scheduling
identifiers.

The related prior art does not anticipate or render obvious the invention above:

- **3GPP RAN1/RAN2 joint meeting on LTE R2-060988, "PCH mapping and paging control"** ("3GPP_1" hereinafter) discloses details about using PI-CH indicator for indicating an existing of a paging indicator. When PI-CH exists, mobile device read the paging indicator to determine if paging information exists for the mobile device (**section 2-3**). Therefore, the reference is silent on details about **(1)** using identifier transmitted through the control channel for indicating existence of paging information wherein the identifier is used by reserving and allocating a part of scheduling identifier.
- **3GPP TS 25.211 V7.0.0 (2006-03)** ("3GPP_2" hereinafter) discloses downlink shared channel is a transport channel mapped to the physical downlink shared channel (**Section 6.1 page 39**). Therefore, the reference is silent on details about **(1)**.
- **Laroia et al.**, Pub. No. US 20070173269 A1, discloses details about paging message with indication to specify where the traffic channel is (**Fig. 2**). Therefore, silent on details about **(1)**.

- **Etemad** et al., Pub. No. US 20060029011 A1, discloses details about using a binary bit as an indicator to indicate which mobile device receiving data **(0032 and fig. 2)**. Therefore, the reference is silent on details about using identifier as recited in **(1)**.

As discussed above, 3GPP1, 3GPP2 Laroia and Etemad independently and in combination fail to address details about **(1)** using identifier transmitted through the control channel for indicating existence of paging information wherein the identifier is used by reserving and allocating a part of scheduling identifier. Therefore, independent claim 1, 11 and their dependent claims are allowable.

For further reasons for allowance, please refer to applicant remarks on
05/04/2015

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG HONG whose telephone number is (571)270-7928. The examiner can normally be reached on Monday - Friday, 8:00 am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JINSONG HU can be reached on (571) 272-3965. 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.

/DUNG HONG/
Examiner, Art Unit 2643

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

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Paragraph (b)

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- Name of examiner
- Date of interview
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- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

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- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
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If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Notice of References Cited	Application/Control No. 14/276,511	Applicant(s)/Patent Under Reexamination KIM ET AL.	
	Examiner DUNG HONG	Art Unit 2643	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2007/0173269 A1	07-2007	Laroia et al.	455/500
*	B	US-2006/0029011 A1	02-2006	Etemad et al.	370/311
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	3GPP TS 25.211 V7.0.0 (2006-03)
	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.

<h2 style="margin: 0;">AFCP 2.0 Decision</h2>	Application No.	Applicant(s)
	14/276,511	KIM ET AL.
	Examiner	Art Unit
	DUNG HONG	2643

This is in response to the After Final Consideration Pilot request filed 04 May 2015.

1. **Improper Request** – The AFCP 2.0 request is improper for the following reason(s) and the after final amendment submitted with the request will be treated under pre-pilot procedure.

☐ An AFCP 2.0 request form PTO/SB/434 (or equivalent document) was not submitted.
☐ A non-broadening amendment to at least one independent claim was not submitted.
☐ A proper AFCP 2.0 request was submitted in response to the most recent final rejection.
☐ Other:


2. **Proper Request**

A. After final amendment submitted with the request will not be treated under AFCP 2.0.
 The after final amendment cannot be reviewed and a search conducted within the guidelines of the pilot program.
☐ The after final amendment will be treated under pre-pilot procedure.

B. Updated search and/or completed additional consideration.
 The examiner performed an updated search and/or completed additional consideration of the after final amendment within the time authorized for the pilot program. The result(s) of the updated search and/or completed additional consideration are:

☒ 1. All of the rejections in the most recent final Office action are overcome and a Notice of Allowance is issued herewith.
☐ 2. The after final amendment would not overcome all of the rejections in the most recent final Office action. See attached interview summary for further details.
☐ 3. The after final amendment was reviewed, and it raises a new issue(s). See attached interview summary for further details.
☐ 4. The after final amendment raises new issues, but would overcome all of the rejections in the most recent final Office action. A decision on determining allowability could not be made within the guidelines of the pilot. See attached interview summary for further details, including any newly discovered prior art.
☐ 5. Other:

Examiner Note: Please attach an interview summary when necessary as described above.

Search Notes 	Application/Control No. 14276511	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner DUNG HONG	Art Unit 2643

CPC- SEARCHED		
Symbol	Date	Examiner
H04W68/00, H04W68/02, H04W24/00, H04W72/082	7/26/2014	DH

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
H04W68/00, H04W68/02, H04W68/025, H04W52/02, H04W68/12	7/26/2014	DH
H04W24/00, H04W72/082, H04W16/10, H04W72/04, H04W28/04	7/26/2014	DH

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	426.1,458,515,450,452.1,509	7/26/2014	DH

SEARCH NOTES		
Search Notes	Date	Examiner
Inventor search, google search, class/subclass search, text search, CPC search	7/26/2014	DH
Updated inventor search, google search, class/subclass search, text search, CPC search	2/20/2015	DH
Updated inventor search, google search, class/subclass search, text search, CPC search	5/27/2015	DH

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
455	text search within claim in 455/426.1,458,515,450,452.1,509	5/27/2015	DH
	text search within claim without class/subclass restriction	5/27/2015	DH

/DUNG HONG/ Examiner.Art Unit 2643	
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Please enter.

/Dung Hong/

05/28/2015

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 14/276,511

Filing Date: May 13, 2014

First Inventor: Jae Heung KIM

Group Art Unit: 2643

Examiner: HONG, DUNG

Title: METHOD FOR PAGING INFORMATION IN CELLULAR
SYSTEM

Attorney Docket: ESA-0002-CA-ET


**REPLY TO FINAL OFFICE ACTION
AND AMENDMENT UNDER 37 CFR §1.116**

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

Dear Sir:

In response to the Final Office Action mailed March 3, 2015, please consider the attached Certification for Consideration Under the AFCP Program 2.0, and the following amendments and remarks in connection with the above-identified application along with a Terminal Disclaimer and requisite fee.

AMENDMENTS TO THE CLAIMS begin on page 2 of this paper; and
REMARKS begin on page 5 of this paper.

<i>Index of Claims</i> 	Application/Control No. 14276511	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner DUNG HONG	Art Unit 2643

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

<input 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										
CLAIM		DATE								
Final	Original	07/28/2014	02/20/2015	05/28/2015						
1	1	✓	✓	=						
2	2		✓	=						
	3		✓	-						
3	4		✓	=						
4	5		✓	=						
5	6		✓	=						
6	7		✓	=						
7	8		✓	=						
8	9		✓	=						
9	10		✓	=						
10	11		✓	=						
11	12		✓	=						
	13		✓	-						
12	14		✓	=						
13	15		✓	=						
14	16		✓	=						
15	17		✓	=						
16	18		✓	=						
17	19		✓	=						
18	20		✓	=						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"12298227"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 11:33
S2	655	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 13:09
S3	5381	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 13:10
S4	5932	S2 OR S3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 13:10
S5	158	identifier WITH (physical control channel OR PCH)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:32
S6	57	identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:34
S7	10	S6 AND (@ad< "20060426" OR @rlad< "20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:34
S11	2403	OFDM AND paging	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:39
S12	401	OFDM\$ SAME paging	US-PGPUB;	ADJ	ON	2011/05/10 15:40

			USPAT; USOCR; EPO; JPO; DERWENT			
S13	558	OOFDM\$ AND paging AND identifier AND resource WITH allocat\$3	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S14	121	OOFDM\$ AND paging AND identifier WITH paging AND resource WITH allocat\$3	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S15	35	S14 AND (@ad< "20060426" OR @rlad< "20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:40
S16	957	(identifier OR ID OR notification) WITH paging AND (resource OR carrier) WITH (allocat\$3)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:53
S17	306	(identifier OR ID OR notification) WITH paging AND (resource OR carrier) WITH (allocat\$3) AND (control channel) AND (@ad< "20060426" OR @rlad< "20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 15:53
S18	281	paging SAME identifier AND ((allocation OR schedul\$5) WITH information) AND physical WITH channel	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:21
S19	165	S18 AND (@ad< "20060426" OR @rlad< "20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:21
S20	7246	paging message	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:33
S21	285	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 17:34
S22	163	S21 AND (@ad< "20060426" OR @rlad< "20040626")	US- PGPUB;	ADJ	ON	2011/05/10 17:38

			USPAT; USOCR; EPO; JPO; DERWENT			
S23	168	OFDM\$ AND (paging message) SAME (resource) WITH (map\$4 OR schedul\$5 OR allocat\$3)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:29
S24	0	"200300088695"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S25	0	"200300088695"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S26	0	"200300088695"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S27	3	"20030088695"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:43
S28	5	"2005071985"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:45
S30	2	"20030152044"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:46
S31	3	"9949626"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:47
S32	0	"1020050044981"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:48
S33	0	"10200500044981"	US- PGPUB;	ADJ	ON	2011/05/10 18:48

			USPAT; USOCR; EPO; JPO; DERWENT			
S34	0	"1020050044981"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:49
S35	0	"10200300778891"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:49
S36	183	OFDM\$ AND paging (message OR indicat\$3) SAME (resource) WITH (map\$4 OR schedul\$5 OR allocat\$3)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:59
S37	25	OFDM\$ AND paging (message OR indicat\$3) SAME (resource) WITH (map\$4 OR schedul\$5 OR allocat\$3) AND (ID OR identifier OR identity) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/10 18:59
S55	2578	(id OR identification OR notif\$8 OR inform\$7) WITH (paging OR page) AND (paging OR page) SAME (resource OR channel) WITH (map\$4 OR schedul\$5 OR allocat\$3) WITH (information OR data)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:34
S58	967	S55 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:35
S59	102	S58 AND OFDM	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:36
S60	634	S58 AND ("455" OR "370" OR "375").clas.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:36
S61	25	S58 AND ("455" OR "370" OR "375").clas. AND (discontinuous reception OR DRX)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:37
S62	904	(resource mapping OR mapping information) SAME (page OR paging)	US- PGPUB;	ADJ	ON	2011/05/11 11:51

			USPAT; USOCR; EPO; JPO; DERWENT			
S63	353	(resource mapping OR mapping information) SAME (page OR paging) AND (ID OR identifier OR identity) SAME (page OR paging)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:51
S64	58	(resource mapping OR mapping information) SAME (page OR paging) AND (ID OR identifier OR identity) SAME (page OR paging) AND (wireless OR cellular) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 11:52
S65	714	(PI OR paging (indicat\$3 OR notif\$7 OR inform\$3)) SAME (resource OR channel) WITH (allocat\$3 OR map\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:03
S66	224	S65 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:03
S67	325	paging indicat\$3 AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:29
S69	14	(paging indicat\$3) AND OFDM AND map\$4 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 12:30
S70	24	(DRX OR discontinuous reception) AND (paging OR page) WITH (indicator OR ID OR identifier) AND ((resource OR carrier) WITH (map\$4 OR allocat\$3) SAME (page OR paging)) AND (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 16:27
S71	289	paging indicator AND OFDM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:23
S72	8	paging indicator AND OFDM AND (@ad<"20060426" OR @rlad<"20060426") AND (resource) WITH (allocat\$3 OR map\$5)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:24
S73	2442	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3)	US-PGPUB;	ADJ	ON	2011/05/11 17:26

		WITH information	USPAT; USOCR; EPO; JPO; DERWENT			
S74	604	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:26
S75	164	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 17:26
S76	35	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND (@ad<"20060426" OR @rlad<"20060426") AND (pag\$4)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:16
S78	21	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND paging AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:23
S79	18	S71 AND (@ad<"20060426" OR @rlad<"20060626") AND (wireless OR cellular)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:24
S80	9544	((375/260) OR (455/426.1,458,515)).ccls.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:39
S82	230	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND S80	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:41
S83	1206	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND ("370").clas.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 18:41
S84	1	"12393193"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:06
S85	182	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier)	US- PGPUB;	ADJ	ON	2011/05/11 19:07

		WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND ("370").clas. AND OFDM	USPAT; USOCR; EPO; JPO; DERWENT			
S86	398	S82 OR S85	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:08
S88	226	(S82 OR S85) AND (OFDM)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:09
S89	72	(S82 OR S85) AND (OFDM) AND paging	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:10
S90	238	(S82 OR S85) AND paging	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:10
S91	72	(S82 OR S85) AND paging AND OFDM	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/11 19:10
S93	822	(resource OR carrier) WITH (allocat\$3 OR assign\$5 OR map\$4) WITH (control channel OR "CCH" OR "C-CH") WITH (physical OR S92)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/12 11:48
S94	24	(paging) AND S93 AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/12 11:49
S95	19	(paging) AND S93 AND (@ad<"20060426" OR @rlad<"20060426") AND (id OR identity OR identifier)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2011/05/12 11:49
S96	3072	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging WITH channel	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S97	607	paging WITH indicator AND S96	US- PGPUB;	ADJ	ON	2012/02/17 12:54

			USPAT; USOCR; EPO; JPO; DERWENT			
S98	265	S97 AND (@ad< "20060426" OR @rlad< "20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S99	157	S97 AND (@ad< "20060426" OR @rlad< "20040626") AND (carrier OR OFDM OR MAP)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:54
S100	157	S97 AND (@ad< "20060426" OR @rlad< "20040626") AND (carrier OR OFDM\$ OR MAP)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 12:58
S101	3594	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:04
S102	651	paging WITH indicator AND S101	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:05
S103	276	S102 AND (@ad< "20060426" OR @rlad< "20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:05
S104	154	S102 AND (@ad< "20060426" OR @rlad< "20040626") AND (channel OR resource) WITH (allocat\$4 OR assign\$7) WITH (information)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:05
S105	123	S102 AND (@ad< "20060426" OR @rlad< "20040626") AND (carrier OR OFDM OR OFDMA OR sub\$carrier)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 13:06
S106	910	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging AND (receiv\$4 OR decod\$4 OR reception) WITH (paging OR message) WITH (allocat\$5 OR assign\$6) WITH (channel OR resource) AND (@ad< "20060426" OR @rlad< "20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:05
S107	150	paging WITH indicator AND S106	US-	ADJ	ON	2012/02/17

			PGPUB; USPAT; USOCR; EPO; JPO; DERWENT			16:05
S108	12138	(resource OR channel OR carrier) WITH (allocat\$4 OR assign\$5) WITH (control channel)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:08
S109	1193	(resource OR channel) WITH (allocat\$4 OR assign\$5) WITH paging AND S108	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:08
S110	83	S109 AND S97 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:09
S111	2558	(resource OR channel OR sub\$carrier OR carrier) WITH (allocat\$4 OR assign\$5 OR map\$4) WITH paging AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:10
S112	123	(resource OR channel OR sub\$carrier OR carrier) WITH (allocat\$4 OR assign\$5 OR map\$4) WITH paging AND (@ad<"20060426" OR @rlad<"20040626") AND (OFDM OR OFDMA)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:10
S113	2	"20050044981"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:26
S114	47	LG AND MBMS AND MOCH AND PICH	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:27
S115	47	LG.as. AND MBMS AND MOCH AND PICH	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:27
S116	28	LG.as. AND MBMS AND MOCH AND PICH and drx	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 16:27
S117	119	(S100 OR S105) AND (resource OR	US-	ADJ	ON	2012/02/17

		channel) WITH (allocat\$5 OR assign\$5) WITH (paging channel OR paging message OR paging information OR PCH)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT			17:28
S118	203	S102 AND (@ad<"20070424" OR @rlad<"20070424") AND (channel OR resource) WITH (allocat\$4 OR assign\$7) WITH (information)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 17:43
S119	268	(resource OR channel OR sub\$carrier OR carrier) WITH (allocat\$4 OR assign\$5 OR map\$4) WITH paging AND (@ad<"20070424" OR @rlad<"20070424") AND (OFDM OR OFDMA)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/17 17:43
S120	3	"20040253959"	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 17:51
S121	629	paging message WITH (resource OR channel) WITH (allocat\$4 OR assign\$5)	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 23:22
S122	403	paging message WITH (resource OR channel) WITH (allocat\$4 OR assign\$5) AND (@ad<"20070424" OR @rlad<"20070424")	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 23:23
S123	242	S122 AND paging WITH (indicat\$8 OR notif\$8)	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/20 23:23
S124	353	(flexible OR dynamic\$4 OR adaptive) WITH (resource OR channel) WITH (allocat\$4 OR assign\$6) WITH paging	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:11
S125	90	S124 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:11
S126	1515	rrc WITH idle	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:28
S127	907	rrc WITH idle WITH state	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:28

S128	202	S127 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/21 17:28
S129	223	(flexible OR dynamic\$4 OR adaptive) WITH (resource OR channel) WITH (allocat\$4 OR assign\$6) WITH paging WITH message	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2012/02/27 11:26
S130	11	S129 AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2012/02/27 11:27
S131	30	(US-20070173269-\$ or US-20040180675-\$ or US-20050277429-\$ or US-20100062795-\$ or US-20060029011-\$ or US-20090010219-\$ or US-20040253959-\$ or US-20050090262-\$ or US-20050101351-\$ or US-20050192021-\$ or US-20060116136-\$ or US-20080119199-\$ or US-20040023672-\$ or US-20040087320-\$ or US-20050096017-\$ or US-20070254679-\$ or US-20050063331-\$ or US-20080171520-\$ or US-20100248753-\$ or US-20050169203-\$ or US-20040008679-\$ or US-20040087330-\$ or US-20050113087-\$).did. or (US-6438375-\$ or US-7751356-\$ or US-5842141-\$ or US-6216004-\$ or US-6393295-\$ or US-6434393-\$ or US-6711413-\$).did.	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:19
S132	4	S131 AND RNTI	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:19
S133	0	S131 AND RRC with connect	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:50
S134	4	S131 AND RRC with connected	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:50
S135	5	S131 AND RRC with idle	US-PGPUB; USPAT	ADJ	ON	2012/02/27 13:51
S136	26	paging WITH (allocat\$4 OR map\$6) WITH resource and ofdm AnD (@ad<"20060426" or @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 03:00
S137	120	paging WITH (allocat\$4 OR map\$6) and (resource or channel) and physical channel and (@ad<"20060426" or @rlad<"20060426") and (paging (indicator or identifier or notification) or pich)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 13:24
S138	2	ep "1530395"	US-	ADJ	ON	2013/03/07

			PGPUB; USPAT; USOCR; EPO; JPO; DERWENT			13:49
S139	2	US "20050101351" A1	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 13:50
S140	10	(paging or pch) with mapping with (radio resource channel or physical channel) and shared channel and (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 16:07
S141	27	(paging channel OR pch) with (map\$4 OR allocat\$5) with (radio resource channel or physical channel) and shared channel and (@ad<"20060426" and @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 16:10
S142	120	paging WITH (allocat\$4 OR map\$6) and (resource or channel) with physical channel and (@ad<"20060426" or @rlad<"20060426") and (paging (indicator or identifier or notification) or pich)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 19:50
S143	25	paging WITH (allocat\$4 OR map\$6) and (resource or channel) with (dynamic\$5 or flexible or flexibility) and physical channel and (@ad<"20060426" or @rlad<"20060426") and (paging (indicator or identifier or notification) or pich)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 19:53
S144	1	WO "2005046087"	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 20:08
S145	1	US20050153715A1	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 20:08
S146	3	"20050153715"	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 20:09
S147	232	pch and bch and frame and paging and @ad<"20060426"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/07 23:53
S148	0	(paging channel or pch) with share channel and @ad<"20060426"	US- PGPUB; USPAT;	ADJ	ON	2013/03/08 00:16

			EPO; JPO; DERWENT			
S149	119	(paging channel or pch) with shared channel and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:16
S150	3	(paging channel or pch) with shared channel and ofdm and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:17
S151	22	(paging channel or pch) with mapping and ofdm	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:17
S152	2	(paging channel or pch) with mapping and ofdm and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 00:17
S154	56	ofdm\$1 and pch and paging and control channel and (@ad<"20060426" or @rlad<"20060426")	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/08 22:45
S155	0	transport channel and physical channel and paging and pch and @ad<"20060426"	US-PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:38
S156	435	transport channel and paging and pch and physical channel AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:48
S157	8	transport channel and paging and pch and physical channel and share channel AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:48
S158	232	transport channel and paging and pch and physical channel and shar\$4 channel AND (@ad<"20060426" OR @rlad<"20040626")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:49
S159	1206	OFDM\$ and paging and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:50
S160	47	OFDM\$ and paging and pch and shar\$6 with (resource or channel) and (@ad<"20060426" OR @rlad<"20060426")	US-PGPUB; USPAT; USOCR;	ADJ	ON	2013/03/09 15:51

			EPO; JPO; DERWENT			
S161	1809	transport channel with shared channel	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:53
S162	273	transport channel with shared channel and (paging or pch) and (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 15:54
S163	380	downlink shared channel with transport channel and @ad<"20060426"	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:11
S164	136	downlink shared channel with transport channel and @ad<"20060426" and paging	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:12
S165	222	downlink shared channel with transport channel and @ad<"20060426" and transport channel with physical channel	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:15
S166	9	(LTE or E\$utran) and downlink shared channel and physical channel and transport channel and @ad<"20060426"	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:17
S167	200	downlink shared channel WITH physical channel and transport channel and @ad<"20060426"	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:23
S168	106	downlink shared channel WITH physical channel and shared channel with transport channel and @ad<"20060426"	US- PGPUB; USPAT; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 18:23
S169	860	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S170	8817	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S171	9486	S169 OR S170	US- PGPUB; USPAT; USOCR;	ADJ	ON	2013/03/09 19:23

			EPO; JPO; DERWENT			
S172	0	S171 and ((downlink shared channel) and (resource channel) and frame).clm.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/03/09 19:23
S173	198	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4) with (available OR need\$4)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/26 20:38
S174	18	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4) with (available OR need\$4) with paging	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/26 20:39
S175	4	paging message SAME (identifier OR identification) AND (resource) WITH (schedul\$3 OR allocat\$3 OR map\$4) with (available OR need\$4) with paging AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/26 23:43
S176	122	identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:52
S177	948	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S178	9946	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S179	10666	S177 OR S178	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S180	0	((identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping)))) .clm. and S179	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 01:53
S181	15497	((375/260) OR (455/426.1,458,515)).ccls.	US- PGPUB; USPAT; USOCR;	ADJ	ON	2013/08/27 02:09

			EPO; JPO; DERWENT			
S182	270	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND S181	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:09
S183	948	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S184	9946	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S185	10666	S183 OR S184	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S186	0	S185 and ((downlink shared channel) and (resource channel) and frame).dlm.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:10
S187	176	identifier with paging with (exist\$4 OR available)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:36
S189	19	(identifier OR identity) with paging with (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426") and (reserv\$4 OR allocat\$4) with (identifier OR identity)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2013/08/27 02:37
S190	19	(identifier OR identity) with paging with (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426") and (reserv\$4 OR allocat\$4) with (identifier OR identity)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 11:57
S191	1	"12298227" and identifier	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 12:14
S192	97	identifier with paging with (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR;	ADJ	ON	2014/02/07 12:45

			EPO; JPO; DERWENT			
S193	37	identifier with paging near4 (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S194	59	(identifier or identity) with paging near4 (exist\$4 OR available) AND (@ad<"20060426" OR @rlad<"20060426")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S195	1015	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S196	10765	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S197	11526	S195 OR S196	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S198	0	S197 and ((downlink shared channel) and (resource channel) and frame).clm.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 13:37
S199	6	S194 and (map\$5 or allocat\$4) with (paging) with resource	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 14:20
S201	30163	((375/260) OR (455/426.1,458,515,450,452.1,509)).ccls.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/02/07 18:45
S211	567	control channel with paging (indicator or exist\$4 or identifier)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:08
S212	41	control channel with paging (indicator or exist\$4 or identifier) AND (@ad<"20060426" OR	US- PGPUB; USPAT;	ADJ	OFF	2014/07/24 21:08

		@rlad<"20040626")	USOCR; FPRS; EPO; JPO; DERWENT			
S213	950	resource with allocat\$4 with paging with channel	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:09
S214	3	allocat\$4 with paging with channel and S212	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:09
S215	1606	allocat\$4 with resource with paging	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:11
S216	76	(allocat\$4 or map\$4) with resource with paging with (channel or data or information) AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:11
S217	1505	ofdm\$1 and (paging channel OR PCH) with (MAP\$4 or allocat\$4)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:19
S218	34	ofdm\$1 and (paging channel OR PCH) with (MAP\$4 or allocat\$4) AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:19
S219	39	ofdm\$1 and (paging channel OR PCH or paging (information or data)) with (MAP\$4 or allocat\$4) AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/24 21:20
S221	93	(paging channel OR PCH or paging (information or data)) with (MAP\$4 or allocat\$4 OR schedul\$4) with (resource or frequency OR location) AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:33
S222	14013	paging channel OR PCH with ofdm\$1 and	US-	ADJ	OFF	2014/07/28

		paging		PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT			01:44
S223	9	(paging channel OR PCH) with ofdm\$1 and paging AND (@ad< "20060426" OR @rlad< "20040626")		US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:44
S224	5	(paging channel OR PCH) with MAP and ofdm\$1 and (@ad< "20060426" OR @rlad< "20040626")		US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:49
S225	64	resource with allocat\$4 with (paging channel OR PCH) with (read\$4 OR process\$4 OR receiv\$4)		US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:50
S226	5	resource with allocat\$4 with (paging channel OR PCH) with (read\$4 OR process\$4 OR receiv\$4) and (@ad< "20060426" OR @rlad< "20040626")		US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:50
S227	23	resource with (allocat\$4 OR schedul\$4 OR information) with (paging channel OR PCH) with (read\$4 OR process\$4 OR receiv\$4) and (@ad< "20060426" OR @rlad< "20040626")		US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 01:51
S228	3	"12159841"		US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2014/07/28 11:21
S230	184	("20010024956" "20010046864" "20020009129" "20020021698" "20020021714" "20020028690" "20020032884" "20020044527" "20020071480" "20020090004" "20020093940" "20020126629" "20020131375" "20020160744" "20020181436" "20020187789" "20020191559" "20030003920" "20030007510" "20030035440" "20030043741" "20030050097" "20030054829" "20030076812" "20030078046" "20030103476" "20030131124" "20030137931")		US- PGPUB; USPAT; USOCR	ADJ	OFF	2014/07/28 11:21

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		"7376424" "7385952" "7398108" "7426175" "7430206" "7436801" "7443816" "7496113" "7535886" "7590089" "7664059" "7778599" "7826859" "7848308" "7881724" "RE39454").PN.				
S231	166	S230 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR	ADJ	OFF	2014/07/28 11:22
S232	6	S230 AND (@ad<"20060426" OR @rlad<"20040626") and (paging OR PCH) with (reserv\$8 OR allocat\$4)	US- PGPUB; USPAT; USOCR	ADJ	OFF	2014/07/28 11:22
S233	2	"12298227"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
S234	1061	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
S235	11768	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
S236	12559	S234 OR S235	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:28
S237	1061	(Kim NEAR2 Jae NEAR2 Heung) OR (Kim NEAR2 Jung NEAR2 Im) OR (Lee NEAR2 Kyoung NEAR2 Seok) OR (Jung NEAR2 Soo NEAR2 Jung) OR (Ryu NEAR2 Byung NEAR2 Han) OR (Bang NEAR2 Seung NEAR2 Chan)	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:39
S238	11768	((Electronics NEAR3 Telecommunications NEAR3 Research NEAR3 Institute) OR ETRI).as.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:39
S239	12559	S237 OR S238	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:39
S240	4	S239 and (paging with resource allocat\$4).clm.	US- PGPUB; USPAT; USOCR;	ADJ	ON	2014/07/28 12:40

			EPO; JPO; DERWENT			
S241	0	S239 and (paging with resource allocat\$4).clm. and indicator.clm.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:40
S242	5891	(H04W68/00 or H04W68/02 OR H04W68/025 or H04W52/02 or H04W68/12).cpc.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:42
S243	25913	(H04W24/00 or H04W72/082 or H04W16/10 or H04W72/04 or H04W28/04).cpc.	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:44
S244	31193	S242 OR S243	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:45
S245	39	paging indicat\$4 and resource with (allocat\$4 or reserv\$6 or schedul\$5) and S244 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2014/07/28 12:45
S246	1	"14276511"	US- PGPUB; USPAT; JPO; DERWENT	ADJ	OFF	2015/02/10 22:09
S247	3	"12298227"	US- PGPUB; USPAT; JPO; DERWENT	ADJ	OFF	2015/02/10 22:28
S249	8	(reserv\$4 or allocat\$4) with schedule (identifier or id or identity)	US- PGPUB; USPAT; JPO; DERWENT	ADJ	OFF	2015/02/20 18:21
S250	8	(reserv\$4 or allocat\$4) with schedule (identifier or id or identity or indicator)	US- PGPUB; USPAT; JPO; DERWENT	ADJ	OFF	2015/02/20 18:21
S251	95	(paging channel OR PCH or paging (information or data)) with (MAP\$4 or allocat\$4 OR schedul\$4) with (resource or frequency OR location) AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	ADJ	OFF	2015/02/20 20:17
S252	21428	((375/260) OR	US-	ADJ	ON	2015/02/20

		(455/426.1,458,515)).ccls.		PGPUB; USPAT; USOCR; EPO; JPO; DERWENT			20:17
S253	291	(page OR paging) WITH (ID OR notif\$7 OR indicat\$3) AND ((resource OR carrier) WITH (allocat\$3 OR assign\$5 OR mapping)) AND (@ad<"20060426" OR @rlad<"20060426") AND S252		US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 20:17
S254	181	identifier WITH (physical control channel OR PCH) AND (resource WITH (allocation OR mapping))		US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:01
S255	33	(ID OR identity OR identifier) SAME (resource) WITH (mapping OR allocat\$3) WITH information AND OFDM AND paging AND (@ad<"20060426" OR @rlad<"20060426")		US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:01
S256	78	allocat\$4 with resource with paging with (exist\$6 or available)		US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:04
S257	29	allocat\$4 with resource with paging with (exist\$6 or available) AND (@ad<"20060426" OR @rlad<"20060426")		US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:04
S258	184	("20010024956" "20010046864" "20020009129" "20020021698" "20020021714" "20020028690" "20020032884" "20020044527" "20020071480" "20020090004" "20020093940" "20020126629" "20020131375" "20020160744" "20020181436" "20020187789" "20020191559" "20030003920" "20030007510" "20030035440" "20030043741" "20030050097" "20030054829" "20030076812" "20030078046" "20030103476" "20030131124" "20030137931" "20030139170" "20030147371" "20030156624" "20030210669" "20030223393" "20030236085" "20040001452" "20040002334" "20040004954" "20040006643" "20040008658" "20040008659" "20040014452" "20040028078" "20040057387" "20040077357" "20040097192" "20040103435" "20040114606" "20040116143" "20040117860" "20040125772" "20040127223" "20040143676" "20040147266" "20040147271"		US- PGPUB; USPAT; USOCR	ADJ	OFF	2015/02/20 21:20

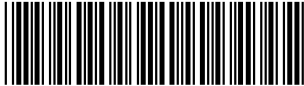
		"20040157602" "20040171395" "20040180675" "20040184437" "20040185860" "20040196861" "20040198369" "20040202140" "20040208160" "20040219920" "20040229626" "20040248600" "20040264497" "20040264550" "20050008035" "20050014508" "20050020260" "20050025039" "20050026623" "20050041573" "20050054368" "20050059407" "20050059421" "20050063336" "20050073987" "20050105482" "20050107036" "20050118947" "20050157696" "20050185608" "20050190728" "20050197134" "20050207374" "20050213605" "20050243767" "20050249141" "20050249222" "20050260997" "20050265301").PN. OR ("20050271025" "20050281212" "20050288026" "20060002367" "20060007886" "20060011953" "20060018289" "20060025079" "20060045047" "20060059186" "20060062196" "20060146745" "20060153232" "20060168343" "20060193282" "20060256818" "20060292982" "20070060146" "20070099619" "20070121543" "20070135080" "20070140115" "20070147326" "20070206531" "20080031253" "20080069031" "20080095105" "20080232291" "20090052388" "20090109912" "20090163211" "20090175241" "20090201948" "20090238141" "20090319850" "20090323646" "20100014430" "20100034095" "20100103899" "20100105334" "5659756" "5828677" "6088342" "6138158" "6317430" "6330448" "6381229" "6480525" "6571102" "6597668" "6597675" "6694148" "6717925" "6728225" "6785510" "6791963" "6795412" "6850504" "6859445" "6882727" "6907005" "6907015" "6934550" "6947394" "6950420" "6965580" "7016343" "7031708" "7075971" "7099309" "7145895" "7151758" "7184792" "7359345" "7359349" "7376424" "7385952" "7398108" "7426175" "7430206" "7436801" "7443816" "7496113" "7535886" "7590089" "7664059" "7778599" "7826859" "7848308" "7881724" "RE39454").PN.				
S259	6	S258 AND (@ad<"20060426" OR @rlad<"20040626") and (paging OR PCH) with (reserv\$8 OR allocat\$4)	US-PGPUB; USPAT; USOCR	ADJ	OFF	2015/02/20 21:20
S260	1222	OFDM\$ AND paging AND identifier WITH paging AND resource WITH allocat\$3	US-PGPUB; USPAT;	ADJ	ON	2015/02/20 21:20

			USOCR; EPO; JPO; DERWENT			
S261	41	S260 AND (@ad<"20060426" OR @rlad<"20040626")	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/02/20 21:20
S262	1	"14276511"	US- PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2015/04/21 13:12

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	17254	((375/260) OR (455/426.1,458,515,450,452.1,509)).ccls.	USPAT; UPAD	ADJ	ON	2015/05/28 15:31
L3	4	L2 and (identifier with reserv\$4 and identifier with allocat\$4).clm.	USPAT; UPAD	ADJ	ON	2015/05/28 15:31
L4	2	L2 and (identifier with reserv\$4 and identifier with allocat\$4 and paging).clm.	USPAT; UPAD	ADJ	ON	2015/05/28 15:35
L5	1	(identifier with reserv\$4 and identifier with allocat\$4 and paging and downlink with shar\$4 with channel).clm.	USPAT; UPAD	ADJ	ON	2015/05/28 15:36
S202	8313	((375/260) OR (455/426.1,458,515)).ccls.	USPAT; UPAD	ADJ	ON	2014/02/07 17:28
S203	30	((identifier OR identity or id) with (existence OR available OR notify\$4 or indicat\$4) with paging (channel or information)).clm.	USPAT; UPAD	ADJ	ON	2014/02/07 17:30
S204	12	S202 and S203	USPAT; UPAD	ADJ	ON	2014/02/07 17:31
S205	4	(allocation (information or data) with (paging) with (channel or information)).clm.	USPAT; UPAD	ADJ	ON	2014/02/07 17:32
S206	0	S203 and S205	USPAT; UPAD	ADJ	ON	2014/02/07 17:57
S207	0	S204 and S205	USPAT; UPAD	ADJ	ON	2014/02/07 17:57
S208	14093	((375/260) OR (455/426.1,458,515,450,452.1,509)).ccls.	USPAT; UPAD	ADJ	ON	2014/02/07 18:45
S209	2	S208 and S205	USPAT; UPAD	ADJ	ON	2014/02/07 18:45
S210	0	S203 and S209	USPAT; UPAD	ADJ	ON	2014/02/07 18:45

5/ 28/ 2015 4:17:02 PM**C:\Users\dhong\Documents\WIP\276511-14.wsp**

Issue Classification 	Application/Control No. 14276511	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner DUNG HONG	Art Unit 2643

<input 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	Final	Original	Final	Original	Final	Original	Final	Original
1	1	15	17												
2	2	16	18												
	3	17	19												
3	4	18	20												
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14	16														

		Total Claims Allowed:	
		18	
(Assistant Examiner) /DUNG HONG/ Examiner. Art Unit 2643	(Date) 05/28/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

82727 7590 06/05/2015
KILE PARK REED & HOUTTEMAN PLLC
 Jae Park
 1101 30th Street, N.W.
 Suite 500
 Washington, DC 20007

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/276,511	05/13/2014	Jae Heung KIM	ESA-0002-CA-ET	1739

TITLE OF INVENTION: METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480 \$960	\$0	\$0	\$480 \$960	09/08/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
HONG, DUNG	2643	455-436000

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 **Kile Park Reed**
 2 **& Houtteman PLLC**
 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

ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE

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

DAEJEON, REPUBLIC OF KOREA

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

4a. The following fee(s) are submitted:

- ☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

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

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

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
☐ Applicant asserting small entity status. See 37 CFR 1.27
☒ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Jae Y. Park/
 Typed or printed name JAE Y. PARK

Date September 4, 2015
 Registration No. 62629

Electronic Patent Application Fee Transmittal				
Application Number:		14276511		
Filing Date:		13-May-2014		
Title of Invention:		METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM		
First Named Inventor/Applicant Name:		Jae Heung KIM		
Filer:		Jae Y. Park/Daniel Chang		
Attorney Docket Number:		ESA-0002-CA-ET		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt	
EFS ID:	23405651
Application Number:	14276511
International Application Number:	
Confirmation Number:	1739
Title of Invention:	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM
First Named Inventor/Applicant Name:	Jae Heung KIM
Customer Number:	82727
Filer:	Jae Y. Park/Daniel Chang
Filer Authorized By:	Jae Y. Park
Attorney Docket Number:	ESA-0002-CA-ET
Receipt Date:	04-SEP-2015
Filing Date:	13-MAY-2014
Time Stamp:	11:53:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$960
RAM confirmation Number	12048
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	PartB_ESA0002CA.pdf	188901	no	1
			c5868d6993b388b51dbf372b3fcac0b0ca7f67fa		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30378	no	2
			9464a9bc3ae0de7d22a7af89a246b3a06150b76d		
Warnings:					
Information:					
Total Files Size (in bytes):			219279		
<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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www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/276,511	10/06/2015	9155066	ESA-0002-CA-ET	1739

82727 7590 09/16/2015
KILE PARK REED & HOUTTEMAN PLLC
Jae Park
3957 Pender Drive
Suite 103
Fairfax, VA 22030

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):

Jae Heung KIM, Daejeon, KOREA, REPUBLIC OF;
Electronics & Telecommunications Research Institute, Daejeon, KOREA, REPUBLIC OF;
Jung Im KIM, Daejeon, KOREA, REPUBLIC OF;
Kyoung Seok LEE, Daejeon, KOREA, REPUBLIC OF;
Soo Jung JUNG, Daejeon, KOREA, REPUBLIC OF;
Seung Chan BANG, Daejeon, KOREA, REPUBLIC OF;
Byung Han RYU, Daejeon, KOREA, REPUBLIC OF;

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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(c).

I hereby appoint:

☒

Practitioners associated with Customer Number:

137040

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 assignments documents attached to this form in accordance with 37 CFR 3.73(c).

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

☒

The address associated with Customer Number:

137040

OR

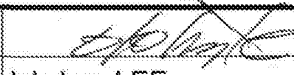
<input type="checkbox"/> Firm or Individual Name	Insight Law Group, PLLC (Attn: Seung Ho Lee, Esq)		
Address	8133 Leesburg Pike, Ste 310		
City	Vienna	State	VA Zip 22182
Country	United States		
Telephone	(703) 665-4906	Email	prosecution@insight-pat.com

Assignee Name and Address: Electronics and Telecommunications Research Institute
218 Gajeong-ro, Yuseong-gu, Daejeon 305-700
REPUBLIC OF KOREA

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, 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	1-5-2016
Name	Ickchan LEE	Telephone	82-42-860-6904
Title	Director, IP Management Team		

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.

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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 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.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
Application No./Patent No.: 9,155,066 Filed/Issue Date: October 6, 2015
Titled: METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM
ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE, a Government research institution
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- 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 021726, Frame 0799, or for which a copy thereof is attached.
- 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.

[Page 1 of 2]

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.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

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.

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.

5. 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.

6. 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(c)(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.

/Seung Ho Lee/ _____

Signature

Seung Ho Lee

Printed or Typed Name

January 22, 2016

Date

69,919

Title or Registration Number

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.

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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:	24706336
Application Number:	14276511
International Application Number:	
Confirmation Number:	1739
Title of Invention:	METHOD FOR PAGING INFORMATION IN CELLULAR SYSTEM
First Named Inventor/Applicant Name:	Jae Heung KIM
Customer Number:	82727
Filer:	Seung Ho Lee
Filer Authorized By:	
Attorney Docket Number:	ESA-0002-CA-ET
Receipt Date:	22-JAN-2016
Filing Date:	13-MAY-2014
Time Stamp:	19:55:39
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	Power of Attorney	ETRIPOA-postAIA.pdf	3770277 b9c49759f9ccd9b376062624194a283afc210046	no	2

Warnings:

Information:

2	Assignee showing of ownership per 37 CFR 3.73	aia0096_ET013C1_14276511.pdf	48719 0596fb7c3269f99cf0b9e099669330689df020e	no	3
Warnings:					
Information:					
Total Files Size (in bytes):			3818996		
<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>					



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
14/276,511	05/13/2014	Jae Heung KIM	ESA-0002-CA-ET

CONFIRMATION NO. 1739

POA ACCEPTANCE LETTER



Date Mailed: 02/04/2016

137040
Insight Law Group, PLLC
8133 Leesburg Pike, Ste 310
Vienna, VA 22182

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/22/2016.

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

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/mnguyen/



UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/276,511	05/13/2014	Jae Heung KIM	ESA-0002-CA-ET

CONFIRMATION NO. 1739

POWER OF ATTORNEY NOTICE



82727
KILE PARK REED & HOUTTEMAN PLLC
Jae Park
3957 Pender Drive
Suite 103
Fairfax, VA 22030

Date Mailed: 02/04/2016

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/22/2016.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/mnguyen/