

1) Family number: 42110387 (US2010091708A)

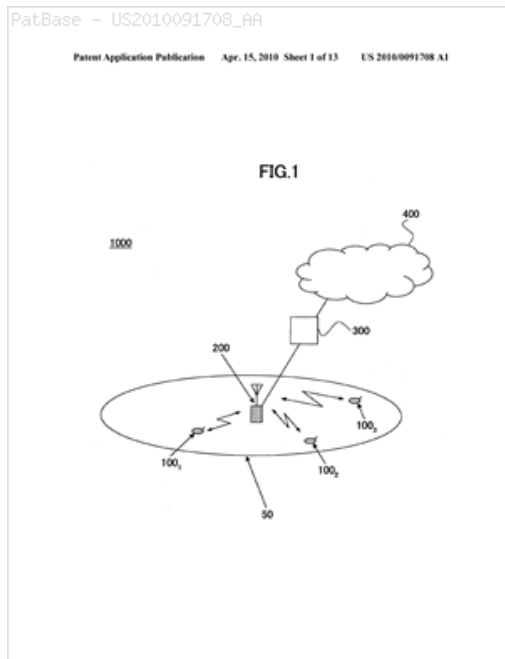
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Title: BASE STATION APPARATUS, MOBILE STATION, RADIO COMMUNICATION SYSTEM, AND COMMUNICATION CONTROL METHOD

Abstract: In a radio communication system including a mobile station and a base station apparatus for communicating with the mobile station according to a SC-FDMA scheme in uplink, the mobile station includes a transmitting unit configured to transmit at least one of a first signal and a second signal; and a Sounding RS transmitting unit configured to determine a transmission band for a Sounding Reference Signal (Sounding RS) based on mapping information of at least one of the first signal and the second signal.

Classifications:

International (IPC 8-9): G01R31/08 G06F11/00 G08C15/00
H01J11/00 H04J11/00 H04J11/16 H04J11/00 H04J3/14 H04L1/00
H04L27/01 H04L27/26 H04L5/00 H04L5/02 H04L5/14 H04W4/00
H04W40/00 H04W72/02 H04W72/04 H04W72/08 (Advanced/Invention);
H04L5/00 H04W72/08 (Advanced/Non-invention);
H04J11/00 H04W72/00 (Core/Invention)
International (IPC 1-7): H04B7/00 H04J11/00 H04Q7/38
CPC: H04W72/0413 H04L5/0007 H04L5/0048 H04W72/08
European: H04L5/00C5 T04L5/00A2A1 T04W72/08
US: 370/231 370/281 370/295 370/328 370/328P 370/329 370/334
370/338



Family:

Publication number	Publication date	Application number	Application date
AU2008215503 AA	20080821	AU20080215503	20080212
BRPI0808133 A2	20140617	BR2008PI08133	20080212
CA2678024 AA	20090812	CA20082678024	20080212
CN101652954 A	20100217	CN200880011647	20080212
CN101652954 B	20130320	CN200880011647	20080212
CN103220108 A	20130724	CN201310049288	20080212
CN103220108 B	20160210	CN201310049288	20080212
EP2129022 A1	20091202	EP20080711122	20080212
EP2129022 A4	20140806	EP20080711122	20080212
EP3208959 A1	20170823	EP20170161541	20080212
IN05121CN2009 A	20091106	IN2009CN05121	20090831
JP2008099807 A1	20100527	JP20080558084T	20080212
JP2013232906 A2	20131114	JP20130111606	20130528
JP5283513 B1	20130904	JP20080558084T	20080212
JP5283513 B2	20130904	JP20080558084T	20080212
JP5654086 B2	20150114	JP20130111606	20130528
KR101416212 B1	20140708	KR20097018622	20080212
KR20090112748 A	20091028	KR20097018622	20080212
MX2009008579 A1	20090821	MX2009008579	20080212
RU2009133240 A	20110320	RU20090133240	20080212
TH95929 A	20090529	TH20081000719	20080213
US2010091708 AA	20100415	US20080526654	20080212
US2013148599 AA	20130613	US20130748320	20130123
US8385277 BB	20130226	US20080526654	20080212
US8780851 BB	20140715	US20130748320	20130123
WO08099807 A1	20080821	WO2008JP52258	20080212

Priority:

JP20070035526 20070215	JP20070077900 20070323	CN200880011647 20080212
EP20080711122 20080212	JP20080558084 20080212	JP20080558084T 20080212
WO2008JP52258 20080212	US20090526654 20091111	US20130748320 20130123
JP20130111606 20130528		

Probable Assignee: NTT DOCOMO INC

Assignee(s): (std): NTT DOCOMO INC JP ; NTT DOCOMO INC ; NISHIKAWA DAISUKE ; KAWAMURA TERUO ; ISHII

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Assignee(s): N A

Inventor(s): (std): HIGUCHI KENICHI ; ISHII HIROYUKI ; KAWAMURA TERUO ; NISHIKAWA DAISUKE ; TERUO KAWAMURA ; KENICHI HIGUCHI ; HIROYUKI ISHII ; DAISUKE NISHIKAWA

Agent(s): SPRUSON AND FERGUSON; OYEN WIGGS GREEN AND MUTALA LLP; HOFFMANN EITLE; ITOH TADAHICO; ITOH TADASHIGE; OSHA LIANG LLP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

2) Family number: 43507711 (US2009180436A)

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Title: RANDOM ACCESS CHANNEL FREQUENCY DIVERSITY

Abstract: The present invention provides a method of transmitting on a random access channel in a radio communication system. In a single time slot there are enabled at least two different radio frequencies for transmission on the random access channel. Only one frequency is selected for transmission in the same time slot. A random access preamble is then transmitted on the selected random access channel in the time slot.

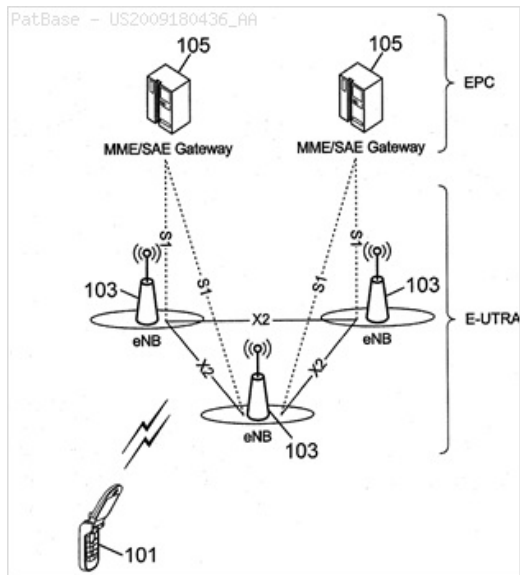
Classifications:

International (IPC 8-9): H04J11/00 H04L23/02 H04L5/00 H04W16/12 H04W72/00 H04W72/04 H04W74/08 (Advanced/Invention); H04W16/00 H04W72/00 H04W74/00 (Core/Invention)

CPC: H04L5/0007 H04L5/0053 H04L5/0091 H04L23/02 H04W74/0866

European: H04L23/02 H04L5/00E H04W74/08F T04L5/00A2A1 T04L5/00C6

US: 370/330 370/330P



Family:

Publication number	Publication date	Application number	Application date
EP2235995 A1	20101006	EP20080870877	20081224
EP2235995 A4	20150715	EP20080870877	20081224
EP2235995 B1	20191016	EP20080870877	20081224
US2009180436 AA	20090716	US20090350028	20090107
US8542648 BB	20130924	US20090350028	20090107
WO09091125 A1	20090723	WO2008KR07676	20081224

Priority:

US20080021302P 20080115 WO2008KR07676 20081224 US20090350028 20090107

Probable Assignee: LG ELECTRONICS

Assignee(s): (std): LG ELECTRONICS INC ; VUJCIC DRAGAN ; LG ELECTRONICS

Inventor(s): (std): VUJCIC DRAGAN

Agent(s): KATERLE AXEL; BIRCH STEWART KOLASCH AND BIRCH; BIRCH STEWART KOLASCH AND BIRCH LLP; KIM YONG IN ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

1) Family number: 54916626 (US8553743B)

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Title: SYSTEM, APPARATUS AND METHOD FOR COMMUNICATING MESSAGES USING MULTIPLE FREQUENCY HOPPING SEQUENCES

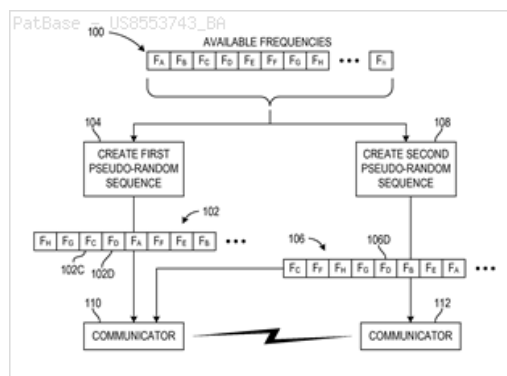
Abstract: Systems, apparatuses and methods for communicating messages via frequency hopping and utilizing multiple different frequency hopping sequences to facilitate the message or other data exchange. A transmitter frequency hopping sequence is provided that is derived from a set of available frequencies. A receiver frequency hopping sequence is also derived from those frequencies. The transmitter frequency hopping sequence differs from the receiver frequency hopping sequence, at least in regards to the order that the frequencies of the respective sequence will be involved in the message communication. The next frequency in the transmitter frequency hopping sequence is identified in which to transmit data. The data is transmitted at the identified communication frequency when that same frequency arises in the receiver frequency hopping sequence.

Classifications:

International (IPC 8-9): H04B1/713 (Advanced/Invention)

CPC: H04B2001/7154 H04B1/715

US: 375/130 375/132 375/135 375/136



Family:

Publication number	Publication date	Application number	Application date
US8553743 BA	20131008	US20080253613	20081017

Priority:

US20080253613 20081017

Probable Assignee: HONEYWELL INT INC

Assignee(s): (std): HONEYWELL INT INC ; JUNTUNEN ROBERT ; KIDDER KENNETH ; NICHOLS STEVEN

Assignee(s): JPMORGAN CHASE BANK NA ADMINISTRATIVE AGENT AS

Inventor(s): (std): JUNTUNEN ROBERT ; KIDDER KENNETH ; NICHOLS STEVEN

Agent(s): SEAGER TUFTE AND WICKHEM LLC

2) Family number: 44969772 (US2010110994A)

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Title: METHOD AND APPARATUS FOR ALLOCATING A PHYSICAL RANDOM ACCESS CHANNEL IN AN OTHOGONAL FREQUENCY DIVISION MULTIPLEXING COMMUNICATION SYSTEM

Abstract: A method and eNode B are disclosed that allocate a Physical random access channel (PRACH) in an Orthogonal Frequency Division Multiplexing communication system. In one embodiment, the eNode B maintains a predetermined location of a PRACH within a sub-frame, which predetermined location is adjacent to a Physical uplink control channel (PUCCH), allocates one or more sub-frames of a radio frame to a PRACH, and receives an access attempt over the PRACH based on the predetermined sub-frame location and the allocated one or more sub-frames. In another embodiment, the eNode B allocates one or more Physical Resource Blocks (PRBs) of one or more sub-frames of a PRACH hopping pattern period to a PRACH and informs a user equipment of the PRBs allocated for the PRACH by transmitting a first parameter informing of a slot configuration and a second parameter informing of a duration of a PRACH hopping period.

Classifications:

International (IPC 8-9): H04B1/713 H04W72/04 (Advanced/Invention);

H04B1/69 H04W72/00 (Core/Invention)

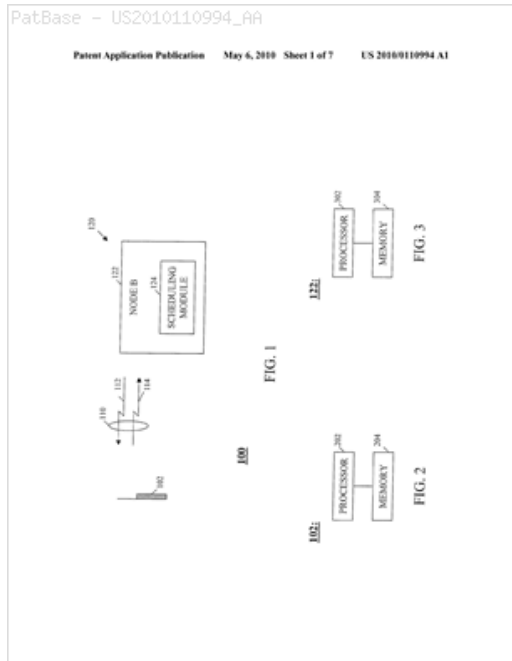
CPC: H04B1/713 H04B1/7143 H04L5/0053 H04W74/002

H04W74/0866

European: H04B1/713 H04L5/00C6 H04W74/08F T04B1/713D

T04B1/7143 T04W74/00C

US: 370/329 370/329P 375/133 375/133S 375/E1.033 375/E10.33S



Family:

Publication number	Publication date	Application number	Application date
US2010110994 AA	20100506	US20080261810	20081030

Priority:

US20080261810 20081030

Probable Assignee: GOOGLE INC

Assignee(s): (std): MOTOROLA INC

Assignee(s): MOTOROLA MOBILITY INC ; MOTOROLA MOBILITY LLC ; GOOGLE INC ; GOOGLE TECHNOLOGY HOLDINGS LLC

Inventor(s): (std): NANGIA VIJAY ; GHOSH AMITABHA ; RATSUK RAPEEPAT ; XIAO WEIMIN

Agent(s): MOTOROLA INC

3) Family number: 61124866 (US2015365977A)

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Title: ENHANCED PRACH SCHEME FOR POWER SAVINGS, RANGE IMPROVEMENT AND IMPROVED DETECTION

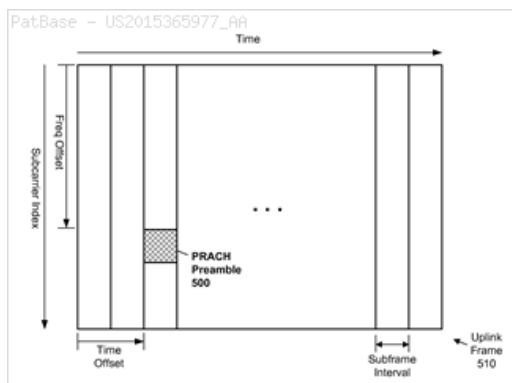
Abstract: Enhanced random access procedures for link-budget-limited user equipment (UE) devices are disclosed. A user equipment device may transmit a first message containing a Physical Random Access Channel (PRACH). The PRACH contains instances of a Zadoff-Chu sequence, and may be transmitted repeatedly as part of a single random attempt, to facilitate correlation data combining at the base station. The available Zadoff-Chu sequences may be partitioned among a plurality of sets, each set being associated with a respective Doppler shift range (or frequency hop pattern or time repetition pattern). A UE device may signal Doppler shift (or other information) to the base station by selection of one of the sets. The first PRACH transmission and the following PRACH transmission may occur in consecutive subframes. A UE device may select from a special set of Zadoff-Chu sequences (different from a conventional set of sequences), to signal its status as a link-budget-limited device.

Classifications:

International (IPC 8-9): H04J13/00 H04J13/22 H04L1/18 H04L27/26 H04W52/34 H04W72/04 H04W74/00 H04W74/08 (Advanced/Invention); H04W74/00 (Advanced/Non-invention)

CPC: H04J13/0062 H04W52/34 H04L1/189 H04W72/0406 H04W74/0833 H04W74/004 Y02B70/30 Y02B60/50 Y02D70/00 H05K999/99 Y02D70/1242 Y02D70/1262 Y02D70/1264 Y02D70/142 Y02D70/144 Y02D70/146 Y02D70/164 Y02D70/168 Y02D70/26 Y02D70/10 Y02D70/12 Y02D70/126

US: 370/330



Family:

Publication number	Publication date	Application number	Application date
CN106465428 A	20170222	CN201580028408	20150603
DE602015015602 D1	20180927	DE201560015602T	20150603
EP3138349 A1	20170308	EP20150732099	20150603
EP3138349 B1	20180829	EP20150732099	20150603
EP3425990 A1	20190109	EP20180185537	20150603
IN201617040818 A	20170331	IN201617040818	20161129
JP2017522744 T2	20170810	JP20160562257T	20150603
JP6422999 B2	20181114	JP20160562257T	20150603
KR101904443 B1	20181005	KR20167033087	20150603

■ KR20170002484 A	20170106	KR20167033087	20150603
■ KR20180110208 A	20181008	KR20187027931	20150603
■ TW201618486 A	20160516	TW20150118420	20150605
■ TWI614999 B	20180211	TW20150118420	20150605
■ US2015365977 AA	20151217	US20150729360	20150603
■ US2018035471 AA	20180201	US20170728782	20171010
■ US2018279381 AA	20180927	US20180989864	20180525
■ US9872316 BB	20180116	US20150729360	20150603
■ US10009931 BB	20180626	US20170728782	20171010
■ WO15191347 A1	20151217	WO2015US33984	20150603

Priority:

US20140012234P 20140613	US20140020842P 20140703	US20150131167P 20150310
US20150133232P 20150313	US20150135138P 20150318	EP20150732099 20150603
US20150729360 20150603	WO2015US33984 20150603	US20170728782 20171010
US20180989864 20180525		

Probable Assignee: APPLE INC

Assignee(s): (std): APPLE INC ; QUALCOMM INC

Assignee(s): APPLE INC CUPERTINO

Inventor(s): (std): MUJTABA SYED A ; KIM YOUNG JAE ; MALLADI DURGA PRASAD ; DAMNJANOVIC ALEKSANDAR ; CHEN WANSI ; KIM YOUNGJAE ; TABET TARIK ; MUJTABA SYED AON

Inventor(s): TABET TARIK CUPERTINO ; KIM YOUNGJAE CUPERTINO ; MUJTABA SYED AON CUPERTINO

Agent(s): BARDEHLE PAGENBERG PARTNERSCHAFT MBB PATENTANWAELTE RECHTSANWAELTE; LANG JOHANNES; JEFFREY C; MEYERTONS HOOD KIVLIN KOWERT AND GOETZEL PC; MARK K; JOEL L

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW