

Search history

Search pn=WO2016191091 (Results 1)

1:

Search [SP]: 1. a method for wireless communication at a user equipment (ue), comprising: identifying a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (lbt) procedure for a shared frequency channel receiving a transmission from the secondary cell comprising a plurality of subframes and determining a reference signal configuration for at least one subframe of the transmission based at least in part on a cross-subframe indicator received in a reference subframe, the cross-subframe indicator indicating a value of a subframe offset between the reference subframe and the at least one subframe. 2. the method of claim 1, wherein the cross-subframe indicator is received over a different secondary cell of the shared frequency spectrum band. 3. the method of claim 1, wherein the cross-subframe indicator is received over a licensed cell operating in a dedicated frequency spectrum band. 4. the method of claim 3, wherein the cross-subframe indicator comprises a field of a downlink control information (dci) format received via a downlink control channel of the licensed cell. 5. the method of claim 1, wherein the cross-subframe indicator is received over the secondary cell in an indicator channel or a field of a downlink control information (dci) format received via a downlink control channel of the secondary cell. 6. the method of claim 1, further comprising: identifying that the at least one subframe has asynchronous symbol timing relative to a licensed cell operating in a dedicated frequency spectrum band and determining one or more symbol positions within the at least one subframe for at least one reference signal based on a detected symbol preamble associated with the transmission. 7. an apparatus for wireless communication at a user equipment (ue), comprising: means for identifying a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (lbt) procedure for a shared frequency channel means for receiving a transmission from the secondary cell comprising a plurality of subframes and means for determining a reference signal configuration for at least one subframe of the transmission based at least in part on a cross-subframe indicator received in a reference subframe, the cross-subframe indicator indicating a value of a subframe offset between the reference subframe and the at least one subframe. 8. the apparatus of claim 7, wherein the means for determining identifies a set of initially transmitted subframes associated with at least one reference signal configuration. 9. the apparatus of claim 7, wherein the cross-subframe indicator is received over a different secondary cell of the shared frequency spectrum band. 10. the apparatus of claim 7, further comprising: means for identifying that the at least one subframe has asynchronous symbol timing relative to a licensed cell operating in a dedicated frequency spectrum band and means for determining one or more symbol positions within the at least one subframe for at least one reference signal based at least in part on a detected symbol preamble associated with the transmission. 11. an apparatus for wireless communication at a user equipment (ue), comprising: a processor and memory in electronic communication with the processor and instructions stored in the memory and operable, when executed by the processor, to cause the apparatus to: receive a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (lbt) procedure for a shared frequency channel identify a transmission from the secondary cell comprising a plurality of subframes and determine a reference signal configuration for at least one subframe of the transmission based at least in part on a cross-subframe indicator received in a reference subframe, the cross-subframe indicator indicating a value of a subframe offset between the reference subframe and the at least one subframe. 12. the apparatus of claim 11, wherein the cross-subframe indicator is received over a different secondary cell of the shared frequency spectrum band. 13. the apparatus of claim 11, wherein the instructions are operable, when executed by the processor, to cause the apparatus to: identify that the at least one subframe has asynchronous symbol timing relative to a licensed cell operating in a dedicated frequency spectrum band and determine one or more symbol positions within the at least one subframe for at least one reference signal based at least in part on a detected symbol preamble associated with the transmission. 14. a non-transitory computer-readable medium storing code for wireless communication at a user equipment (ue), the code comprising instructions executable to: identify a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (lbt) procedure for a shared frequency channel receive a transmission from the secondary cell comprising a plurality of subframes and determine a reference signal configuration for at least one subframe of the transmission based at least in part on a cross-subframe indicator received in a reference subframe, the cross-subframe indicator indicating a value of a subframe offset between the reference subframe and the at least one subframe. 15. a method for wireless communication at a user equipment (ue), comprising: identifying a plurality of cells in a transmission from a base station on a shared frequency spectrum band, wherein the transmission is subject to a listen-before-talk (lbt) procedure for a shared frequency channel identifying a first scheduling configuration for a first, initially transmitted set of subframes of the transmission, the first scheduling configuration comprising one or more search spaces of a first set of cells configured for carrying individual grants for respective cells of the plurality of cells and identifying a second scheduling configuration for a second set of subframes of the transmission subsequent to the first set of subframes, the second scheduling configuration comprising at least one joint search space of a second set of cells configured for carrying joint grants for the second set of cells. 16. the method of claim 15, further comprising: determining a subset of the plurality of cells having associated frequency channels successfully reserved for the transmission. 17. the method of claim 16, further comprising: determining the second set of cells from the subset of the plurality of cells based at least in part on a ue-specific identifier. 18. the method of claim 15, wherein the second set of cells comprises a licensed cell operating in a dedicated frequency spectrum band. 19. an apparatus for wireless communication at a user equipment (ue), comprising: means for identifying a plurality of cells in a transmission from a base station on a shared frequency spectrum band, wherein the transmission is subject to a listen-before-talk (lbt) procedure for a shared frequency channel means for identifying a first scheduling configuration for a first, initially transmitted set of subframes of the transmission, the first scheduling configuration comprising one or more search spaces of a first set of cells configured for carrying individual grants for respective cells of the plurality of cells and means for identifying a second scheduling configuration for a second set of subframes of the transmission subsequent to the first set of subframes, the second scheduling configuration comprising at least one joint search space of a second set of cells configured for carrying joint grants for the second set of cells. 20. the apparatus of claim 19, further comprising: means for determining a subset of the plurality of cells having associated frequency channels successfully reserved for the transmission. 21. the apparatus of claim 20, further comprising: means for determining the second set of cells from the subset of the plurality of cells based at least in part on a ue-specific identifier. 22. an apparatus for wireless communication at a user equipment (ue), comprising: a processor and memory in electronic communication with the processor and instructions stored in the memory and operable, when executed by the processor, to cause the apparatus to: identify a plurality of cells in a transmission from a base station on a shared frequency spectrum band, wherein the transmission is subject to a listen-before-talk (lbt) procedure for a shared frequency channel identify a first scheduling configuration for a first, initially transmitted set of subframes of the transmission, the first scheduling configuration comprising one or more search spaces of a first set of cells configured for carrying individual grants for respective cells of the plurality of cells and identify a second scheduling configuration for a second set of subframes of the transmission subsequent to the first set of subframes, the second scheduling configuration comprising at least one joint search space of a second set of cells configured for carrying joint grants for the second set of cells. (Results 0)

Search [SP]: cross reference the present application for patent claims priority to u.s. provisional patent application no. 62/165,814 by yerramalli, et al., entitled "control flow enhancements for lte-unlicensed," filed may 22, 2015 assigned to the assignee hereof. background the following relates generally to wireless communication, and more specifically to control flow enhancements for lte-unlicensed. wireless communications systems are widely deployed to provide various types of communication content such as voice, video, packet data, messaging, broadcast, and so on. these systems may be capable of supporting communication with multiple users by sharing the available system resources (e.g., time, frequency, and power). examples of such multiple-access systems include code division multiple access (cdma) systems, time division multiple access (tdma) systems, frequency division multiple access (fdma) systems, and orthogonal frequency division multiple access (ofdma) systems, (e.g., an lte system). a wireless multiple-access communications system may include a number of base stations, each simultaneously supporting communication for multiple communication devices, which may be otherwise known as user equipment (ue). in an lte or lte-advanced (lte-a) network, a base station and a ue may communicate over dedicated frequency spectrum that is licensed to the network operator. a licensed operator network (e.g., cellular network, etc.) may be known as a public land mobile network (plmn). with increasing data traffic in cellular networks that use dedicated (e.g., licensed) radio frequency bands, offloading at least some data traffic to unlicensed or shared radio frequency spectrum may enhance data transmission capacity and efficient use of resources. unlicensed and shared radio frequency spectrum may also provide service in areas where access to a dedicated radio frequency spectrum is unavailable. unlicensed spectrum generally refers to spectrum available for use without a license and is typically subject to technical rules regarding access and transmitted power. shared spectrum generally refers to spectrum that is available to devices associated with one of multiple operators. a listen before talk (lbt) procedure may be used for contention resolution for access to shared frequency resources of licensed or unlicensed frequency spectrum without pre-coordinated resource allocation. an lbt procedure may include performing a clear channel assessment (cca) procedure to determine whether a shared channel is available. when it is determined that the shared channel is available, a device may transmit a signal to reserve the channel before data transmissions. other devices may monitor for the reservation signal to detect transmissions, and may also monitor the shared channel using energy detection to determine whether the shared channel is busy or free. operation using lte signal waveforms over the shared radio frequency spectrum may be called lte-unlicensed (lte-u) operation, and an lte device supporting lte-u operation may be called an lte-u device. operation using lte/lte-a carriers in unlicensed or shared frequency

spectrum may be used in a standalone operation mode where an lte/lte-a carrier can be used as a primary cell for a ue. the lte/lte-a carrier may also be used in a licensed assisted access (laa) mode where a ue is configured with a primary cell in a lte/lte-a carriers in unlicensed or shared frequency spectrum are configured as secondary cells in a carrier aggregation mode. because unlicensed cells (e.g., standalone or laa) operating in unlicensed or shared frequency spectrum may be subject to lbt procedures, control flow management procedures designed around predetermined timing for dedicated spectrum may be subject to unpredictable timing variations. in addition, unlicensed or shared frequency spectrum may have additional restrictions that place limitations on transmission power or duration that can affect control flow management for unlicensed cells. summary systems, methods, and apparatuses for control flow enhancement for lte-u operation. aspects include enhancements to control flow processing for floating transmission time interval (tti) operation in unlicensed cells including enhanced physical downlink control channel (epdch) processing, aperiodic channel state information (csi) reporting, discontinuous reception (drx) operation, and extended ttis at the end of a transmission burst. the described aspects also include enhancements for reference signal configuration for unlicensed cells, processing of joint grants for multiple unlicensed cells, epdch processing for partial subframes, and multi-channel drs operation. a method of wireless communication is described. the method may include identifying a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (lbt) procedure for a shared frequency channel, identifying a transmission from the secondary cell comprising of at least one subframe, and determining a reference signal configuration for the transmission based at least in part on a cross-subframe indicator of at least one subframe. an apparatus for wireless communication is described. the apparatus may include means for identifying a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (lbt) procedure for a shared frequency channel, means for identifying a transmission from the secondary cell comprising of at least one subframe, and means for determining a reference signal configuration for the transmission based at least in part on a cross-subframe indicator of at least one subframe. a further apparatus for wireless communication is described. the apparatus may include a processor, memory in electronic communication with the processor, and instructions stored in the memory and operable, when executed by the processor, to cause the apparatus to identify a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (lbt) procedure for a shared frequency channel, identify a transmission from the secondary cell comprising of at least one subframe, and determine a reference signal configuration for the transmission based at least in part on a cross-subframe indicator of at least one subframe. a non-transitory computer-readable medium storing code for wireless communication is described. the code may include instructions executable to identify a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (lbt) procedure for a shared frequency channel, identify a lbt transmission from the secondary cell comprising of at least one subframe, and determine a reference signal configuration for the transmission based at least in part on a cross-subframe indicator of at least one subframe. in some examples of the method, apparatuses, or non-transitory computer-readable medium described herein, the determining comprises identifying a set of initially transmitted subframes associated with at least one reference signal configuration. in some examples of the method, apparatuses, or non-transitory computer-readable medium described herein, the reference signal subframe indicator is received over a licensed cell operating in a dedicated frequency spectrum band. in some examples of the method, apparatuses, or non-transitory computer-readable medium described herein, the reference signal subframe indicator comprises a field of a downlink control information (dci) format received via a downlink control channel of the licensed cell. additionally or alternatively, in some examples the reference signal subframe indicator is received over the secondary cell in an indicator channel or a field of a downlink control information (dci) format received via a downlink control channel of the secondary cell. some examples of the method, apparatuses, or non-transitory computer-readable medium described herein may further include processes, features, means, or instructions for identifying that at least one subframe has asynchronous symbol timing relative to a licensed cell operating in a dedicated frequency spectrum band, and determining one or more symbol positions within the at least one subframe for at least one reference signal based at least in part on a detected symbol preamble associated with the transmission. a method of wireless communication is described. the method may include identifying a plurality of cells in a transmission from a base station on a shared frequency spectrum band, wherein the transmission is subject to a listen-before-talk (lbt) procedure for a shared frequency channel, identifying a first scheduling configuration for a first, initially transmitted set of subframes of the transmission, the first scheduling configuration comprising one or more search spaces of a first set of cells configured for carrying individual grants for respective cells of the plurality of cells, and identifying a second scheduling configuration for a second set of subframes of the transmission subsequent to the first set of subframes, the second scheduling configuration comprising at least one search space of at least one cell associated with joint grants for the plurality of cells. an apparatus for wireless communication is described. the apparatus may include means for identifying a plurality of cells in a transmission from a base station on a shared frequency spectrum band, wherein the transmission is subje (Results 29)

Search 3 and LTE (Results 29)

4:

Search 4 and unlicensed (Results 26)

5:

Search 5 and cell (Results 26)

6:

Search 6 and aperiodic (Results 8)

7:

Title: INTERFERENCE MEASUREMENTS IN ENHANCED INTER-CELL INTERFERENCE COORDINATION CAPABLE WIRELESS TERMINALS

Abstract: A wireless communication terminal is disclosed. The terminal includes a transceiver coupled to a processor configured to determine that a subset of a plurality of REs must be excluded from demodulation, the plurality of resource elements (REs) received in a signal from a first base station, to estimate a hypothetical block error rate (BLER) based on the signal received from the first base station by excluding the subset of the plurality of REs, and to estimate channel state information based on the hypothetical block error rate (BLER).

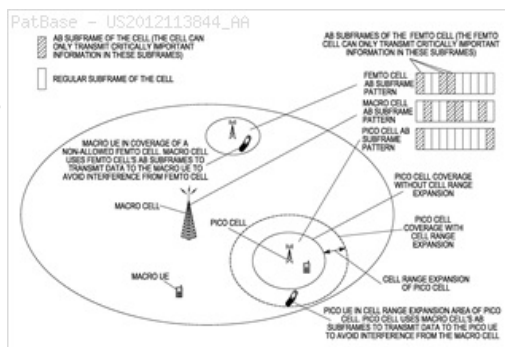
Classifications:

International (IPC 8-9): H04B17/00 H04B17/24 H04B17/345
H04J1/16 H04L1/00 H04L1/20 H04L12/26 H04W24/00 H04W24/02
H04W36/30 (Advanced/Invention);
G06F11/00 H03M13/00 H04B17/00 H04B17/327 H04B7/06 H04L12/56
H04N7/12 H04W24/10 H04W28/04 (Advanced/Non-invention)

CPC: H04B7/063 H04B7/0639 H04W24/10 H04W28/04 H04L1/203

H04L1/0026 H04B17/24 H04B17/327 H04B17/345 H04W24/02
European: H04B17/00B1F H04B17/00B4 H04L1/00A9B H04L1/20E
T04B17/00B1C T04B7/06C1F1P T04B7/06C1F3C T04W24/10
T04W28/04 T04W28/04N

US: 370/242 370/252 370/252P 370/328 370/328S 370/332
370/332P 370/395.21 370/395.42 375/240.27 714/707 714/751



Family:

Publication number	Publication date	Application number	Application date
BR112013011403 A2	20160802	BR20131111403	20111104
CN103201970 A	20130710	CN201180053893	20111104
DE602011016969 D1	20150716	DE201160016969T	20111104
EP2638645 A1	20130918	EP20110785226	20111104
EP2638645 B1	20150603	EP20110785226	20111104
EP2638646 A1	20130918	EP20110785227	20111104
KR101487114 B1	20150128	KR20137011837	20111104
KR20130079582 A	20130710	KR20137011837	20111104
KR20130081704 A	20130717	KR20137011839	20111104
US2012113844 AA	20120510	US20110287508	20111102
US2012113961 AA	20120510	US20110287525	20111102
US2015003275 AA	20150101	US20140486418	20140915
US8837301 BB	20140916	US20110287508	20111102
US9621308 BB	20170411	US20140486418	20140915
WO12064589 A1	20120518	WO2011US59248	20111104
WO12064593 A1	20120518	WO2011US59268	20111104

Priority:

US20100411361P 20101108 US20110287508 20111102 US20110287525 20111102
EP20110785226 20111104 WO2011US59248 20111104 WO2011US59268 20111104
US20140486418 20140915

Probable Assignee: GOOGLE INC

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Assignee(s): MOTOROLA MOBILITY LLC LIBERTYVILLE

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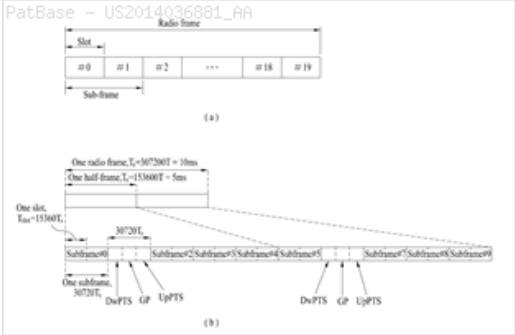
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Title: METHOD AND APPARATUS FOR TRANSMITTING CONTROL INFORMATION IN A WIRELESS COMMUNICATION SYSTEM

Abstract: The embodiments of the present invention relate to a method for transmitting control information by a base station in a wireless communication system, wherein the method comprises a step of transmitting a physical downlink control channel (PDCCH). The downlink control information of the PDCCH may include an indicator indicating whether or not a reference signal is transmitted in a time domain corresponding to the subframe in which the PDCCH is transmitted.

Classifications:

International (IPC 8-9): H04B7/26 H04J11/00
H04L5/00 (Advanced/Invention)
CPC: H04L5/003 H04L5/001 H04L5/0023 H04L5/0048 H04L5/0053
US: 1/1 370/336



Family:

Publication number	Publication date	Application number	Application date
CN103477579 A	20131225	CN201280017984	20120413
CN103477579 B	20160817	CN201280017984	20120413
US2014036881 AA	20140206	US20120004962	20120413
US9331826 BB	20160503	US20120004962	20120413
WO12141513 A2	20121018	WO2012KR02791	20120413
WO12141513 A3	20130307	WO2012KR02791	20120413

Priority:

US20110474748P 20110413 US20120004962 20120413 WO2012KR02791 20120413

Probable Assignee: LG ELECTRONICS INC

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Agent(s): MORGAN LEWIS AND BOCKIUS 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 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 IS IT JP KE KG KM KN KP KR KZ LA LC 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 PE PG PH PL PT QA RO RS RU RW 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

Title: CHANNEL STATE INFORMATION MEASUREMENTS FOR LICENSE-ASSISTED ACCESS

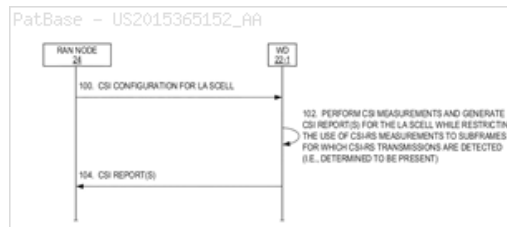
Abstract: Systems and methods relating to accurate Channel State Information (CSI) measurements for a License Assisted Secondary **Cell** (LA SCell) are disclosed herein. In some embodiments, a wireless device enabled to operate in a cellular communications network according to a carrier aggregation scheme using both a licensed frequency band and an **unlicensed** frequency band operates to determine whether a Channel State Information Reference Symbol (CSI-RS) transmission from a LA SCell of the wireless device is present in a subframe, where the LA SCell is in an **unlicensed** frequency band. The wireless device further operates to process a CSI-RS measurement for the LA SCell for the subframe upon determining that a CSI-RS transmission from the LA SCell is present in the subframe and refrain from processing a CSI-RS measurement for the LA SCell for the subframe upon determining that a CSI-RS transmission from the LA SCell is not present in the subframe.

Classifications:

International (IPC 8-9): H04B7/06 H04L H04L27/00 H04L5/00 H04W H04W16/14 H04W76/02 (Advanced/Invention);
H04W16/14 H04W76/15 (Advanced/Non-invention)

CPC: H04B7/0626 H04W16/14 H04L5/001 H04L5/005 H04L27/0006 H04W76/15

US: 370/252

**Family:**

Publication number	Publication date	Application number	Application date
■ CN106576034 A	20170419	CN201580044086	20150615
■ CN106576034 A8	20170711	CN201580044086	20150615
■ EP3155752 A1	20170419	EP20150733542	20150615
■ HK1233394 A1	20180126	HK20170106806	20170707
■ US2015365152 AA	20151217	US20150737957	20150612
■ US10063304 BB	20180828	US20150737957	20150612
■ WO15193798 A1	20151223	WO20151B54526	20150615

Priority:

US20140012616P 20140616 US20150737957 20150612 WO20151B54526 20150615

Probable Assignee: TELEFONAKTIEBOLAGET L M ERICSSON PUBL

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Agent(s): REES SIMON JOHN LEWIS; CHINA PATENT AGENT HK LTD; WITHROW AND TERRANOVA PLLC; GUPTA RISHI ET AL

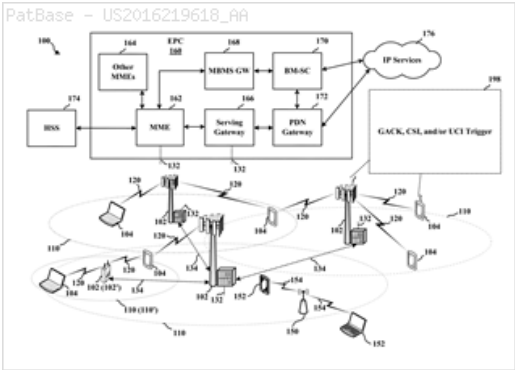
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Title: TRIGGERING A GROUP ACKNOWLEDGEMENT/NEGATIVE ACKNOWLEDGEMENT OR CHANNEL STATE INFORMATION

Abstract: In the present disclosure, CSI and/or a plurality of ACK/NACKs related to a group of DL data transmissions may be buffered at the UE as a GACK until a DCI trigger is received from the eNB. When the DCI trigger is received, the UE may transmit the CSI and/or GACK. In this way, HARQ feedback and/or CSI may be reliably communicated even if a CCA does not clear and/or UL subframes are unavailable. In an aspect of the disclosure, a method, a computer-readable medium, and an apparatus are provided. In an aspect, the apparatus may be a UE. The apparatus monitors one or more subframes for a DCI trigger. In a further aspect, the apparatus receives the DCI trigger in a subframe. In another aspect, the apparatus transmits UCI using a subsequent subframe.

Classifications:

International (IPC 8-9): H04L1/00 H04L1/16 H04L27/26 H04L5/00 H04W24/10 H04W72/04 H04W72/12 H04W72/14 (Advanced/Invention)
CPC: H04W72/1294 H04W72/1284 H04L1/16 H04L5/0053 H04L5/0055 H04L1/0027 H04W72/14 H04L1/0026 H04L1/1671 H04L1/0031
US: 370/329



Family:

Publication number	Publication date	Application number	Application date
BR112017016164 A2	20180417	BR20171116164	20160106
CN107210893 A	20170926	CN201680007100	20160106
EP3251272 A1	20171206	EP20160704718	20160106
IN201727019636 A	20170804	IN201727019636	20170605
JP2018504851 T2	20180215	JP20170539289T	20160106
KR20170110085 A	20171010	KR20177020857	20160106
US2016219618 AA	20160728	US20160988529	20160105
US10009920 BB	20180626	US20160988529	20160105
WO16122846 A1	20160804	WO2016US12382	20160106

Priority:

US20150108505P 20150127 US20160988529 20160105 WO2016US12382 20160106

Probable Assignee: QUALCOMM INC

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Inventor(s): (std): ALBERTO RICO ALVARINO ; ALEKSANDAR DAMNJANOVIC ; CHEN WANSHI ; DABEER ONKAR JAYANT ; DAMNJANOVIC ALEKSANDAR ; HAO XU ; ONKAR JAYANT DABEER ; RICO ALVARINO ALBERTO ; WANSHI CHEN ; XU HAO

Agent(s): WEGNER HANS; NERRIE M; GELFOUND CRAIG A ET AL

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

Title: CHANNEL FEEDBACK REPORTING FOR SHARED FREQUENCY SPECTRUM

Abstract: Methods, systems, and devices are described for wireless communication. A device may use enhanced reporting mechanisms to support control information reporting on shared spectrum. In some cases, a device may utilize enhanced component carriers (eCCs) for data transmissions. In one example, the device may transmit control information (e.g., ACK/NACK, CSI, etc.) to a corresponding device using a CCA exempt transmission (CET). In another example, a device may report control information quasi-periodically. For instance, a device may be assigned a specified interval and a control feedback window for reporting control information (e.g., CSI). The window may provide a duration prior and subsequent to the specified interval during which a UE may transmit control information. For example, the device may perform a CCA reserving the channel for a duration that does not include the specified interval but may transmit feedback information based on determining the specified interval falls within the assigned window.

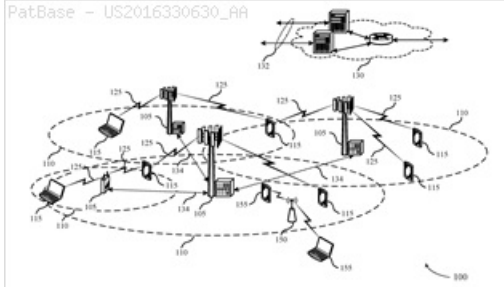
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International (IPC 8-9): H04L1/00 H04L1/16 H04L5/00 H04W16/14 H04W24/10 H04W48/16 H04W72/04 H04W72/08 H04W72/12 H04W74/02 (Advanced/Invention)

CPC: H04W16/14 H04L5/0055 H04W72/0453 H04W72/1284 H04L1/0003 H04L5/0057 H04L5/0048 H04W48/16 H04W24/10 H04W72/085 H04L1/16 H04L5/0033 H04L5/0073 H04L1/1861

US: 455/454

PatBase - US2016330630_AA

**Family:**

Publication number	Publication date	Application number	Application date
BR112017023895 A2	20180717	BR20171123895	20160429
CN107534869 A	20180102	CN201680025749	20160429
EP3292648 A2	20180314	EP20160721611	20160429
IN201747033124 A	20170929	IN201747033124	20170919
JP2018519714 T2	20180719	JP20170557300T	20160429
KR20180004722 A	20180112	KR20177032058	20160429
US2016330630 AA	20161110	US20160141398	20160428
US2018146381 AA	20180524	US20180860442	20180102
US9877203 BB	20180123	US20160141398	20160428
WO16179016 A2	20161110	WO2016US30170	20160429
WO16179016 A3	20161215	WO2016US30170	20160429

Priority:

US20150158412P 20150507 US20160141398 20160428 WO2016US30170 20160429
US20180860442 20180102

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Inventor(s): (std): ARUMUGAM CHENDAMARAI KANNAN ; CHENDAMARAI KANNAN ARUMUGAM ; JING SUN ; MALLIK SIDDHARTHA ; SIDDHARTHA MALLIK ; SUN JING ; TAESANG YOO ; XIAOXIA ZHANG ; YOO TAESANG ; ZHANG XIAOXIA

Agent(s): DUNLOP HUGH CHRISTOPHER; HOLLAND AND HART LLP; LARSEN PER H

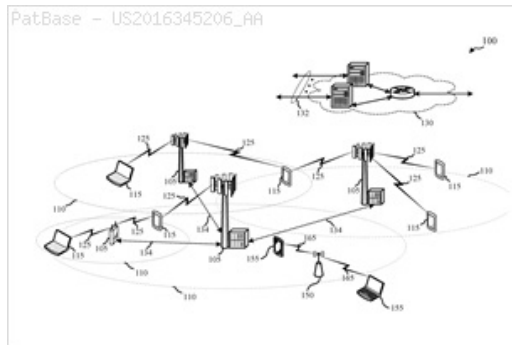
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Title: CONTROL FLOW ENHANCEMENTS FOR **LTE-UNLICENSED**

Abstract: Control flow enhancement for **LTE-U** operation. Aspects include enhancements to control flow processing for floating TTI operation for **unlicensed cells** including ePDCCH processing, **aperiodic** CSI reporting, DRX operation, and extended TTIs at the end of a transmission burst. The described aspects also include enhancements for reference signal configuration for **unlicensed cells**, processing of joint grants for multiple **unlicensed cells**, ePDCCH processing for partial subframes, and multi-channel DRS operation.

Classifications:

International (IPC 8-9): H04B17/382 H04J11/00 H04L H04L27/00 H04L29/02 H04L5/00 H04W H04W16/14 H04W28/12 H04W4/00 H04W72/04 H04W72/08 H04W72/12 H04W72/14 H04W74/00 H04W74/08 H04W76/15 H04W8/08 (Advanced/Invention); H04B7/024 H04L27/00 H04W16/14 H04W74/08 (Advanced/Non-invention); H04W (Subclass/Invention)
CPC: H04W28/12 H04J11/00 H04L5/005 H04W72/042 H04L5/0048 H04L27/0006 H04W16/14 H04W72/1289 H04W74/0808 H04W74/006 H04L5/001 H04L5/0091 H04L5/0053
US: 370/329



Family:

Publication number	Publication date	Application number	Application date
AU2016266823 AA	20161201	AU20160266823	20160510
BR112017025019 A2	20180807	BR20171125019	20160510
CA2981985 AA	20171005	CA20162981985	20160510
CL2017002912 A1	20180406	CL20170002912	20171116
CN107637156 A	20180126	CN201680029234	20160510
CO20170011749 A2	20180209	CO20170011749	20171117
EP3298716 A1	20180328	EP20160724567	20160510
HK1246065 A1	20180831	HK20180105423	20180425
ID201805785 A	20180531	ID2017P0008132	20160510
IL254834 A0	20171231	IL20160254834	20160510
IN201747035531 A	20171013	IN201747035531	20171006
JP2018520569 T2	20180726	JP20170560528T	20160510
KR20180011768 A	20180202	KR20177033443	20160510
MX2017013996 A1	20180323	MX20170013996	20160510
PH2017501837 A	20180411	PH20170501837	20171006
SG11201708134U A1	20171228	SG20171108134	20160510
TW201642615 A	20161201	TW20160114592	20160511
TWI631844 B	20180801	TW20160114592	20160511
US2016345206 AA	20161124	US20160149752	20160509
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WO16191091 A1	20161201	WO2016US31587	20160510

Priority:

US20150165814P 20150522 US20160149752 20160509 WO2016US31587 20160510

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Agent(s): MADDERNS PATENT AND TRADE MARK ATTORNEYS; SMART AND BIGGAR; ESTUDIO CLARKE MODET AND CO CHILE LIMITADA; JOSE ANDRES RINCON USCATEGUI; DUNLOP HUGH CHRISTOPHER; SHANGHAI INTELLECTUAL PROPERTY OFFICE; LUDIYANTO SH MH MM; NERRIE M; LARSEN PER H

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

Title: METHOD AND APPARATUS FOR CONFIGURING FRAME OF **UNLICENSED** BAND

Abstract: A communication node configures an **unlicensed** band transmission burst including a plurality of subframes in consideration of an occupancy state of a channel of an **unlicensed** band and transmits the **unlicensed** band transmission burst through the **unlicensed** band. In this case, at least one subframe of the plurality of subframes has a different type from the remaining subframes.

Classifications:

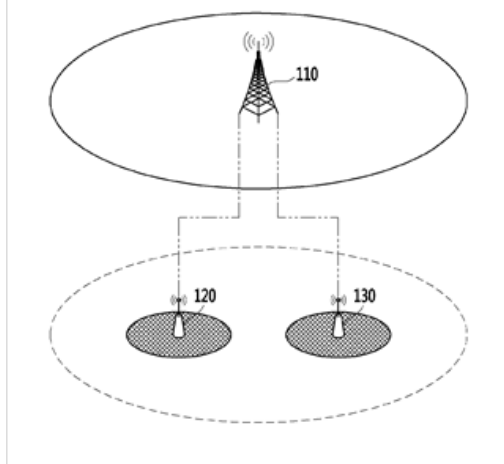
International (IPC 8-9): H04J11/00 H04L12/24 H04L12/28 H04L27/26 H04L5/00 H04W16/14 H04W56/00 H04W72/04 (Advanced/Invention)

CPC: H04L41/0803 H04L5/0048 H04W56/001 H04L27/2602

H04J11/0069 H04J2211/001 H04J2211/005 H04L12/28 H04W16/14

US: 370/254 370/329

PatBase - US2017093620_AA



Family:

Publication number	Publication date	Application number	Application date
■ KR20170036597 A	20170403	KR20160100147	20160805
■ US2017093620 AA	20170330	US20160274553	20160923
■ US10110428 BB	20181023	US20160274553	20160923

Priority:

KR20150135498 20150924 KR20150142980 20151013 KR20160100147 20160805

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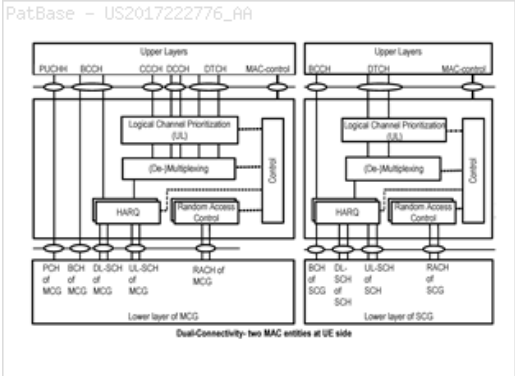
Agent(s): WILLIAM PARK AND ASSOCIATES LTD

Title: SOUNDING REFERENCE SIGNAL CONFIGURATION IN A WIRELESS NETWORK

Abstract: A wireless device receives a radio resource control (RRC) message comprising an **aperiodic** sounding reference signal (SRS) subframe parameter. The wireless device receives a downlink control information (DCI) triggering an SRS transmission and indicating uplink resources in one or more subframes. The wireless device determines a position of a subframe in the one or more subframes based, at least in part, on the **aperiodic** SRS subframe parameter. The wireless device transmits the SRS in the subframe.

Classifications:

International (IPC 8-9): H04L1/00 H04L27/00 H04L5/00 H04W16/14 H04W72/04 H04W72/12 H04W74/08 H04W76/04 (Advanced/Invention)
CPC: H04L5/0048 H04L1/0004 H04W72/1231 H04W72/042 H04W74/0808 H04L5/0051 H04L5/0091 H04L27/0006 H04W16/14 H04L5/001 H04W76/27



Family:

Publication number	Publication date	Application number	Application date
CA3017737 AA	20180913	CA20173017737	20170202
EP3329632 A1	20180606	EP20170706043	20170202
US2017222776 AA	20170803	US20170422452	20170201
US2017290040 AA	20171005	US20170423173	20170202
WO17172036 A1	20171005	WO2017US16221	20170202

Priority:

US20160289800P 20160201 US20160314676P 20160329 US20170422452 20170201
US20170423173 20170202 WO2017US16221 20170202

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Assignee(s): DINAN ESMAEL

Inventor(s): (std): DINAN ESMAEL ; DINAN ESMAEL HEJAZI

Agent(s): OYEN WIGGS GREEN AND MUTALA LLP; WESTPHAL MUSSGNUG AND PARTNER PATENTANWAELTE MBB; GROSSMAN DAVID ET AL

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 DJ 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 KH KM KN KP KR KW 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