

1) Family number: 53785020 (US2015373624A)

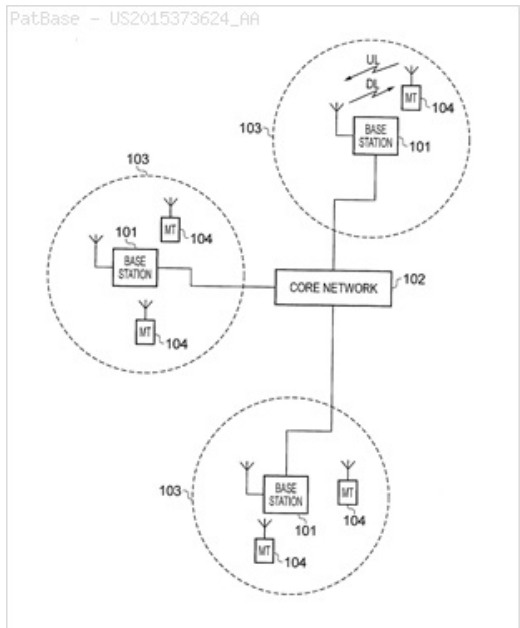
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Title: INFRASTRUCTURE EQUIPMENT, MOBILE COMMUNICATIONS NETWORK, SYSTEM AND METHOD

**Abstract:** An infrastructure equipment forming part of a mobile communications network includes a transmitter configured to transmit signals to communications devices via a wireless access interface, a receiver configured to receive signals transmitted from the communications devices via the wireless access interface, and a controller. The controller controls the transmitter and receiver across a first frequency bandwidth divided in time into plural frames, to form one of plural cells of the mobile communications network, each cell allocated a cell identifier by the mobile communications network. The controller and transmitter transmit in one or more of the frames a synchronization sequence providing an indication of one of the cell identifiers. A relative temporal location of the synchronization sequence within the frame provides the communications devices with an indication of the cell identifier which can be combined with detecting the synchronization sequence to improve estimate of the cell identifier for the cell.

Classifications:

**International (IPC 8-9):** H04B7/26 H04J11/00 H04W48/08  
H04W56/00 (Advanced/Invention)  
**CPC:** H04W56/00 H04W48/08 H04W56/001 H04J2211/005  
H04J11/0069  
**US:** 370/336



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP2976843 A1       | 20160127         | EP20140712729      | 20140319         |
| GB201305233 A0     | 20130501         | GB20130005233      | 20130321         |
| GB2512126 A1       | 20140924         | GB20130005233      | 20130321         |
| KR20150135272 A    | 20151202         | KR20157025632      | 20140319         |
| US2015373624 AA    | 20151224         | US20140767849      | 20140319         |
| US9860826 BB       | 20180102         | US20140767849      | 20140319         |
| WO14147397 A1      | 20140925         | WO2014GB50864      | 20140319         |

Priority:

GB20130005233 20130321 WO2014GB50864 20140319

Probable Assignee: SONY CORP

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Inventor(s): HIDEJI WAKABAYASHI ; MATTHEW WEBB

Agent(s): D YOUNG AND CO LLP; OBLON MCCLELLAND MAIER AND NEUSTADT LLP; DEVILE JONATHAN

**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

2) Family number: 59528020 (US2015173102A)

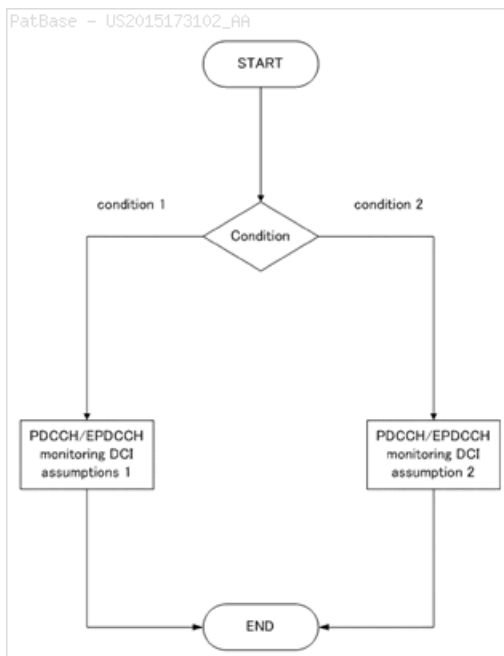
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Title: TERMINAL APPARATUS, BASE STATION APPARATUS, COMMUNICATION SYSTEM, COMMUNICATION METHOD, AND INTEGRATED CIRCUIT

**Abstract:** A serving cell addresses a limited number of HARQ processes, where the limitation coincides with the maximum number of processes that can simultaneously occur, regardless of the serving cell being part of a non-aggregated FDD system, a non-aggregated TDD system, an aggregated system in which the primary cell is FDD, or an aggregated system in which the primary cell is TDD. Each mobile station device monitors the PDCCH/EPDCCH for a DCI format size that corresponds to the conditions of the network.

**Classifications:**

**International (IPC 8-9):** H04L1/16 H04L1/18 H04L5/00 H04L5/14  
H04W28/04 H04W72/04 H04W74/00 (Advanced/Invention)  
**CPC:** H04W74/006 H04L1/1864 H04L1/1896 H04L5/0005 H04L5/14  
H04L5/001 H04L5/0023 H04L5/0028 H04L5/0092 H04L5/143  
H04L5/1469 H04L1/1822 H04L1/1812  
**US:** 370/280

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN106063322 A      | 20161026         | CN201480066611     | 20141212         |
| DE602014032789 D1  | 20181018         | DE201460032789T    | 20141212         |
| EP3081031 A1       | 20161019         | EP20140869053      | 20141212         |
| EP3081031 A4       | 20170726         | EP20140869053      | 20141212         |
| EP3081031 B1       | 20180919         | EP20140869053      | 20141212         |
| JP2017505569 T2    | 20170216         | JP20160538822T     | 20141212         |
| US2015173102 AA    | 20150618         | US20140567094      | 20141211         |
| WO15088046 A1      | 20150618         | WO2014JP83633      | 20141212         |

**Priority:**

US20130915137P 20131212      US20140567094 20141211      EP20140869053 20141212  
WO2014JP83633 20141212

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**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  
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**3) Family number: 52397023 (US2015195787A)**

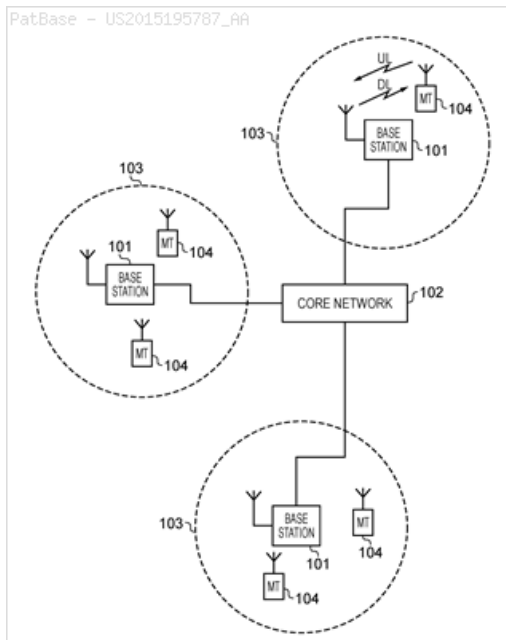
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**Title:** MOBILE COMMUNICATIONS SYSTEM, NETWORK ELEMENT AND METHOD

**Abstract:** A mobile communications system transmitting data to and/or receiving data from communications devices includes one or more base stations, each including a transmitter and a receiver configured to provide a wireless access interface for communicating data to/from the communications devices. The wireless access interface provides plural communications resource elements across a first frequency range and within a second frequency range within and smaller than the first frequency range. The wireless access interface includes plural time divided sub-frames, at least one of the sub-frames including a first wideband control channel in a part of each sub-frame for communicating first signalling information to one or more of the communications devices, and a second narrow band control channel in a second part of each sub-frame. The base stations are configured to transmit a sleep indication signal to one or more of the communication devices, to realize a power saving.

**Classifications:**

**International (IPC 8-9):** H04W52/02 H04W72/04  
H04W72/12 (Advanced/Invention)  
**CPC:** H04W72/1289 H04W72/044 H04W72/0453 H04W52/0222  
H04W52/0235 Y02D70/1242 Y02D70/1262 Y02D70/21 Y02B60/50  
Y02D70/00  
**US:** 370/311

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| BR112015004386 A2  | 20180417         | BR20151104386      | 20130829         |
| CN104604306 A      | 20150506         | CN201380046897     | 20130829         |
| CN104604306 B      | 20190308         | CN201380046897     | 20130829         |
| DE602013027527 D1  | 20171116         | DE201360027527T    | 20130829         |
| EP2893751 A1       | 20150715         | EP20130759292      | 20130829         |
| EP2893751 B1       | 20171004         | EP20130759292      | 20130829         |
| GB201216035 A0     | 20121024         | GB20120016035      | 20120907         |
| GB2510315 A1       | 20140806         | GB20120016035      | 20120907         |
| GB2510315 B2       | 20171206         | GB20120016035      | 20120907         |
| JP2015529426 T2    | 20151005         | JP20150530491T     | 20130829         |
| JP6257628 B2       | 20180110         | JP20150530491T     | 20130829         |
| KR20150052001 A    | 20150513         | KR20157003604      | 20130829         |
| US2015195787 AA    | 20150709         | US20130413757      | 20130829         |
| US9967821 BB       | 20180508         | US20130413757      | 20130829         |
| WO14037703 A1      | 20140313         | WO2013GB52269      | 20130829         |

**Priority:**

GB20120016035 20120907 EP20130759292 20130829 WO2013GB52269 20130829

**Probable Assignee:** SONY CORP**Assignee(s):** (std): SONY CORP ; SONY EUROPE LTD**Inventor(s):** (std): YUICHI MORIOKA ; WEBB MATTHEW ; MORIOKA YUICHI ; MATTHEW WEBB**Agent(s):** DEVILE JONATHAN MARK; D YOUNG AND CO LLP; HAGIWARA YASUSHI; KAMEYA YOSHIKAKI; KANEMOTO TETSUO; OBLON MCCLELLAND MAIER AND NEUSTADT LLP; DEVILE JONATHAN

**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 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

**4) Family number: 50810023 (US2012071103A)**

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**Title:** MULTI-RADIO COEXISTENCE

**Abstract:** A method of wireless communication includes adjusting a channel quality indicator (CQI) to compensate for coexistence interference experienced between communication resources (such as an LTE radio and a Bluetooth radio). The CQI may be set to zero, falsely indicating to a serving enhanced NodeB that a UE is out of range, thereby creating a gap in LTE operation that may be used by an alternate radio access technology. To compensate for fluctuating interference, the CQI may be adjusted to incorporate average coexistence interference over a period of time. Alternatively, the CQI at a time may incorporate coexistence interference regardless of whether interference is experienced at that specific time. A CQI value may also be boosted to compensate for a CQI backoff. CQI may be adjusted to avoid a spiral of death effect.

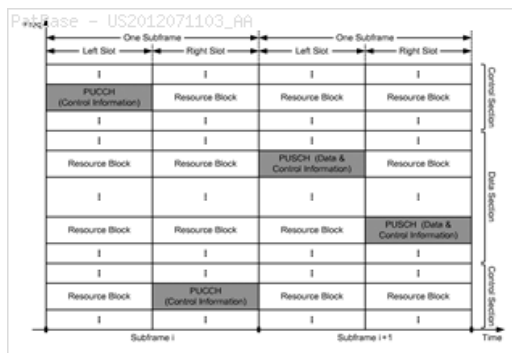
**Classifications:**

**International (IPC 8-9):** H04B1/00 H04B15/00 H04J11/00 H04J99/00  
H04L5/00 H04W16/14 H04W24/08 H04W24/10 H04W36/00 H04W4/00  
H04W52/24 H04W72/08 H04W72/12 H04W88/06  
H04W88/10 (Advanced/Invention)

**CPC:** H04W24/08 H04W52/243 H04L5/0062 H04L5/0073 H04B17/21  
H04B17/345 H04W72/1215 H04W72/1231 H04W88/06 Y02D70/1242  
Y02D70/1262 Y02D70/1264 Y02D70/142 Y02D70/144 Y02D70/146  
Y02D70/164 Y02D70/168 Y02D70/23 Y02D70/24 H04W36/0085

**European:** H04W72/12B3

**US:** 1/1 370/252 455/553.1 455/63.1 455/63.100P 455/67.11  
455/67.110S



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN103120012 A      | 20130522         | CN201180045401     | 20110922         |
| CN103120012 B      | 20160824         | CN201180045401     | 20110922         |
| DE602011027296 D1  | 20160721         | DE201160027296T    | 20110922         |
| EP2620031 A1       | 20130731         | EP20110767346      | 20110922         |
| EP2620031 B1       | 20160608         | EP20110767346      | 20110922         |
| IN01710CN2013 A    | 20160624         | IN2013CN01710      | 20130301         |
| JP2013539300 T2    | 20131017         | JP20130530304T     | 20110922         |
| JP2015015752 A2    | 20150122         | JP20140180182      | 20140904         |
| JP2016181902 A2    | 20161013         | JP20160086089      | 20160422         |
| JP5781613 B2       | 20150924         | JP20130530304T     | 20110922         |
| JP6121593 B2       | 20170426         | JP20160086089      | 20160422         |
| KR101527084 B1     | 20150609         | KR20137010048      | 20110922         |
| KR101706227 B1     | 20170214         | KR20147032203      | 20110922         |
| KR20130058068 A    | 20130603         | KR20137010048      | 20110922         |
| KR20150002845 A    | 20150107         | KR20147032203      | 20110922         |
| US2012071103 AA    | 20120322         | US20110229819      | 20110912         |
| US2015139015 AA    | 20150521         | US20150599788      | 20150119         |
| US2016309494 AA    | 20161020         | US20160181316      | 20160613         |
| US9398602 BB       | 20160719         | US20110229819      | 20110912         |
| US9832785 BB       | 20171128         | US20160181316      | 20160613         |
| WO12040435 A1      | 20120329         | WO2011US52717      | 20110922         |
| WO16118331 A1      | 20160728         | WO2016US12494      | 20160107         |

#### Priority:

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|----------------|----------|----------------|----------|---------------|----------|
| US20100385371P | 20100922 | US20110229819  | 20110912 | EP20110767346 | 20110922 |
| JP20130530304  | 20110922 | JP20130530304T | 20110922 | JP20140180182 | 20110922 |
| WO2011US52717  | 20110922 | US20140092314P | 20141216 | US20150599788 | 20150119 |
| JP20160086089  | 20160422 | US20160181316  | 20160613 |               |          |

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**Assignee(s):** QUALCOMM INCORPORATED ; QUALCOMM INC SAN DIEGO

**Inventor(s):** (std): TAMER ADEL KADOUS ; PETER GAHL ; ASHOK MANTRAVADI ; PARK CHEOL HEE ; AYDIN LEVENT ; GOROKHOV ALEXEI YURIEVITCH ; SHAHIDI REZA ; MANTRAVADI ASHOK ; DAYAL PRANAV ; KADOUS TAMER ADEL ; WANG JIBING ; GAAL PETER

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**Agent(s):** BARDEHLE PAGENBERG PARTNERSCHAFT MBB PATENTANWALTE RECHTSANWALTE; WEGNER HANS; SEYFARTH SHAW LLP; LENKIN ALAN M; HANSEN ROBERT M 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

#### 5) Family number: 59451026 (US2015163008A)

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**Title:** METHOD AND APPARATUS FOR CELL DISCOVERY

**Abstract:** A terminal measures quality of a radio link by using at least one first orthogonal frequency division multiplexing (OFDM) symbol among OFDM symbols excluding an OFDM symbol including a channel state information (CSI)-reference signal (RS).

#### Classifications:

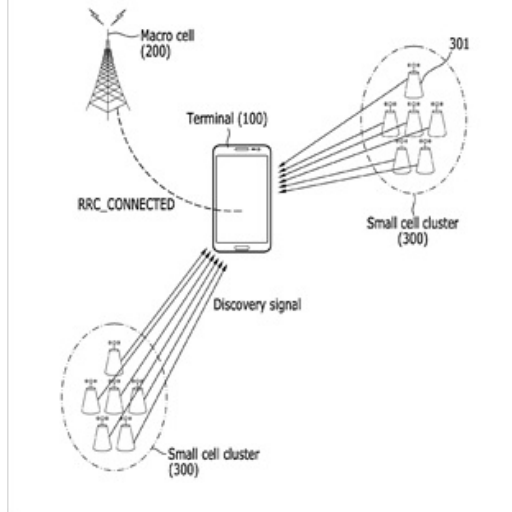
**International (IPC 8-9):** H04J11/00 H04L5/00

H04W48/16 (Advanced/Invention)

**CPC:** H04J11/0069 H04L5/0048 H04J2211/005 H04W48/16

H04B17/309 H04L5/005 H04L5/0057 H04W52/325

**US:** 370/252

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ■ KR20150066996 A  | 20150617         | KR20140095849      | 20140728         |
| ■ US2015163008 AA  | 20150611         | US20140562422      | 20141205         |

**Priority:**

KR20130151678 20131206      KR20140013298 20140205      KR20140055861 20140509  
 KR20140095849 20140728

**Probable Assignee:** ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INST

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**Assignee(s):** ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INST ; ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE

**Inventor(s):** (std): AHN JAE YOUNG ; KIM CHEULSOON ; KO YOUNG JO ; MOON SUNG HYUN ; SHIN JOONWOO ; SHIN JOON WOO ; KIM CHEUL SOON