

1) Family number: 74452008 (US2019166611A)

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Title: METHOD AND APPARATUS FOR TRANSMITTING PBCH AND METHOD AND APPARATUS FOR RECEIVING PBCH

Priority: US20170587451P 20171116 US20170591763P 20171128 US20170592354P 20171129
US20170593221P 20171130 KR20180140159 20181114 WO2018KR13919 20181114
US20190247842 20190115

Family:

Publication number	Publication date	Application number	Application date
CN110419182 A	20191105	CN201880017354	20181114
EP3512137 A1	20190717	EP20180825854	20181114
KR102031098 B1	20191011	KR20180140159	20181114
KR20190056320 A	20190524	KR20180140159	20181114
US2019166611 AA	20190530	US20190247842	20190115
US10602535 BB	20200324	US20190247842	20190115
WO19098677 A1	20190523	WO2018KR13919	20181114

Probable Assignee: LG ELECTRONICS

Assignee(s):(std): LG ELECTRONICS INC

Assignee(s): LG ELECTRONICS

Inventor(s):(std): BONGHOE KIM ; JONGWOONG SHIN ; DONGKYU KIM ; HYUNSOO KO ; KWANGSEOK NOH ; KIM DONGKYU ; KO HYUNSOO ; SHIN JONGWOONG ; KIM BONGHOE ; NOH KWANGSEOK

Agent(s): MAIKOWSKI AND NINNEMANN PATENTANWALTE PARTNERSCHAFT MBB; FISH AND RICHARDSON PC; KIM YONG IN 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 JO 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

International class (IPC 8-9): H03M13/13 H03M13/29 H03M13/35 H04L1/00 H04W72/00 H04W72/12 (Advanced/Invention); H03M13/09 H04L5/00 (Advanced/Non-invention)

CPC: H04L1/0009 H04L1/0047 H04L1/0057 H04L1/0067 H03M13/09 H03M13/13 H03M13/2906 H03M13/35 H04L5/0007 H04W72/005 H04W72/1273

US class: 1/1

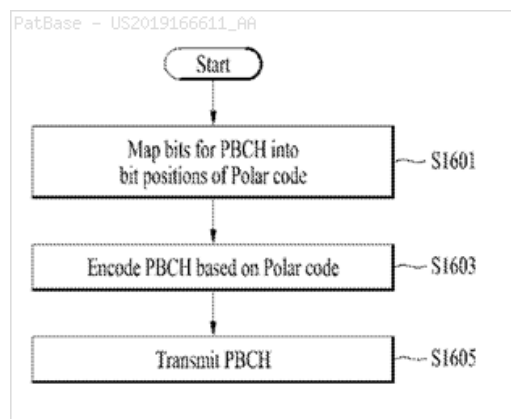
[Classification Explorer](#)

Cited documents: WO17127973 A1, US8537755 BB, US2019104502 AA, US2018198555 AA, US2017288703 AA, KR20170097190 A, KR20140077492 A,

Forward Citations: US10516417,

Abstract:

In a wireless communication system, a physical broadcast channel (PBCH) is encoded based on a Polar code and then is transmitted. Half-frame information within the PBCH is mapped to a bit position 247 among bit positions of the Polar code and synchronization signal and PBCH block (SSB) index information within the PBCH is mapped to bit positions 253, 254, and 255 of the Polar code.



2) Family number: 58294025 (US2017230149A)

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Title: SYSTEMS AND METHODS FOR SMART HARQ FOR WIFI

Priority: US20130845092P 20130711 US20130845101P 20130711 WO2014US46274 20140711
US20140903620 20140711

Family:

Publication number	Publication date	Application number	Application date
TW201519596 A	20150516	TW20140123952	20140711
US2017230149 AA	20170810	US20140903620	20140711

Probable Assignee: INTERDIGITAL PATENT HOLDINGS INC

Assignee(s):(std): INTERDIGITAL PANTENT HOLDINGS INC ; INTERDIGITAL PATENT HOLDINGS ; INTERDIGITAL PATENT HOLDINGS INC

Inventor(s):(std): SHAH NIRAV B ; LOU HANQING ; OLESEN ROBERT L ; WANG XIAOFEI ; ZHANG GUODONG ; XIA PENGFEI ; GHOSH MONISHA ; OTERI OGHENEKOME ; XIA PENG FEI ; ZHANG GUO DONG ; LOU HAN QING ; WANG XIADFEI

Agent(s): ROCCIA VINCENT J 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 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

International class (IPC 8-9): H04L1/00 H04L1/06 H04L1/12 H04L1/16 H04L1/18 H04L12/70 H04W72/04 (Advanced/Invention)

CPC: H04L1/0057 H04L1/0618 H04L1/1614 H04L1/1664 H04L1/1819 H04L1/1822 H04L1/1864 H04L1/188 H04W84/12

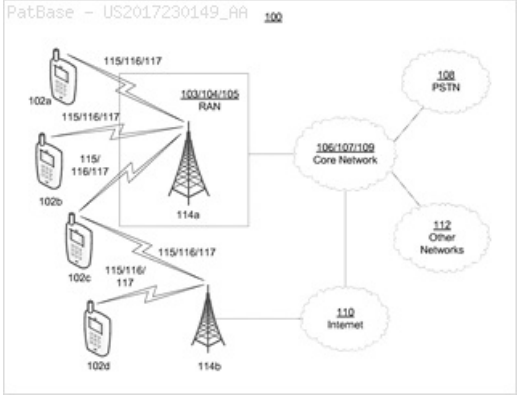
US class: 1/1 714/776

[Classification Explorer](#)

Cited documents: US2014293868 AA, US2014029386 AA, US2009003118 AA, US2006268881 AA, US2005023805 AA,

Forward Citations: WO20034468, WO20033815, WO19190000, WO19132981, WO19124822, WO19021588, WO17091244, WO17083285, WO17007266, US9742433, US2018375621, US2018309588, US2018070317, US2018063297, US2017374539, US2017134975, US2016381704, US2016365952, US2016248542, US10568015, US10567188, US10523398, US10523361, US10506417, US10455611, US10447312, US10405265, US10389431, US10348329, US10284330, US10270463, US10257328, US10187905, US10182362, US10153868, US10135565, TWI672922, JP6549952, JP2017060045, EP3203666, CN107040332, CN106301710, CN106301710,

Abstract:
Systems, methods, and instrumentalities are provided to implement a method of communicating a feedback in a wireless local area network (WLAN). A WLAN device may receive a data frame with a hybrid automatic repeat request (HARQ) data indicator in a frame header. The WLAN device may send an acknowledgement frame when the data frame is correctly received and decoded. The WLAN device may send a negative acknowledgement frame when the data frame is not correctly received and decoded.



3) Family number: 70710168 (US2018226992A) © PatBase

Title: OFFSET LIFTING METHOD

Priority: US20170454416P 20170203 US20180887148 20180202

Family:

Publication number	Publication date	Application number	Application date
US2018226992 AA	20180809	US20180887148	20180202
US10594339 BB	20200317	US20180887148	20180202
WO18141277 A1	20180809	WO2018CN075185	20180203

Probable Assignee: HUAWEI TECHNOLOGIES CO LTD

Assignee(s):(std): HUAWEI TECH CO LTD

Assignee(s): HUAWEI TECHNOLOGIES CO ; HUAWEI TECHNOLOGIES CO LTD

Inventor(s):(std): PANTELEEV PAVEL ANATOLYEVICH ; TONG WEN ; LI JIANG ; KALACHEV GLEB VYACHESLAVOVICH ; MAZURENKO IVAN LEONIDOVICH ; GASANOV ELYAR EL DAROVICH ; LETUNOVSKIY ALEKSEY ALEXANDROVICH

Agent(s): SLATER MATSIL LLP

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 JO JP KE KG KH KM KN KP KR KW KZ LA LC 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

International class (IPC 8-9): H03M13/00 H03M13/05 H03M13/11 H03M13/15 (Advanced/Invention)

CPC: H03M13/116 H03M13/616 H03M13/618 H03M13/6306 H03M13/6362 H03M13/6516 H03M13/1102 H03M13/1162 H03M13/15

US class: 1/1 714/758

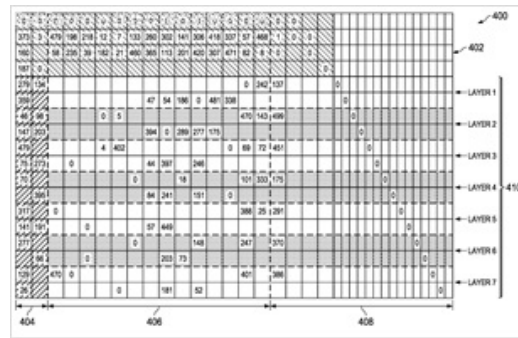
[Classification Explorer](#)

Cited documents: US2018337691 AA, US2018323802 AA, US2018323801 AA, US2018175886 AA, US2017149528 AA, US2014223254 AA, US2013139024 AA, US2011307760 AA, US2011066916 AA, CN102939720 A,

Forward Citations: US10581457, US10469104, US10454499, US10355822, US10348451, US10313057, US10312939,

Abstract:

A method and system for offset lifting is provided. In an embodiment, a method for encoding data includes receiving a K-bit source word input. The method also includes encoding the K-bit source word input according to a LDPC code, a lifting function, and a circulant size offset to generate an N-bit code word output. The circulant size and lifting function are determined according to an information length, a code rate, and a decoder. The method also includes storing the N-bit code word output in input/output memory.

**4) Family number: 43457500** (US2004240590A)

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Title: DECODER DESIGN ADAPTABLE TO DECODE CODED SIGNALS USING MIN_{SS} OR MAX_{SS} PROCESSING

Priority: US20000232053P 20000912 US20000232288P 20000912 US20010878148 20010608
US20010952210 20010912 US20020403847P 20020815 US20020408978P 20020906
US20030369168 20030219 US20040571655P 20040515 US20040865456 20040610

Family:	Publication number	Publication date	Application number	Application date
	US2004240590 AA	20041202	US20040865456	20040610
	US7415079 BB	20080819	US20040865456	20040610

Probable Assignee: BROADCOM CORP

Assignee(s):(std): BROADCOM CORP

Assignee(s): CAMERON KELLY BRIAN ; SHEN BA ZHONG ; TRAN HAU THIEN ; BANK OF AMERICA NA COLLATERAL AGENT AS

Inventor(s):(std): CAMERON KELLY BRIAN ; TRAN HAU THIEN ; SHEN BA ZHONG

Agent(s): GARLICK HARRISON AND MARKISON; SHORT SHAYNE X; SHAYNE X

International class (IPC 8-9): H03D1/00 H03M13/03 H03M13/25 H03M13/27 H03M13/29 H03M13/41 H03M13/45 (Advanced/Invention); H04L1/00 (Advanced/Non-invention); H03M13/00 (Core/Invention); H04L1/00 (Core/Non-invention)

International class (IPC 1-7): H03D1/00

CPC: H03M13/1102 H03M13/258 H03M13/275 H03M13/2906 H03M13/2939 H03M13/2957 H03M13/3922 H03M13/3927 H03M13/4107 H04L1/005 H04L1/006 H04L1/0065 H04L1/0066 H04L1/0071

European class: H03M13/11L H03M13/25V H03M13/27M H03M13/29B H03M13/29D H03M13/29T H03M13/39A5 H03M13/39A6 H03M13/41A H04L1/00B5E5 H04L1/00B7C1 H04L1/00B7K1 H04L1/00B7K3 H04L1/00B7V

US class: 375/340 375/340P 375/341 714/794 714/795

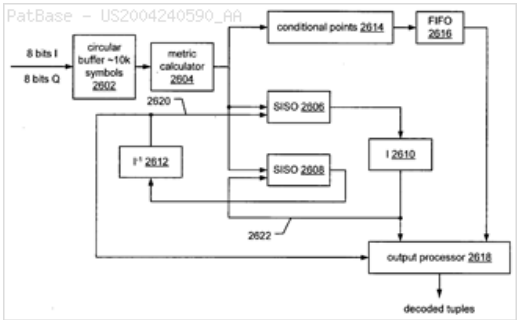
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Cited documents: US2005268206 AA, US2005262408 AA, US2005246618 AA,

Forward Citations: WO11046529, WO06138623, USRE46883, US9979580, US9917600, US9769001, US9756334, US9647733, US9647696, US9495065, US9385836, US9363490, US9361693, US9245531, US9203555, US9185366, US9106262, US9065484, US9037942, US9026880, US8938663, US8879640, US8850294, US8806289, US8799735, US8743971, US8572454, US8560917, US8516332, US8489962, US8468396, US8446998, US8428150, US8341506, US8321749, US8320485, US8301959, US8291290, US8259591, US8255765, US8255764, US8254706, US8218518, US8213484, US8196006, US8196002, US8181091, US8181081, US8166374, US8164691, US8156400, US8130833, US8091012, US8090060, US8068517, US8059718, US8028216, US8005304, US7975202, US7949055, US7934139, US7911539, US7894549, US7886208, US7856651, US7840077, US7797613, US7787054, US7787053, US7782404, US7755704, US7742530, US7712124, US7706449, US7661055, US7649572, US7643093, US7636391, US7634006, US7634003, US7631340, US7630019, US7619690, US7619689, US7617433, US7616688, US7613981, US7613246, US7599348, US7577208, US7571375, US7559076, US7539247, US7536628, US7530002, US7522666, US7489744, US7484158, US7474703, US7474702, US7460606, US7450613, US7436332, US7430251, US7430215, US7346107, US7327403, US7319495, US7317492, US7317491, US7298786, US7298422, US7298421, US7289162, US7259797, US7256839, US7167212, US7154936, US7148932, US7148932, US7139964, US7100182, US7092455, US7092447, US7085324, US7085324, US7068326, US7030935, US7027103, US7023934, US7010038, US6980603, US6967690, US6956872, US6956619, US6947487, US6924847, US6922215, US2016105303, US2015326253, US2015229437, US2015082114, US2014013284, US2013238950, US2013191707, US2012207224, US2011173510, US2011129019, US2011007822, US2010278274, US2010275095, US2010251059, US2010192036, US2010185912, US2010169738, US2010169722, US2010088571, US2010037119, US2010020907, US2010017689, US2009310014, US2009077330, US2009037794, US2008301527, US2008244359, US2008212657, US2008212549, US2008134008, US2008089408, US2008086671, US2008062020, US2008049146, US2008002657, US2007283230, US2007220398, US2007157062, US2007157061, US2007127387, US2007043982, US2006285604, US2006274772, US2006227882, US2006203127, US2006192691, US2006140301, US2006039503, US2006002464, US2005204271, US2005168643, US2005157811, US2005152446, US2005141606, US2005129132, US2005114748, US2005111586, US2005089103, US2005089095, US2005078760, US2005074069, US2005041749, US2005041748, US2004255221, US2004187055, US2004184547, US2004184469, US2004179621, US2004179616, US2004179615, US2004179614, US2004179613, US2004179612, US2004179139, US2004090997, US2004003408, US2003103584, US2003058969, US2002186790, US2002186780, US2002181599, US2002172277, US2002159520, US2002154709, US2002085632, US2002048329, US2002041634, US10585844, US10361890, US10038456, TW1685215, TW1448102, KR100957235, CN102611460, CN102611460,

Abstract:

Decoder design adaptable to decode coded signals using minss or maxss processing. A very efficient means of minss processing or maxss processing may be performed within a communication device to assist in the very complex and cumbersome calculations that are employed when decoding coded signals. The types of coded signals that may be decoded using minss processing or maxss processing are varied, and they include LDPC (Low Density Parity Check) coded signals, turbo coded signals, and TCM (Turbo Trellis Coded Modulation) coded signals, among other coded signal types. Many of the calculations and/or determinations performed within minss processing or maxss processing are performed simultaneously and in parallel of one another thereby ensuring very fast operation. In a finite precision digital implementation, when certain calculated bits of minss or maxss processing are available, they govern selection of resultants from among multiple calculations and determinations made simultaneously and in parallel.



5) Family number: 76114628 (WO19195446A1)

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Title:

HYBRID AUTOMATIC REPEAT REQUEST (HARQ) TECHNIQUES FOR NON-TERRESTRIAL NETWORKS

Priority:

US20180652115P 20180403

Family:

Publication number	Publication date	Application number	Application date
WO19195446 A1	20191010	WO2019US25614	20190403

Probable Assignee:

IDAC HOLDINGS INC

Assignee(s):(std):

IDAC HOLDINGS INC

Inventor(s):(std):

BALASUBRAMANIAN ANANTHARAMAN ; MAHALINGAM NAGI ; BELURI MIHAELA C ; PRAGADA RAVIKUMAR V

Agent(s):

LEONARD ROBERT D

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 JO JP KE KG KH KM KN KP KR KW KZ LA LC 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

International class (IPC 8-9):

H04B7/185 H04L1/18 (Advanced/Invention)

CPC:

H04B7/18513 H04L1/1819 H04L1/1822 H04L1/1825 H04L1/1845 H04L1/1864 H04L1/1896

Classification Explorer

Cited documents:

US2017214489 AA, US2012314655 AA,

Abstract:
Methods and apparatuses are described herein for providing Hybrid Automatic Repeat Request (HARQ) techniques for a non-terrestrial network. For example, a wireless transmit/receive unit (WTRU) may transmit, to a satellite base station (BS), uplink (UL) feedback that includes configuration information for redundancy versions (RVs) and cross redundancy versions (cRVs). The WTRU may receive one or more first RVs associated with a first transport block (TB). The WTRU may receive one or more second RVs associated with a second TB and at least one cross redundancy version (cRV) associated with the first TB and second TB. The cRV may include parity bits generated from both the first TB and second TB. If at least one of the first TB or the second TB is unsuccessfully decoded, the WTRU may decode the first TB and second TB jointly based on the at least one cRV.

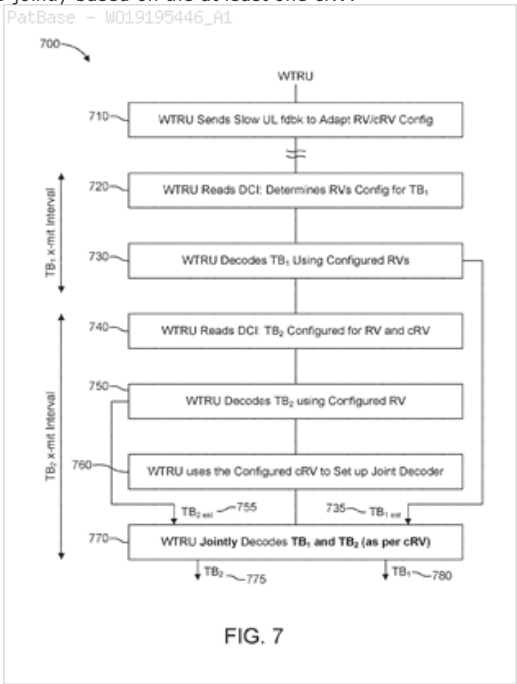


FIG. 7

6) Family number: 64165649 (US2016352361A)

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Title: CONSTRAINED INTERLEAVING FOR 5G WIRELESS AND OPTICAL TRANSPORT NETWORKS

Priority: US20150545588 20150527 US20150756308 20150825 US20150756309 20150825

Family:

Publication number	Publication date	Application number	Application date
US2016352361 AA	20161201	US20150545588	20150527
US2016352362 AA	20161201	US20150756309	20150825
US2016352419 AA	20161201	US20150756308	20150825
US9564927 BB	20170207	US20150545588	20150527

Probable Assignee: DOWLING ERIC MORGAN

Assignee(s):(std): DOWLING ERIC MORGAN ; FONSEKA JOHN P

Inventor(s):(std): DOWLING ERIC MORGAN ; FONSEKA JOHN P

International class (IPC 8-9): H03M13/00 H03M13/11 H03M13/25 H03M13/27 H03M13/29 H04B10/079 H04B10/2575 H04J11/00 H04J14/02 H04J14/06 H04J3/14 H04J3/16 (Advanced/Invention)

CPC: H04B10/0793 H04B10/25752 H04J14/0227 H04J14/06 H04J11/00 H04J3/1652 H04J3/14 H04J2011/0013 H03M13/2906 H03M13/258 H04L1/00 H03M13/036 H03M13/05 H03M13/23 H03M13/2703 H03M13/2771 H03M13/2972 H03M13/1102 H04B10/516 H04L1/1819 H04B7/04 H04L1/0043 H04L1/0052 H04L1/0065 H04L1/0071 H03M13/152 H03M13/2775 H03M13/2966 H03M13/635 H03M13/6362 H04B7/0413

US class: 1/1 398/34 714/755 714/776

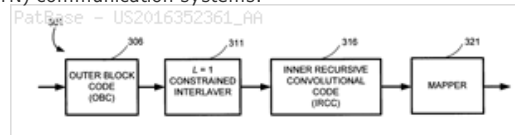
[Classification Explorer](#)

Cited documents: US8537919 BB, US8532229 BB, US8532209 BB, US8086943 BB, US7827472 BB, US7243294 BA, US7197690 BB, US7042657 BB, US6889355 BA, US6857087 BB, US6769091 BB, US6687461 BA, US6662337 BA, US6516037 BA, US6473878 BA, US6351832 BA, US6266795 BA, US6115427 A, US6034996 A, US5654986 A, US5548615 A, US5535228 A, US5329551 A, US5258987 A, US4713817 A, US2015143195 A9, US2015039965 AA, US2007288834 AA, US2007130494 AA, US2006031737 AA, US2005216819 AA, US2005166132 AA, US2005010848 AA, US2004246888 AA, US2004025102 AA, US2001047502 AA,

Forward Citations: WO19112745, WO19028829, WO18148952, US9967122, US9954586, US9742433, US9740428, US9647798, US2019207719, US2018375607, US2018167123, US2017230061, US2017207941, US2017134043, US2017078020, US10581464, US10560124, US10555131, US10536239, US10536238, US10422853, US10419085, US10374635, US10355819, US10270463, US10193729, US10103843, US10097209, US10014941, RU2701114, RU2681704, CN107342811, CN107342811, CN106788764, CN106788764,

Abstract:

The present invention provides a design framework that is used to develop new types of constrained turbo block convolutional (CTBC) codes that have higher performance than was previously attainable. The design framework is applied to design both random and deterministic constrained interleavers. Vectorizable deterministic constrained interleavers are developed and used to design parallel architectures for real time SISO decoding of CTBC codes. A new signal mapping technique called constrained interleaved coded modulation (CICM) is also developed. CICM is then used to develop rate matching, spatial modulation, and MIMO modulation subsystems to be used with CTBC codes and other types of codes. By way of example, embodiments are primarily provided for improved 5G LTE and optical transport network (OTN) communication systems.

**7) Family number: 67178668** (WO17176309A1)

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Title: POLAR CODES FOR HARQ TRANSMISSIONS

Priority: US20160320094P 20160408 US20160334772P 20160511 WO2016US53026 20160922

Family:

Publication number	Publication date	Application number	Application date
CN108886438 A	20181123	CN201680083369	20160922
HK1262507 A1	20200117	HK20190122414	20190416
TW201737651 A	20171016	TW20170106964	20170303
WO17176309 A1	20171012	WO2016US53026	20160922

Probable Assignee: INTEL CORP

Assignee(s):(std): INTEL CORP

Inventor(s):(std): TALWAR SHILPA ; LEE WOOK BONG ; NIMBALKER AJIT ; SASOGLU EREN

Agent(s): SINOMUSE LTD; PUGA PEDRO P

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 KW KZ LA LC 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

International class (IPC 8-9): H03M H03M13/00 H03M13/13 H04L H04L1/00 H04L1/12 H04L1/18 H04L29/02 (Advanced/Invention); H03M13/00 H03M13/13 (Advanced/Non-invention)

CPC: H03M13/13 H03M13/618 H03M13/6362 H04L1/0054 H04L1/0057 H04L1/1816 H04L1/1819 H04L1/1829 H04L1/1845 H04L1/1867

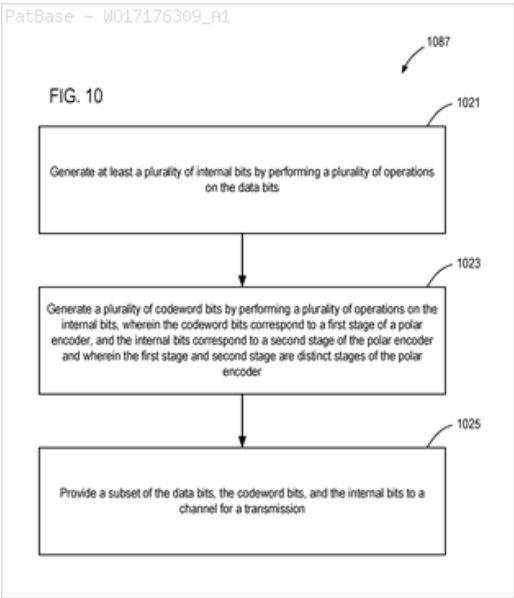
[Classification Explorer](#)

Cited documents: WO15026148 A1, US2016182187 AA,

Forward Citations: WO19190258, WO19128707, WO19093855,

Abstract: The present disclosure provides for performing polar encoding. Performing polar encoding can include selecting a length S of a

number of shortened bits and a length P of a number of punctured bits based on a HARQ scheme, encoding the plurality of information bits to generate a base code, interleaving a result of shortened polar encoder module to generate a codeword which includes the base code minus the shortened bits minus the number of punctured bits plus a number of extension bits with a length of E, and providing the codeword to a modulation module to generate a division of the codeword by a result of a multiplication of a number of spatial streams by a number of bits per modulation and providing a result of the division to a channel to transmit a polar code to a receiving device.



8) Family number: 65760679 (US2017149528A) © PatBase

Title:

METHOD AND APPARATUS FOR CHANNEL ENCODING/DECODING IN A COMMUNICATION OR BROADCASTING SYSTEM

Priority:

KR20150165114 20151124 KR20160002929 20160108 KR20160102635 20160811
KR20160105807 20160819 KR20160149882 20161110 KR20160157767 20161124
WO2016KR13654 20161124

Family:

Publication number	Publication date	Application number	Application date
CN108292971 A	20180717	CN201680068206	20161124
KR20170060562 A	20170601	KR20160102635	20160811
KR20170060566 A	20170601	KR20160105807	20160819
KR20170060574 A	20170601	KR20160149882	20161110
KR20170060600 A	20170601	KR20160157767	20161124
US2017149528 AA	20170525	US20160361283	20161125
US10574389 BB	20200225	US20160361283	20161125
WO17091018 A1	20170601	WO2016KR13654	20161124

Probable Assignee:

SAMSUNG ELECTRONICS CO LTD

Assignee(s):(std):

SAMSUNG ELECTRONICS CO LTD

Assignee(s):

SAMSUNG ELECTRONICS CO

Inventor(s):(std):

AHN SEOK KI ; JANG MIN ; KIM JAE YOEL ; JEONG HONG SIL ; KIM KYUNG JOONG ; MYUNG SE HO ; MYUNG SEHO

Agent(s):

JEFFERSON IP LAW LLP; LEE KEON JOO

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 KM KN KP KW KZ LA LC 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

International class (IPC 8-9):

H03M13/00 H03M13/05 H03M13/11 H03M13/25 H04L1/00 (Advanced/Invention)

CPC:

H04L1/0057 H03M13/1102 H03M13/6525 H04L1/0009 H03M13/00 H03M13/05 H03M13/1165 H03M13/25 H03M13/256 H03M13/6513 H04L1/00 H03M13/116 H03M13/1177 H03M13/616 H03M13/6393 H04L1/0041 H03M13/09 H03M13/1185 H03M13/6516

US class:

1/1 714/776

Classification Explorer

Cited documents:

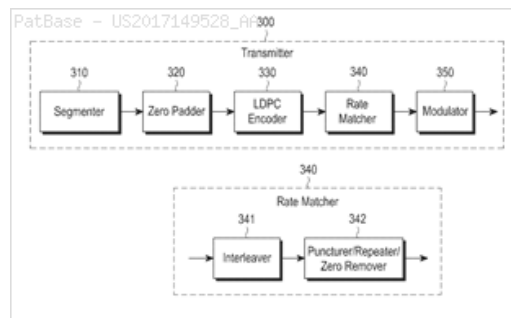
US9742439 BA, US8499218 BB, US8429503 BB, US8291282 BB, US8065587 BB, US7725801 BB, US7418146 BB, US2018175886 AA, US2014223254 AA, US2014108748 AA, US2013086456 AA, US2013013973 AA, US2011283159 AA, US2010138720 AA, US2009210767 AA, US2008086674 AA, US2007043998 AA, US2007033483 AA, US2005175250 AA, EP2226945 A1, EP2211470 B1, EP2211470 A1, EP2211469 A1,

Forward Citations:

WO18236173, US10594339, US10511408, US10484010, CN108964686,

Abstract:

A channel encoding method in a communication or broadcasting system is provided. The channel encoding method includes reading a first sequence corresponding to a parity check matrix, converting the first sequence to a second sequence by applying a certain rule to a block size corresponding to a parity check matrix and the first sequence, and encoding information bits based on the second sequence. The block size has at least two different integer values.



9) Family number: 34968693 (US2007220399A)

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Title: LOW DENSITY PARITY CHECK CODE-BASED HYBRID AUTOMATIC REPEAT REQUEST METHOD
Priority: KR20060011685 20060207

Family:	Publication number	Publication date	Application number	Application date
	EP1816777 A2	20070808	EP20070002649	20070207
	EP1816777 A3	20121114	EP20070002649	20070207
	EP1816777 B1	20170405	EP20070002649	20070207
	KR100981500 B1	20100910	KR20060011685	20060207
	KR20070080407 A	20070810	KR20060011685	20060207
	US2007220399 AA	20070920	US20070703595	20070207
	US7934138 BB	20110426	US20070703595	20070207

Probable Assignee: SAMSUNG ELECTRONICS CO LTD
Assignee(s):(std): SAMSUNG ELECTRONICS CO LTD
Assignee(s): YOU CHEOL WOO ; KIM DONG HO ; KIM YUNG SOO ; LEE YE HOON ; SAMSUNG ELECTRONICS CO
Inventor(s):(std): KIM YUNG SOO ; YOU CHEOL WOO ; KIM DONG HO ; LEE YE HOON
Agent(s): GRUENECKER KINKELDEY STOCKMAIR AND SCHWANHAUESSER; GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB; FARRELL LAW FIRM PC
Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO RS SE SI SK TR
International class (IPC 8-9): H03M13/00 H04L1/00 H04L1/18 H04L29/06 (Advanced/Invention); H04L1/18 H04L29/06 (Advanced/Non-invention); H03M13/00 H04L1/16 H04L29/06 (Core/Invention)
CPC: H04L1/0057 H04L1/0069 H04L1/0071 H04L1/1816 H04L1/1819 H04L1/1887
European class: H04L1/00B7R1P H04L1/18D2 H04L1/18T7 T04L1/00B7B T04L1/00B7V T04L1/18D1
US class: 714/751 714/758 714/758P 714/790 714/805 714/807

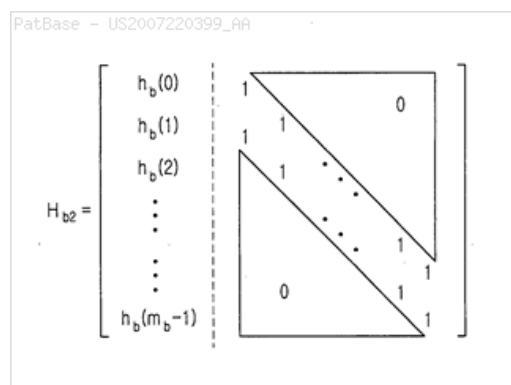
[Classification Explorer](#)

Cited documents: US7783961 BB, US7747922 BB, US7669103 BB, US7600173 BB, US7519995 BB, US7519895 BB, US7502987 BB, US7502967 BA, US7493551 BB, US7458011 BB, US7421644 BB, US7254789 BA, US7254769 BB, US2005149841 AA, US2005122898 AA, US2005122898 AA, KR20050118056 A, KR20050046471 A, KR20050046468 A, KR1020050118056, KR1020050046471, KR1020050046468, KR100550414 B1, EP1531552 A1, EP1531552 A1, EP1511209 A2, EP1511209 A2,

Forward Citations: WO18111129, WO18030909, WO12005544, WO12005544, WO09025510, US9544101, US9503227, US9496992, US9292375, US9215044, US9166748, US8868996, US8819526, US8332709, US8181097, US8140929, US2009158115, US10560216, KR101434267, EP2191605, CN104184566, CN104184566, CN103178945, CN103178945, CN101849379,

Abstract:

A transmission method based on a Hybrid Automatic Repeat Request (HARQ) scheme for in a communication system. A codeword is generated using a Low Density Parity Check (LDPC) code. Parity bits of the codeword are classified on a basis of a transmission priority. Parity bits with an identical transmission priority are grouped. An information bit group of the codeword and parity bit groups with the identical transmission priority are shuffled in a predefined pattern. A packet is generated from the shuffled information bit group and the shuffled parity bit groups based on the transmission priority. The generated packet is retransmitted in response to a retransmission request. The transmission method can obtain the effect of channel interleaving by setting a transmission priority according to importance of puncturing target blocks, shuffling blocks with the same priority, and shuffling and transmitting bits configuring each block.



Title: METHODS, APPARATUS, SYSTEMS AND PROCEDURES FOR HYBRID AUTOMATIC REPEAT REQUESTS (HARQS) USING POLAR CODES

Priority: US20180731407P 20180914 US20190564567 20190909

Family:

Publication number	Publication date	Application number	Application date
US2020092048 AA	20200319	US20190564567	20190909

Probable Assignee: IDAC HOLDINGS INC

Assignee(s):(std): IDAC HOLDINGS INC

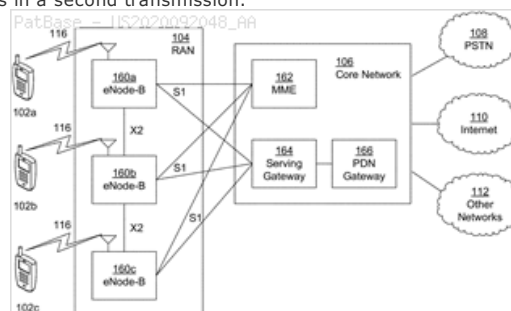
Inventor(s):(std): HONG SUNGKWON ; SAHIN ONUR

International class (IPC 8-9): H04L1/00 H04L1/18 H04L5/00 (Advanced/Invention)

CPC: H04L1/1819 H04L1/1825 H04L5/0055 H04L1/0061

[Classification Explorer](#)**Abstract:**

Methods, apparatuses, and systems implemented by a transmitting node (TN), are provided. A representative method implemented by a TN may include generating a first set of polar coded bits (PCBs), sending the first set of PCBs or an interleaved copy of the first set of PCBs in a first transmission, and selecting one code generating operation (CGO) from a plurality of CGOs based on a number of shortened bits associated with the shortening operation. The method may also include storing in a circular buffer a second set of PCBs based on the first set of PCBs or a mother code block (MCB) in accordance with the selected CGO, on condition that the first transmission was not successful, outputting, from the circular buffer, a copy of a part of the second set of PCBs for transmission; and sending the copy of the second set of PCBs in a second transmission.



Title: TRANSMITTING DEVICE, RECEIVING DEVICE AND METHODS THEREOF USING AN INTERLEAVED CODEWORD

Priority: CN201710459416 20170616 CN201710459780 20170617 WO2017EP72643 20170908
WO2018CN091889 20180619 WO2018CN091836 20180619 US20190595090 20191007

Family:

Publication number	Publication date	Application number	Application date
CN109150199 A	20190104	CN201710459780	20170617
CN109150378 A	20190104	CN201710459416	20170616
CN110663205 A	20200107	CN201880033797	20180619
EP3571772 A1	20191127	EP20170765420	20170908
IN201937052148 A	20200131	IN201937052148	20191216
IN202037001706 A	20200214	IN202037001706	20200114
US2020099400 AA	20200326	US20190595090	20191007
WO18228592 A1	20181220	WO2018CN091836	20180619
WO18228596 A1	20181220	WO2018CN091864	20180619
WO18228601 A1	20181220	WO2018CN091889	20180619
WO19048057 A1	20190314	WO2017EP72643	20170908

Probable Assignee: HUAWEI TECHNOLOGIES CO LTD

Assignee(s):(std): HUAWEI TECH CO LTD ; ROBERT SAFAVI ANAHID

Assignee(s): HUAWEI TECHNOLOGIES CO ; HUAWEI TECHNOLOGIES CO LTD

Inventor(s):(std): WANG GUIJIE ; ZHANG GONGZHENG ; LI RONG ; CHEN WEI ; WANG JUN ; XU CHEN ; CHEN JUN ; XIE YONG ; JIN JIE ; DU YINGGANG ; YU RONGDAO ; ROBERT SAFAVI ANAHID ; PEROTTI ALBERTO GIUSEPPE ; POPOVIC BRANISLAV M ; POPOVIC BRANISLAV

Agent(s): KREUZ GEORG MARIA; LEADER PATENT AND TRADEMARK FIRM; TDIP AND PARTNERS; SCIHEAD IP LAW FIRM; KREUZ GEORG

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 JO 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

International class (IPC 8-9): H03M13/00 H03M13/11 H03M13/13 H03M13/25 H03M13/27 H03M13/35 H04L1/00 H04L1/18 H04L27/36 H04N7/12 (Advanced/Invention)

CPC: H04L1/18 H04N7/12 H03M13/27 H03M13/356 H03M13/116 H03M13/255 H03M13/271 H03M13/6306 H03M13/6393 H04L1/1887 H04L1/0061 H04L1/0086 H04L1/1819 H04L1/00 H03M13/2792 H04L27/36 H03M13/635 H03M13/1102 H03M13/13 H03M13/2717 H04L1/0009 H04L1/0057 H04L1/0071

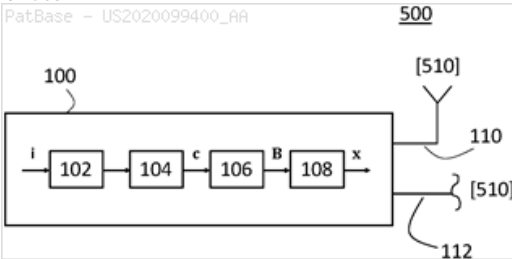
[Classification Explorer](#)

Cited documents: WO16082142 A1, US2016380763 AA, US2015263825 AA, US2003081690 AA, EP3128782 A1, EP2034649 A1, EP1748592 A2, CN201710459780, CN105099622 A, CN104067609 A, CN103023618 A, CN102934383 A, CN102835086 A, CN102122966 A, CN101442383 A, CN101119182 A, CN101090305 A,

Abstract:

A transmitting device is described for a communication system. The transmitting device obtains an information message

comprising information bits addressed for a receiving device and encodes the information message to obtain a codeword. The transmitting device rate-matches the codeword to produce a rate-matched codeword comprising systematic bits and parity-check bits. Furthermore, the transmitting device jointly interleaves the systematic bits and parity-check bits of the rate-matched codeword to obtain an interleaved codeword. The systematic bits of the interleaved codeword are mapped to modulation label positions of a modulation constellation with first reliabilities, and the parity-check bits of the interleaved codeword are mapped to modulation label positions of the modulation constellation with second reliabilities.



12) Family number: 70717944 (WO18144560A1)

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Title: CODE BLOCK SEGMENTATION DEPENDING ON LDPC BASE MATRIX SELECTION SEGMENTATION DE BLOCS DE CODE DEPENDANT DE LA SELECTION DE MATRICE DE BASE <sas>

Priority: US20170454623P 20170203 US20170475126P 20170322 US20170500897P 20170503
US20170519671P 20170614 US20170543033P 20170809 US20170556079P 20170908
US20170565716P 20170929 WO2018US16170 20180131

Family:

Publication number	Publication date	Application number	Application date
BR112019016156 A2	20200324	BR20191116156	20180131
CN110249537 A	20190917	CN201880009815	20180131
EP3577764 A1	20191211	EP20180704785	20180131
KR20190119036 A	20191021	KR20197022580	20180131
TW201841485 A	20181116	TW20180103589	20180201
TWI685237 B	20200211	TW20180103589	20180201
WO18144560 A1	20180809	WO2018US16170	20180131

Probable Assignee: IDAC HOLDINGS INC

Assignee(s):(std): IDAC HOLDINGS INC

Inventor(s):(std): YE CHUNXUAN ; LOU HANQING ; XI FENGJUN ; PAN KYLE JUNG LIN ; XI FENG JUN

Inventor(s): CHUNXUAN YE ; HANQING LOU ; FENGJUN XI ; KYLE JUNG LIN PAN

Agent(s): AWA SWEDEN AB; KERNER DAWN C

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 JO 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

International class (IPC 8-9): H03M13/00 H03M13/09 H03M13/11 H04L1/00 H04L1/18 H04L5/00 (Advanced/Invention); H03M13/09 (Advanced/Non-invention)

CPC: H03M13/09 H03M13/116 H03M13/6306 H03M13/6356 H03M13/6362 H03M13/6393 H03M13/6516 H04L1/1819 H04L1/1822 H04L1/1874

[Classification Explorer](#)

Cited documents: US2012224523, CN101529737,

Forward Citations: US10469104, US10454499, US10355822, US10312939,

Abstract: An apparatus and method are described. The apparatus includes a transceiver and processor, which attach transport block (TB) level CRC bits to a TB, select an LDPC base graph (BG) based on a code rate (CR) and TB size of the TB including TB level CRC bits, determine a number of code blocks (CBs) to use for segmenting the TB including TB level CRC bits depending on the selected LDPC BG, determine a single CB size for each of the CBs based on the number of CBs, segment the TB including TB level CRC bits into the CBs based on the number of CBs and CB size, pad zeros to a last CB of the CBs in the segmented TB, attach CB level CRC bits to each CB in the segmented TB, encode each CB in the segmented TB using the selected LDPC base graph, and transmit the encoded CBs.

