

Nicolas Vargas

Search history

Search PN=(WO2016036934) (Results 1)

1:

2: [SP]: 1. a method of operating a wireless device, comprising: transmitting user data in a first symbol of a first symbol type, wherein the first symbol type has a first symbol duration, a first frequency bandwidth, and a first tone plan, and the first tone plan comprises a first valid start tone index, a first valid end tone index, and a first set of direct current (dc) tones and transmitting a long training field (ltf) in a second symbol of a second symbol type, wherein the second symbol type has a second symbol duration, a second frequency bandwidth, and a second tone plan, and the second tone plan comprises a second valid start tone index, a second valid end tone index, and a second set of dc tones. 2. the method of claim 1, further comprising: determining the first tone plan associated with the first symbol type based on configuration information and determining the second tone plan associated with the second symbol type based on the configuration information. 3. the method of claim 1, wherein the second symbol duration is less than the first symbol duration. 4. the method of claim 1, wherein the second valid start tone index is a function of the first valid start tone index, and the second valid end tone index is a function of the first valid end tone index. 5. the method of claim 1, wherein the first set of dc tones includes three dc tones located at tone indices -1, 0, and 1, and wherein the second set of dc tones includes one dc tone located at tone index 0. 6. the method of claim 1, wherein the first set of dc tones includes eleven dc tones located at tone indices -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, and 5, and wherein the second set of dc tones includes three dc tones located at tone indices -1, 0, and 1 or one dc tone located at tone index 0. 7. the method of claim 1, wherein the first set of dc tones includes seven dc tones located at tone indices -3, -2, -1, 0, 1, 2, and 3, and wherein the second set of dc tones includes three dc tones located at tone indices -1, 0, and 1 or one dc tone at tone index 0. 8. the method of claim 1, wherein the first set of dc tones includes three dc tones located at tone indices -1, 0, and 1, and wherein the second set of dc tones includes three dc tones located at tone indices -1, 0, and 1. 9. the method of claim 1, wherein the first set of dc tones includes eleven dc tones located at tone indices -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, and 5, and wherein the second set of dc tones includes five dc tones located at tone indices -2, -1, 0, 1, and 2 or three dc tones located at tone indices -1, 0, and 1. 10. the method of claim 1, wherein the first set of dc tones includes seven dc tones located at tone indices -3, -2, -1, 0, 1, 2, and 3, and wherein the second set of dc tones includes five dc tones located at tone indices -2, -1, 0, 1, and 2 or three dc tones located at tone indices -1, 0, and 1. 11. the method of claim 1, wherein the first symbol duration is two times greater than the second symbol duration, the first and second frequency bandwidths are 20 megahertz, the first valid start tone index is -122, the first valid end tone index is 122, the second valid start tone index is -61, and the second valid end tone index is 61. 12. the method of claim 1, wherein the first symbol duration is two times greater than the second symbol duration, the first and second frequency bandwidths are 40 megahertz, the first valid start tone index is -250, the first valid end tone index is 250, the second valid start tone index is -125, and the second valid end tone index is 125. 13. the method of claim 1, wherein the first symbol duration is two times greater than the second symbol duration, the first and second frequency bandwidths are 80 megahertz, the first valid start tone index is -506, the first valid end tone index is 506, the second valid start tone index is -253, and the second valid end tone index is 253. 14. the method of claim 1, wherein the dc tones have zero amplitude and non-dc tones include guard tones, data tones, and pilot tones, wherein the guard tones have zero amplitude, the data tones include data to be transmitted, and pilot tones include known information for channel estimation. 15. an apparatus for wireless communication, comprising: means for transmitting user data in a first symbol of a first symbol type, wherein the first symbol type has a first symbol duration, a first frequency bandwidth, and a first tone plan, and the first tone plan comprises a first valid start tone index, a first valid end tone index, and a first set of direct current (dc) tones and means for transmitting a long training field (ltf) in a second symbol of a second symbol type, wherein the second symbol type has a second symbol duration, a second frequency bandwidth, and a second tone plan, and the second tone plan comprises a second valid start tone index, a second valid end tone index, and a second set of dc tones. 16. the apparatus of claim 15, wherein the second symbol duration is less than the first symbol duration, and wherein the second valid start tone index is a function of the first valid start tone index, and the second valid end tone index is a function of the first valid end tone index. 17. an apparatus for wireless communication, comprising: a memory and at least one processor coupled to the memory and configured to: transmit user data in a first symbol of a first symbol type, wherein the first symbol type has a first symbol duration, a first frequency bandwidth, and a first tone plan, and the first tone plan comprises a first valid start tone index, a first valid end tone index, and a first set of direct current (dc) tones and transmit a long training field (ltf) in a second symbol of a second symbol type, wherein the second symbol type has a second symbol duration, a second frequency bandwidth, and a second tone plan, and the second tone plan comprises a second valid start tone index, a second valid end tone index, and a second set of dc tones. 18. the apparatus of claim 17, wherein the at least one processor is further configured to: determine the first tone plan associated with the first symbol type based on configuration information and determine the second tone plan associated with the second symbol type based on the configuration information. 19. the apparatus of claim 17, wherein the second symbol duration is less than the first symbol duration. 20. the apparatus of claim 17, wherein the second valid start tone index is a function of the first valid start tone index, and the second valid end tone index is a function of the first valid end tone index. 21. the apparatus of claim 17, wherein the first set of dc tones includes three dc tones located at tone indices -1, 0, and 1, and wherein the second set of dc tones includes one dc tone located at tone index 0. 22. the apparatus of claim 17, wherein the first set of dc tones includes eleven dc tones located at tone indices -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, and 5, and wherein the second set of dc tones includes three dc tones located at tone indices -1, 0, and 1 or one dc tone located at tone index 0. 23. the apparatus of claim 17, wherein the first set of dc tones includes seven dc tones located at tone indices -3, -2, -1, 0, 1, 2, and 3, and wherein the second set of dc tones includes three dc tones located at tone indices -1, 0, and 1 or one dc tone at tone index 0. 24. the apparatus of claim 17, wherein the first set of dc tones includes three dc tones located at tone indices -1, 0, and 1, and wherein the second set of dc tones includes eleven dc tones located at tone indices -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, and 5, and wherein the second set of dc tones includes five dc tones located at tone indices -2, -1, 0, 1, and 2 or three dc tones located at tone indices -1, 0, and 1. 25. the apparatus of claim 17, wherein the first set of dc tones includes seven dc tones located at tone indices -3, -2, -1, 0, 1, 2, and 3, and wherein the second set of dc tones includes five dc tones located at tone indices -2, -1, 0, 1, and 2 or three dc tones located at tone indices -1, 0, and 1. 26. the apparatus of claim 17, wherein the first symbol duration is two times greater than the second symbol duration, the first and second frequency bandwidths are 20 megahertz, the first valid start tone index is -122, the first valid end tone index is 122, the second valid start tone index is -61, and the second valid end tone index is 61. 27. the apparatus of claim 17, wherein the first symbol duration is two times greater than the second symbol duration, the first and second frequency bandwidths are 40 megahertz, the first valid start tone index is -250, the first valid end tone index is 250, the second valid start tone index is -125, and the second valid end tone index is 125. 28. the apparatus of claim 17, wherein the first symbol duration is two times greater than the second symbol duration, the first and second frequency bandwidths are 80 megahertz, the first valid start tone index is -506, the first valid end tone index is 506, the second valid start tone index is -253, and the second valid end tone index is 253. 29. the apparatus of claim 17, wherein the first symbol duration is two times greater than the second symbol duration, the first and second frequency bandwidths are 80 megahertz, the first valid start tone index is -506, the first valid end tone index is 506, the second valid start tone index is -253, and the second valid end tone index is 253. (Results 12)

Search 2 and tone (Results 12)

3:

Search 3 and symbol* (Results 12)

4:

Search 4 and dc (Results 11)

5:

Search 5 and guard tone* (Results 9)

6:

1) Family number: 61844679 (US2016073379A)

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Title: **TONE** PLAN FOR LTF COMPRESSION

Abstract: A method, an apparatus, and a computer program product for wireless communication are provided. In one

aspect, an apparatus is configured to transmit user data in a first **symbol** of a first **symbol** type. The first **symbol** type has a first **symbol** duration, a first frequency bandwidth, and a first **tone** plan. The first **tone** plan includes a first valid start **tone** index, a first valid end **tone** index, and a first set of **DC tones**. The apparatus is further configured to transmit an LTF in a second **symbol** of a second **symbol** type. The second **symbol** type has a second **symbol** duration, a second frequency bandwidth, and a second **tone** plan. The second **tone** plan includes a second valid start **tone** index, a second valid end **tone** index, and a second set of **DC tones**.

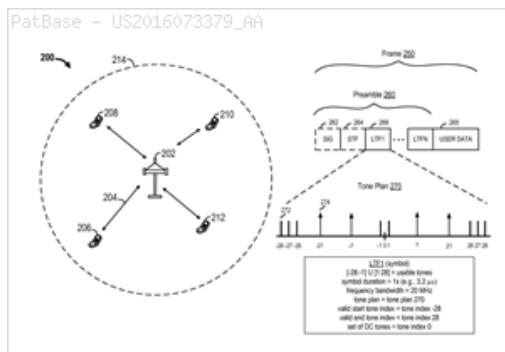
Classifications:

International (ipc 8-9): H04L25/02 H04L27/26 H04L5/00 H04W28/16 H04W28/20 H04W72/04 (Advanced/Invention); H04L5/00 (Core/Invention)

International (ipc 1-7): H04L27/26 H04L5/00

CPC: H04W72/04 H04L25/0284 H04W28/20 H04L5/0044 H04L5/0048 H04L27/2602

US: 370/329



Family:

Publication number	Publication date	Application number	Application date
AU2015311928 AA	20160310	AU20150311928	20150903
BR112017004345 A2	20171205	BR20171104345	20150903
CA2957039 AA	20170131	CA20152957039	20150903
CL2017000460 A1	20171006	CL20170000460	20170227
CN106605385 A	20170426	CN201580047231	20150903
CO20170001879 A2	20170510	CO20170001879	20170224
CU20170021 A7	20170704	CU20170000021	20150903
EP3189641 A1	20170712	EP20150766301	20150903
ID201802095 A	20180302	ID2017P0000914	20150903
IN201747003367 A	20170526	IN201747003367	20170130
JP2017535102 T2	20171124	JP20170512321T	20150903
KR20170053170 A	20170515	KR20177005827	20150903
MX2017002515 A1	20170523	MX20170002515	20150903
PE07332017 A1	20170704	PE20170000374	20150903
PH2017500193 A	20170628	PH20170500193	20170201
SG11201700474T A1	20170330	SG20171100474	20150903
US2016073379 AA	20160310	US20150843538	20150902
WO16036934 A1	20160310	WO2015US48300	20150903

Priority:

US20140046086P 20140904 US20140054932P 20140924 US20140064935P 20141016
US20140067260P 20141022 US20150843538 20150902 WO2015US48300 20150903

Probable Assignee: QUALCOMM INC

Assignee(s): (std): QUALCOMM INC

Assignee(s): TIAN BIN ; VERMANI SAMEER ; YANG LIN ; DOAN DUNG NGOC

Inventor(s): (std): BIN TIAN ; DUNG NGOC DOAN ; LIN YANG ; SAMEER VERMANI ; YANG LIN ; VERMANI SAMEER ; TIAN BIN ; DOAN DUNG NGOC

Agent(s): MADDERNS PATENT AND TRADE MARK ATTORNEYS; SMART AND BIGGAR; ESTUDIO CLARKE MODET AND CO CHILE LIMITADA; JOSE ANDRES RINCON USCATEGUI; WEGNER HANS; 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

2) Family number: 59085566 (US2015117227A)

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Title: RANGE EXTENSION MODE FOR WIFI

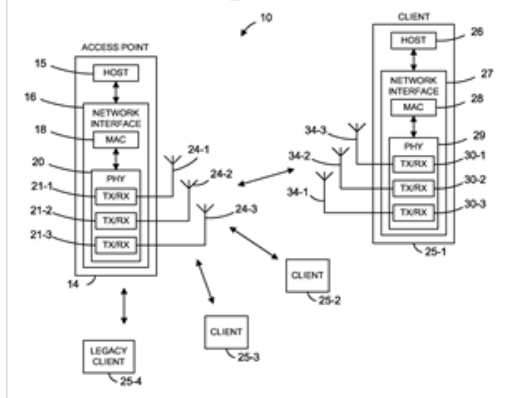
Abstract: A method for generating a physical layer (PHY) data unit for transmission via a communication channel is described where the PHY data unit conforms to a first communication protocol. Orthogonal frequency division multiplexing (OFDM) **symbols** for a data field of the PHY data unit are generated according to a range extension coding scheme that corresponds to a range extension mode of the first communication protocol. A preamble of the PHY data unit is generated, the preamble having i) a first portion that indicates a duration of the PHY data unit and ii) a second portion that indicates whether at least some OFDM **symbols** of the data field are generated according to the range extension coding scheme. The first portion of the preamble is formatted such that the first portion of the preamble is decodable by a receiver device that conforms to a second communication protocol, but does not conform to the first communication protocol, to determine the duration of the PHY data unit based on the first portion of the preamble. The PHY data unit is generated to include the preamble and the data field.

Classifications:

International (ipc 8-9): H04J11/00 H04L1/00 H04L1/08 H04L27/26 H04L29/06 H04L5/00 H04W28/06 H04W4/00 H04W52/28 H04W72/04 H04W80/02 H04W84/12 H04W99/00 (Advanced/Invention); H04W84/12 (Advanced/Non-invention)

CPC: H04L1/0057 H04W52/286 H04L27/2602 H04L1/0072 H04L1/0079 H04L1/009 H04W99/00 H04W72/0453 H04L5/0007 H04L69/04 H04L69/08 H04L69/22 H04L1/0041 H04L1/08 H04L69/18 H04W28/06 H04L5/0041 H04L5/0044 H04L5/006 H04L5/0048 H04L27/26 H04L27/2605 H04L27/2613 H04L27/2627 H04W84/12 H04J11/00 H04L27/2698

US: 370/245 370/329 370/338

**Family:**

Publication number	Publication date	Application number	Application date
CN105830410 A	20160803	CN201480070012	20141024
CN106664275 A	20170510	CN201580010085	20150107
EP3061219 A1	20160831	EP20140795753	20141024
EP3092759 A1	20161116	EP20150702022	20150107
JP2017510111 T2	20170406	JP20160543570T	20150107
KR20160077134 A	20160701	KR20167013777	20141024
KR20160106123 A	20160909	KR20167021295	20150107
US2015117227 AA	20150430	US20140523678	20141024
US2015117433 AA	20150430	US20150591759	20150107
US2015146653 AA	20150528	US20140553974	20141125
US2016087827 AA	20160324	US20150954961	20151130
US2016156750 AA	20160602	US20160017385	20160205
US2017310514 AA	20171026	US20170647918	20170712
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US2017325233 AA	20171109	US20170658070	20170724
US2018048740 AA	20180215	US20170787937	20171019
US9667460 BB	20170530	US20150954961	20151130
US9712358 BB	20170718	US20140523678	20141024
US9717086 BB	20170725	US20140553974	20141125
WO15061729 A1	20150430	WO2014US62247	20141024
WO15081132 A1	20150604	WO2014US67483	20141125
WO15105875 A1	20150716	WO2015US10480	20150107

Priority:

US20130895591P	20131025	US20130909616P	20131127	US20140924467P	20140107
US20140925332P	20140109	US20140950727P	20140310	US20140987778P	20140502
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US20140533974	20141105	US20140553974	20141125	US20140089032P	20141208
US20150591759	20150107	WO2015US10480	20150107	US20150112516P	20150205
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US20170787937	20171019				

Probable Assignee: MARVELL SEMICONDUCTOR INC**Assignee(s):** (std): CHU LIWEN ; LOU HUI LING ; MARVELL WORLD TRADE LTD ; ZHANG HONGYUAN ; YONG SU KHIONG ; SUN YAKUN ; XU MINGGUANG**Assignee(s):** MARVELL INT LTD ; MARVELL SEMICONDUCTOR INC**Inventor(s):** (std): CHU LIWEN ; ZHANG HONGYUAN ; YONG SU KHIONG ; XU MINGGUANG ; SUN YAKUN ; LOU HUI LING**Agent(s):** GRUENECKER PATENT U RECHTSANWALTE PARTG MBB; RYUKA IP LAW FIRM; STANTON GREGORY E 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**3) Family number: 52583649** (US2012320889A)

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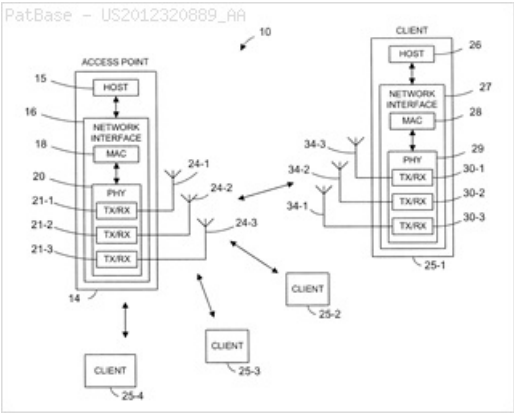
Title: LOW BANDWIDTH PHY FOR WLAN

Abstract: A method includes generating first and second preambles for first and second data units corresponding to first and second PHY modes, respectively. Generating the first preamble includes generating a first STF, LTF, and SIG field. The first SIG field includes an OFDM **symbol** modulated according to a first modulation technique. The OFDM **symbol** begins a first time interval, and ends a second time interval, after the first LTF begins. Generating the second preamble includes generating a second STF and LTF. The second STF has a greater duration, and different repeating sequence, than the first STF. The second LTF includes a second OFDM **symbol** modulated according to a second modulation technique, and at least partially occupying a location beginning a third time interval, and ending a fourth time interval, after the second LTF begins. The third and fourth time intervals are equal to the first and second time intervals, respectively.

Classifications:

International (IPC 8-9): G06F11/00 G06F11/10 H03M13/00
H03M13/05 H04B7/204 H04J1/00 H04J11/00 H04L1/00 H04L1/08
H04L1/22 H04L27/26 H04L5/00 H04W4/00 H04W84/12
H04W88/06 (Advanced/Invention);

H04L7/04 (Advanced/Non-invention)
CPC: H04L1/0057 H04L1/0061 H04L7/048 H04L1/004 H04L1/0043 H04L1/08 H04L27/2602 H04L27/2613 H04L1/0025
European: H04L1/00B H04L1/08 H04L27/26M1R3 H04L27/26M3A1 H04L27/26M3A13 H04L27/26M3A15 H04L5/00C7C H04L5/00C7D
US: 370/319 370/330 370/338 370/343 370/436 370/478 714/707 714/776 714/780 714/E11.032



Family:

Publication number	Publication date	Application number	Application date
CN103703711 A	20140402	CN201280037310	20120612
EP2721758 A2	20140423	EP20120733258	20120612
JP2014523152 T2	20140908	JP20140515913T	20120612
JP6143016 B2	20170607	JP20140515913T	20120612
KR20140039051 A	20140331	KR20147001043	20120612
US2012320889 AA	20121220	US20120494515	20120612
US2012320890 AA	20121220	US20120494527	20120612
US2012324315 AA	20121220	US20120494505	20120612
US8826106 BB	20140902	US20120494505	20120612
US8891435 BB	20141118	US20120494515	20120612
US8902869 BB	20141202	US20120494527	20120612
WO12173975 A2	20121220	WO2012US42027	20120612
WO12173975 A3	20130510	WO2012US42027	20120612

Priority:

US20110497274P 20110615	US20110513452P 20110729	US20110514164P 20110802
US20110523014P 20110812	US20110523799P 20110815	US20110524231P 20110816
US20110531548P 20110906	US20110534641P 20110914	US20110537169P 20110921
US20110550321P 20111021	US20110552631P 20111028	US20120494515 20120612
US20120494527 20120612	US20120494505 20120612	WO2012US42027 20120612

Probable Assignee: MARVELL INT LTD

Assignee(s): (std): BANERJEA RAJA ; MARVELL WORLD TRADE LTD ; SRINIVASA SUDHIR ; ZHANG HONGYUAN

Assignee(s): MARVELL INT LTD ; MARVELL SEMICONDUCTOR INC

Inventor(s): (std): BANERJEA RAJA ; SRINIVASA SUDHIR ; ZHANG HONGYUAN

Agent(s): GRUENECKER KINKELDEY STOCKMAIR AND SCHWANHAUESSER; RYUKA IP LAW FIRM; BATEMAN ANDREW W 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 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 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

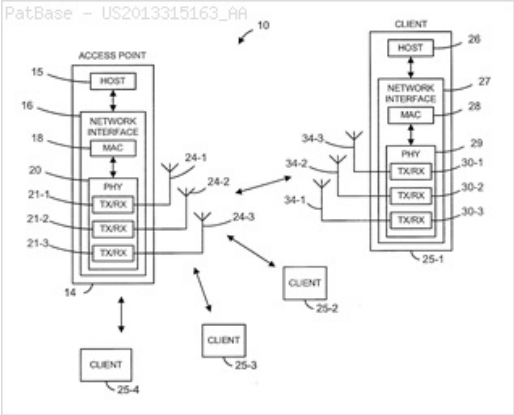
4) Family number: 55199996 (US2013315163A) © PatBase

Title: FREQUENCY DOMAIN DUPLICATION IN A LONG-RANGE WIRELESS LOCAL AREA NETWORK

Abstract: A method for generating OFDM signals is implemented in a device operating according to a communication protocol. The protocol defines non-duplicate mode data units corresponding to single component channels of a BSS channel, and non-duplicate mode data units corresponding to sets of adjacent component channels. Non-duplicate mode data units corresponding to a set of component channels have more lower-edge and/or upper-edge **guard tones** than non-duplicate mode data units corresponding to single component channels. The method includes determining that a duplicate mode will be utilized for an OFDM transmission in the set of component channels and, in response, generating a duplicate mode data unit. The duplicate mode data unit has fewer lower-edge and/or upper-edge **guard tones** than a non-duplicate mode data unit corresponding to a set of component channels, and includes one duplicate of the non-duplicate mode data unit corresponding to the single component channel for each adjacent component channel.

Classifications:

International (IPC 8-9): H04J11/00 H04L27/26 H04L5/00 H04W16/14 H04W72/04 H04W84/12 (Advanced/Invention); H04W84/12 (Advanced/Non-invention)
CPC: H04L27/2602 H04L27/2613 H04L27/2621 H04W72/048 H04L5/0044 H04W84/12 H04L5/001 H04W72/04
US: 1/1 370/329



Family:

Publication number	Publication date	Application number	Application date
CN104521172 A	20150415	CN201380026948	20130523
CN104521172 B	20170922	CN201380026948	20130523
EP2856687 A1	20150408	EP20130729143	20130523
EP2856687 B1	20180418	EP20130729143	20130523
JP2015523783 T2	20150813	JP20150514178T	20130523
JP6253642 B2	20171227	JP20150514178T	20130523
KR20150011828 A	20150202	KR20147034849	20130523
US2013315163 AA	20131128	US20130900932	20130523
US2015365200 AA	20151217	US20150834210	20150824
US9119186 BB	20150825	US20130900932	20130523
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Priority:

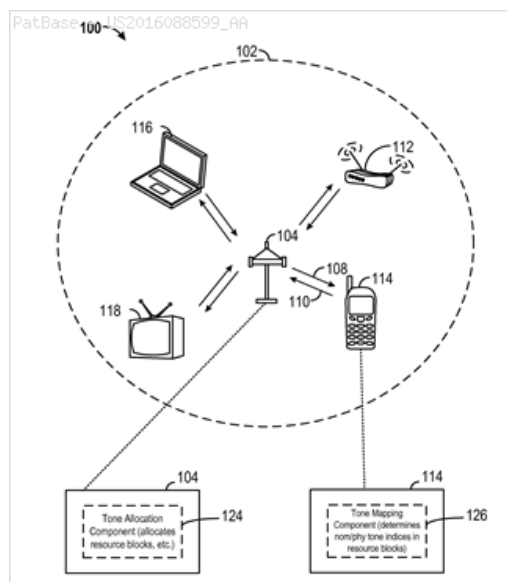
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US20150834210 20150824

Probable Assignee: MARVELL INT LTD**Assignee(s):** (std): LIU YONG ; MARVELL WORLD TRADE LTD ; ZHANG HONGYUAN**Assignee(s):** MARVELL INT LTD ; MARVELL SEMICONDUCTOR INC**Inventor(s):** (std): ZHANG HONGYUAN ; LIU YONG**Agent(s):** GRUENECKER PATENT U RECHTSANWALTE PARTG MBB; GRUENECKER PATENT U RECHTSANWALTE PARTG MBB; RYUKA IP LAW FIRM; BATEMAN ANDREW W 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 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 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: 61908838 (US2016088599A)**

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Title: LOGICAL **TONE** INDEX MAPPING FOR DISTRIBUTED **TONE** INDEX TRANSMISSION

Abstract: A method, an apparatus, and a computer program product for wireless communication are provided. In one aspect, an apparatus includes a processor configured to allocate a plurality of resource blocks for wireless communication. The processor is further configured to transmit data on a first resource block of the plurality of resource blocks, in which the first resource block is associated with a first set of **tone** indices and a second set of **tone** indices, and the first set of **tone** indices is a set of nominal **tone** indices that is logically mapped to a second set of **tone** indices that is a set of physical **tone** indices.

Classifications:**International (IPC 8-9):** H04L5/00 H04W72/04 (Advanced/Invention);
H04L5/00 (Advanced/Non-invention)**CPC:** H04W72/044 H04L5/0007 H04L5/0041 H04L5/0044**US:** 370/329**Family:**

Publication number	Publication date	Application number	Application date
US2016088599 AA	20160324	US20150854985	20150915
US9814036 BB	20171107	US20150854985	20150915
WO16044466 A2	20160324	WO2015US50498	20150916
WO16044466 A3	20160512	WO2015US50498	20150916

Priority:

US20140052432P 20140918 US20150854985 20150915

Probable Assignee: QUALCOMM INC**Assignee(s):** (std): QUALCOMM INC**Inventor(s):** (std): CHEN JIALING LI ; TIAN BIN ; YANG LIN**Agent(s):** ARENT FOX LLP; 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 LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN

6) Family number: 48235778 (US2011026623A)

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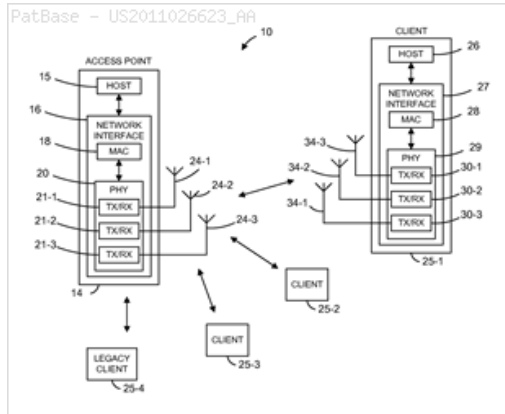
Title: METHODS AND APPARATUS FOR WLAN TRANSMISSION

Abstract: In a method for generating a physical layer (PHY) data unit for transmission via a communication channel, a first set of modulation coding schemes (MCSs) and a second set of MCSs that correspond to a number of spatial streams and a number of encoders are provided. The first set of MCSs correspond to a first channel bandwidth and the second set of MCSs correspond to a second channel bandwidth, and the first set of MCSs is different than the second set of MCSs. An MCS is selected from the first set of MCSs when the PHY data unit is to be transmitted using a channel having the first channel bandwidth, and the MCS is selected from the second set of MCSs when the PHY data unit is to be transmitted using a channel having the second channel bandwidth. Information bits are encoded using the number of encoders and according to the selected MCS, and the encoded information bits are parsed into the number of spatial streams. The encoded information bits are modulated according to the MCS, and a plurality of OFDM **symbols** are formed based on the modulated encoded information bits.

Classifications:**International (IPC 8-9):** H04J11/00 H04J99/00 H04L1/00 H04L27/00 H04L27/26 H04L27/28 H04L27/34 H04W16/28 H04W28/06

H04W72/04 (Advanced/Invention);

H04W84/12 (Advanced/Non-invention)

CPC: H04L1/0016 H04W84/12 H04L27/26 H04L1/00 H04L27/0002 H04L1/0005 H04L27/34 H04L27/2607 H04L27/2608**European:** H04L1/00A8L**US:** 1/1 370/329 375/260 375/260P 375/285 375/295**Family:**

Publication number	Publication date	Application number	Application date
CN102474386 A	20120523	CN201080033454	20100729
CN102474386 B	20150429	CN201080033454	20100729
CN104702376 A	20150610	CN201510141418	20100729
CN104702376 B	20180413	CN201510141418	20100729
EP2460298 A2	20120606	EP20100740806	20100729
EP3182629 A1	20170621	EP20170153789	20100729
JP2013501413 T2	20130110	JP20120523051T	20100729
JP2015073284 A2	20150416	JP20140225344	20141105
JP5646624 B2	20141224	JP20120523051T	20100729
JP6002976 B2	20161005	JP20140225344	20141105
KR101657255 B1	20160913	KR20127002852	20100729
KR20120060821 A	20120612	KR20127002852	20100729
US2011026623 AA	20110203	US20100846681	20100729
US2014205029 AA	20140724	US20140221820	20140321
US2015365264 AA	20151217	US20150834117	20150824
US2016344511 AA	20161124	US20160230879	20160808
US8681884 BB	20140325	US20100846681	20100729
US8724720 BB	20140513	US20100846681	20100729
US9118530 BB	20150825	US20140221820	20140321
US9413576 BB	20160809	US20150834117	20150824
WO11014685 A2	20110203	WO2010US43756	20100729
WO11014685 A3	20110324	WO2010US43756	20100729

Priority:

US20090229679P 20090729	US20090233445P 20090812	US20090237215P 20090826
US20090266453P 20091203	US20090286948P 20091216	US20100312840P 20100311
US20100316982P 20100324	CN201080033454 20100729	EP20100740806 20100729
JP20120523051 20100729	JP20120523051T 20100729	US20100846681 20100729
WO2010US43756 20100729	US20140221820 20140321	US20150834117 20150824
US20160230879 20160808		

Probable Assignee: MARVELL INT LTD**Assignee(s):** (std): MARVELL WORLD TRADE LTD ; ZHANG HONGYUAN ; SRINIVASA SUDHIR ; NABAR ROHIT U**Assignee(s):** MARVELL INT LTD ; MARVELL SEMICONDUCTOR INC**Inventor(s):** (std): HONGYUAN ZHANG ; SUDHIR SRINIVASA ; ZHANG HONGYUAN ; SRINIVASA SUDHIR ; NABAR ROHIT U ; NAVAL ROHIT U**Agent(s):** GRUENECKER KINKELDEY STOCKMAIR AND SCHWANHAUESSER; GRUENECKER PATENT U RECHTSANWALTE PARTG MBB; RYUKA IP LAW FIRM; MARSHALL GERSTEIN AND BORUN LLP MARVELL; STANTON GREGORY E 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 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 PE PG PH PL PT RO RS RU 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: METHODS AND ARRANGEMENTS FOR PHASE TRACKING FOR MULTI-MODE OPERATION IN WIRELESS NETWORKS

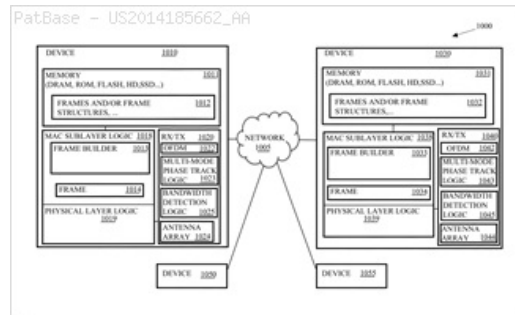
Abstract: Logic may comprise a single phase tracking implementation for all bandwidths of operation and the logic may adaptively change pre-defined and stored track parameters if the receiving packet is 1 MHz bandwidth. Logic may detect a packet and long training fields before performing a 1 MHz classification. Logic may auto-detect 1 MHz bandwidth transmissions by a property of the long training field sequences. Logic may auto-detect 1 MHz bandwidth transmissions by detecting a Binary Phase Shift Keying (BPSK) modulated first signal field **symbol** rather than the Quadrature Binary Phase Shift Keying (QPSK) associated with the 2 MHz or greater bandwidth transmissions. Logic may perform an algorithm to determine an estimated phase correction value for a given orthogonal frequency division multiplexing **symbol** and several embodiments integrate this value with an intercept multiplier that may be 0.2 for 1 MHz transmissions and, e.g., 0.5 for 2 MHz or greater bandwidth communication.

Classifications:

International (ipc 8-9): H03K5/159 H04L25/02 H04L25/03 H04L27/18 H04L27/26 (Advanced/Invention)

CPC: H04L27/2647 H04L27/18 H04L27/2662 H04L27/2666 H04L27/2675 H04L25/0204 H04L25/0226 H04L25/03006 H04L2025/03414

US: 370/206 370/208 375/232 375/260 375/284 375/324 375/326 375/331 375/340 375/346

**Family:**

Publication number	Publication date	Application number	Application date
CN104813623 A	20150729	CN201380061161	20130629
EP2939383 A1	20151104	EP20130869642	20130629
EP2939383 A4	20160824	EP20130869642	20130629
US2014185662 AA	20140703	US20120730996	20121229
US9008167 BB	20150414	US20120730996	20121229
WO14105212 A1	20140703	WO2013US48825	20130629

Priority:

US20120730996 20121229 WO2013US48825 20130629

Probable Assignee: INTEL CORP

Assignee(s): (std): AZIZI SHAHRNAZ ; INTEL CORP ; KENNEY THOMAS ; KENNEY THOMAS J ; PERAHIA ELDAD

Inventor(s): (std): AZIZI SHAHRNAZ ; KENNEY THOMAS ; KENNEY THOMAS J ; PERAHIA ELDAD

Agent(s): JENNINGS VINCENT LOUIS; SCHUBERT LAW GROUP PLLC; SCHUBERT JEFFREY S

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 MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA 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

8) Family number: 53653829 (US2013107893A)

Title: METHOD AND APPARATUS FOR AUTOMATICALLY DETECTING A PHYSICAL LAYER (PHY) MODE OF A DATA UNIT IN A WIRELESS LOCAL AREA NETWORK (WLAN)

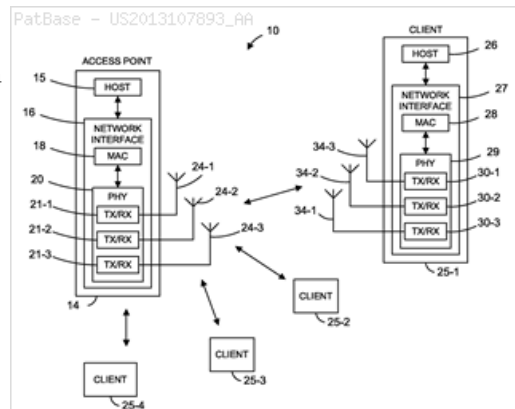
Abstract: In a method for generating a physical layer (PHY) data unit for transmission via a communication channel, the data unit is generated to include a first long training field when the data unit is to be transmitted in a normal mode. The data unit is generated to include a second long training field when the data unit is to be transmitted in a low bandwidth mode. The first training field and the second training field are configured such that a receiving device can auto-detect whether the data unit corresponds to the low bandwidth mode or the normal mode.

Classifications:

International (ipc 8-9): H04B7/04 H04J11/00 H04L1/00 H04L12/56 H04L27/26 H04L5/00 H04W84/12 (Advanced/Invention)

CPC: H04L27/2613 H04L5/0007 H04L5/0023 H04L5/0048 H04L5/0064 H04L27/2602 H04L1/00

US: 1/1 370/474 375/340

**Family:**

Publication number	Publication date	Application number	Application date
CN103999392 A	20140820	CN201280053208	20121026
CN103999392 B	20180223	CN201280053208	20121026
EP2774303 A1	20140910	EP20120791602	20121026
JP2015501617 T2	20150115	JP20140539999T	20121026
JP6124362 B2	20170510	JP20140539999T	20121026
KR20140088130 A	20140709	KR20147012034	20121026

US2013107893 AA	20130502	US20120661423	20121026
US9350583 BB	20160524	US20120661423	20121026
WO13066739 A1	20130510	WO2012US62039	20121026

Priority:

US20110554872P 20111102 US20120661423 20121026 WO2012US62039 20121026

Probable Assignee: MARVELL INT LTD

Assignee(s): (std): MARVELL WORLD TRADE LTD ; ZHANG HONGYUAN

Assignee(s): MARVELL INT LTD ; MARVELL SEMICONDUCTOR INC

Inventor(s): (std): ZHANG HONGYUAN

Agent(s): GRUENECKER KINKELDEY STOCKMAIR AND SCHWANHAUESSER; RYUKA IP LAW FIRM; STANTON GREGORY E 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 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 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

9) Family number: 60802415 (US2015334708A)

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Title: METHOD FOR TRANSMITTING AND RECEIVING FRAME

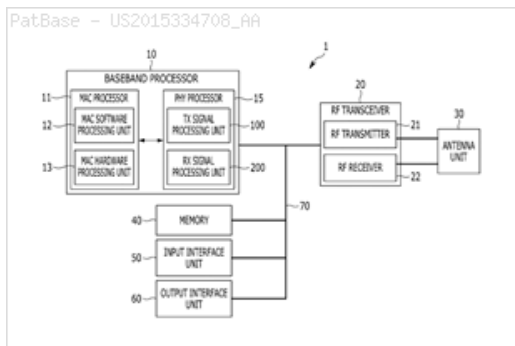
Abstract: A frame transmission method is provided by a device in a wireless communication network. The device generates a signal field including a **symbol** using a 64 FFT and carrying signaling information, and generates a data field including a **symbol** using a FFT having a larger size than the 64 FFT and carrying data. The device transmits a frame including the signal field and the data field.

Classifications:

International (IPC 8-9): H04L25/02 H04L27/26 H04L5/00 H04W72/00 H04W72/04 (Advanced/Invention)

CPC: H04L27/2601 H04L5/0007 H04L5/003 H04W72/0446 H04W72/005 H04L25/0202 H04W72/00 H04W84/12 H04L25/0226 H04L1/0083

US: 370/329



Family:

Publication number	Publication date	Application number	Application date
KR20150128613 A	20151118	KR20150064500	20150508
US2015334708 AA	20151119	US20150708030	20150508

Priority:

US20140991396P 20140509 US20140081952P 20141119 KR20150036222 20150316
KR20150048209 20150406 US20150708030 20150508 KR20150064500 20150508

Probable Assignee: NEWRACOM INC

Assignee(s): (std): NEWRACOM INC

Assignee(s): NEW RAKEOM INC

Inventor(s): (std): LEE ILGU ; YU CHANGWAHN ; YU CHANG WAHN ; LEE IL GU