IEEE P802.11
Wireless LANs

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| 30.6.1 OFDM Signal Parameters |
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Abstract

This document proposes specification text for subclause 30.6.1 of the spec defining main OFDM signal parameters, [1].

**30.6.1 OFDM signal parameters**

**30.6.1.1 General**

This subclause defines main EDMG OFDM signal parameters for 2.16 GHz, 4.32 GHz, 6.48 GHz, and 8.64 GHz bandwidth transmission.

**30.6.1.2 Timing related parameters**

Table 1 provides a summary of timing-related parameters.

Table 1: Timing-related parameters.

|  |  |
| --- | --- |
| **Parameter** | **Value** |
| *NCB* = 1 | *NCB* = 2 | *NCB* = 3 | *NCB* = 4 |
| *NSD*: Number of data subcarriers | 336 | 734 | 1134 | 1532 |
| *NSP*: Number of pilot subcarriers | 16 | 36 | 56 | 76 |
| *NDC*: Number of DC subcarriers | 3 | 3 | 3 | 3 |
| *NST*: Total number of subcarriers | 355 | 773 | 1193 | 1611 |
| *NSR*: Number of subcarriers occupying half of the overall BW | 177 | 386 | 596 | 805 |
| ∆*F*: Subcarrier frequency spacing | 5.15625 MHz | 5.15625 MHz | 5.15625 MHz | 5.15625 MHz |
| *Fs*: OFDM sample rate | 2.64 GHz | 5.28 GHz | 7.92 GHz | 10.56 GHz |
| *Ts*: OFDM sample time | 0.38 ns | 0.19 ns | 0.13 ns | 0.09 ns |
| *NDFT:* DFT size | 512 | 1024 | 1536 | 2048 |
| *TDFT*: OFDM IDFT/DFT period | 0.194 µs | 0.194 µs | 0.194 µs | 0.194 µs |
| *TGI short*: short guard interval duration | 18.18 ns | 18.18 ns | 18.18 ns | 18.18 ns |
| *TGI normal*: normal guard interval duration | 36.36 ns | 36.36 ns | 36.36 ns | 36.36 ns |
| *TGI long*: long guard interval duration | 72.72 ns | 72.72 ns | 72.72 ns | 72.72 ns |

**30.6.1.3 DC relative shift to carrier frequency**

The DC relative frequency shift is applied in digital domain for EDMG-STF, EDMG-CEF, and data part of EDMG OFDM PPDU. The DC relative shift is frequency channel dependent and defined in Table 2.

Table 2: DC relative shift to carrier frequency.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NCB** | **Channel #** | ***Fc*, GHz** | ***FDC*, GHz** | **(*FDC* - *Fc*), MHz** |
| 1 | 1 | 58.32 | 64.8 - ∆*F*\*3\*419 | -1.4063 |
| 2 | 60.48 | 64.8 - ∆*F*\*2\*419 | -0.9375 |
| 3 | 62.64 | 64.8 - ∆*F*\*419 | -0.4688 |
| 4 | 64.8 | 64.8 | 0 |
| 5 | 66.96 | 64.8 + ∆*F*\*419 | 0.4688 |
| 6 | 69.12 | 64.8 + ∆*F*\*2\*419 | 0.9375 |
| 7 | 71.28 | 64.8 + ∆*F*\*3\*419 | 1.4063 |
| 8 | 73.44 | 64.8 + ∆*F*\*4\*419 | 1.8750 |
| 2 | 9 | 59.4 | 64.8 – ∆*F*\*1047 | 1.4062 |
| 10 | 61.56 | 64.8 – ∆*F*\*628 | 1.8750 |
| 11 | 63.72 | 64.8 – ∆*F*\*209 | 2.3438 |
| 12 | 65.88 | 64.8 + ∆*F*\*209 | -2.3437 |
| 13 | 68.04 | 64.8 + ∆*F*\*628 | -1.8750 |
| 14 | 70.2 | 64.8 + ∆*F*\*1047 | -1.4063 |
| 15 | 72.36 | 64.8 + ∆*F*\*1466 | -0.9375 |
| 3 | 17 | 60.48 | 64.8 – ∆*F*\*2\*419 | -0.9375 |
| 18 | 62.64 | 64.8 – ∆*F*\*419 | -0.4688 |
| 19 | 64.8 | 64.8 | 0 |
| 20 | 66.96 | 64.8 + ∆*F*\*419 | 0.4688 |
| 21 | 69.12 | 64.8 + ∆*F*\*2\*419 | 0.9375 |
| 22 | 71.28 | 64.8 + ∆*F*\*3\*419 | 1.4063 |
| 4 | 25 | 61.56 | 64.8 – ∆*F*\*628 | 1.8750 |
| 26 | 63.72 | 64.8 – ∆*F*\*209 | 2.3438 |
| 27 | 65.88 | 64.8 + ∆*F*\*209 | -2.3437 |
| 28 | 68.04 | 64.8 + ∆*F*\*628 | -1.8750 |
| 29 | 70.2 | 64.8 + ∆*F*\*1047 | -1.4063 |

NOTE: in all cases, the relative shift between DC and carrier frequency does not exceed a half of subcarrier spacing.

**30.6.1.4 Pilot tones**

Pilot tones are frequency channel dependent and defined in Table 3.

Table 3: Pilot tones definition.

|  |  |  |
| --- | --- | --- |
| **NCB** | **Channel #** | **Pilot tones** |
| 1 | 1 | [-162, -140, -118, -96, -74, -52, -30, -8, 14, 36, 58, 80, 102, 124, 146, 168] |
| 2 | [-163, -141, -119, -97, -75, -53, -31, -9, 13, 35, 57, 79, 101, 123, 145, 167] |
| 3 | [-164, -142, -120, -98, -76, -54, -32, -10, 12, 34, 56, 78, 100, 122, 144, 166] |
| 4 | [-165, -143, -121, -99, -77, -55, -33, -11, 11, 33, 55, 77, 99, 121, 143, 165] |
| 5 | [-166, -144, -122, -100, -78, -56, -34, -12, 10, 32, 54, 76, 98, 120, 142, 164] |
| 6 | [-167, -145, -123, -101, -79, -57, -35, -13, 9, 31, 53, 75, 97, 119, 141, 163] |
| 7 | [-168, -146, -124, -102, -80, -58, -36, -14, 8, 30, 52, 74, 96, 118, 140, 162] |
| 8 | [-169, -147, -125, -103, -81, -59, -37, -15, 7, 29, 51, 73, 95, 117, 139, 161] |
| 2 | 9 | [-372, -350, -328, -306, -284, -262, -240, -218, -196, -174, -152, -130, -108, -86, -64, -42, -20, -3, 7, 24, 46, 68, 90, 112, 134, 156, 178, 200, 222, 244, 266, 288, 310, 332, 354, 376] |
| 10 | [-373, -351, -329, -307, -285, -263, -241, -219, -197, -175, -153, -131, -109, -87, -65, -43, -21, -4, 6, 23, 45, 67, 89, 111, 133, 155, 177, 199, 221, 243, 265, 287, 309, 331, 353, 375] |
| 11 | [-374, -352, -330, -308, -286, -264, -242, -220, -198, -176, -154, -132, -110, -88, -66, -44, -22, -5, 5, 22, 44, 66, 88, 110, 132, 154, 176, 198, 220, 242, 264, 286, 308, 330, 352, 374] |
| 12 | [-374, -352, -330, -308, -286, -264, -242, -220, -198, -176, -154, -132, -110, -88, -66, -44, -22, -5, 5, 22, 44, 66, 88, 110, 132, 154, 176, 198, 220, 242, 264, 286, 308, 330, 352, 374] |
| 13 | [-375, -353, -331, -309, -287, -265, -243, -221, -199, -177, -155, -133, -111, -89, -67, -45, -23, -6, 4, 21, 43, 65, 87, 109, 131, 153, 175, 197, 219, 241, 263, 285, 307, 329, 351, 373] |
| 14 | [-376, -354, -332, -310, -288, -266, -244, -222, -200, -178, -156, -134, -112, -90, -68, -46, -24, -7, 3, 20, 42, 64, 86, 108, 130, 152, 174, 196, 218, 240, 262, 284, 306, 328, 350, 372] |
| 15 | [-377, -355, -333, -311, -289, -267, -245, -223, -201, -179, -157, -135, -113, -91, -69, -47, -25, -8, 2, 19, 41, 63, 85, 107, 129, 151, 173, 195, 217, 239, 261, 283, 305, 327, 349, 371] |
| 3 | 17 | [-581, -559, -537, -515, -493, -471, -449, -427, -405, -383, -361, -339, -317, -295, -273, -251, -229, -212, -202, -185, -163, -141, -119, -97, -75, -53, -31, -9, 13, 35, 57, 79, 101, 123, 145, 167, 189, 206, 216, 233, 255, 277, 299, 321, 343, 365, 387, 409, 431, 453, 475, 497, 519, 541, 563, 585] |
| 18 | [-582, -560, -538, -516, -494, -472, -450, -428, -406, -384, -362, -340, -318, -296, -274, -252, -230, -213, -203, -186, -164, -142, -120, -98, -76, -54, -32, -10, 12, 34, 56, 78, 100, 122, 144, 166, 188, 205, 215, 232, 254, 276, 298, 320, 342, 364, 386, 408, 430, 452, 474, 496, 518, 540, 562, 584] |
| 19 | [-583, -561, -539, -517, -495, -473, -451, -429, -407, -385, -363, -341, -319, -297, -275, -253, -231, -214, -204, -187, -165, -143, -121, -99, -77, -55, -33, -11, 11, 33, 55, 77, 99, 121, 143, 165, 187, 204, 214, 231, 253, 275, 297, 319, 341, 363, 385, 407, 429, 451, 473, 495, 517, 539, 561, 583] |
| 20 | [-584, -562, -540, -518, -496, -474, -452, -430, -408, -386, -364, -342, -320, -298, -276, -254, -232, -215, -205, -188, -166, -144, -122, -100, -78, -56, -34, -12, 10, 32, 54, 76, 98, 120, 142, 164, 186, 203, 213, 230, 252, 274, 296, 318, 340, 362, 384, 406, 428, 450, 472, 494, 516, 538, 560, 582] |
| 21 | [-585, -563, -541, -519, -497, -475, -453, -431, -409, -387, -365, -343, -321, -299, -277, -255, -233, -216, -206, -189, -167, -145, -123, -101, -79, -57, -35, -13, 9, 31, 53, 75, 97, 119, 141, 163, 185, 202, 212, 229, 251, 273, 295, 317, 339, 361, 383, 405, 427, 449, 471, 493, 515, 537, 559, 581] |
| 22 | [-586, -564, -542, -520, -498, -476, -454, -432, -410, -388, -366, -344, -322, -300, -278, -256, -234, -217, -207, -190, -168, -146, -124, -102, -80, -58, -36, -14, 8, 30, 52, 74, 96, 118, 140, 162, 184, 201, 211, 228, 250, 272, 294, 316, 338, 360, 382, 404, 426, 448, 470, 492, 514, 536, 558, 580] |
| 4 | 25 | [-791, -769, -747, -725, -703, -681, -659, -637, -615, -593, -571, -549, -527, -505, -483, -461, -439, -422, -412, -395, -373, -351, -329, -307, -285, -263, -241, -219, -197, -175, -153, -131, -109, -87, -65, -43, -21, -4, 6, 23, 45, 67, 89, 111, 133, 155, 177, 199, 221, 243, 265, 287, 309, 331, 353, 375, 397, 414, 424, 441, 463, 485, 507, 529, 551, 573, 595, 617, 639, 661, 683, 705, 727, 749, 771, 793] |
| 26 | [-792, -770, -748, -726, -704, -682, -660, -638, -616, -594, -572, -550, -528, -506, -484, -462, -440, -423, -413, -396, -374, -352, -330, -308, -286, -264, -242, -220, -198, -176, -154, -132, -110, -88, -66, -44, -22, -5, 5, 22, 44, 66, 88, 110, 132, 154, 176, 198, 220, 242, 264, 286, 308, 330, 352, 374, 396, 413, 423, 440, 462, 484, 506, 528, 550, 572, 594, 616, 638, 660, 682, 704, 726, 748, 770, 792] |
| 27 | [-792, -770, -748, -726, -704, -682, -660, -638, -616, -594, -572, -550, -528, -506, -484, -462, -440, -423, -413, -396, -374, -352, -330, -308, -286, -264, -242, -220, -198, -176, -154, -132, -110, -88, -66, -44, -22, -5, 5, 22, 44, 66, 88, 110, 132, 154, 176, 198, 220, 242, 264, 286, 308, 330, 352, 374, 396, 413, 423, 440, 462, 484, 506, 528, 550, 572, 594, 616, 638, 660, 682, 704, 726, 748, 770, 792] |
| 28 | [-793, -771, -749, -727, -705, -683, -661, -639, -617, -595, -573, -551, -529, -507, -485, -463, -441, -424, -414, -397, -375, -353, -331, -309, -287, -265, -243, -221, -199, -177, -155, -133, -111, -89, -67, -45, -23, -6, 4, 21, 43, 65, 87, 109, 131, 153, 175, 197, 219, 241, 263, 285, 307, 329, 351, 373, 395, 412, 422, 439, 461, 483, 505, 527, 549, 571, 593, 615, 637, 659, 681, 703, 725, 747, 769, 791] |
| 29 | [-794, -772, -750, -728, -706, -684, -662, -640, -618, -596, -574, -552, -530, -508, -486, -464, -442, -425, -415, -398, -376, -354, -332, -310, -288, -266, -244, -222, -200, -178, -156, -134, -112, -90, -68, -46, -24, -7, 3, 20, 42, 64, 86, 108, 130, 152, 174, 196, 218, 240, 262, 284, 306, 328, 350, 372, 394, 411, 421, 438, 460, 482, 504, 526, 548, 570, 592, 614, 636, 658, 680, 702, 724, 746, 768, 790] |

**30.6.1.5 Data tones**

Data tones are frequency channel dependent and defined in Table 4.

Table 4: Data tones definition.

|  |  |  |
| --- | --- | --- |
| **NCB** | **Channel #** | **Data tones** |
| 1 | 1 | [-177:-163,-161:-141,-139:-119,-117:-97,-95:-75,-73:-53,-51:-31,-29:-9,-7:-2,2:13,15:35,37:57,59:79,81:101,103:123,125:145,147:167,169:177] |
| 2 | [-177:-164,-162:-142,-140:-120,-118:-98,-96:-76,-74:-54,-52:-32,-30:-10,-8:-2,2:12,14:34,36:56,58:78,80:100,102:122,124:144,146:166,168:177] |
| 3 | [-177:-165,-163:-143,-141:-121,-119:-99,-97:-77,-75:-55,-53:-33,-31:-11,-9:-2,2:11,13:33,35:55,57:77,79:99,101:121,123:143,145:165,167:177] |
| 4 | [-177:-166,-164:-144,-142:-122,-120:-100,-98:-78,-76:-56,-54:-34,-32:-12,-10:-2,2:10,12:32,34:54,56:76,78:98,100:120,122:142,144:164,166:177] |
| 5 | [-177:-167,-165:-145,-143:-123,-121:-101,-99:-79,-77:-57,-55:-35,-33:-13,-11:-2,2:9,11:31,33:53,55:75,77:97,99:119,121:141,143:163,165:177] |
| 6 | [-177:-168,-166:-146,-144:-124,-122:-102,-100:-80,-78:-58,-56:-36,-34:-14,-12:-2,2:8,10:30,32:52,54:74,76:96,98:118,120:140,142:162,164:177] |
| 7 | [-177:-169,-167:-147,-145:-125,-123:-103,-101:-81,-79:-59,-57:-37,-35:-15,-13:-2,2:7,9:29,31:51,53:73,75:95,97:117,119:139,141:161,163:177] |
| 8 | [-177:-170,-168:-148,-146:-126,-124:-104,-102:-82,-80:-60,-58:-38,-36:-16,-14:-2,2:6,8:28,30:50,52:72,74:94,96:116,118:138,140:160,162:177] |
| 2 | 9 | [-386:-373,-371:-351,-349:-329,-327:-307,-305:-285,-283:-263,-261:-241,-239:-219,-217:-197,-195:-175,-173:-153,-151:-131,-129:-109,-107:-87,-85:-65,-63:-43,-41:-21,-19:-4,-2,2:6,8:23,25:45,47:67,69:89,91:111,113:133,135:155,157:177,179:199,201:221,223:243,245:265,267:287,289:309,311:331,333:353,355:375,377:386] |
| 10 | [-386:-374,-372:-352,-350:-330,-328:-308,-306:-286,-284:-264,-262:-242,-240:-220,-218:-198,-196:-176,-174:-154,-152:-132,-130:-110,-108:-88,-86:-66,-64:-44,-42:-22,-20:-5,-3:-2,2:5,7:22,24:44,46:66,68:88,90:110,112:132,134:154,156:176,178:198,200:220,222:242,244:264,266:286,288:308,310:330,332:352,354:374,376:386] |
| 11 | [-386:-375,-373:-353,-351:-331,-329:-309,-307:-287,-285:-265,-263:-243,-241:-221,-219:-199,-197:-177,-175:-155,-153:-133,-131:-111,-109:-89,-87:-67,-65:-45,-43:-23,-21:-6,-4:-2,2:4,6:21,23:43,45:65,67:87,89:109,111:131,133:153,155:175,177:197,199:219,221:241,243:263,265:285,287:307,309:329,331:351,353:373,375:386] |
| 12 | [-386:-375,-373:-353,-351:-331,-329:-309,-307:-287,-285:-265,-263:-243,-241:-221,-219:-199,-197:-177,-175:-155,-153:-133,-131:-111,-109:-89,-87:-67,-65:-45,-43:-23,-21:-6,-4:-2,2:4,6:21,23:43,45:65,67:87,89:109,111:131,133:153,155:175,177:197,199:219,221:241,243:263,265:285,287:307,309:329,331:351,353:373,375:386] |
| 13 | [-386:-376,-374:-354,-352:-332,-330:-310,-308:-288,-286:-266,-264:-244,-242:-222,-220:-200,-198:-178,-176:-156,-154:-134,-132:-112,-110:-90,-88:-68,-66:-46,-44:-24,-22:-7,-5:-2,2:3,5:20,22:42,44:64,66:86,88:108,110:130,132:152,154:174,176:196,198:218,220:240,242:262,264:284,286:306,308:328,330:350,352:372,374:386] |
| 14 | [-386:-377,-375:-355,-353:-333,-331:-311,-309:-289,-287:-267,-265:-245,-243:-223,-221:-201,-199:-179,-177:-157,-155:-135,-133:-113,-111:-91,-89:-69,-67:-47,-45:-25,-23:-8,-6:-2,2,4:19,21:41,43:63,65:85,87:107,109:129,131:151,153:173,175:195,197:217,219:239,241:261,263:283,285:305,307:327,329:349,351:371,373:386] |
| 15 | [-386:-378,-376:-356,-354:-334,-332:-312,-310:-290,-288:-268,-266:-246,-244:-224,-222:-202,-200:-180,-178:-158,-156:-136,-134:-114,-112:-92,-90:-70,-68:-48,-46:-26,-24:-9,-7:-2,3:18,20:40,42:62,64:84,86:106,108:128,130:150,152:172,174:194,196:216,218:238,240:260,262:282,284:304,306:326,328:348,350:370,372:386] |
| 3 | 17 | [-596:-582,-580:-560,-558:-538,-536:-516,-514:-494,-492:-472,-470:-450,-448:-428,-426:-406,-404:-384,-382:-362,-360:-340,-338:-318,-316:-296,-294:-274,-272:-252,-250:-230,-228:-213,-211:-203,-201:-186,-184:-164,-162:-142,-140:-120,-118:-98,-96:-76,-74:-54,-52:-32,-30:-10,-8:-2,2:12,14:34,36:56,58:78,80:100,102:122,124:144,146:166,168:188,190:205,207:215,217:232,234:254,256:276,278:298,300:320,322:342,344:364,366:386,388:408,410:430,432:452,454:474,476:496,498:518,520:540,542:562,564:584,586:596] |
| 18 | [-596:-583,-581:-561,-559:-539,-537:-517,-515:-495,-493:-473,-471:-451,-449:-429,-427:-407,-405:-385,-383:-363,-361:-341,-339:-319,-317:-297,-295:-275,-273:-253,-251:-231,-229:-214,-212:-204,-202:-187,-185:-165,-163:-143,-141:-121,-119:-99,-97:-77,-75:-55,-53:-33,-31:-11,-9:-2,2:11,13:33,35:55,57:77,79:99,101:121,123:143,145:165,167:187,189:204,206:214,216:231,233:253,255:275,277:297,299:319,321:341,343:363,365:385,387:407,409:429,431:451,453:473,475:495,497:517,519:539,541:561,563:583,585:596] |
| 19 | [-596:-584,-582:-562,-560:-540,-538:-518,-516:-496,-494:-474,-472:-452,-450:-430,-428:-408,-406:-386,-384:-364,-362:-342,-340:-320,-318:-298,-296:-276,-274:-254,-252:-232,-230:-215,-213:-205,-203:-188,-186:-166,-164:-144,-142:-122,-120:-100,-98:-78,-76:-56,-54:-34,-32:-12,-10:-2,2:10,12:32,34:54,56:76,78:98,100:120,122:142,144:164,166:186,188:203,205:213,215:230,232:252,254:274,276:296,298:318,320:340,342:362,364:384,386:406,408:428,430:450,452:472,474:494,496:516,518:538,540:560,562:582,584:596] |
| 20 | [-596:-585,-583:-563,-561:-541,-539:-519,-517:-497,-495:-475,-473:-453,-451:-431,-429:-409,-407:-387,-385:-365,-363:-343,-341:-321,-319:-299,-297:-277,-275:-255,-253:-233,-231:-216,-214:-206,-204:-189,-187:-167,-165:-145,-143:-123,-121:-101,-99:-79,-77:-57,-55:-35,-33:-13,-11:-2,2:9,11:31,33:53,55:75,77:97,99:119,121:141,143:163,165:185,187:202,204:212,214:229,231:251,253:273,275:295,297:317,319:339,341:361,363:383,385:405,407:427,429:449,451:471,473:493,495:515,517:537,539:559,561:581,583:596] |
| 21 | [-596:-586,-584:-564,-562:-542,-540:-520,-518:-498,-496:-476,-474:-454,-452:-432,-430:-410,-408:-388,-386:-366,-364:-344,-342:-322,-320:-300,-298:-278,-276:-256,-254:-234,-232:-217,-215:-207,-205:-190,-188:-168,-166:-146,-144:-124,-122:-102,-100:-80,-78:-58,-56:-36,-34:-14,-12:-2,2:8,10:30,32:52,54:74,76:96,98:118,120:140,142:162,164:184,186:201,203:211,213:228,230:250,252:272,274:294,296:316,318:338,340:360,362:382,384:404,406:426,428:448,450:470,472:492,494:514,516:536,538:558,560:580,582:596] |
| 22 | [-596:-587,-585:-565,-563:-543,-541:-521,-519:-499,-497:-477,-475:-455,-453:-433,-431:-411,-409:-389,-387:-367,-365:-345,-343:-323,-321:-301,-299:-279,-277:-257,-255:-235,-233:-218,-216:-208,-206:-191,-189:-169,-167:-147,-145:-125,-123:-103,-101:-81,-79:-59,-57:-37,-35:-15,-13:-2,2:7,9:29,31:51,53:73,75:95,97:117,119:139,141:161,163:183,185:200,202:210,212:227,229:249,251:271,273:293,295:315,317:337,339:359,361:381,383:403,405:425,427:447,449:469,471:491,493:513,515:535,537:557,559:579,581:596] |
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| 28 | [-805:-794,-792:-772,-770:-750,-748:-728,-726:-706,-704:-684,-682:-662,-660:-640,-638:-618,-616:-596,-594:-574,-572:-552,-550:-530,-528:-508,-506:-486,-484:-464,-462:-442,-440:-425,-423:-415,-413:-398,-396:-376,-374:-354,-352:-332,-330:-310,-308:-288,-286:-266,-264:-244,-242:-222,-220:-200,-198:-178,-176:-156,-154:-134,-132:-112,-110:-90,-88:-68,-66:-46,-44:-24,-22:-7,-5:-2,2:3,5:20,22:42,44:64,66:86,88:108,110:130,132:152,154:174,176:196,198:218,220:240,242:262,264:284,286:306,308:328,330:350,352:372,374:394,396:411,413:421,423:438,440:460,462:482,484:504,506:526,528:548,550:570,572:592,594:614,616:636,638:658,660:680,682:702,704:724,726:746,748:768,770:790,792:805] |
| 29 | [-805:-795,-793:-773,-771:-751,-749:-729,-727:-707,-705:-685,-683:-663,-661:-641,-639:-619,-617:-597,-595:-575,-573:-553,-551:-531,-529:-509,-507:-487,-485:-465,-463:-443,-441:-426,-424:-416,-414:-399,-397:-377,-375:-355,-353:-333,-331:-311,-309:-289,-287:-267,-265:-245,-243:-223,-221:-201,-199:-179,-177:-157,-155:-135,-133:-113,-111:-91,-89:-69,-67:-47,-45:-25,-23:-8,-6:-2,2,4:19,21:41,43:63,65:85,87:107,109:129,131:151,153:173,175:195,197:217,219:239,241:261,263:283,285:305,307:327,329:349,351:371,373:393,395:410,412:420,422:437,439:459,461:481,483:503,505:525,527:547,549:569,571:591,593:613,615:635,637:657,659:679,681:701,703:723,725:745,747:767,769:789,791:805] |

NOTE: the notation *m*:*n* denotes an array of integer values starting with *m* (inclusive) and ending with *n* (inclusive) with step equal to 1.

**References:**

1. Draft P802.11ay\_D0.21