FCC 47 CFR PART 15 SUBPART E

CERTIFICATION TEST REPORT

FOR

TABLET DEVICE

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FCC ID: BCGA1674
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Prepared for
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Revision History

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V1	02/03/2016	Initial Issue	C. Pang
V2	02/09/2016	Addressed TCB's Questions	J. Vang

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 12

2. TEST METHODOLOGY 13

3. FACILITIES AND ACCREDITATION 13

4. CALIBRATION AND UNCERTAINTY 14

4.1. MEASURING INSTRUMENT CALIBRATION 14

4.2. SAMPLE CALCULATION 14

4.3. MEASUREMENT UNCERTAINTY 14

5. EQUIPMENT UNDER TEST 15

5.1. DESCRIPTION OF EUT 15

5.2. DESCRIPTION OF MODELS DIFFERENCES 15

5.3. MAXIMUM OUTPUT POWER 15

5.4. DESCRIPTION OF AVAILABLE ANTENNAS 18

5.5. SOFTWARE AND FIRMWARE 18

5.6. WORST-CASE CONFIGURATION AND MODE 19

5.7. DESCRIPTION OF TEST SETUP 20

6. TEST AND MEASUREMENT EQUIPMENT 27

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS 28

7.1. ON TIME AND DUTY CYCLE 28

7.2. MEASUREMENT METHODS 32

8. ANTENNA PORT TEST RESULTS 33

8.1. 802.11a SISO MODE IN THE 5.2 GHz BAND 33

8.2. 802.11n HT20 ANTENNA - B MODE IN THE 5.2 GHz BAND 34

8.2.1. 26 dB BANDWIDTH 34
8.2.2. 99% BANDWIDTH 37
8.2.3. AVERAGE POWER 40
8.2.4. OUTPUT POWER AND PSD 41

8.3. 802.11n HT20 ANTENNA - A MODE IN THE 5.2 GHz BAND 45

8.3.1. 26 dB BANDWIDTH 45
8.3.2. 99% BANDWIDTH 48
8.3.3. AVERAGE POWER 51
8.3.4. OUTPUT POWER AND PSD 52

8.4. 802.11a 2TX CDD MODE IN THE 5.2 GHz BAND 56

8.5. 802.11n HT20 2TX CDD MODE IN THE 5.2 GHz BAND 57

8.5.1. 26 dB BANDWIDTH 57
8.5.2. 99% BANDWIDTH 61
8.5.3. AVERAGE POWER 65

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8.5.4. OUTPUT POWER AND PSD 66

8.6. 802.11n HT20 2TX STBC MODE IN THE 5.2 GHz BAND 72
8.6.1. 26 dB BANDWIDTH 72
8.6.2. 99% BANDWIDTH 76
8.6.3. AVERAGE POWER 80
8.6.4. OUTPUT POWER AND PSD 81

8.7. 802.11n HT20 2TX SDM MODE IN THE 5.2 GHz BAND 87

8.8. 802.11n HT40 ANTENNA - B MODE IN THE 5.2 GHz BAND 88
8.8.1. 26 dB BANDWIDTH 88
8.8.2. 99% BANDWIDTH 90
8.8.3. AVERAGE POWER 92
8.8.4. OUTPUT POWER AND PSD 93

8.9. 802.11n HT40 ANTENNA - A MODE IN THE 5.2 GHz BAND 96
8.9.1. 26 dB BANDWIDTH 96
8.9.2. 99% BANDWIDTH 98
8.9.3. AVERAGE POWER 100
8.9.4. OUTPUT POWER AND PSD 101

8.10. 802.11n HT40 2TX CDD MODE IN THE 5.2 GHz BAND 104
8.10.1. 26 dB BANDWIDTH 104
8.10.2. 99% BANDWIDTH 107
8.10.3. AVERAGE POWER 110
8.10.4. OUTPUT POWER AND PSD 111

8.11. 802.11n HT40 2Tx STBC MODE IN THE 5.2 GHz BAND 116
8.11.1. 26 dB BANDWIDTH 116
8.11.2. 99% BANDWIDTH 119
8.11.3. AVERAGE POWER 122
8.11.4. OUTPUT POWER AND PSD 123

8.12. 802.11n HT40 2TX SDM MODE IN THE 5.2 GHz BAND 128

8.13. 802.11acV VHT80 ANTENNA - B MODE IN THE 5.2 GHz BAND 129
8.13.1. 26 dB BANDWIDTH 129
8.13.2. 99% BANDWIDTH 130
8.13.3. AVERAGE POWER 131
8.13.4. OUTPUT POWER AND PSD 132

8.14. 802.11ac VHT80 ANTENNA - A MODE IN THE 5.2 GHz BAND 135
8.14.1. 26 dB BANDWIDTH 135
8.14.2. 99% BANDWIDTH 136
8.14.3. AVERAGE POWER 137
8.14.4. OUTPUT POWER AND PSD 138

8.15. 802.11ac VHT80 2Tx CDD MODE IN THE 5.2 GHz BAND 141
8.15.1. 26 dB BANDWIDTH 141
8.15.2. 99% BANDWIDTH 143
8.15.3. AVERAGE POWER 145
8.15.4. OUTPUT POWER AND PSD 146

8.16. 802.11ac VHT80 2Tx STBC MODE IN THE 5.2 GHz BAND 150
8.16.1. 26 dB BANDWIDTH 150
8.16.2. 99% BANDWIDTH 152
8.16.3. AVERAGE POWER 154
8.16.4. OUTPUT POWER AND PSD 155

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8.17. 802.11ac VHT80 2TX SDM MODE IN THE 5.2 GHz BAND 159

8.18. 802.11a SISO MODE IN THE 5.3 GHz BAND 160

8.19. 802.11n HT20 ANTENNA - B MODE IN THE 5.3 GHz BAND 161
8.19.1. 26 dB BANDWIDTH 161
8.19.2. 99% BANDWIDTH 164
8.19.3. AVERAGE POWER 167
8.19.4. OUTPUT POWER AND PSD 168

8.20. 802.11n HT20 ANTENNA A MODE IN THE 5.3 GHz BAND 172
8.20.1. 26 dB BANDWIDTH 172
8.20.2. 99% BANDWIDTH 175
8.20.3. AVERAGE POWER 178
8.20.4. OUTPUT POWER AND PSD 179

8.21. 802.11a 2TX CDD MODE IN THE 5.3 GHz BAND 183

8.22. 802.11n HT20 2Tx CDD MODE IN THE 5.3 GHz BAND 184
8.22.1. 26 dB BANDWIDTH 184
8.22.2. 99% BANDWIDTH 188
8.22.3. AVERAGE POWER 192
8.22.4. OUTPUT POWER AND PSD 193

8.23. 802.11n HT20 2Tx STBC MODE IN THE 5.3 GHz BAND 198
8.23.1. 26 dB BANDWIDTH 198
8.23.2. 99% BANDWIDTH 202
8.23.3. AVERAGE POWER 206
8.23.4. OUTPUT POWER AND PSD 207

8.24. 802.11n HT20 2Tx SDM MODE IN THE 5.3 GHz BAND 212

8.25. 802.11n HT40 ANTENNA - B MODE IN THE 5.3 GHz BAND 213
8.25.1. 26 dB BANDWIDTH 213
8.25.2. 99% BANDWIDTH 215
8.25.3. AVERAGE POWER 217
8.25.4. OUTPUT POWER AND PSD 218

8.26. 802.11n HT40 ANTENNA - A MODE IN THE 5.3 GHz BAND 221
8.26.1. 26 dB BANDWIDTH 221
8.26.2. 99% BANDWIDTH 223
8.26.3. AVERAGE POWER 225
8.26.4. OUTPUT POWER AND PSD 226

8.27. 802.11n HT40 2Tx CDD MODE IN THE 5.3 GHz BAND 229
8.27.1. 26 dB BANDWIDTH 229
8.27.2. 99% BANDWIDTH 232
8.27.3. AVERAGE POWER 235
8.27.4. OUTPUT POWER AND PSD 236

8.28. 802.11n HT40 2Tx STBC MODE IN THE 5.3 GHz BAND 240
8.28.1. 26 dB BANDWIDTH 240
8.28.2. 99% BANDWIDTH 243
8.28.3. AVERAGE POWER 246
8.28.4. OUTPUT POWER AND PSD 247

8.29. 802.11n HT40 2Tx SDM MODE IN THE 5.3 GHz BAND 251

8.30. 802.11ac VHT80 ANTENNA - B MODE IN THE 5.3 GHz BAND 252
8.30.1. 26 dB BANDWIDTH 252

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8.30.2. 99% BANDWIDTH 253
8.30.3. AVERAGE POWER 254
8.30.4. OUTPUT POWER AND PSD 255

8.31. 802.11ac VHT80 ANTENNA - A MODE IN THE 5.3 GHz BAND 258
8.31.1. 26 dB BANDWIDTH 258
8.31.2. 99% BANDWIDTH 259
8.31.3. AVERAGE POWER 260
8.31.4. OUTPUT POWER AND PSD 261

8.32. 802.11ac VHT80 2Tx CDD MODE IN THE 5.3 GHz BAND 264
8.32.1. 26 dB BANDWIDTH 264
8.32.2. 99% BANDWIDTH 266
8.32.3. AVERAGE POWER 268
8.32.4. OUTPUT POWER AND PSD 269

8.33. 802.11ac VHT80 2Tx STBC MODE IN THE 5.3 GHz BAND 273
8.33.1. 26 dB BANDWIDTH 273
8.33.2. 99% BANDWIDTH 275
8.33.3. AVERAGE POWER 277
8.33.4. OUTPUT POWER AND PSD 278

8.34. 802.11ac VHT80 2Tx SDM MODE IN THE 5.3 GHz BAND 282

8.35. 802.11a SISO MODE IN THE 5.6 GHz BAND 283

8.36. 802.11n HT20 ANTENNA - B MODE IN THE 5.6 GHz BAND 284
8.36.1. 26 dB BANDWIDTH 284
8.36.2. 99% BANDWIDTH 287
8.36.3. AVERAGE POWER 290
8.36.4. OUTPUT POWER AND PSD 291

8.37. 802.11ac VHT20 ANTENNA - B STRADDLE CHANNEL 144 RESULTS 295
8.38.1. 6 dB BANDWIDTH 299

8.39. 802.11n HT20 ANTENNA - A MODE IN THE 5.6 GHz BAND 300
8.39.1. 26 dB BANDWIDTH 300
8.39.2. 99% BANDWIDTH 303
8.39.3. AVERAGE POWER 306
8.39.4. OUTPUT POWER AND PSD 307

8.40. 802.11ac VHT20 ANTENNA - A STRADDLE CHANNEL 144 RESULTS 311
8.41.1. 6 dB BANDWIDTH 315

8.42. 802.11a 2TX CDD MODE IN THE 5.6 GHz BAND 316

8.43. 802.11n HT20 2Tx CDD MODE IN THE 5.6 GHz BAND 317
8.43.1. 26 dB BANDWIDTH 317
8.43.2. 99% BANDWIDTH 322
8.43.3. AVERAGE POWER 327
8.43.4. OUTPUT POWER AND PSD 328

8.44. 802.11ac VHT20 2TX CDD STRADDLE CHANNEL 144 RESULTS 334
8.44.1. 6 dB BANDWIDTH 340

8.45. 802.11n HT20 2Tx STBC MODE IN THE 5.6 GHz BAND 342
8.45.1. 26 dB BANDWIDTH 342
8.45.2. 99% BANDWIDTH 347
8.45.3. AVERAGE POWER 352
8.45.4. OUTPUT POWER AND PSD 353

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8.46. 802.11ac VHT20 2TX STBC STRADDLE CHANNEL 144 RESULTS 359
8.46.1. 6 dB BANDWIDTH 365
8.47. 802.11n HT20 2Tx SDM MODE IN THE 5.6 GHz BAND 367
8.48. 802.11ac VHT20 2TX SDM STRADDLE CHANNEL 144 RESULTS 368
8.49. 802.11n HT40 ANTENNA - B MODE IN THE 5.6 GHz BAND 369
8.49.1. 26 dB BANDWIDTH 369
8.49.2. 99% BANDWIDTH 372
8.49.3. AVERAGE POWER 375
8.49.4. OUTPUT POWER AND PSD 376
8.50. 802.11ac VHT40 ANTENNA - B STRADDLE CH 142 RESULTS (FCC) 380
8.50.1. 6 dB BANDWIDTH 384
8.51. 802.11n HT40 ANTENNA - A MODE IN THE 5.6 GHz BAND 385
8.51.1. 26 dB BANDWIDTH 385
8.51.2. 99% BANDWIDTH 388
8.51.3. AVERAGE POWER 391
8.51.4. OUTPUT POWER AND PSD 392
8.52. 802.11ac VHT40 ANTENNA - A STRADDLE CH 142 RESULTS 396
8.52.1. 6 dB BANDWIDTH 400
8.53. 802.11n HT40 2Tx CDD MODE IN THE 5.6 GHz BAND 401
8.53.1. 26 dB BANDWIDTH 401
8.53.2. 99% BANDWIDTH 406
8.53.3. AVERAGE POWER 411
8.53.4. OUTPUT POWER AND PSD 412
8.54. 802.11n HT40 2Tx CDD STRADDLE CHANNEL 142 RESULTS 418
8.54.1. 6 dB BBANDWIDTH 424
8.55. 802.11n HT40 2Tx STBC MODE IN THE 5.6 GHz BAND 426
8.55.1. 26 dB BANDWIDTH 426
8.55.2. 99% BANDWIDTH 431
8.55.3. AVERAGE POWER 436
8.55.4. OUTPUT POWER AND PSD 437
8.56. 802.11n HT40 2Tx STBC STRADDLE CHANNEL 142 RESULTS 443
8.56.1. 6 dB BBANDWIDTH 449
8.57. 802.11n HT40 2Tx SDM MODE IN THE 5.6 GHz BAND 451
8.58. 802.11n HT40 2Tx SDM STRADDLE CHANNEL 142 RESULTS 452
8.59. 802.11ac VHT80 ANTENNA - B MODE IN THE 5.6 GHz BAND 453
8.59.1. 26 dB BANDWIDTH 453
8.59.2. 99% BANDWIDTH 456
8.59.3. AVERAGE POWER 459
8.59.4. OUTPUT POWER AND PSD 460
8.59.5. STRADDLE CHANNEL 138 RESULTS 463
8.59.6. 6 dB BANDWIDTH 467
8.60. 802.11ac VHT80 ANTENNA - A MODE IN THE 5.6 GHz BAND 468
8.60.1. 26 dB BANDWIDTH 468
8.60.2. 99% BANDWIDTH 471
8.60.3. AVERAGE POWER 474
8.60.4. OUTPUT POWER AND PSD 475

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8.60.5. STRADDLE CHANNEL 138 RESULTS 478
8.60.6. 6 dB BANDWIDTH 482

8.61. 802.11ac VHT80 2Tx CDD MODE IN THE 5.6 GHz BAND 483
8.61.1.1. 26 dB BANDWIDTH 483
8.61.2. 99% BANDWIDTH 487
8.61.3. AVERAGE POWER 491
8.61.4. OUTPUT POWER AND PSD 492
8.61.5. STRADDLE CHANNEL 138 RESULTS 497
8.61.6. 6 dB BANDWIDTH 503

8.62. 802.11ac VHT80 2Tx STBC MODE IN THE 5.6 GHz 505

8.63. 802.11ac VHT80 2Tx SDM MODE IN THE 5.6 GHz BAND 506

8.64. 802.11a SISO MODE IN THE 5.8 GHz BAND 507

8.65. 802.11n HT20 ANTENNA - B MODE IN THE 5.8 GHz BAND 508
8.65.1. 6 dB BANDWIDTH 508
8.65.2. 26 dB BANDWIDTH 511
8.65.3. 99% BANDWIDTH 514
8.65.4. AVERAGE POWER 517
8.65.5. OUTPUT POWER 518
8.65.6. PSD 520

8.66. 802.11n HT20 ANTENNA - A MODE IN THE 5.8 GHz BAND 523
8.66.1. 6 dB BANDWIDTH 523
8.66.2. 26 dB BANDWIDTH 526
8.66.3. 99% BANDWIDTH 529
8.66.4. AVERAGE POWER 532
8.66.5. OUTPUT POWER 533
8.66.6. PSD 535

8.67. 802.11a 2TX CDD MODE IN THE 5.8 GHz BAND 538

8.68. 802.11n HT20 2Tx CDD MODE IN THE 5.8 GHz BAND 539
8.68.1. 6 dB BANDWIDTH 539
8.68.2. 26 dB BANDWIDTH 543
8.68.3. 99% BANDWIDTH 547
8.68.4. AVERAGE POWER 551
8.68.5. OUTPUT POWER 552
8.68.6. PSD 554

8.69. 802.11n HT20 2Tx STBC MODE IN THE 5.8 GHz BAND 559

8.70. 802.11n HT20 2Tx SDM MODE IN THE 5.8 GHz BAND 560

8.71. 802.11n HT40 ANTENNA - B MODE IN THE 5.8 GHz BAND 561
8.71.1. 6 dB BANDWIDTH 561
8.71.2. 26 dB BANDWIDTH 563
8.71.3. 99% BANDWIDTH 565
8.71.4. AVERAGE POWER 567
8.71.5. OUTPUT POWER 568
8.71.6. PSD 570

8.72. 802.11n HT40 ANTENNA - A MODE IN THE 5.8 GHz BAND 573
8.72.1. 6 dB BANDWIDTH 573
8.72.2. 26 dB BANDWIDTH 575
8.72.3. 99% BANDWIDTH 577

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8.72.4. AVERAGE POWER 579
8.72.5. OUTPUT POWER 580
8.72.6. PSD 582

8.73. 802.11n HT40 2Tx CDD MODE IN THE 5.8 GHz BAND 585
8.73.1. 6 dB BANDWIDTH 585
8.73.2. 26 dB BANDWIDTH 588
8.73.3. 99% BANDWIDTH 591
8.73.4. AVERAGE POWER 594
8.73.5. OUTPUT POWER 595
8.73.6. PSD 597

8.74. 802.11n HT40 2Tx STBC MODE IN THE 5.8 GHz BAND 601

8.75. 802.11n HT40 2Tx SDM MODE IN THE 5.8 GHz BAND 602

8.76. 802.11ac VHT80 ANTENNA - B MODE IN THE 5.8 GHz BAND 603
8.76.1. 6 dB BANDWIDTH 603
8.76.2. 26 dB BANDWIDTH 604
8.76.3. 99% BANDWIDTH 605
8.76.4. AVERAGE POWER 606
8.76.5. OUTPUT POWER 607
8.76.6. PSD 609

8.77. 802.11ac VHT80 ANTENNA - A MODE IN THE 5.8 GHz BAND 611
8.77.1. 6 dB BANDWIDTH 611
8.77.2. 26 dB BANDWIDTH 612
8.77.3. 99% BANDWIDTH 613
8.77.4. AVERAGE POWER 614
8.77.5. OUTPUT POWER 615
8.77.6. PSD 617

8.78. 802.11ac VHT80 2Tx CDD MODE IN THE 5.8 GHz BAND 619
8.78.1. 6 dB BANDWIDTH 619
8.78.2. 26 dB BANDWIDTH 621
8.78.3. 99% BANDWIDTH 623
8.78.4. AVERAGE POWER 625
8.78.5. OUTPUT POWER 626
8.78.6. PSD 628

8.79. 802.11ac VHT80 2Tx STBC MODE IN THE 5.8 GHz BAND 631

8.80. 802.11ac VHT80 2Tx SDM MODE IN THE 5.8 GHz BAND 632

9. RADIATED TEST RESULTS 633

9.1. LIMITS AND PROCEDURE 633

9.2. 802.11n HT20 1Tx WF1 MODE IN THE 5.2 GHz BAND 634

9.3. 802.11n HT20 2Tx CDD MODE IN THE 5.2 GHz BAND 650

9.4. 802.11n HT40 1Tx MODE IN THE 5.2 GHz BAND 658

9.5. 802.11n HT40 2Tx CDD MODE IN THE 5.2 GHz BAND 670

9.6. 802.11ac VHT80 1Tx MODE IN THE 5.2 GHz BAND 676

9.7. 802.11ac VHT80 2Tx CDD MODE IN THE 5.2 GHz BAND 684

9.8. 802.11n HT20 1Tx MODE IN THE 5.3 GHz BAND 688

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9.9. 802.11n HT20 2Tx CDD MODE IN THE 5.3 GHz BAND 704
9.10. 802.11n HT40 1Tx MODE IN THE 5.3 GHz BAND 712
9.11. 802.11n HT40 2Tx CDD MODE IN THE 5.3 GHz BAND 724
9.12. 802.11ac VHT80 1Tx MODE IN THE 5.3 GHz BAND 730
9.13. 802.11ac VHT80 2Tx CDD MODE IN THE 5.3 GHz BAND 738
9.14. 802.11n HT20 1Tx MODE IN THE 5.6 GHz BAND 742
9.15. 802.11n HT20 2Tx CDD MODE IN THE 5.6 GHz BAND 766
9.16. 802.11n HT40 1Tx MODE IN THE 5.6 GHz BAND 778
9.17. 802.11n HT40 2Tx CDD MODE IN THE 5.6 GHz BAND 802
9.18. 802.11ac VHT80 1Tx MODE IN THE 5.6 GHz BAND 814
9.19. 802.11ac VHT80 2Tx CDD MODE IN THE 5.6 GHz BAND 830
9.20. 802.11n HT20 1Tx MODE IN THE 5.8 GHz BAND 838
9.21. 802.11n HT20 2Tx CDD MODE IN THE 5.8 GHz BAND 858
9.22. 802.11n HT40 1Tx MODE IN THE 5.8 GHz BAND 868
9.23. 802.11n HT40 2Tx CDD MODE IN THE 5.8 GHz BAND 884
9.24. 802.11ac VHT80 1Tx MODE IN THE 5.8 GHz BAND 892
9.25. 802.11ac VHT80 2Tx CDD MODE IN THE 5.8 GHz BAND 904
9.26. WORST-CASE BELOW 1 GHz 910
9.27. WORST-CASE ABOVE 18 GHz 912

10. AC POWER LINE CONDUCTED EMISSIONS 916
10.1. EUT POWERED BY AC ADAPTER 917
10.2. EUT POWERED BY HOST PC VIA USB CABLE 919

11. DYNAMIC FREQUENCY SELECTION 921
11.1. OVERVIEW 921
11.1.1. LIMITS 921
11.1.1. TEST AND MEASUREMENT SYSTEM 925
11.1.2. SETUP OF EUT (CLIENT MODE) 928
11.1.3. SETUP OF EUT (CLIENT-TO-CLIENT COMMUNICATIONS MODE) 929
11.1.4. DESCRIPTION OF EUT 930
11.2. CLIENT MODE RESULTS FOR 20 MHz BANDWIDTH 932
11.2.1. TEST CHANNEL 932
11.2.2. RADAR WAVEFORM AND TRAFFIC 932
11.2.3. OVERLAPPING CHANNEL TESTS 935
11.2.4. MOVE AND CLOSING TIME 935
11.3. CLIENT MODE RESULTS FOR 40 MHz BANDWIDTH 939
11.3.1. TEST CHANNEL 939
11.3.2. RADAR WAVEFORM AND TRAFFIC 939
11.3.3. OVERLAPPING CHANNEL TESTS 942
11.3.4. MOVE AND CLOSING TIME 942
11.4. CLIENT MODE RESULTS FOR 80 MHz BANDWIDTH 946

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11.4.1. TEST CHANNEL 946
11.4.2. RADAR WAVEFORM AND TRAFFIC 946
11.4.3. OVERLAPPING CHANNEL TESTS 949
11.4.4. MOVE AND CLOSING TIME 949
11.4.5. 10-MINUTE CLIENT Tx MONITORING PERIOD 953

11.5. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 20 MHz BANDWIDTH 954
11.5.1. TEST CHANNEL 954
11.5.2. RADAR WAVEFORM AND TRAFFIC 954
11.5.3. OVERLAPPING CHANNEL TESTS 957
11.5.4. MOVE AND CLOSING TIME 957

11.6. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 40 MHz BANDWIDTH 961
11.6.1. TEST CHANNEL 961
11.6.2. RADAR WAVEFORM AND TRAFFIC 961
11.6.3. OVERLAPPING CHANNEL TESTS 964
11.6.4. MOVE AND CLOSING TIME 964
11.6.5. 10-MINUTE CLIENT Tx MONITORING PERIOD 968

11.7. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 80 MHz BANDWIDTH 969
11.7.1. TEST CHANNEL 969
11.7.2. RADAR WAVEFORM AND TRAFFIC 969
11.7.3. OVERLAPPING CHANNEL TESTS 972
11.7.4. MOVE AND CLOSING TIME 972
11.7.5. 10-MINUTE CLIENT Tx MONITORING PERIOD 976

12. SETUP PHOTOS 977

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE, INC.
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CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: TABLET DEVICE

MODEL: A1674, A1675

SERIAL NUMBER: RADIATED (DLXQL01CH0JF) & CONDUCTED (DLXQL00HH0J4)
DFS (DLXQL01EH0JF)

DATE TESTED: NOVEMBER 04, 2015 – FEBRUARY 04, 2016

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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2. TEST METHODOLOGY

FCC: The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 14-30, FCC KDB 662911 D01 v02r01, FCC KDB 905462 D02 v01r02/D03 v01r01/D06 v01, FCC KDB 789033 D02 v01r01, FCC KDB 644545 D03 v01, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A	☐ Chamber D
☐ Chamber B	☒ Chamber E
☐ Chamber C	☐ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

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4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	± 3.52 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.94 dB
Radiated Disturbance, 1 to 6 GHz	± 3.86 dB
Radiated Disturbance, 6 to 18 GHz	± 4.23 dB
Radiated Disturbance, 18 to 26 GHz	± 5.30 dB
Radiated Disturbance, 26 to 40 GHz	± 5.23 dB

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a tablet with multimedia functions (music, application support, and video), Cellular GSM/GPRS/EGPRS/CDMA2000 1xRTT/1xAdvanced/EVDO Rev.A/WCDMA/HSPA+/DC-HSDPA/LTE FDD & Carrier Aggregation/TDD/TD-SCDMA radio, IEEE 802.11a/b/g/n/ac radio, and Bluetooth radio. The rechargeable battery is not user accessible.

5.2. DESCRIPTION OF MODELS DIFFERENCES

Model tested: A1674.The Models A1674 & A1675 have one FCC ID: BCGA1674 and IC ID: 579C-A1674
Both Model A1674 and A1675 have identical PCB layout, design and functionality, except that A1674 supports second electronic-UICC based SIM or ”soft SIM” (called eSIM) beside the regular UICC based SIM and A1675 will come with eSIM removed.

RF and electromagnetic characteristic are independent of the eSIM element. Both models have exactly same technology and band support.

5.3. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.2GHz Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180 - 5240	802.11a	Covered by 802.11n HT20 SISO	
	802.11n HT20 SISO	16.97	49.77
	802.11a 2TX CDD	Covered by 802.11n HT20 CDD 2TX	
	802.11n HT20 2TX CDD	18.95	78.52
	802.11n HT20 2TX STBC	20.00	100.00
	802.11n HT20 2TX SDM	Covered by 802.11n HT20 2TX STBC	
5190 - 5230	802.11n HT40 SISO	16.99	50.00
	802.11n HT40 2TX CDD	18.91	77.80
	802.11n HT40 2TX STBC	19.97	99.31
	802.11n HT40 2TX SDM	Covered by 802.11n HT40 2TX STBC	
5210	802.11ac VHT80 SISO	13.00	19.95
	802.11ac VHT80 2TX CDD	15.00	31.62
	802.11ac VHT80 2TX STBC	14.93	31.12
	802.11ac VHT80 2TX SDM	Covered by 802.11ac VHT80 2TX STBC	

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5.3GHz Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5260 - 5320	802.11a	Covered by 802.11n HT20 SISO	
	802.11n HT20 SISO	17.50	56.23
	802.11a 2TX CDD	Covered by 802.11n HT20 2TX CDD	
	802.11n HT20 2TX CDD	18.92	77.98
	802.11n HT20 2TX STBC	19.94	98.63
	802.11n HT20 2TX SDM	Covered by 802.11n HT20 2TX STBC	
5270 - 5310	802.11n HT40 SISO	17.43	55.34
	802.11n HT40 2TX CDD	18.91	77.80
	802.11n HT40 2TX STBC	19.91	97.95
	802.11n HT40 2TX SDM	Covred by 802.11n HT40 2TX STBC	
5290	802.11ac VHT80 SISO	13.94	24.77
	802.11ac VHT80 2TX CDD	15.43	34.91
	802.11ac VHT80 2TX STBC	15.39	34.59
	802.11ac VHT80 2TX SDM	Covered by 802.11ac VHT80 2TX STBC	

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5.6GHz Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5500 - 5700	802.11a	Covered by 802.11n HT20 SISO	
5500 - 5700	802.11n HT20 SISO	16.47	44.36
5720	802.11ac VHT20 SISO	15.26	33.57
5500 - 5700	802.11a 2TX CDD	Covered by 802.11n HT20 CDD	
5500 - 5700	802.11n HT20 2TX CDD	18.41	69.34
5720	802.11ac VHT20 2TX CDD	17.23	52.84
5500 - 5700	802.11n HT20 2TX STBC	19.24	83.95
5720	802.11ac VHT20 2TX STBC	17.98	62.81
5500 - 5700	802.11n HT20 2TX SDM	Covered by 802.11n HT20 2TX STBC	
5720	802.11ac VHT20 2TX SDM	Covered by 802.11n HT20 2TX STBC	
5510 - 5670	802.11n HT40 SISO	16.50	44.67
5710	802.11ac VHT40 SISO	15.79	37.93
5510 - 5670	802.11n HT40 2TX CDD	18.42	69.50
5710	802.11ac VHT40 2TX CDD	18.00	63.10
5510 - 5670	802.11n HT40 2TX STBC	19.26	84.33
5710	802.11ac VHT40 2TX STBC	18.79	75.68
5510 - 5670	802.11n HT40 2TX SDM	Covered by 802.11n HT40 2TX STBC	
5710	802.11ac VHT40 2TX SDM	Covered by 802.11n HT40 2TX STBC	
5530-5610	802.11ac VHT80 SISO	16.46	44.26
5690	802.11ac VHT80 SISO	16.40	43.65
5530-5610	802.11ac VHT80 2TX CDD	19.15	82.22
5690	802.11ac VHT80 2TX CDD	19.00	79.43
5530-5610	802.11ac VHT80 2TX STBC	Covered by 802.11n VHT80 2TX CDD	
5690	802.11ac VHT80 2TX STBC	Covered by 802.11n VHT80 2TX CDD	
5530-5610	802.11ac VHT80 2TX SDM	Covered by 802.11n VHT80 2TX CDD	
5690	802.11ac VHT80 2TX SDM	Covered by 802.11n VHT80 2TX CDD	

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5.8GHz Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5745 - 5825	802.11a	Covered by 802.11n HT20 SISO	
5745 - 5825	802.11n HT20 SISO	16.93	49.32
5745 - 5825	802.11a 2TX CDD	Covered by 802.11n HT20 2TX CDD	
5745 - 5825	802.11n HT20 2TX CDD	19.69	93.11
5745 - 5825	802.11n HT20 2TX STBC	Covered by 802.11n HT20 2TX CDD	
5746 - 5825	802.11n HT20 2TX SDM	Covered by 802.11n HT20 2TX STBC	
5755 - 5795	802.11n HT40 SISO	16.39	43.55
5755 - 5795	802.11n HT40 2TX CDD	18.41	69.34
5755 - 5795	802.11n HT40 2TX STBC	Covered by 802.11n HT40 2TX CDD	
5756 - 5795	802.11n HT40 2TX SDM	Covered by 802.11n HT40 2TX STBC	
5775	802.11ac VHT80 SISO	13.42	21.98
5775	802.11ac VHT80 2TX CDD	15.43	34.91
5775	802.11ac VHT80 2TX STBC	Covered by 802.11n VHT80 2TX CDD	
5775	802.11ac VHT80 2TX SDM	Covered by 802.11n VHT80 2TX CDD	

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Band (GHz)	Antenna Gain (dBi)	
	Antenna B	Antenna A
5.2	3.04	2.30
5.3	3.02	2.23
5.5	2.83	4.03
5.8	2.42	4.16

5.5. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 13E31820k.

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5.6. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

For SISO modes, there are two transmission antennas. The antenna used in any given time can be either ANTENNA B or ANTENNA A. Both antenna ports have the same power; output power and PSD measurement for SISO modes on both antennas are reported. For MIMO modes, both ANTENNA B and ANTENNA A used at the same time.

The fundamental of the EUT was investigated in three orthogonal orientations X (Flatbed), Y (Landscape), Z (Portrait), it was determined that (see table below) was worst-case orientations. Therefore, all final radiated testing was performed with the EUT in (see table below) orientation.

Frequency Band (GHz)	Mode	Antenna Port	Worst-case Orientation
5.2-5.8	1TX SISO	Chain 0	Z-Portrait
		Chain 1	Y-Landscape
	2TX MIMO	Chain 0 + Chain 1	Y-Landscape

Worst-case data rates as provided by the client were:

802.11a mode: 6 Mbps
802.11n HT20 mode: MCS0
802.11n HT40 mode: MCS0
802.11ac VHT20 mode: MCS0
802.11ac VHT40 mode: MCS0
802.11ac VHT80 mode: MCS0

802.11ac VHT20 and VHT40 mode are different from 802.11nHT20 and HT40 only in control messages and have the same power settings.

There are two vendors of the WiFi/Bluetooth radio modules: variant 1 and variant 2. The Wi-Fi/Bluetooth radio modules have the same mechanical outline (e.g., the same package dimension and pin-out layout), use the same on-board antenna matching circuit, have an identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances.

Baseline testing was performed on the two variants to determine the worst case on all conducted power and radiated emissions.

For simultaneous transmission of multiple channels from the same antenna in BT/BLE and WLAN 5 GHz bands. Baseline testing was performed on various configurations to determine the worst case on radiated emissions.

The following configurations were investigated on AC line conducted test.

Configuration	Descriptions
1	EUT powered by AC/DC adapter via USB cable
2	EUT powered by host PC via USB cable

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5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Apple	MacBook Pro	73043BDQAGU	N/A
Laptop AC/DC adapter	Apple	A1172	MV7211FJAX4XA	N/A
Earphone	Apple	NA	NA	N/A
EUT AC/DC adapter	Apple	A1357	W010A051	N/A

I/O CABLES (CONDUCTED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Antenna	1	SMA	Un-Shielded	0.2	To spectrum Analyzer
2	USB	1	USB	Shielded	1	N/A
3	AC	1	AC	Un-shielded	3	N/A

I/O CABLES (RADIATED ABOVE 1 GHZ)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
None Used						

I/O CABLES (RADAITED BELOW 1 GHZ)

I/O Cable List						
Cable No	Port	# of identical	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Headphones Jack	1	3.5mm Audio	Shielded	0.9	N/A
2	AC	1	AC	Un-shielded	3	N/A

I/O CABLES (AC LINE CONDUCTED: AC/DC ADAPTER)

I/O Cable List						
Cable No	Port	# of identical	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Headphones Jack	1	3.5mm Audio	Shielded	0.9	N/A
2	AC	1	AC	Un-shielded	3	N/A

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I/O CABLES (AC LINE CONDUCTED: LAPTOP CONFIGUARTION)

I/O Cable List						
Cable No	Port	# of identical	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Headphones Jack	1	3.5mm Audio	Shielded	0.9	N/A
2	USB	1	USB	Shielded	1	N/A
3	AC	1	AC	Un-shielded	3	N/A

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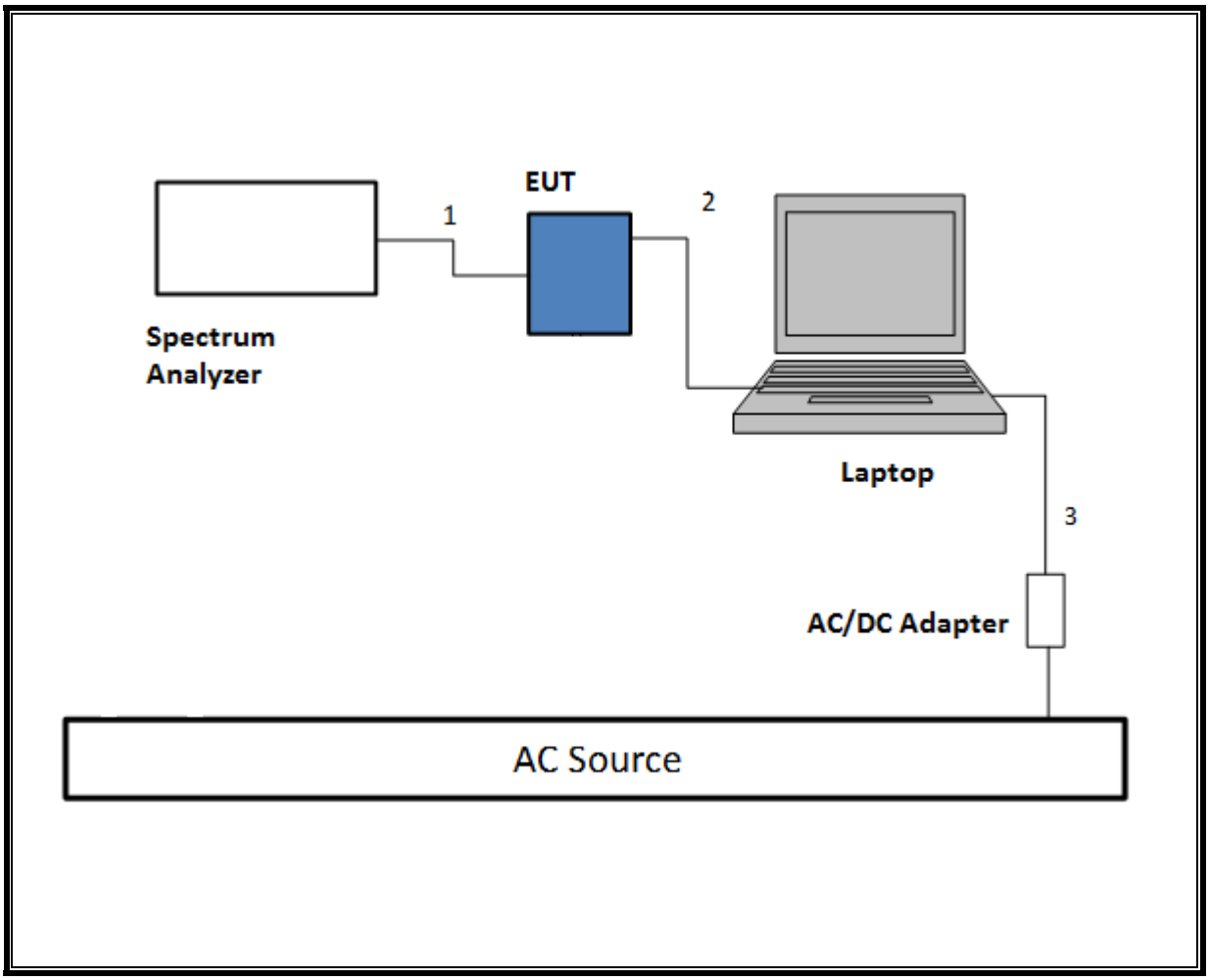
TEST SETUP - CONDUCTED TESTS

The EUT was tested connected to a host Laptop via USB cable adapter and spectrum analyzer to antenna port. Test software exercised the EUT.

SETUP DIAGRAM



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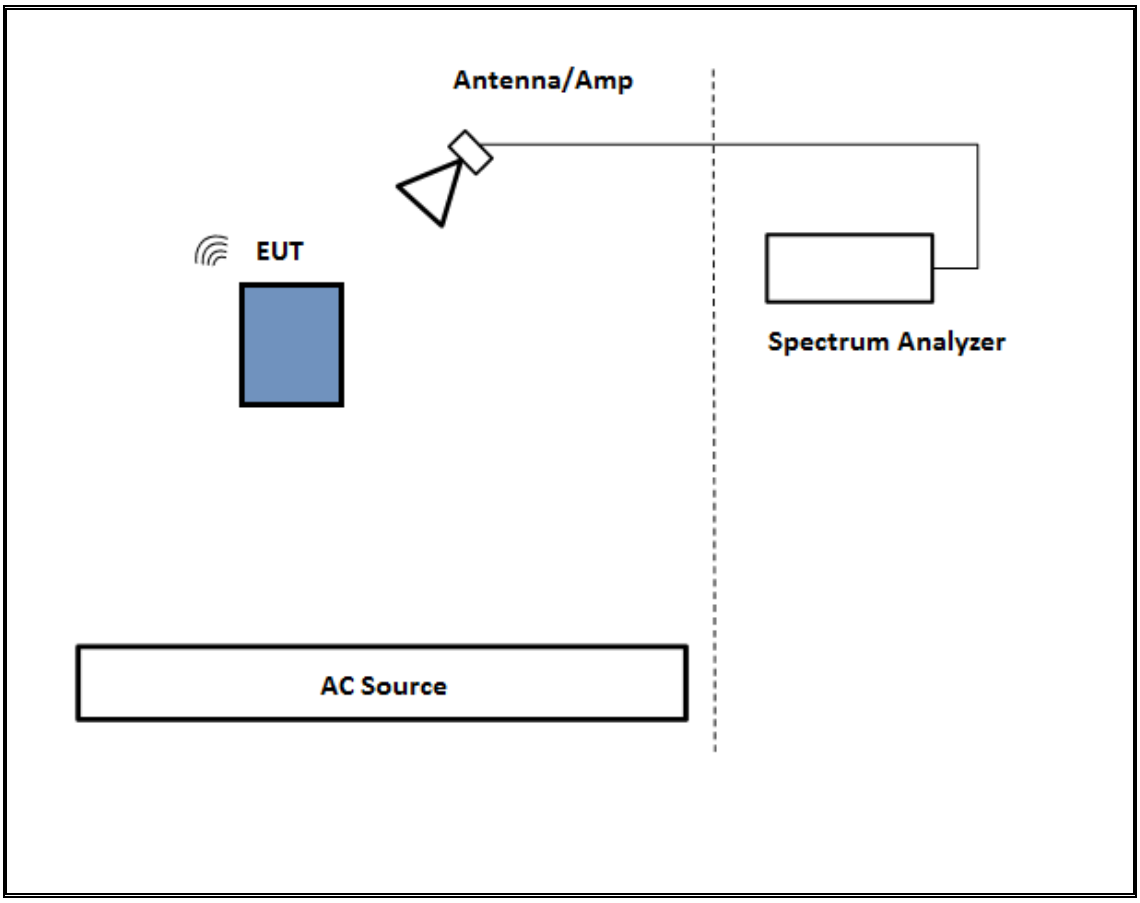
TEST SETUP- RADIATED-ABOVE 1 GHZ

The EUT was tested battery powered. Test software exercised the EUT.

SETUP DIAGRAM



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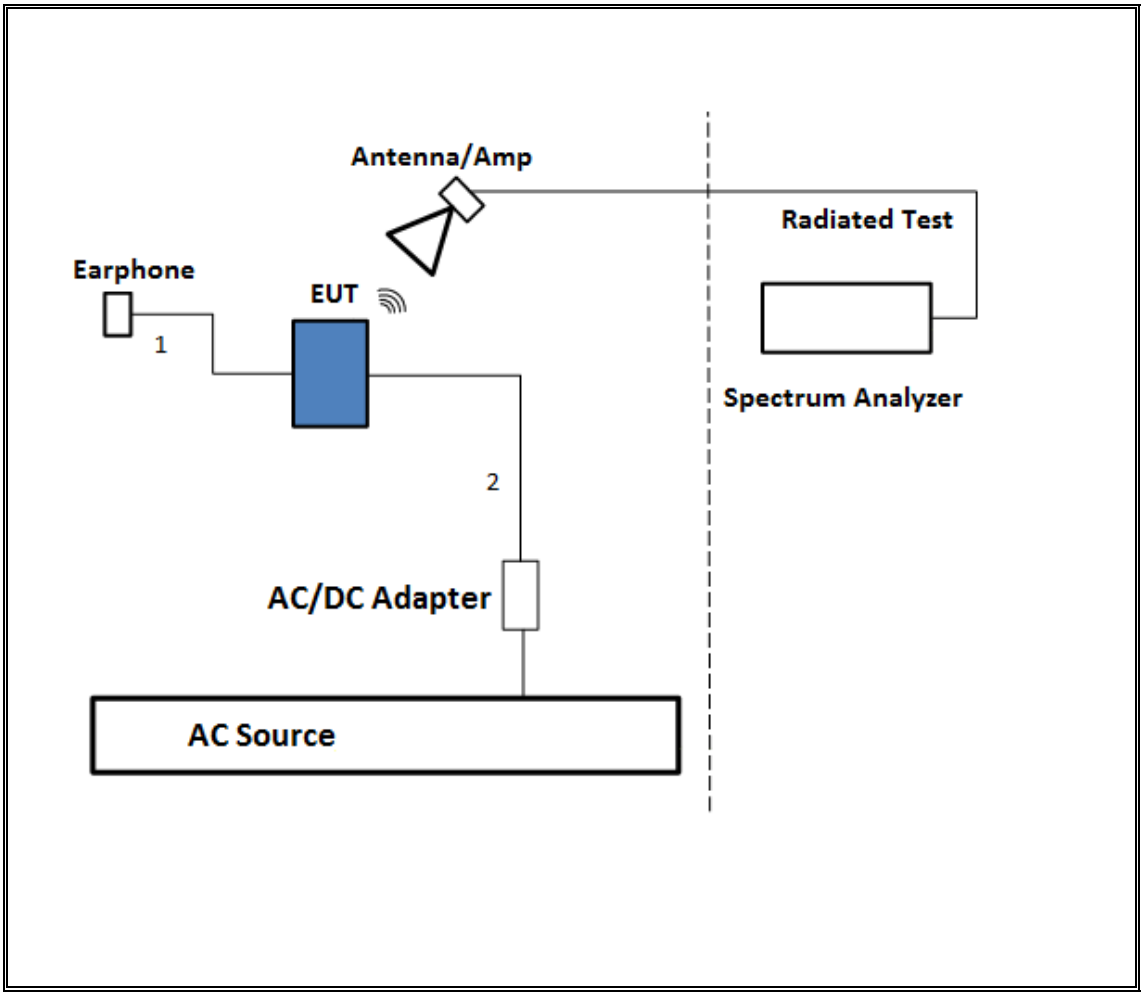
TEST SETUP- BELOW 1GHz

The EUT was tested with earphone connected and powered by AC adapter. Test software exercised the EUT.

SETUP DIAGRAM



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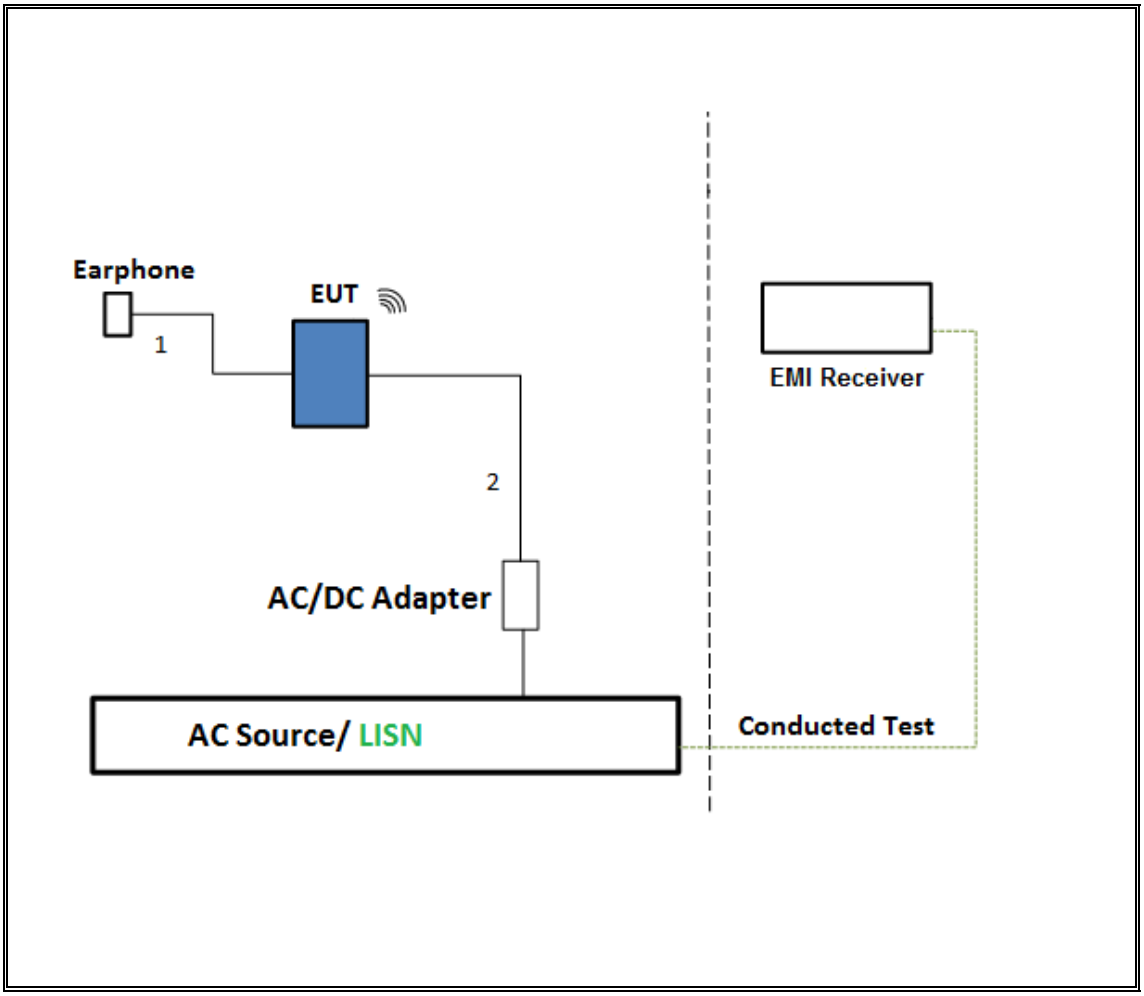
TEST SETUP- AC LINE CONDUCTED: AC/DC ADAPTER

The EUT was tested with earphone connected and powered by AC/DC adapter via USB cable. Test software exercised the EUT.

SETUP DIAGRAM



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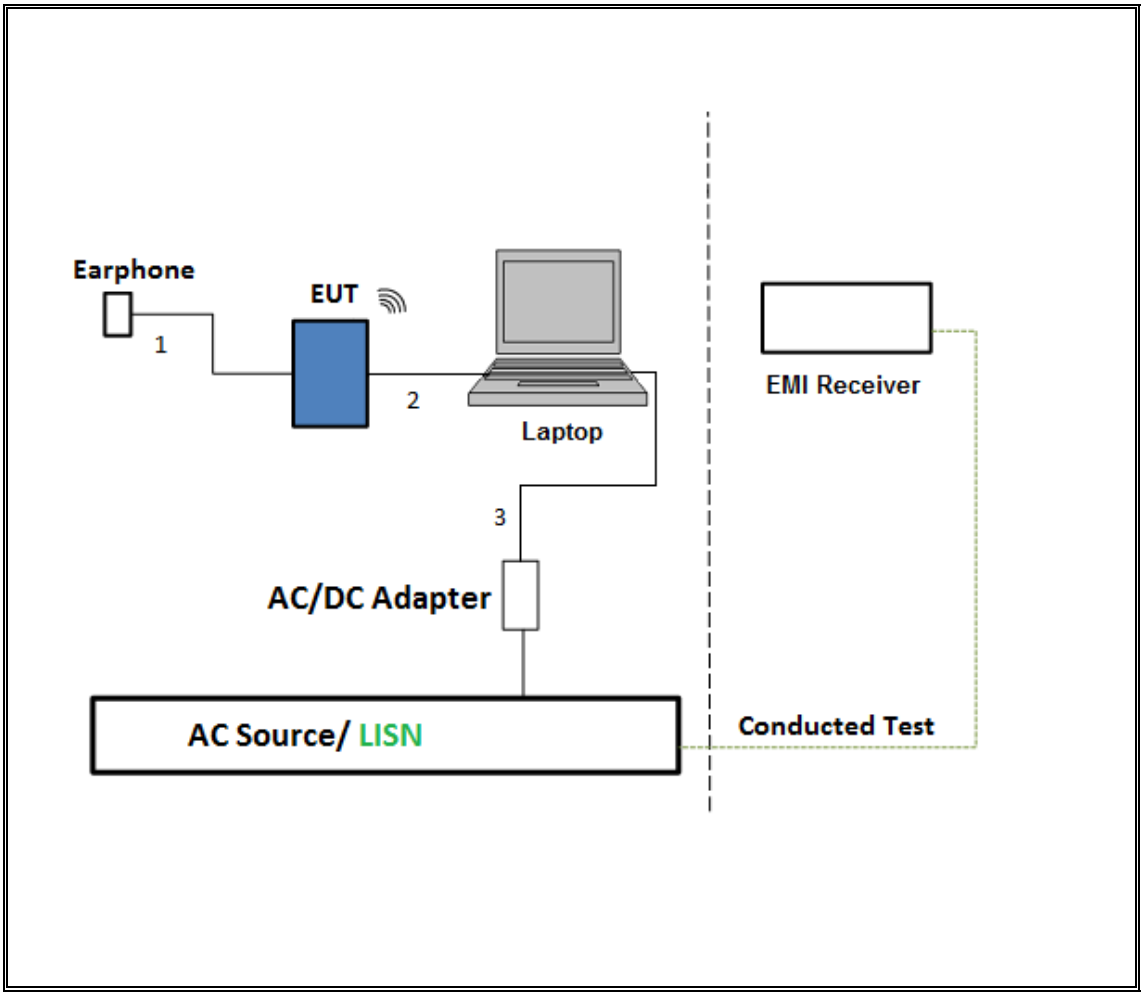
TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION

The EUT was tested with earphone connected and powered by host PC via USB cable. Test software exercised the EUT.

SETUP DIAGRAM



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	**Manufacturer**	**Model**	**Cal Date**	**Cal Due**
Antenna, Horn 1-18GHz	ETS Lindgren	3117	2/10/2015	2/10/2016
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB1	9/25/2015	9/25/2016
Amplifier, 1 - 18GHz	Miteq	AFS42-00101800-25-S-42	8/12/2015	8/12/2016
Amplifier, 1 - 18GHz	Miteq	AMF-4D-01000800-30-29P	8/12/2015	8/12/2016
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	6/9/2015	6/9/2016
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	3/31/2015	3/31/2016
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	11/19/2015	11/19/2016
Power Meter, P-series single channel	Agilent	N1911A	4/7/2015	4/7/2016
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Agilent	N1921A	2/27/2015	2/27/2016
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826	5/12/2015	5/12/2016
Spectrum Analyzer, 40 GHz	Agilent	8564E	8/14/2015	8/14/2016
Amplifier, 1 to 26.5GHz, 23.5dB Gain minimum	Agilent	8449B	6/29/2015	6/29/2016
AC Line Conducted				
EMI Test Receiver 9Khz-7GHz	Rohde & Schwarz	ECSI7	08/07/15	08/07/16
**LISN for Conducted Emissions CISPR-16	FCC	50/250-25-2	01/16/15	01/16/16
LISN for Conducted Emissions CISPR-16	Fisher	50/250-2-01	09/16/15	09/16/16
Power Cable, Line Conducted Emissions	U L	PG1	7/28/2015	7/28/2016
UL SOFTWARE				
* Radiated Software	UL	UL EMC	Ver 9.5, July 22, 2014	
* Conducted Software	UL	UL EMC	Ver 2.2, March 31, 2015	
* AC Line Conducted Software	UL	UL EMC	Ver 9.5, April 3, 2015	

Note: * indicates automation software version used in the compliance certification testing
** testing is completed before equipement calibration expiration date.

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7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

7.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11n HT20 1TX	1.917	1.941	0.988	98.76%	0.00	0.010
802.11n HT20 CDD	1.915	1.940	0.987	98.71%	0.00	0.010
802.11n HT40 1TX	1.122	1.142	0.982	98.25%	0.00	0.010
802.11n HT40 CDD	1.124	1.144	0.983	98.25%	0.00	0.010
802.11ac VHT80 1TX	0.543	0.563	0.964	96.45%	0.16	1.841
802.11ac VHT80 CDD	0.459	0.481	0.954	95.43%	0.20	2.179

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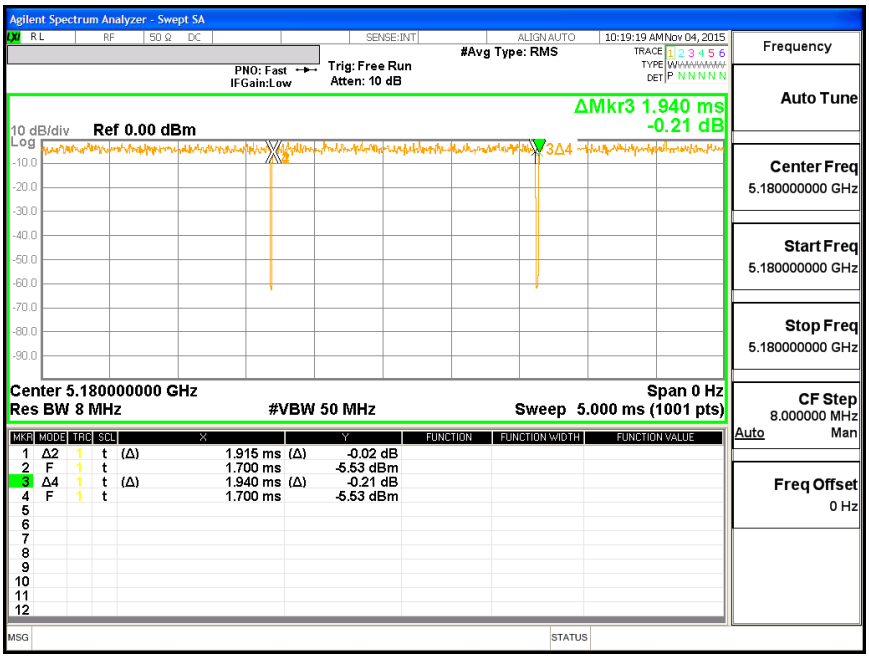
DUTY CYCLE PLOTS

DUTY CYCLE 802.11n HT20 1TX MODE

DUTY CYCLE 802.11n HT20 CDD MODE



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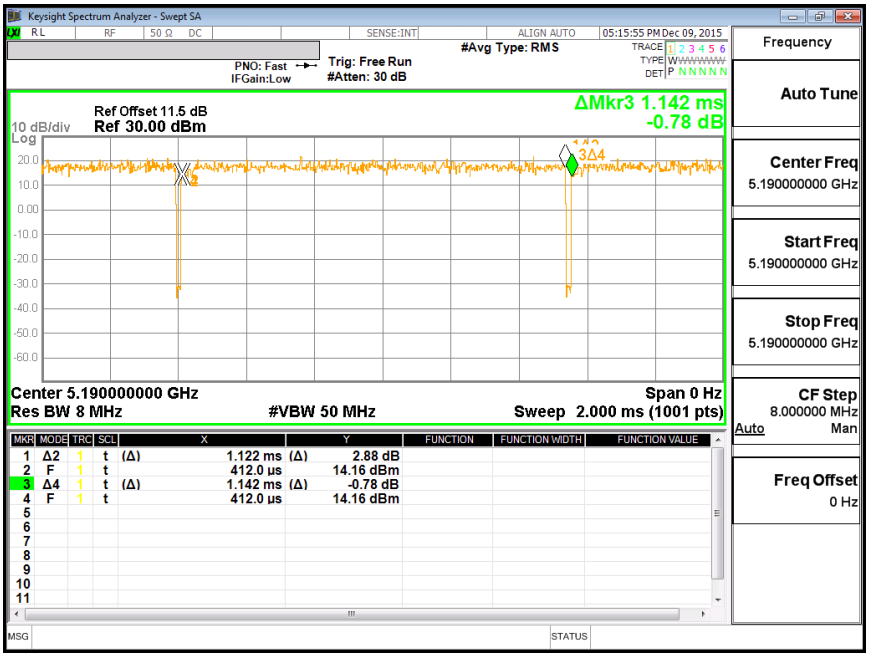
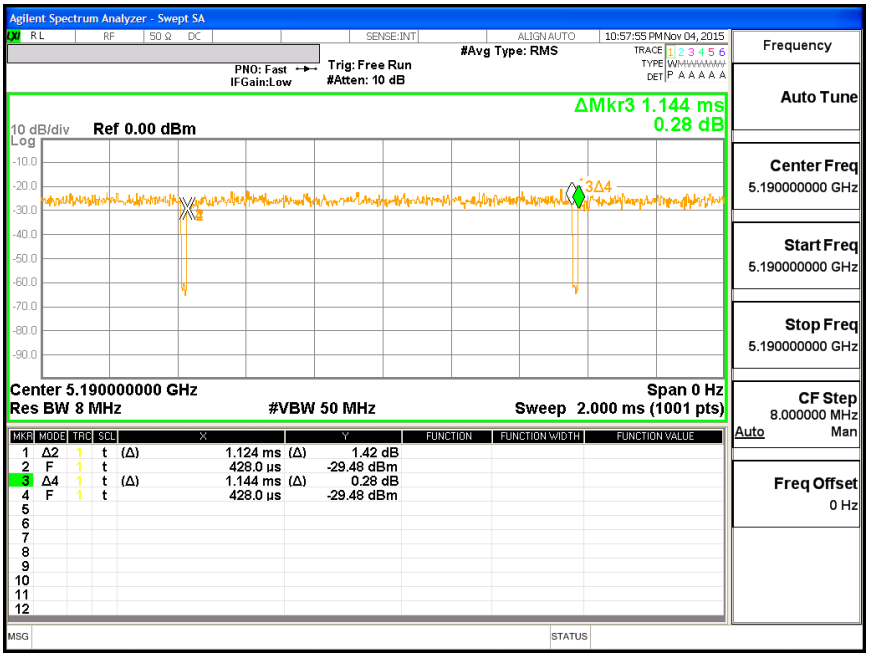
DUTY CYCLE 802.11n HT40 1TX MODE



DUTY CYCLE 802.11n HT40 CDD MODE



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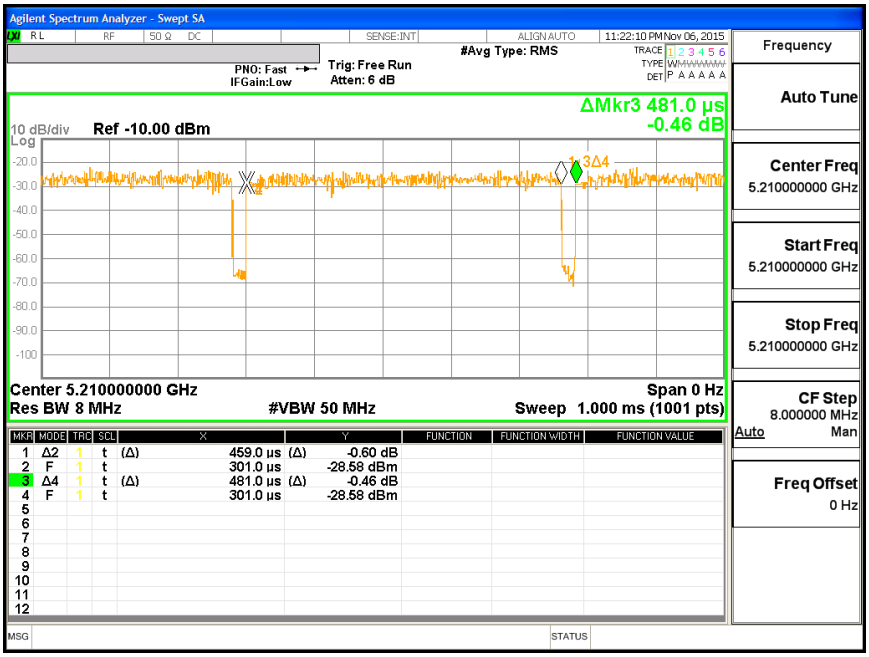
DUTY CYCLE 802.11ac VHT80 1TX MODE

DUTY CYCLE 802.11ac VHT80 CDD MODE



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7.2. MEASUREMENT METHODS

26 dB Emission BW: KDB 789033 D02 v01r01, Section C.

99% Occupied BW: KDB 789033 D02 v01r01, Section D.

Conducted Output Power: KDB 789033 D02 v01r01, Section E.3.b (Method PM-G).

Power Spectral Density: KDB 789033 D02 v01r01, Section F.

Unwanted emissions in restricted bands: KDB 789033 D02 v01r01, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01r01, Sections G.3, G.4, and G.5.

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8. ANTENNA PORT TEST RESULTS

8.1. 802.11a SISO MODE IN THE 5.2 GHz BAND

Note: Covered by 802.11n HT20 SISO MODE IN THE 5.2 GHz BAND.

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8.2. 802.11n HT20 ANTENNA - B MODE IN THE 5.2 GHz BAND

8.2.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	21.54
Mid	5200	21.54
High	5240	21.81

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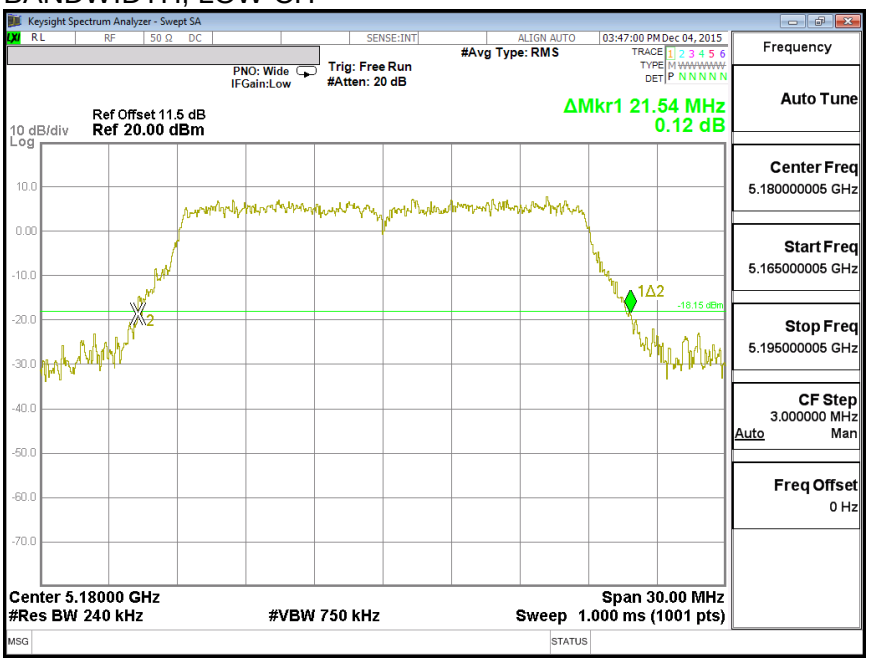
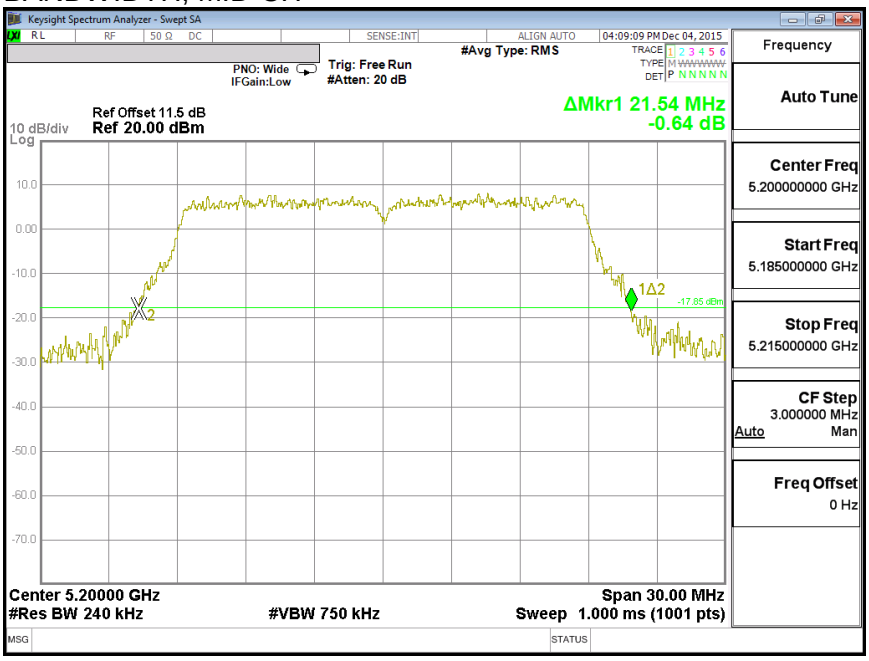
26 dB BANDWIDTH

BANDWIDTH, LOW CH



BANDWIDTH, MID CH



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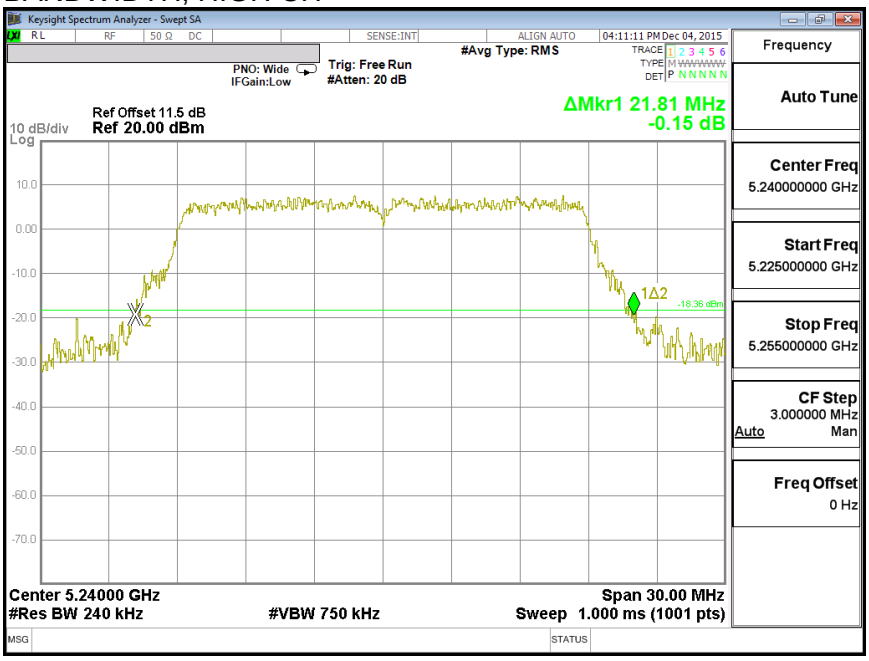
BANDWIDTH, HIGH CH



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8.2.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW (MHz)
Low	5180	17.723
Mid	5200	17.707
High	5240	17.701

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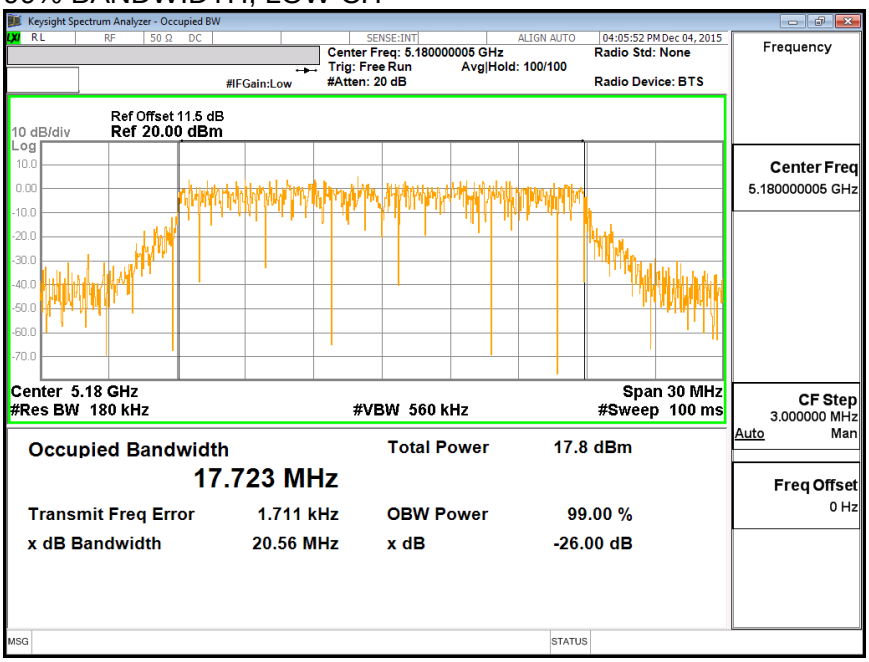
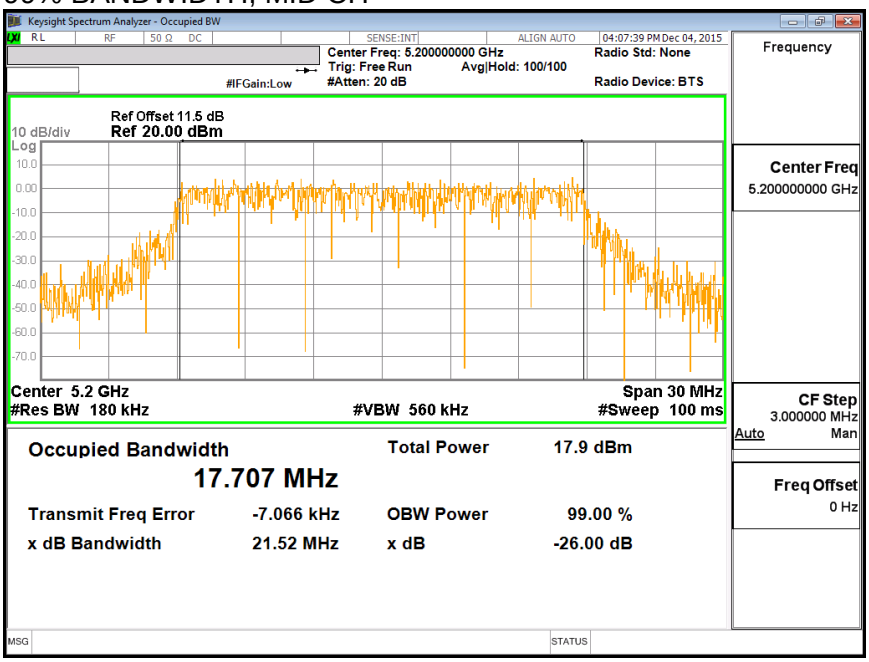
99% BANDWIDTH

99% BANDWIDTH, LOW CH



99% BANDWIDTH, MID CH



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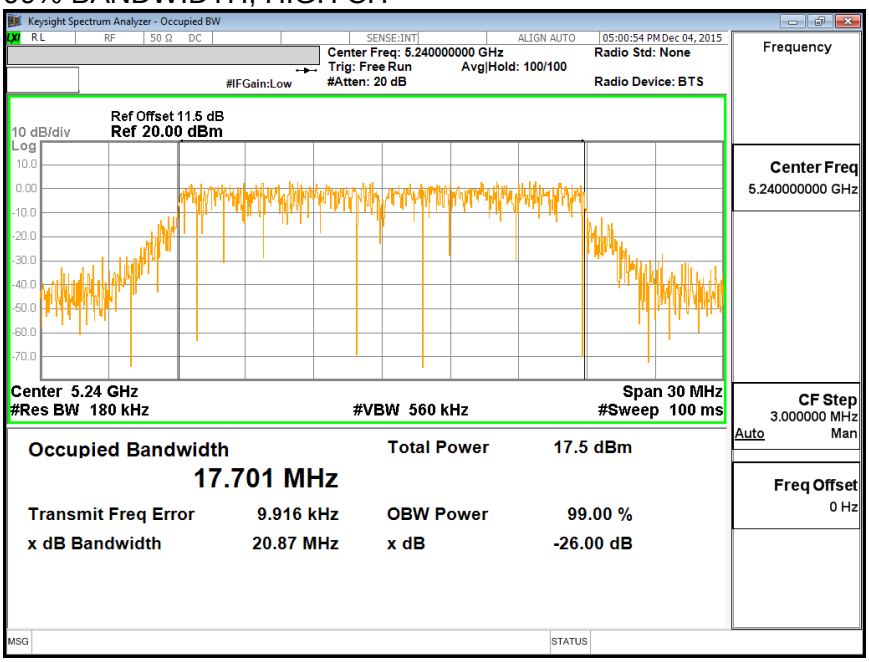
99% BANDWIDTH, HIGH CH



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8.2.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5180	16.36
Mid	5200	16.90
High	5240	16.86

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8.2.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	3.04	3.04	24.00	11.00
Mid	5200	3.04	3.04	24.00	11.00
High	5240	3.04	3.04	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.36	16.36	24.00	-7.64
Mid	5200	16.90	16.90	24.00	-7.10
High	5240	16.86	16.86	24.00	-7.14

PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	4.912	4.91	11.00	-6.09
Mid	5200	5.410	5.41	11.00	-5.59
High	5240	5.378	5.38	11.00	-5.62

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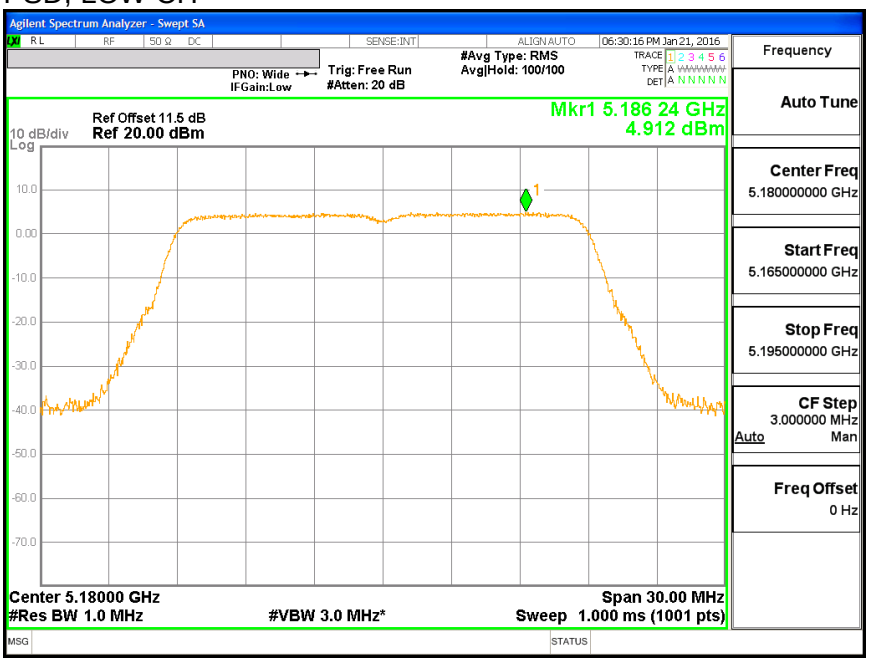
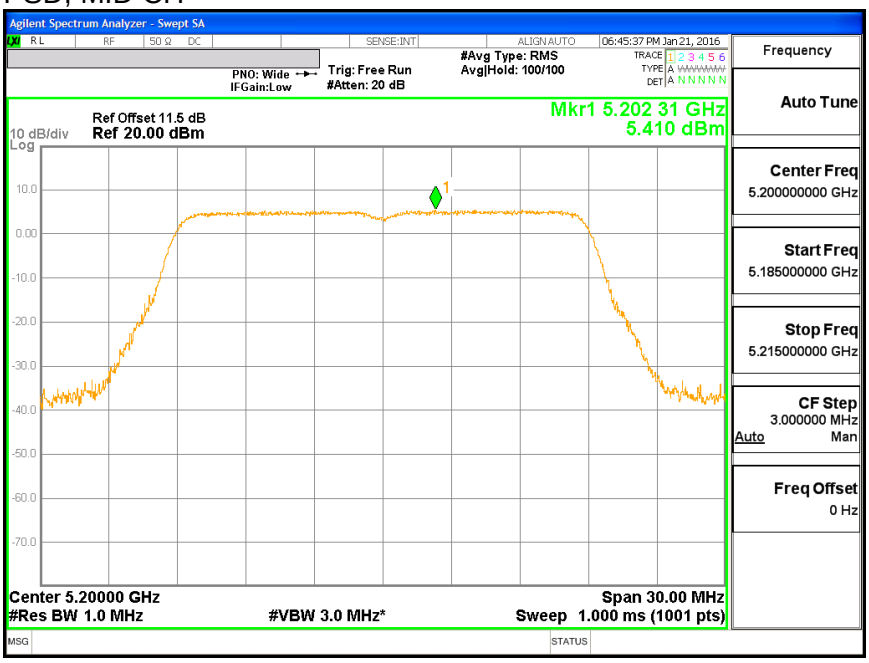
PSD

PSD, LOW CH



PSD, MID CH



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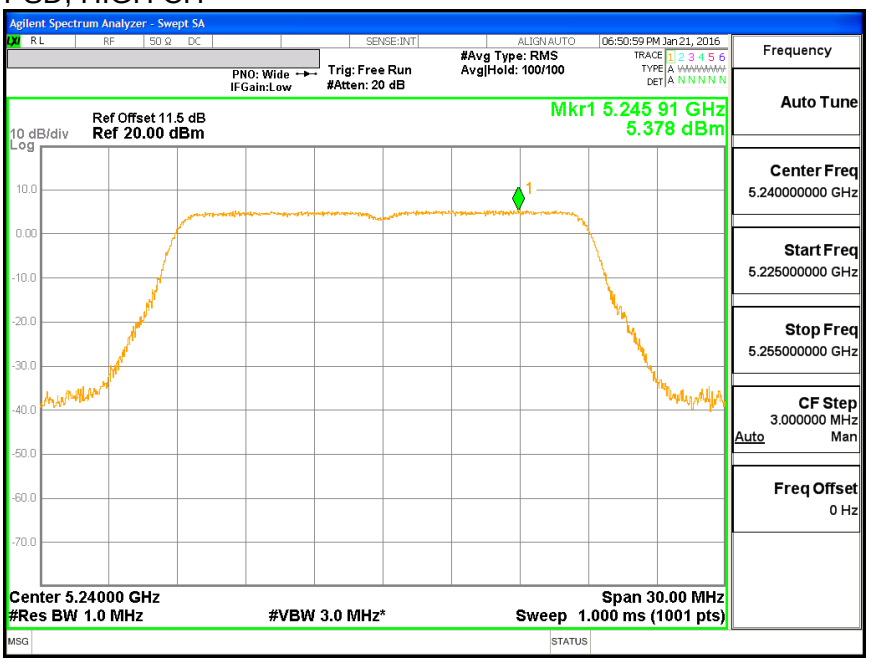
PSD, HIGH CH



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8.3. 802.11n HT20 ANTENNA - A MODE IN THE 5.2 GHz BAND

8.3.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	21.66
Mid	5200	21.54
High	5240	21.72

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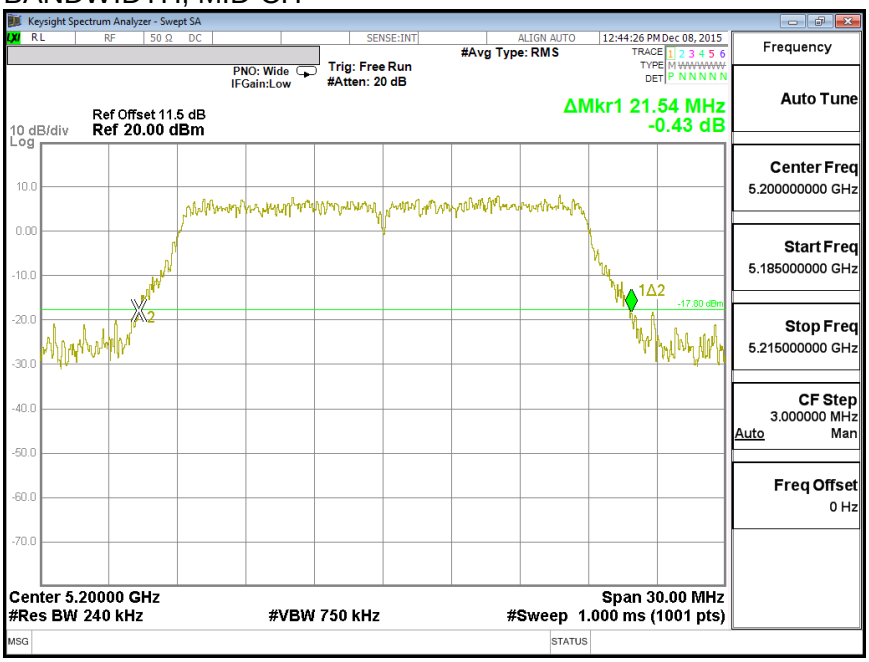
26 dB BANDWIDTH

BANDWIDTH, LOW CH

BANDWIDTH, MID CH



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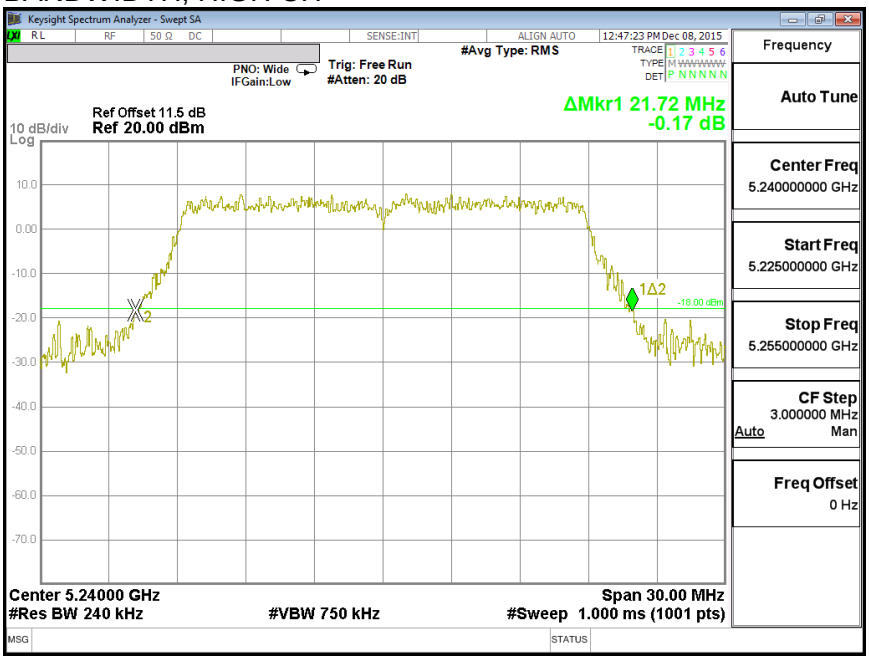
BANDWIDTH, HIGH CH



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8.3.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW (MHz)
Low	5180	17.688
Mid	5200	17.703
High	5240	17.832

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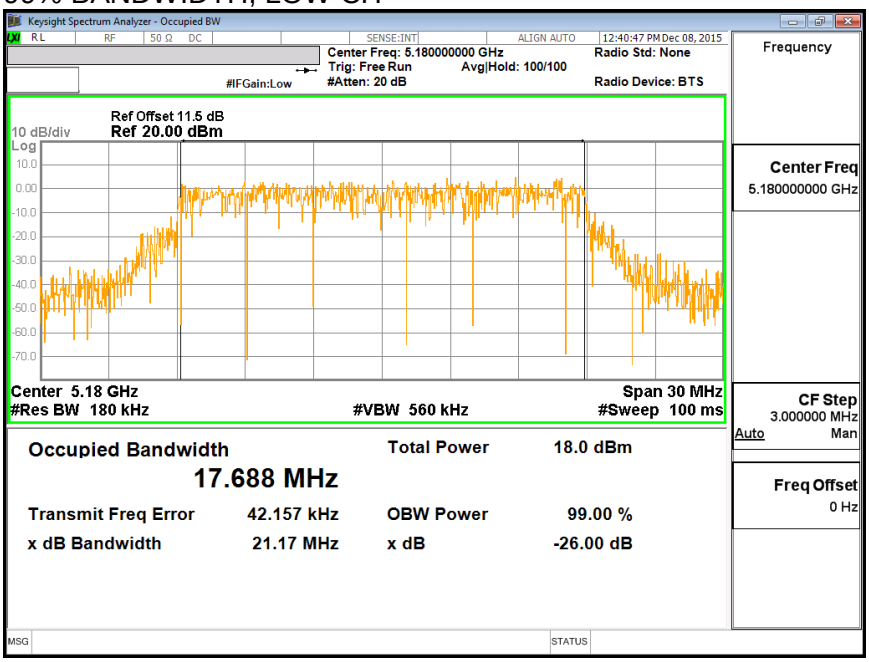
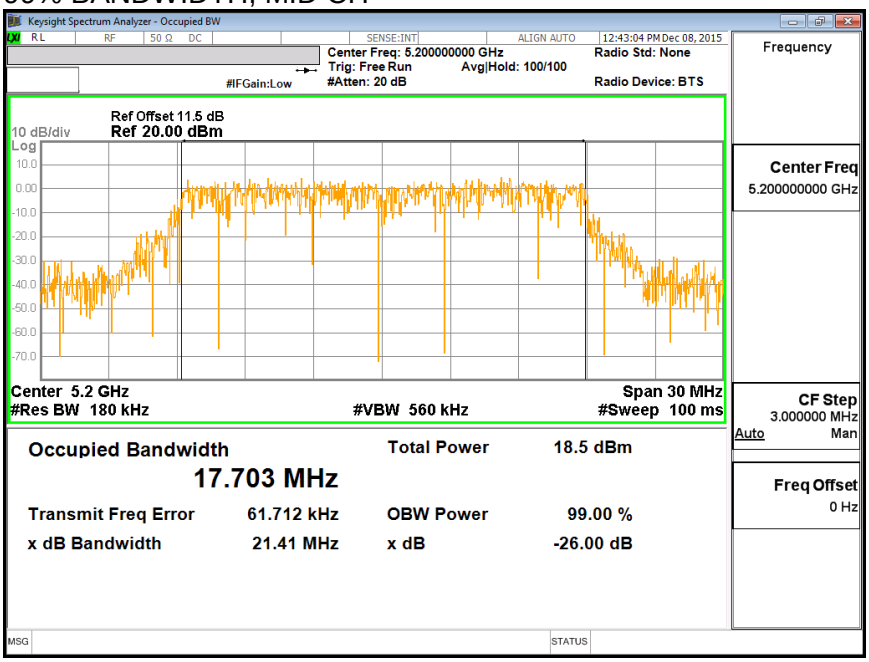
99% BANDWIDTH

99% BANDWIDTH, LOW CH



99% BANDWIDTH, MID CH



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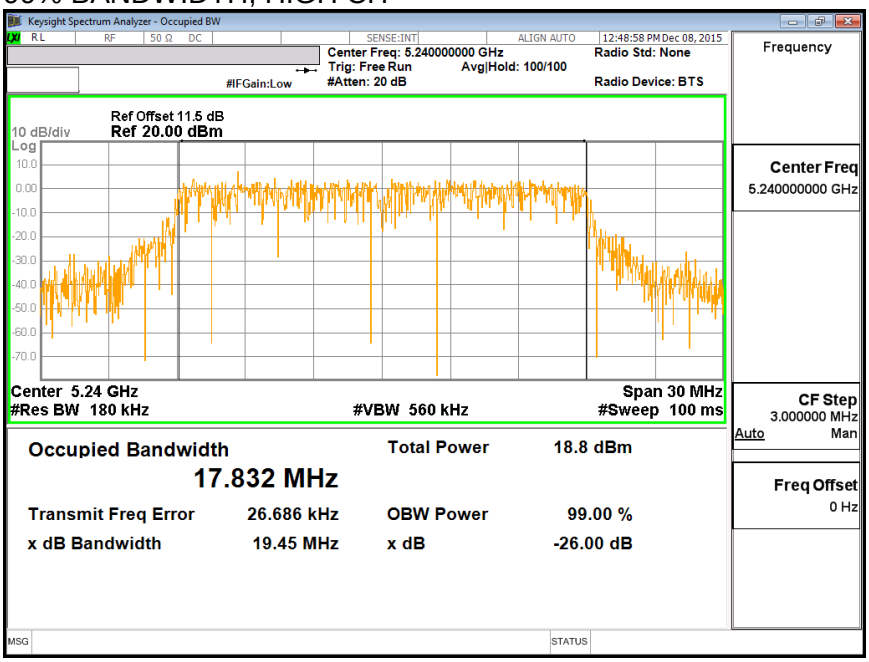
99% BANDWIDTH, HIGH CH



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8.3.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5180	16.44
Mid	5200	16.97
High	5240	16.81

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8.3.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	2.30	2.30	24.00	11.00
Mid	5200	2.30	2.30	24.00	11.00
High	5240	2.30	2.30	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.44	16.44	24.00	-7.56
Mid	5200	16.97	16.97	24.00	-7.03
High	5240	16.81	16.81	24.00	-7.19

PSD Results

Channel	Frequency (MHz)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	5.088	5.09	11.00	-5.91
Mid	5200	5.410	5.41	11.00	-5.59
High	5240	5.231	5.23	11.00	-5.77

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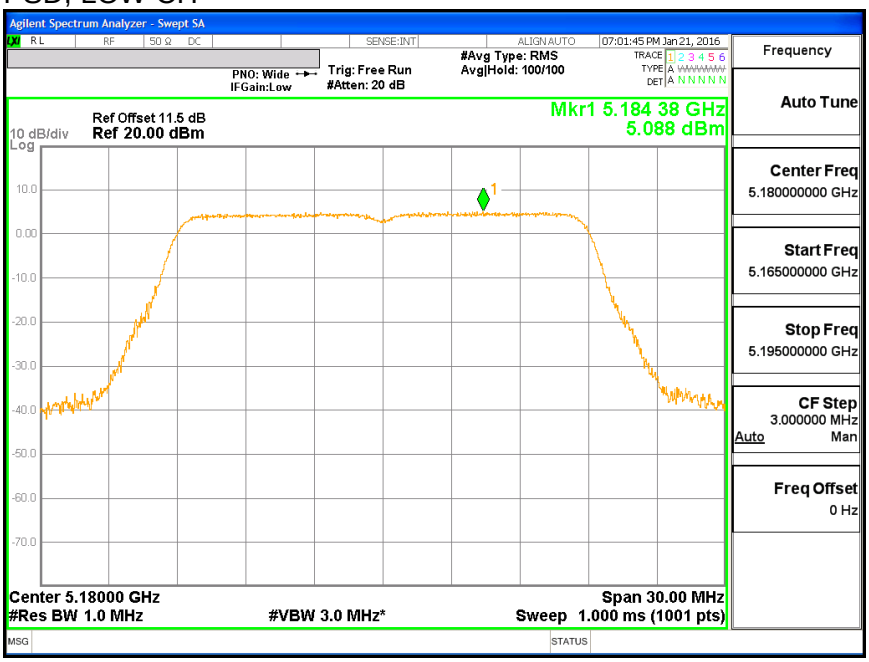
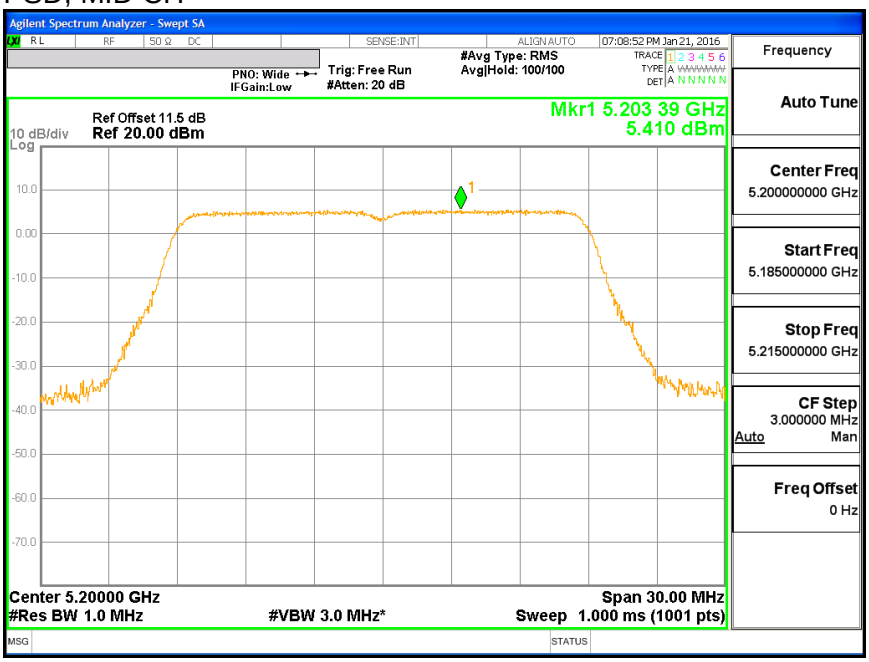
PSD

PSD, LOW CH



PSD, MID CH



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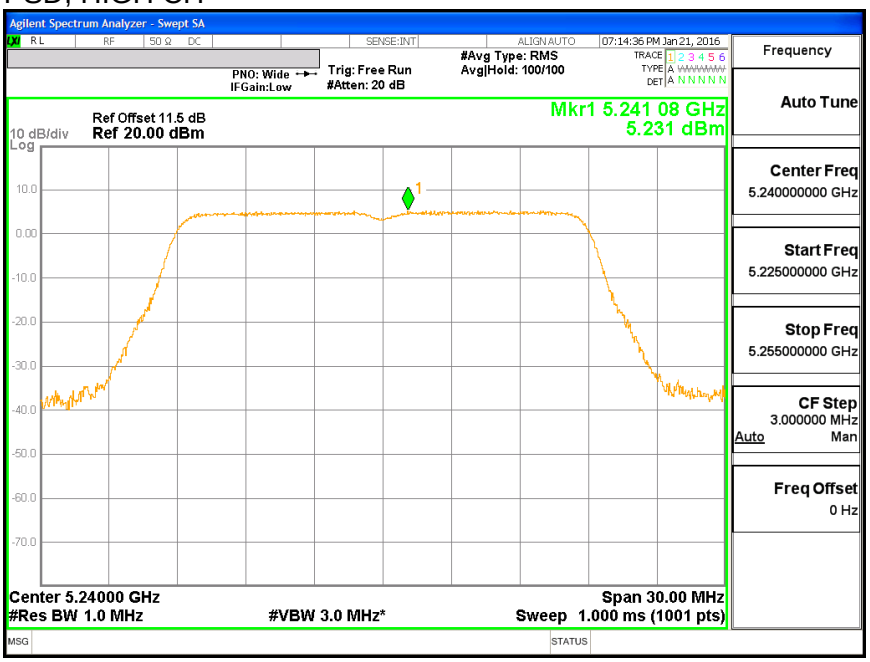
PSD, HIGH CH



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8.4. 802.11a 2TX CDD MODE IN THE 5.2 GHz BAND

Note: Covered by 802.11n HT20 2TX CDD MODE IN THE 5.2 GHz BAND.

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8.5. 802.11n HT20 2TX CDD MODE IN THE 5.2 GHz BAND

8.5.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Antenna B (MHz)	26 dB BW Antenna A (MHz)
Low	5180	21.33	21.45
Mid	5200	21.81	21.60
High	5240	21.45	21.69

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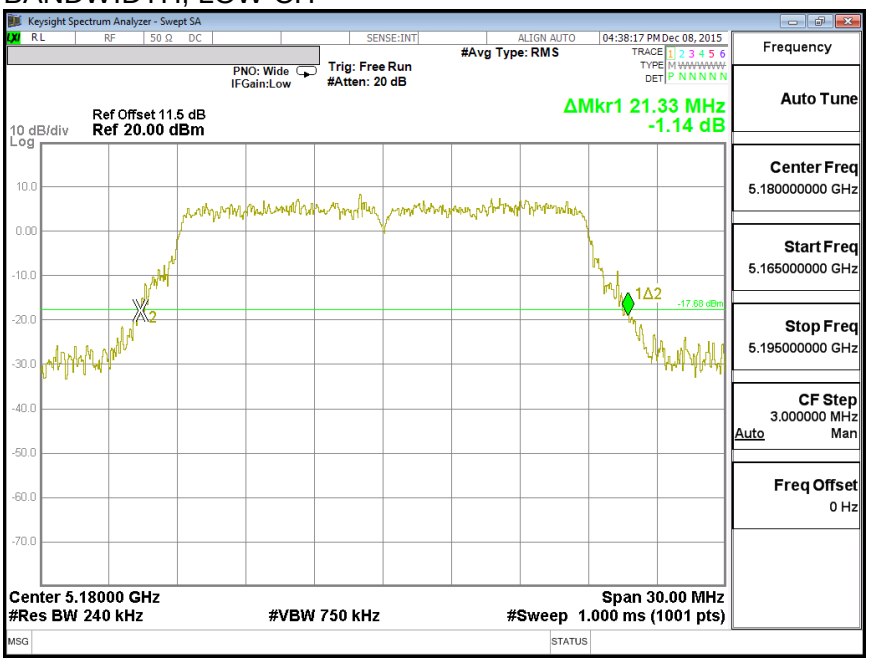
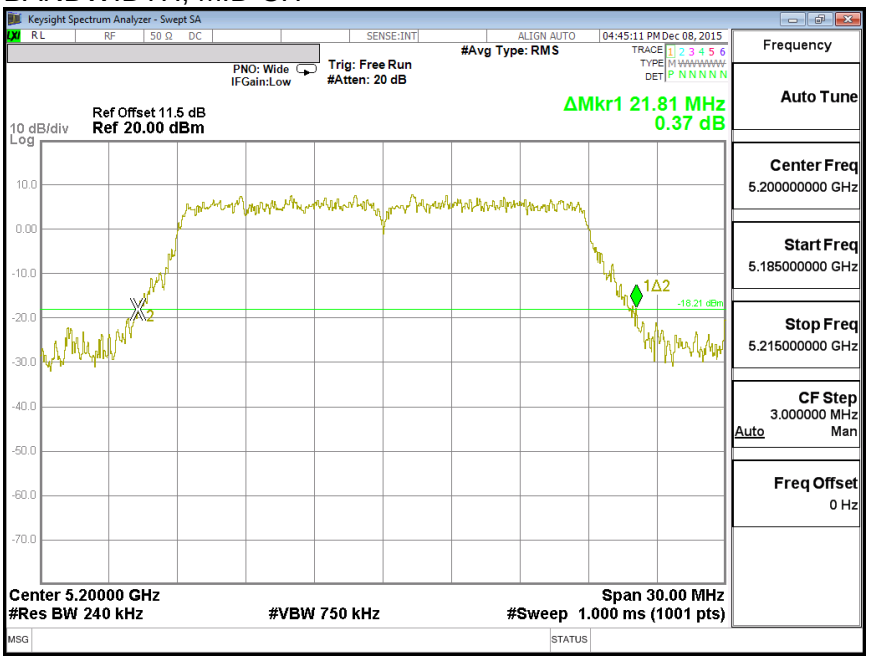
26 DB BANDWIDTH, ANTENNA - B

BANDWIDTH, LOW CH



BANDWIDTH, MID CH



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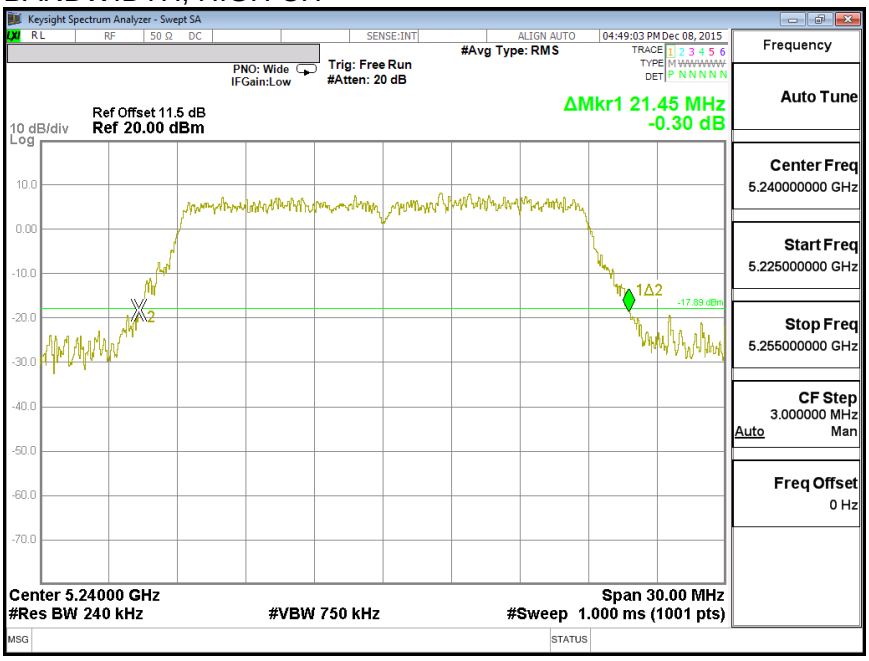
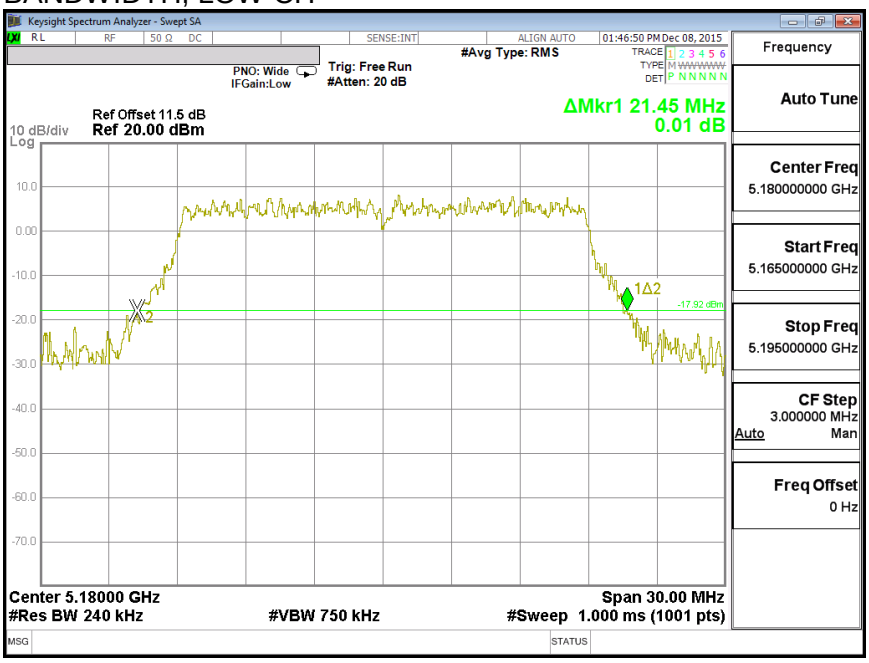
BANDWIDTH, HIGH CH



26 DB BANDWIDTH, ANTENNA - A

BANDWIDTH, LOW CH



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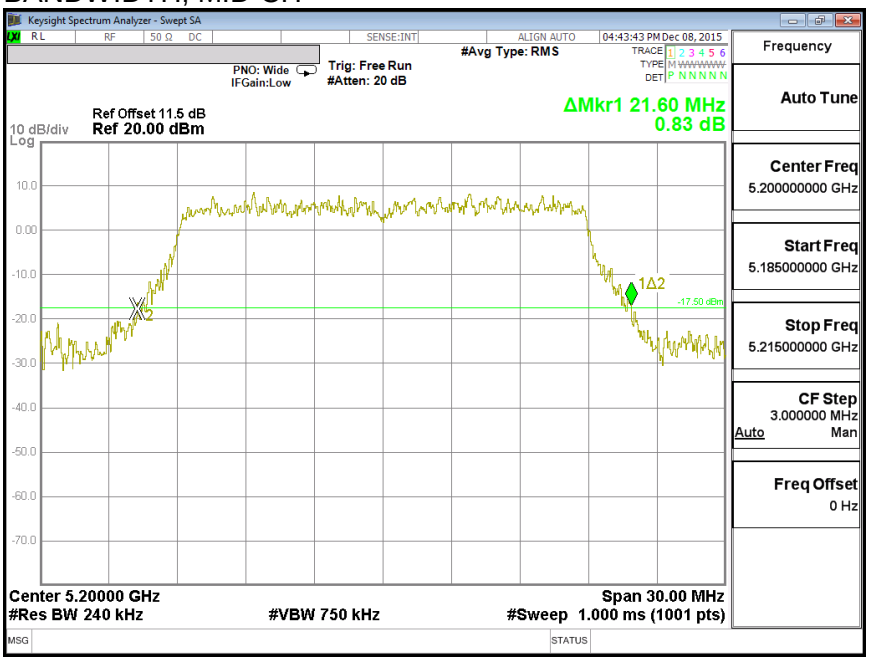
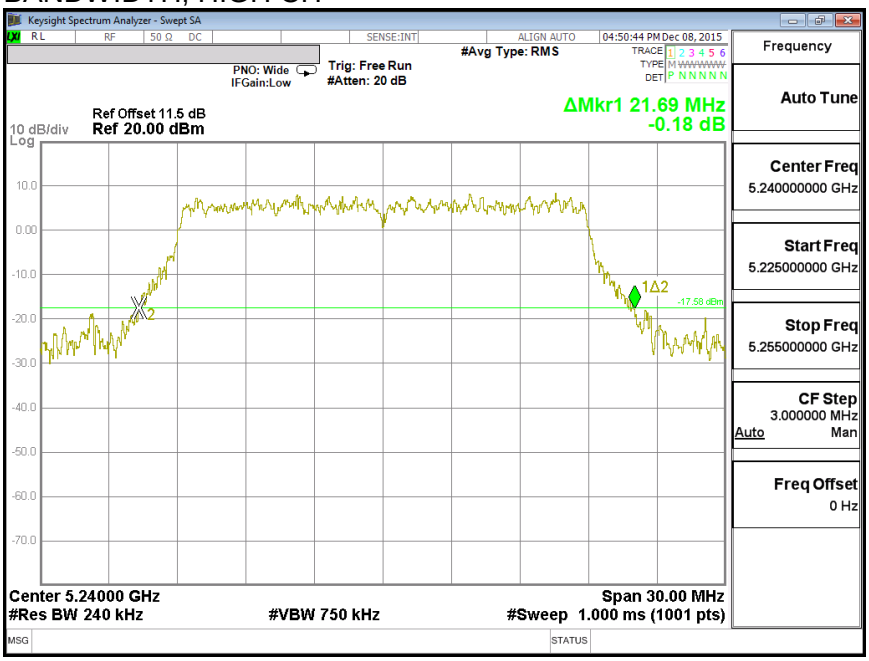
BANDWIDTH, MID CH



BANDWIDTH, HIGH CH



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8.5.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW Antenna B (MHz)	99% BW Antenna A (MHz)
Low	5180	17.674	17.693
Mid	5200	17.713	17.732
High	5240	17.670	17.690

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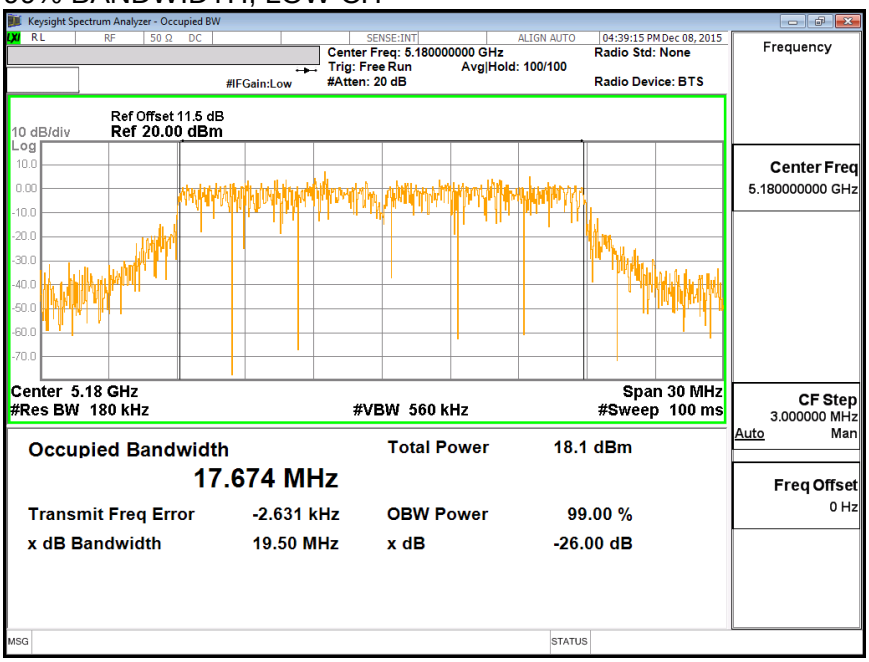
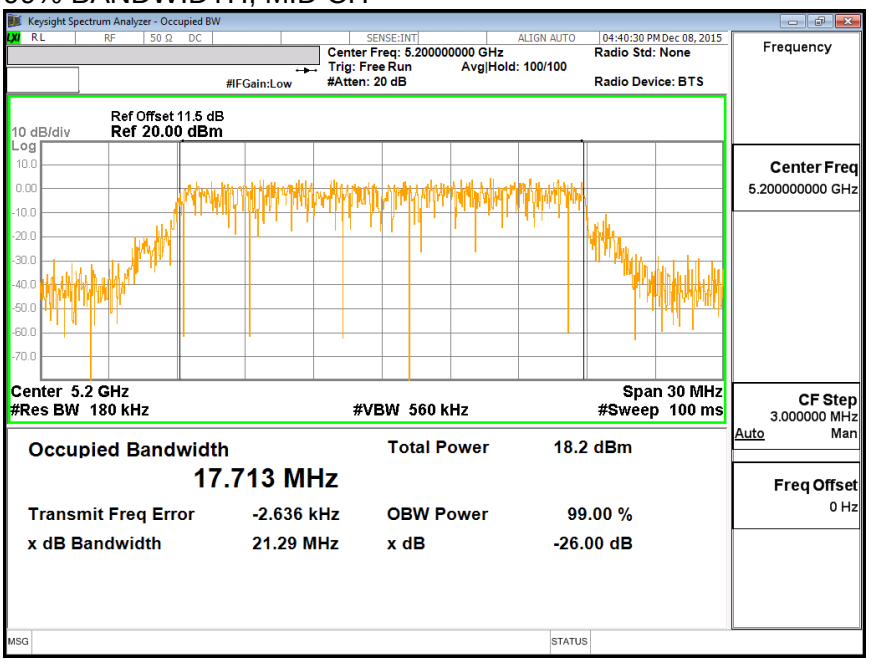
99% BANDWIDTH, ANTENNA - B

99% BANDWIDTH, LOW CH



99% BANDWIDTH, MID CH



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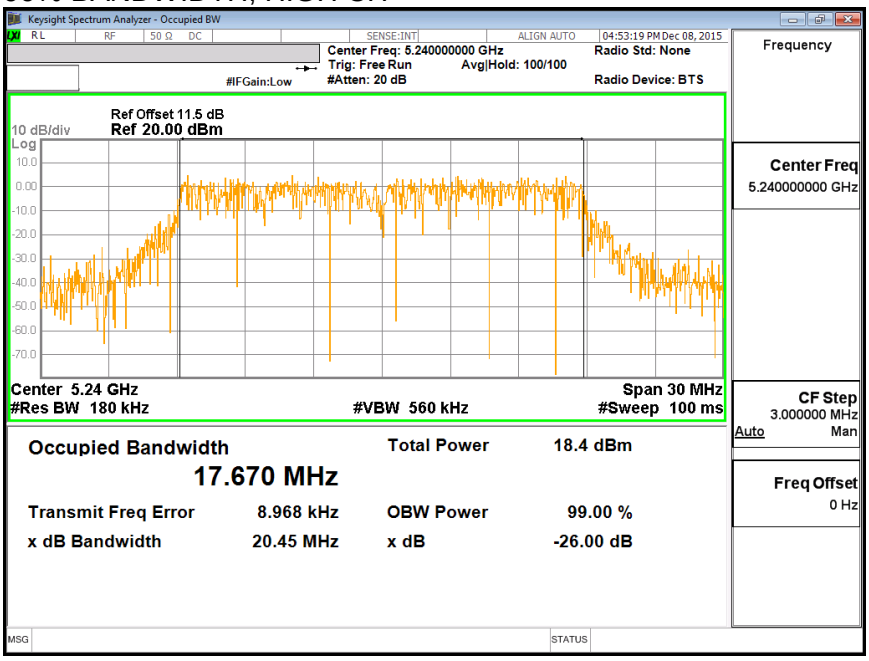
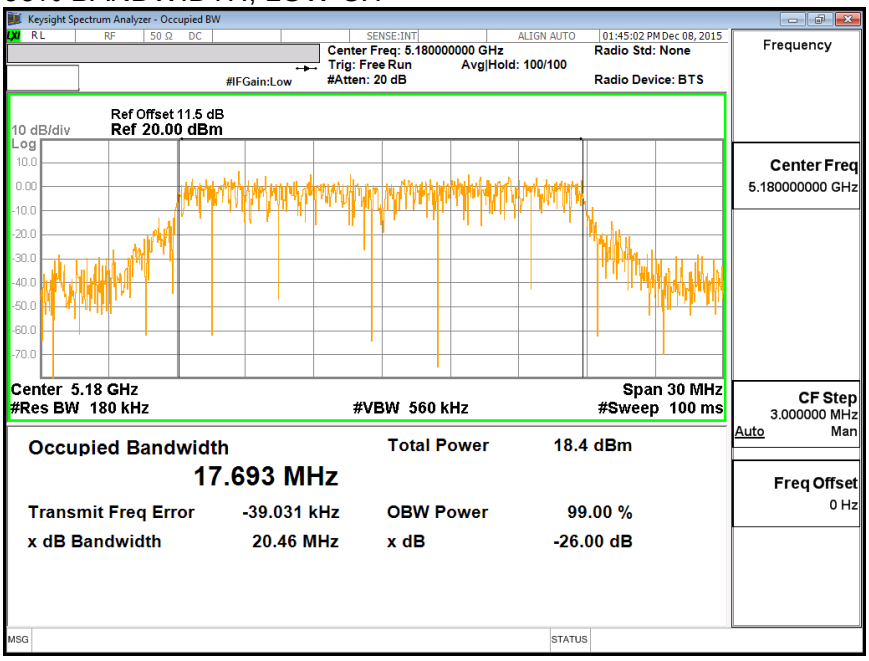
99% BANDWIDTH, HIGH CH



99% BANDWIDTH, ANTENNA - A

99% BANDWIDTH, LOW CH



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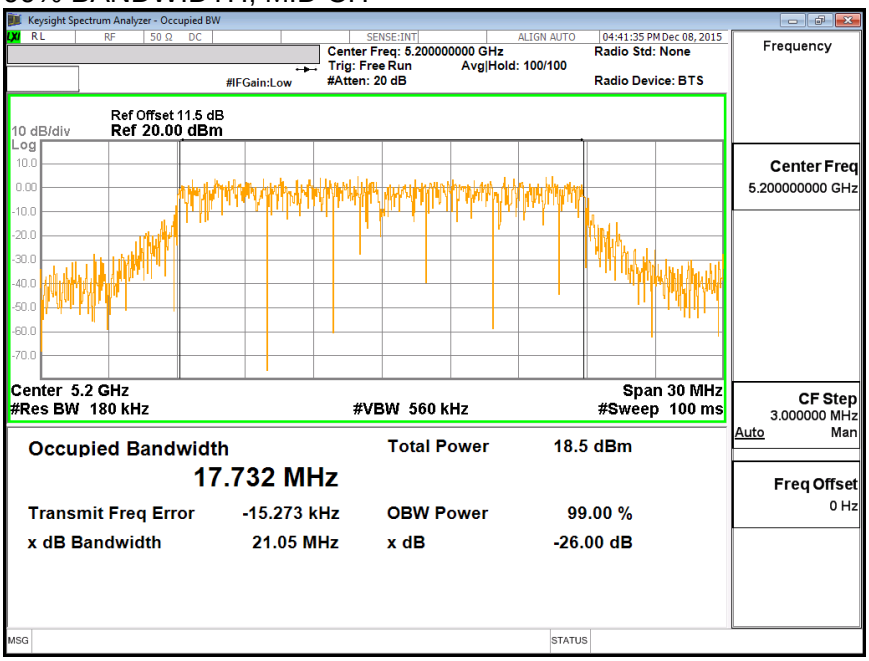
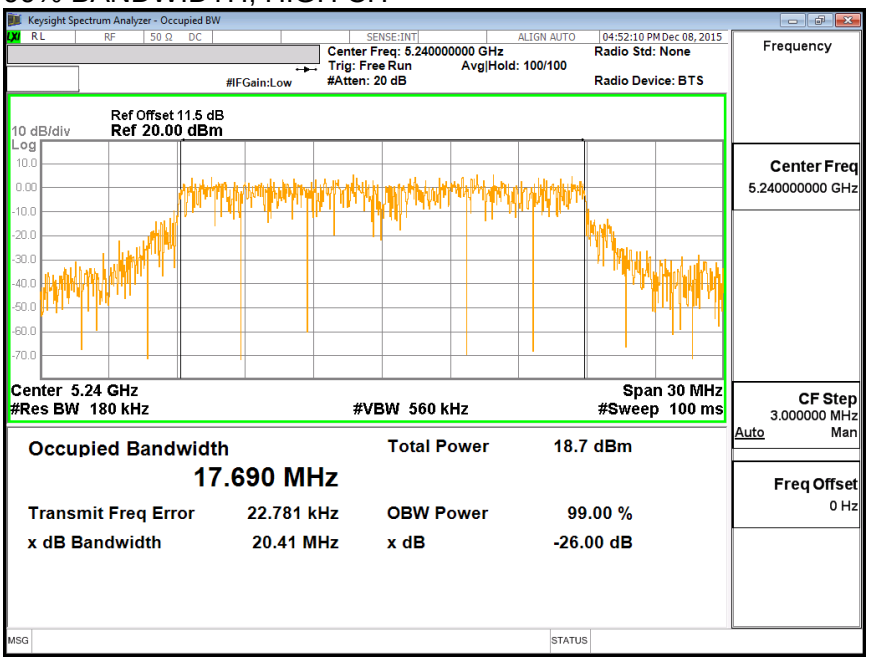
99% BANDWIDTH, MID CH



99% BANDWIDTH, HIGH CH



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8.5.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency (MHz)	Antenna B Power (dBm)	Antenna A Power (dBm)	Total Power (dBm)
Low	5180	14.46	14.45	17.47
Mid	5200	15.97	15.82	18.91
High	5240	15.95	15.93	18.95

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8.5.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

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DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Antenna B Gain (dBi)	Antenna A Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
3.04	2.30	2.69

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Antenna B Gain (dBi)	Antenna A Gain (dBi)	Correlated Chains Directional Gain (dBi)
3.04	2.30	5.69

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RESULTS

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	2.69	5.69	24.00	11.00
Mid	5200	2.69	5.69	24.00	11.00
High	5240	2.65	5.69	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.46	14.45	17.47	24.00	-6.53
Mid	5200	15.97	15.82	18.91	24.00	-5.09
High	5240	15.95	15.93	18.95	24.00	-5.05

PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	3.056	3.056	6.07	11.00	-4.93
Mid	5200	4.552	4.283	7.43	11.00	-3.57
High	5240	4.492	4.400	7.46	11.00	-3.54

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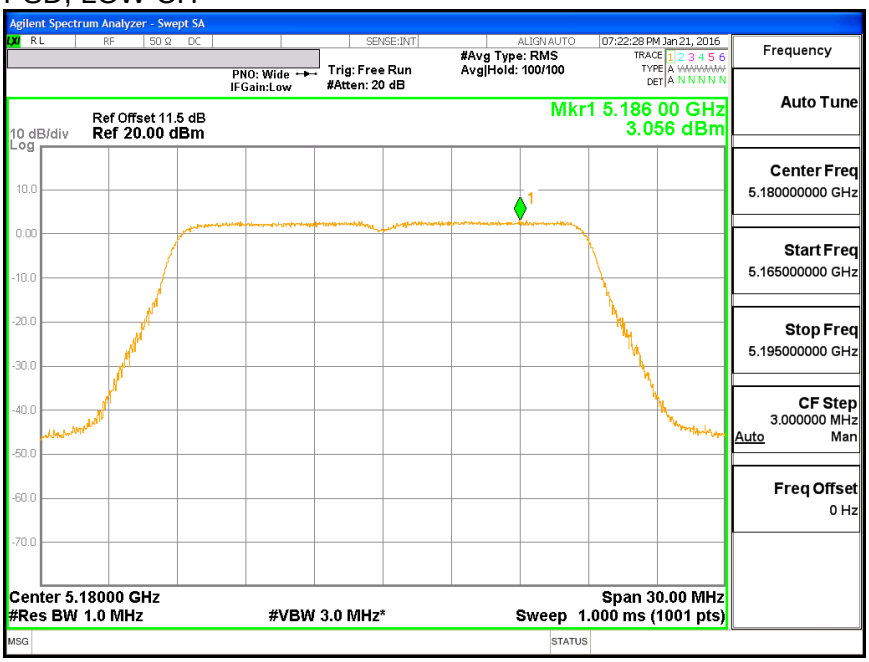
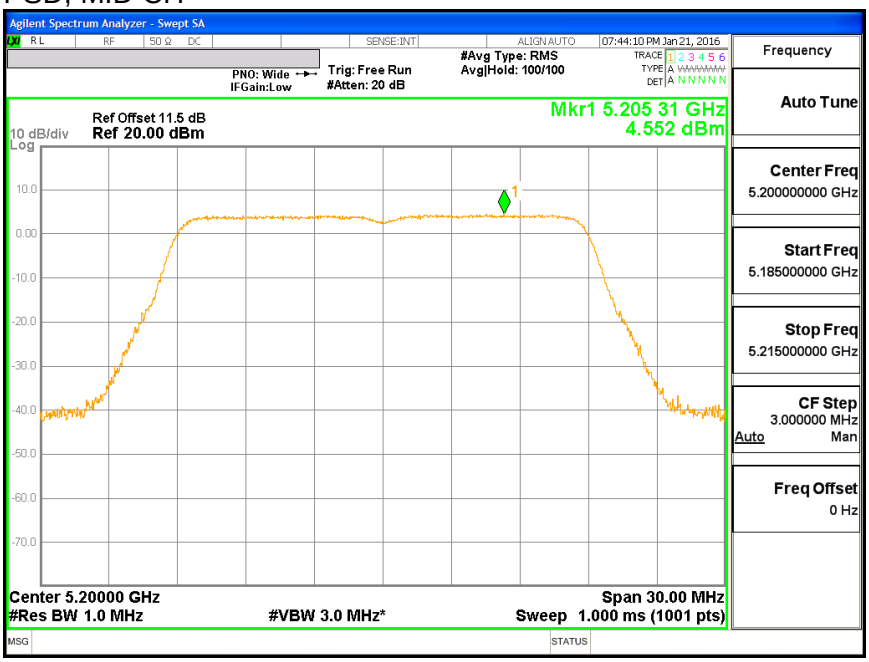
PSD, ANTENNA - B

PSD, LOW CH



PSD, MID CH



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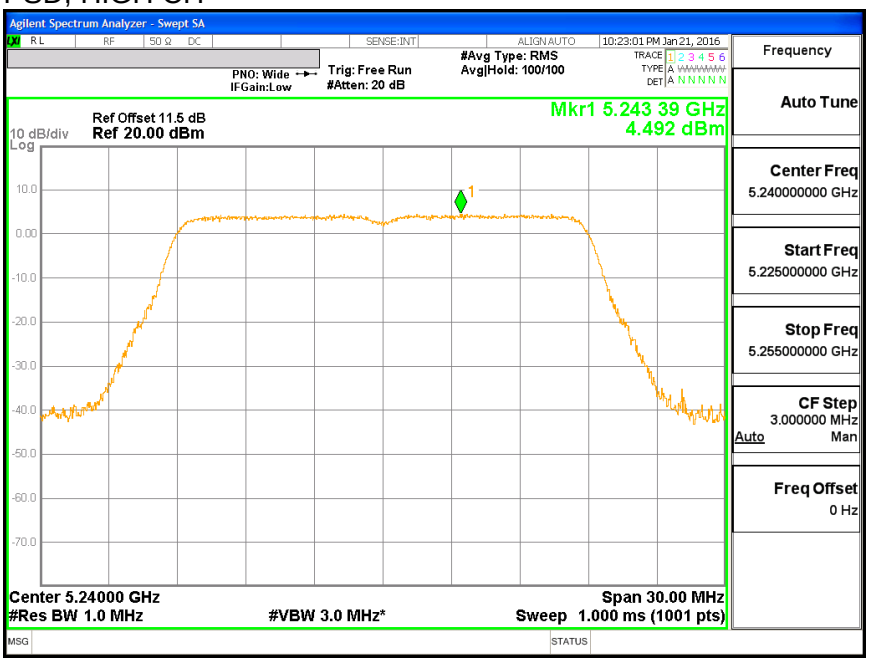
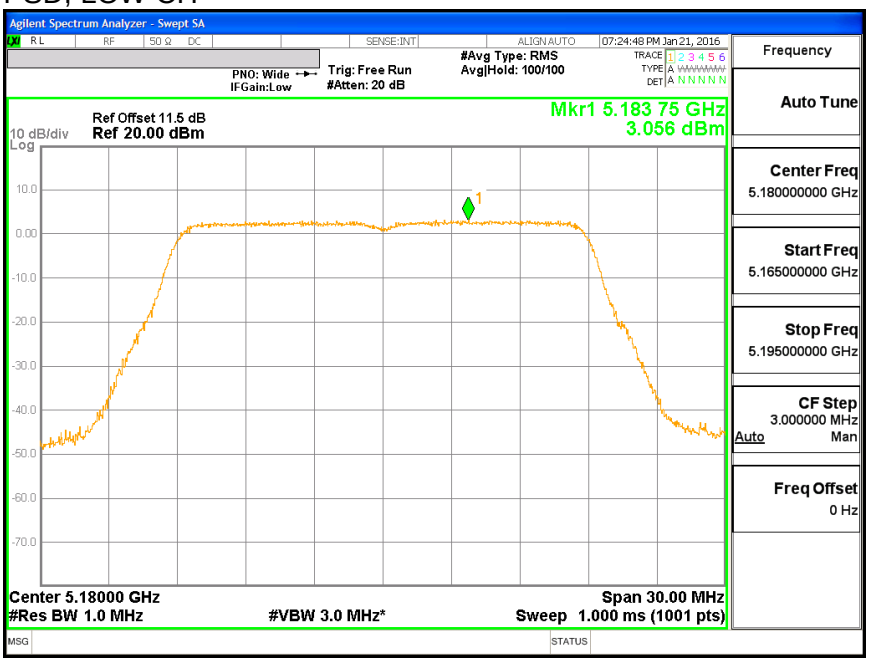
PSD, HIGH CH



PSD, ANTENNA - A

PSD, LOW CH



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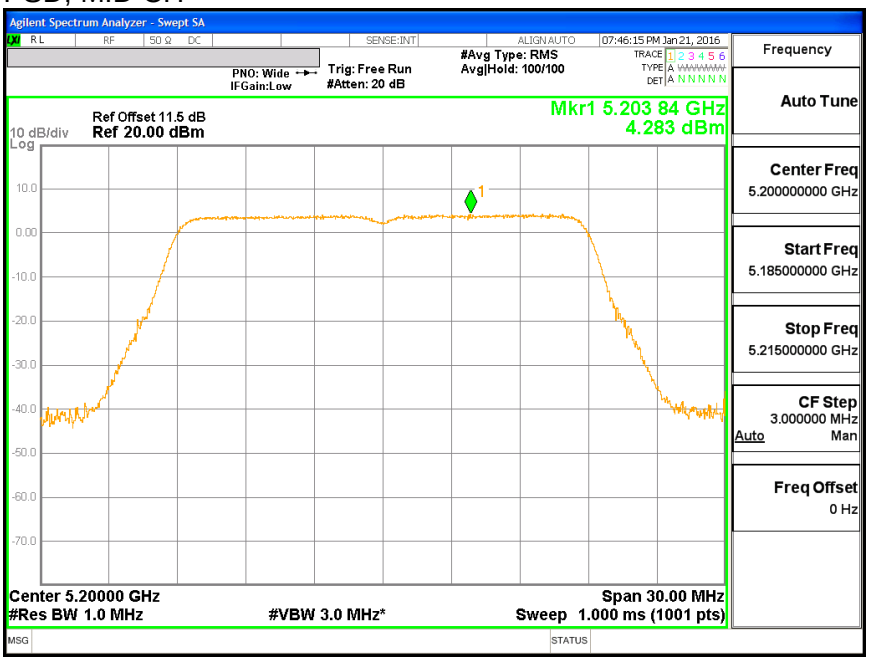
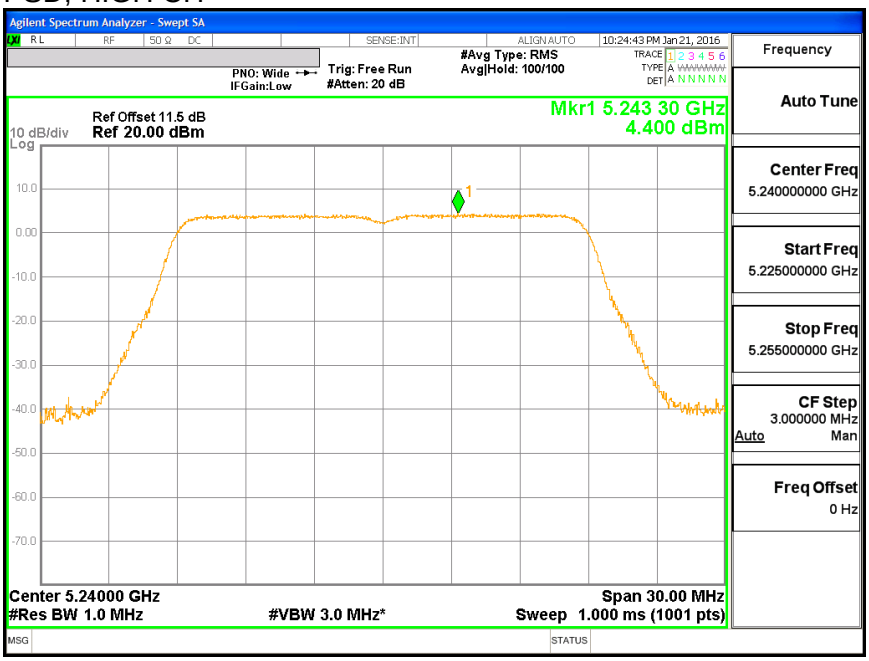
PSD, MID CH



PSD, HIGH CH



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8.6. 802.11n HT20 2TX STBC MODE IN THE 5.2 GHz BAND

8.6.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Antenna B (MHz)	26 dB BW Antenna A (MHz)
Low	5180	21.75	21.66
Mid	5200	21.75	21.51
High	5240	21.66	21.45

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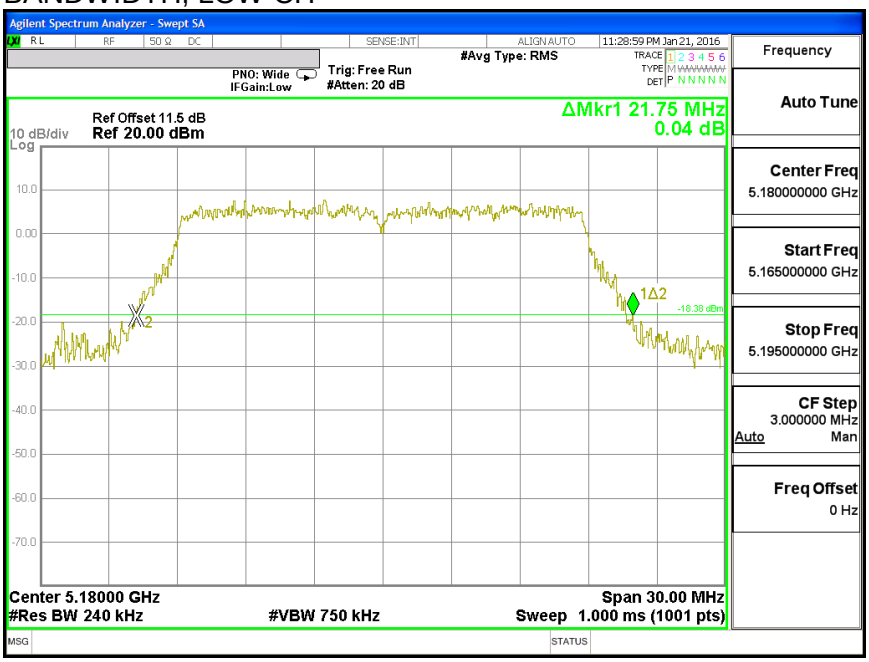
26 DB BANDWIDTH, ANTENNA - B

BANDWIDTH, LOW CH



BANDWIDTH, MID CH

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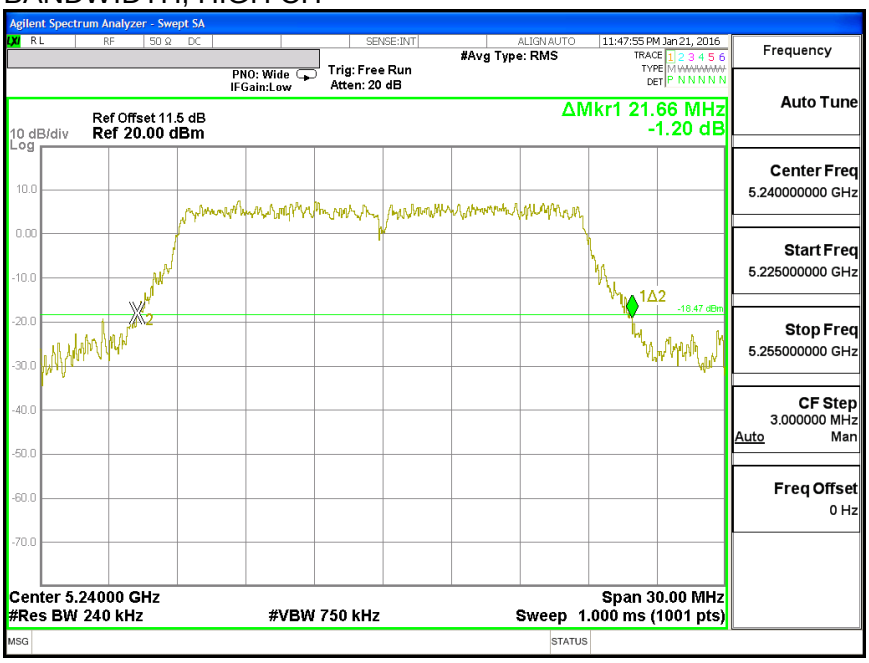
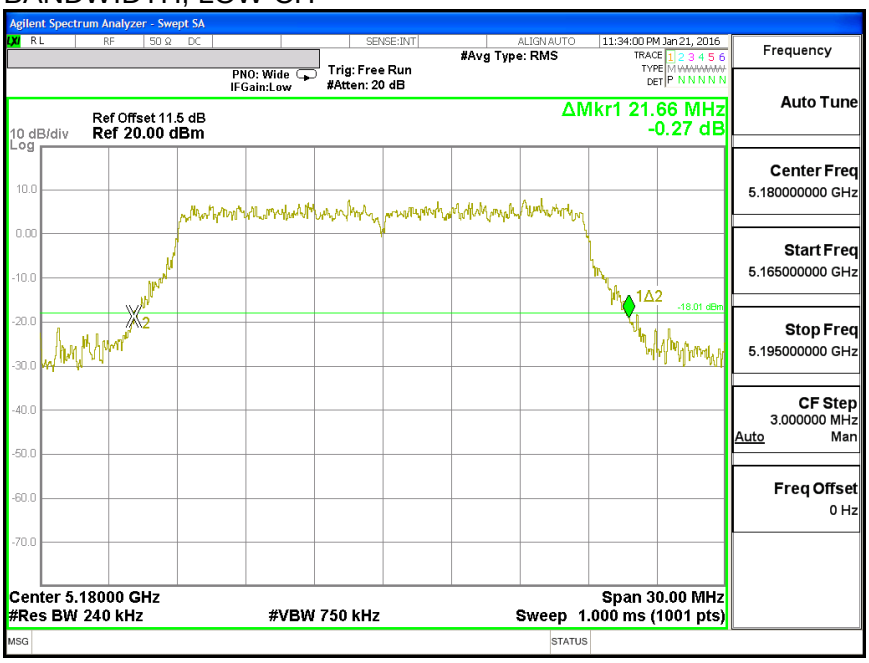
BANDWIDTH, HIGH CH



26 DB BANDWIDTH, ANTENNA - A

BANDWIDTH, LOW CH



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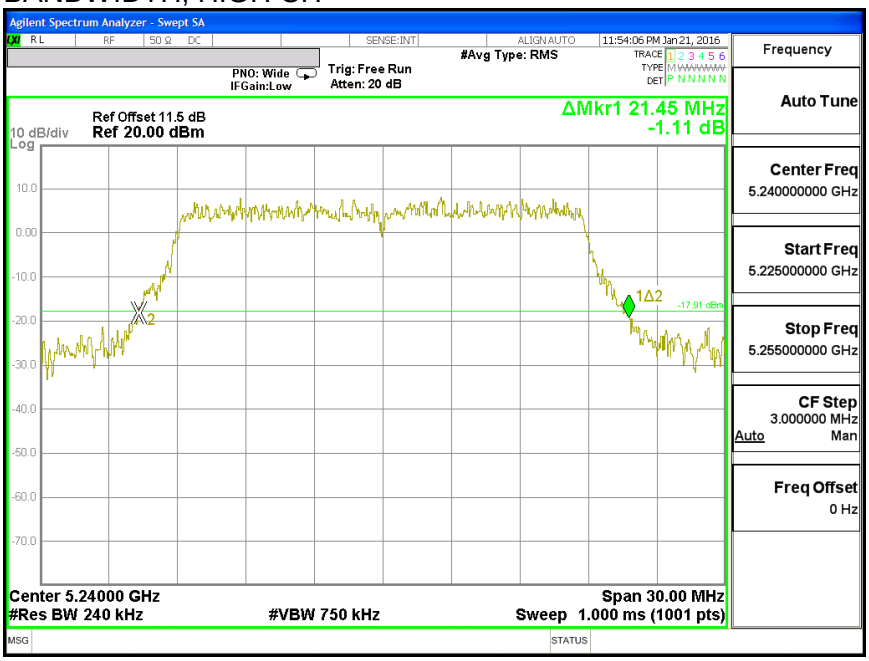
BANDWIDTH, MID CH

BANDWIDTH, HIGH CH



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8.6.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW Antenna B (MHz)	99% BW Antenna A (MHz)
Low	5180	17.731	17.592
Mid	5200	17.805	17.691
High	5240	17.715	17.744

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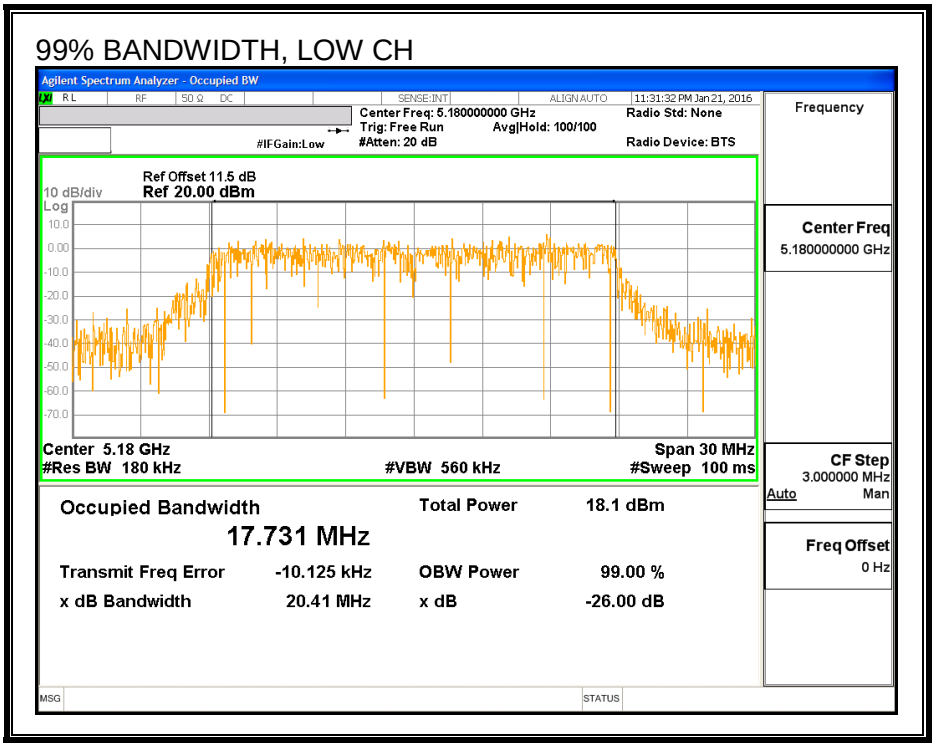
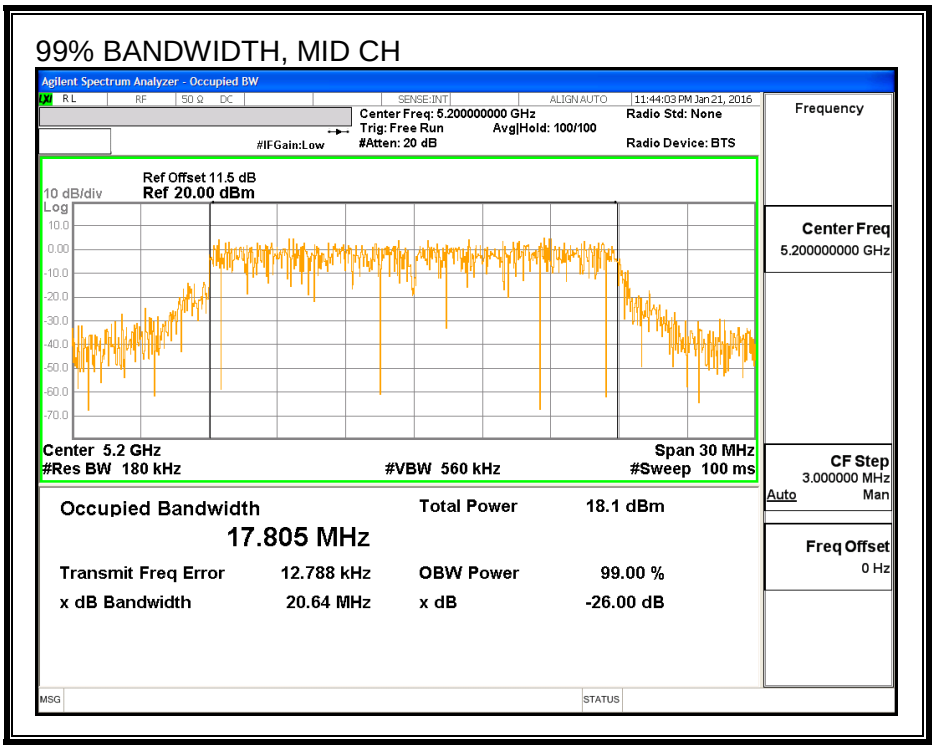
99% BANDWIDTH, ANTENNA - B





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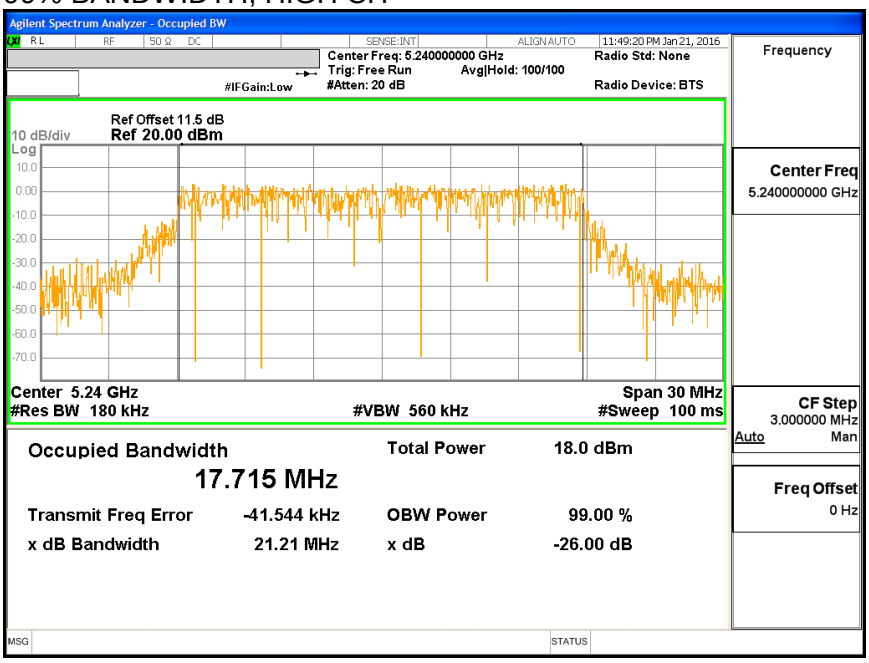
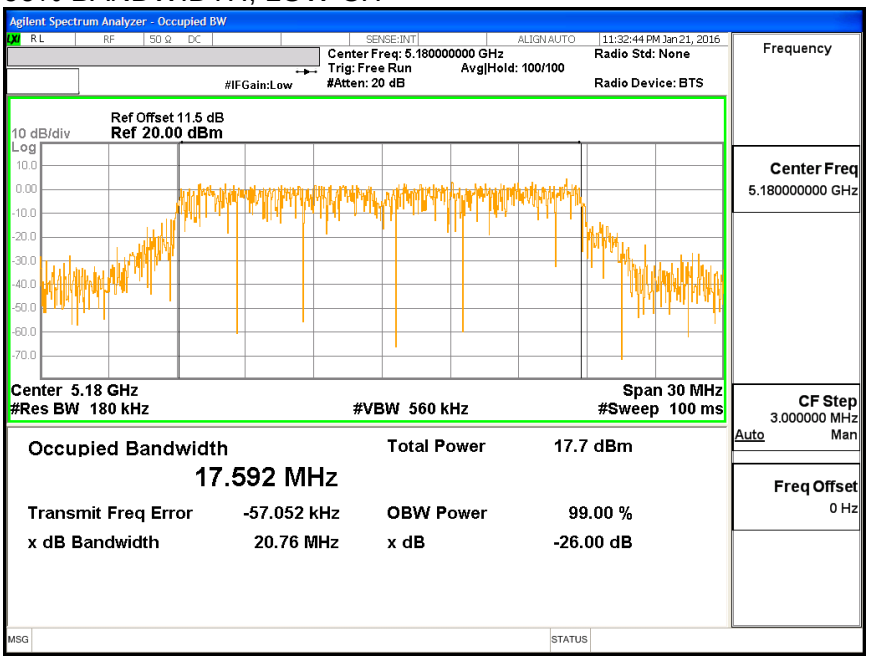
99% BANDWIDTH, HIGH CH



99% BANDWIDTH, ANTENNA - A

99% BANDWIDTH, LOW CH



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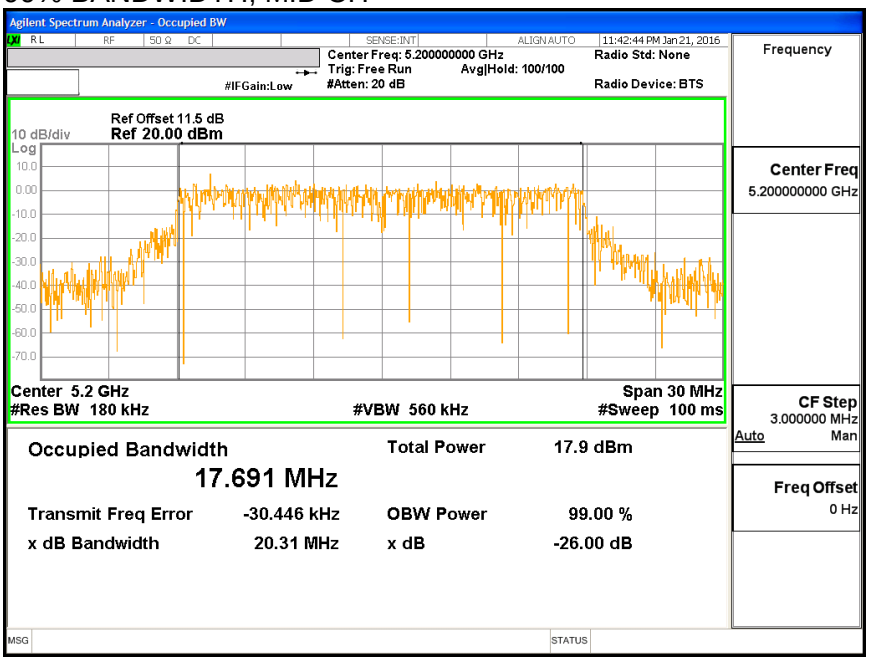
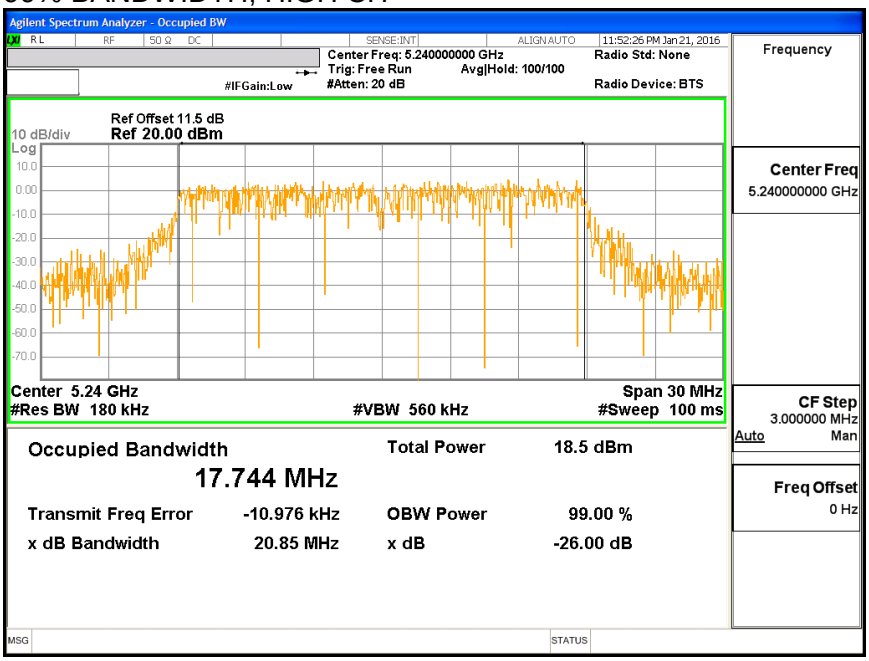
99% BANDWIDTH, MID CH



99% BANDWIDTH, HIGH CH



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8.6.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency (MHz)	Antenna B Power (dBm)	Antenna A Power (dBm)	Total Power (dBm)
Low	5180	14.38	14.42	17.41
Mid	5200	16.99	16.97	19.99
High	5240	16.98	17.00	20.00

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8.6.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

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DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Antenna B Gain (dBi)	Antenna A Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
3.04	2.30	2.69

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RESULTS

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	2.69	2.69	24.00	11.00
Mid	5200	2.69	2.69	24.00	11.00
High	5240	2.69	2.69	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Antenna A Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.38	14.42	17.41	24.00	-6.59
Mid	5200	16.99	16.97	19.99	24.00	-4.01
High	5240	16.98	17.00	20.00	24.00	-4.00

PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Antenna A Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	2.921	3.195	6.07	11.00	-4.93
Mid	5200	5.630	5.551	8.60	11.00	-2.40
High	5240	5.567	5.823	8.71	11.00	-2.29

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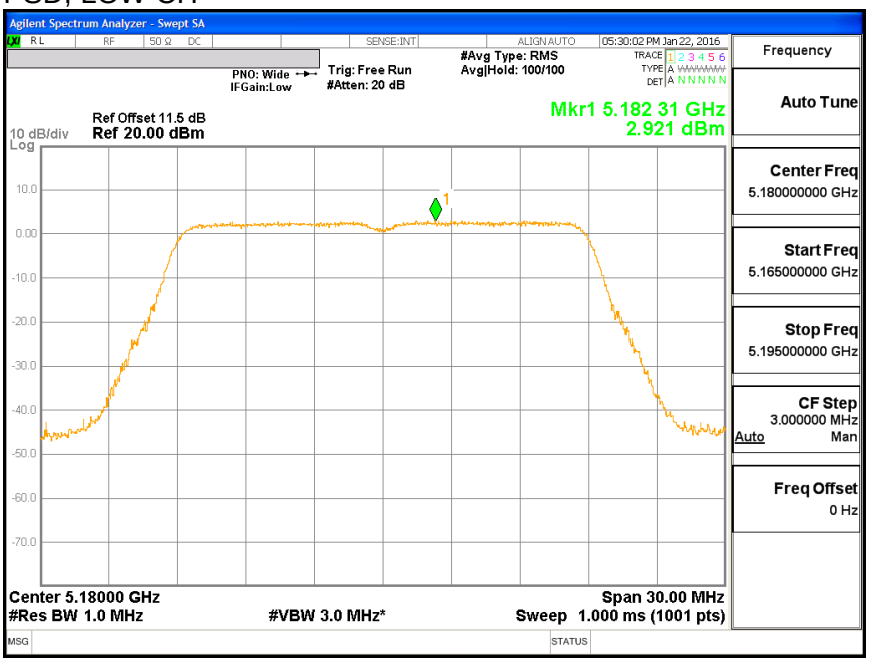
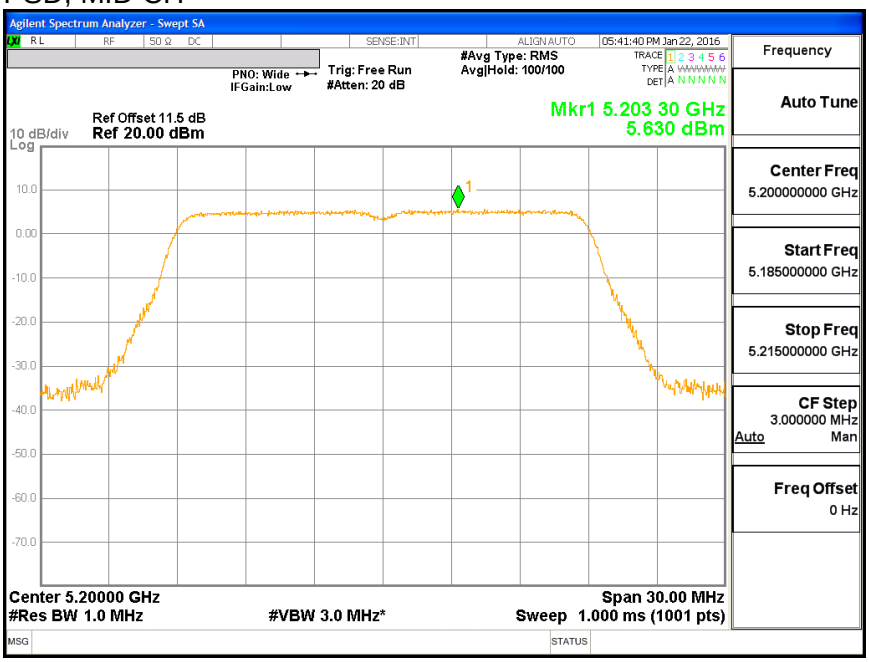
PSD, ANTENNA - B

PSD, LOW CH



PSD, MID CH



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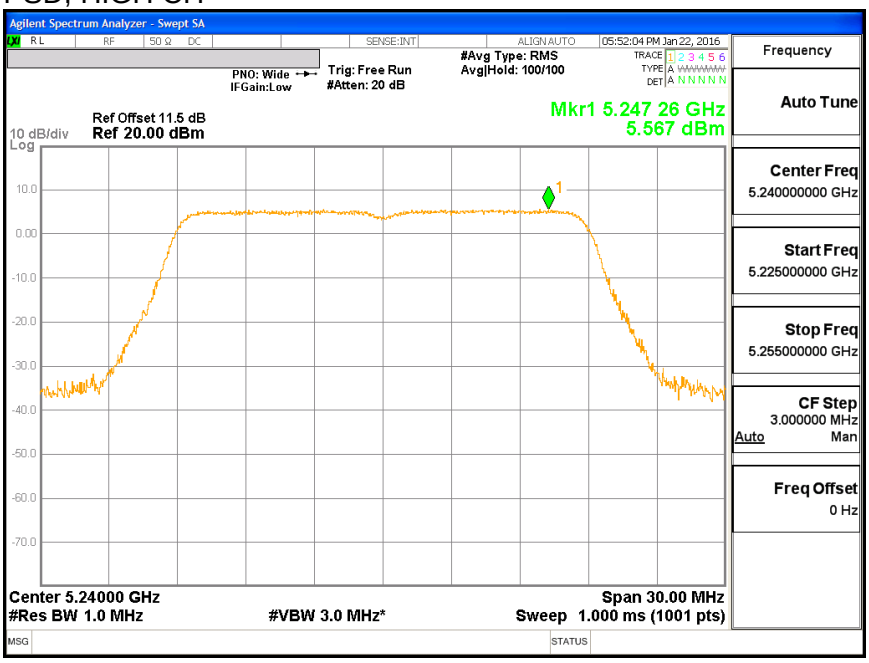
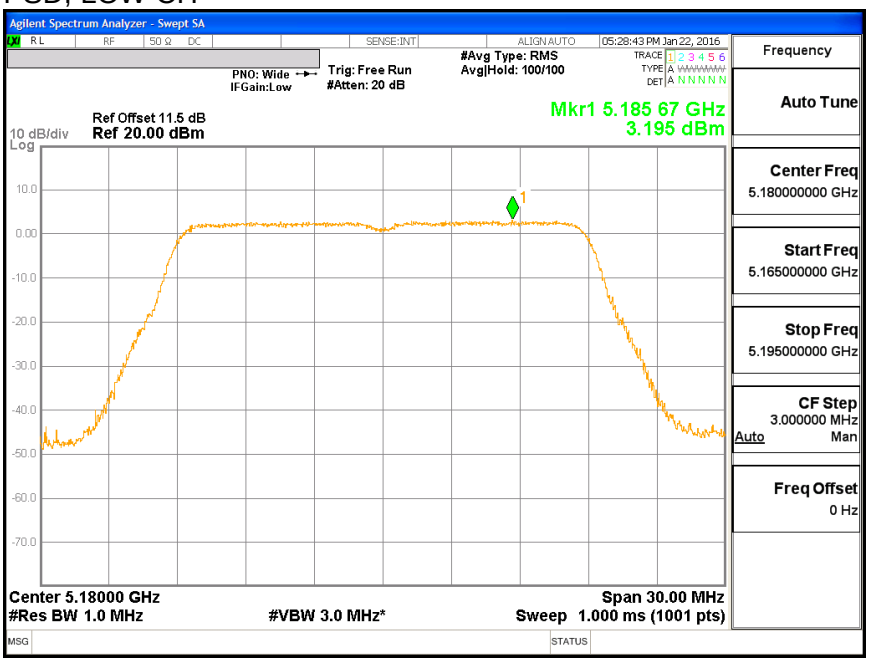
PSD, HIGH CH



PSD, ANTENNA - A

PSD, LOW CH



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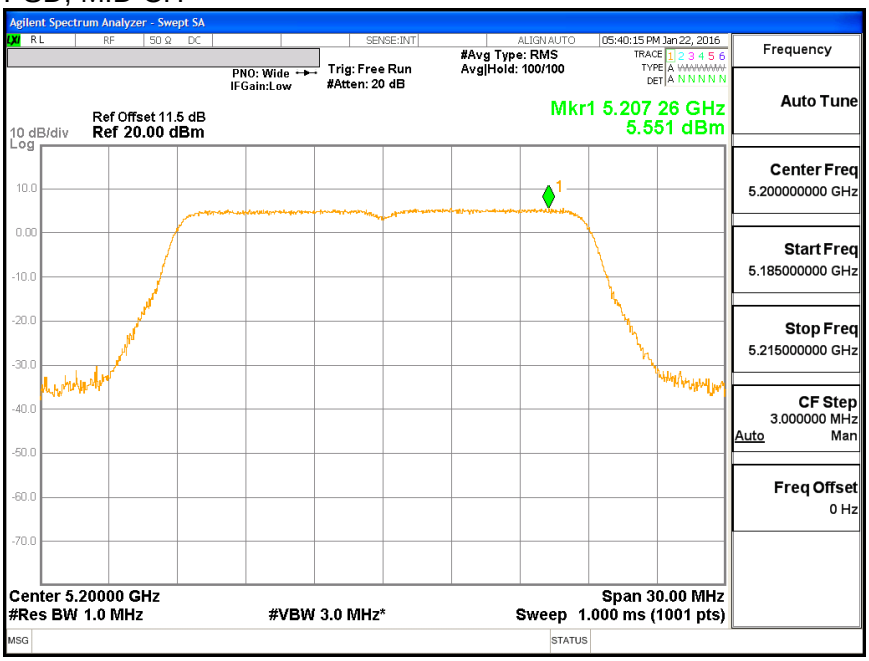
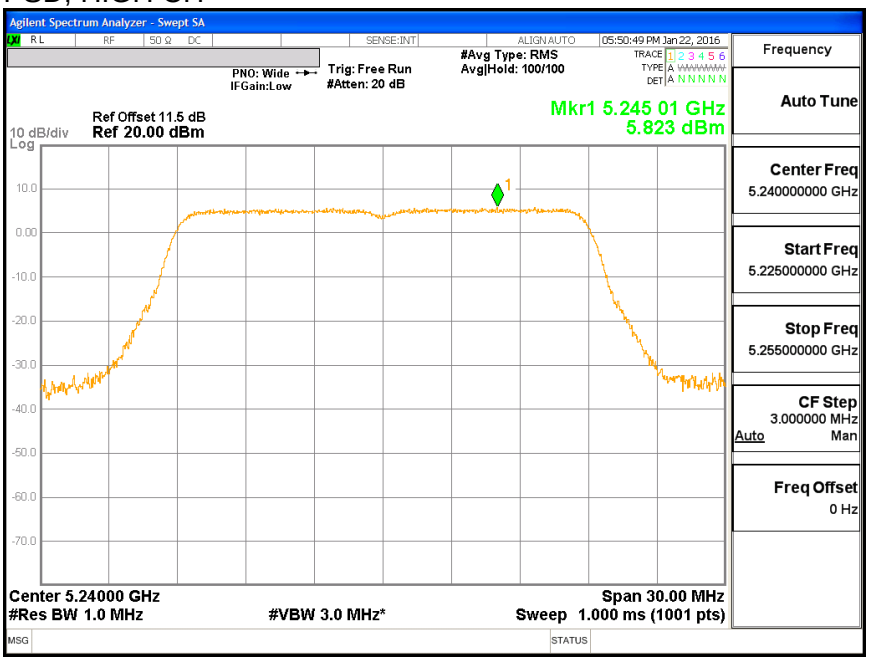
PSD, MID CH



PSD, HIGH CH



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8.7. 802.11n HT20 2TX SDM MODE IN THE 5.2 GHz BAND

Note: Covered by 802.11n HT20 2Tx STBC MODE IN THE 5.2 GHz BAND

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8.8. 802.11n HT40 ANTENNA - B MODE IN THE 5.2 GHz BAND

8.8.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	39.66
High	5230	40.08

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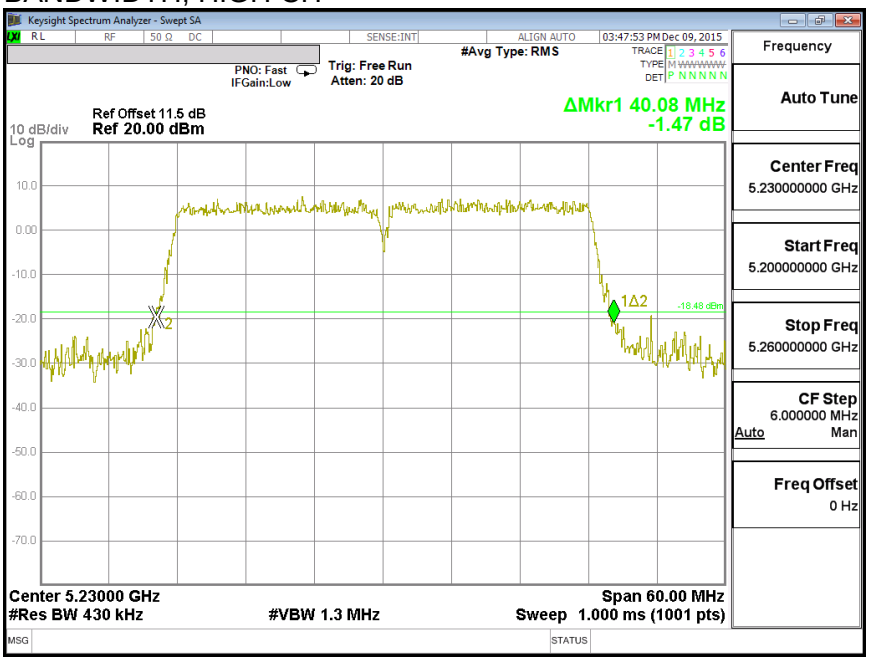
26 dB BANDWIDTH

BANDWIDTH, LOW CH

BANDWIDTH, HIGH CH



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8.8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.205
High	5230	36.343

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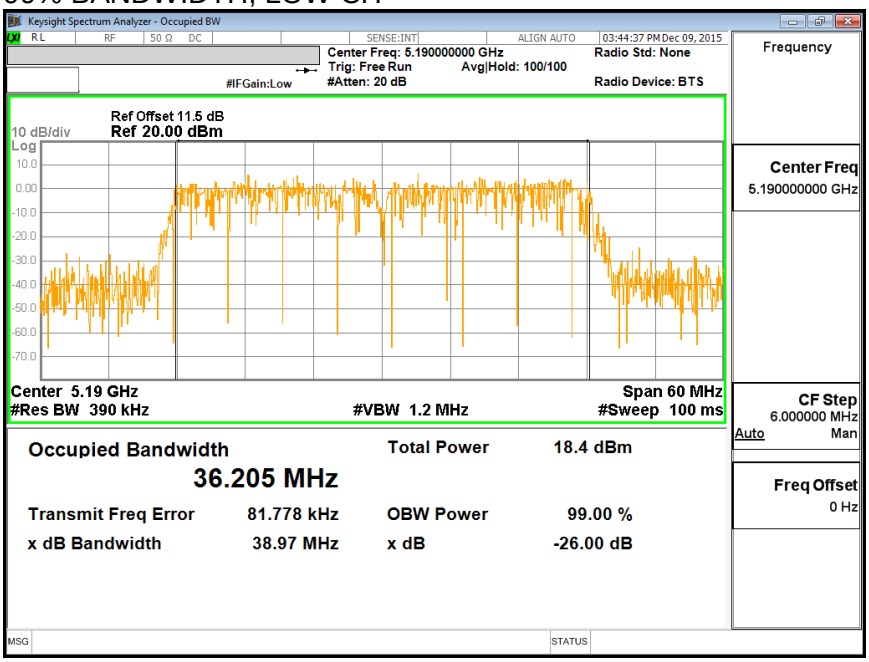
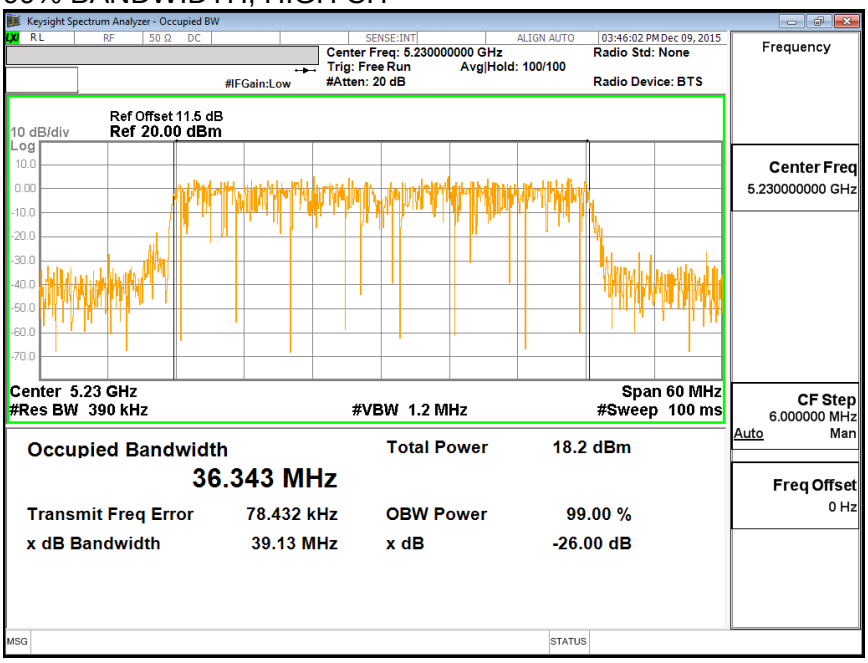
99% BANDWIDTH

99% BANDWIDTH, LOW CH



99% BANDWIDTH, HIGH CH



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8.8.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5190	13.48
High	5230	16.98

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8.8.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5190	3.04	3.04	24.00	11.00
High	5230	3.04	3.04	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna B Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	13.48	13.48	24.00	-10.52
High	5230	16.98	16.98	24.00	-7.02

PSD Results

Channel	Frequency (MHz)	Antenna B Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-0.720	-0.720	11.00	-11.72
High	5230	2.620	2.620	11.00	-8.38

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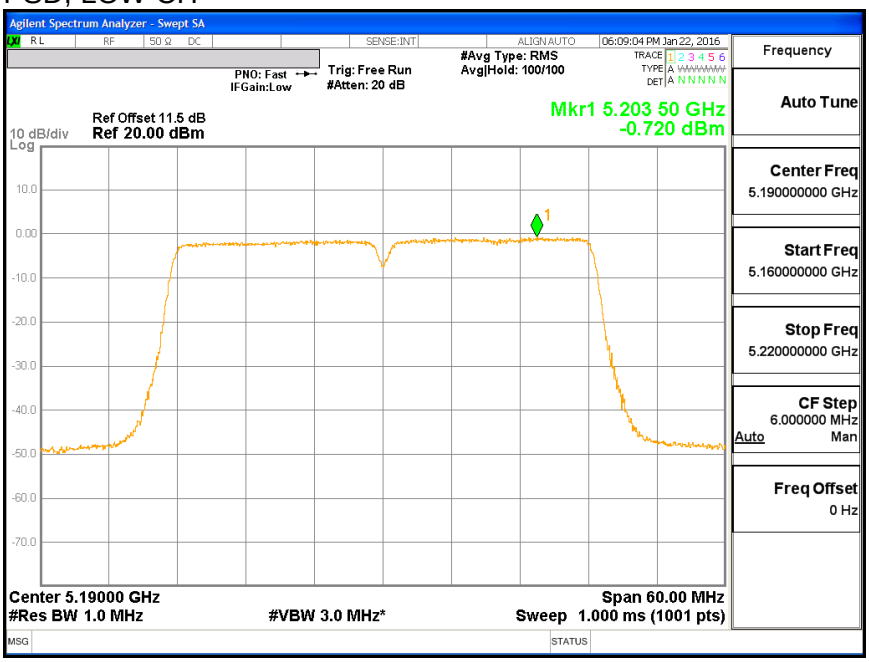
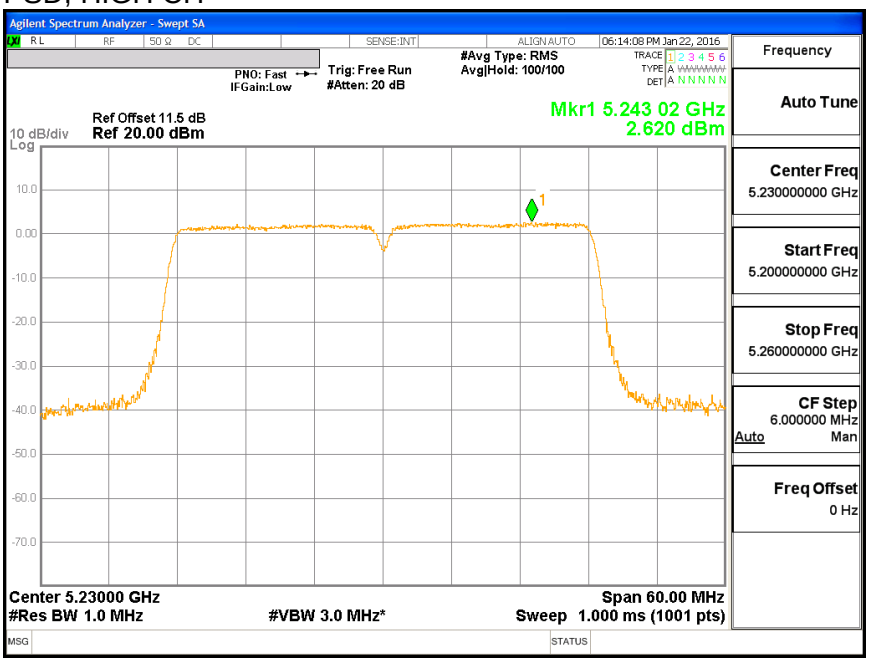
PSD

PSD, LOW CH



PSD, HIGH CH



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8.9. 802.11n HT40 ANTENNA - A MODE IN THE 5.2 GHz BAND

8.9.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	39.78
High	5230	39.96

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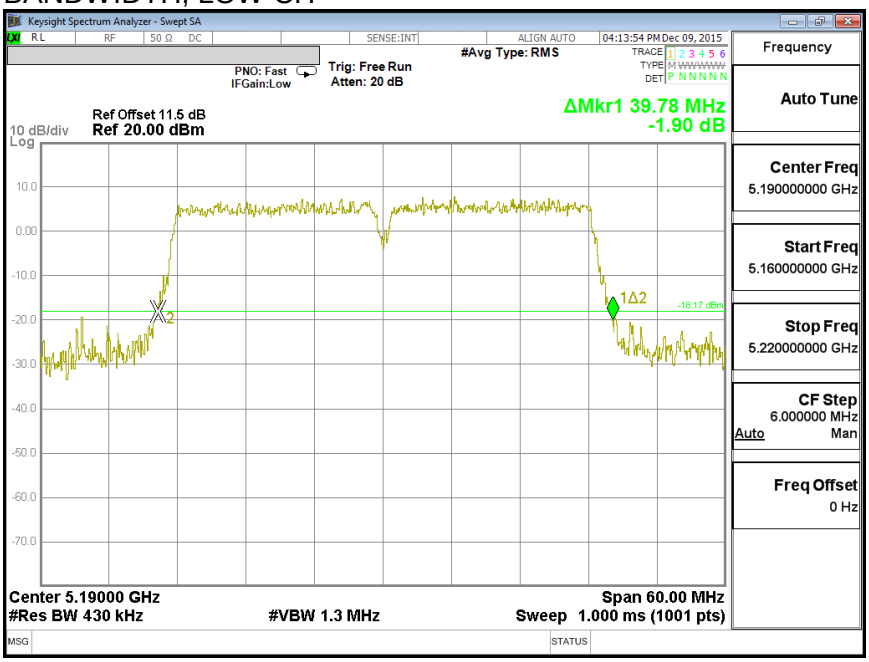
26 dB BANDWIDTH

BANDWIDTH, LOW CH



BANDWIDTH, HIGH CH

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8.9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.152
High	5230	36.320

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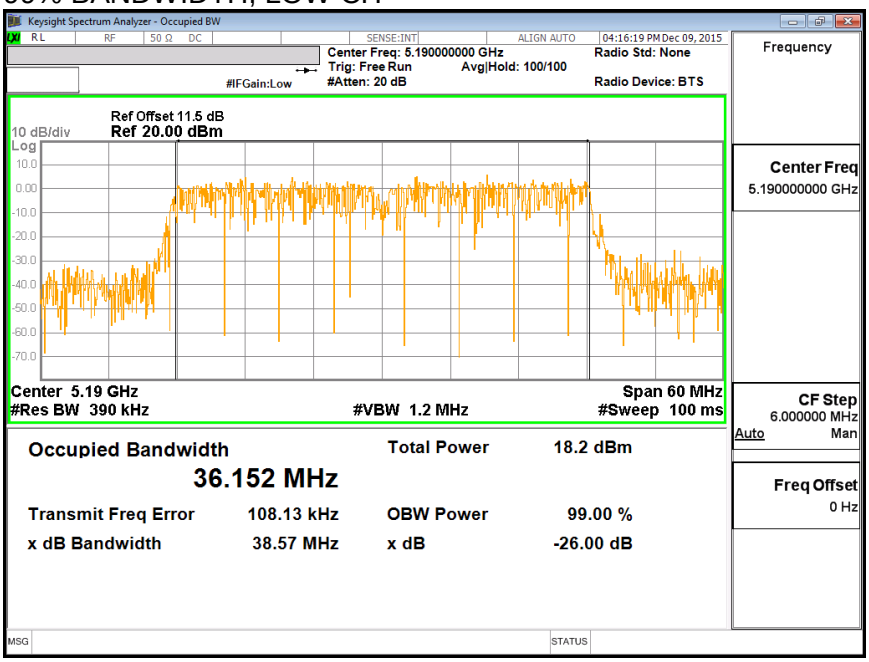
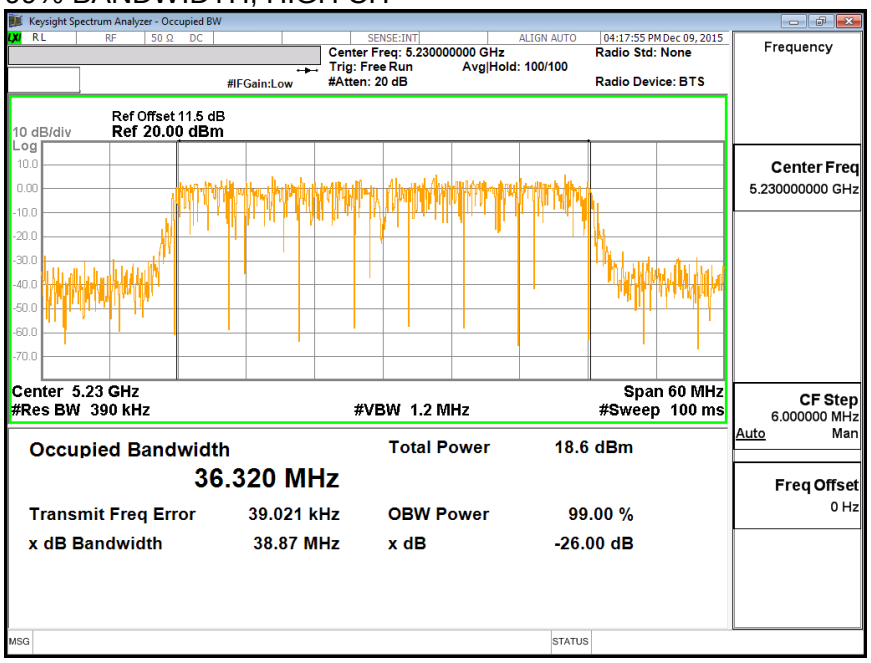
99% BANDWIDTH

99% BANDWIDTH, LOW CH



99% BANDWIDTH, HIGH CH



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8.9.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5190	13.48
High	5230	16.99

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