



**FCC 47 CFR PART 15 SUBPART E
INDUSTRY CANADA RSS-247 ISSUE 1**

CERTIFICATION TEST REPORT

FOR

PORTABLE COMPUTER

MODEL NUMBER: A1707

**FCC ID: BCGA1707
IC: 579C-A1707**

REPORT NUMBER: 16U23800-E4V2

ISSUE DATE: OCTOBER 13, 2016

Prepared for
**APPLE, INC.
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.**

Prepared by
**UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	09/28/2016	Initial Issue	Mengistu Mekuria
V2	10/13/2016	Updated Section 2, Section 10.1.6 EIRP	Tina Chu

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	10
2. TEST METHODOLOGY	11
3. FACILITIES AND ACCREDITATION	11
4. CALIBRATION AND UNCERTAINTY	12
4.1. MEASURING INSTRUMENT CALIBRATION.....	12
4.2. SAMPLE CALCULATION.....	12
4.3. MEASUREMENT UNCERTAINTY	12
5. EQUIPMENT UNDER TEST.....	13
5.1. DESCRIPTION OF EUT.....	13
5.2. MAXIMUM OUTPUT POWER.....	13
5.3. DESCRIPTION OF AVAILABLE ANTENNAS.....	13
5.4. SOFTWARE AND FIRMWARE	13
5.5. WORST-CASE CONFIGURATION AND MODE.....	14
5.6. DESCRIPTION OF TEST SETUP	15
6. TEST AND MEASUREMENT EQUIPMENT.....	20
7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS.....	21
7.1. ON TIME AND DUTY CYCLE.....	21
7.2. MEASUREMENT METHODS.....	33
8. RADIATED TEST RESULTS	34
8.1. LIMITS AND PROCEDURE.....	34
8.2. 802.11n HT20 1Tx MODE IN THE 5.2 GHz BAND.....	35
8.3. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.2 GHz BAND	41
8.4. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.2 GHz BAND	43
8.5. 802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.2 GHz BAND 45	
8.6. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND.....	47
8.7. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND	49
8.8. 802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND 51	
8.9. 802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND	53
8.10. 802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND.....	55
8.11. 802.11ac VHT20 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND 57	

8.12.	802.11n HT20 3Tx CDD MODE IN THE 5.2 GHz BAND.....	59
8.13.	802.11n HT20 3Tx STBC MODE IN THE 5.2 GHz BAND.....	67
8.14.	802.11ac VHT20 3Tx BEAM FORMING MODE IN THE 5.2 GHz BAND.....	70
8.15.	802.11n HT40 1Tx MODE IN THE 5.2 GHz BAND	78
8.16.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.2 GHz BAND.....	84
8.17.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.2 GHz BAND.....	86
8.18.	802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.2 GHz BAND	88
8.19.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND.....	90
8.20.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND.....	92
8.21.	802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND	94
8.22.	802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND.....	96
8.23.	802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND.....	98
8.24.	802.11ac VHT40 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND	100
8.25.	802.11n HT40 3Tx CDD MODE IN THE 5.2 GHz BAND.....	102
8.26.	802.11n HT40 3Tx STBC MODE IN THE 5.2 GHz BAND.....	108
8.27.	802.11ac VHT40 3Tx BEAM FORMING MODE IN THE 5.2 GHz BAND.....	111
8.28.	802.11ac VHT80 1Tx MODE IN THE 5.2 GHz BAND	117
8.29.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.2 GHz BAND.....	123
8.30.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.2 GHz BAND.....	125
8.31.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.2 GHz BAND	127
8.32.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND.....	129
8.33.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND.....	131
8.34.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND	133
8.35.	802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND.....	135
8.36.	802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND.....	137
8.37.	802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND	139
8.38.	802.11ac VHT80 3Tx CDD MODE IN THE 5.2 GHz BAND.....	141
8.39.	802.11ac VHT80 3Tx STBC MODE IN THE 5.2 GHz BAND.....	145
8.40.	802.11ac VHT80 3Tx BEAM FORMING MODE IN THE 5.2 GHz BAND.....	148
8.41.	802.11n HT20 1Tx MODE IN THE 5.3 GHz BAND	152
8.42.	802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.3 GHz BAND.....	158
8.43.	802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.3 GHz BAND.....	160

8.44.	802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.3 GHz BAND	162
8.45.	802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.3 GHz BAND	164
8.46.	802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.3 GHz BAND	166
8.47.	802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.3 GHz BAND	168
8.48.	802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.3 GHz BAND	170
8.49.	802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.3 GHz BAND	172
8.50.	802.11ac VHT20 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.3 GHz BAND	174
8.51.	802.11n HT20 3Tx CDD MODE IN THE 5.3 GHz BAND	176
8.52.	802.11n HT20 3Tx STBC MODE IN THE 5.3 GHz BAND	184
8.53.	802.11ac VHT20 3Tx BEAM FORMING MODE IN THE 5.3 GHz BAND	187
8.54.	802.11n HT40 1Tx MODE IN THE 5.3 GHz BAND	195
8.55.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.3 GHz BAND	201
8.56.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.3 GHz BAND	203
8.57.	802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.3 GHz BAND	205
8.58.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.3 GHz BAND	207
8.59.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.3 GHz BAND	209
8.60.	802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.3 GHz BAND	211
8.61.	802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.3 GHz BAND	213
8.62.	802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.3 GHz BAND	215
8.63.	802.11ac VHT40 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.3 GHz BAND	217
8.64.	802.11n HT40 3Tx CDD MODE IN THE 5.3 GHz BAND	219
8.65.	802.11n HT40 3Tx STBC MODE IN THE 5.3 GHz BAND	225
8.66.	802.11n HT40 3Tx BEAM FORMING MODE IN THE 5.3 GHz BAND	228
8.67.	802.11ac VHT80 1Tx MODE IN THE 5.3 GHz BAND	234
8.68.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.3 GHz BAND	240
8.69.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.3 GHz BAND	242
8.70.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.3 GHz BAND	244
8.71.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.3 GHz BAND	246
8.72.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.3 GHz BAND	248
8.73.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.3 GHz BAND	250
8.74.	802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.3 GHz BAND	252

8.75. 802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.3 GHz BAND..... 254

8.76. 802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.3 GHz
BAND 256

8.77. 802.11ac VHT80 3Tx CDD MODE IN THE 5.3 GHz BAND..... 258

8.78. 802.11ac VHT80 3Tx STBC MODE IN THE 5.3 GHz BAND..... 262

8.79. 802.11ac VHT80 3Tx BEAM FORMING MODE IN THE 5.3 GHz BAND..... 265

8.80. 802.11n HT20 1Tx MODE IN THE 5.6 GHz BAND 269

8.81. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.6 GHz BAND..... 281

8.82. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.6 GHz BAND..... 285

8.83. 802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.6 GHz
BAND 289

8.84. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.6 GHz BAND..... 293

8.85. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.6 GHz BAND..... 297

8.86. 802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.6 GHz
BAND 301

8.87. 802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.6 GHz BAND..... 305

8.88. 802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.6 GHz BAND..... 309

8.89. 802.11ac VHT20 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.6 GHz
BAND 313

8.90. 802.11n HT20 3Tx CDD MODE IN THE 5.6 GHz BAND..... 317

8.91. 802.11ac VHT20 3Tx CDD STRADDLE CHANNEL 144 HARMONICS AND SPURIOUS
EMISSIONS..... 327

8.92. 802.11n HT20 3Tx STBC MODE IN THE 5.6 GHz BAND..... 329

8.93. 802.11ac VHT20 3Tx STBC STRADDLE CHANNEL 144 HARMONICS AND SPURIOUS
EMISSIONS..... 334

8.94. 802.11ac VHT20 3Tx BEAM FORMING MODE IN THE 5.6 GHz BAND..... 335

8.95. 802.11ac VHT20 3Tx BEAM FORMING STRADDLE CHANNEL 144 HARMONICS AND
SPURIOUS EMISSIONS..... 345

8.96. 802.11n HT40 1Tx MODE IN THE 5.6 GHz BAND 347

8.97. 802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.6 GHz BAND..... 359

8.98. 802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.6 GHz BAND..... 363

8.99. 802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.6 GHz
BAND 367

8.100. 802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.6 GHz BAND..... 371

8.101. 802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.6 GHz BAND..... 375

8.102. 802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.6 GHz
BAND 379

8.103. 802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.6 GHz BAND..... 383

8.104. 802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.6 GHz BAND..... 387

8.105. 802.11ac VHT40 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.6 GHz BAND 391

8.106. 802.11n HT40 3Tx CDD MODE IN THE 5.6 GHz BAND..... 395

8.107. 802.11ac VHT40 3Tx CDD STRADDLE CHANNEL 142 HARMONICS AND SPURIOUS EMISSIONS..... 405

8.108. 802.11n HT40 3Tx STBC MODE IN THE 5.6 GHz BAND..... 407

8.109. 802.11ac VHT40 3Tx STBC STRADDLE CHANNEL 142 HARMONICS AND SPURIOUS EMISSIONS..... 412

8.110. 802.11ac VHT40 3Tx BEAM FORMING MODE IN THE 5.6 GHz BAND..... 413

8.111. 802.11ac VHT40 3Tx BEAM FORMING STRADDLE CHANNEL 142 HARMONICS AND SPURIOUS EMISSIONS..... 423

8.112. 802.11ac VHT80 1Tx MODE IN THE 5.6 GHz BAND 425

8.113. 802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.6 GHz BAND..... 431

8.114. 802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.6 GHz BAND..... 433

8.115. 802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.6 GHz BAND 435

8.116. 802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.6 GHz BAND..... 437

8.117. 802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.6 GHz BAND..... 439

8.118. 802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.6 GHz BAND 441

8.119. 802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.6 GHz BAND..... 443

8.120. 802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.6 GHz BAND..... 445

8.121. 802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.6 GHz BAND 447

8.122. 802.11ac VHT80 3Tx CDD MODE IN THE 5.6 GHz BAND..... 449

8.123. 802.11ac VHT80 3Tx STBC MODE IN THE 5.6 GHz BAND..... 457

8.124. 802.11ac VHT80 3Tx BEAM FORMING MODE IN THE 5.6 GHz BAND..... 460

8.125. 802.11n HT20 1Tx MODE IN THE 5.8 GHz BAND 468

8.126. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.8 GHz BAND..... 492

8.127. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.8 GHz BAND..... 500

8.128. 802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.8 GHz BAND 508

8.129. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.8 GHz BAND..... 516

8.130. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.8 GHz BAND..... 524

8.131. 802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.8 GHz BAND 532

8.132. 802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.8 GHz BAND..... 540

8.133. 802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.8 GHz BAND..... 548

8.134.	802.11ac VHT20 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.8 GHz BAND	556
8.135.	802.11n HT20 3Tx CDD MODE IN THE 5.8 GHz BAND	564
8.136.	802.11n HT20 3Tx STBC MODE IN THE 5.8 GHz BAND	578
8.137.	802.11n HT20 3Tx BEAM FORMING MODE IN THE 5.8 GHz BAND	587
8.138.	802.11n HT40 1Tx MODE IN THE 5.8 GHz BAND	601
8.139.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.8 GHz BAND	625
8.140.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.8 GHz BAND	633
8.141.	802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.8 GHz BAND	641
8.142.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.8 GHz BAND	649
8.143.	802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.8 GHz BAND	657
8.144.	802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.8 GHz BAND	665
8.145.	802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.8 GHz BAND	673
8.146.	802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.8 GHz BAND	681
8.147.	802.11ac VHT40 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.8 GHz BAND	689
8.148.	802.11n HT40 3Tx CDD MODE IN THE 5.8 GHz BAND	697
8.149.	802.11n HT40 3Tx STBC MODE IN THE 5.8 GHz BAND	709
8.150.	802.11n HT40 3Tx BEAM FORMING MODE IN THE 5.8 GHz BAND	718
8.151.	802.11ac VHT80 1Tx MODE IN THE 5.8 GHz BAND	730
8.152.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.8 GHz BAND	754
8.153.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.8 GHz BAND	762
8.154.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.8 GHz BAND	770
8.155.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.8 GHz BAND	778
8.156.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.8 GHz BAND	786
8.157.	802.11ac VHT80 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.8 GHz BAND	794
8.158.	802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.8 GHz BAND	802
8.159.	802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.8 GHz BAND	810
8.160.	802.11ac VHT80 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.8 GHz BAND	818
8.161.	802.11ac VHT80 3Tx CDD MODE IN THE 5.8 GHz BAND	826
8.162.	802.11ac VHT80 3Tx STBC MODE IN THE 5.8 GHz BAND	836
8.163.	802.11ac VHT80 3Tx BEAM FORMING MODE IN THE 5.8 GHz BAND	845
8.164.	WORST-CASE BELOW 1 GHz	855

8.165. WORST-CASE ABOVE 18 GHz 857

9. AC POWER LINE CONDUCTED EMISSIONS..... 861

10. DYNAMIC FREQUENCY SELECTION..... 864

10.1. OVERVIEW 864

10.1.1. LIMITS 864

10.1.2. TEST AND MEASUREMENT SYSTEM 868

10.1.3. TEST AND MEASUREMENT SOFTWARE 870

10.1.4. SETUP OF EUT (CLIENT MODE) 871

10.1.5. SETUP OF EUT (CLIENT-TO-CLIENT COMMUNICATIONS MODE)..... 872

10.1.6. DESCRIPTION OF EUT 873

10.2. CLIENT MODE RESULTS FOR 20 MHz BANDWIDTH 875

10.2.1. TEST CHANNEL..... 875

10.2.2. RADAR WAVEFORM AND TRAFFIC 875

10.2.3. OVERLAPPING CHANNEL TESTS 878

10.2.4. MOVE AND CLOSING TIME 878

10.3. CLIENT MODE RESULTS FOR 40 MHz BANDWIDTH 882

10.3.1. TEST CHANNEL..... 882

10.3.2. RADAR WAVEFORM AND TRAFFIC 882

10.3.3. OVERLAPPING CHANNEL TESTS 885

10.3.4. MOVE AND CLOSING TIME 885

10.4. CLIENT MODE RESULTS FOR 80 MHz BANDWIDTH 889

10.4.1. TEST CHANNEL..... 889

10.4.2. RADAR WAVEFORM AND TRAFFIC 889

10.4.3. OVERLAPPING CHANNEL TESTS 892

10.4.4. MOVE AND CLOSING TIME 892

10.4.5. 10-MINUTE CLIENT Tx MONITORING PERIOD 896

10.5. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 20 MHz BANDWIDTH
897

10.5.1. TEST CHANNEL..... 897

10.5.2. RADAR WAVEFORM AND TRAFFIC 897

10.5.3. OVERLAPPING CHANNEL TESTS 900

10.5.4. MOVE AND CLOSING TIME 900

10.6. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 40 MHz BANDWIDTH
904

10.6.1. TEST CHANNEL..... 904

10.6.2. RADAR WAVEFORM AND TRAFFIC 904

10.6.3. OVERLAPPING CHANNEL TESTS 907

10.6.4. MOVE AND CLOSING TIME 907

10.7. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 80 MHz BANDWIDTH
911

10.7.1. TEST CHANNEL..... 911

10.7.2. RADAR WAVEFORM AND TRAFFIC 911

10.7.3. OVERLAPPING CHANNEL TESTS 914

10.7.4. MOVE AND CLOSING TIME 914

10.7.1. 10-MINUTE CLIENT Tx MONITORING PERIOD 918

1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: PORTABLE COMPUTER

MODEL: A1707

SERIAL NUMBER: C02S3004H7CF (CONDUCTED);
C02S400FH7C9 (RADIATED/DFS)

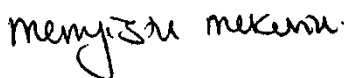
DATE TESTED: AUGUST 02, 2016 – SEPTEMBER 21, 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Pass
INDUSTRY CANADA RSS-247 Issue 1	Pass
INDUSTRY CANADA RSS-GEN Issue 4	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.

Approved & Released For
UL Verification Services Inc. By:



MENGISTU MEKURIA
SENIOR ENGINEER
UL VERIFICATION SERVICES INC.

Prepared By:



TRI PHAM
EMC ENGINEER
UL VERIFICATION SERVICES INC.

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 v02/D03 v01r01/D06 v02/ D07 v01r01, FCC KDB 789033 D02 v01r02, FCC KDB 644545 D03 v01, ANSI C63.10-2013.

IC: The tests documented in this report were performed in accordance with FCC KDB 789033 D02 v01r02, FCC KDB 905462 D02 v02/D03 v01r01, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 1

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
<input type="checkbox"/> Chamber A	<input checked="" type="checkbox"/> Chamber D
<input type="checkbox"/> Chamber B	<input checked="" type="checkbox"/> Chamber E
<input type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F
	<input checked="" type="checkbox"/> Chamber G
	<input checked="" type="checkbox"/> 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>.

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:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable} \\ &\text{Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Radiated Disturbance, 26000 to 40000 MHz	5.24 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Laptop Device with Bluetooth and WLAN Radios (AC 80 MHZ Beam-Forming).

5.2. MAXIMUM OUTPUT POWER

Note: Please see Conducted reports section 5.2

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Band (GHz)	Antenna Gain (dBi)		
	Chain 0	Chain 1	Chain 2
5.2	3.8	6.7	4.9
5.3	4.9	7.6	6.0
5.5	4.9	7.4	5.2
5.8	4.0	6.3	4.7

5.4. SOFTWARE AND FIRMWARE

The firmware version installed in the EUT during testing was 7.21.170.1.

5.5. WORST-CASE CONFIGURATION AND MODE

For radiated harmonics spurious and power line conducted emissions were performed with the EUT set at the CDD mode at highest power setting among the CDD/STBC/SDM/Beamforming modes as worst-case scenario.

For SISO modes, there are three transmission antennas. The antenna used in any given time can be either Chain 0, Chain 1 or Chain 2. All antenna ports have the same power; output power and PSD measurement for SISO modes on both antennas are reported. For 2TX MIMO modes, Chain 0/Chain 1, Chain 0/Chain 2, Chain 1/Chain 2 used at the same time. For 3TX MIMO mode, Chain 0/Chain 1/Chain 2 used at the same time.

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.

For simultaneous transmission of multiple channels from the same antenna in the 2.4GHz and 5GHz bands, tests were conducted for various configurations having the highest power. No noticeable new emission was found.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/ DC Adapter	Apple Inc.	A1540	N/A	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	2	SMA	Un-Shielded	0.2	To Spectrum Analyzer
2	DC	1	Lightning	Un-Shielded	2	N/A

I/O CABLES (ABOVE 1G RADIATED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	Lightning	Un-Shielded	2	N/A

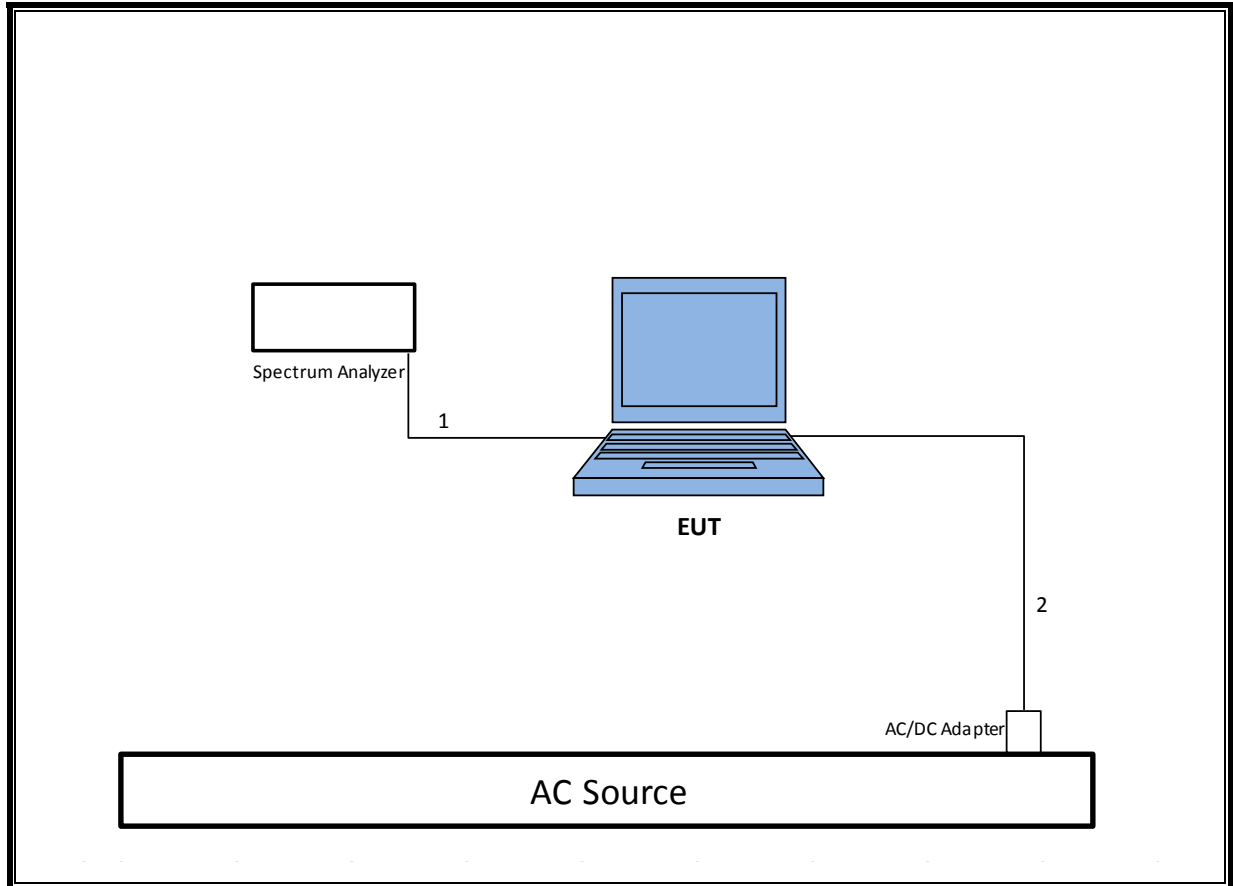
I/O CABLES (BELOW 1G RADIATED AND AC POWER CONDUCTED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	Lightning	Un-Shielded	2	NA
2	Audio	1	Jack	Un-Shielded	0.5	NA

TEST SETUP- CONDUCTED PORT

The EUT was tested connected to spectrum analyzer via antenna port. Test software exercised the EUT.

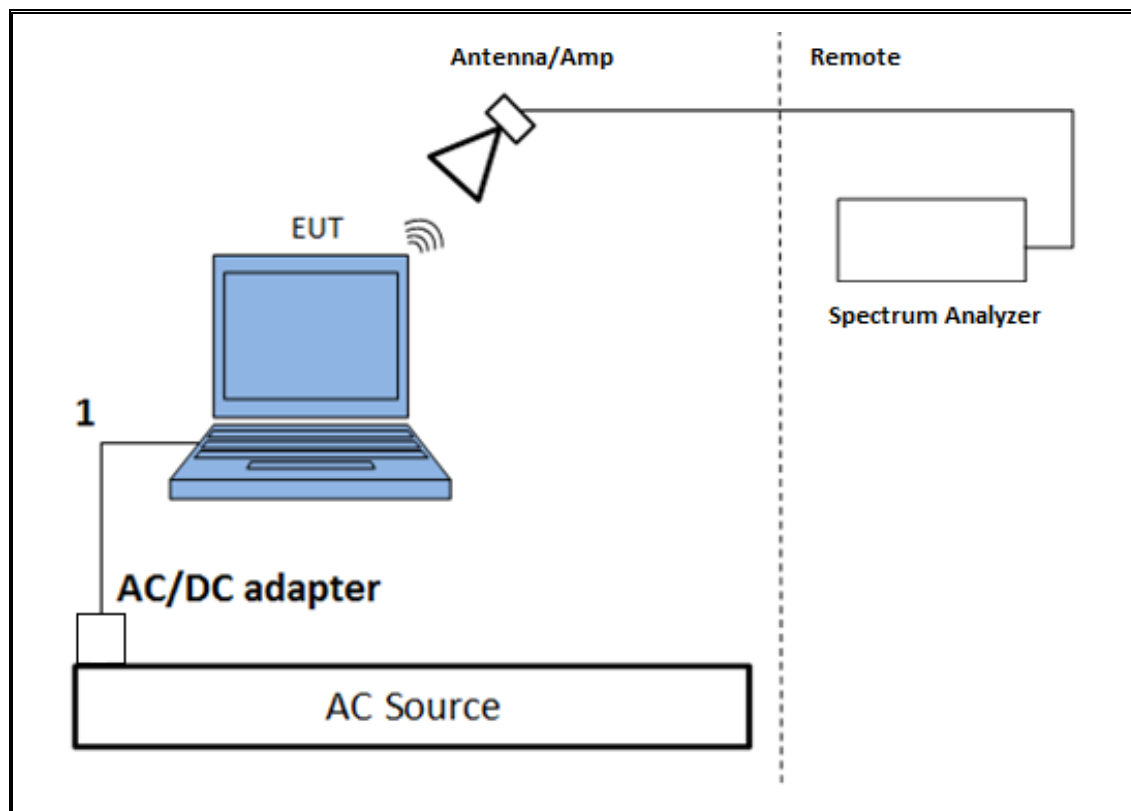
SETUP DIAGRAM



TEST SETUP- RADIATED- ABOVE 1 GHz

The EUT was powered by AC/DC adapter. Test software exercised the EUT.

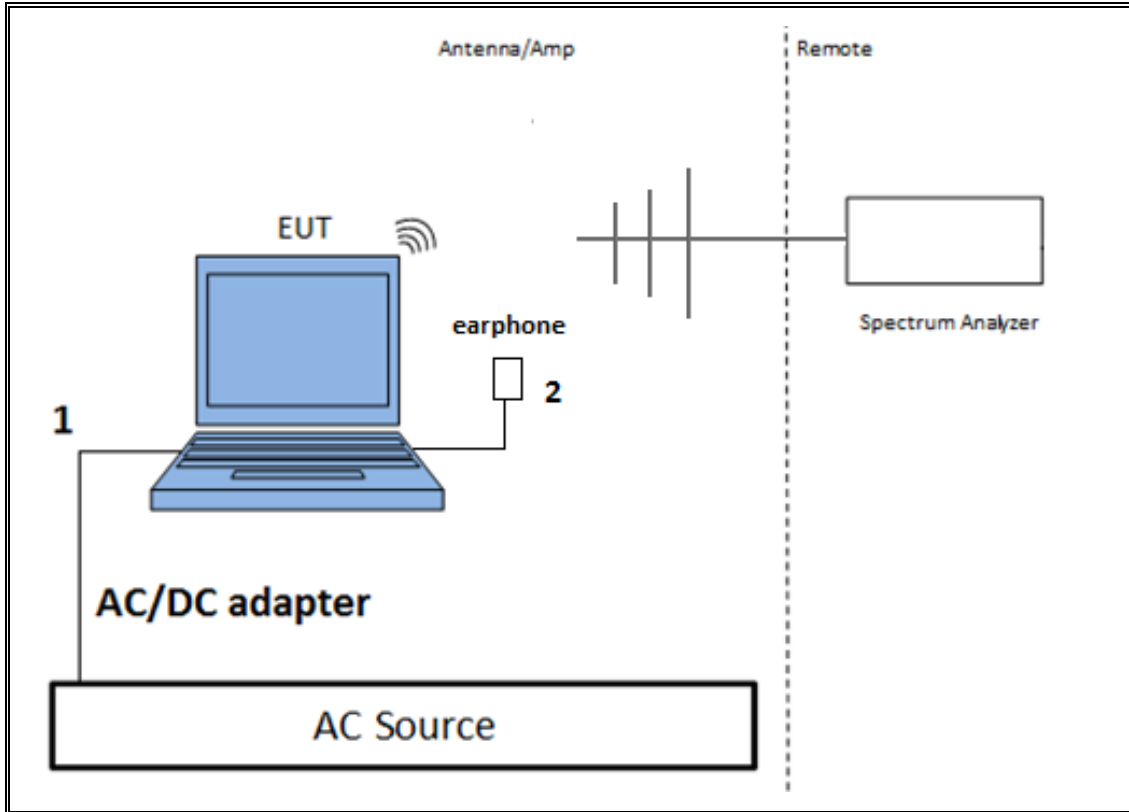
SETUP DIAGRAM



TEST SETUP- RADIATED- BELOW 1 GHz

The EUT was powered by AC/DC adapter and with earphone plugged in. Test software exercised the EUT.

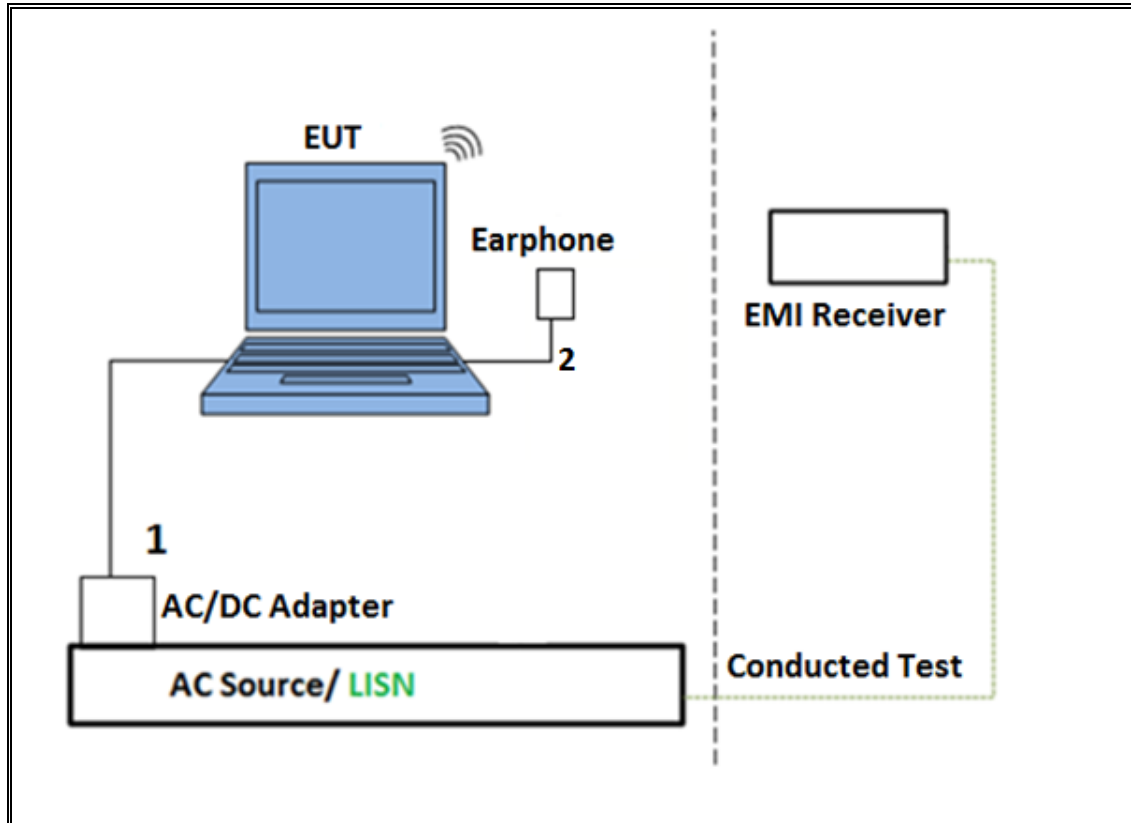
SETUP DIAGRAM



TEST SETUP- AC LINE CONDUCTED TESTS

The EUT was powered by AC/DC adapter and with earphone plugged in. Test software exercised the EUT.

SETUP DIAGRAM



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	T Number	Cal Due
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T120	4/5/2017
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T122	1/29/2017
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T173	6/17/2017
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	T341	10/14/2016
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T862	4/18/2017
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T899	5/26/2017
Amplifier, 1 - 18GHz	Miteq	AFS42-00101800-25-S-42	T491	5/31/2017
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T834	6/17/2017
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	T905	6/21/2017
Power Meter, P-series single channel	Agilent	N1911A	T1271	7/8/2017
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Agilent	N1921A	T1228	6/20/2017
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826	T447	6/16/2017
***Spectrum Analyzer, 40 GHz	Agilent	8564E	T106	9/7/2017
Amplifier, 1 to 26.5GHz, 23.5dB Gain minimum	Keysight	8449B	T402	7/5/2017
AC Line Conducted				
EMI Test Receiver 9KHz-7GHz	Rohde & Schwarz	ESCI7	T1436	12/19/2016
LISN for Conducted Emissions CISPR-16	Fischer	50/250-25-2-01	T1310	6/8/2017
**AC Source	Shaffner	NSG 1007	T134	9/11/2016
UL SOFTWARE				
* Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015	
* Conducted Software	UL	UL EMC	Ver 4.0, January 11, 2016	
* AC Line Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015	

Note: * indicates automation software version used in the compliance certification testing

** equipment was used before calibration due date.

*** equipment was used after calibration.

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

7.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

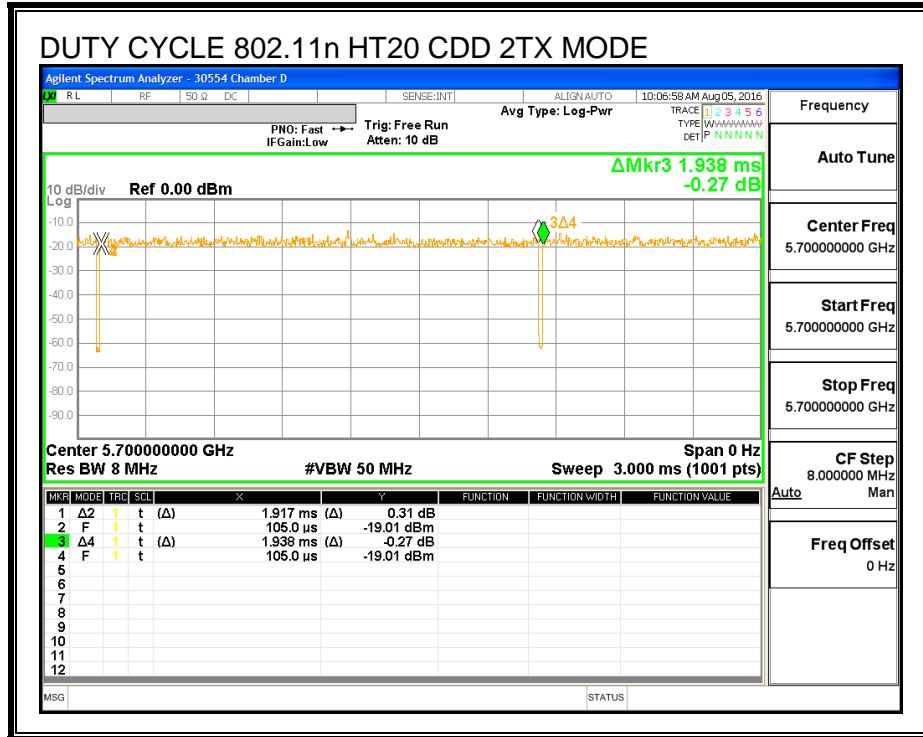
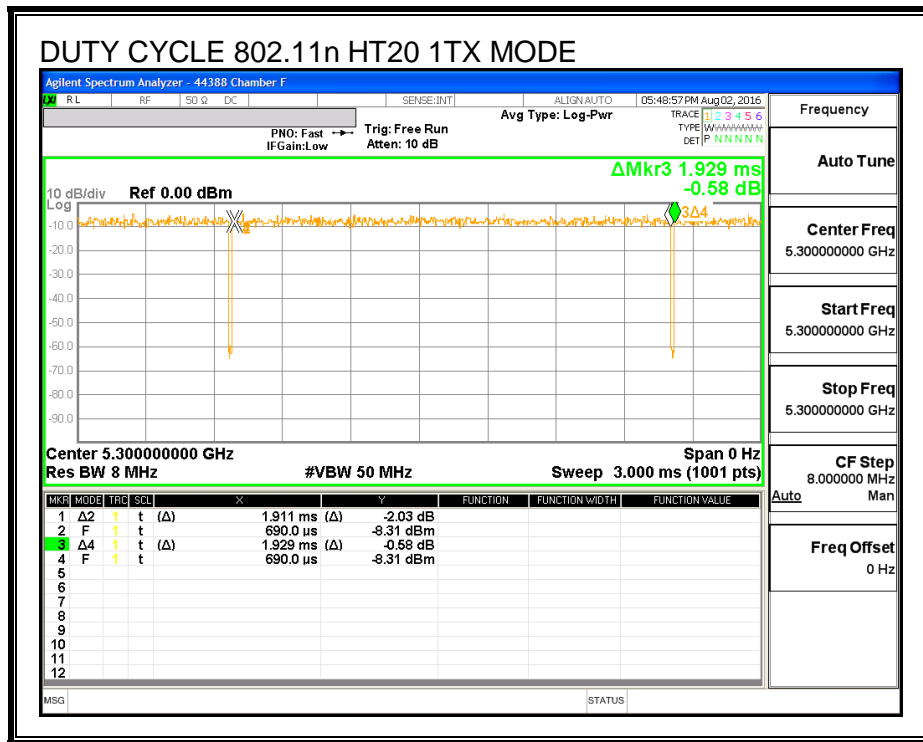
PROCEDURE

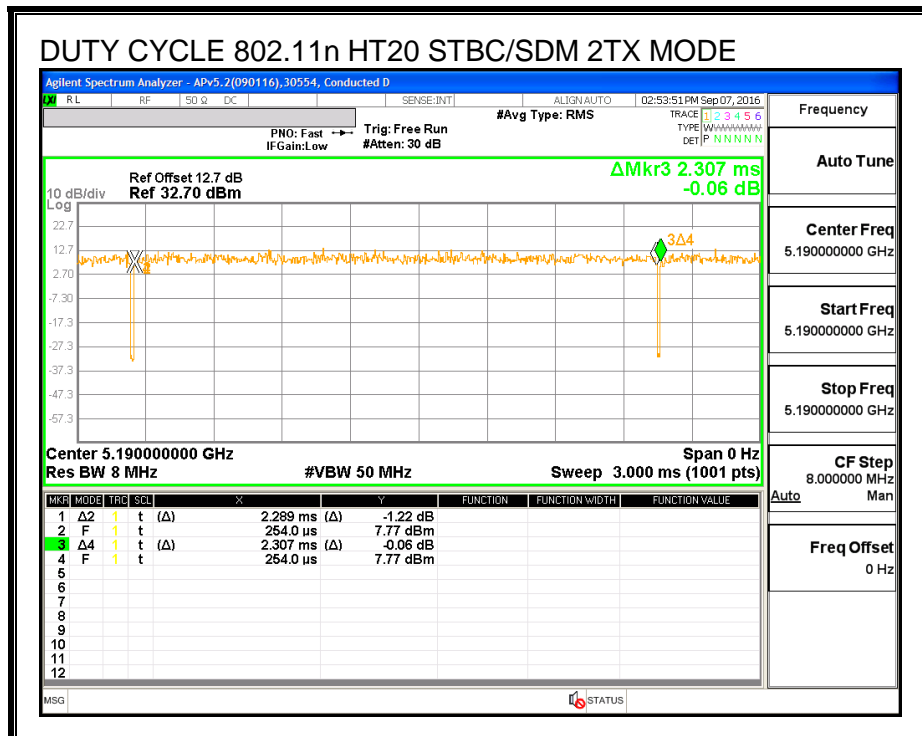
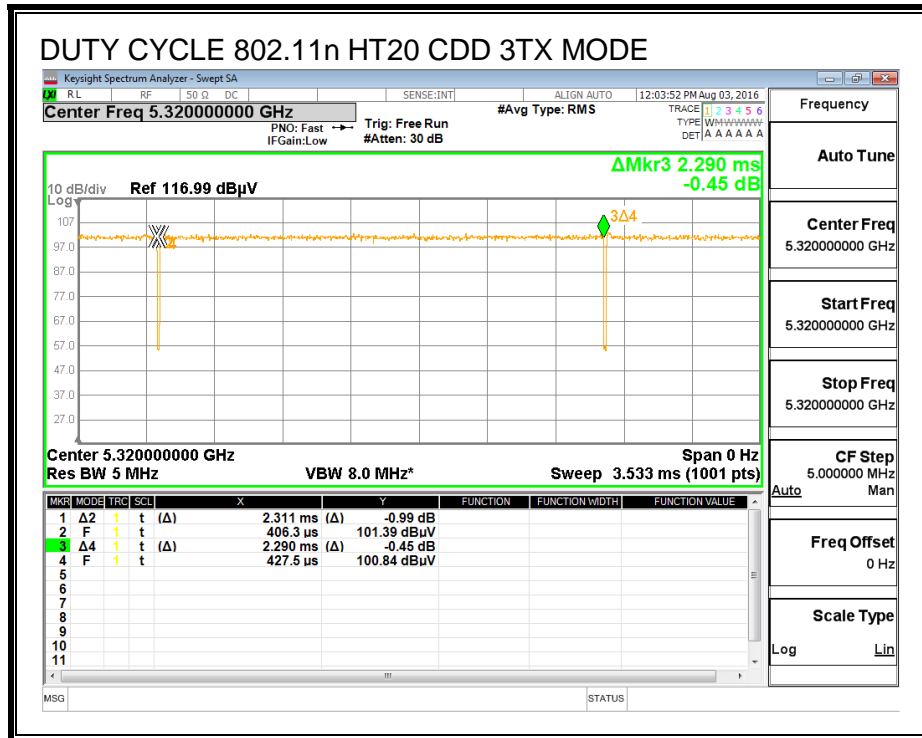
KDB 789033 Zero-Span Spectrum Analyzer Method.

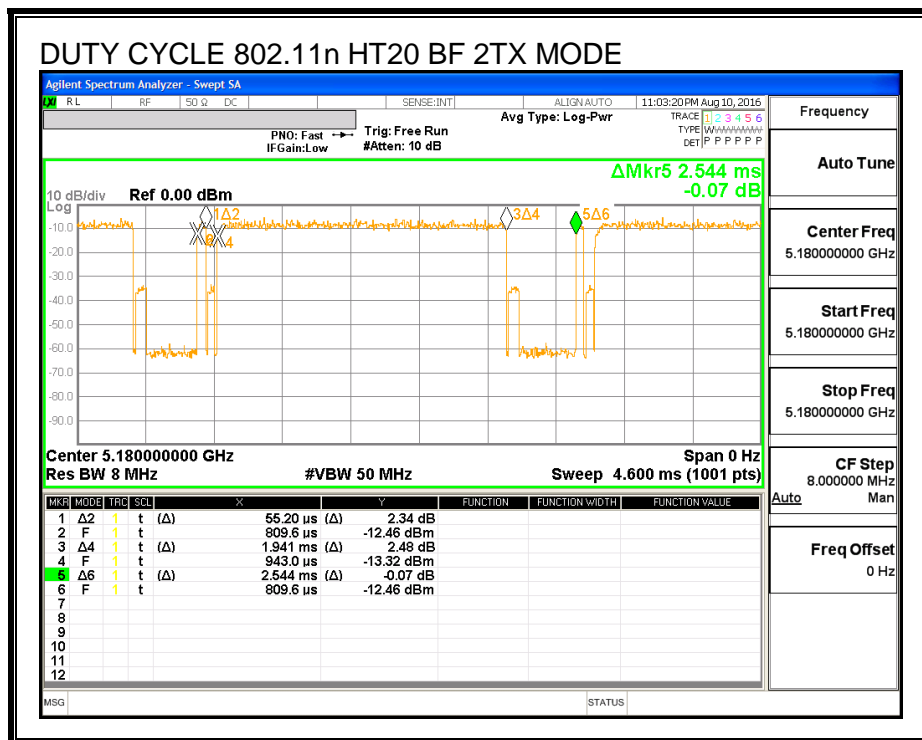
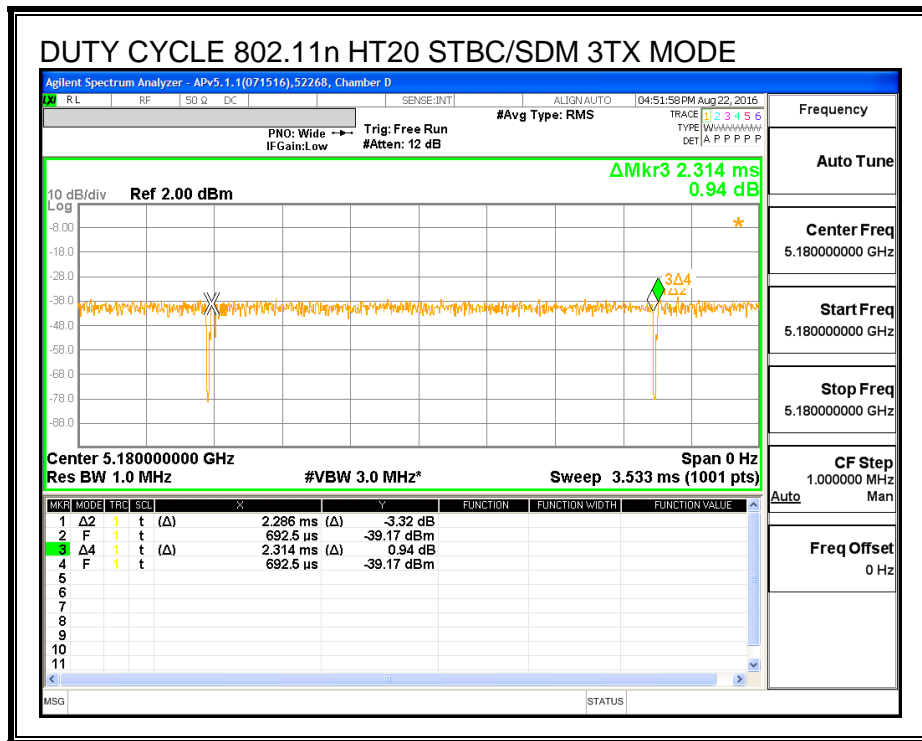
RESULTS

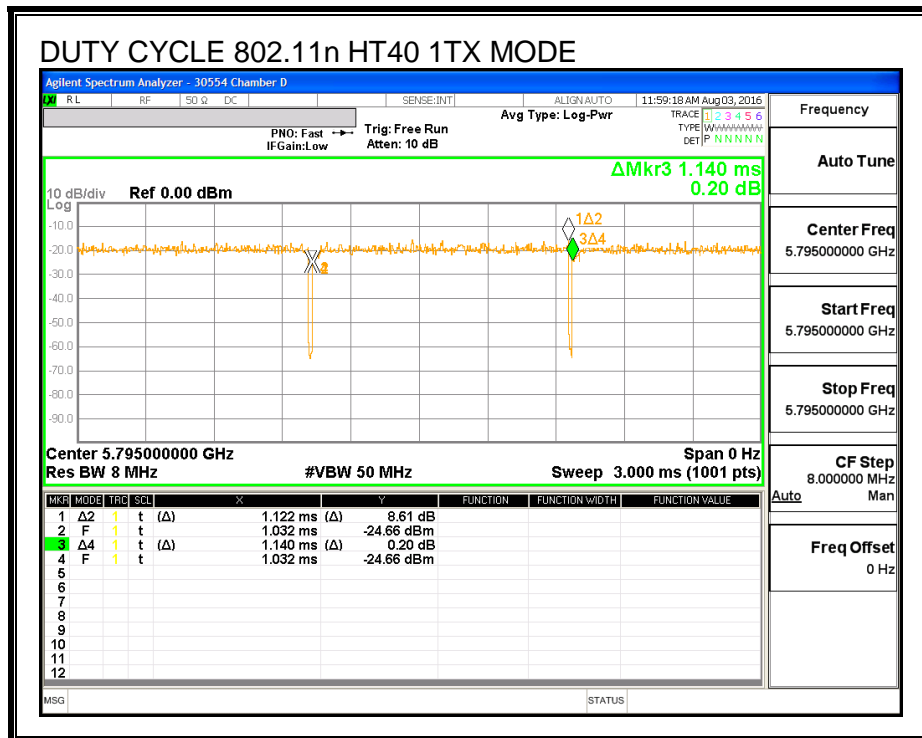
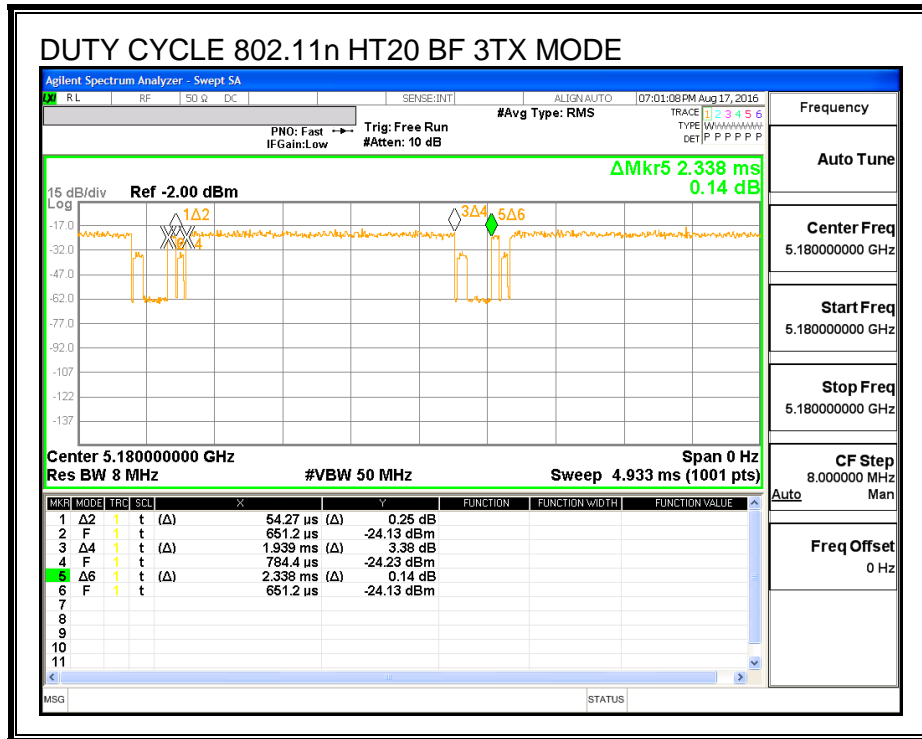
Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11n HT20 1TX	1.911	1.929	0.991	99.07%	0.00	0.010
802.11n HT20 CDD 2TX	1.917	1.938	0.989	98.92%	0.00	0.010
802.11n HT20 CDD 3TX	2.290	2.311	0.991	99.09%	0.00	0.010
802.11n HT20 STBC/SDM 2TX	2.289	2.307	0.992	99.22%	0.00	0.010
802.11n HT20 STBC/SDM 3TX	2.286	2.314	0.988	98.79%	0.00	0.010
802.11n VHT20 BF 2TX	1.996	2.544	0.785	78.47%	1.05	0.501
802.11n VHT20 BF 3TX	1.993	2.338	0.853	85.26%	0.69	0.502
802.11n HT40 1TX	1.122	1.140	0.984	98.42%	0.00	0.010
802.11n HT40 CDD 2TX	1.124	1.140	0.986	98.60%	0.00	0.010
802.11n HT40 CDD 3TX	1.123	1.140	0.985	98.51%	0.00	0.010
802.11n HT40 STBC/SDM 2TX	1.128	1.146	0.984	98.43%	0.00	0.010
802.11n HT40 STBC/SDM 3TX	1.127	1.145	0.984	98.43%	0.00	0.010
802.11n HT40 BF 2TX	2.823	3.386	0.834	83.38%	0.79	0.354
802.11n HT40 BF 3TX	2.055	2.350	0.874	87.45%	0.58	0.487
802.11ac VHT80 1TX	0.942	0.962	0.979	97.92%	0.09	1.062
802.11ac VHT80 CDD 2TX	0.460	0.479	0.960	95.99%	0.18	2.175
802.11ac VHT80 CDD 3TX	0.460	0.479	0.960	96.03%	0.18	2.174
802.11ac VHT80 STBC/SDM 2TX	0.467	0.488	0.958	95.84%	0.18	2.140
802.11ac VHT80 STBC/SDM 3TX	0.467	0.487	0.959	95.89%	0.18	2.141
802.11ac VHT80 BF 2TX	2.620	3.090	0.848	84.79%	0.72	0.382
802.11ac VHT80 BF 3TX	2.275	2.625	0.867	86.67%	0.62	0.440

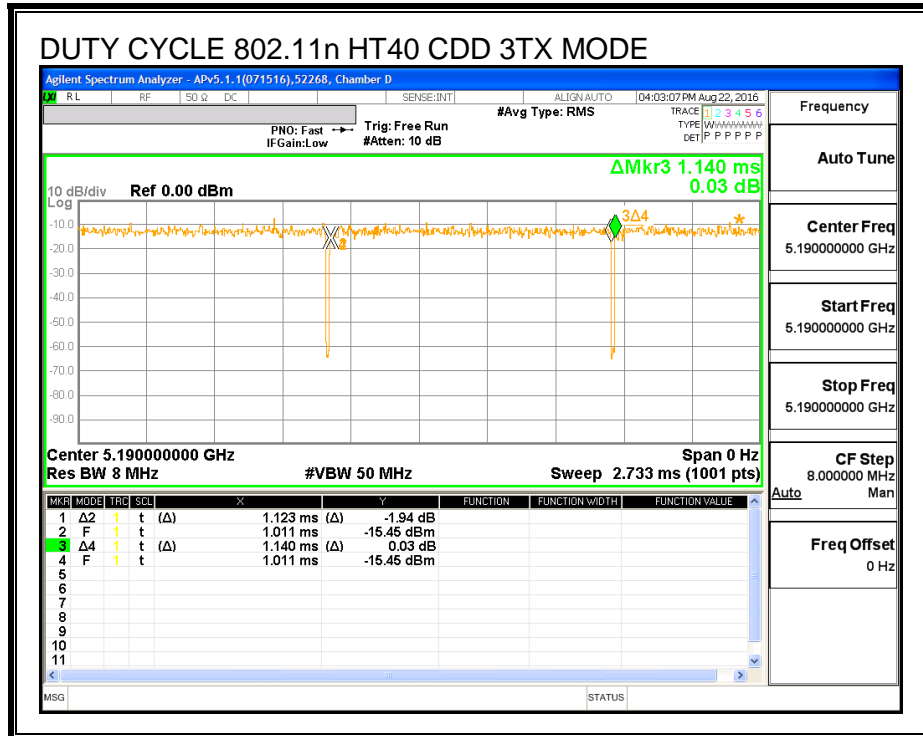
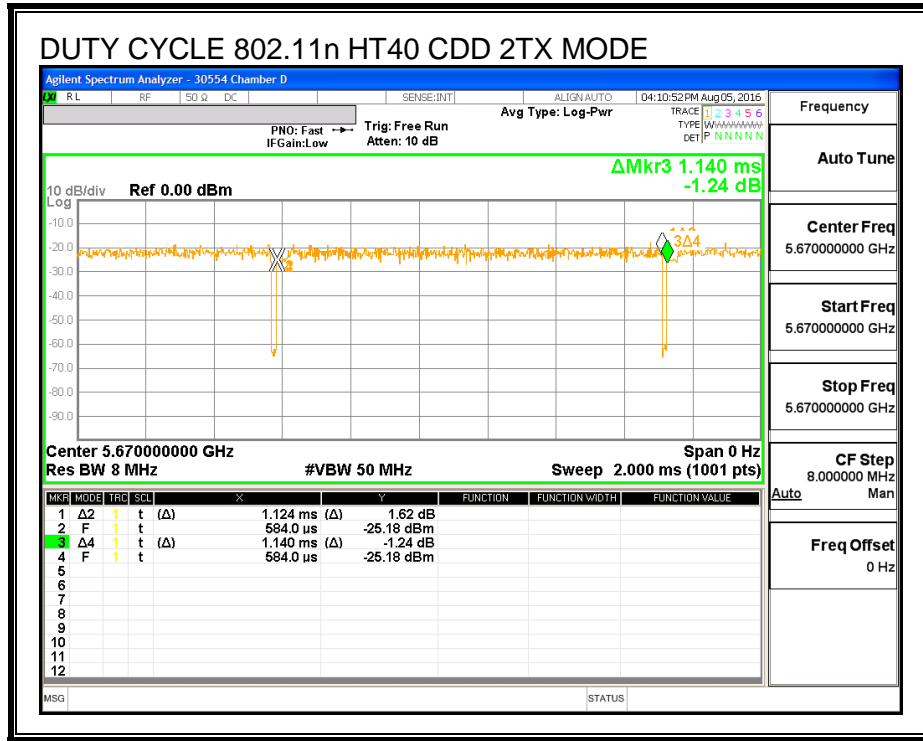
DUTY CYCLE PLOTS

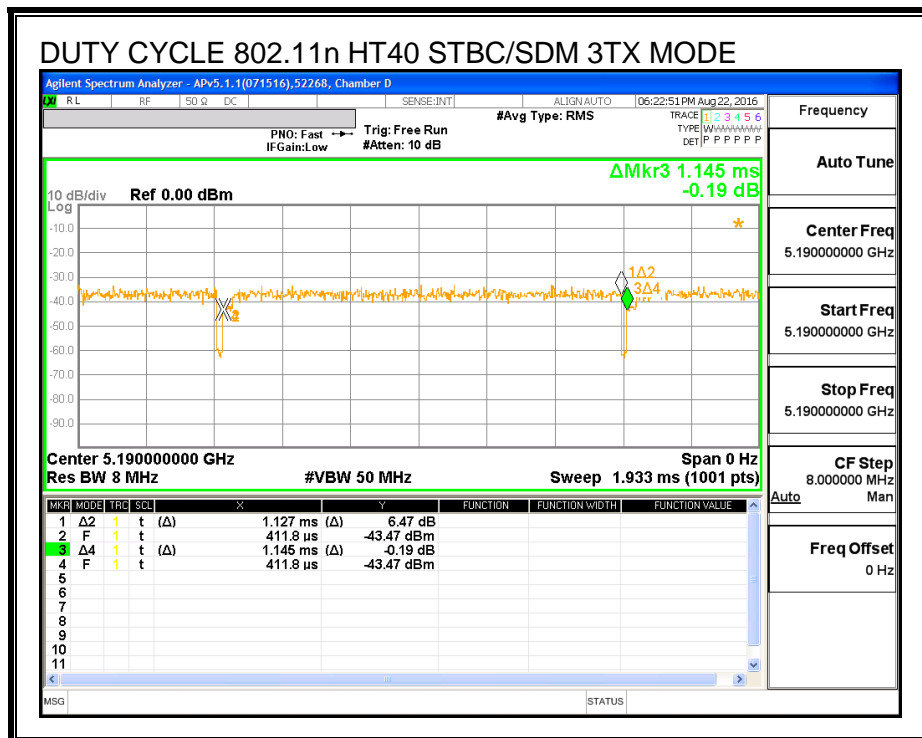
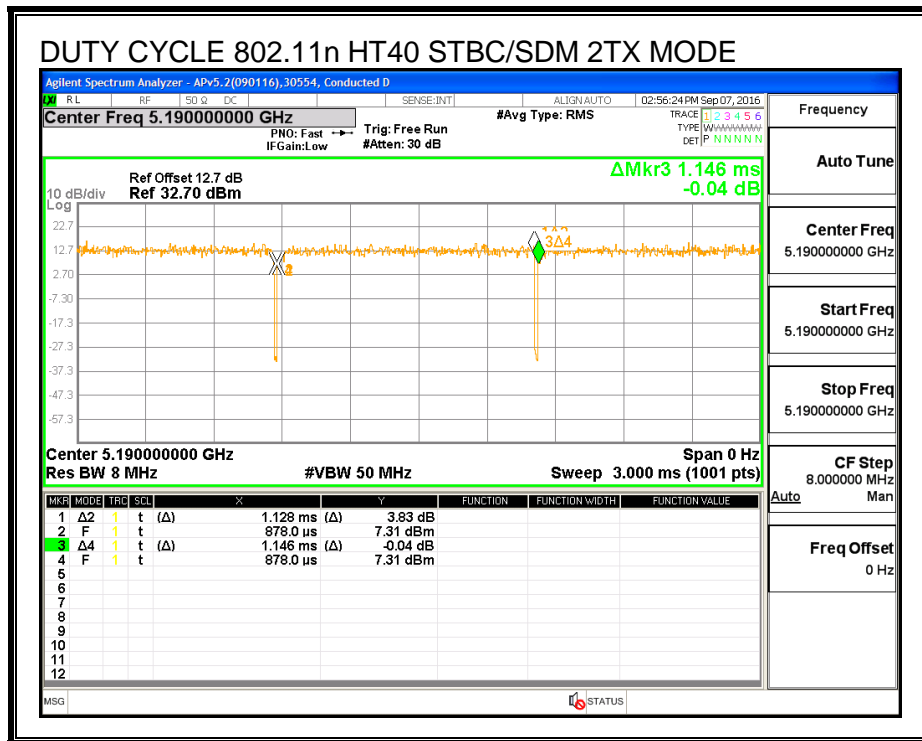


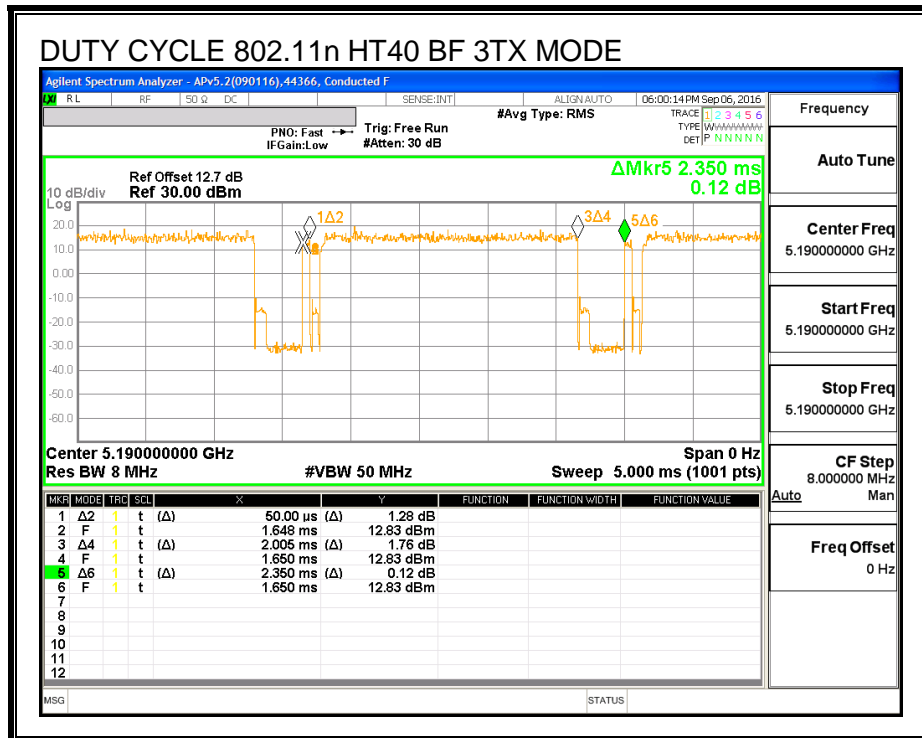
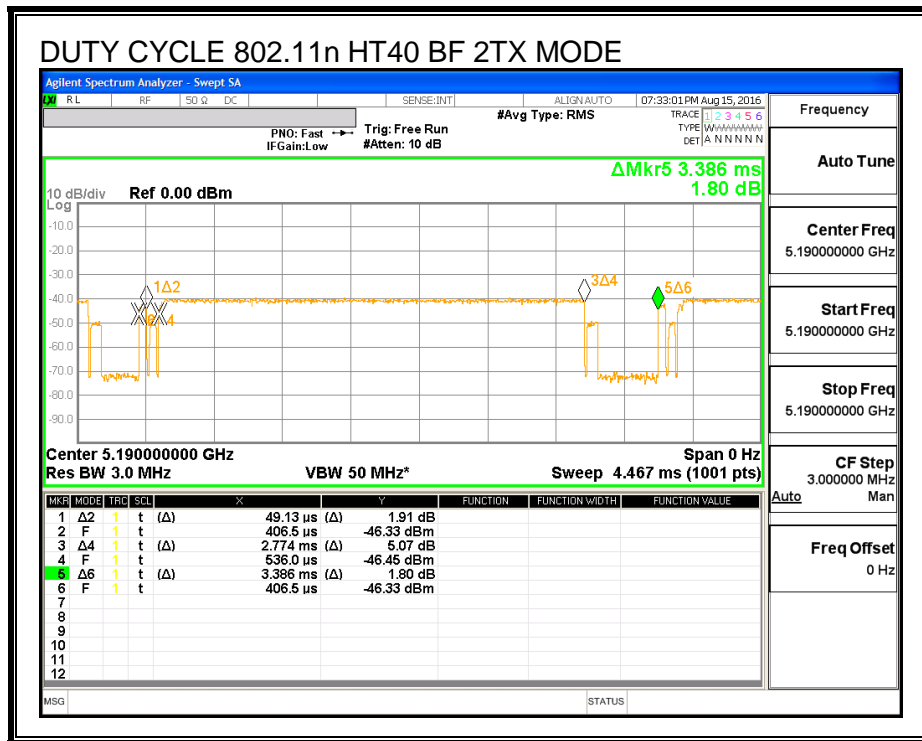


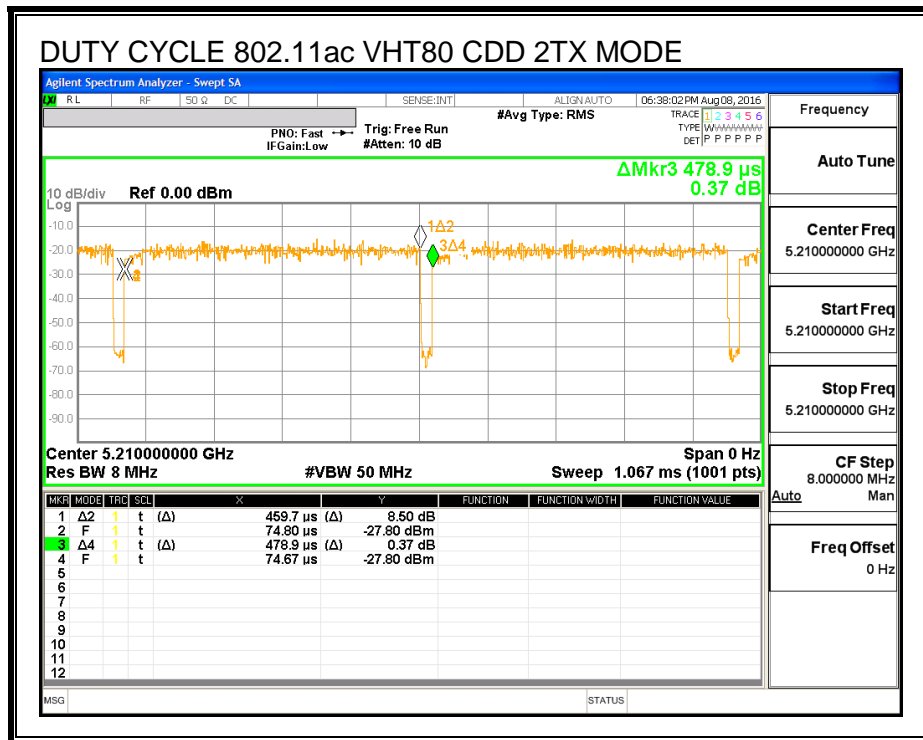
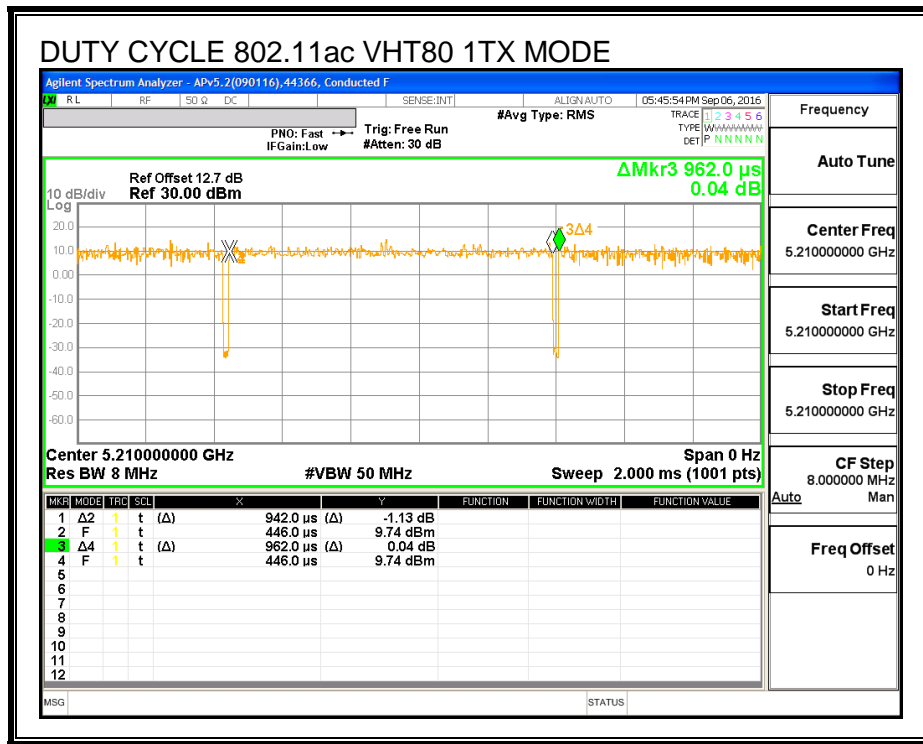


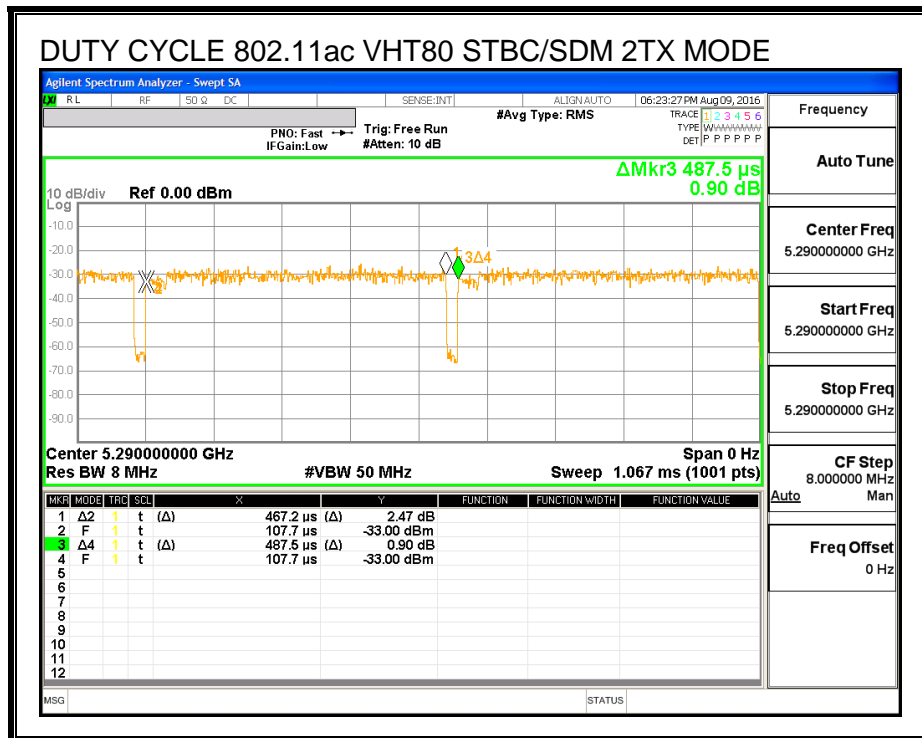
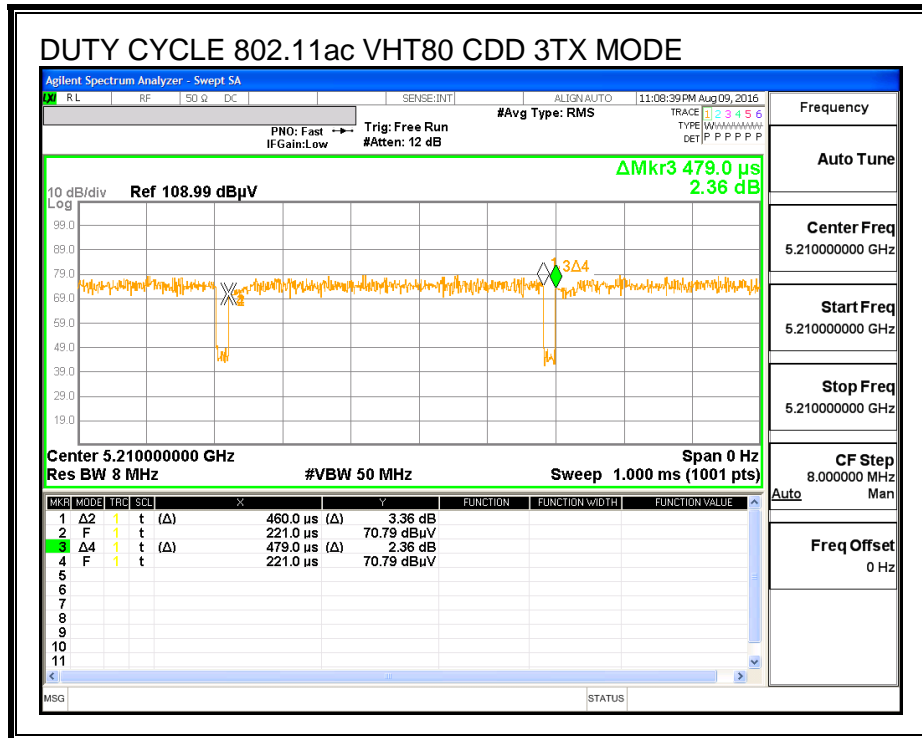


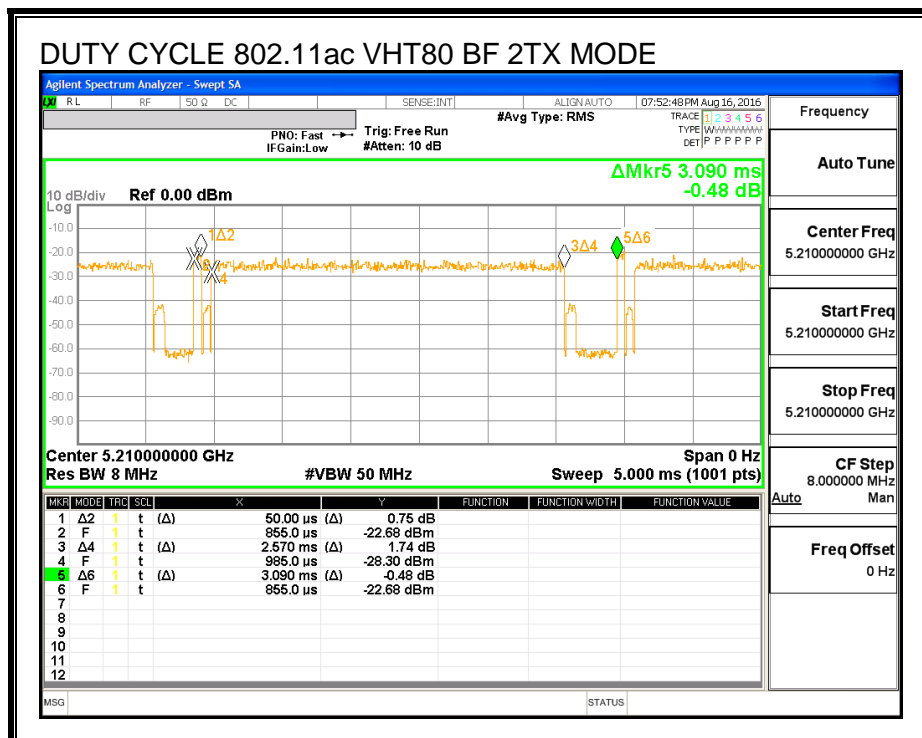
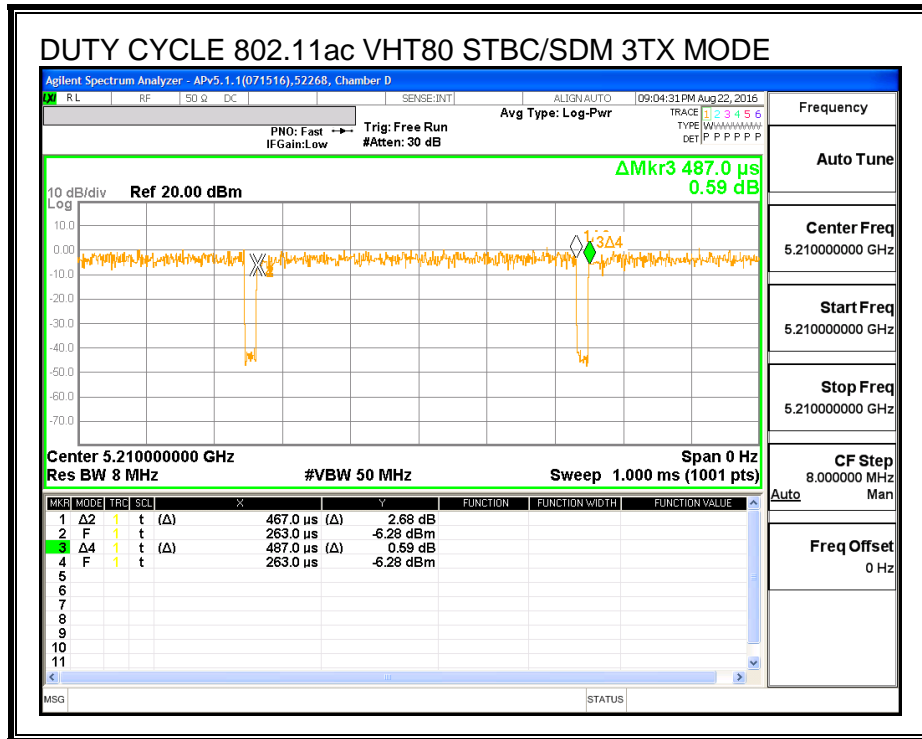


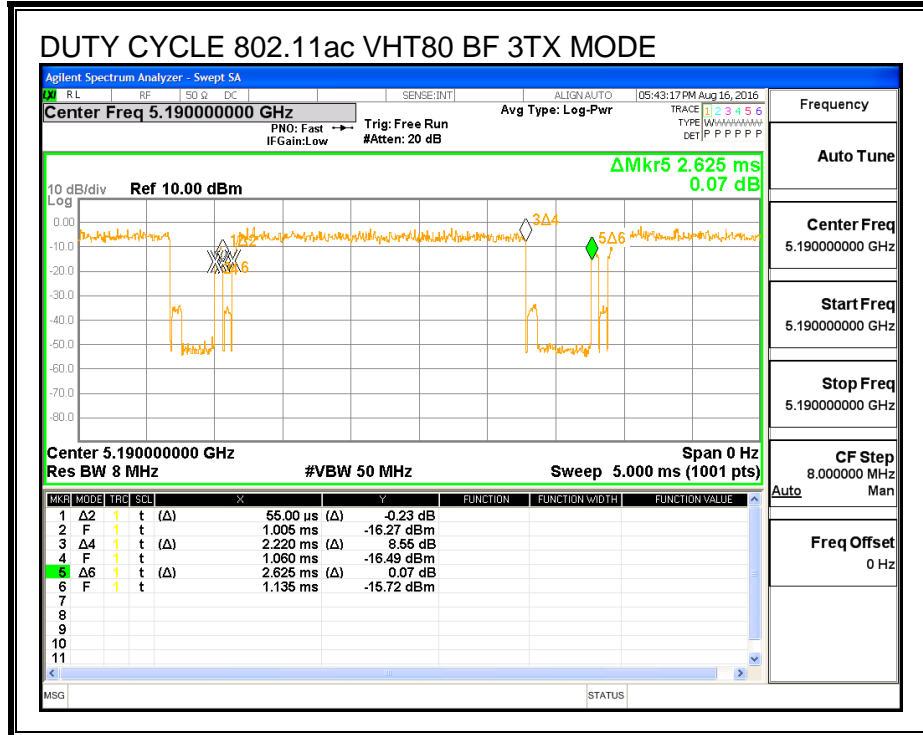












7.2. MEASUREMENT METHODS

6 dB Emission BW: KDB 789033 D02 v01r03, Section C.

26 dB Emission BW: KDB 789033 D02 v01r03, Section C.

99% Occupied BW: KDB 789033 D02 v01r03, Section D.

Conducted Output Power: KDB 789033 D02 v01r03, Section E.3.b (Method PM-G).

Power Spectral Density: KDB 789033 D02 v01r03, Section F (Method SA-2).

Unwanted emissions in restricted bands: KDB 789033 D02 v01r03, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01r03, Sections G.3, G.4, and G.5.

8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

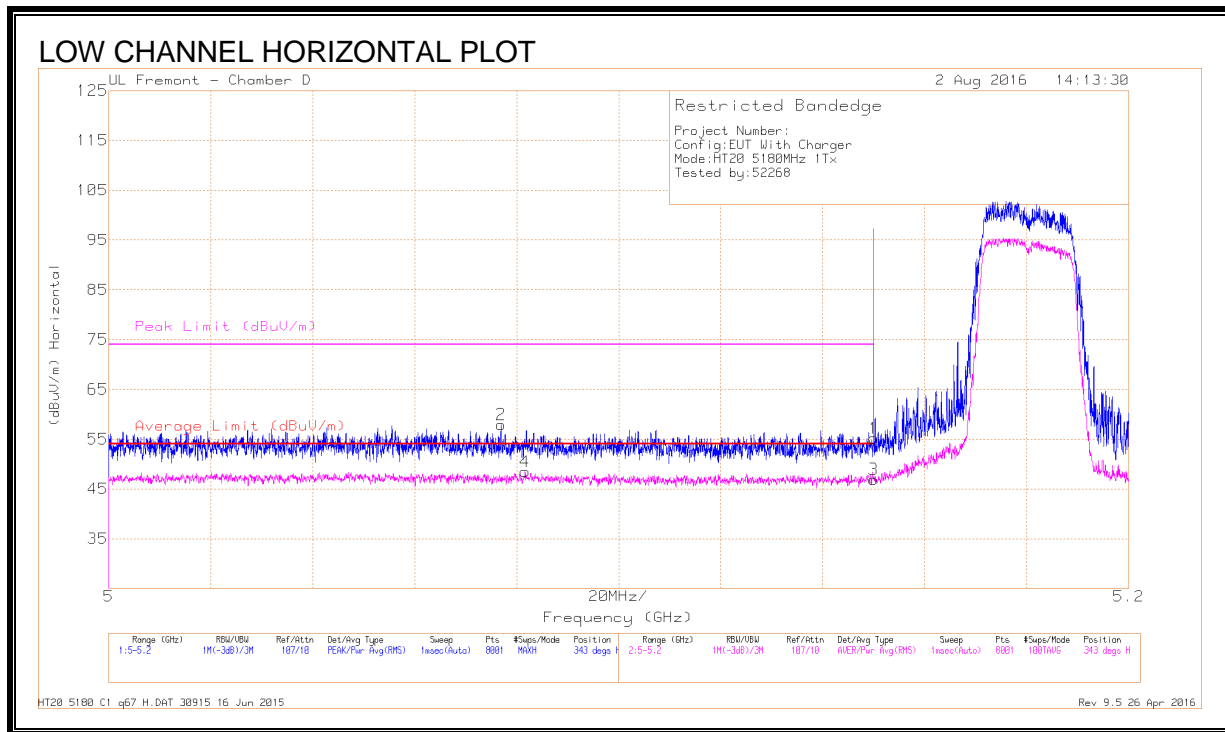
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

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

Note: 16U22643 Project number was used before the new project number was issued

8.2. 802.11n HT20 1Tx MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE, CHAIN 0 (LOW CHANNEL)



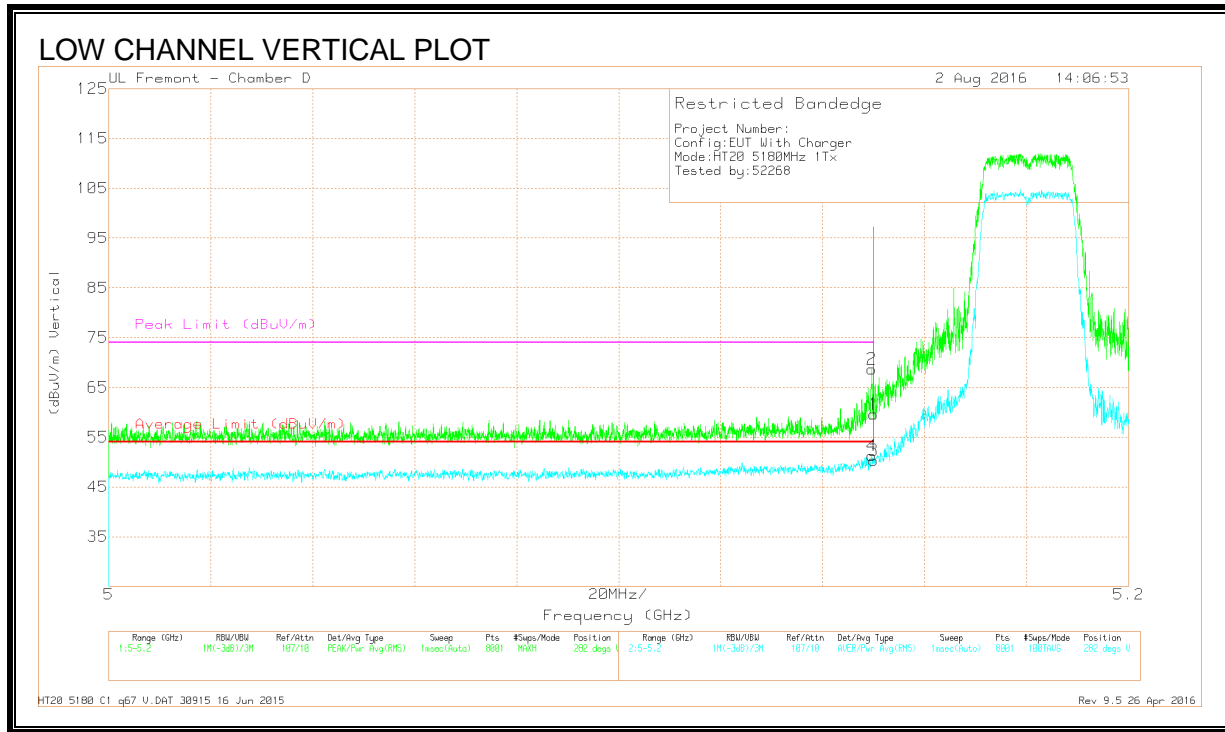
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.077	41.94	Pk	34	-18	57.94	-	-	74	-16.06	343	374	H
4	* 5.082	32.5	RMS	34	-18	48.5	54	-5.5	-	-	343	374	H
1	5.15	39.26	Pk	34.1	-18.2	55.16	-	-	74	-18.84	343	374	H
3	5.15	31.02	RMS	34.1	-18.2	46.92	54	-7.08	-	-	343	374	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



DATA

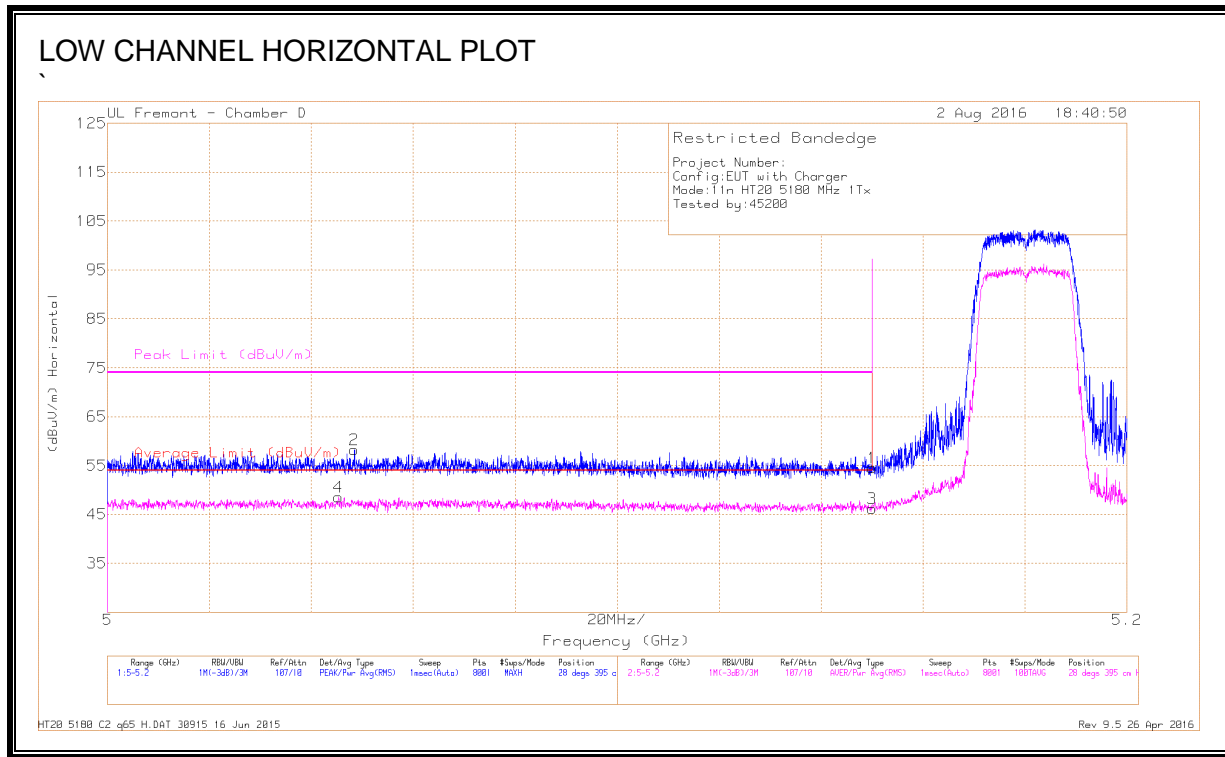
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cb/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Marg in (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimu th (Degs)	Heig ht (cm)	Polar ity
2	* 5.15	52.8	Pk	34.1	-18.2	68.7	-	-	74	-5.3	282	225	V
4	* 5.15	35.4	RMS	34.1	-18.2	51.3	54	-2.7	-	-	282	225	V
1	5.15	43.76	Pk	34.1	-18.2	59.66	-	-	74	-14.34	282	225	V
3	5.15	34.46	RMS	34.1	-18.2	50.36	54	-3.64	-	-	282	225	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE, CHAIN 1 (LOW CHANNEL)



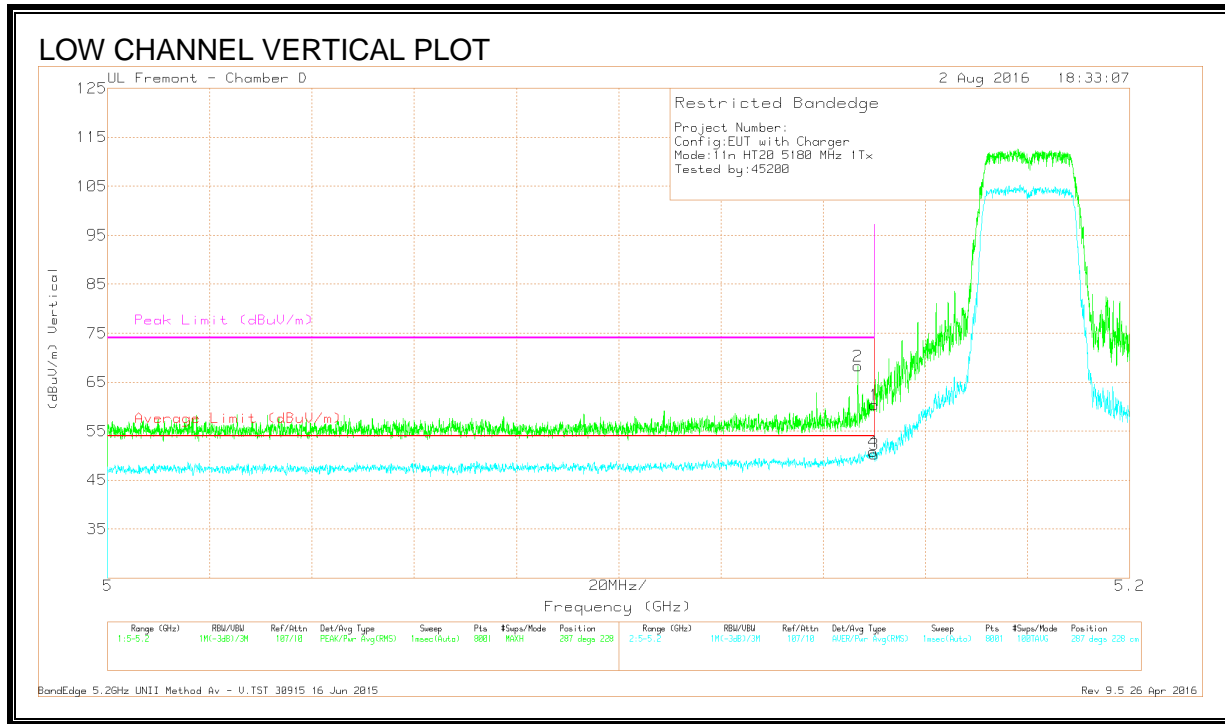
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.048	42.2	Pk	34	-18	58.2	-	-	74	-15.8	28	395	H
4	* 5.045	32.56	RMS	34	-18	48.56	54	-5.44	-	-	28	395	H
1	5.15	38.64	Pk	34.1	-18.2	54.54	-	-	74	-19.46	28	395	H
3	5.15	30.29	RMS	34.1	-18.2	46.19	54	-7.81	-	-	28	395	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



DATA

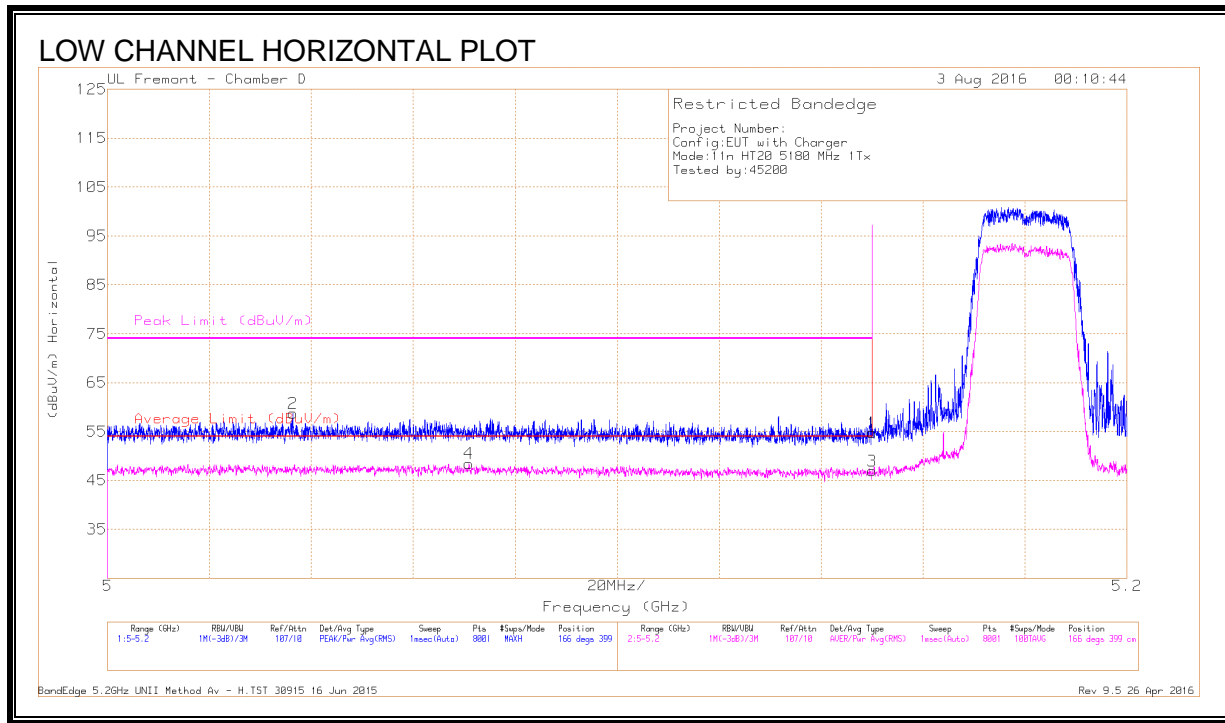
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl /Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.147	52.41	Pk	34.1	-18.2	68.31	-	-	74	-5.69	287	228	V
4	* 5.15	34.9	RMS	34.1	-18.2	50.8	54	-3.2	-	-	287	228	V
1	5.15	44.47	Pk	34.1	-18.2	60.37	-	-	74	-13.63	287	228	V
3	5.15	34.38	RMS	34.1	-18.2	50.28	54	-3.72	-	-	287	228	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE, CHAIN 2 (LOW CHANNEL)



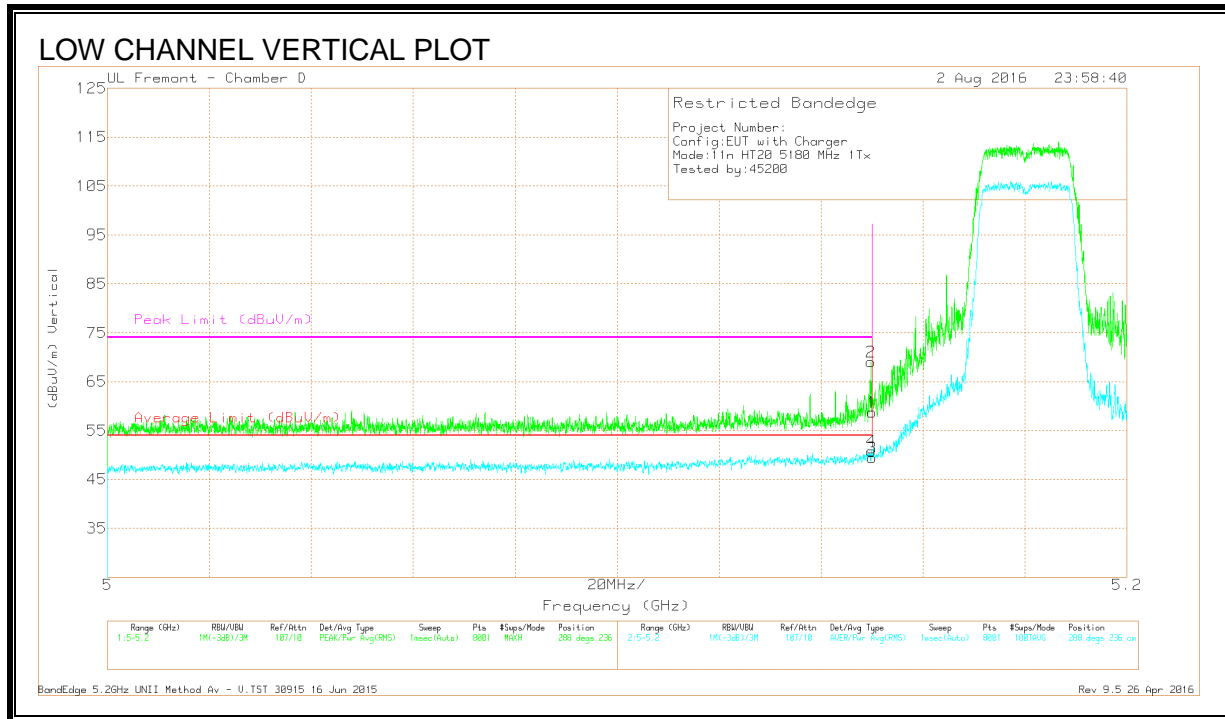
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl /Ftr/Par d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.036	42.76	Pk	34	-18	58.76	-	-	74	-15.24	166	399	H
4	* 5.071	32.49	RMS	34	-18	48.49	54	-5.51	-	-	166	399	H
1	5.15	38.84	Pk	34.1	-18.2	54.74	-	-	74	-19.26	166	399	H
3	5.15	31.01	RMS	34.1	-18.2	46.91	54	-7.09	-	-	166	399	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



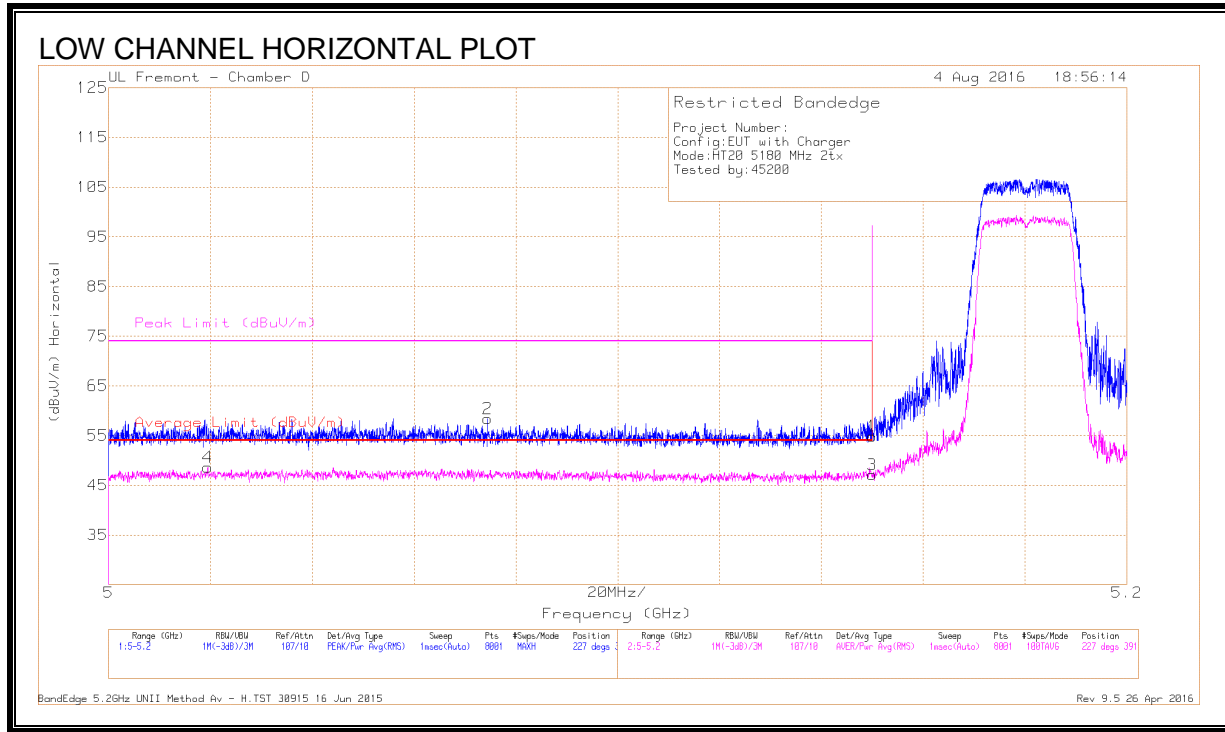
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl /Filtr/PA d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Marg in (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimu th (Degs)	Heig ht (cm)	Polar ity
2	* 5.15	53.15	Pk	34.1	-18.2	69.05	-	-	74	-4.95	288	236	V
4	* 5.15	34.85	RMS	34.1	-18.2	50.75	54	-3.25	-	-	288	236	V
1	5.15	42.86	Pk	34.1	-18.2	58.76	-	-	74	-15.24	288	236	V
3	5.15	33.53	RMS	34.1	-18.2	49.43	54	-4.57	-	-	288	236	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.3. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.2 GHz BAND

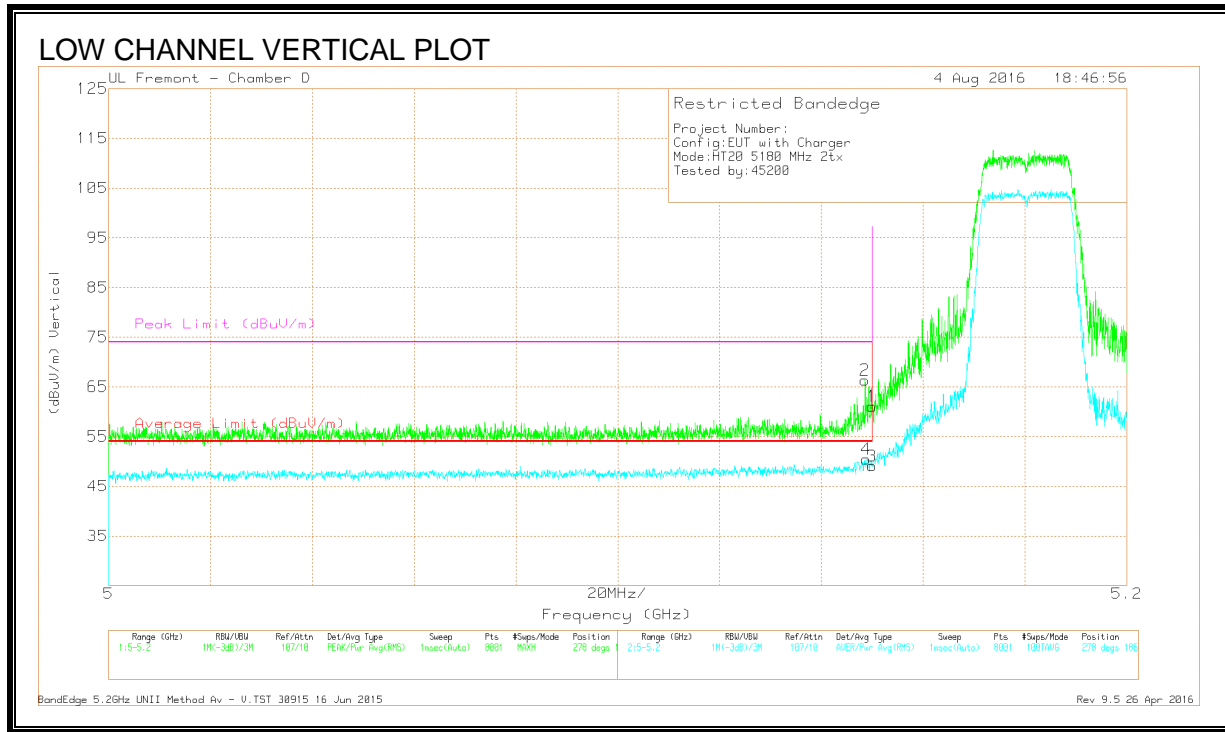
RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.074	42.42	Pk	34	-18	58.42	-	-	74	-15.58	227	391	H
4	* 5.02	32.53	RMS	34	-17.9	48.63	54	-5.37	-	-	227	391	H
1	5.15	38.98	Pk	34.1	-18.2	54.88	-	-	74	-19.12	227	391	H
3	5.15	31.26	RMS	34.1	-18.2	47.16	54	-6.84	-	-	227	391	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



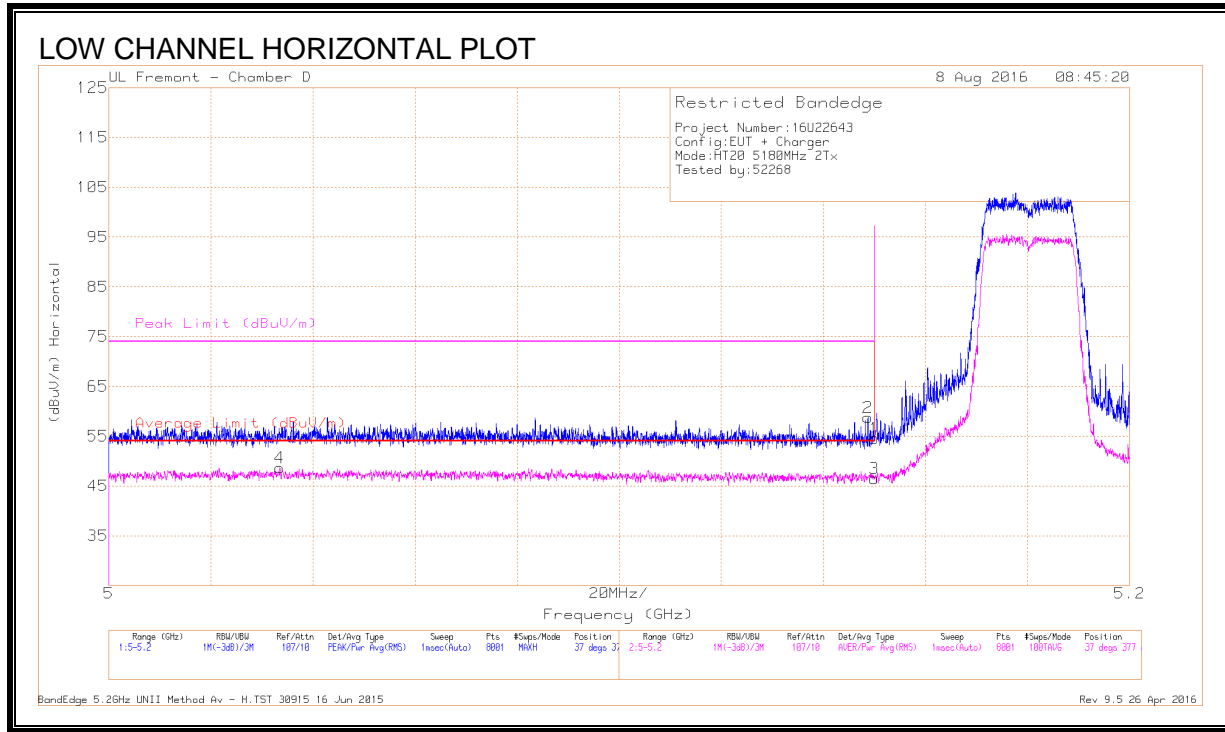
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	50.45	Pk	34.1	-18.2	66.35	-	-	74	-7.65	278	186	V
4	* 5.149	34.58	RMS	34.1	-18.2	50.48	54	-3.52	-	-	278	186	V
1	5.15	45.2	PK	34.1	-18.2	61.1	-	-	74	-12.9	278	186	V
3	5.15	33.2	RMS	34.1	-18.2	49.1	54	-4.9	-	-	278	186	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.4. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.2 GHz BAND

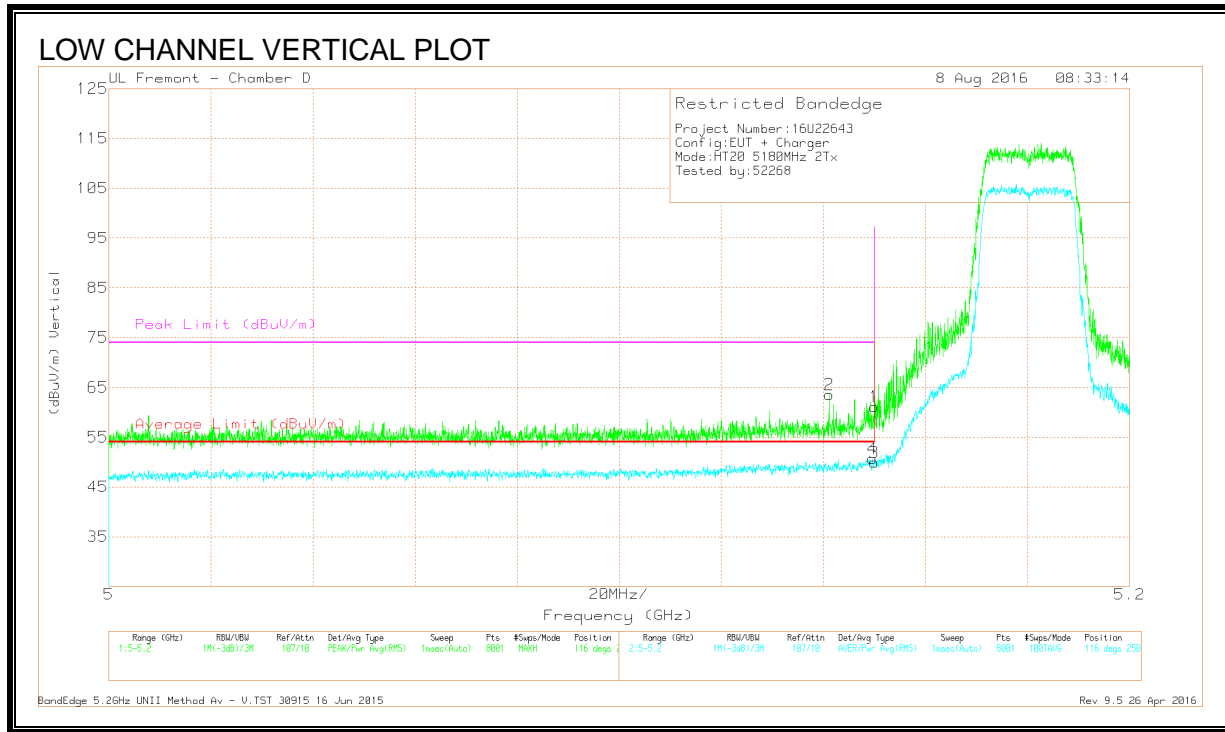
RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	42.83	Pk	34.1	-18.2	58.73	-	-	74	-15.27	37	377	H
4	* 5.034	32.55	RMS	34	-17.9	48.65	54	-5.35	-	-	37	377	H
1	5.15	38.66	Pk	34.1	-18.2	54.56	-	-	74	-19.44	37	377	H
3	5.15	30.59	RMS	34.1	-18.2	46.49	54	-7.51	-	-	37	377	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



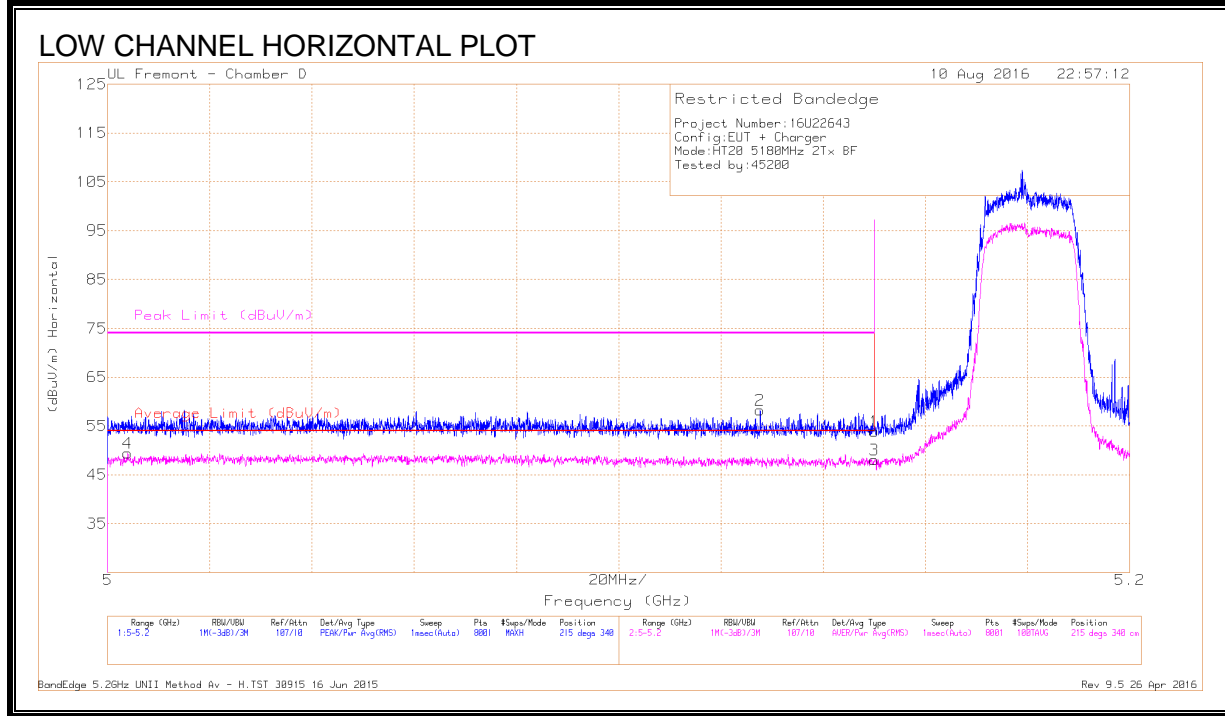
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.141	47.64	Pk	34.1	-18.2	63.54	-	-	74	-10.46	116	250	V
4	* 5.15	34.79	RMS	34.1	-18.2	50.69	54	-3.31	-	-	116	250	V
1	5.15	45.2	Pk	34.1	-18.2	61.1	-	-	74	-12.9	116	250	V
3	5.15	34.07	RMS	34.1	-18.2	49.97	54	-4.03	-	-	116	250	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.5. 802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.2 GHz BAND

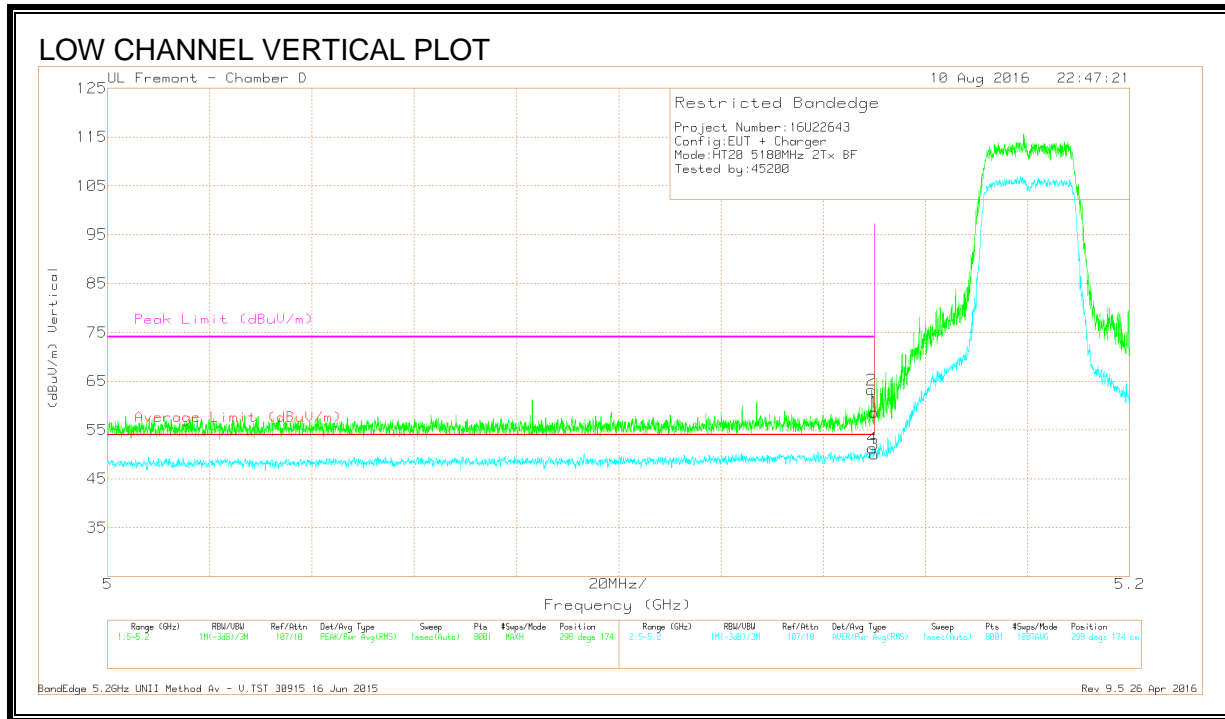
RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT712 (dB/m)	Amp/Cb l/Filtr/PA d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
2	* 5.128	42.39	Pk	34.1	-18.2	0	58.29	-	-	74	-15.71	215	340	H
4	* 5.004	32.34	RMS	34	-18	1.05	49.39	54	-4.61	-	-	215	340	H
1	5.15	38.01	Pk	34.1	-18.2	0	53.91	-	-	74	-20.09	215	340	H
3	5.15	31.08	RMS	34.1	-18.2	1.05	48.03	54	-5.97	-	-	215	340	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarity
2	* 5.149	47.34	Pk	34.1	-18.2	0	63.24	-	-	74	-10.76	298	174	V
4	* 5.15	34.34	RMS	34.1	-18.2	1.05	51.29	54	-2.71	-	-	298	174	V
1	5.15	42.77	Pk	34.1	-18.2	0	58.67	-	-	74	-15.33	298	174	V
3	5.15	33.12	RMS	34.1	-18.2	1.05	50.07	54	-3.93	-	-	298	174	V

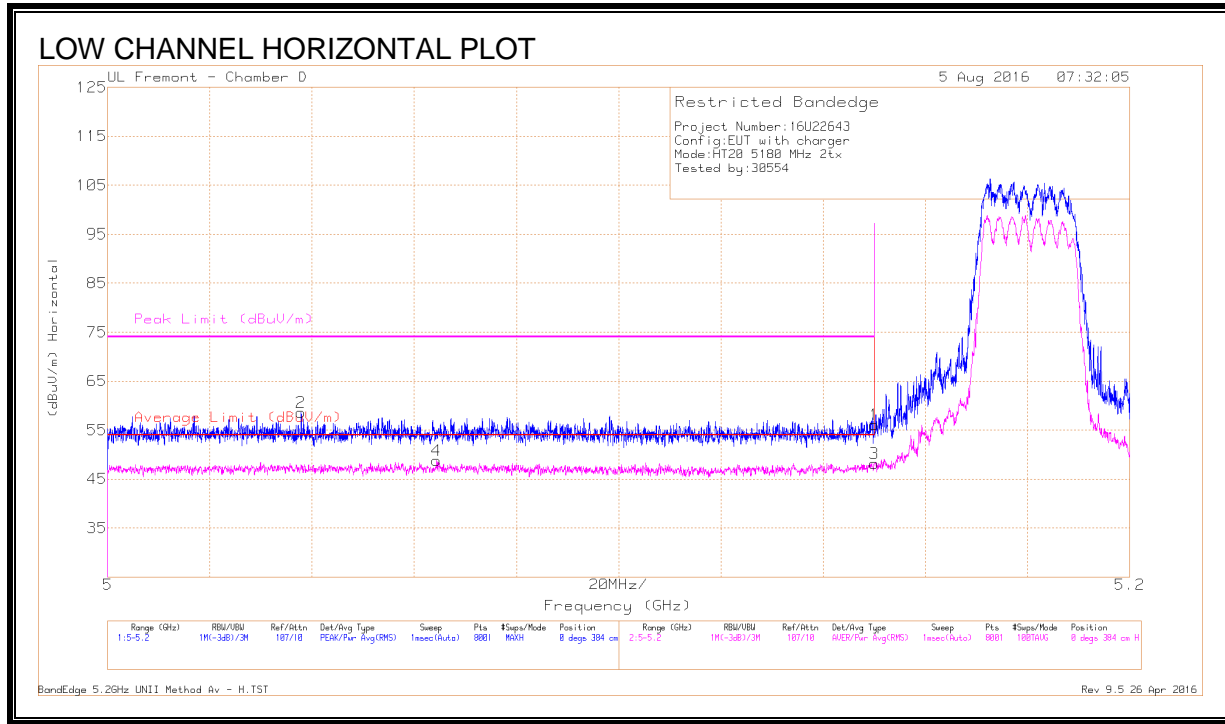
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

8.6. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



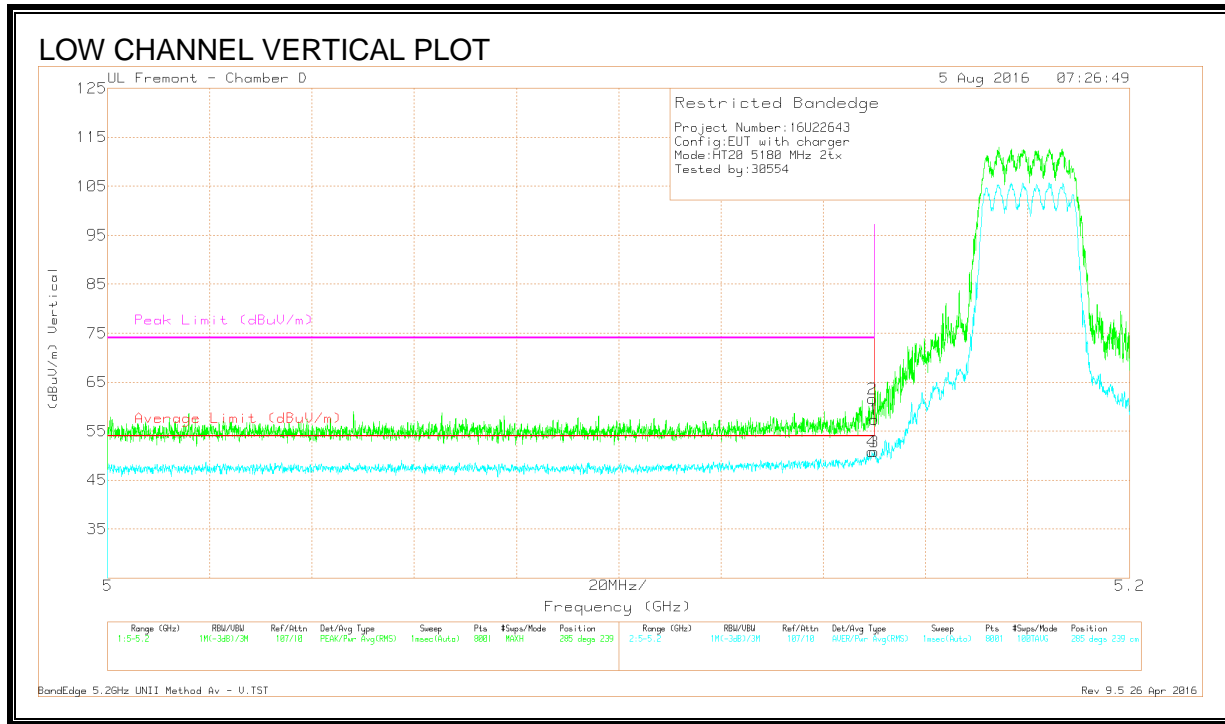
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.038	42.56	Pk	34	-18	58.56	-	-	74	-15.44	0	384	H
4	* 5.064	32.67	RMS	34	-17.9	48.77	54	-5.23	-	-	0	384	H
1	5.15	40.27	Pk	34.1	-18.2	56.17	-	-	74	-17.83	0	384	H
3	5.15	32.31	RMS	34.1	-18.2	48.21	54	-5.79	-	-	0	384	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.15	45.71	Pk	34.1	-18.2	61.61	-	-	74	-12.39	285	239	V
4	* 5.15	34.9	RMS	34.1	-18.2	50.8	54	-3.2	-	-	285	239	V
1	5.15	41.48	Pk	34.1	-18.2	57.38	-	-	74	-16.62	285	239	V
3	5.15	34.84	RMS	34.1	-18.2	50.74	54	-3.26	-	-	285	239	V

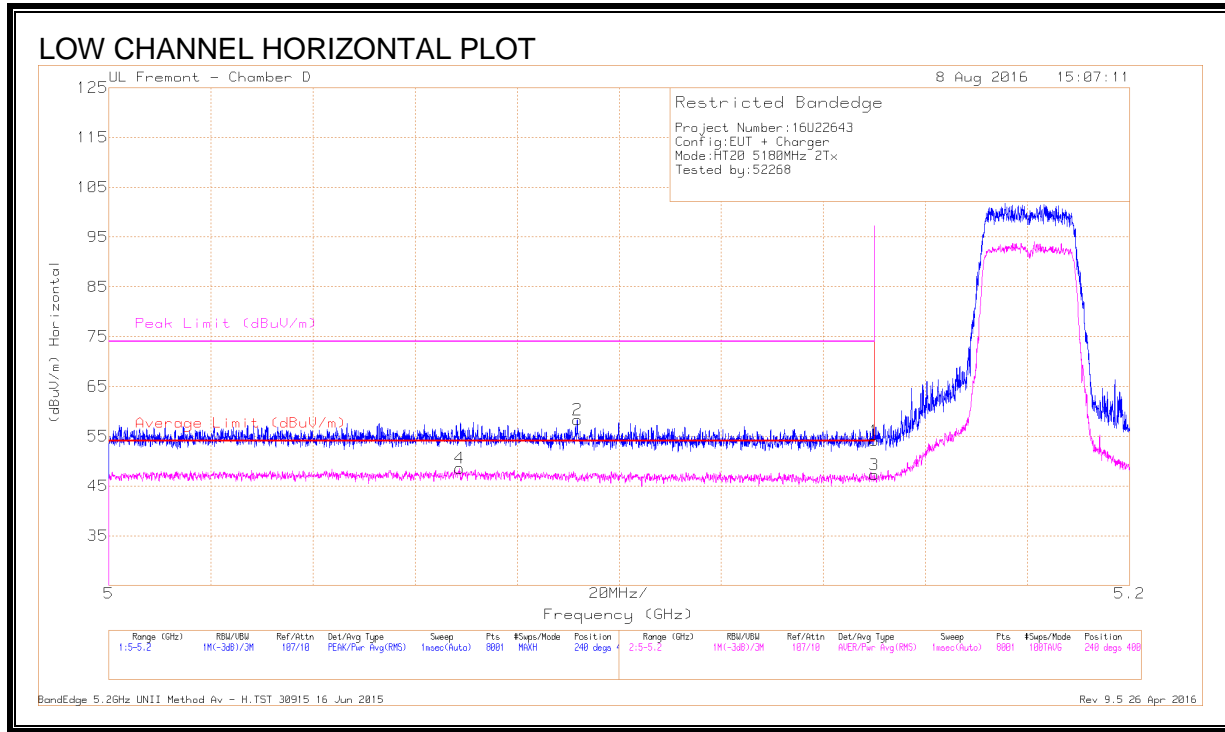
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

8.7. 802.11n HT20 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND

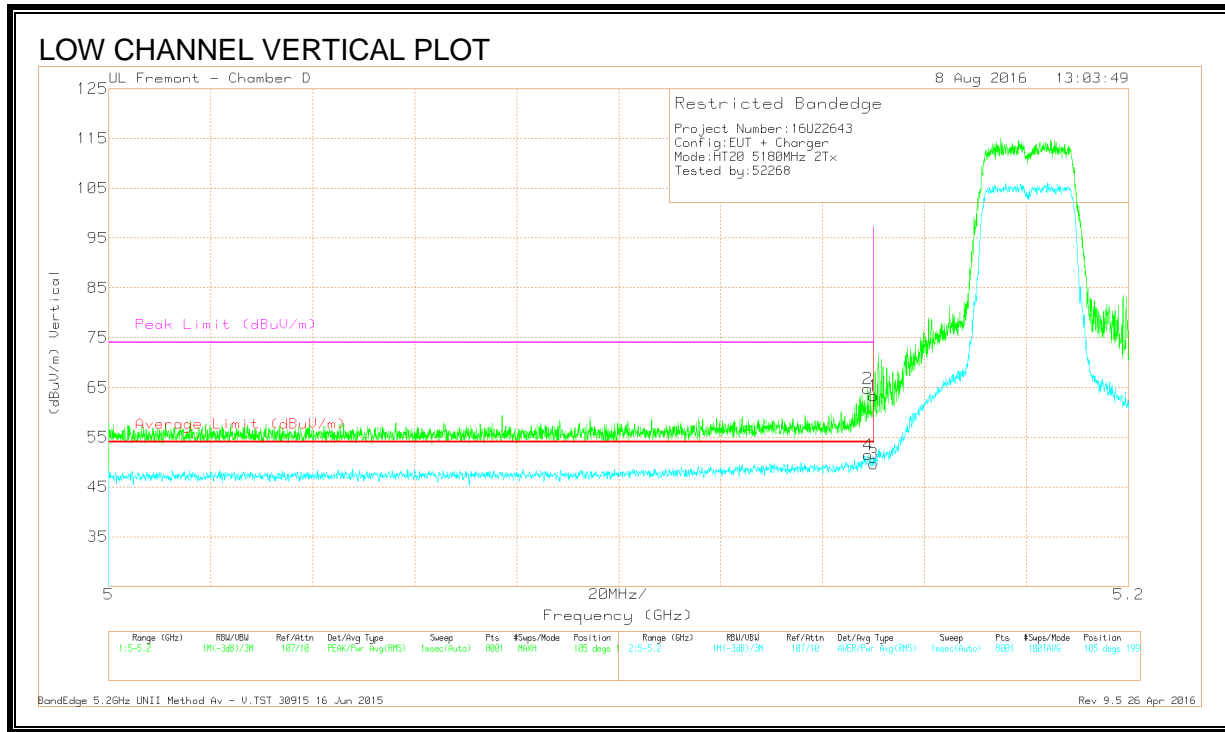
RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.092	42.41	Pk	34	-18.1	58.31	-	-	74	-15.69	240	400	H
4	* 5.069	32.56	RMS	34	-18	48.56	54	-5.44	-	-	240	400	H
1	5.15	38.22	Pk	34.1	-18.2	54.12	-	-	74	-19.88	240	400	H
3	5.15	31.35	RMS	34.1	-18.2	47.25	54	-6.75	-	-	240	400	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



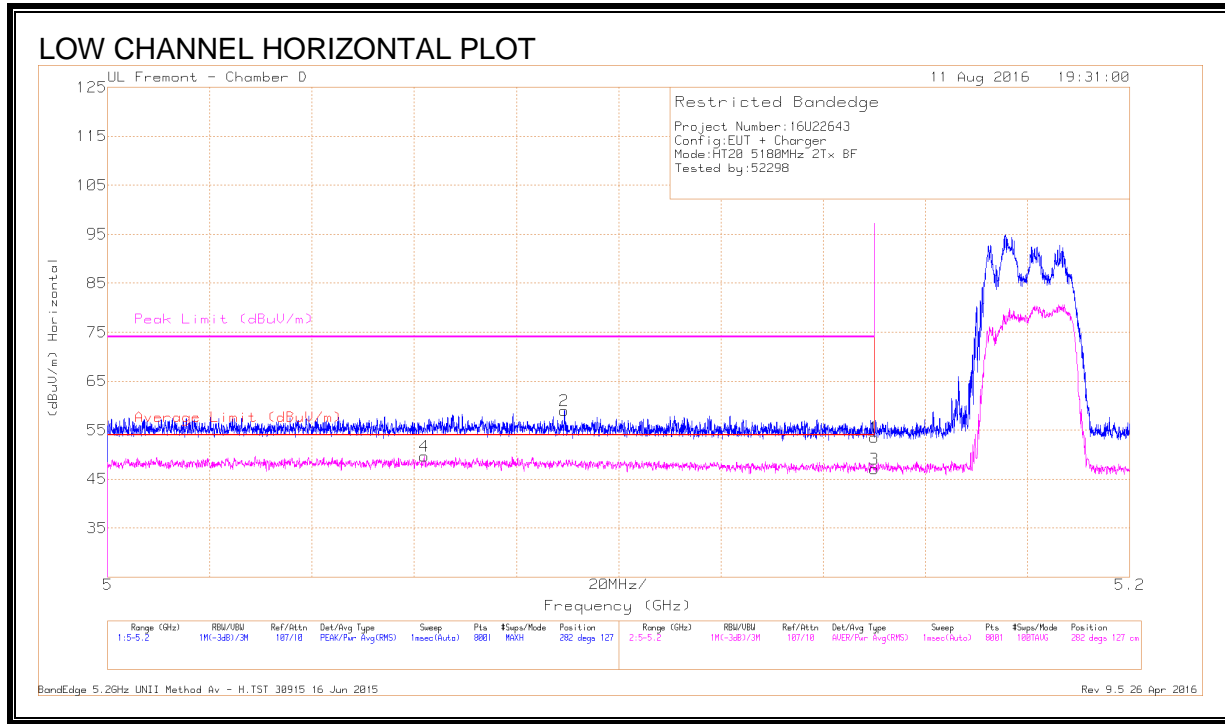
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	48.87	Pk	34.1	-18.2	64.77	-	-	74	-9.23	105	199	V
4	* 5.149	35.55	RMS	34.1	-18.2	51.45	54	-2.55	-	-	105	199	V
1	5.15	47.4	Pk	34.1	-18.2	63.3	-	-	74	-10.7	105	199	V
3	5.15	33.78	RMS	34.1	-18.2	49.68	54	-4.32	-	-	105	199	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.8. 802.11ac VHT20 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



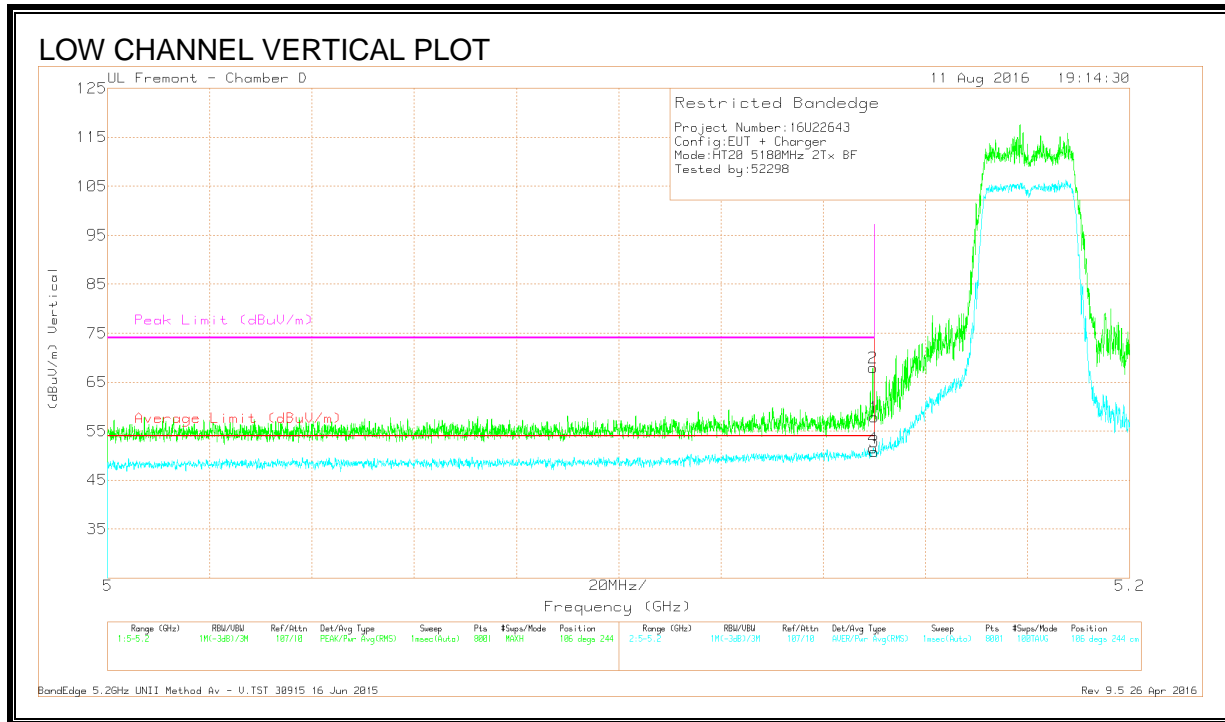
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarity
2	* 5.089	43.13	Pk	34	-18.1	0	59.03	-	-	74	-14.97	282	127	H
4	* 5.062	32.64	RMS	34	-18	1.05	49.69	54	-4.31	-	-	282	127	H
1	5.15	37.66	Pk	34.1	-18.2	0	53.56	-	-	74	-20.44	282	127	H
3	5.15	30.08	RMS	34.1	-18.2	1.05	47.03	54	-6.97	-	-	282	127	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



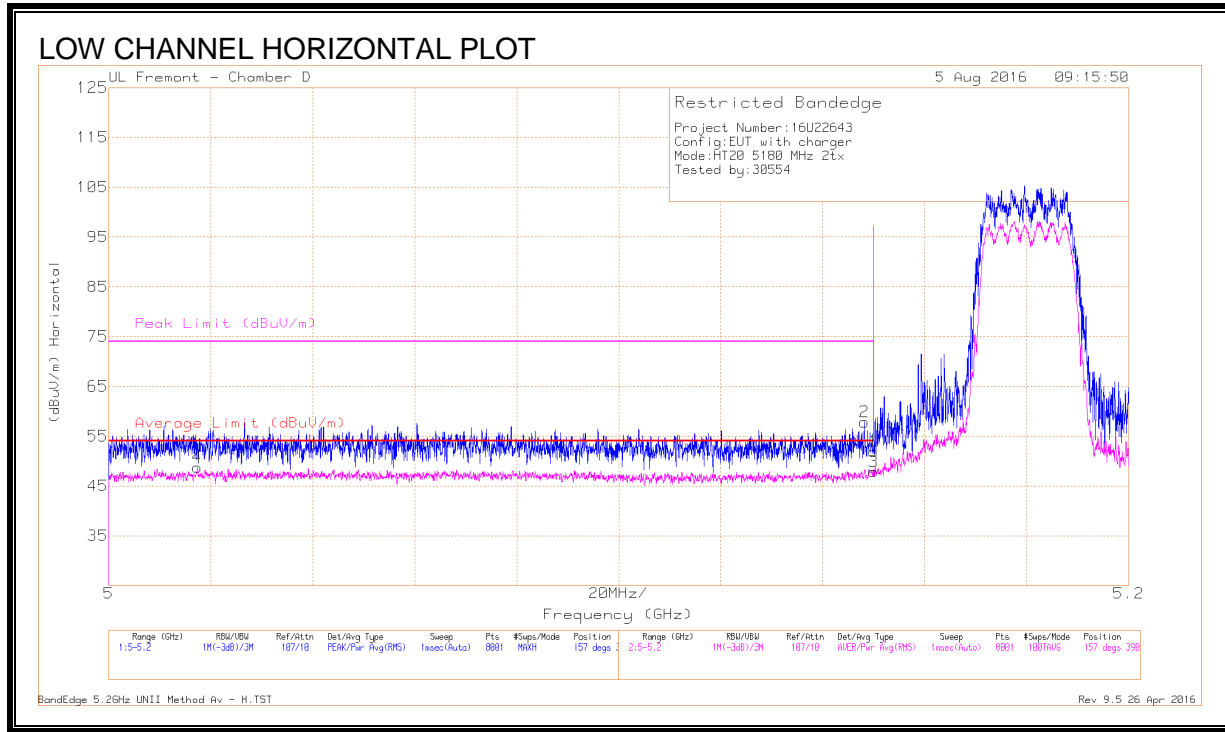
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cb/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarity
2	* 5.15	52.04	Pk	34.1	-18.2	0	67.94	-	-	74	-6.06	106	244	V
4	* 5.15	34.56	RMS	34.1	-18.2	1.05	51.51	54	-2.49	-	-	106	244	V
1	5.15	41.98	Pk	34.1	-18.2	0	57.88	-	-	74	-16.12	106	244	V
3	5.15	33.9	RMS	34.1	-18.2	1.05	50.85	54	-3.15	-	-	106	244	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.9. 802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND

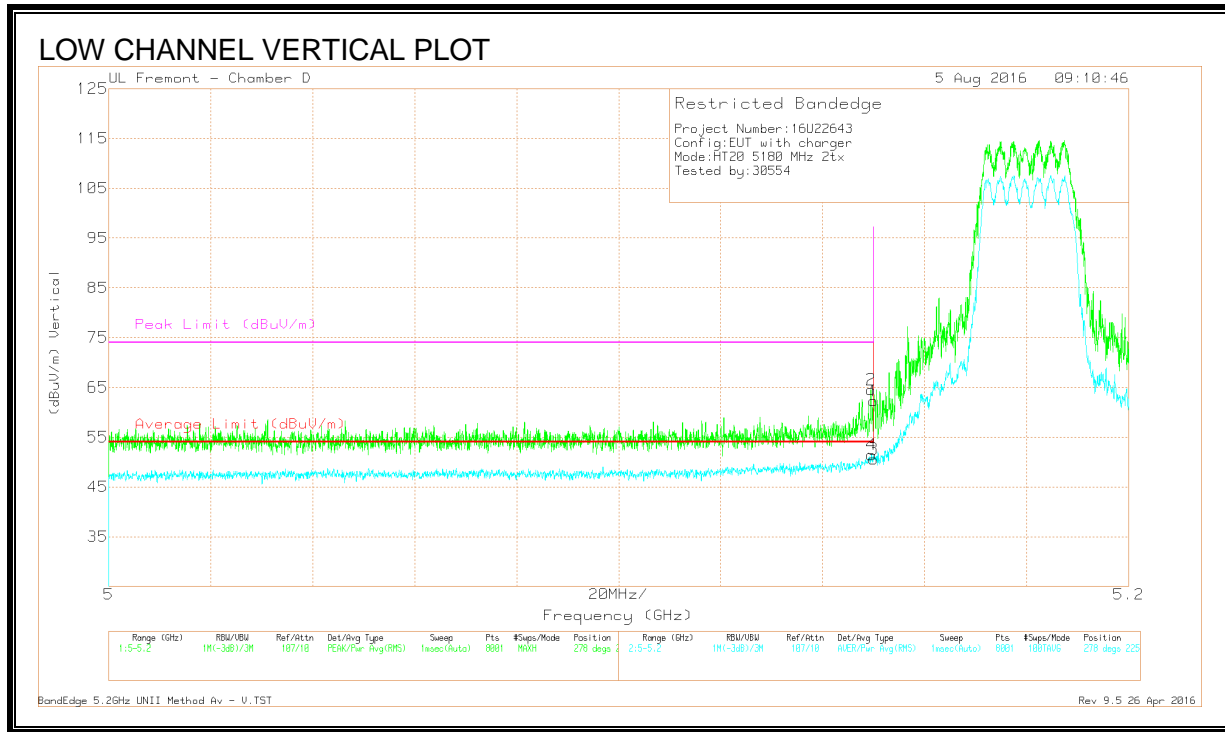
RESTRICTED BANDEGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.148	41.96	Pk	34.1	-18.2	57.86	-	-	74	-16.14	157	390	H
4	* 5.017	32.7	RMS	34	-17.9	48.8	54	-5.2	-	-	157	390	H
1	5.15	36.04	Pk	34.1	-18.2	51.94	-	-	74	-22.06	157	390	H
3	5.15	31.97	RMS	34.1	-18.2	47.87	54	-6.13	-	-	157	390	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



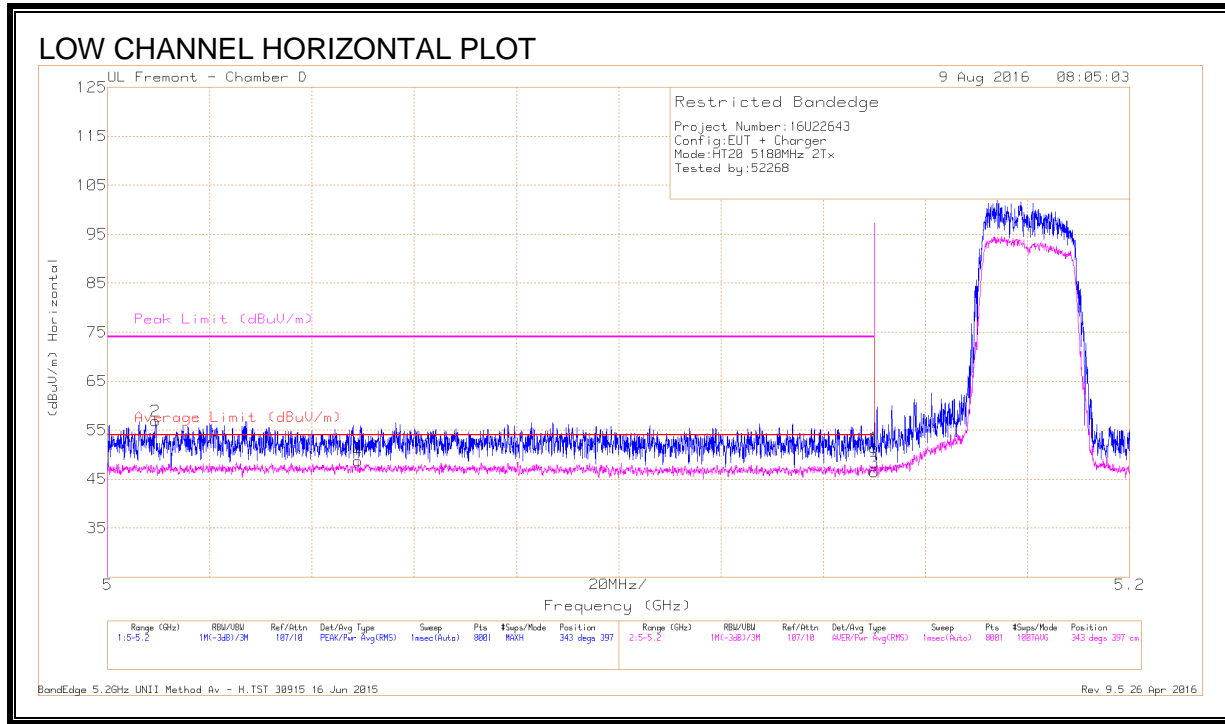
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	48.65	Pk	34.1	-18.2	64.55	-	-	74	-9.45	278	225	V
4	* 5.15	35.59	RMS	34.1	-18.2	51.49	54	-2.51	-	-	278	225	V
1	5.15	46.37	Pk	34.1	-18.2	62.27	-	-	74	-11.73	278	225	V
3	5.15	34.71	RMS	34.1	-18.2	50.61	54	-3.39	-	-	278	225	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.10. 802.11n HT20 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



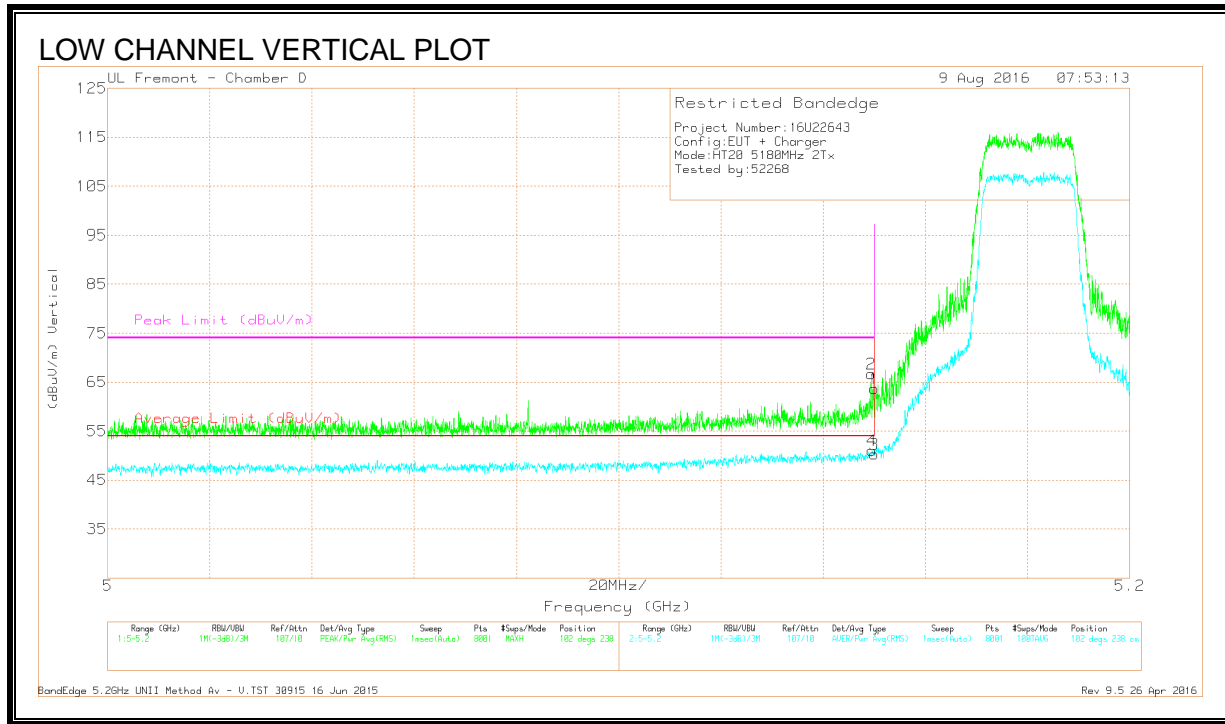
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.009	40.77	Pk	34	-17.9	56.87	-	-	74	-17.13	343	397	H
4	* 5.049	32.65	RMS	34	-18	48.65	54	-5.35	-	-	343	397	H
1	5.15	35.56	Pk	34.1	-18.2	51.46	-	-	74	-22.54	343	397	H
3	5.15	30.57	RMS	34.1	-18.2	46.47	54	-7.53	-	-	343	397	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cb/Filter/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	50.79	Pk	34.1	-18.2	66.69	-	-	74	-7.31	102	238	V
4	* 5.15	35.14	RMS	34.1	-18.2	51.04	54	-2.96	-	-	102	238	V
1	5.15	47.84	Pk	34.1	-18.2	63.74	-	-	74	-10.26	102	238	V
3	5.15	34.35	RMS	34.1	-18.2	50.25	54	-3.75	-	-	102	238	V

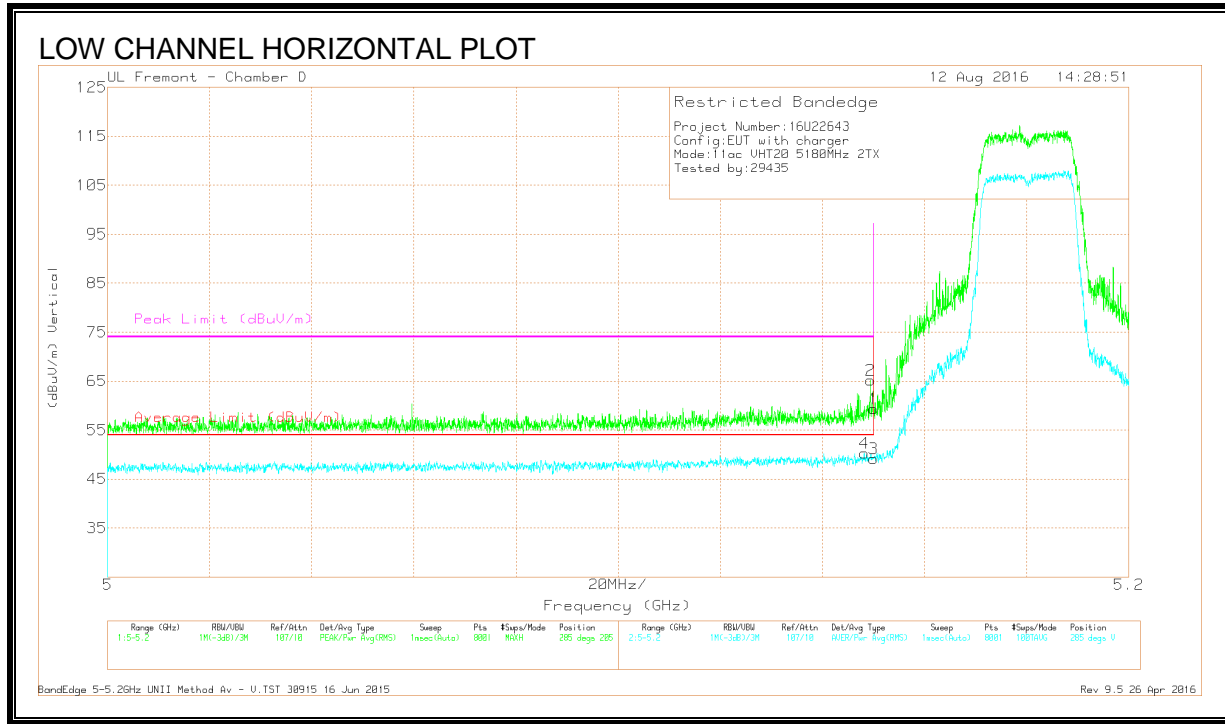
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

8.11. 802.11ac VHT20 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



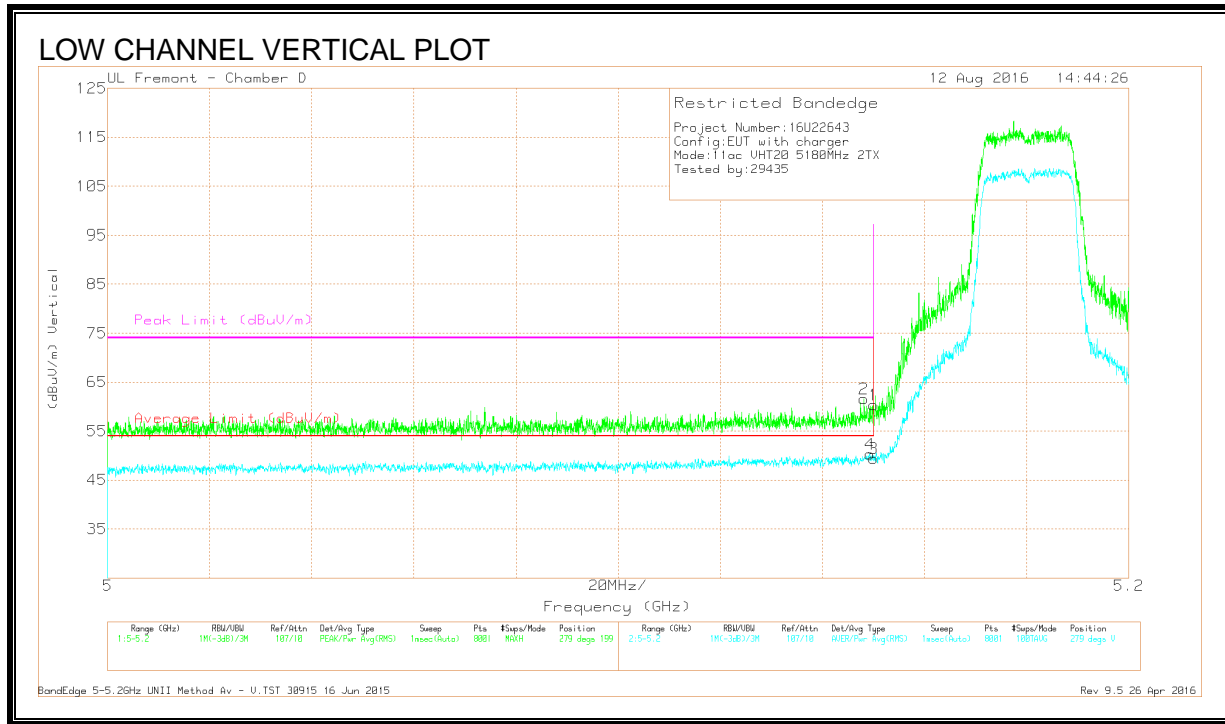
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	49.24	Pk	34.1	-18.2	0	65.14	-	-	74	-8.86	285	205	V
4	* 5.148	34.39	RMS	34.1	-18.2	1.05	51.34	54	-2.66	-	-	285	205	V
1	5.15	43.49	Pk	34.1	-18.2	0	59.39	-	-	74	-14.61	285	205	V
3	5.15	33.24	RMS	34.1	-18.2	1.05	50.19	54	-3.81	-	-	285	205	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.148	45.73	Pk	34.1	-18.2	0	61.63	-	-	74	-12.37	279	199	V
4	* 5.149	34.41	RMS	34.1	-18.2	1.05	51.36	54	-2.64	-	-	279	199	V
1	5.15	44.41	Pk	34.1	-18.2	0	60.31	-	-	74	-13.69	279	199	V
3	5.15	33.54	RMS	34.1	-18.2	1.05	50.41	54	-3.51	-	-	279	199	V

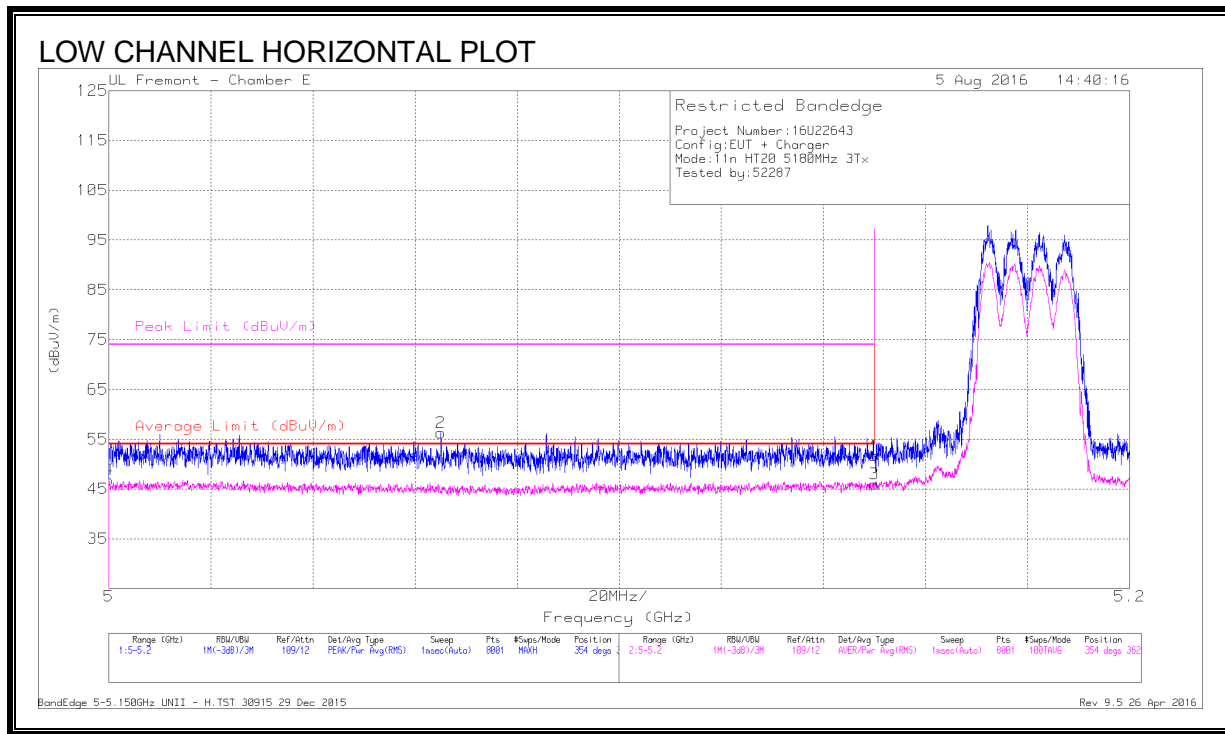
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

8.12. 802.11n HT20 3Tx CDD MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



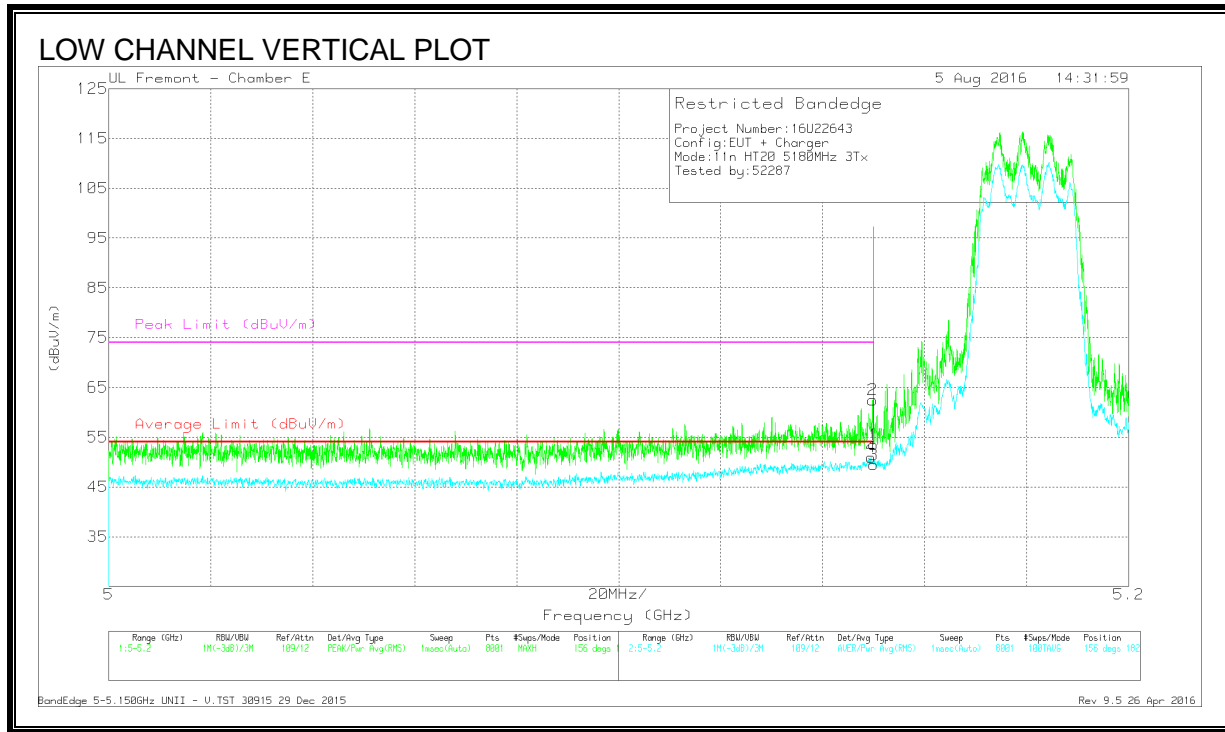
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.065	40.87	Pk	34	-18.6	56.27	-	-	74	-17.73	354	362	H
4	* 5	31.44	RMS	33.9	-18.5	46.84	54	-7.16	-	-	354	362	H
1	5.15	36.57	PK	34.1	-19	51.67	-	-	74	-22.33	354	362	H
3	5.15	30.89	RMS	34.1	-19	45.99	54	-8.01	-	-	354	362	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

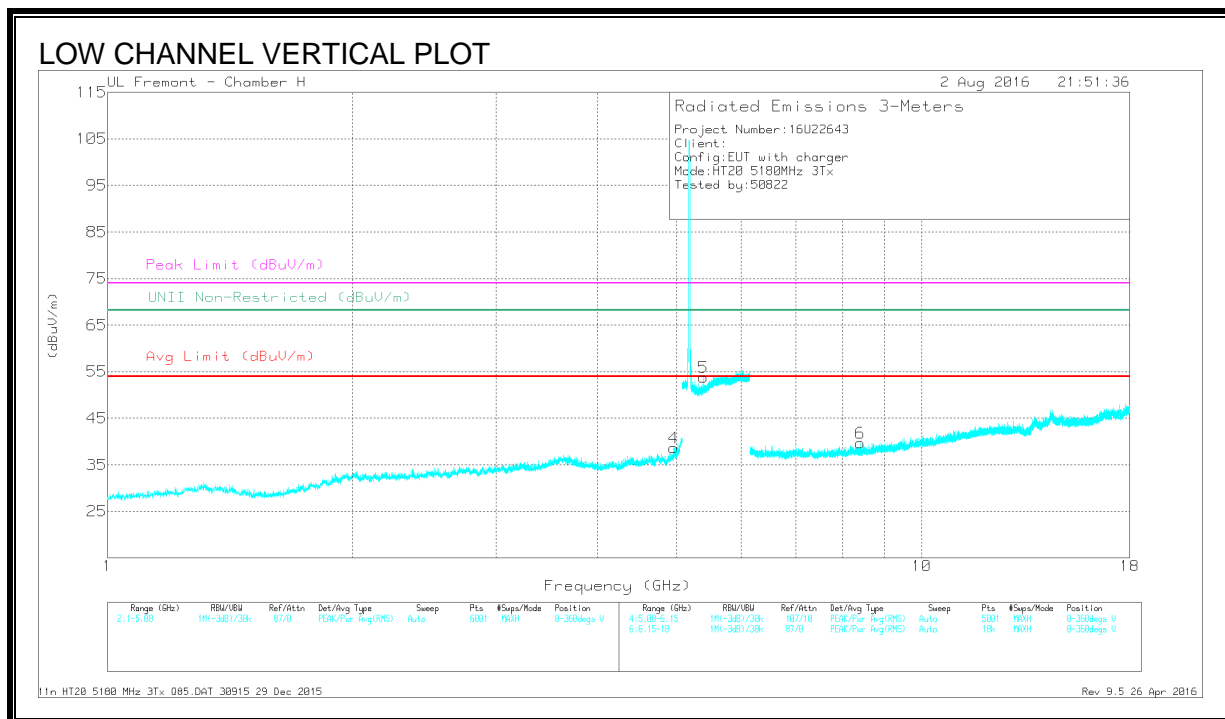
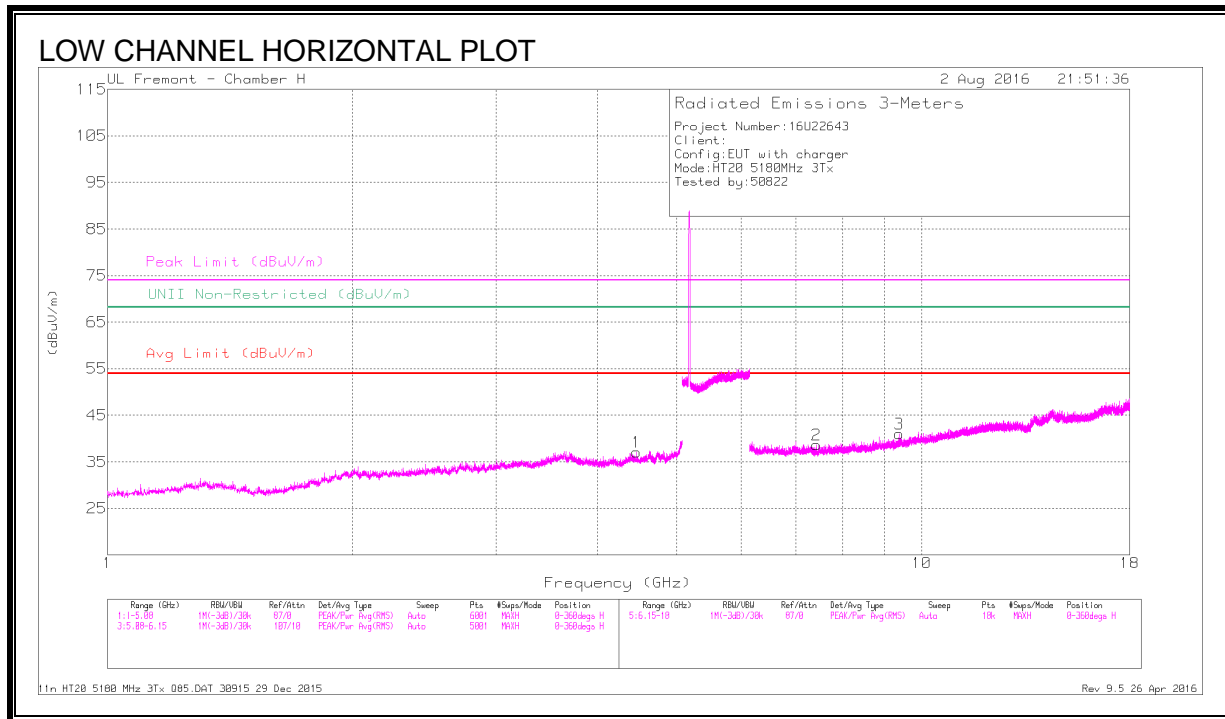


DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.15	47.39	Pk	34.1	-19	62.49	-	-	74	-11.51	156	182	V
4	* 5.15	35.89	RMS	34.1	-19	50.99	54	-3.01	-	-	156	182	V
1	5.15	38.41	Pk	34.1	-19	53.51	-	-	74	-20.49	156	182	V
3	5.15	34.34	RMS	34.1	-19	49.44	54	-4.56	-	-	156	182	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

LOW CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

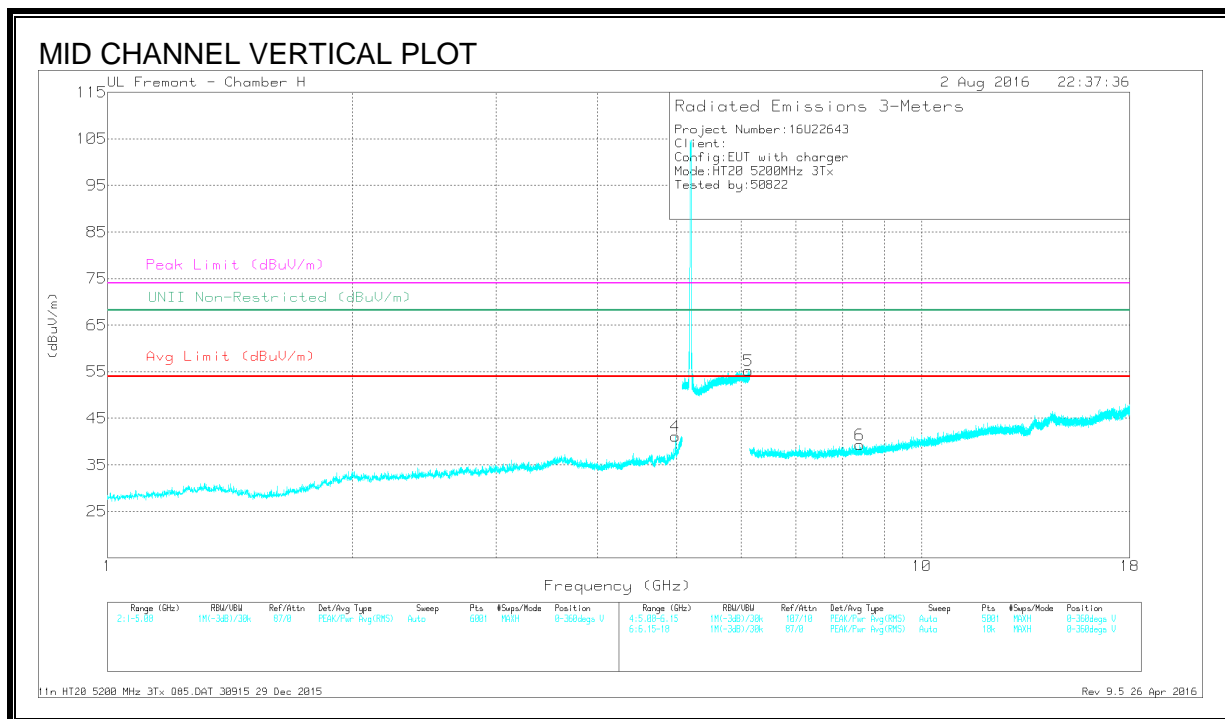
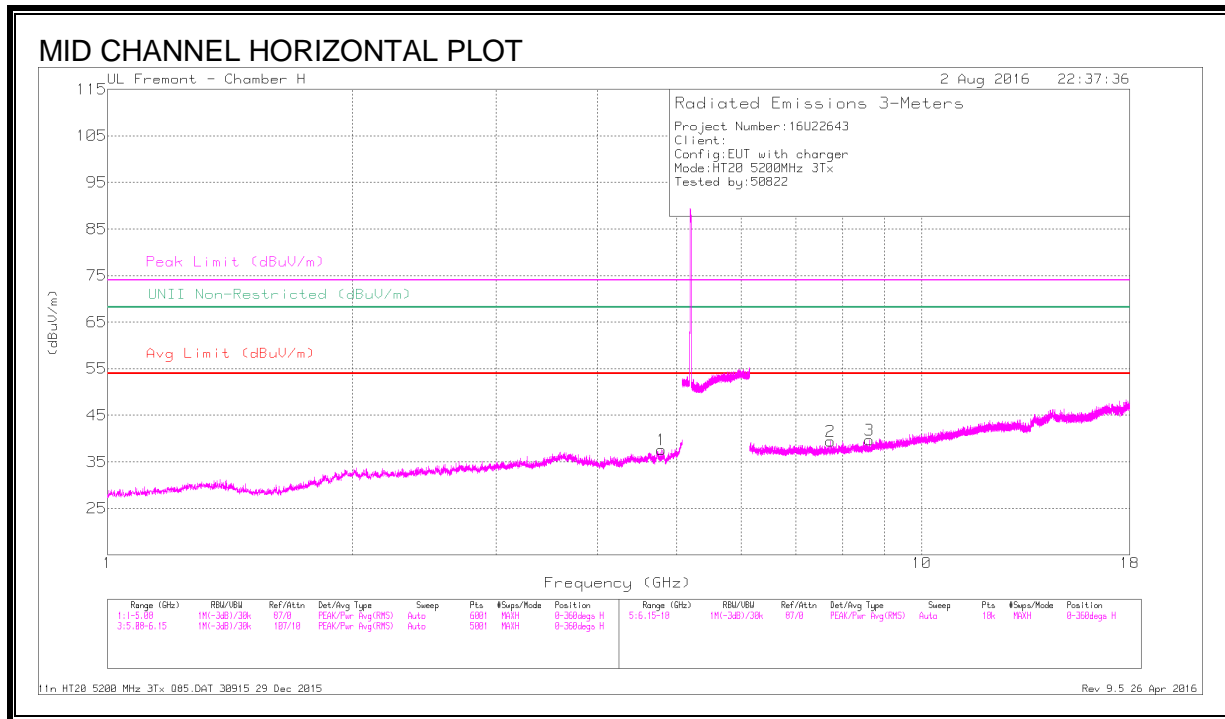
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarity
4	* 4.959	44.58	PK-U	34	-33.3	45.28	-	-	74	-28.72	-	-	26	244	V
	* 4.956	33.66	ADR	34	-33.4	34.26	54	-19.74	-	-	-	-	26	244	V
5	* 5.396	41.31	PK-U	34.6	-15.8	60.11	-	-	74	-13.89	-	-	63	198	V
	* 5.396	32.47	ADR	34.6	-15.8	51.27	54	-2.73	-	-	-	-	63	198	V
2	* 7.428	41.44	PK-U	35.7	-31.8	45.34	-	-	74	-28.66	-	-	111	300	H
	* 7.429	29.94	ADR	35.7	-31.8	33.84	54	-20.16	-	-	-	-	111	300	H
3	* 9.373	38.8	PK-U	36.7	-29.4	46.1	-	-	74	-27.9	-	-	215	349	H
	* 9.373	28.19	ADR	36.7	-29.4	35.49	54	-18.51	-	-	-	-	215	349	H
6	* 8.404	40.17	PK-U	35.8	-30.7	45.27	-	-	74	-28.73	-	-	152	117	V
	* 8.403	29.32	ADR	35.8	-30.7	34.42	54	-19.58	-	-	-	-	152	117	V
1	4.465	43.28	PK-U	33.8	-34.2	42.88	-	-	-	-	68.2	-25.32	201	389	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

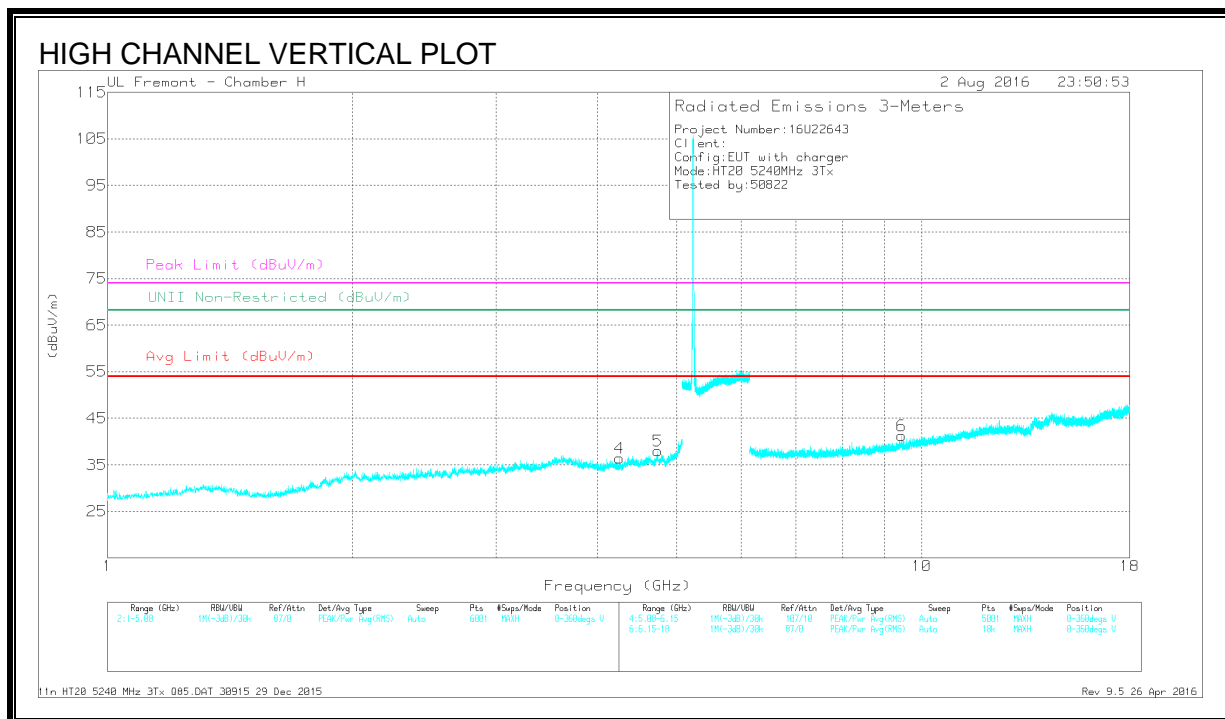
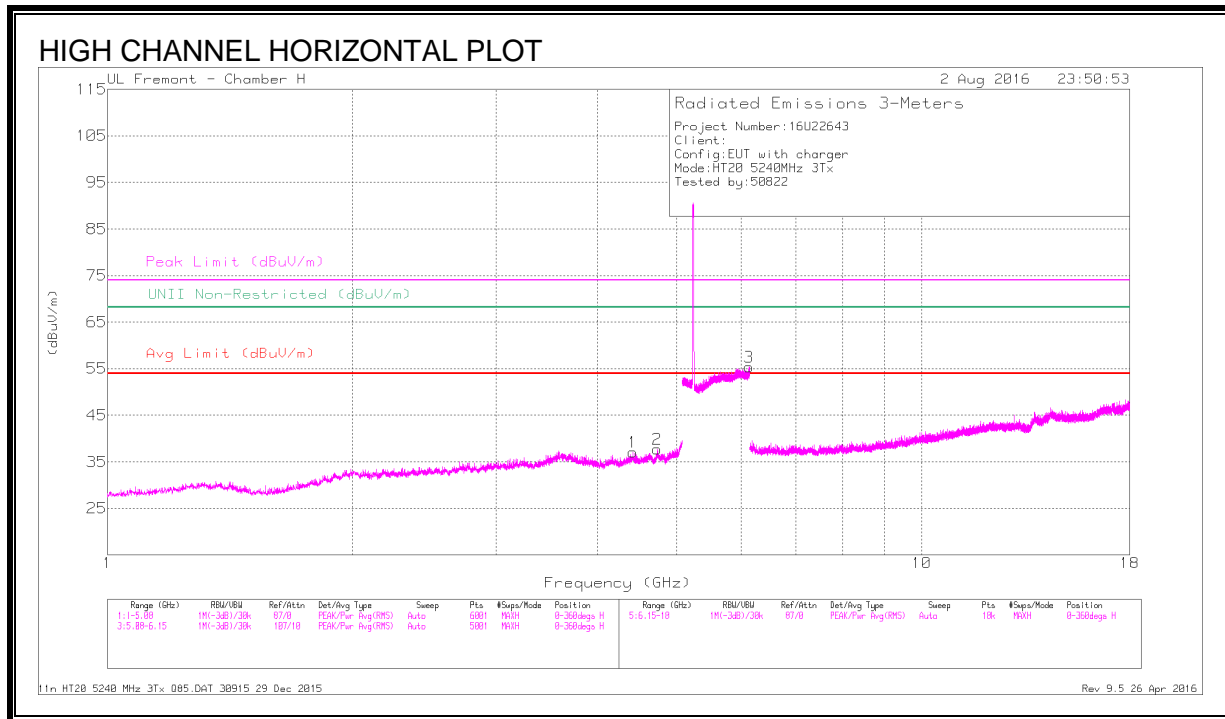
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.791	43.33	PK-U	34	-34.1	43.23	-	-	74	-30.77	-	-	38	250	H
	* 4.791	32.87	ADR	34	-34.1	32.77	54	-21.23	-	-	-	-	38	250	H
4	* 4.983	46.83	PK-U	34.1	-33	47.93	-	-	74	-26.07	-	-	54	226	V
	* 4.983	39.37	ADR	34.1	-33	40.47	54	-13.53	-	-	-	-	54	226	V
2	* 7.725	40.61	PK-U	35.8	-31.6	44.81	-	-	74	-29.19	-	-	206	233	H
	* 7.726	29.94	ADR	35.8	-31.6	34.14	54	-19.86	-	-	-	-	206	233	H
6	* 8.388	40.3	PK-U	35.8	-30.8	45.3	-	-	74	-28.7	-	-	350	392	V
	* 8.388	29.71	ADR	35.8	-30.8	34.71	54	-19.29	-	-	-	-	350	392	V
5	6.126	39.57	PK-U	35.4	-14.3	60.67	-	-	-	-	68.2	-7.53	282	344	V
3	8.624	39.58	PK-U	35.9	-30.3	45.18	-	-	-	-	68.2	-23.02	191	210	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

Marker	Frequency (GHz)	Meter Reading (dBUV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBUV/m)	Avg Limit (dBUV/m)	Margin (dB)	Peak Limit (dBUV/m)	PK Margin (dB)	UNII Non-Restricted (dBUV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.736	43.87	PK-U	34	-34.1	43.77	-	-	74	-30.23	-	-	116	348	H
	* 4.733	33.23	ADR	34	-34.2	33.03	54	-20.97	-	-	-	-	116	348	H
4	* 4.257	43.87	PK-U	33.4	-34.8	42.47	-	-	74	-31.53	-	-	314	341	V
	* 4.257	32.53	ADR	33.4	-34.8	31.13	54	-22.87	-	-	-	-	314	341	V
5	* 4.739	43.7	PK-U	34	-34.2	43.5	-	-	74	-30.5	-	-	20	295	V
	* 4.74	32.95	ADR	34	-34.2	32.75	54	-21.25	-	-	-	-	20	295	V
6	* 9.442	38.7	PK-U	36.8	-29.1	46.4	-	-	74	-27.6	-	-	282	375	V
	* 9.44	28.09	ADR	36.8	-29.1	35.79	54	-18.21	-	-	-	-	282	375	V
1	4.421	43.66	PK-U	33.7	-34.4	42.96	-	-	-	-	68.2	-25.24	90	358	H
3	6.141	39.91	PK-U	35.5	-14.1	61.31	-	-	-	-	68.2	-6.89	31	357	H

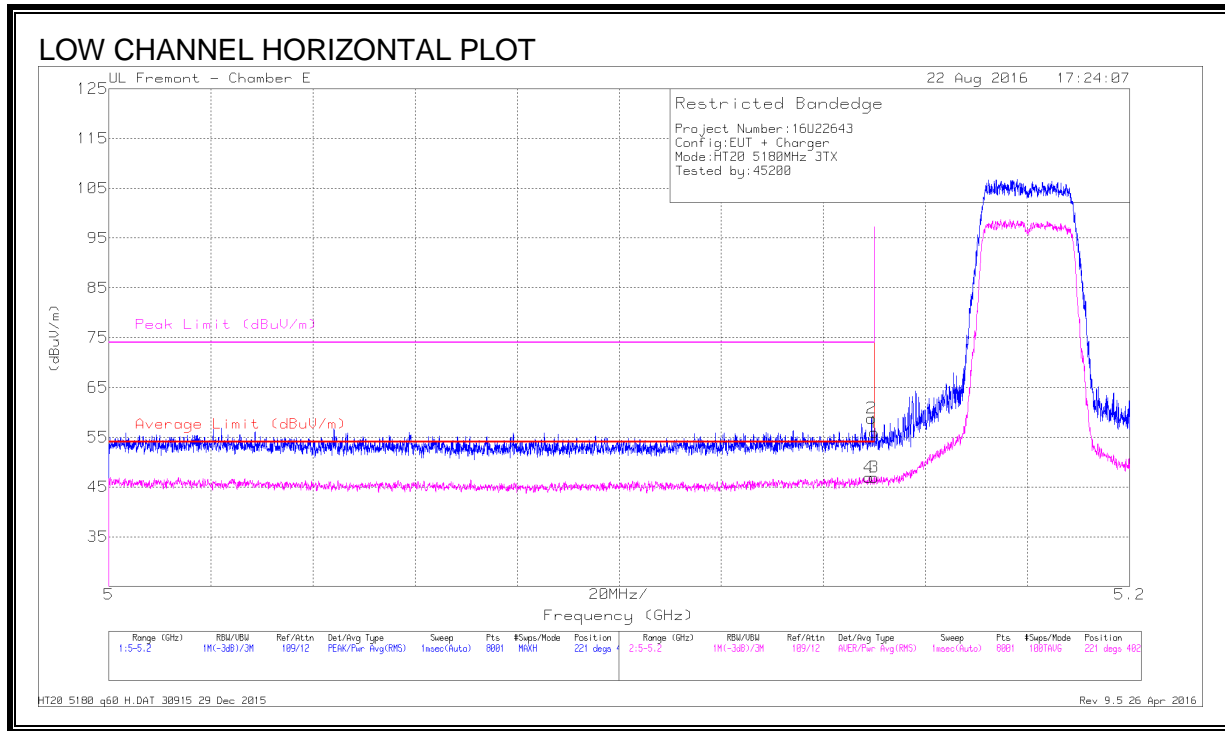
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

8.13. 802.11n HT20 3Tx STBC MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



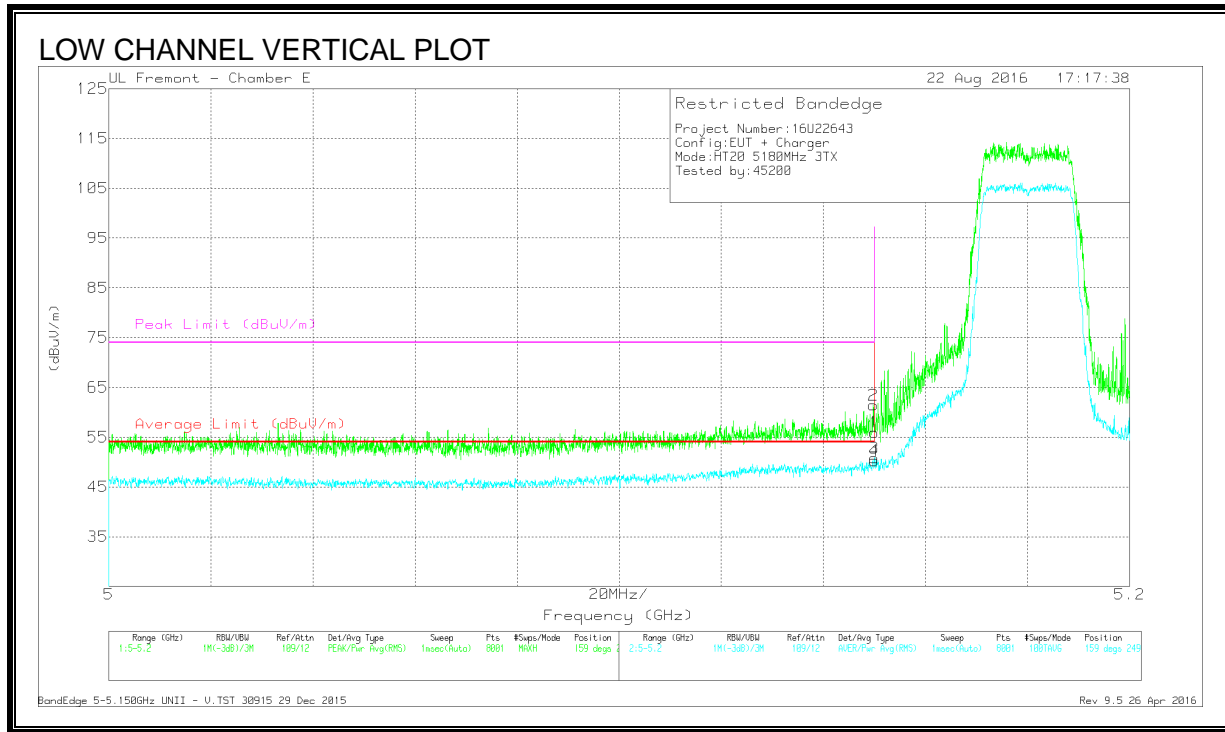
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	43.72	Pk	34.1	-19	58.82	-	-	74	-15.18	221	402	H
4	* 5.149	31.74	RMS	34.1	-18.9	46.94	54	-7.06	-	-	221	402	H
1	5.15	40.87	Pk	34.1	-19	55.97	-	-	74	-18.03	221	402	H
3	5.15	31.87	RMS	34.1	-19	46.97	54	-7.03	-	-	221	402	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cb/Filtr/Par d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.15	46.35	Pk	34.1	-19	61.45	-	-	74	-12.55	159	249	V
4	* 5.15	35.19	RMS	34.1	-19	50.29	54	-3.71	-	-	159	249	V
1	5.15	40.91	Pk	34.1	-19	56.01	-	-	74	-17.99	159	249	V
3	5.15	35.7	RMS	34.1	-19	50.8	54	-3.2	-	-	159	249	V

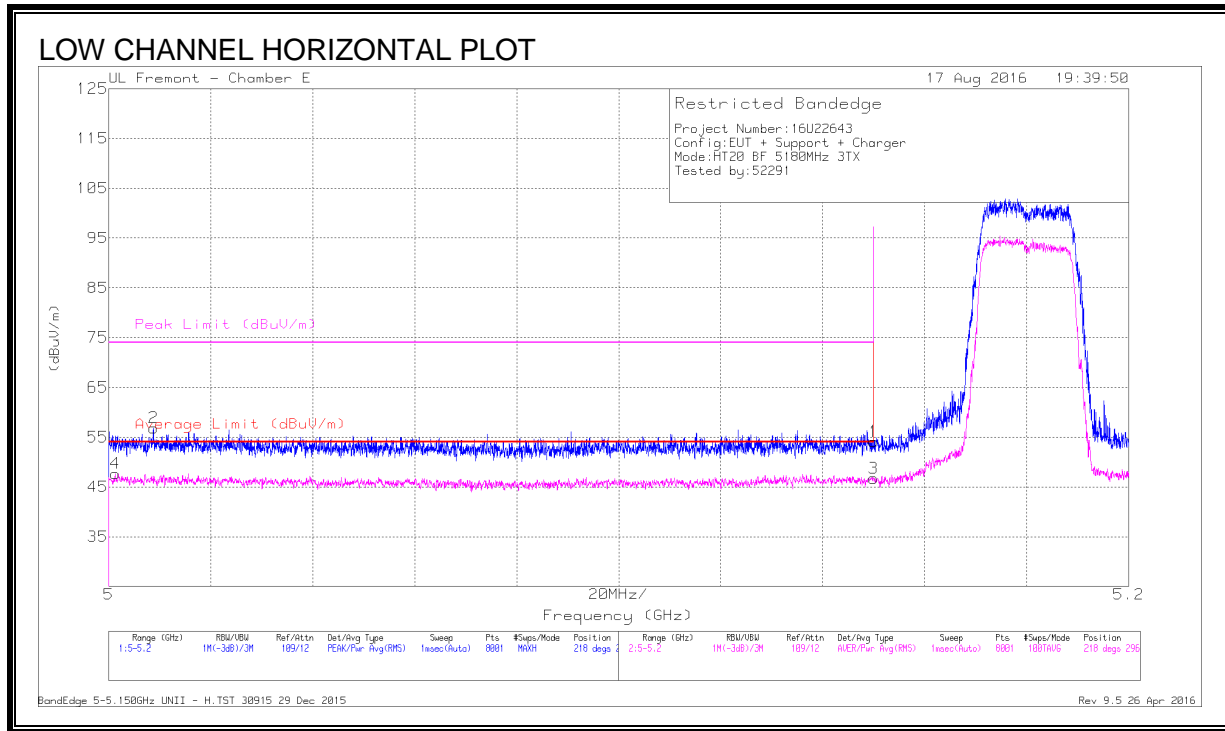
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

Note: Covered by 3TX CDD Mode

8.14. 802.11ac VHT20 3Tx BEAM FORMING MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



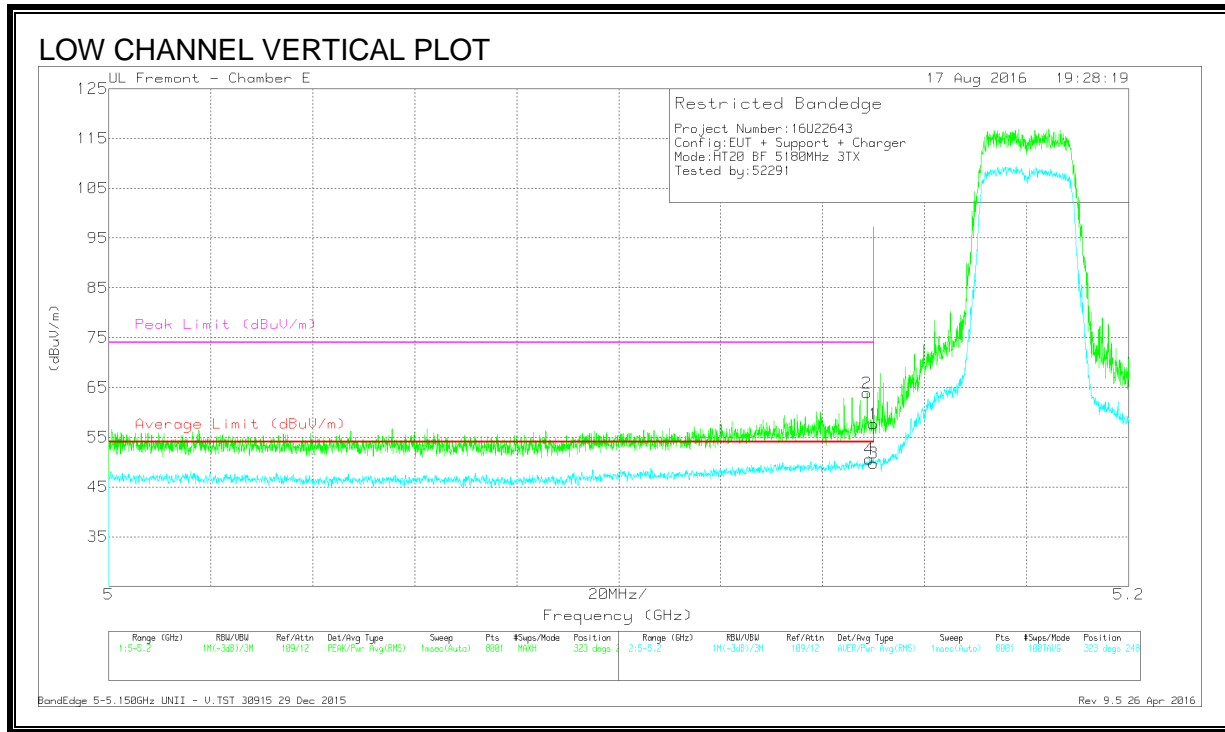
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl /Filtr/Par d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degrees)	Height (cm)	Polarity
2	* 5.009	41.46	Pk	33.9	-18.5	0	56.86	-	-	74	-17.14	218	296	H
4	* 5.001	31.61	RMS	33.9	-18.5	.69	47.7	54	-6.3	-	-	218	296	H
1	5.15	39.03	Pk	34.1	-19	0	54.13	-	-	74	-19.87	218	296	H
3	5.15	30.95	RMS	34.1	-19	.69	46.74	54	-7.26	-	-	218	296	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

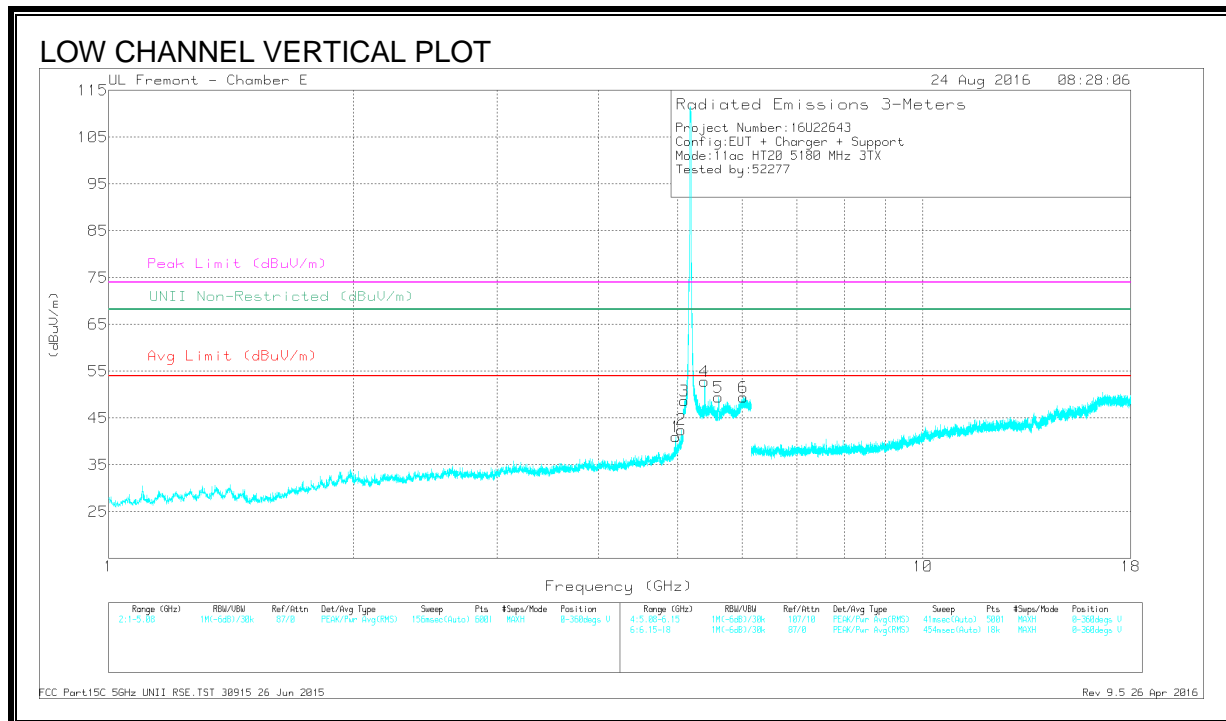
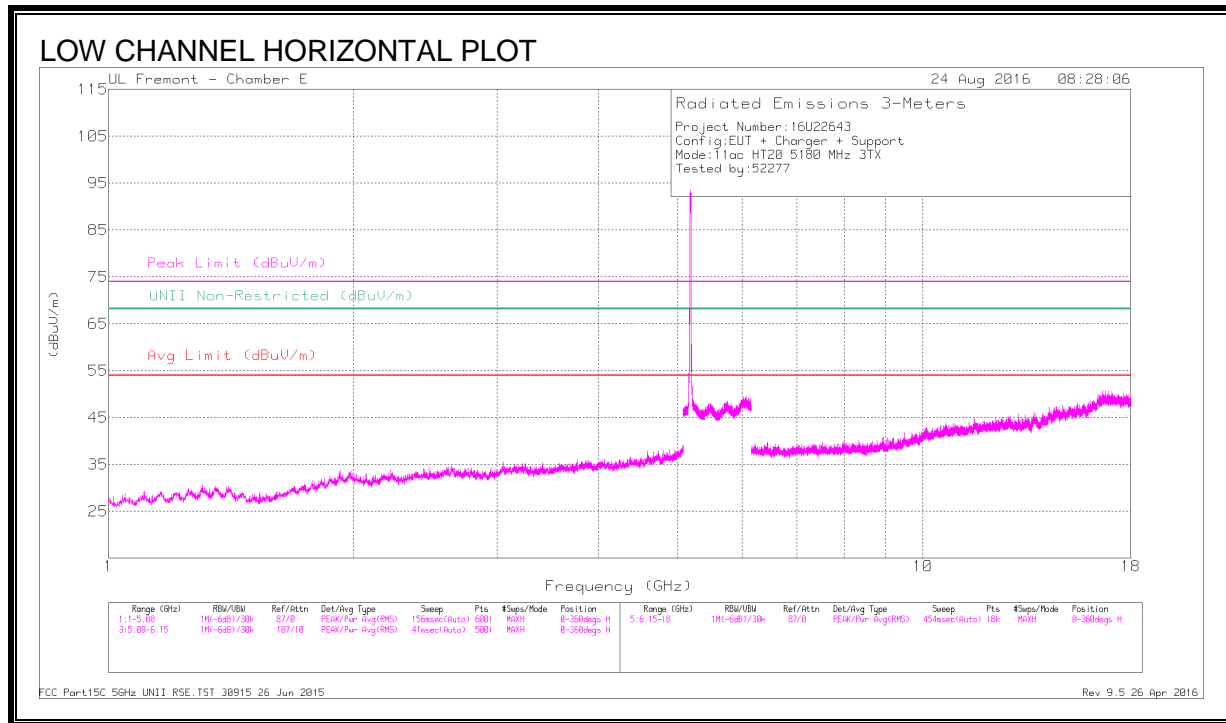


DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl /Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
2	* 5.149	48.68	Pk	34.1	-18.9	0	63.88	-	-	74	-10.12	323	248	V
4	* 5.149	34.71	RMS	34.1	-18.9	.69	50.6	54	-3.4	-	-	323	248	V
1	5.15	42.53	Pk	34.1	-19	0	57.63	-	-	74	-16.37	323	248	V
3	5.15	33.99	RMS	34.1	-19	.69	49.78	54	-4.22	-	-	323	248	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

LOW CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

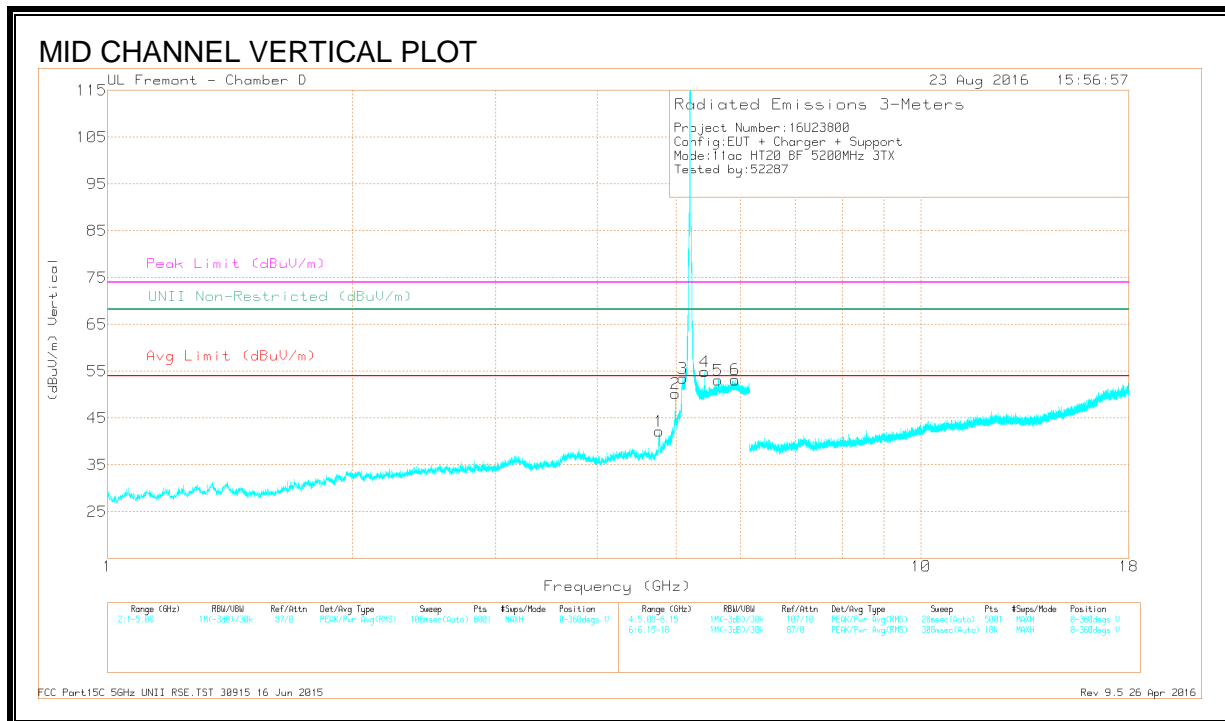
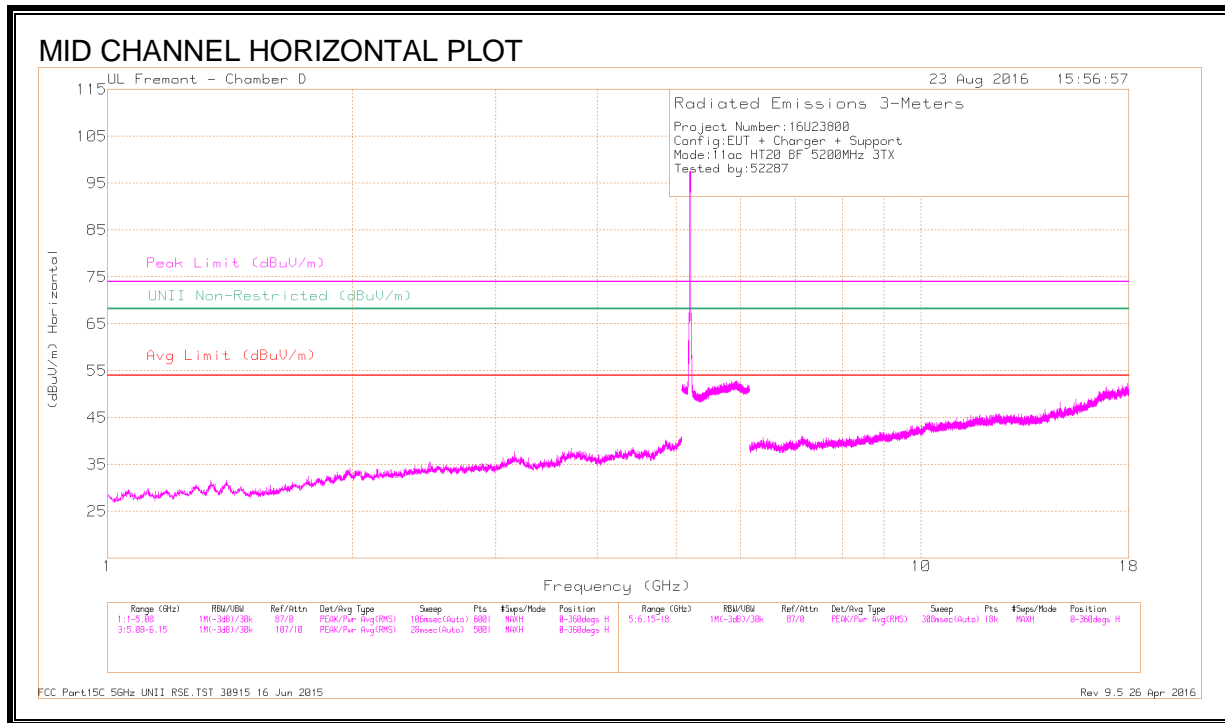
Markers	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cb/Filt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.971	38.35	PK-U	34	-29.5	0	42.85	-	-	74	-31.15	-	-	192	298	V
	4.974	28.14	ADR	34	-29.5	.69	33.33	54	-20.67	-	-	-	-	192	298	V
2	* 5.055	37.79	PK-U	34	-28	0	43.79	-	-	74	-30.21	-	-	360	197	V
	5.055	27.51	ADR	34	-28	.69	34.20	54	-19.80	-	-	-	-	360	197	V
3	* 5.093	37.89	PK-U	34	-18.6	0	53.29	-	-	74	-20.71	-	-	65	319	V
	5.093	27.11	ADR	34	-18.6	.69	43.20	54	-10.80	-	-	-	-	65	319	V
4	* 5.396	38.48	PK-U	34.4	-19.5	0	53.38	-	-	74	-20.62	-	-	217	267	V
	5.394	27.15	ADR	34.4	-19.5	.69	43.74	54	-11.26	-	-	-	-	217	267	V
5	5.608	37.03	PK-U	34.7	-19.9	0	51.83	-	-	-	-	68.2	-16.37	349	124	V
	5.609	26.66	ADR	34.7	-19.9	.69	41.46	-	-	-	-	-	-	349	124	V
6	6.019	39.13	PK-U	35.1	-19.3	0	54.93	-	-	-	-	68.2	-13.27	314	151	V
	6.019	28.53	ADR	35.1	-19.3	.69	44.33	-	-	-	-	-	-	314	151	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

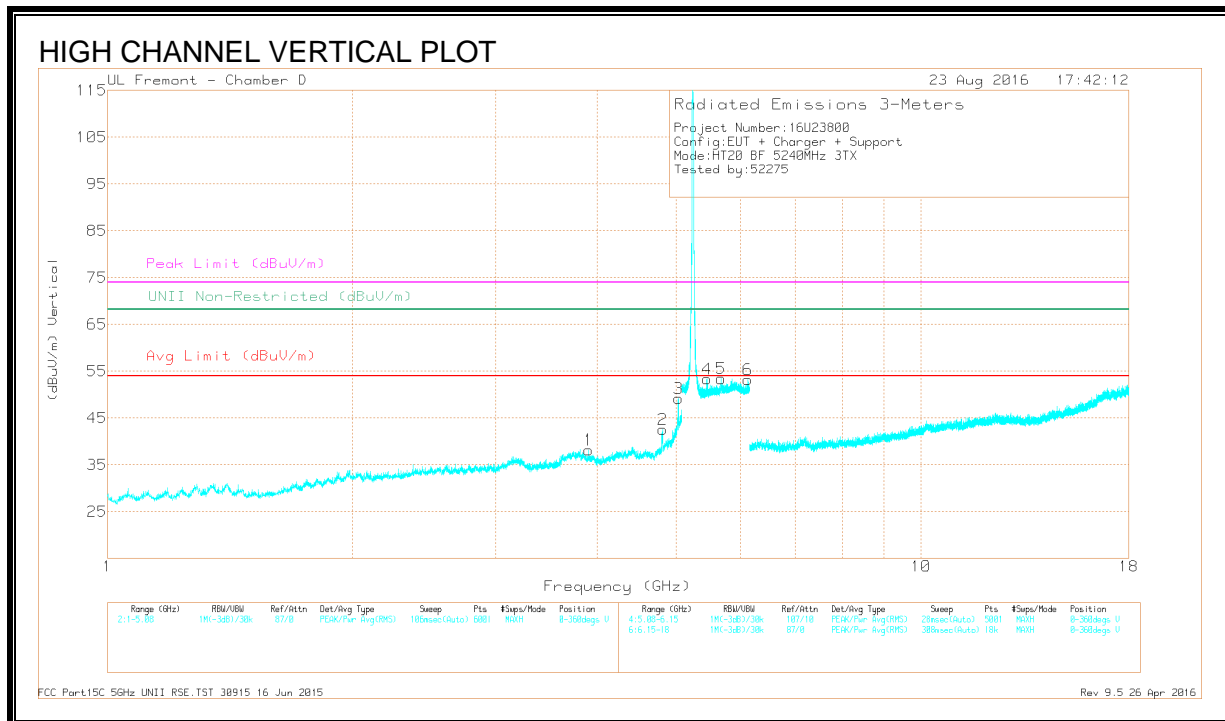
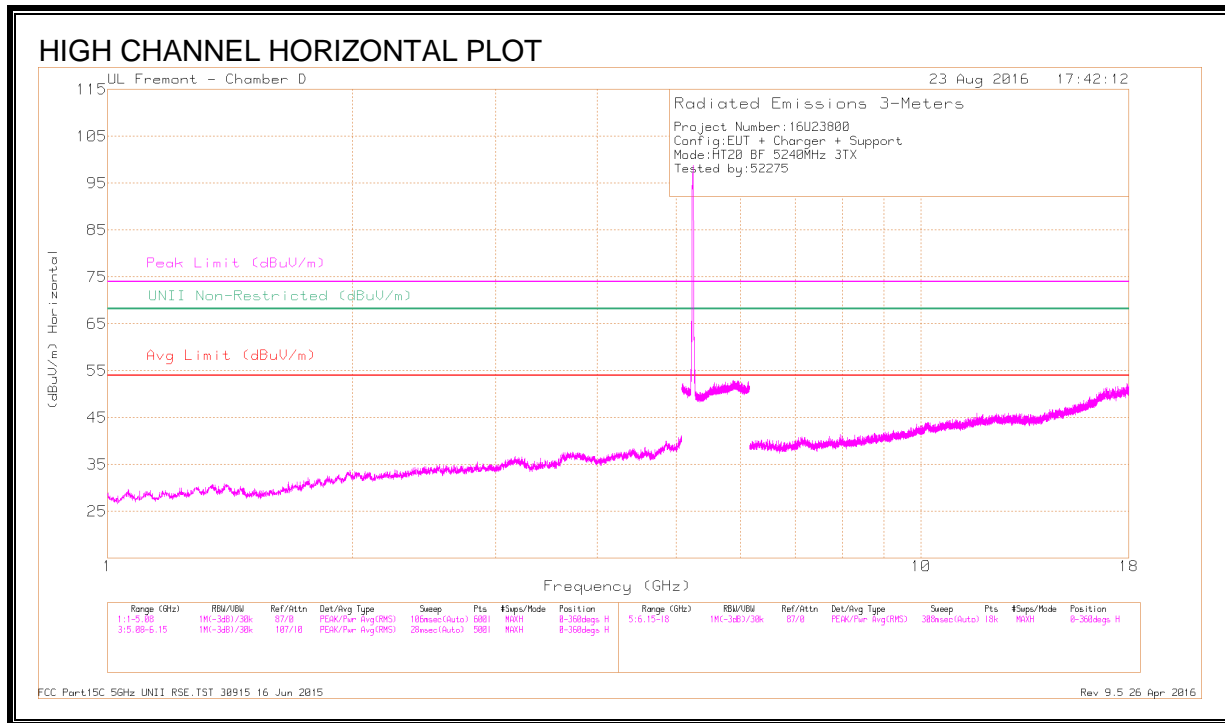
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF1712 (dB/m)	Amp/CM/Fib/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNR Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.767	42.32	PK-U	34	-27.2	0	49.12	-	-	74	-24.88	-	-	289	261	V
	* 4.767	32.41	ADR	34	-27.2	.69	39.9	54	-14.1	-	-	-	-	289	261	V
	* 4.99	49.12	PK-U	34	-26.6	0	56.52	-	-	74	-17.48	-	-	273	273	V
2	* 4.991	39.51	ADR	34	-26.6	.69	47.6	54	-6.4	-	-	-	-	273	273	V
	* 5.094	45.3	PK-U	34	-18.1	0	61.2	-	-	74	-12.8	-	-	282	278	V
3	* 5.091	33	ADR	34	-18.1	.69	49.59	54	-4.41	-	-	-	-	282	278	V
4	* 5.417	43.64	PK-U	34.4	-18	0	60.04	-	-	74	-13.96	-	-	298	213	V
	* 5.417	34.31	ADR	34.4	-18	.69	51.4	54	-2.6	-	-	-	-	298	213	V
5	5.63	42.47	PK-U	34.6	-17.3	0	59.77	-	-	-	-	68.2	-8.43	273	155	V
	5.631	31.52	ADR	34.6	-17.3	.69	49.51	-	-	-	-	-	-	273	155	V
6	5.907	41.42	PK-U	35	-17.1	0	59.32	-	-	-	-	68.2	-8.88	62	143	V
	5.907	30.64	ADR	35	-17.1	.69	49.23	-	-	-	-	-	-	62	143	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL HARMONICS AND SPURIOUS EMISSIONS



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF7712 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	Fixture Corr (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Aug Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.903	38.76	PK-U	33.5	-28.7	0	0	43.56	-	-	74	-30.44	-	-	312	387	V
	* 3.902	27.35	ADR	33.5	-28.7	0	.69	32.84	54	-21.16	-	-	-	-	312	387	V
2	* 4.809	42.45	PK-U	34.1	-27.3	0	0	49.25	-	-	74	-24.75	-	-	277	271	V
	* 4.81	31.95	ADR	34.1	-27.3	0	.69	39.44	54	-14.56	-	-	-	-	277	271	V
3	* 5.029	47.82	PK-U	34	-25.5	0	0	56.32	-	-	74	-17.68	-	-	275	268	V
	* 5.029	37.48	ADR	34	-25.5	0	.69	46.67	54	-7.33	-	-	-	-	275	268	V
4	* 5.452	42.76	PK-U	34.4	-17.9	0	0	59.26	-	-	74	-14.74	-	-	301	216	V
	* 5.458	35.05	ADR	34.4	-17.8	0	.69	52.34	54	-1.66	-	-	-	-	301	216	V
5	5.676	43.71	PK-U	34.7	-17.2	0	0	61.21	-	-	-	-	68.2	-6.99	294	234	V
	5.676	34.15	ADR	34.7	-17.2	0	.69	52.34	-	-	-	-	-	-	294	234	V
6	6.125	40.54	PK-U	35.4	-17.3	0	0	58.64	-	-	-	-	68.2	-9.56	178	172	V
	6.128	29.66	ADR	35.4	-17.3	0	.69	48.45	-	-	-	-	-	-	178	172	V

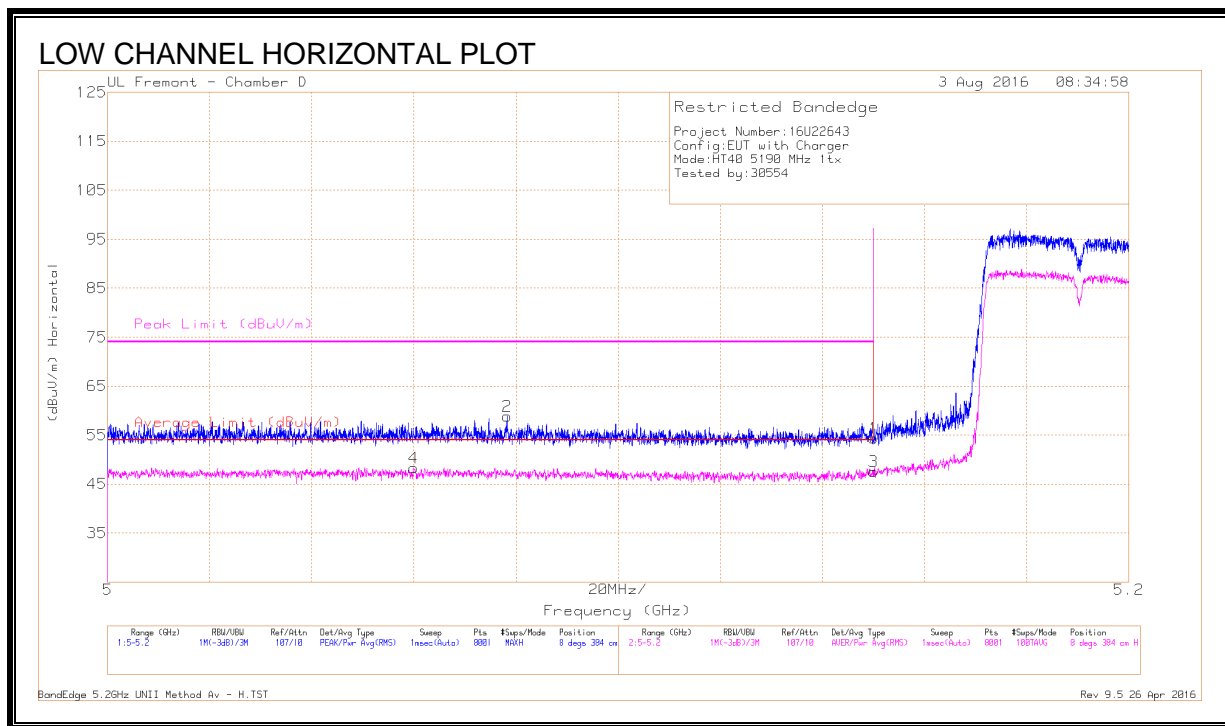
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

8.15. 802.11n HT40 1Tx MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE, CHAIN 0 (LOW CHANNEL)



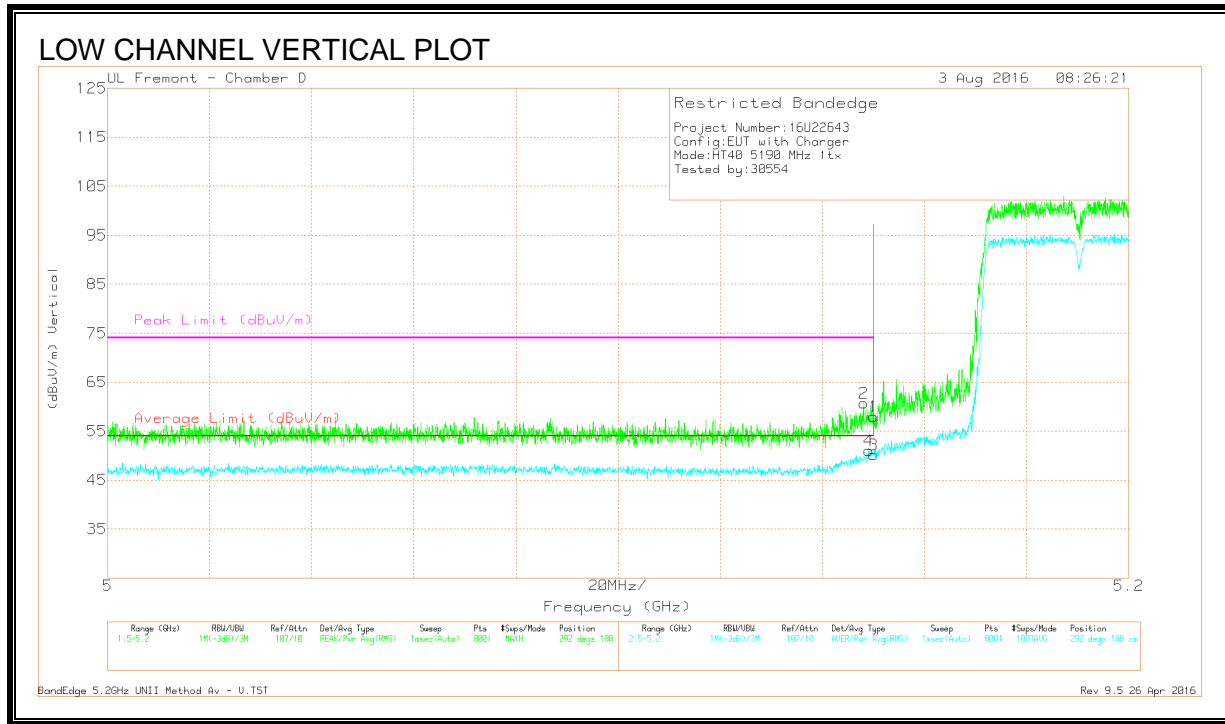
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Marg in (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Deg s)	Height (cm)	Polarity
2	* 5.078	42.83	Pk	34	-18	58.83	-	-	74	-15.17	8	384	H
4	* 5.06	32.34	RMS	34	-18	48.34	54	-5.66	-	-	8	384	H
1	5.15	38.51	Pk	34.1	-18.2	54.41	-	-	74	-19.59	8	384	H
3	5.15	31.69	RMS	34.1	-18.2	47.59	54	-6.41	-	-	8	384	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

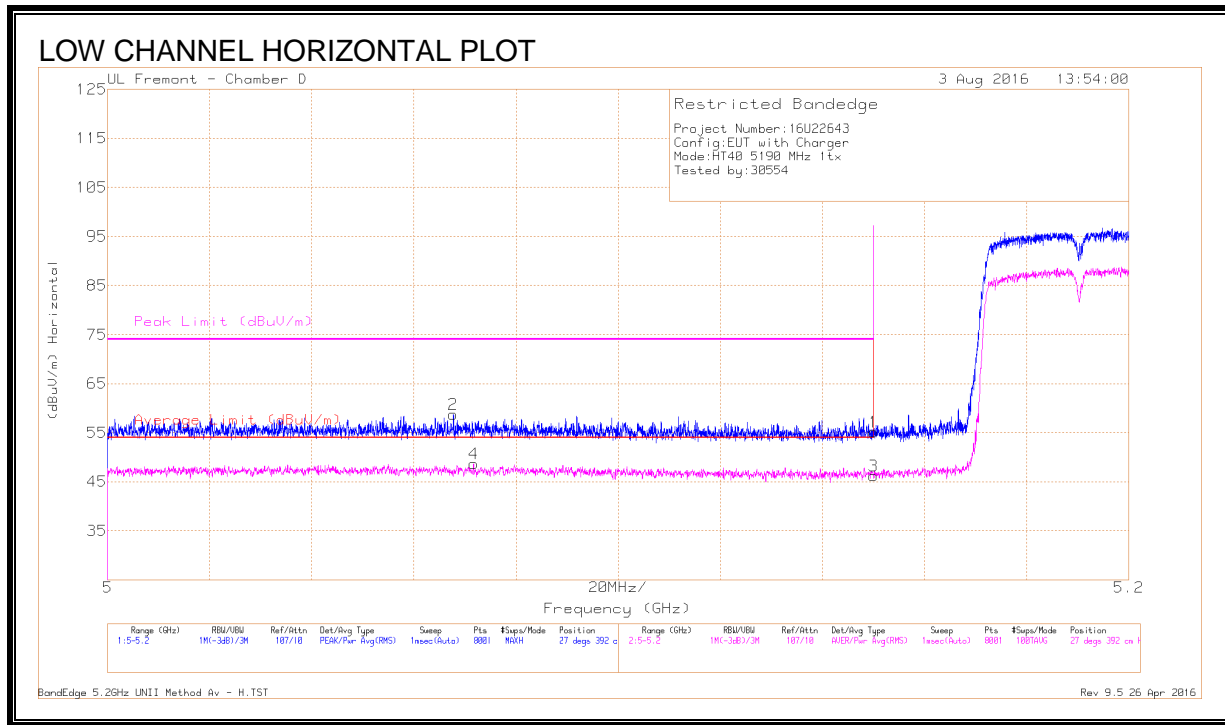


DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT712 (dB/m)	Amp/Cbl /Ftr/Par d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.148	44.82	Pk	34.1	-18.2	60.72	-	-	74	-13.28	292	188	V
4	* 5.149	35.13	RMS	34.1	-18.2	51.03	54	-2.97	-	-	292	188	V
1	5.15	42.06	Pk	34.1	-18.2	57.96	-	-	74	-16.04	292	188	V
3	5.15	34.24	RMS	34.1	-18.2	50.14	54	-3.86	-	-	292	188	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

RESTRICTED BANDEDGE, CHAIN 1 (LOW CHANNEL)



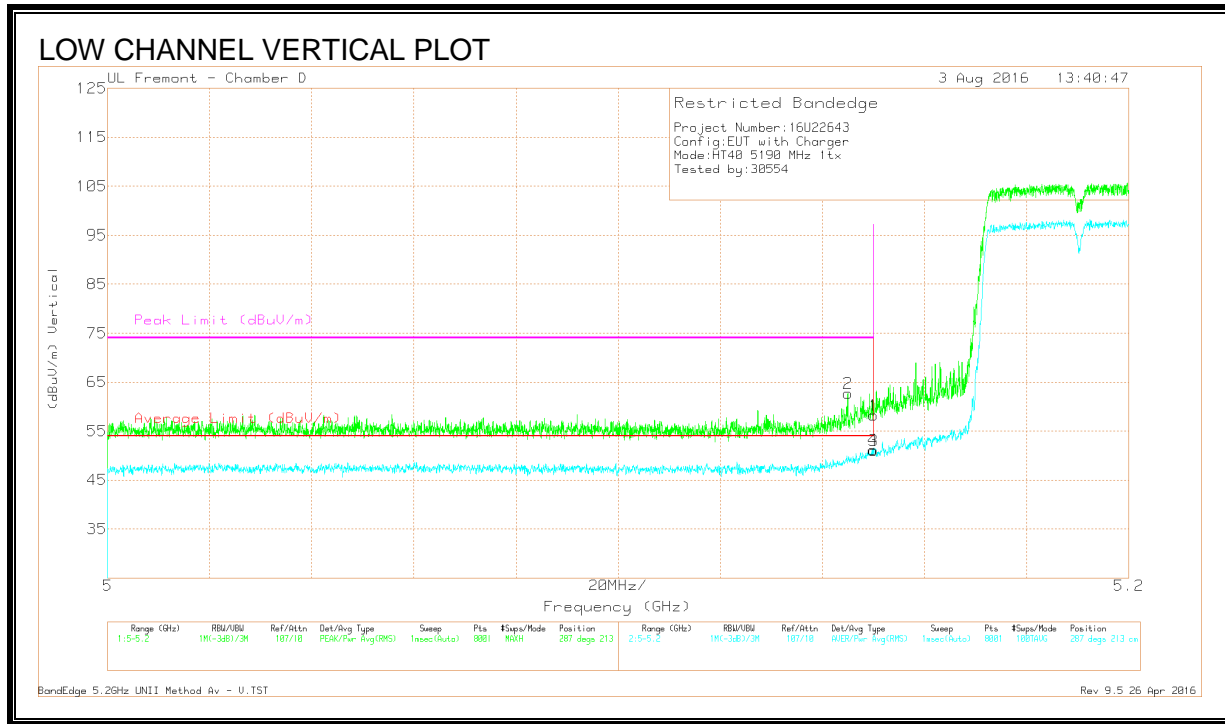
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Marg in (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimu th (Degs)	Heig ht (cm)	Polari ty
2	* 5.068	42.69	Pk	34	-18	58.69	-	-	74	-15.31	27	392	H
4	* 5.072	32.67	RMS	34	-18	48.67	54	-5.33	-	-	27	392	H
1	5.15	39.27	Pk	34.1	-18.2	55.17	-	-	74	-18.83	27	392	H
3	5.15	30.32	RMS	34.1	-18.2	46.22	54	-7.78	-	-	27	392	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

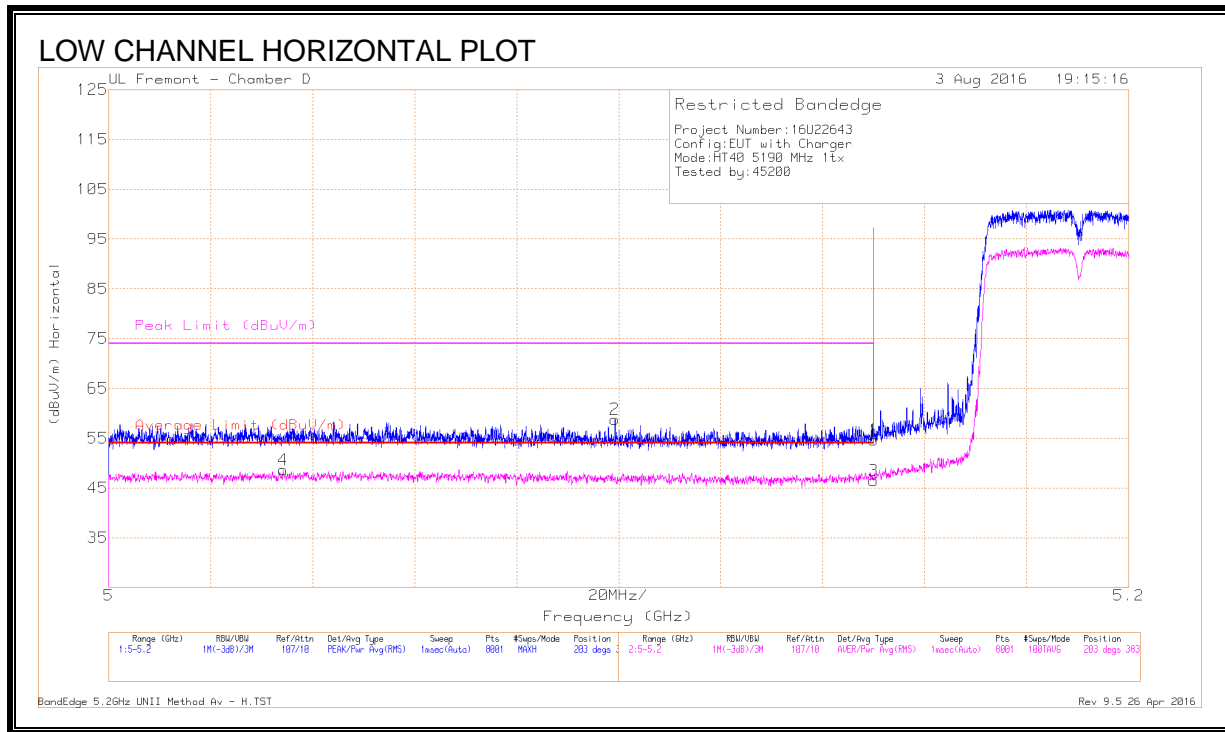


DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.145	46.76	Pk	34.1	-18.2	62.66	-	-	74	-11.34	287	213	V
4	* 5.15	35.27	RMS	34.1	-18.2	51.17	54	-2.83	-	-	287	213	V
1	5.15	42.33	Pk	34.1	-18.2	58.23	-	-	74	-15.77	287	213	V
3	5.15	35.16	RMS	34.1	-18.2	51.06	54	-2.94	-	-	287	213	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

RESTRICTED BANDEDGE, CHAIN 2 (LOW CHANNEL)



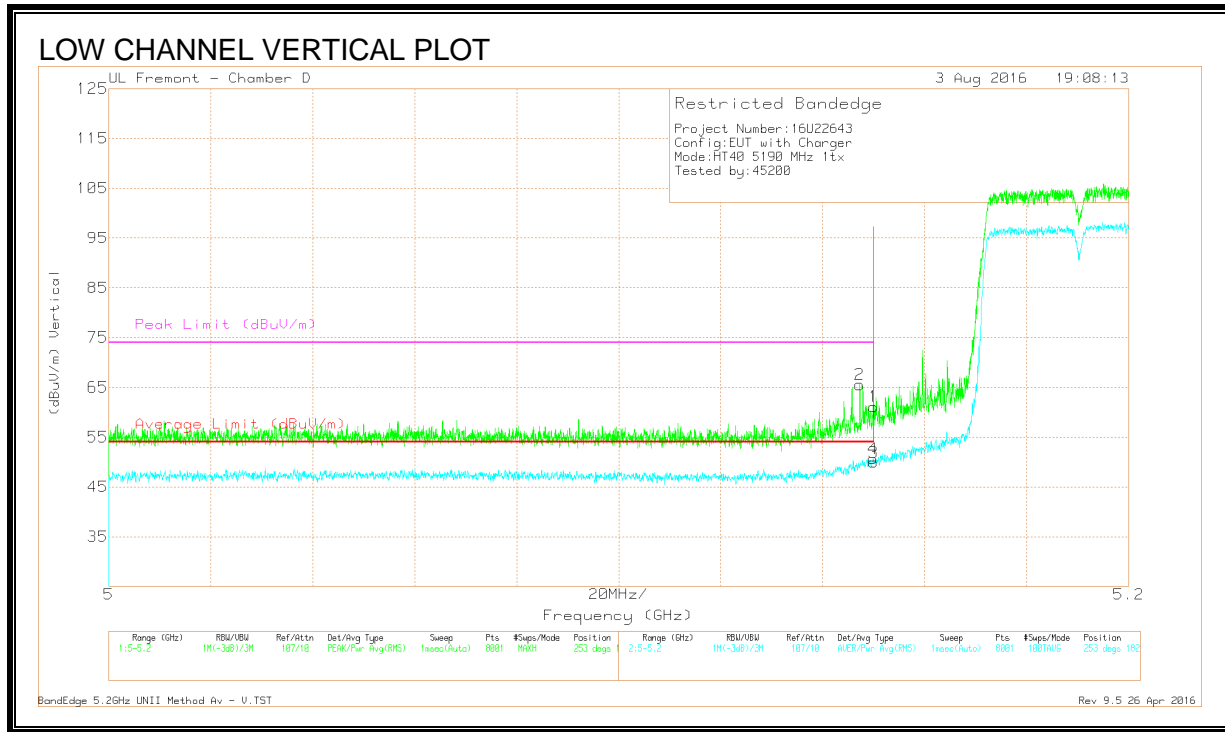
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.099	42.89	Pk	34	-18.1	58.79	-	-	74	-15.21	203	383	H
4	* 5.034	32.55	RMS	34	-17.9	48.65	54	-5.35	-	-	203	383	H
1	5.15	38.73	Pk	34.1	-18.2	54.63	-	-	74	-19.37	203	383	H
3	5.15	30.59	RMS	34.1	-18.2	46.49	54	-7.51	-	-	203	383	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



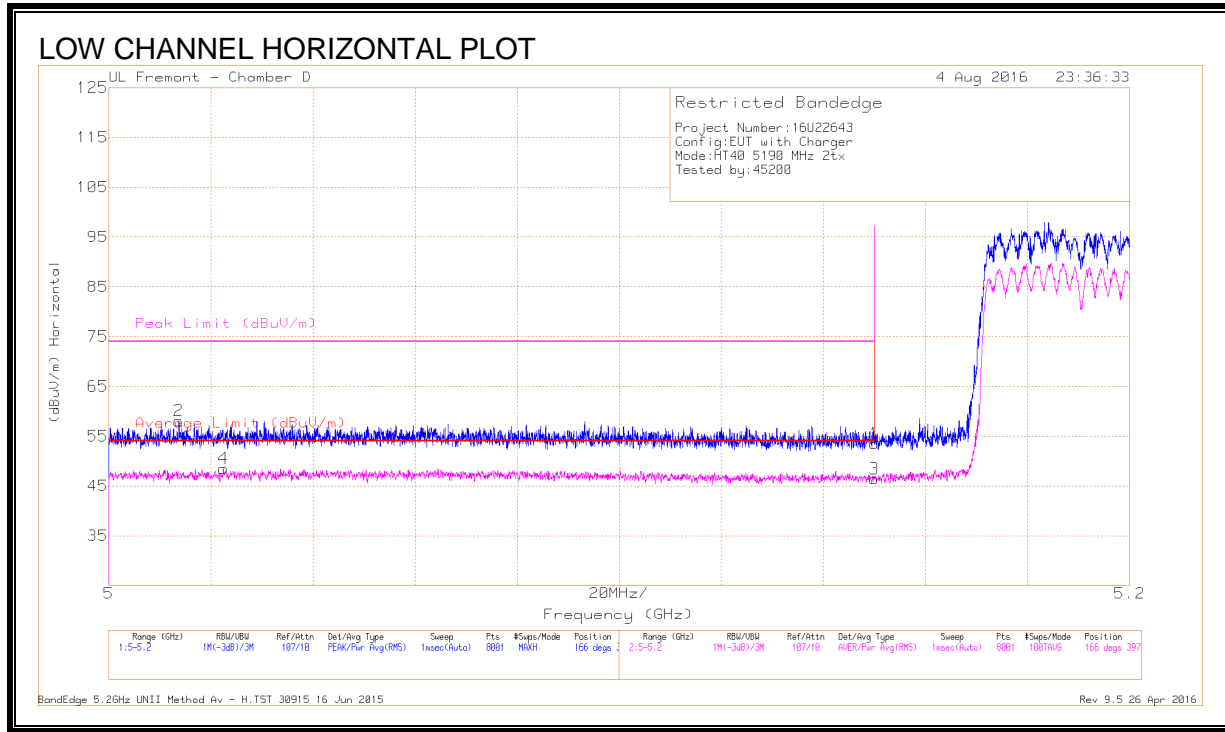
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.147	49.65	Pk	34.1	-18.2	65.55	-	-	74	-8.45	253	182	V
4	* 5.15	34.77	RMS	34.1	-18.2	50.67	54	-3.33	-	-	253	182	V
1	5.15	45.24	Pk	34.1	-18.2	61.14	-	-	74	-12.86	253	182	V
3	5.15	34.06	RMS	34.1	-18.2	49.96	54	-4.04	-	-	253	182	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.16. 802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) CDD MODE IN THE 5.2 GHz BAND

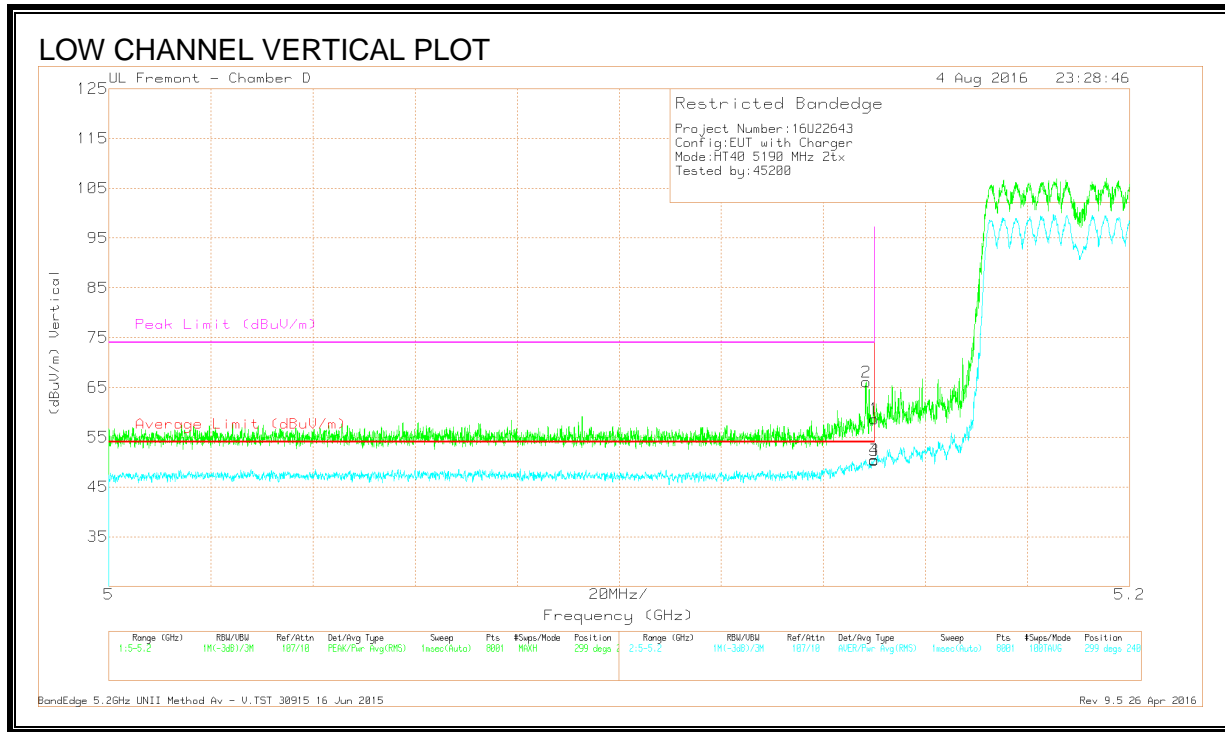
RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cb/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.014	41.99	Pk	34	-17.9	58.09	-	-	74	-15.91	166	397	H
4	* 5.022	32.44	RMS	34	-17.9	48.54	54	-5.46	-	-	166	397	H
1	5.15	37.64	Pk	34.1	-18.2	53.54	-	-	74	-20.46	166	397	H
3	5.15	30.55	RMS	34.1	-18.2	46.45	54	-7.55	-	-	166	397	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



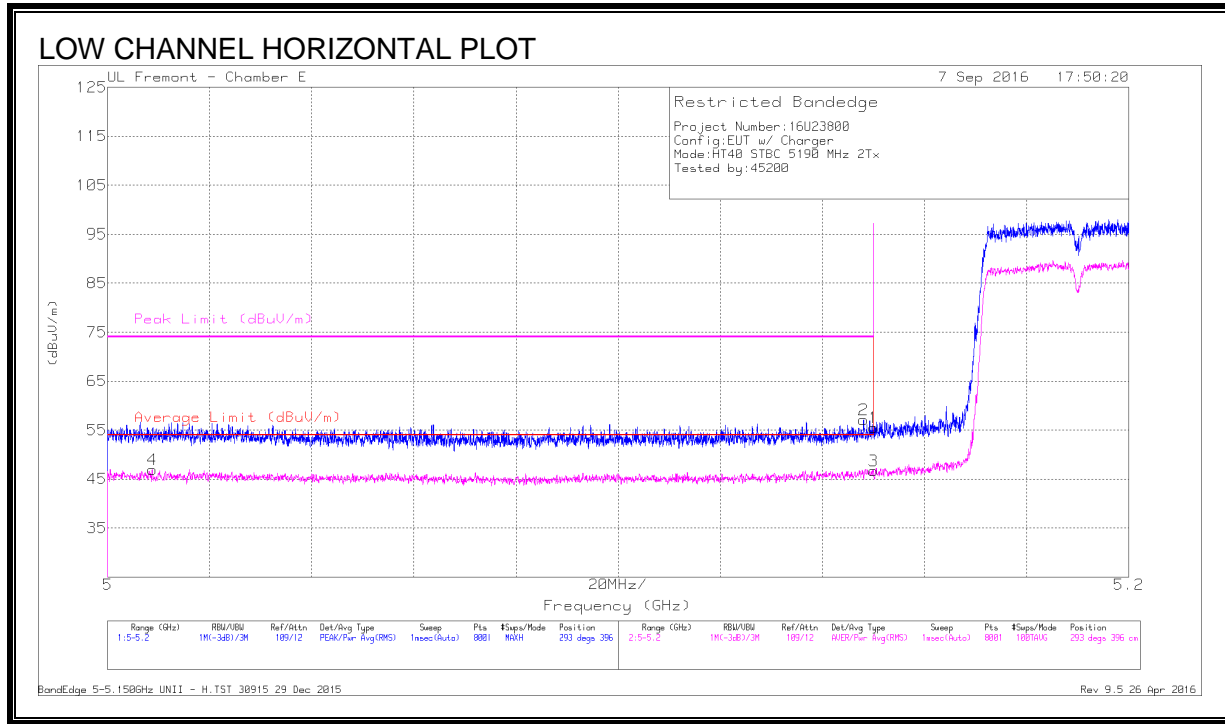
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.148	50.16	Pk	34.1	-18.2	66.06	-	-	74	-7.94	299	240	V
4	* 5.15	34.58	RMS	34.1	-18.2	50.48	54	-3.52	-	-	299	240	V
1	5.15	42.76	Pk	34.1	-18.2	58.66	-	-	74	-15.34	299	240	V
3	5.15	34.47	RMS	34.1	-18.2	50.37	54	-3.63	-	-	299	240	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.17. 802.11n HT40 2Tx (CHAIN 0 + CHAIN 1) STBC MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

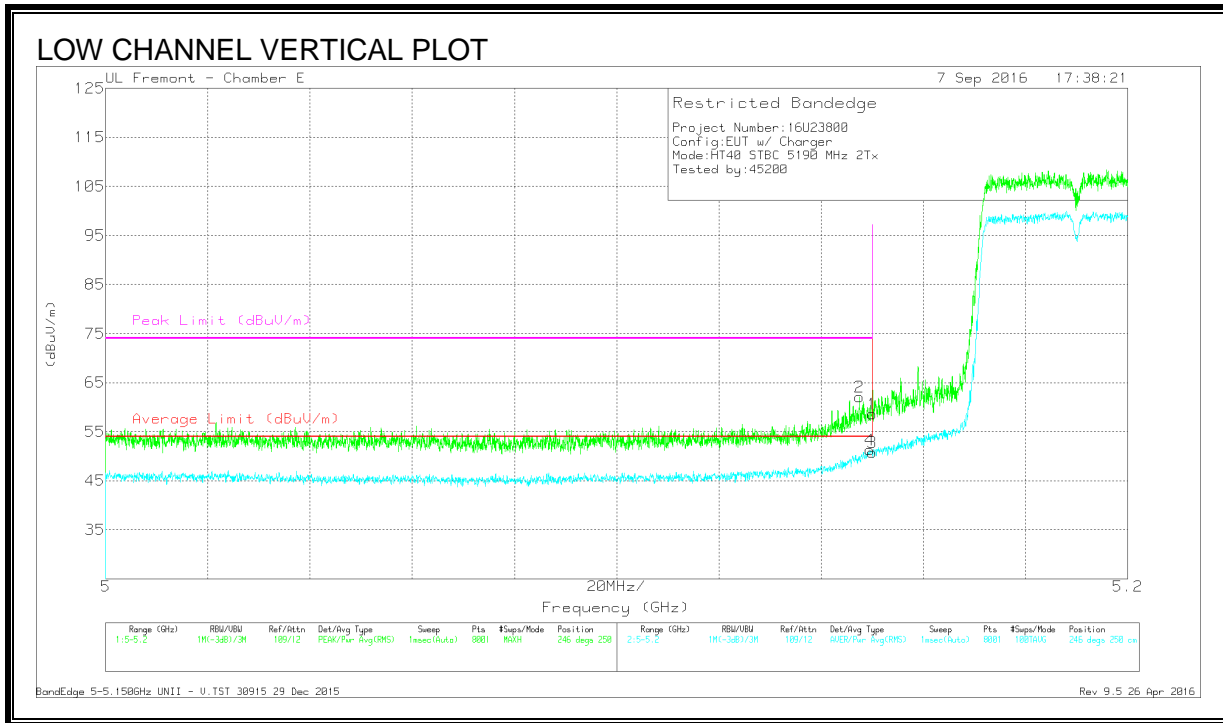
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.148	41.97	Pk	34.1	-18.9	57.17	-	-	74	-16.83	293	396	H
4	* 5.009	31.59	RMS	33.9	-18.5	46.99	54	-7.01	-	-	293	396	H
1	5.15	40.43	Pk	34.1	-19	55.53	-	-	74	-18.47	293	396	H
3	5.15	31.6	RMS	34.1	-19	46.7	54	-7.3	-	-	293	396	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

BandEdge 5-5.150GHz UNII - H.TST 30915 29 Dec 2015



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cb/Fl tr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.148	46.87	PK	34.1	-18.9	62.07	-	-	74	-11.93	246	250	V
4	* 5.15	36.13	RMS	34.1	-19	51.23	54	-2.77	-	-	246	250	V
1	5.15	43.47	PK	34.1	-19	58.57	-	-	74	-15.43	246	250	V
3	5.15	35.68	RMS	34.1	-19	50.78	54	-3.22	-	-	246	250	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

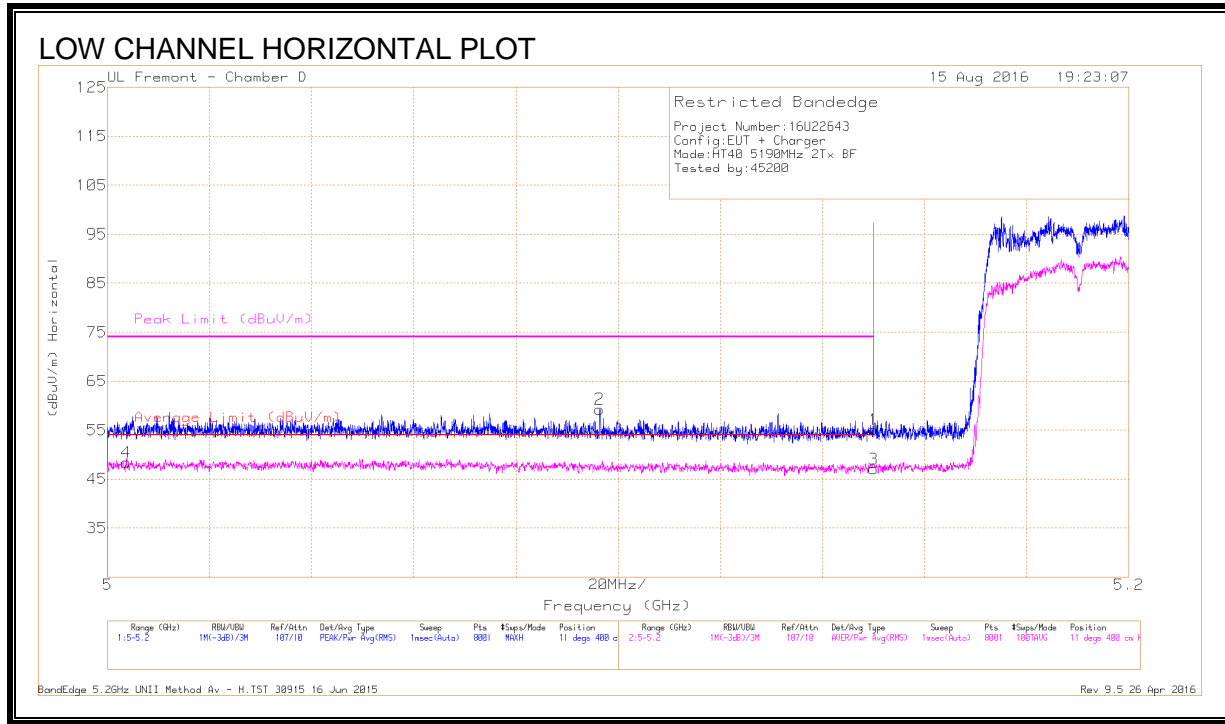
PK - Peak detector

RMS - RMS detection

BandEdge 5-5.150GHz UNII - V.TST 30915 29 Dec 2015

8.18. 802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 1) BEAM FORMING MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



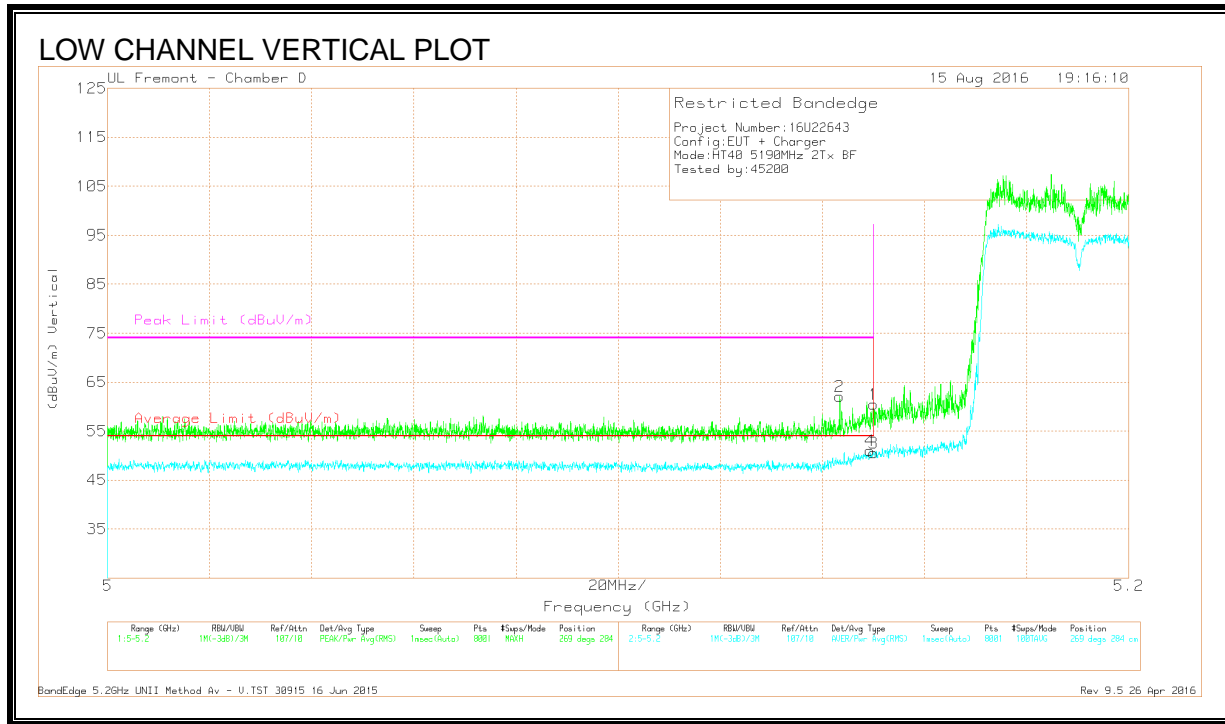
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/FI tr/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.096	43.39	Pk	34	-18.1	0	59.29	-	-	74	-14.71	11	400	H
4	* 5.004	32.48	RMS	34	-18	.79	49.27	54	-4.73	-	-	11	400	H
1	5.15	39.29	Pk	34.1	-18.2	0	55.19	-	-	74	-18.81	11	400	H
3	5.15	31.22	RMS	34.1	-18.2	.79	47.91	54	-6.09	-	-	11	400	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



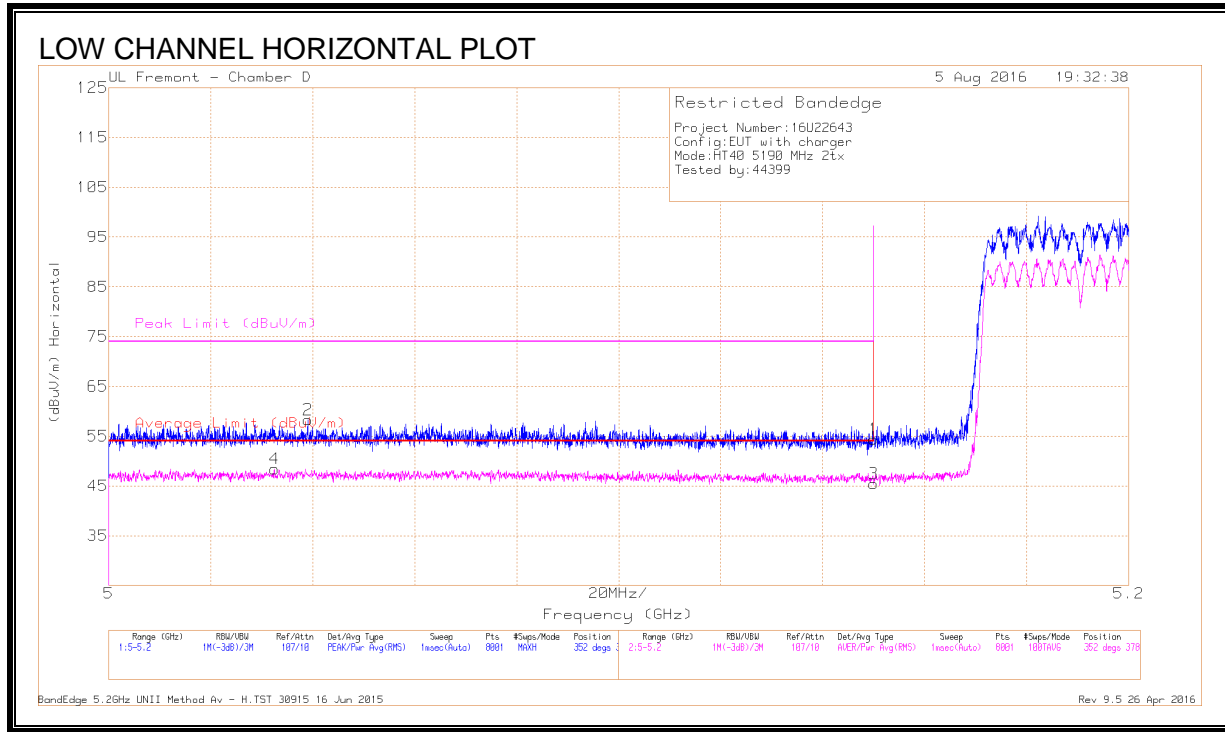
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
2	* 5.143	46.19	Pk	34.1	-18.2	0	62.09	-	-	74	-11.91	269	284	V
4	* 5.149	34.33	RMS	34.1	-18.2	.79	51.02	54	-2.98	-	-	269	284	V
1	5.15	44.54	Pk	34.1	-18.2	0	60.44	-	-	74	-13.56	269	284	V
3	5.15	33.84	RMS	34.1	-18.2	.79	50.53	54	-3.47	-	-	269	284	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.19. 802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND

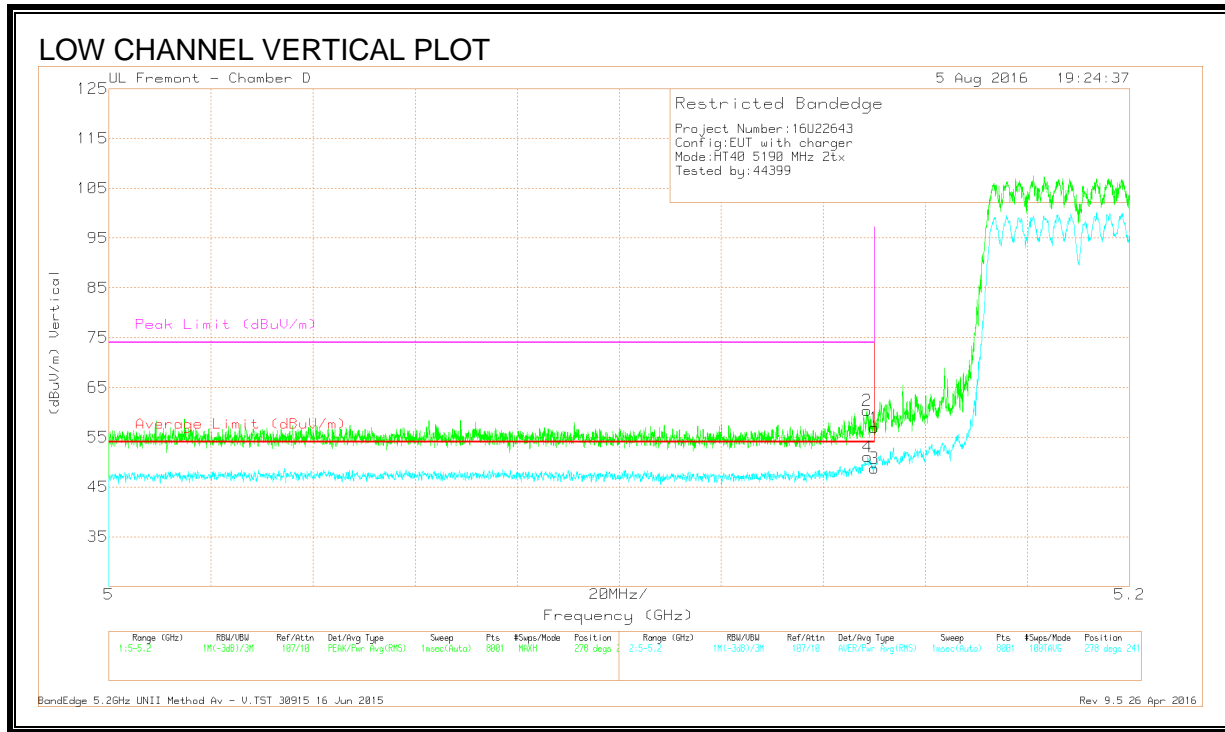
RESTRICTED BANDEGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.039	42.29	Pk	34	-18	58.29	-	-	74	-15.71	352	378	H
4	* 5.033	32.34	RMS	34	-17.9	48.44	54	-5.56	-	-	352	378	H
1	5.15	38.51	Pk	34.1	-18.2	54.41	-	-	74	-19.59	352	378	H
3	5.15	29.57	RMS	34.1	-18.2	45.47	54	-8.53	-	-	352	378	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



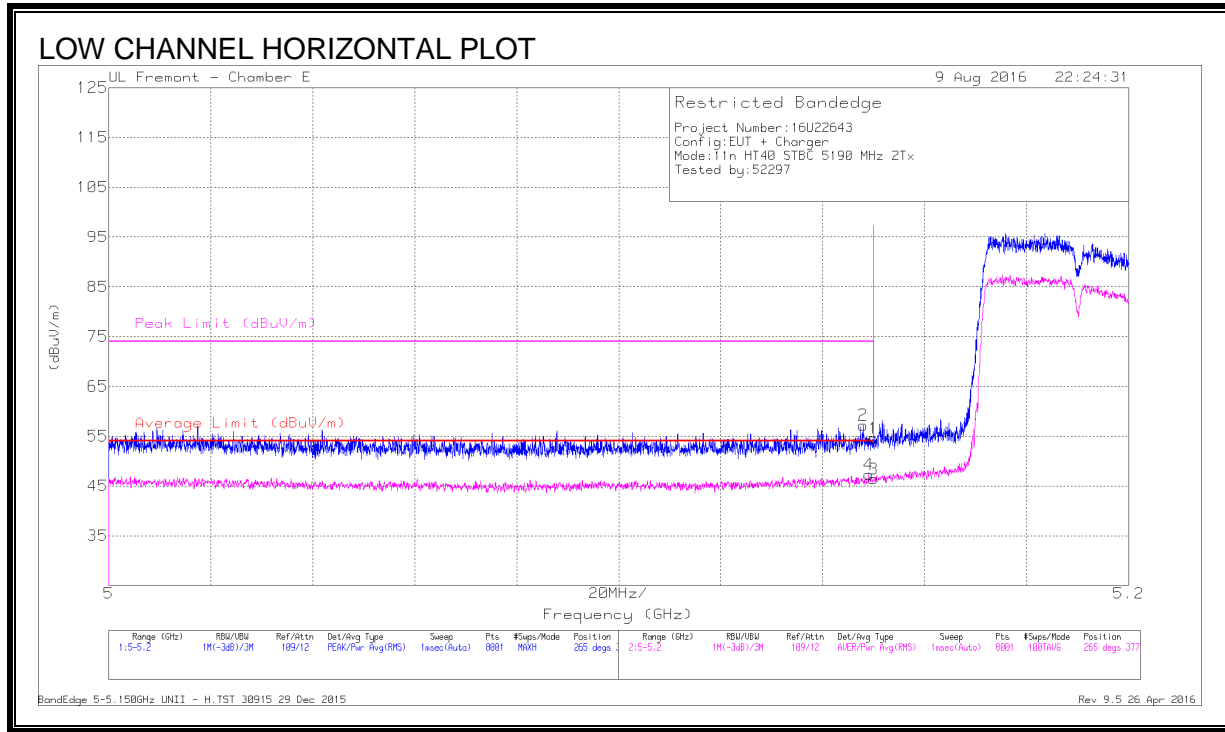
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	44.46	Pk	34.1	-18.2	60.36	-	-	74	-13.64	278	241	V
4	* 5.149	35.13	RMS	34.1	-18.2	51.03	54	-2.97	-	-	278	241	V
1	5.15	41	Pk	34.1	-18.2	56.9	-	-	74	-17.1	278	241	V
3	5.15	32.86	RMS	34.1	-18.2	48.76	54	-5.24	-	-	278	241	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.20. 802.11n HT40 2Tx (CHAIN 0 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND

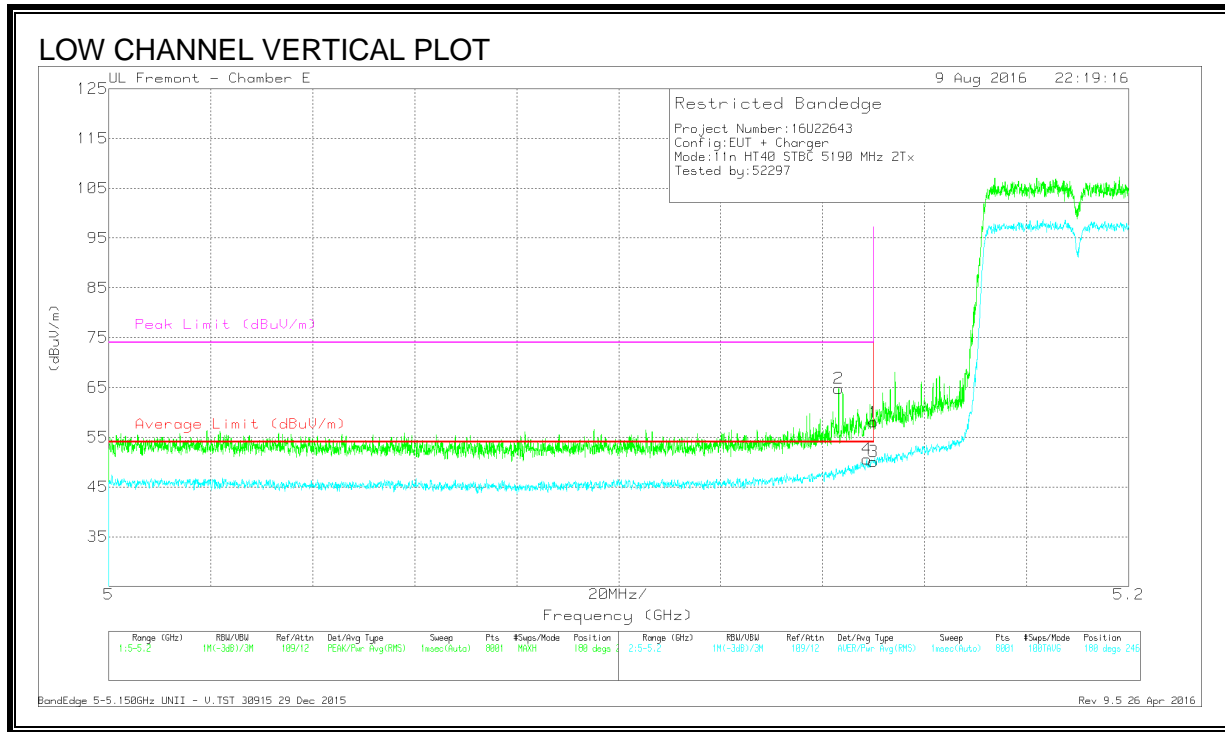
RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.148	42.01	Pk	34.1	-18.9	57.21	-	-	74	-16.79	265	377	H
4	* 5.149	32.09	RMS	34.1	-18.9	47.29	54	-6.71	-	-	265	377	H
1	5.15	39.49	Pk	34.1	-19	54.59	-	-	74	-19.41	265	377	H
3	5.15	31.3	RMS	34.1	-19	46.4	54	-7.6	-	-	265	377	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



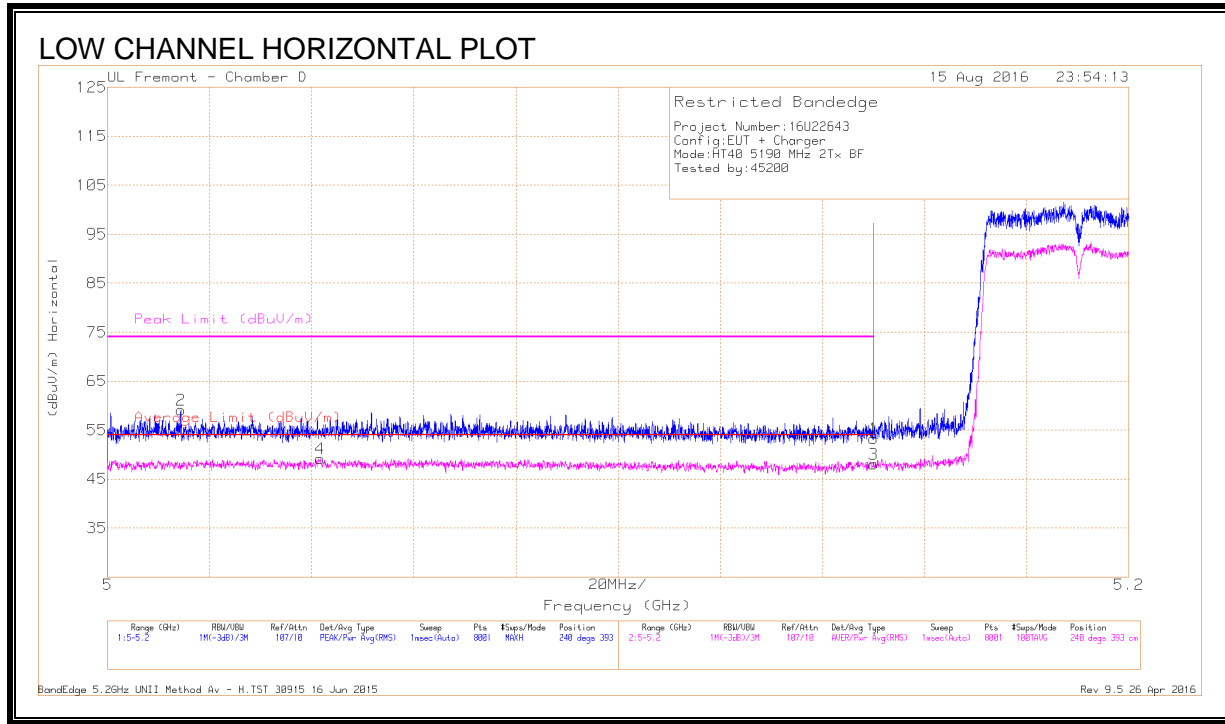
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.143	49.6	Pk	34.1	-18.9	64.8	-	-	74	-9.2	180	246	V
4	* 5.149	35.42	RMS	34.1	-18.9	50.62	54	-3.38	-	-	180	246	V
1	5.15	42.89	Pk	34.1	-19	57.99	-	-	74	-16.01	180	246	V
3	5.15	35	RMS	34.1	-19	50.1	54	-3.9	-	-	180	246	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.21. 802.11ac VHT40 2Tx (CHAIN 0 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



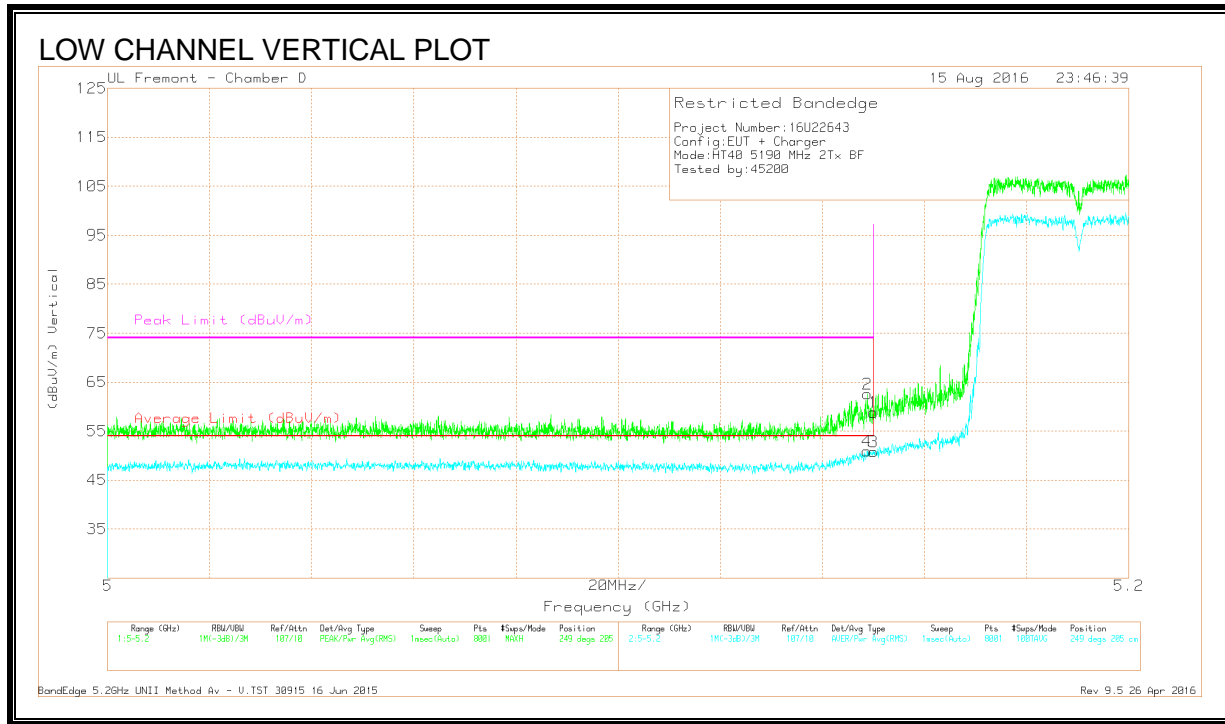
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fl tr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.014	43.01	Pk	34	-17.9	0	59.11	-	-	74	-14.89	240	393	H
4	* 5.042	32.31	RMS	34	-17.9	.79	49.2	54	-4.8	-	-	240	393	H
1	5.15	37.4	Pk	34.1	-18.2	0	53.3	-	-	74	-20.7	240	393	H
3	5.15	31.39	RMS	34.1	-18.2	.79	48.08	54	-5.92	-	-	240	393	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



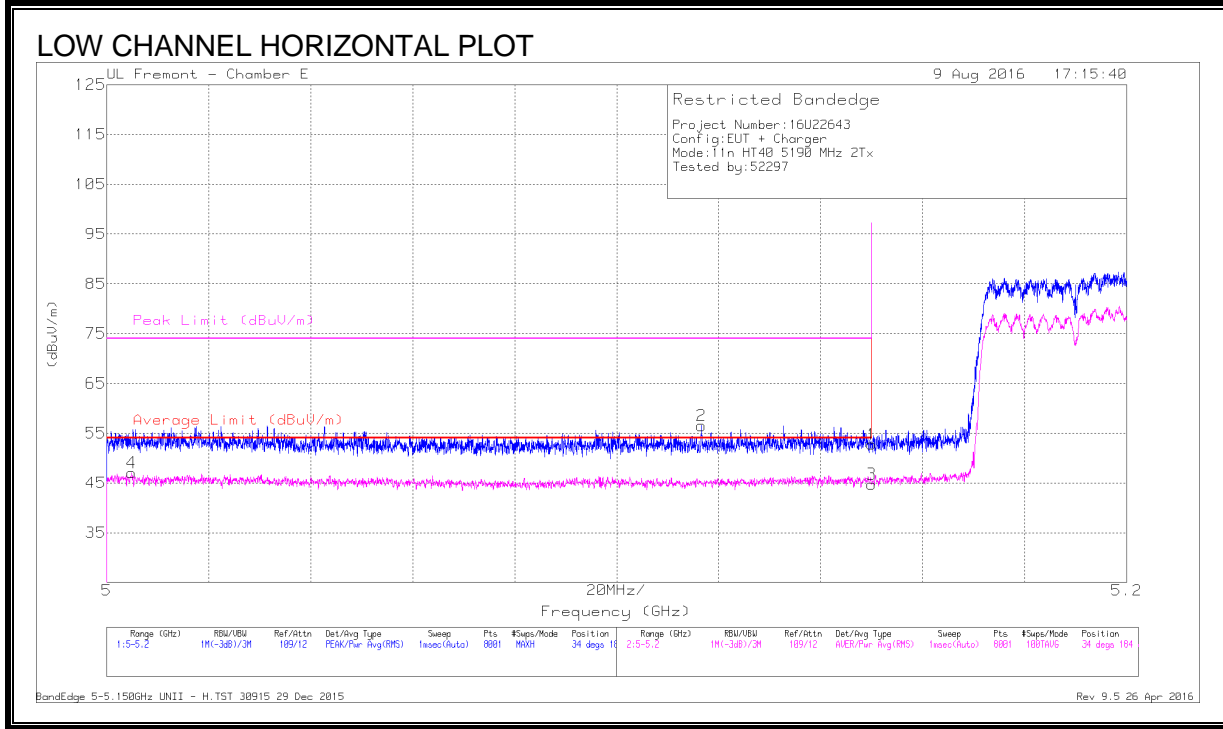
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	46.67	Pk	34.1	-18.2	0	62.57	-	-	74	-11.43	249	205	V
4	* 5.149	34.24	RMS	34.1	-18.2	.79	50.93	54	-3.07	-	-	249	205	V
1	5.15	42.9	Pk	34.1	-18.2	0	58.8	-	-	74	-15.2	249	205	V
3	5.15	34.05	RMS	34.1	-18.2	.79	50.74	54	-3.26	-	-	249	205	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

8.22. 802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) CDD MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)



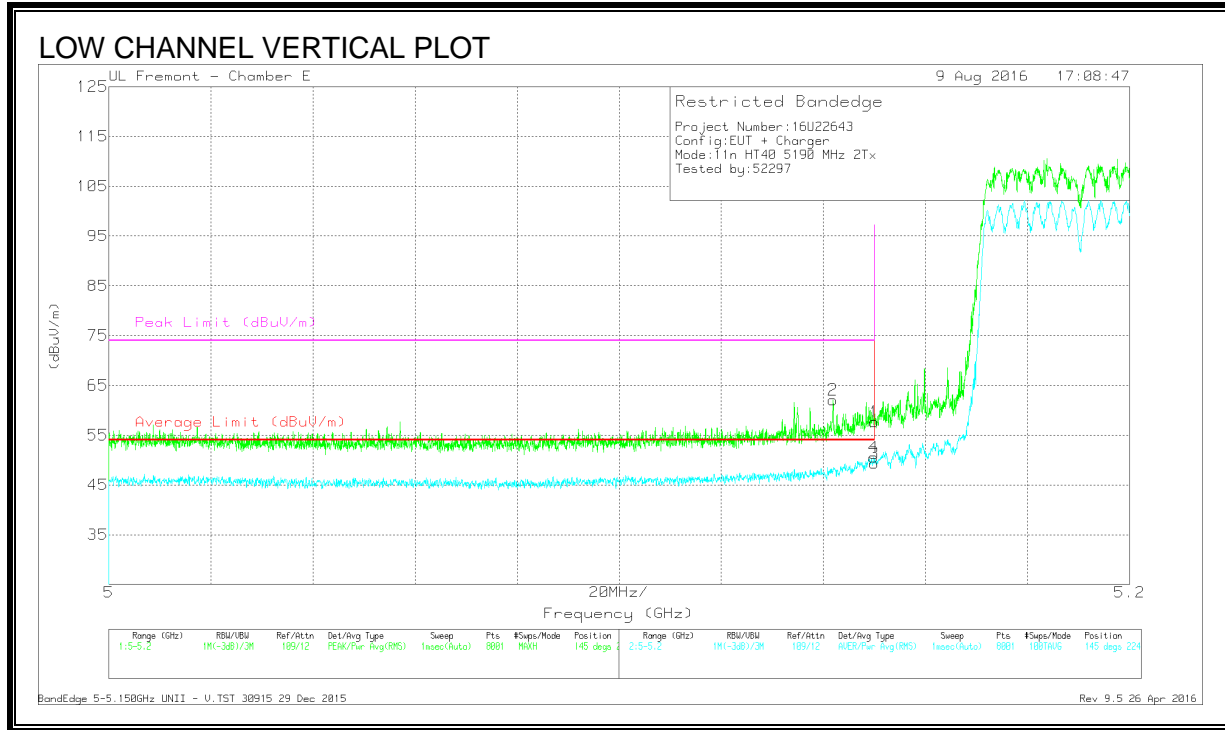
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.117	41.41	Pk	34	-18.9	56.51	-	-	74	-17.49	34	184	H
4	* 5.005	31.66	RMS	33.9	-18.5	47.06	54	-6.94	-	-	34	184	H
1	5.15	37.66	Pk	34.1	-19	52.76	-	-	74	-21.24	34	184	H
3	5.15	29.64	RMS	34.1	-19	44.74	54	-9.26	-	-	34	184	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/C b/Fltr/ Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.142	46.88	Pk	34.1	-18.9	62.08	-	-	74	-11.92	145	224	V
4	* 5.15	35.47	RMS	34.1	-19	50.57	54	-3.43	-	-	145	224	V
1	5.15	42.57	Pk	34.1	-19	57.67	-	-	74	-16.33	145	224	V
3	5.15	34.27	RMS	34.1	-19	49.37	54	-4.63	-	-	145	224	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

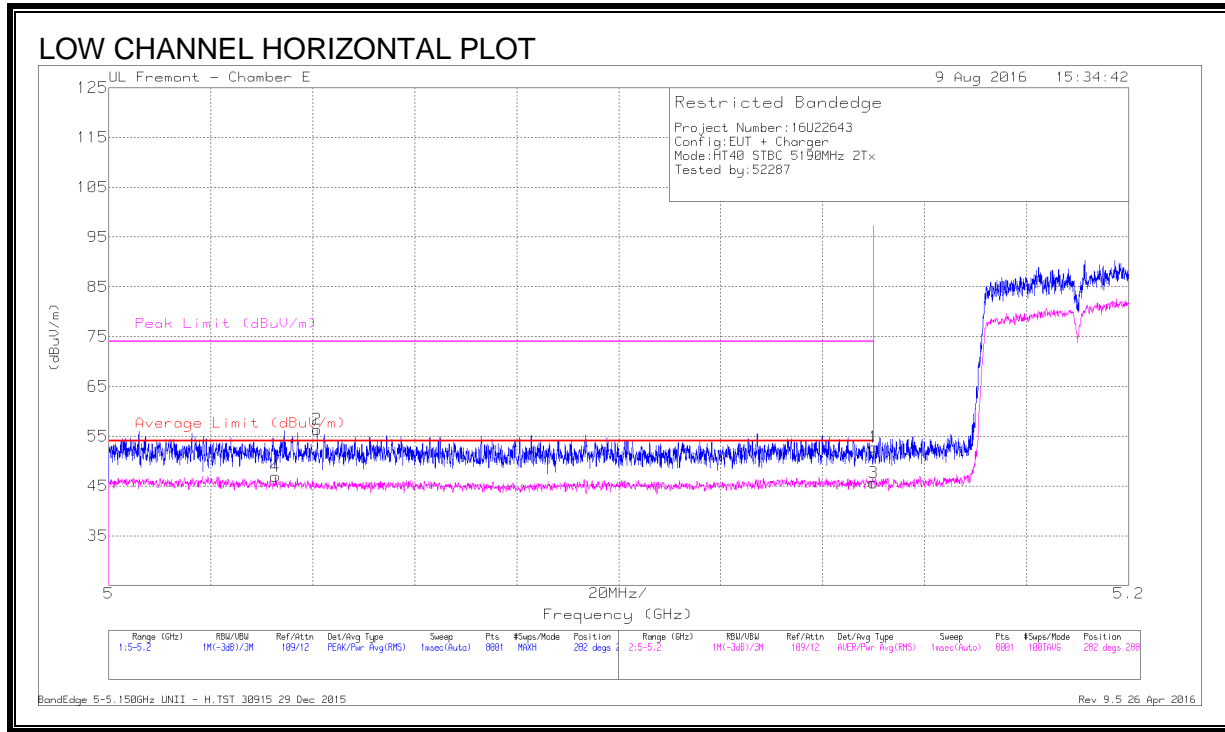
RMS - RMS detection

BandEdge 5-5.150GHz UNII - V.TST 30915 29 Dec 2015

Rev 9.5 26 Apr 2016

8.23. 802.11n HT40 2Tx (CHAIN 1 + CHAIN 2) STBC MODE IN THE 5.2 GHz BAND

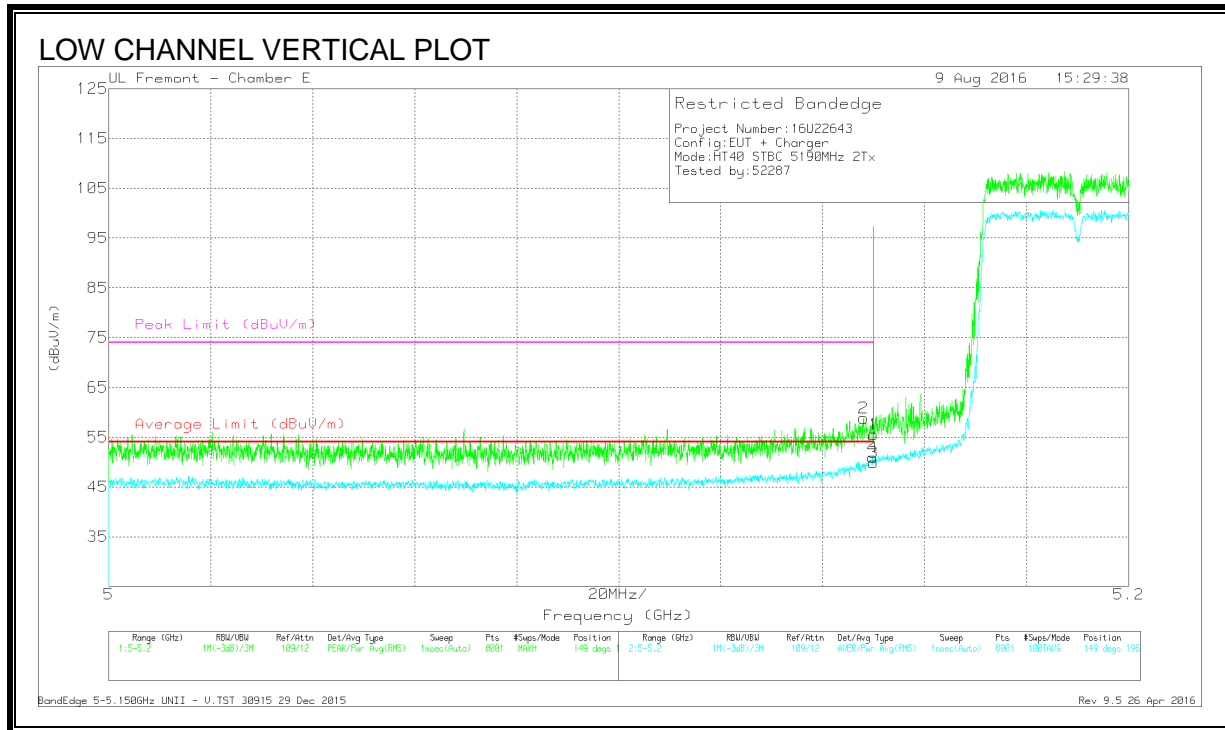
RESTRICTED BANDEDGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.041	41.07	Pk	34	-18.7	56.37	-	-	74	-17.63	282	288	H
4	* 5.033	31.41	RMS	34	-18.5	46.91	54	-7.09	-	-	282	288	H
1	5.15	37.7	Pk	34.1	-19	52.8	-	-	74	-21.2	282	288	H
3	5.15	30.54	RMS	34.1	-19	45.64	54	-8.36	-	-	282	288	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Marg in (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.148	43.64	Pk	34.1	-18.9	58.84	-	-	74	-15.16	149	196	V
4	* 5.15	35.83	RMS	34.1	-19	50.93	54	-3.07	-	-	149	196	V
1	5.15	40.43	Pk	34.1	-19	55.53	-	-	74	-18.47	149	196	V
3	5.15	34.82	RMS	34.1	-19	49.92	54	-4.08	-	-	149	196	V

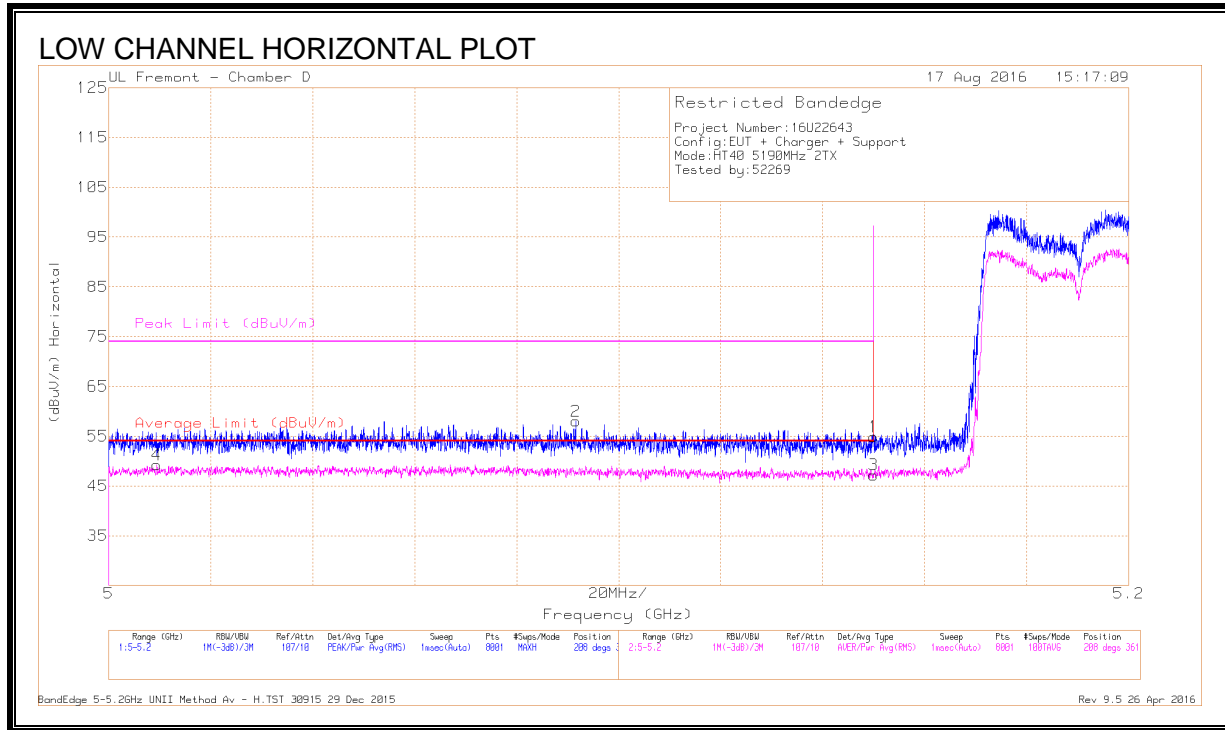
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

8.24. 802.11ac VHT40 2Tx (CHAIN 1 + CHAIN 2) BEAM FORMING MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEGE (LOW CHANNEL)



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Marg in (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azi mut h (Deg s)	Hei ght (cm)	Pola rity
2	* 5.092	42.09	Pk	34	-18.1	0	57.99	-	-	74	-16.01	208	361	H
4	* 5.009	32.37	RMS	34	-17.9	.79	49.26	54	-4.74	-	-	208	361	H
1	5.15	38.97	Pk	34.1	-18.2	0	54.87	-	-	74	-19.13	208	361	H
3	5.15	30.52	RMS	34.1	-18.2	.79	47.21	54	-6.79	-	-	208	361	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection