

FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E**TEST REPORT****For****Computer****Trade Name: ADVANTECH****Model: DMS-SJ03***Issued to***Advantech Co.Ltd.****No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C***Issued by***Compliance Certification Services Inc.****(Hsinchu Lab)****No.989-1, Wenshan Rd., Shangshan Village, Qionglin Township,****Hsinchu County 30741, Taiwan (R.O.C.)****<http://www.ccsrf.com>****service@ccsrf.com****Issued Date: September 21, 2017**

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
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1. TEST RESULT CERTIFICATION

Applicant: Advantech Co.Ltd.
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District,
Taipei 114, Taiwan, R.O.C.

Manufacturer: Advantech Co.Ltd.
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District,
Taipei 114, Taiwan, R.O.C.

Equipment Under Test: Computer

Trade Name: ADVANTECH

Model: DMS-SJ03

Date of Test: August 10 ~ 18, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E	No non-compliance noted

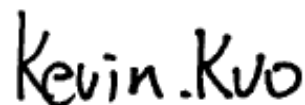
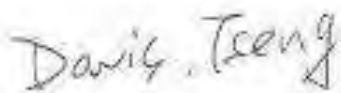
We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rule FCC PART 22 Subpart H, PART 24 Subpart E.

The test results of this report relate only to the tested sample identified in this report.

Approved by:

Tested by:



Davis Tseng
Sr. Engineer
Compliance Certification Services Inc.

Kevin Kuo
Engineer
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	Computer	
Trade Name	ADVANTECH	
Model	DMS-SJ03	
Model Discrepancy	N/A	
Received Date	May 5, 2017	
Power Supply	Powered from host device: DC 12V	
Frequency Range	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7 MHz ~ 1909.2 MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5 MHz ~ 1908.4 MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5 MHz ~ 1907.5 MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855.0 MHz ~1905.0 MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5 MHz ~ 1902.5 MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860.0 MHz ~1900.0 MHz
	LTE Band 5 Channel Bandwidth: 1.4MHz	824.7 MHz ~ 848.2MHz
	LTE Band 5 Channel Bandwidth: 3MHz	825.5 MHz ~ 847.4 MHz
	LTE Band 5 Channel Bandwidth: 5MHz	826.5 MHz ~846.5 MHz
	LTE Band 5 Channel Bandwidth: 10MHz	829 MHz ~844 MHz
Modulation Technique	LTE Band 2	QPSK, 16QAM
	LTE Band 5	QPSK, 16QAM

Maximum ERP Power	LTE Band 2 Channel Bandwidth: 1.4MHz	QPSK: 23.76 dBm 16QAM: 22.75 dBm
	LTE Band 2 Channel Bandwidth: 3MHz	QPSK : 23.77 dBm 16QAM: 22.76 dBm
	LTE Band 2 Channel Bandwidth: 5MHz	QPSK: 23.82 dBm 16QAM: 22.81 dBm
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK: 23.84 dBm 16QAM: 22.83 dBm
	LTE Band 2 Channel Bandwidth: 15MHz	QPSK: 23.85 dBm 16QAM: 22.84 dBm
	LTE Band 2 Channel Bandwidth: 20MHz	QPSK: 23.88 dBm 16QAM: 22.87 dBm
	LTE Band 5 Channel Bandwidth: 1.4MHz	QPSK: 23.41dBm 16QAM: 22.31 dBm
	LTE Band 5 Channel Bandwidth: 3MHz	QPSK: 23.44 dBm 16QAM: 22.34 dBm
	LTE Band 5 Channel Bandwidth: 5MHz	QPSK: 23.46 dBm 16QAM: 22.36 dBm
	LTE Band 5 Channel Bandwidth: 10MHz	QPSK: 23.51 dBm 16QAM: 22.41 dBm
Antenna Specification	PIFA Antenna LTE Band 2: Gain: 3.24dBi LTE Band 5: Gain: 2.97dBi	

Remark: The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of TIA/EIA-603-C: 2004 and FCC CFR 47, Part 2 and Part 22 Subpart H & Part 24 Subpart E.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in ANSI C63.4: 2014.

3.4 DESCRIPTION OF TEST MODES

The EUT (Model: DMS-SJ03) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

LTE Band 2: 1850 MHz ~ 1915MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	1.4MHz		3MHz		5MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	18607	1850.7	18615	1851.5	18625	1852.5
Middle channel (M)	18900	1880	18900	1880.0	18900	1880
High channel (H)	19192	1909.2	19184	1908.4	19175	1907.5
Channel Bandwidth	10MHz		15MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	18650	1855	18675	1857.5	18700	1860
Middle channel (M)	18900	1880	18900	1880.0	18900	1880
High channel (H)	19150	1905	19125	1902.5	19100	1900

LTE Band 5: 824 MHz ~ 849

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	1.4MHz		3MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	20407	824.7	20415	825.5
Middle channel (M)	20525	836.5	20525	836.5
High channel (H)	20642	848.2	20634	847.4
Channel Bandwidth	5MHz		10MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	20425	826.5	20450	829
Middle channel (M)	20525	836.5	20525	836.5
High channel (H)	20625	846.5	20600	844

For test mode:

The conducted power be measured in 1, 50% and 100% RB allocation, offset to upper edge, centered and lower edge of the channel bandwidth of each required channel.

	QPSK	Worst Mode	16QAM	Worst Mode
Band2	1.4M	1 RB ALLOCATED AT THE UPPER EDGE	1.4M	1 RB ALLOCATED AT THE UPPER EDGE
	5M	1 RB ALLOCATED AT THE UPPER EDGE	5M	1 RB ALLOCATED AT THE UPPER EDGE
	10M	1 RB ALLOCATED AT THE UPPER EDGE	10M	1 RB ALLOCATED AT THE CENTERED
	20M	1 RB ALLOCATED AT THE UPPER EDGE	20M	1 RB ALLOCATED AT THE UPPER EDGE
Band5	1.4M	1 RB ALLOCATED AT THE UPPER EDGE	1.4M	1 RB ALLOCATED AT THE UPPER EDGE
	5M	1 RB ALLOCATED AT THE UPPER EDGE	5M	1 RB ALLOCATED AT THE UPPER EDGE
	10M	1 RB ALLOCATED AT THE UPPER EDGE	10M	1 RB ALLOCATED AT THE CENTERED

3.5 THE WORST MODE OF MEASUREMENT

For LTE Band II:

Radiated Emission Measurement	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Voltage/Hz	DC 12V
Test Mode	Mode 1: EUT power by DC Source via cable.
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4
Position	☐ Placed in fixed position. ☐ Placed in fixed position at X-Plane (E2-Plane) ☒ Placed in fixed position at Y-Plane (E1-Plane) ☐ Placed in fixed position at Z-Plane (H-Plane)

Remark:

1. The worst mode was record in this test report.
2. The EUT pre-scanned in three axis ,X,Y, Z and two polarity, Horizontal and Vertical for radiated measurement. The worst case (Y-Plane) were recorded in this report.

For LTE Band V:

Radiated Emission Measurement	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Voltage/Hz	DC 12V
Test Mode	Mode 1: EUT power by DC Source via cable.
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4
Position	☐ Placed in fixed position. ☐ Placed in fixed position at X-Plane (E2-Plane) ☐ Placed in fixed position at Y-Plane (E1-Plane) ☒ Placed in fixed position at Z-Plane (H-Plane)

Remark:

1. The worst mode was record in this test report.
2. The EUT pre-scanned in three axis ,X,Y, Z and two polarity, Horizontal and Vertical for radiated measurement. The worst case (Z-Plane) were recorded in this report.

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: Each piece of equipment is scheduled for calibration once a year and Loop Antenna is scheduled for calibration once three years.

Conducted Emissions Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal Due
Base Station	Anritsu	MT-8820C	6201240043	07/11/2017	07/10/2018
Spectrum Analyzer	R&S	FSV 40	101073	10/05/2016	10/04/2017
Spectrum Analyzer	R&S	FSU 20Hz....26.5GHz	100258	07/27/2017	07/26/2018
Power Meter	Anritsu	ML2495A	1149001	12/06/2016	12/05/2017
Power Sensor	Anritsu	MA2411B	1126148	12/06/2016	12/05/2017

Wugu 966 Chamber A					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Base Station	Anritsu	MT-8820C	6201240043	07/10/2017	07/11/2018
Bi-Log Antenna	TESEQ	CBL 6112D	35404	08/07/2017	08/06/2018
Double Ridged BroadBand Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-285	04/25/2017	04/24/2018
Double Ridged Guide Horn Antenna	ETS • LINDGREN	3117	00078732	07/06/2017	07/05/2018
Horn Antenna	COM-POWER	AH-840	03077	12/02/2016	12/01/2017
Pre-Amplifier	EMCI	EMC001625	980243	04/11/2017	04/10/2018
Pre-Amplifier	COM-POWER	PAM-118A	551043	04/11/2017	04/10/2018
PSA Series Spectrum Analyzer	Agilent	E4446A	MY48250064	04/20/2017	04/19/2018

4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

Remark: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

- ☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
- ☐ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan, R.O.C
- ☐ No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, Taiwan, R.O.C
- ☒ No.989-1, Wenshan Rd., Shangshan Village, Qionglin Township, Hsinchu County 30741, Taiwan, R.O.C

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	Data Cable
1	DC Power Source	Agilent	E3640A	N/A	N/A	DC Cable 1.5m shielding
2	NB(D)	ASUS	A8J	R31018	N/A	N/A

Remark:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

7. FCC PART 22 & 24 REQUIREMENTS

7.1 OUTPUT POWER MEASUREMENT

Test Procedures

CONDUCTED POWER MEASUREMENT:

1. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
2. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

TEST RESULTS**LTE Band 2**

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 2	1.4M	18607	1850.7	QPSK	1	0	0	23.76	0.2377
					1	2	0	23.67	0.2328
					1	5	0	23.3	0.2138
					3	0	1	22.82	0.1914
					3	1	1	22.79	0.1901
					3	2	1	22.35	0.1718
					6	0	1	22.82	0.1914
				16QAM	1	0	1	22.75	0.1884
					1	2	1	22.74	0.1879
					1	5	1	22.29	0.1694
					3	0	2	21.91	0.1552
					3	1	2	21.84	0.1528
					3	2	2	21.23	0.1327
					6	0	2	21.35	0.1365
		18900	1880.0	QPSK	1	0	0	23.46	0.2218
					1	2	0	23.37	0.2173
					1	5	0	23.37	0.2173
					3	0	1	22.55	0.1799
					3	1	1	22.43	0.1750
					3	2	1	22.47	0.1766
					6	0	1	22.5	0.1778
				16QAM	1	0	1	22.55	0.1799
					1	2	1	22.49	0.1774
					1	5	1	22.43	0.1750
					3	0	2	21.54	0.1426
					3	1	2	21.45	0.1396
					3	2	2	21.43	0.1390
					6	0	2	21.63	0.1455
		19192	1909.2	QPSK	1	0	0	23.47	0.2223
					1	2	0	23.35	0.2163
					1	5	0	23.36	0.2168
					3	0	1	22.6	0.1820
					3	1	1	22.35	0.1718
					3	2	1	22.43	0.1750
					6	0	1	22.41	0.1742
				16QAM	1	0	1	22.47	0.1766
					1	2	1	22.29	0.1694
					1	5	1	22.38	0.1730
					3	0	2	21.67	0.1469
					3	1	2	21.41	0.1384
					3	2	2	21.33	0.1358
					6	0	2	21.45	0.1396

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 2	3M	18615	1851.5	QPSK	1	0	0	23.77	0.2382
					1	7	0	23.68	0.2333
					1	14	0	23.31	0.2143
					8	0	1	22.83	0.1919
					8	4	1	22.8	0.1905
					8	7	1	22.36	0.1722
					15	0	1	22.83	0.1919
				16QAM	1	0	1	22.76	0.1888
					1	7	1	22.75	0.1884
					1	14	1	22.3	0.1698
					8	0	2	21.92	0.1556
					8	4	2	21.85	0.1531
					8	7	2	21.24	0.1330
					15	0	2	21.36	0.1368
		18900	1880.0	QPSK	1	0	0	23.47	0.2223
					1	7	0	23.38	0.2178
					1	14	0	23.38	0.2178
					8	0	1	22.56	0.1803
					8	4	1	22.44	0.1754
					8	7	1	22.48	0.1770
					15	0	1	22.51	0.1782
				16QAM	1	0	1	22.56	0.1803
					1	7	1	22.5	0.1778
					1	14	1	22.44	0.1754
					8	0	2	21.55	0.1429
					8	4	2	21.46	0.1400
					8	7	2	21.44	0.1393
					15	0	2	21.64	0.1459
		19184	1908.4	QPSK	1	0	0	23.49	0.2234
					1	7	0	23.37	0.2173
					1	14	0	23.38	0.2178
					8	0	1	22.62	0.1828
					8	4	1	22.37	0.1726
					8	7	1	22.45	0.1758
					15	0	1	22.43	0.1750
				16QAM	1	0	1	22.49	0.1774
					1	7	1	22.31	0.1702
					1	14	1	22.4	0.1738
					8	0	2	21.69	0.1476
					8	4	2	21.43	0.1390
					8	7	2	21.35	0.1365
					15	0	2	21.47	0.1403

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 2	5M	18625	1852.5	QPSK	1	0	0	23.82	0.2410
					1	12	0	23.73	0.2360
					1	24	0	23.36	0.2168
					12	0	1	22.88	0.1941
					12	6	1	22.85	0.1928
					12	11	1	22.41	0.1742
					25	0	1	22.88	0.1941
				16QAM	1	0	1	22.81	0.1910
					1	12	1	22.80	0.1905
					1	24	1	22.35	0.1718
					12	0	2	21.97	0.1574
					12	6	2	21.90	0.1549
					12	11	2	21.29	0.1346
					25	0	2	21.41	0.1384
		18900	1880.0	QPSK	1	0	0	23.51	0.2244
					1	12	0	23.42	0.2198
					1	24	0	23.42	0.2198
					12	0	1	22.60	0.1820
					12	6	1	22.48	0.1770
					12	11	1	22.52	0.1786
					25	0	1	22.55	0.1799
				16QAM	1	0	1	22.60	0.1820
					1	12	1	22.54	0.1795
					1	24	1	22.48	0.1770
					12	0	2	21.59	0.1442
					12	6	2	21.50	0.1413
					12	11	2	21.48	0.1406
					25	0	2	21.68	0.1472
		19175	1907.5	QPSK	1	0	0	23.54	0.2259
					1	12	0	23.42	0.2198
					1	24	0	23.43	0.2203
					12	0	1	22.67	0.1849
					12	6	1	22.42	0.1746
					12	11	1	22.50	0.1778
					25	0	1	22.48	0.1770
				16QAM	1	0	1	22.54	0.1795
					1	12	1	22.36	0.1722
					1	24	1	22.45	0.1758
					12	0	2	21.74	0.1493
					12	6	2	21.48	0.1406
					12	11	2	21.40	0.1380
					25	0	2	21.52	0.1419

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 2	10M	18650	1855.0	QPSK	1	0	0	23.84	0.2421
					1	24	0	23.75	0.2371
					1	49	0	23.38	0.2178
					25	0	1	22.9	0.1950
					25	12	1	22.87	0.1936
					25	24	1	22.43	0.1750
					50	0	1	22.9	0.1950
				16QAM	1	0	1	22.83	0.1919
					1	24	1	22.82	0.1914
					1	49	1	22.37	0.1726
					25	0	2	21.99	0.1581
					25	12	2	21.92	0.1556
					25	24	2	21.31	0.1352
					50	0	2	21.43	0.1390
		18900	1880.0	QPSK	1	0	0	23.53	0.2254
					1	24	0	23.44	0.2208
					1	49	0	23.44	0.2208
					25	0	1	22.62	0.1828
					25	12	1	22.5	0.1778
					25	24	1	22.54	0.1795
					50	0	1	22.57	0.1807
				16QAM	1	0	1	22.62	0.1828
					1	24	1	22.56	0.1803
					1	49	1	22.5	0.1778
					25	0	2	21.61	0.1449
					25	12	2	21.52	0.1419
					25	24	2	21.5	0.1413
					50	0	2	21.7	0.1479
		19150	1905.0	QPSK	1	0	0	23.57	0.2275
					1	24	0	23.45	0.2213
					1	49	0	23.46	0.2218
					25	0	1	22.7	0.1862
					25	12	1	22.45	0.1758
					25	24	1	22.53	0.1791
					50	0	1	22.51	0.1782
				16QAM	1	0	1	22.57	0.1807
					1	24	1	22.39	0.1734
					1	49	1	22.48	0.1770
					25	0	2	21.77	0.1503
					25	12	2	21.51	0.1416
					25	24	2	21.43	0.1390
					50	0	2	21.55	0.1429

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 2	15M	18675	1857.5	QPSK	1	0	0	23.85	0.2427
					1	37	0	23.76	0.2377
					1	74	0	23.39	0.2183
					36	0	1	22.91	0.1954
					36	18	1	22.88	0.1941
					36	35	1	22.44	0.1754
					75	0	1	22.91	0.1954
				16QAM	1	0	1	22.84	0.1923
					1	37	1	22.83	0.1919
					1	74	1	22.38	0.1730
					36	0	2	22	0.1585
					36	18	2	21.93	0.1560
					36	35	2	21.32	0.1355
					75	0	2	21.44	0.1393
		18900	1880.0	QPSK	1	0	0	23.54	0.2259
					1	37	0	23.45	0.2213
					1	74	0	23.45	0.2213
					36	0	1	22.63	0.1832
					36	18	1	22.51	0.1782
					36	35	1	22.55	0.1799
					75	0	1	22.58	0.1811
				16QAM	1	0	1	22.63	0.1832
					1	37	1	22.57	0.1807
					1	74	1	22.51	0.1782
					36	0	2	21.62	0.1452
					36	18	2	21.53	0.1422
					36	35	2	21.51	0.1416
					75	0	2	21.71	0.1483
		19125	1902.5	QPSK	1	0	0	23.58	0.2280
					1	37	0	23.46	0.2218
					1	74	0	23.47	0.2223
					36	0	1	22.71	0.1866
					36	18	1	22.46	0.1762
					36	35	1	22.54	0.1795
					75	0	1	22.52	0.1786
				16QAM	1	0	1	22.58	0.1811
					1	37	1	22.4	0.1738
					1	74	1	22.49	0.1774
					36	0	2	21.78	0.1507
					36	18	2	21.52	0.1419
					36	35	2	21.44	0.1393
					75	0	2	21.56	0.1432

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 2	20M	18700	1860.0	QPSK	1	0	0	23.88	0.2443
					1	49	0	23.79	0.2393
					1	99	0	23.42	0.2198
					50	0	1	22.94	0.1968
					50	24	1	22.91	0.1954
					50	49	1	22.47	0.1766
					100	0	1	22.94	0.1968
				16QAM	1	0	1	22.87	0.1936
					1	49	1	22.86	0.1932
					1	99	1	22.41	0.1742
					50	0	2	22.03	0.1596
					50	24	2	21.96	0.1570
					50	49	2	21.35	0.1365
					100	0	2	21.47	0.1403
		18900	1880.0	QPSK	1	0	0	23.6	0.2291
					1	49	0	23.51	0.2244
					1	99	0	23.51	0.2244
					50	0	1	22.69	0.1858
					50	24	1	22.57	0.1807
					50	49	1	22.61	0.1824
					100	0	1	22.64	0.1837
				16QAM	1	0	1	22.69	0.1858
					1	49	1	22.63	0.1832
					1	99	1	22.57	0.1807
					50	0	2	21.68	0.1472
					50	24	2	21.59	0.1442
					50	49	2	21.57	0.1435
					100	0	2	21.77	0.1503
		19100	1900.0	QPSK	1	0	0	23.65	0.2317
					1	49	0	23.53	0.2254
					1	99	0	23.54	0.2259
					50	0	1	22.78	0.1897
					50	24	1	22.53	0.1791
					50	49	1	22.61	0.1824
					100	0	1	22.59	0.1816
				16QAM	1	0	1	22.65	0.1841
					1	49	1	22.47	0.1766
					1	99	1	22.56	0.1803
					50	0	2	21.85	0.1531
					50	24	2	21.59	0.1442
					50	49	2	21.51	0.1416
					100	0	2	21.63	0.1455

LTE Band 5

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 5	1.4M	20407	824.7	QPSK	1	0	0	23.41	0.2193
					1	2	0	23.32	0.2148
					1	5	0	23.15	0.2065
					3	0	1	22.35	0.1718
					3	1	1	22.41	0.1742
					3	2	1	22.28	0.1690
					6	0	1	22.45	0.1758
				16QAM	1	0	1	22.31	0.1702
					1	2	1	22.51	0.1782
					1	5	1	22.21	0.1663
					3	0	2	21.28	0.1343
					3	1	2	21.49	0.1409
					3	2	2	21.26	0.1337
					6	0	2	21.23	0.1327
		20525	836.5	QPSK	1	0	0	23.38	0.2178
					1	2	0	23.19	0.2084
					1	5	0	23.08	0.2032
					3	0	1	22.51	0.1782
					3	1	1	22.28	0.1690
					3	2	1	22.35	0.1718
					6	0	1	22.59	0.1816
				16QAM	1	0	1	22.45	0.1758
					1	2	1	22.33	0.1710
					1	5	1	22.37	0.1726
					3	0	2	21.48	0.1406
					3	1	2	21.28	0.1343
					3	2	2	21.28	0.1343
					6	0	2	21.35	0.1365
		20642	848.2	QPSK	1	0	0	23.24	0.2109
					1	2	0	23.10	0.2042
					1	5	0	22.93	0.1963
					3	0	1	22.27	0.1687
					3	1	1	22.13	0.1633
					3	2	1	21.96	0.1570
					6	0	1	22.24	0.1675
				16QAM	1	0	1	22.20	0.1660
					1	2	1	22.23	0.1671
					1	5	1	21.93	0.1560
					3	0	2	21.24	0.1330
					3	1	2	21.08	0.1282
					3	2	2	20.97	0.1250
					6	0	2	21.08	0.1282

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 5	3M	20415	825.5	QPSK	1	0	0	23.44	0.2208
					1	7	0	23.35	0.2163
					1	14	0	23.18	0.2080
					8	0	1	22.38	0.1730
					8	4	1	22.44	0.1754
					8	7	1	22.31	0.1702
					15	0	1	22.48	0.1770
				16QAM	1	0	1	22.34	0.1714
					1	7	1	22.54	0.1795
					1	14	1	22.24	0.1675
					8	0	2	21.31	0.1352
					8	4	2	21.52	0.1419
					8	7	2	21.29	0.1346
					15	0	2	21.26	0.1337
		20525	836.5	QPSK	1	0	0	23.39	0.2183
					1	7	0	23.20	0.2089
					1	14	0	23.09	0.2037
					8	0	1	22.52	0.1786
					8	4	1	22.29	0.1694
					8	7	1	22.36	0.1722
					15	0	1	22.60	0.1820
				16QAM	1	0	1	22.46	0.1762
					1	7	1	22.34	0.1714
					1	14	1	22.38	0.1730
					8	0	2	21.49	0.1409
					8	4	2	21.29	0.1346
					8	7	2	21.29	0.1346
					15	0	2	21.36	0.1368
		20634	847.4	QPSK	1	0	0	23.26	0.2118
					1	7	0	23.12	0.2051
					1	14	0	22.95	0.1972
					8	0	1	22.29	0.1694
					8	4	1	22.15	0.1641
					8	7	1	21.98	0.1578
					15	0	1	22.26	0.1683
				16QAM	1	0	1	22.22	0.1667
					1	7	1	22.25	0.1679
					1	14	1	21.95	0.1567
					8	0	2	21.26	0.1337
					8	4	2	21.10	0.1288
					8	7	2	20.99	0.1256
					15	0	2	21.10	0.1288

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 5	5M	20425	826.5	QPSK	1	0	0	23.46	0.2218
					1	12	0	23.37	0.2173
					1	24	0	23.20	0.2089
					12	0	1	22.40	0.1738
					12	6	1	22.46	0.1762
					12	11	1	22.33	0.1710
					25	0	1	22.50	0.1778
				16QAM	1	0	1	22.36	0.1722
					1	12	1	22.56	0.1803
					1	24	1	22.26	0.1683
					12	0	2	21.33	0.1358
					12	6	2	21.54	0.1426
					12	11	2	21.31	0.1352
					25	0	2	21.28	0.1343
		20525	836.5	QPSK	1	0	0	23.40	0.2188
					1	12	0	23.21	0.2094
					1	24	0	23.10	0.2042
					12	0	1	22.53	0.1791
					12	6	1	22.30	0.1698
					12	11	1	22.37	0.1726
					25	0	1	22.61	0.1824
				16QAM	1	0	1	22.47	0.1766
					1	12	1	22.35	0.1718
					1	24	1	22.39	0.1734
					12	0	2	21.50	0.1413
					12	6	2	21.30	0.1349
					12	11	2	21.30	0.1349
					25	0	2	21.37	0.1371
		20625	846.5	QPSK	1	0	0	23.28	0.2128
					1	12	0	23.14	0.2061
					1	24	0	22.97	0.1982
					12	0	1	22.31	0.1702
					12	6	1	22.17	0.1648
					12	11	1	22.00	0.1585
					25	0	1	22.28	0.1690
				16QAM	1	0	1	22.24	0.1675
					1	12	1	22.27	0.1687
					1	24	1	21.97	0.1574
					12	0	2	21.28	0.1343
					12	6	2	21.12	0.1294
					12	11	2	21.01	0.1262
					25	0	2	21.12	0.1294

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
Band 5	10M	20450	829.0	QPSK	1	0	0	23.51	0.2244
					1	24	0	23.42	0.2198
					1	49	0	23.25	0.2113
					25	0	1	22.45	0.1758
					25	12	1	22.51	0.1782
					25	24	1	22.38	0.1730
					50	0	1	22.55	0.1799
				16QAM	1	0	1	22.41	0.1742
					1	24	1	22.61	0.1824
					1	49	1	22.31	0.1702
					25	0	2	21.38	0.1374
					25	12	2	21.59	0.1442
					25	24	2	21.36	0.1368
					50	0	2	21.33	0.1358
		20525	836.5	QPSK	1	0	0	23.44	0.2208
					1	24	0	23.25	0.2113
					1	49	0	23.14	0.2061
					25	0	1	22.57	0.1807
					25	12	1	22.34	0.1714
					25	24	1	22.41	0.1742
					50	0	1	22.65	0.1841
				16QAM	1	0	1	22.51	0.1782
					1	24	1	22.39	0.1734
					1	49	1	22.43	0.1750
					25	0	2	21.54	0.1426
					25	12	2	21.34	0.1361
					25	24	2	21.34	0.1361
					50	0	2	21.41	0.1384
		20600	844.0	QPSK	1	0	0	23.35	0.2163
					1	24	0	23.21	0.2094
					1	49	0	23.04	0.2014
					25	0	1	22.38	0.1730
					25	12	1	22.24	0.1675
					25	24	1	22.07	0.1611
					50	0	1	22.35	0.1718
				16QAM	1	0	1	22.31	0.1702
					1	24	1	22.34	0.1714
					1	49	1	22.04	0.1600
					25	0	2	21.35	0.1365
					25	12	2	21.19	0.1315
					25	24	2	21.08	0.1282
					50	0	2	21.19	0.1315

7.2 ERP & EIRP MEASUREMENT

LIMIT

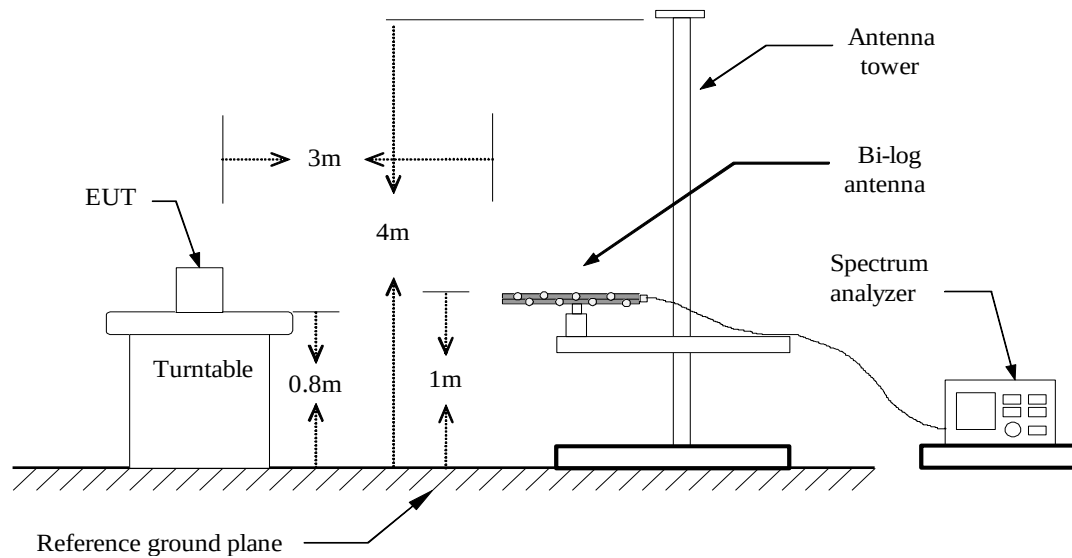
According to FCC §2.1046

FCC 22.913(a): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.

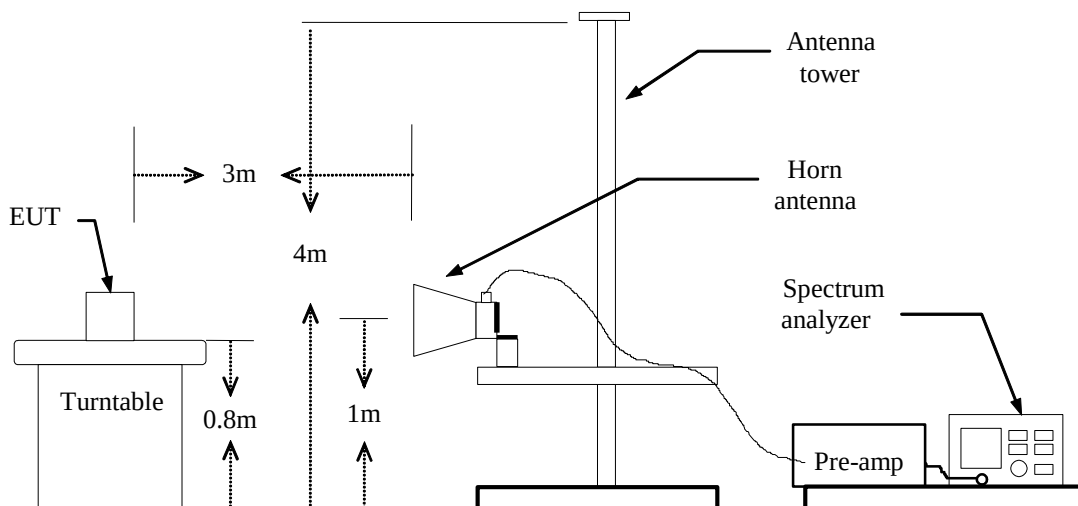
FCC 24.232(c): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

Test Configuration

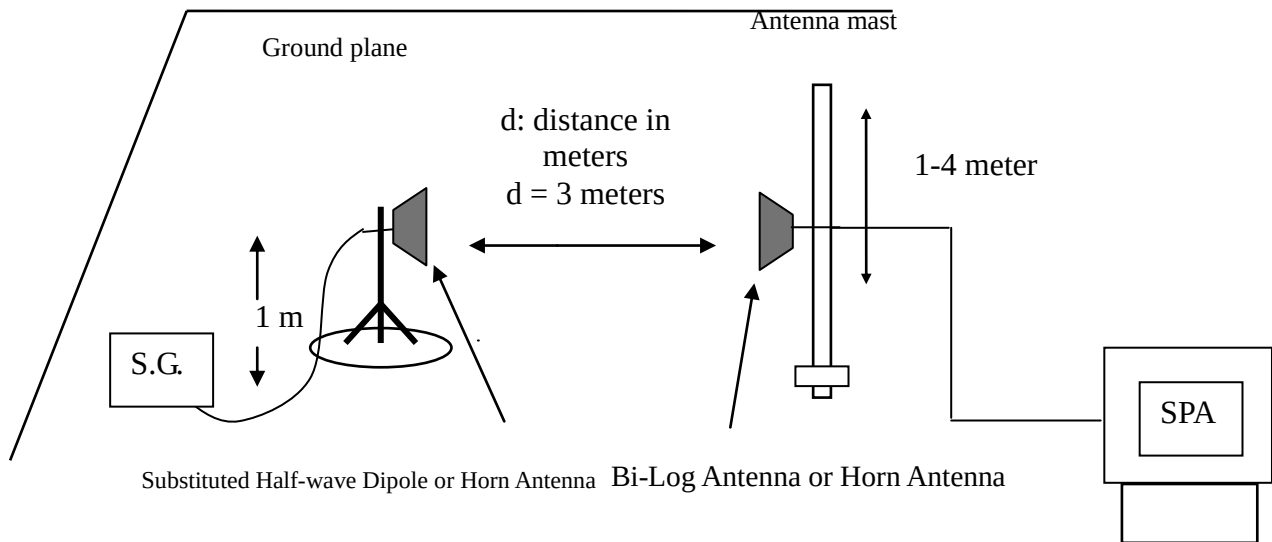
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



TEST PROCEDURE

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 5MHz and the average bandwidth was set to 50MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)} - 2.15$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

TEST RESULTS

No non-compliance noted.

LTE Band 2

BW: 1.4MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
2	1.4	Lowest	QPSK	1	0	28.90	0.776	23.93	0.247
		Middle		1	0	29.74	0.941	26.15	0.412
		Highest		1	0	29.36	0.862	24.23	0.264
		Lowest	16 QAM	1	0	25.02	0.317	23.51	0.224
		Middle		1	0	27.10	0.512	25.24	0.334
		Highest		1	0	25.65	0.367	24.11	0.257

BW: 3MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
2	3	Lowest	QPSK	1	0	27.61	0.576	22.65	0.184
		Middle		1	0	28.47	0.703	23.66	0.232
		Highest		1	0	28.14	0.651	23.06	0.202
		Lowest	16 QAM	1	0	25.10	0.323	23.52	0.224
		Middle		1	0	26.27	0.423	24.91	0.309
		Highest		1	0	25.75	0.375	24.20	0.263

BW: 5MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
2	5	Lowest	QPSK	1	0	26.86	0.485	21.99	0.158
		Middle		1	0	27.54	0.567	22.87	0.193
		Highest		1	0	27.45	0.555	21.70	0.147
		Lowest	16 QAM	1	0	25.00	0.316	23.40	0.218
		Middle		1	0	25.98	0.396	25.02	0.317
		Highest		1	0	26.16	0.413	24.77	0.299

BW: 10MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
2	10	Lowest	QPSK	1	0	25.16	0.328	23.54	0.225
		Middle		1	0	26.55	0.451	24.93	0.311
		Highest		1	0	26.84	0.483	25.81	0.381
		Lowest	16 QAM	1	0	24.92	0.310	23.34	0.215
		Middle		1	0	26.19	0.415	24.84	0.304
		Highest		1	0	25.82	0.381	24.53	0.283

BW: 15MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
2	15	Lowest	QPSK	1	0	25.08	0.322	23.41	0.219
		Middle		1	0	25.70	0.371	24.34	0.271
		Highest		1	0	25.84	0.383	25.71	0.372
		Lowest	16 QAM	1	0	28.28	0.672	23.17	0.207
		Middle		1	0	29.04	0.801	24.01	0.251
		Highest		1	0	29.02	0.797	25.90	0.389

BW: 20MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
2	20	Lowest	QPSK	1	0	24.89	0.308	23.32	0.214
		Middle		1	0	25.37	0.344	24.18	0.261
		Highest		1	0	26.43	0.439	24.82	0.303
		Lowest	16 QAM	1	0	24.86	0.306	23.37	0.217
		Middle		1	0	25.19	0.330	23.99	0.250
		Highest		1	0	26.41	0.437	24.75	0.298

Remark:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.
3. The value in bold is the worst.

LTE Band 5**BW: 1.4MHz / RB=1, RB Offset=0**

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						ERP (dBm)	ERP (W)	ERP (dBm)	ERP (W)
5	1.4	Lowest	QPSK	1	0	29.53	0.897	23.78	0.238
		Middle		1	0	29.71	0.935	28.66	0.734
		Highest		1	0	27.86	0.610	24.03	0.252
		Lowest	16 QAM	1	0	29.48	0.887	23.18	0.207
		Middle		1	0	28.16	0.654	23.17	0.207
		Highest		1	0	27.79	0.601	24.18	0.261

BW: 3MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						ERP (dBm)	ERP (W)	ERP (dBm)	ERP (W)
5	3	Lowest	QPSK	1	0	29.36	0.862	28.22	0.663
		Middle		1	0	28.70	0.741	23.04	0.201
		Highest		1	0	28.23	0.665	24.29	0.268
		Lowest	16 QAM	1	0	29.62	0.916	23.15	0.206
		Middle		1	0	28.49	0.706	23.07	0.202
		Highest		1	0	28.19	0.659	24.50	0.281

BW: 5MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						ERP (dBm)	ERP (W)	ERP (dBm)	ERP (W)
5	5	Lowest	QPSK	1	0	26.95	0.495	28.22	0.663
		Middle		1	0	26.19	0.415	28.82	0.762
		Highest		1	0	26.82	0.480	29.54	0.899
		Lowest	16 QAM	1	0	27.02	0.503	28.10	0.645
		Middle		1	0	26.30	0.426	28.80	0.758
		Highest		1	0	26.90	0.489	29.55	0.901

BW: 10MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						ERP (dBm)	ERP (W)	ERP (dBm)	ERP (W)
5	10	Lowest	QPSK	1	0	27.04	0.505	27.86	0.610
		Middle		1	0	25.94	0.392	27.83	0.606
		Highest		1	0	26.20	0.416	28.91	0.778
		Lowest	16 QAM	1	0	26.89	0.488	28.03	0.635
		Middle		1	0	26.73	0.470	29.16	0.824
		Highest		1	0	26.19	0.415	28.96	0.787

Remark:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.
3. The value in bold is the worst.

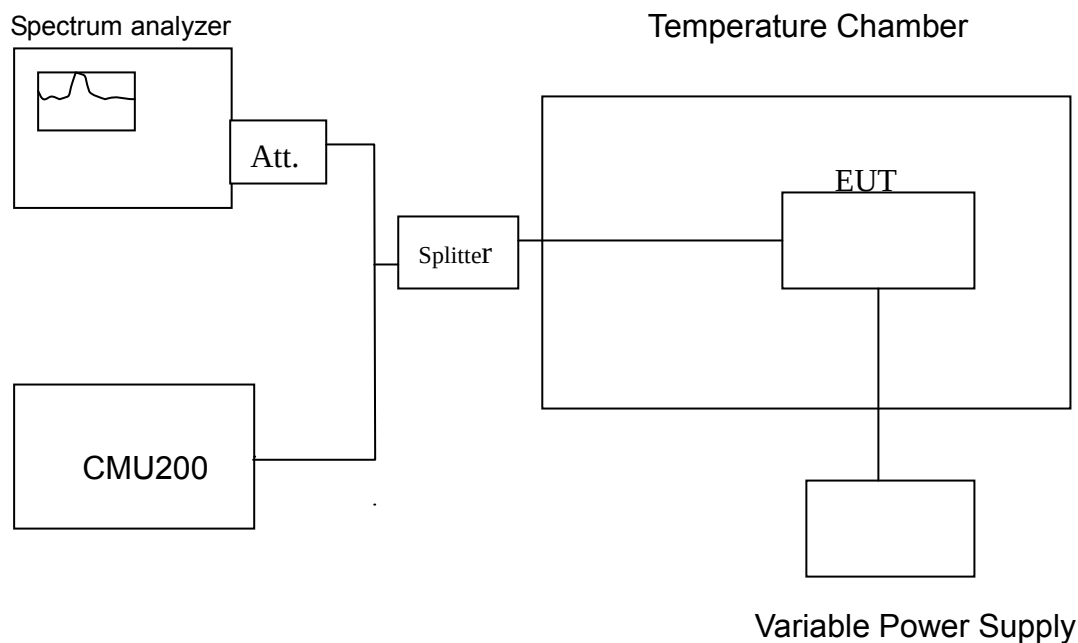
7.3 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

Frequency Tolerance: 2.5 ppm

Test Configuration



Remark: Measurement setup for testing on Antenna connector

TEST PROCEDURE

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

TEST RESULTS

No non-compliance noted.

Test Results

FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT:

LTE Band 2

Reference Frequency: LTE Band 2 Max Bandwidth QPSK 1880 MHz				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	50	0.03	0.000016	+/- 2.5
12	40	0.04	0.000021	
12	30	0.03	0.000016	
12	20	0.01	0.000005	
12	10	0.04	0.000021	
12	0	0.02	0.000011	
12	-10	0.00	0.000000	
12	-20	0.01	0.000005	

Reference Frequency: LTE Band 2 Max Bandwidth 16QAM 1882.5 MHz				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	50	0.05	0.000027	+/- 2.5
12	40	0.03	0.000016	
12	30	0.02	0.000011	
12	20	0.03	0.000016	
12	10	0.04	0.000021	
12	0	0.01	0.000005	
12	-10	0.02	0.000011	
12	-20	0.01	0.000005	

LTE Band 5

Reference Frequency: LTE Band 5 Max Bandwidth QPSK 836.5 MHz				
Limit: ± 2.5 ppm = 2091.25Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	50	0.02	0.000024	+/- 2.5
12	40	0.00	0.000000	
12	30	0.03	0.000036	
12	20	0.00	0.000006	
12	10	0.01	0.000012	
12	0	0.01	0.000012	
12	-10	0.04	0.000048	
12	-20	0.02	0.000024	

Reference Frequency: LTE Band 5 Max Bandwidth 16QAM 836.5 MHz				
Limit: ± 2.5 ppm = 2091.25Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	50	0.01	0.000011	+/- 2.5
12	40	-0.02	-0.000023	
12	30	-0.01	-0.000012	
12	20	0.01	0.000012	
12	10	0.02	0.000024	
12	0	0.02	0.000024	
12	-10	0.01	0.000012	
12	-20	0.03	0.000036	

FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT:

LTE Band 2

Reference Frequency: LTE Band 2 Max Bandwidth QPSK 1880 MHz				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	0.02	0.0000	+/- 2.5
12	20	0.01	0.0000	
13.8	20	0.04	0.0000	

Reference Frequency: LTE Band 2 Max Bandwidth 16QAM 1882.5 MHz				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	0.01	0.0000	+/- 2.5
12	20	0.03	0.0000	
13.8	20	0.04	0.0000	

LTE Band 5

Reference Frequency: LTE Band 5 Max Bandwidth QPSK 836.5 MHz				
Limit: ± 2.5 ppm = 2091.25Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	0.00	0.000004	+/- 2.5
12	20	0.00	0.000006	
13.8	20	0.01	0.000008	

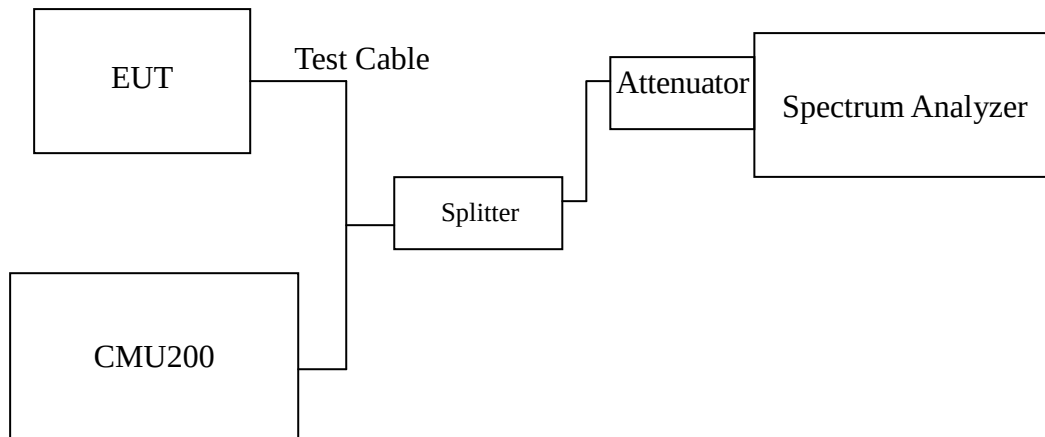
Reference Frequency: LTE Band 5 Max Bandwidth 16QAM 836.5 MHz				
Limit: ± 2.5 ppm = 2091.25Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	-0.01	-0.000008	+/- 2.5
12	20	0.01	0.000012	
13.8	20	0.01	0.000008	

7.4 OCCUPIED BANDWIDTH MEASUREMENT

LIMIT

According to §FCC 2.1049.

Test Configuration



Remark: Measurement setup for testing on Antenna connector

TEST PROCEDURE

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

No non-compliance noted

LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	1.0940

CHANNEL BANDWIDTH: 1.4MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	1.0940

CHANNEL BANDWIDTH: 3MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	2.6830

CHANNEL BANDWIDTH: 3MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	2.6830

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	4.4862

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	4.4862

CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	8.9725

CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	8.9149

CHANNEL BANDWIDTH: 15MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	13.4587

CHANNEL BANDWIDTH: 15MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	13.4587

CHANNEL BANDWIDTH: 20MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	18.0607

CHANNEL BANDWIDTH: 20MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18900	1880.00	18.1186

LTE Band 5

CHANNEL BANDWIDTH: 1.4MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20525	836.50	1.1027

CHANNEL BANDWIDTH: 1.4MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20525	836.50	1.0946

CHANNEL BANDWIDTH: 3MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20525	836.50	2.6917

CHANNEL BANDWIDTH: 3MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20525	836.50	2.6830

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20525	836.50	4.4862

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20525	836.50	4.4717

CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20525	836.50	8.9435

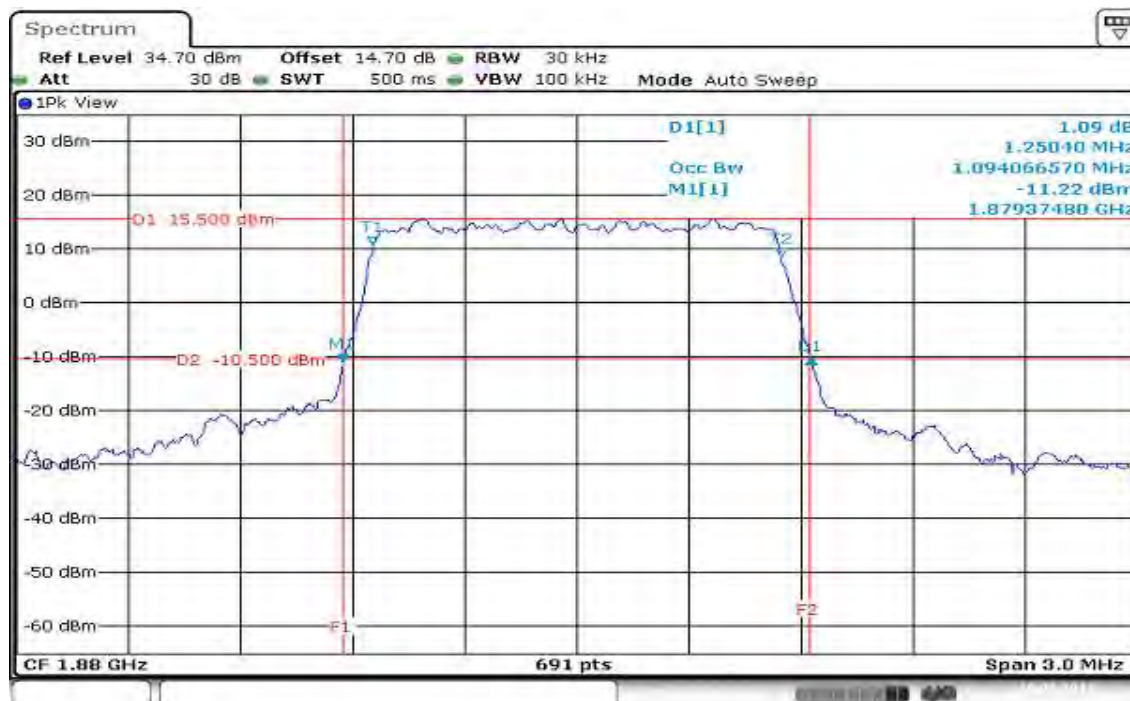
CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20525	836.50	8.9146

LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK

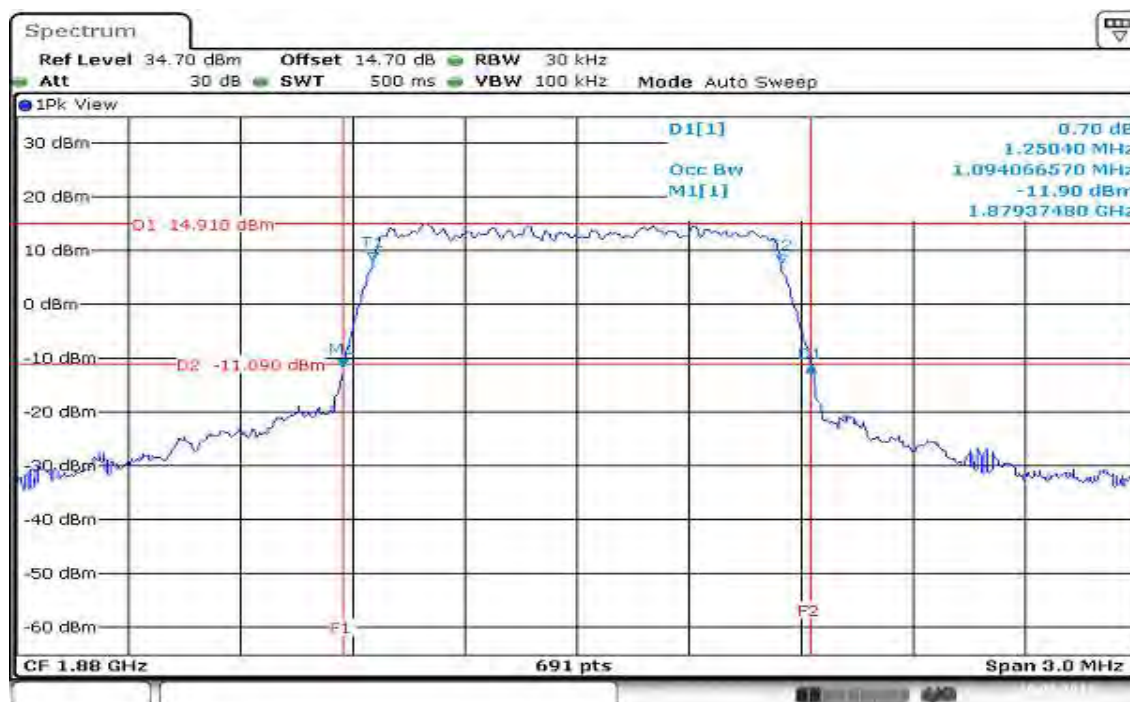
CH Mid



Date: 10 AUG 2017 14:52:21

CHANNEL BANDWIDTH: 1.4MHz / 16QAM

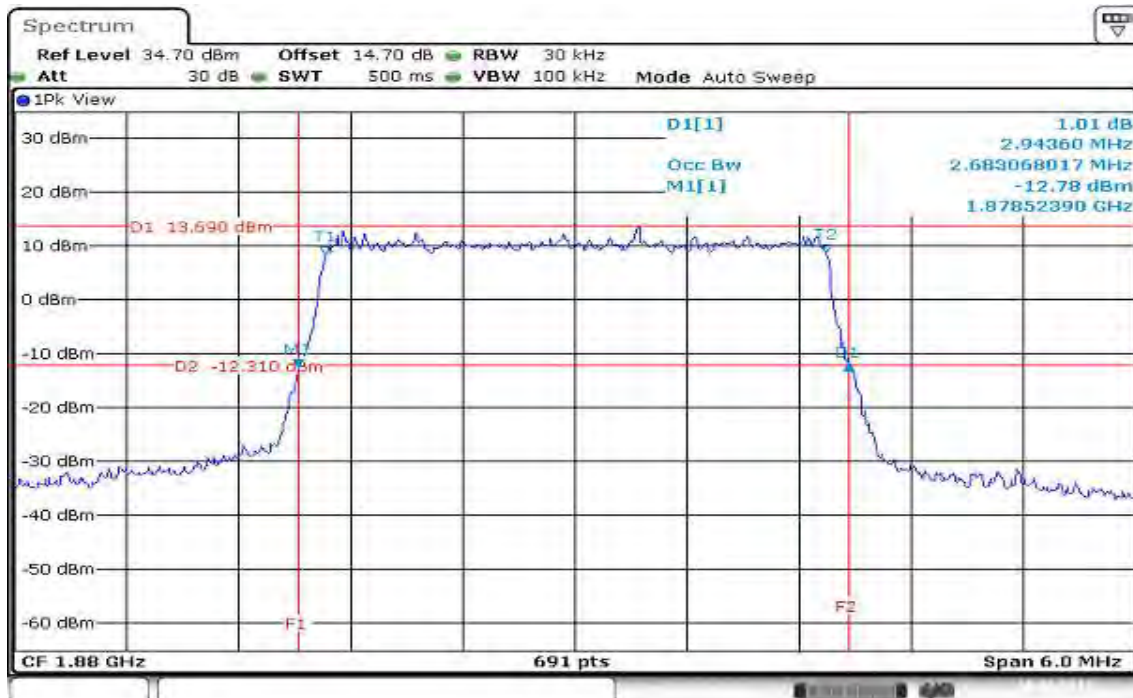
CH Mid



Date: 10 AUG 2017 14:59:26

CHANNEL BANDWIDTH:3MHz / QPSK

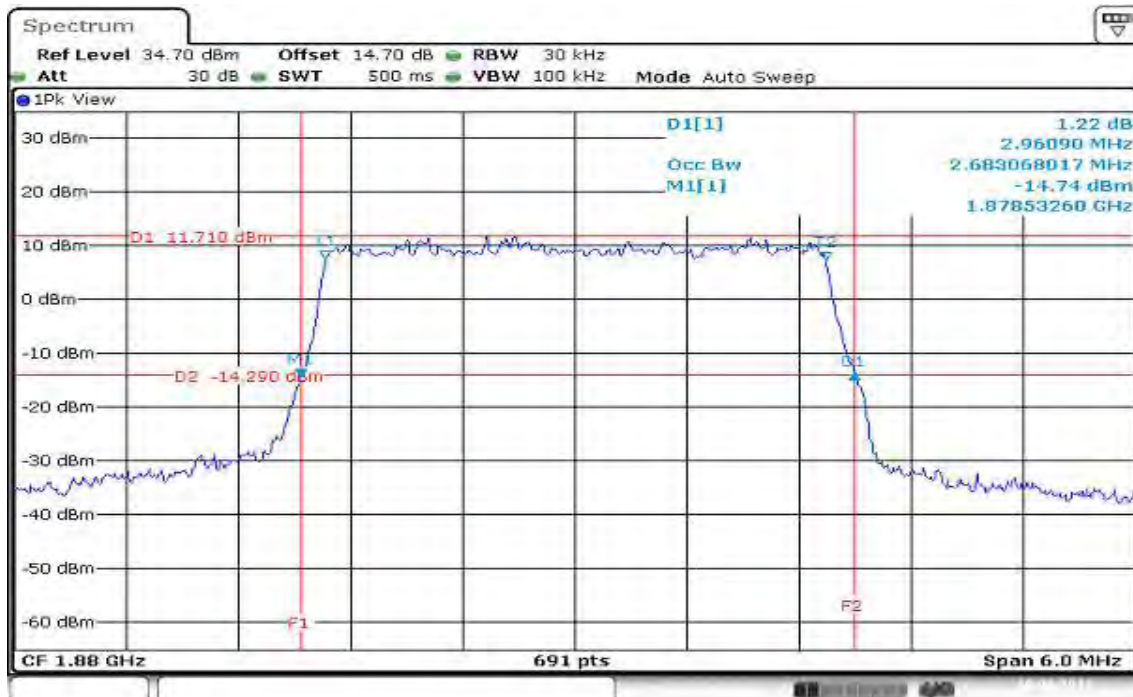
CH Mid



Date: 10 AUG 2017 15:09:40

CHANNEL BANDWIDTH: 3MHz / 16QAM

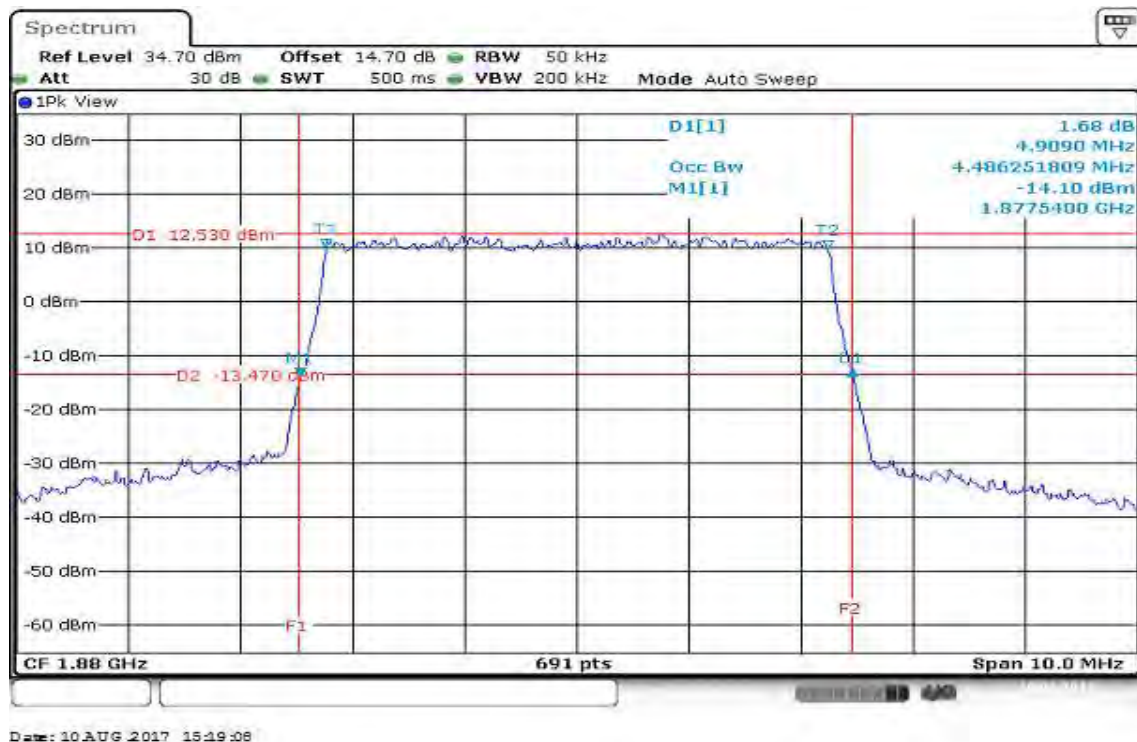
CH Mid



Date: 10 AUG 2017 15:15:24

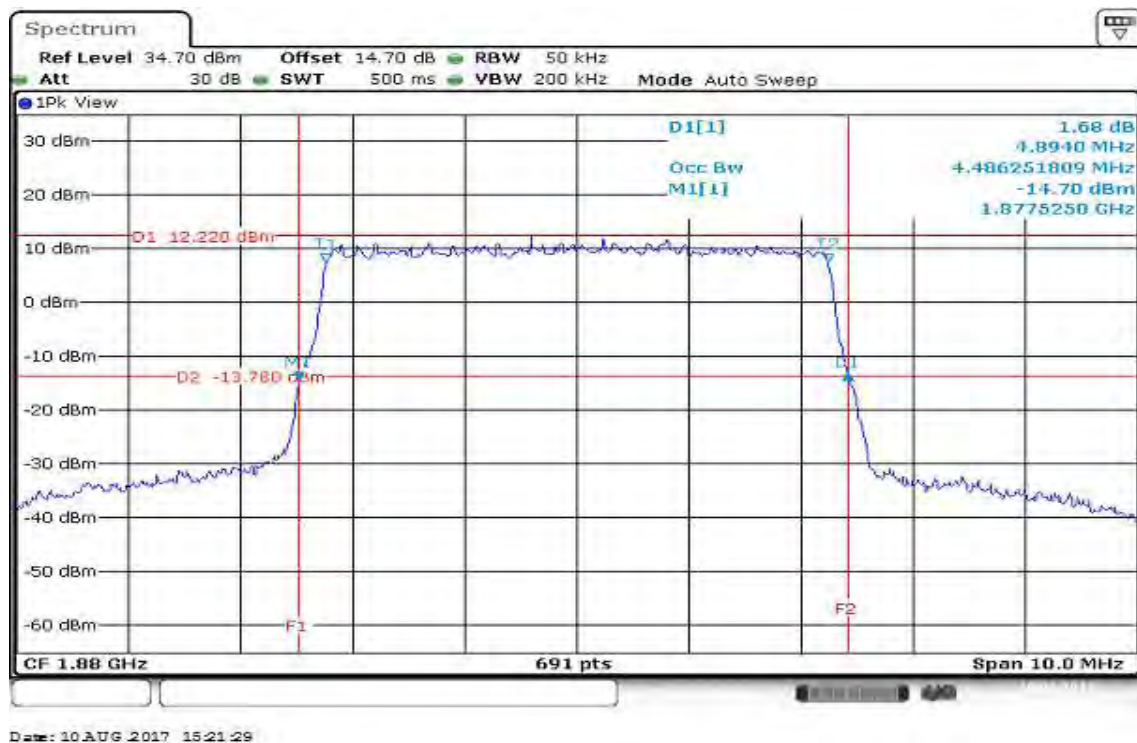
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Mid



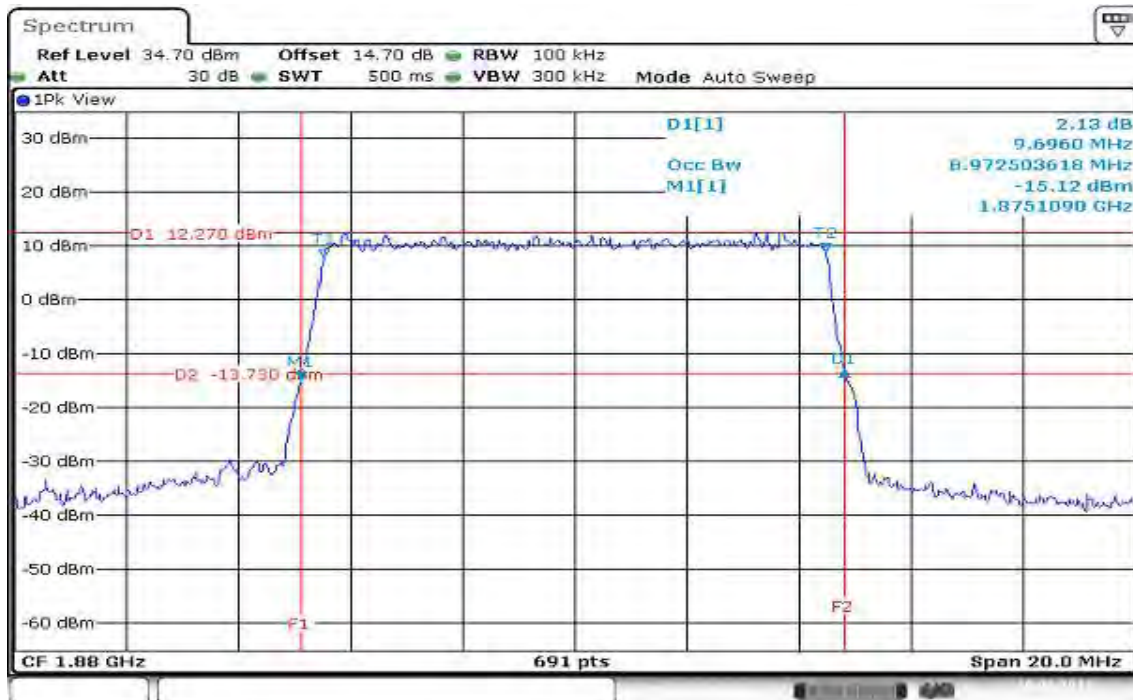
CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Mid



CHANNEL BANDWIDTH: 10MHz / QPSK

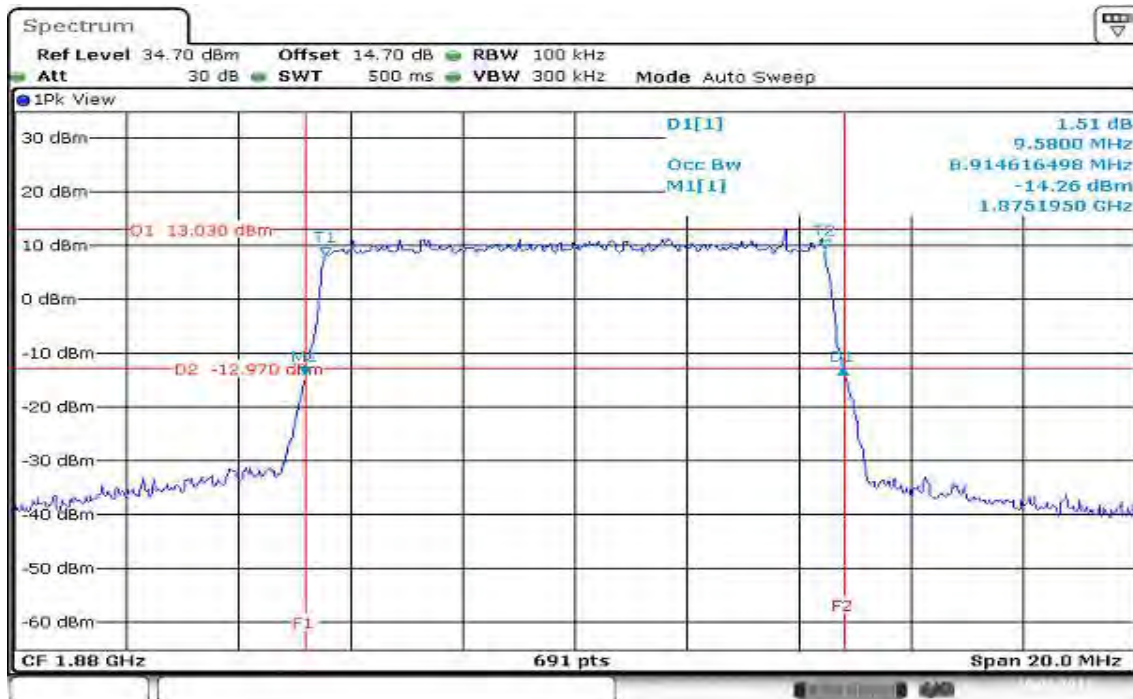
CH Mid



Date: 10 AUG 2017 15:23:26

CHANNEL BANDWIDTH: 10MHz / 16QAM

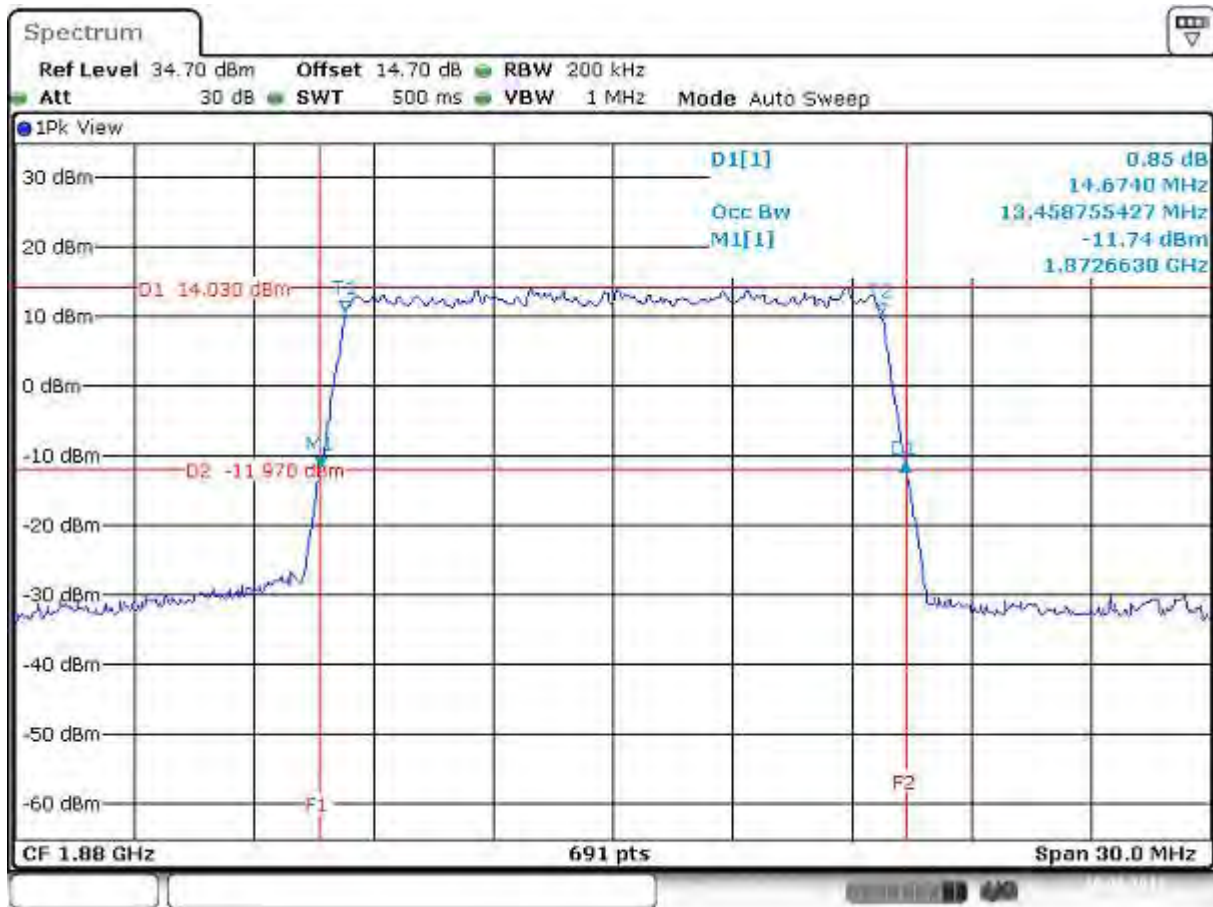
CH Mid



Date: 10 AUG 2017 15:24:29

CHANNEL BANDWIDTH: 15MHz / QPSK

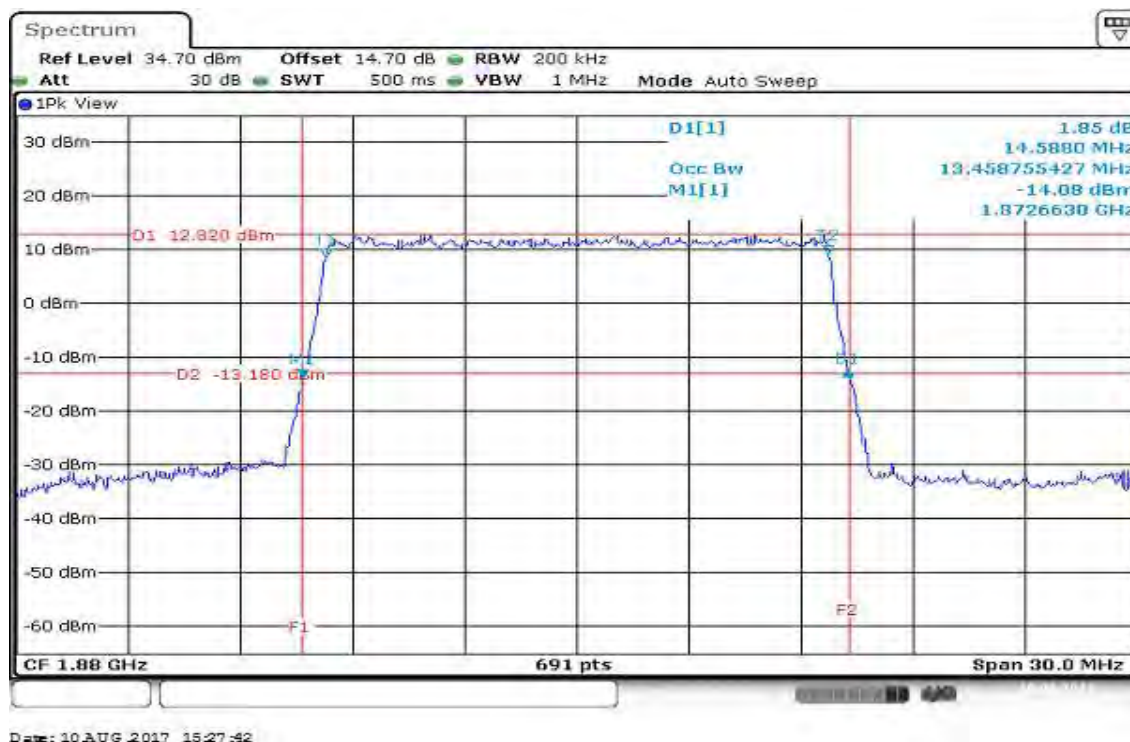
CH Mid



Date: 10 AUG 2017 15:26:20

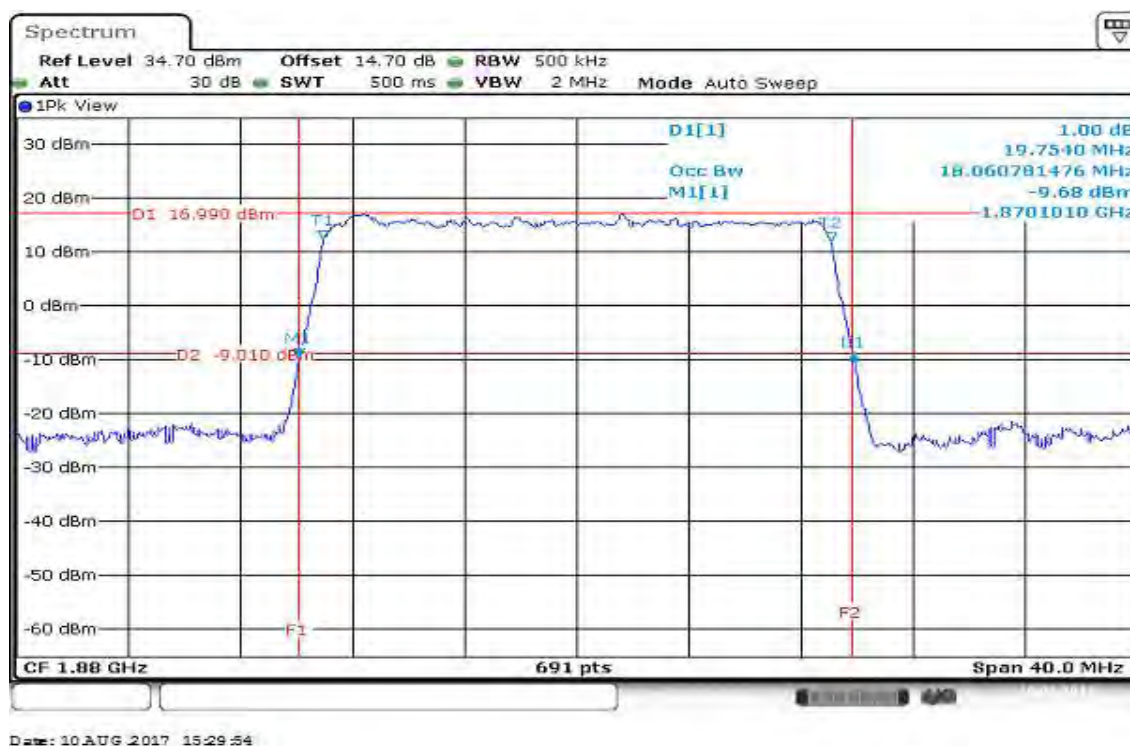
CHANNEL BANDWIDTH: 15MHz / 16QAM

CH Mid



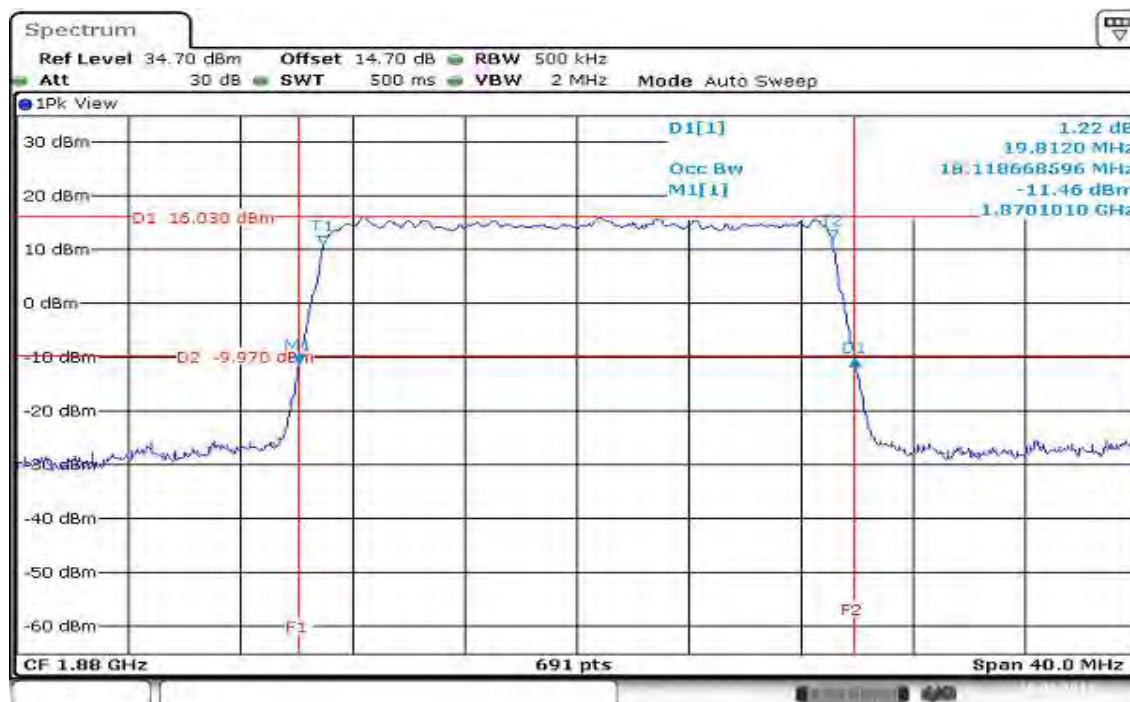
CHANNEL BANDWIDTH: 20MHz / QPSK

CH Mid



CHANNEL BANDWIDTH: 20MHz / 16QAM

CH Mid

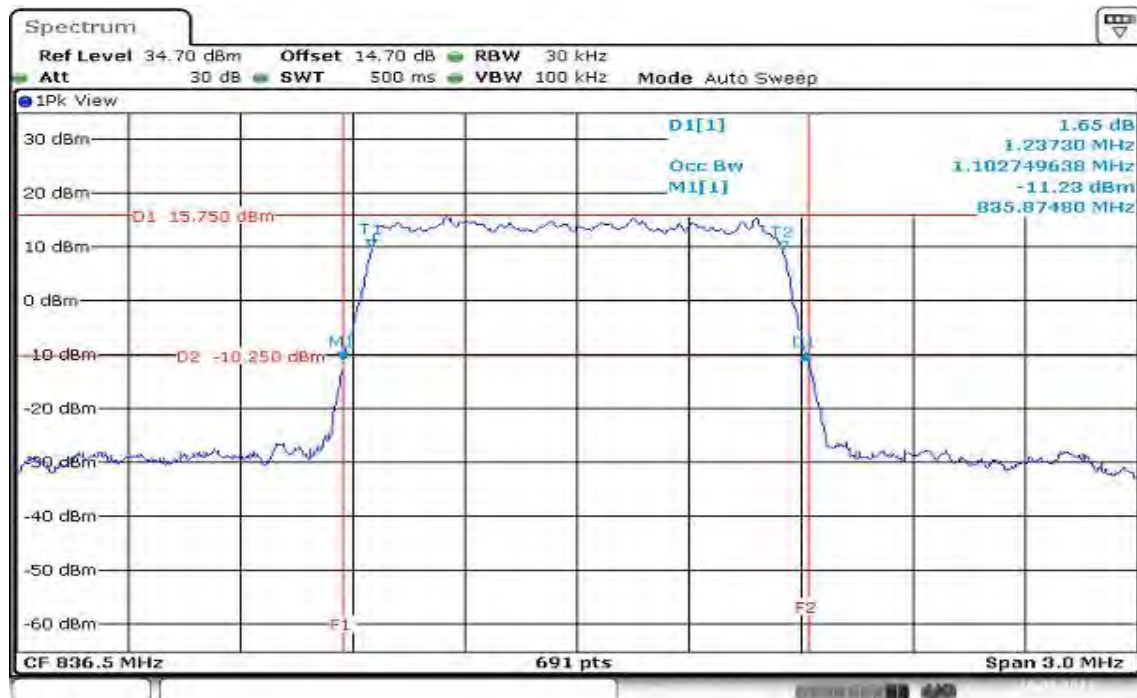


Date: 10 AUG 2017 15:21:52

LTE Band 5

CHANNEL BANDWIDTH: 1.4MHz / QPSK

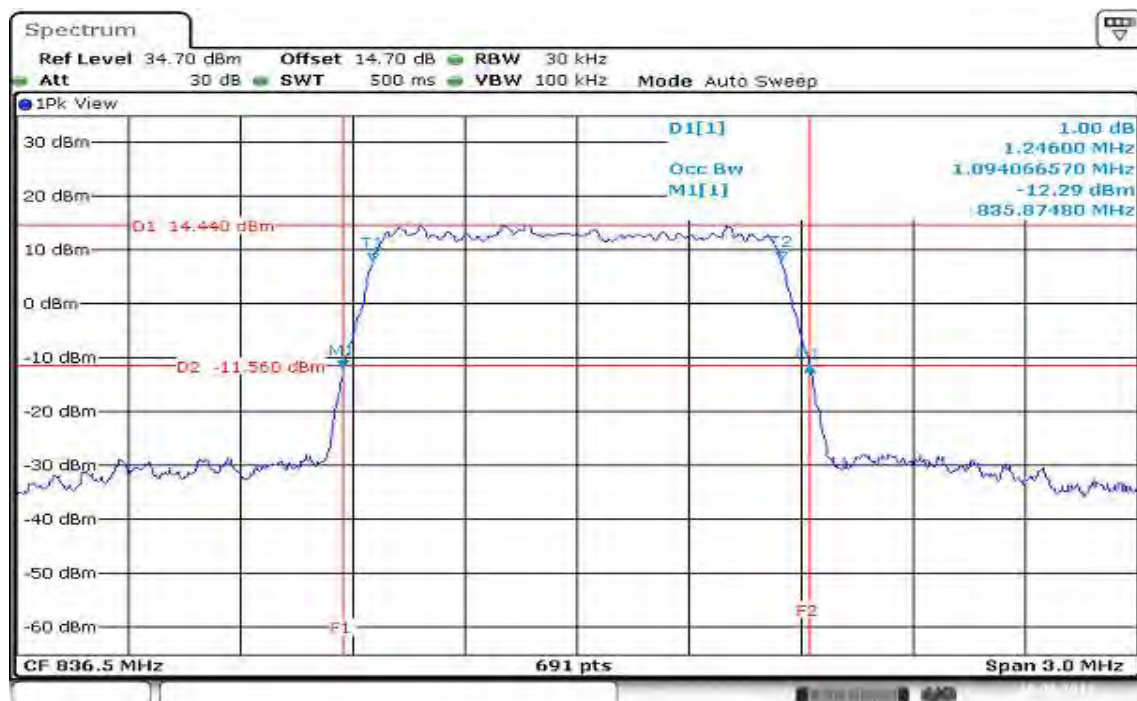
CH Mid



Date: 10 AUG 2017 16:12:45

CHANNEL BANDWIDTH: 1.4MHz / 16QAM

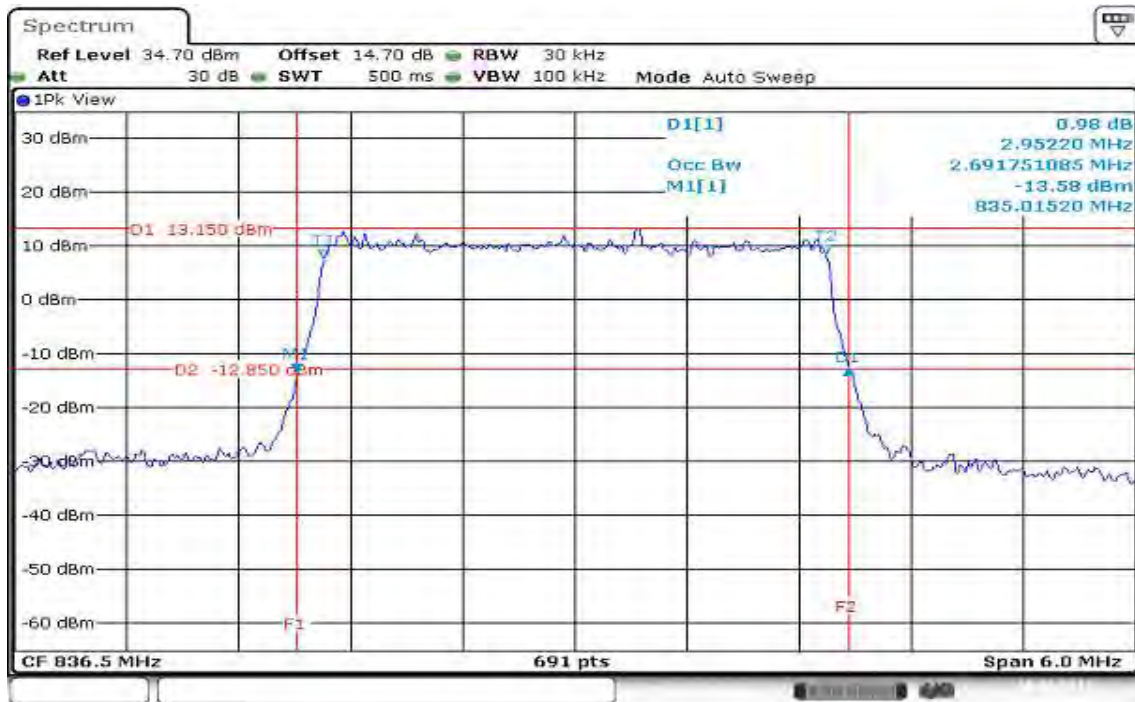
CH Mid



Date: 10 AUG 2017 16:14:19

CHANNEL BANDWIDTH: 3MHz / QPSK

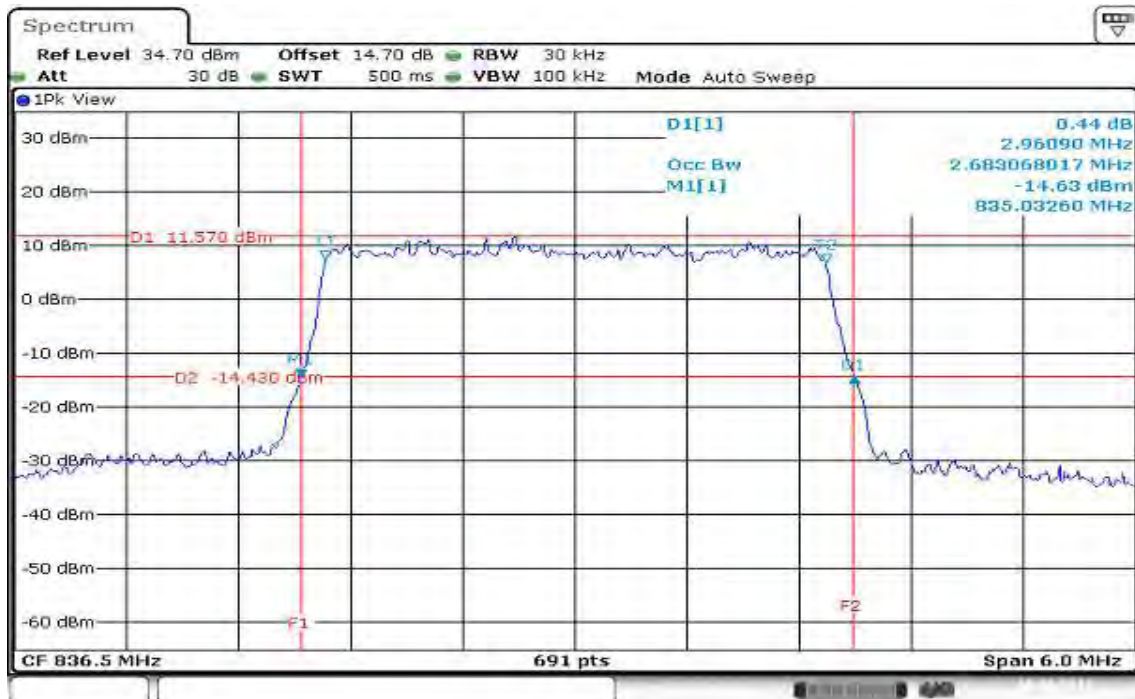
CH Mid



Date: 10 AUG 2017 16:19:07

CHANNEL BANDWIDTH: 3MHz / 16QAM

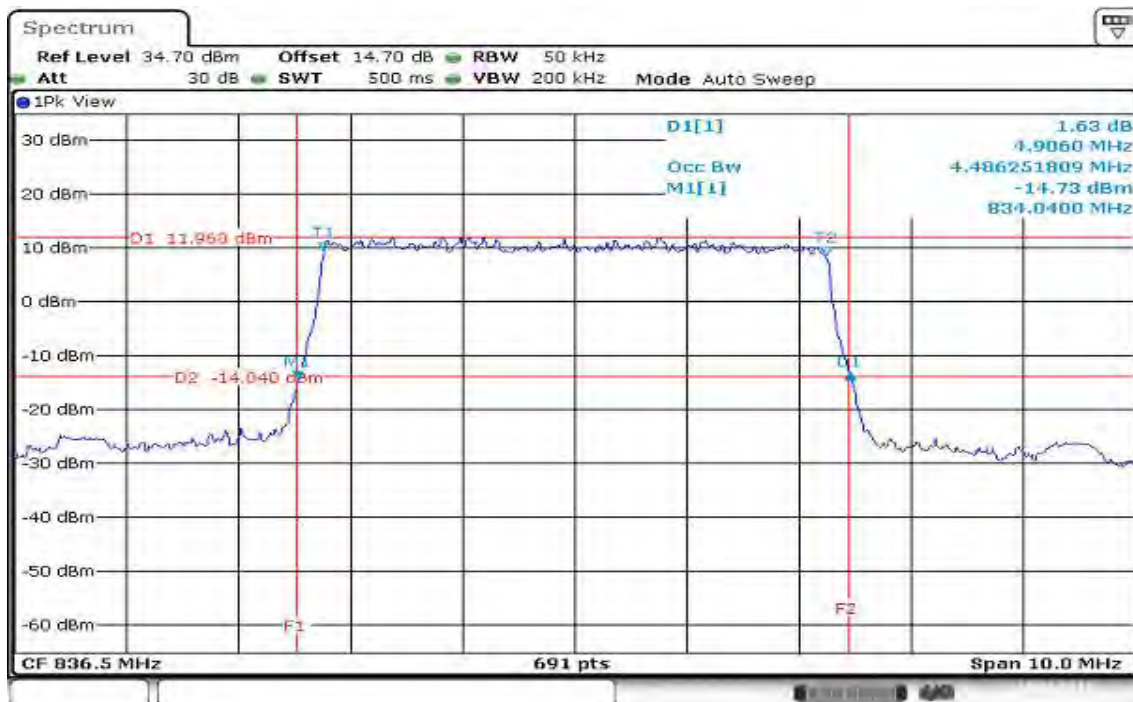
CH Mid



Date: 10 AUG 2017 16:24:24

CHANNEL BANDWIDTH: 5MHz / QPSK

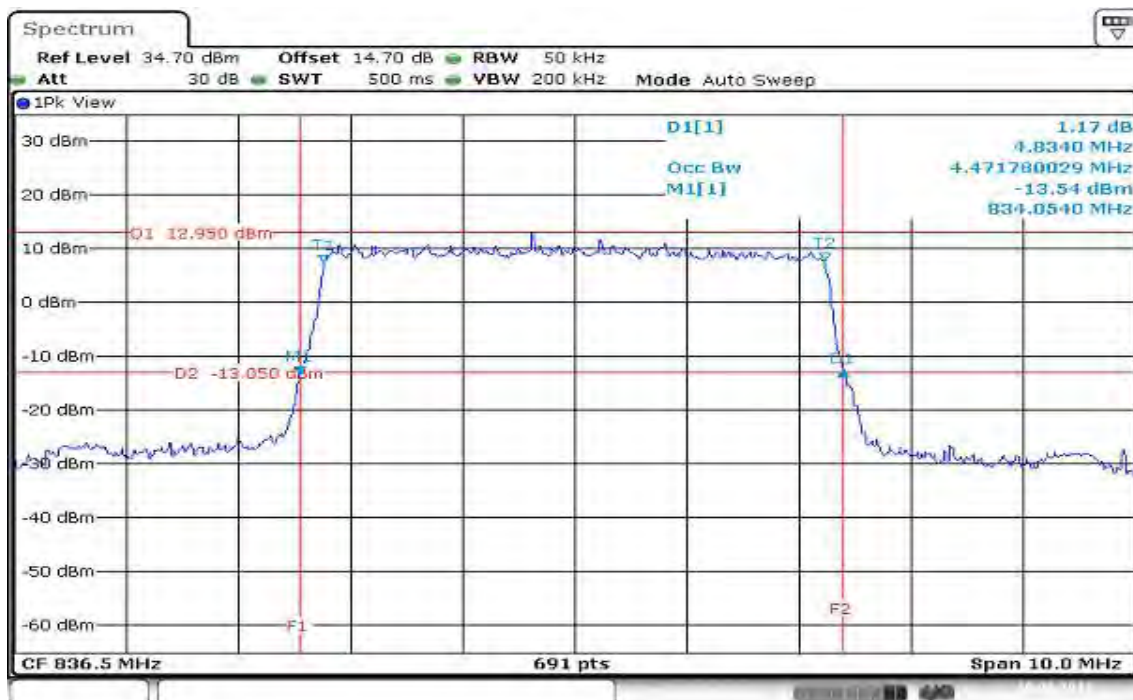
CH Mid



Date: 10 AUG 2017 16:27:22

CHANNEL BANDWIDTH: 5MHz / 16QAM

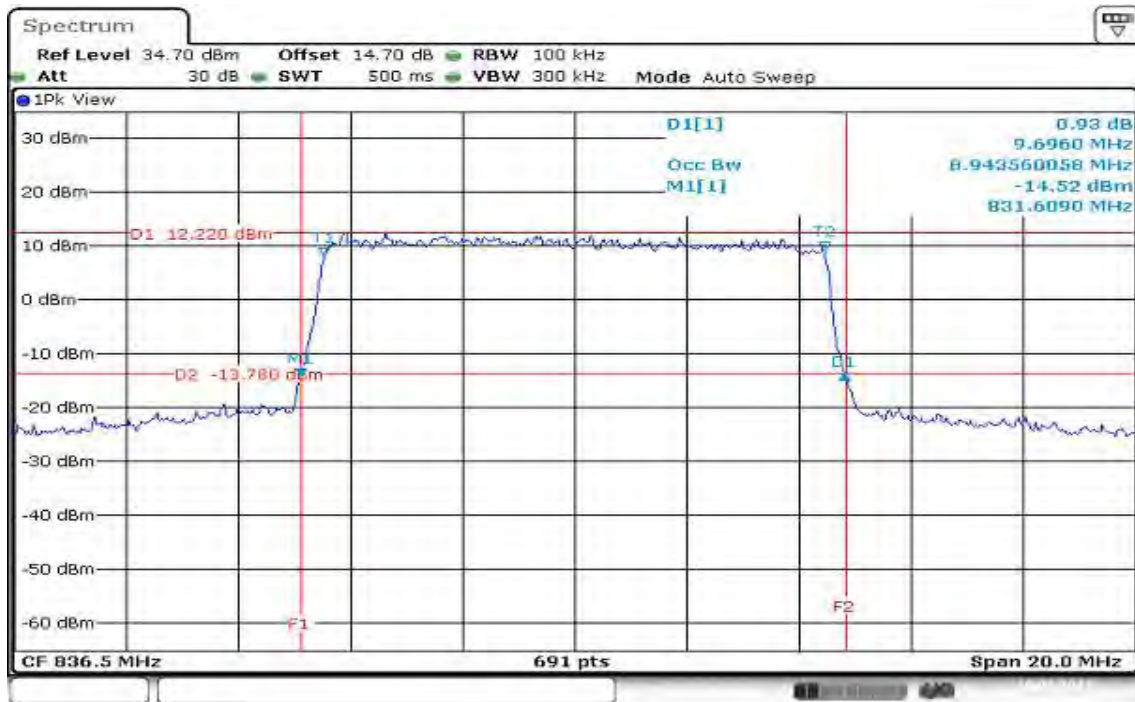
CH Mid



Date: 10 AUG 2017 16:28:26

CHANNEL BANDWIDTH: 10MHz / QPSK

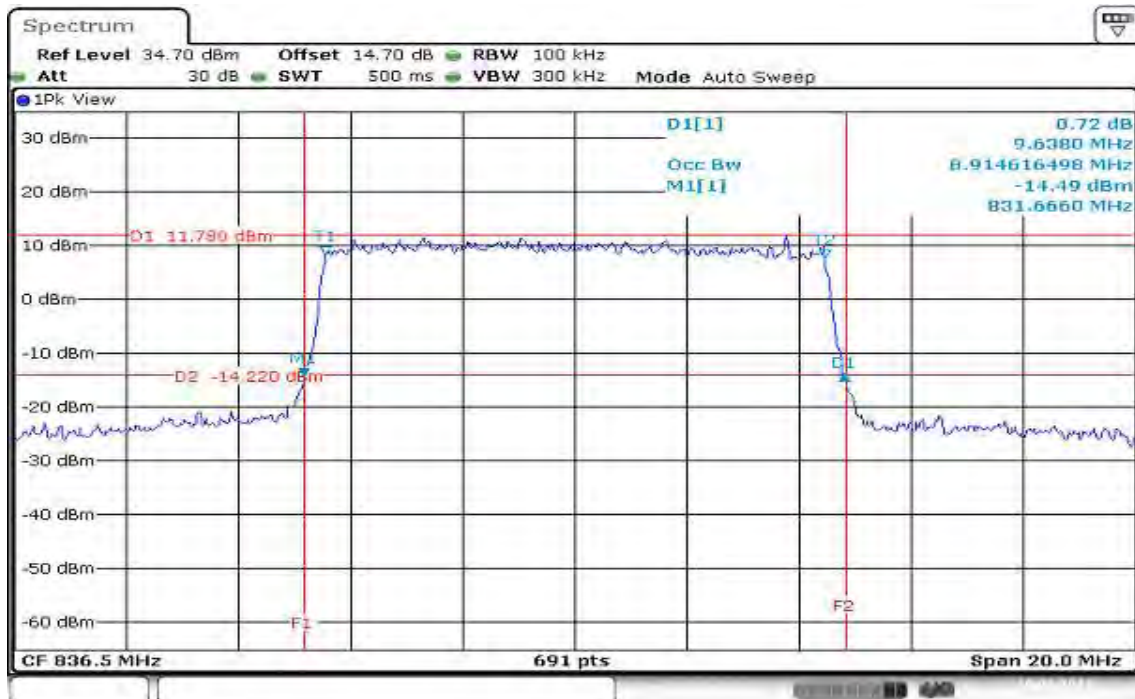
CH Mid



Date: 10 AUG 2017 16:34:49

CHANNEL BANDWIDTH: 10MHz / 16QAM

CH Mid



Date: 10 AUG 2017 16:35:49

7.5 PEAK TO AVERAGE RATIO

Limit

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

Test Procedures

1. Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth.
2. Set the number of counts to a value that stabilizes the measured CCDF curve.
3. Record the maximum PAPR level associated with a probability of 0.1%.

Test Results

LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	4.58

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.54

CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	4.61

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.68

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	4.67

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.25

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	4.61

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.57

CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	4.52

CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	6.17

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	3.54

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.39

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.45

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	6.23

CHANNEL BANDWIDTH: 3MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.07

CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	6.09

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.19

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	6.09

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.13

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.57

CHANNEL BANDWIDTH: 15MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.48

CHANNEL BANDWIDTH: 15MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	6.12

CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	5.07

CHANNEL BANDWIDTH: 20MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18900	1880.00	6.03

LTE Band 5

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	4.23

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	5.10

CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	3.36

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	4.87

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	4.43

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	4.96

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	3.97

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	4.99

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	5.10

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	6.12

CHANNEL BANDWIDTH: 3MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	4.87

CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	5.77

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	4.96

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	5.77

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	4.99

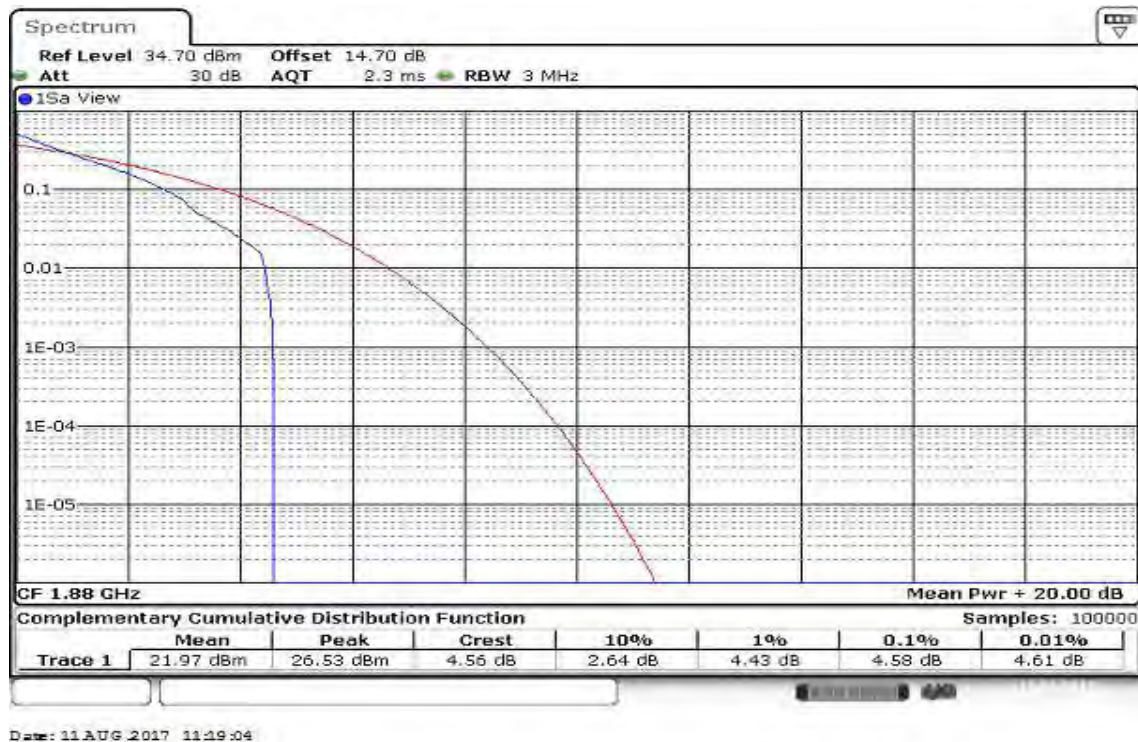
CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20525	836.5	5.91

LTE Band 2

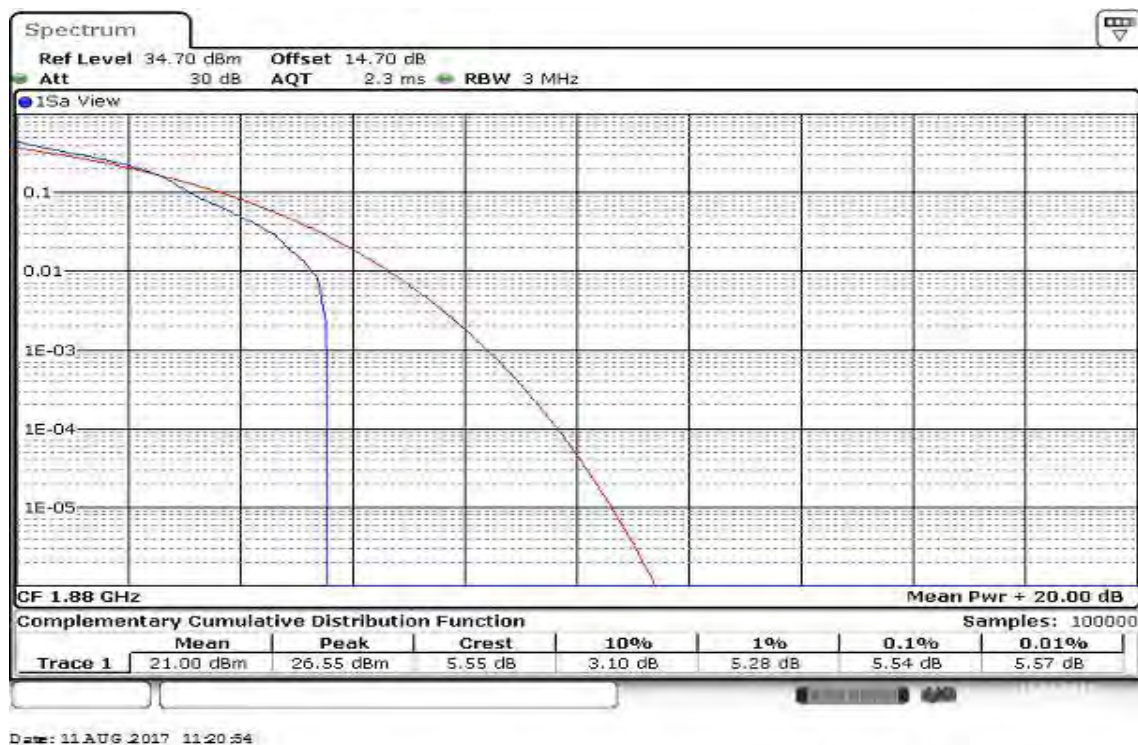
CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

CH Mid



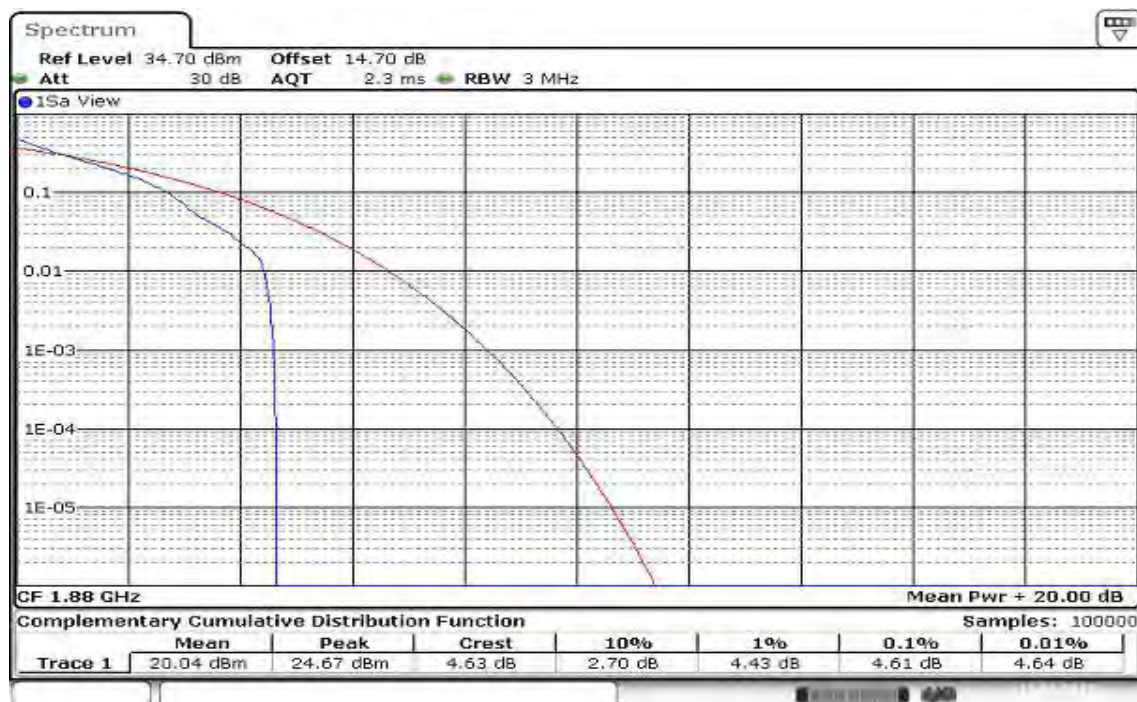
CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB

CH Mid



CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

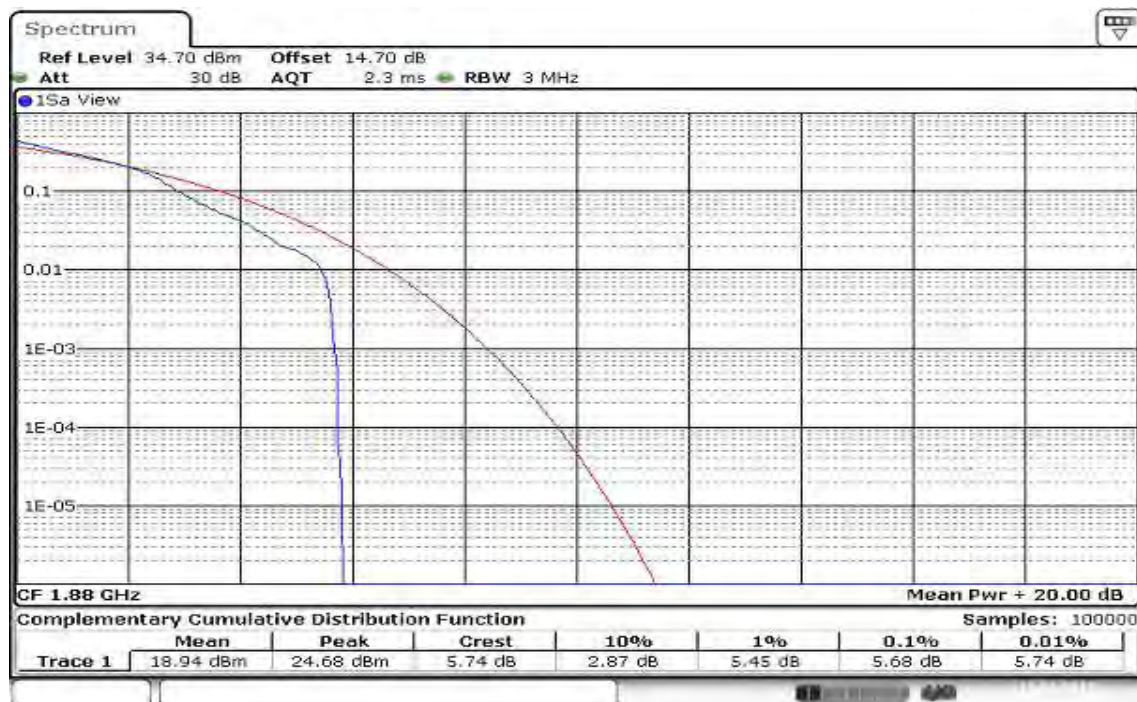
CH Mid



Date: 11 AUG 2017 11:17:29

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB

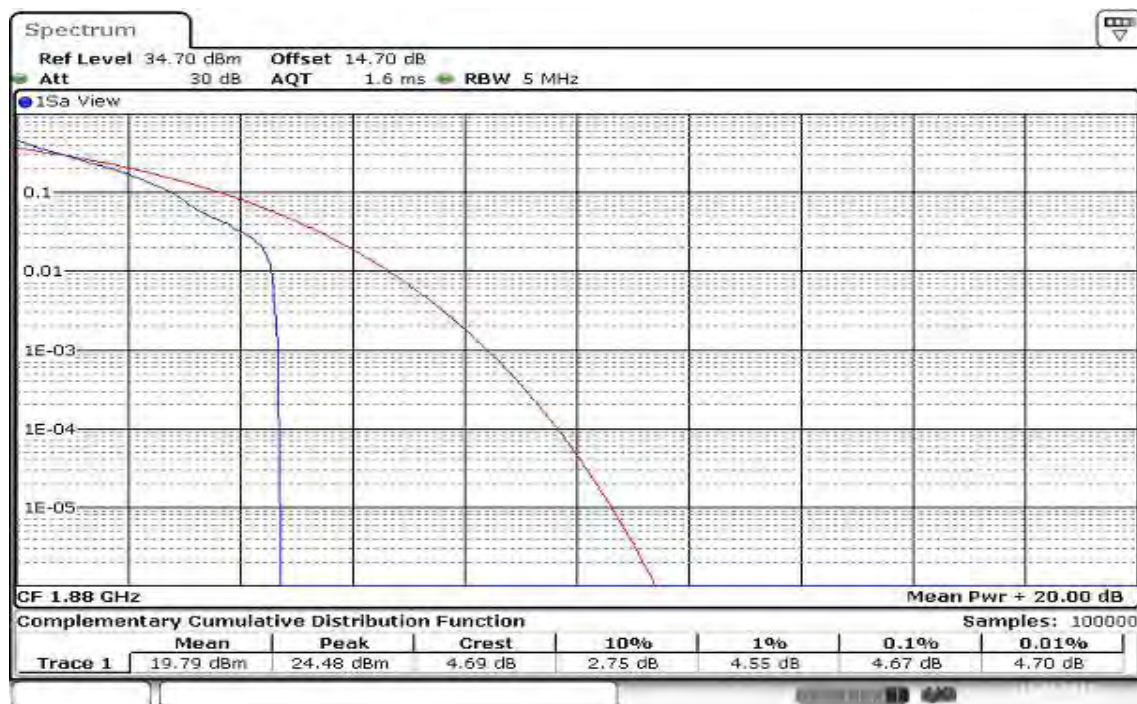
CH Mid



Date: 11 AUG 2017 11:17:57

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

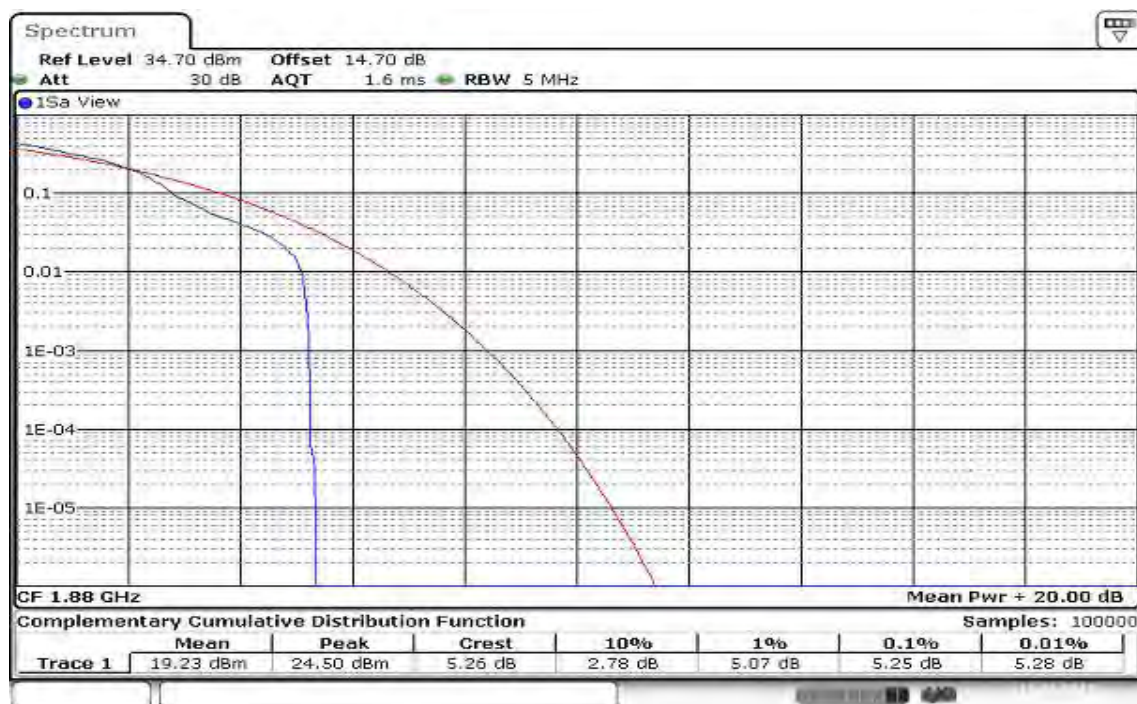
CH Mid



Date: 11 AUG 2017 11:15:23

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

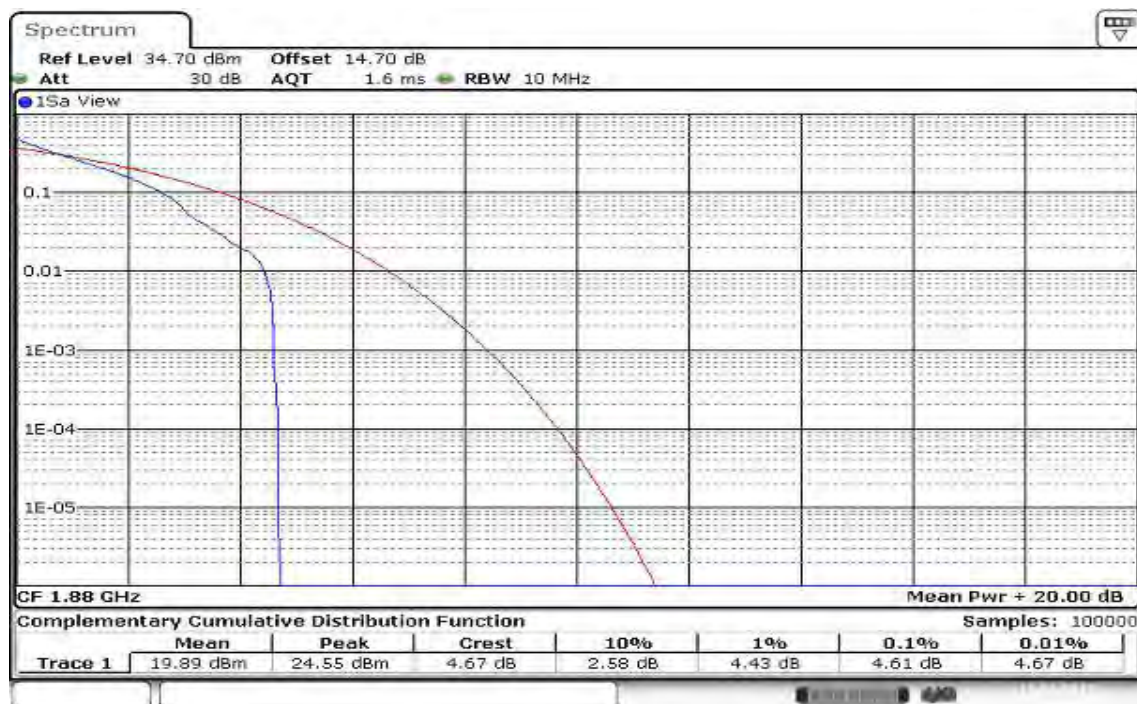
CH Mid



Date: 11 AUG 2017 11:15:50

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

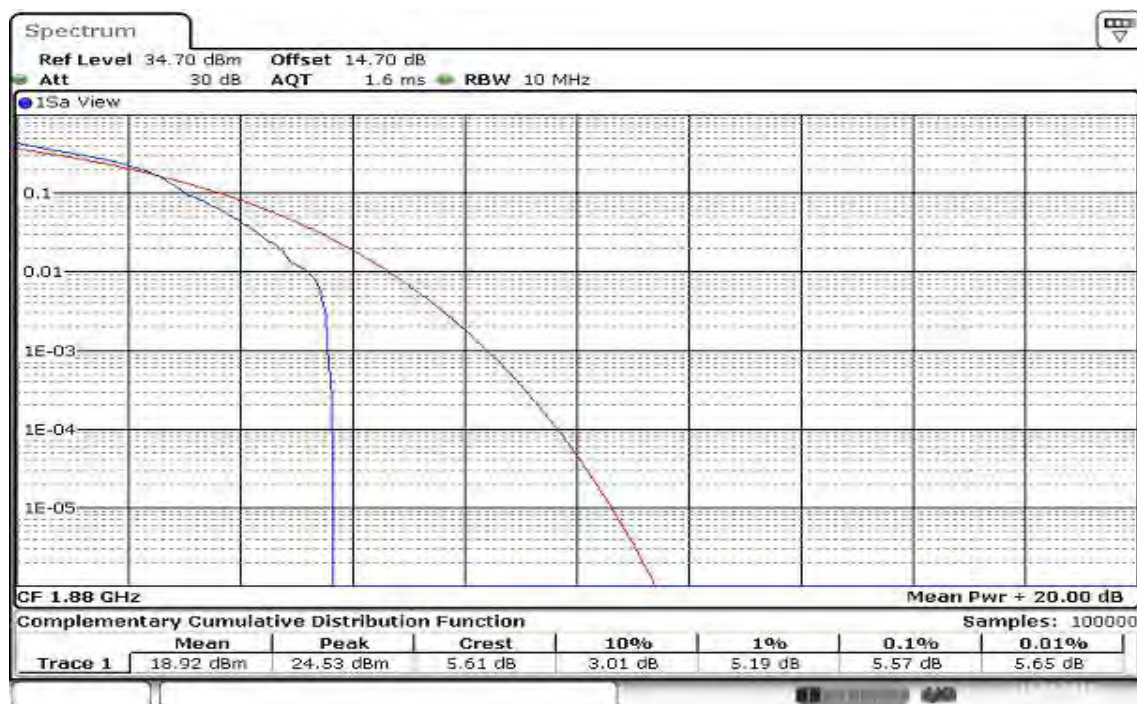
CH Mid



Date: 11 AUG 2017 11:13:24

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

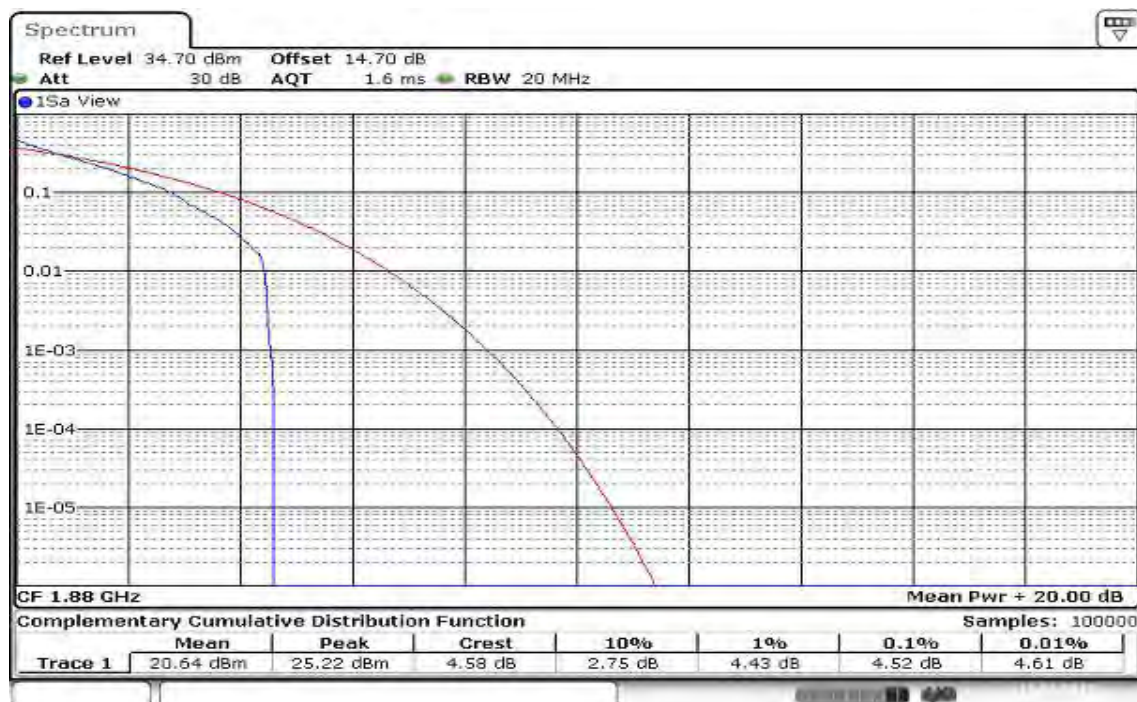
CH Mid



Date: 11 AUG 2017 11:13:52

CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

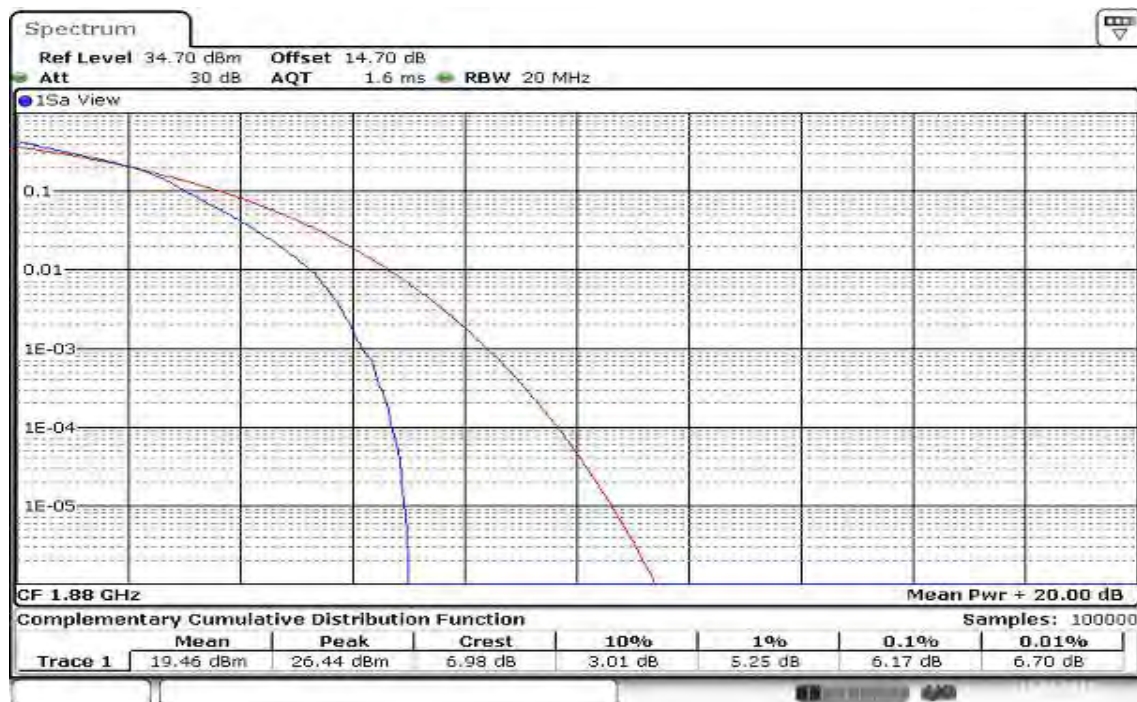
CH Mid



Date: 11 AUG 2017 11:11:25

CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

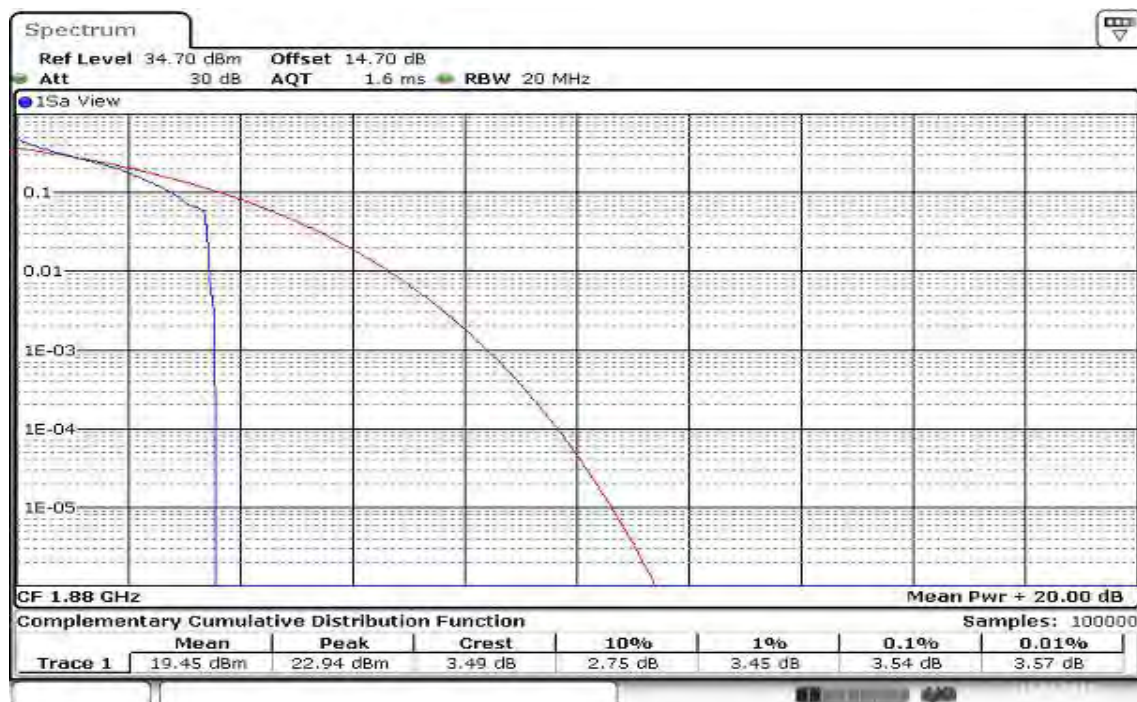
CH Mid



Date: 11 AUG 2017 11:12:46

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

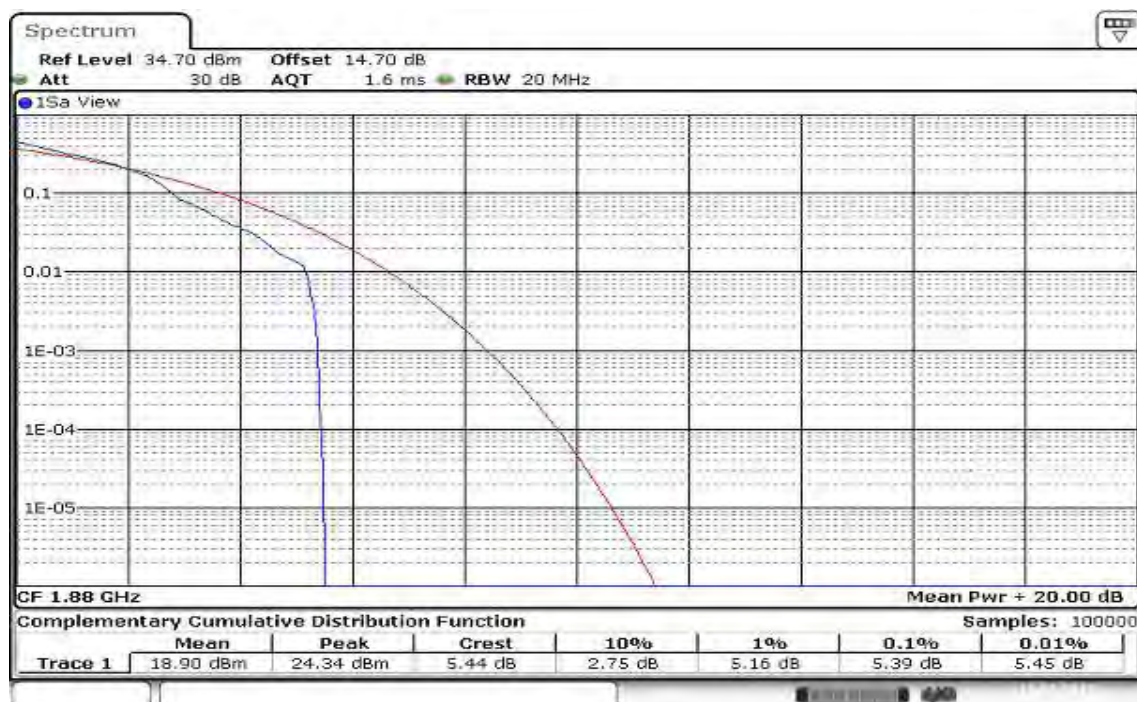
CH Mid



Date: 11 AUG 2017 11:05:21

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB

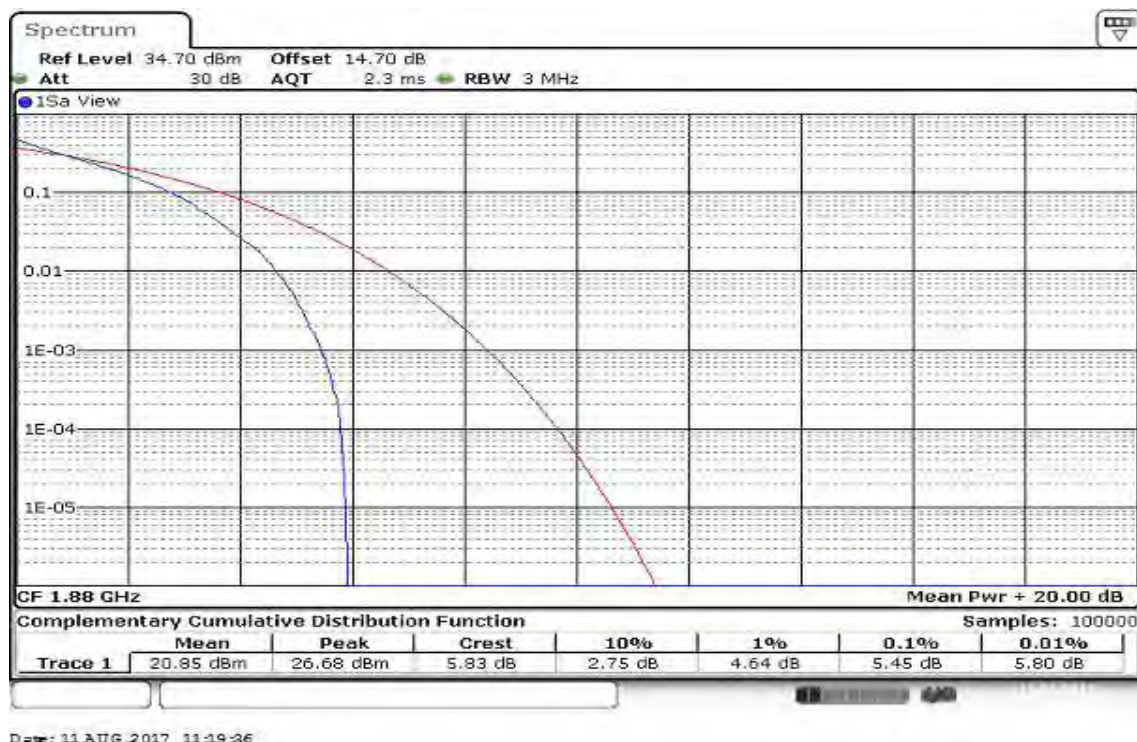
CH Mid



Date: 11 AUG 2017 11:07:20

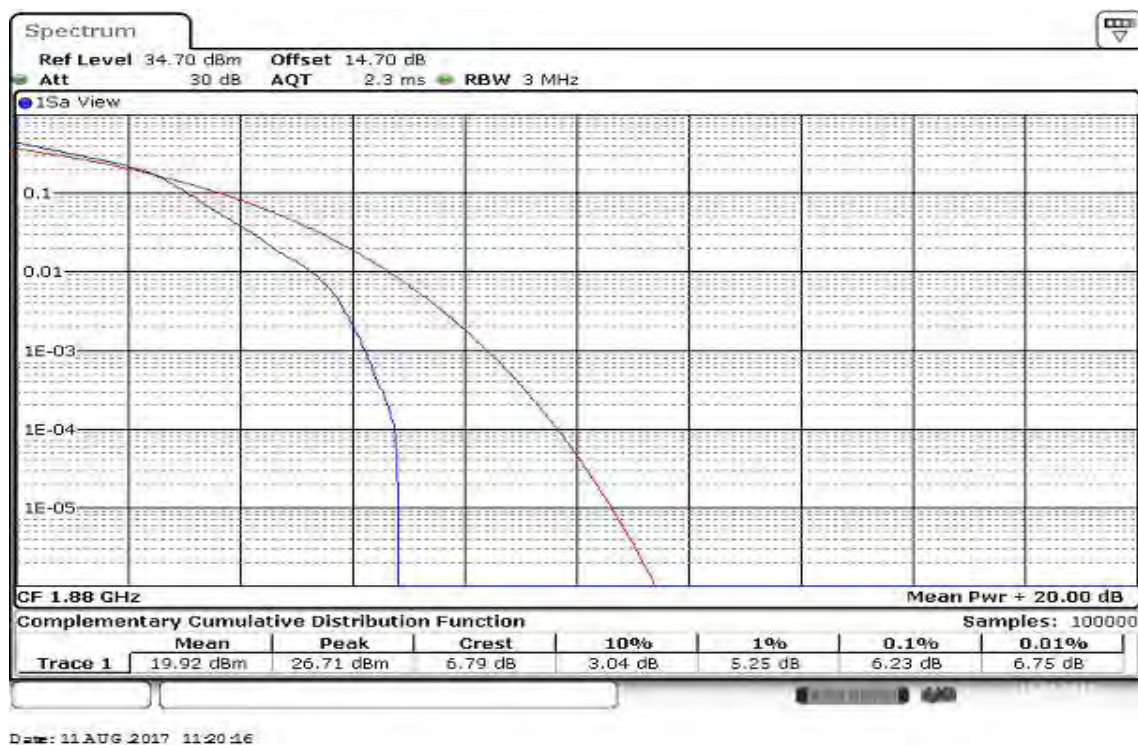
CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

CH Mid



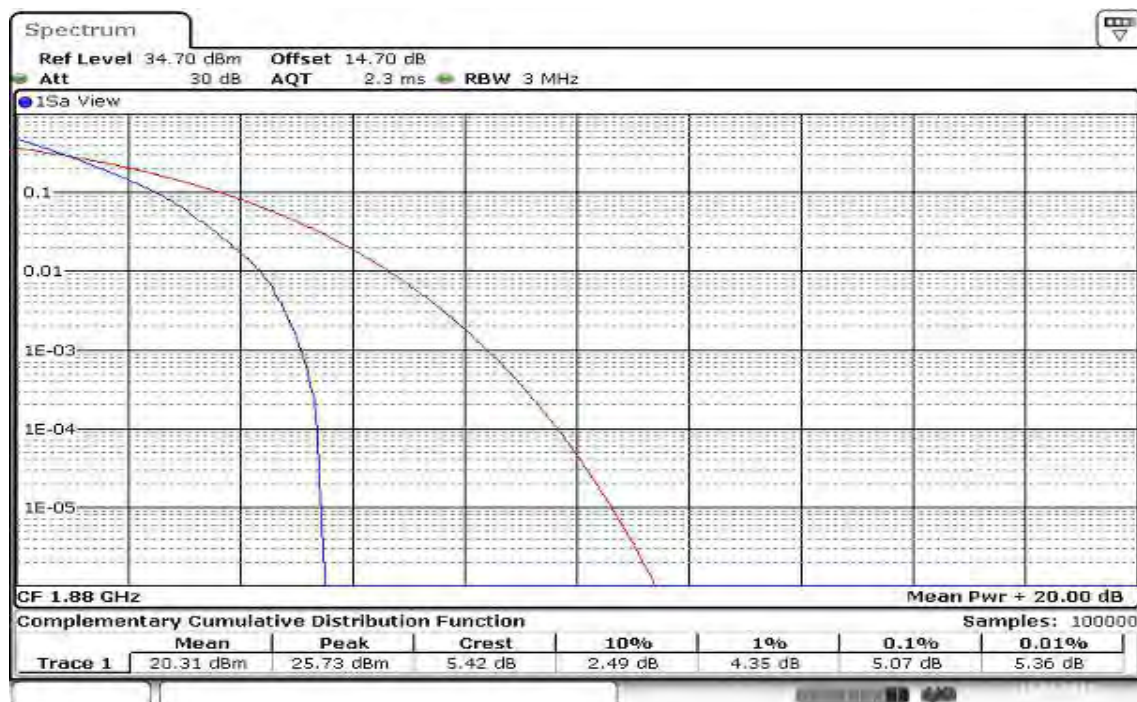
CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB

CH Mid



CHANNEL BANDWIDTH: 3MHz / QPSK / 100%RB

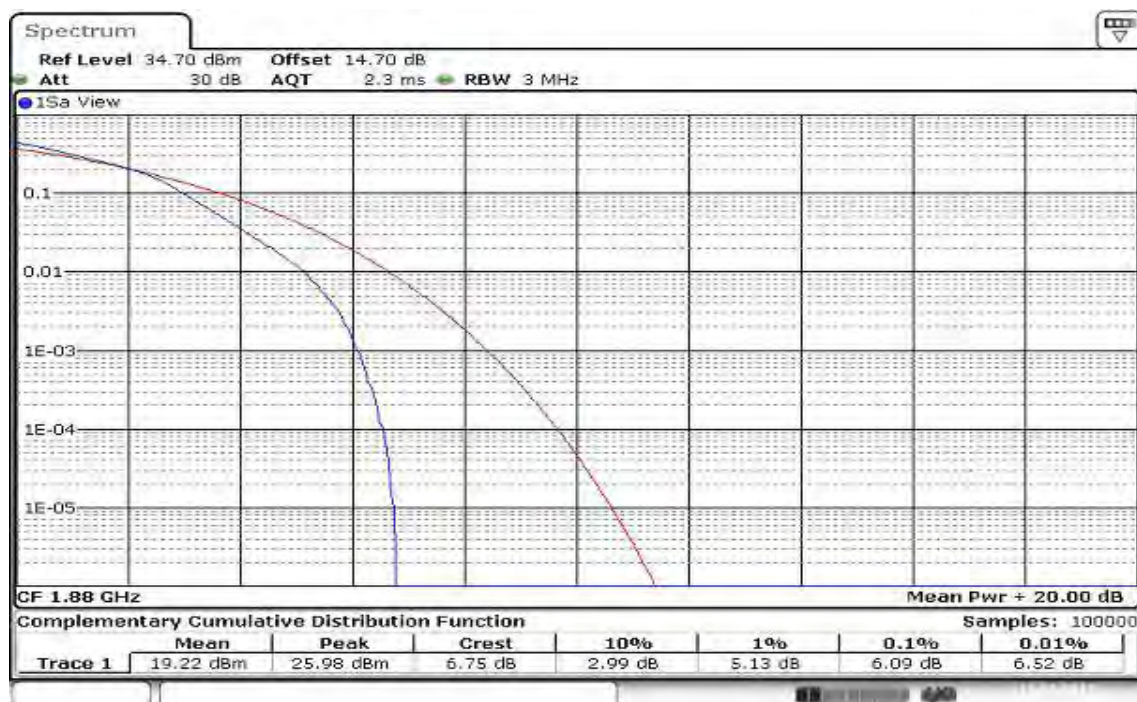
CH Mid



Date: 11 AUG 2017 11:16:55

CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB

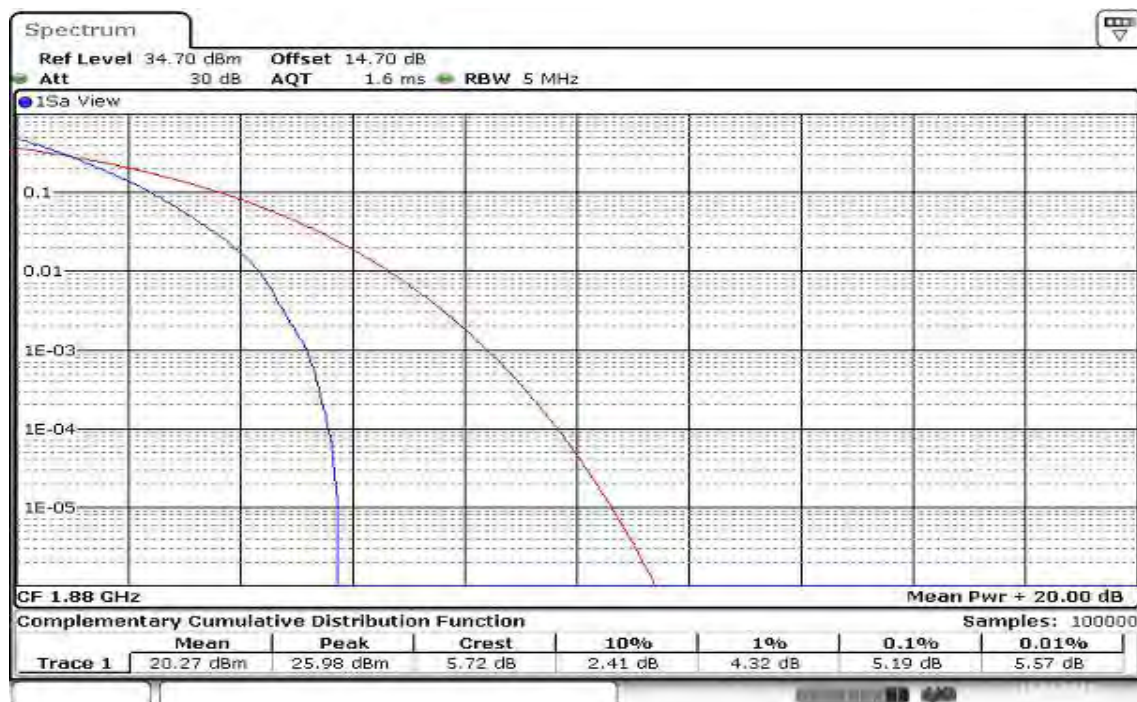
CH Mid



Date: 11 AUG 2017 11:18:26

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

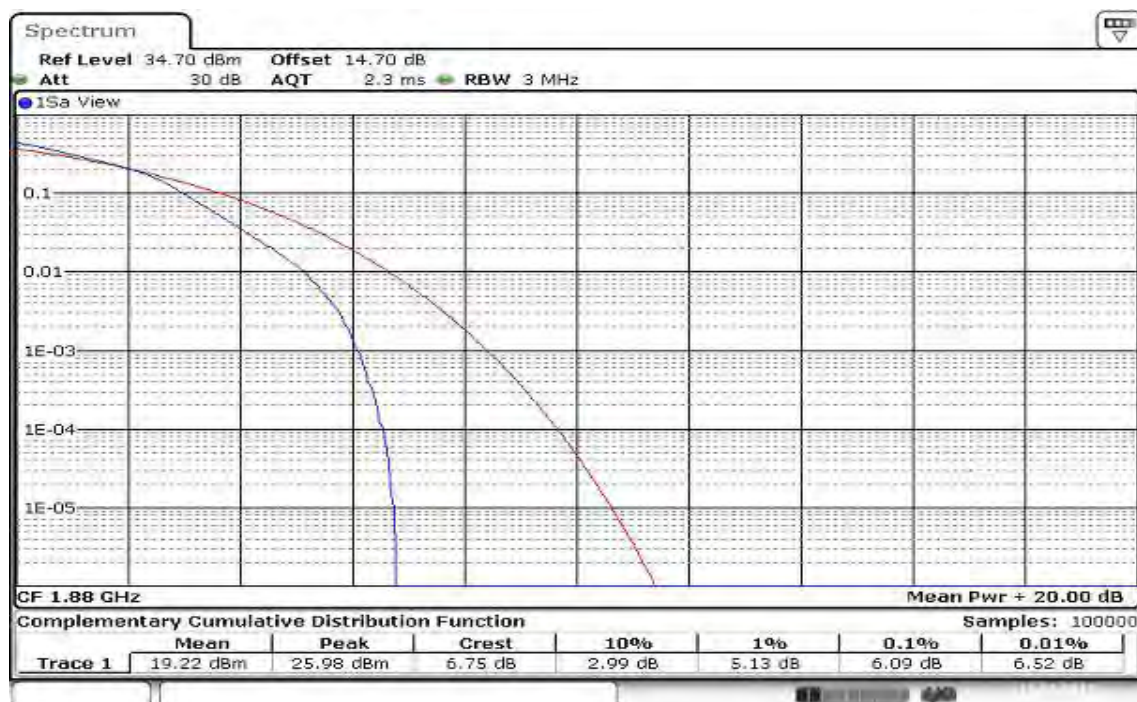
CH Mid



Date: 11 AUG 2017 11:14:50

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

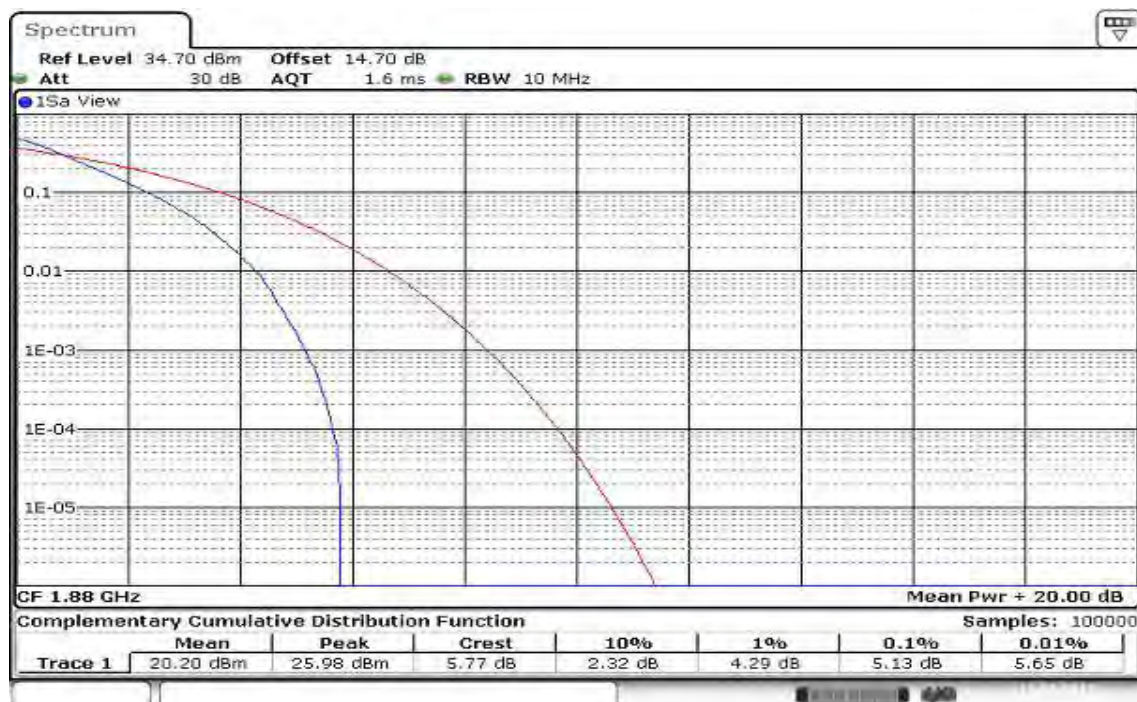
CH Mid



Date: 11 AUG 2017 11:18:26

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

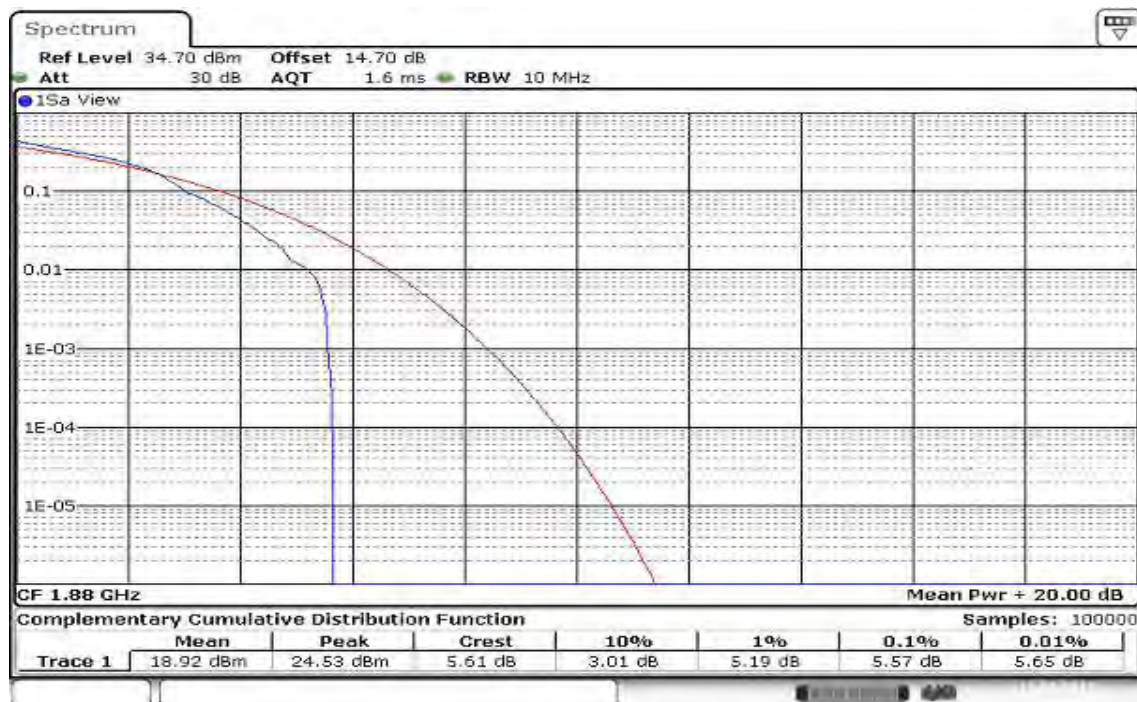
CH Mid



Date: 11 AUG 2017 11:12:56

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

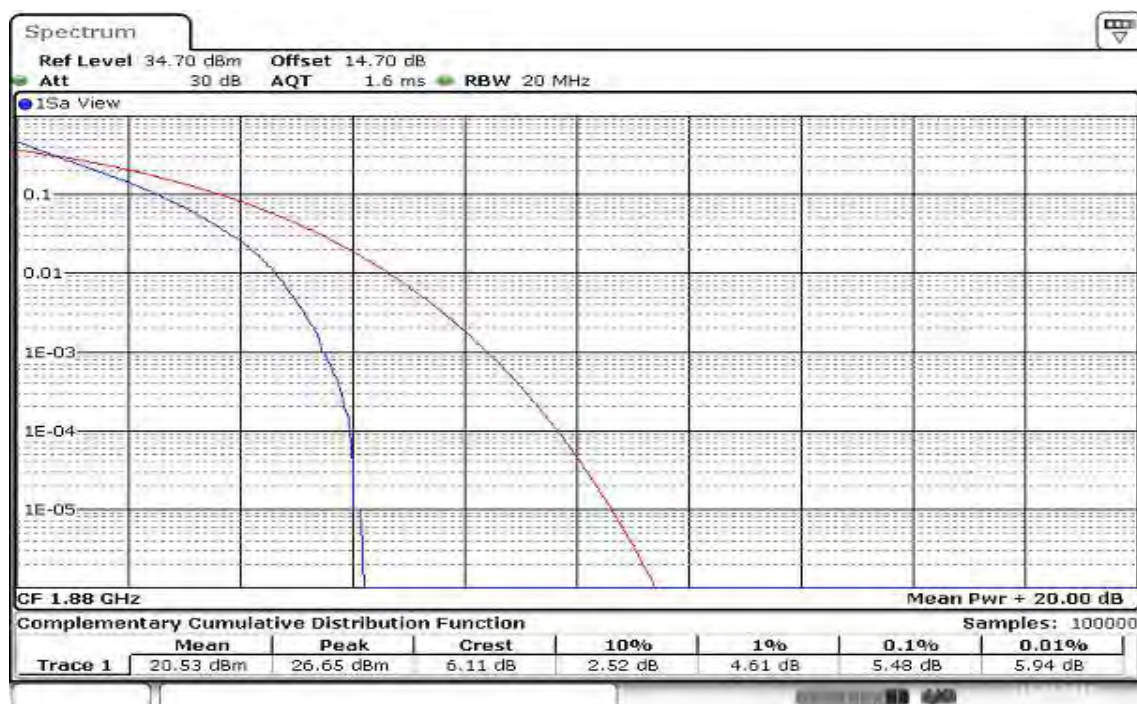
CH Mid



Date: 11 AUG 2017 11:14:18

CHANNEL BANDWIDTH: 15MHz / QPSK / 100%RB

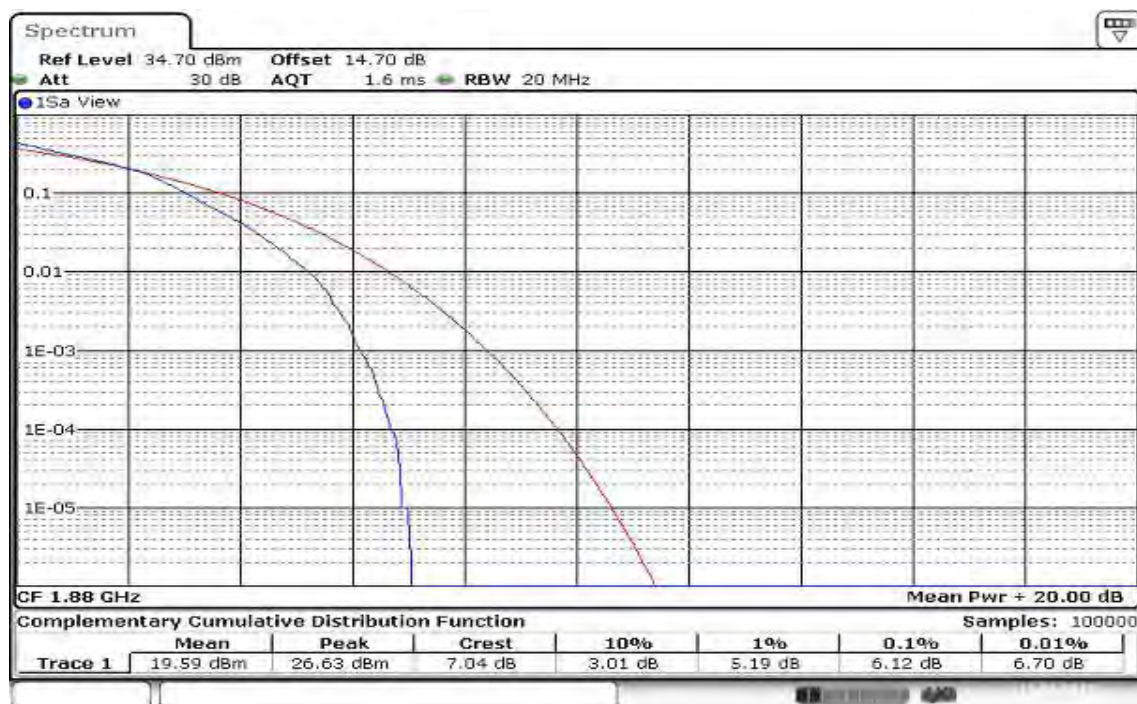
CH Mid



Date: 11 AUG 2017 11:10:09

CHANNEL BANDWIDTH: 15MHz / 16QAM / 100%RB

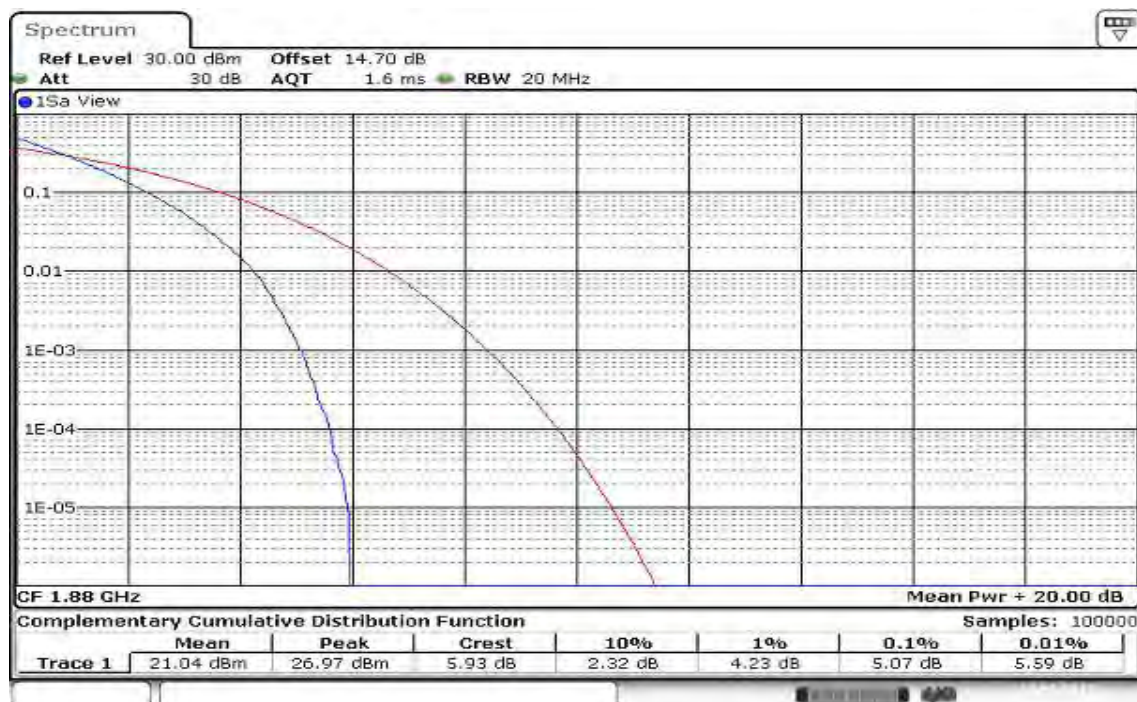
CH Mid



Date: 11 AUG 2017 11:08:24

CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB

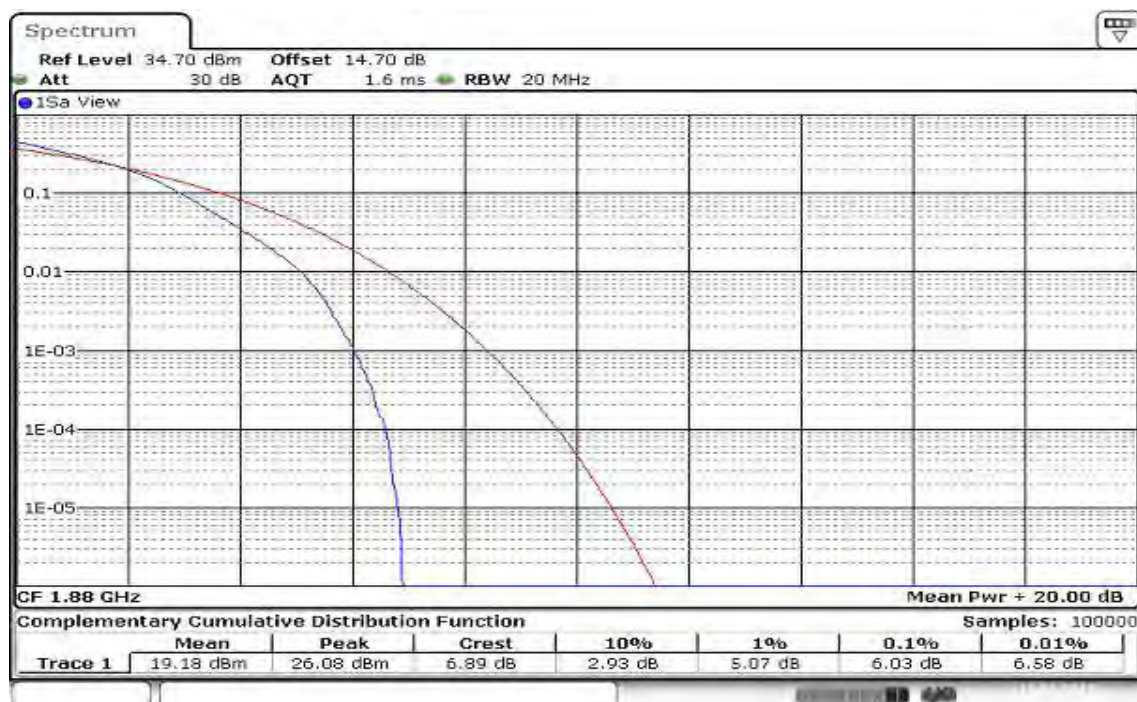
CH Mid



Date: 14 AUG 2017 11:44:59

CHANNEL BANDWIDTH: 20MHz / 16QAM / 100%RB

CH Mid

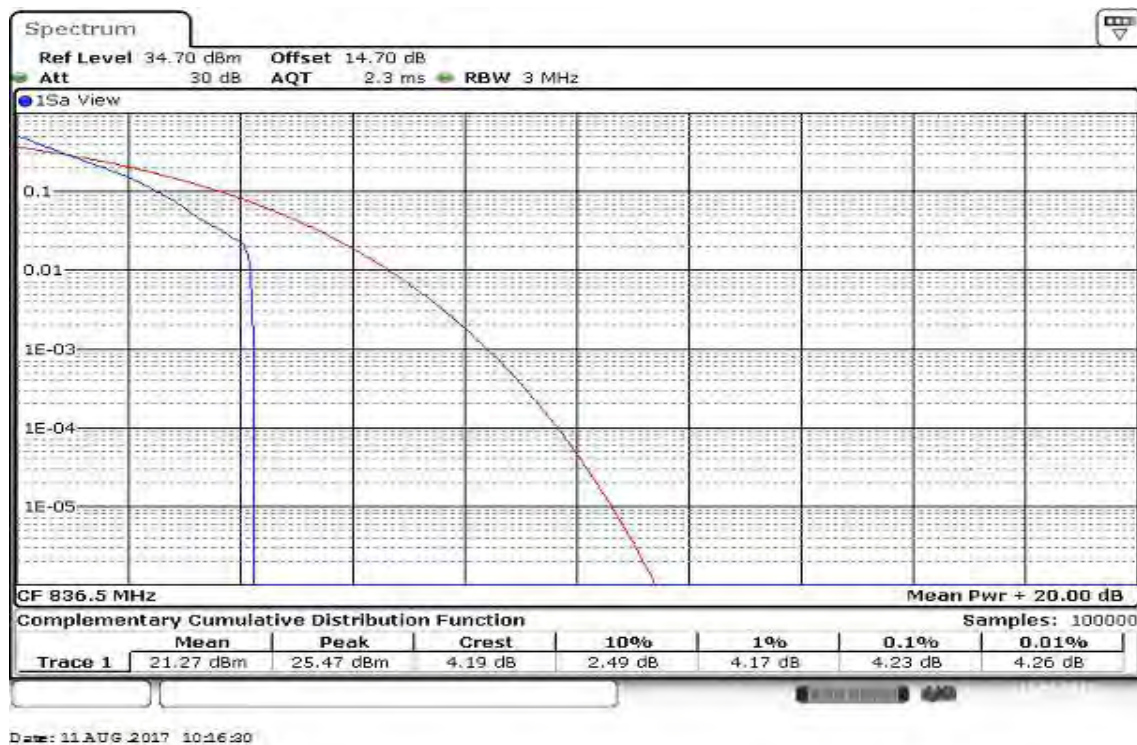


Date: 11 AUG 2017 11:07:50

LTE Band 5

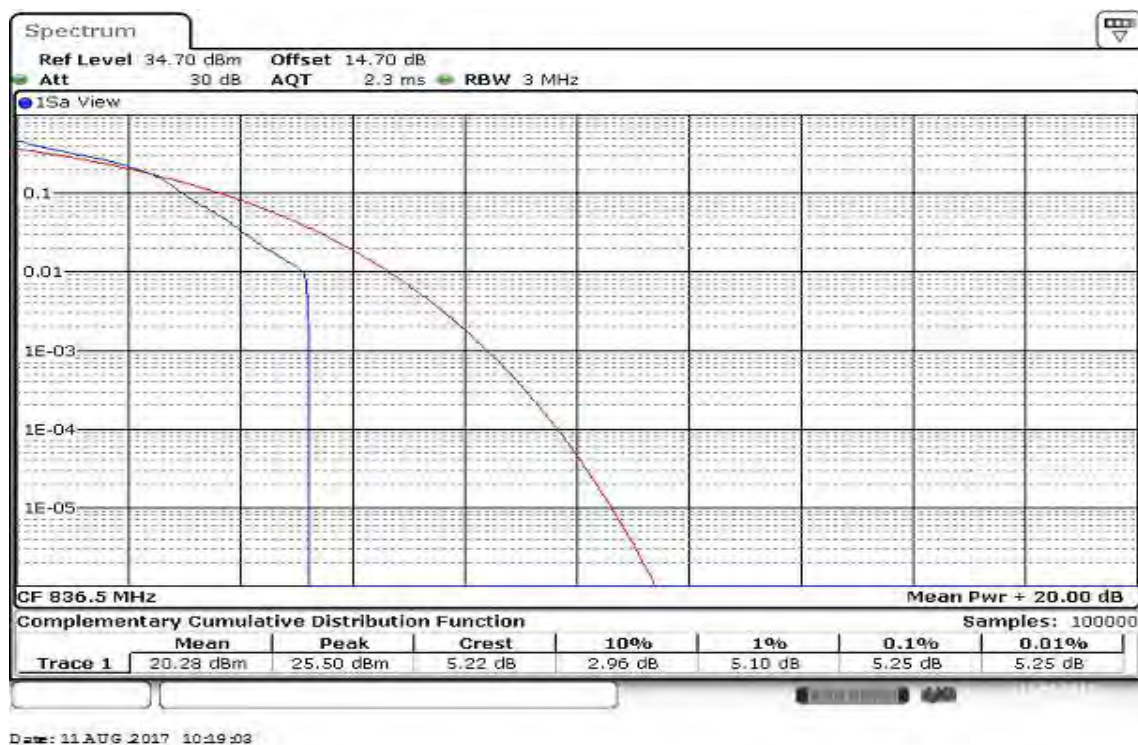
CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

CH Mid



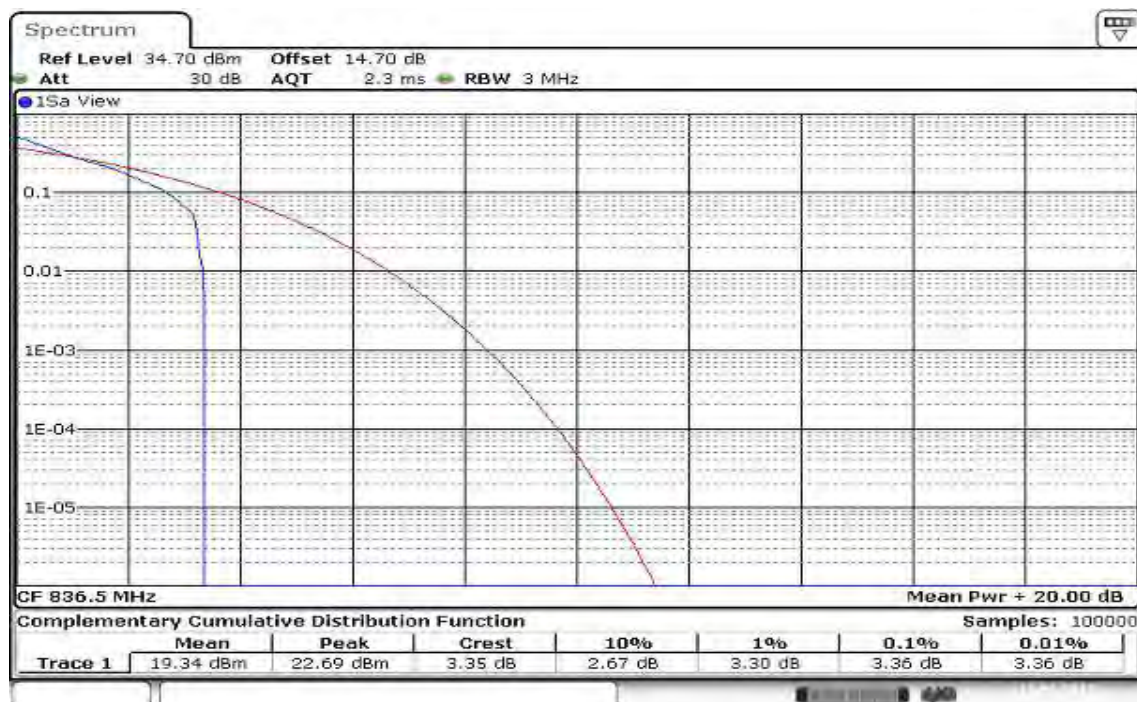
CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB

CH Mid



CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

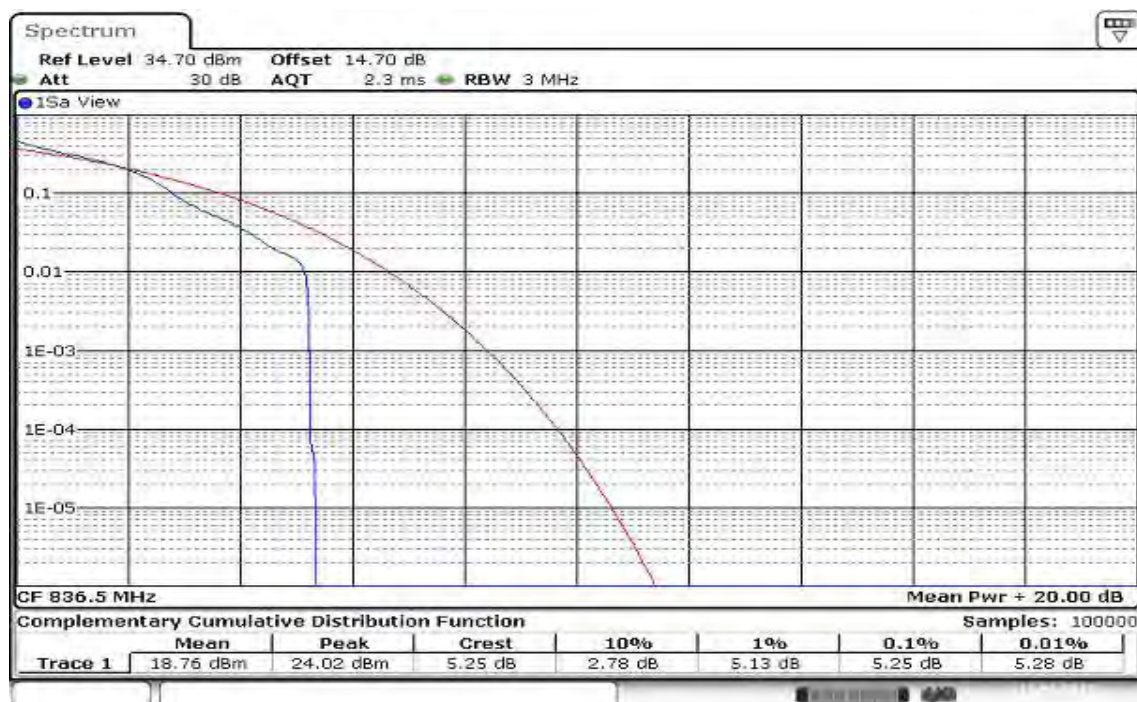
CH Mid



Date: 11 AUG 2017 10:23:01

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB

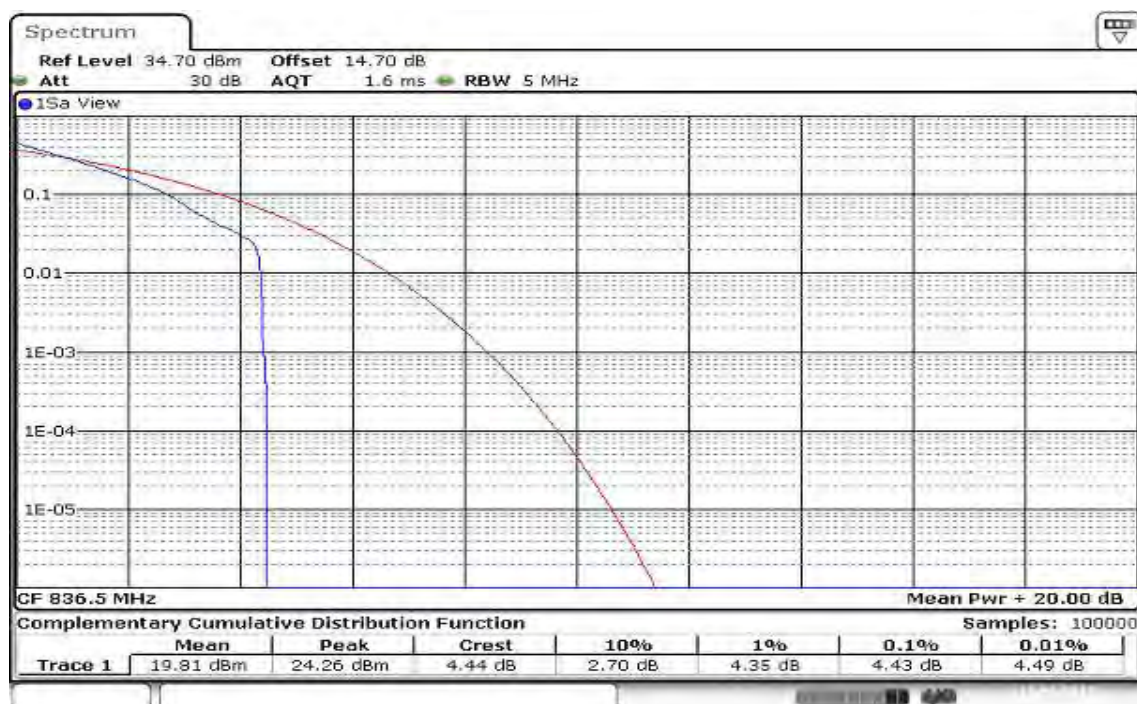
CH Mid



Date: 11 AUG 2017 10:24:27

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

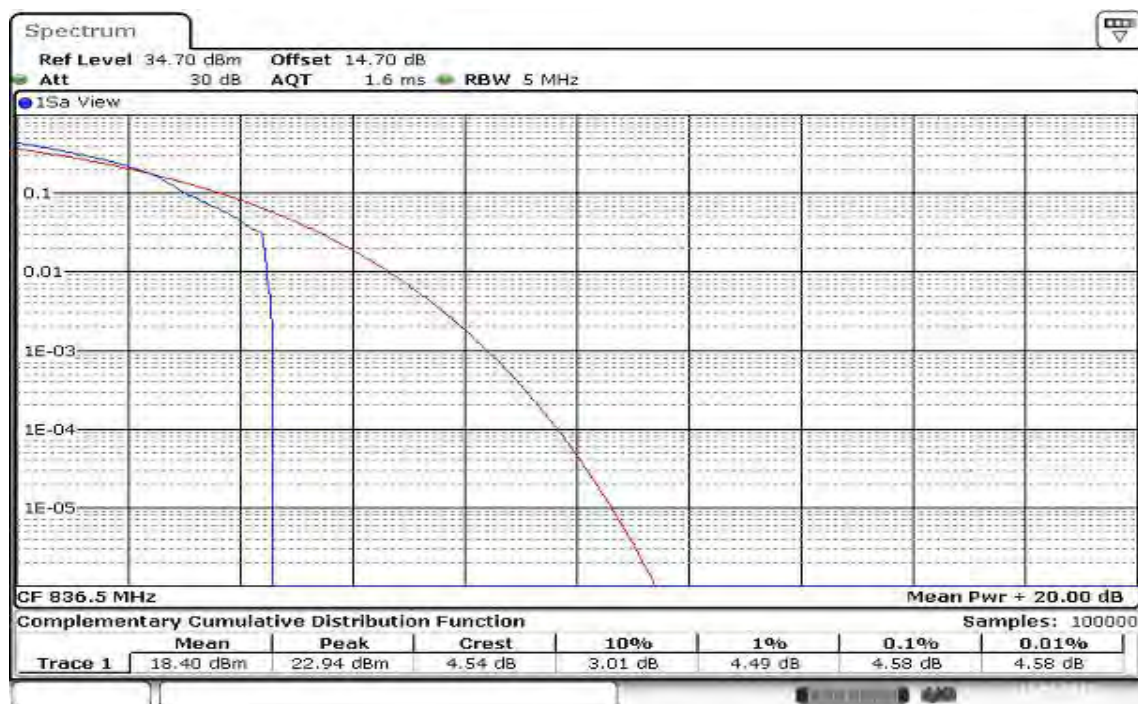
CH Mid



Date: 11 AUG 2017 10:28:03

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

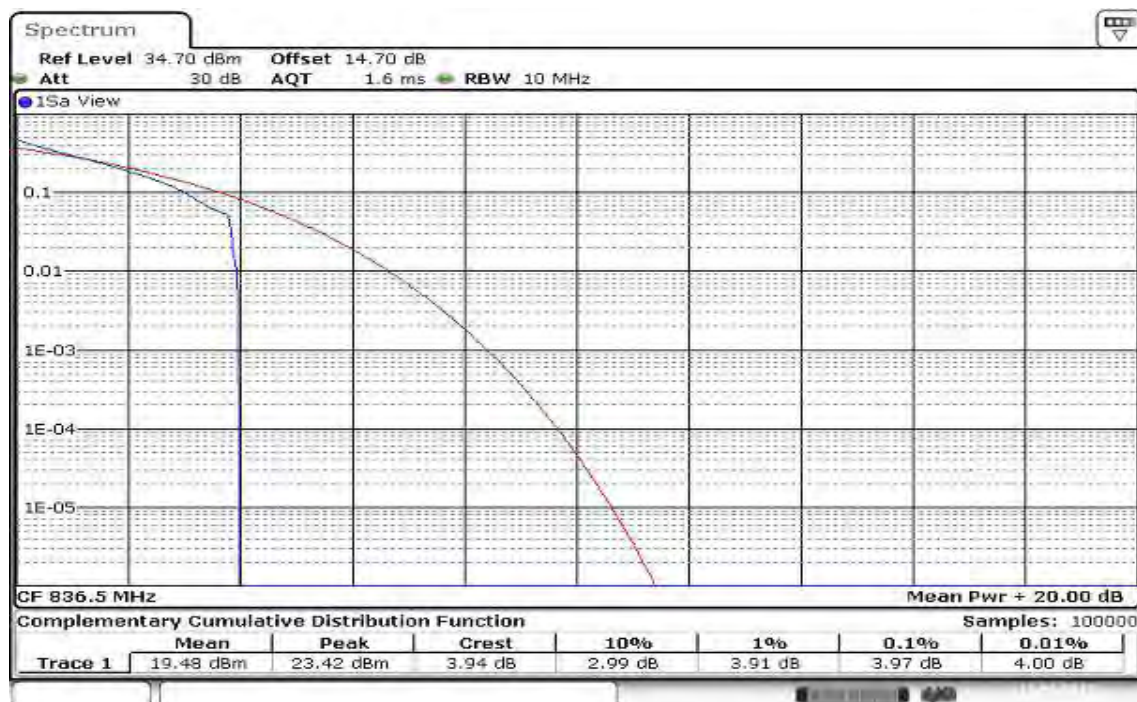
CH Mid



Date: 11 AUG 2017 10:26:11

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

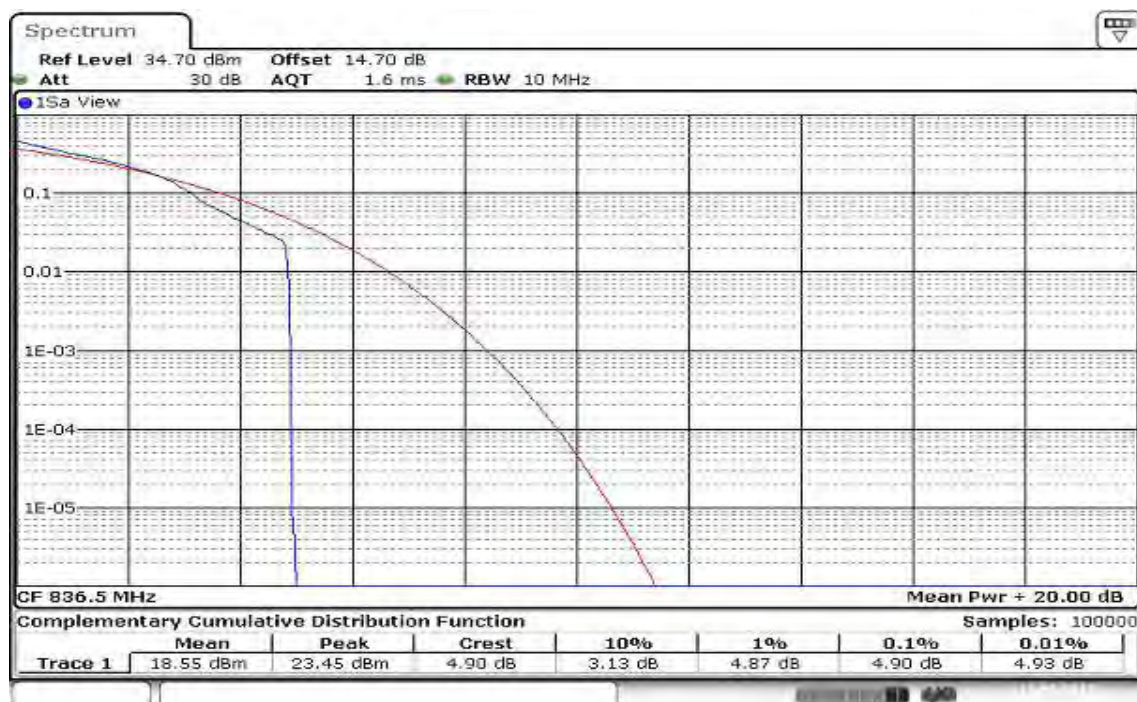
CH Mid



Date: 11 AUG 2017 10:30:40

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

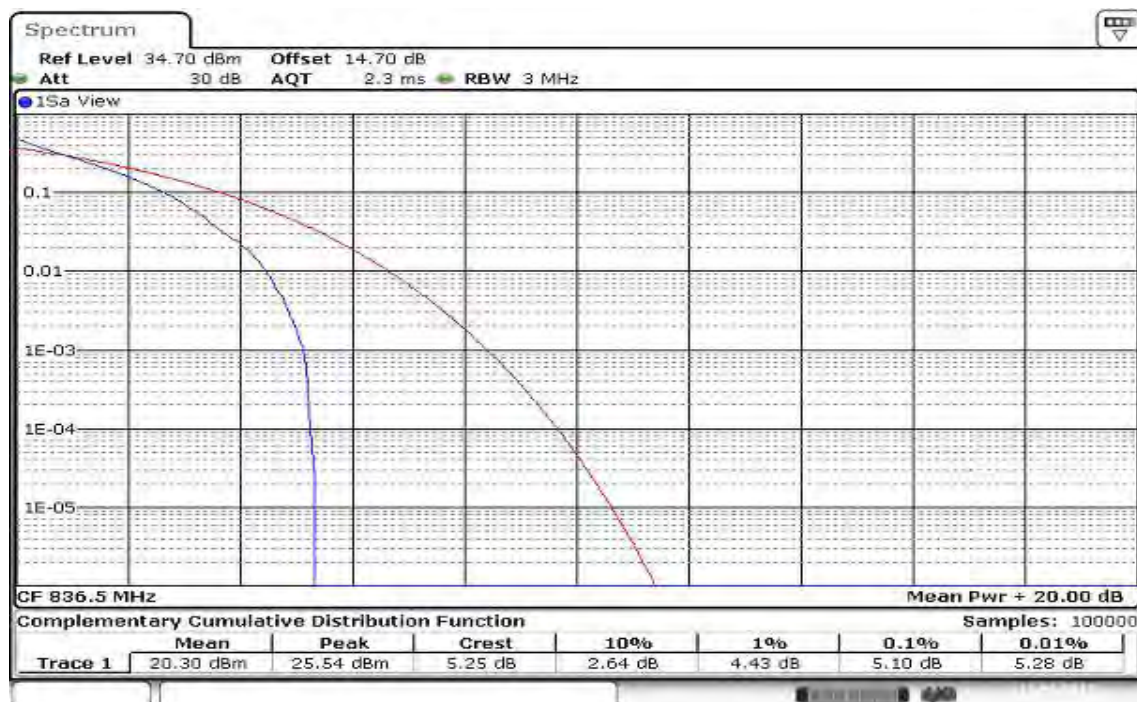
CH Mid



Date: 11 AUG 2017 10:30:01

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

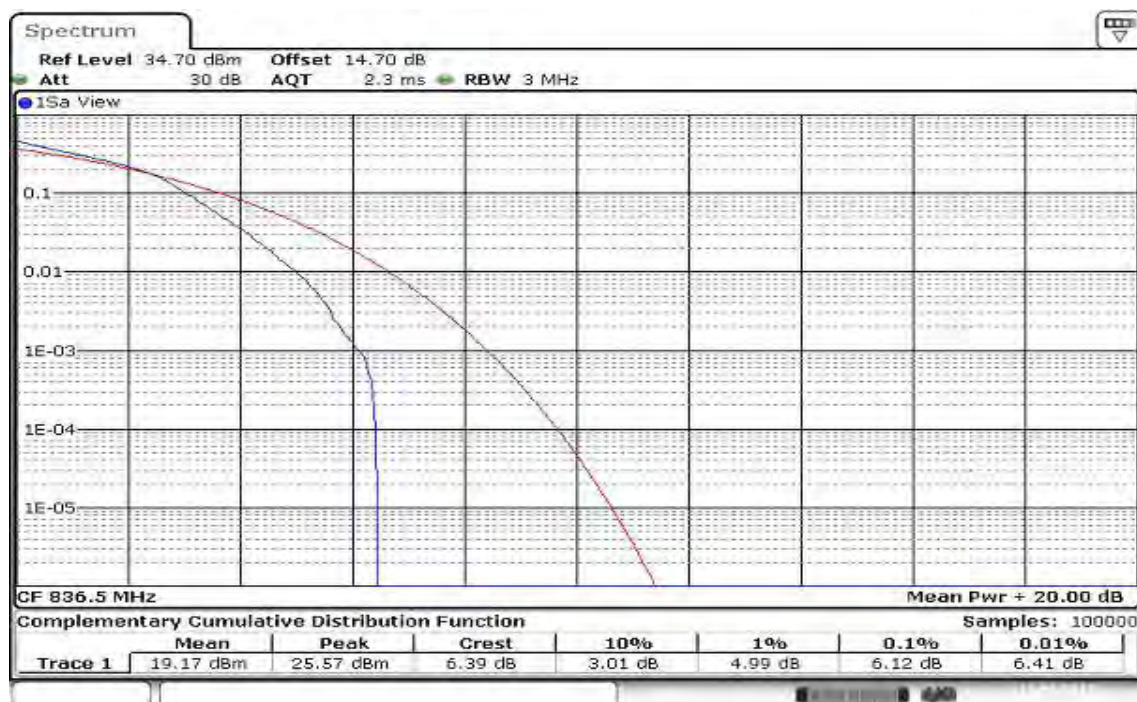
CH Mid



Date: 11 AUG 2017 10:16:07

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB

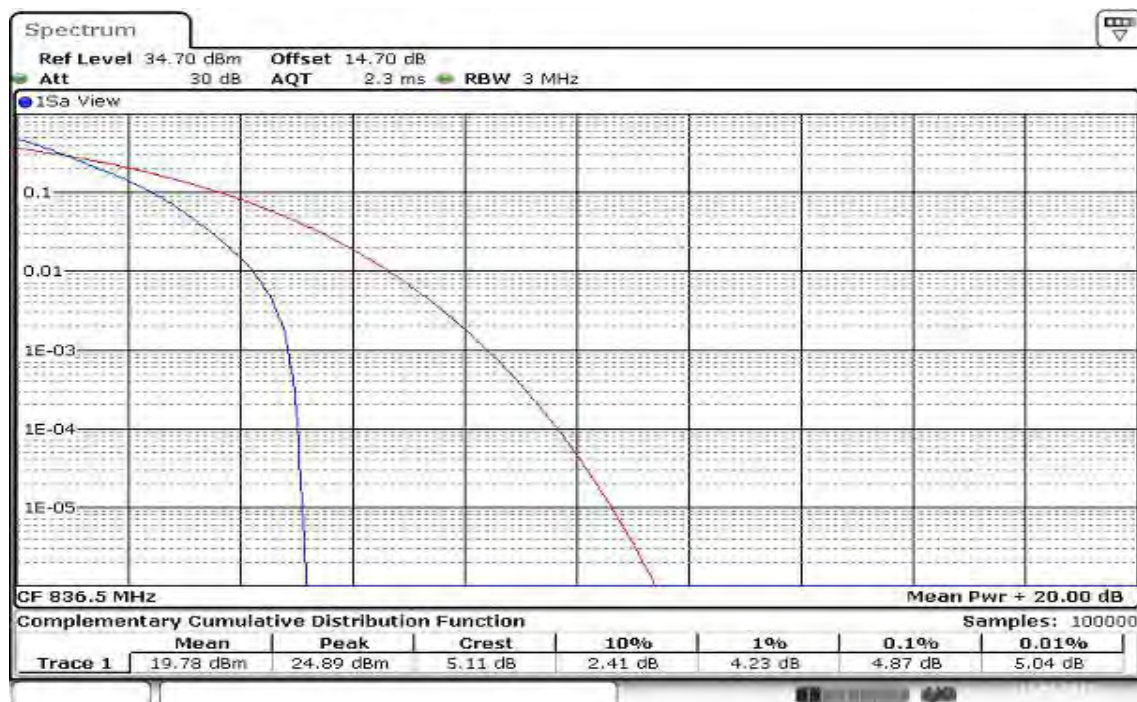
CH Mid



Date: 11 AUG 2017 10:18:29

CHANNEL BANDWIDTH: 3MHz / QPSK / 100%RB

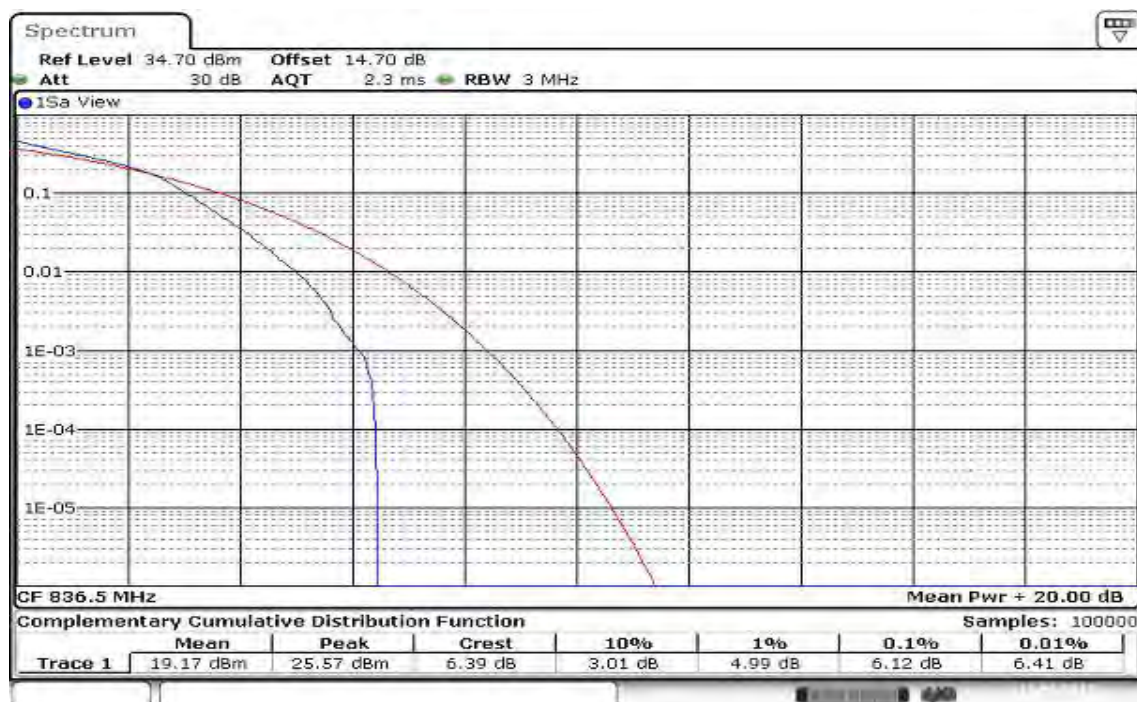
CH Mid



Date: 11 AUG 2017 10:21:46

CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB

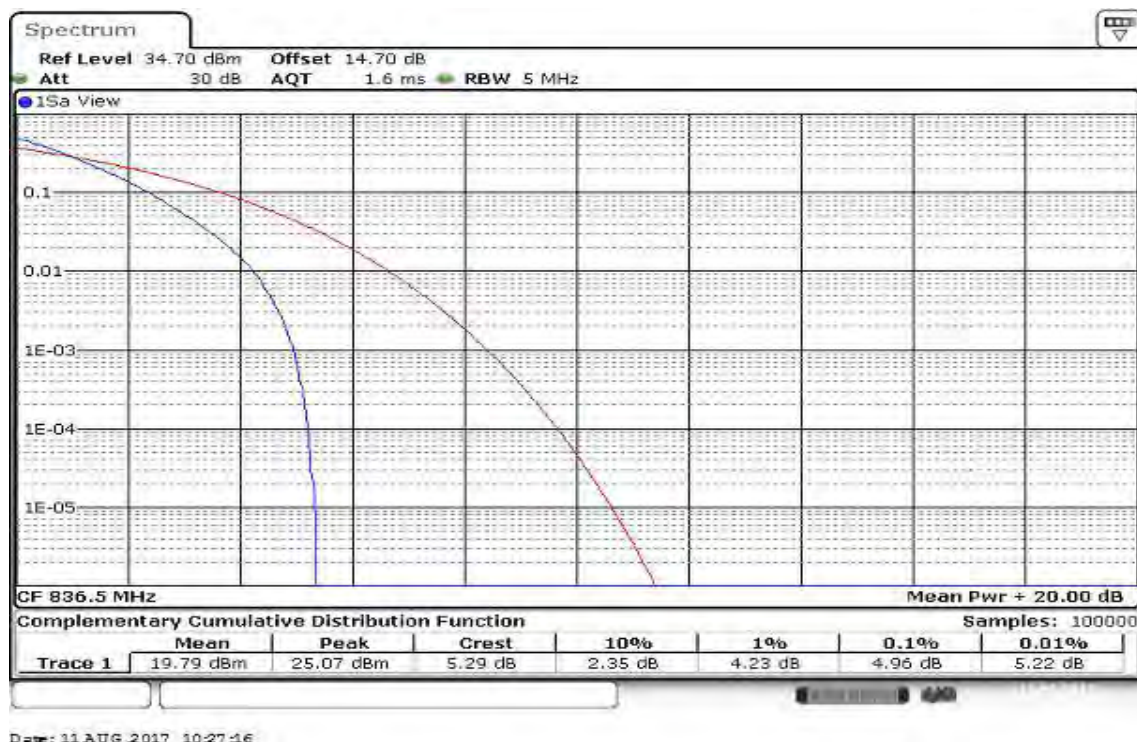
CH Mid



Date: 11 AUG 2017 10:18:29

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

CH Mid



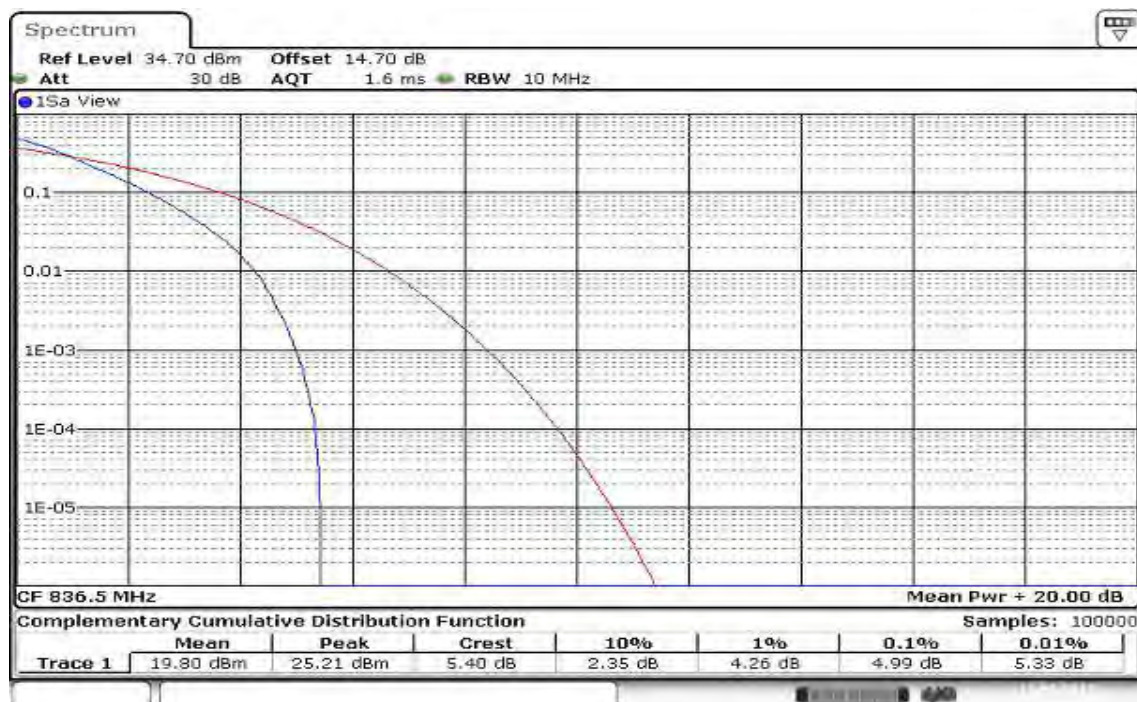
CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

CH Mid



CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

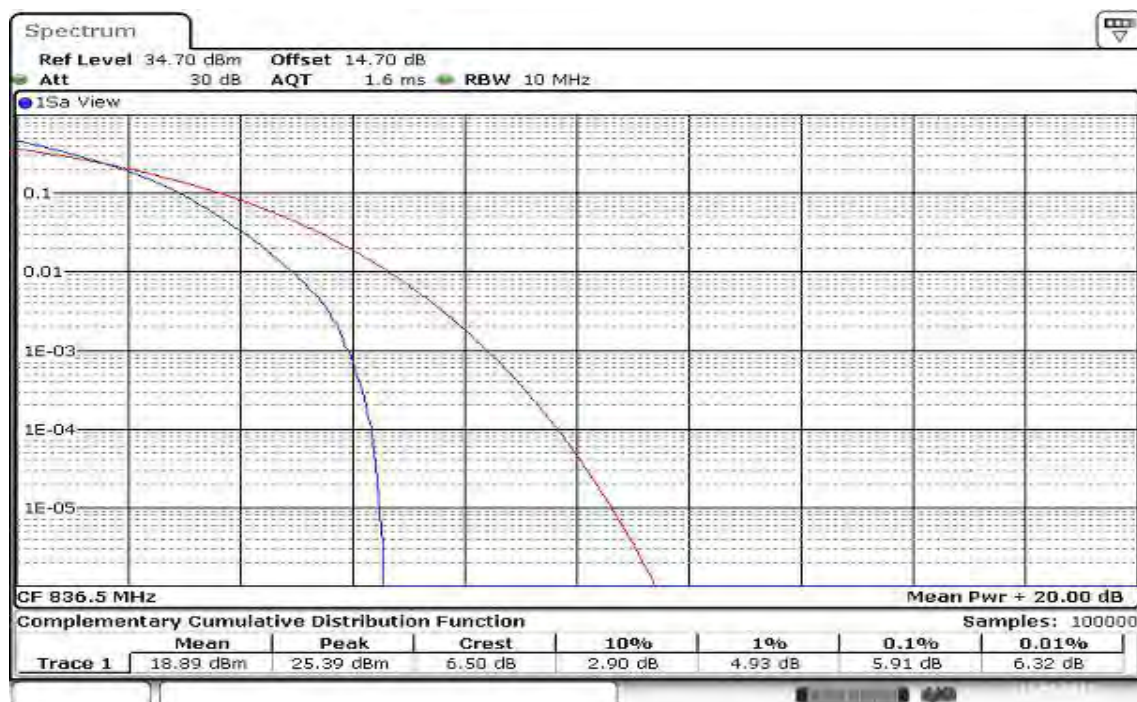
CH Mid



Date: 11 AUG 2017 10:33:46

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

CH Mid



Date: 11 AUG 2017 10:28:53

7.6 BAND EDGE MEASUREMENT

Limit

For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed. For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any

emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission equal to -13dBm . In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

Test Procedures

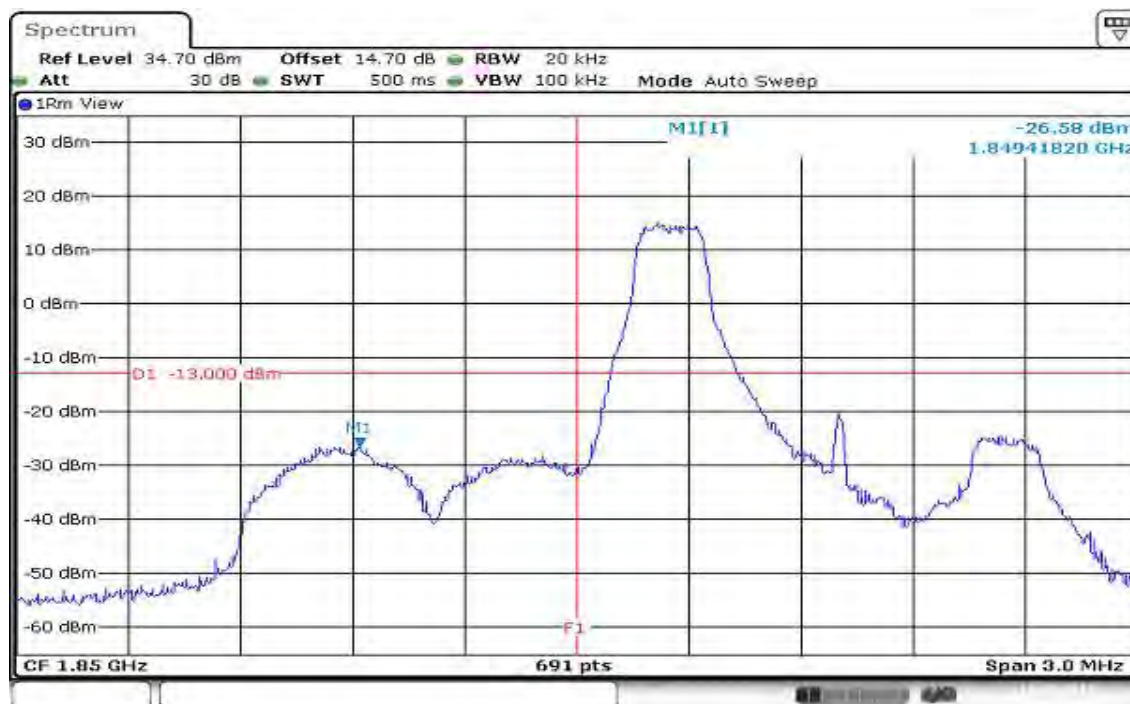
1. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
2. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss are the worst loss 7.2 dB in the transmitted path track.
3. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 50kHz and VB of the spectrum is 200kHz.
4. Record the max trace plot into the test report.

Test Results:

LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1 RB ALLOCATED

LOWER BAND EDGE



Date: 11 AUG 2017 15:20:44

HIGHER BAND EDGE



Date: 11 AUG 2017 15:47:01

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1 RB ALLOCATED LOWER BAND EDGE

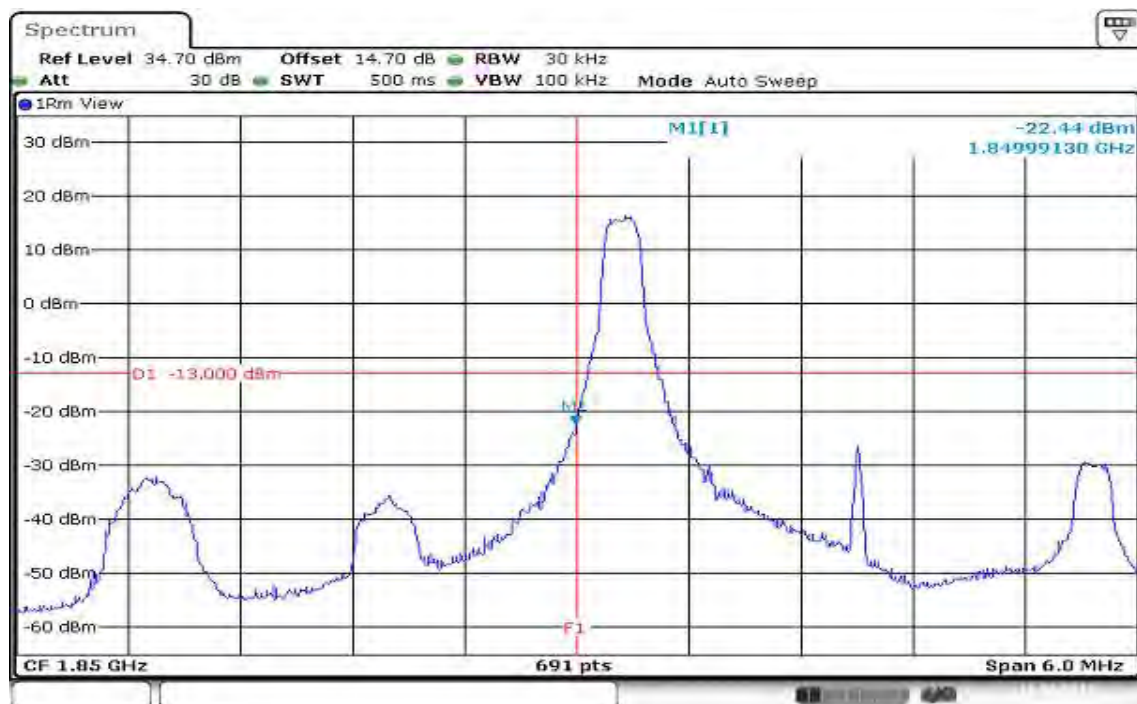


HIGHER BAND EDGE



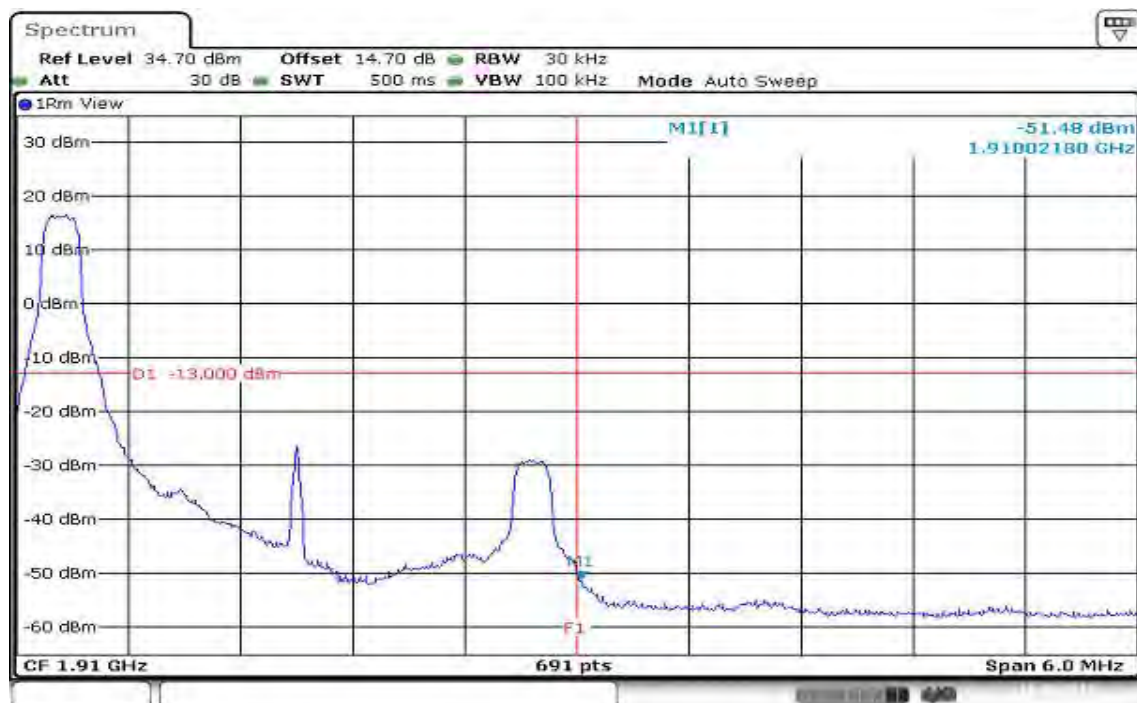
CHANNEL BANDWIDTH: 3MHz / QPSK / 1 RB ALLOCATED

LOWER BAND EDGE



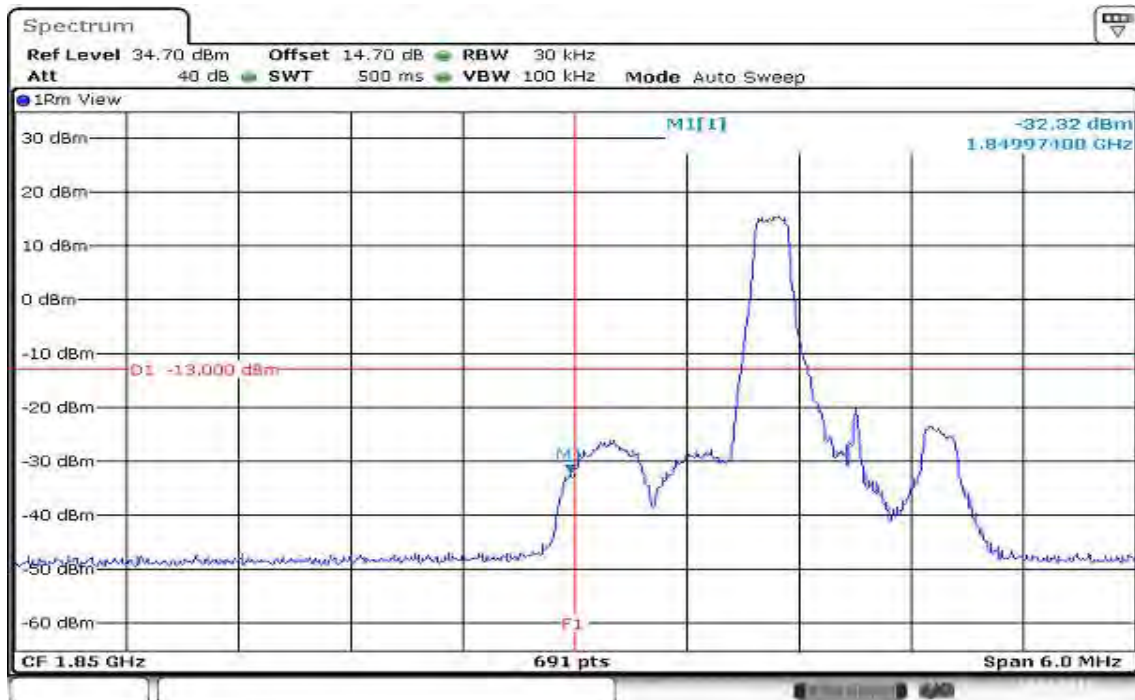
Date: 11 AUG 2017 15:23:58

HIGHER BAND EDGE



Date: 11 AUG 2017 15:51:55

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1 RB ALLOCATED LOWER BAND EDGE



Date: 14 AUG 2017 11:16:54

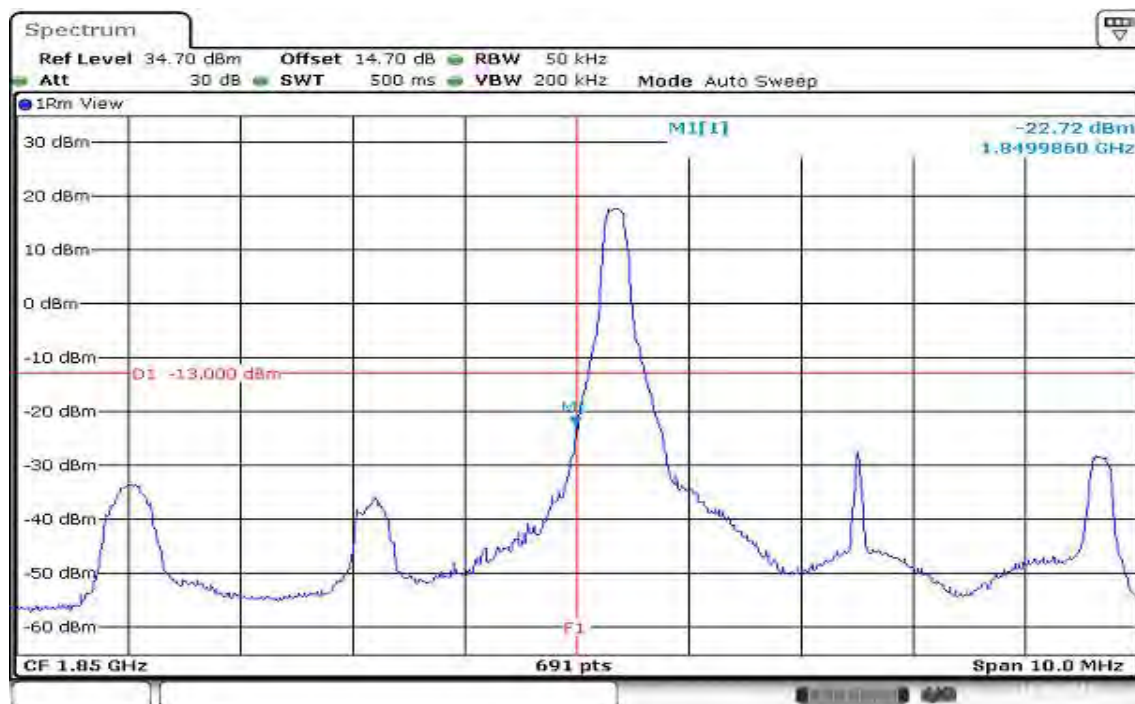
HIGHER BAND EDGE



Date: 11 AUG 2017 15:54:23

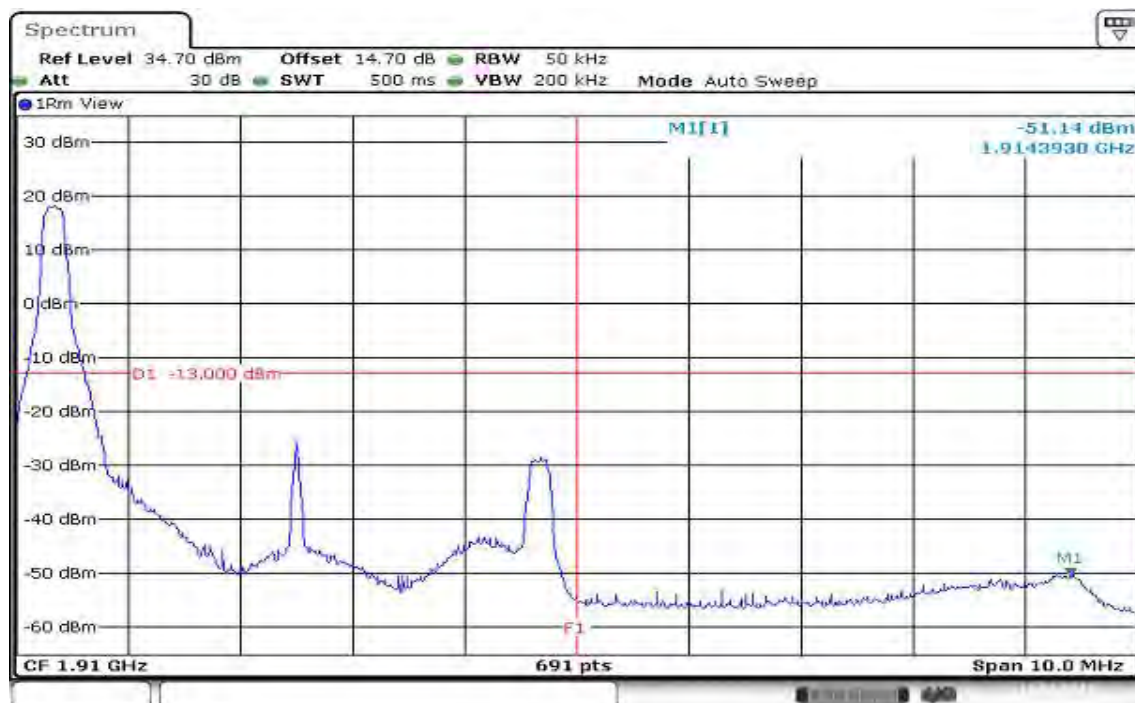
CHANNEL BANDWIDTH: 5MHz / QPSK / 1 RB ALLOCATED

LOWER BAND EDGE



Date: 11 AUG 2017 15:25:42

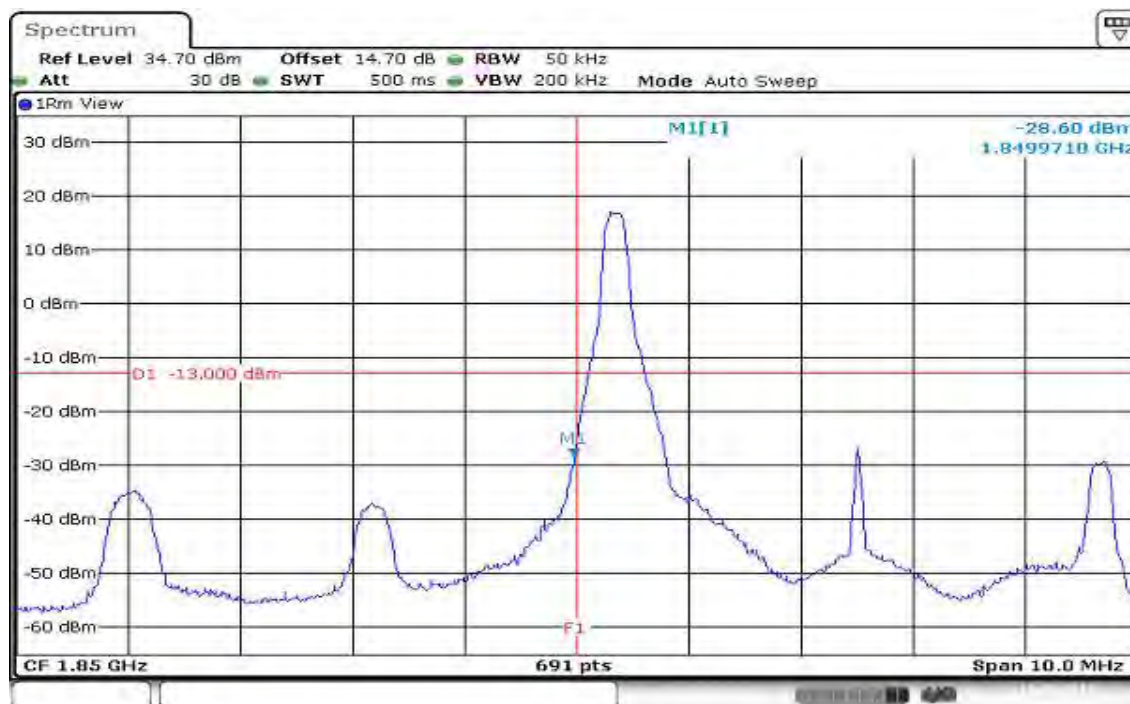
HIGHER BAND EDGE



Date: 11 AUG 2017 15:58:40

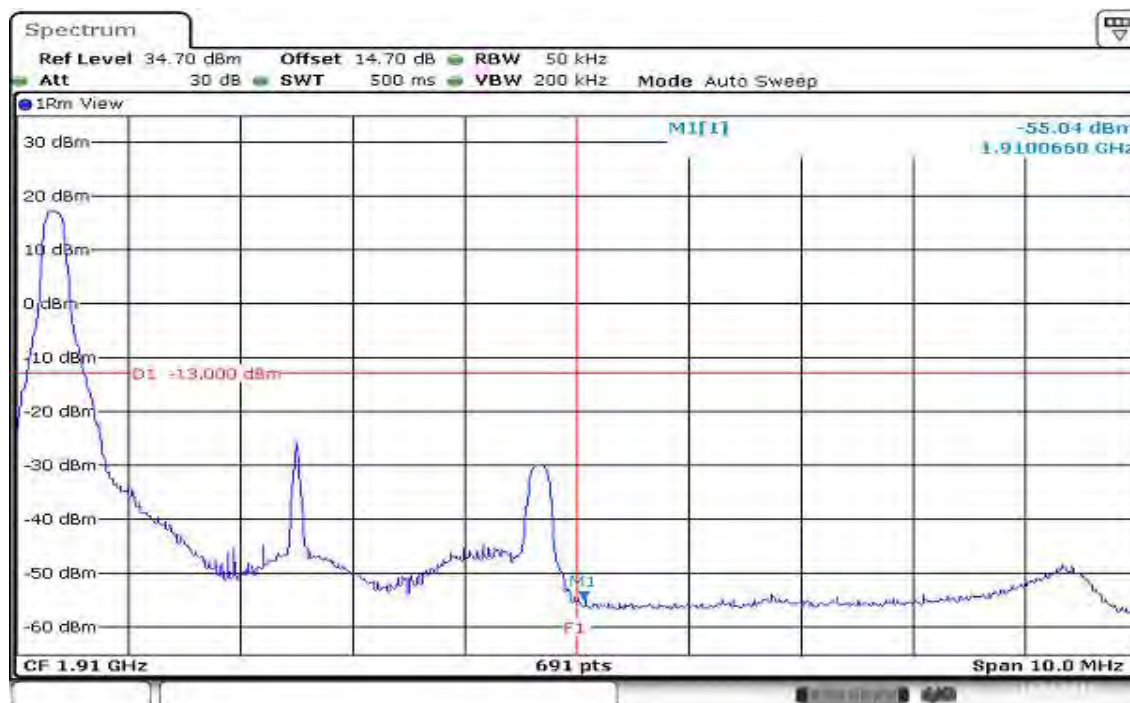
CHANNEL BANDWIDTH: 5MHz / 16QAM / 1 RB ALLOCATED

LOWER BAND EDGE



Date: 11 AUG 2017 15:29:24

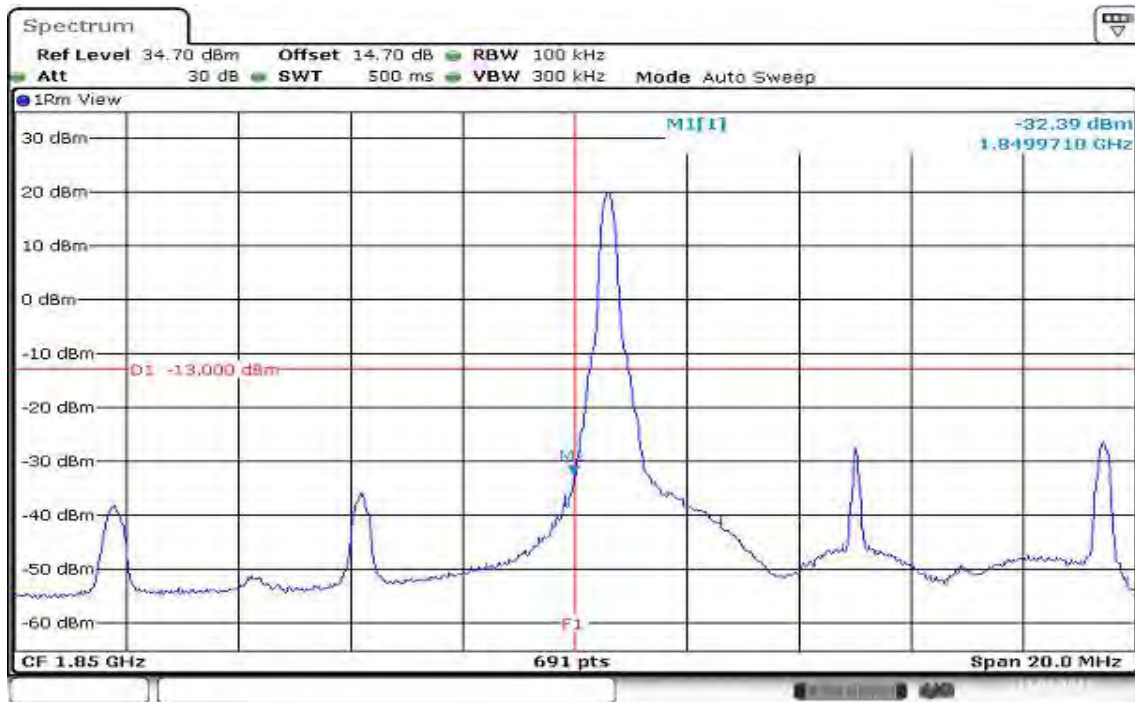
HIGHER BAND EDGE



Date: 11 AUG 2017 15:56:14

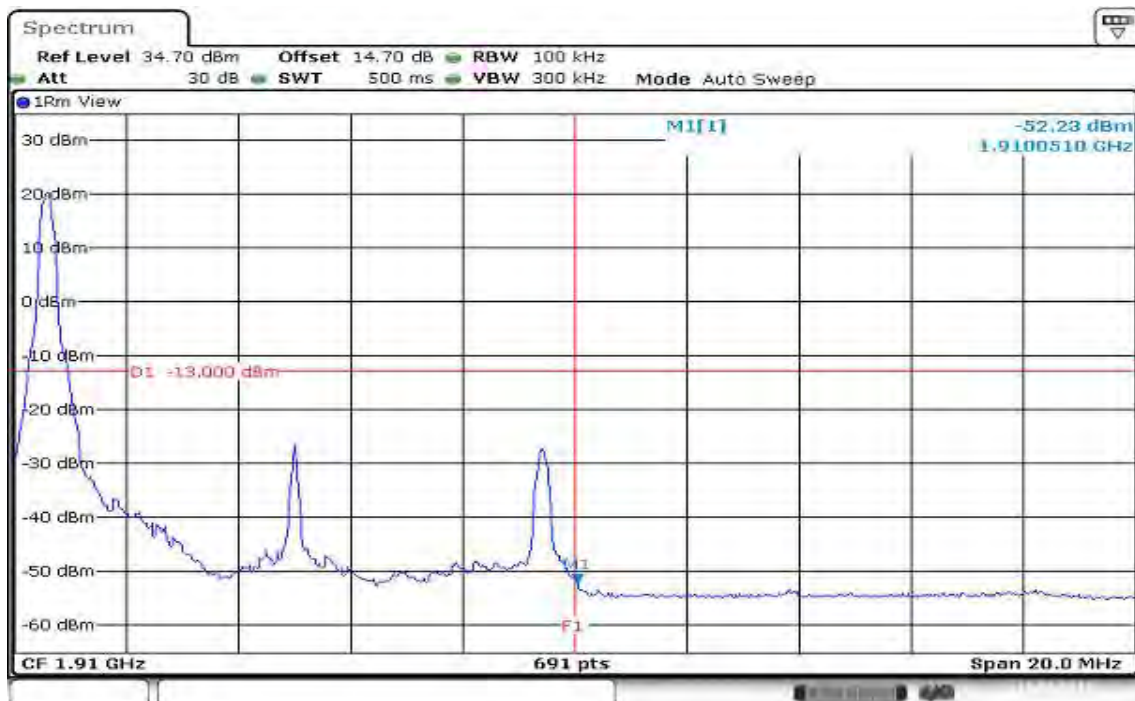
CHANNEL BANDWIDTH: 10MHz / QPSK / 1 RB ALLOCATED

LOWER BAND EDGE



Date: 11 AUG 2017 15:33:43

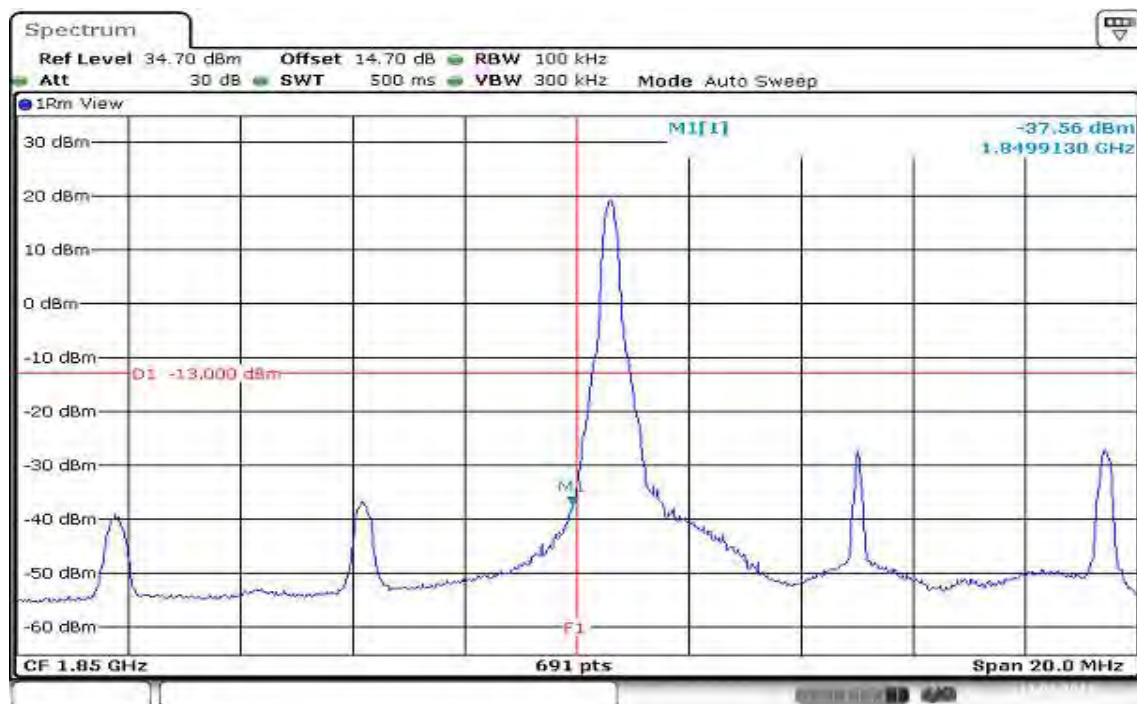
HIGHER BAND EDGE



Date: 11 AUG 2017 16:00:52

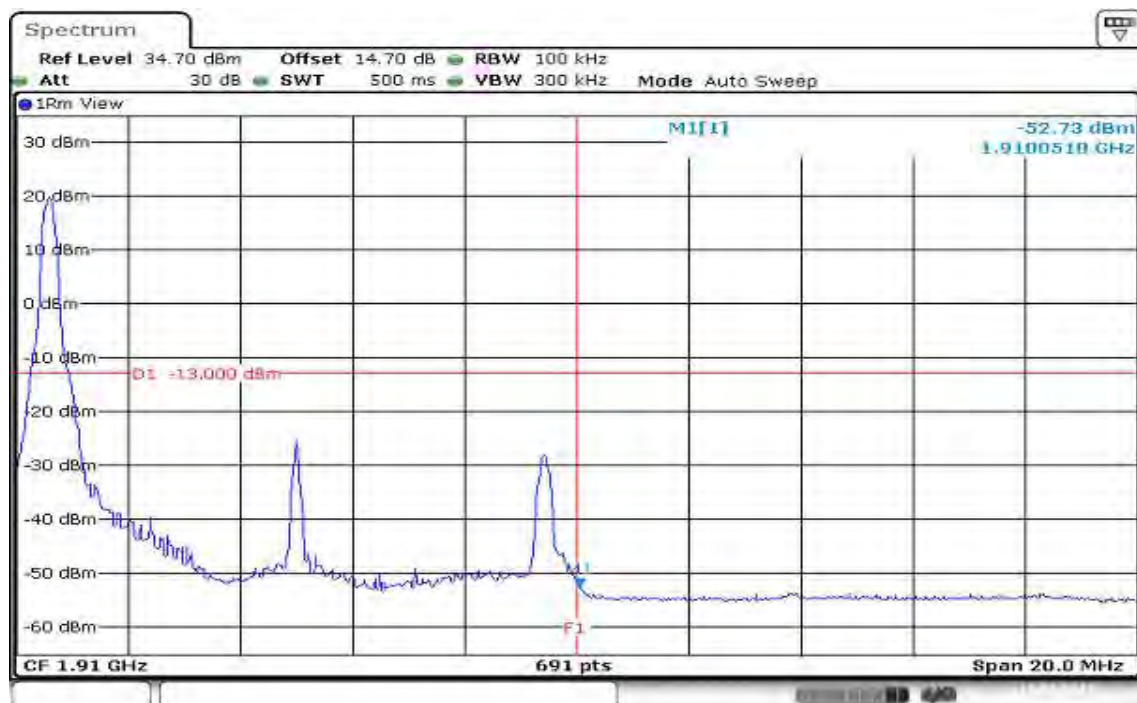
CHANNEL BANDWIDTH: 10MHz / 16QAM / 1 RB ALLOCATED

LOWER BAND EDGE



Date: 11 AUG 2017 15:32:50

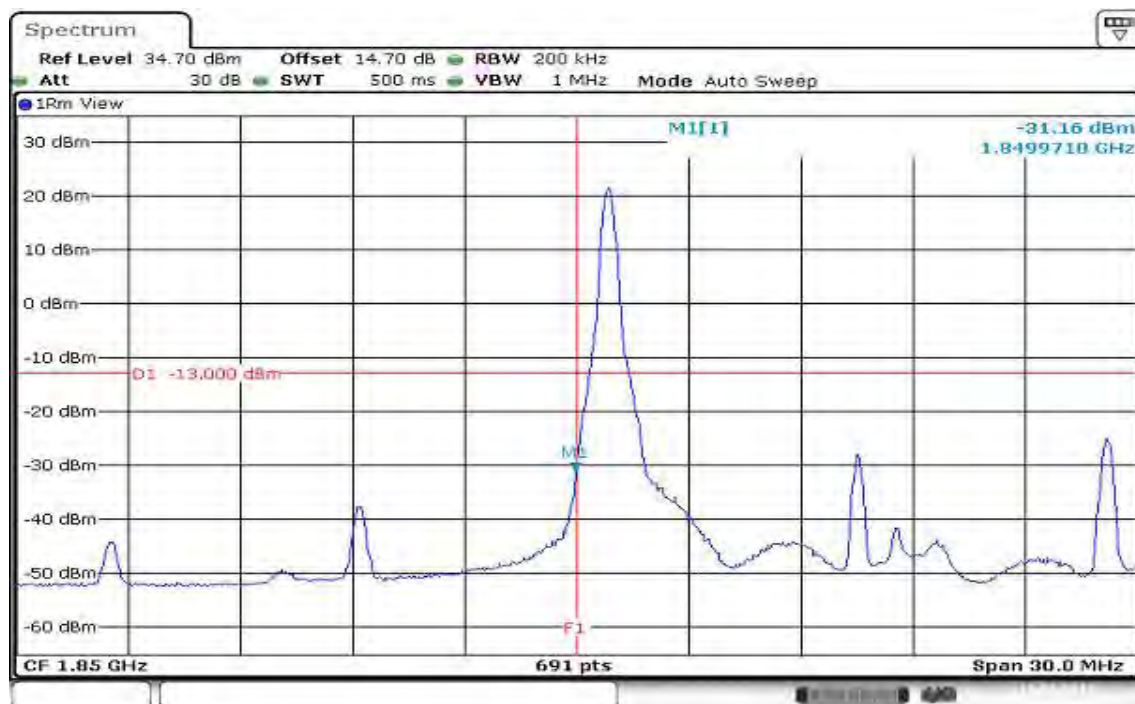
HIGHER BAND EDGE



Date: 11 AUG 2017 16:01:42

CHANNEL BANDWIDTH: 15MHz / QPSK / 1 RB ALLOCATED

LOWER BAND EDGE



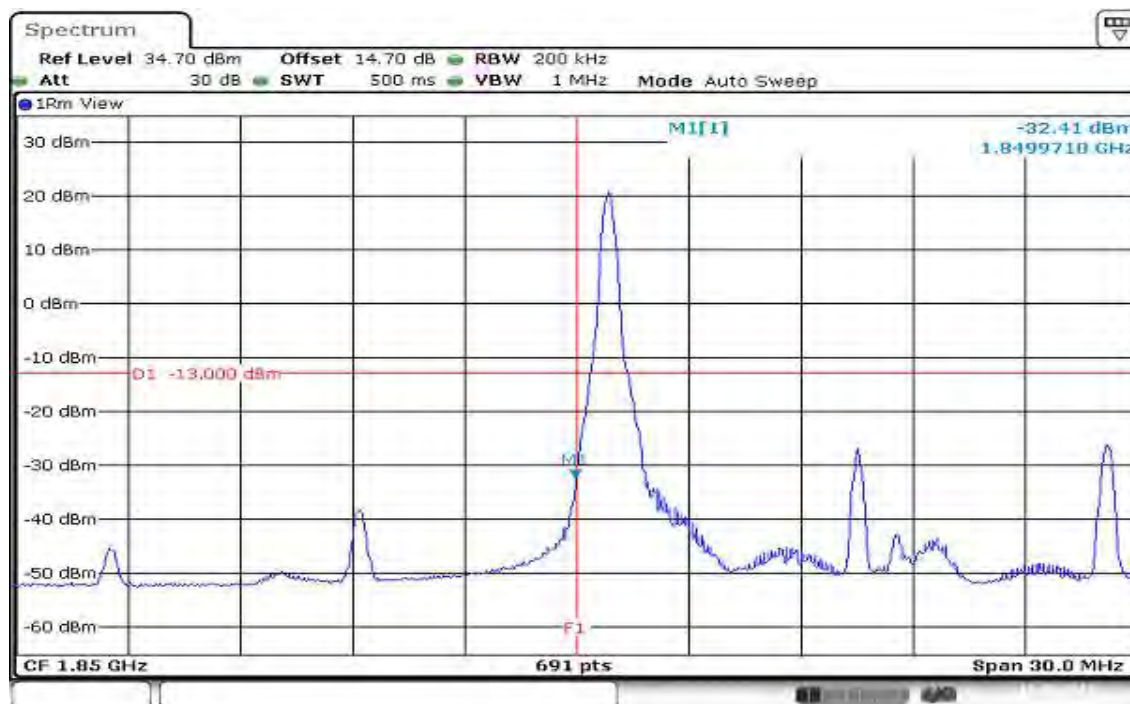
Date: 11 AUG 2017 15:27:50

HIGHER BAND EDGE



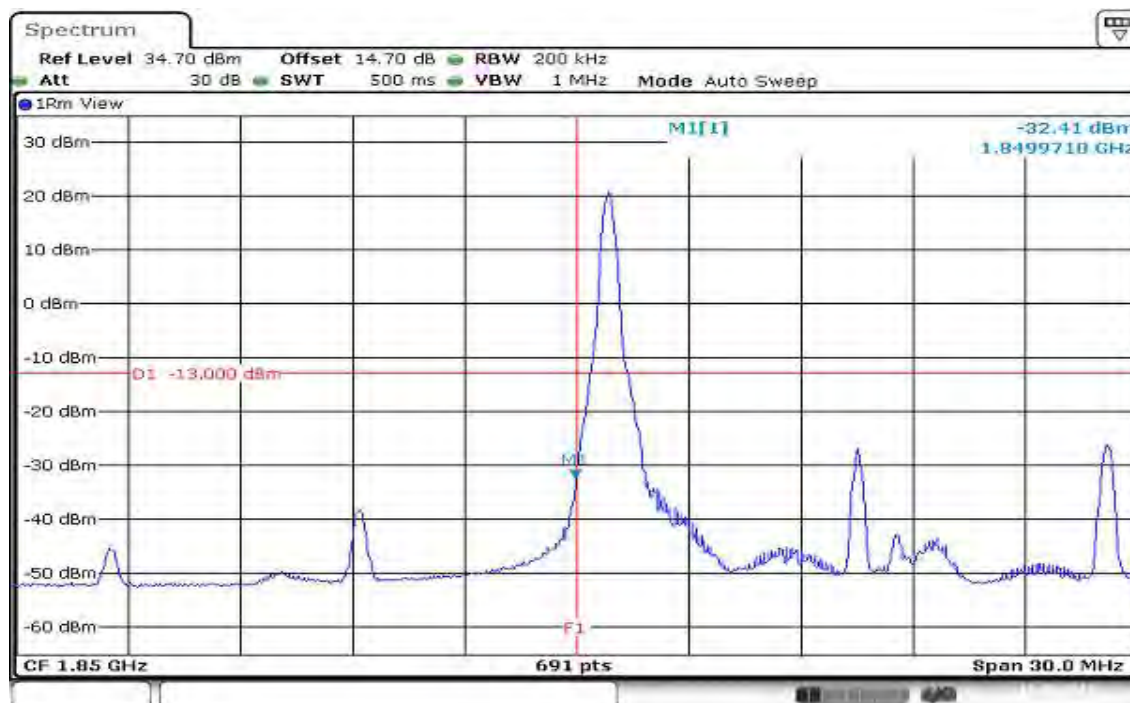
Date: 11 AUG 2017 16:05:19

CHANNEL BANDWIDTH: 15MHz / 16QAM / 1 RB ALLOCATED LOWER BAND EDGE



Date: 11 AUG 2017 15:38:42

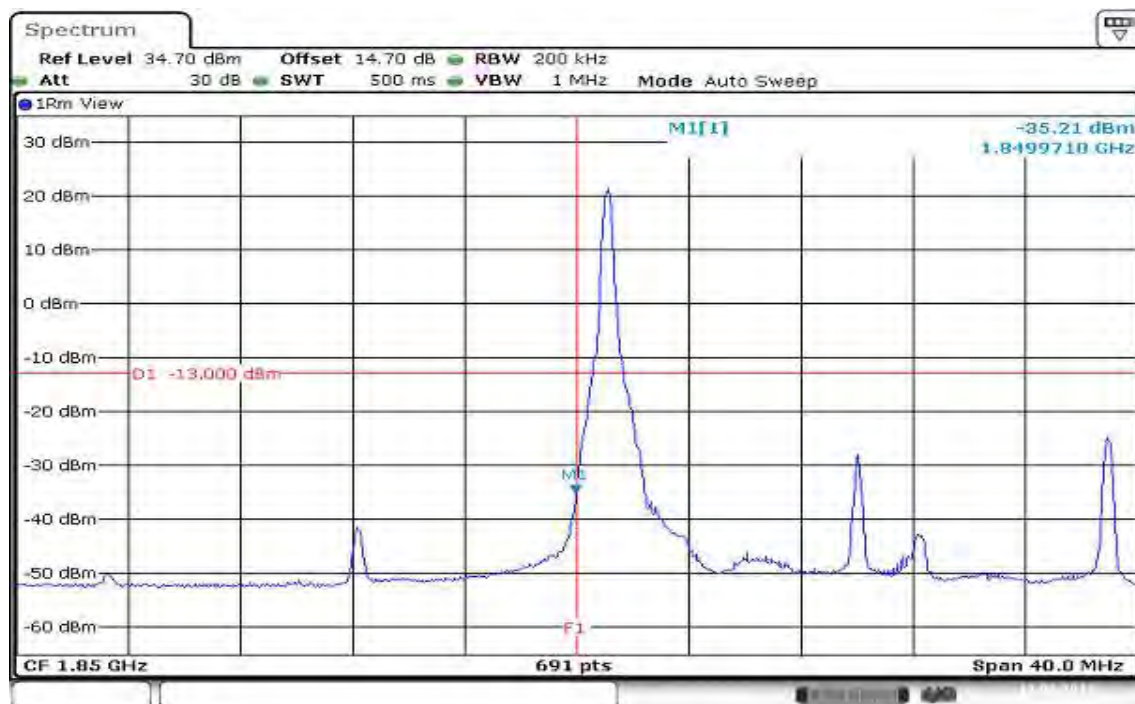
HIGHER BAND EDGE



Date: 11 AUG 2017 15:38:42

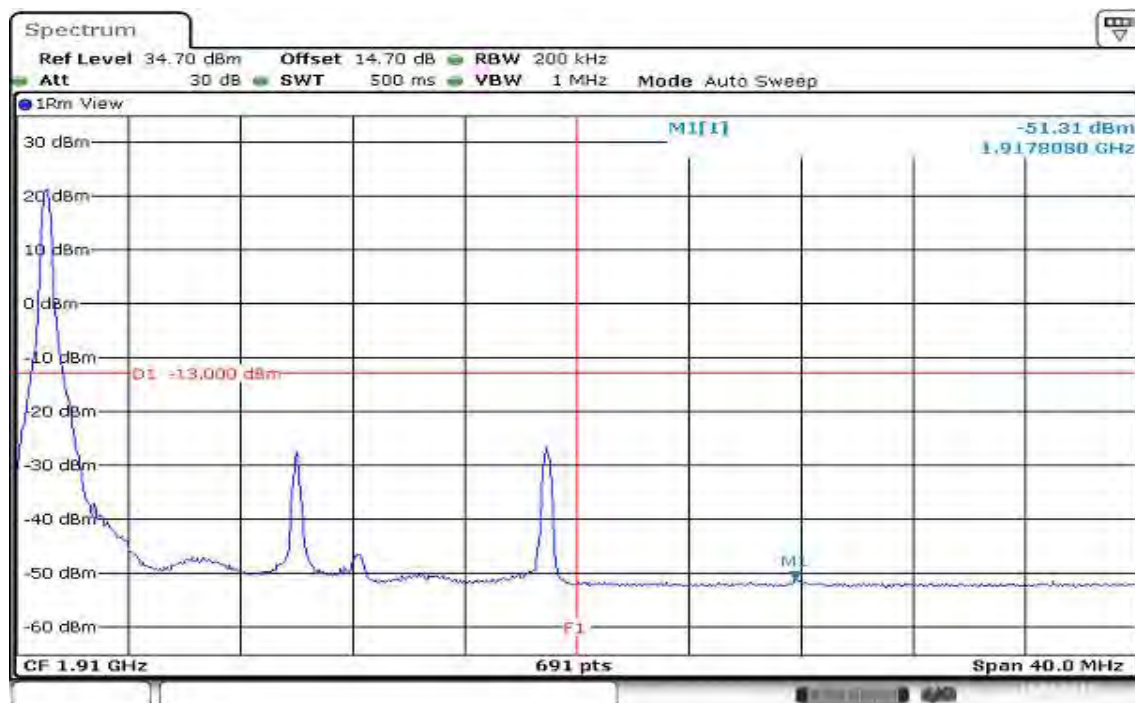
CHANNEL BANDWIDTH: 20MHz / QPSK / 1 RB ALLOCATED

LOWER BAND EDGE



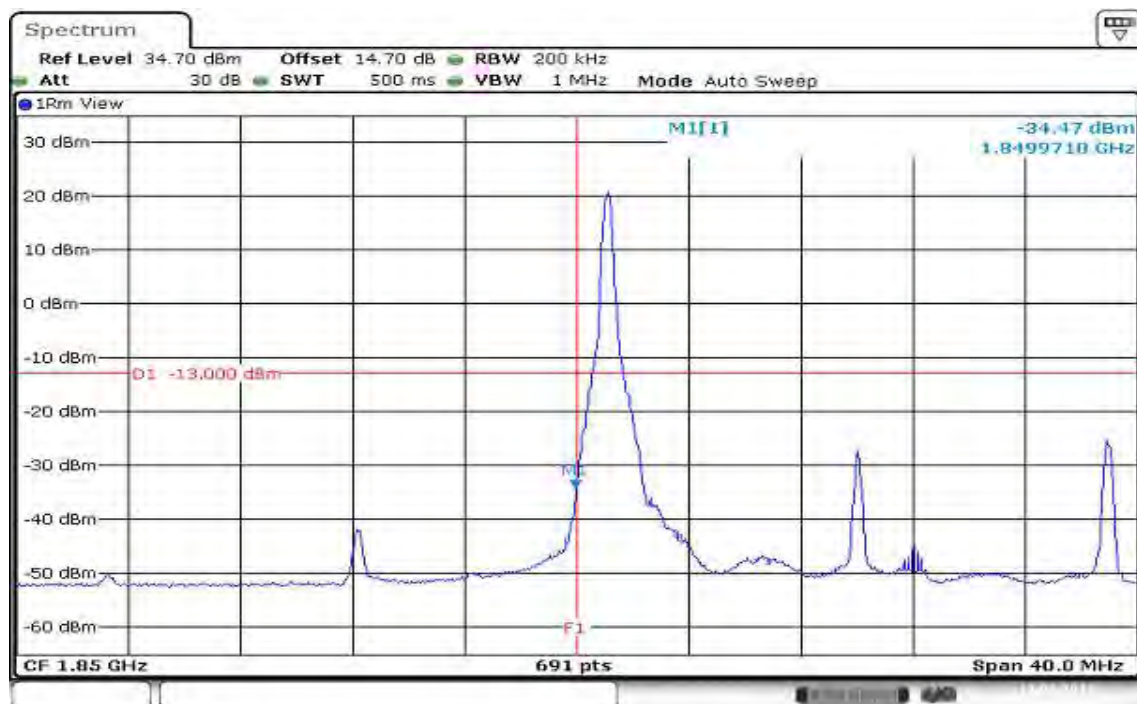
Date: 11 AUG 2017 15:42:59

HIGHER BAND EDGE



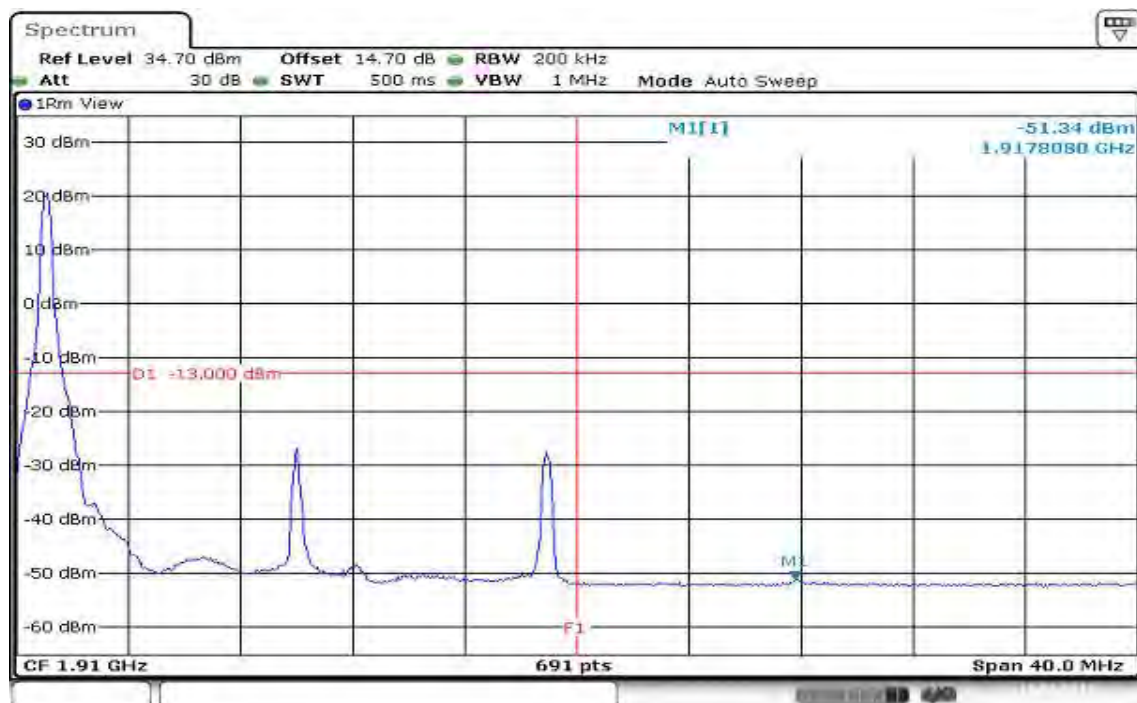
Date: 11 AUG 2017 16:09:12

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1 RB ALLOCATED LOWER BAND EDGE



Date: 11 AUG 2017 15:43:27

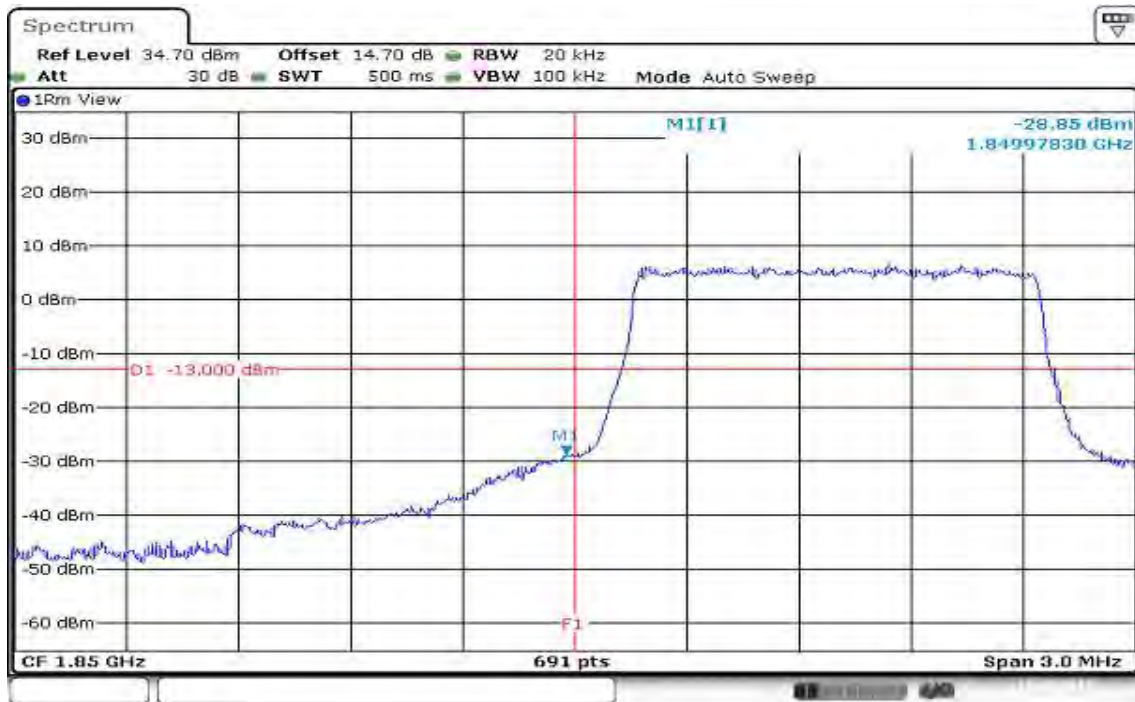
HIGHER BAND EDGE



Date: 11 AUG 2017 16:07:59

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100% RB ALLOCATED

LOWER BAND EDGE



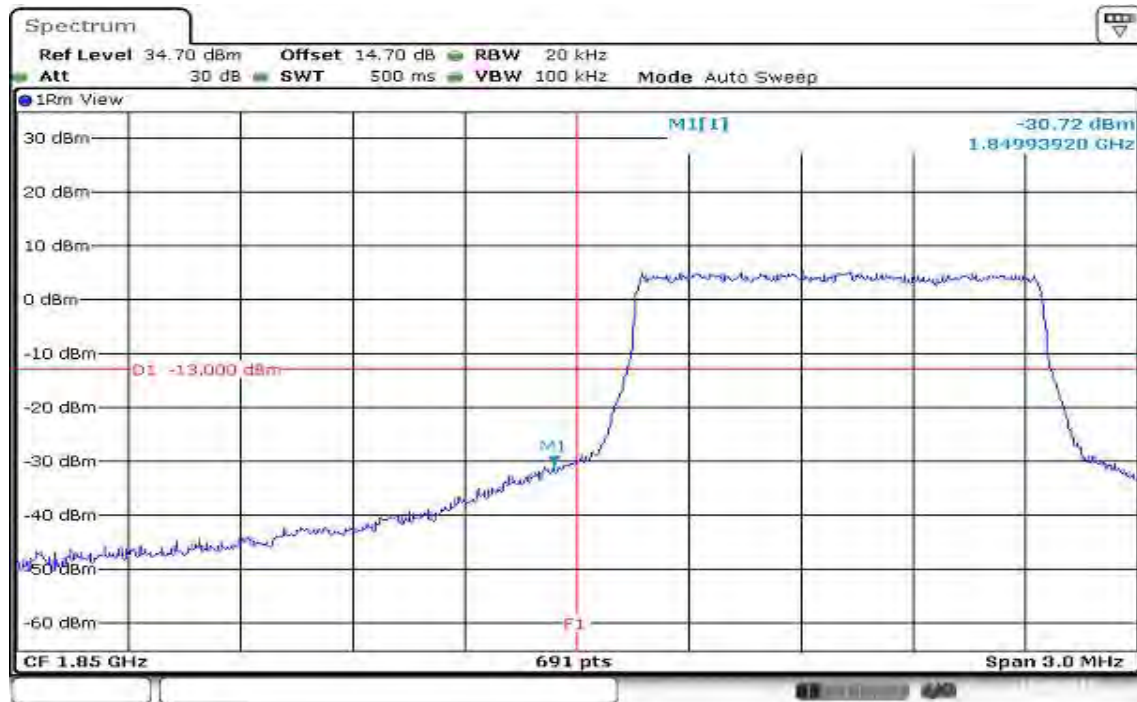
Date: 11 AUG 2017 15:20:04

HIGHER BAND EDGE



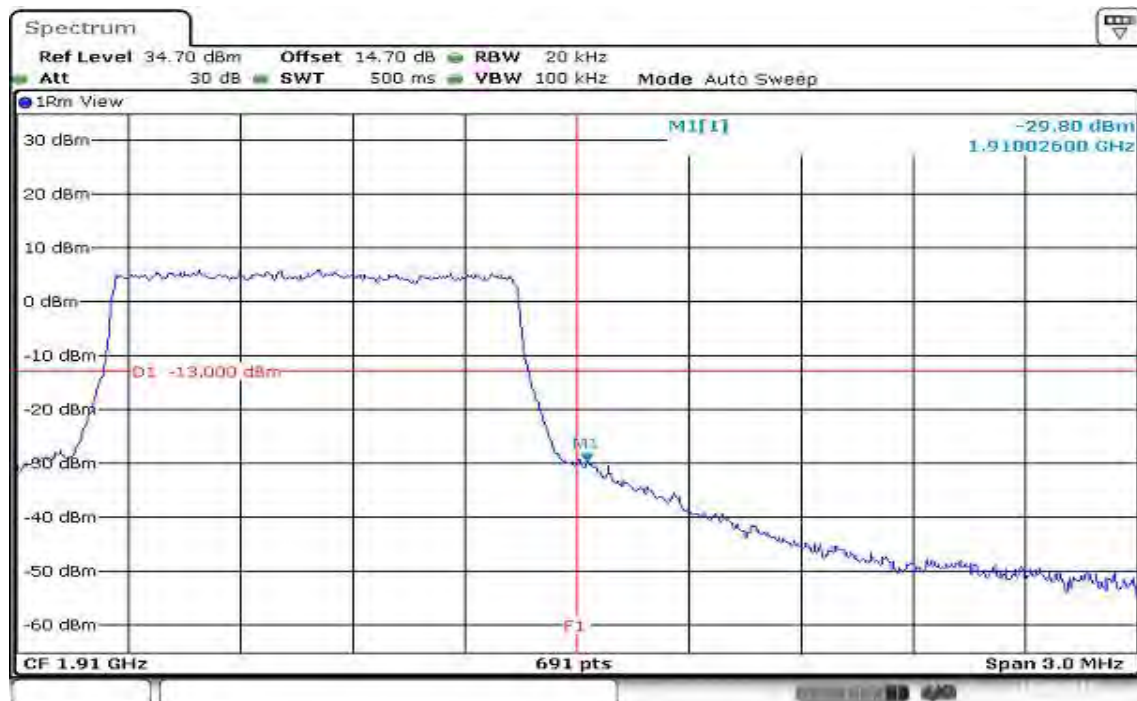
Date: 11 AUG 2017 15:47:50

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



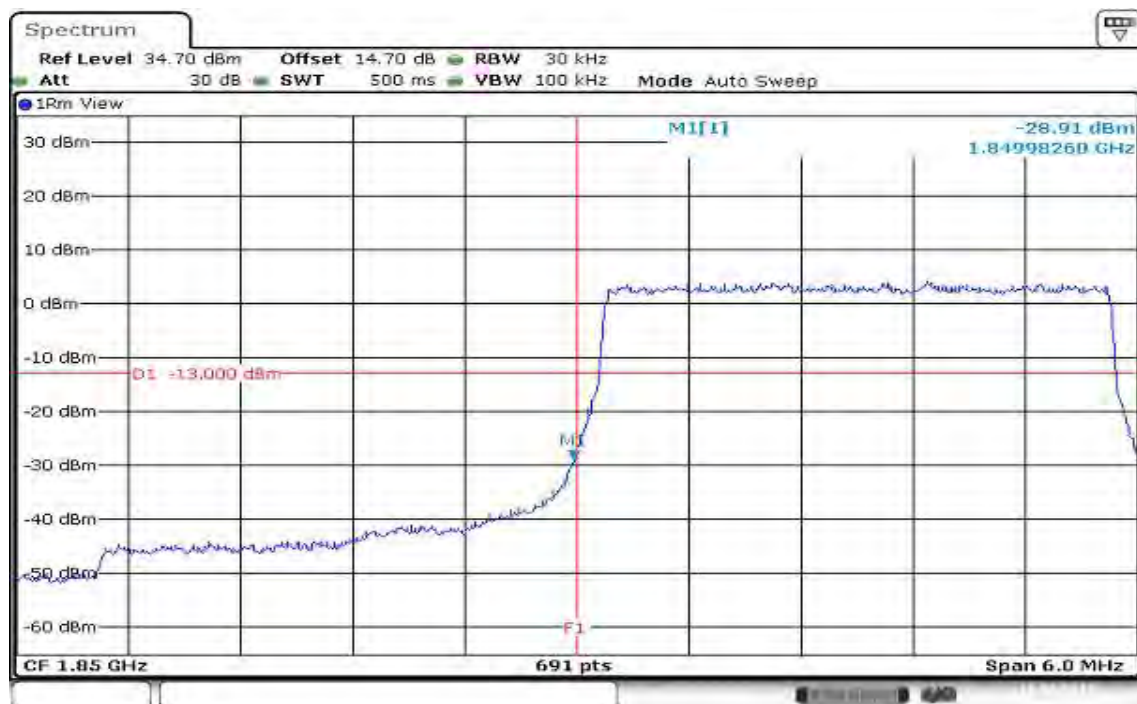
Date: 11 AUG 2017 15:49:11

HIGHER BAND EDGE



Date: 11 AUG 2017 15:48:52

CHANNEL BANDWIDTH: 3MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE



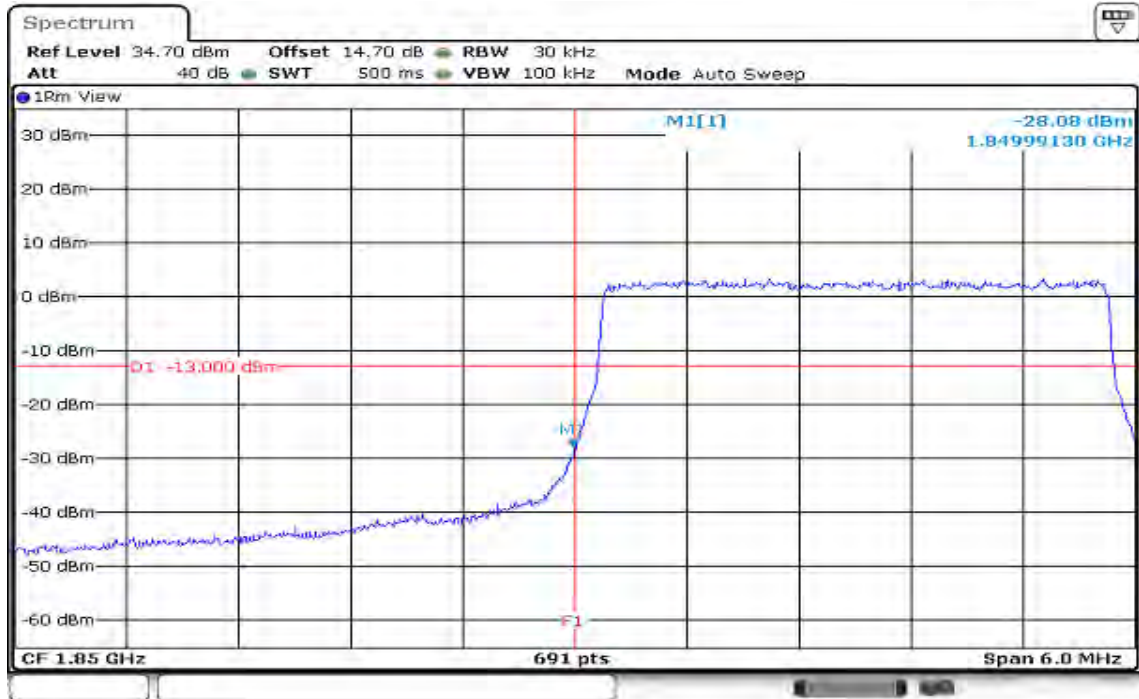
Date: 11 AUG 2017 15:23:01

HIGHER BAND EDGE



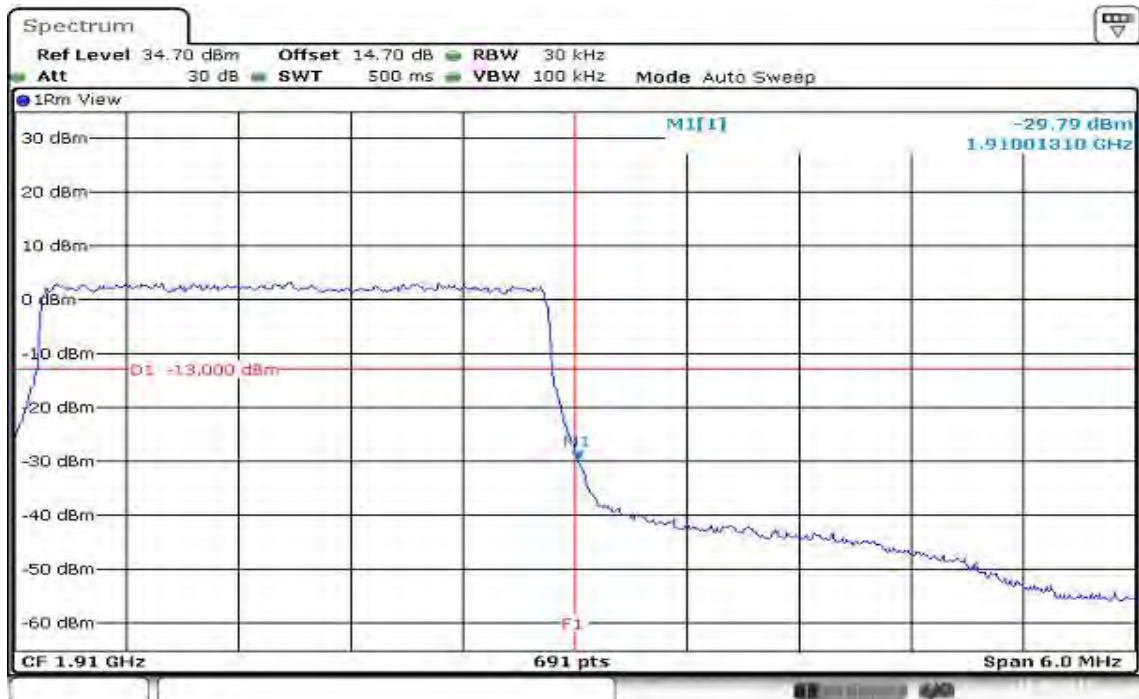
Date: 11 AUG 2017 15:52:39

CHANNEL BANDWIDTH: 3MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



Date: 14 AUG 2017 11:20:20

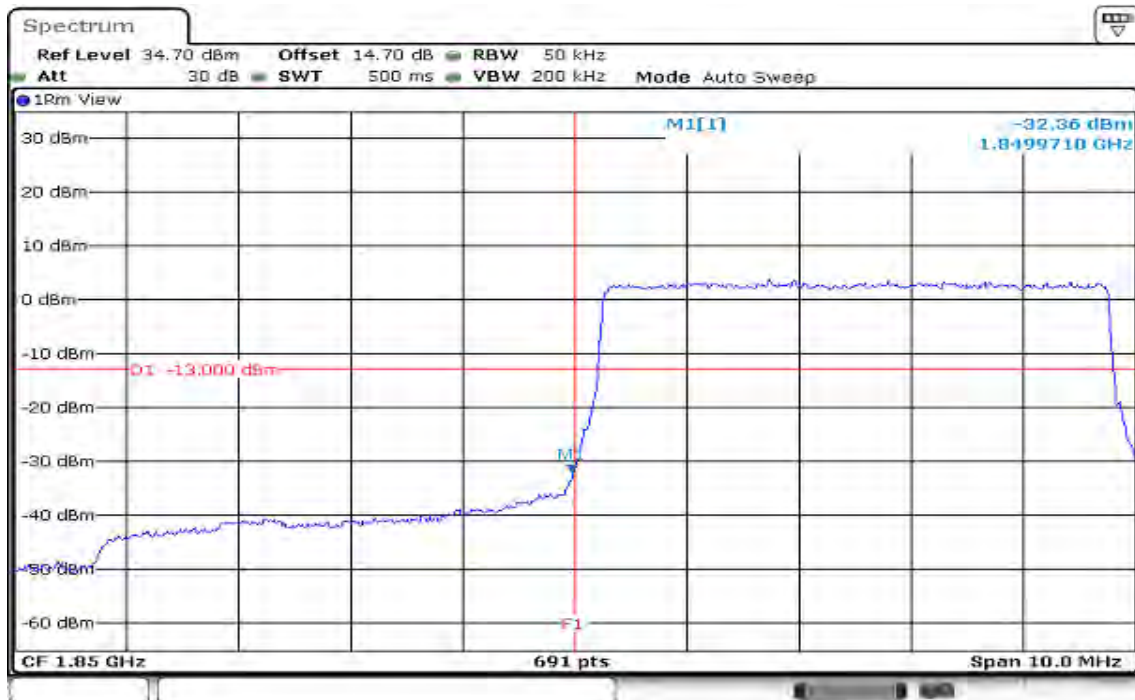
HIGHER BAND EDGE



Date: 11 AUG 2017 15:53:25

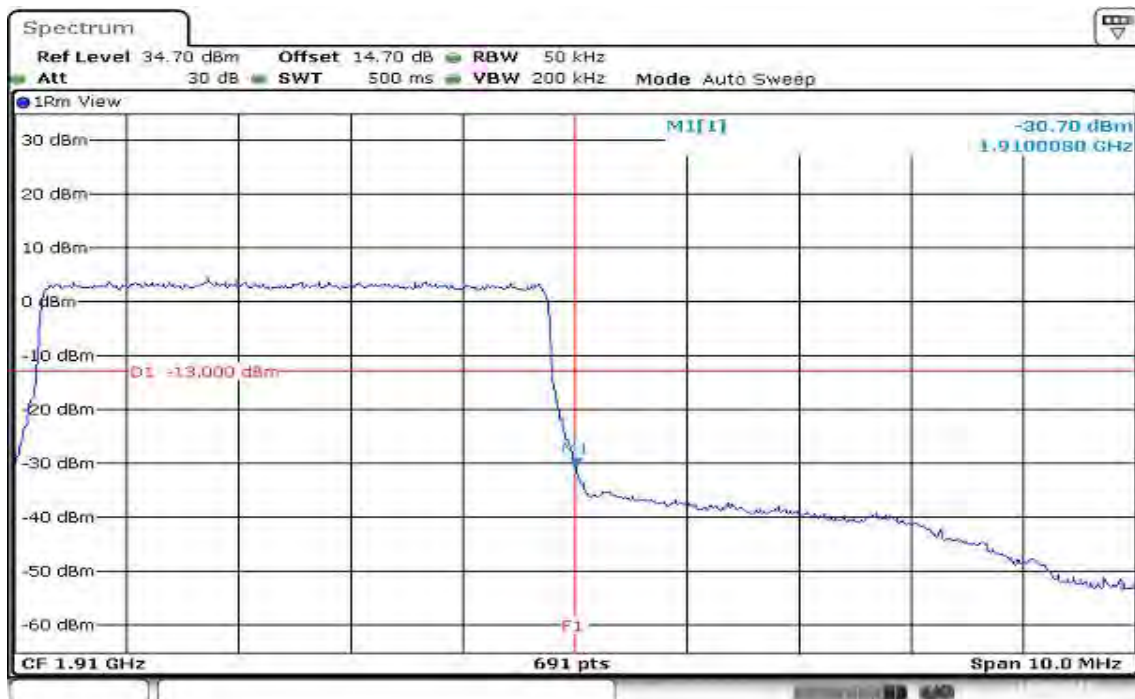
CHANNEL BANDWIDTH: 5MHz / QPSK / 100% RB ALLOCATED

LOWER BAND EDGE



Date: 11 AUG 2017 15:26:25

HIGHER BAND EDGE



Date: 11 AUG 2017 15:57:49

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



HIGHER BAND EDGE



CHANNEL BANDWIDTH: 10MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE



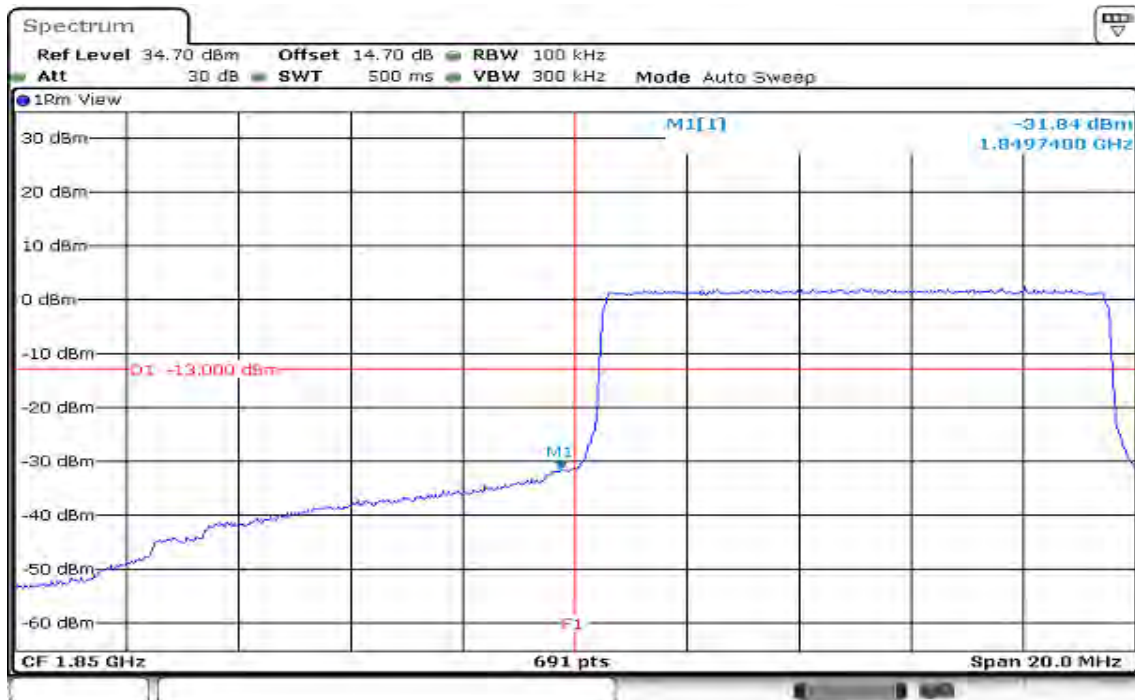
Date: 11 AUG 2017 15:24:41

HIGHER BAND EDGE



Date: 11 AUG 2017 15:59:54

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



Date: 11 AUG 2017 15:21:53

HIGHER BAND EDGE



Date: 11 AUG 2017 16:02:27