



FCC ID: M82-TREK530LTE
Report No.: T170908D07-A-RP9

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FCC 47 CFR PART 27 SUBPART C, L

TEST REPORT

For

Computer

Model No.: TREK-530

Trade Name: ADVANTECH

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.

Wugu Laboratory

**No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)**

<http://www.ccsrf.com>

Issued Date: May 16, 2018

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	May 16, 2018	Initial Issue	ALL	Allison Chen
01	August 21, 2018	1. Revised antenna type. 2. Revised description of KDB 971168 no. 3. Revised Cali. Date of power meter in section 5.2. 4. Revised test procedure in section in 8.2 and 8.8. 5. Revised test results for B13 and B17 to ERP.	P.5, 8, 11, 28, 31, 39, 162	Allison Chen
02	August 29, 2018	1. Revised test procedure in section 8.8.	P.162	Allison Chen



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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: TREK-530

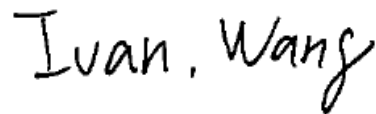
Date of Test: December 1, 2017 ~ April 19, 2018

APPLICABLE STANDARDS	
Standard	TEST RESULT
FCC Part 27, Subpart C, L, FCC Part 2	No non-compliance noted

The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by

Tested by



Sam Chuang
Manager
Compliance Certification Services Inc.

Ivan Wang
Assistant Engineer
Compliance Certification Services Inc.



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2. EUT DESCRIPTION

Product	Computer	
Model No.	ADVANTECH	
Model Discrepancy	TREK-530	
Trade Name	N/A	
Received Date	September 8, 2017	
Power Supply	Powered from host device: DC 12V	
Modulation Technology	LTE Band 13	QPSK, 16QAM
	LTE Band 17	QPSK, 16QAM
	LTE Band 4	QPSK, 16QAM
Frequency Range	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709MHz ~ 711MHz
	LTE Band 4 Channel Bandwidth: 1.4MHz	1710.7MHz ~1754.2MHz
	LTE Band 4 Channel Bandwidth: 3MHz	1711.5MHz ~ 1753.4MHz
	LTE Band 4 Channel Bandwidth: 5MHz	1712.5MHz ~1752.5MHz
	LTE Band 4 Channel Bandwidth: 10MHz	1715.0MHz ~1750.0MHz
	LTE Band 4 Channel Bandwidth: 15MHz	1717.5MHz ~ 1747.5MHz
	LTE Band 4 Channel Bandwidth: 20MHz	1720MHz ~1745MHz
Antenna Specification	Dipole Antenna LTE Band 4: 1.8dBi LTE Band 13: 1.0dBi LTE Band 17: 1.0dBi	

Transmit Power (ERP & EIRP Power)	LTE Band 17 Channel Bandwidth: 5MHz	QPSK: 11.77 dBm 16QAM: 12.53 dBm
	LTE Band 17 Channel Bandwidth: 10MHz	QPSK: 11.92 dBm 16QAM: 13.50 dBm
	LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 21.37 dBm 16QAM: 22.74 dBm
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 21.06 dBm 16QAM: 22.08 dBm
	LTE Band 4 Channel Bandwidth: 1.4MHz	QPSK: 26.90 dBm 16QAM: 26.61 dBm
	LTE Band 4 Channel Bandwidth: 3MHz	QPSK: 26.91 dBm 16QAM: 26.83 dBm
	LTE Band 4 Channel Bandwidth: 5MHz	QPSK: 27.06 dBm 16QAM: 27.32 dBm
	LTE Band 4 Channel Bandwidth: 10MHz	QPSK: 27.03 dBm 16QAM: 28.01 dBm
	LTE Band 4 Channel Bandwidth: 15MHz	QPSK: 27.61 dBm 16QAM: 26.92 dBm
	LTE Band 4 Channel Bandwidth: 20MHz	QPSK: 26.77 dBm 16QAM: 26.96 dBm

Note: 1. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.



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3. TEST SUMMARY

FCC Standard Section	Report Section	Test Item	Result
-	2	Antenna Requirement	Pass
2.1046	8.1	Output Power measurement	Pass
27.50(c), 27.50(d), 27.50(b)	8.2	ERP and EIRP Measurement	Pass
2.1055, 27.54	8.3	Frequency Stability v.s. temperature measurement	Pass
2.1049	8.4	Occupied Bandwidth Measurement	Pass
27.50(d)	8.5	Peak to Average Ratio	Pass
27.53(c), 27.53(g), 27.53(h)	8.6	Conducted Band Edge	Pass
27.53(c), 27.53(g), 27.53(h)	8.7	Conducted Spurious Emission	Pass
27.53(c), 27.53(g), 27.53(h)	8.8	Spurious Radiation Measurement	Pass

4. TEST METHODOLOGY

4.1 DESCRIPTION OF TEST TYPE

The EUT had been tested under operating condition.

TIA-603-E and KDB 971168 D01 Power Meas License Digital Systems

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

LTE Band 4: 1710MHz ~ 1755MHz

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)	19957	1710.7	19965	1711.5	19975	1712.5
Middle channel (M)	20175	1732.5	20175	1732.5	20175	1732.5
High channel (H)	20393	1754.3	20384	1753.4	20375	1752.5
Channel Bandwidth	10MHz		15MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	20000	1715.0	20025	1717.5	20000	1715.0
Middle channel (M)	20175	1732.5	20175	1732.5	20175	1732.5
High channel (H)	20350	1750.0	20325	1747.5	20350	1750.0

LTE Band 13: 777 MHz ~ 787 MHz

Three channels had been tested for each channel bandwidth.

Channel	5MHz		10MHz	
	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Low CH	23205	779.5	-	-
Middle CH	23230	782.0	23230	782.0
High CH	23255	784.5	-	-

LTE Band 17: 704 MHz ~ 716 MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	5MHz		10MHz	
	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Low channel (L)	23755	706.5	23780	709.0
Middle channel (M)	23790	710.0	23790	710.0
High channel (H)	23825	713.5	23800	711.0



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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
Band4	1.4M	1 RB ALLOCATED AT THE UPPER EDGE	1.4M	1 RB ALLOCATED AT THE LOWER EDGE
	5M	1 RB ALLOCATED AT THE UPPER EDGE	5M	1 RB ALLOCATED AT THE CENTERED
	10M	1 RB ALLOCATED AT THE UPPER EDGE	10M	1 RB ALLOCATED AT THE UPPER EDGE
	20M	1 RB ALLOCATED AT THE UPPER EDGE	20M	1 RB ALLOCATED AT THE LOWER EDGE
Band13	5M	1 RB ALLOCATED AT THE UPPER EDGE	1.4M	1 RB ALLOCATED AT THE LOWER EDGE
	10M	1 RB ALLOCATED AT THE UPPER EDGE	5M	1 RB ALLOCATED AT THE UPPER EDGE
Band17	5M	1 RB ALLOCATED AT THE UPPER EDGE	1.4M	1 RB ALLOCATED AT THE LOWER EDGE
	10M	1 RB ALLOCATED AT THE UPPER EDGE	5M	1 RB ALLOCATED AT THE UPPER EDGE

4.2 The worst mode of measurement

Band 13 & Band 17

Radiated Emission Measurement	
Test Condition	Band edge, Emission for Unwanted and Fundamental
DC Voltage	12V
Test Mode	Mode 1: EUT power by Power Supply.
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 (X-Plane) were recorded in this report.

Band 4

Radiated Emission Measurement	
Test Condition	Band edge, Emission for Unwanted and Fundamental
DC Voltage	12V
Test Mode	Mode 1: EUT power by Power Supply.
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.

5. INSTRUMENT CALIBRATION

5.1 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.

5.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Wugu fully Chamber					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Signal Analyzer	Agilent	E4407B	MY44212686	04/07/2017	04/06/2018
Pre-Amplifier	EMEC	EM01M62G	60570	08/01/2017	07/31/2018
Bilog Antenna	Sunol Sciences	JB1	A052609	03/17/2017	03/16/2018
Horn Antenna	SCHWARZBECK	BBHA 9120D	779	03/08/2017	03/07/2018
Pre-Amplifier	Anritsu	MH648A	M89145	06/27/2017	06/26/2018
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Filter	N/A	800-1G	N/A	07/20/2017	07/19/2018
Filter	N/A	1800-2000	N/A	07/20/2017	07/19/2018
WWAN signal cable	HUBER SUHNER	SUCOFLEX 104PEA	33960	07/31/2017	07/30/2018
Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	116875	04/25/2017	04/24/2018
Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	116875	04/20/2018	04/19/2019

Conducted Emissions Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	116875	04/25/2017	04/24/2018
Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	116875	04/20/2018	04/19/2019
Spectrum Analyzer	R&S	FSV 40	101073	10/02/2017	10/01/2018
Spectrum Analyzer	Keysight	N9010B	MY55460167	06/14/2017	06/13/2018
Thermostatic/Hrgrosatic Chamber	TAICHY	MHG-150LF	930619	10/11/2017	10/10/2018
Directional Coupler	Agilent	87301D	MY44350252	07/25/2017	07/24/2018
SUCOFLEX Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	07/31/2017	07/30/2018
Divider	Solvang Technology	2-18GHz 4Way	STI08-0015	07/26/2017	07/25/2018



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5.3 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 $k=2$.

6. FACILITIES AND ACCREDITATIONS

6.1 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

6.2 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."



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7. SETUP OF EQUIPMENT UNDER TEST

7.1 SETUP CONFIGURATION OF EUT

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

7.2 SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	Data Cable
1.	DC Power Source	GWINSTEK	SPS-3610	N/A	N/A	DC Cable 1.5m shielding
2.	NB	ASUS	M5200AE	N/A	PD9WM3B2100	RS232 to USB Cable 1.5m

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.



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8. TEST PROCEDURE AND RESULT

8.1 OUTPUT POWER MEASUREMENT

TEST PROCEDURES

CONDUCTED POWER MEASUREMENT:

1. The transmitter output power was connected to the call box.
2. Set EUT at maximum output power via call box.
3. Set Call box at lowest, middle and highest channels for each band and modulation.

TEST RESULTS**LTE Band 4**

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
4	1.4M	19957	1710.7	QPSK	1	0	0	23.30	0.2138
					1	2	0	23.41	0.2193
					1	5	0	23.11	0.2046
					3	0	1	22.47	0.1766
					3	1	1	22.50	0.1778
					3	2	1	22.21	0.1663
					6	0	1	22.39	0.1734
				16QAM	1	0	1	22.41	0.1742
					1	2	1	22.47	0.1766
					1	5	1	22.16	0.1644
					3	0	2	21.50	0.1413
					3	1	2	21.50	0.1413
					3	2	2	21.21	0.1321
					6	0	2	21.14	0.1300
		20175	1732.5	QPSK	1	0	0	23.41	0.2193
					1	2	0	23.35	0.2163
					1	5	0	22.80	0.1905
					3	0	1	22.54	0.1795
					3	1	1	22.42	0.1746
					3	2	1	21.86	0.1535
					6	0	1	22.53	0.1791
				16QAM	1	0	1	22.51	0.1782
					1	2	1	22.42	0.1746
					1	5	1	21.97	0.1574
					3	0	2	21.56	0.1432
					3	1	2	21.44	0.1393
					3	2	2	20.87	0.1222
					6	0	2	20.83	0.1211
		20392	1754.2	QPSK	1	0	0	23.10	0.2042
					1	2	0	23.20	0.2089
					1	5	0	22.95	0.1972
					3	0	1	22.23	0.1671
					3	1	1	22.30	0.1698
					3	2	1	22.04	0.1600
					6	0	1	22.24	0.1675
				16QAM	1	0	1	22.16	0.1644
					1	2	1	22.27	0.1687
					1	5	1	22.10	0.1622
					3	0	2	21.24	0.1330
					3	1	2	21.30	0.1349
					3	2	2	21.06	0.1276
					6	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)
4	3M	19665	1711.5	QPSK	1	0	0	23.31	0.2143
					1	7	0	23.42	0.2198
					1	14	0	23.12	0.2051
					8	0	1	22.48	0.1770
					8	4	1	22.51	0.1782
					8	7	1	22.22	0.1667
					15	0	1	22.40	0.1738
				16QAM	1	0	1	22.42	0.1746
					1	7	1	22.48	0.1770
					1	14	1	22.17	0.1648
					8	0	2	21.51	0.1416
					8	4	2	21.51	0.1416
					8	7	2	21.22	0.1324
					15	0	2	21.15	0.1303
		20175	1732.5	QPSK	1	0	0	23.42	0.2198
					1	7	0	23.36	0.2168
					1	14	0	22.81	0.1910
					8	0	1	22.55	0.1799
					8	4	1	22.43	0.1750
					8	7	1	21.87	0.1538
					15	0	1	22.54	0.1795
				16QAM	1	0	1	22.52	0.1786
					1	7	1	22.43	0.1750
					1	14	1	21.98	0.1578
					8	0	2	21.57	0.1435
					8	4	2	21.45	0.1396
					8	7	2	20.88	0.1225
					15	0	2	20.84	0.1213
		20384	1753.4	QPSK	1	0	0	23.11	0.2046
					1	7	0	23.21	0.2094
					1	14	0	22.96	0.1977
					8	0	1	22.24	0.1675
					8	4	1	22.31	0.1702
					8	7	1	22.05	0.1603
					15	0	1	22.25	0.1679
				16QAM	1	0	1	22.17	0.1648
					1	7	1	22.28	0.1690
					1	14	1	22.11	0.1626
					8	0	2	21.25	0.1334
					8	4	2	21.31	0.1352
					8	7	2	21.07	0.1279
					15	0	2	21.11	0.1291

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
4	5M	19975	1712.5	QPSK	1	0	0	23.33	0.2153
					1	12	0	23.44	0.2208
					1	24	0	23.14	0.2061
					12	0	1	22.50	0.1778
					12	6	1	22.53	0.1791
					12	11	1	22.24	0.1675
					25	0	1	22.42	0.1746
				16QAM	1	0	1	22.44	0.1754
					1	12	1	22.50	0.1778
					1	24	1	22.19	0.1656
					12	0	2	21.53	0.1422
					12	6	2	21.53	0.1422
					12	11	2	21.24	0.1330
					25	0	2	21.17	0.1309
		20175	1732.5	QPSK	1	0	0	23.43	0.2203
					1	12	0	23.37	0.2173
					1	24	0	22.82	0.1914
					12	0	1	22.56	0.1803
					12	6	1	22.44	0.1754
					12	11	1	21.88	0.1542
					25	0	1	22.55	0.1799
				16QAM	1	0	1	22.53	0.1791
					1	12	1	22.44	0.1754
					1	24	1	21.99	0.1581
					12	0	2	21.58	0.1439
					12	6	2	21.46	0.1400
					12	11	2	20.89	0.1227
					25	0	2	20.85	0.1216
		20375	1752.5	QPSK	1	0	0	23.12	0.2051
					1	12	0	23.22	0.2099
					1	24	0	22.97	0.1982
					12	0	1	22.25	0.1679
					12	6	1	22.32	0.1706
					12	11	1	22.06	0.1607
					25	0	1	22.26	0.1683
				16QAM	1	0	1	22.18	0.1652
					1	12	1	22.29	0.1694
					1	24	1	22.12	0.1629
					12	0	2	21.26	0.1337
					12	6	2	21.32	0.1355
					12	11	2	21.08	0.1282
					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)
4	10M	20000	1715.0	QPSK	1	0	0	23.34	0.2158
					1	24	0	23.45	0.2213
					1	49	0	23.15	0.2065
					25	0	1	22.51	0.1782
					25	12	1	22.54	0.1795
					25	24	1	22.25	0.1679
					50	0	1	22.43	0.1750
				16QAM	1	0	1	22.45	0.1758
					1	24	1	22.51	0.1782
					1	49	1	22.20	0.1660
					25	0	2	21.54	0.1426
					25	12	2	21.54	0.1426
					25	24	2	21.25	0.1334
					50	0	2	21.18	0.1312
		20175	1732.5	QPSK	1	0	0	23.45	0.2213
					1	24	0	23.39	0.2183
					1	49	0	22.84	0.1923
					25	0	1	22.58	0.1811
					25	12	1	22.46	0.1762
					25	24	1	21.90	0.1549
					50	0	1	22.57	0.1807
				16QAM	1	0	1	22.55	0.1799
					1	24	1	22.46	0.1762
					1	49	1	22.01	0.1589
					25	0	2	21.60	0.1445
					25	12	2	21.48	0.1406
					25	24	2	20.91	0.1233
					50	0	2	20.87	0.1222
		20350	1750.0	QPSK	1	0	0	23.15	0.2065
					1	24	0	23.25	0.2113
					1	49	0	23.00	0.1995
					25	0	1	22.28	0.1690
					25	12	1	22.35	0.1718
					25	24	1	22.09	0.1618
					50	0	1	22.29	0.1694
				16QAM	1	0	1	22.21	0.1663
					1	24	1	22.32	0.1706
					1	49	1	22.15	0.1641
					25	0	2	21.29	0.1346
					25	12	2	21.35	0.1365
					25	24	2	21.11	0.1291
					50	0	2	21.15	0.1303

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
4	15M	20025	1717.5	QPSK	1	0	0	23.37	0.2173
					1	37	0	23.48	0.2228
					1	74	0	23.18	0.2080
					36	0	1	22.54	0.1795
					36	18	1	22.57	0.1807
					36	35	1	22.28	0.1690
					75	0	1	22.46	0.1762
				16QAM	1	0	1	22.48	0.1770
					1	37	1	22.54	0.1795
					1	74	1	22.23	0.1671
					36	0	2	21.57	0.1435
					36	18	2	21.57	0.1435
					36	35	2	21.28	0.1343
					75	0	2	21.21	0.1321
		20175	1732.5	QPSK	1	0	0	23.47	0.2223
					1	37	0	23.41	0.2193
					1	74	0	22.86	0.1932
					36	0	1	22.60	0.1820
					36	18	1	22.48	0.1770
					36	35	1	21.92	0.1556
					75	0	1	22.59	0.1816
				16QAM	1	0	1	22.57	0.1807
					1	37	1	22.48	0.1770
					1	74	1	22.03	0.1596
					36	0	2	21.62	0.1452
					36	18	2	21.50	0.1413
					36	35	2	20.93	0.1239
					75	0	2	20.89	0.1227
		20325	1747.5	QPSK	1	0	0	23.17	0.2075
					1	37	0	23.27	0.2123
					1	74	0	23.02	0.2004
					36	0	1	22.30	0.1698
					36	18	1	22.37	0.1726
					36	35	1	22.11	0.1626
					75	0	1	22.31	0.1702
				16QAM	1	0	1	22.23	0.1671
					1	37	1	22.34	0.1714
					1	74	1	22.17	0.1648
					36	0	2	21.31	0.1352
					36	18	2	21.37	0.1371
					36	35	2	21.13	0.1297
					75	0	2	21.17	0.1309

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
4	20M	20050	1720.0	QPSK	1	0	0	23.45	0.2213
					1	49	0	23.56	0.2270
					1	99	0	23.26	0.2118
					50	0	1	22.62	0.1828
					50	24	1	22.65	0.1841
					50	49	1	22.36	0.1722
					100	0	1	22.54	0.1795
				16QAM	1	0	1	22.56	0.1803
					1	49	1	22.62	0.1828
					1	99	1	22.31	0.1702
					50	0	2	21.65	0.1462
					50	24	2	21.65	0.1462
					50	49	2	21.36	0.1368
					100	0	2	21.29	0.1346
		20175	1732.5	QPSK	1	0	0	23.53	0.2254
					1	49	0	23.47	0.2223
					1	99	0	22.92	0.1959
					50	0	1	22.66	0.1845
					50	24	1	22.54	0.1795
					50	49	1	21.98	0.1578
					100	0	1	22.65	0.1841
				16QAM	1	0	1	22.63	0.1832
					1	49	1	22.54	0.1795
					1	99	1	22.09	0.1618
					50	0	2	21.68	0.1472
					50	24	2	21.56	0.1432
					50	49	2	20.99	0.1256
					100	0	2	20.95	0.1245
		20300	1745.0	QPSK	1	0	0	23.22	0.2099
					1	49	0	23.32	0.2148
					1	99	0	23.07	0.2028
					50	0	1	22.35	0.1718
					50	24	1	22.42	0.1746
					50	49	1	22.16	0.1644
					100	0	1	22.36	0.1722
				16QAM	1	0	1	22.28	0.1690
					1	49	1	22.39	0.1734
					1	99	1	22.22	0.1667
					50	0	2	21.36	0.1368
					50	24	2	21.42	0.1387
					50	49	2	21.18	0.1312
					100	0	2	21.22	0.1324

LTE Band 13

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
13	5	23205	779.5	QPSK	1	0	0	23.29	0.2133
					1	12	0	23.15	0.2065
					1	24	0	23.05	0.2018
					12	0	1	22.5	0.1778
					12	6	1	22.32	0.1706
					12	11	1	22.18	0.1652
					25	0	1	22.50	0.1778
				16QAM	1	0	1	22.45	0.1758
					1	12	1	22.30	0.1698
					1	24	1	22.16	0.1644
					12	0	2	21.48	0.1406
					12	6	2	21.28	0.1343
					12	11	2	21.12	0.1294
					25	0	2	21.11	0.1291
		23230	782.0	QPSK	1	0	0	23.27	0.2123
					1	12	0	23.22	0.2099
					1	24	0	23.12	0.2051
					12	0	1	22.47	0.1766
					12	6	1	22.40	0.1738
					12	11	1	22.20	0.1660
					25	0	1	22.35	0.1718
				16QAM	1	0	1	22.39	0.1734
					1	12	1	22.30	0.1698
					1	24	1	22.20	0.1660
					12	0	2	21.39	0.1377
					12	6	2	21.35	0.1365
					12	11	2	21.17	0.1309
					25	0	2	21.20	0.1318
		23255	784.5	QPSK	1	0	0	23.14	0.2061
					1	12	0	23.19	0.2084
					1	24	0	22.56	0.1803
					12	0	1	22.32	0.1706
					12	6	1	22.31	0.1702
					12	11	1	21.61	0.1449
					25	0	1	22.30	0.1698
				16QAM	1	0	1	22.28	0.1690
					1	12	1	22.38	0.1730
					1	24	1	21.69	0.1476
					12	0	2	21.28	0.1343
					12	6	2	21.31	0.1352
					12	11	2	20.64	0.1159
					25	0	2	20.57	0.1140



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Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
13	10	23230	782.0	QPSK	1	0	0	23.33	0.2153
					1	24	0	23.28	0.2128
					1	49	0	23.18	0.2080
					25	0	1	22.53	0.1791
					25	12	1	22.46	0.1762
					25	24	1	22.26	0.1683
					50	0	1	22.41	0.1742
				16QAM	1	0	1	22.45	0.1758
					1	24	1	22.36	0.1722
					1	49	1	22.26	0.1683
					25	0	2	21.45	0.1396
					25	12	2	21.41	0.1384
					25	24	2	21.23	0.1327
					50	0	2	21.26	0.1337

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LTE Band 17

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
17	5M	23755	706.5	QPSK	1	0	0	23.33	0.2153
					1	12	0	23.15	0.2065
					1	24	0	23.05	0.2018
					12	0	1	22.51	0.1782
					12	6	1	22.33	0.1710
					12	11	1	22.13	0.1633
					25	0	1	22.49	0.1774
				16QAM	1	0	1	22.42	0.1746
					1	12	1	22.27	0.1687
					1	24	1	22.13	0.1633
					12	0	2	21.45	0.1396
					12	6	2	21.28	0.1343
					12	11	2	21.13	0.1297
					25	0	2	21.11	0.1291
		23790	710.0	QPSK	1	0	0	23.3	0.2138
					1	12	0	23.19	0.2084
					1	24	0	23.09	0.2037
					12	0	1	22.46	0.1762
					12	6	1	22.39	0.1734
					12	11	1	22.25	0.1679
					25	0	1	22.39	0.1734
				16QAM	1	0	1	22.4	0.1738
					1	12	1	22.27	0.1687
					1	24	1	22.17	0.1648
					12	0	2	21.4	0.1380
					12	6	2	21.32	0.1355
					12	11	2	21.18	0.1312
					25	0	2	21.19	0.1315
		23825	713.5	QPSK	1	0	0	23.19	0.2084
					1	12	0	23.3	0.2138
					1	24	0	22.55	0.1799
					12	0	1	22.38	0.1730
					12	6	1	22.38	0.1730
					12	11	1	21.67	0.1469
					25	0	1	22.34	0.1714
				16QAM	1	0	1	22.25	0.1679
					1	12	1	22.48	0.1770
					1	24	1	21.67	0.1469
					12	0	2	21.26	0.1337
					12	6	2	21.38	0.1374
					12	11	2	20.61	0.1151
					25	0	2	20.64	0.1159

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	Output Power (W)
17	10M	23780	709.0	QPSK	1	0	0	23.36	0.2168
					1	24	0	23.18	0.2080
					1	49	0	23.08	0.2032
					25	0	1	22.54	0.1795
					25	12	1	22.36	0.1722
					25	24	1	22.16	0.1644
					50	0	1	22.52	0.1786
				16QAM	1	0	1	22.45	0.1758
					1	24	1	22.30	0.1698
					1	49	1	22.16	0.1644
					25	0	2	21.48	0.1406
					25	12	2	21.31	0.1352
					25	24	2	21.16	0.1306
					50	0	2	21.14	0.1300
		23790	710.0	QPSK	1	0	0	23.36	0.2168
					1	24	0	23.25	0.2113
					1	49	0	23.15	0.2065
					25	0	1	22.52	0.1786
					25	12	1	22.45	0.1758
					25	24	1	22.31	0.1702
					50	0	1	22.45	0.1758
				16QAM	1	0	1	22.46	0.1762
					1	24	1	22.33	0.1710
					1	49	1	22.23	0.1671
					25	0	2	21.46	0.1400
					25	12	2	21.38	0.1374
					25	24	2	21.24	0.1330
					50	0	2	21.25	0.1334
		23800	711.0	QPSK	1	0	0	23.26	0.2118
					1	24	0	23.37	0.2173
					1	49	0	22.62	0.1828
					25	0	1	22.45	0.1758
					25	12	1	22.45	0.1758
					25	24	1	21.74	0.1493
					50	0	1	22.41	0.1742
				16QAM	1	0	1	22.32	0.1706
					1	24	1	22.55	0.1799
					1	49	1	21.74	0.1493
					25	0	2	21.33	0.1358
					25	12	2	21.45	0.1396
					25	24	2	20.68	0.1169
					50	0	2	20.71	0.1178

8.2 ERP & EIRP MEASUREMENT

LIMIT

According to FCC §2.1046

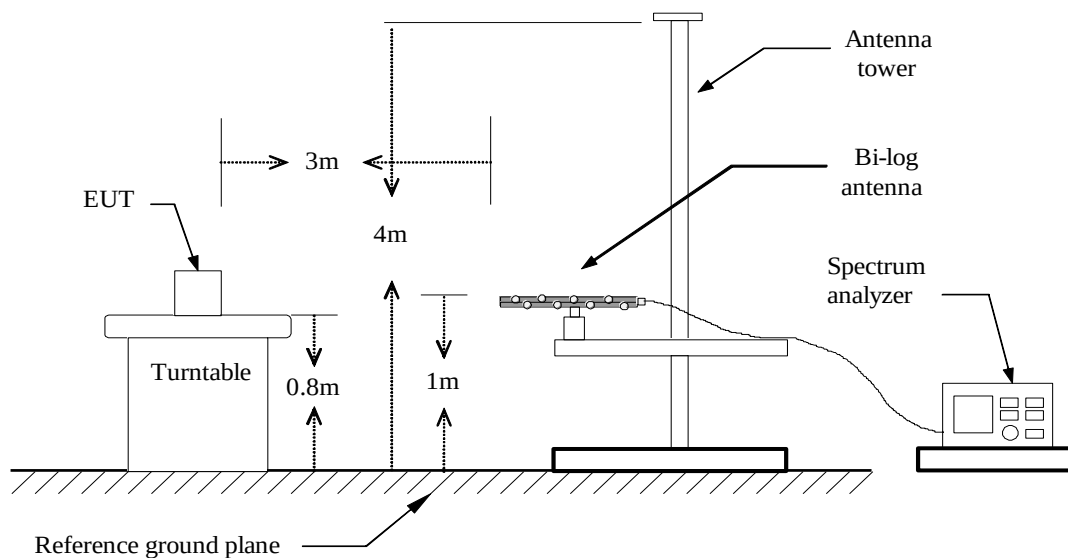
FCC 27.50 (c) (10): The portable stations (hand-held devices) in the 600MHz uplink band and the 698-746MHz band, and fixed and mobile stations in the 600MHz uplink band are limited to 3 Watts ERP.

FCC 27.50 (d) (4): Fixed, mobile, and portable (handheld) stations operating in the 1710-1755MHz band and mobile and portable stations operating in the 1695-1710MHz and 1755-1780MHz bands are limited to 1 watt EIRP.

FCC 27.50 (b) (10): Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

Test Configuration

Below 1 GHz

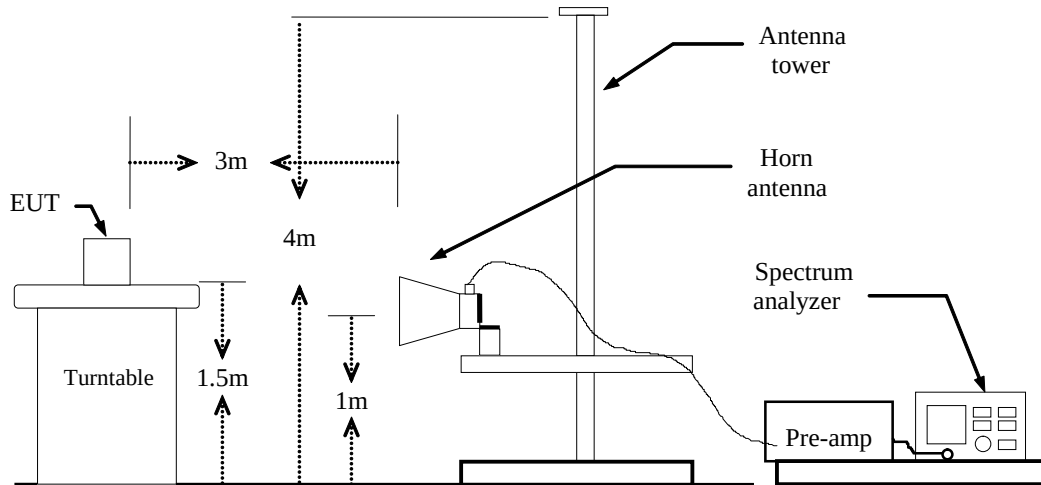


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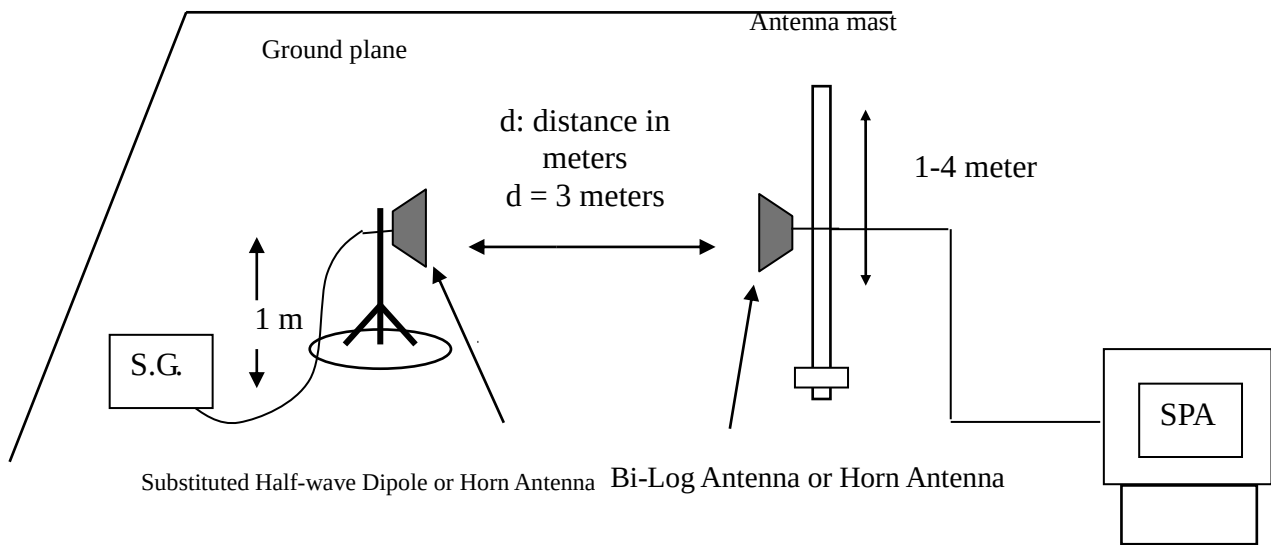
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Above 1 GHz



For Substituted Method Test Set-UP



TEST PROCEDURE

1. The EUT was placed on a non-conductive rotating platform (0.8m for below 1G and 1.5m for above 1G) in a semi-chamber. The radiated emission at the fundamental frequency was measured at 3m and SA with RMS detector per photograph 5, KDB 971168 D01 Power Meas License Digital Systems.
2. During the measurement, the call box parameters were set to get the maximum output power of the EUT. The maximum emission was recorded from spectrum analyzer power level (LVL) from 360 degrees rotation of turntable and the test antenna raised and lowered over a range from 1m to 4m in both horizontally and vertically polarized orientations.
3. EIRP was measured method according to TIA-603-E. The EUT was replaced by the substitution antenna at same location, and then record the maximum Analyzer reading through raised and lowered the test antenna.

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

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

TEST RESULTS

No non-compliance noted.

LTE Band 4

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)
4	1.4	Lowest	QPSK	1	0	21.81	0.151	25.53	0.357
		Middle		1	0	20.48	0.111	26.50	0.446
		Highest		1	0	19.60	0.091	26.90	0.489
		175 MHz Lowest	16 QAM	1	0	22.00	0.158	26.61	0.458
		Middle		1	0	20.64	0.115	24.92	0.310
		Highest		1	0	20.55	0.113	25.00	0.316

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)
4	3	Lowest	QPSK	1	0	21.29	0.134	25.89	0.388
		Middle		1	0	20.62	0.115	26.32	0.428
		Highest		1	0	19.86	0.096	26.91	0.490
		175 MHz Lowest	16 QAM	1	0	21.89	0.154	26.83	0.481
		Middle		1	0	20.59	0.114	24.58	0.287
		Highest		1	0	20.52	0.112	24.34	0.271

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)
4	5	Lowest	QPSK	1	0	21.01	0.126	22.07	0.161
		Middle		1	0	20.33	0.107	26.12	0.409
		Highest		1	0	19.27	0.084	27.06	0.508
		175 MHz Lowest	16 QAM	1	0	22.31	0.170	27.32	0.539
		Middle		1	0	21.24	0.133	26.69	0.466
		Highest		1	0	20.92	0.123	27.12	0.512

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)
4	10	Lowest	QPSK	1	0	20.87	0.122	25.99	0.397
		Middle		1	0	20.00	0.100	26.29	0.425
		Highest		1	0	20.22	0.105	27.03	0.504
		175 MHz Lowest	16 QAM	1	0	18.97	0.78	23.00	0.199
		Middle		1	0	21.14	0.130	26.86	0.485
		Highest		1	0	21.31	0.135	28.01	0.632

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)
4	15	Lowest	QPSK	1	0	21.13	0.129	26.25	0.421
		Middle		1	0	20.05	0.101	26.13	0.410
		Highest		1	0	20.63	0.115	27.61	0.576
		175 MHz Lowest	16 QAM	1	0	22.45	0.175	26.92	0.492
		Middle		1	0	21.11	0.129	22.77	0.189
		Highest		1	0	21.43	0.139	25.00	0.316

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)
4	20	Lowest	QPSK	1	0	20.87	0.122	25.76	0.376
		Middle		1	0	20.11	0.102	26.07	0.404
		Highest		1	0	20.33	0.107	26.77	0.475
		175 MHz Lowest	16 QAM	1	0	22.38	0.173	22.81	0.191
		Middle		1	0	21.05	0.127	26.96	0.496
		Highest		1	0	21.16	0.130	26.90	0.489

LTE Band 13

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)
13	5	Lowest	QPSK	1	0	7.11	0.005	19.63	0.091
		Middle		1	0	6.46	0.004	19.07	0.080
		Highest		1	0	9.29	0.008	21.37	0.137
		175 MHz Lowest	16 QAM	1	0	9.59	0.009	22.03	0.159
		Middle		1	0	10.38	0.010	22.74	0.187
		Highest		1	0	14.91	0.031	20.44	0.110

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)
13	10	Middle	QPSK	1	0	8.07	0.006	21.06	0.127
		175 MHz Middle	16 QAM	1	0	8.85	0.007	22.08	0.161

LTE Band 17

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)
17	5	Lowest	QPSK	1	0	5.89	0.003	11.77	0.015
		Middle		1	0	7.52	0.005	11.56	0.014
		Highest		1	0	7.96	0.006	10.48	0.011
		175 MHz Lowest	16 QAM	1	0	6.98	0.005	12.53	0.017
		Middle		1	0	8.59	0.007	11.16	0.013
		Highest		1	0	9.32	0.008	11.74	0.014

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)
17	10	Lowest	QPSK	1	0	5.84	0.003	11.92	0.015
		Middle		1	0	6.50	0.004	10.59	0.011
		Highest		1	0	7.15	0.005	11.90	0.015
		175 MHz Lowest	16 QAM	1	0	7.17	0.005	13.50	0.022
		Middle		1	0	7.21	0.005	13.05	0.020
		Highest		1	0	7.89	0.006	13.14	0.020

8.3 FREQUENCY STABILITY MEASUREMENT

LIMIT

According to the FCC part 27.54 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation."

TEST PROCEDURE

Use Anritsu 8820 with frequency Error measurement capability.

Temp = -30 to +50°C

Voltage= 85% to 115% of the nominal value for AC powered equipment.

NOTE: The frequency error was recorded frequency error from the communication simulator.

TEST RESULTS

FREQUENCY STABILTY V.S. TEMPERATURE MEASUREMENT

LTE Band 4

Reference Frequency: LTE Band 4 Max Bandwidth QPSK 1732.5 MHz		
Limit: 1720MHz ~1745MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
12	50	0.05
12	40	0.05
12	30	0.01
12	20	0.02
12	10	0.06
12	0	0.02
12	-10	0.01
12	-20	0.00

Reference Frequency: LTE Band 4 Max Bandwidth 16QAM 1732.5 MHz		
Limit: 1720MHz ~1745MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
12	50	0.06
12	40	0.00
12	30	0.00
12	20	0.01
12	10	0.01
12	0	-0.02
12	-10	0.05
12	-20	0.06

Note: We selected worst case to performed test in middle channel, The results can be meet other channel.

LTE Band 13

Reference Frequency: LTE Band 13 Max Bandwidth QPSK 782 MHz		
Limit: 782MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
12	50	0.05
12	40	0.04
12	30	-0.01
12	20	0.01
12	10	0.02
12	0	0.03
12	-10	-0.01
12	-20	-0.05

Reference Frequency: LTE Band 13 Max Bandwidth 16QAM 782 MHz		
Limit: 782MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
12	50	0.02
12	40	0.04
12	30	0.03
12	20	0.05
12	10	-0.05
12	0	0.04
12	-10	-0.01
12	-20	-0.01

Note: We selected worst case to performed test in middle channel, The results can be meet other channel.

LTE Band 17

Reference Frequency: LTE Band 17 Max Bandwidth QPSK 710 MHz		
Limit: 709MHz ~ 711MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
12	50	0.02
12	40	-0.05
12	30	-0.01
12	20	-0.04
12	10	0.03
12	0	0.02
12	-10	0.05
12	-20	0.01

Reference Frequency: LTE Band 17 Max Bandwidth 16QAM 710 MHz		
Limit: 709MHz ~ 711MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
12	50	-0.01
12	40	0.01
12	30	0.02
12	20	-0.05
12	10	0.02
12	0	0.05
12	-10	0.02
12	-20	0.03

Note: We selected worst case to performed test in middle channel, The results can be meet other channel.



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FREQUENCY STABILTY V.S. VOLTAGE MEASUREMENT
LTE Band 4

Reference Frequency: LTE Band 4 Max Bandwidth QPSK, 1732.5MHz		
Limit: 1720MHz ~1745MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
10.2	20	0.01
12	20	0.02
13.8	20	0.03

Reference Frequency: LTE Band IV Max Bandwidth 16QAM, 1732.5MHz		
Limit: 1720MHz ~1745MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
10.2	20	0.03
12	20	0.01
13.8	20	0.01



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LTE Band 13

Reference Frequency: LTE Band 13 Max Bandwidth QPSK, 782MHz		
Limit: 782MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
10.2	20	-0.01
12	20	0.02
13.8	20	0.05

Reference Frequency: LTE Band 13 Max Bandwidth 16QAM, 782MHz		
Limit: 782MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
10.2	20	0.02
12	20	0.01
13.8	20	0.01



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LTE Band XVII

Reference Frequency: LTE Band XVII Max Bandwidth QPSK, 710MHz		
Limit: 709MHz ~ 711MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
10.2	20	0.03
12	20	-0.01
13.8	20	-0.03

Reference Frequency: LTE Band XVII Max Bandwidth 16QAM, 710MHz		
Limit: 709MHz ~ 711MHz		
Power Supply	Environment	Frequency Error
Vdc	Temperature (°C)	(Hz)
10.2	20	0.01
12	20	0.03
13.8	20	-0.01

8.4 OCCUPIED BANDWIDTH MEASUREMENT

LIMITS

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

TEST PROCEDURES

KDB 971168 D01 Power Meas License Digital Systems - Section 4.2

1. The occupied bandwidth was measured with the spectrum analyzer at the lowest, middle and highest channels in each band and different modulation. The 99% and -26dB bandwidth was measured and recorded.
2. RBW = 1-5% of the expected OBW
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max. hold



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TEST RESULTS

LTE Band 17

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
23790	710.00	4.4717

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
23790	710.00	4.4717

CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
23790	710.00	8.9435

CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
23790	710.00	8.9435



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LTE Band 13

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
23230	782.00	4.4717

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
23230	782.00	4.4717

CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
23230	782.00	8.9435

CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
23230	782.00	8.9146

LTE Band 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.5	1.0940

CHANNEL BANDWIDTH: 1.4MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.5	1.0984

CHANNEL BANDWIDTH: 3MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.5	2.6743

CHANNEL BANDWIDTH: 3MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.5	2.6917

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.50	4.4717

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.50	4.4573



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CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.50	8.9146

CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.50	8.9435

CHANNEL BANDWIDTH: 15MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.50	13.4587

CHANNEL BANDWIDTH: 15MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.50	13.4153

CHANNEL BANDWIDTH: 20MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.50	18.0028

CHANNEL BANDWIDTH: 20MHz / 16QAM

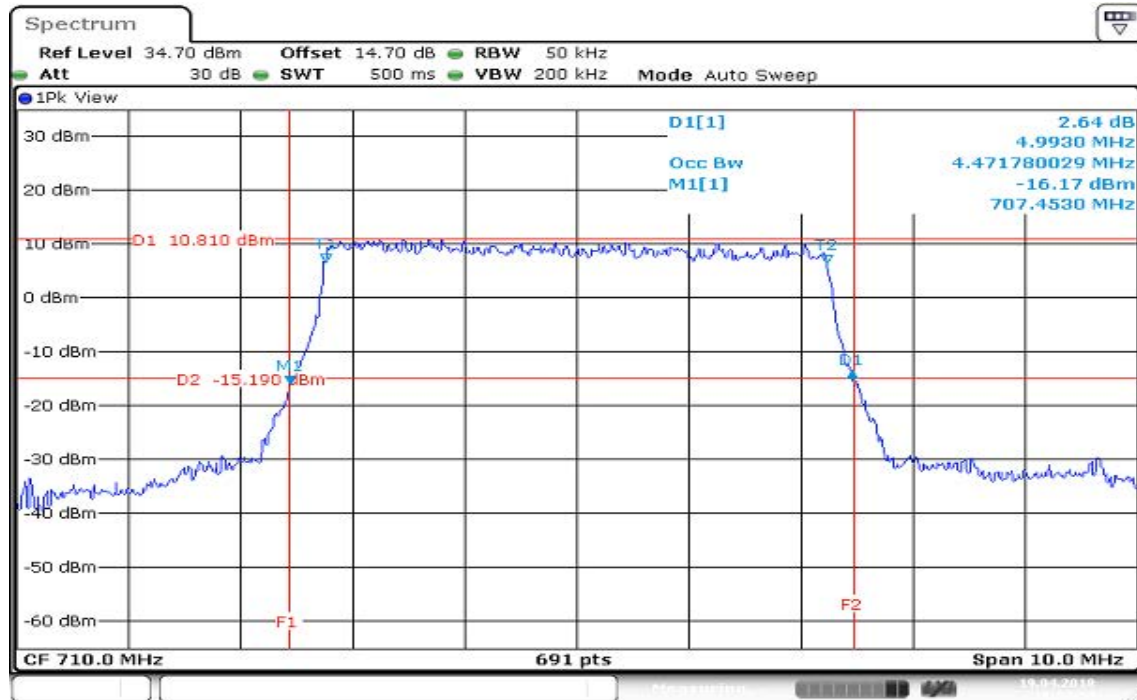
Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20175	1732.50	18.0607

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LTE Band 17

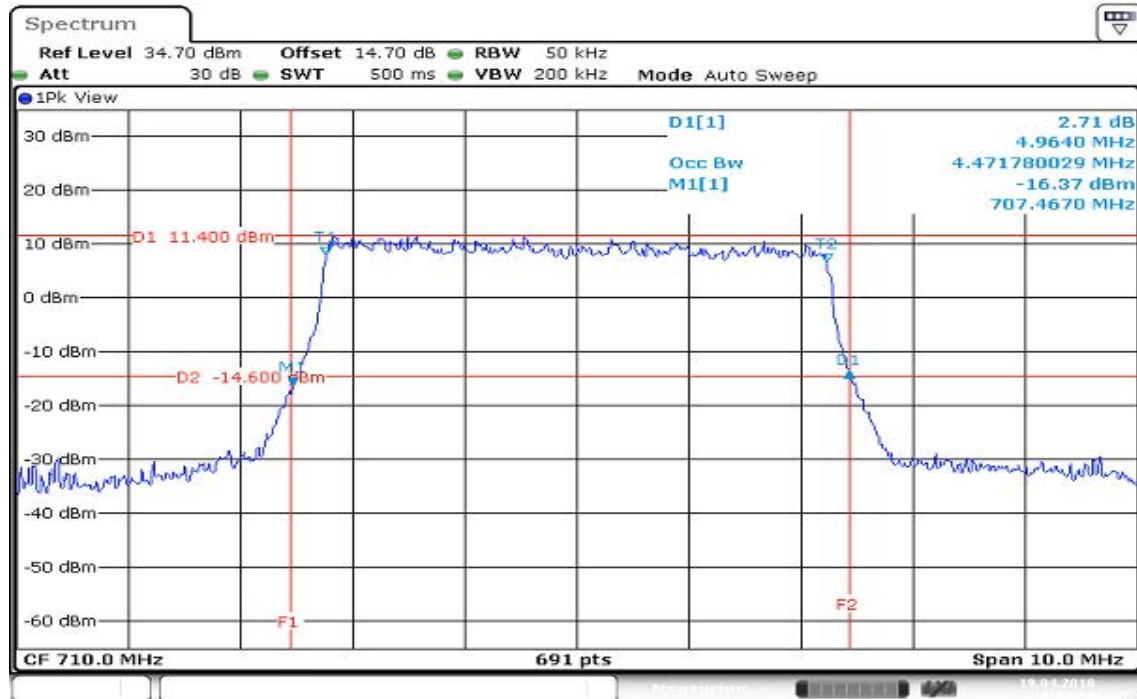
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Mid

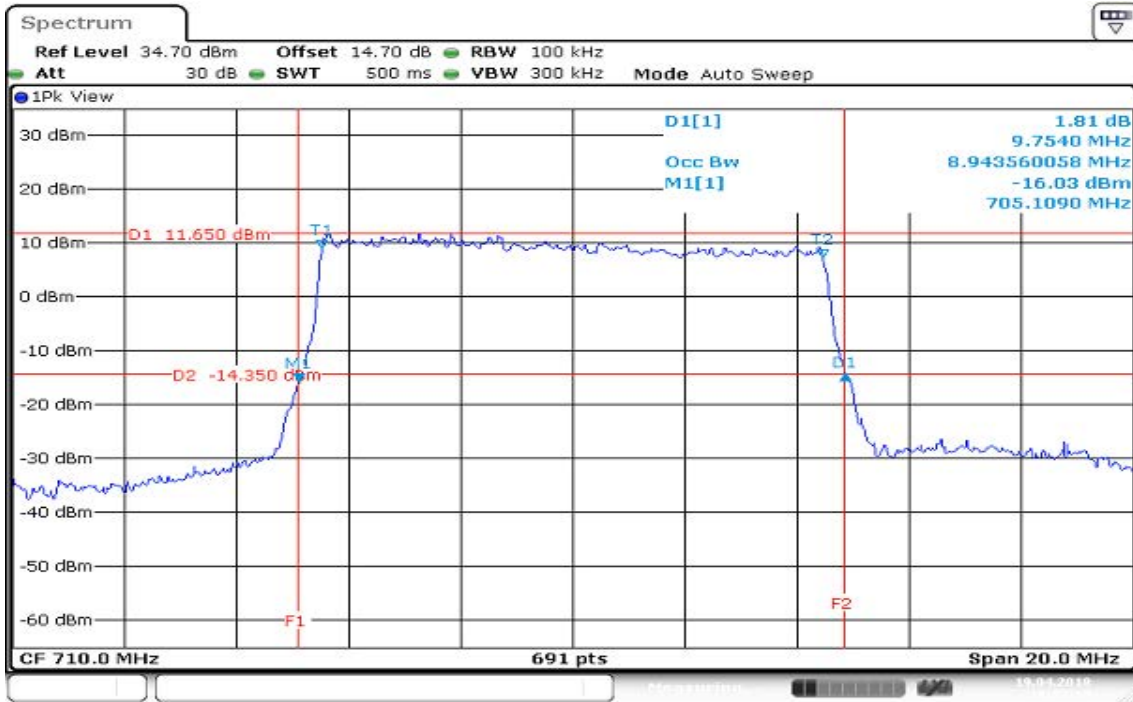


CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Mid

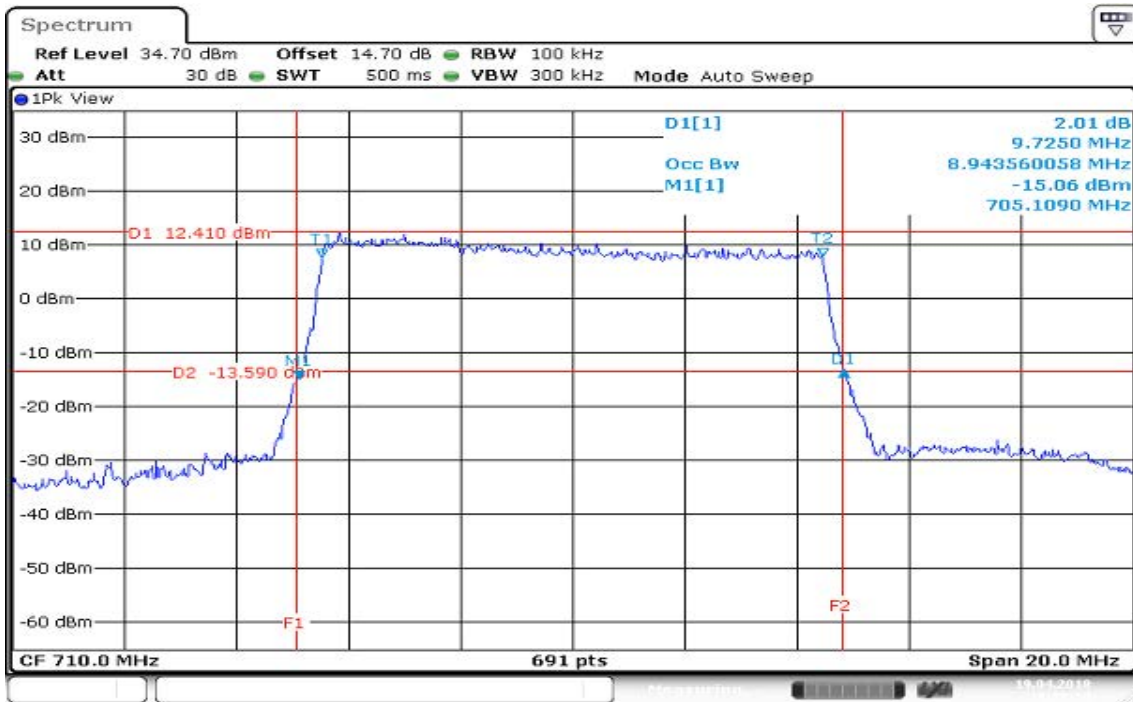


CHANNEL BANDWIDTH: 10MHz / QPSK CH Mid



Date: 19 APR 2018 18:27:13

CHANNEL BANDWIDTH: 10MHz / 16QAM CH Mid



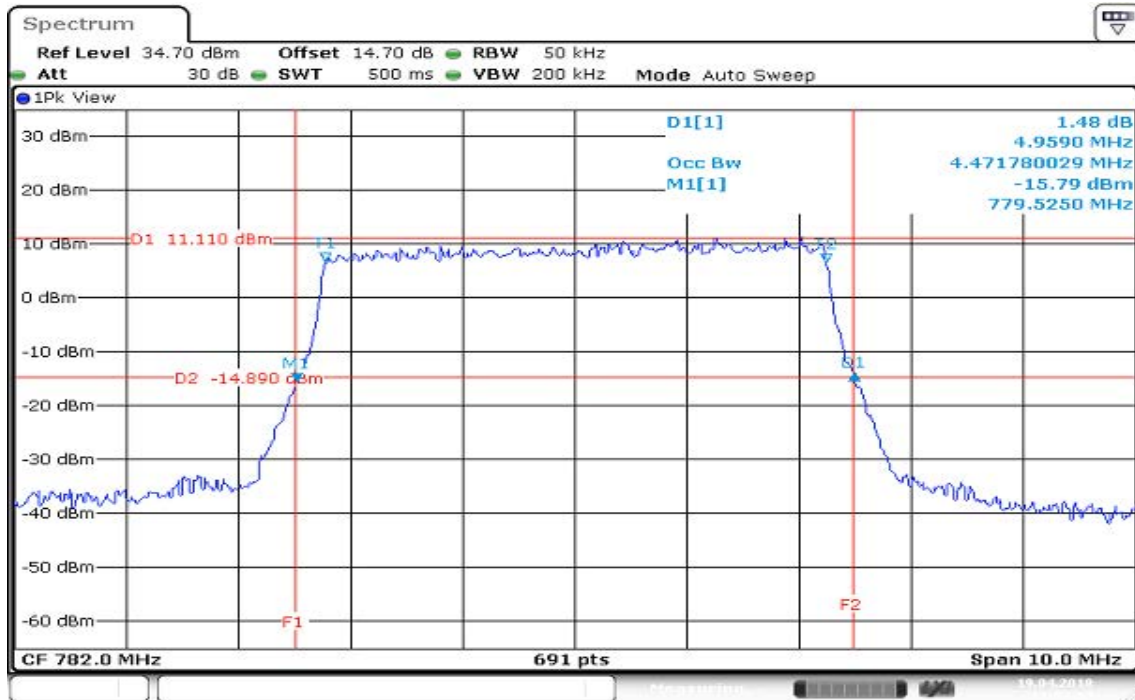
Date: 19 APR 2018 18:28:29

Report No.: T170908D07-A-RP9

LTE Band 13

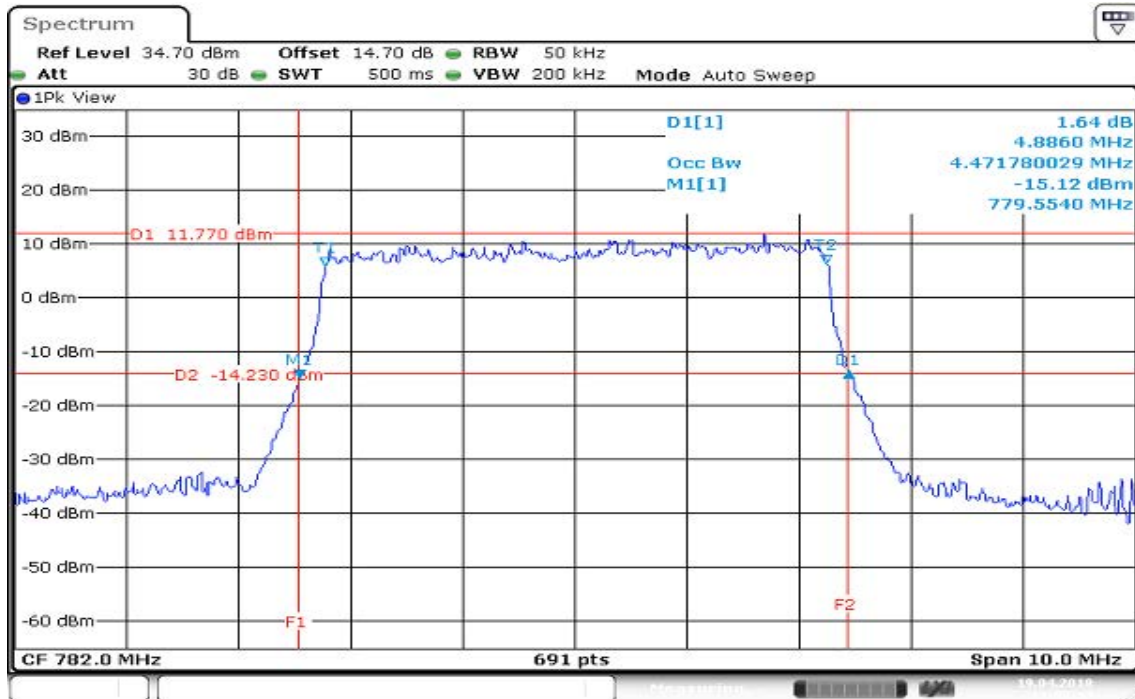
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Mid

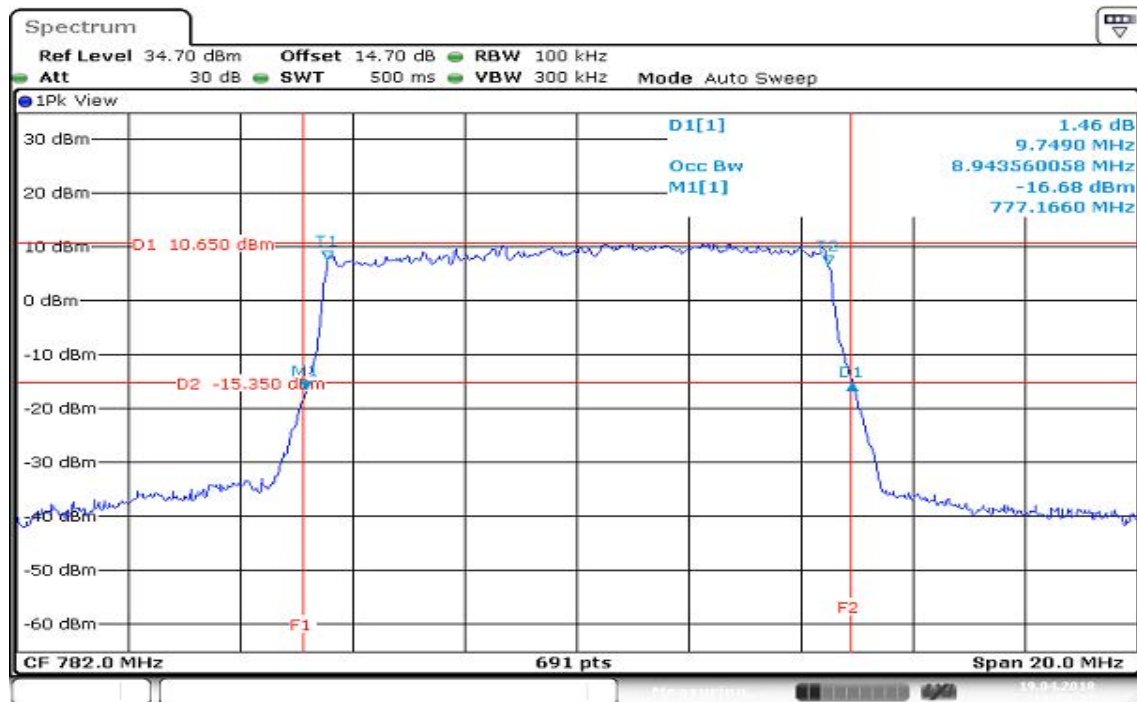


CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Mid

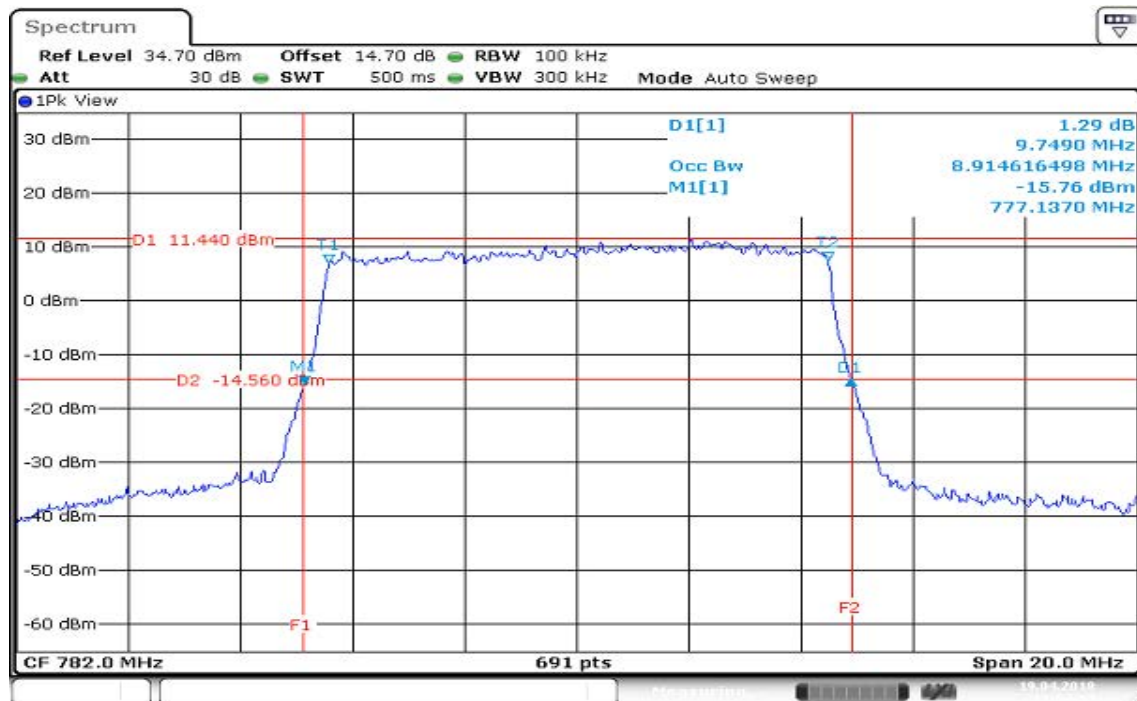


CHANNEL BANDWIDTH: 10MHz / QPSK CH Mid



Date: 19 APR 2018 17:53:21

CHANNEL BANDWIDTH: 10MHz / 16QAM CH Mid



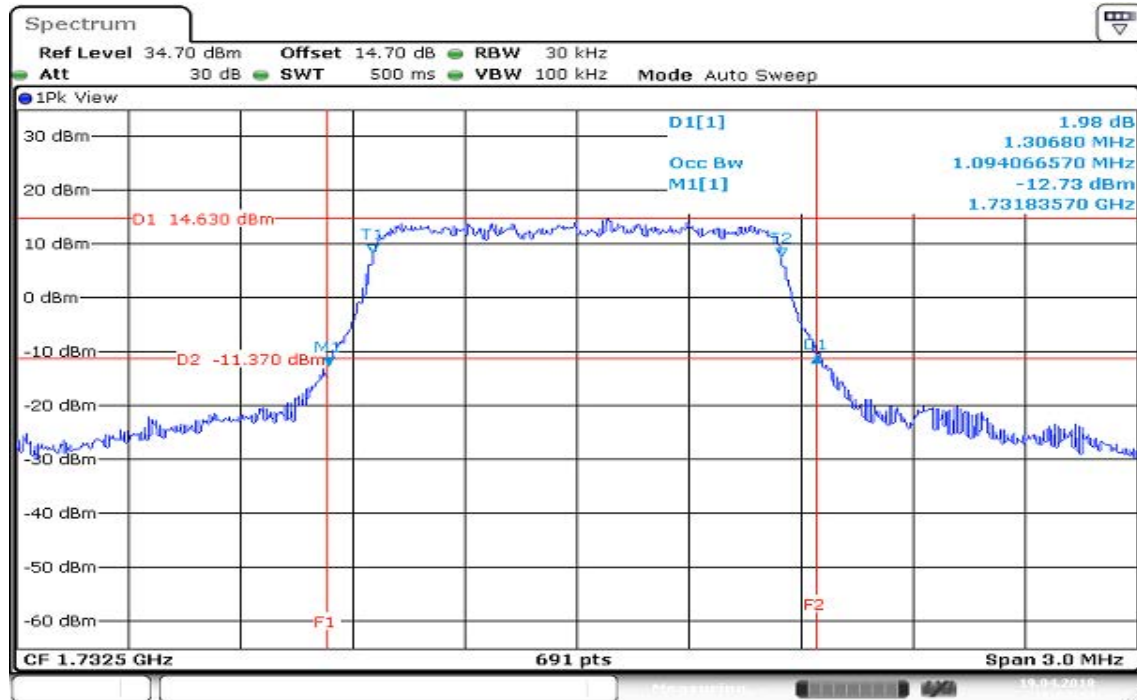
Date: 19 APR 2018 17:54:52

Report No.: T170908D07-A-RP9

LTE Band 4

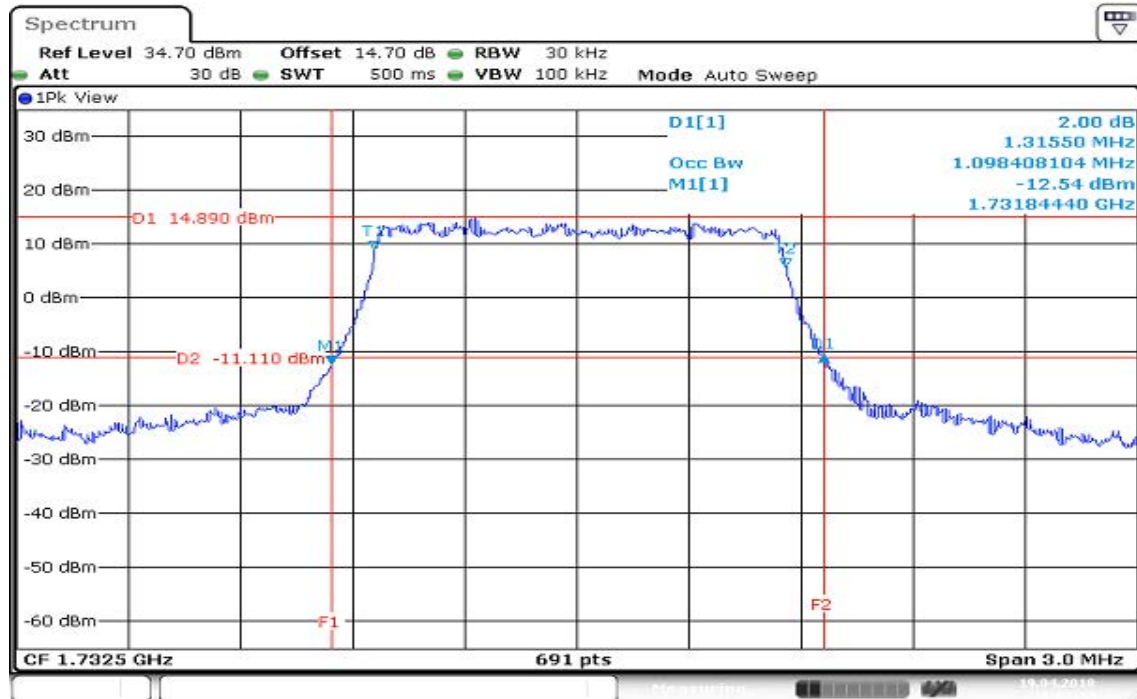
CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH Mid

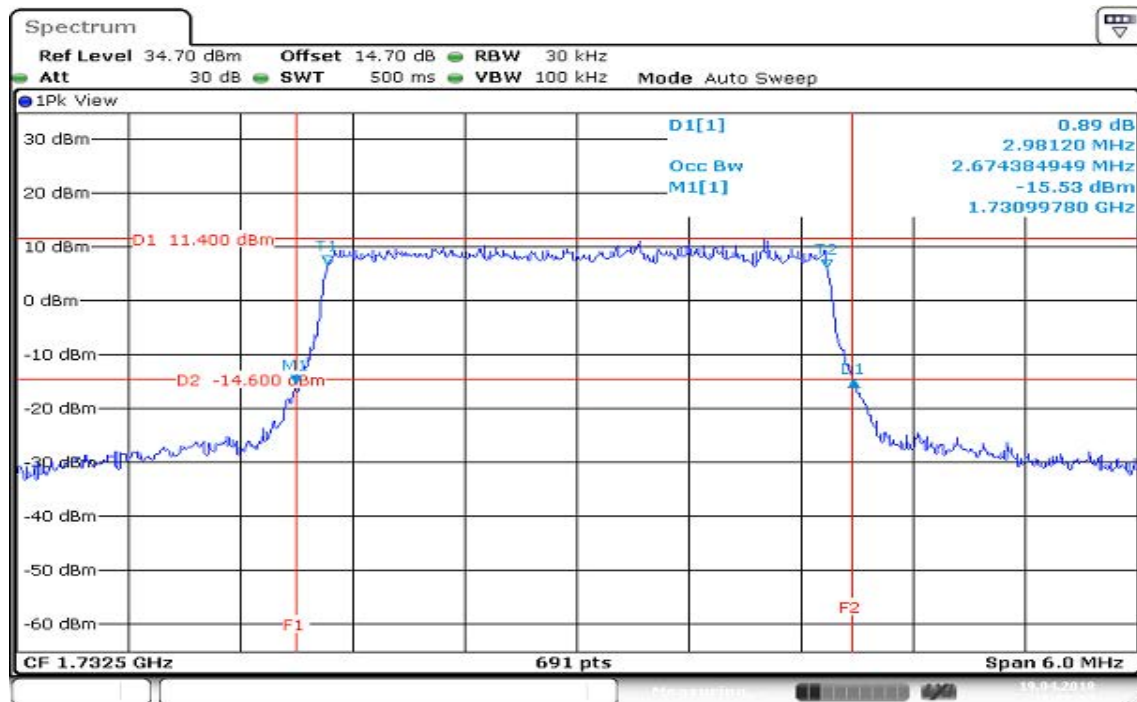


CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Mid

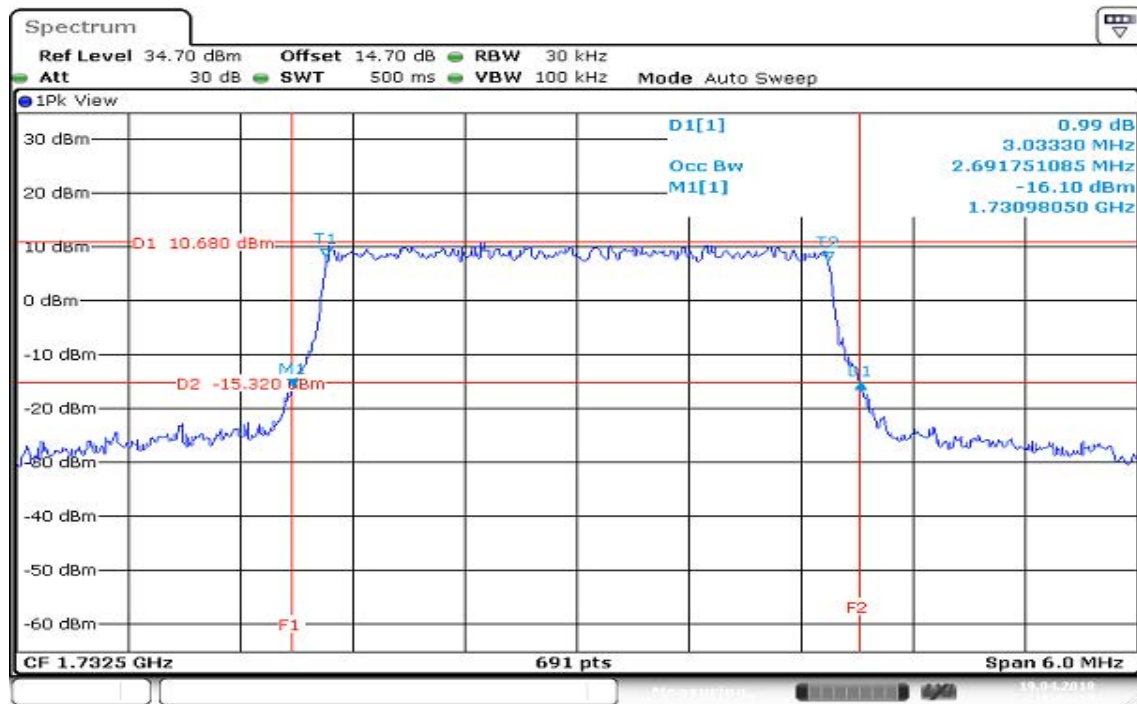


CHANNEL BANDWIDTH: 3MHz / QPSK CH Mid



Date: 19 APR 2018 16:01:04

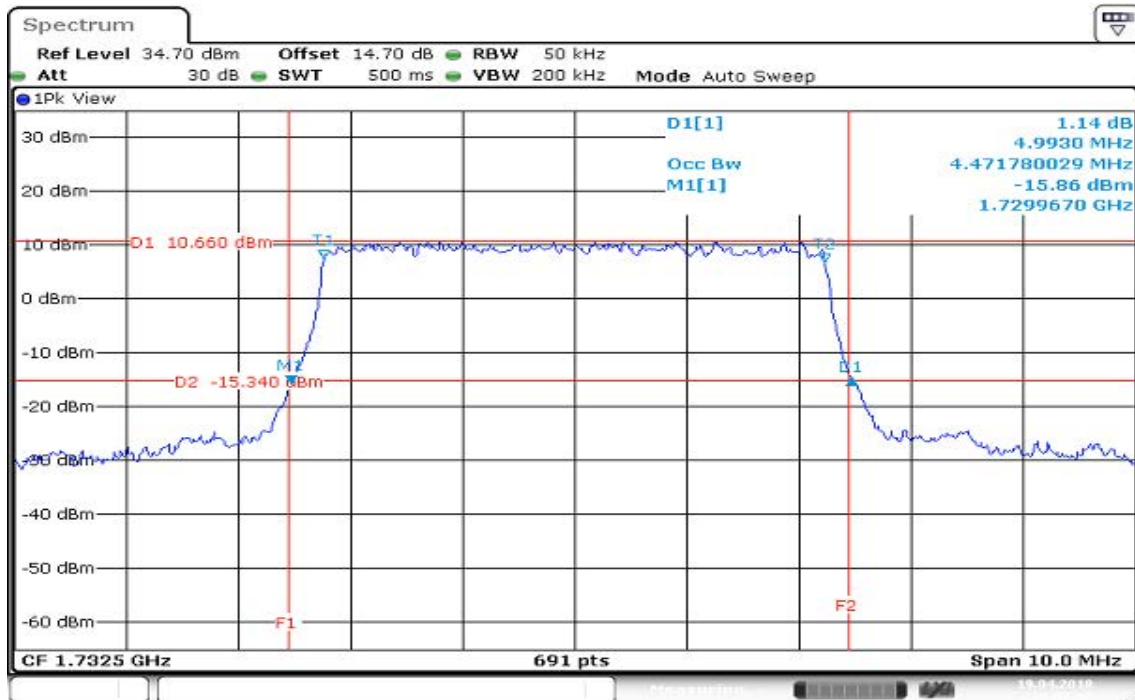
CHANNEL BANDWIDTH: 3MHz / 16QAM CH Mid



Date: 19 APR 2018 16:02:13

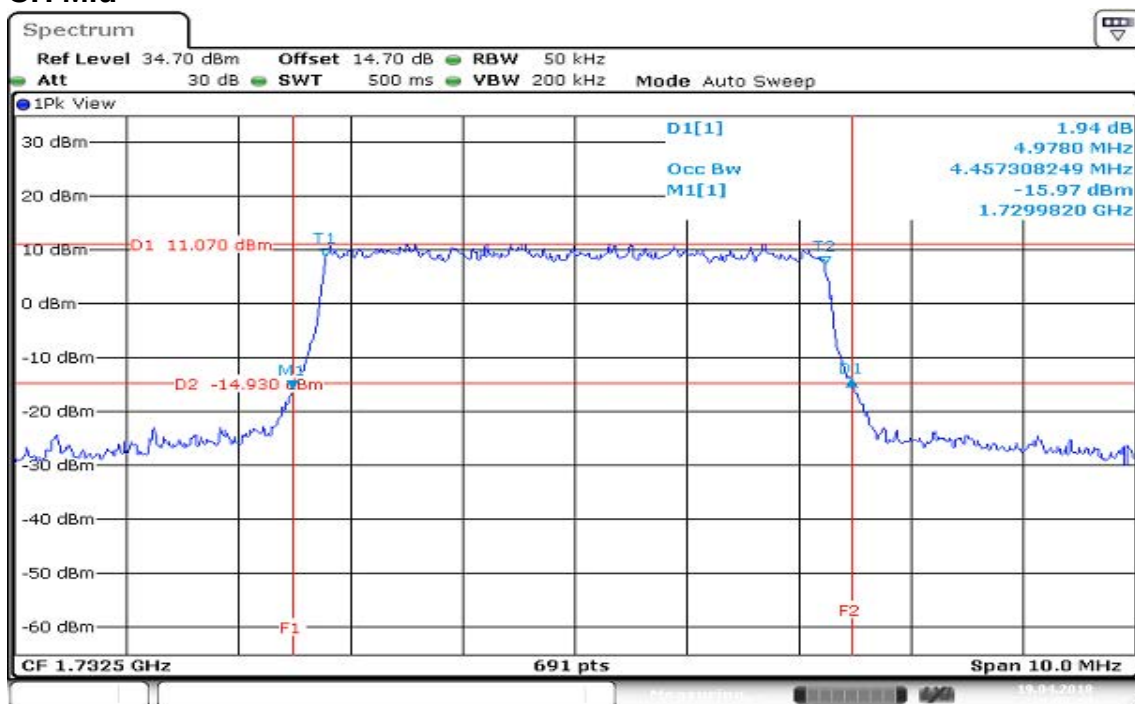
Report No.: T170908D07-A-RP9

CHANNEL BANDWIDTH: 5MHz / QPSK
CH Mid



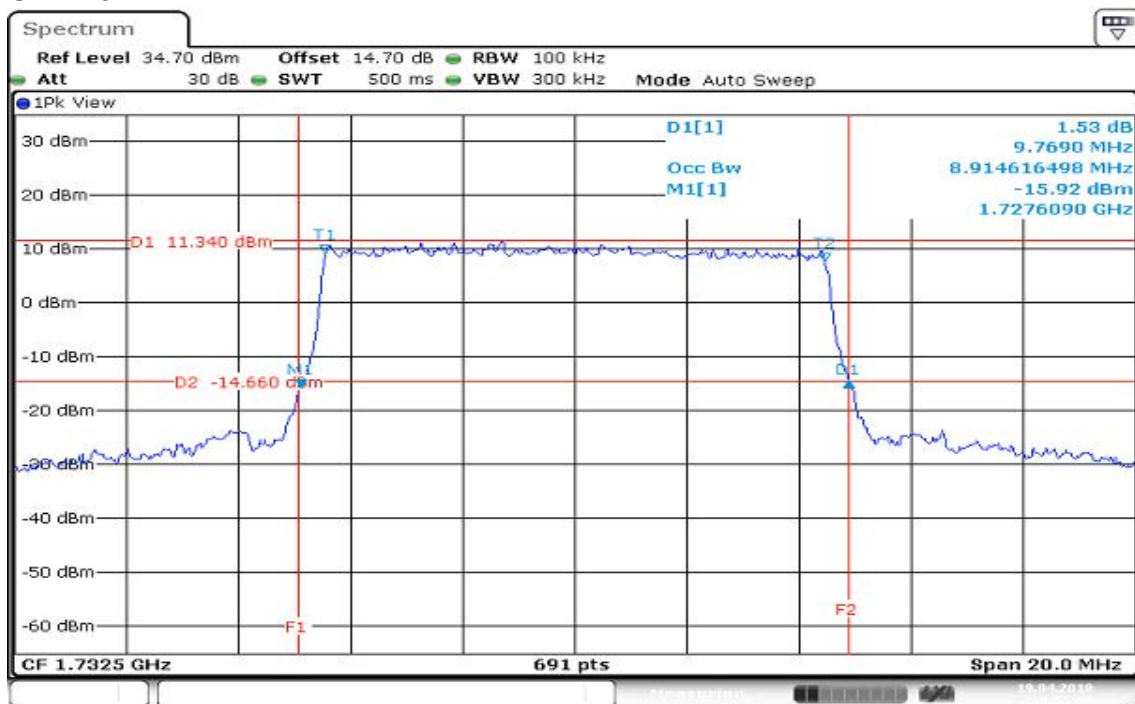
Date: 19 APR 2018 15:59:57

CHANNEL BANDWIDTH: 5MHz / 16QAM
CH Mid



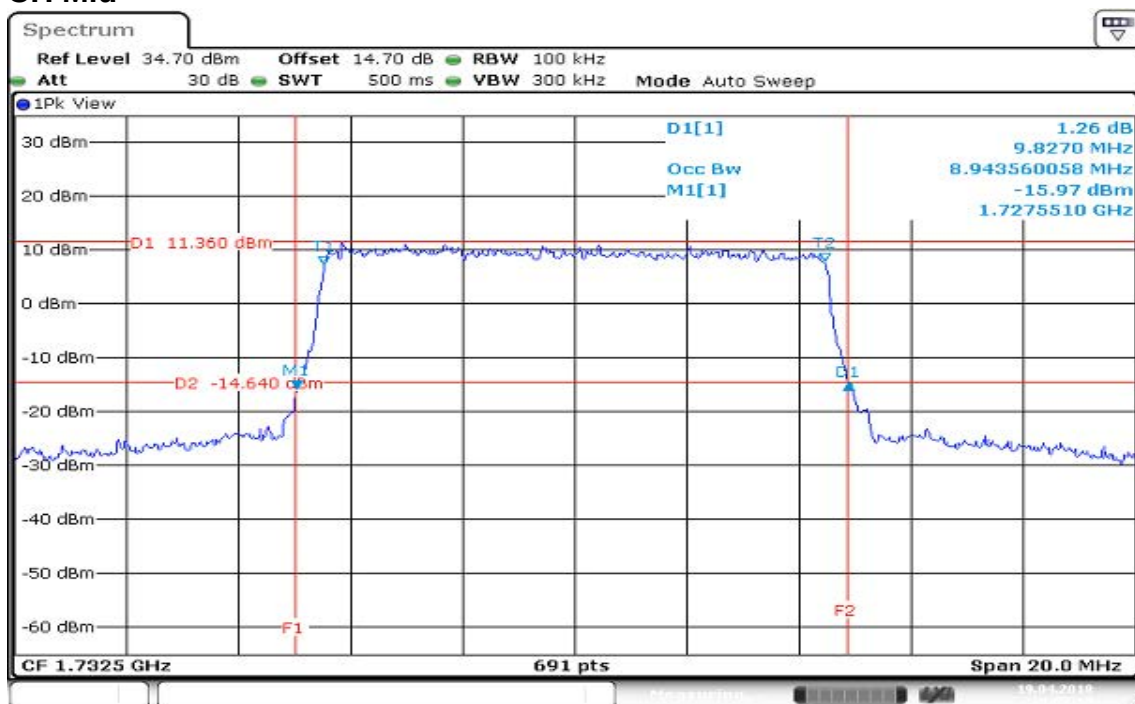
Date: 19 APR 2018 15:58:40

CHANNEL BANDWIDTH: 10MHz / QPSK CH Mid



Date: 19 APR 2018 15:55:46

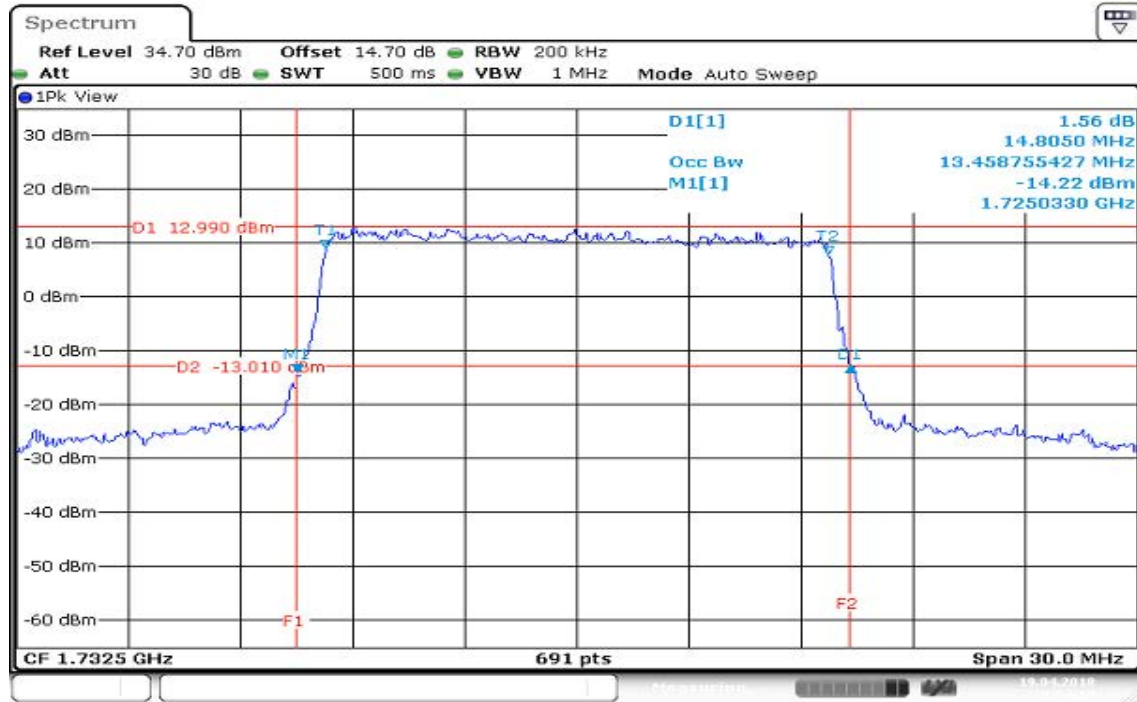
CHANNEL BANDWIDTH: 10MHz / 16QAM CH Mid



Date: 19 APR 2018 15:57:13

CHANNEL BANDWIDTH: 15MHz / QPSK

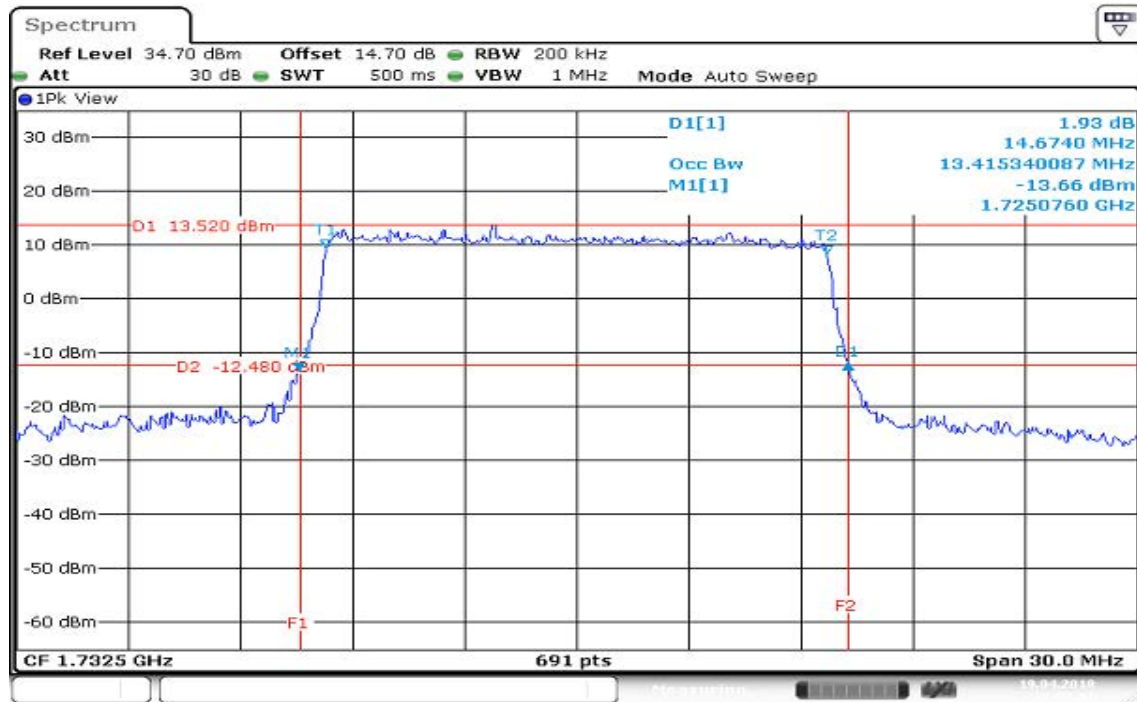
CH Mid



Date: 19 APR 2018 15:54:13

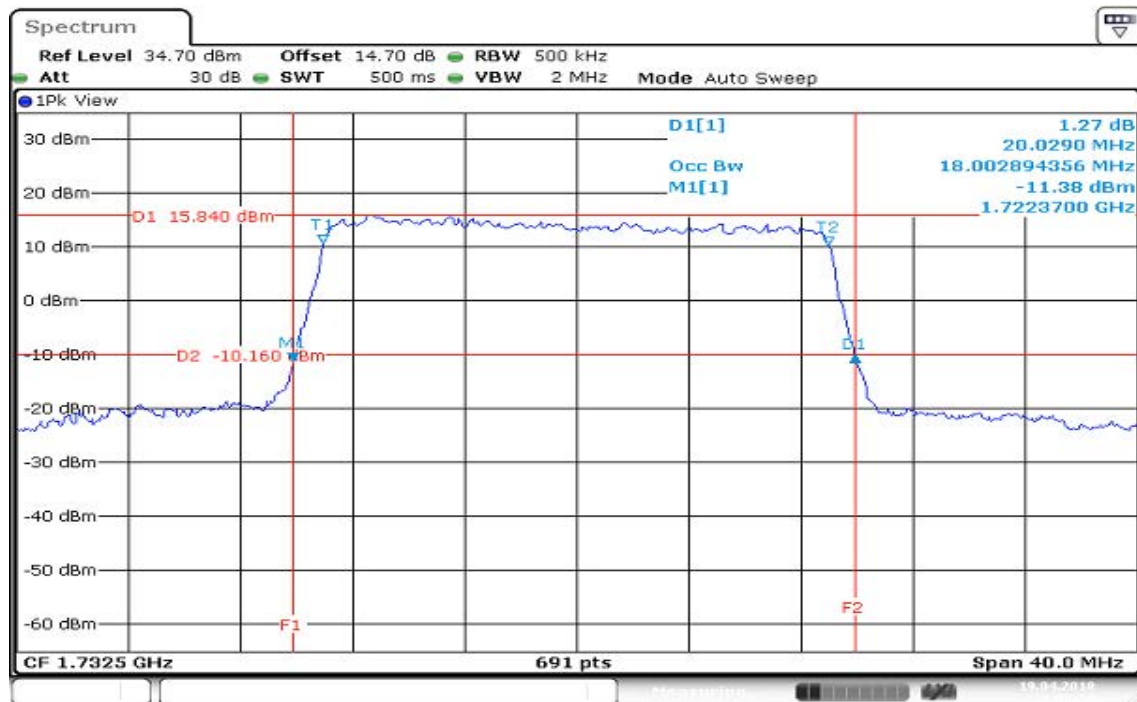
CHANNEL BANDWIDTH: 15MHz / 16QAM

CH Mid



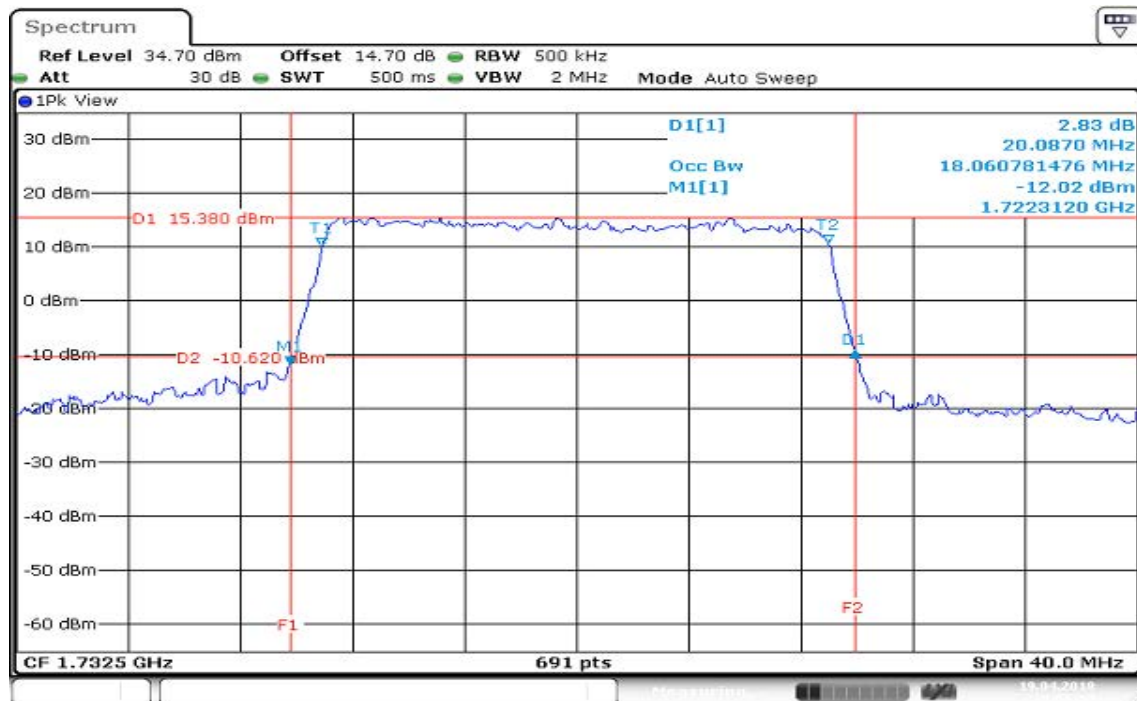
Date: 19 APR 2018 15:53:02

CHANNEL BANDWIDTH: 20MHz / QPSK CH Mid



Date: 19 APR 2018 15:50:37

CHANNEL BANDWIDTH: 20MHz / 16QAM CH Mid



Date: 19 APR 2018 15:51:23



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8.5 PEAK TO AVERAGE POWER 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 17

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23790	710.00	5.42

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23790	710.00	5.51

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23790	710.00	6.03

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23790	710.00	6.03

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23790	710.00	6.06

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23790	710.00	5.59

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23790	710.00	6.41

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23790	710.00	6.29

LTE Band 13

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	6.20

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	5.91

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	6.12

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	5.45

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	6.52

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	6.49

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	6.96

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	6.23

LTE Band 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	4.99

CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.22

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.01

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.07

CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	4.70

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	4.72

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.68

CHANNEL BANDWIDTH: 3MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.83

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.51

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.57

CHANNEL BANDWIDTH: 15MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.65

CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.48

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.77

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.59

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.74

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.30

CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.10

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.22

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	6.03

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	6.09

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	5.25

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	6.09

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

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	6.09

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

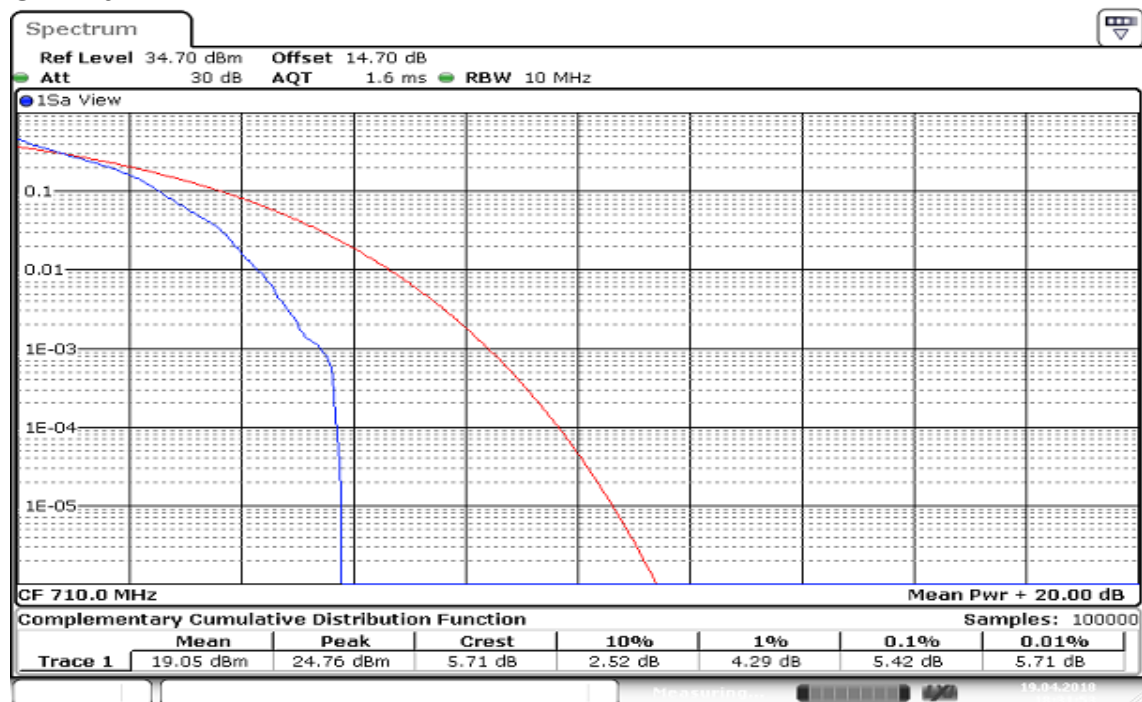
Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.5	6.20

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LTE Band 17

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

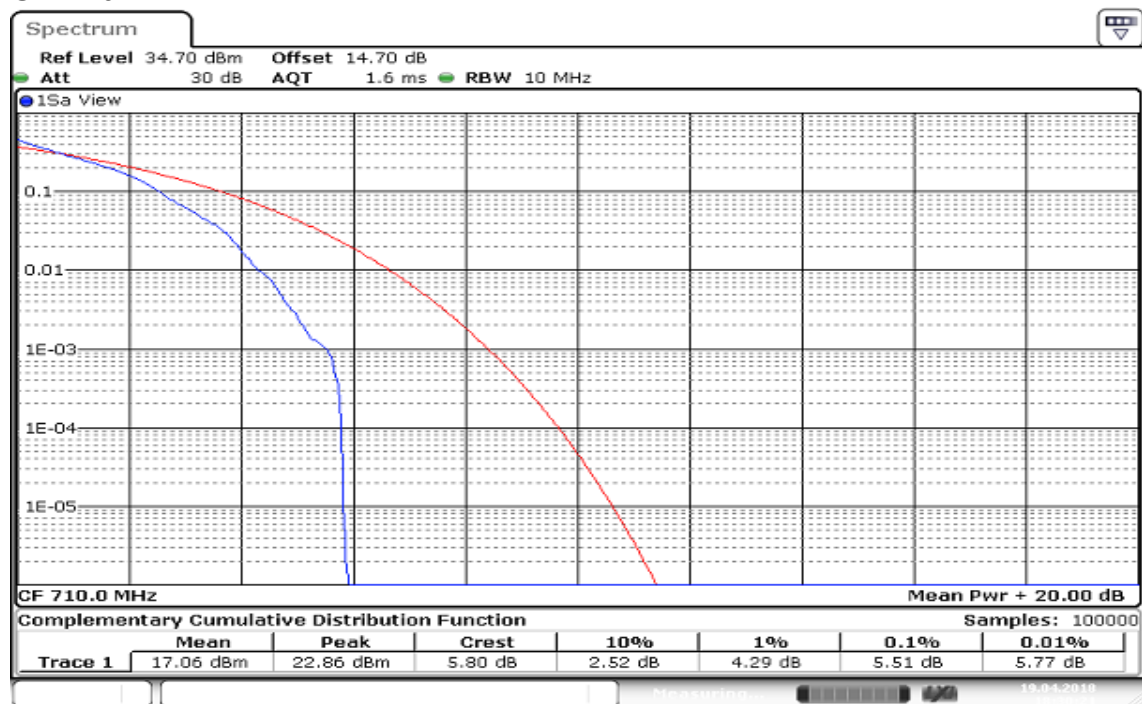
CH Mid



1

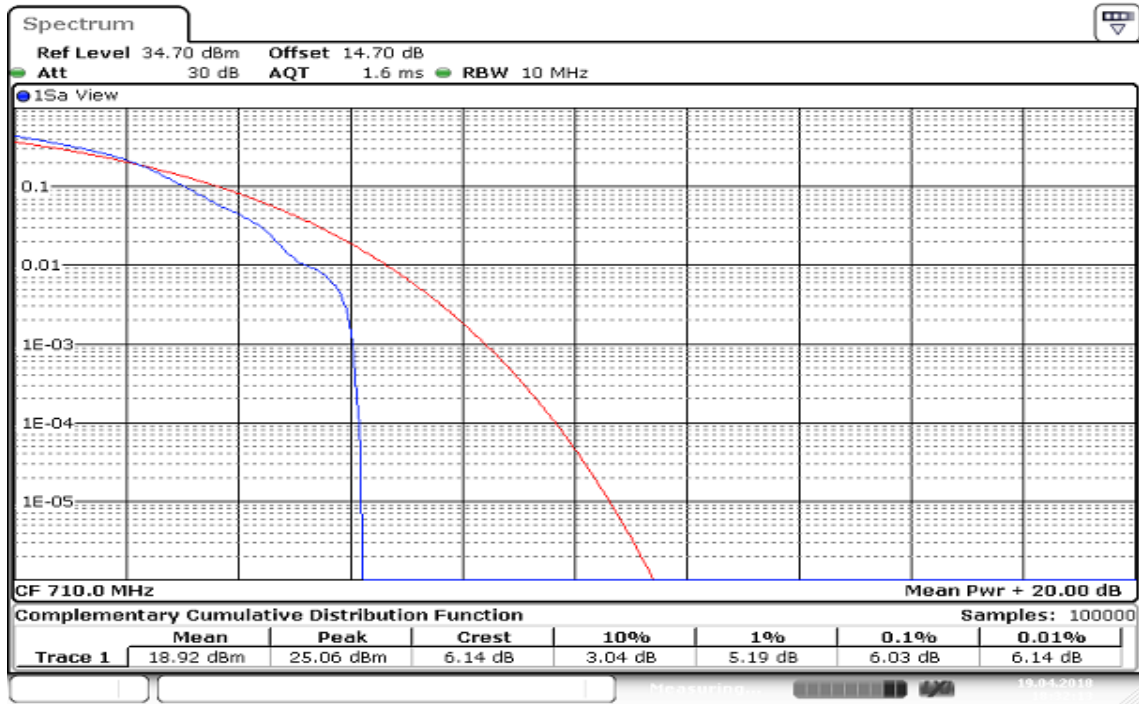
CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

CH Mid



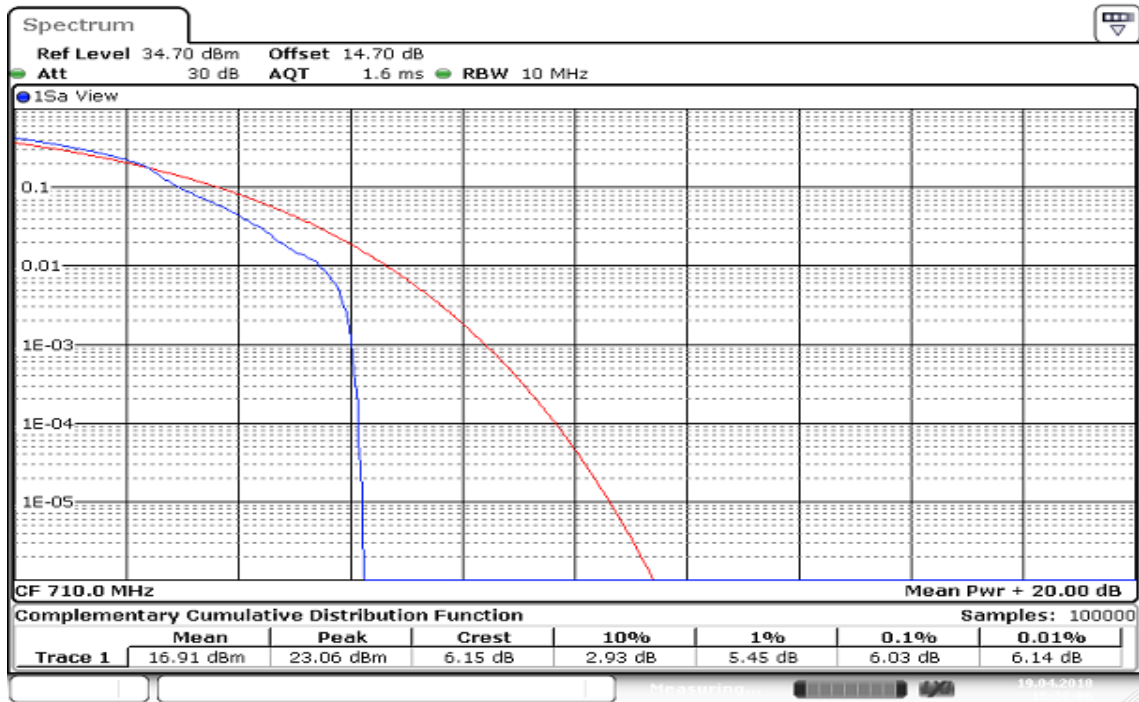
Report No.: T170908D07-A-RP9

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB
CH Mid



Date: 19 APR 2018 18:22:13

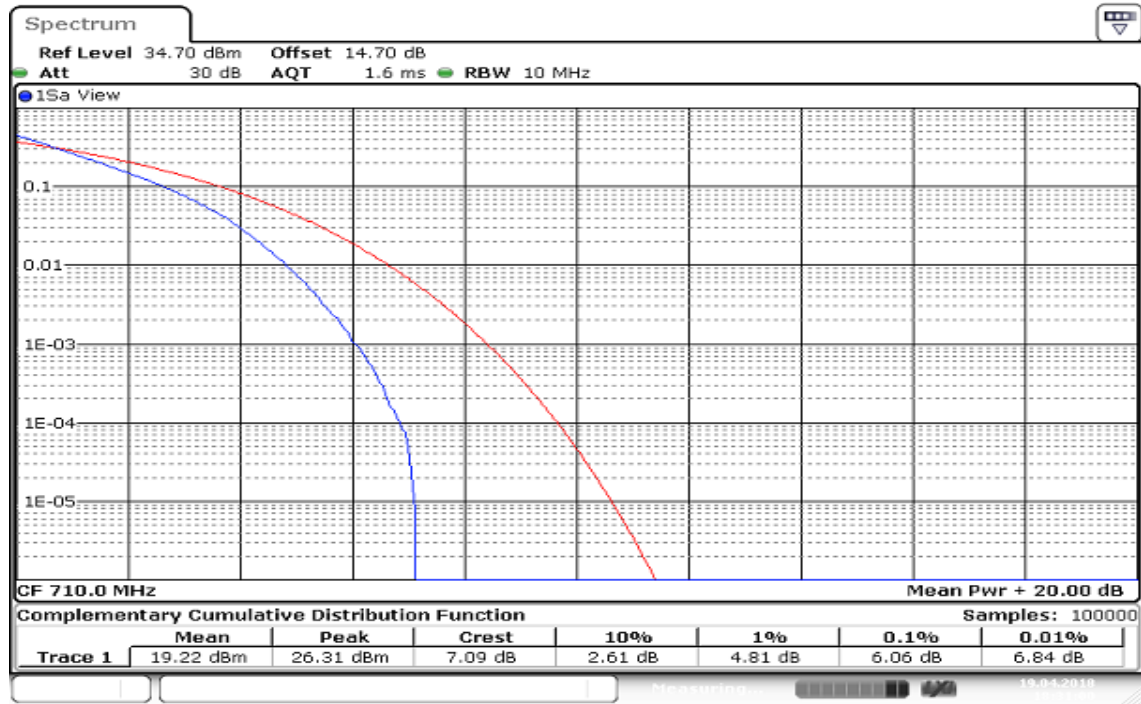
CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB
CH Mid



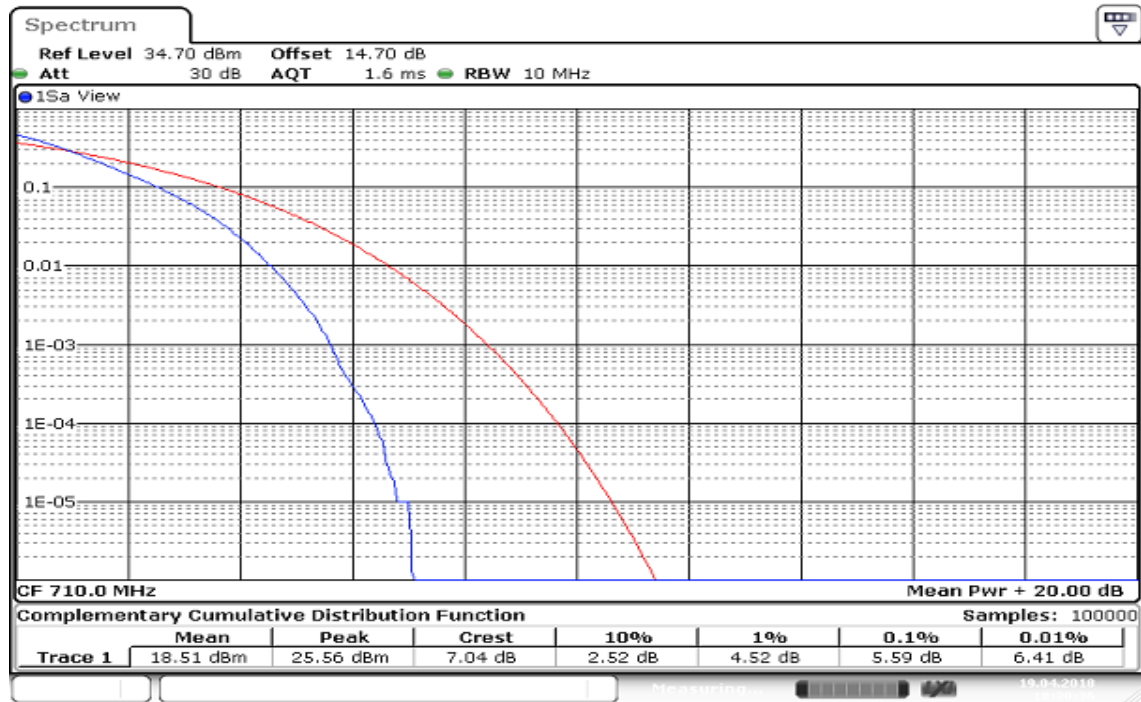
Date: 19 APR 2018 18:20:07

Report No.: T170908D07-A-RP9

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB
CH Mid

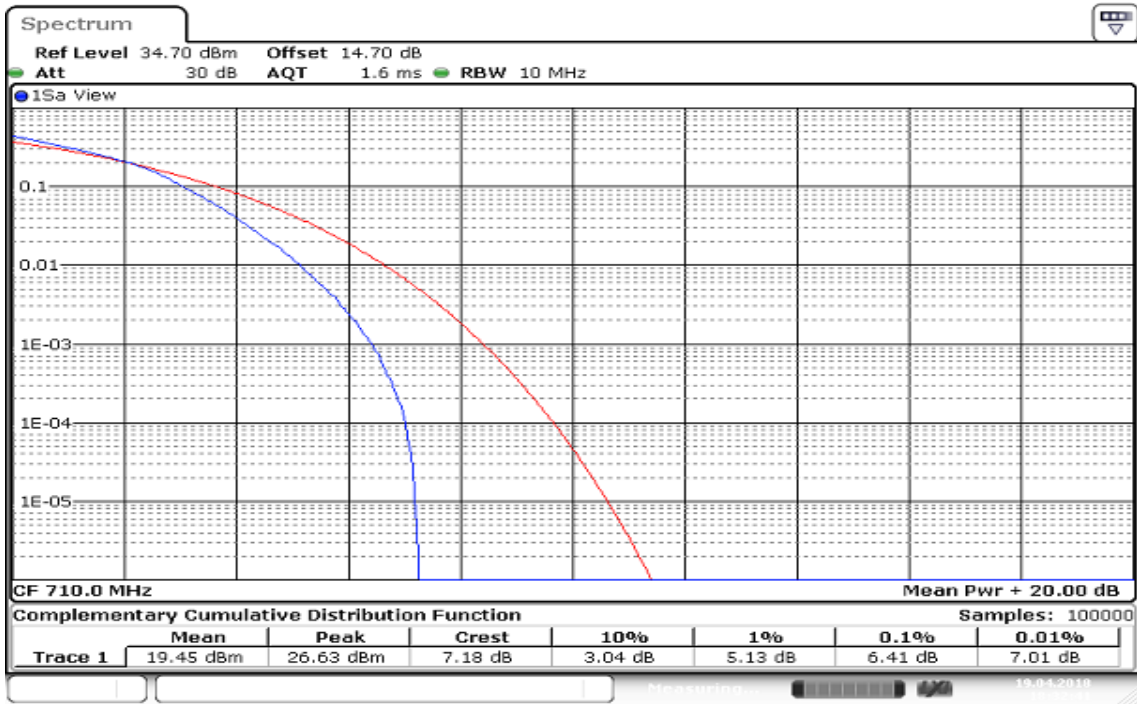


CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB
CH Mid

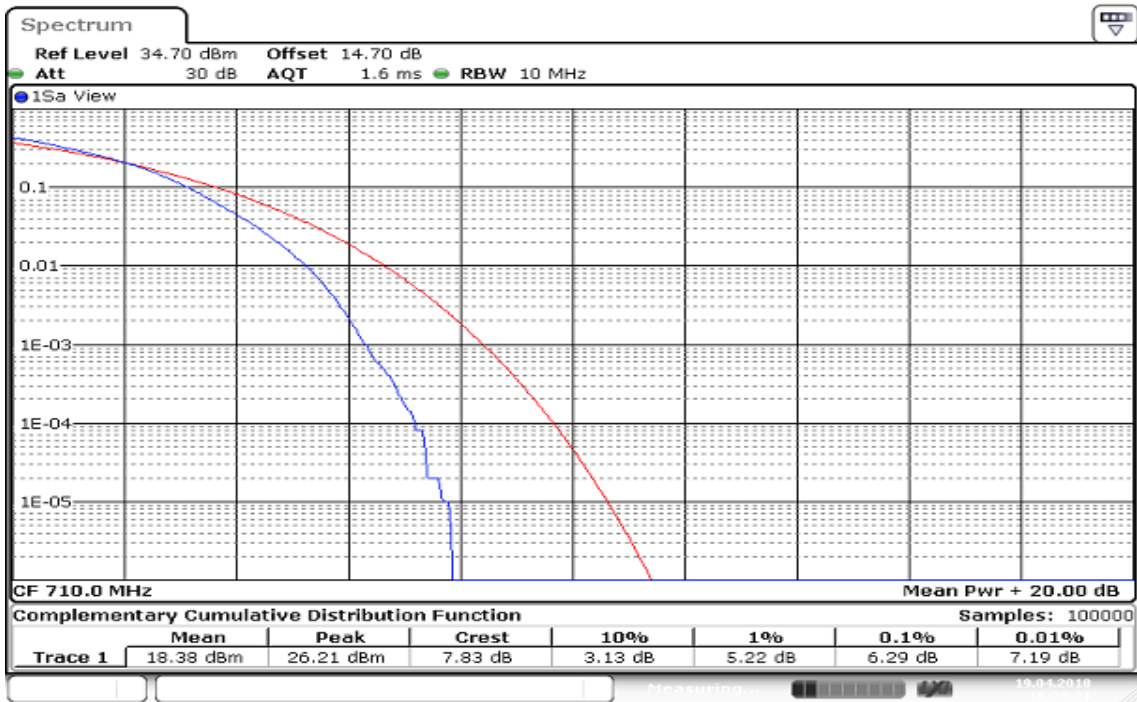


Report No.: T170908D07-A-RP9

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



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

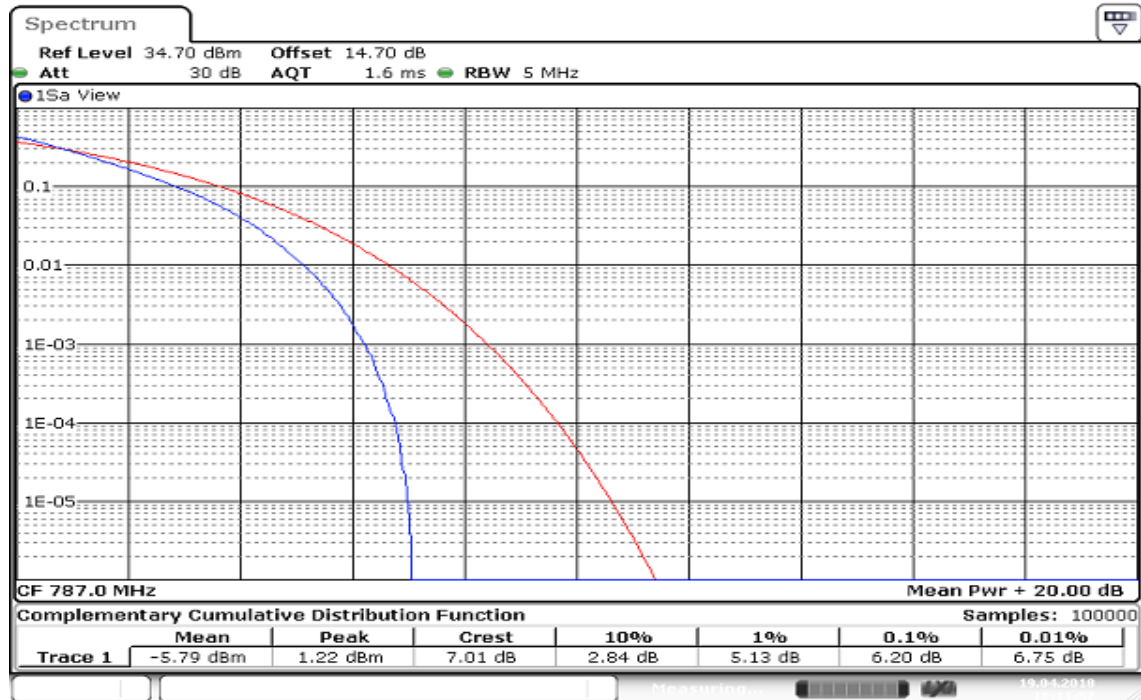


Report No.: T170908D07-A-RP9

LTE Band 13

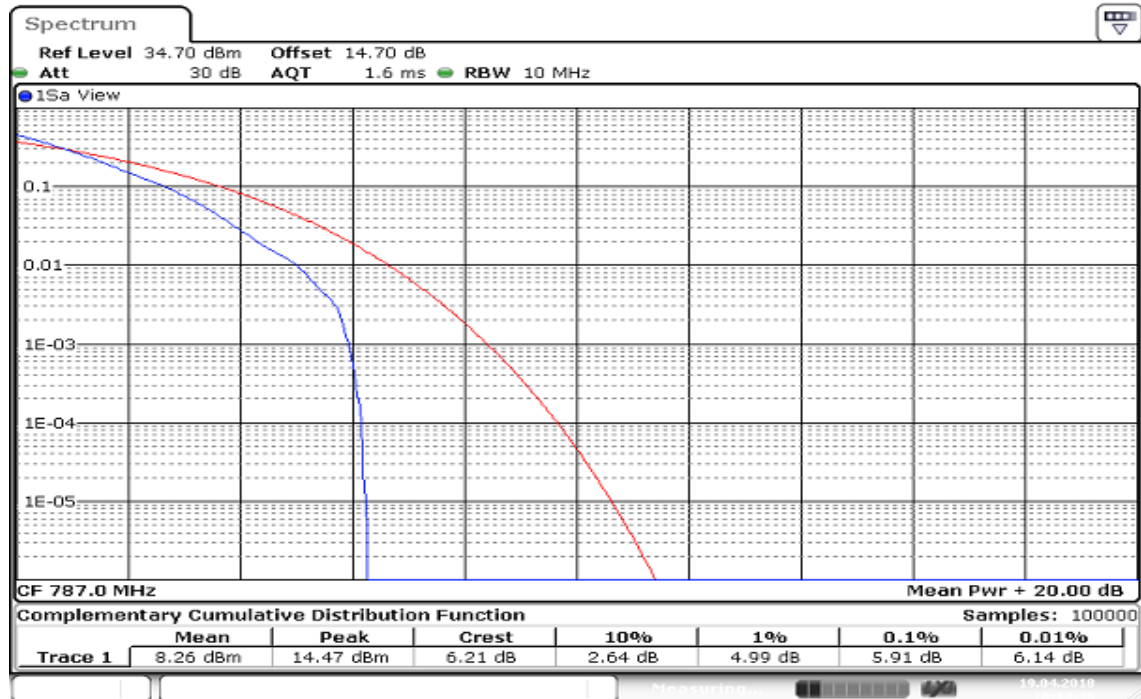
CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

CH Mid



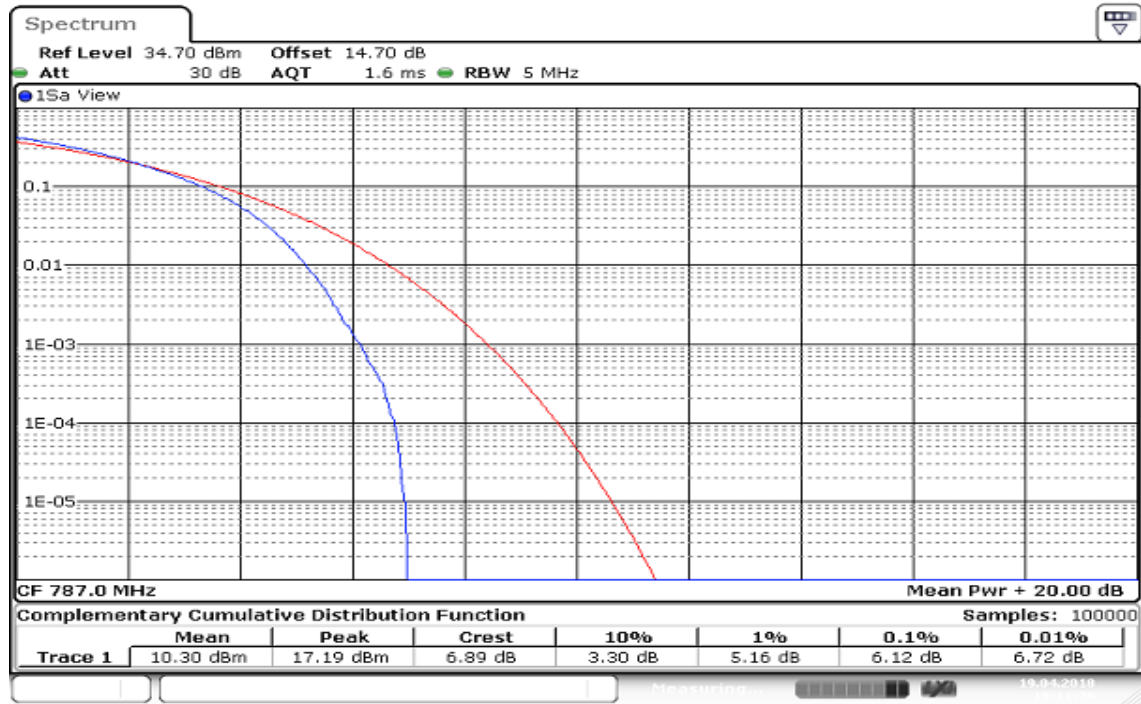
CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

CH Mid



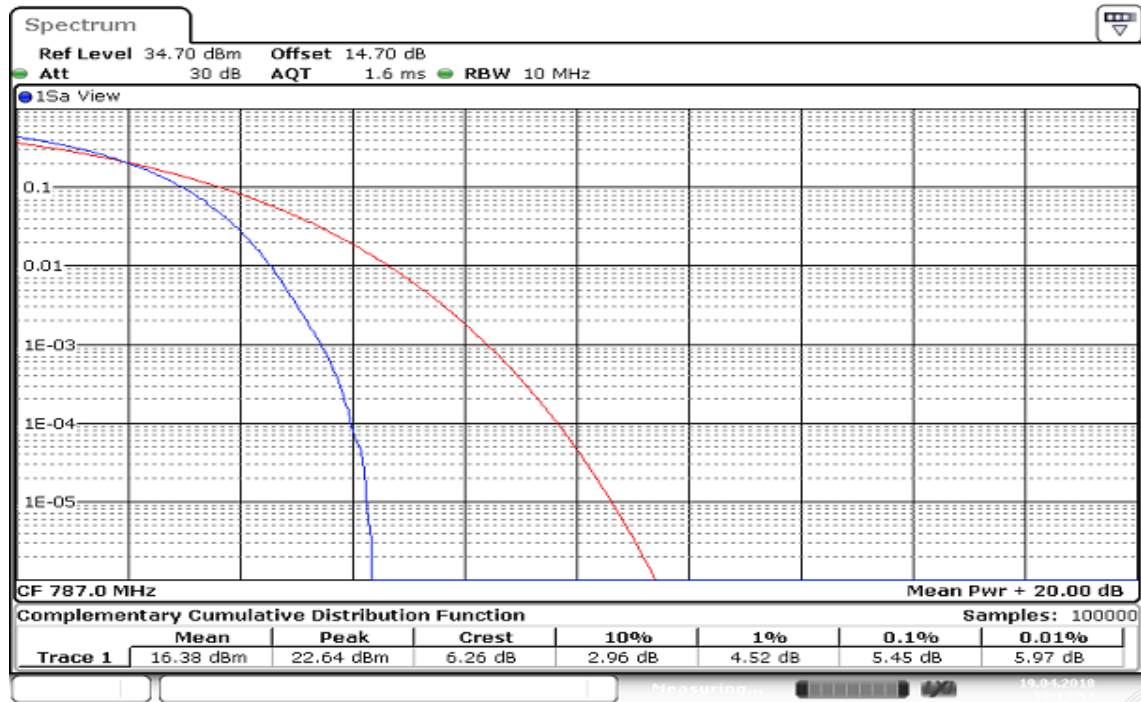
Report No.: T170908D07-A-RP9

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB
CH Mid



Date: 19 APR 2018 18:11:27

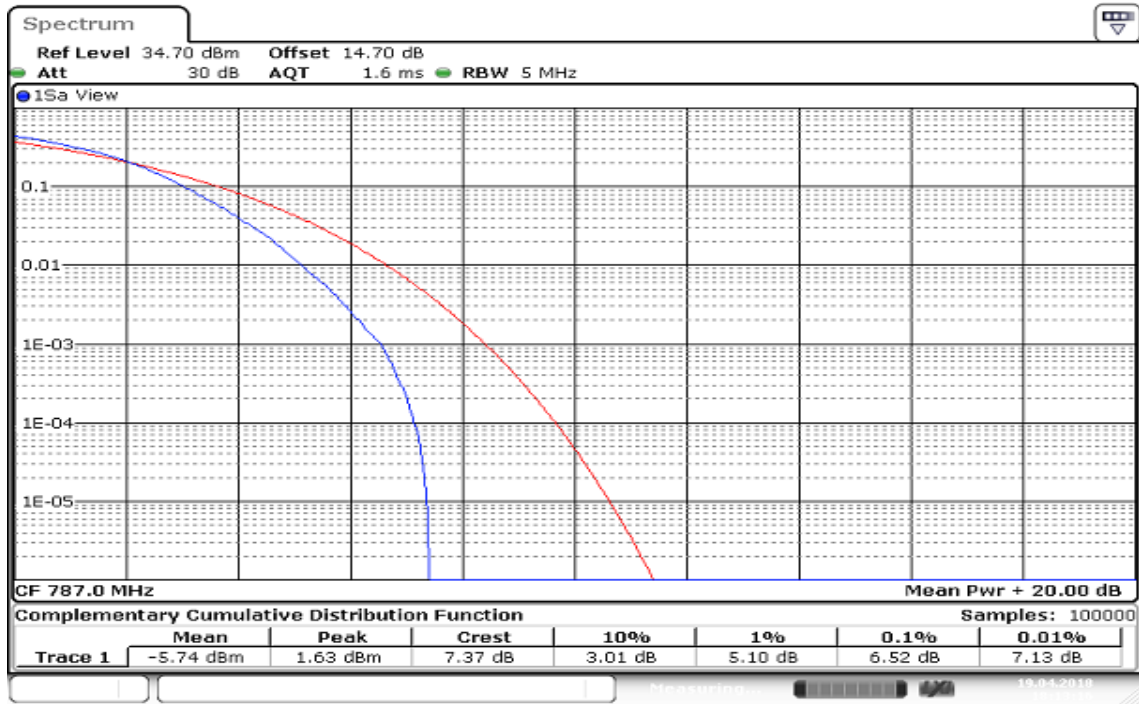
CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB
CH Mid



Date: 19 APR 2018 18:14:54

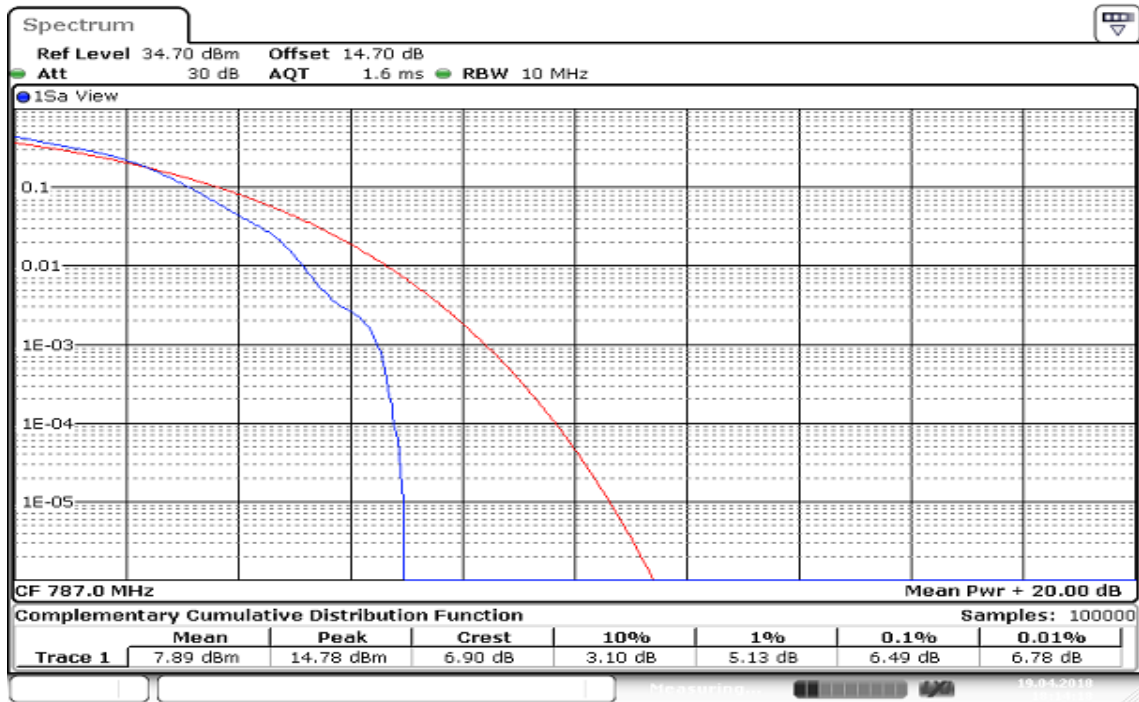
Report No.: T170908D07-A-RP9

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB
CH Mid



Date: 19 APR 2018 18:13:16

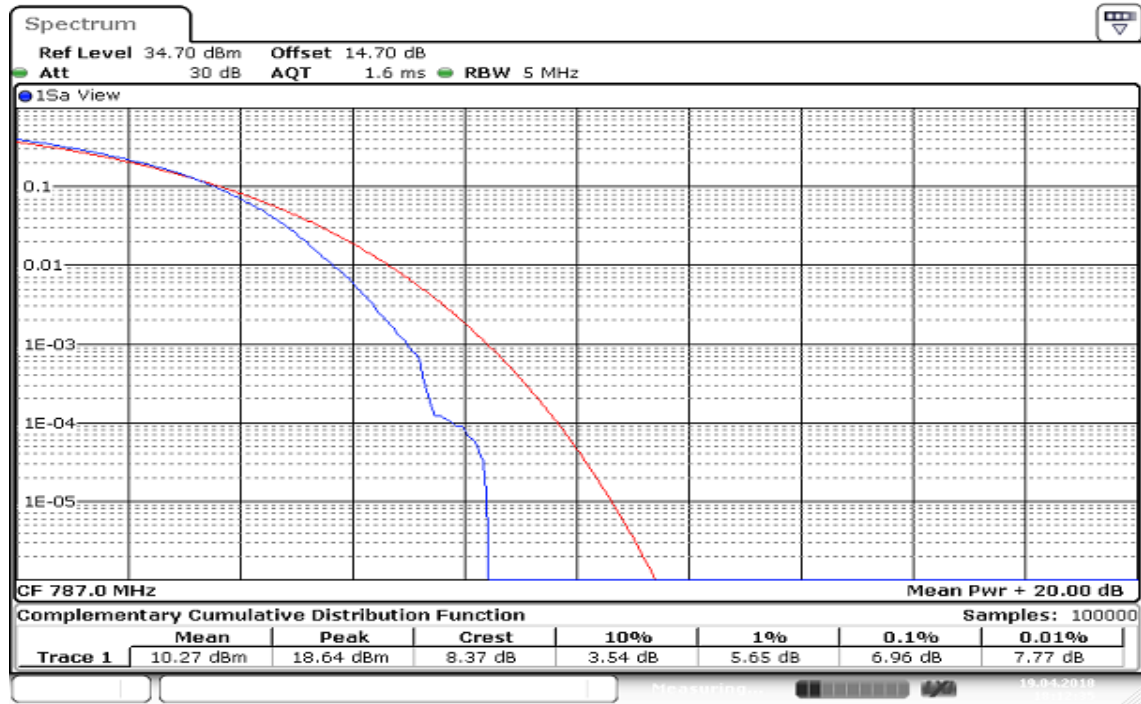
CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB
CH Mid



Date: 19 APR 2018 18:14:19

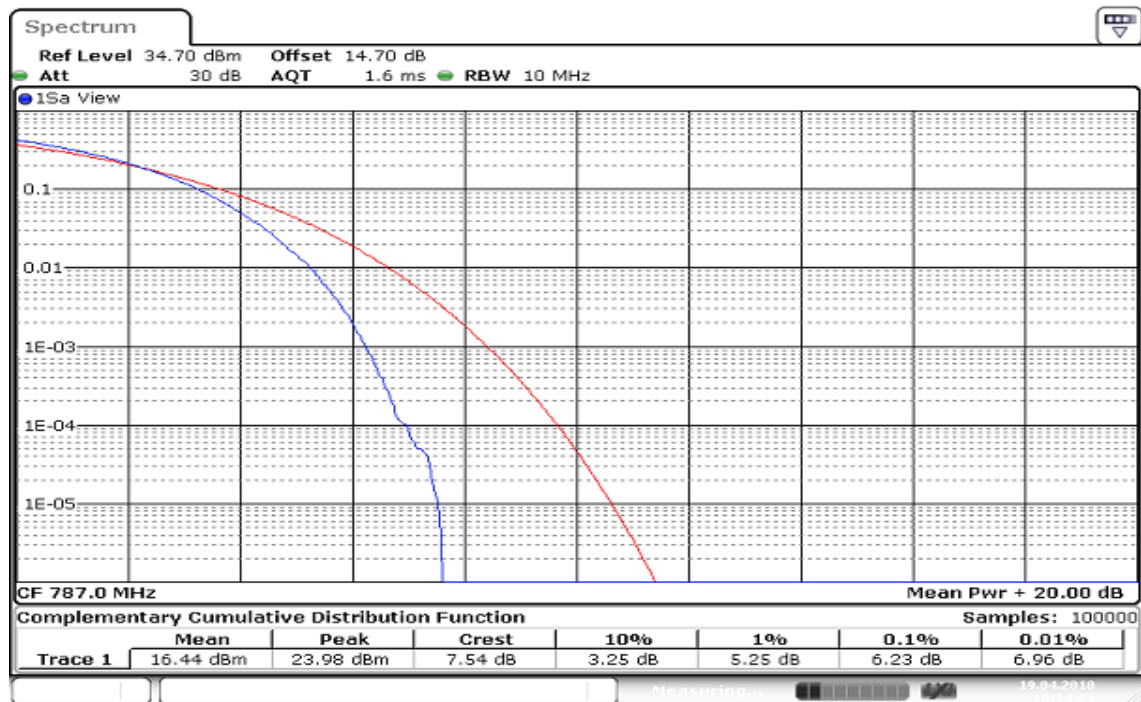
Report No.: T170908D07-A-RP9

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



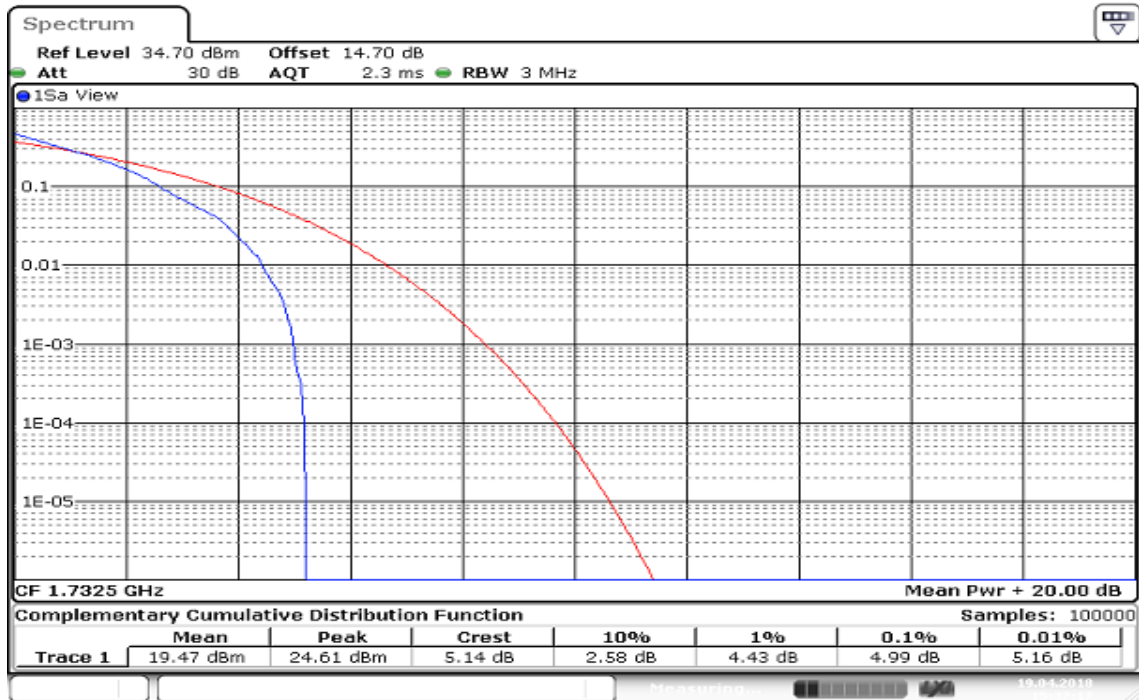
Date: 19 APR 2018 18:12:36

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

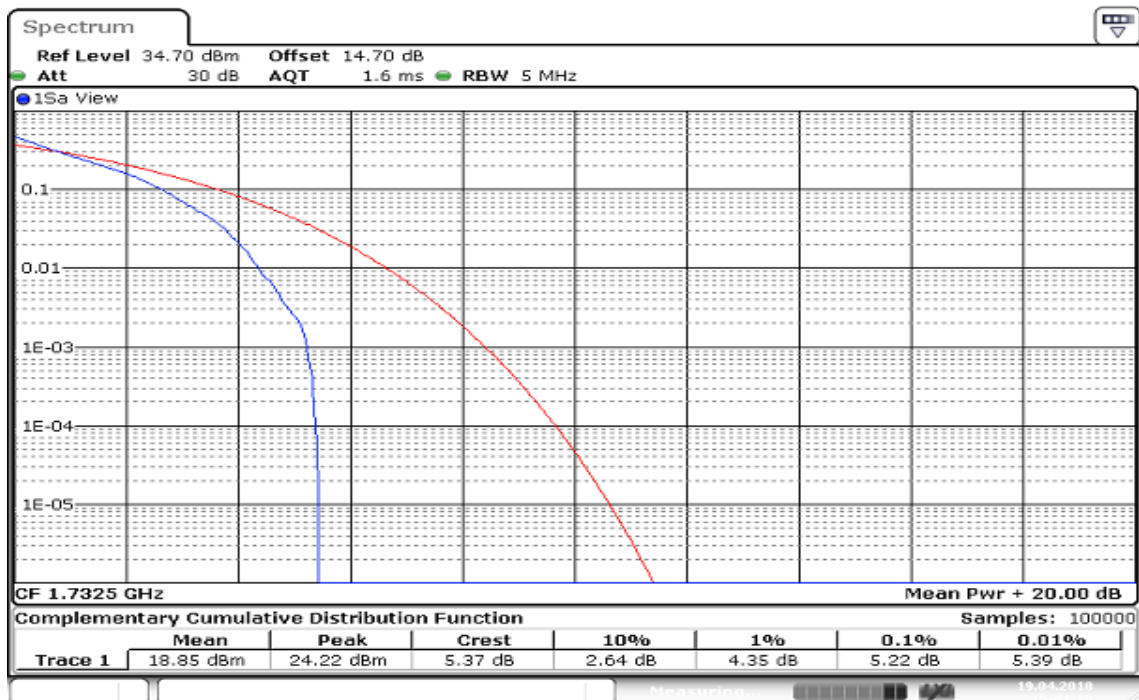


Date: 19 APR 2018 18:14:02

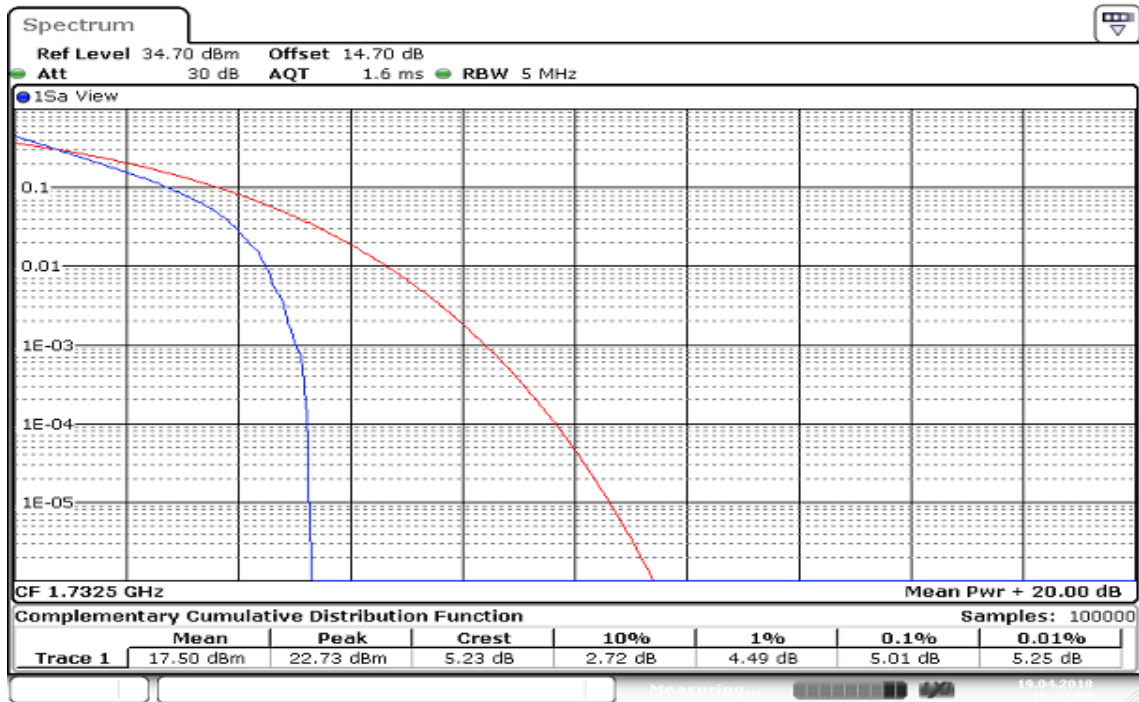
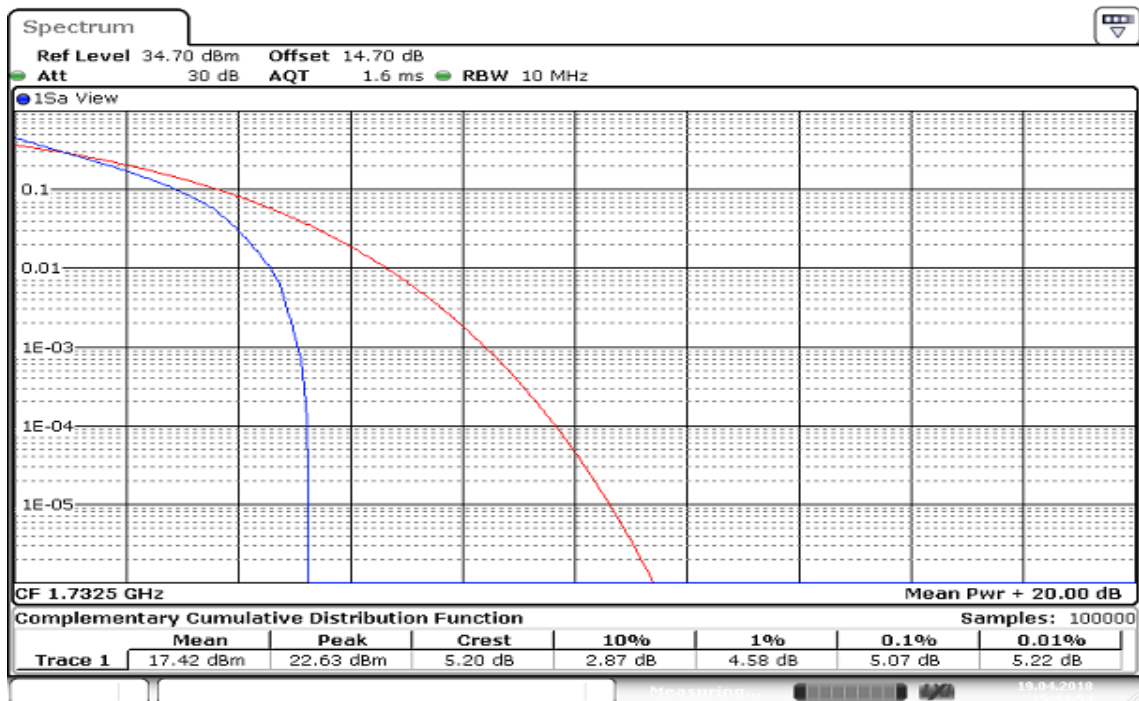
Report No.: T170908D07-A-RP9

LTE Band 4**CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB****CH Mid**

Date: 19 APR 2018 15:27:17

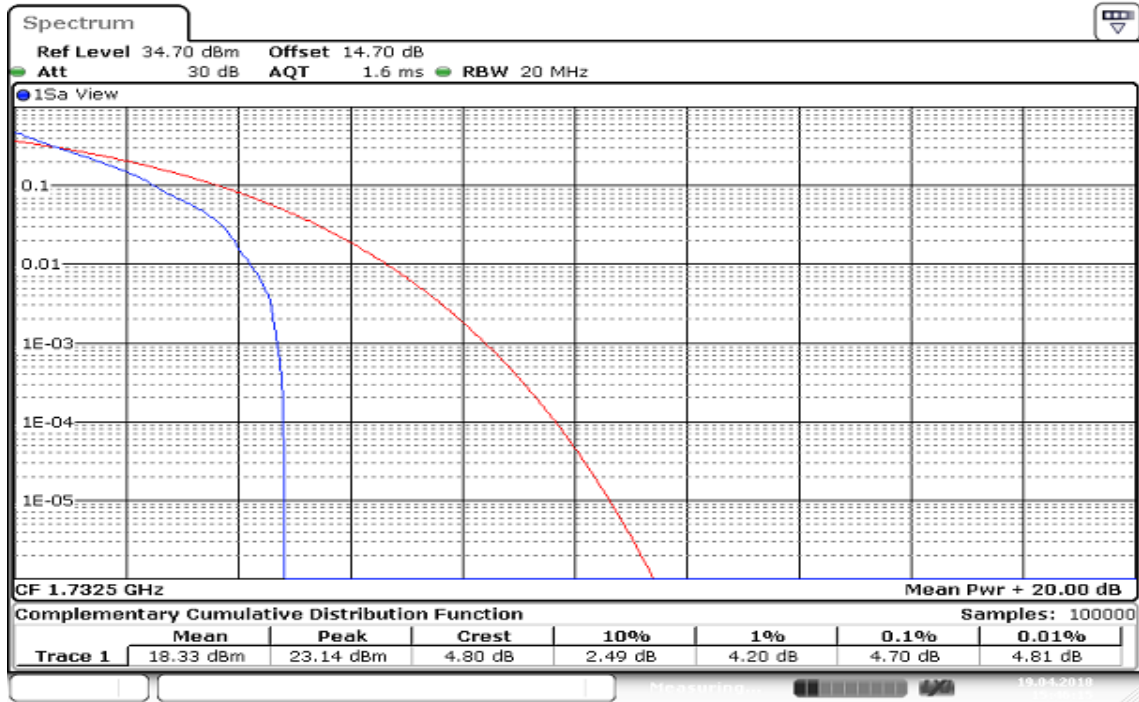
CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB**CH Mid**

Date: 19 APR 2018 15:41:35

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB
CH Mid

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB
CH Mid


CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

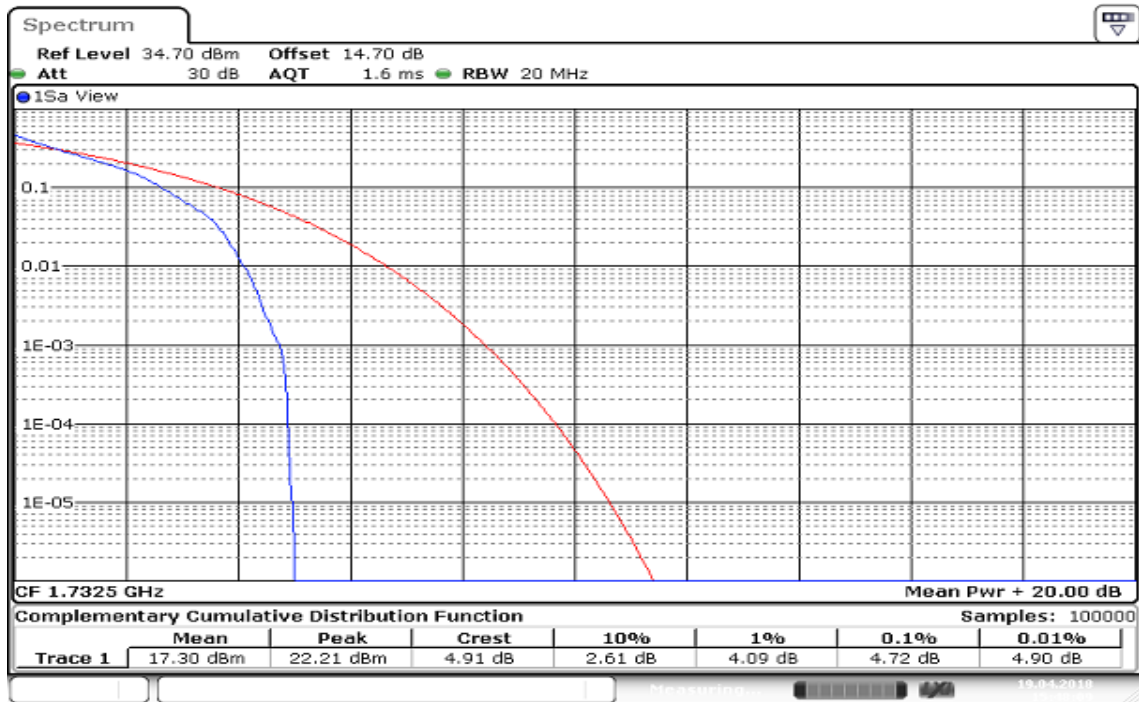
CH Mid



Date: 19 APR 2018 15:46:15

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

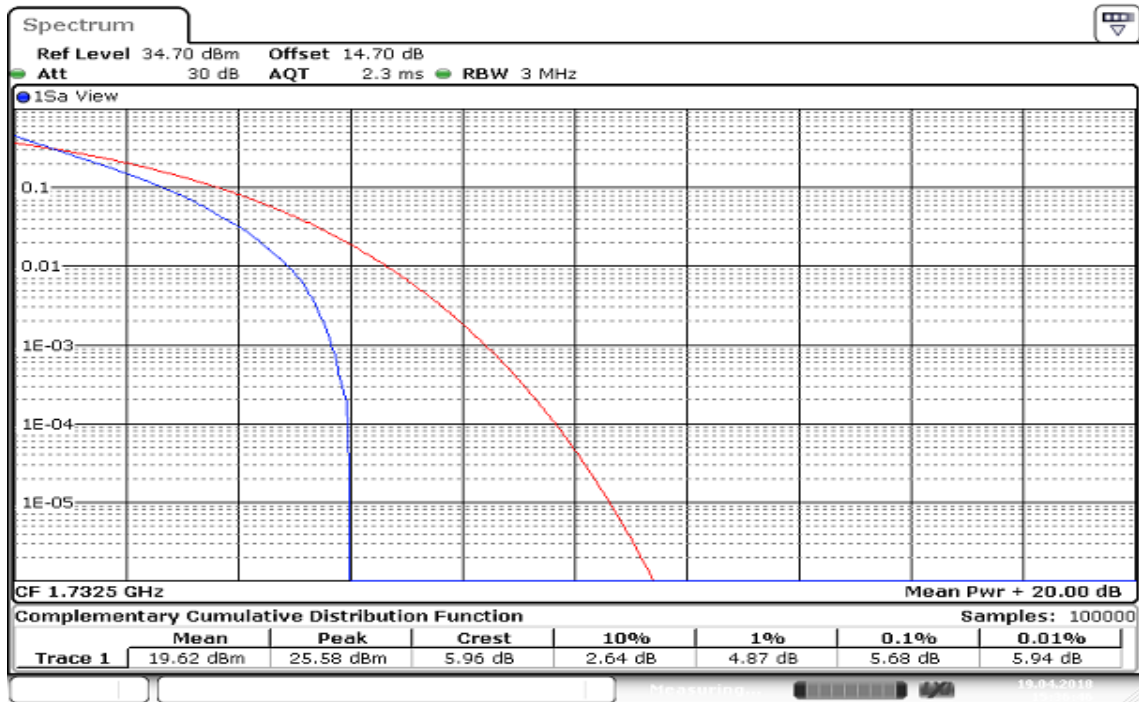
CH Mid



Date: 19 APR 2018 15:46:10

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

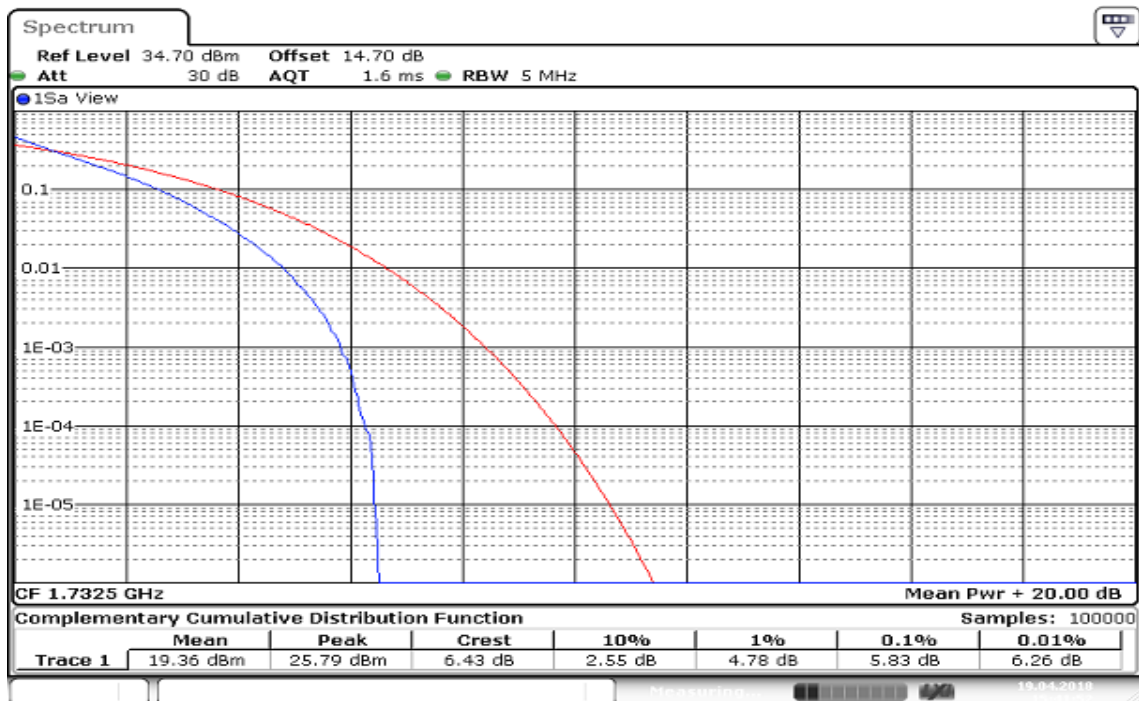
CH Mid



Date: 19 APR 2018 15:26:47

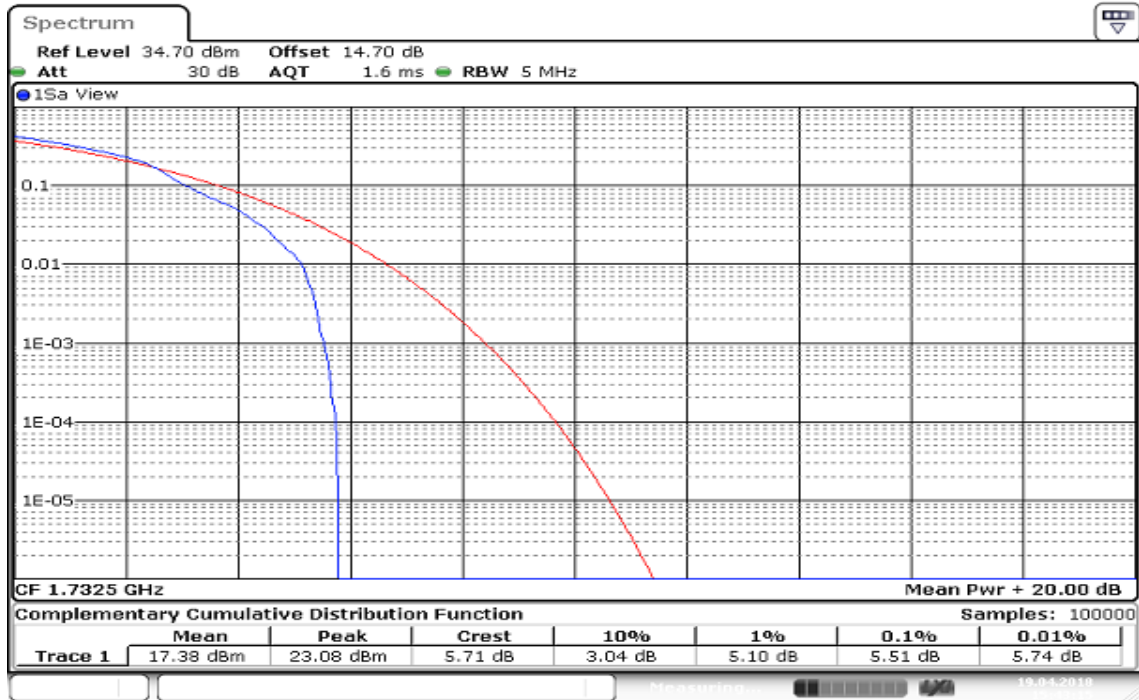
CHANNEL BANDWIDTH: 3MHz / QPSK / 100%RB

CH Mid



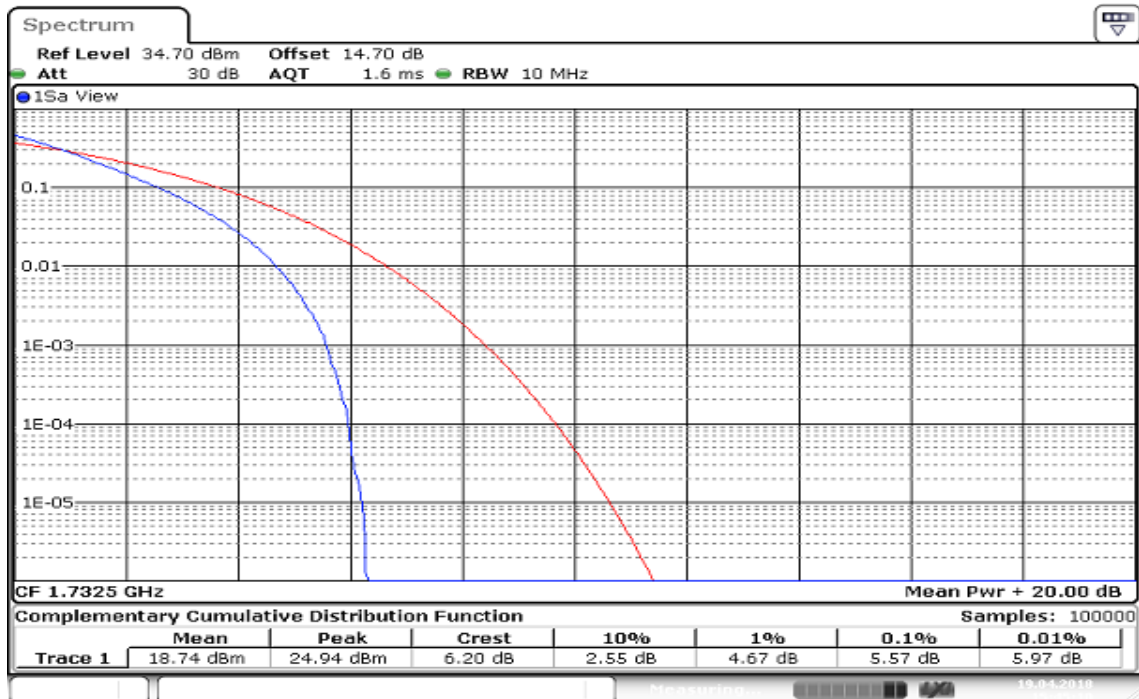
Date: 19 APR 2018 15:41:53

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB
CH Mid



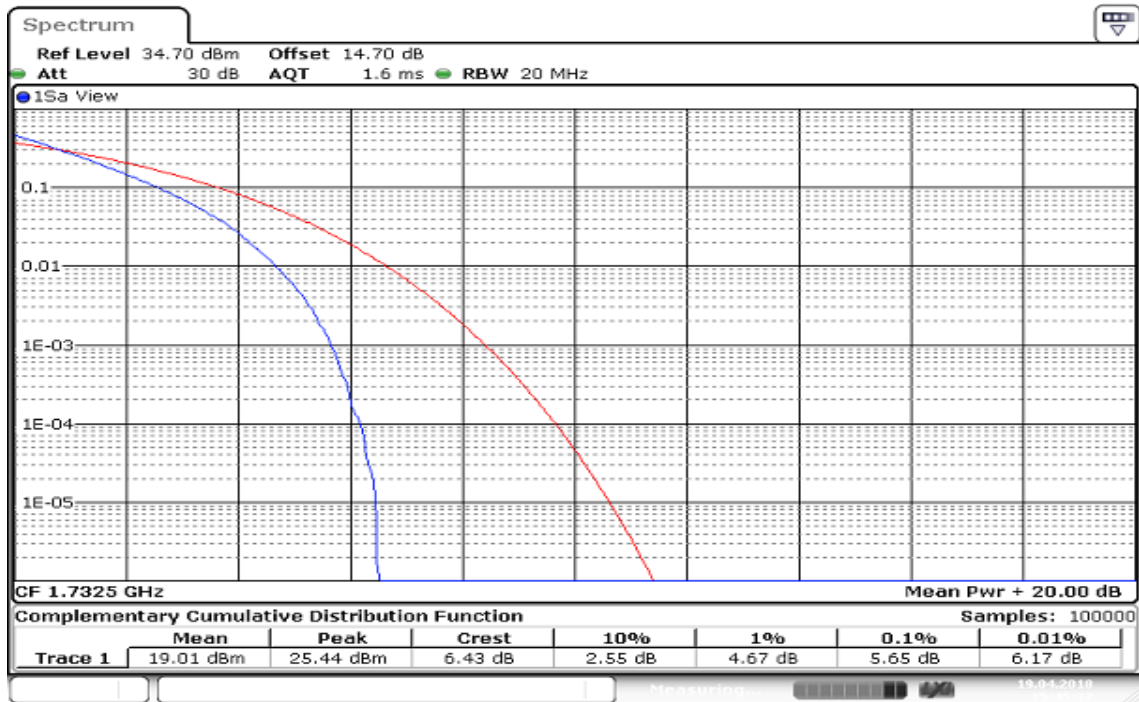
Date: 19 APR 2018 15:43:15

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB
CH Mid

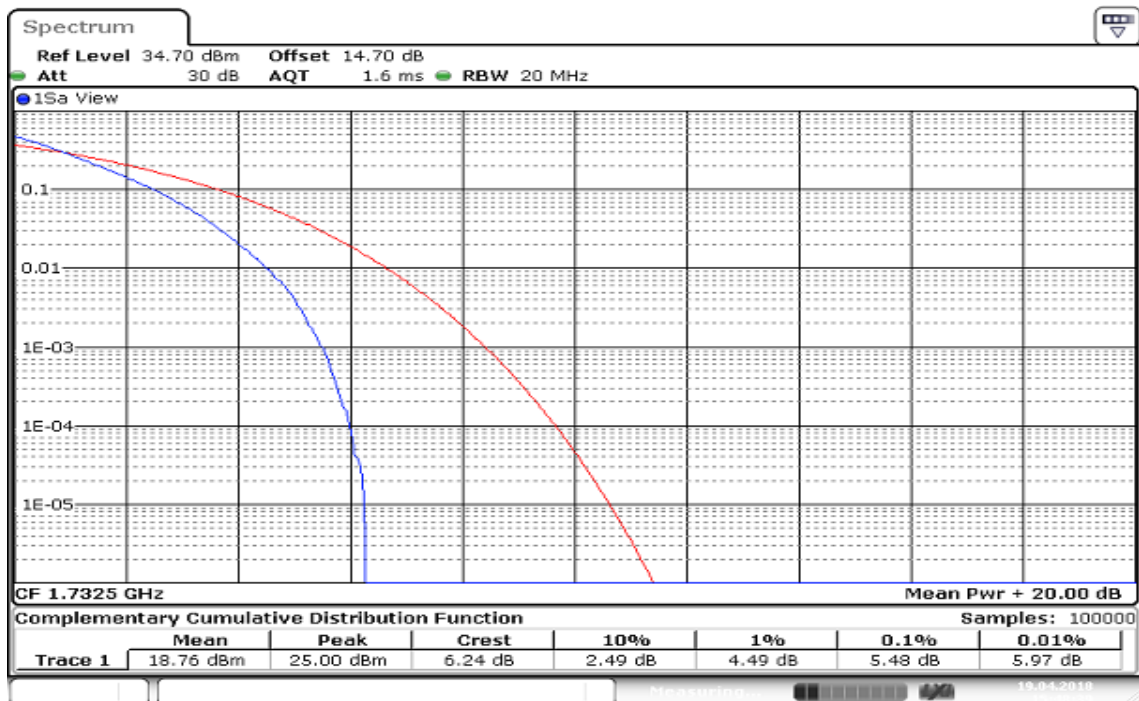


Date: 19 APR 2018 15:45:11

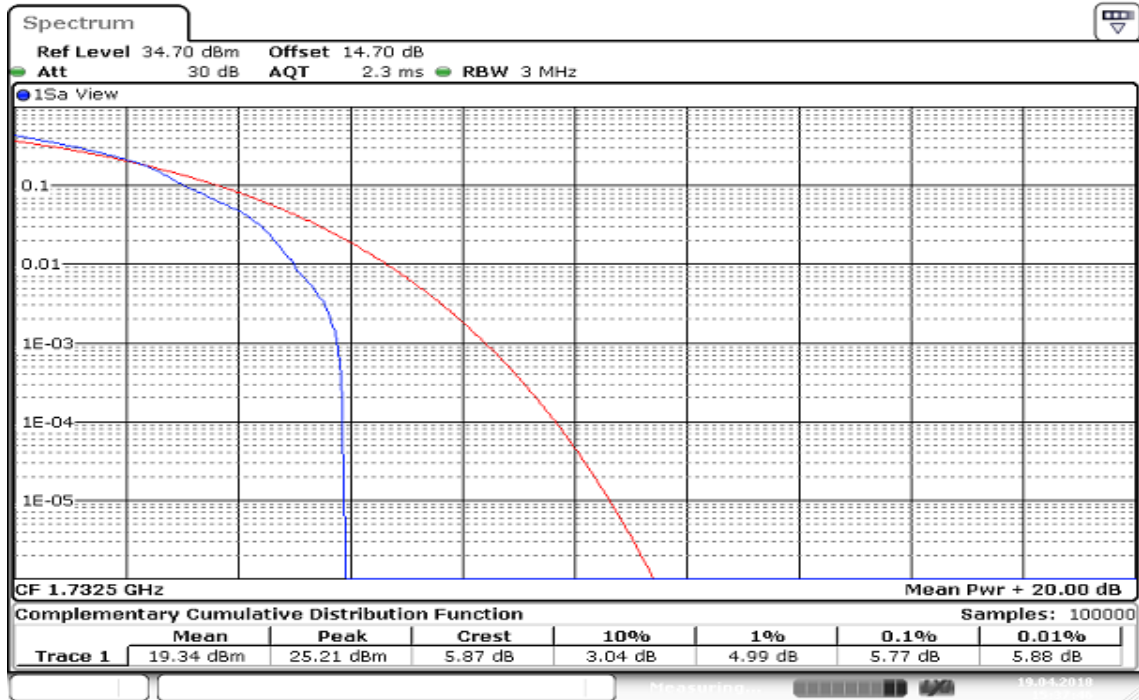
CHANNEL BANDWIDTH: 15MHz / QPSK / 100%RB
CH Mid



CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB
CH Mid

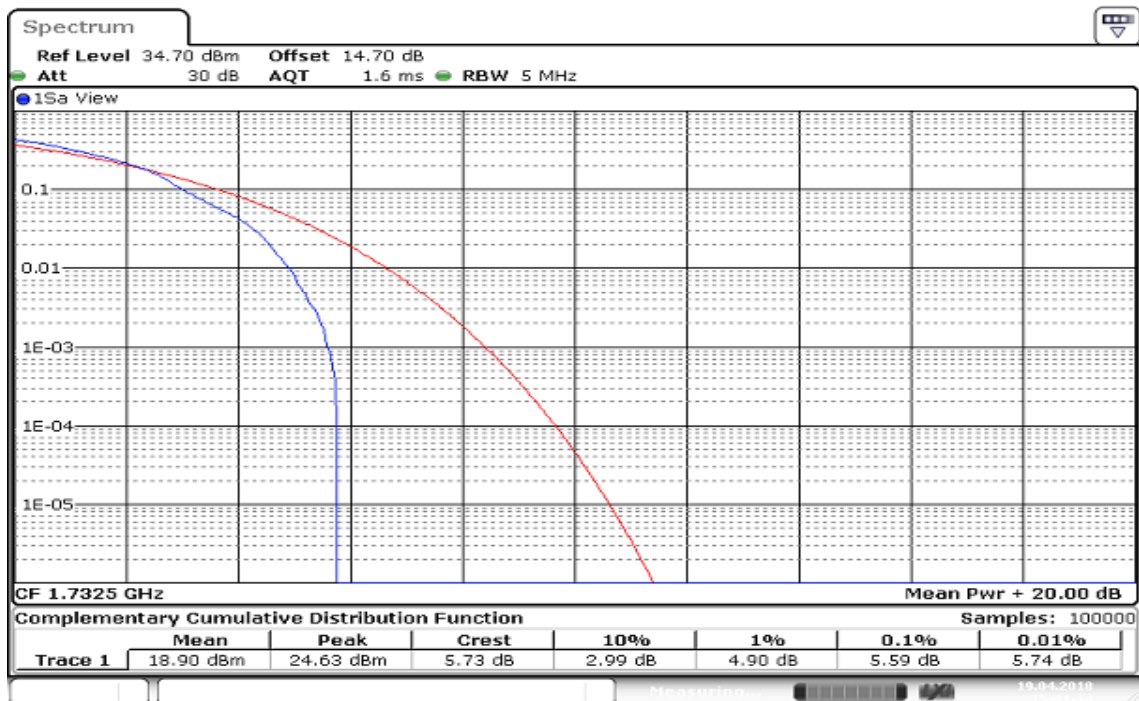


CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB
CH Mid



Date: 19 APR 2018 15:27:46

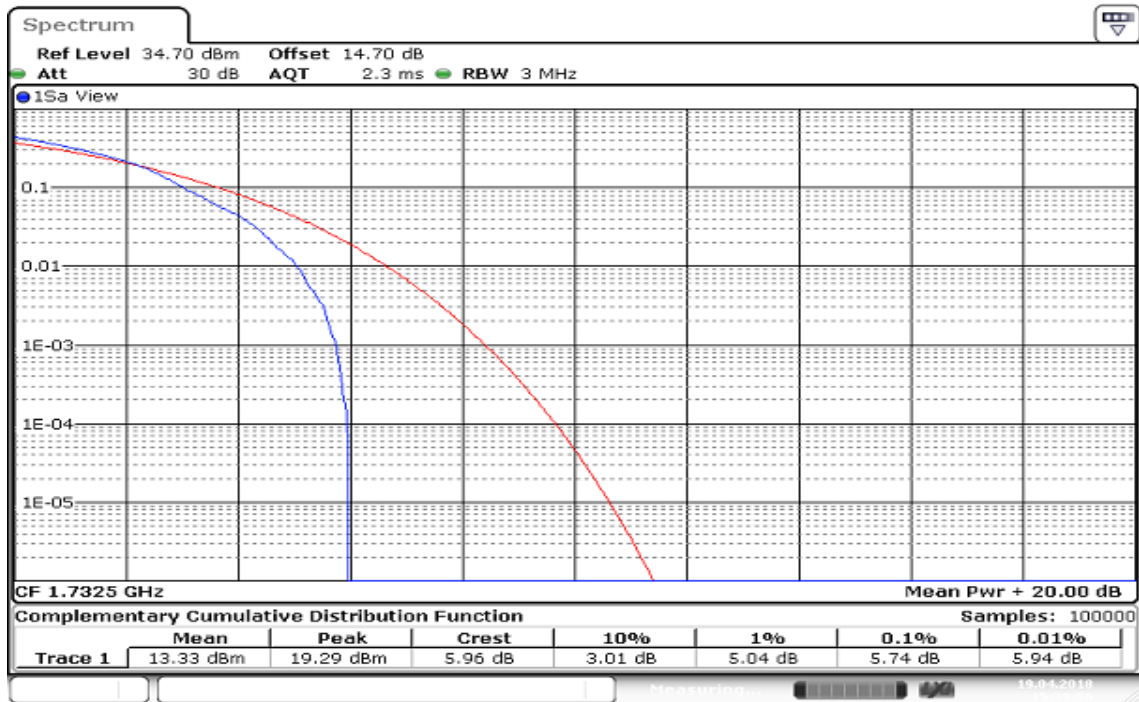
CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB
CH Mid



Date: 19 APR 2018 15:41:15

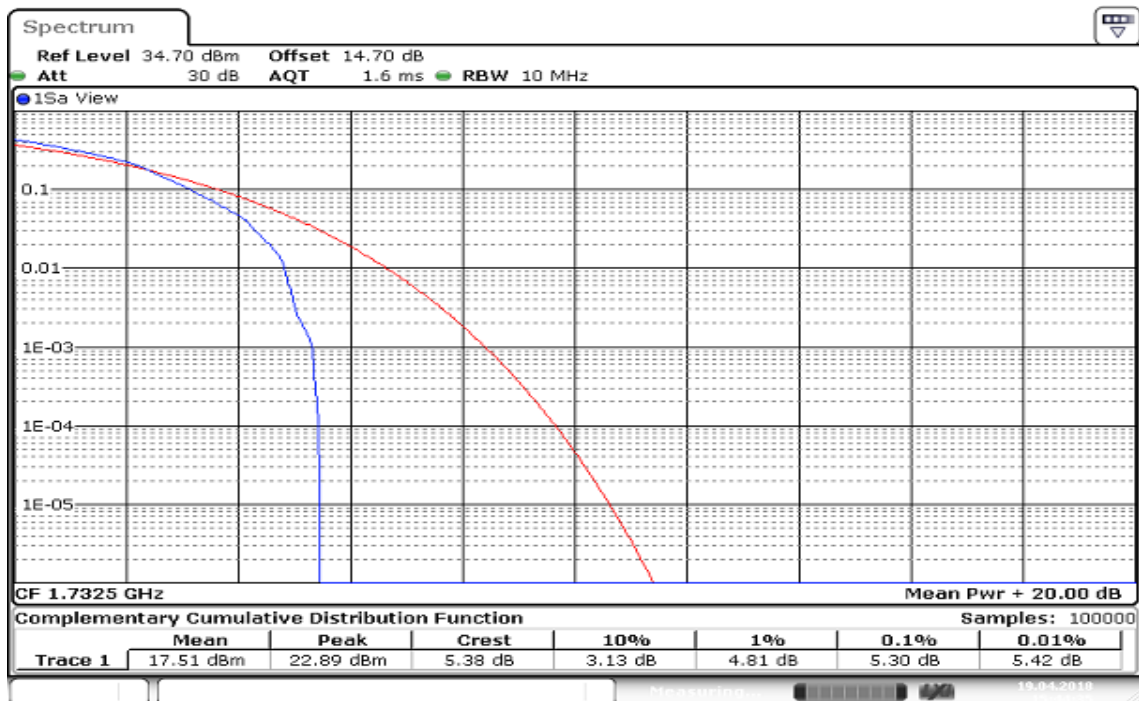
CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

CH Mid



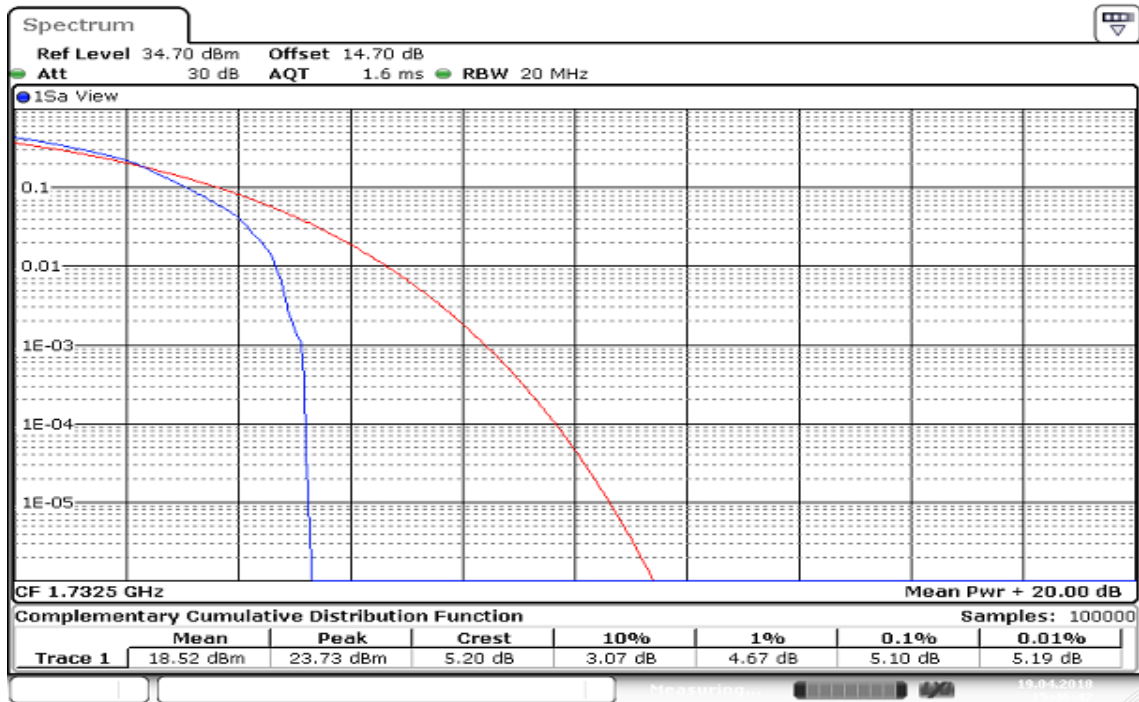
CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

CH Mid



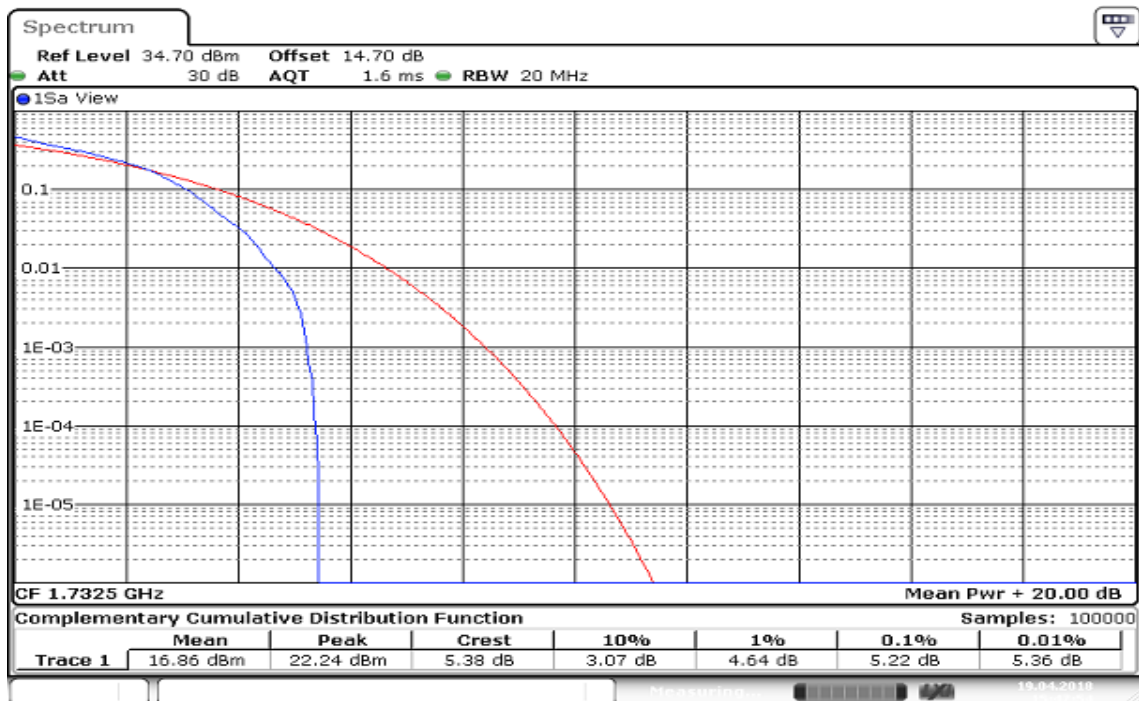
CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

CH Mid



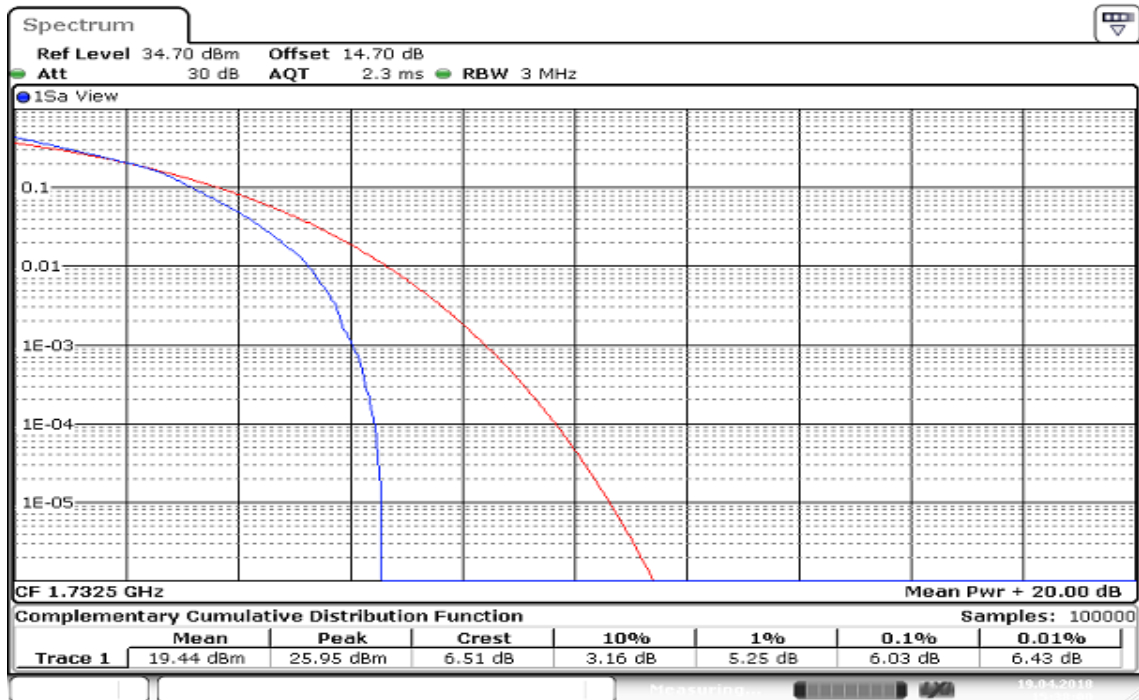
CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB

CH Mid



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

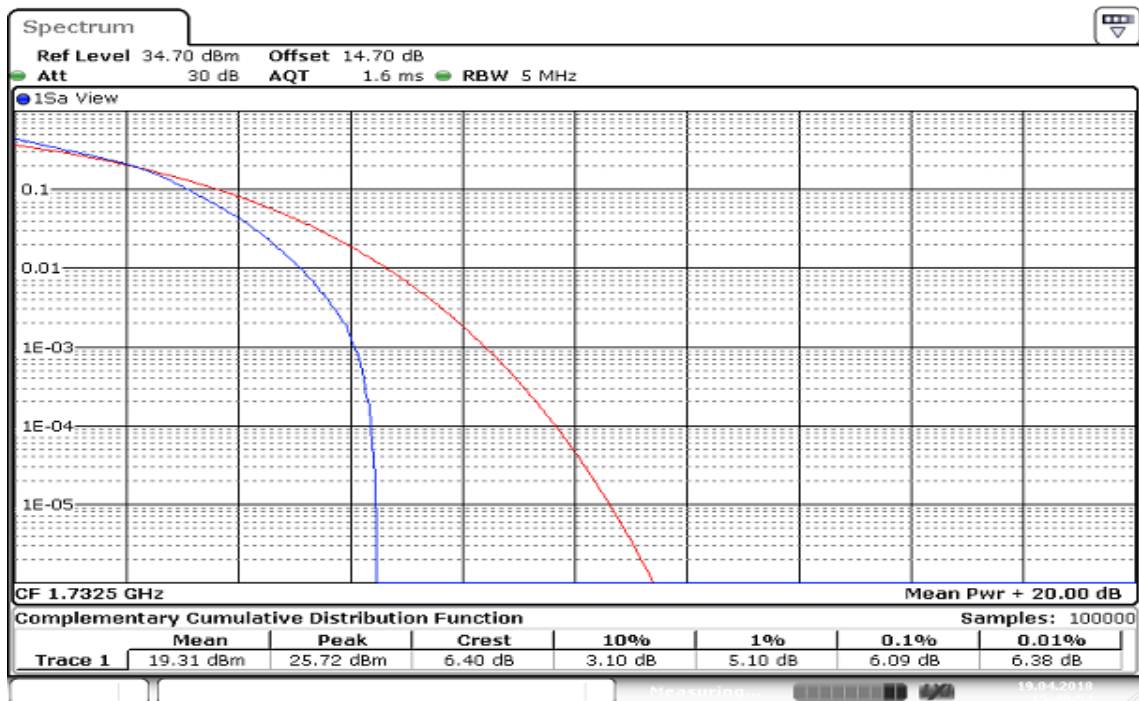
CH Mid



Date: 19 APR 2018 15:38:00

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

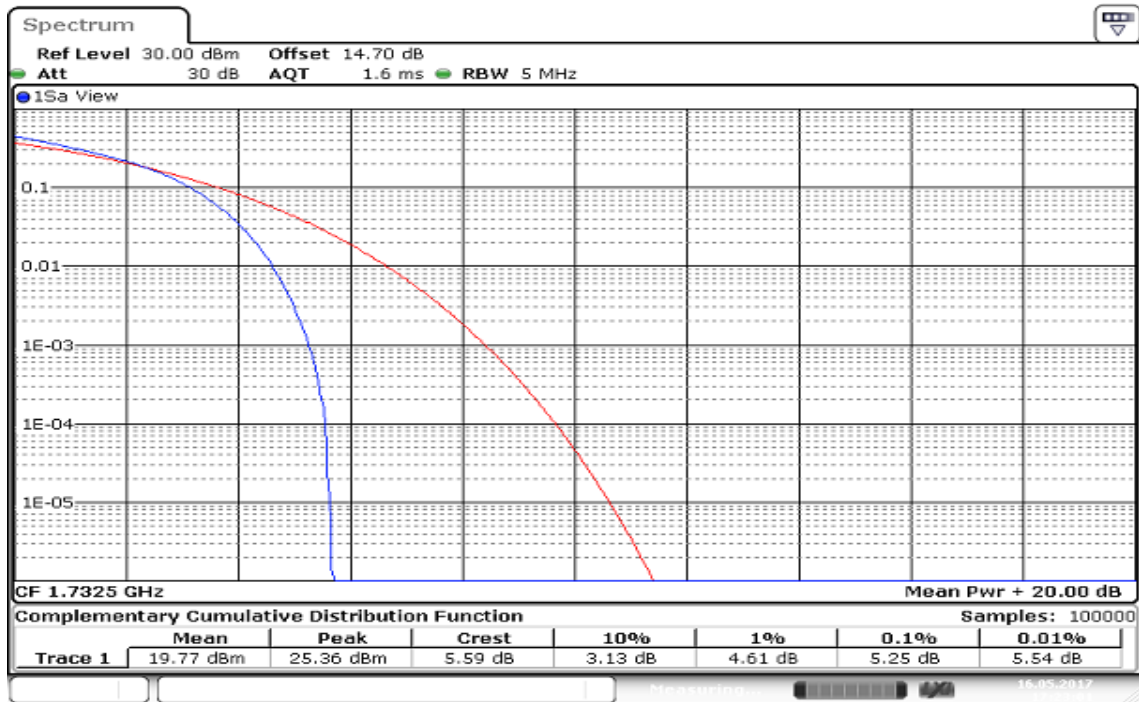
CH Mid



Date: 19 APR 2018 15:40:55

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

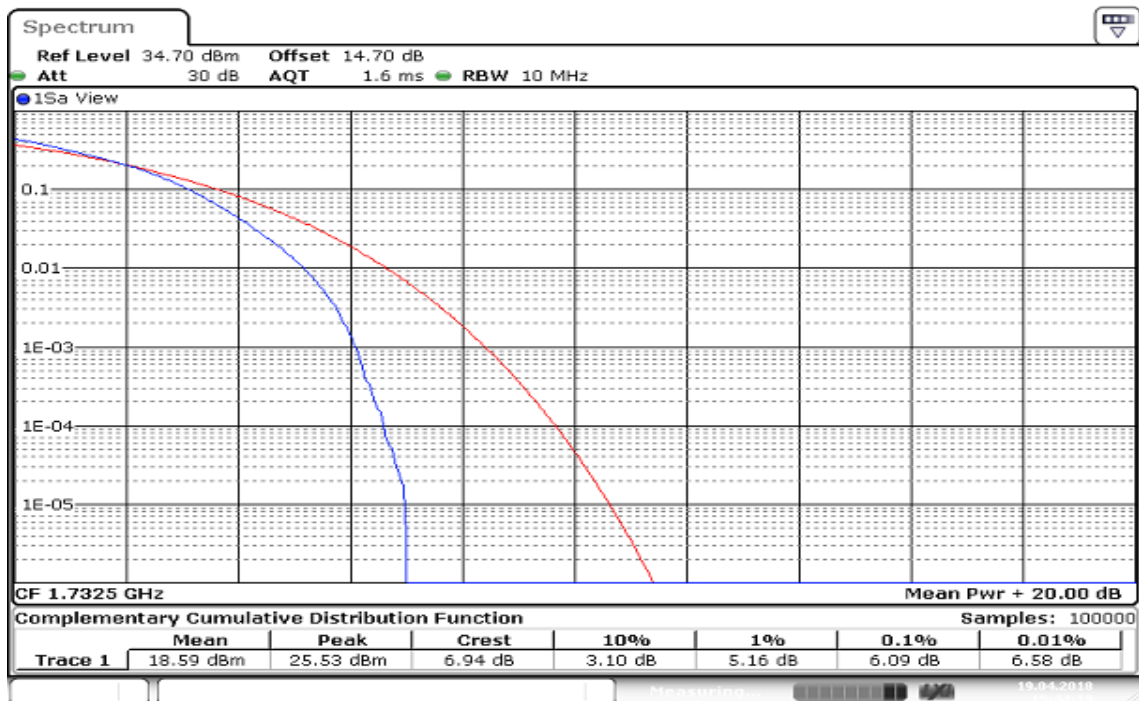
CH Mid



Date: 16MAY 2017 17:23:01

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

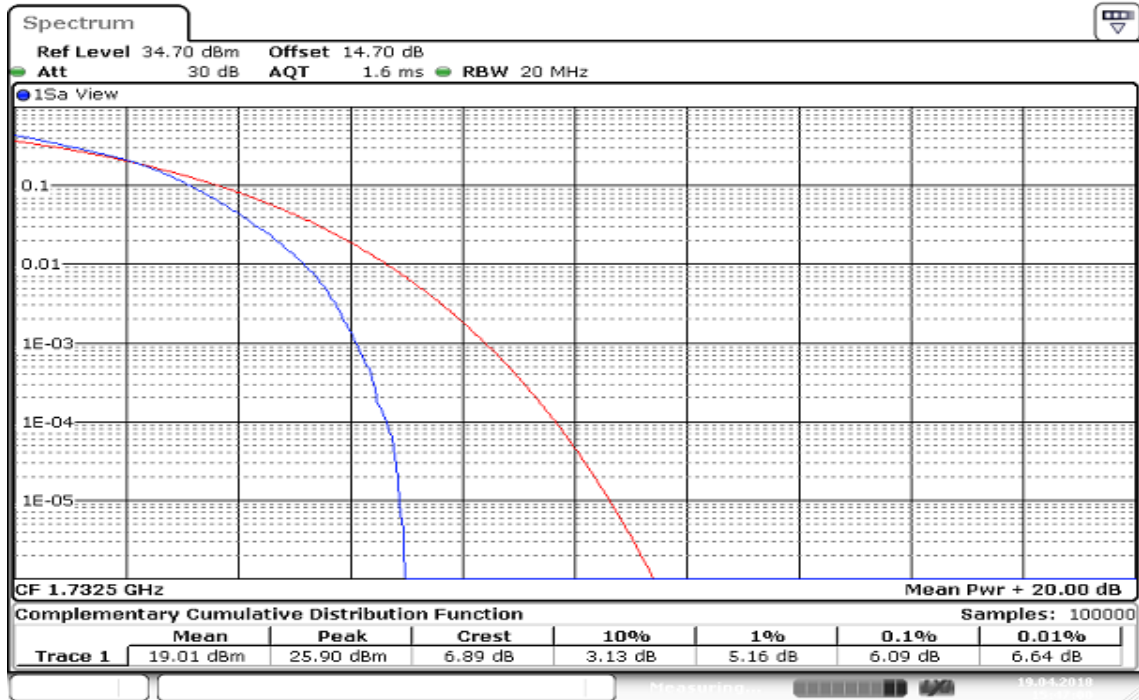
CH Mid



Date: 19APR 2018 15:44:19

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

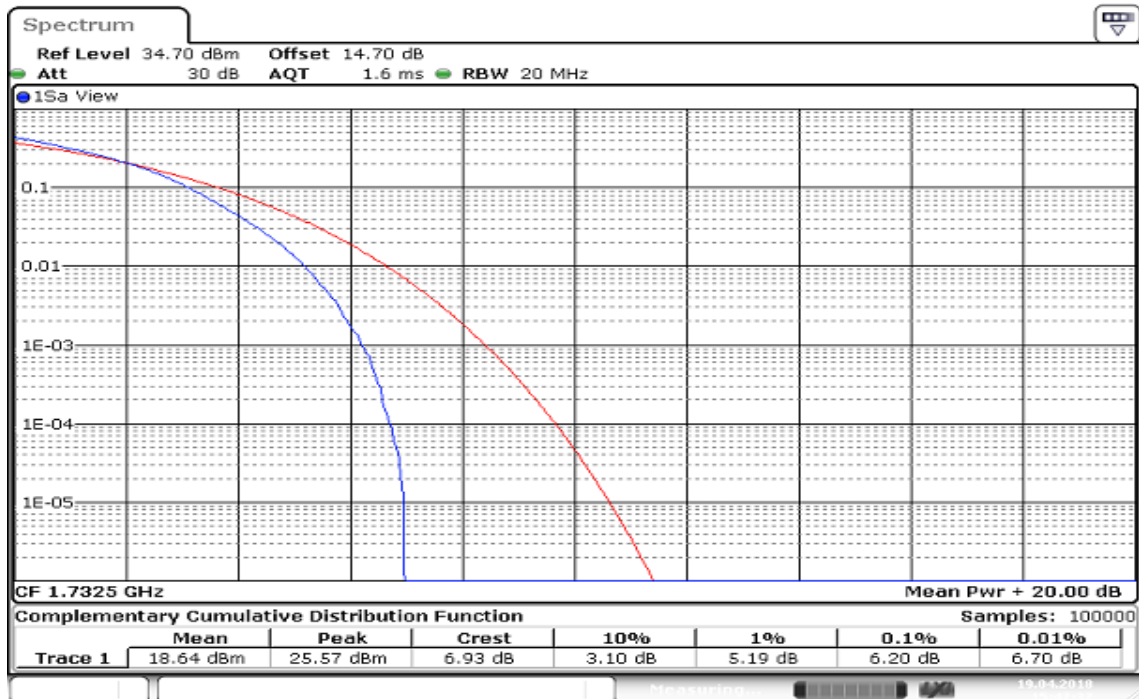
CH Mid



Date: 19 APR 2018 15:47:00

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

CH Mid



Date: 19 APR 2018 15:47:27

8.6 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 PROCEDURE

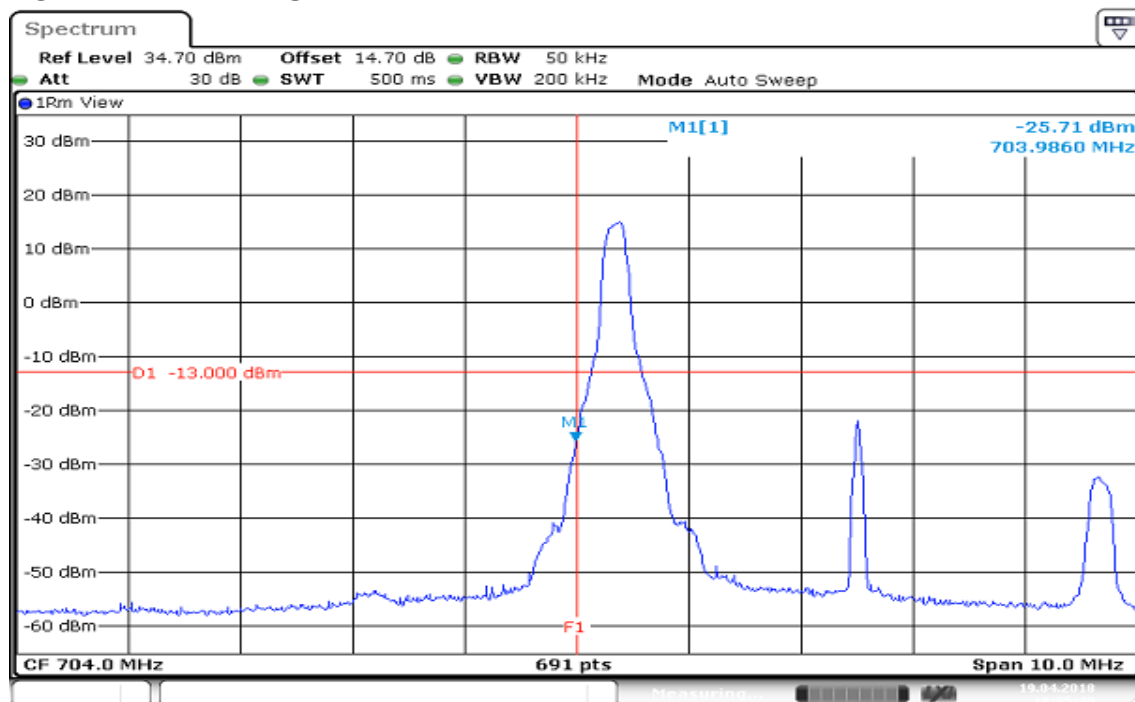
1. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
2. The band edge measurement used the power splitter via EUT RF power connector between 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 17

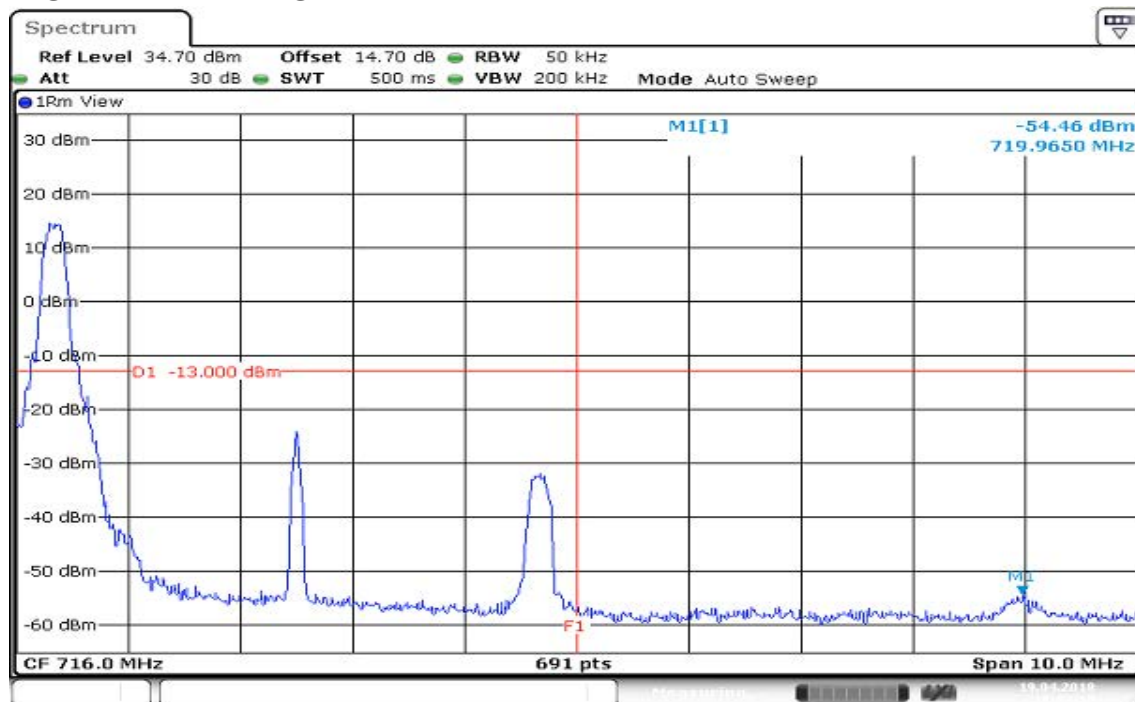
CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB ALLOCATED

LOWER BAND EDGE



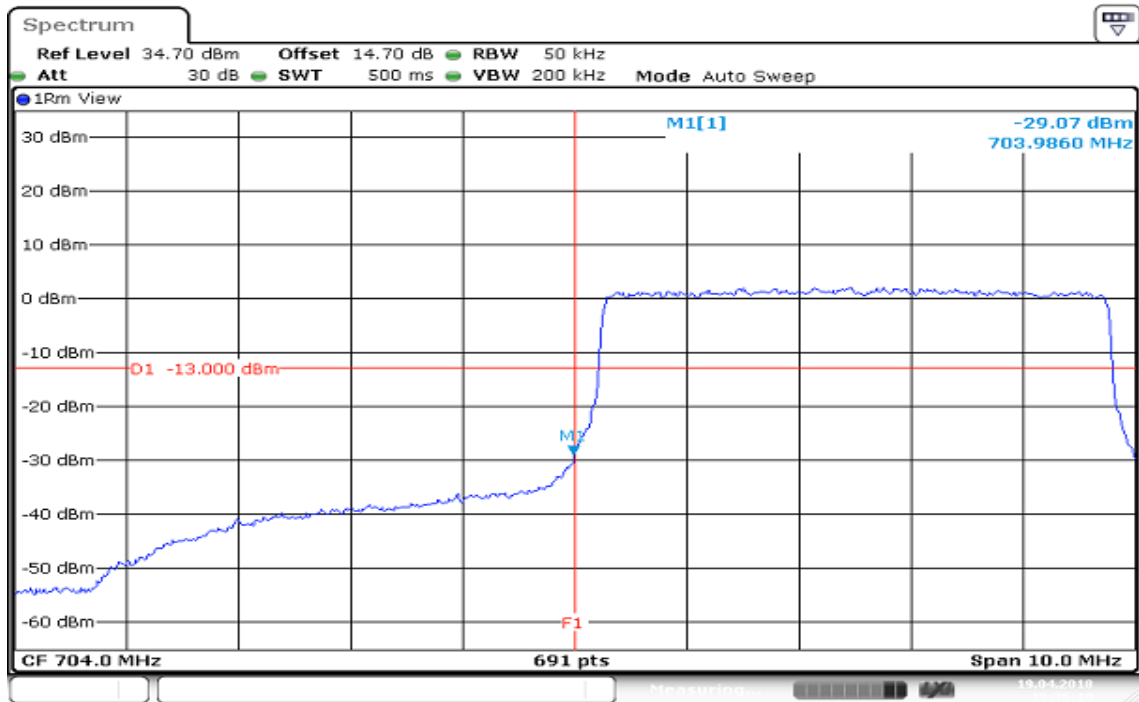
Date: 19 APR 2018 18:25:50

HIGHER BAND EDGE



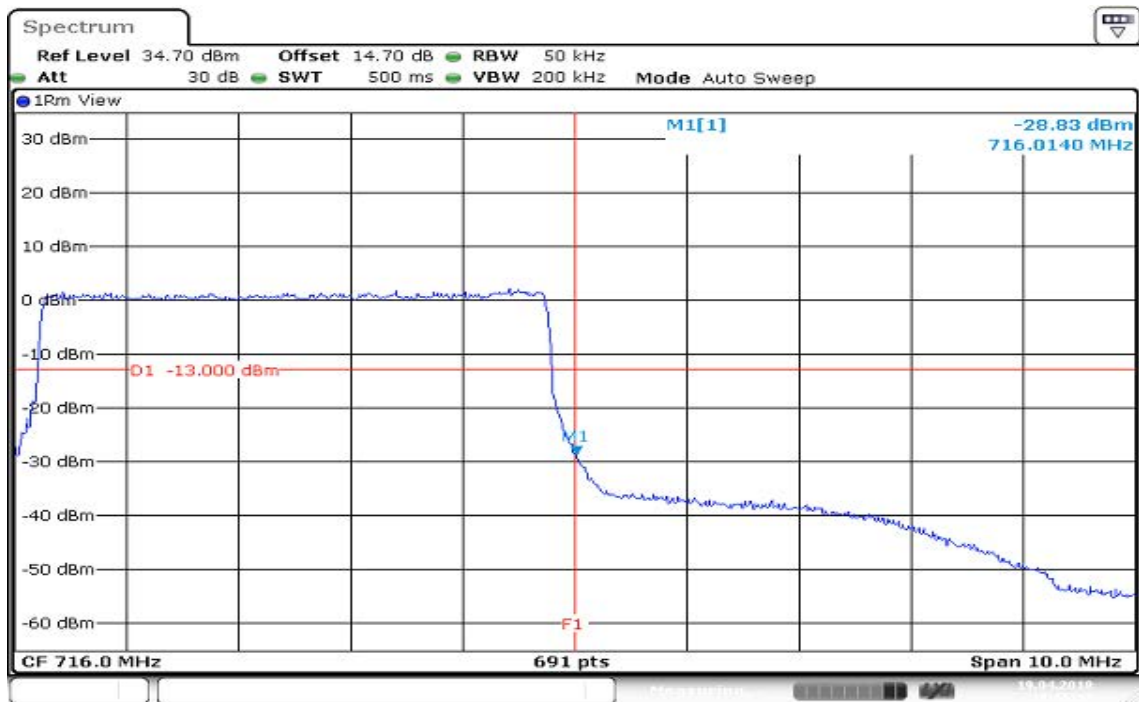
Date: 19 APR 2018 18:27:16

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



Date: 19 APR 2018 18:26:11

HIGHER BAND EDGE

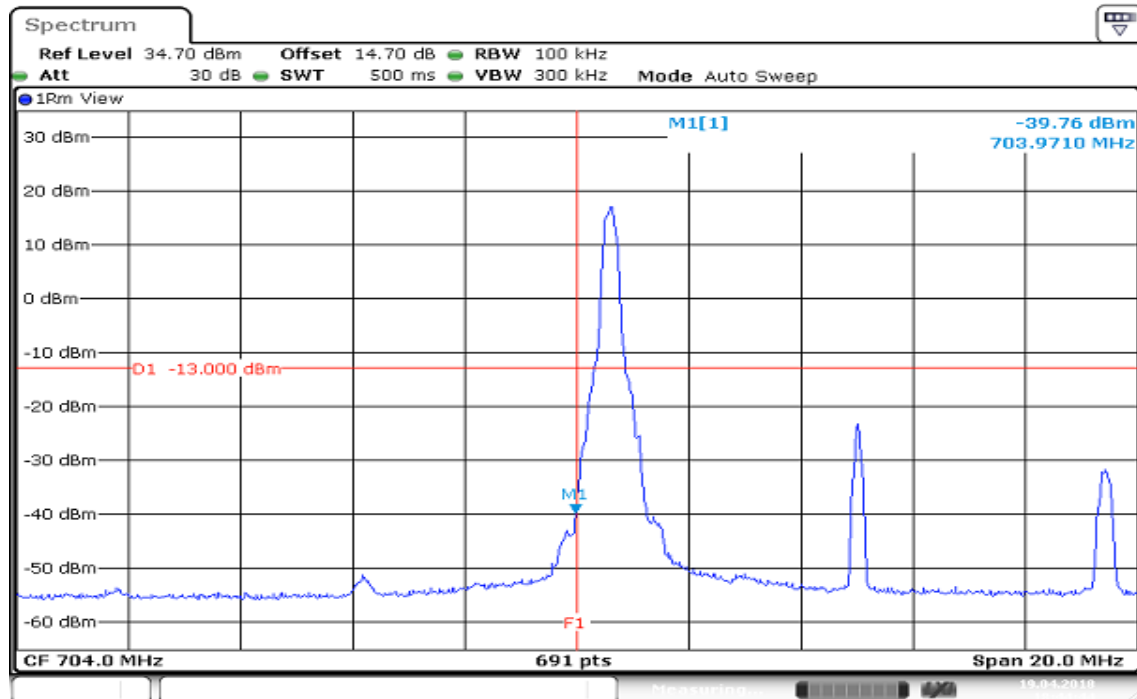


Date: 19 APR 2018 18:26:47

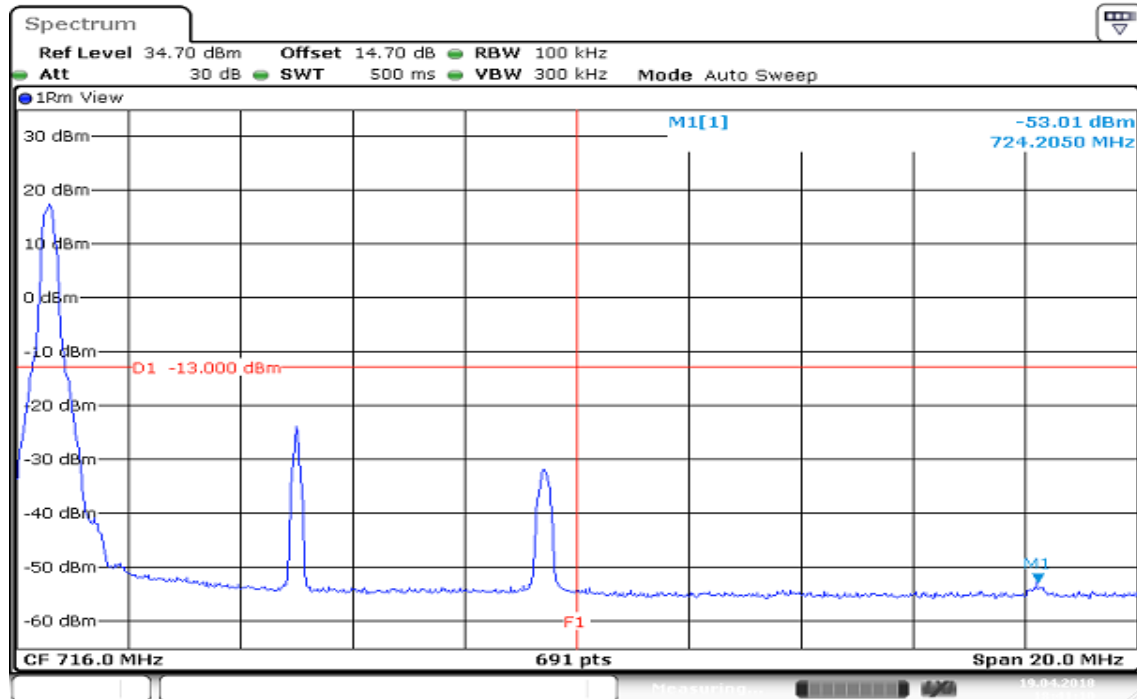
Report No.: T170908D07-A-RP9

LTE Band 17

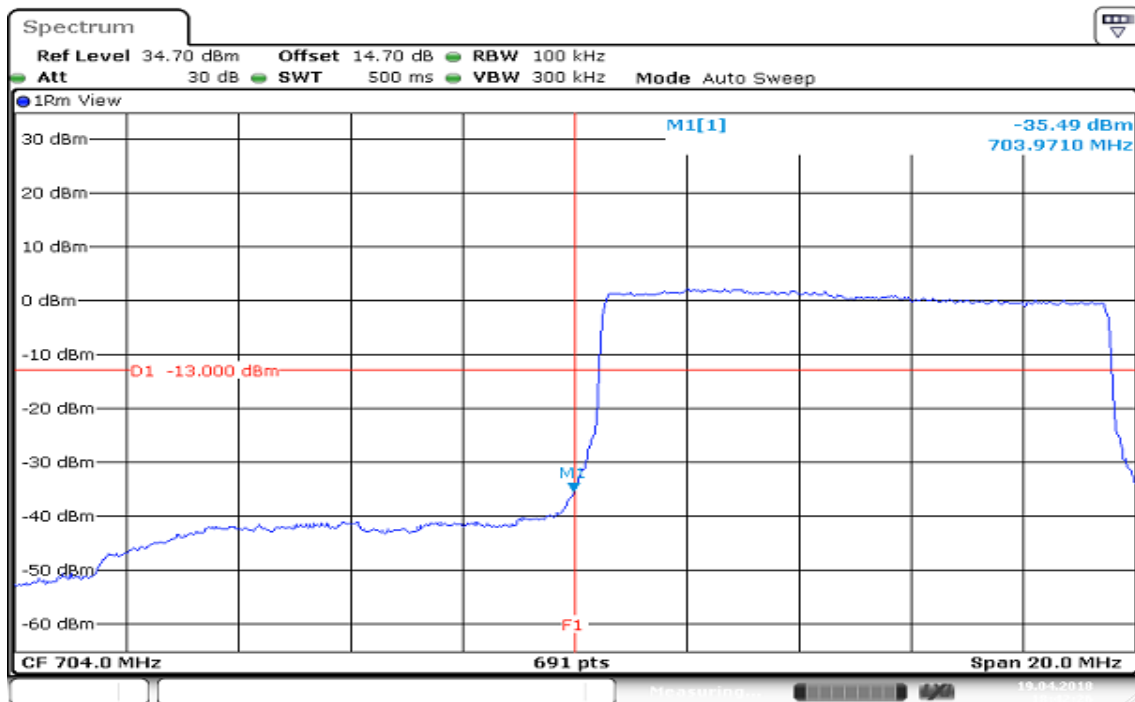
CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB ALLOCATED
LOWER BAND EDGE



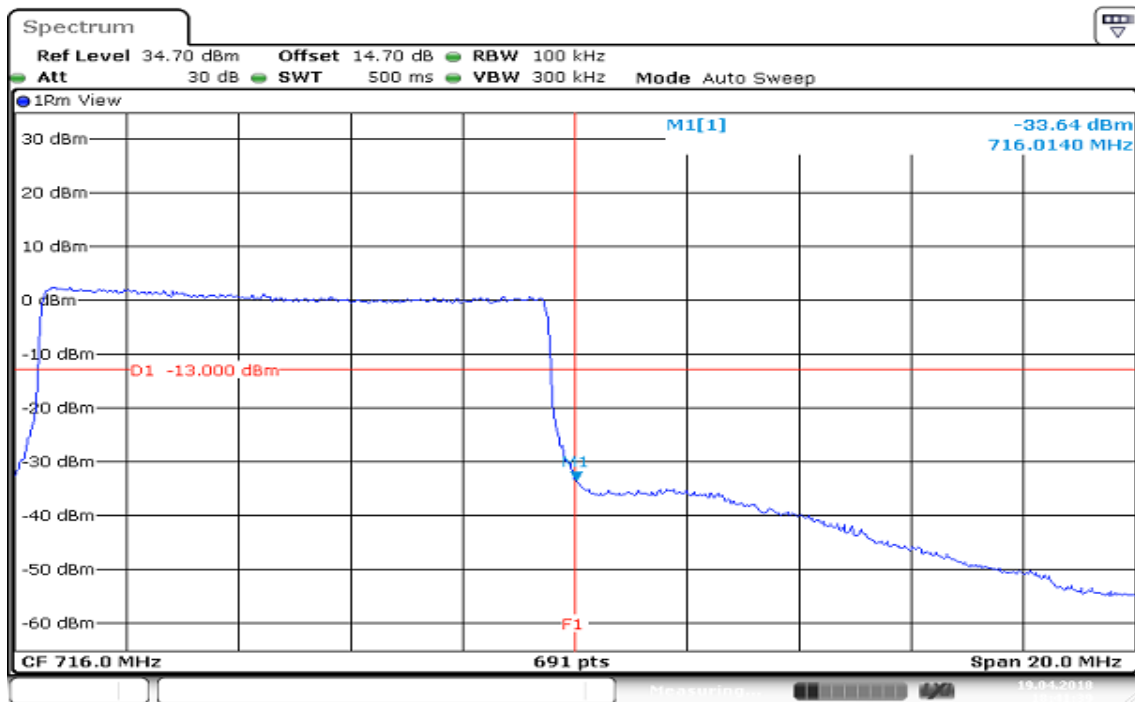
HIGHER BAND EDGE



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



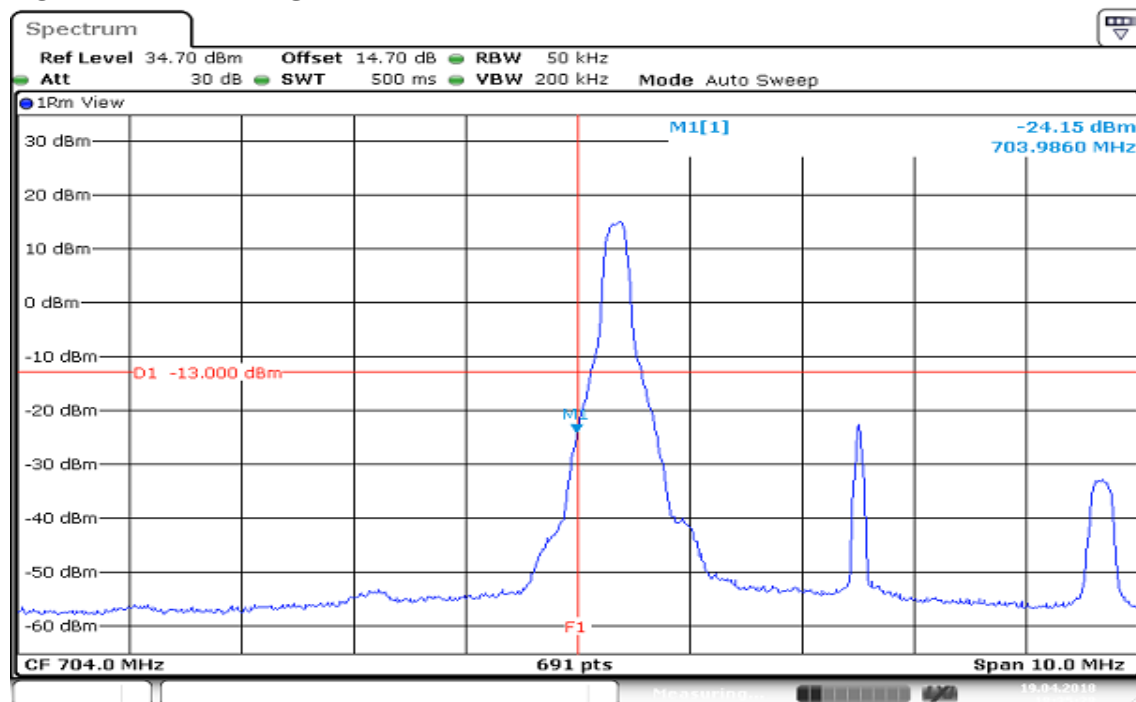
HIGHER BAND EDGE



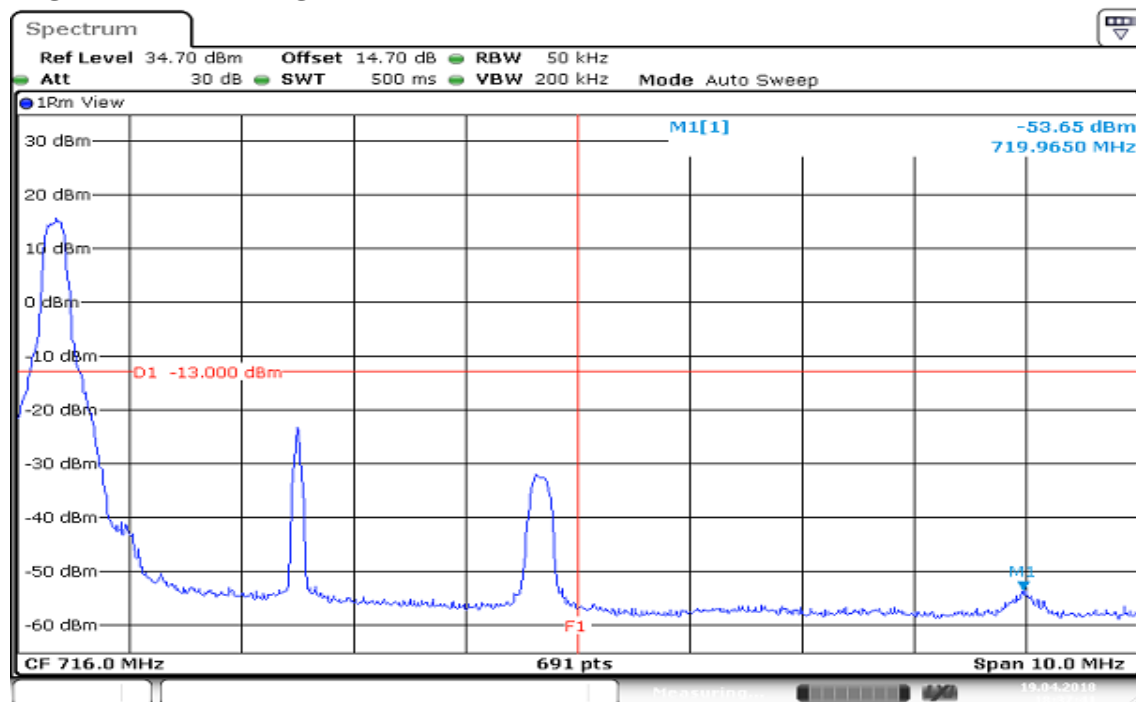
LTE Band 17

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

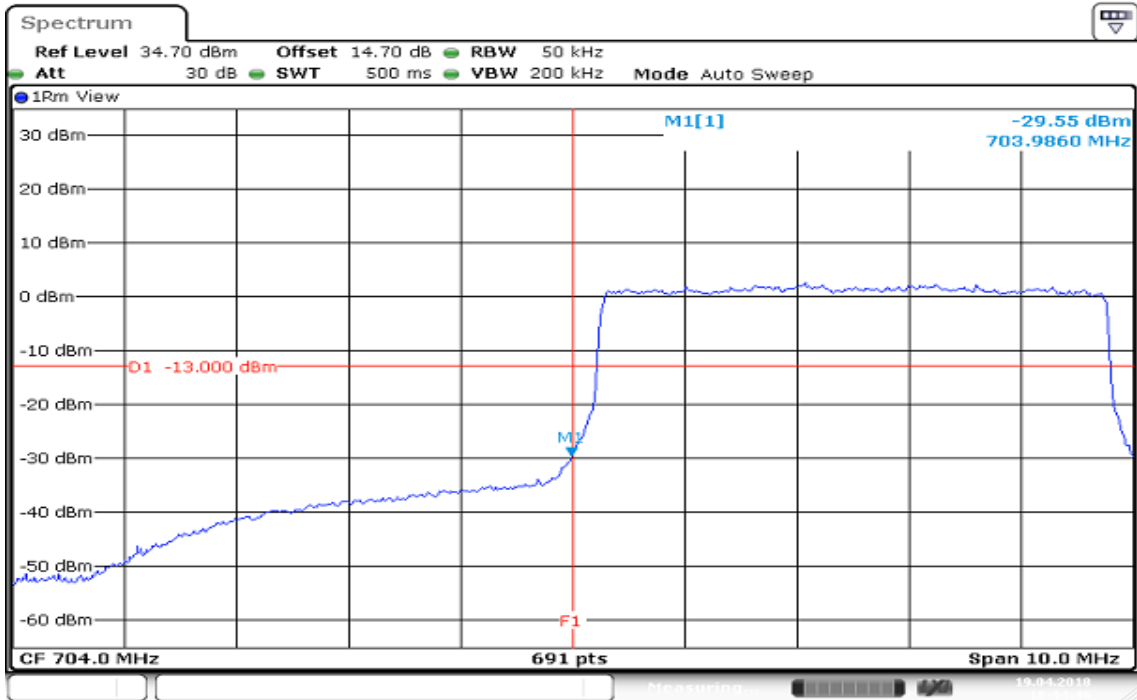
LOWER BAND EDGE



HIGHER BAND EDGE

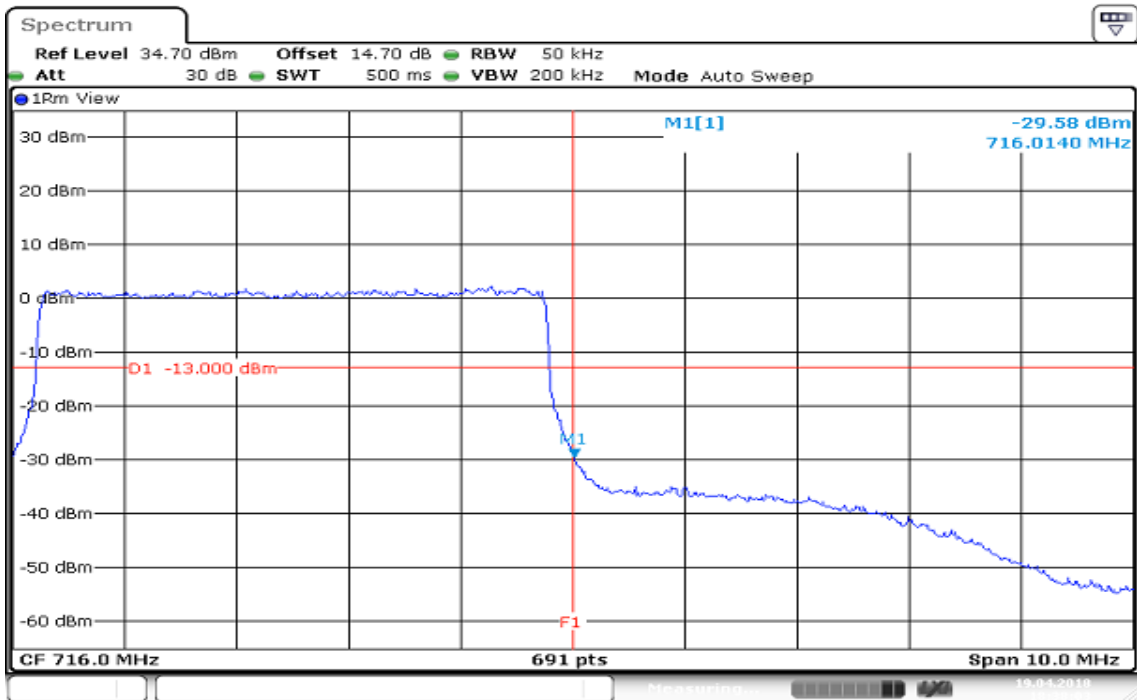


CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB ALLOCATED LOWER BAND EDGE



Date: 19 APR 2018 18:24:47

HIGHER BAND EDGE

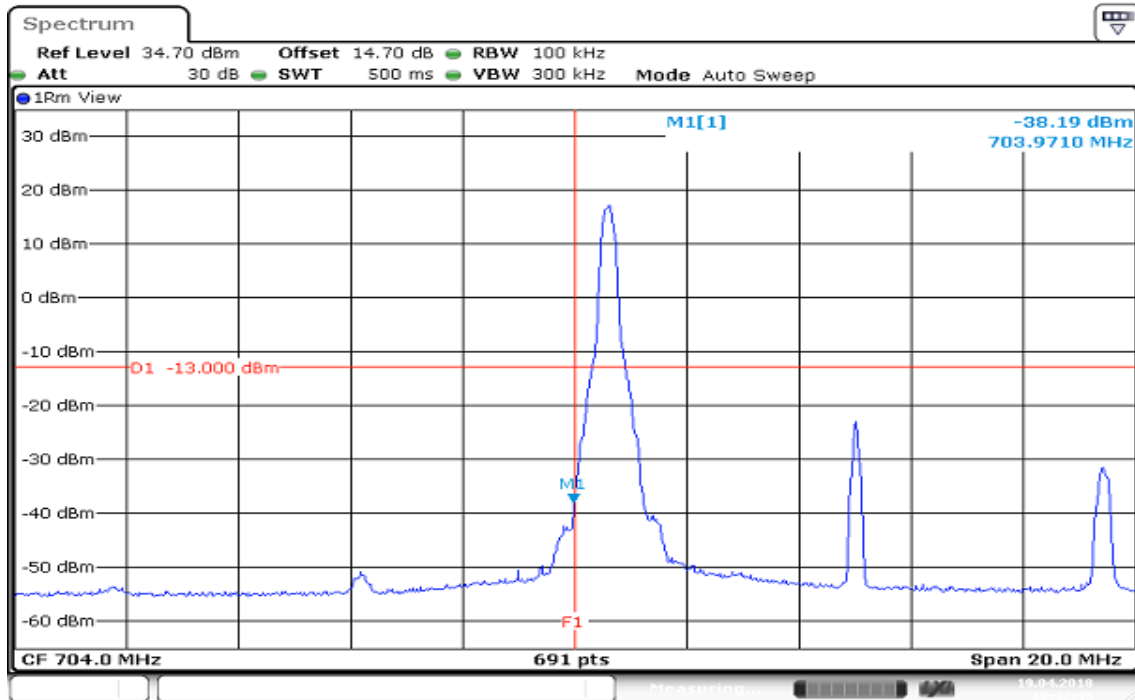


Date: 19 APR 2018 18:28:04

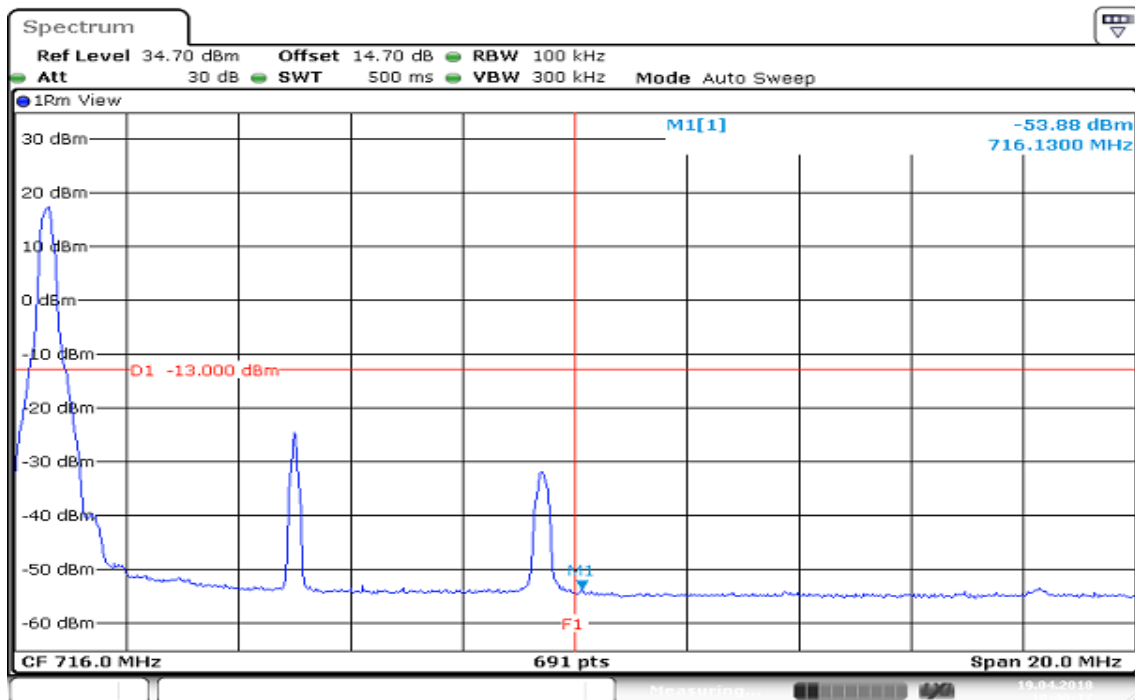
LTE Band 17

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

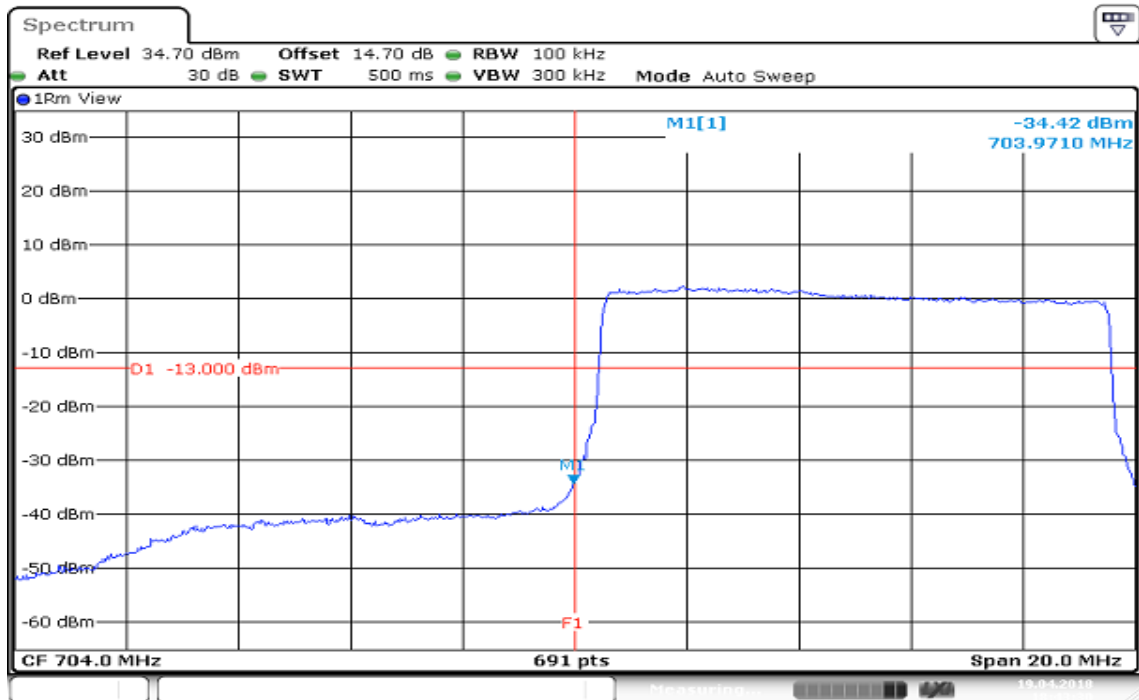
LOWER BAND EDGE



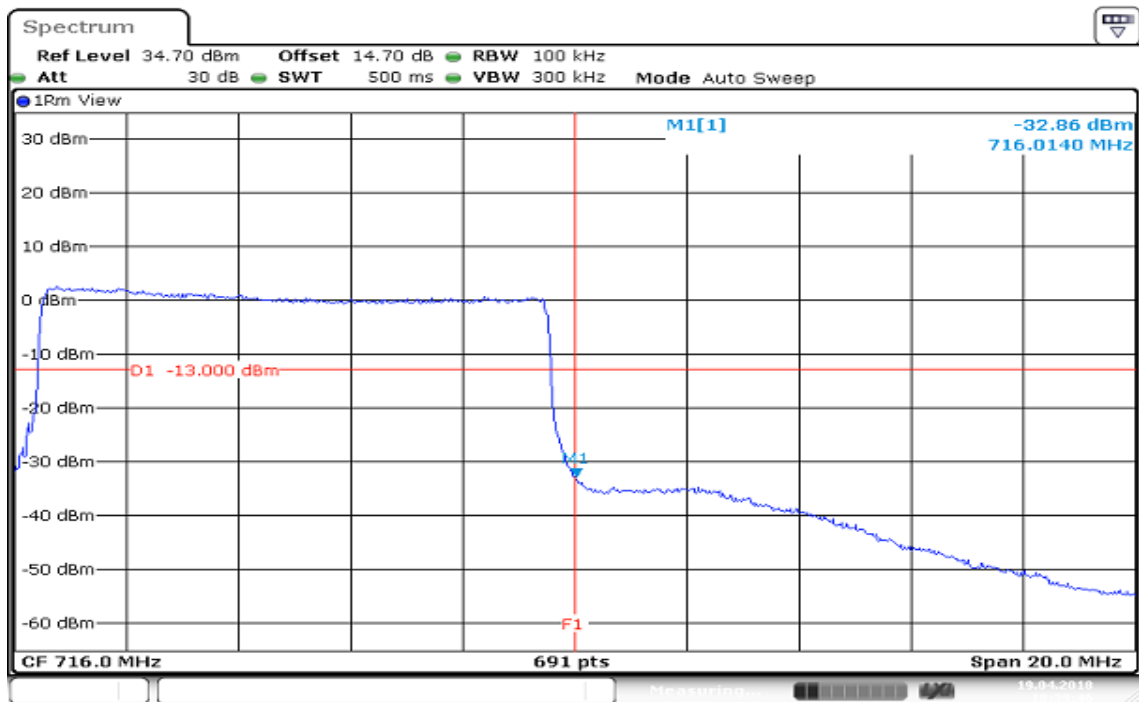
HIGHER BAND EDGE



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



HIGHER BAND EDGE



Report No.: T170908D07-A-RP9

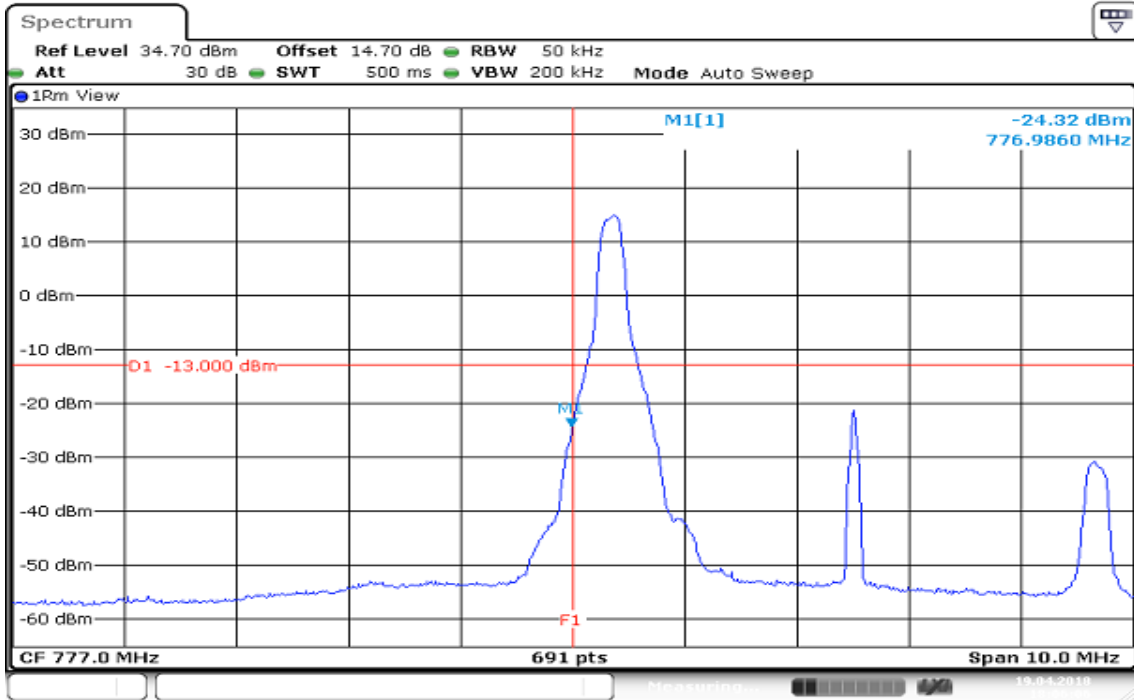
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LTE Band 13

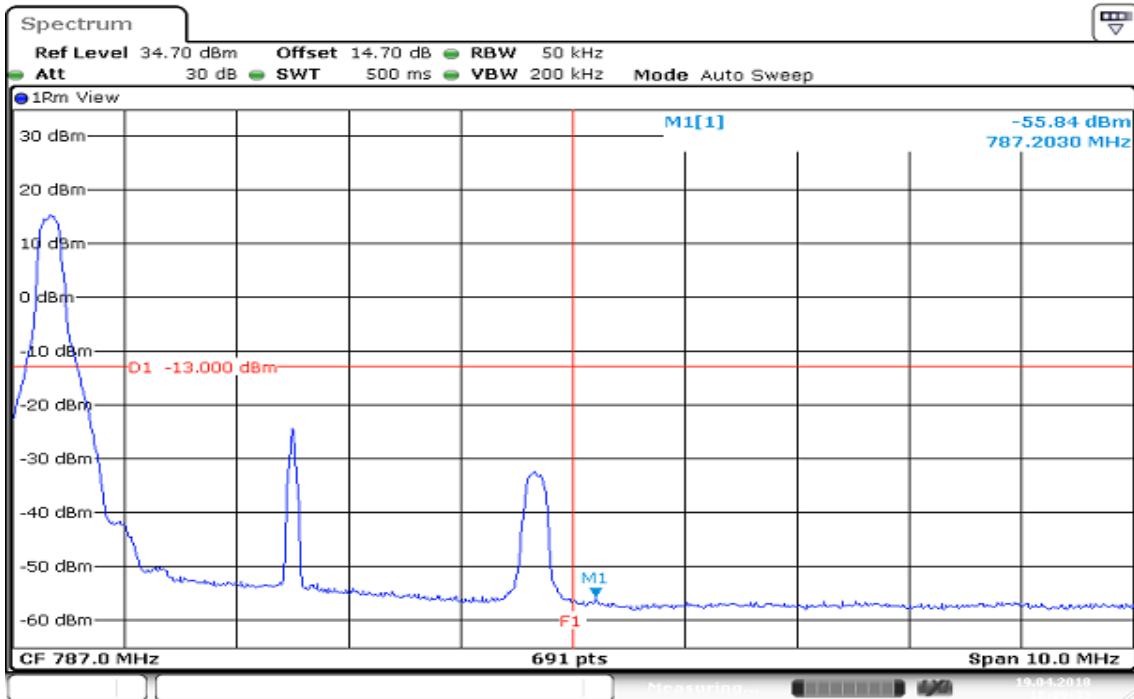
CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB ALLOCATED

LOWER BAND EDGE



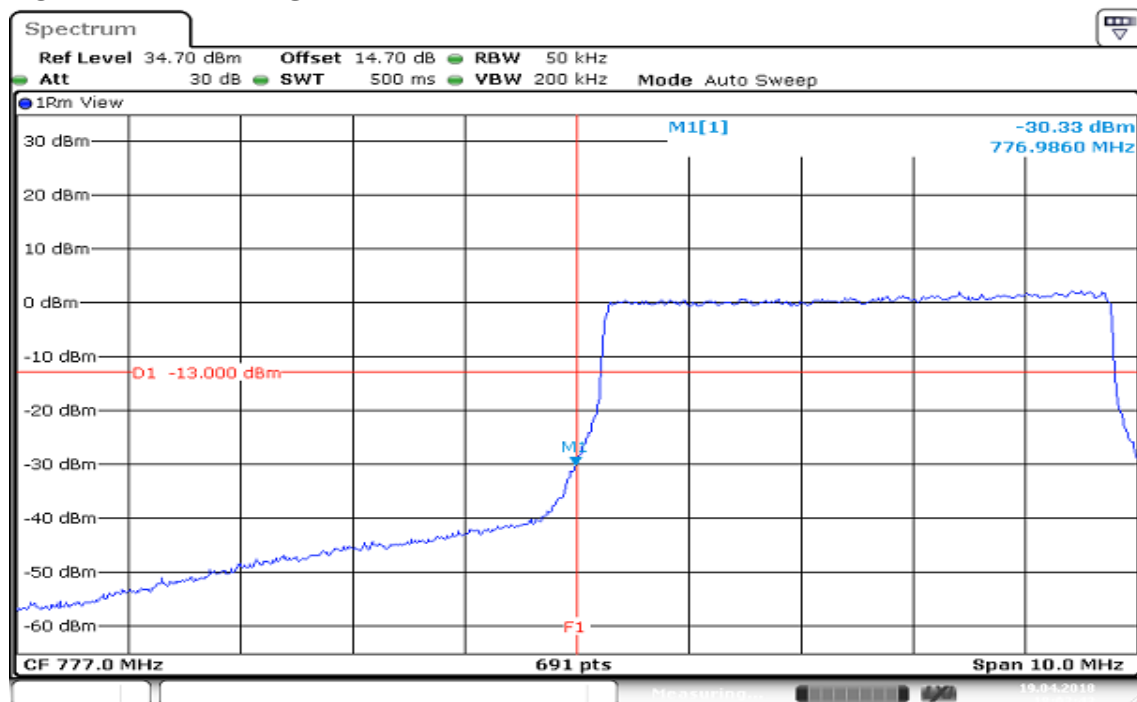
Date: 19 APR 2018 18:06:06

HIGHER BAND EDGE



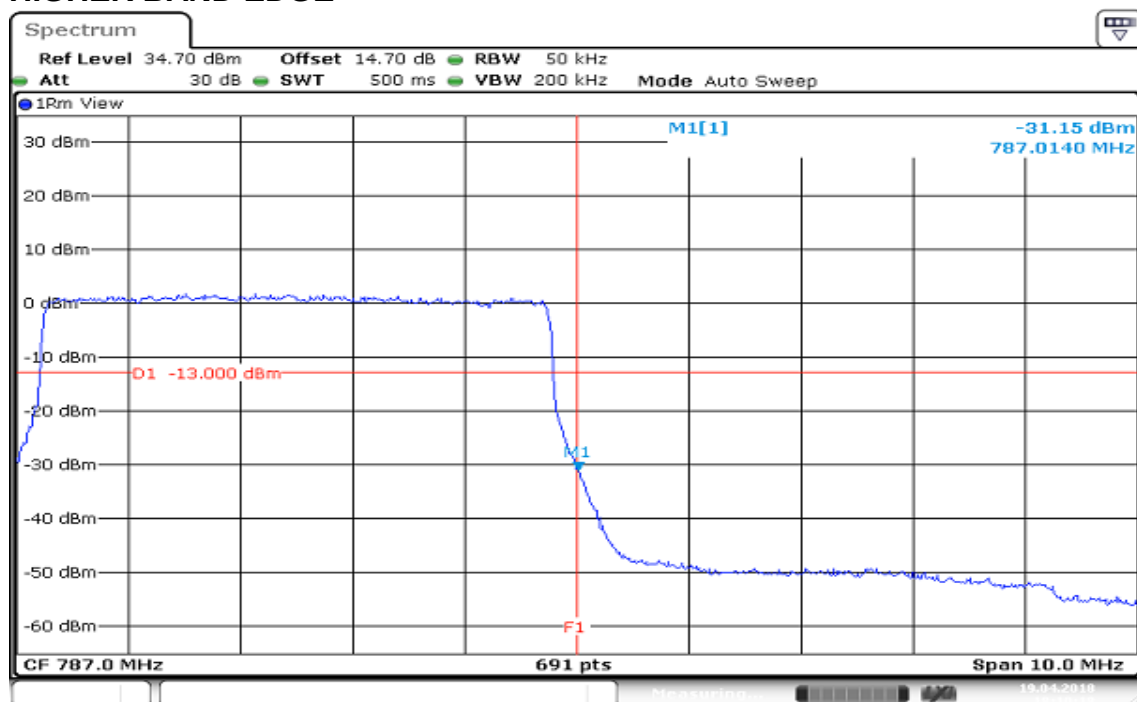
Date: 19 APR 2018 18:09:34

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



Date: 19 APR 2018 18:03:43

HIGHER BAND EDGE



Date: 19 APR 2018 18:10:19

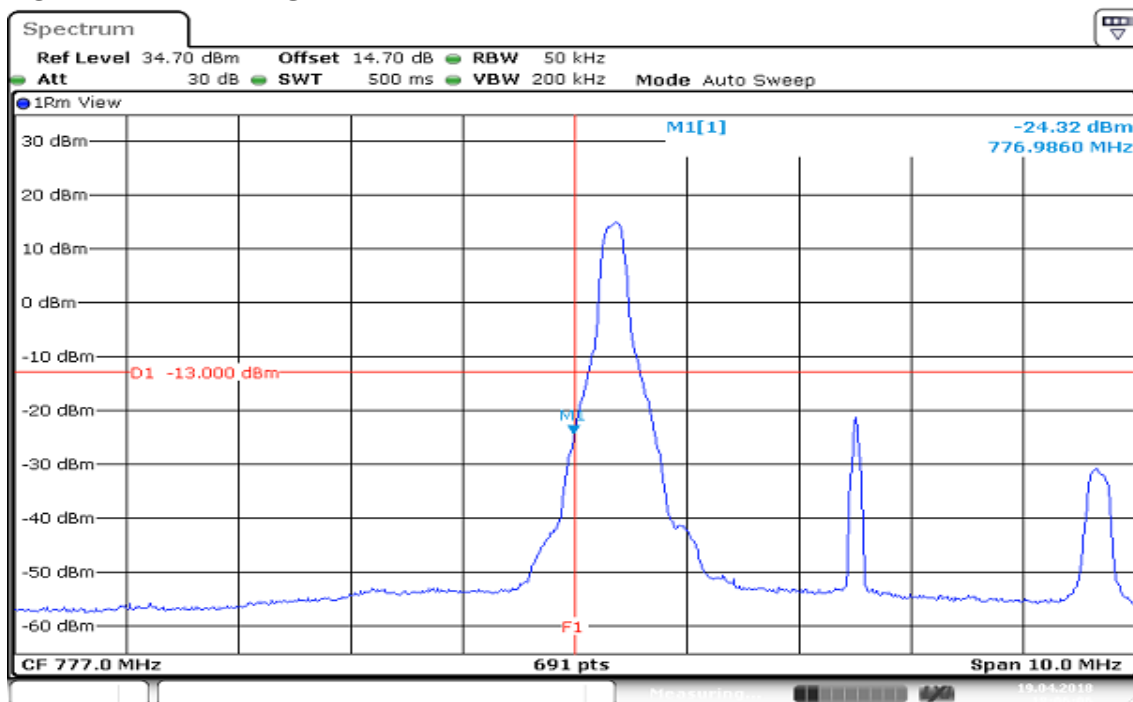
Report No.: T170908D07-A-RP9

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LTE Band 13

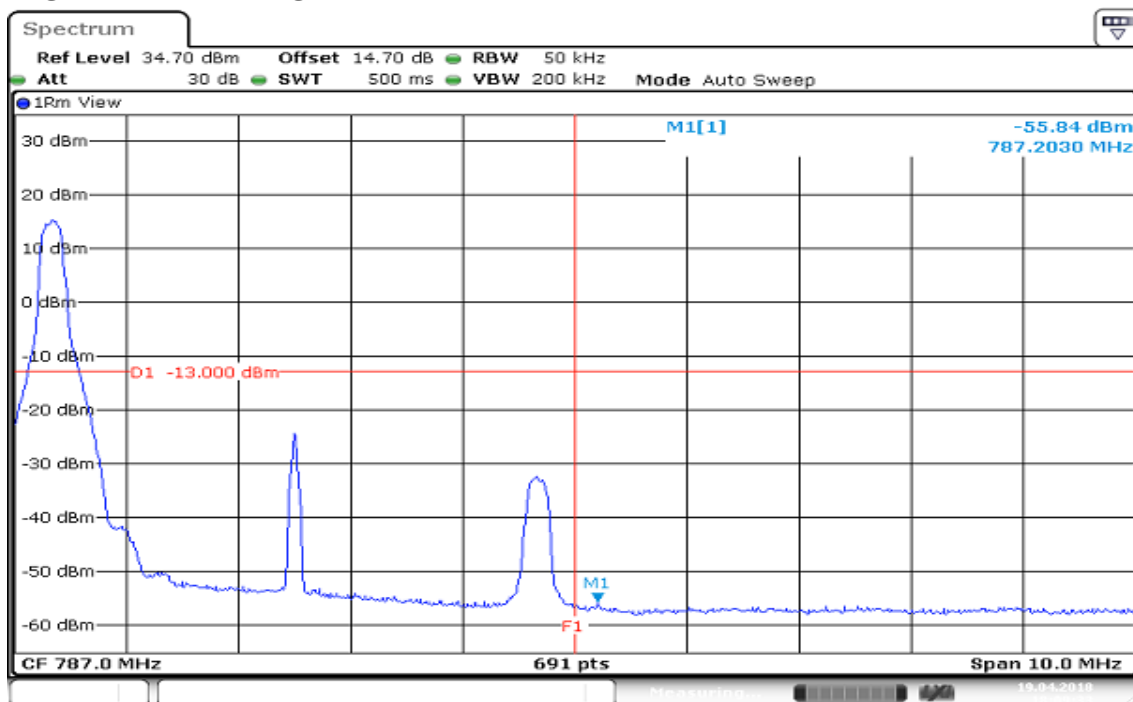
CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB ALLOCATED

LOWER BAND EDGE



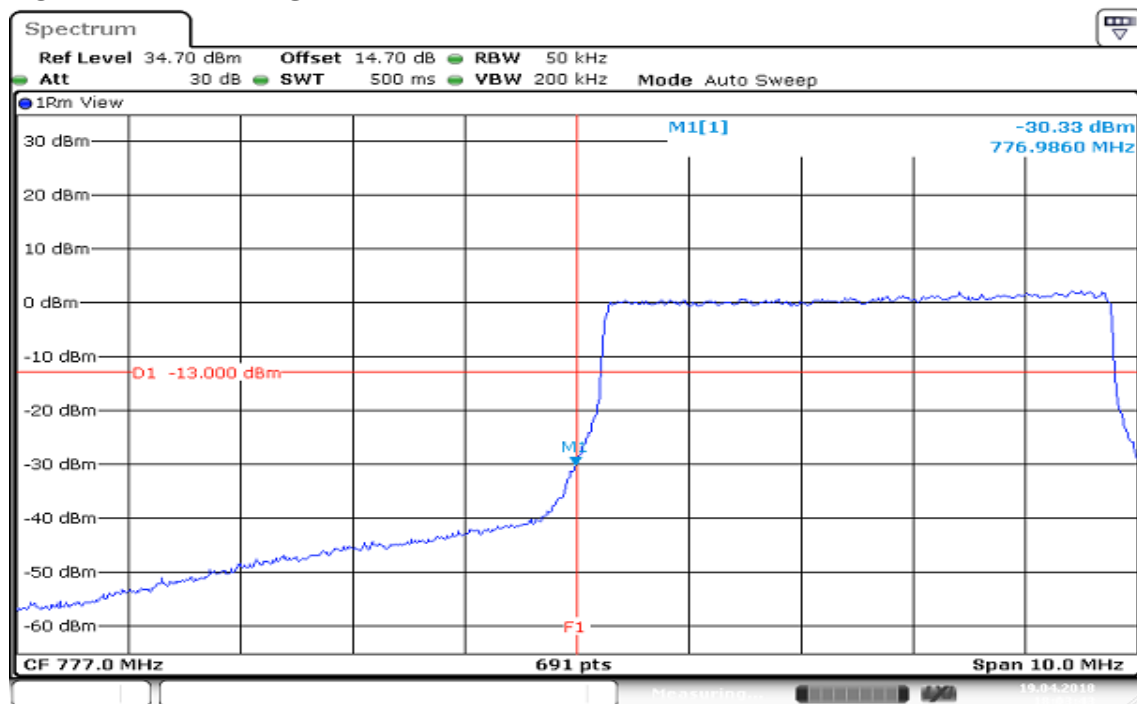
Date: 19 APR 2018 18:06:06

HIGHER BAND EDGE



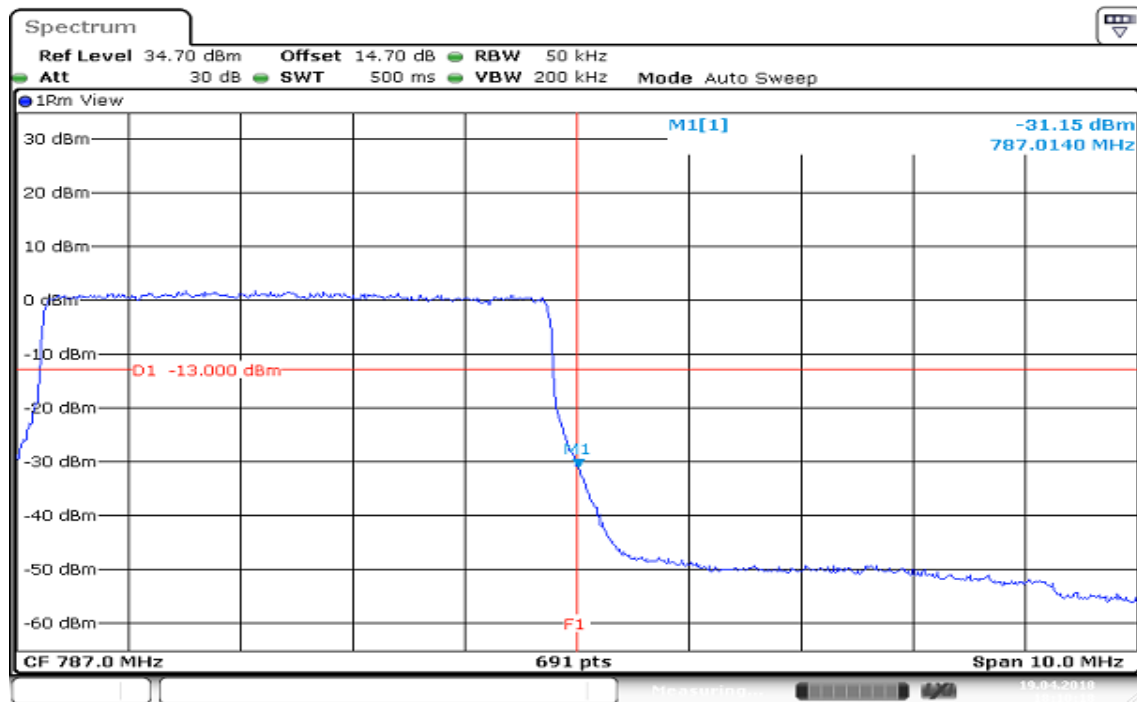
Date: 19 APR 2018 18:09:34

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



Date: 19 APR 2018 18:03:43

HIGHER BAND EDGE



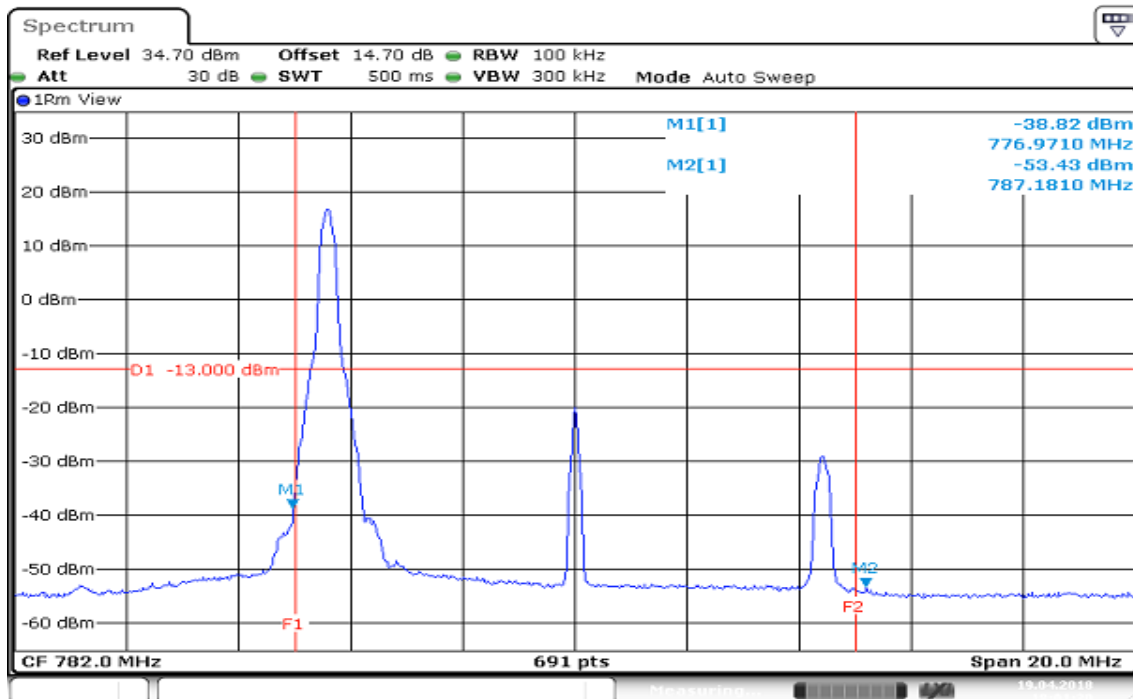
Date: 19 APR 2018 18:10:19

Report No.: T170908D07-A-RP9

LTE Band 13

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB ALLOCATED

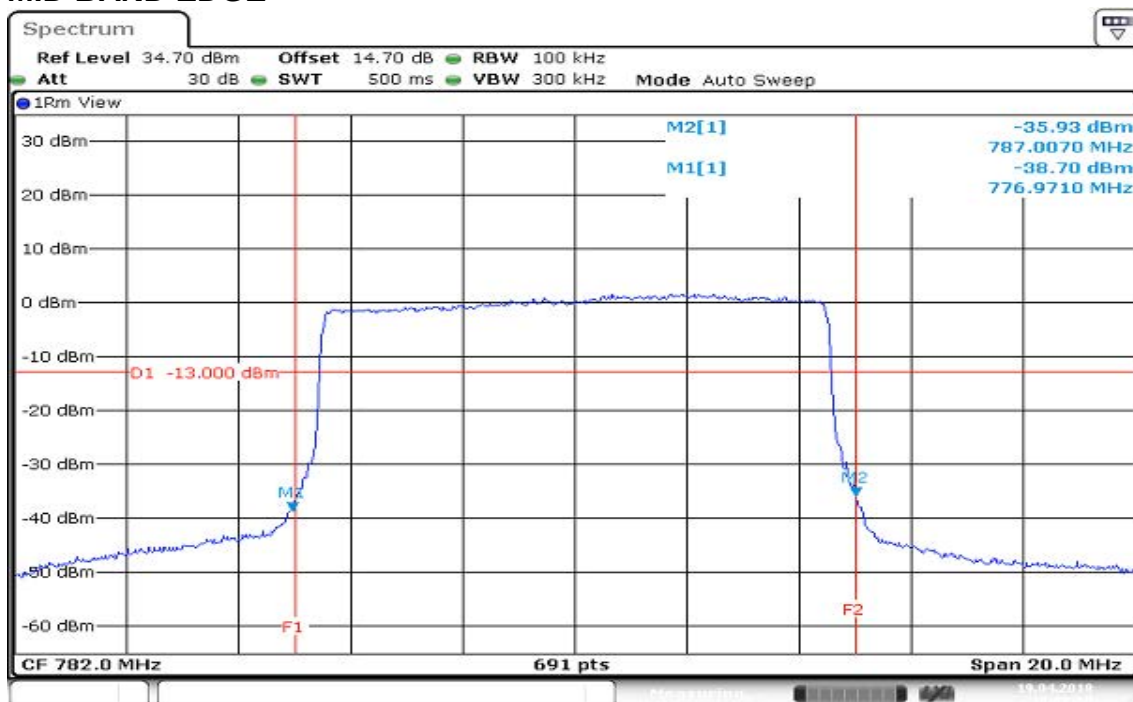
MID BAND EDGE



Date: 19 APR 2018 18:01:30

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB ALLOCATED

MID BAND EDGE

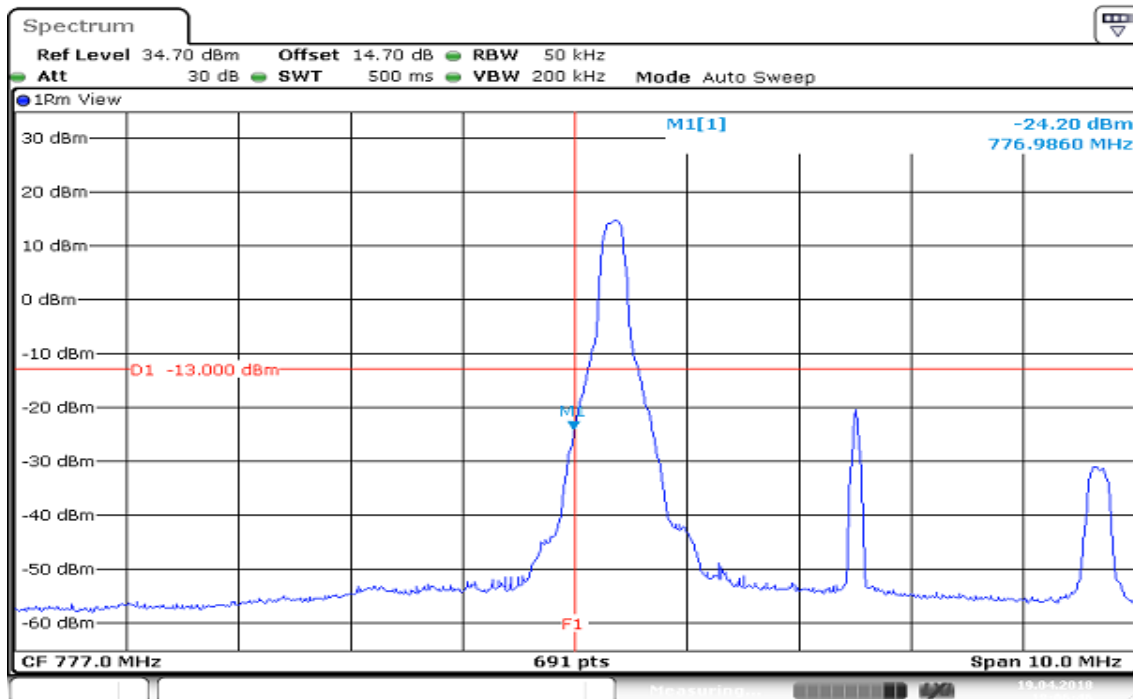


Date: 19 APR 2018 18:01:00

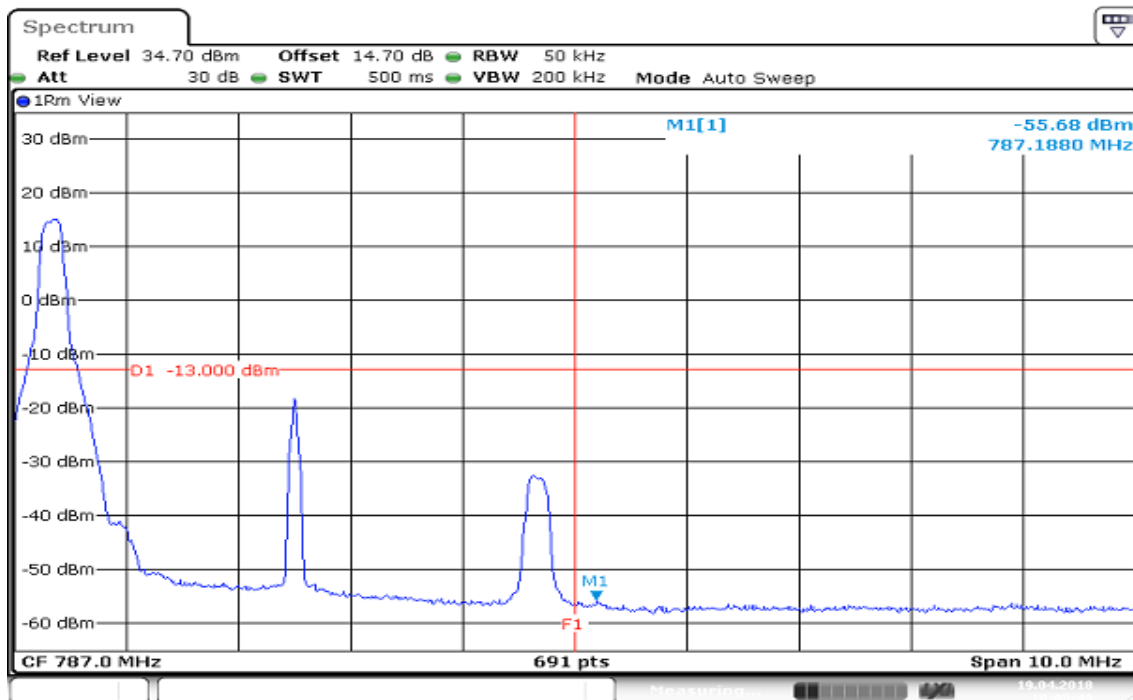
LTE Band 13

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

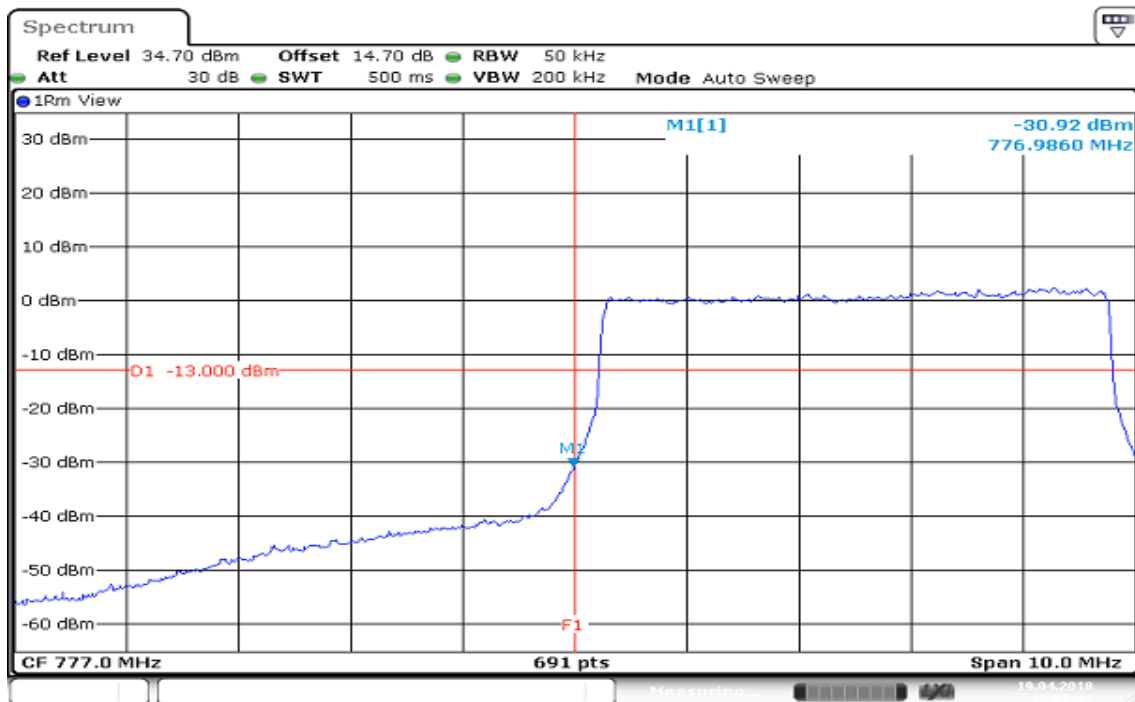
LOWER BAND EDGE



HIGHER BAND EDGE

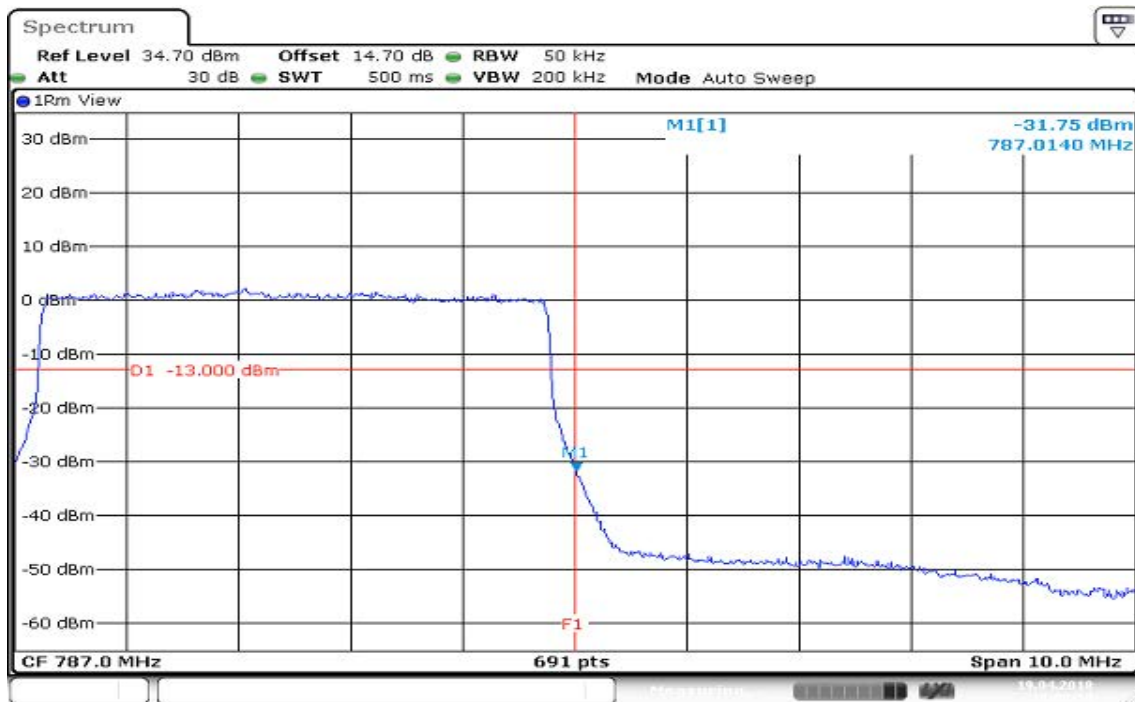


CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB ALLOCATED LOWER BAND EDGE



Date: 19 APR 2018 18:07:42

HIGHER BAND EDGE



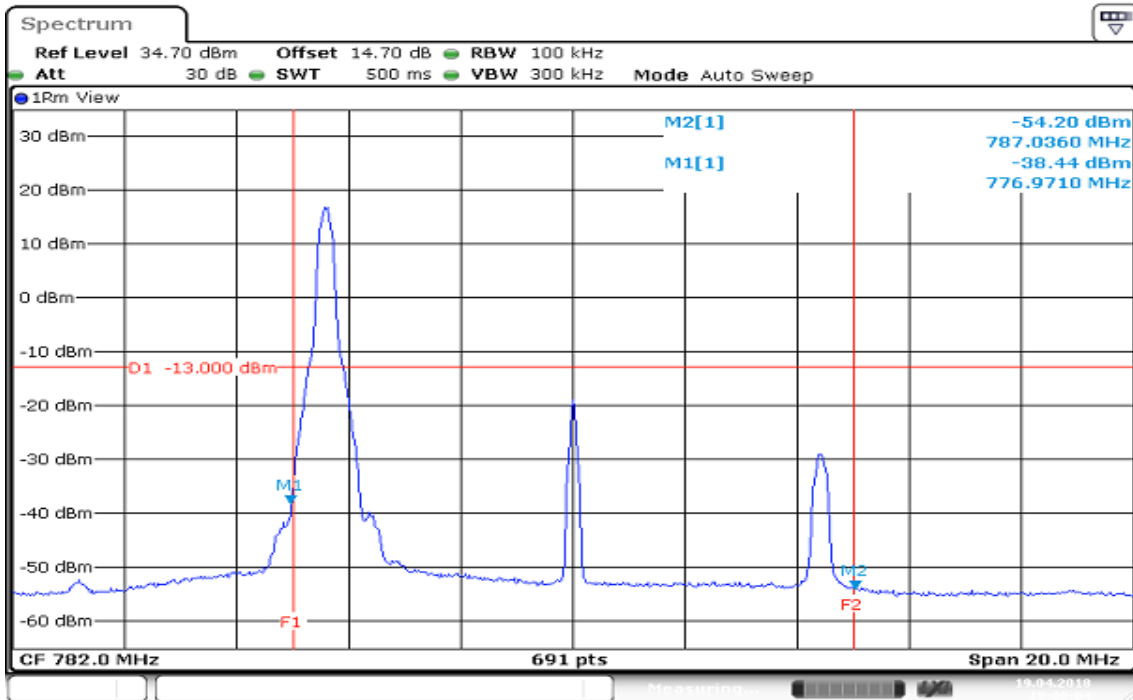
Date: 19 APR 2018 18:08:19

Report No.: T170908D07-A-RP9

LTE Band 13

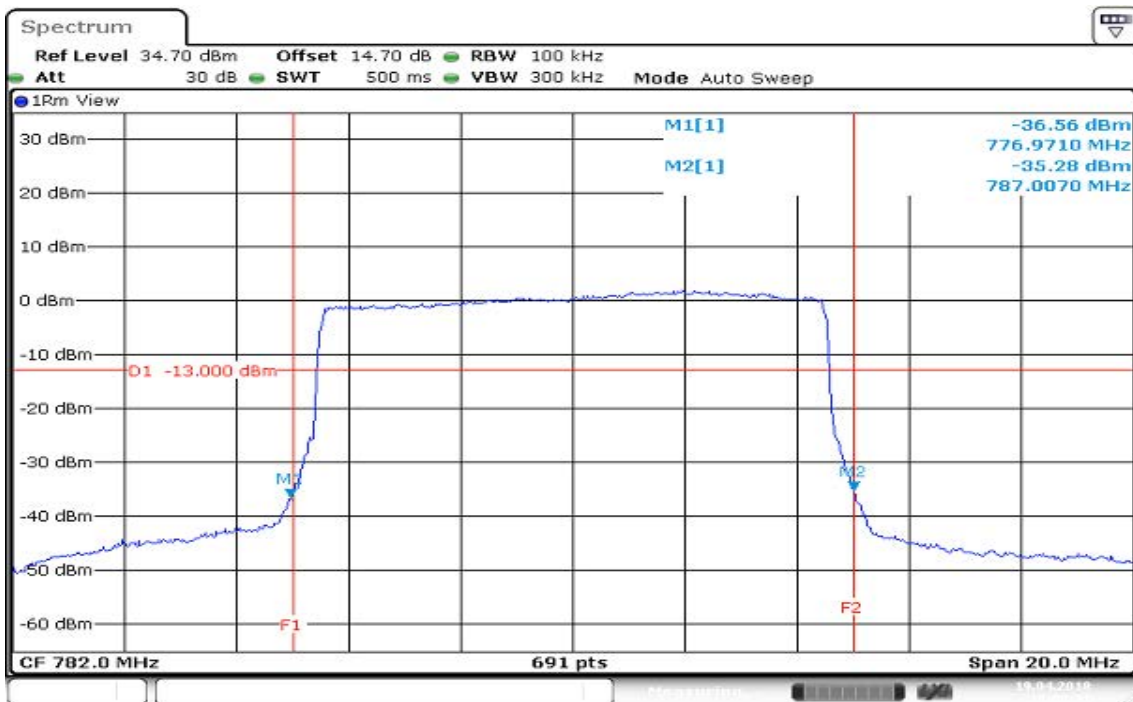
CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB ALLOCATED

MID BAND EDGE



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

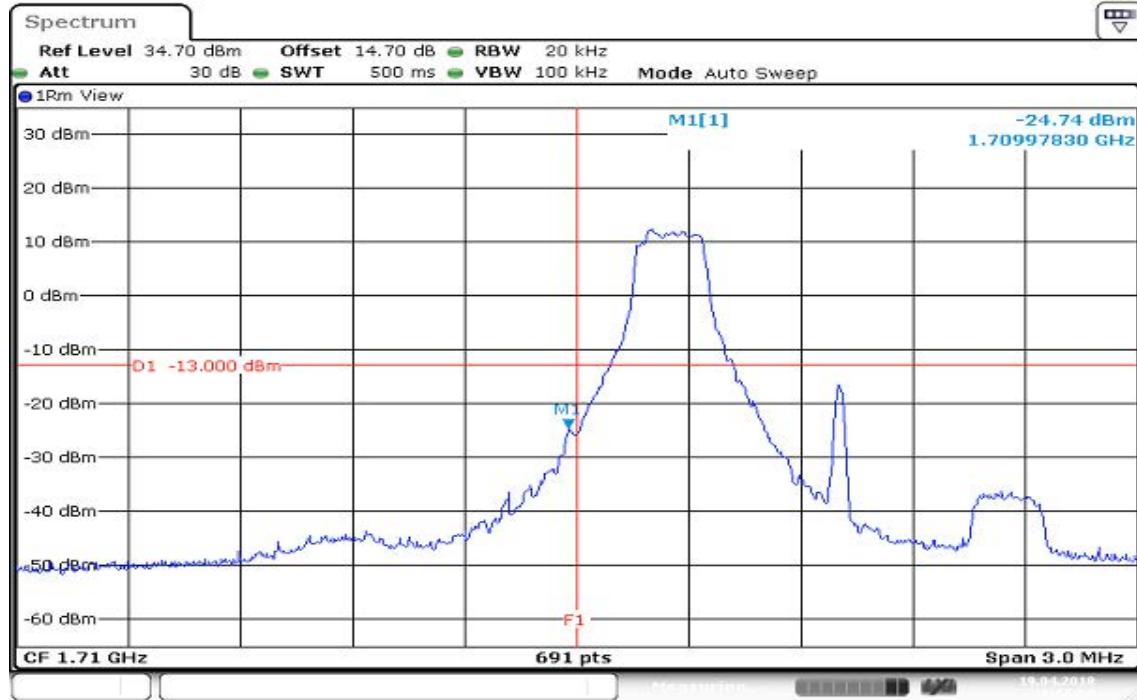
MID BAND EDGE



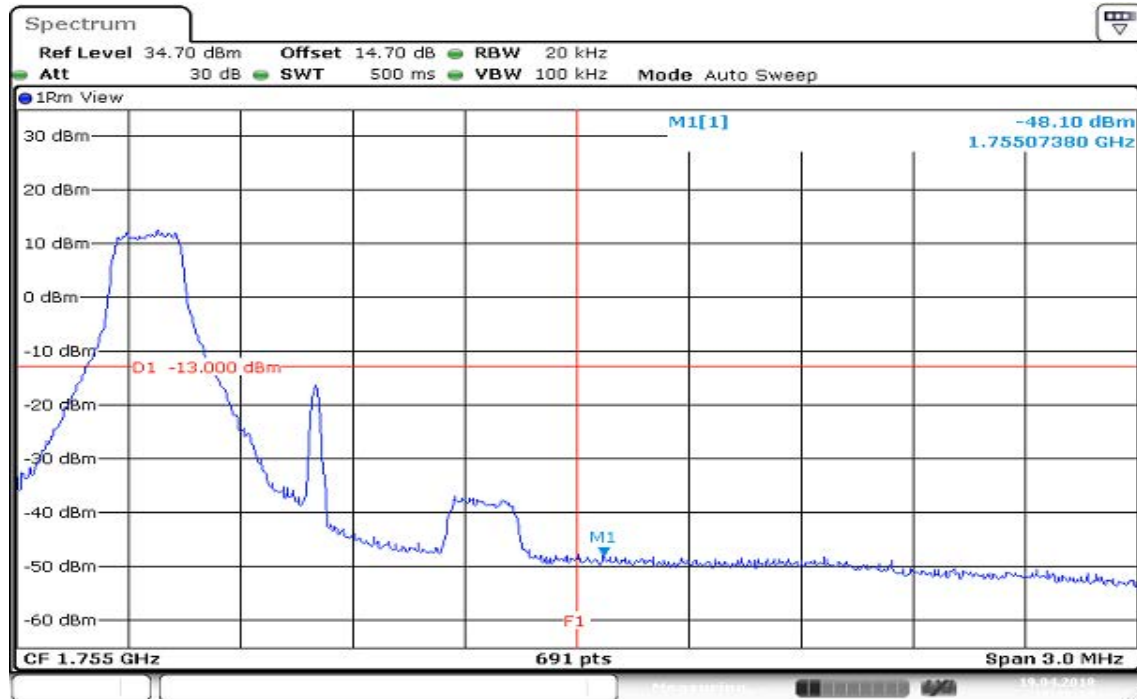
LTE Band 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB ALLOCATED

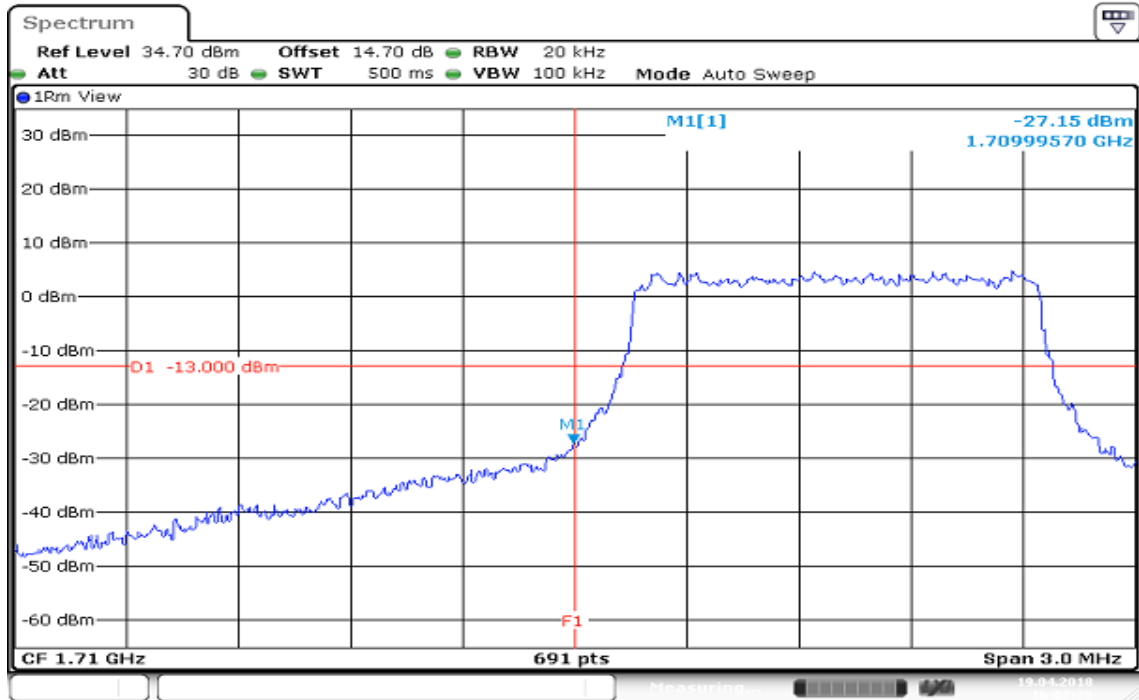
LOWER BAND EDGE



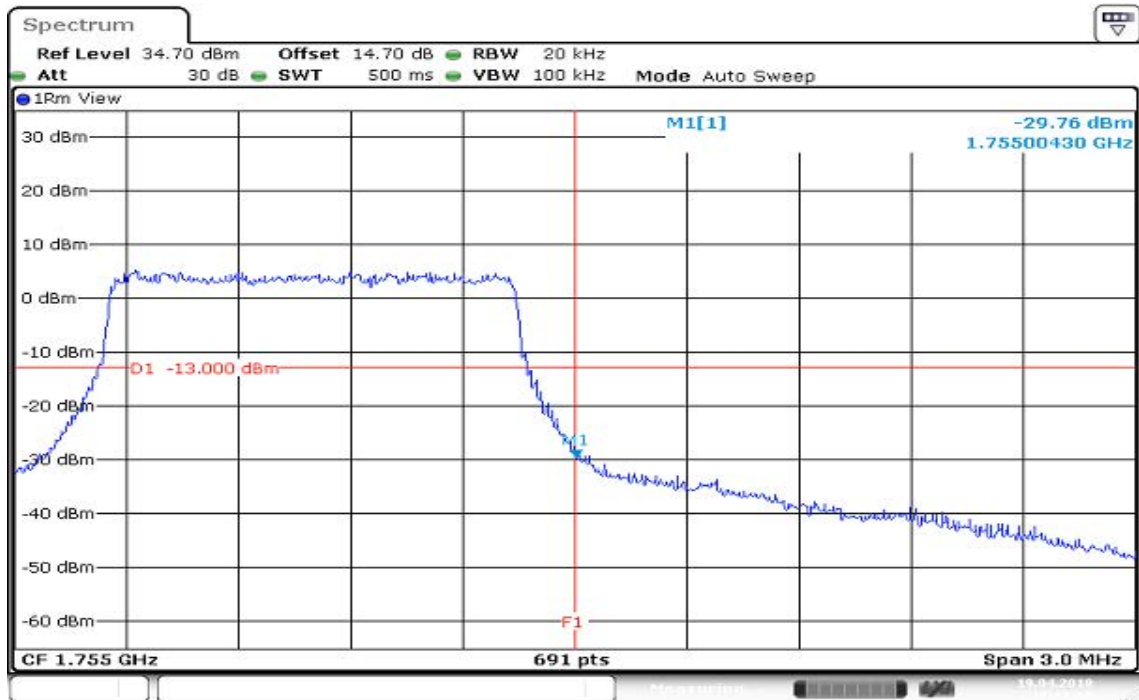
HIGHER BAND EDGE



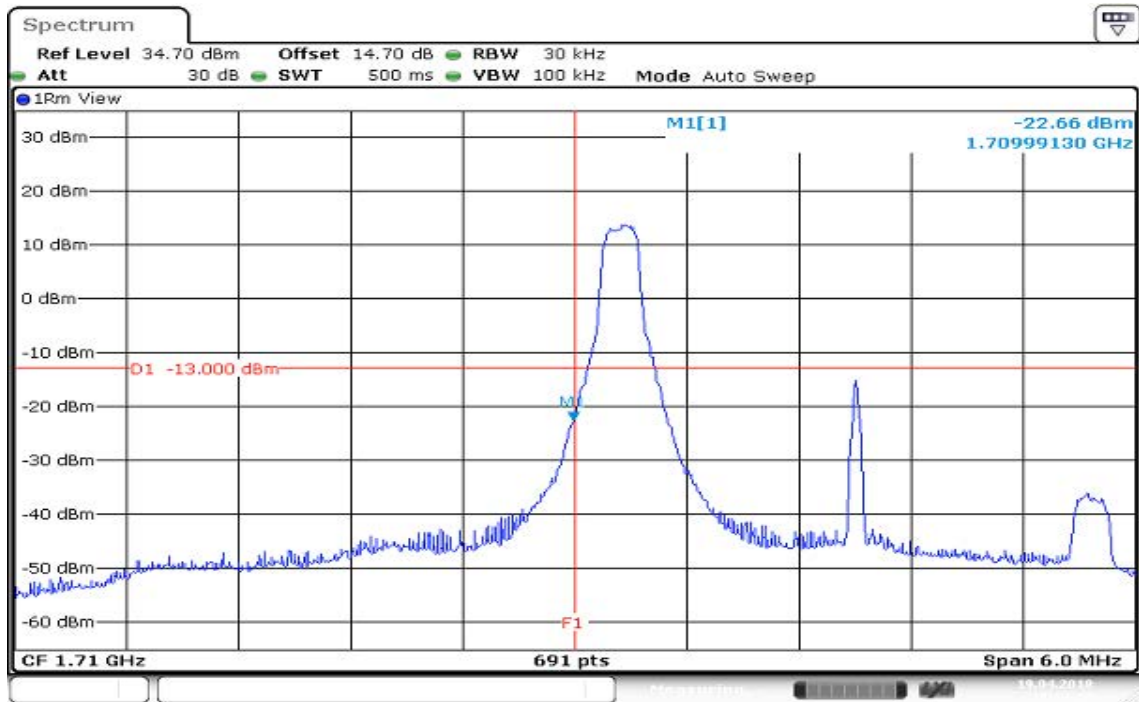
CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB ALLOCATED LOWER BAND EDGE



HIGHER BAND EDGE



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



HIGHER BAND EDGE

