FCC RF Test Report

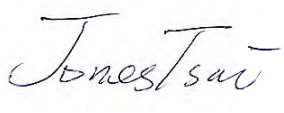
APPLICANT	: ZTE CORPORATION
EQUIPMENT	: WCDMA / LTE Multi-Mode Digital Mobile Phone
BRAND NAME	: ZTE
MODEL NAME	: A1P
MARKETING NAME	: A1P
FCC ID	: SRQ-ZTEA1P
STANDARD	: 47 CFR Part 2, 22(H), 24(E), 27(M), 27(L), 27(H), 27(F)
CLASSIFICATION	: PCS Licensed Transmitter Held to Ear (PCE)

The product was received on May 04, 2015 and completely tested on May 30, 2015. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and the testing has shown the tested sample to be in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager





SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China

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APPENDIX B. TEST RESULTS OF RADIATED TEST

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG550405B	Rev. 01	Initial issue of report	Jun. 24, 2015

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.4	§2.1046	RSS-Gen(6.12) RSS-130(4.4) RSS-132 (5.4) RSS-133 (6.4) RSS-139 (6.4) RSS-199 (4.4)	Conducted Output Power	Reporting Only	PASS	-
3.5	§24.232(d)	RSS-130(4.4) RSS-132 (5.4) RSS-133 (6.4) RSS-139 (6.4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	RSS-GEN(6.6) RSS-132 (3.1) RSS-133 (3.1) RSS-139 (3.1) RSS-130 (3.1) RSS-199 (4.2)	Occupied Bandwidth	Reporting Only	PASS	-

3.7	§2.1051 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(c)(4) §27.53(f) §27.53(g)	RSS-132 (5.5) RSS-133 (6.5.1) RSS-130(4.6) RSS-139 (6.5)	Conducted Band Edge Measurement (Band 2) (Band 4) (Band 5) (Band 12) (Band 13) (Band 17)	< 43+10log10(P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	RSS-199 (4.5)	Conducted Band Edge Measurement (Band 7)	< 5MHz: -10 dBm 5 MHz~6MHz or 26dB(BW): -13 dBm ≥6MHz or 26dB(BW): -25 dBm		
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(f) §27.53(g)	RSS-132 (5.5) RSS-133 (6.5.1) RSS-130(4.6) RSS-139 (6.5)	Conducted Spurious Emission (Band 2) (Band 4) (Band 5) (Band 12) (Band 13) (Band 17)	< 43+10log10(P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	RSS-GEN(4.9) RSS-199 (4.5)	Conducted Spurious Emission (Band 7)	< 55+10log$_{10}$(P[Watts])		
3.9	§2.1055 §22.355 §24.235 §27.54	RSS-GEN(6.11) RSS-132(5.3) RSS-133(6.3) RSS-130(4.3) RSS-139 (6.3) RSS-199 (4.3)	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22 Within Authorized Band	PASS	

4.4	§22.913(a)(2)	RSS-132(5.4) SRSP-503(5.1.3)	Effective Radiated Power (Band 5)	ERP < 7 Watt	PASS	
	§27.50(b)(10) §27.50(c)(10)	N/A	Effective Radiated Power (Band 12) (Band 13) (Band 17)	ERP < 3 Watt		
	§24.232(c) §27.50(h)(2)	RSS-133 (6.4) SRSP-510(5.1.2) RSS-199 (4.4)	Equivalent Isotropic Radiated Power (Band 2) (Band 7)	EIRP < 2Watt		
	§27.50(d)(4)	RSS-139 (6.4) SRSP-513(5.1.2)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1Watt		
4.5	§2.1053 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(f) §27.53(g) §27.53(h)	RSS-132 (5.5) RSS-133 (6.5.1) RSS-130(4.6) RSS-139 (6.5)	Radiated Spurious Emission (Band 2) (Band 4) (Band 5) (Band 12) (Band 13) (Band 17)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 17.04 dB at 10000.000 MHz
	§2.1053 §27.53(m)(4)	RSS-199 (4.5)	Radiated Spurious Emission (Band 7)	< 55+10log$_{10}$(P[Watts])		

1 General Description

1.1 Applicant

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P. R. China

1.2 Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P. R. China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	WCDMA / LTE Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	A1P
Marketing Name	A1P
FCC ID	SRQ-ZTEA1P
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+(Downlink Only)/DC-HSDPA/LTE/NFC WLAN2.4GHz 802.11b/g/n HT20/HT40 WLAN5GHz 802.11a/n HT20/HT40 WLAN5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth v3.0+EDR Bluetooth v4.1 LE
IMEI Code	Conducted: 004401783420983 Radiation: 004401783420819/01 ERP/EIRP: 004401783420876/01
HW Version	wtqD
SW Version	A1PV1.0.0B08
EUT Stage	Identical Prototype

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 12 : 699.7 MHz ~ 715.3 MHz LTE Band 13 : 779.5 MHz ~ 784.5 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz
Rx Frequency	LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2622.5MHz ~ 2687.5 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 13 : 748.5 MHz ~ 753.5 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz LTE Band 29 : 718.5 MHz ~726.5 MHz
Bandwidth	LTE Band 2 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7 : 5MHz/ 10MHz / 15MHz / 20MHz LTE Band 12 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 13 : 5MHz / 10MHz LTE Band 17 : 5MHz / 10MHz
Maximum Output Power to Antenna	LTE Band 2 : 23.27 dBm LTE Band 4 : 23.09 dBm LTE Band 5 : 23.74 dBm LTE Band 7 : 23.39 dBm LTE Band 13 : 22.96 dBm LTE Band 12 : 23.85 dBm LTE Band 17 : 23.69 dBm
Type of Modulation	QPSK / 16QAM

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Emission Designator

LTE Band 2	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
1.4	1M10G7D	-	0.3090	1M10W7D	-	0.2649
3	2M73G7D	-	0.3062	2M73W7D	-	0.2612
5	4M51G7D	-	0.3055	4M50W7D	-	0.2432
10	9M13G7D	0.0131	0.3597	9M05W7D	-	0.3069
15	13M5G7D	-	0.3784	13M5W7D	-	0.3228
20	18M7G7D	-	0.3784	18M6W7D	-	0.3251
LTE Band 4	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
1.4	1M10G7D	-	0.3516	1M10W7D	-	0.2999
3	2M74G7D	-	0.3606	2M73W7D	-	0.3097
5	4M51G7D	-	0.3483	4M50W7D	-	0.3027
10	9M11G7D	0.0127	0.3499	9M03W7D	-	0.2931
15	13M5G7D	-	0.3436	13M5W7D	-	0.2917
20	18M5G7D	-	0.3342	18M5W7D	-	0.2748
LTE Band 5	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
1.4	1M09G7D	-	0.0465	1M09W7D	-	0.0428
3	2M73G7D	-	0.0525	2M73W7D	-	0.0433
5	4M50G7D	-	0.0499	4M50W7D	-	0.0434
10	9M09G7D	0.0044	0.0508	9M03W7D	-	0.0406

LTE Band 7	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	4M50G7D	-	0.0755	4M49W7D	-	0.0676
10	9M09G7D	0.0032	0.0719	9M03W7D	-	0.0622
15	13M5G7D	-	0.0724	13M5W7D	-	0.0624
20	18M5G7D	-	0.0746	18M5W7D	-	0.0625
LTE Band 12	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
1.4	1M09G7D	-	0.0740	1M09W7D	-	0.0630
3	2M73G7D	-	0.0759	2M73W7D	-	0.0631
5	4M50G7D	-	0.0798	4M50W7D	-	0.0662
10	9M07G7D	0.0023	0.0767	9M07W7D	-	0.0711
LTE Band 13	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
5	4M54G7D	-	0.0380	4M51W7D	-	0.0311
10	9M11G7D	0.0435	0.0371	9M05W7D	-	0.0324
LTE Band 17	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
5	4M50G7D	-	0.0778	4M50W7D	-	0.0622
10	9M03G7D	0.0115	0.0776	9M01W7D	-	0.0630

1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	**Sporton Site No.**		**FCC Registration No.**
	TH01-KS	03CH02-KS	418269/4086E

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 22(H), 24(E), 27(M), 27(L), 27(H), 27(F)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02
- IC RSS-130 Issue1
- IC RSS-132 Issue 3
- IC RSS-133 Issue 6
- IC RSS-139 Issue 2
- IC RSS-199 Issue 2
- IC RSS-Gen Issue 4

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

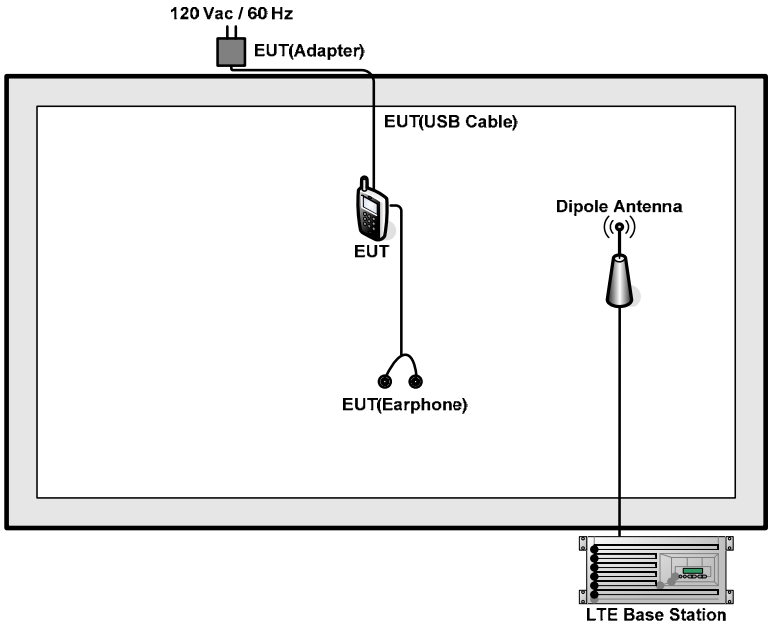
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	v	v
	12	v	v	v	v	-	-	v	v	v	v	v	v	v	v
	13	-	-	v		-	-	v	v	v	v	v	v	v	v
	13	-	-		v	-	-	v	v	v	v	v	-	v	-
	17	-	-	v	v	-	-	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	2						v	v	v	v		v	v	v	v
	4						v	v	v	v		v	v	v	v
	5				v	-	-	v	v	v		v	v	v	v
	7	-	-				v	v	v	v		v	v	v	v
	12				v	-	-	v	v	v		v	v	v	v
	13	-	-		v	-	-	v	v	v		v	-	v	-
	17	-	-		v	-	-	v	v	v		v	v	v	v
26dB and 99% Bandwidth	2	v	v	v	v	v	v	v	v			v	v	v	v
	4	v	v	v	v	v	v	v	v			v	v	v	v
	5	v	v	v	v	-	-	v	v			v	v	v	v
	7	-	-	v	v	v	v	v	v			v	v	v	v
	12	v	v	v	v	-	-	v	v			v	v	v	v
	13	-	-	v		-	-	v	v			v	v	v	v
	13	-	-		v	-	-	v	v			v	-	v	-
	17	-	-	v	v	-	-	v	v			v	v	v	v

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Conducted Band Edge	2	v	v	v	v	v	v	v	v	v		v	v		v
	4	v	v	v	v	v	v	v	v	v		v	v		v
	5	v	v	v	v	-	-	v	v	v		v	v		v
	7	-	-	v	v	v	v	v	v	v		v	v		v
	12	v	v	v	v	-	-	v	v	v		v	v		v
	13	-	-	v		-	-	v	v	v		v	v		v
	13	-	-		v	-	-	v	v	v		v		v	
	17	-	-	v	v	-	-	v	v	v		v	v		v
Conducted Spurious Emission	2	v	v	v	v	v	v	v	v	v			v	v	v
	4	v	v	v	v	v	v	v	v	v			v	v	v
	5	v	v	v	v	-	-	v	v	v			v	v	v
	7	-	-	v	v	v	v	v	v	v			v	v	v
	12	v	v	v	v	-	-	v	v	v			v	v	v
	13	-	-	v		-	-	v	v	v			v	v	v
	13	-	-		v	-	-	v	v	v			-	v	-
	17	-	-	v	v	-	-	v	v	v			v	v	v
Frequency Stability	2				v			v				v		v	
	4				v			v				v		v	
	5				v	-	-	v				v		v	
	7	-	-		v			v				v		v	
	12				v	-	-	v				v		v	
	13	-	-		v	-	-	v				v		v	
	17	-	-		v	-	-	v				v		v	

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
E.R.P./ E.I.R.P.	2	v	v	v	v	v	v	v	v	v			v	v	v
	4	v	v	v	v	v	v	v	v	v			v	v	v
	5	v	v	v	v	-	-	v	v	v			v	v	v
	7	-	-	v	v	v	v	v	v	v			v	v	v
	12	v	v	v	v	-	-	v	v	v			v	v	v
	13	-	-	v		-	-	v	v	v			v	v	v
	13	-	-		v	-	-	v	v	v			-	v	-
	17	-	-	v	v	-	-	v	v	v			v	v	v
Radiated Spurious Emission	2	v	v	v	v	v	v	v		v			v	v	v
	4	v	v	v	v	v	v	v		v			v	v	v
	5	v	v	v	v	-	-	v		v			v	v	v
	7	-	-	v	v	v	v	v		v			v	v	v
	12	v	v	v	v	-	-	v		v			v	v	v
	13	-	-	v		-	-	v		v			v	v	v
	13	-	-		v	-	-	v		v			-	v	-
	17	-	-	v	v	-	-	v		v			v	v	v
Note	1. The mark "v " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.														

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Power Supply	GW INSTEK	GPD-2303S	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss

Offset = RF cable loss

Following shows an offset computation example with cable loss 5.0 dB.

Example :

Offset(dB) = RF cable loss(dB).

= 5.0 (dB)

3 Conducted Test Items

3.1 Measuring Instruments

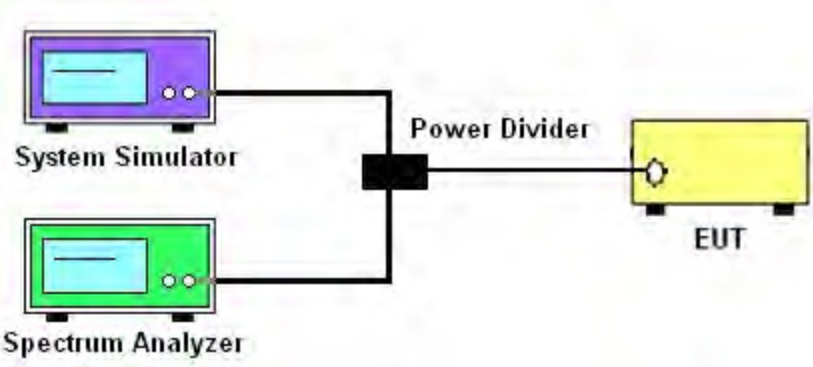
See list of measuring instruments of this test report.

3.2 Test Setup

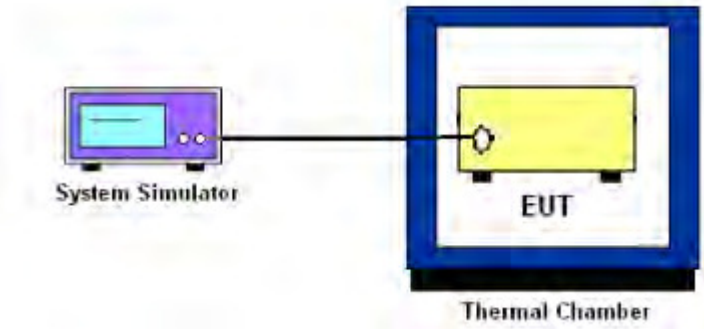
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power

3.4.1 Description of the Conducted Output Power Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

3.4.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.

3.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.7.1.
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is 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 transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 4.2.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

22.917(a) for Band 5

For operations in the 824 – 849 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

24.238 (a) for Band 2

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 1MHz bandwidth. However, 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.

27.53 (c) for Band 13

For operations in the 776-788 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed. In addition, the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least 65 + 10 log10 p(watts), dB, for mobile and portable equipment.

27.53 (g) for Band 12,17

For operations in the 698 -746 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. 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.

27.53 (h) for Band 4

For operations in the 1710 – 1755 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53(m)(4) for Band 7:

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

3.7.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Set spectrum analyzer with RMS detector.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10^{th} harmonic.

3.8.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.
9. For Band 7
   The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows FCC KDB 971168 v02r02 Section 9.0.
2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

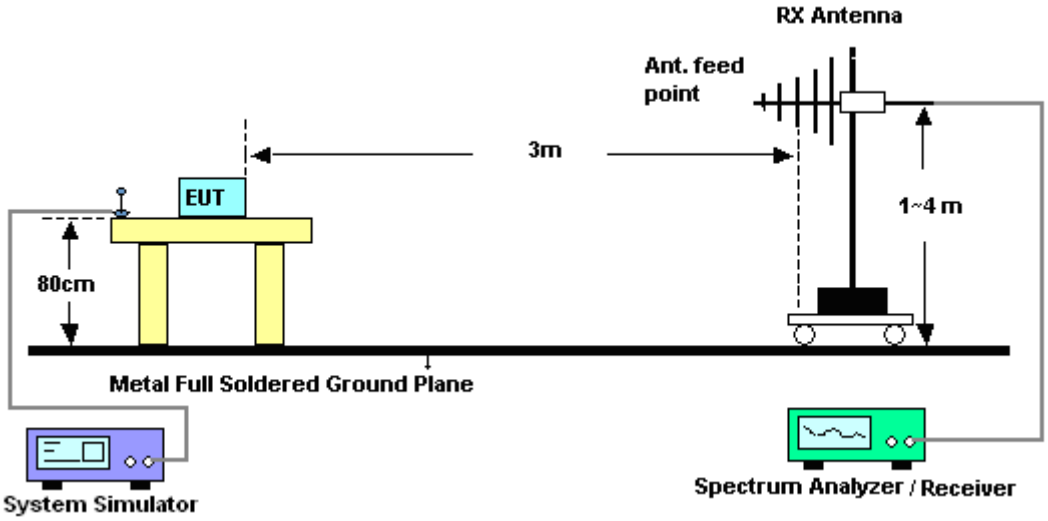
4 Radiated Test Items

4.1 Measuring Instruments

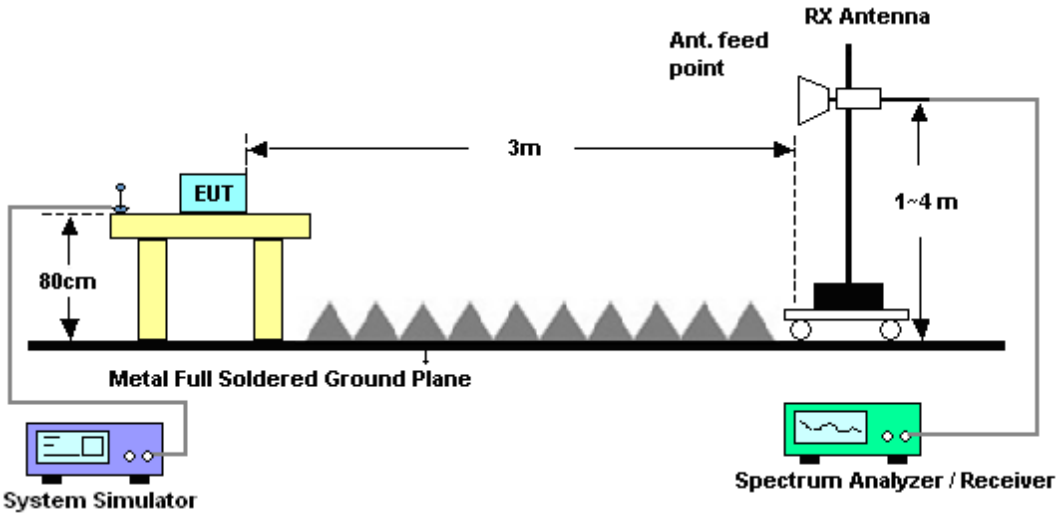
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Effective Radiated Power and Effective Isotropic Radiated Power

4.4.1 Description of the ERP/EIRP Measurement

Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average ERP of 7 watts with LTE band 5 and 3 watts with LTE band 12 / 13 / 17.

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts with LTE band 2 / 7 and 1 watt with LTE band 4.

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.2.1. and ANSI / TIA-603-C-2004 Section 2.2.17.
2. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
   Note: For IC RSS-199, set PEAK detector instead of RMS detector.
3. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by the substitution antenna at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, EIRP = LVL + Correction factor and ERP = EIRP - 2.15. Take the record of the output power at substitution antenna.

	LTE					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	3MHz	6MHz	10MHz	20MHz	30MHz	40MHz
RBW	30kHz	100kHz	100kHz	300kHz	300kHz	300kHz
VBW	100kHz	300kHz	300kHz	1MHz	1MHz	1MHz
Detector	RMS	RMS	RMS	RMS	RMS	RMS
Trace	Average	Average	Average	Average	Average	Average
Average Type	Power	Power	Power	Power	Power	Power
Sweep Count	100	100	100	100	100	100

4.5 Radiated Spurious Emission

4.5.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

For LTE Band 12,13,17

For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
    For Band 7:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
12. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
13. ERP (dBm) = EIRP - 2.15

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV30	100845	9kHz~30GHz	Oct. 28, 2014	May 06, 2015~ May 14, 2015	Oct. 27, 2015	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 25, 2014	May 06, 2015~ May 14, 2015	Oct. 24, 2015	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Sep. 29, 2014	May 24, 2015~ May 30, 2015	Sep. 28, 2015	Radiation (03CH02-KS)
Spectrum Analyzer	R&S	FSV40	101040	10kHz~40GHz;Max 30dBm	Sep. 25, 2014	May 24, 2015~ May 30, 2015	Sep. 24, 2015	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz~2GHz	Sep. 13, 2014	May 24, 2015~ May 30, 2015	Sep. 12, 2015	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 08, 2014	May 24, 2015~ May 30, 2015	Nov. 07, 2015	Radiation (03CH02-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 08, 2014	May 24, 2015~ May 30, 2015	Nov. 07, 2015	Radiation (03CH02-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz~40GHz	Sep. 04, 2014	May 24, 2015~ May 30, 2015	Sep. 03, 2015	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz~1000MHz / 32 dB	May 04, 2015	May 24, 2015~ May 30, 2015	May 03, 2016	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1GHz~26.5GHz Gain 30dB	Oct. 28, 2014	May 24, 2015~ May 30, 2015	Oct. 27, 2015	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	May 24, 2015~ May 30, 2015	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	May 24, 2015~ May 30, 2015	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	May 24, 2015~ May 30, 2015	NCR	Radiation (03CH02-KS)

6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.1 dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	22.28	22.54	22.58
1.4	1	2		22.33	22.52	22.53
1.4	1	5		22.34	22.34	22.44
1.4	3	0		22.15	22.34	22.42
1.4	3	1		22.29	22.52	22.56
1.4	3	2		22.15	22.46	22.54
1.4	6	0		21.22	21.34	21.42
1.4	1	0	16-QAM	21.61	21.76	21.77
1.4	1	2		21.73	21.75	21.82
1.4	1	5		21.54	21.73	21.75
1.4	3	0		21.29	21.32	21.51
1.4	3	1		21.43	21.54	21.49
1.4	3	2		21.46	21.59	21.60
1.4	6	0		20.35	20.45	20.51
3	1	0	QPSK	22.37	22.48	22.53
3	1	7		22.39	22.76	22.67
3	1	14		22.28	22.53	22.47
3	8	0		21.41	21.49	21.45
3	8	4		21.49	21.54	21.52
3	8	7		21.35	21.44	21.52
3	15	0		21.36	21.47	21.49
3	1	0	16-QAM	21.58	21.67	21.75
3	1	7		21.63	21.90	21.90
3	1	14		21.59	21.75	21.70
3	8	0		20.50	20.59	20.55
3	8	4		20.41	20.56	20.58
3	8	7		20.46	20.49	20.55
3	15	0		20.41	20.38	20.55

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.48	22.52	22.65
5	1	12		22.29	22.42	22.53
5	1	24		22.23	22.54	22.48
5	12	0		21.37	21.38	21.53
5	12	6		21.44	21.40	21.47
5	12	11		21.34	21.28	21.47
5	25	0		21.34	21.25	21.55
5	1	0	16-QAM	21.54	21.74	21.85
5	1	12		21.60	21.72	21.87
5	1	24		21.65	21.80	21.77
5	12	0		20.45	20.49	20.55
5	12	6		20.51	20.40	20.50
5	12	11		20.43	20.33	20.50
5	25	0		20.47	20.35	20.57
10	1	0	QPSK	22.72	22.72	22.23
10	1	24		22.30	22.48	22.44
10	1	49		22.30	22.53	22.43
10	25	0		21.51	21.50	21.37
10	25	12		21.47	21.45	21.53
10	25	24		21.30	21.40	21.34
10	50	0		21.44	21.52	21.59
10	1	0	16-QAM	22.04	22.06	21.70
10	1	24		21.64	21.74	21.76
10	1	49		21.72	21.66	21.72
10	25	0		20.47	20.52	20.42
10	25	12		20.41	20.49	20.51
10	25	24		20.30	20.37	20.34
10	50	0		20.43	20.42	20.49

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.92	22.93	22.97
15	1	37		22.41	22.32	22.48
15	1	74		22.43	22.61	22.45
15	36	0		21.58	21.57	21.50
15	36	18		21.30	21.47	21.46
15	36	37		21.26	21.38	21.40
15	75	0		21.38	21.55	21.56
15	1	0	16-QAM	22.19	22.17	22.19
15	1	37		21.54	21.65	21.51
15	1	74		21.64	21.85	21.75
15	36	0		20.57	20.60	20.57
15	36	18		20.27	20.44	20.46
15	36	37		20.24	20.39	20.42
15	75	0		20.42	20.57	20.60
20	1	0	QPSK	23.21	23.11	**23.27**
20	1	49		22.72	22.61	22.77
20	1	99		22.55	22.69	22.59
20	50	0		21.61	21.73	21.72
20	50	24		21.71	21.45	21.61
20	50	49		21.65	21.46	21.65
20	100	0		21.52	21.53	21.59
20	1	0	16-QAM	22.50	22.38	22.44
20	1	49		21.63	21.67	21.62
20	1	99		21.83	22.04	21.82
20	50	0		20.62	20.71	20.66
20	50	24		20.73	20.42	20.57
20	50	49		20.72	20.45	20.59
20	100	0		20.61	20.68	20.60

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	22.34	22.29	22.24
1.4	1	2		22.46	22.34	22.20
1.4	1	5		22.30	22.11	22.04
1.4	3	0		22.26	22.18	22.14
1.4	3	1		22.30	22.26	22.12
1.4	3	2		22.23	22.20	22.12
1.4	6	0		21.19	21.07	21.00
1.4	1	0	16-QAM	21.59	21.57	21.47
1.4	1	2		21.61	21.57	21.52
1.4	1	5		21.59	21.46	21.36
1.4	3	0		21.28	21.25	21.18
1.4	3	1		21.32	21.24	21.18
1.4	3	2		21.29	21.28	21.23
1.4	6	0		20.28	20.35	20.19
3	1	0	QPSK	22.30	22.20	22.29
3	1	7		22.51	22.42	22.36
3	1	14		22.13	22.23	22.06
3	8	0		21.15	21.27	21.08
3	8	4		21.19	21.31	21.26
3	8	7		21.19	21.16	21.25
3	15	0		21.18	21.30	21.17
3	1	0	16-QAM	21.44	21.46	21.52
3	1	7		21.66	21.60	21.78
3	1	14		21.46	21.55	21.44
3	8	0		20.19	20.39	20.30
3	8	4		20.29	20.35	20.34
3	8	7		20.24	20.23	20.34
3	15	0		20.18	20.26	20.22

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.27	22.33	22.27
5	1	12		22.29	22.24	22.11
5	1	24		22.17	22.16	22.09
5	12	0		21.21	21.16	21.10
5	12	6		21.15	21.18	21.19
5	12	11		21.17	21.30	21.08
5	25	0		21.14	21.16	21.14
5	1	0	16-QAM	21.48	21.54	21.51
5	1	12		21.63	21.56	21.58
5	1	24		21.41	21.51	21.38
5	12	0		20.24	20.24	20.20
5	12	6		20.15	20.37	20.28
5	12	11		20.16	20.31	20.19
5	25	0		20.15	20.25	20.20
10	1	0	QPSK	22.60	22.35	22.55
10	1	24		22.42	22.27	22.27
10	1	49		22.30	22.15	22.13
10	25	0		21.31	21.25	21.21
10	25	12		21.23	21.21	21.15
10	25	24		21.24	21.09	21.12
10	50	0		21.30	21.18	21.18
10	1	0	16-QAM	21.90	21.80	21.75
10	1	24		21.74	21.38	21.45
10	1	49		21.54	21.42	21.51
10	25	0		20.32	20.17	20.25
10	25	12		20.25	20.14	20.12
10	25	24		20.23	20.13	20.20
10	50	0		20.27	20.22	20.30

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.74	22.80	22.75
15	1	37		22.19	22.33	22.11
15	1	74		22.42	22.41	22.39
15	36	0		21.44	21.50	21.54
15	36	18		21.27	21.29	21.31
15	36	37		21.27	21.14	21.23
15	75	0		21.27	21.30	21.42
15	1	0	16-QAM	21.95	22.08	21.98
15	1	37		21.83	21.40	21.49
15	1	74		21.70	21.67	21.67
15	36	0		20.48	20.51	20.53
15	36	18		20.29	20.17	20.33
15	36	37		20.24	20.16	20.28
15	75	0		20.35	20.30	20.46
20	1	0	QPSK	23.01	**23.09**	23.08
20	1	49		22.54	22.59	22.46
20	1	99		22.45	22.46	22.60
20	50	0		21.61	21.68	21.67
20	50	24		21.55	21.42	21.47
20	50	49		21.37	21.60	21.62
20	100	0		21.43	21.46	21.40
20	1	0	16-QAM	22.26	22.38	22.34
20	1	49		21.59	21.59	21.70
20	1	99		21.74	21.76	21.99
20	50	0		20.50	20.63	20.68
20	50	24		20.51	20.59	20.44
20	50	49		20.53	20.59	20.59
20	100	0		20.40	20.48	20.49

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.69	23.62	23.68
1.4	1	2		23.70	23.65	23.62
1.4	1	5		23.61	23.59	23.60
1.4	3	0		23.55	23.44	23.48
1.4	3	1		23.65	23.55	23.59
1.4	3	2		23.58	23.55	23.53
1.4	6	0		22.47	22.43	22.48
1.4	1	0	16-QAM	22.88	22.80	22.94
1.4	1	2		22.95	22.86	22.92
1.4	1	5		22.79	22.81	22.90
1.4	3	0		22.55	22.46	22.54
1.4	3	1		22.64	22.57	22.61
1.4	3	2		22.62	22.56	22.62
1.4	6	0		21.53	21.49	21.60
3	1	0	QPSK	23.60	23.57	23.57
3	1	7		23.72	23.68	23.64
3	1	14		23.47	23.60	23.47
3	8	0		22.52	22.43	22.50
3	8	4		22.50	22.52	22.53
3	8	7		22.42	22.56	22.52
3	15	0		22.46	22.47	22.53
3	1	0	16-QAM	22.80	22.77	22.78
3	1	7		22.99	22.99	22.86
3	1	14		22.72	22.82	22.77
3	8	0		21.54	21.42	21.58
3	8	4		21.54	21.52	21.59
3	8	7		21.43	21.58	21.59
3	15	0		21.43	21.43	21.56

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.71	**23.73**	23.68
5	1	12		23.63	23.58	23.41
5	1	24		23.63	23.65	23.48
5	12	0		22.59	22.56	22.49
5	12	6		22.64	22.61	22.53
5	12	11		22.61	22.69	22.53
5	25	0		22.58	22.60	22.47
5	1	0	16-QAM	22.96	23.01	22.92
5	1	12		22.88	22.89	22.78
5	1	24		22.89	22.95	22.83
5	12	0		21.61	21.59	21.56
5	12	6		21.62	21.62	21.53
5	12	11		21.62	21.68	21.53
5	25	0		21.55	21.55	21.50
10	1	0	QPSK	23.71	**23.74**	23.69
10	1	24		23.62	23.65	23.65
10	1	49		23.64	23.58	23.50
10	25	0		22.69	22.70	22.68
10	25	12		22.68	22.65	22.65
10	25	24		22.61	22.61	22.57
10	50	0		22.63	22.56	22.61
10	1	0	16-QAM	23.07	23.10	22.98
10	1	24		22.90	22.88	22.93
10	1	49		22.93	22.86	22.89
10	25	0		21.63	21.67	21.65
10	25	12		21.63	21.58	21.66
10	25	24		21.61	21.53	21.57
10	50	0		21.53	21.54	21.61

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.27	23.34	23.27
5	1	12		23.23	23.25	23.20
5	1	24		23.11	23.29	23.20
5	12	0		22.09	22.15	22.22
5	12	6		22.34	22.24	22.24
5	12	11		22.20	22.18	22.20
5	25	0		22.21	22.21	22.23
5	1	0	16-QAM	22.45	22.53	22.51
5	1	12		22.63	22.74	22.74
5	1	24		22.43	22.61	22.50
5	12	0		21.24	21.31	21.40
5	12	6		21.26	21.27	21.39
5	12	11		21.20	21.18	21.33
5	25	0		21.19	21.21	21.27
10	1	0	QPSK	23.33	23.23	23.34
10	1	24		23.30	23.22	23.33
10	1	49		22.91	23.21	23.12
10	25	0		22.32	22.24	22.28
10	25	12		22.24	22.22	22.26
10	25	24		22.11	22.08	22.19
10	50	0		22.20	22.17	22.22
10	1	0	16-QAM	22.70	22.97	22.69
10	1	24		22.74	22.77	22.85
10	1	49		22.27	22.60	22.36
10	25	0		21.20	21.24	21.30
10	25	12		21.16	21.26	21.31
10	25	24		21.14	21.07	21.21
10	50	0		21.15	21.19	21.21

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.05	23.07	22.75
15	1	37		22.69	22.62	22.64
15	1	74		22.36	22.81	22.65
15	36	0		22.30	22.04	21.90
15	36	18		21.96	21.85	21.94
15	36	37		21.86	21.60	21.96
15	75	0		21.56	21.81	21.96
15	1	0	16-QAM	22.30	22.30	22.00
15	1	37		21.69	21.88	21.92
15	1	74		21.58	22.12	21.94
15	36	0		20.52	21.07	20.94
15	36	18		20.37	20.87	20.98
15	36	37		21.36	20.61	21.02
15	75	0		20.36	20.84	21.00
20	1	0	QPSK	**23.39**	23.08	22.98
20	1	49		22.96	22.73	22.62
20	1	99		22.69	22.87	22.69
20	50	0		22.65	22.32	21.95
20	50	24		22.56	21.91	21.89
20	50	49		22.51	21.80	22.12
20	100	0		22.46	22.06	22.07
20	1	0	16-QAM	22.43	22.35	21.96
20	1	49		22.30	21.96	21.85
20	1	99		21.96	22.11	21.99
20	50	0		20.70	21.34	20.98
20	50	24		21.21	20.91	20.93
20	50	49		21.18	20.82	21.18
20	100	0		21.13	21.07	21.11

LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.73	23.84	23.78
1.4	1	2		23.66	23.81	23.72
1.4	1	5		23.50	23.70	23.73
1.4	3	0		23.49	23.62	23.61
1.4	3	1		23.61	23.75	23.64
1.4	3	2		23.53	23.65	23.65
1.4	6	0		22.44	22.53	22.59
1.4	1	0	16-QAM	22.89	23.08	23.01
1.4	1	2		22.87	23.06	22.92
1.4	1	5		22.75	23.03	22.97
1.4	3	0		22.47	22.69	22.70
1.4	3	1		22.64	22.77	22.63
1.4	3	2		22.59	22.68	22.71
1.4	6	0		21.52	21.61	21.67
3	1	0	QPSK	23.70	23.68	23.60
3	1	7		23.69	23.84	23.77
3	1	14		23.26	23.72	23.60
3	8	0		22.40	22.64	22.53
3	8	4		22.51	22.64	22.70
3	8	7		22.35	22.68	22.67
3	15	0		22.40	22.61	22.63
3	1	0	16-QAM	22.87	22.91	22.84
3	1	7		22.72	23.01	23.00
3	1	14		22.54	22.94	22.88
3	8	0		21.45	21.67	21.56
3	8	4		21.53	21.68	21.71
3	8	7		21.36	21.69	21.74
3	15	0		21.37	21.56	21.60

LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.62	23.73	23.67
5	1	12		23.32	23.57	23.55
5	1	24		23.40	23.62	23.59
5	12	0		22.47	22.64	22.61
5	12	6		22.30	22.61	22.59
5	12	11		22.30	22.61	22.58
5	25	0		22.32	22.59	22.62
5	1	0	16-QAM	22.88	22.98	22.92
5	1	12		22.61	22.92	22.90
5	1	24		22.70	22.89	22.90
5	12	0		21.47	21.63	21.66
5	12	6		21.27	21.61	21.59
5	12	11		21.26	21.58	21.61
5	25	0		21.32	21.56	21.62
10	1	0	QPSK	23.62	**23.85**	23.71
10	1	24		23.49	23.75	23.61
10	1	49		23.65	23.61	23.63
10	25	0		22.32	22.60	22.56
10	25	12		22.44	22.71	22.66
10	25	24		22.62	22.62	22.60
10	50	0		22.47	22.62	22.65
10	1	0	16-QAM	23.03	22.77	23.09
10	1	24		22.82	23.08	22.89
10	1	49		23.02	22.98	22.98
10	25	0		21.30	21.59	21.51
10	25	12		21.43	21.67	21.61
10	25	24		21.62	21.60	21.60
10	50	0		21.43	21.57	21.64

LTE Band 13 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.89	**22.95**	22.82
5	1	12		22.88	22.79	22.93
5	1	24		22.84	22.88	22.86
5	12	0		21.71	21.82	21.70
5	12	6		21.87	21.78	21.79
5	12	11		21.79	21.77	21.81
5	25	0		21.80	21.83	21.86
5	1	0	16-QAM	22.15	22.17	22.07
5	1	12		22.20	22.07	22.06
5	1	24		22.12	22.16	22.12
5	12	0		20.97	20.94	20.95
5	12	6		20.92	20.86	20.90
5	12	11		20.85	20.92	20.93
5	25	0		20.83	20.82	20.84
10	1	0	QPSK		**22.96**	
10	1	24			22.78	
10	1	49			22.93	
10	25	0			21.85	
10	25	12			21.83	
10	25	24			21.81	
10	50	0			21.74	
10	1	0	16-QAM		22.20	
10	1	24			22.13	
10	1	49			22.13	
10	25	0			20.82	
10	25	12			20.84	
10	25	24			20.81	
10	50	0			20.71	

LTE Band 17 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.68	23.63	23.57
5	1	12		23.59	23.59	23.58
5	1	24		23.60	23.62	23.56
5	12	0		22.61	22.51	22.60
5	12	6		22.71	22.62	22.67
5	12	11		22.59	22.59	22.59
5	25	0		22.60	22.56	22.59
5	1	0	16-QAM	22.90	22.92	22.83
5	1	12		22.99	22.90	23.03
5	1	24		22.88	22.89	22.90
5	12	0		21.58	21.53	21.65
5	12	6		21.68	21.62	21.67
5	12	11		21.53	21.57	21.58
5	25	0		21.60	21.53	21.56
10	1	0	QPSK	23.63	**23.69**	23.60
10	1	24		23.64	23.66	23.62
10	1	49		23.65	23.65	23.55
10	25	0		22.57	22.60	22.54
10	25	12		22.59	22.59	22.66
10	25	24		22.58	22.63	22.61
10	50	0		22.62	22.67	22.65
10	1	0	16-QAM	22.94	22.89	22.92
10	1	24		22.92	22.93	22.90
10	1	49		23.03	22.99	22.91
10	25	0		21.52	21.56	21.51
10	25	12		21.54	21.56	21.61
10	25	24		21.56	21.62	21.58
10	50	0		21.56	21.62	21.60

Peak-to-Average Ratio

Mode	LTE Band 2 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	3.30	4.12	4.00	5.22	PASS
Middle CH	3.36	4.20	3.83	5.22	
Highest CH	3.36	4.90	4.17	5.83	

Mode	LTE Band 4 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	4.23	4.35	5.39	5.36	PASS
Middle CH	3.88	4.46	4.75	5.57	
Highest CH	4.41	4.49	5.10	5.57	

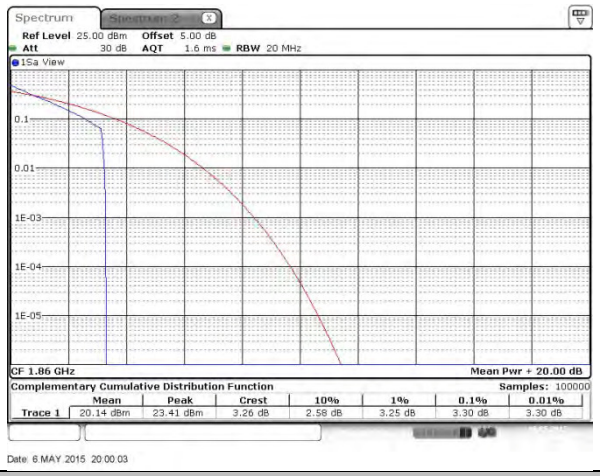
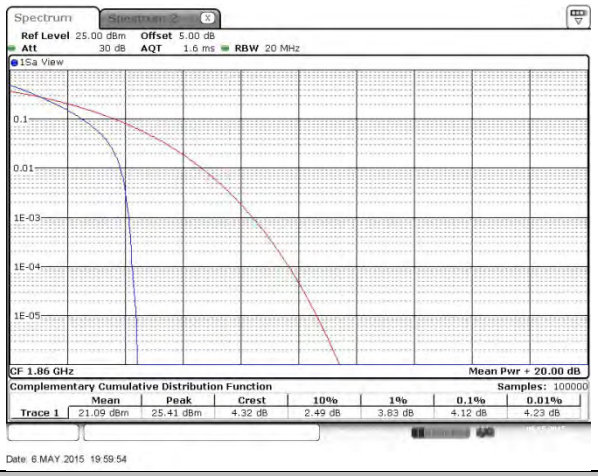
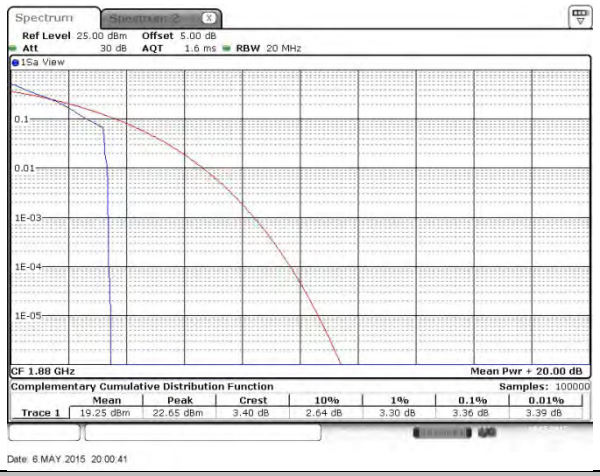
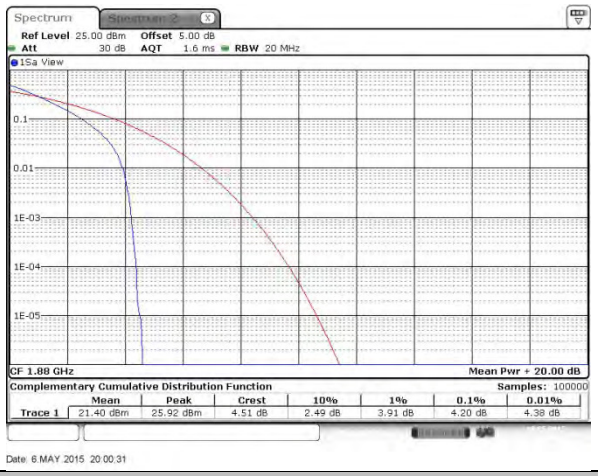
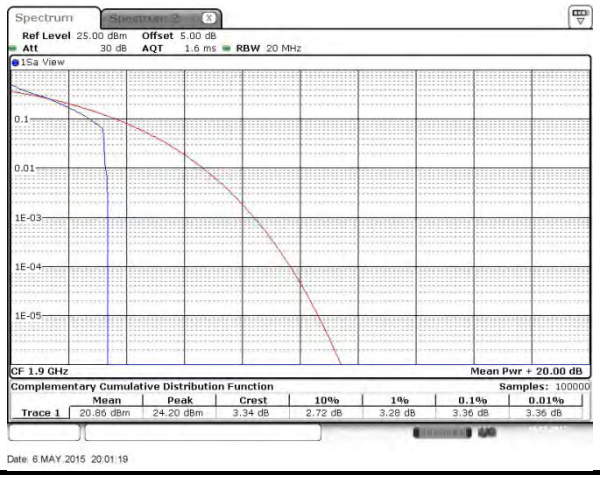
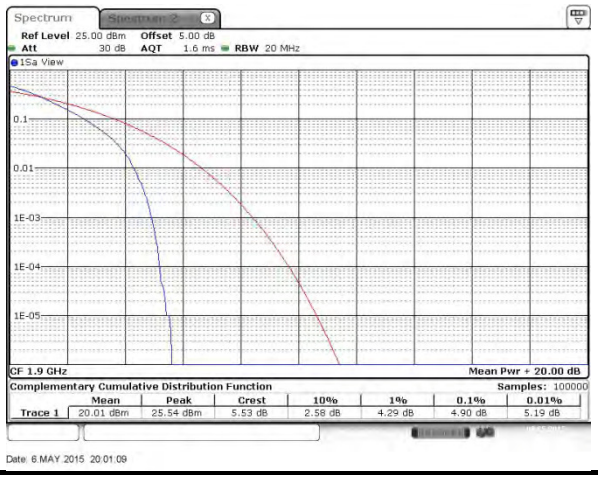
Mode	LTE Band 5 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	3.88	5.22	4.75	5.94	PASS
Middle CH	4.84	5.10	5.68	5.94	
Highest CH	4.00	4.96	4.72	5.97	

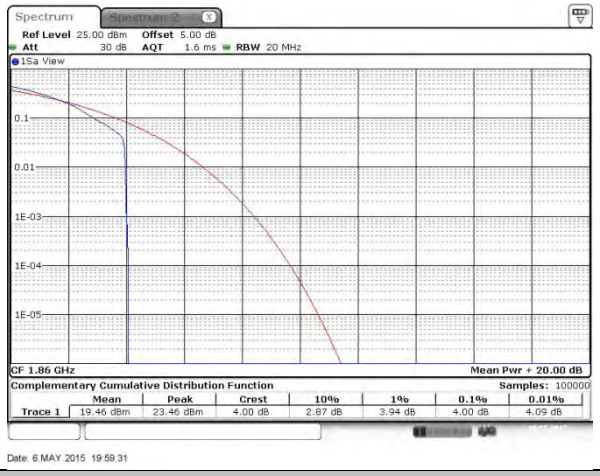
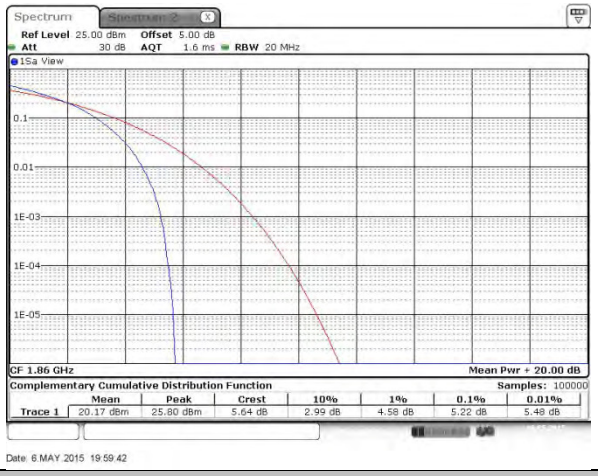
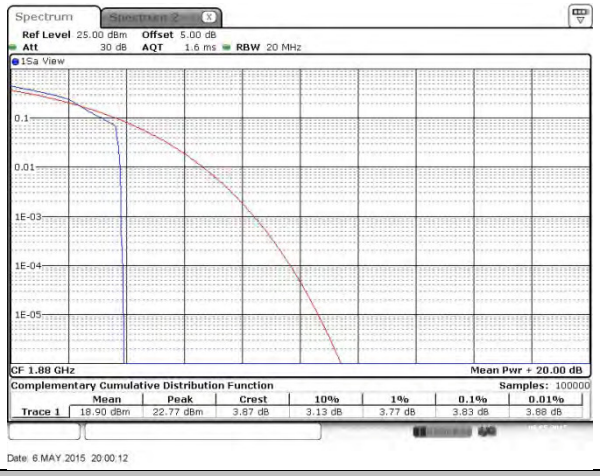
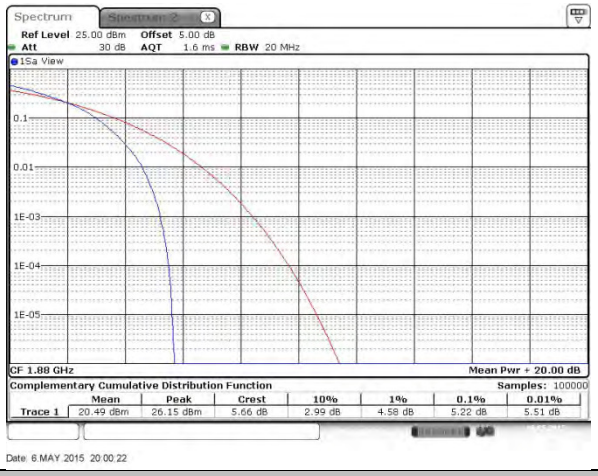
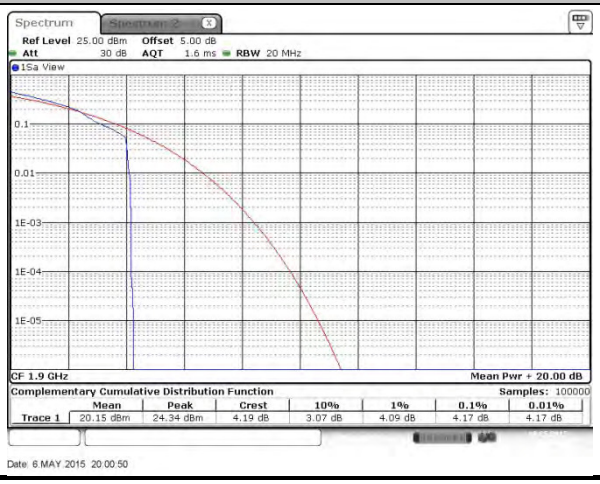
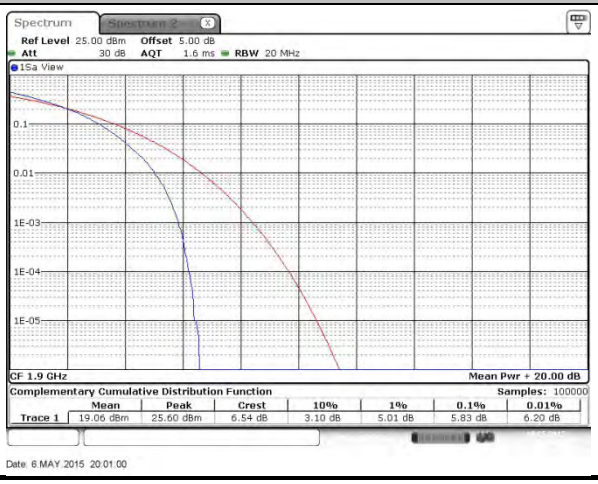
Mode	LTE Band 7 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	3.62	4.55	4.35	5.42	PASS
Middle CH	3.68	4.90	4.12	5.91	
Highest CH	3.57	4.49	4.52	5.48	

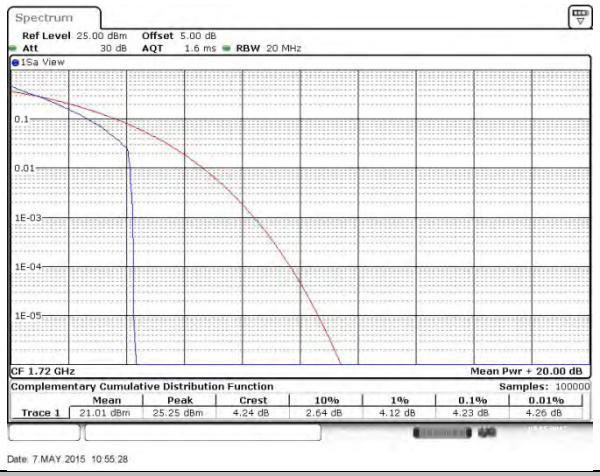
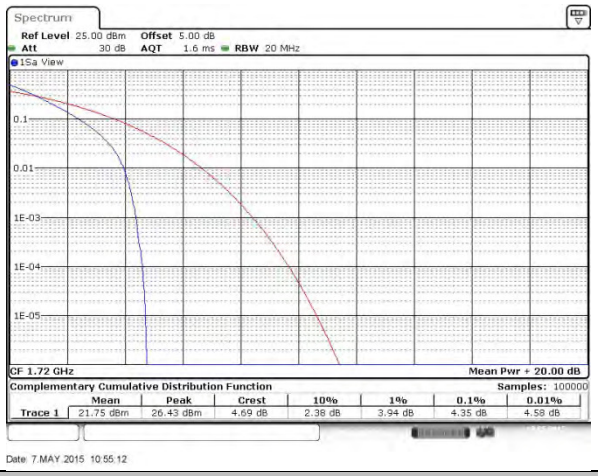
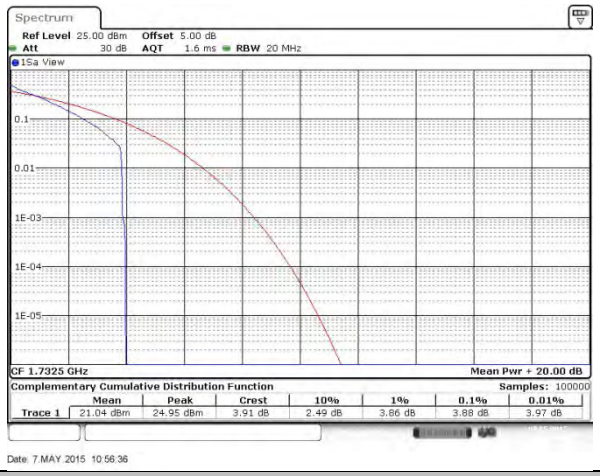
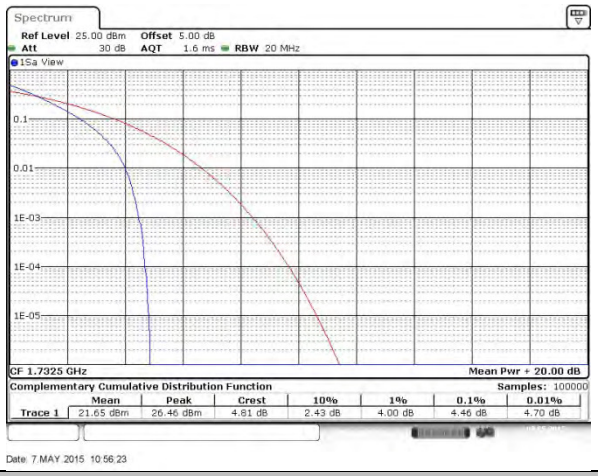
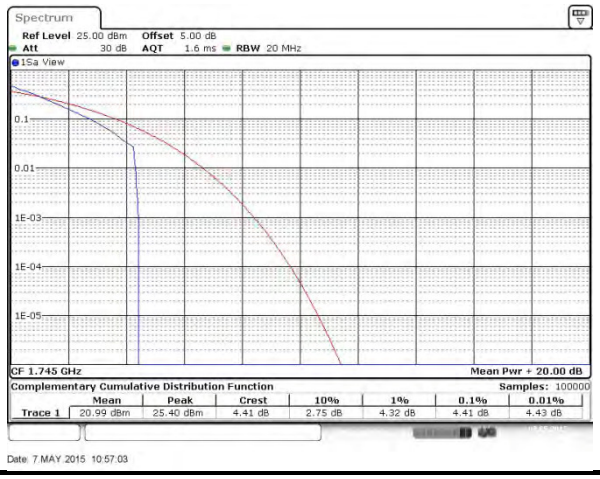
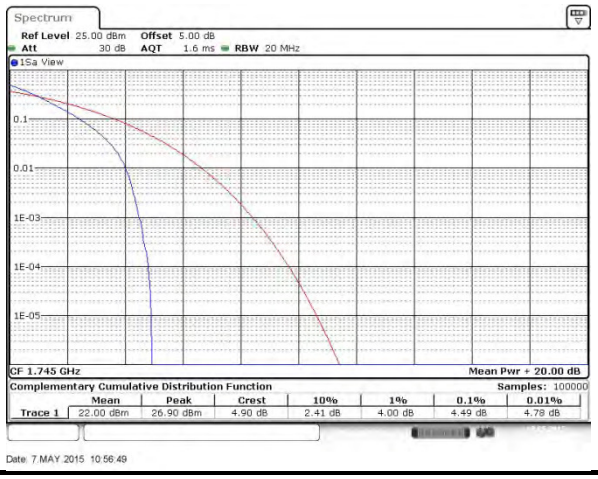
Mode	LTE Band 12 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	3.42	4.52	4.12	5.57	PASS
Middle CH	3.59	4.43	4.55	5.51	
Highest CH	3.54	4.46	4.26	5.57	

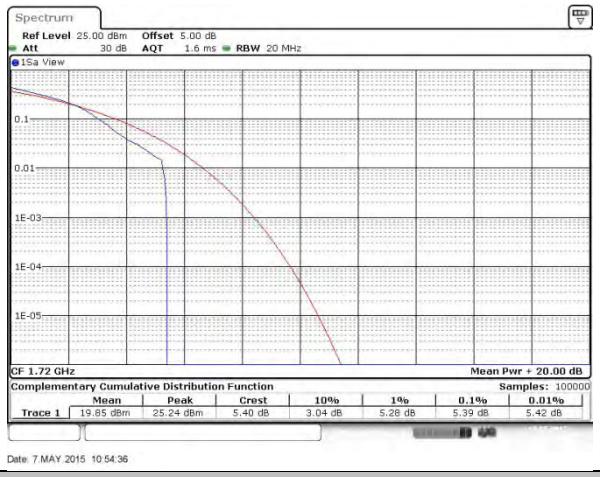
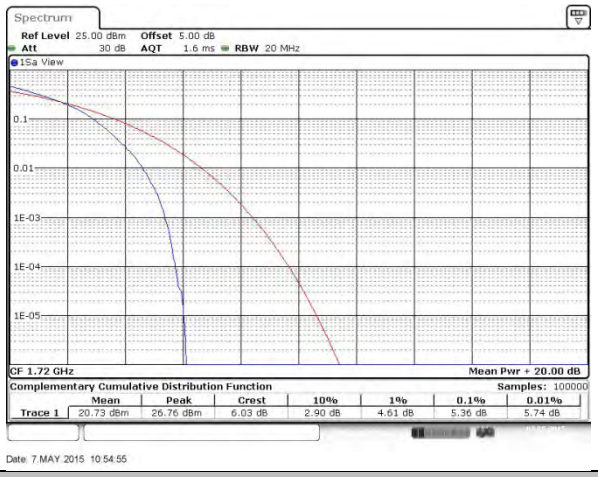
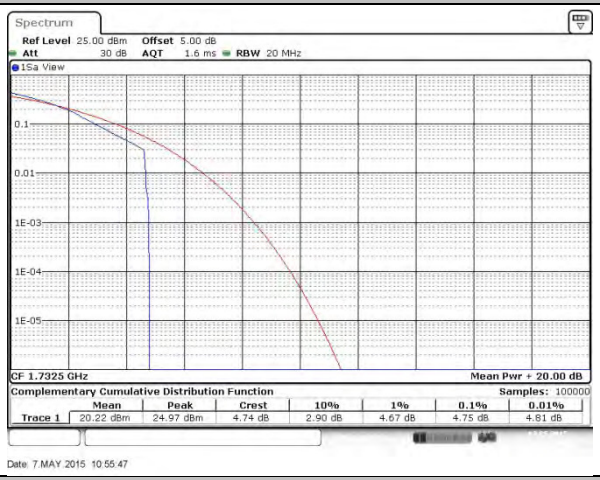
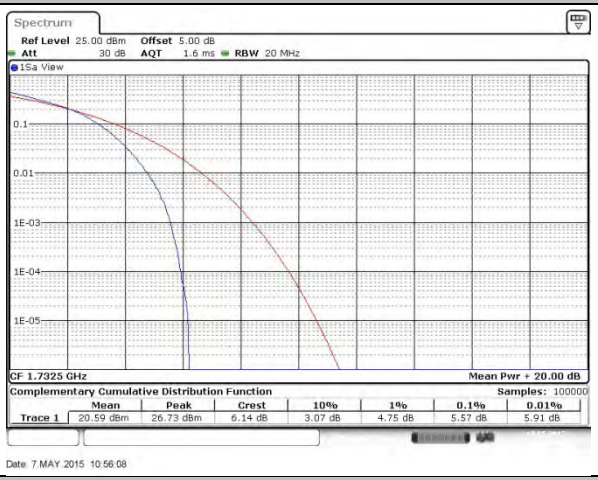
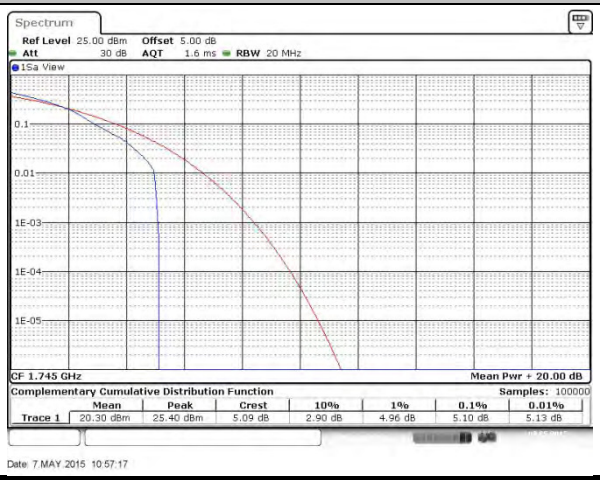
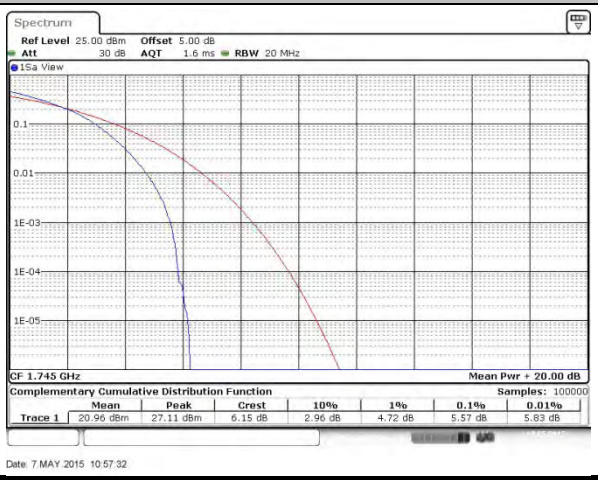
Mode	LTE Band 13 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	-	-	-	-	PASS
Middle CH	2.14	3.59	2.84	4.43	
Highest CH	-	-	-	-	

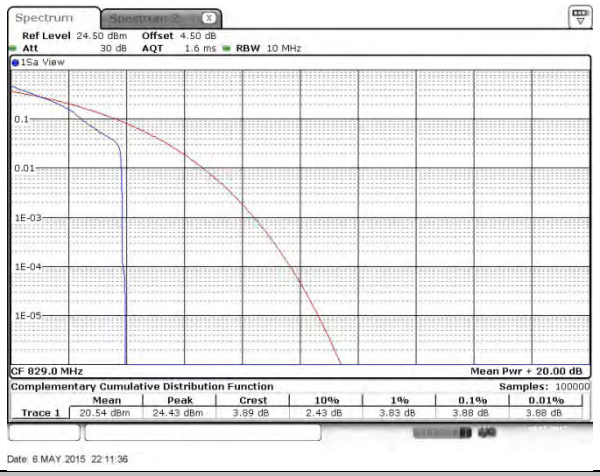
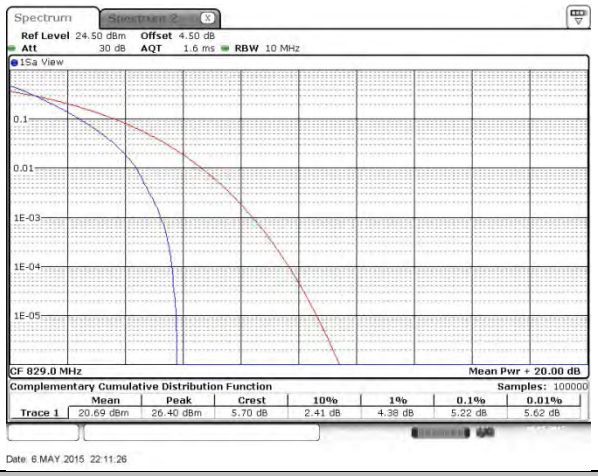
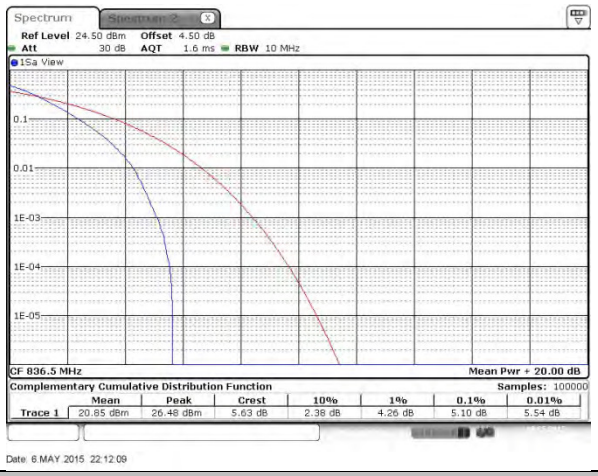
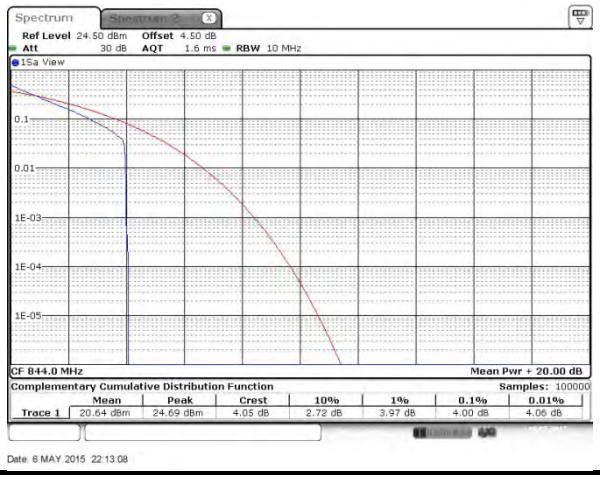
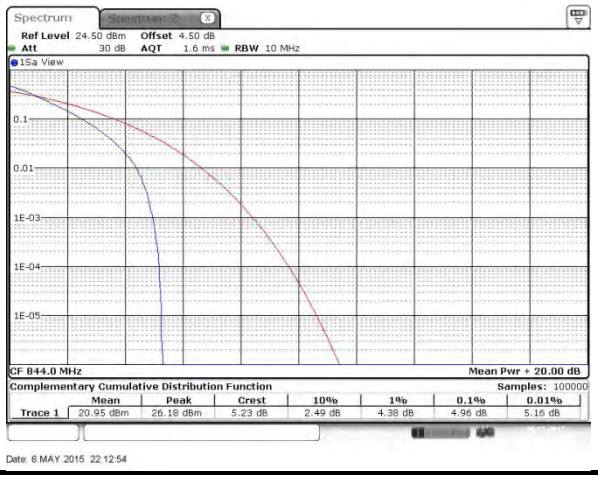
Mode	LTE Band 17 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	4.55	5.25	5.33	5.97	PASS
Middle CH	4.67	5.13	5.42	6.00	
Highest CH	4.49	5.13	5.39	5.94	

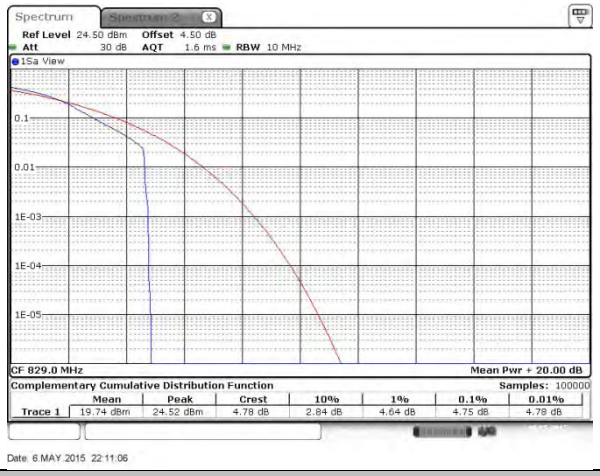
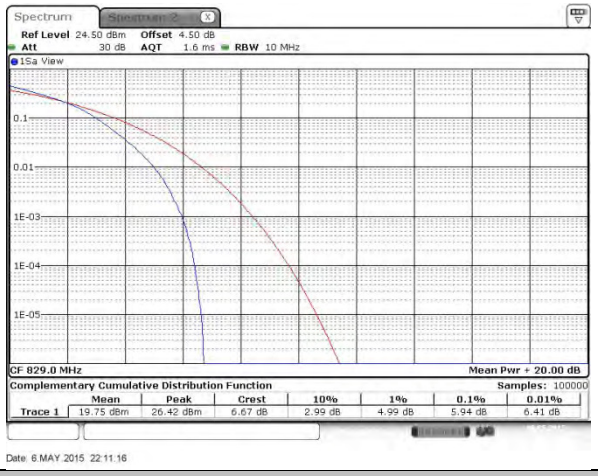
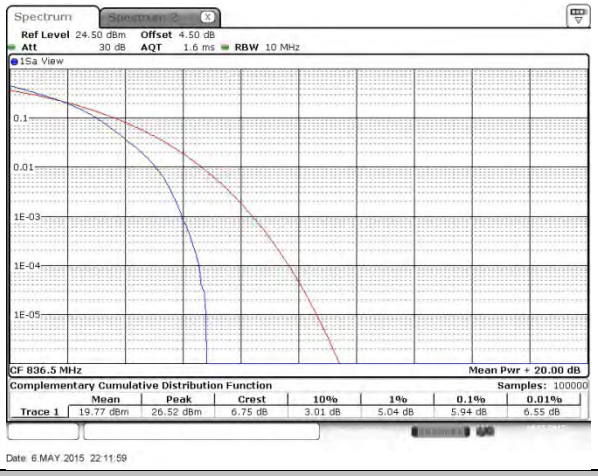
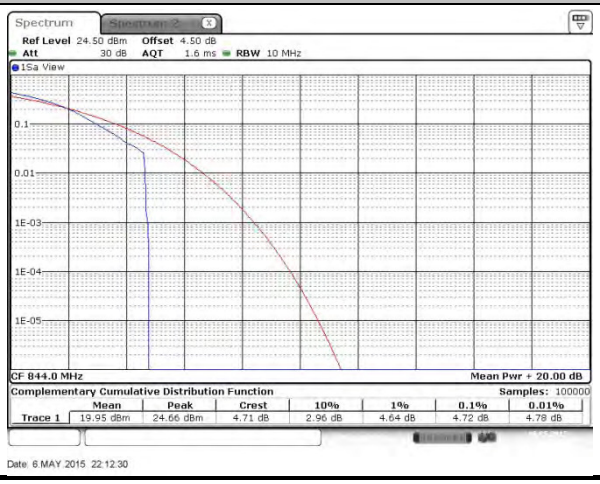
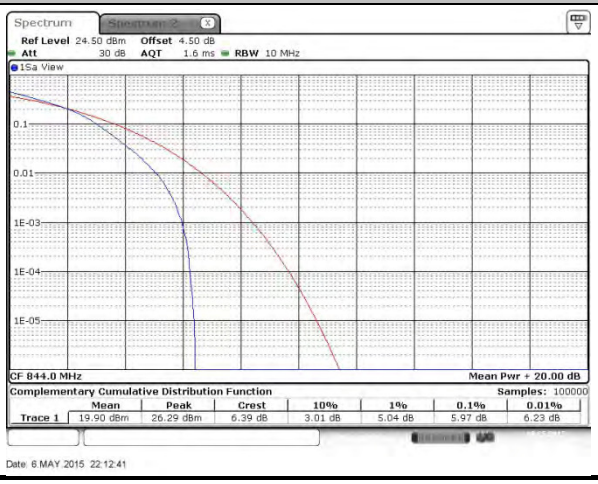
LTE Band 2 / 20MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

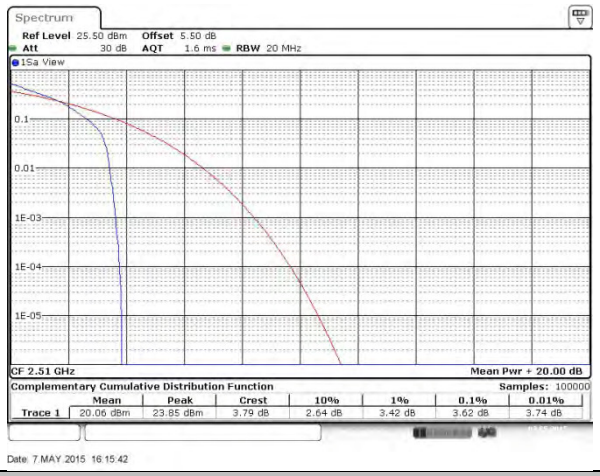
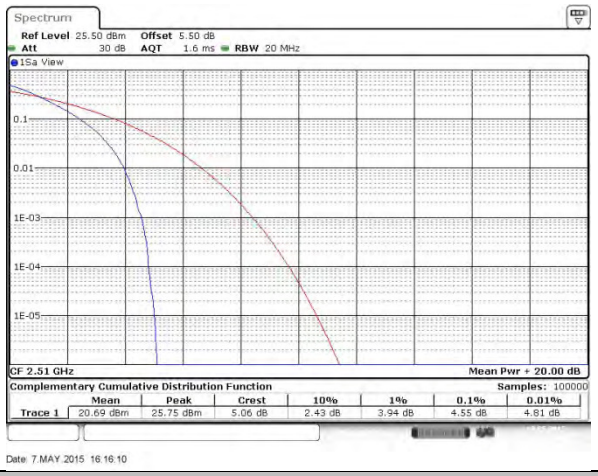
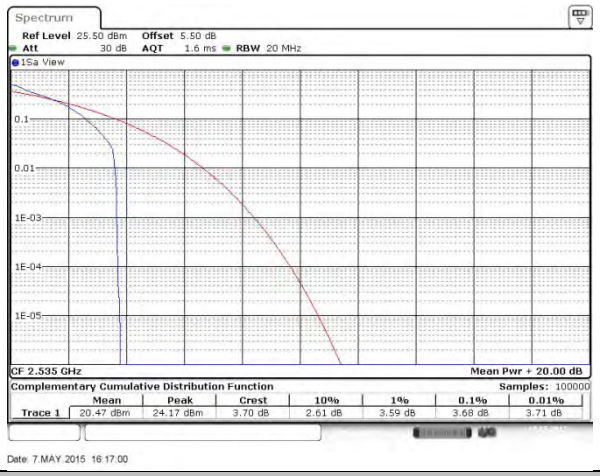
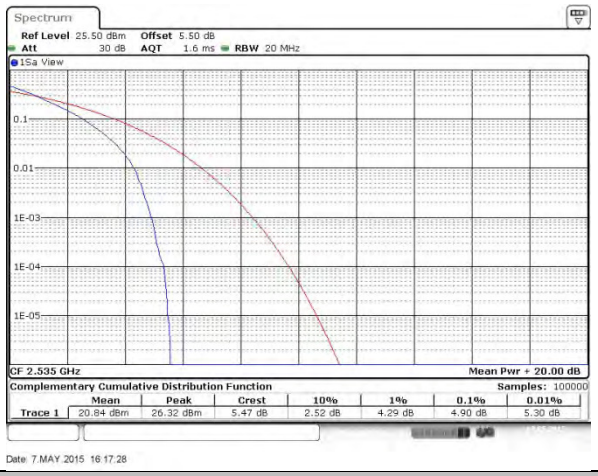
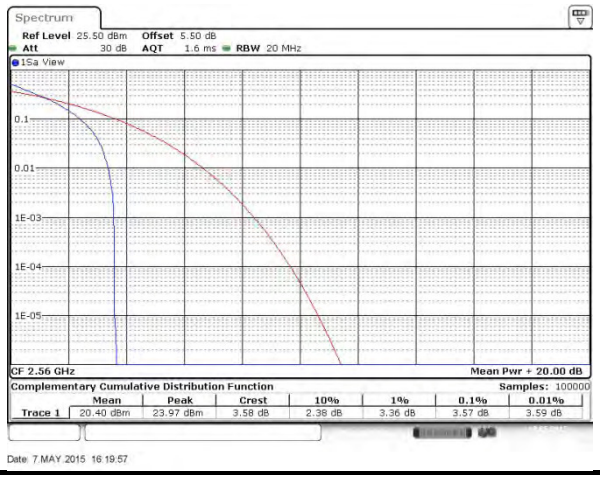
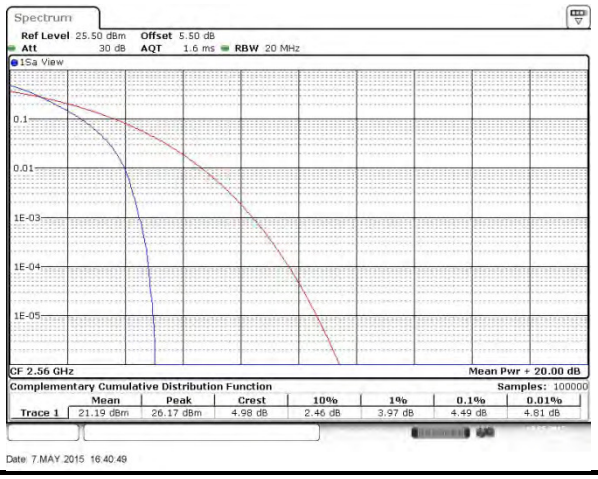
LTE Band 2 / 20MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

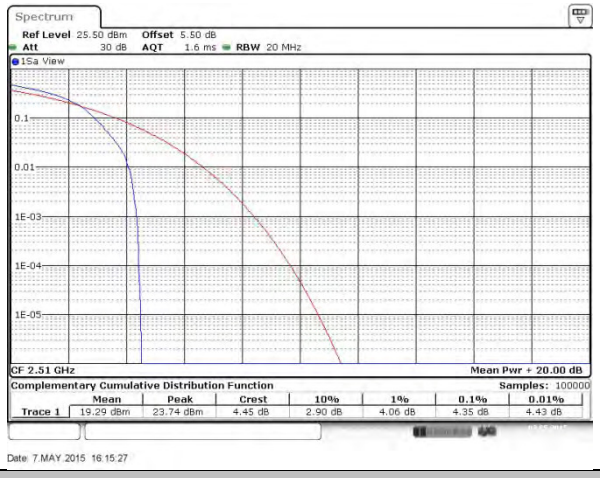
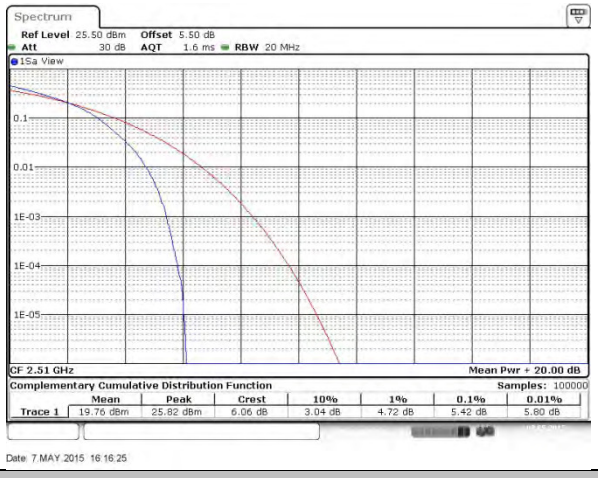
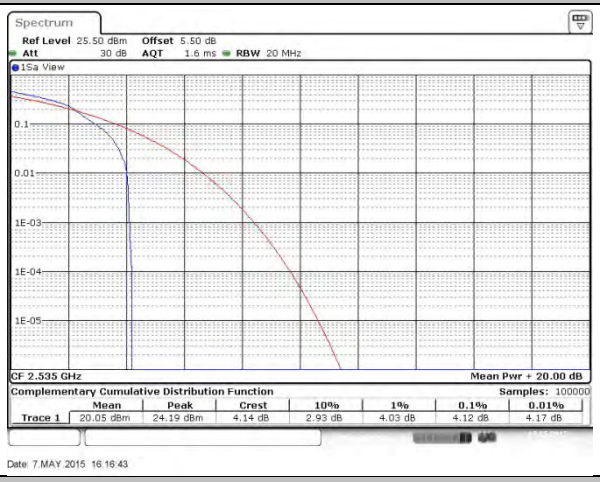
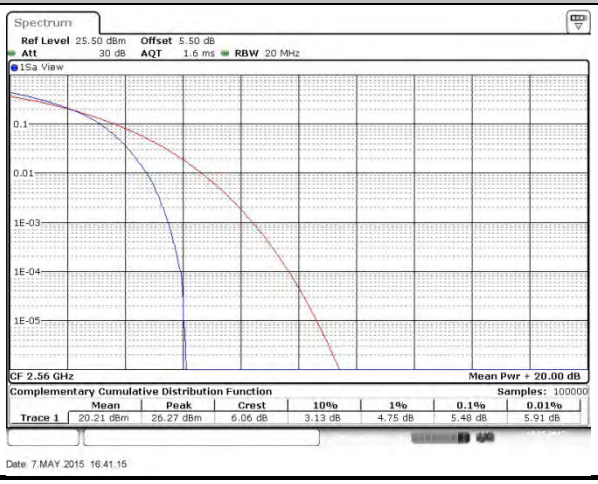
LTE Band 4 / 20MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

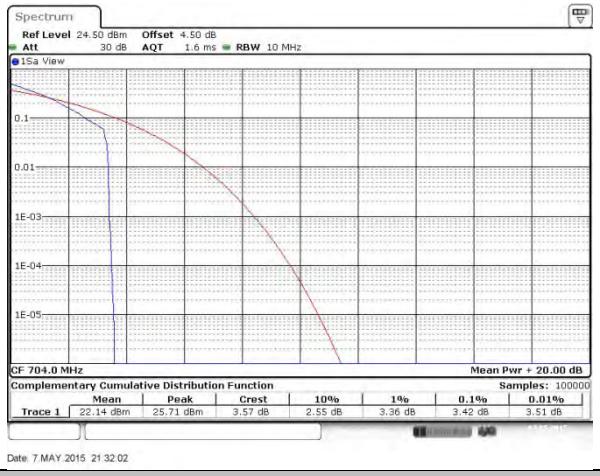
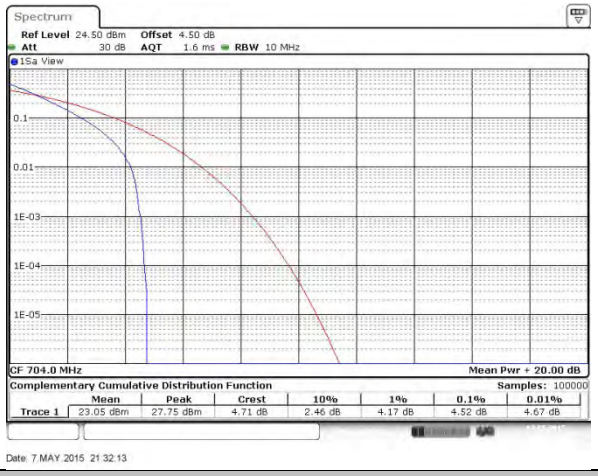
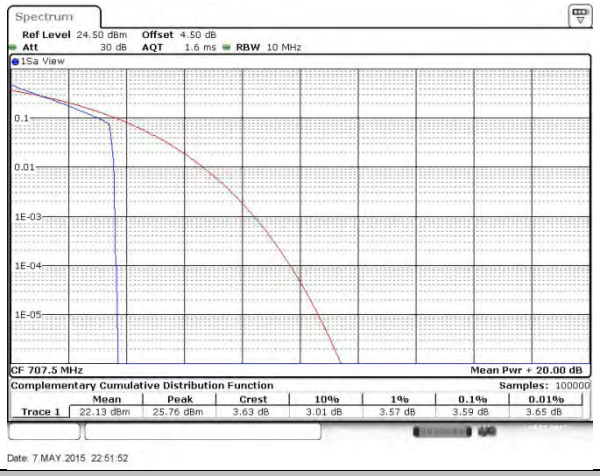
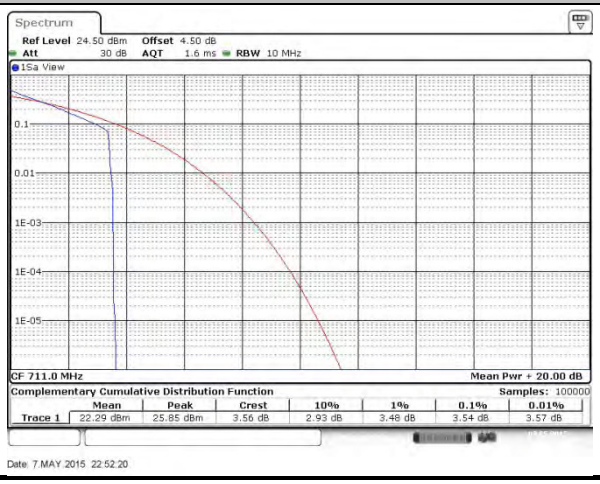
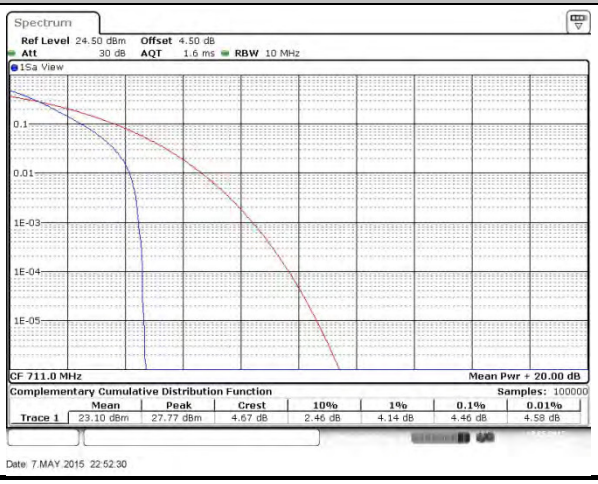
LTE Band 4 / 20MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

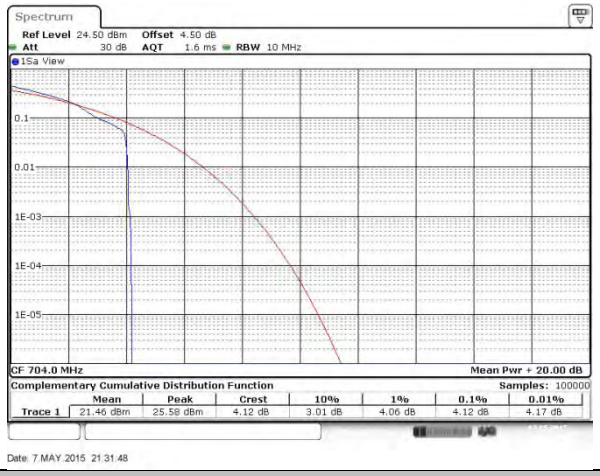
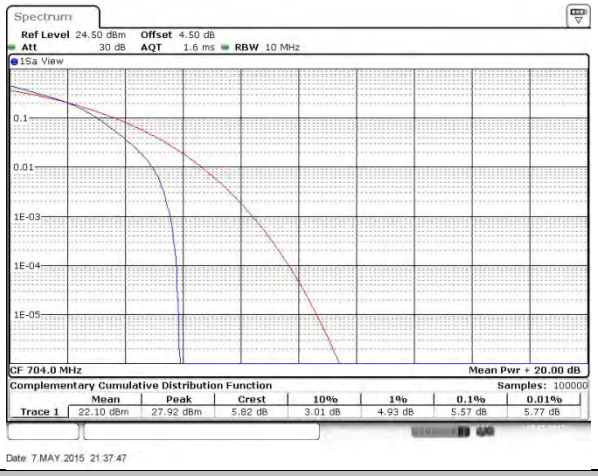
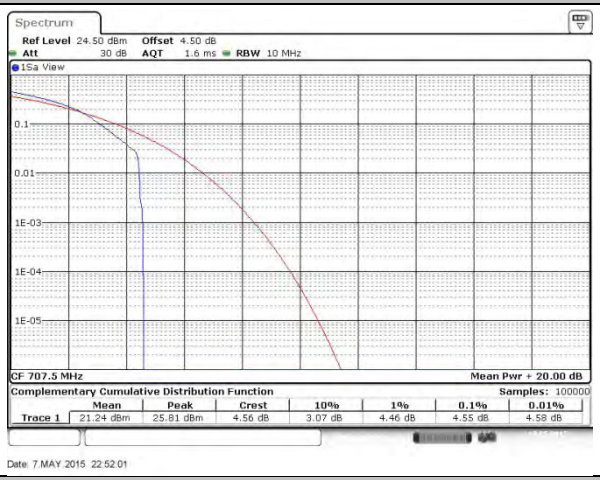
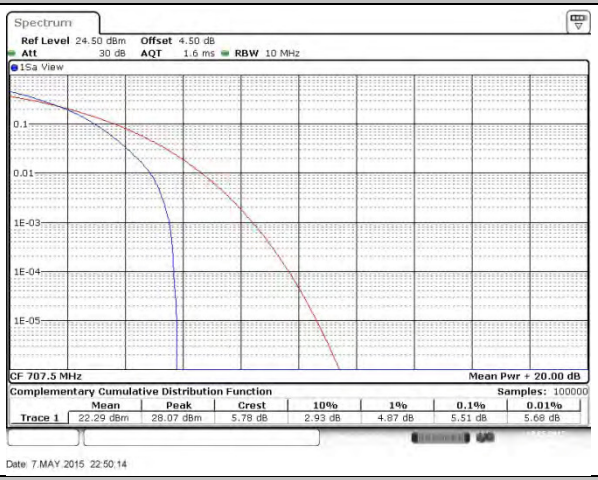
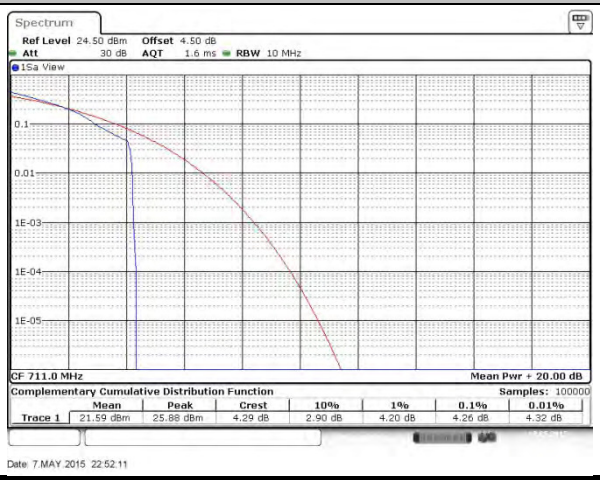
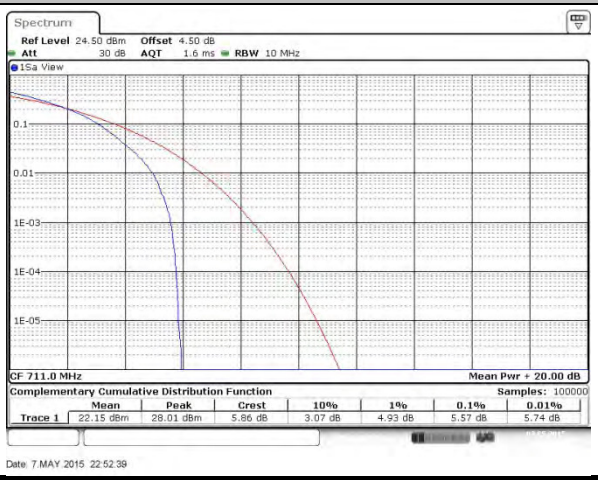
LTE Band 5 / 10MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

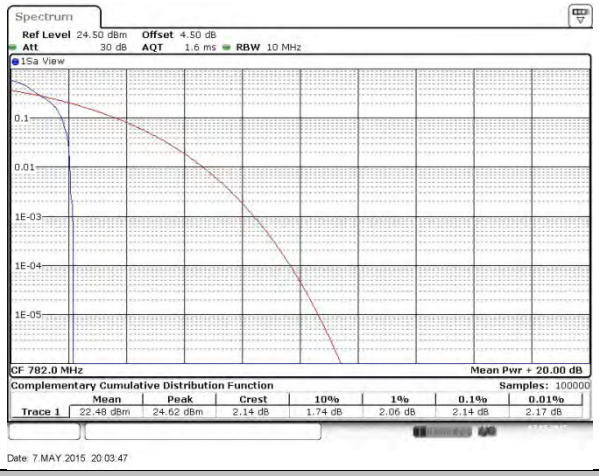
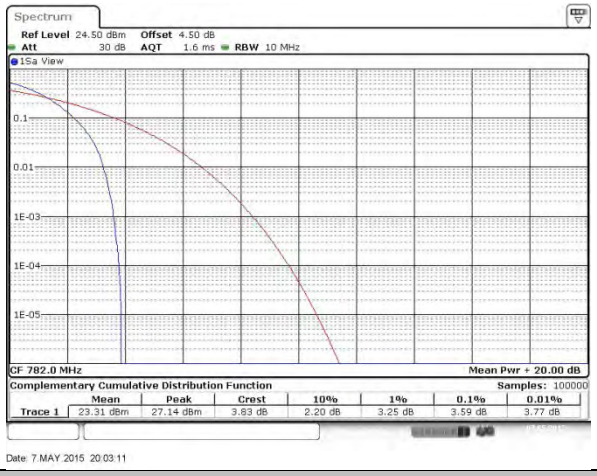
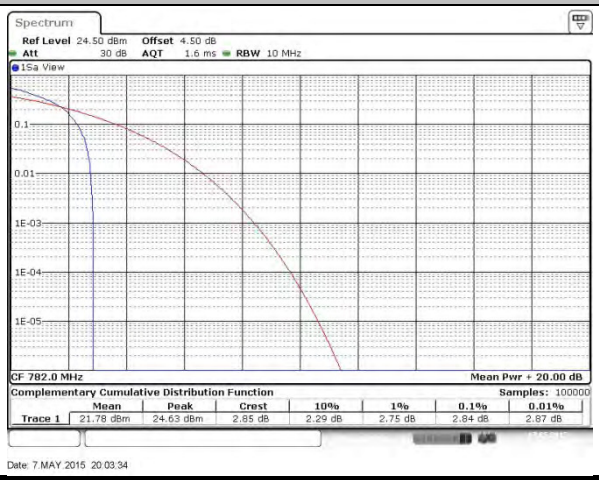
LTE Band 5 / 10MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

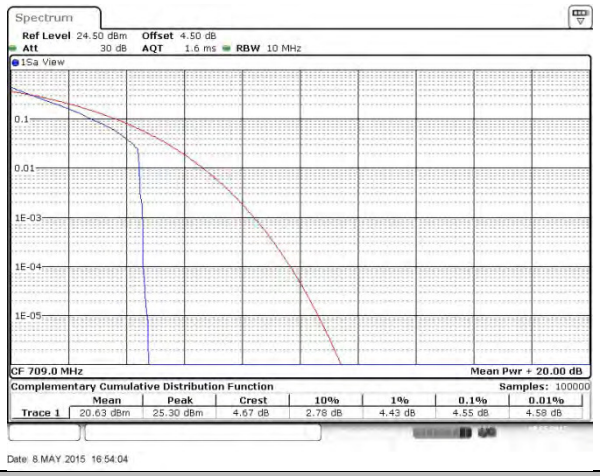
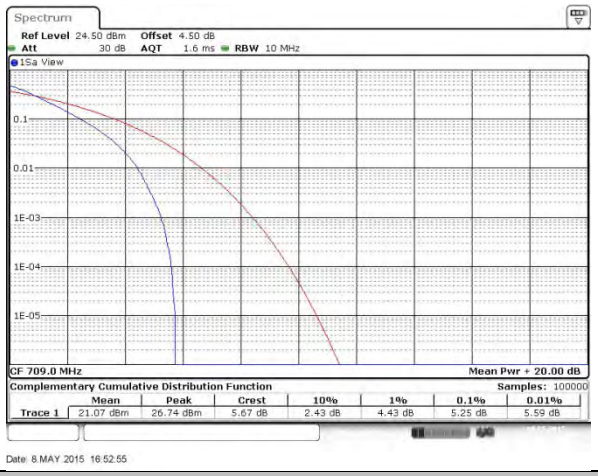
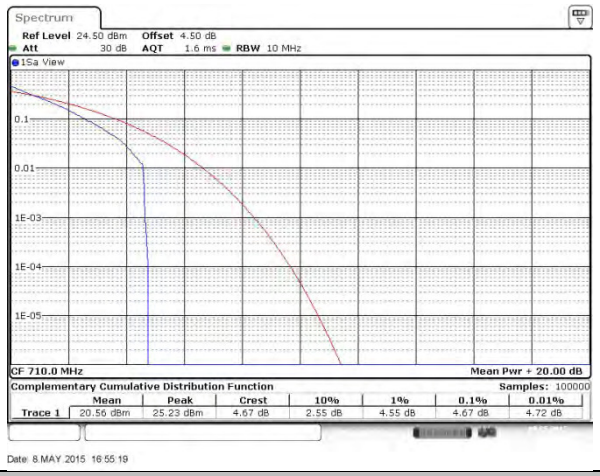
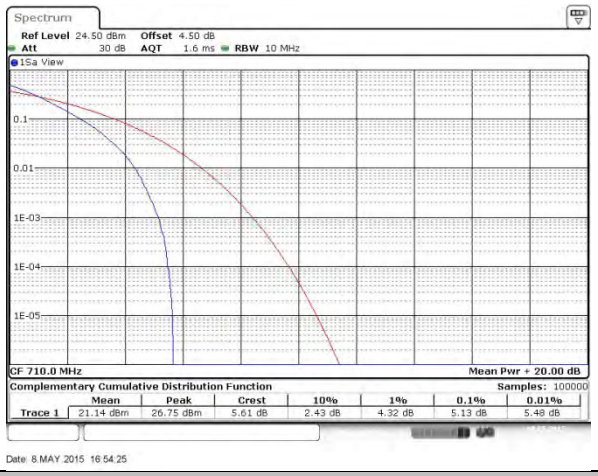
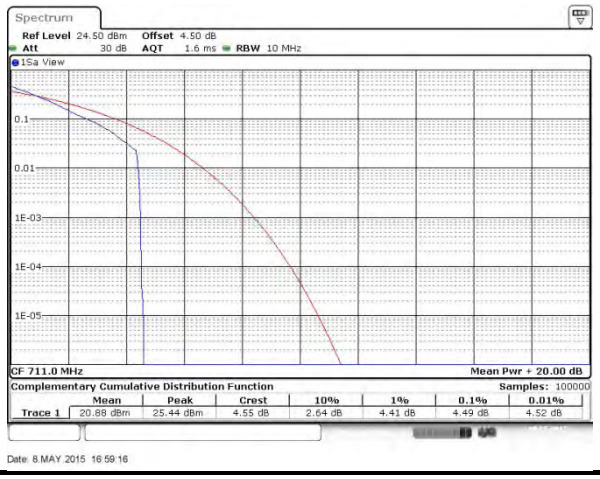
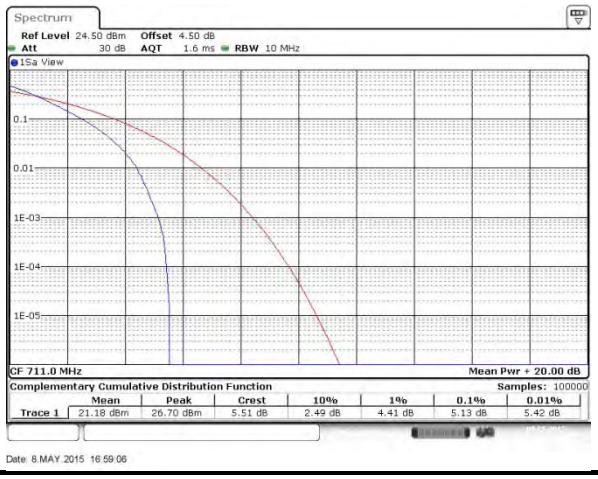
LTE Band 7 / 20MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

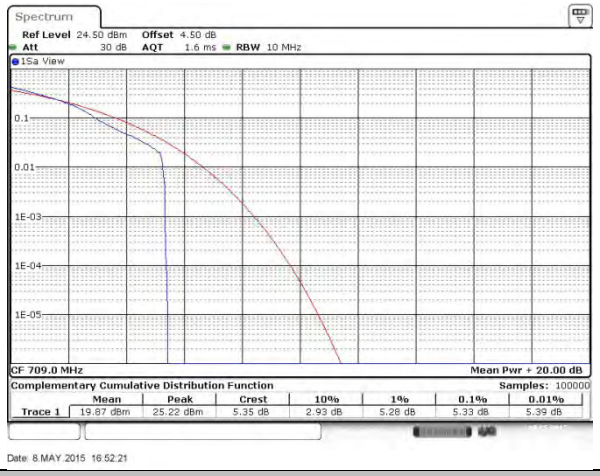
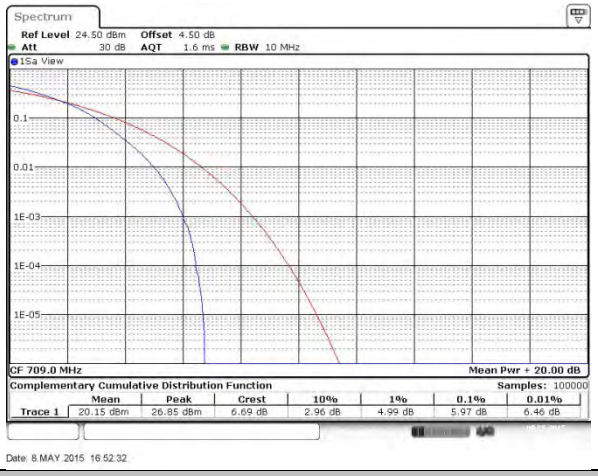
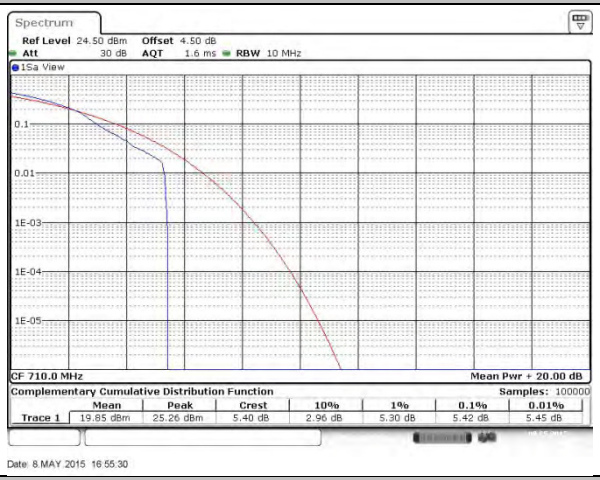
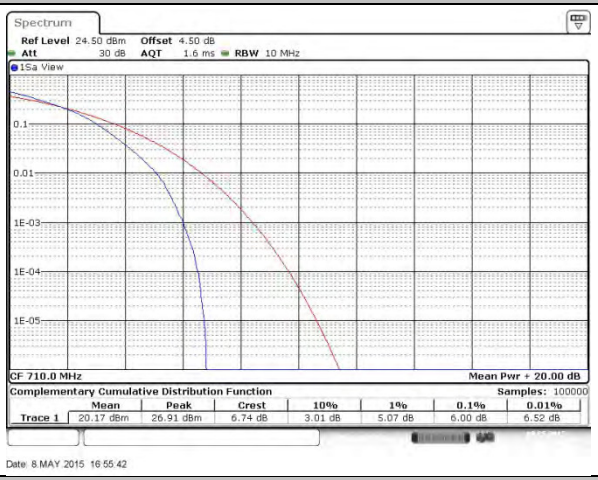
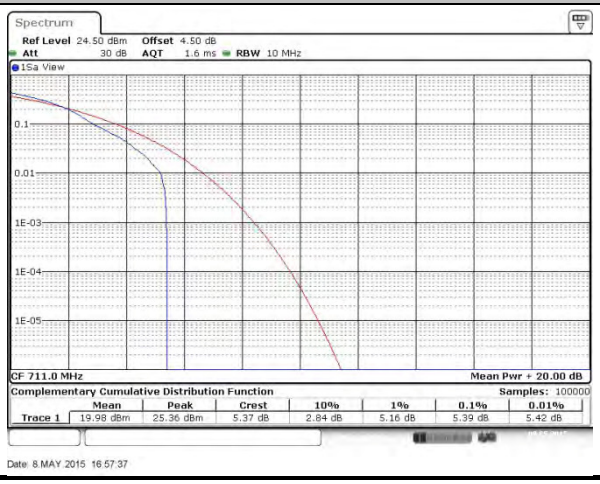
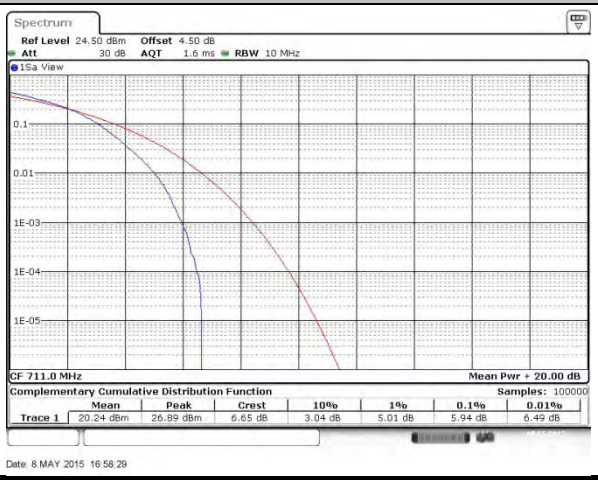
LTE Band 7 / 20MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

LTE Band 12 / 10MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

LTE Band 12 / 10MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

LTE Band 13 / 10MHz / QPSK	
Middle Channel/ 1RB	**Middle Channel / Full RB**
	
LTE Band 13 / 10MHz / 16QAM	
Middle Channel/ 1RB	**Middle Channel / Full RB**
	

LTE Band 17 / 10MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel/ 1RB	**Middle Channel / Full RB**
	
Highest Channel/ 1RB	**Highest Channel / Full RB**
	

LTE Band 17 / 10MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel/ 1RB	**Middle Channel / Full RB**
	
Highest Channel/ 1RB	**Highest Channel / Full RB**
	

26dB Bandwidth

Mode	LTE Band 2 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.290	1.295	3.075	3.135	5.055	5.005	10.090	9.910	14.895	14.745	20.340	20.420
Middle CH	1.278	1.250	3.075	3.087	5.005	4.955	9.950	9.930	14.565	14.625	20.260	20.460
Highest CH	1.365	1.309	3.093	3.099	4.995	4.955	9.790	9.930	14.625	14.625	20.420	20.380

Mode	LTE Band 4 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.250	1.250	3.075	3.081	5.005	4.995	9.950	9.910	14.685	14.655	20.380	20.380
Middle CH	1.248	1.253	3.063	3.093	5.005	4.995	9.890	9.950	14.625	14.625	20.380	20.340
Highest CH	1.278	1.256	3.075	3.093	5.025	4.995	9.850	9.950	14.775	14.685	20.500	20.220

Mode	LTE Band 5 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.239	1.236	3.051	3.081	5.015	4.975	9.930	9.910	-	-	-	-
Middle CH	1.242	1.239	3.051	3.075	4.985	4.985	9.990	9.910	-	-	-	-
Highest CH	1.242	1.236	3.063	3.081	4.995	4.995	10.010	9.910	-	-	-	-

Mode	LTE Band 7 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	5.005	4.995	9.970	9.890	14.685	14.835	20.420	20.460
Middle CH	-	-	-	-	4.995	5.005	9.890	9.870	14.655	14.655	20.380	20.300
Highest CH	-	-	-	-	5.005	5.005	9.930	9.910	14.715	14.565	20.220	20.220

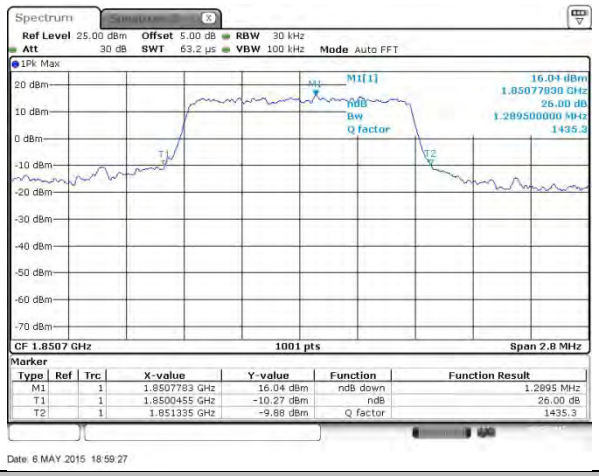
Mode	LTE Band 12 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.242	1.236	3.069	3.093	5.025	5.015	10.030	9.930	-	-	-	-
Middle CH	1.239	1.236	3.063	3.063	5.005	4.975	9.950	9.950	-	-	-	-
Highest CH	1.239	1.236	3.057	3.063	4.985	5.015	9.950	9.890	-	-	-	-

Mode	LTE Band 13 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	5.235	5.045	-	-	-	-	-	-
Middle CH	-	-	-	-	5.015	4.985	9.790	10.010	-	-	-	-
Highest CH	-	-	-	-	5.604	5.584	-	-	-	-	-	-

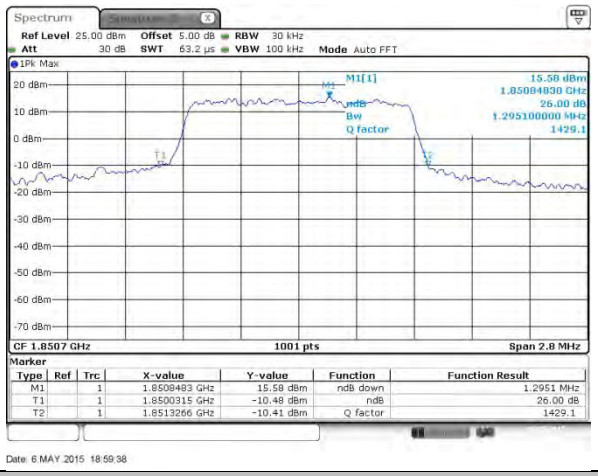
Mode	LTE Band 17 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.985	4.995	9.970	9.930	-	-	-	-
Middle CH	-	-	-	-	4.985	4.975	9.950	9.890	-	-	-	-
Highest CH	-	-	-	-	5.005	4.945	9.870	9.870	-	-	-	-

LTE Band 2

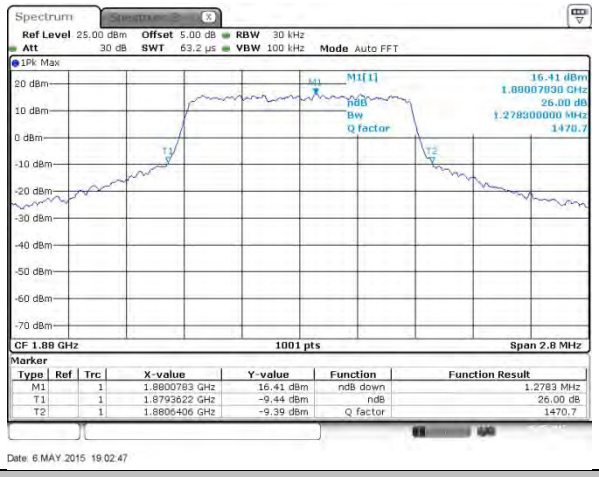
Lowest Channel / 1.4MHz / QPSK



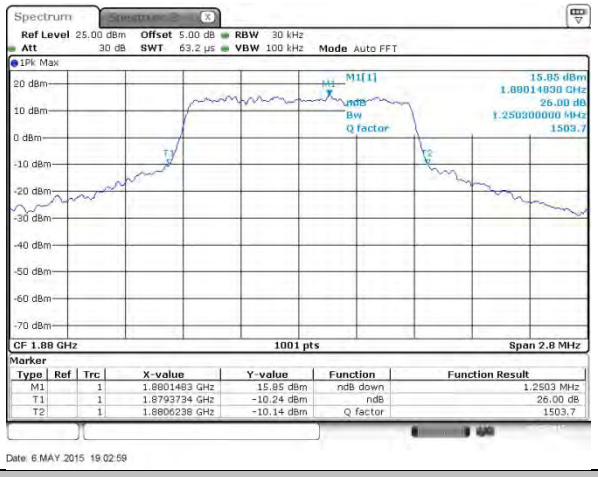
Lowest Channel / 1.4MHz / 16QAM



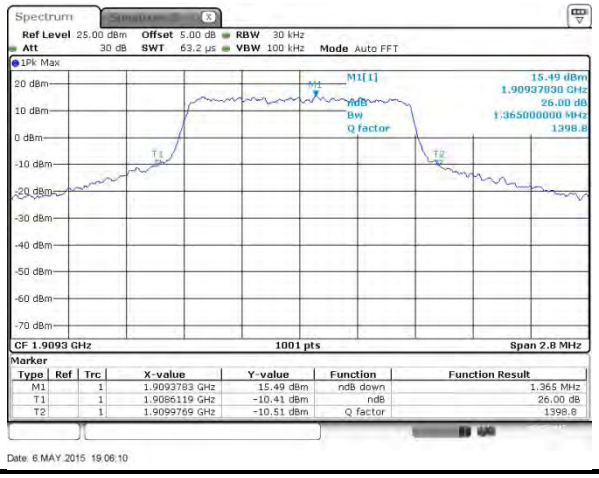
Middle Channel / 1.4MHz / QPSK



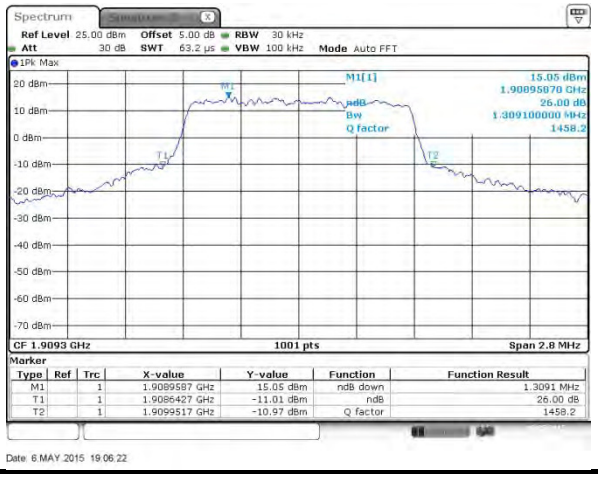
Middle Channel / 1.4MHz / 16QAM



Highest Channel / 1.4MHz / QPSK

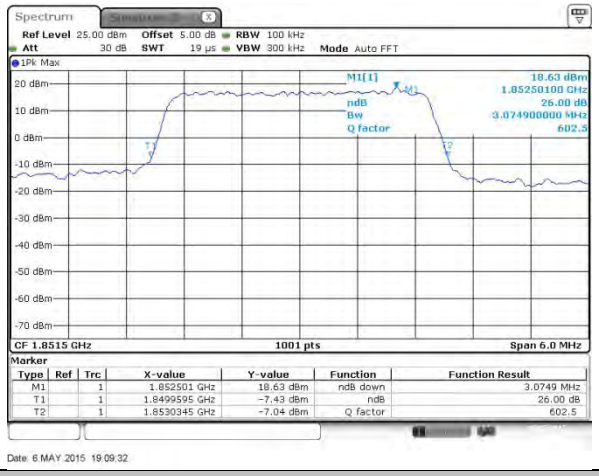


Highest Channel / 1.4MHz / 16QAM

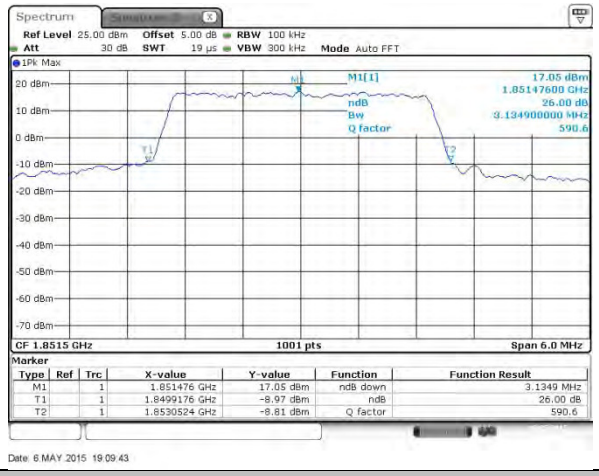


LTE Band 2

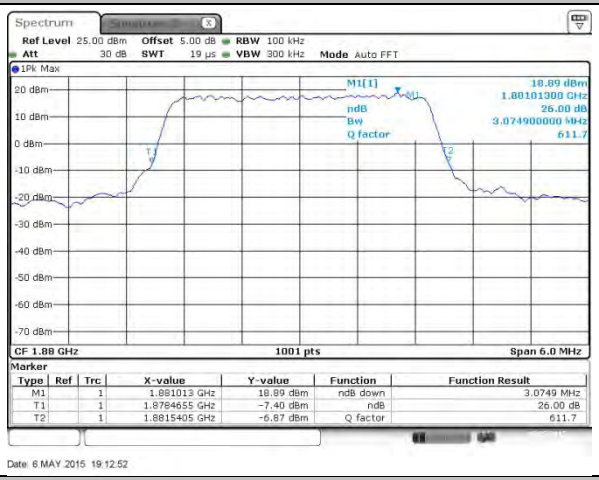
Lowest Channel / 3MHz / QPSK



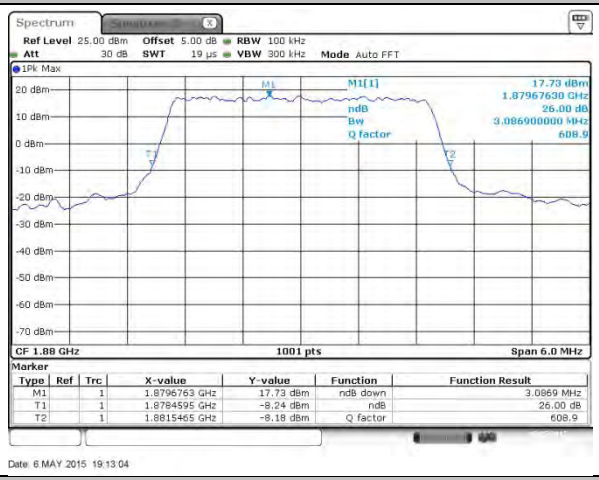
Lowest Channel / 3MHz / 16QAM



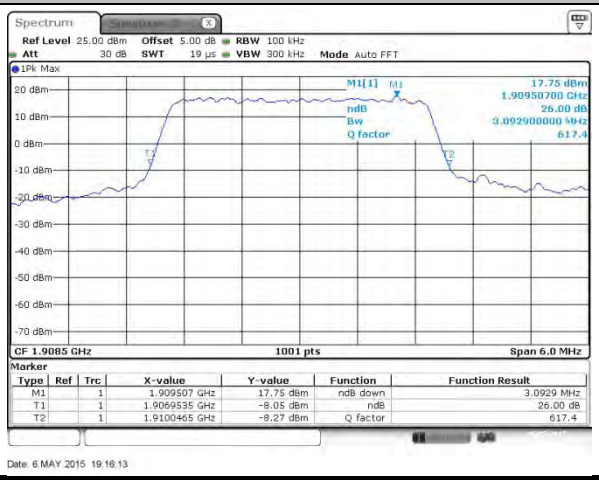
Middle Channel / 3MHz / QPSK



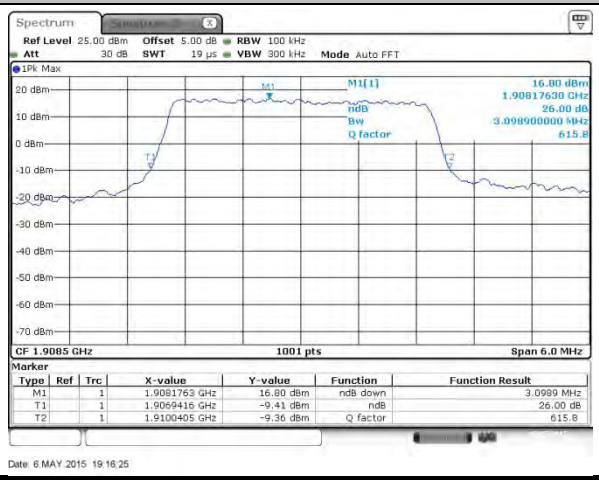
Middle Channel /3MHz / 16QAM



Highest Channel /3MHz / QPSK

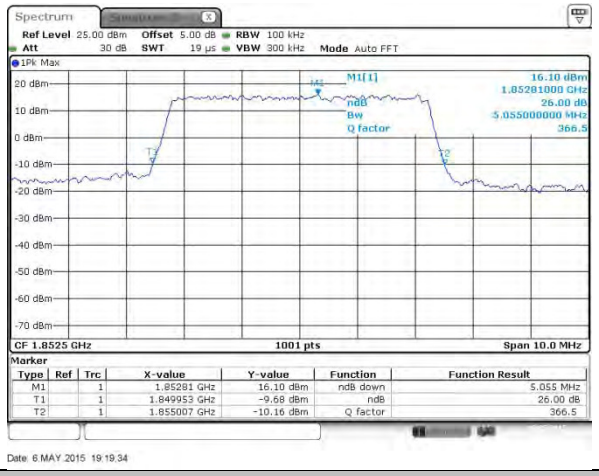


Highest Channel /3MHz / 16QAM

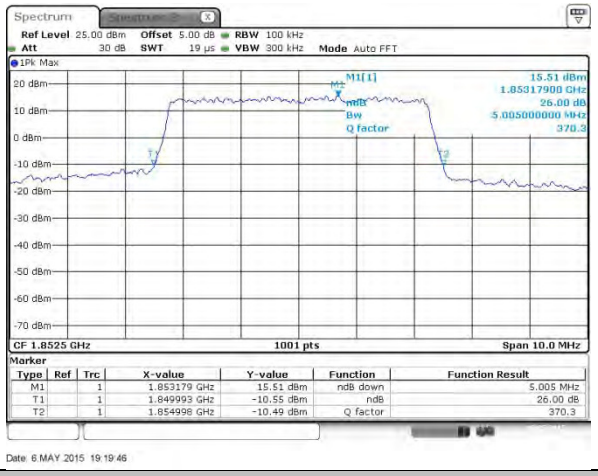


LTE Band 2

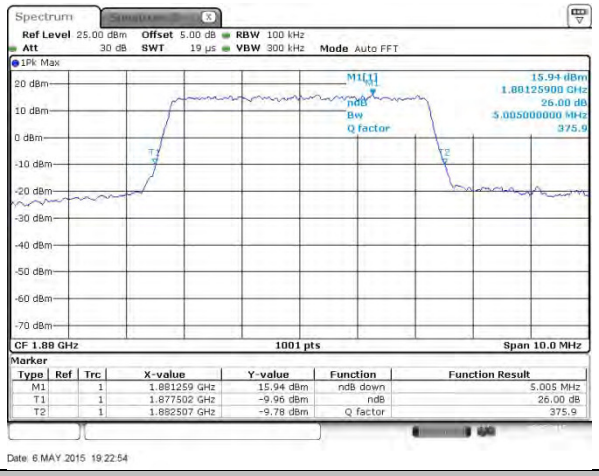
Lowest Channel / 5MHz / QPSK



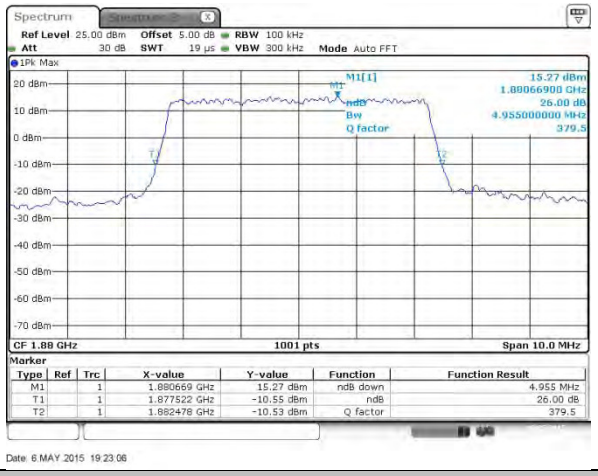
Lowest Channel / 5MHz / 16QAM



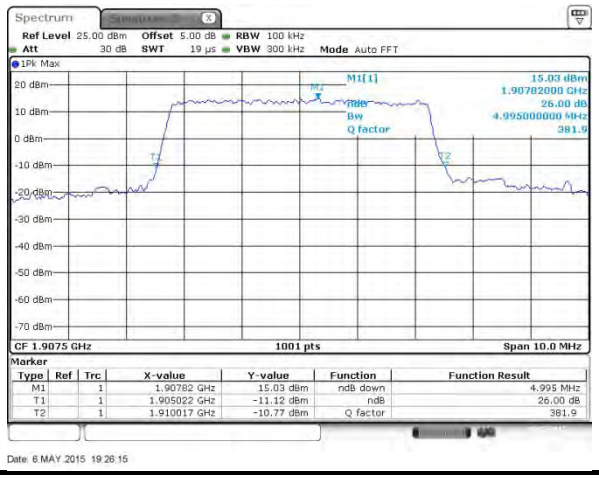
Middle Channel / 5MHz / QPSK



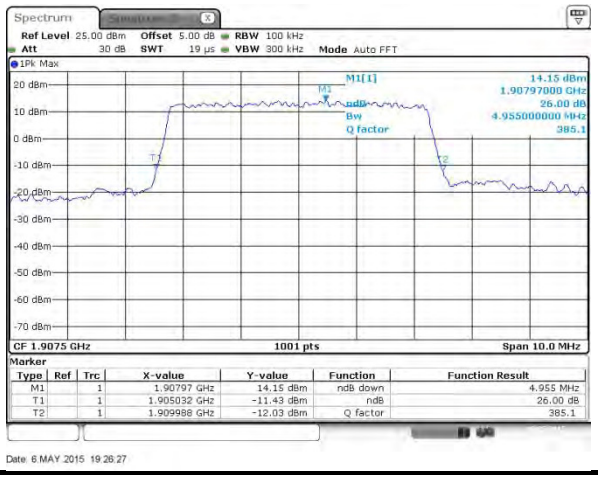
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

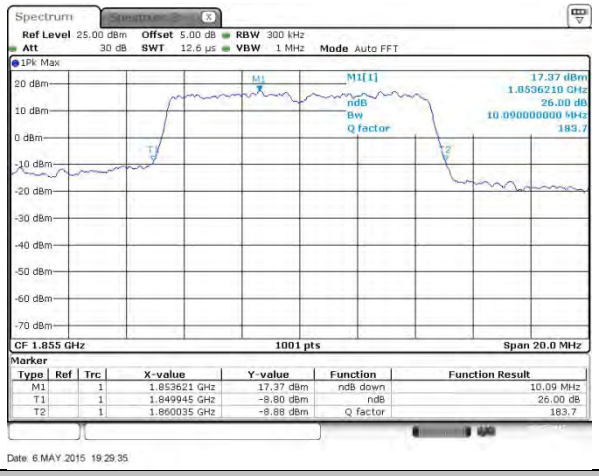


Highest Channel / 5MHz / 16QAM

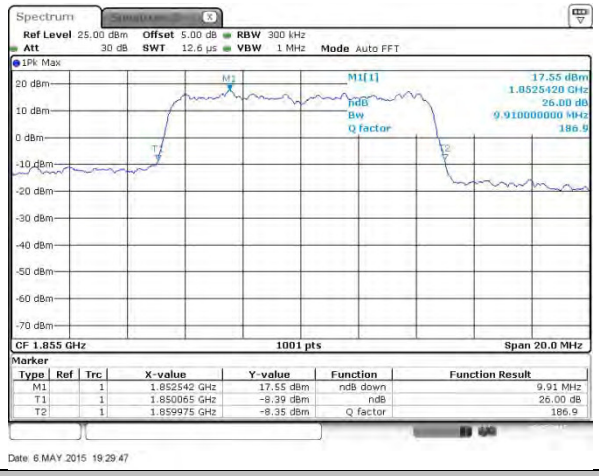


LTE Band 2

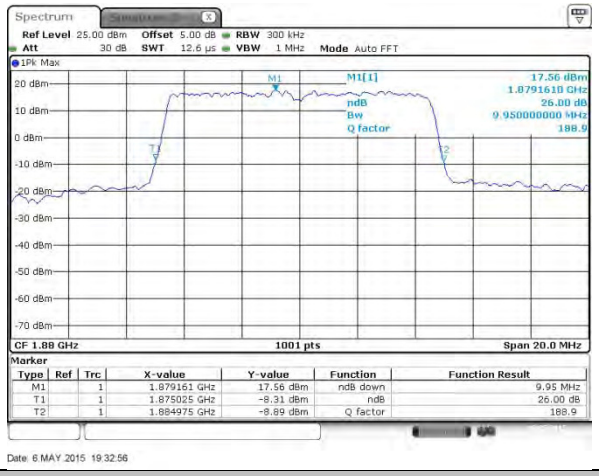
Lowest Channel / 10MHz / QPSK



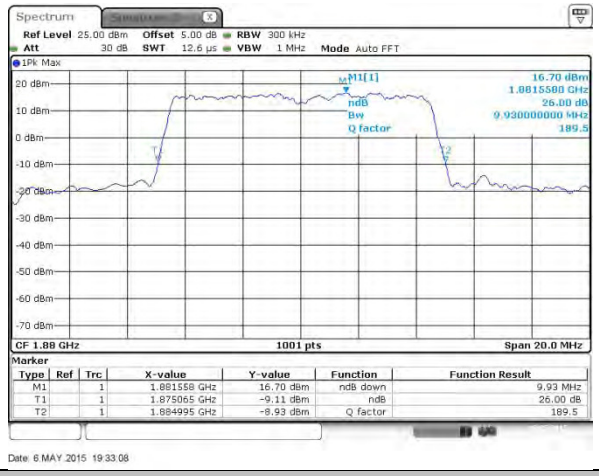
Lowest Channel / 10MHz / 16QAM



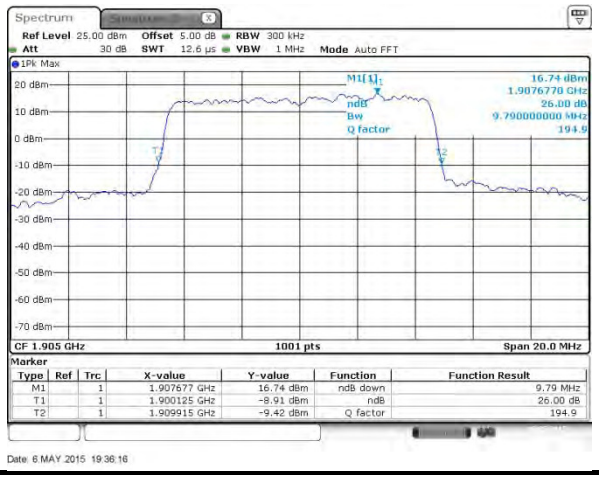
Middle Channel / 10MHz / QPSK



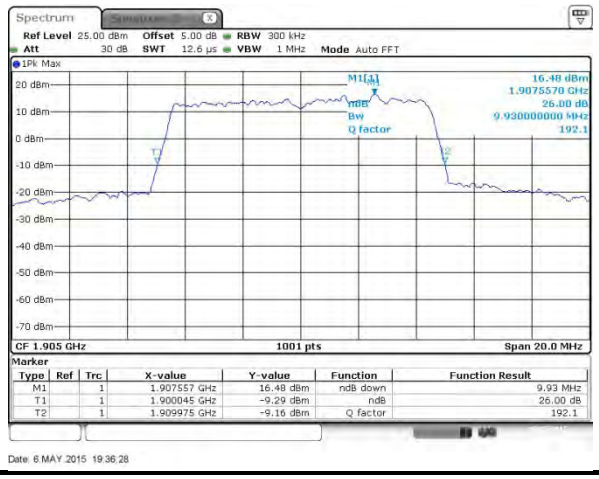
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK

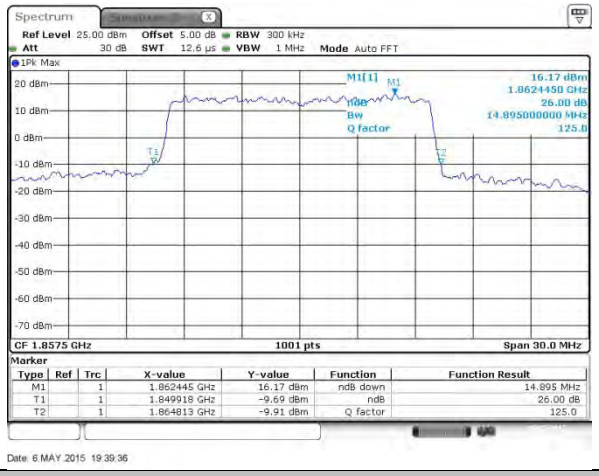


Highest Channel / 10MHz / 16QAM

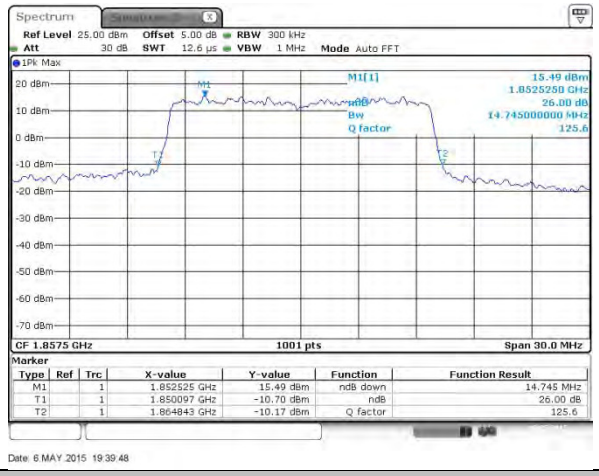


LTE Band 2

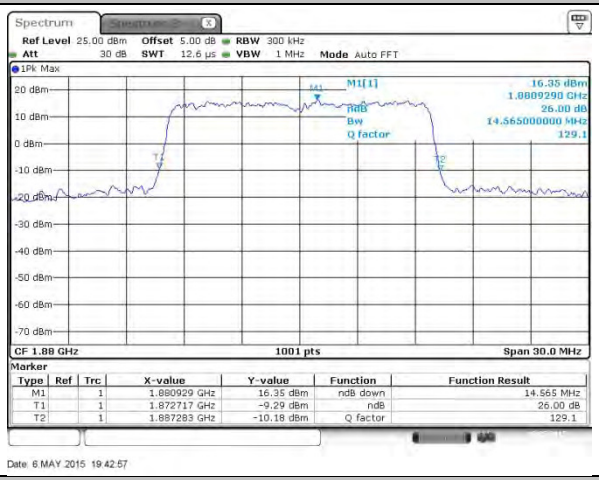
Lowest Channel / 15MHz / QPSK



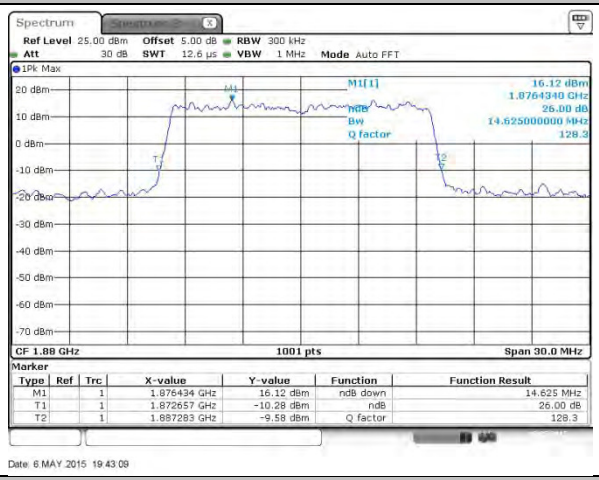
Lowest Channel / 15MHz / 16QAM



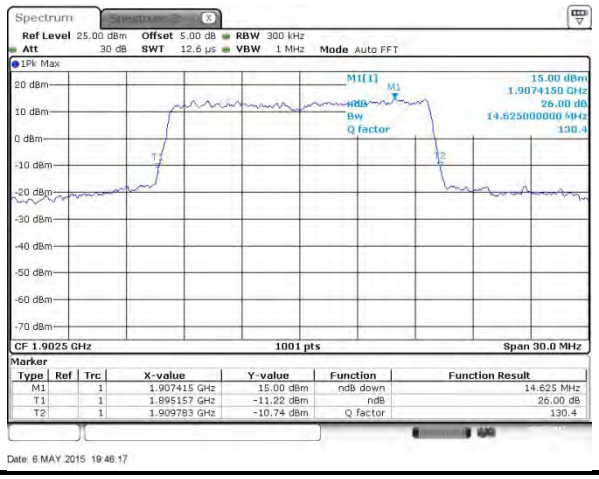
Middle Channel / 15MHz / QPSK



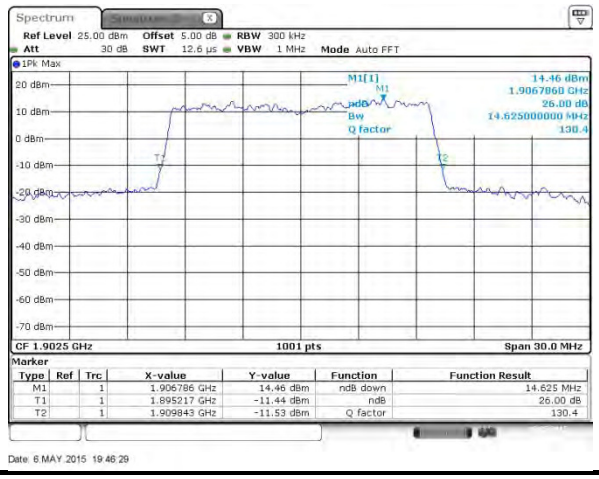
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK

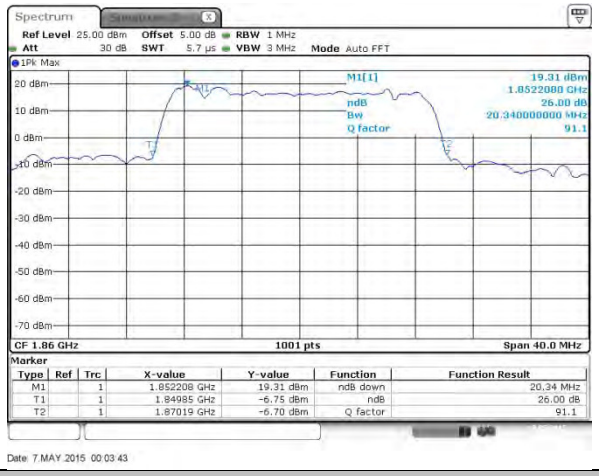


Highest Channel / 15MHz / 16QAM

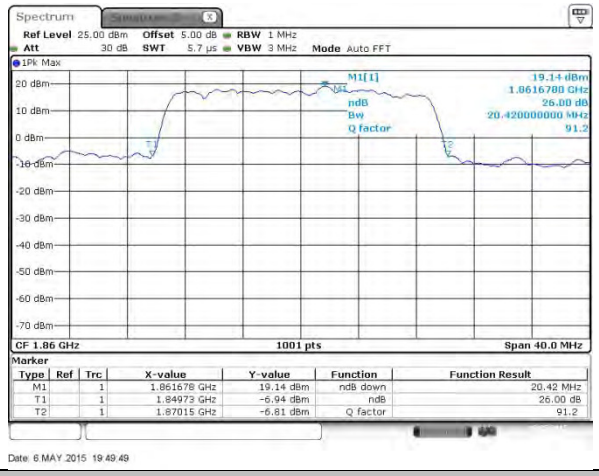


LTE Band 2

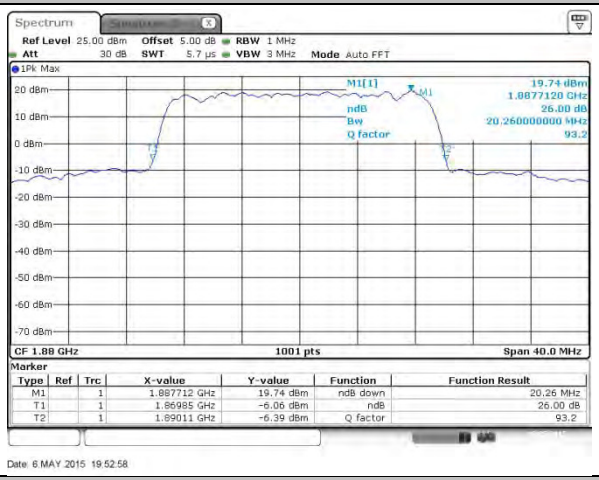
Lowest Channel / 20MHz / QPSK



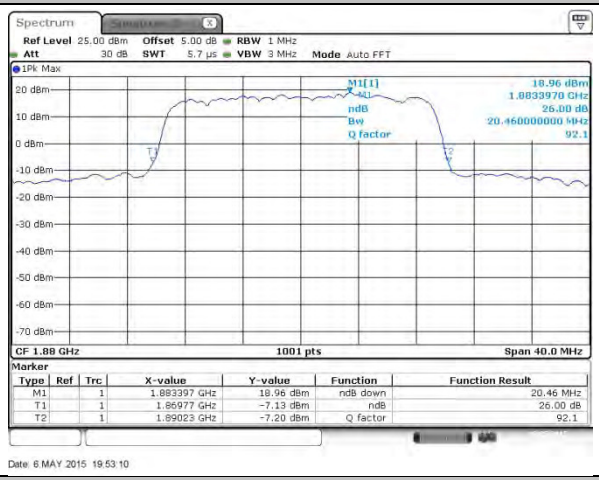
Lowest Channel / 20MHz / 16QAM



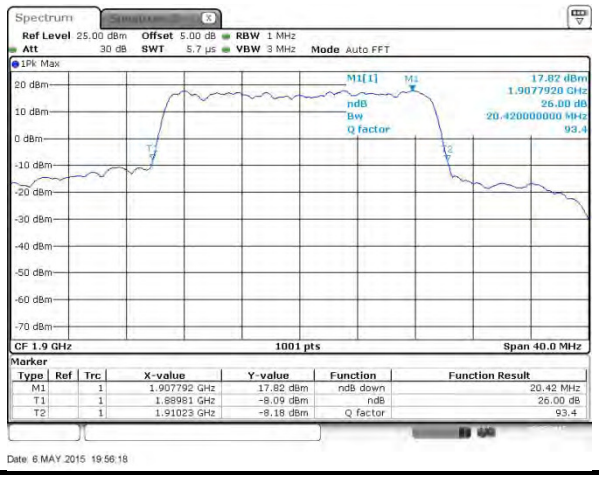
Middle Channel / 20MHz / QPSK



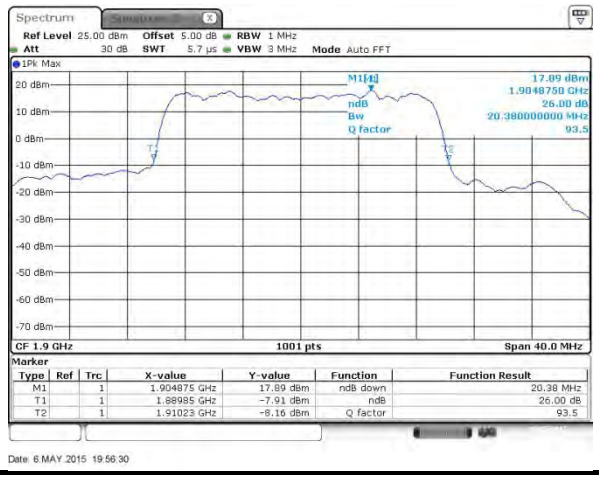
Middle Channel / 20MHz / 16QAM



Highest Channel / 20MHz / QPSK

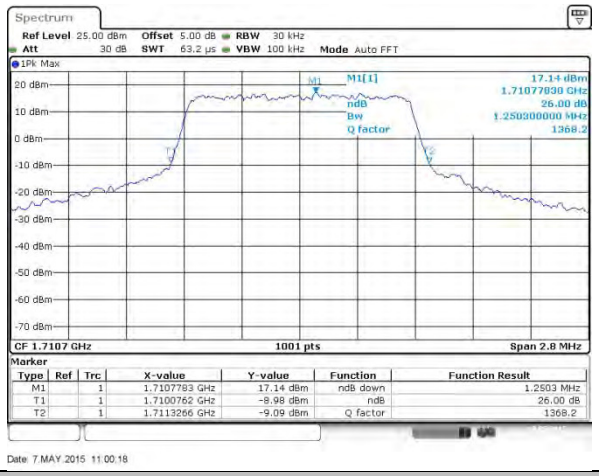


Highest Channel / 20MHz / 16QAM

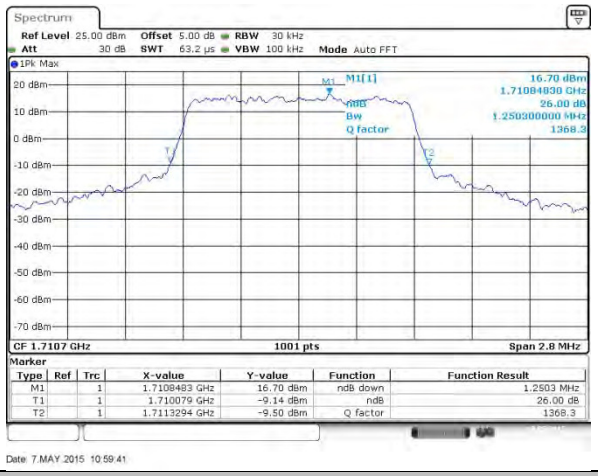


LTE Band 4

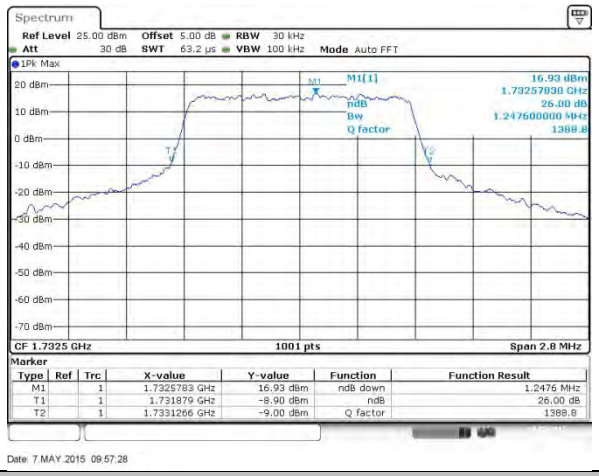
Lowest Channel / 1.4MHz / QPSK



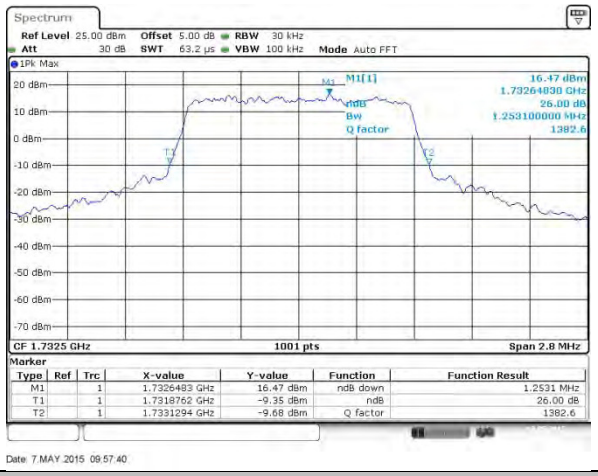
Lowest Channel / 1.4MHz / 16QAM



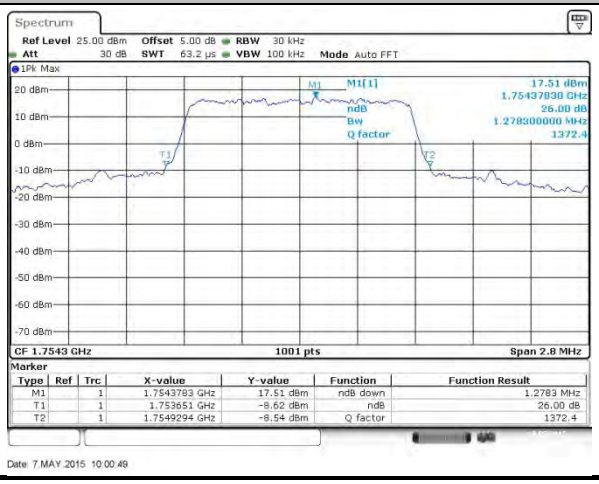
Middle Channel / 1.4MHz / QPSK



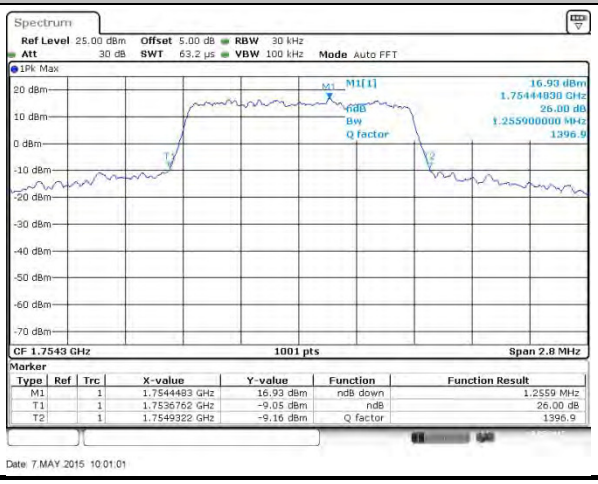
Middle Channel / 1.4MHz / 16QAM



Highest Channel / 1.4MHz / QPSK

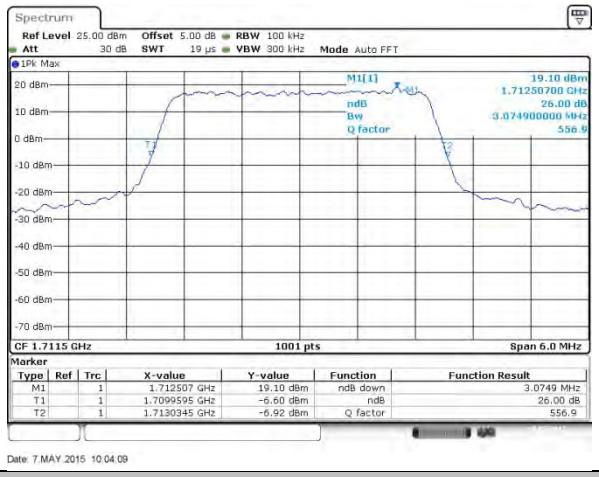


Highest Channel / 1.4MHz / 16QAM

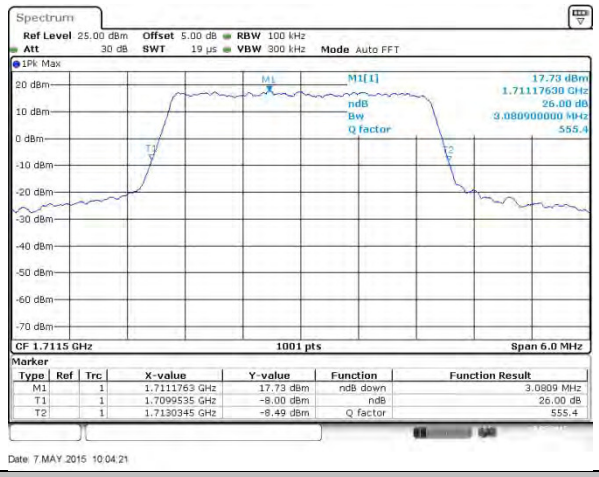


LTE Band 4

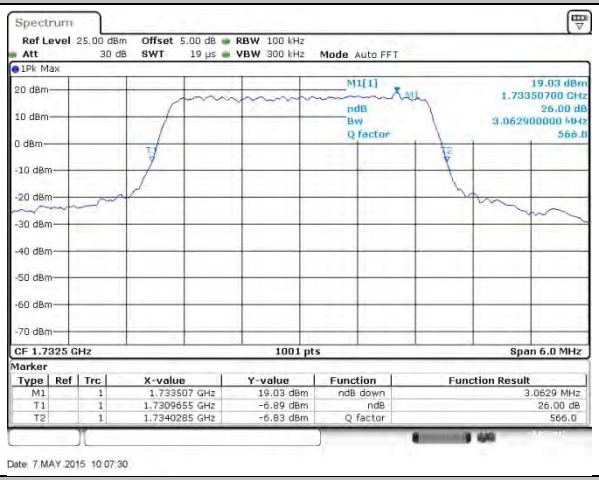
Lowest Channel / 3MHz / QPSK



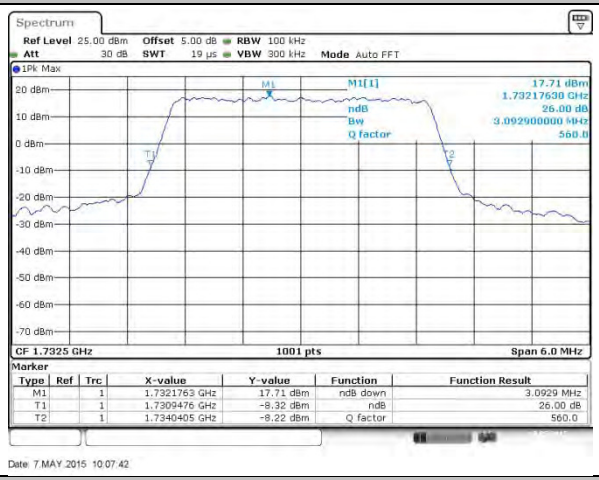
Lowest Channel / 3MHz / 16QAM



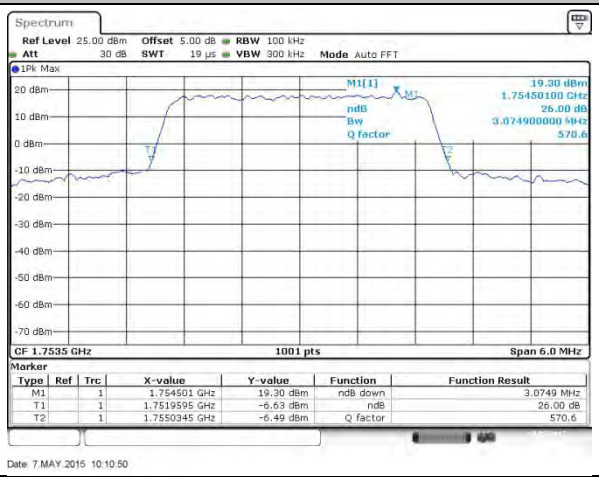
Middle Channel / 3MHz / QPSK



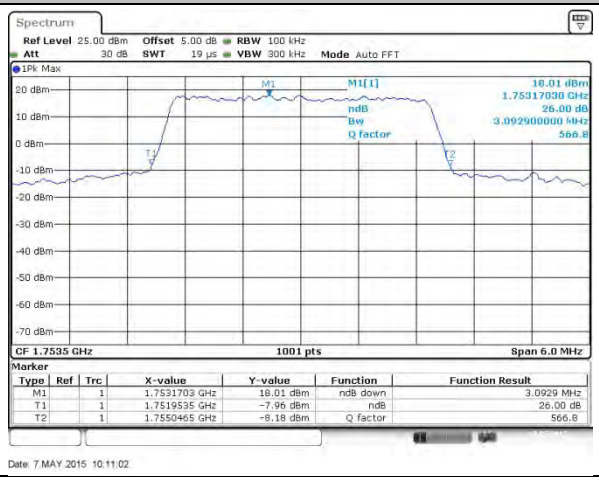
Middle Channel /3MHz / 16QAM



Highest Channel /3MHz / QPSK

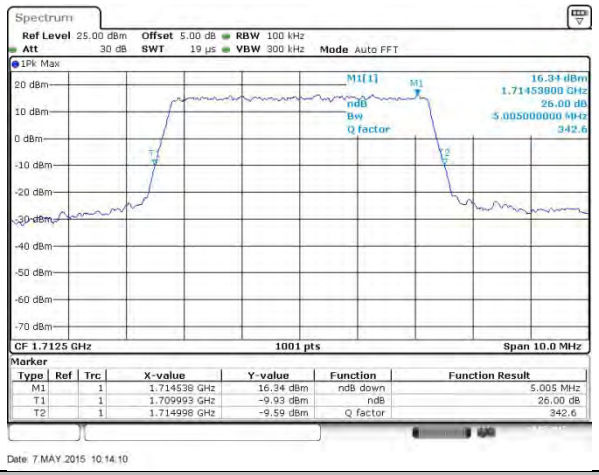


Highest Channel /3MHz / 16QAM

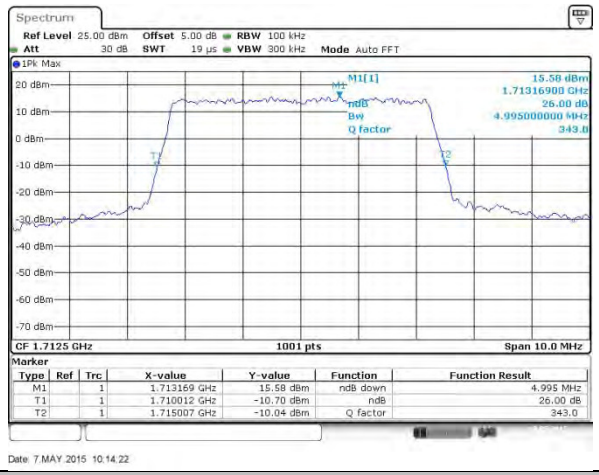


LTE Band 4

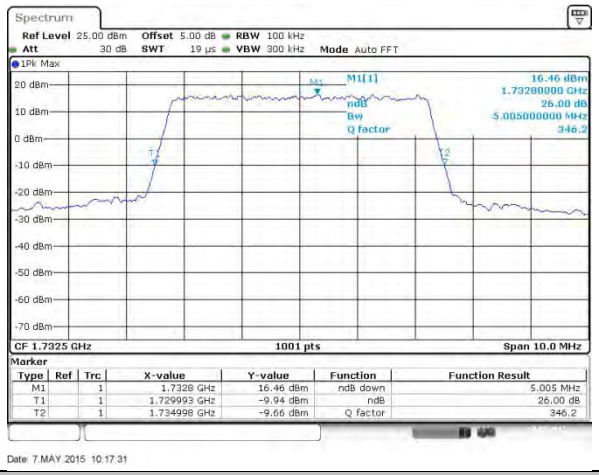
Lowest Channel / 5MHz / QPSK



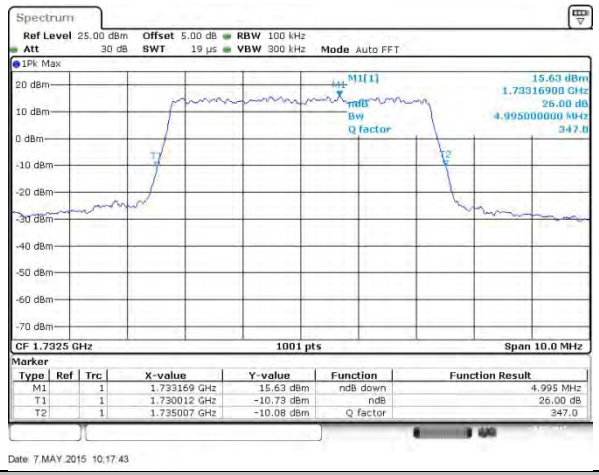
Lowest Channel / 5MHz / 16QAM



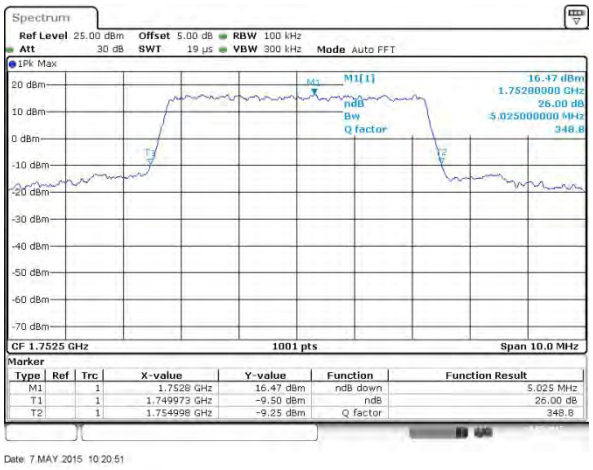
Middle Channel / 5MHz / QPSK



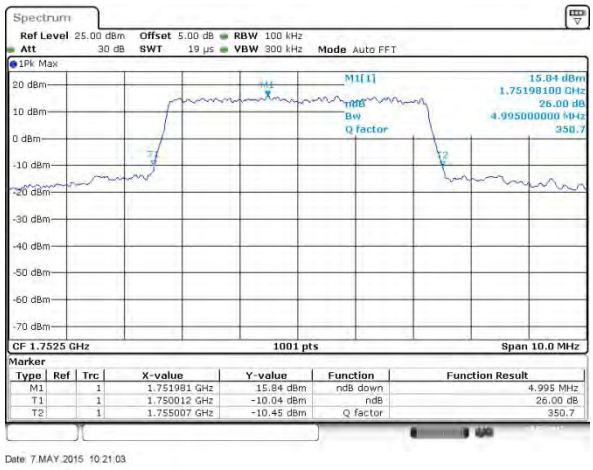
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

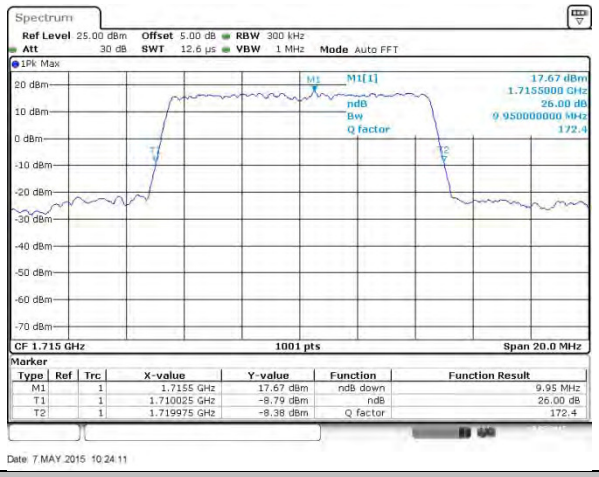


Highest Channel / 5MHz / 16QAM

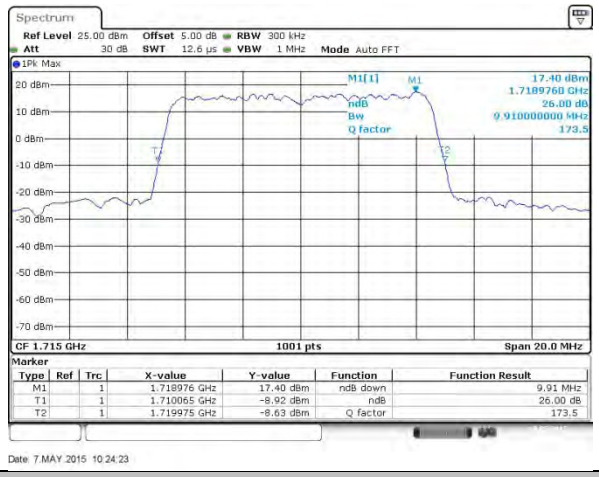


LTE Band 4

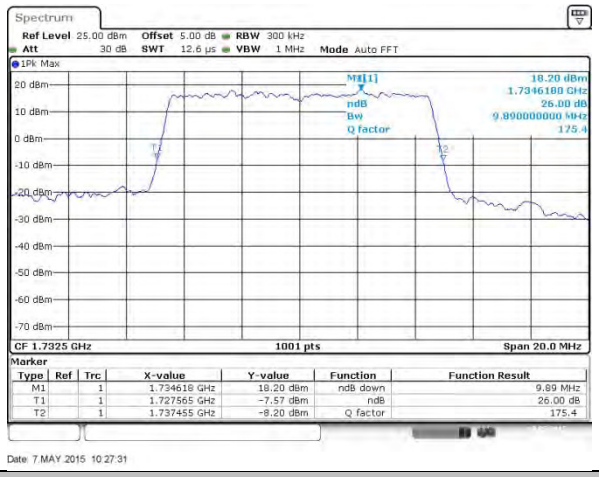
Lowest Channel / 10MHz / QPSK



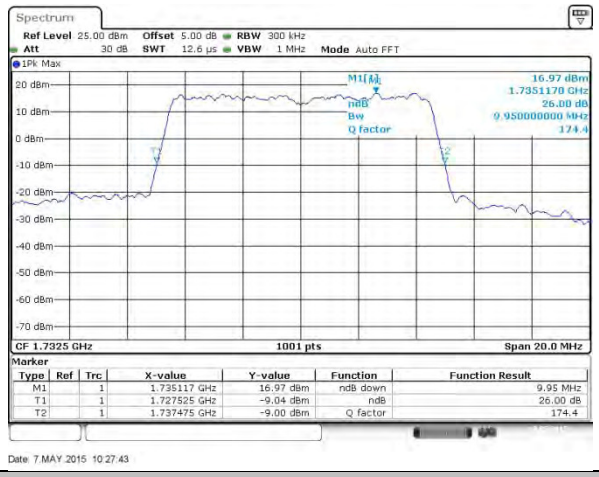
Lowest Channel / 10MHz / 16QAM



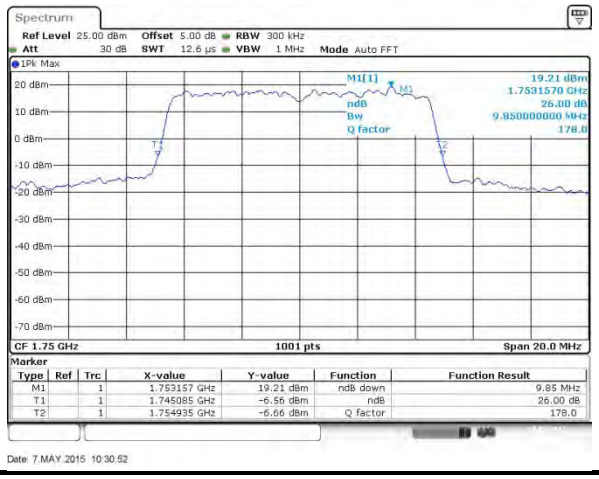
Middle Channel / 10MHz / QPSK



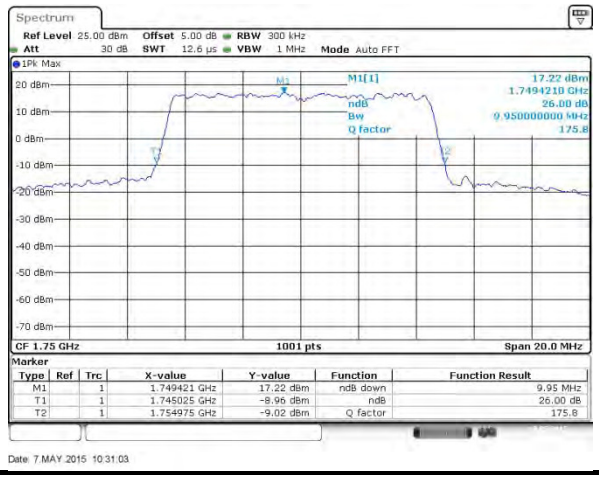
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK

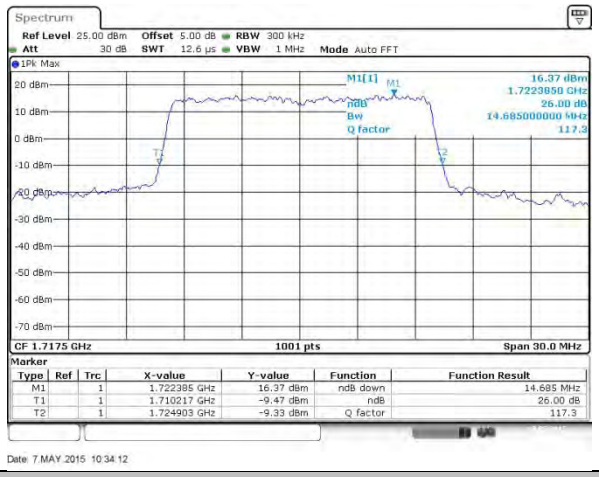


Highest Channel / 10MHz / 16QAM

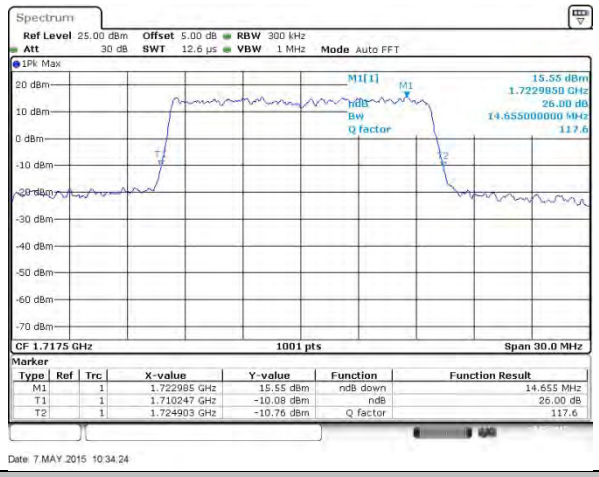


LTE Band 4

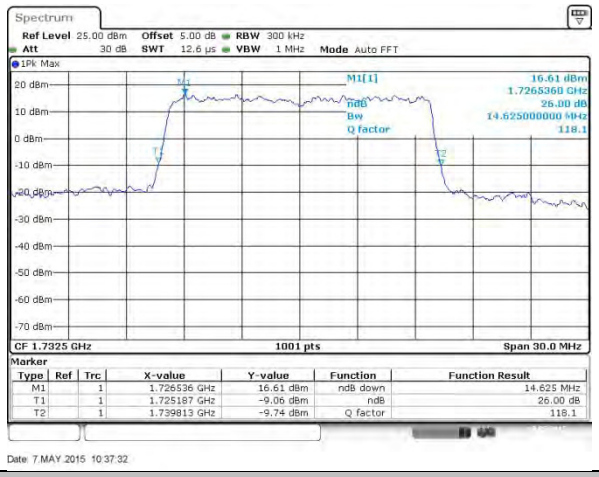
Lowest Channel / 15MHz / QPSK



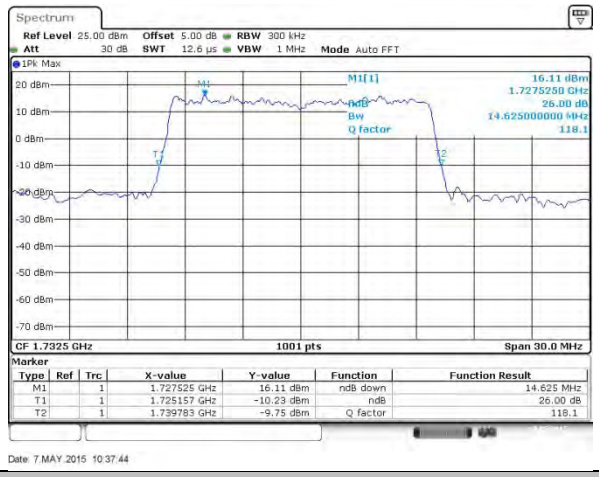
Lowest Channel / 15MHz / 16QAM



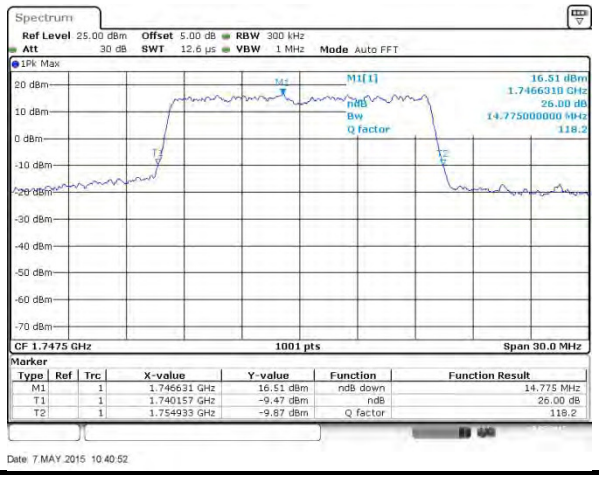
Middle Channel / 15MHz / QPSK



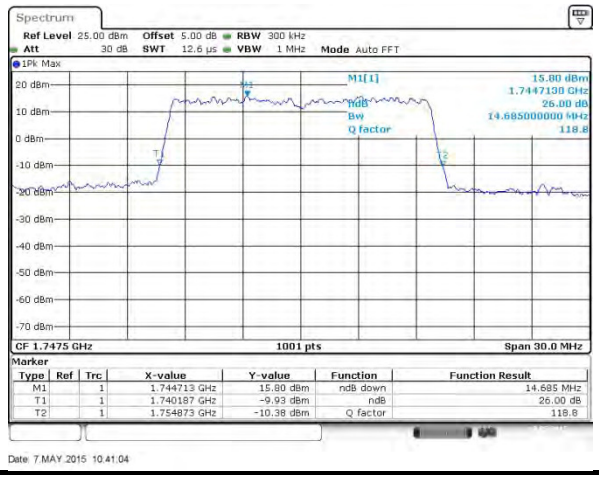
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK

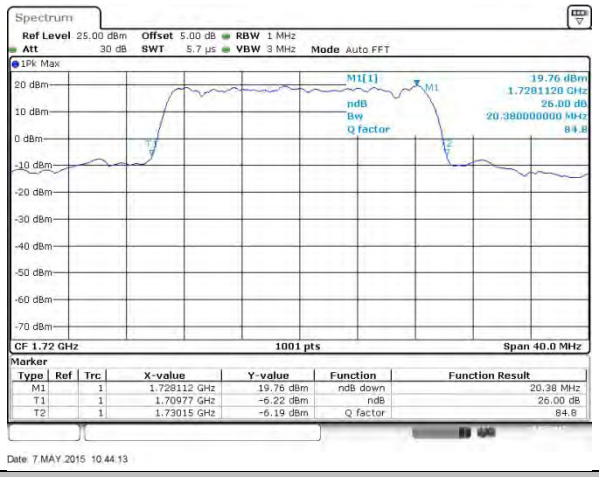


Highest Channel / 15MHz / 16QAM

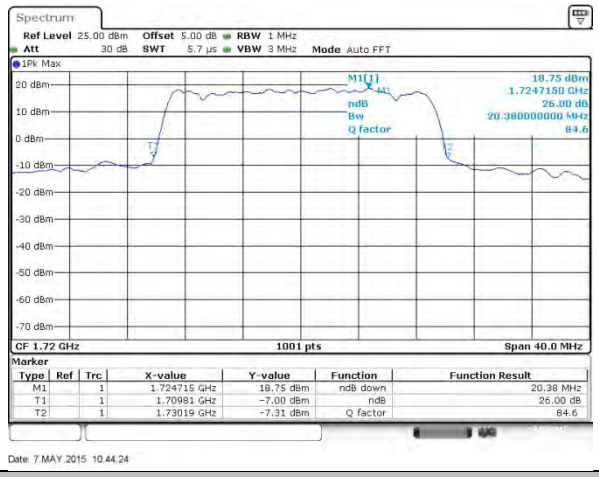


LTE Band 4

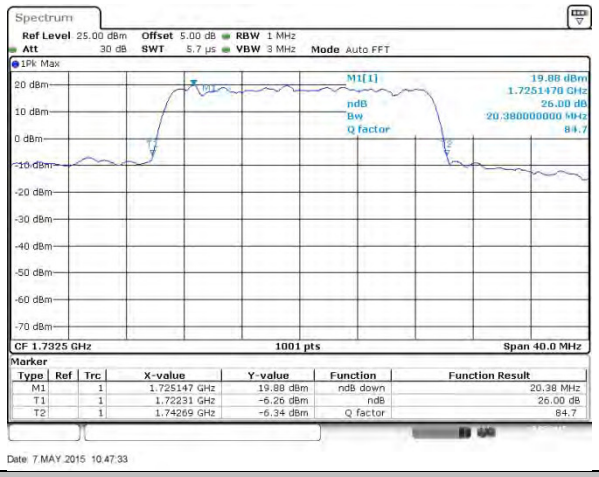
Lowest Channel / 20MHz / QPSK



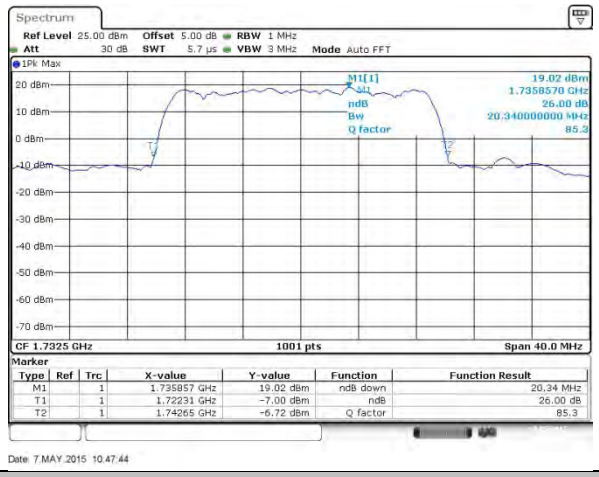
Lowest Channel / 20MHz / 16QAM



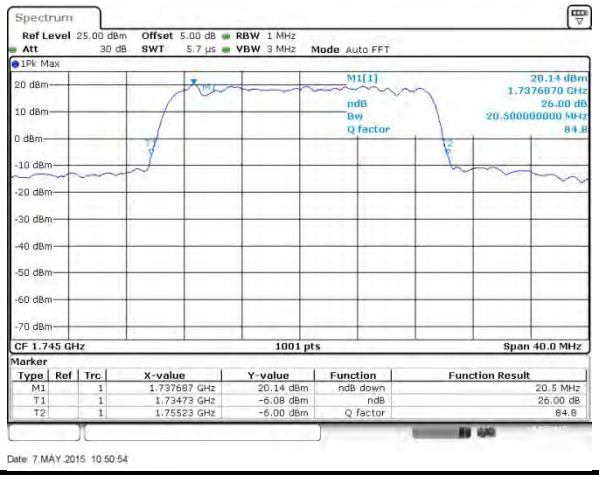
Middle Channel / 20MHz / QPSK



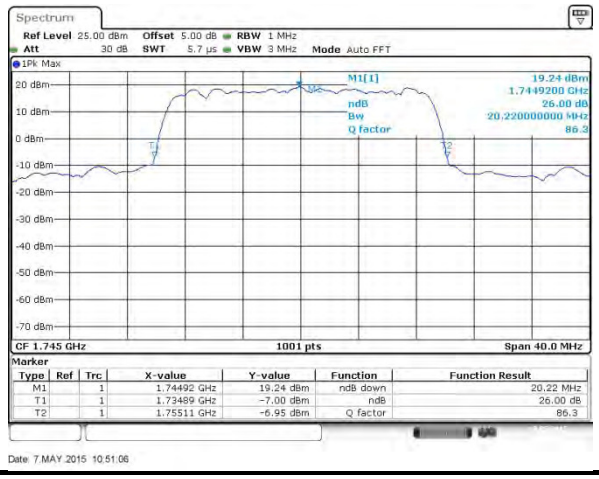
Middle Channel / 20MHz / 16QAM



Highest Channel / 20MHz / QPSK

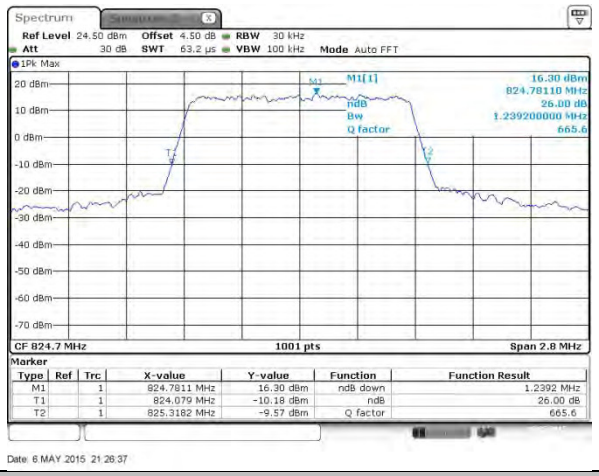


Highest Channel / 20MHz / 16QAM

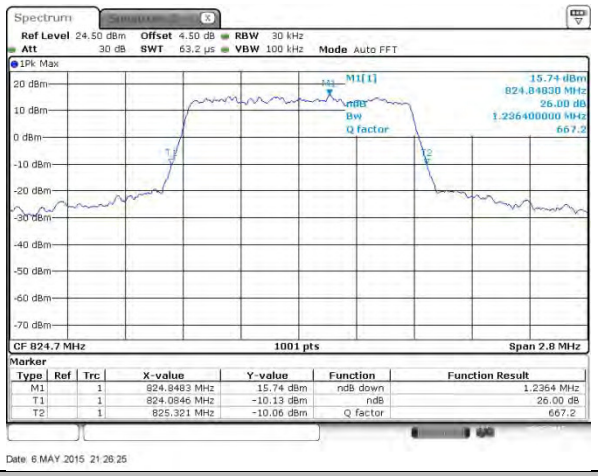


LTE Band 5

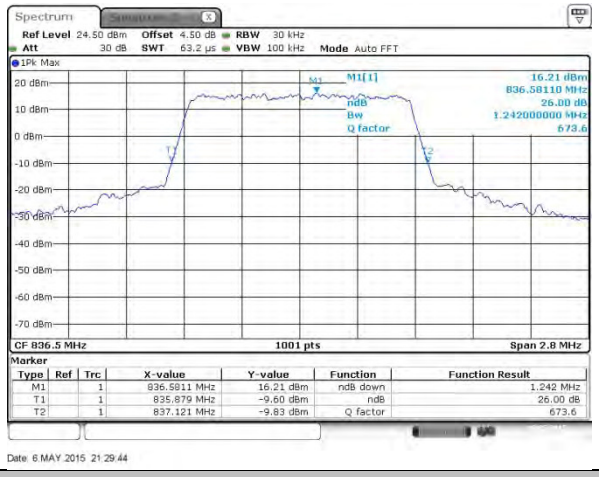
Lowest Channel / 1.4MHz / QPSK



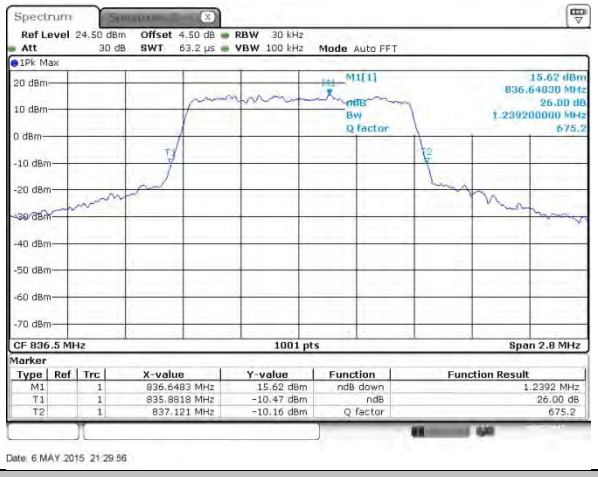
Lowest Channel / 1.4MHz / 16QAM



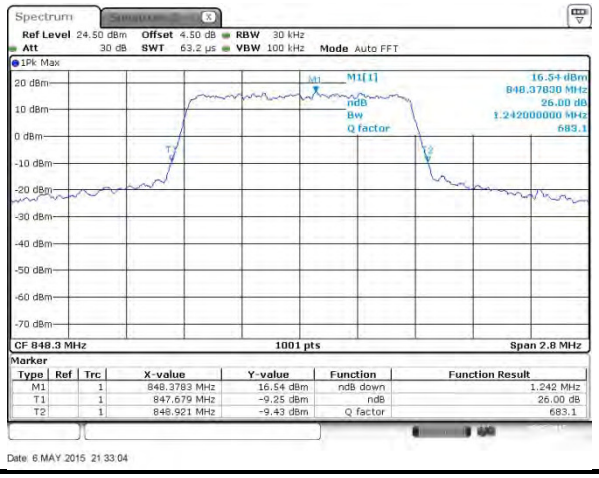
Middle Channel / 1.4MHz / QPSK



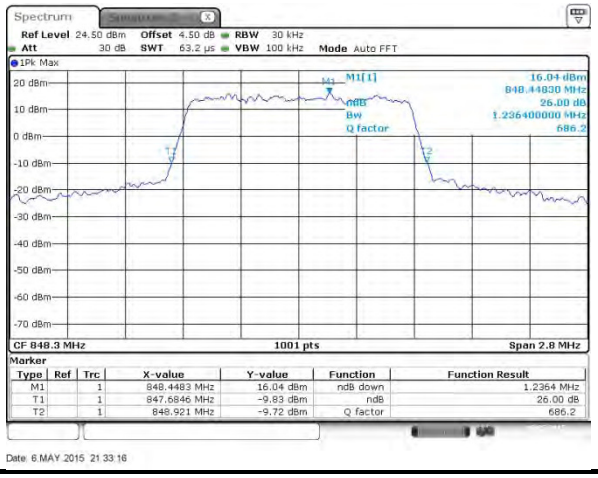
Middle Channel / 1.4MHz / 16QAM



Highest Channel / 1.4MHz / QPSK

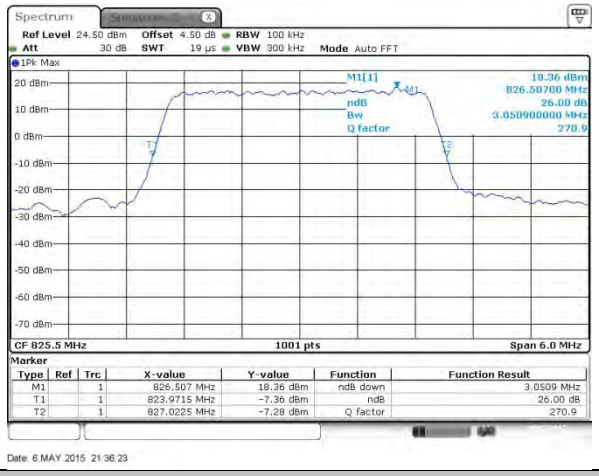


Highest Channel / 1.4MHz / 16QAM

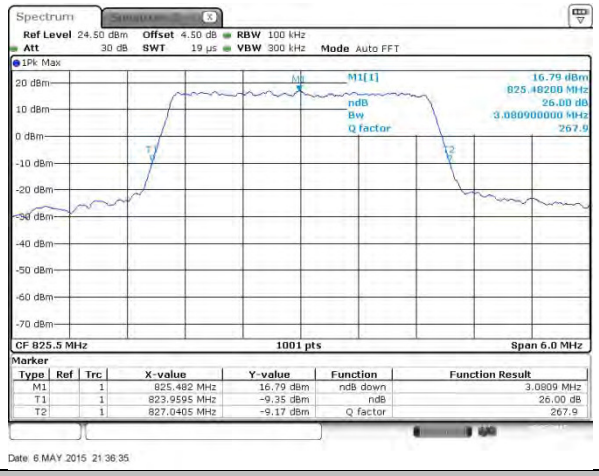


LTE Band 5

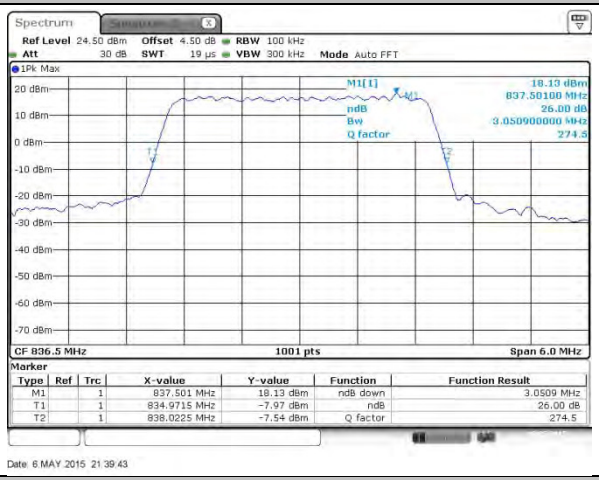
Lowest Channel / 3MHz / QPSK



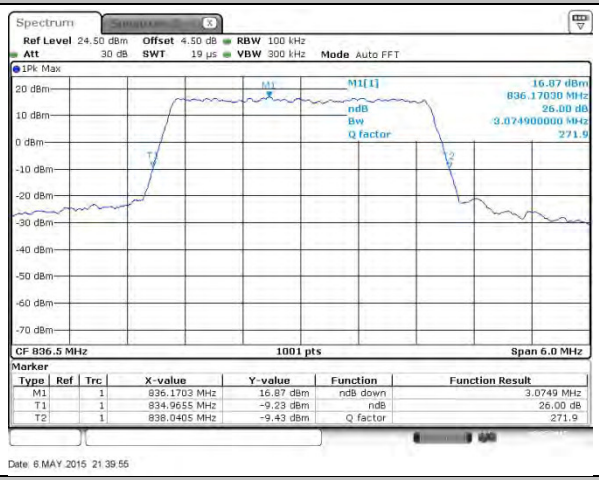
Lowest Channel / 3MHz / 16QAM



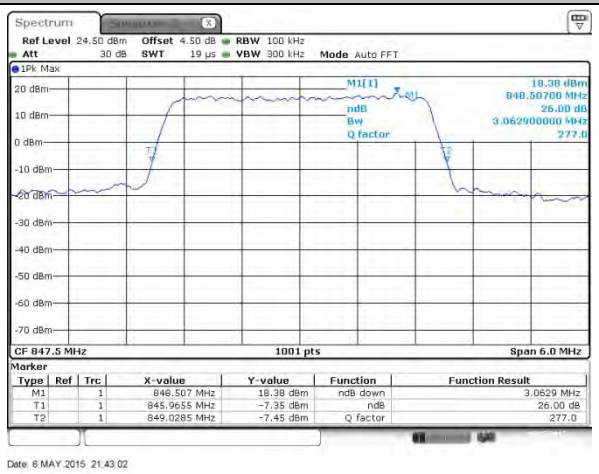
Middle Channel / 3MHz / QPSK



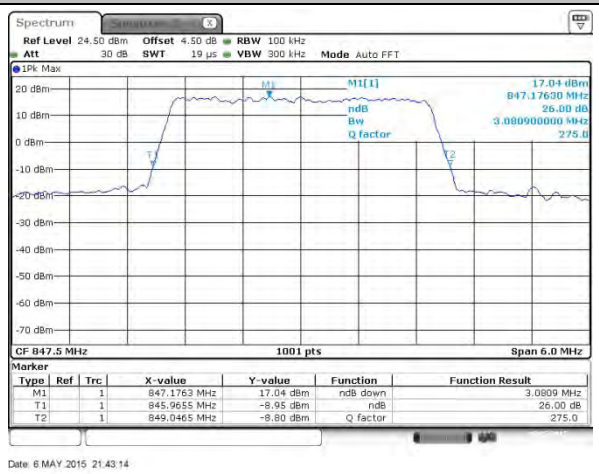
Middle Channel /3MHz / 16QAM



Highest Channel /3MHz / QPSK

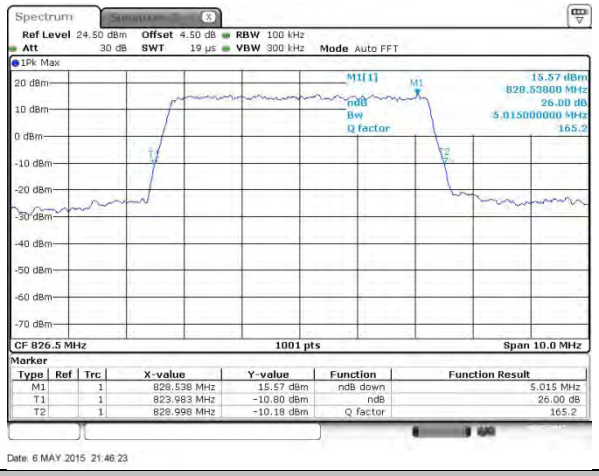


Highest Channel /3MHz / 16QAM

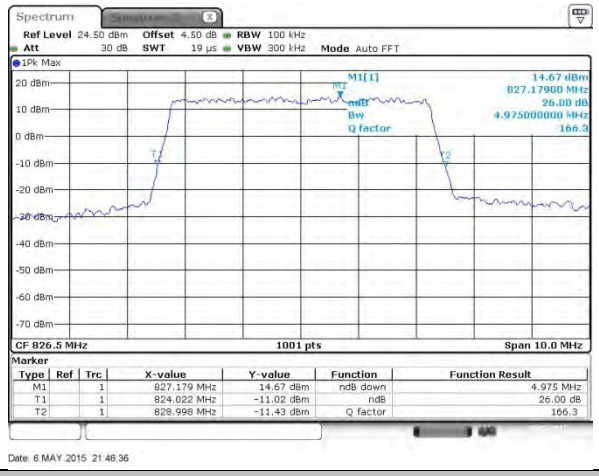


LTE Band 5

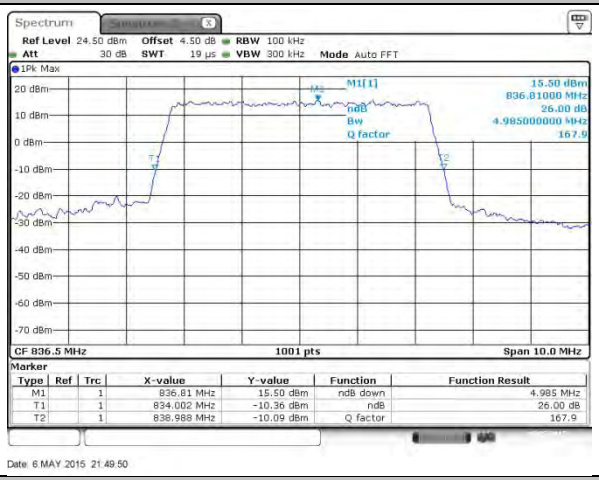
Lowest Channel / 5MHz / QPSK



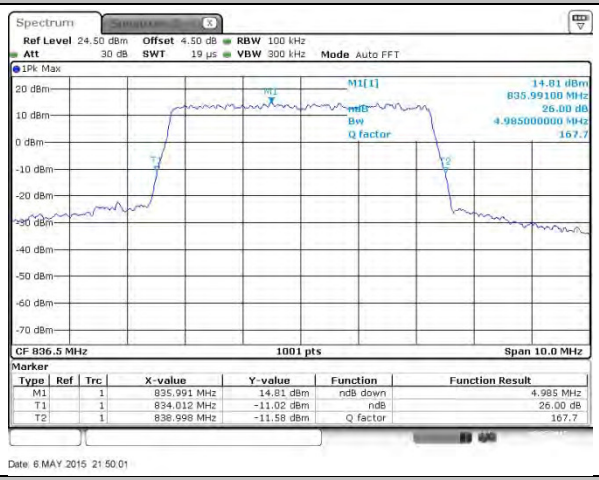
Lowest Channel / 5MHz / 16QAM



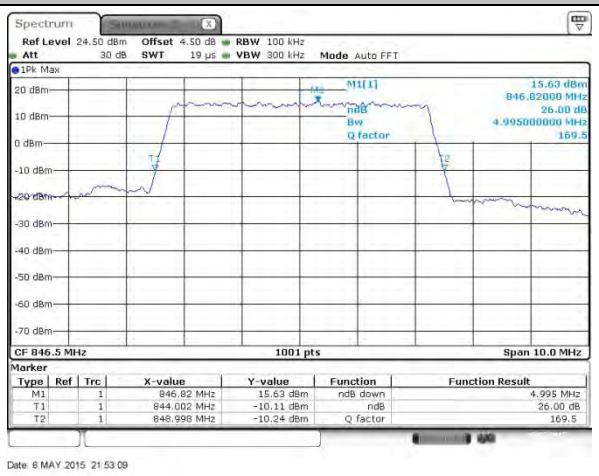
Middle Channel / 5MHz / QPSK



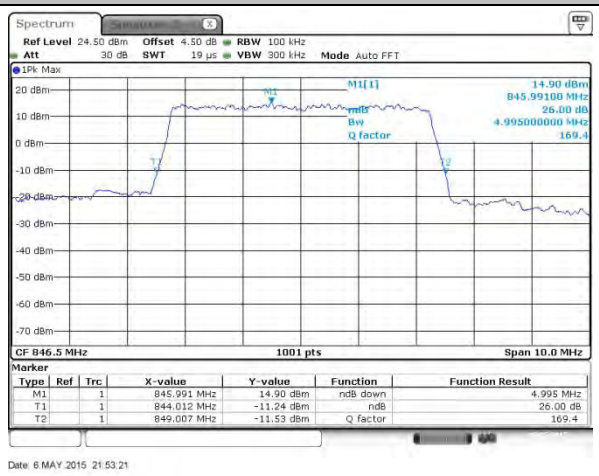
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

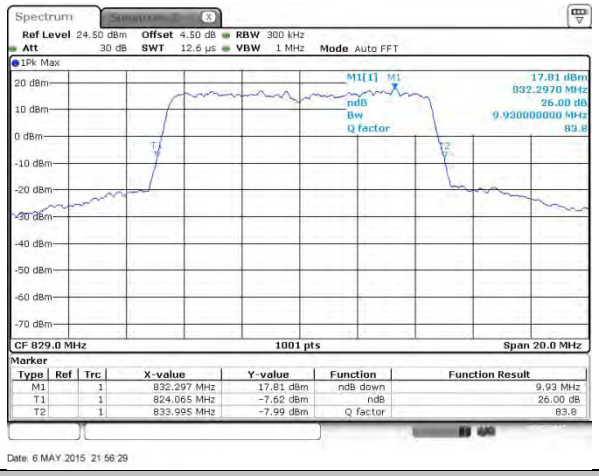


Highest Channel / 5MHz / 16QAM

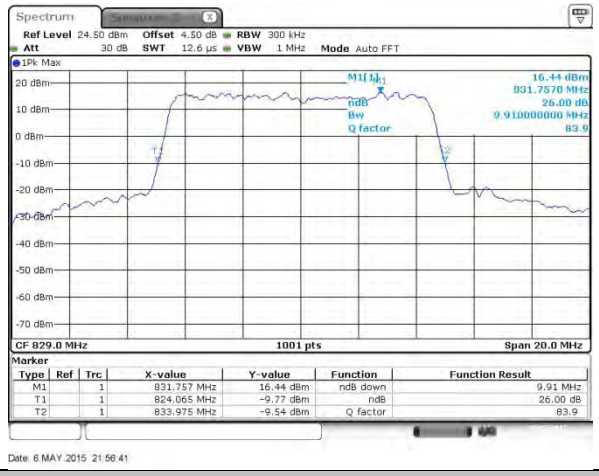


LTE Band 5

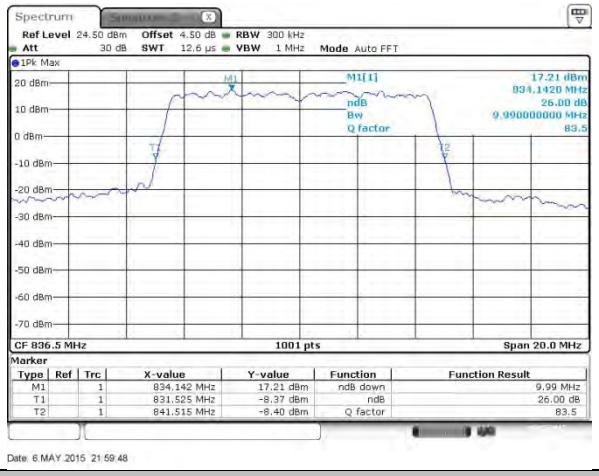
Lowest Channel / 10MHz / QPSK



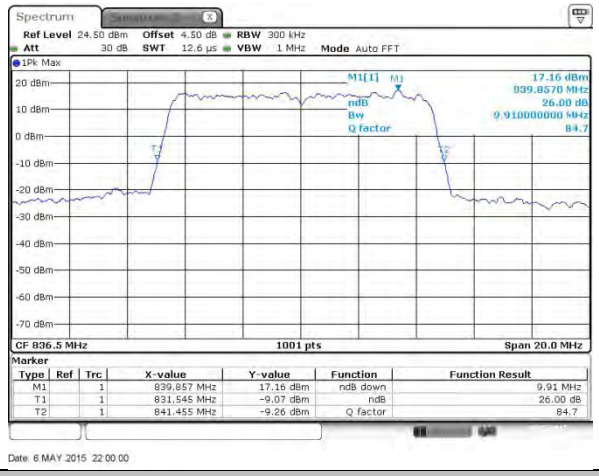
Lowest Channel / 10MHz / 16QAM



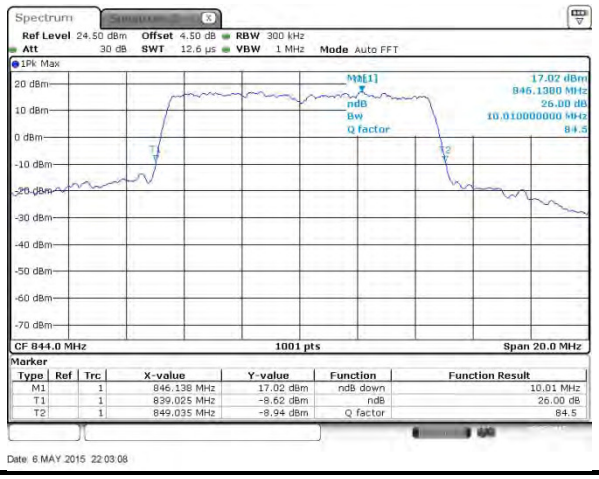
Middle Channel / 10MHz / QPSK



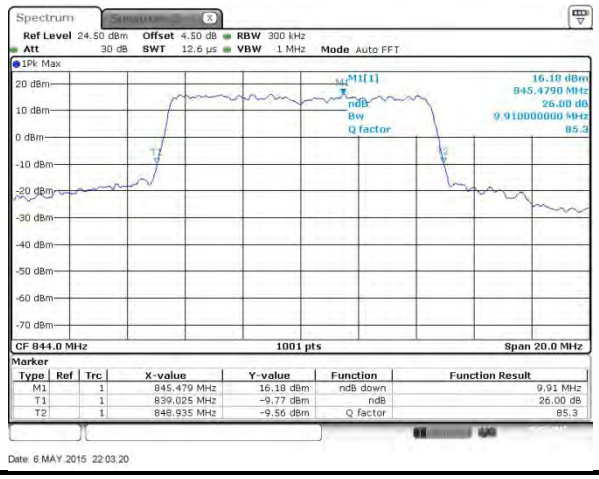
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK

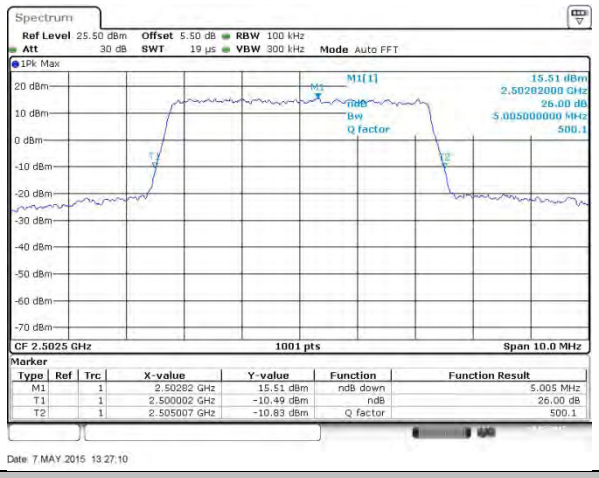


Highest Channel / 10MHz / 16QAM

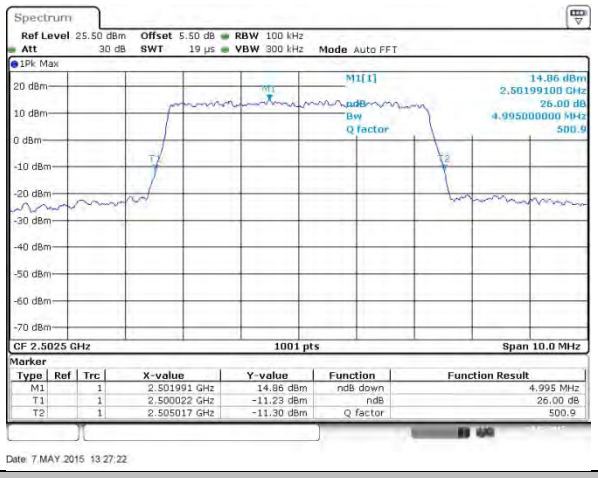


LTE Band 7

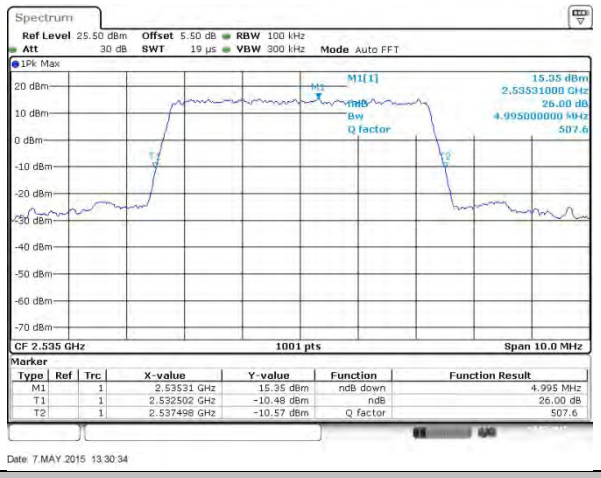
Lowest Channel / 5MHz / QPSK



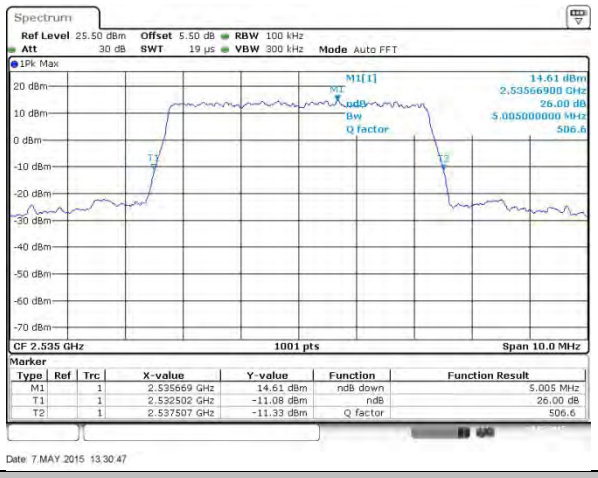
Lowest Channel / 5MHz / 16QAM



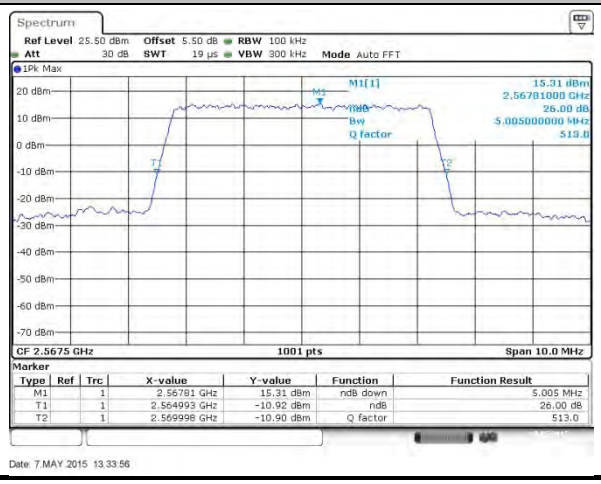
Middle Channel / 5MHz / QPSK



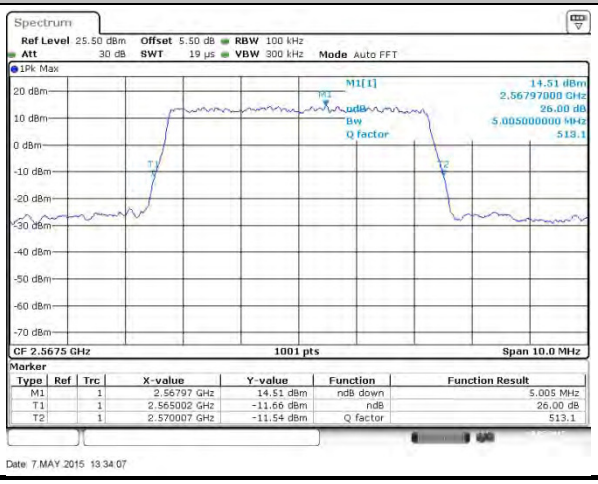
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

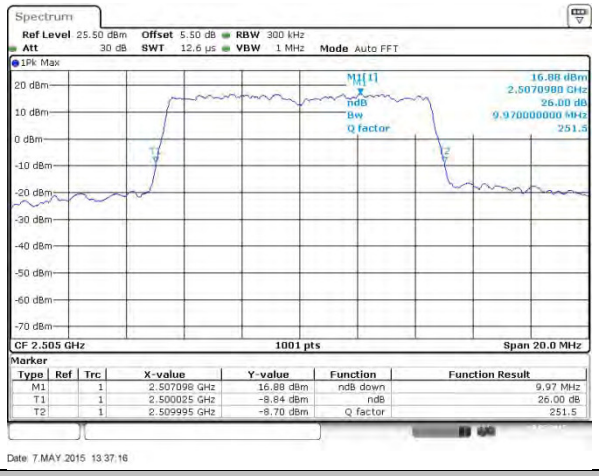


Highest Channel / 5MHz / 16QAM

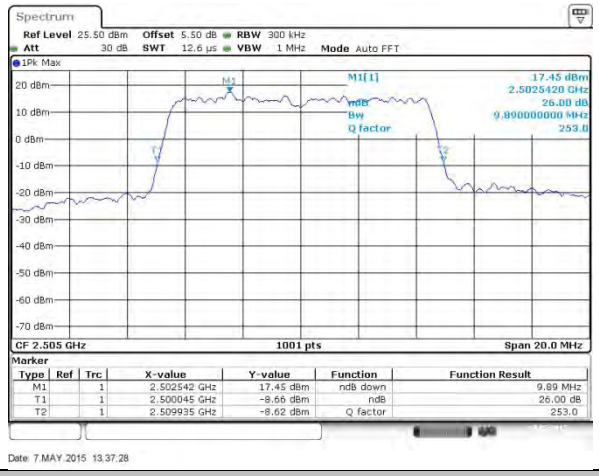


LTE Band 7

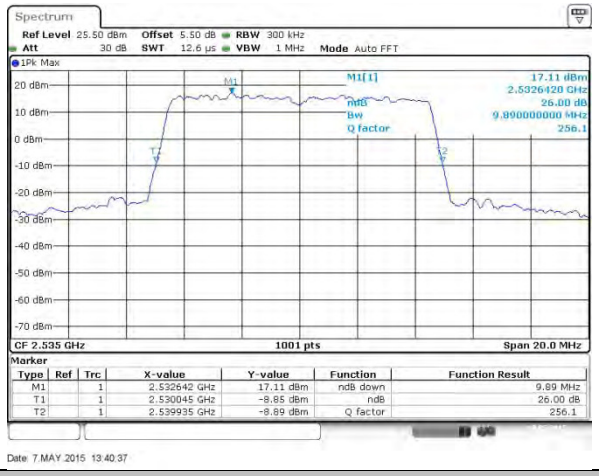
Lowest Channel / 10MHz / QPSK



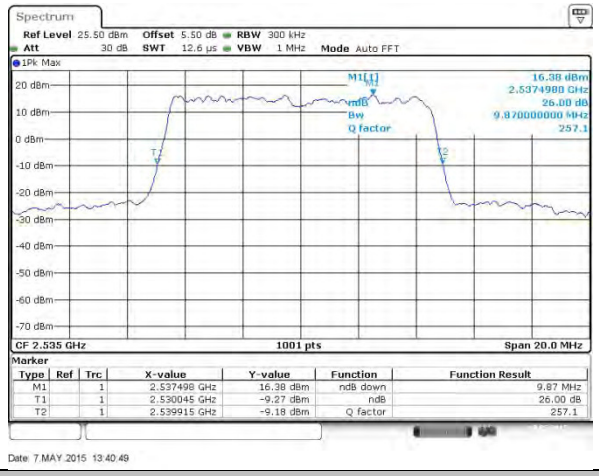
Lowest Channel / 10MHz / 16QAM



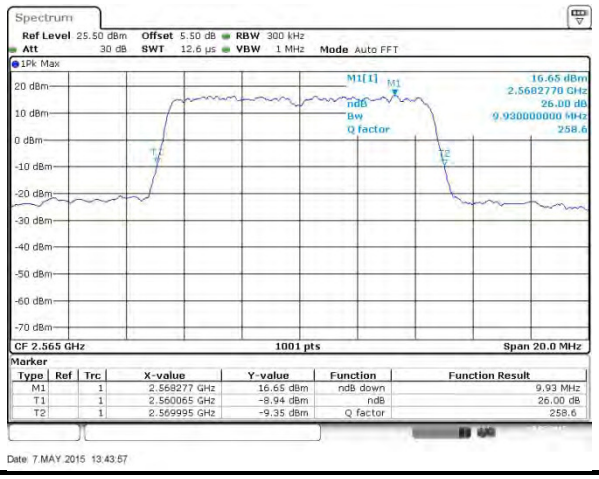
Middle Channel / 10MHz / QPSK



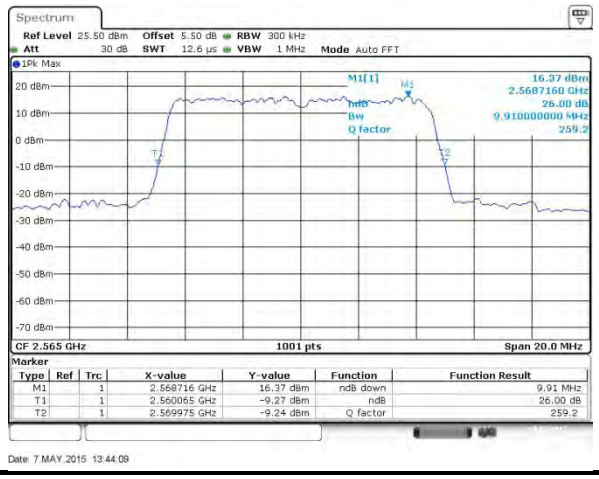
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK

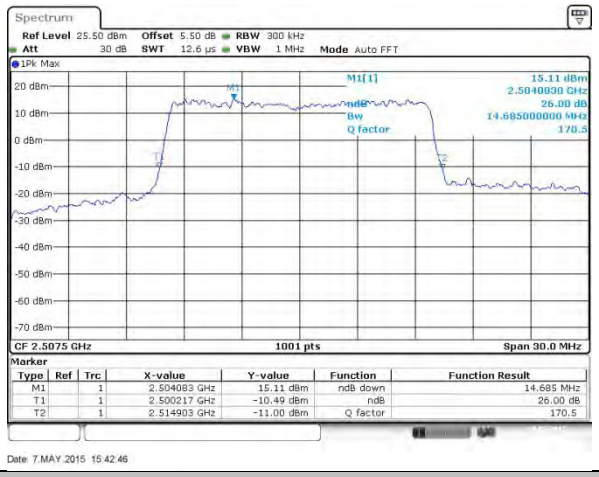


Highest Channel / 10MHz / 16QAM

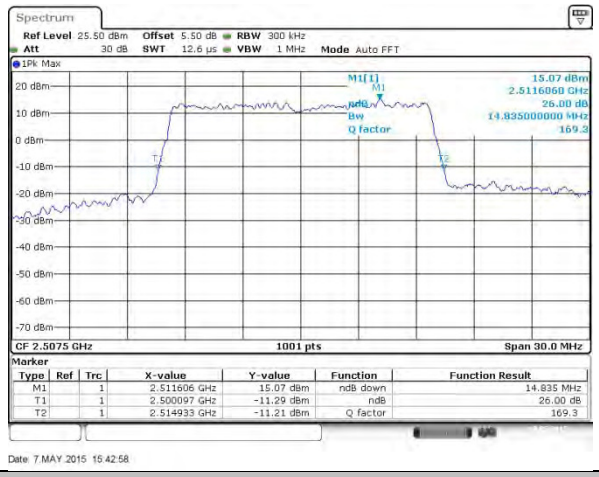


LTE Band 7

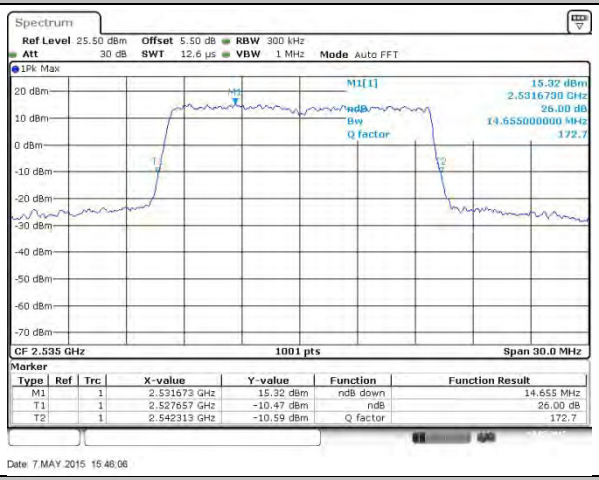
Lowest Channel / 15MHz / QPSK



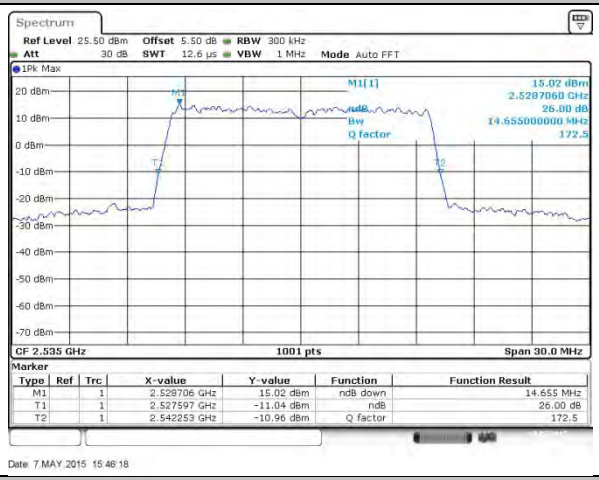
Lowest Channel / 15MHz / 16QAM



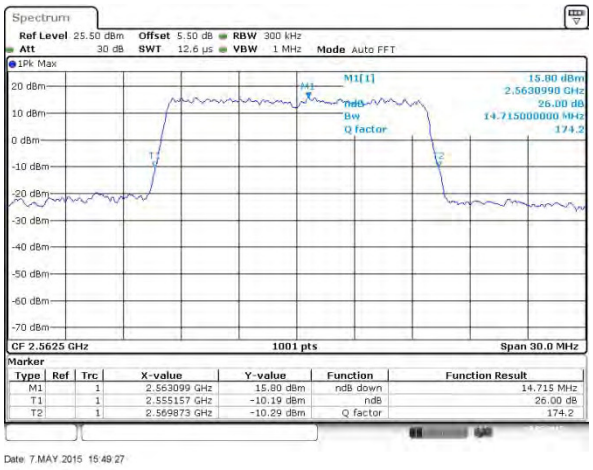
Middle Channel / 15MHz / QPSK



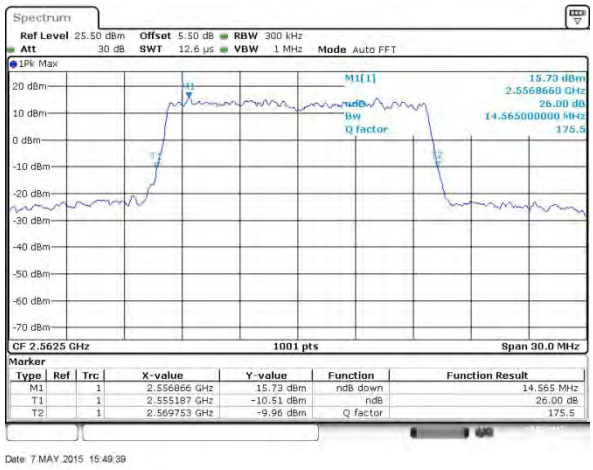
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK

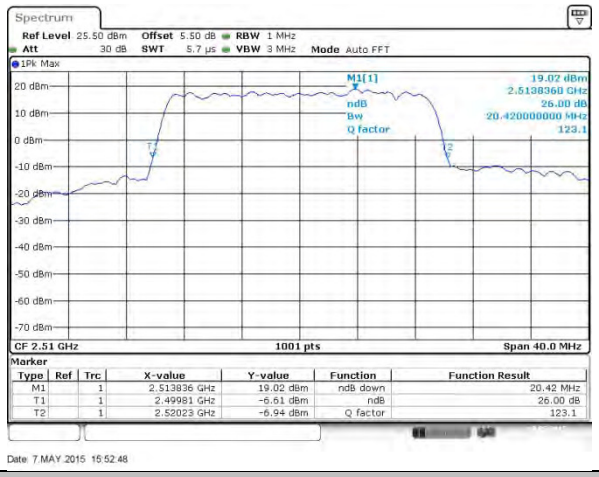


Highest Channel / 15MHz / 16QAM

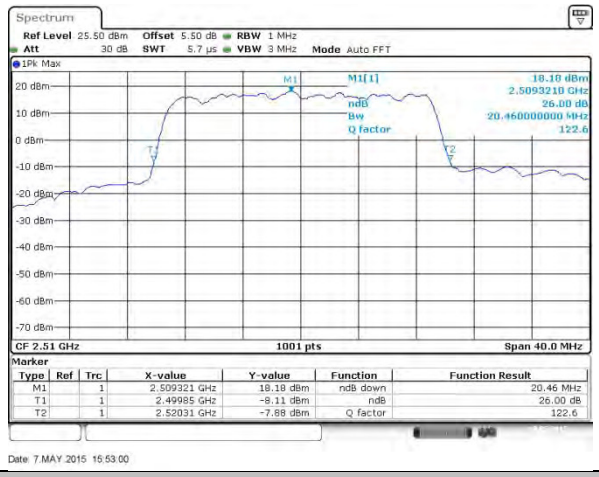


LTE Band 7

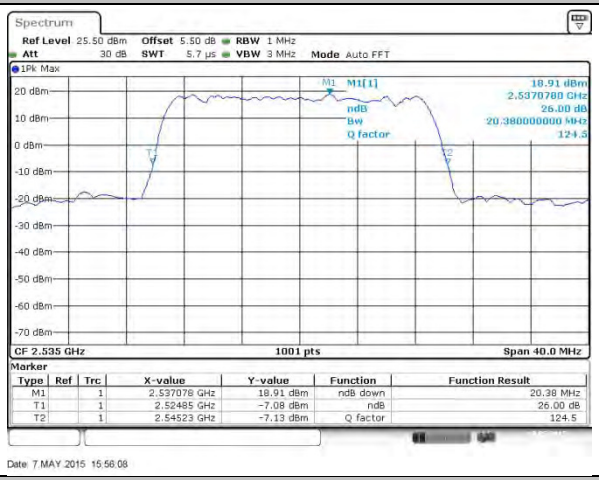
Lowest Channel / 20MHz / QPSK



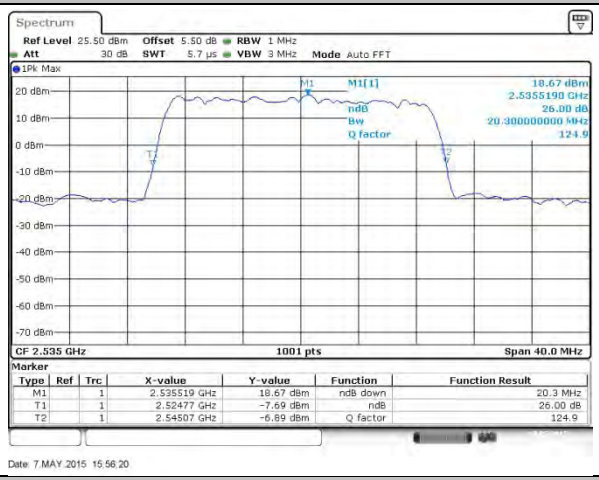
Lowest Channel / 20MHz / 16QAM



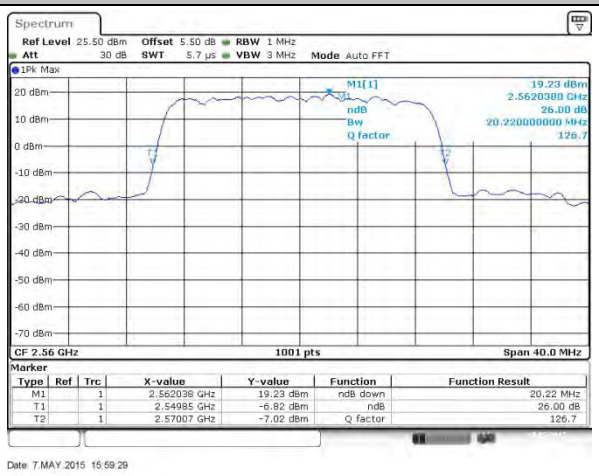
Middle Channel / 20MHz / QPSK



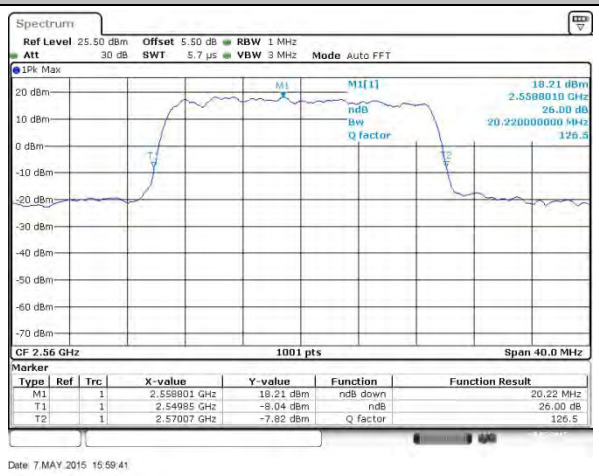
Middle Channel / 20MHz / 16QAM



Highest Channel / 20MHz / QPSK

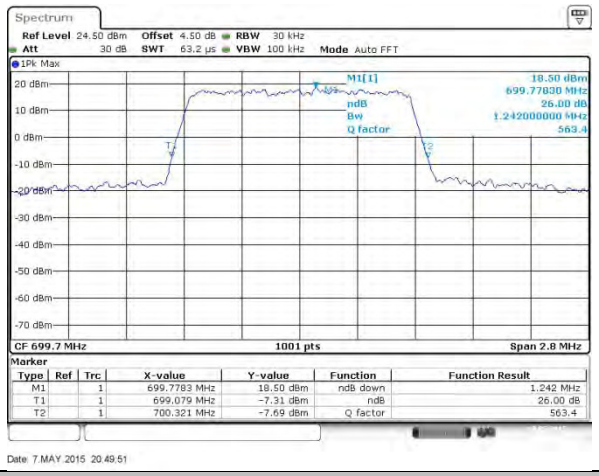


Highest Channel / 20MHz / 16QAM

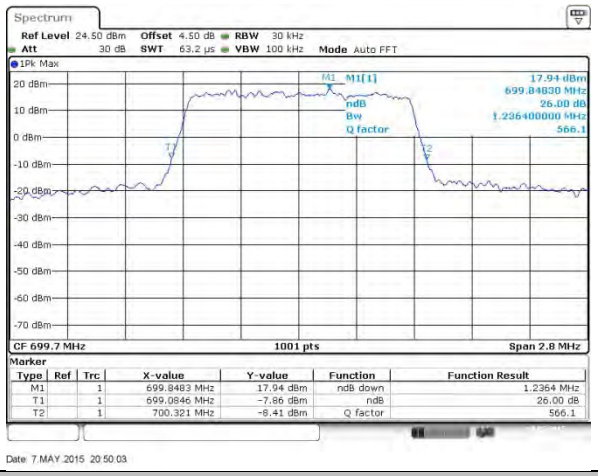


LTE Band 12

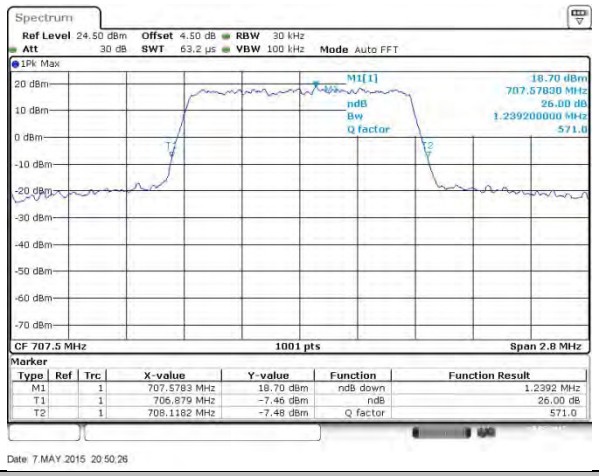
Lowest Channel / 1.4MHz / QPSK



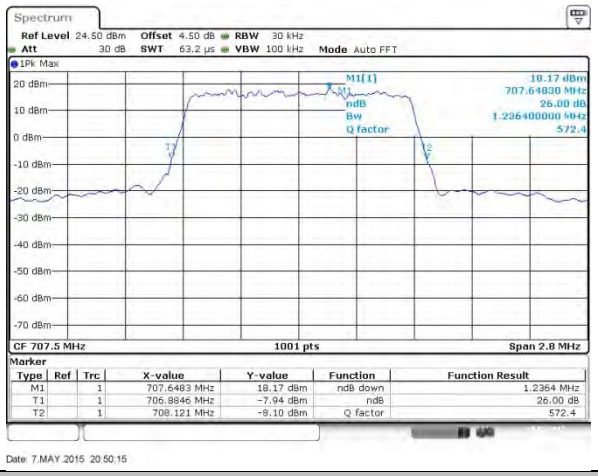
Lowest Channel / 1.4MHz / 16QAM



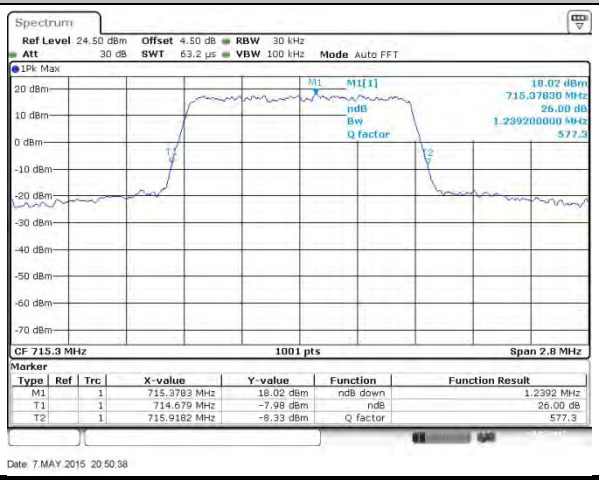
Middle Channel / 1.4MHz / QPSK



Middle Channel / 1.4MHz / 16QAM



Highest Channel / 1.4MHz / QPSK

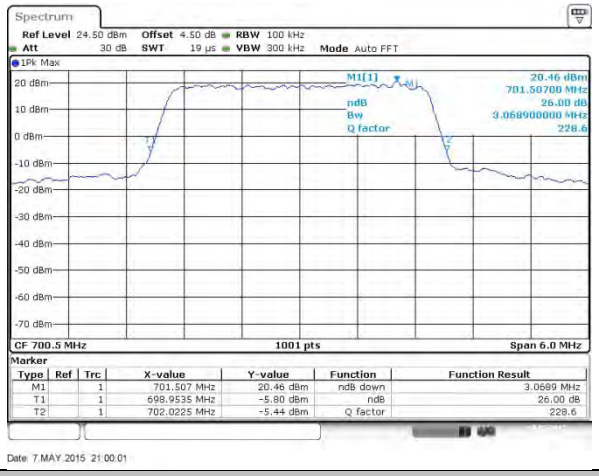


Highest Channel / 1.4MHz / 16QAM

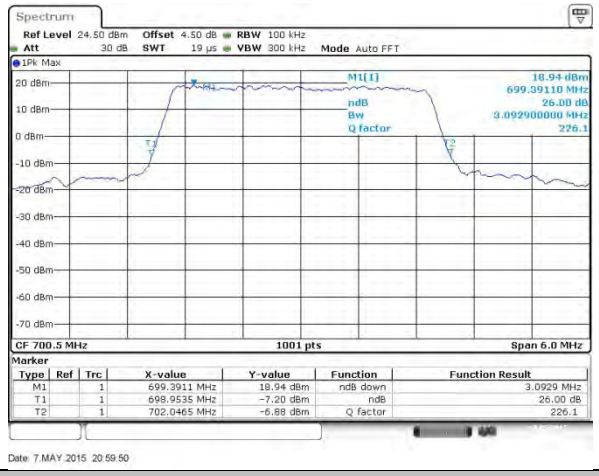


LTE Band 12

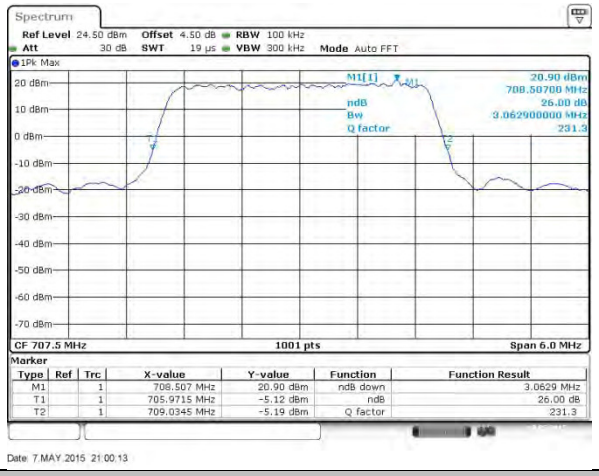
Lowest Channel / 3MHz / QPSK



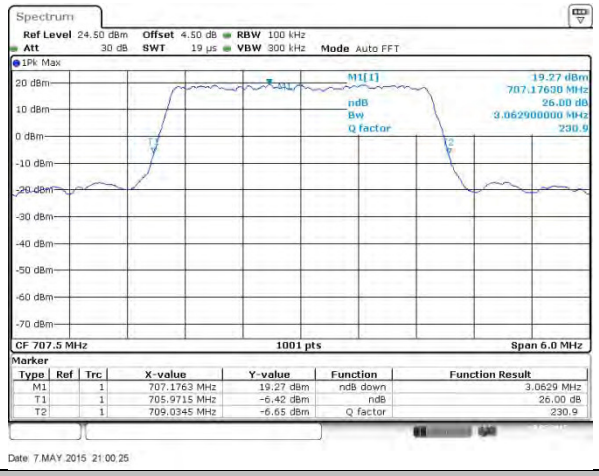
Lowest Channel / 3MHz / 16QAM



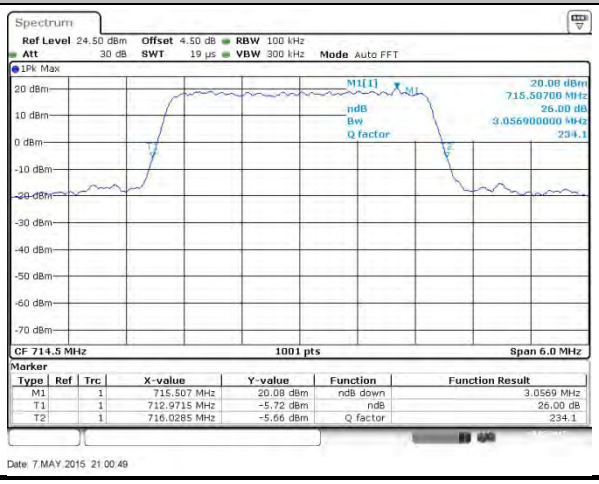
Middle Channel / 3MHz / QPSK



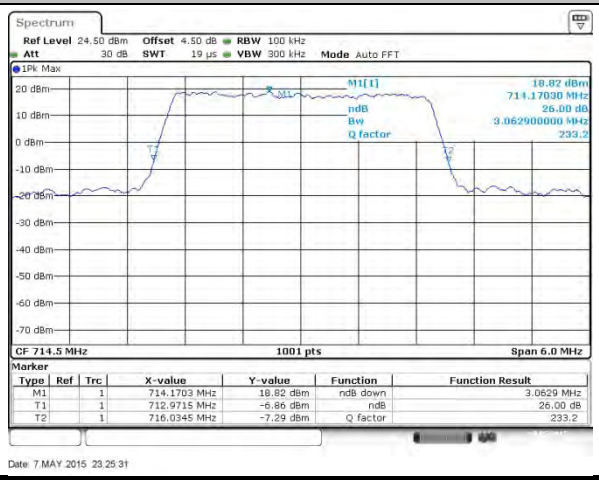
Middle Channel /3MHz / 16QAM



Highest Channel /3MHz / QPSK

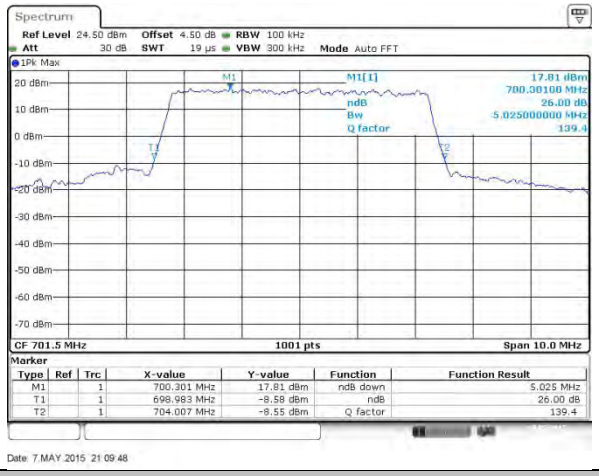


Highest Channel /3MHz / 16QAM

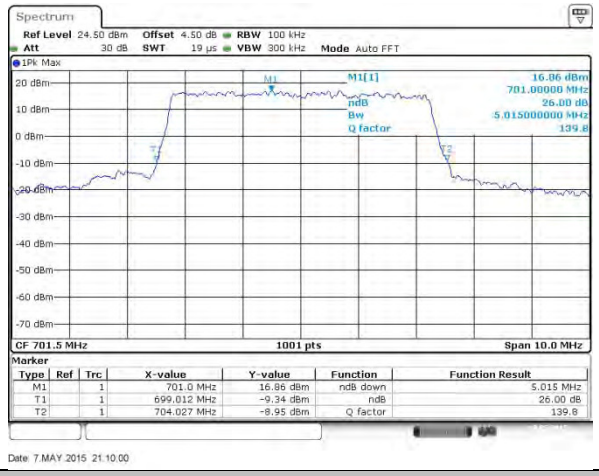


LTE Band 12

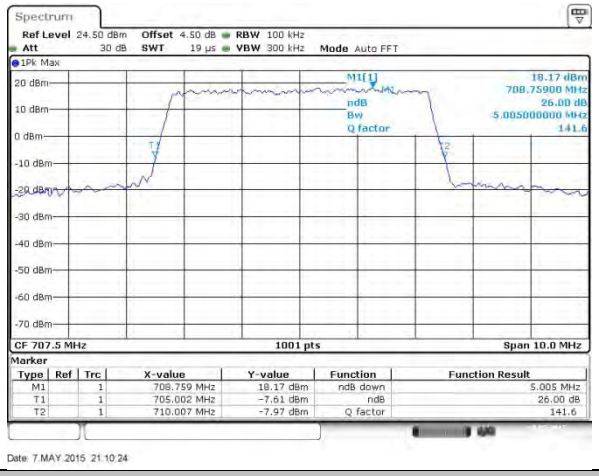
Lowest Channel / 5MHz / QPSK



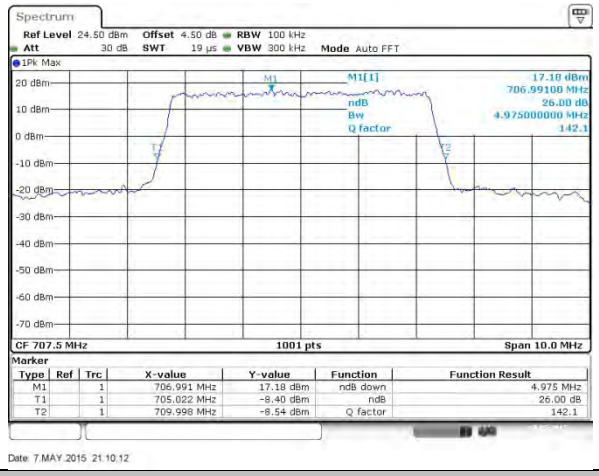
Lowest Channel / 5MHz / 16QAM



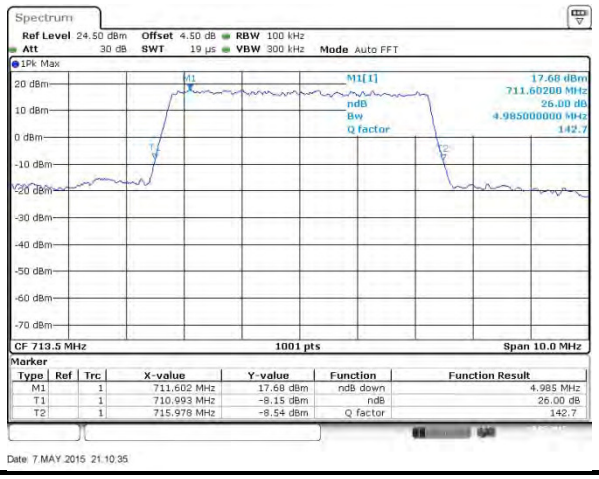
Middle Channel / 5MHz / QPSK



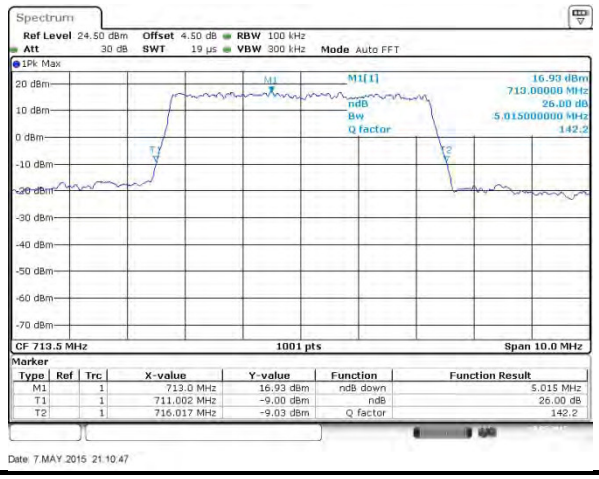
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

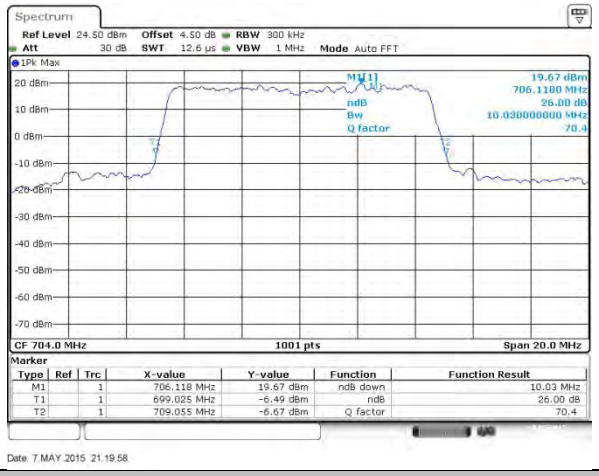


Highest Channel / 5MHz / 16QAM

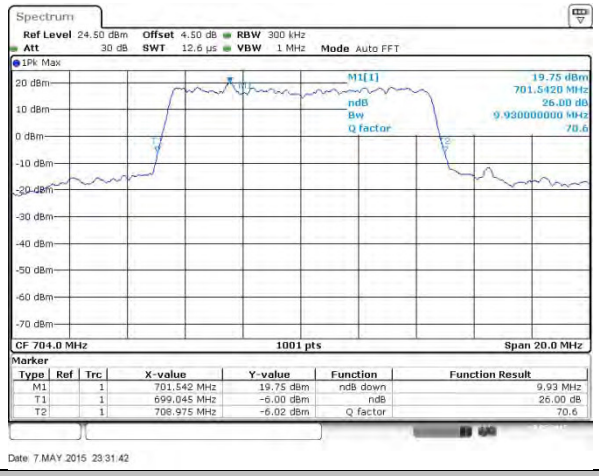


LTE Band 12

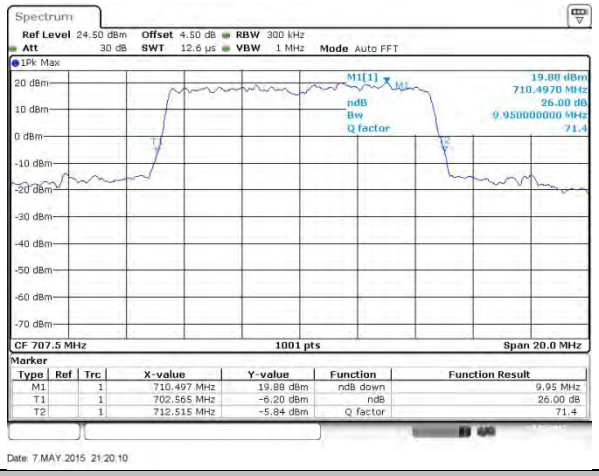
Lowest Channel / 10MHz / QPSK



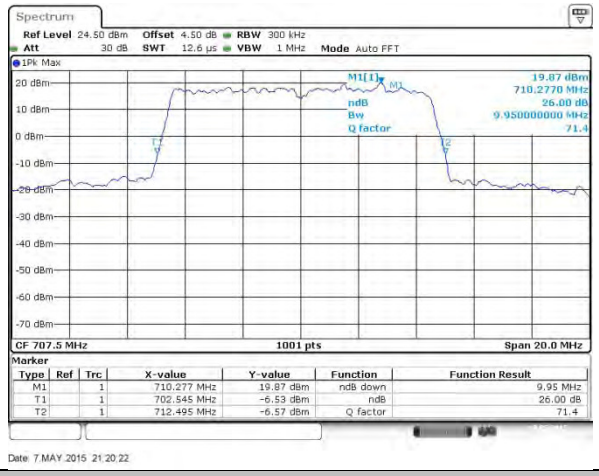
Lowest Channel / 10MHz / 16QAM



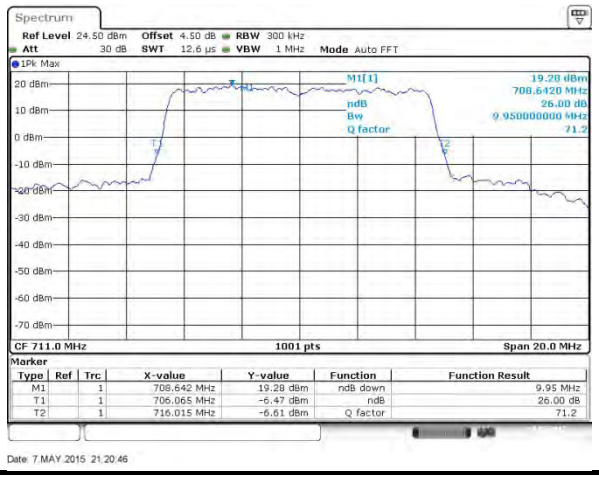
Middle Channel / 10MHz / QPSK



Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK



Highest Channel / 10MHz / 16QAM

