FCC TEST REPORT

Issued to

GUANGDONG OPPO MOBILE TELECOMMUNICATIONS CORP.,LTD

For

Mobile Phone

Model Name:	OPPO R8006
Trade Name:	OPPO
Brand Name:	OPPO
FCC ID :	R9C-R8006
Standard:	47 CFR Part 27, Subpart L
Test date:	2014-3-4 to 2014-3-28
Issue date:	2014-4-2

By

Shenzhen Morlab Communications Technology Co., Ltd.
FL.3, Building A, FeiYang Science Park, No.8 LongChang Road,Block 67, BaoAn District,
ShenZhen, GuangDong Province,P. R. China 518101

Tested by Liu Zhisen	***Approved by*** Zeng Dexin	***Reviewed by*** Peng Huarui
Liu Zhisen	Zeng Dexin	Peng Huarui
(Test Engineer)	*(Chief Engineer)*	*(Dept. Manager)*
Date 2014.4.2	***Date*** 2014.4.2	***Date*** 2014.4.2

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Change History		
Issue	Date	Reason for change
1.0	Apr 2, 2014	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type	Mobile Phone
Serial No.	(n.a, marked #1 by test site)
Hardware Version	213095
Software Version	R8006_11_140219
Applicant	GUANGDONG OPPO MOBILE TELECOMMUNICATIONS CORP.,LTD NO.18 HAIBIN ROAD, WUSHA, CHANG'AN, DONGGUAN, GUANGDONG,CHINA
Manufacturer	GUANGDONG OPPO MOBILE TELECOMMUNICATIONS CORP.,LTD NO.18 HAIBIN ROAD, WUSHA, CHANG'AN, DONGGUAN, GUANGDONG,CHINA
Modulation Type	LTE Band 4: QPSK, 16QAM
Tx Frequency Range	LTE Band 4: 1710MHz~1755MHz
Rx Frequency Range	LTE Band 4: 2110MHz~2155MHz
Emission Designator	1M11G7D (LTE Band 4, QPSK, BW 1.4MHz) 1M11W7D (LTE Band 4, 16QAM, BW 1.4MHz) 2M75G7D (LTE Band 4, QPSK, BW 3MHz) 2M76W7D (LTE Band 4, 16QAM, BW 3MHz) 4M52G7D (LTE Band 4, QPSK, BW 5MHz) 4M51W7D (LTE Band 4, 16QAM, BW 5MHz) 9M06G7D (LTE Band 4, QPSK, BW 10MHz) 9M06W7D (LTE Band 4, 16QAM, BW 10MHz) 13M49G7D (LTE Band 4, QPSK, BW 15MHz) 13M49W7D (LTE Band 4, 16QAM, BW 15MHz) 18M58G7D (LTE Band 4, QPSK, BW 20MHz) 18M52W7D (LTE Band 4, 16QAM, BW 20MHz)
Antenna Type	PIFA Antenna
Power Supply	3.8V DC Power

1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2 and Part 27 for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 27	Miscellaneous Wireless Communications Services

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	2.1046	Transmitter Conducted Output Power	PASS
2	27.50(d)(5)	Occupied Bandwidth	PASS
3	2.1049,27.53(g)	Frequency Stability	PASS
4	2.1055, 27.54	Peak to Average Radio	PASS
5	2.1051,2.105727.53(g)	Conducted Spurious Emissions	PASS
6	2.1051,2.1057 27.53(g)(h)	Band Edge	PASS
7	27.50(d)(4)	Equivalent Isotropic Radiated Power	PASS
8	2.1053,2.1057 27.53(g)	Radiated Spurious Emissions	PASS

1.3 Facilities and Accreditations

1.3.1 Facilities

Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L3572.

All measurement facilities used to collect the measurement data are located at 3/F, Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055 P. R. China. The test site is constructed in conformance with the requirements of TIA/EIA 603.D: 2010, ANSI C63.4: 2009 and CISPR Publication 22: 2010. The FCC registration number is 695796.

1.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 - 60
Atmospheric Pressure (kPa):	86 - 106

2. 47 CFR PART 2, PART 27L REQUIREMENTS

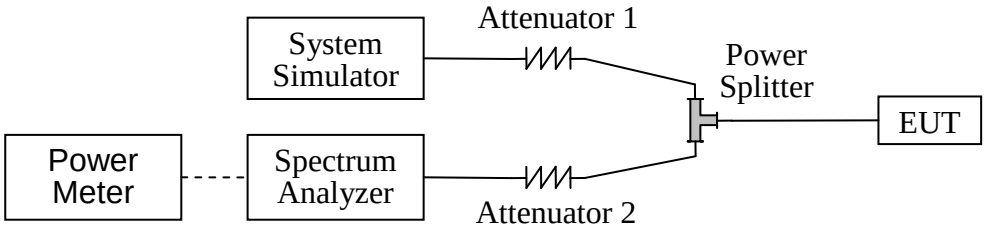
2.1 Transmitter Conducted Output Power

2.1.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

2.1.2 Test Description

1. Test Setup:



The EUT, which is powered 5V DC power (USB port), is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50 /124534/wk	2014.02.26	2015.02.25
Spectrum Analyzer	Rohde& Schwarz	FSL	10246	2014.02.26	2015.02.25
Spectrum Analyzer	Agilent	E4445A	MY44200685	2014.02.26	2015.02.25
Power Meter	Agilent	E4418B	GB43318055	2014.02.26	2015.02.25
Power Meter	Agilent	E4418B	GB43318055	2014.02.26	2015.02.25
Power Sensor	Agilent	8482A	MY41091706	2014.02.26	2015.02.25
Power Splitter	Weinschel	1506A	NW521	2014.02.26	2015.02.25
Attenuator 1	Resnet	20dB	(n.a.)	2014.02.26	2015.02.25

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Attenuator 2	Resnet	3dB	(n.a.)	2014.02.26	2015.02.25

2.1.3 Test Results

LTE BAND 4

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
20MHz	L 20050	1720.0	QPSK	1	0	21.77
				1	49	21.69
				1	99	21.88
				50	0	20.81
				50	25	20.72
				50	49	20.93
				100	0	20.76
			16-QAM	1	0	20.85
				1	49	20.74
				1	99	20.93
				50	0	19.79
				50	25	19.77
				50	49	19.95
				100	0	19.78
	M 20175	1732.5	QPSK	1	0	21.70
				1	49	21.84
				1	99	21.63
				50	0	20.86
				50	25	20.91
				50	49	20.87
				100	0	20.72
			16-QAM	1	0	20.72
				1	49	20.86
				1	99	20.71
				50	0	19.94
				50	25	19.87
				50	49	19.86
				100	0	19.76
	H 20300	1745.0	QPSK	1	0	21.60
				1	49	21.59
				1	99	21.60
				50	0	20.74
				50	25	20.96
				50	49	20.85
				100	0	20.59
			16-QAM	1	0	21.07
				1	49	20.98

				1	99	21.08
				50	0	19.69
				50	25	19.77
				50	49	19.82
				100	0	19.66

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
15MHz	L 20025	1717.5	QPSK	1	0	21.63
				1	37	21.59
				1	74	21.68
				36	0	20.72
				36	18	20.76
				36	35	20.71
				75	0	20.77
			16-QAM	1	0	21.02
				1	37	21.00
				1	74	21.05
				36	0	19.84
				36	18	19.78
				36	35	19.92
				75	0	19.73
	M 20175	1732.5	QPSK	1	0	21.67
				1	37	21.59
				1	74	21.55
				36	0	20.68
				36	18	20.72
				36	35	20.83
				75	0	20.79
			16-QAM	1	0	20.96
				1	37	20.88
				1	74	20.85
				36	0	19.95
				36	18	19.89
				36	35	19.90
				75	0	19.75
	H 20325	1747.5	QPSK	1	0	21.50
				1	37	21.62
				1	74	21.45
				36	0	20.79
				36	18	20.77
				36	35	20.86
				75	0	20.59
			16-QAM	1	0	20.53

				1	37	20.61
				1	74	20.42
				36	0	19.72
				36	18	19.68
				36	35	19.74
				75	0	19.59

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
10MHz	L 20000	1715.0	QPSK	1	0	21.63
				1	24	21.66
				1	49	21.62
				25	0	20.76
				25	12	20.77
				25	24	20.69
				50	0	20.67
			16-QAM	1	0	21.02
				1	24	21.00
				1	49	20.99
				25	0	19.84
				25	12	19.75
				25	24	19.68
				50	0	19.66
	M 20175	1732.5	QPSK	1	0	21.73
				1	24	21.69
				1	49	21.53
				25	0	20.78
				25	12	20.76
				25	24	20.84
				50	0	20.69
			16-QAM	1	0	20.97
				1	24	20.87
				1	49	20.83
				25	0	19.94
				25	12	19.86
				25	24	19.92
				50	0	19.72
	H 20350	1750.0	QPSK	1	0	21.33
				1	24	21.52
				1	49	21.36
				25	0	20.59
				25	12	20.61
				25	24	20.57
				50	0	20.48
			16-QAM	1	0	20.42

				1	24	20.37
				1	49	20.35
				25	0	19.46
				25	12	19.57
				25	24	19.52
				50	0	19.49

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
5MHz	L 19975	1712.5	QPSK	1	0	21.63
				1	12	21.56
				1	24	21.54
				12	0	20.67
				12	6	20.59
				12	11	20.55
				25	0	20.56
			16-QAM	1	0	20.60
				1	12	20.61
				1	24	20.58
				12	0	19.68
				12	6	19.57
				12	11	19.71
				25	0	19.66
	M 20175	1732.5	QPSK	1	0	21.68
				1	12	21.55
				1	24	21.62
				12	0	20.64
				12	6	20.72
				12	11	20.66
				25	0	20.71
			16-QAM	1	0	21.15
				1	12	21.04
				1	24	21.13
				12	0	19.86
				12	6	19.75
				12	11	19.82
				25	0	19.62
	H 20375	1752.5	QPSK	1	0	21.54
				1	12	21.61
				1	24	21.46
				12	0	20.56
				12	6	20.49
				12	11	20.57
				25	0	20.46
			16-QAM	1	0	20.53

				1	12	20.63
				1	24	20.45
				12	0	19.71
				12	6	19.68
				12	11	19.66
				25	0	19.46

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
3MHz	L 19965	1711.5	QPSK	1	0	21.61
				1	7	21.59
				1	14	21.53
				8	0	20.68
				8	4	20.71
				8	7	20.60
				15	0	20.63
			16-QAM	1	0	21.01
				1	7	20.92
				1	14	20.89
				8	0	19.84
				8	4	19.76
				8	7	19.77
				15	0	20.61
	M 20175	1732.5	QPSK	1	0	21.65
				1	7	21.71
				1	14	21.55
				8	0	20.72
				8	4	20.86
				8	7	20.79
				15	0	20.66
			16-QAM	1	0	20.93
				1	7	20.89
				1	14	20.88
				8	0	19.85
				8	4	19.88
				8	7	19.67
				15	0	19.65
	H 20385	1753.5	QPSK	1	0	21.34
				1	7	21.42
				1	14	21.33
				8	0	20.49
				8	4	20.52
				8	7	20.54
				15	0	20.46
			16-QAM	1	0	20.43

				1	7	20.52
				1	14	20.41
				8	0	19.67
				8	4	19.72
				8	7	19.58
				15	0	19.50

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
1.4MHz	L 19957	1710.7	QPSK	1	0	21.71
				1	2	21.69
				1	5	21.66
				3	0	20.76
				3	1	20.81
				3	2	20.77
				6	0	20.71
			16-QAM	1	0	20.80
				1	2	20.78
				1	5	20.82
				3	0	19.92
				3	1	19.86
				3	2	19.88
				6	0	19.74
	M 20175	1732.5	QPSK	1	0	21.66
				1	2	21.38
				1	5	21.05
				3	0	20.75
				3	1	20.73
				3	2	20.82
				6	0	20.71
			16-QAM	1	0	20.93
				1	2	20.82
				1	5	20.89
				3	0	19.96
				3	2	19.99
				3	5	19.87
				6	0	19.73
	H 20393	1754.3	QPSK	1	0	21.38
				1	2	21.42
				1	5	21.35
				3	0	20.56
				3	1	20.49
				3	2	20.51
				6	0	20.49
			16-QAM	1	0	20.39

				1	2	20.49
				1	5	20.42
				3	0	19.53
				3	1	19.55
				3	2	19.47
				6	0	19.48

2.2 Occupied Bandwidth

2.2.1 Definition

According to FCC section 2.1049 and 27.53(g), the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Occupied bandwidth is also known as the 99% emission bandwidth.

2.2.2 Test Description

See section 2.1.2 of this report.

2.2.3 Test Results

LTE Band 4

Low channel:

Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	1.0978	1.0964	19965	1711.5	2.7477	2.7494
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	1.305	1.294	19965	1711.5	3.128	3.120

Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	4.5236	4.5109	20000	1715.0	9.0510	9.0443
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.071	5.043	20000	1715.0	10.176	10.186

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	13.4090	13.4521	20050	1720.0	18.4764	18.3497
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	14.850	14.800	20050	1720.0	21.321	21.229

Middle channel:

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	1.1088	1.0973	20175	1732.5	2.7516	2.7490
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	1.296	1.312	20175	1732.5	3.121	3.118

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	4.5243	4.5026	20175	1732.5	9.0574	9.0570
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.020	5.048	20175	1732.5	10.236	10.159

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	13.4672	13.4589	20175	1732.5	18.5484	18.4954
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	14.767	14.775	20175	1732.5	21.518	21.156

High channel:

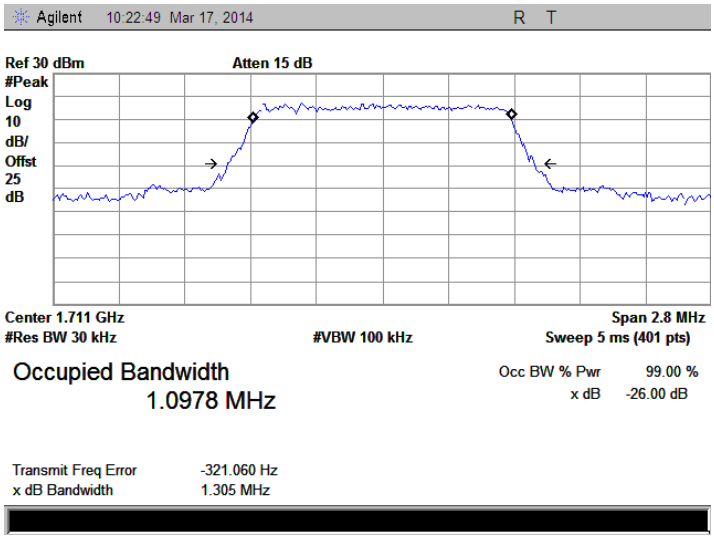
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20392	1754.2	1.0921	1.1090	20384	1753.4	2.7419	2.7634
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20392	1754.2	1.301	1.314	20384	1753.4	3.110	3.144

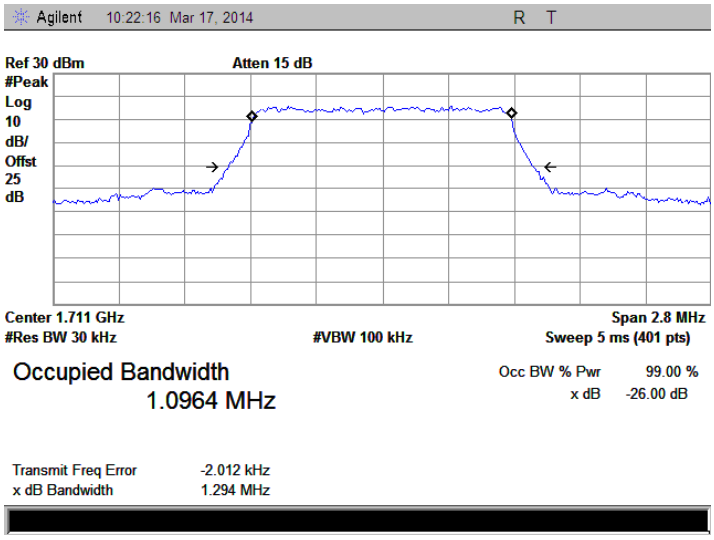
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20375	1752.5	4.5079	4.5048	20350	1750.0	9.0540	9.0559
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20375	1752.5	5.035	5.052	20350	1750.0	10.226	10.205

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20325	1747.5	13.4903	13.4868	20300	1745.0	18.5796	18.5205
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20325	1747.5	14.918	14.844	20300	1745.0	21.462	21.302

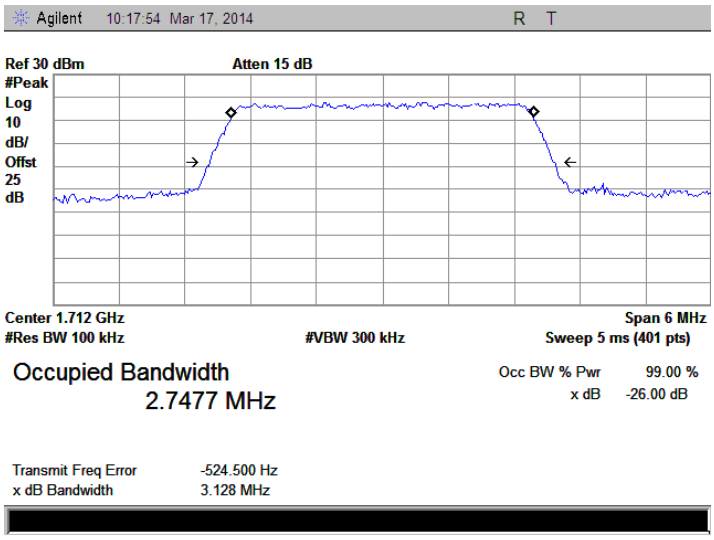
Low channel:

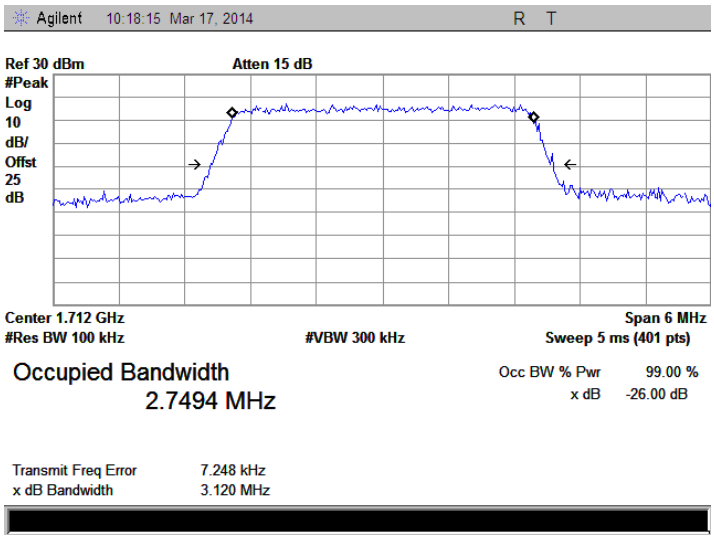
Spectrum Plot of Worst Value	
1.4MHz/QPSK	1.4MHz/16QAM





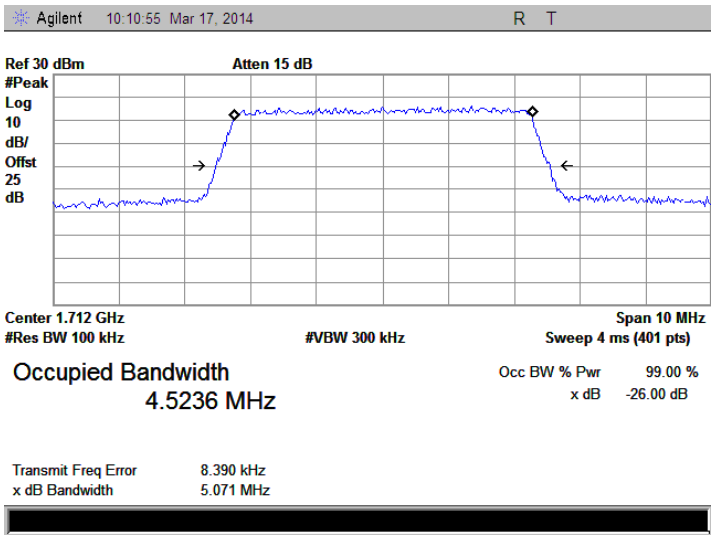
Spectrum Plot of Worst Value	
3MHz/QPSK	3MHz/16QAM



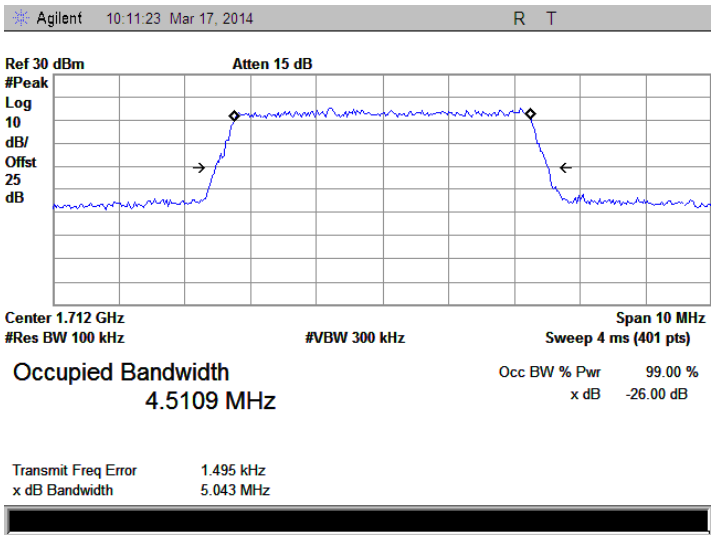


Spectrum Plot of Worst Value

5MHz/QPSK

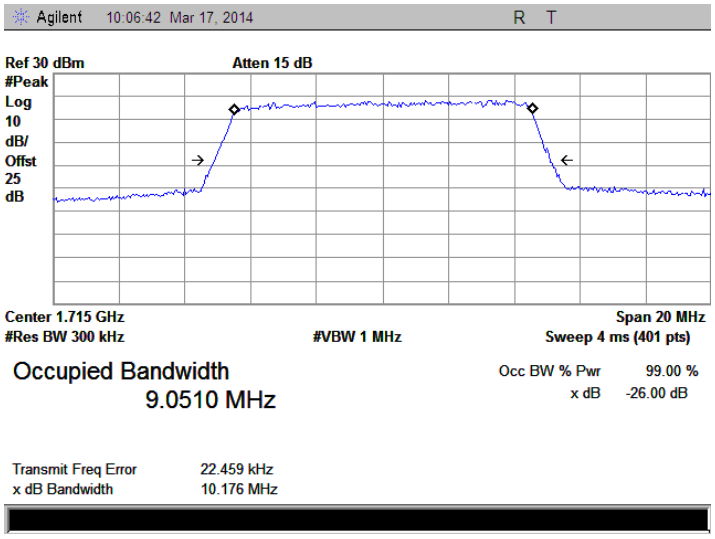


5MHz/16QAM

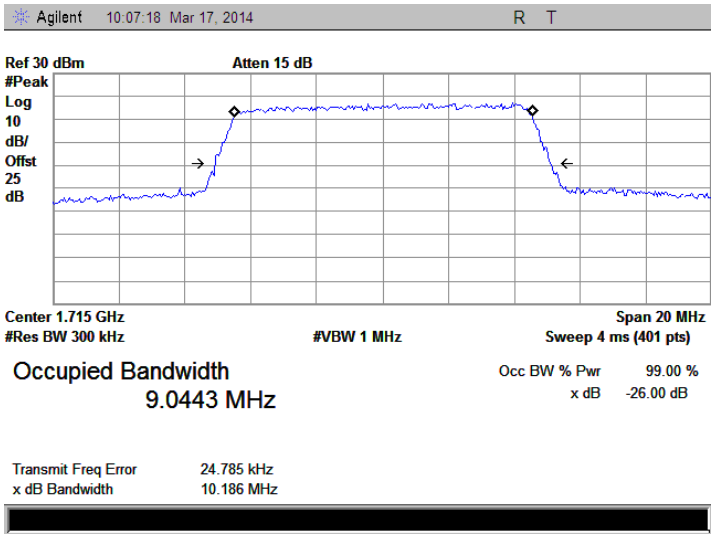


Spectrum Plot of Worst Value

10MHz/QPSK

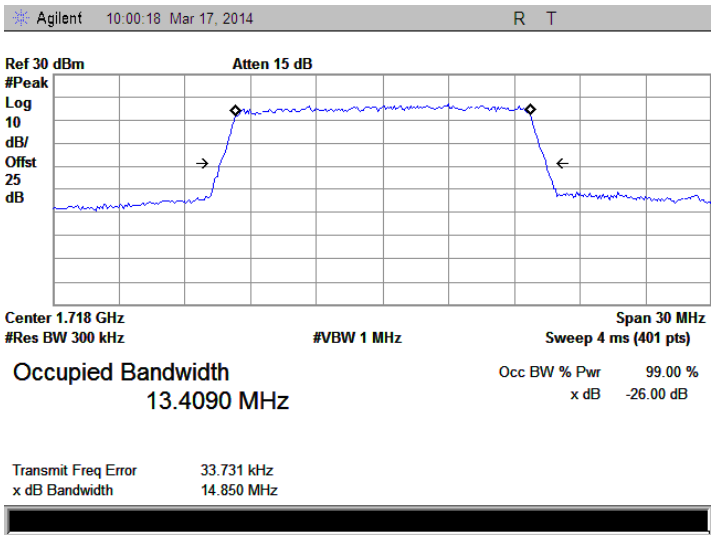


10MHz/16QAM

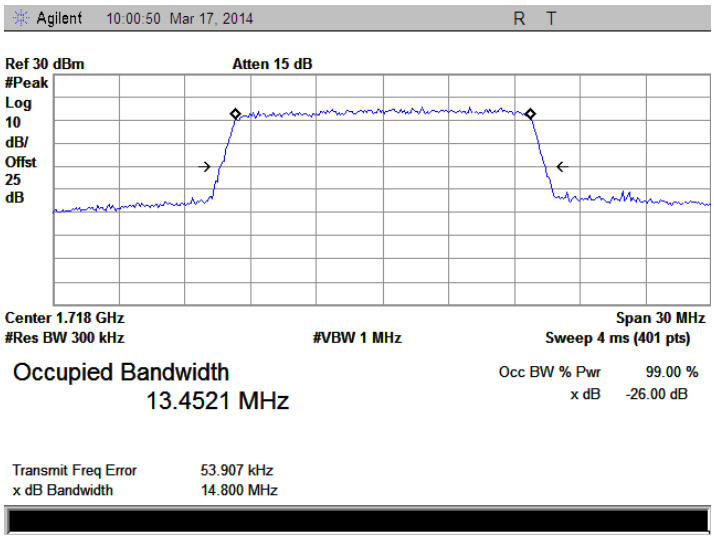


Spectrum Plot of Worst Value

15MHz/QPSK

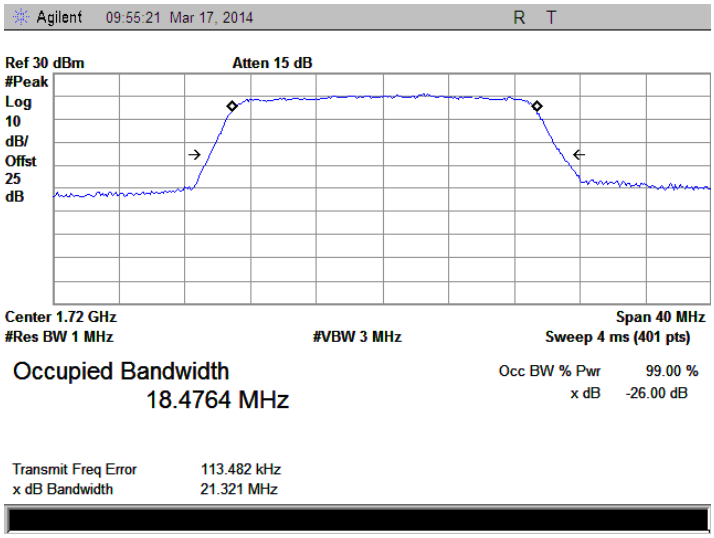


15MHz/16QAM

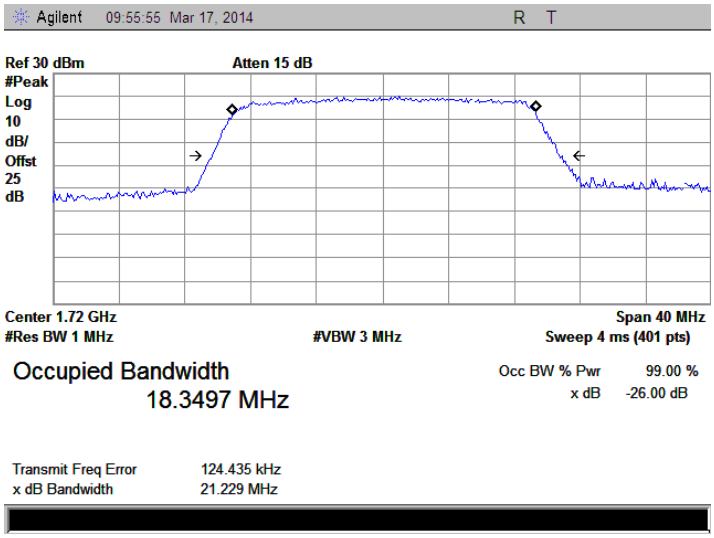


Spectrum Plot of Worst Value

20MHz/QPSK

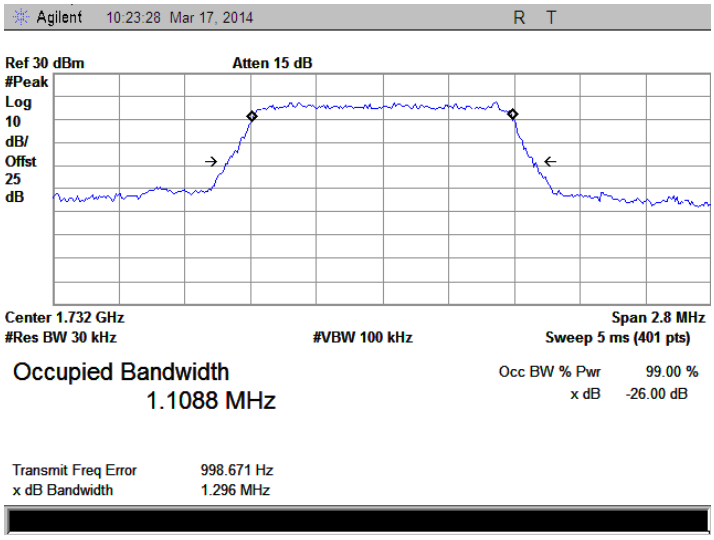


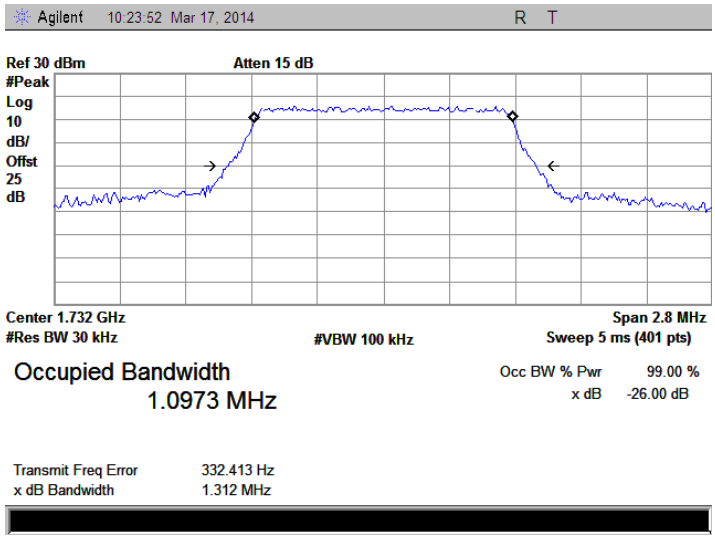
20MHz/16QAM



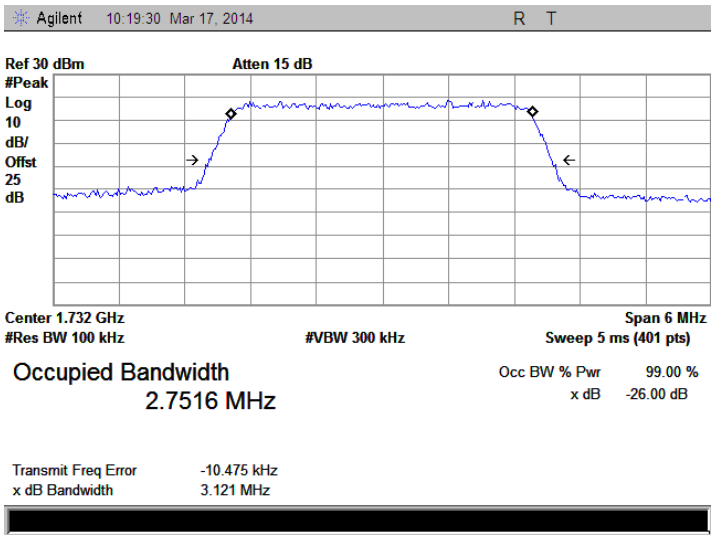
Middle channel:

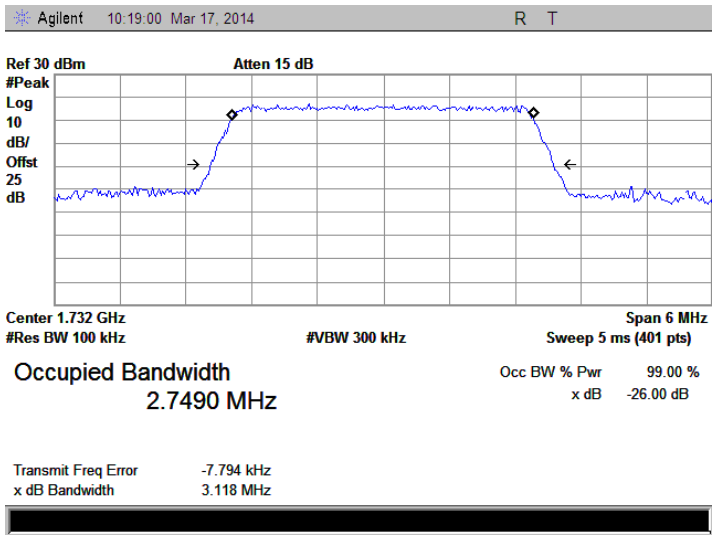
Spectrum Plot of Worst Value	
1.4MHz/QPSK	1.4MHz/16QAM





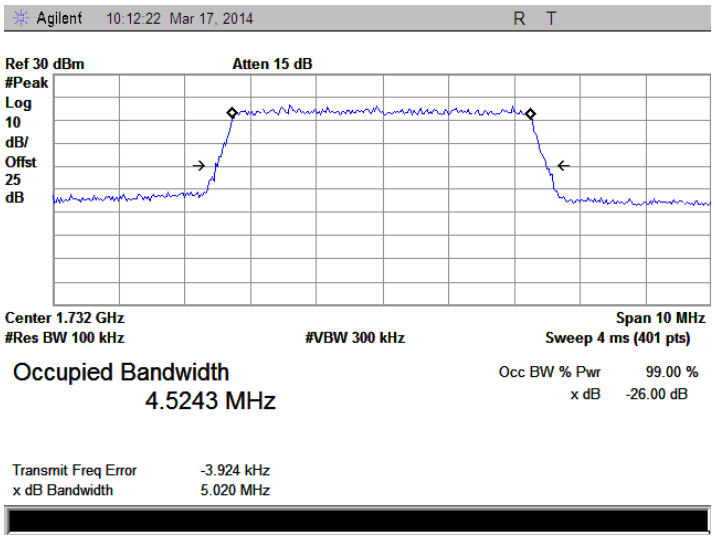
Spectrum Plot of Worst Value	
3MHz/QPSK	3MHz/16QAM



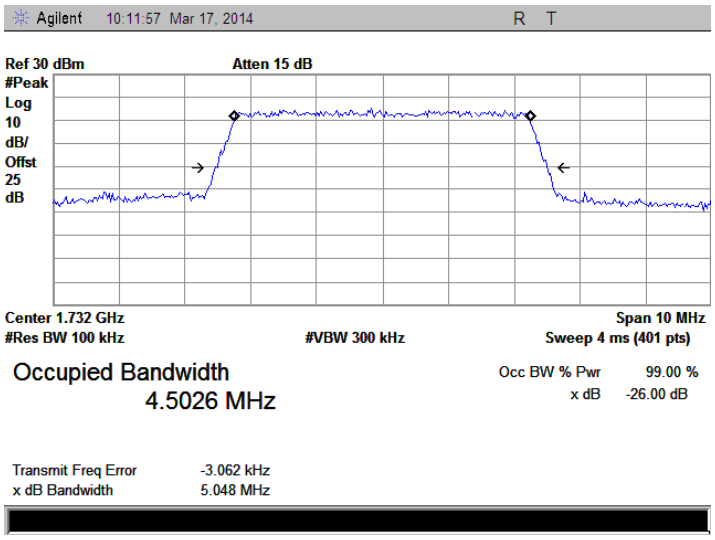


Spectrum Plot of Worst Value

5MHz/QPSK

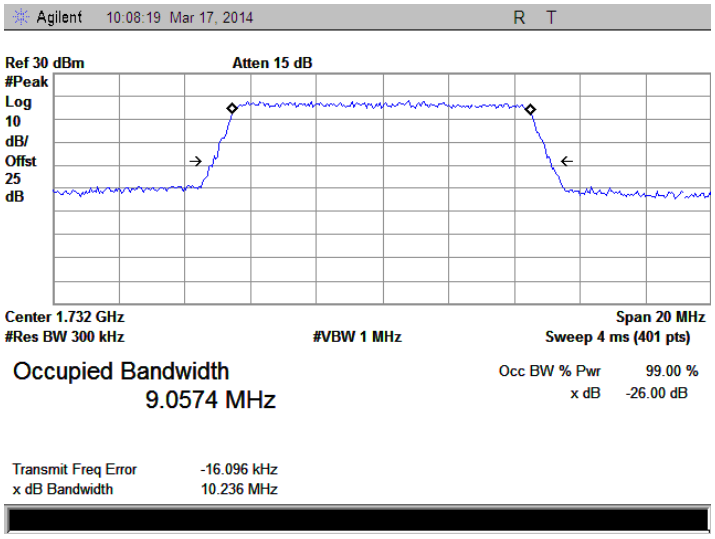


5MHz/16QAM

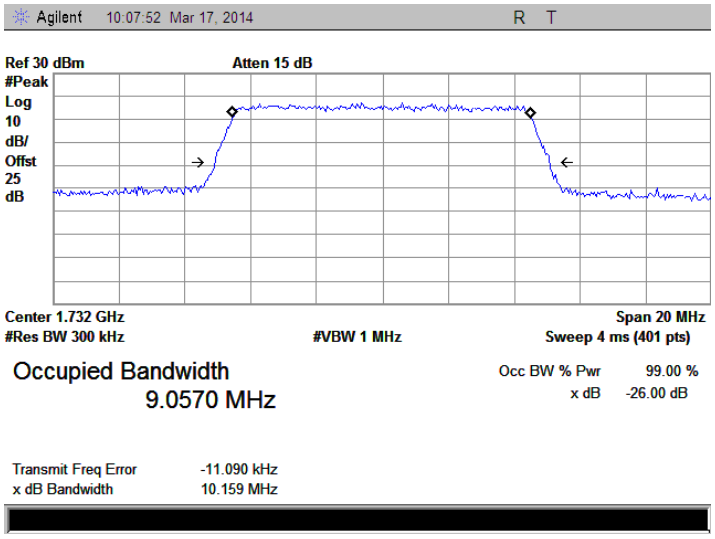


Spectrum Plot of Worst Value

10MHz/QPSK

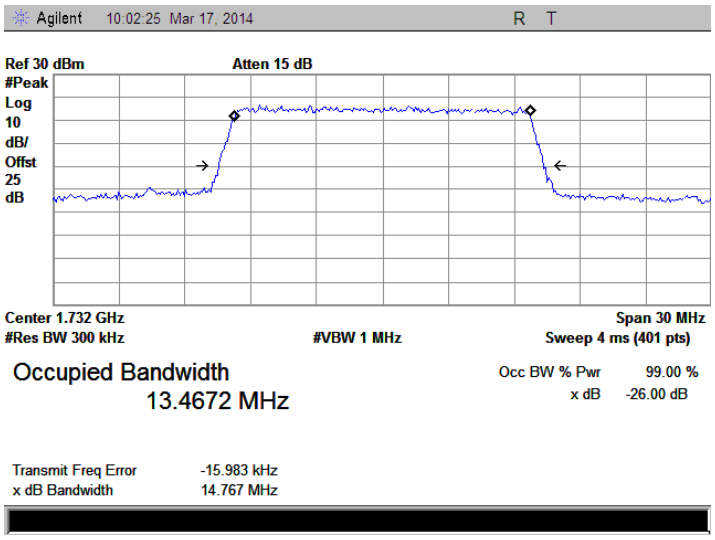


10MHz/16QAM

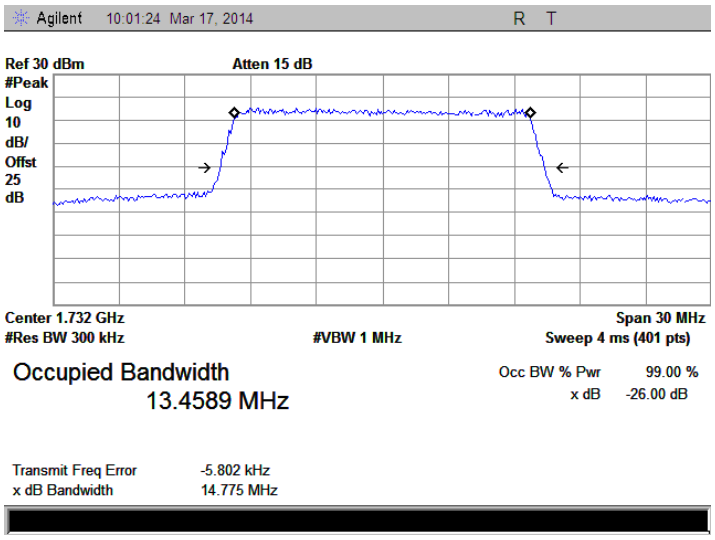


Spectrum Plot of Worst Value

15MHz/QPSK

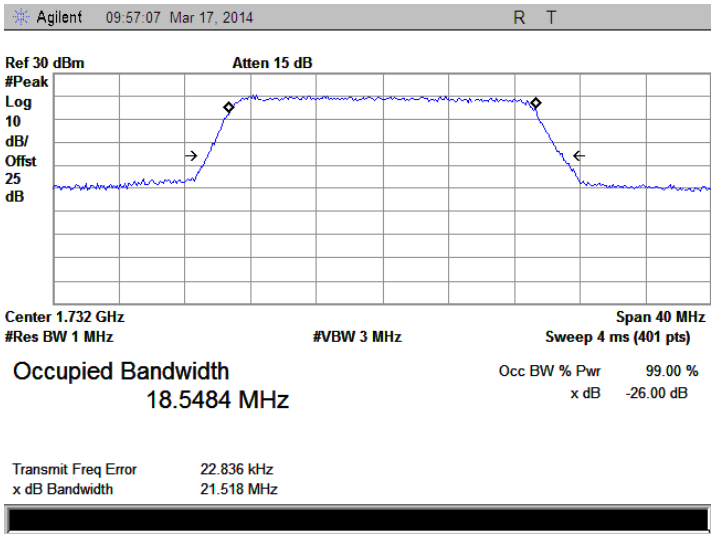


15MHz/16QAM

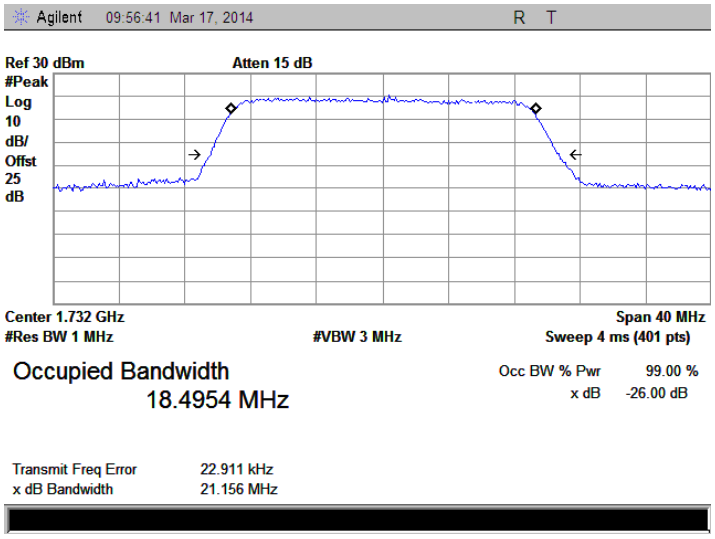


Spectrum Plot of Worst Value

20MHz/QPSK

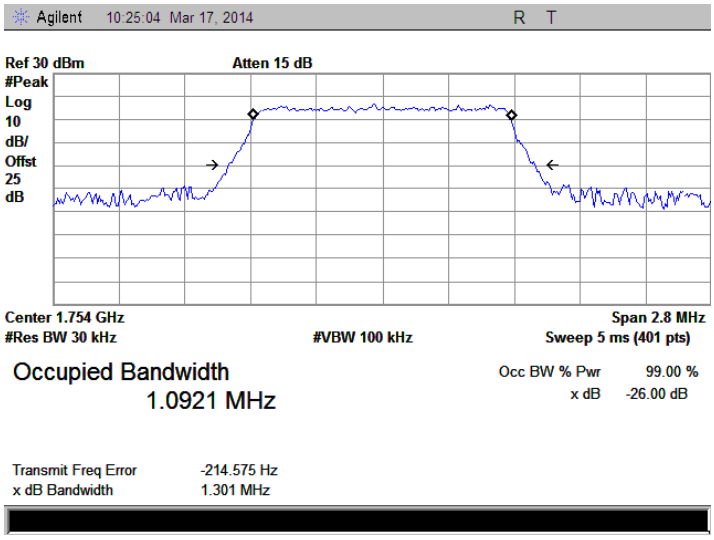


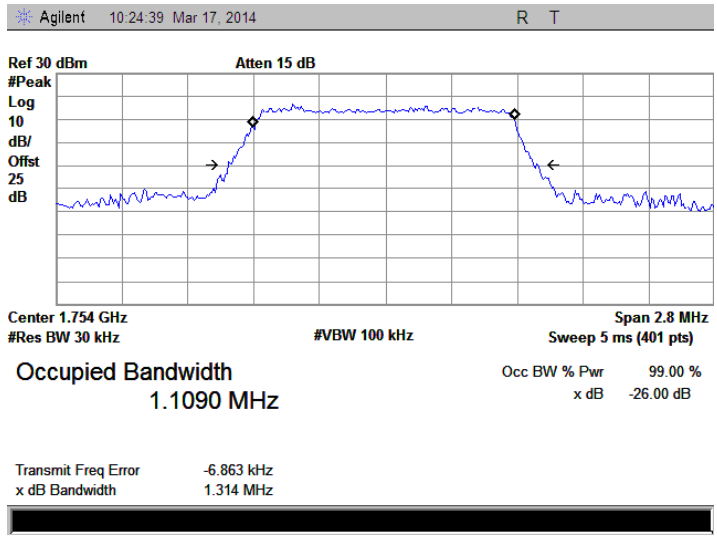
20MHz/16QAM



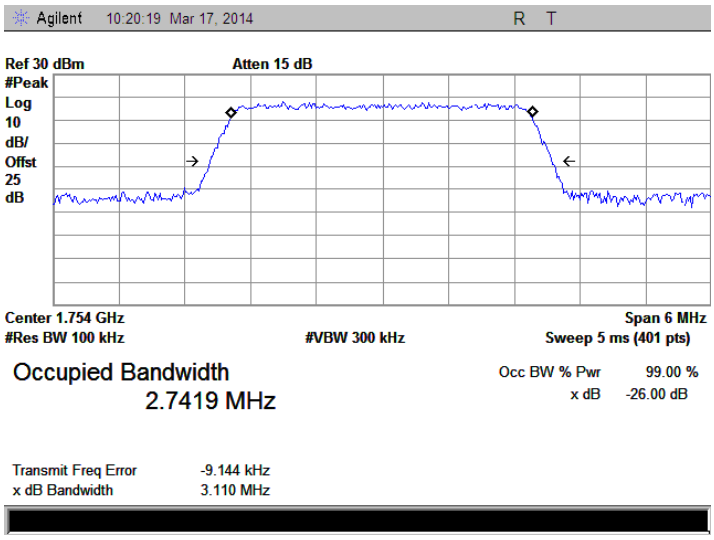
High channel:

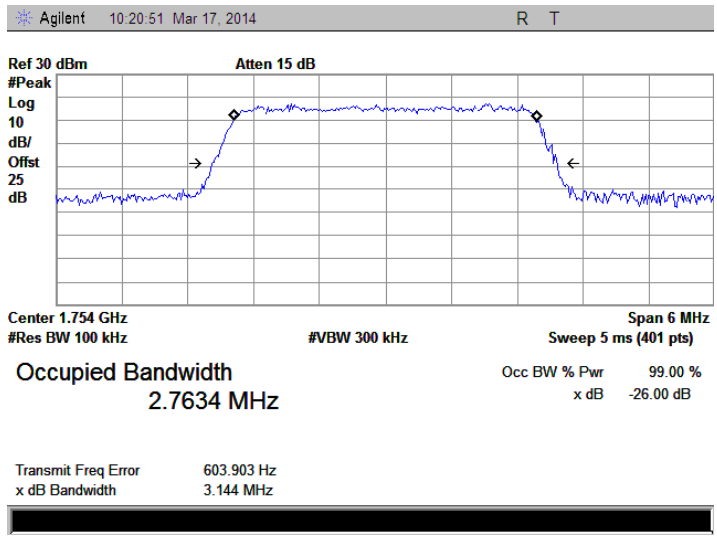
Spectrum Plot of Worst Value	
1.4MHz/QPSK	1.4MHz/16QAM





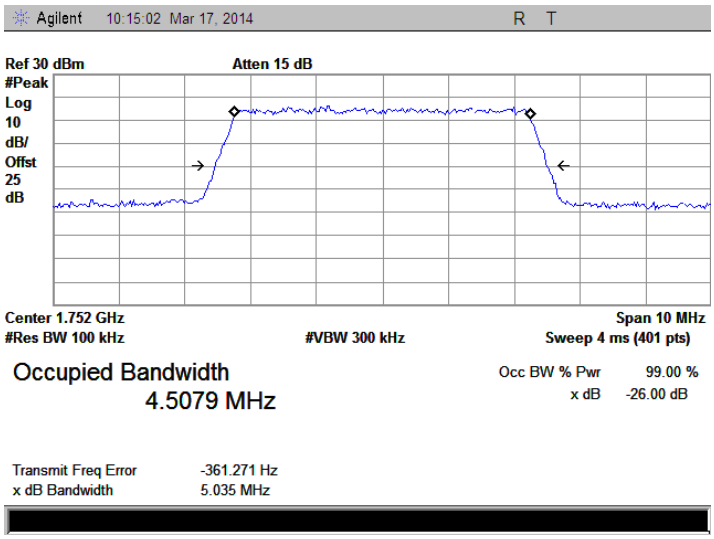
Spectrum Plot of Worst Value	
3MHz/QPSK	3MHz/16QAM



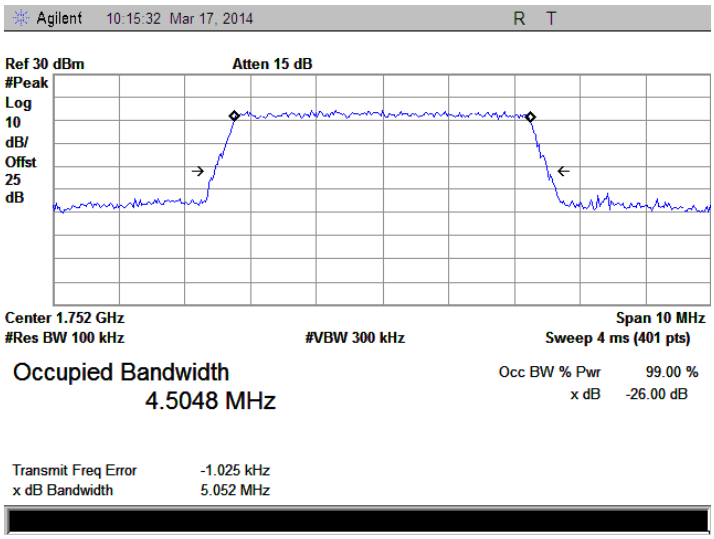


Spectrum Plot of Worst Value

5MHz/QPSK

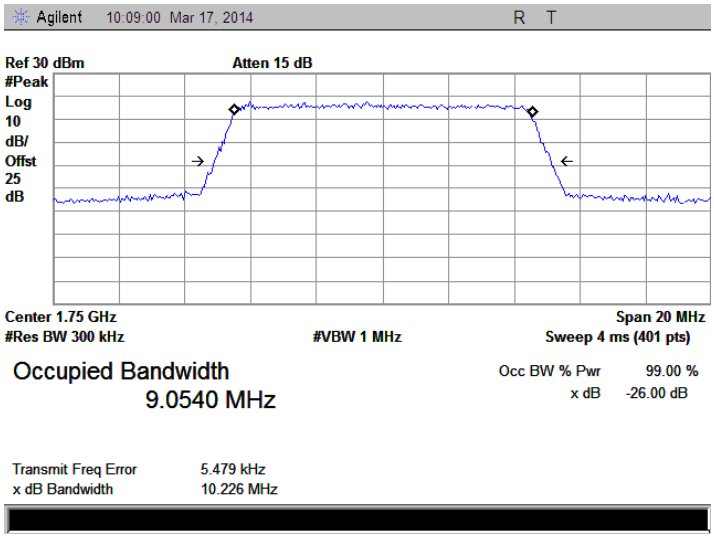


5MHz/16QAM

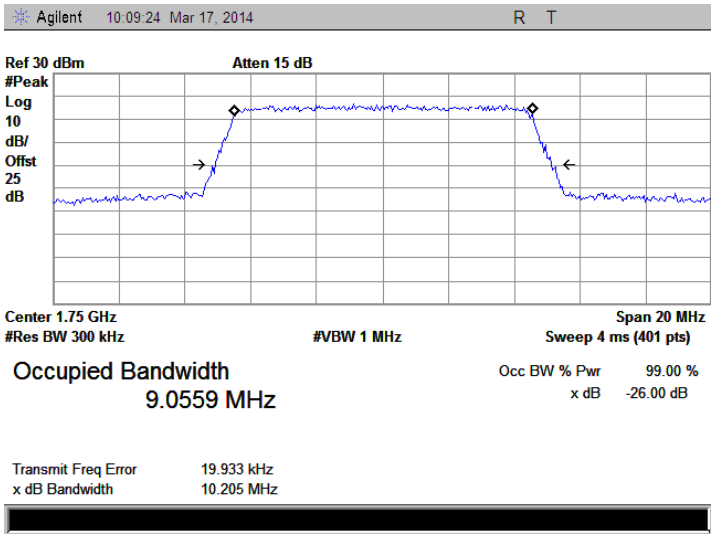


Spectrum Plot of Worst Value

10MHz/QPSK

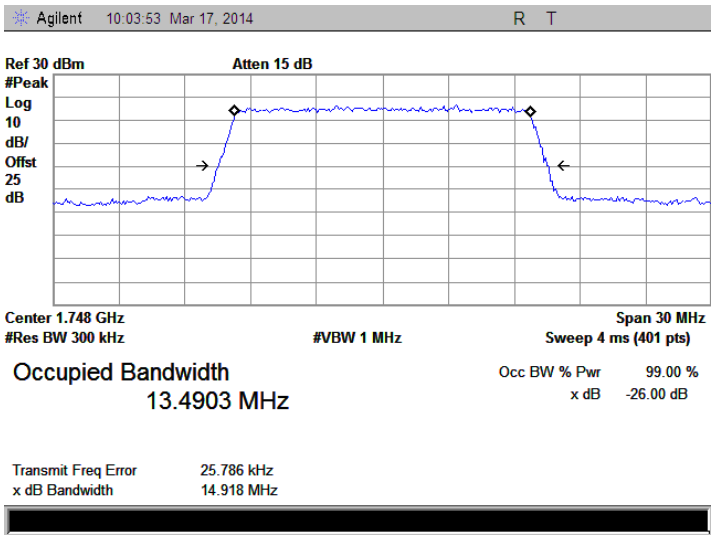


10MHz/16QAM

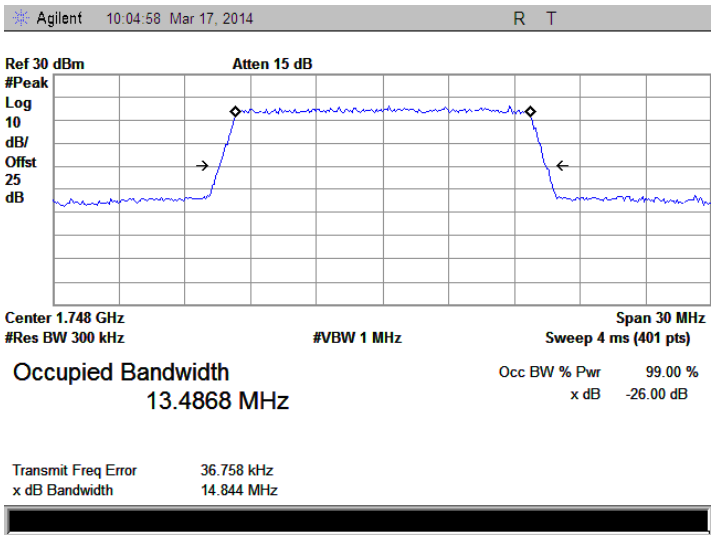


Spectrum Plot of Worst Value

15MHz/QPSK

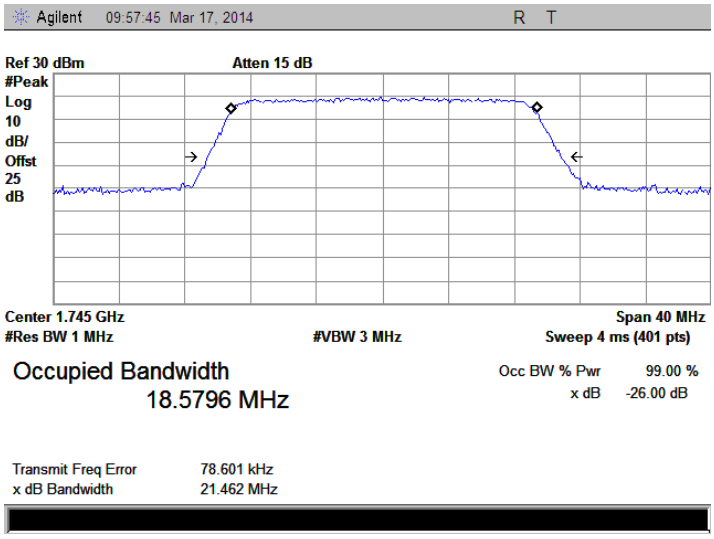


15MHz/16QAM

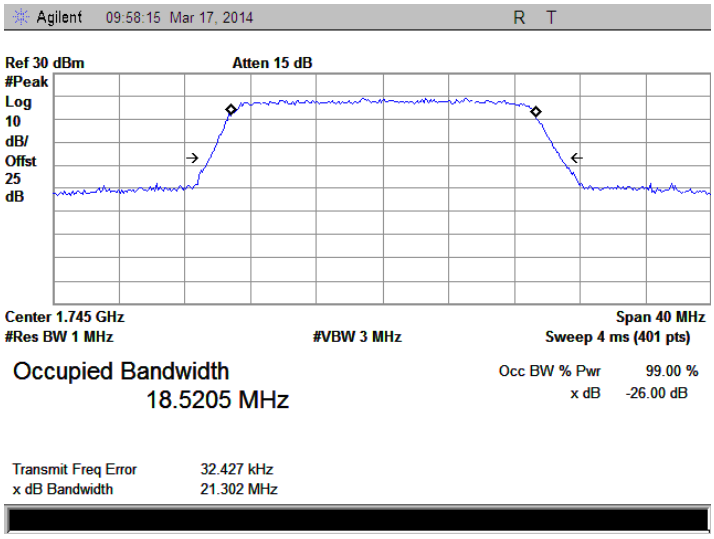


Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM



2.3 Frequency Stability

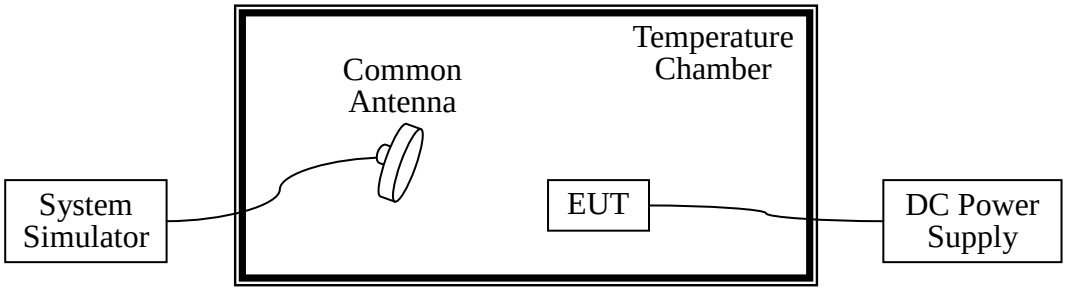
2.3.1 Requirement

According to FCC section 2.1055 and FCC section 27.54, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.
(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.3.2 Test Description

1. Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50/124534/wk	2014.02.26	2015.02.25
DC Power Supply	Good Will	GPS-3030DD	EF920938	2014.02.26	2015.02.25
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2014.02.26	2015.02.25

2.3.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.35VDC and 3.6VDC, which are specified by the applicant; the normal temperature here used is 25°C. The frequency deviation limit is ±2.5ppm.

The testing was performed using one RB and Bandwidth setting for each band.

LTE Band 4 – QPSK - Channel 20175 – Frequency 1732.5MHz – RB 6/0 Limit: 1732.5MHz*2.5ppm=4331.25Hz				
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Result**
100	3.8	-30	12.56	PASS
100		-20	11.66	
100		-10	10.50	
100		0	11.74	
100		+10	11.56	
100		+20	9.48	
100		+30	-10.89	
100		+40	10.83	
100		+55	12.62	
114	4.35	+20	11.12	
95	3.6	+20	12.52	

2.4 Peak to Average Radio

2.4.1 Requirement

According to FCC section 27.50(d) (5), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2 Test Description

See section 2.1.2 of this report.

2.4.3 Test Result

Record the maximum PAPR level associated with a probability of 0.1%.

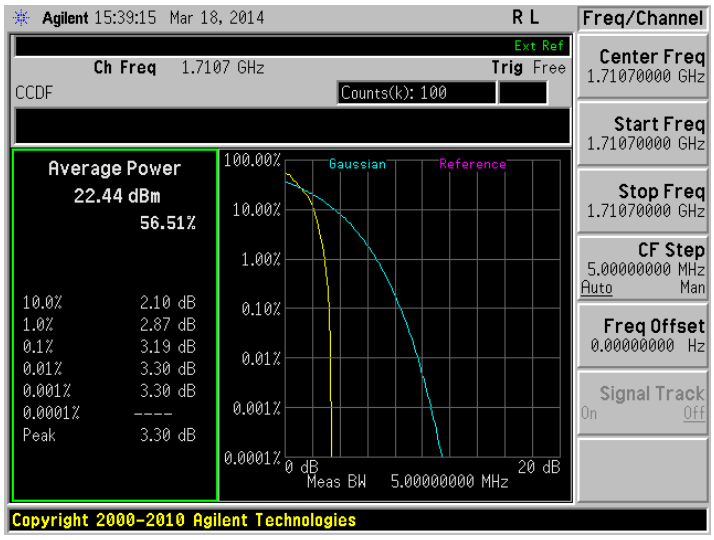
LTE Band 4:

Low channel:

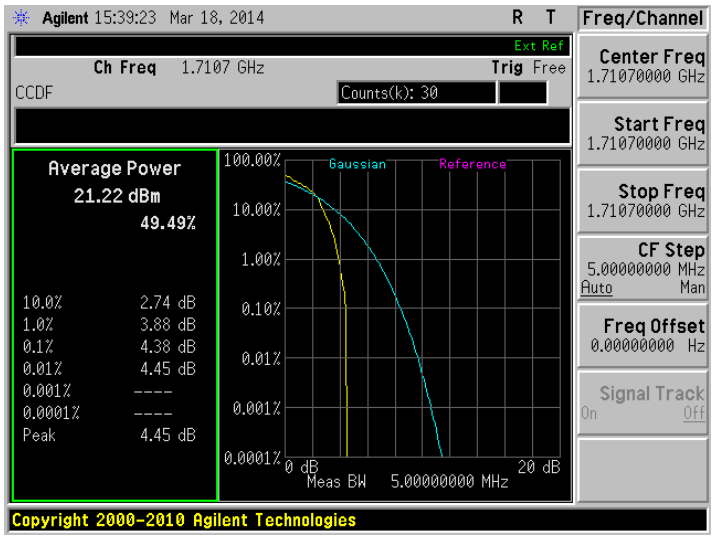
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	3.19	4.38	19965	1771.5	4.25	5.05
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM		QPSK	QPSK	16QAM
19975	1712.5	4.66	5.48	20000	1715.0	4.64	6.08
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM		QPSK	QPSK	16QAM
20025	1717.5	5.86	6.95	20050	1720.0	6.67	7.20

Spectrum Plot of Worst Value (Low channel)

1.4MHz/QPSK

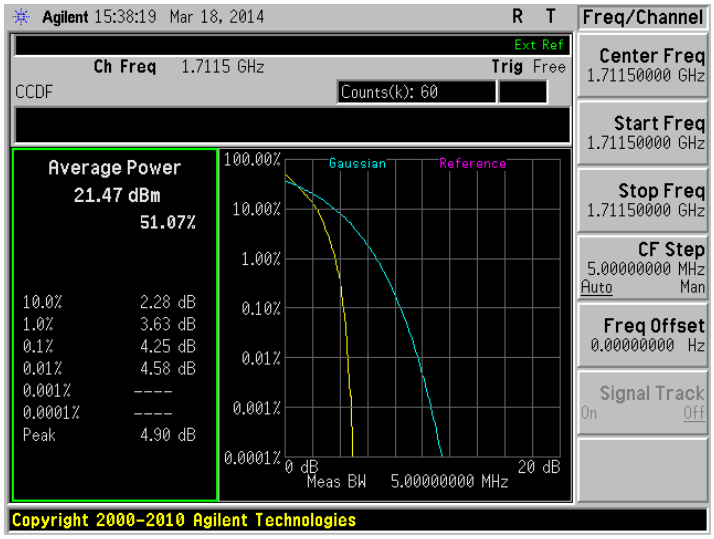


1.4MHz/16QAM

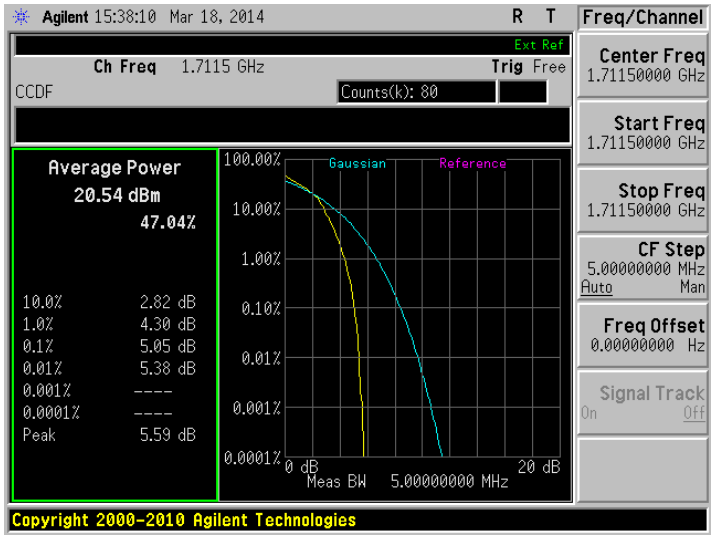


Spectrum Plot of Worst Value

3MHz/QPSK

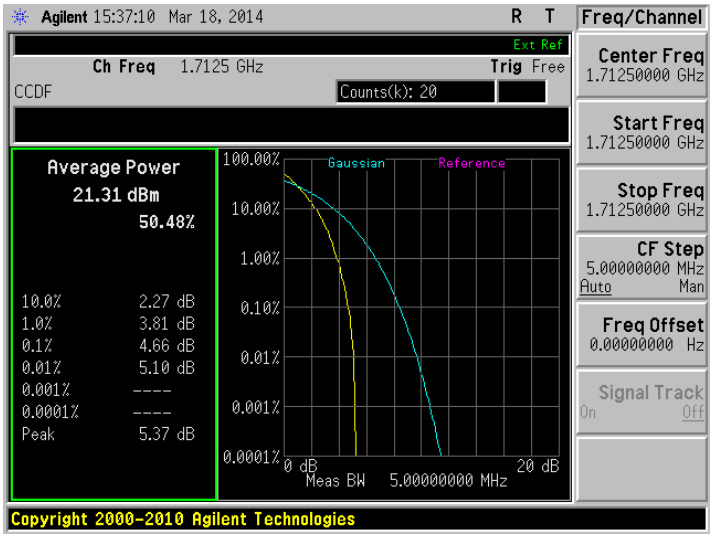


3MHz/16QAM

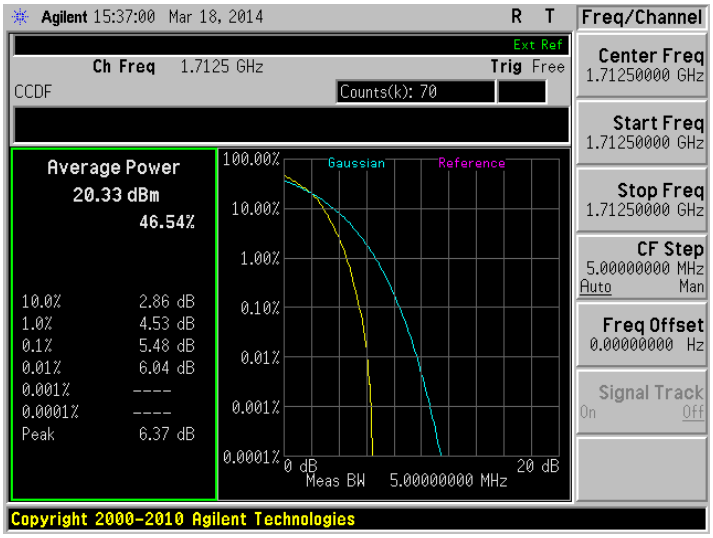


Spectrum Plot of Worst Value

5MHz/QPSK

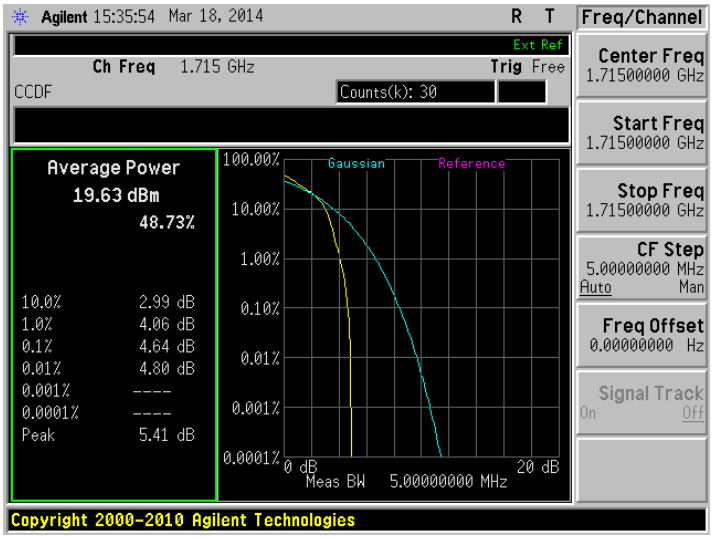


5MHz/16QAM

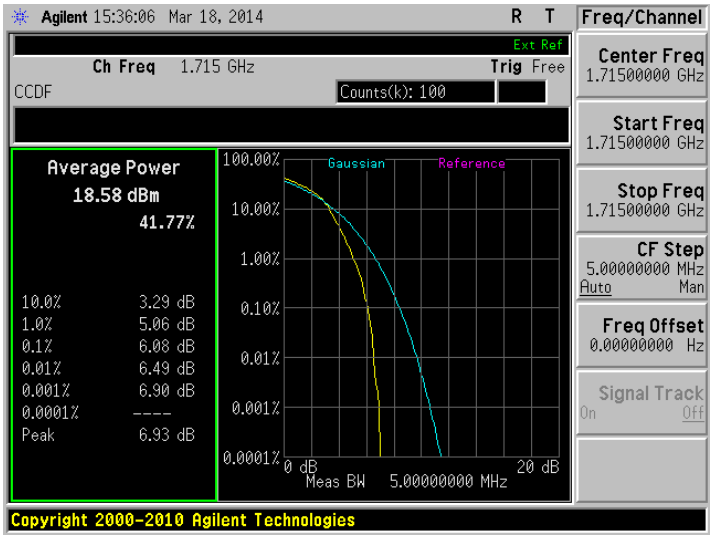


Spectrum Plot of Worst Value

10MHz/QPSK

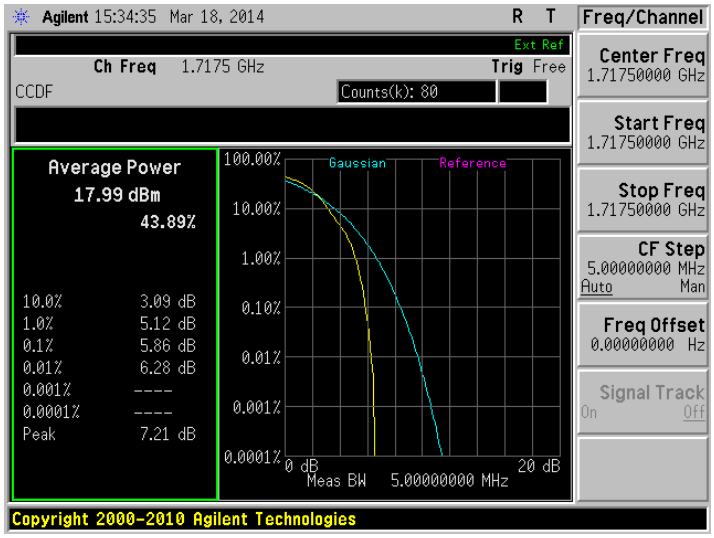


10MHz/16QAM

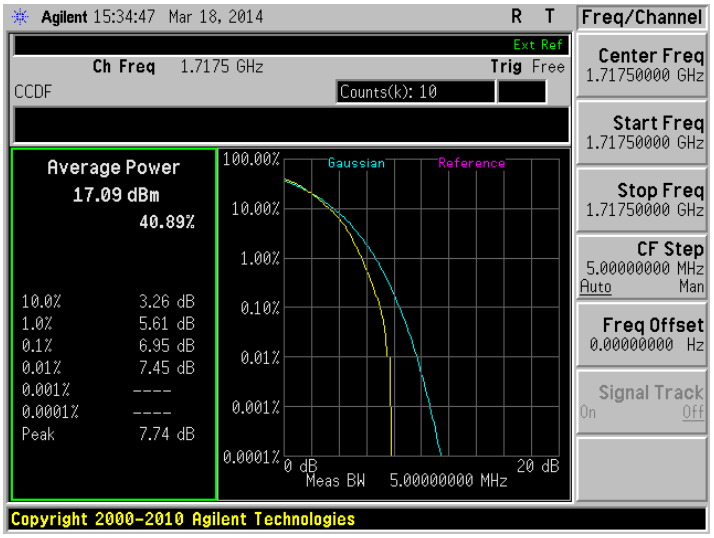


Spectrum Plot of Worst Value

15MHz/QPSK

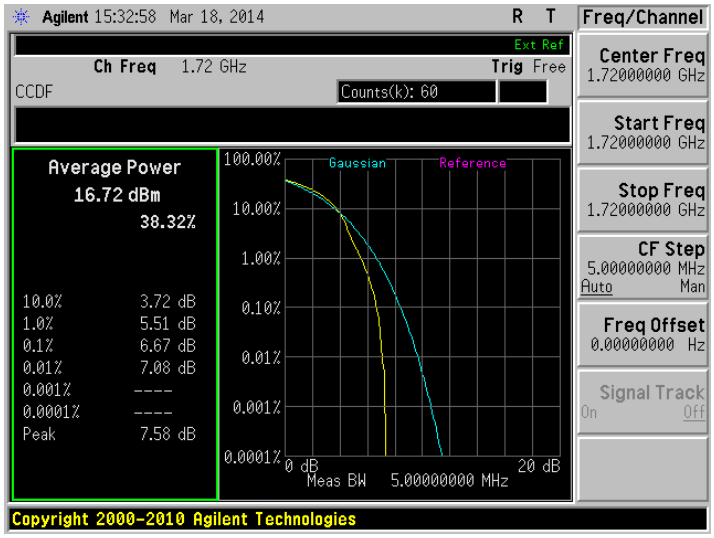


15MHz/16QAM

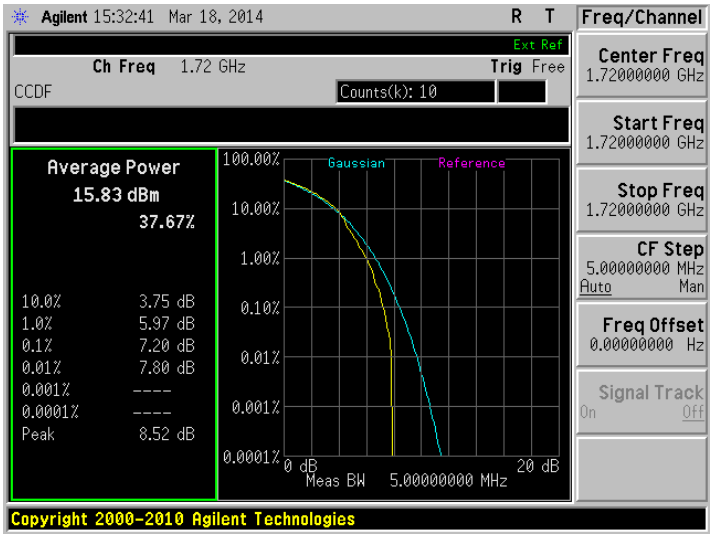


Spectrum Plot of Worst Value

20MHz/QPSK

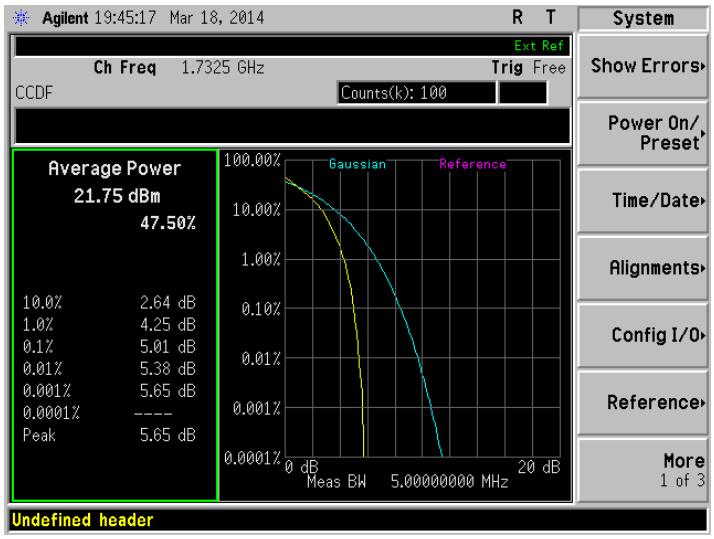
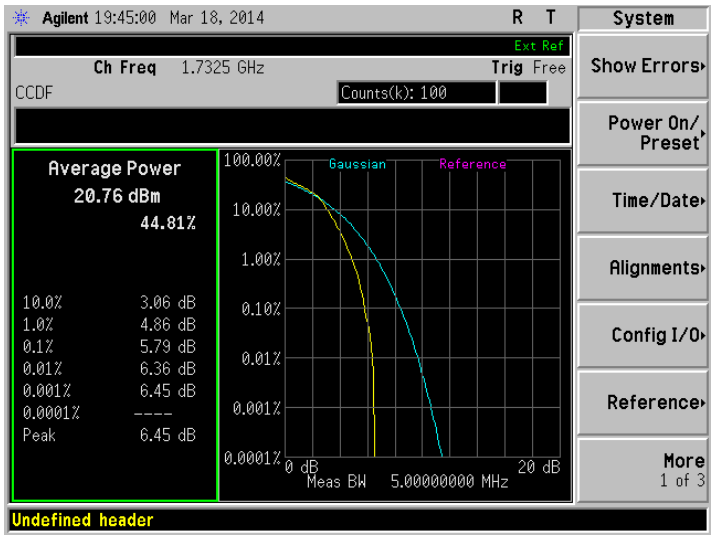


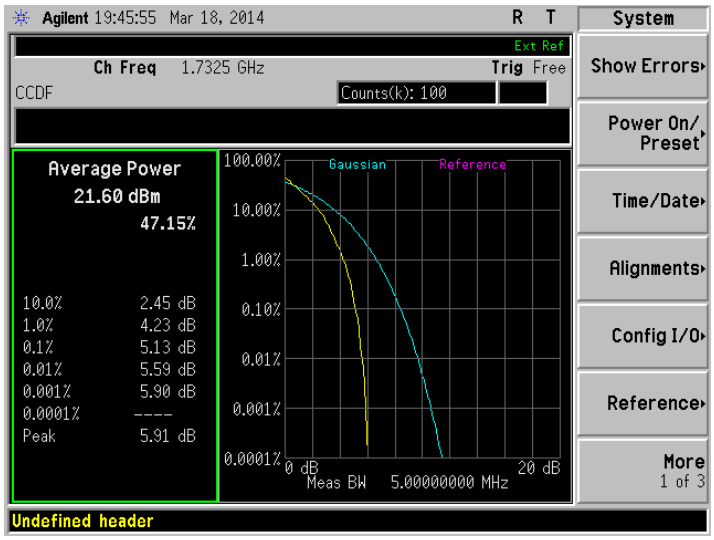
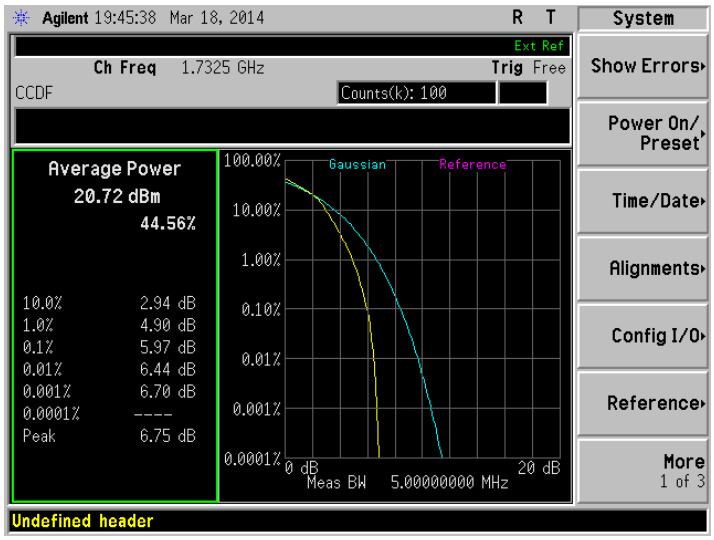
20MHz/16QAM



Middle channel:

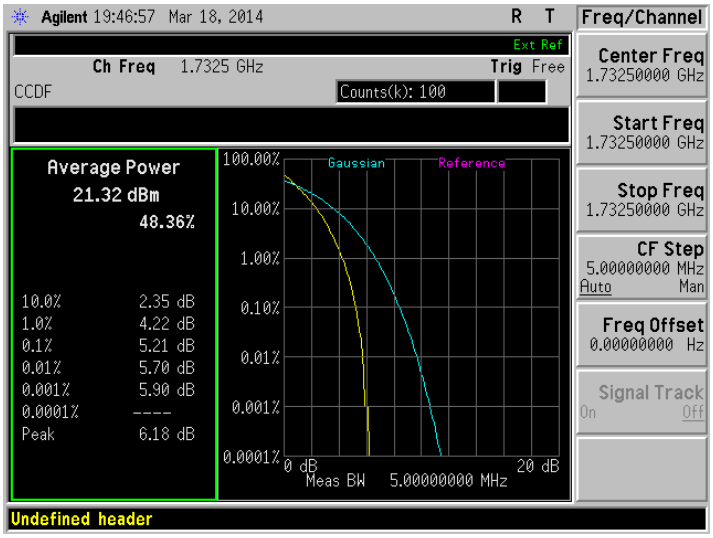
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.01	5.79	20175	1732.5	5.13	5.97
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM		QPSK	QPSK	16QAM
20175	1732.5	5.21	6.04	20175	1732.5	4.67	6.12
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM		QPSK	QPSK	16QAM
20175	1732.5	5.84	6.88	20175	1732.5	6.56	7.38

Spectrum Plot of Worst Value	
1.4MHz/QPSK	1.4MHz/16QAM
	

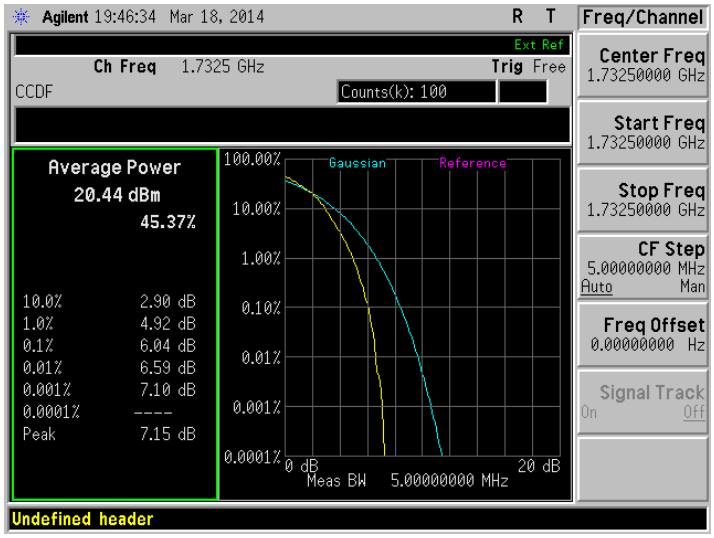
Spectrum Plot of Worst Value	
3MHz/QPSK	3MHz/16QAM
	

Spectrum Plot of Worst Value

5MHz/QPSK

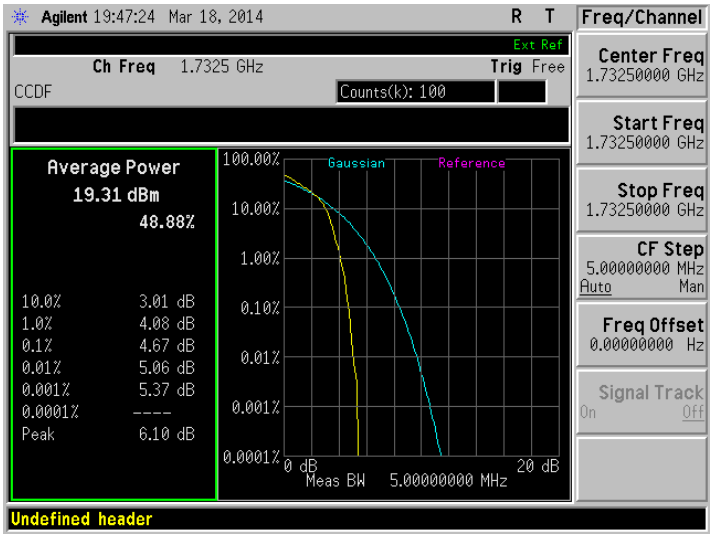


5MHz/16QAM

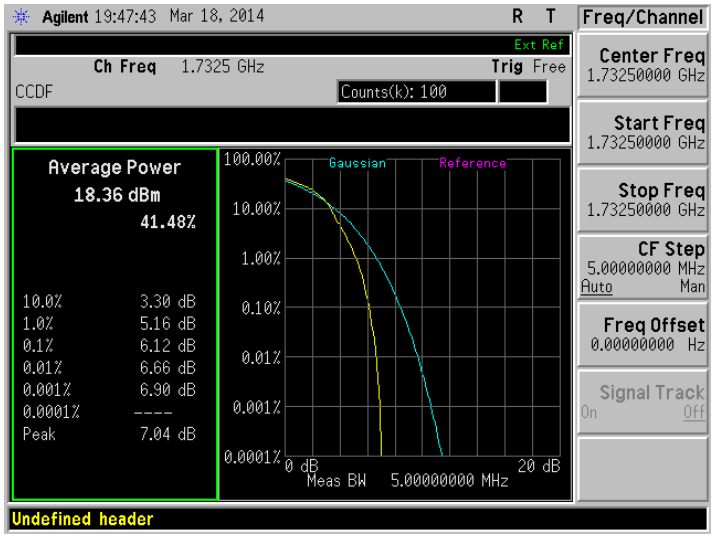


Spectrum Plot of Worst Value

10MHz/QPSK

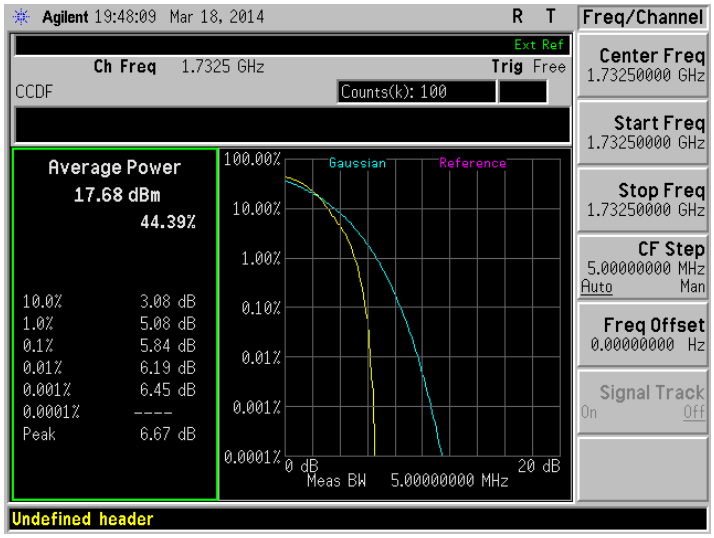


10MHz/16QAM

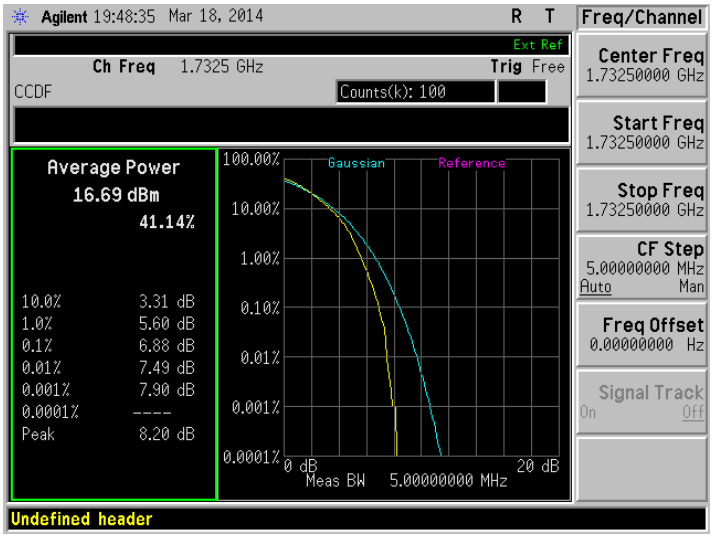


Spectrum Plot of Worst Value

15MHz/QPSK

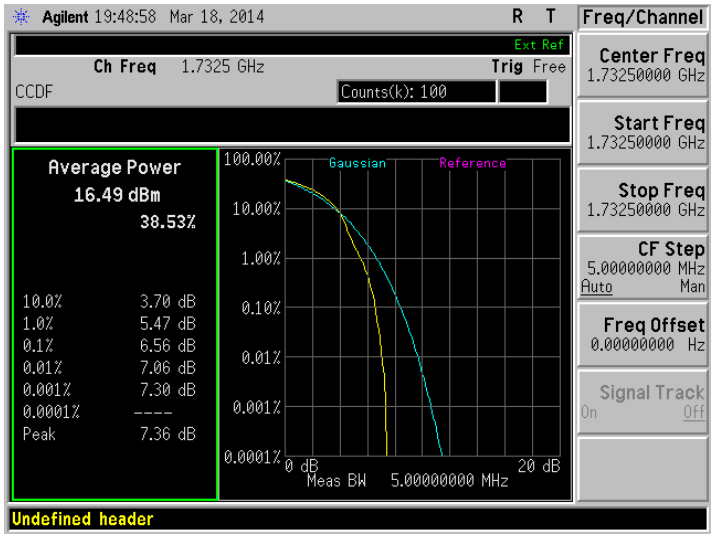


15MHz/16QAM

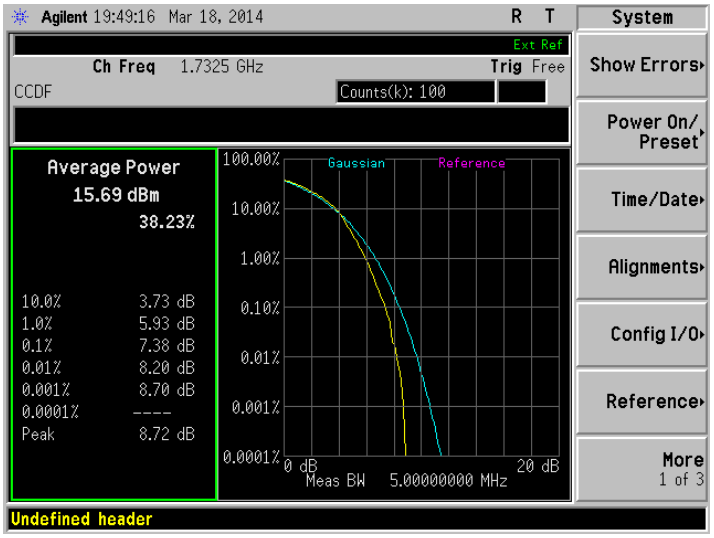


Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM

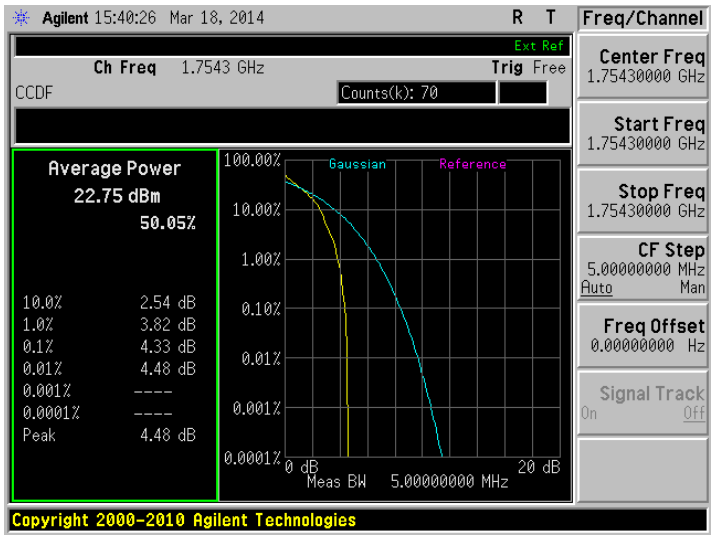


High channel:

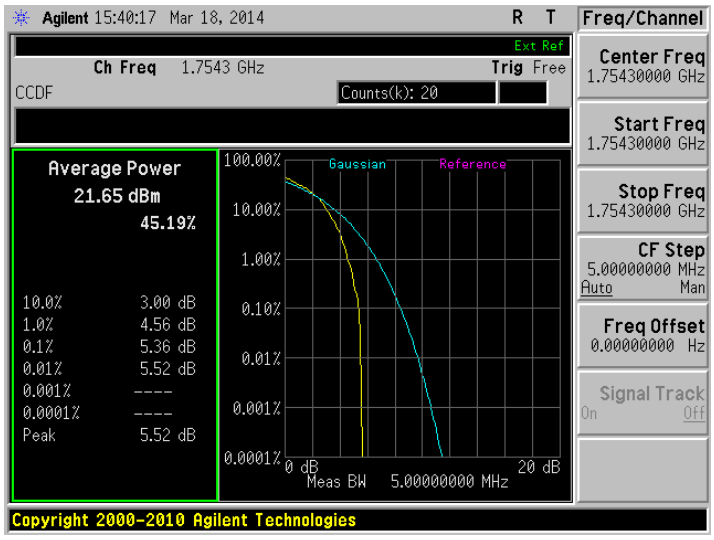
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20392	1754.2	4.33	5.36	20384	1753.4	4.90	5.82
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM		QPSK	QPSK	16QAM
20375	1752.5	5.09	5.80	20350	1750.0	4.58	6.03
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM		QPSK	QPSK	16QAM
20325	1747.5	5.83	6.72	20300	1745.0	6.59	7.14

Spectrum Plot of Worst Value

1.4MHz/QPSK

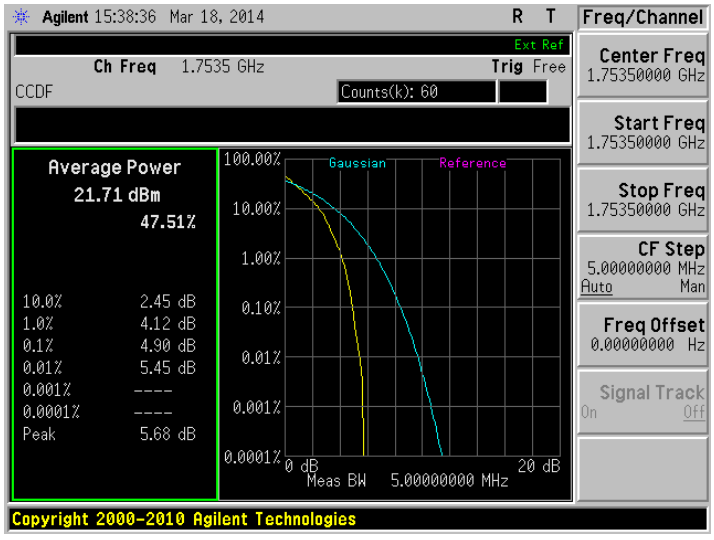


1.4MHz/16QAM

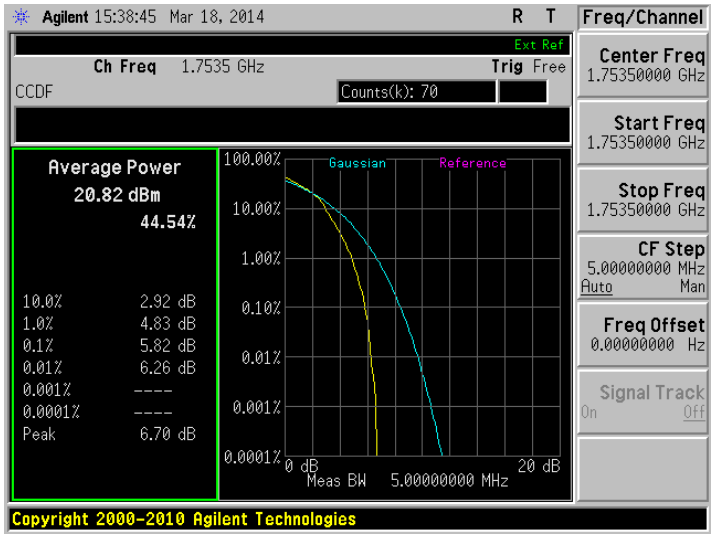


Spectrum Plot of Worst Value

3MHz/QPSK

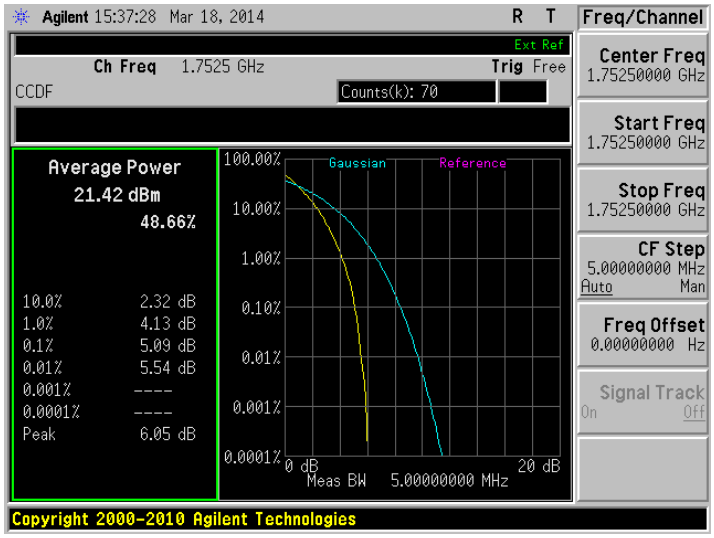


3MHz/16QAM

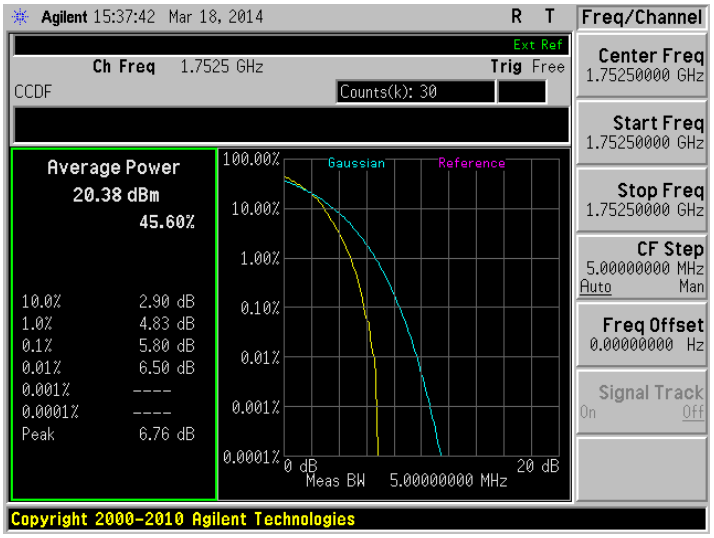


Spectrum Plot of Worst Value

5MHz/QPSK

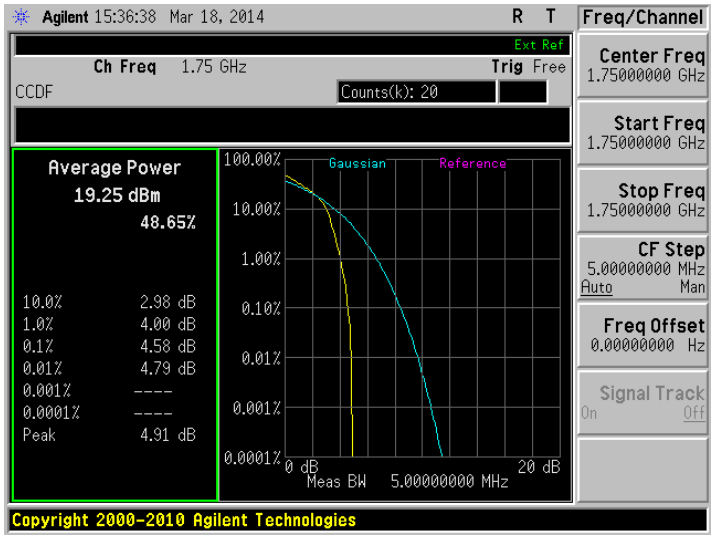


5MHz/16QAM

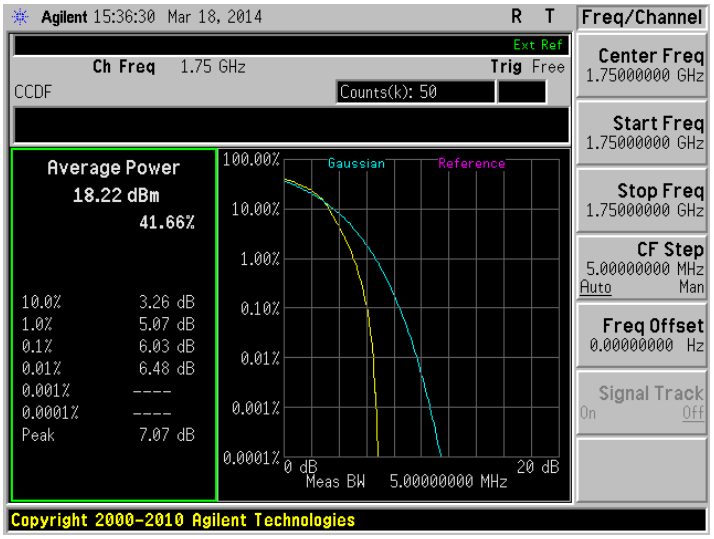


Spectrum Plot of Worst Value

10MHz/QPSK

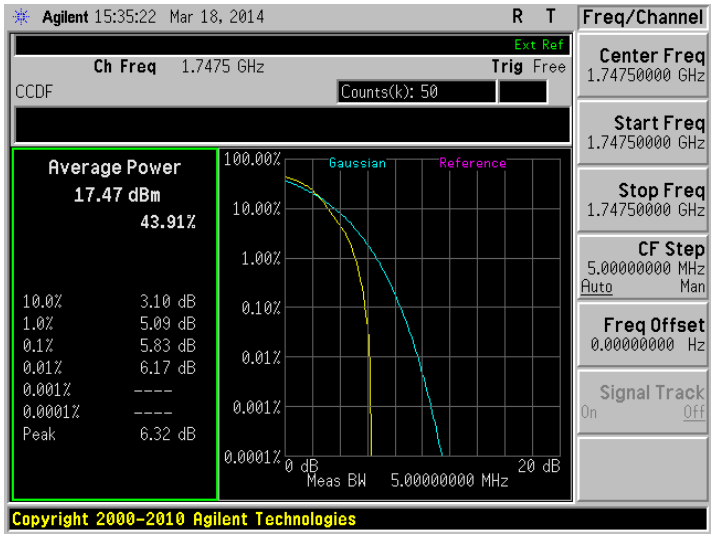


10MHz/16QAM

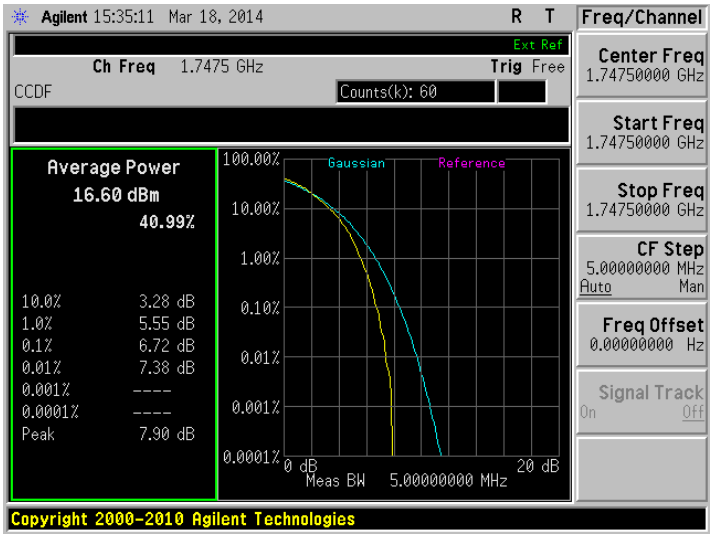


Spectrum Plot of Worst Value

15MHz/QPSK

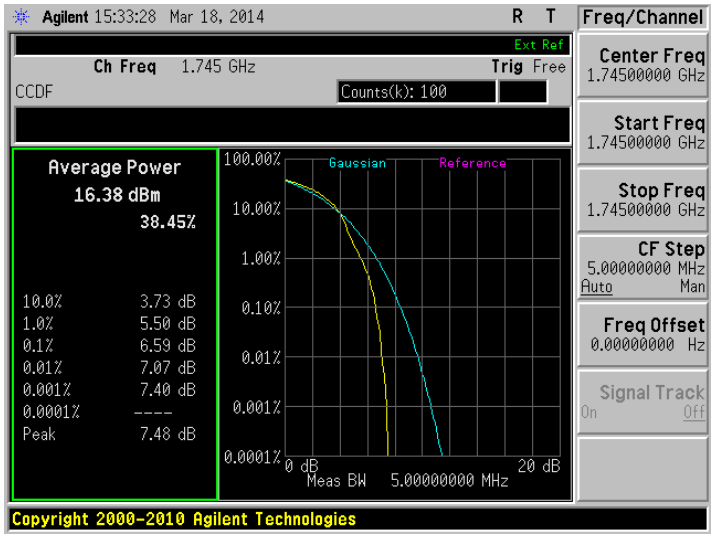


15MHz/16QAM

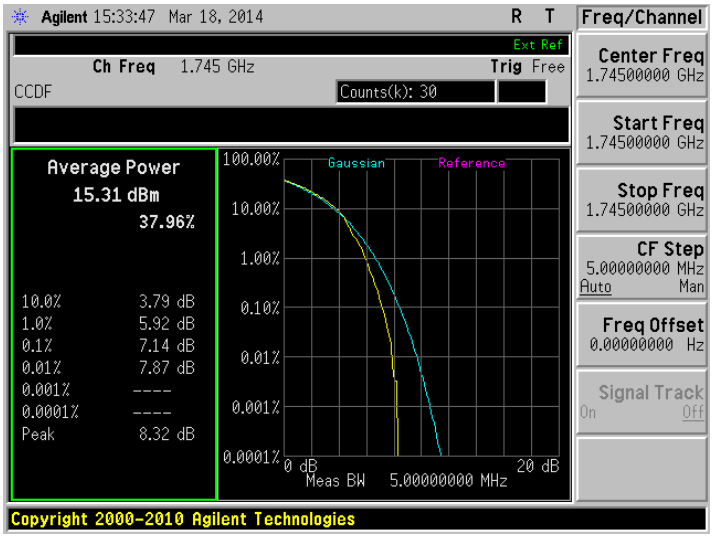


Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM



2.5 Conducted Spurious Emissions

2.5.1 Test Requirement

According to FCC section 2.1051 and 27.53(g), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

2.5.2 Test Procedure

See section 2.1.2 of this report.

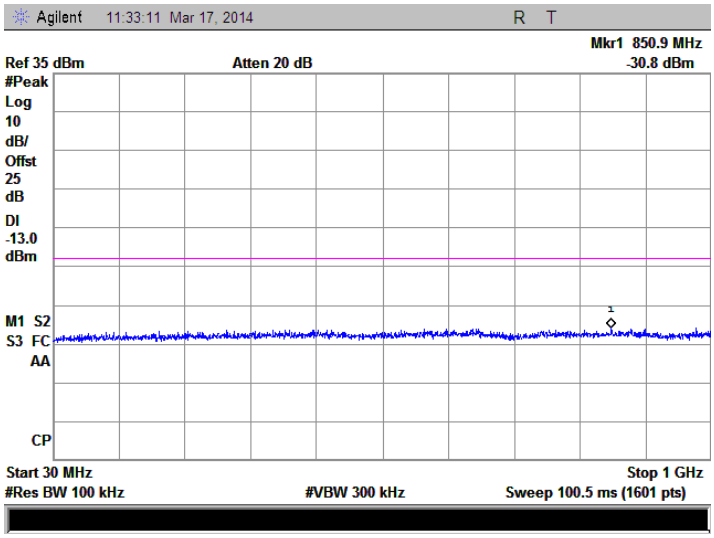
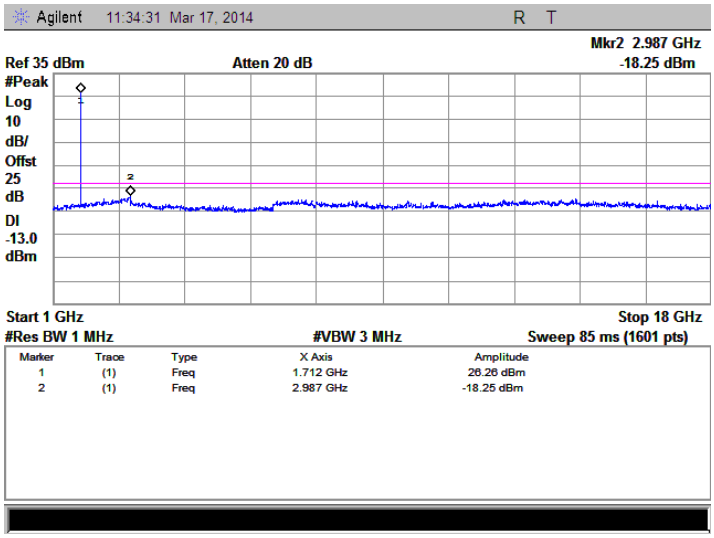
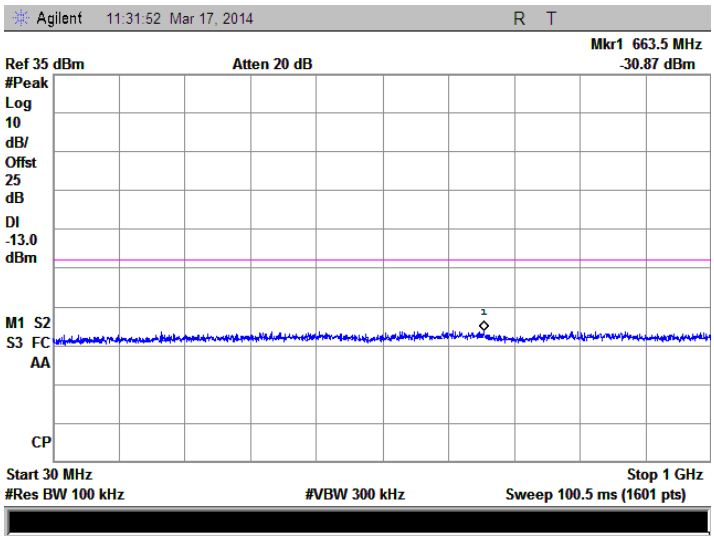
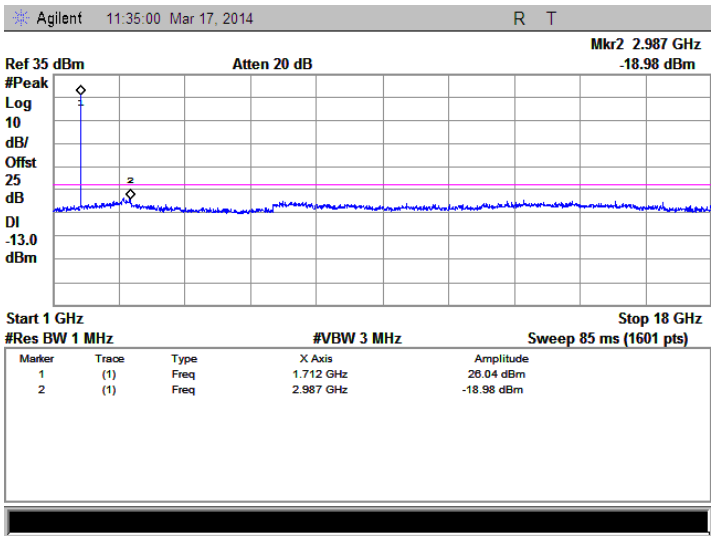
Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

2.5.3 Test Result

Compliant. See attached pots.

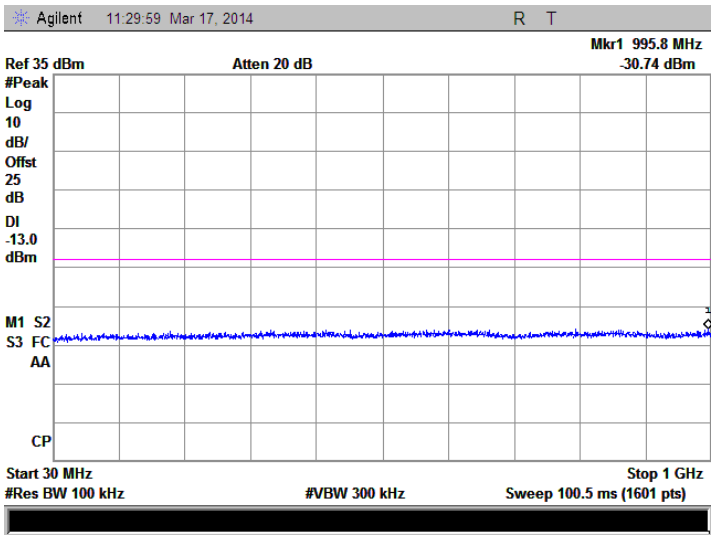
LTE Band 4

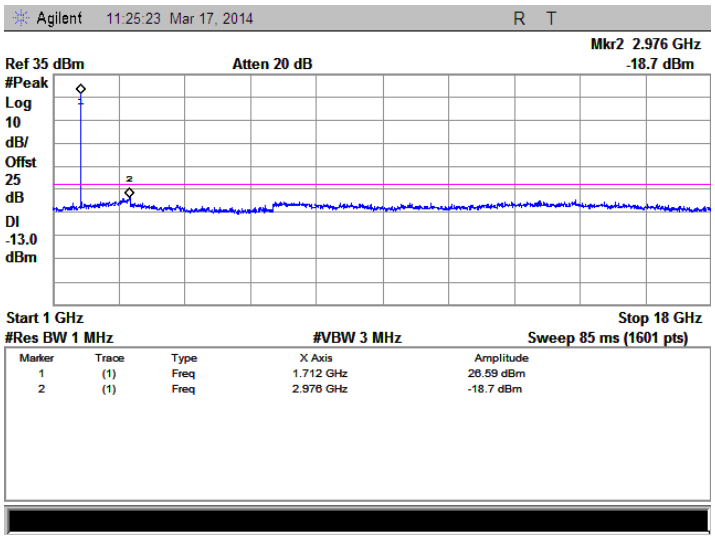
Low channel:

LTE Band 4 1.4MHz BW, Low Channel	
QPSK	
	
16QAM	
	

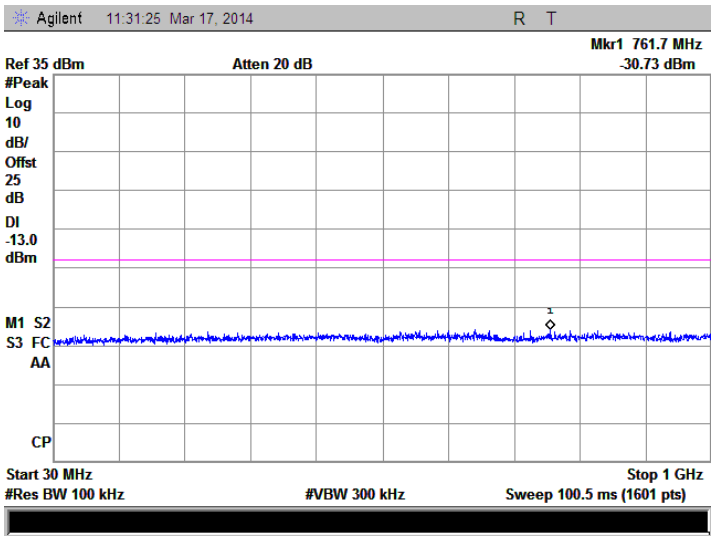
LTE Band 4 3MHz BW, Low Channel

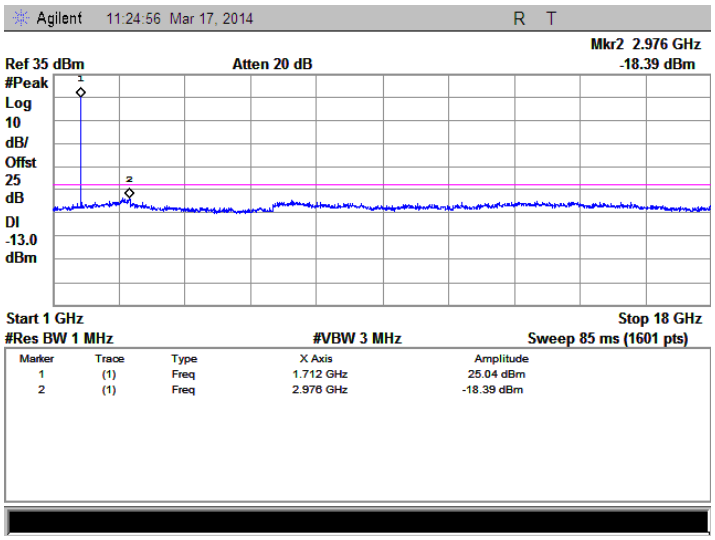
QPSK





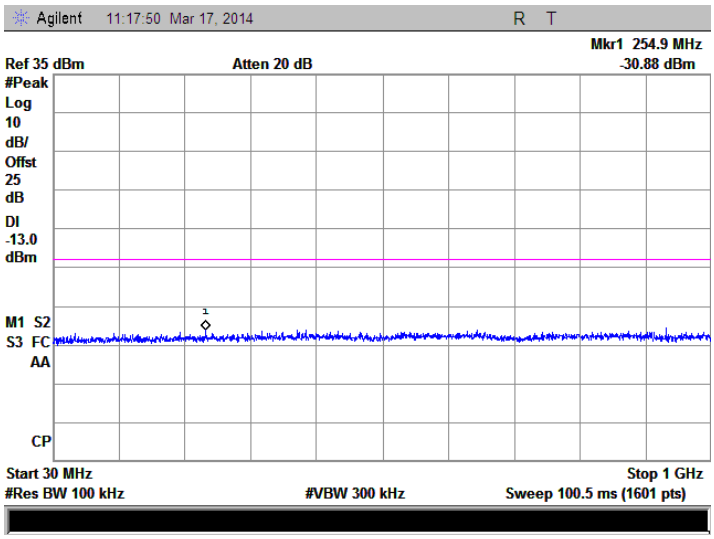
16QAM

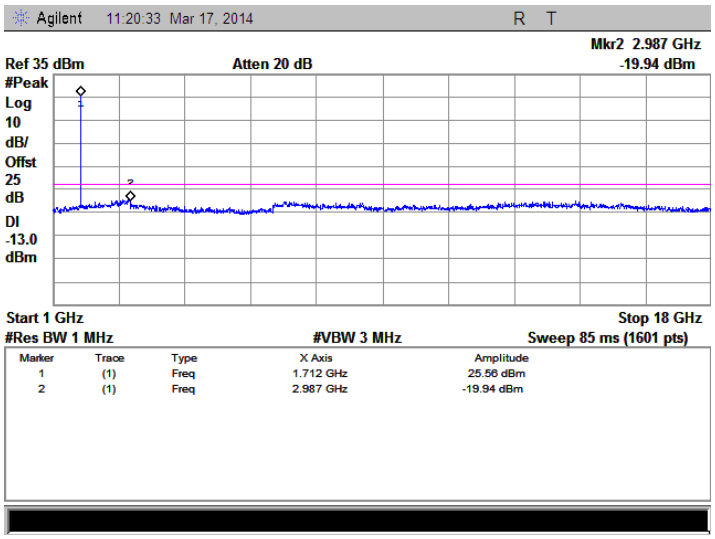




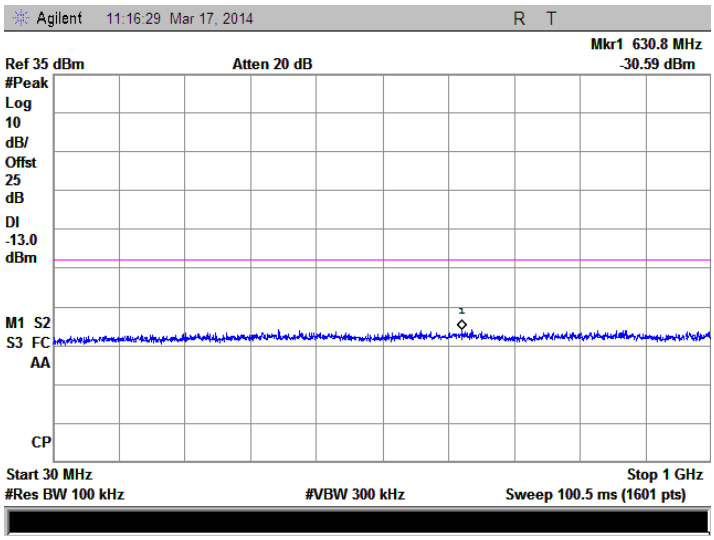
LTE Band 4 5MHz BW, Low Channel

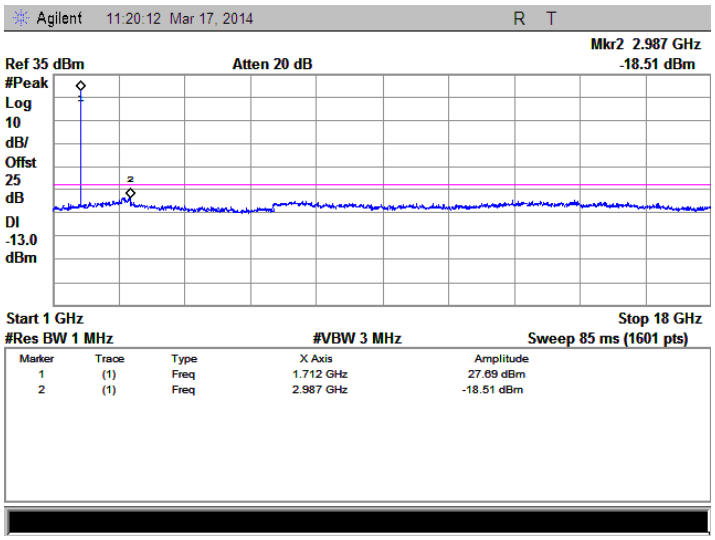
QPSK





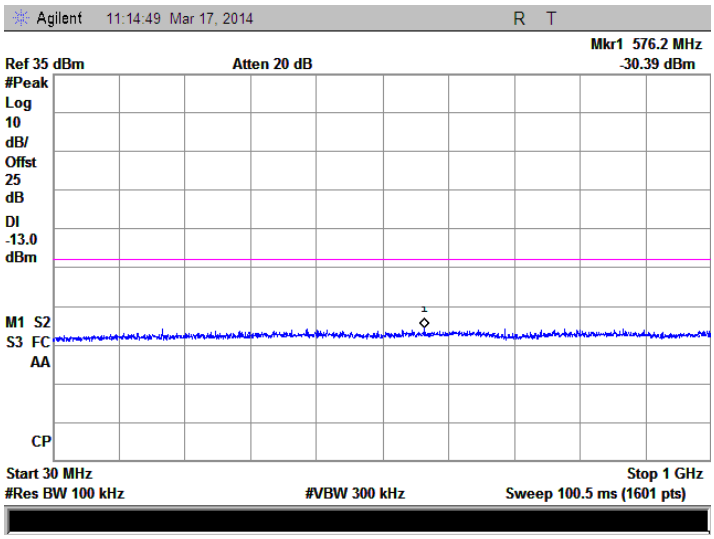
16QAM

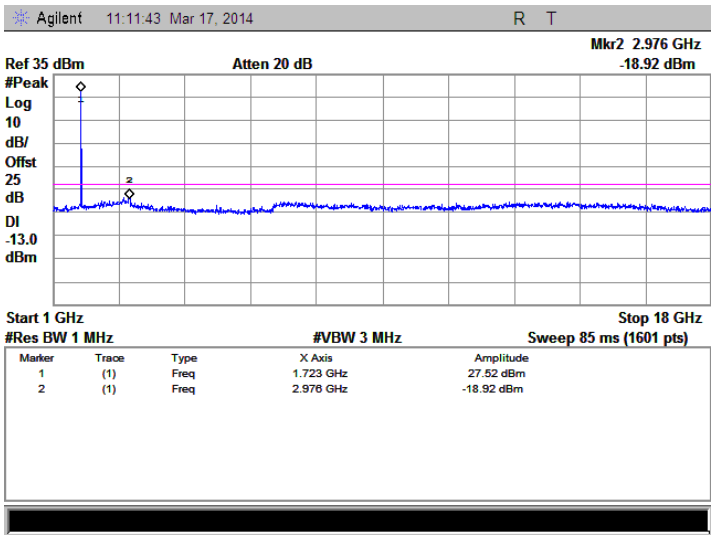




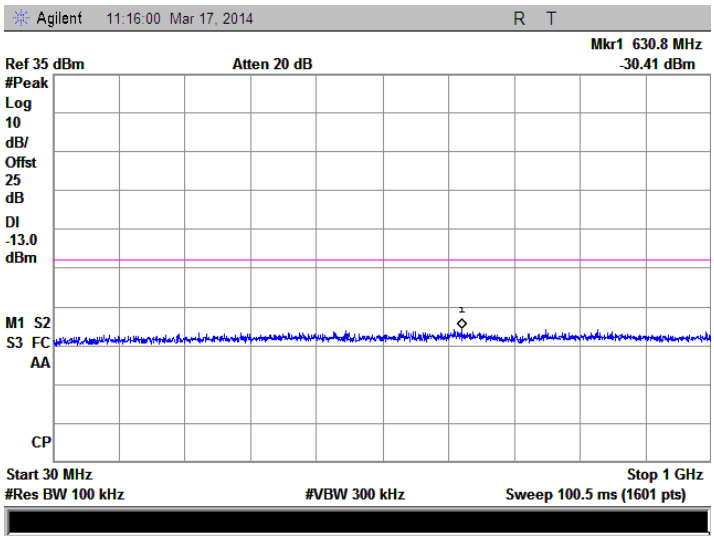
LTE Band 4 10MHz BW, Low Channel

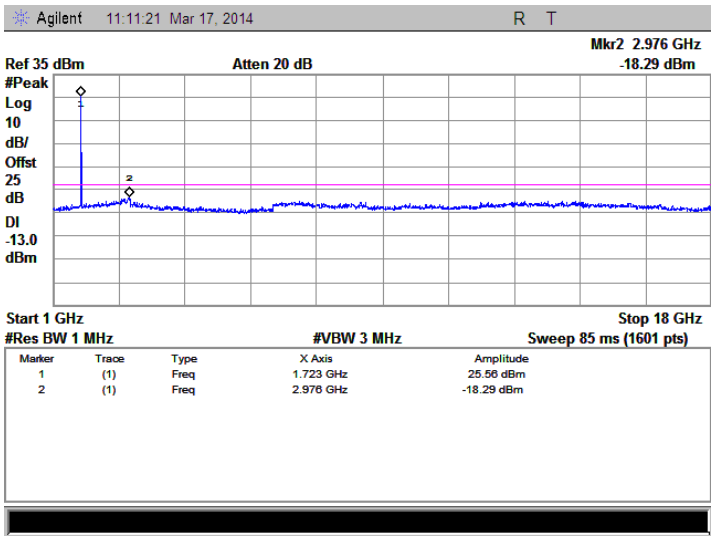
QPSK





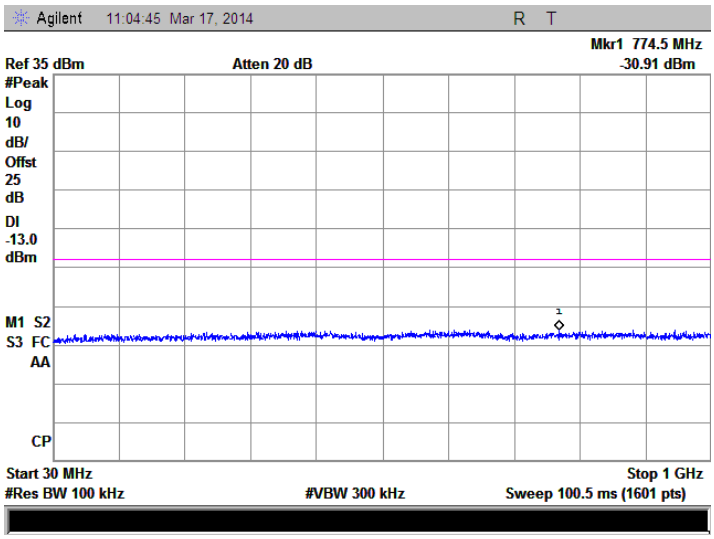
16QAM

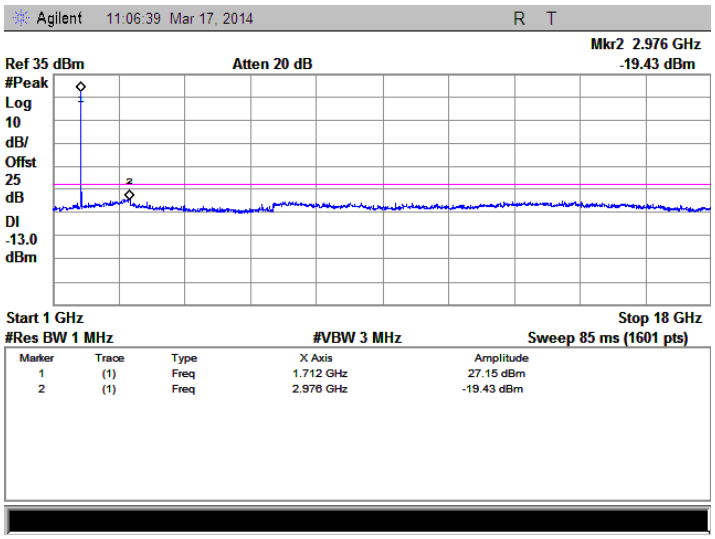




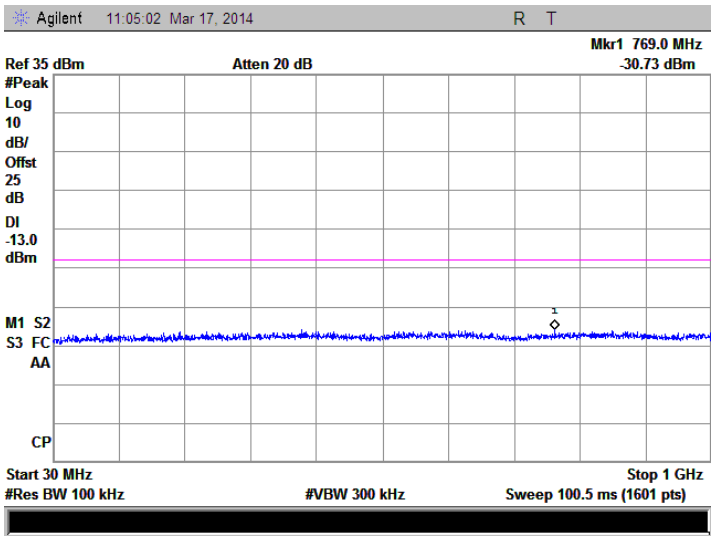
LTE Band 4 15MHz BW, Low Channel

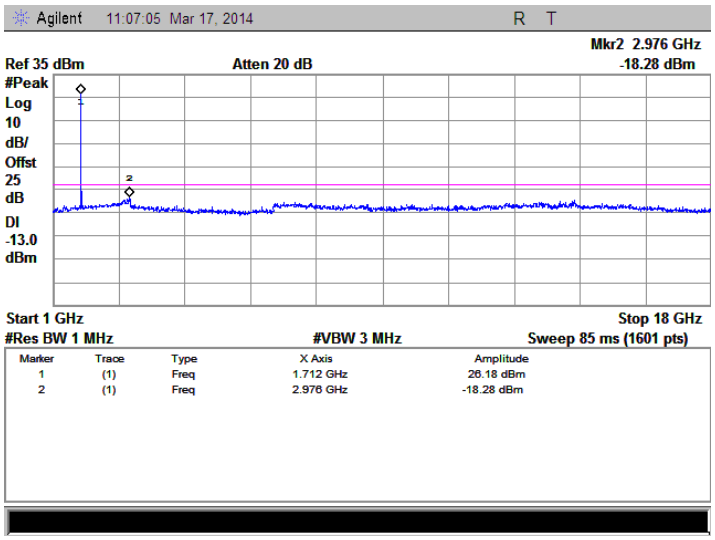
QPSK





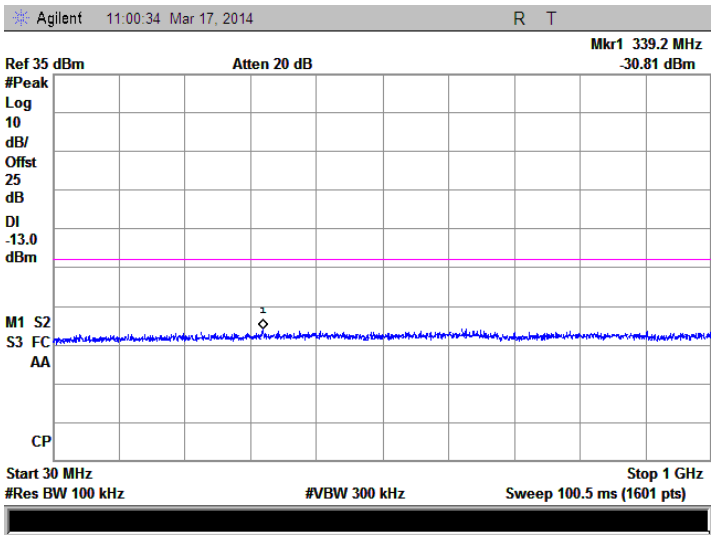
16QAM

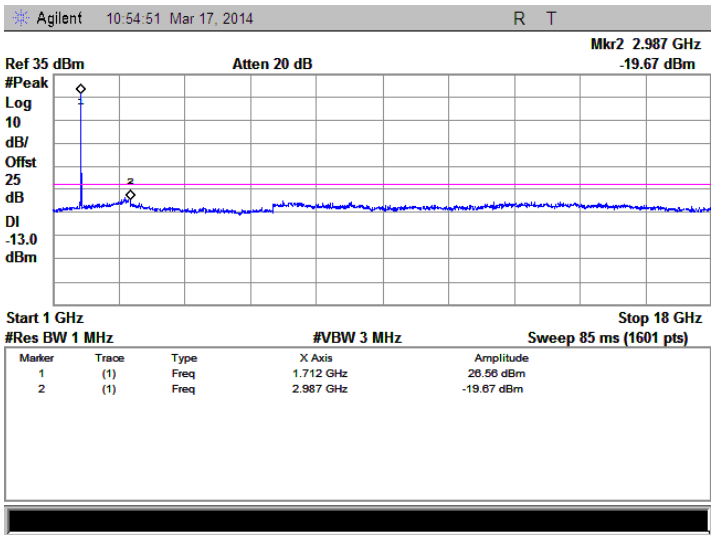




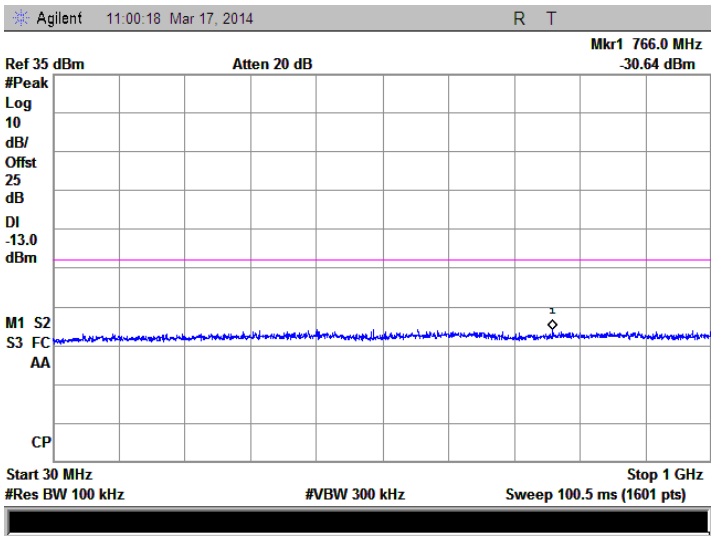
LTE Band 4 20MHz BW, Low Channel

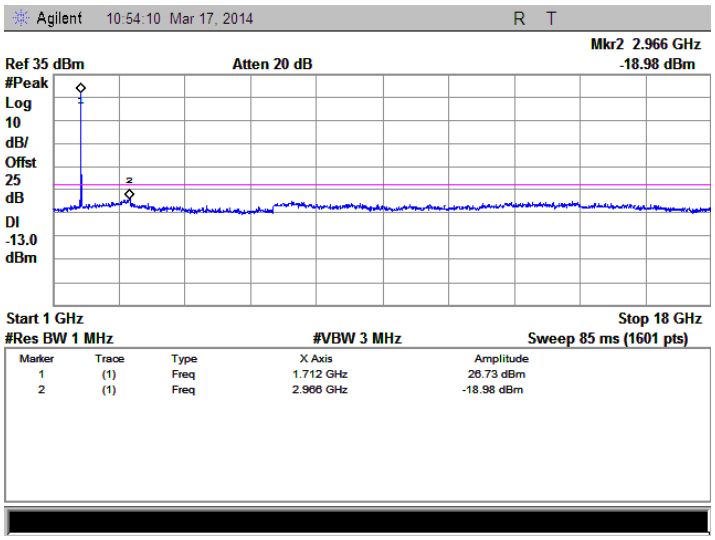
QPSK



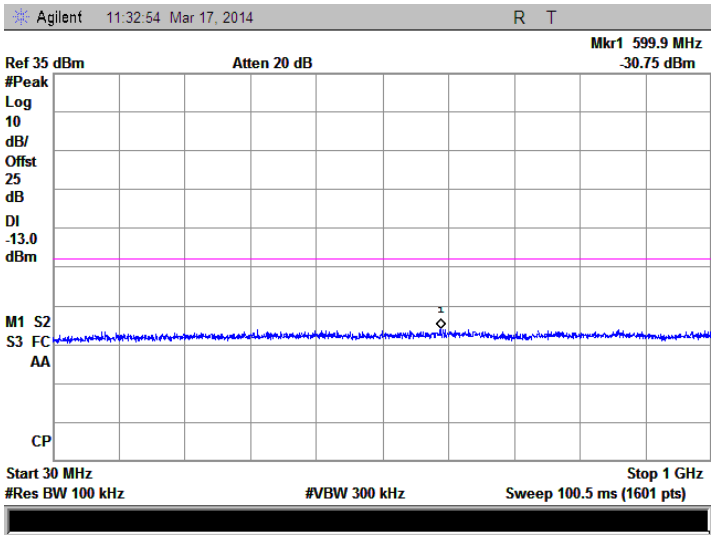
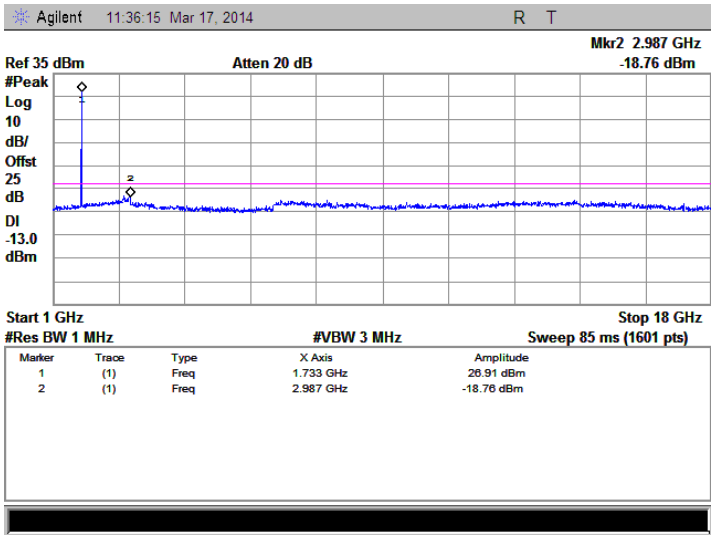
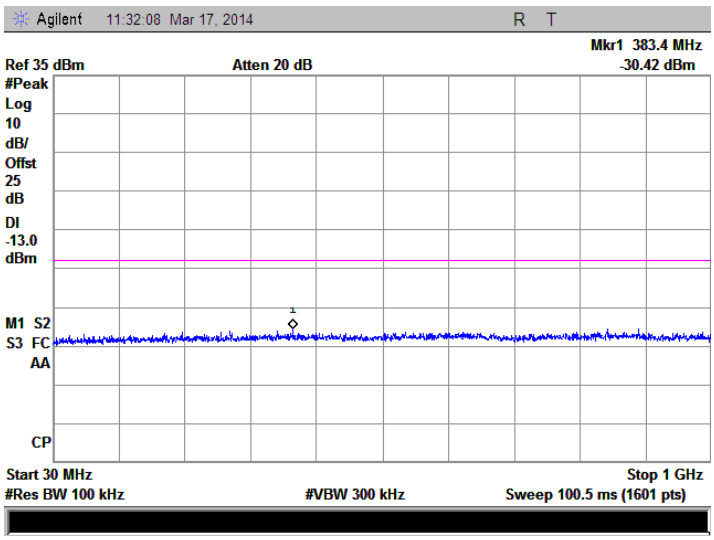
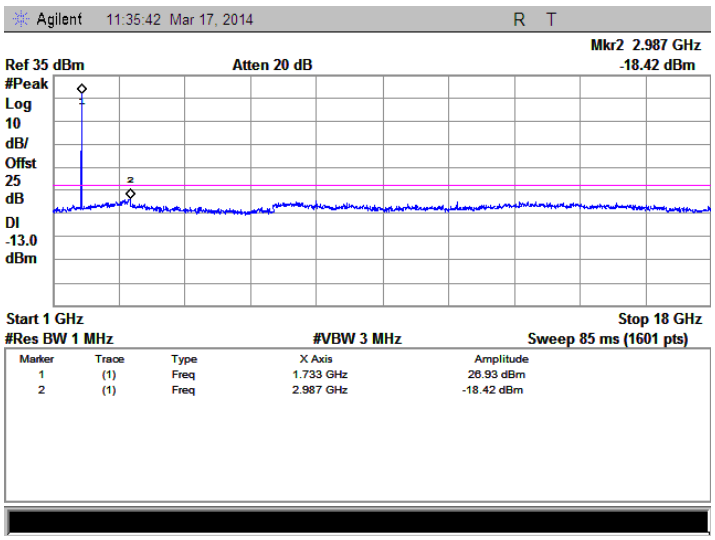


16QAM



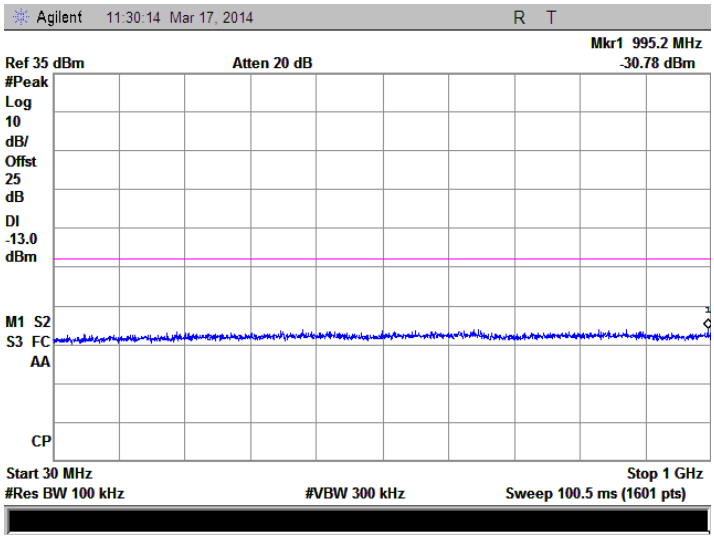


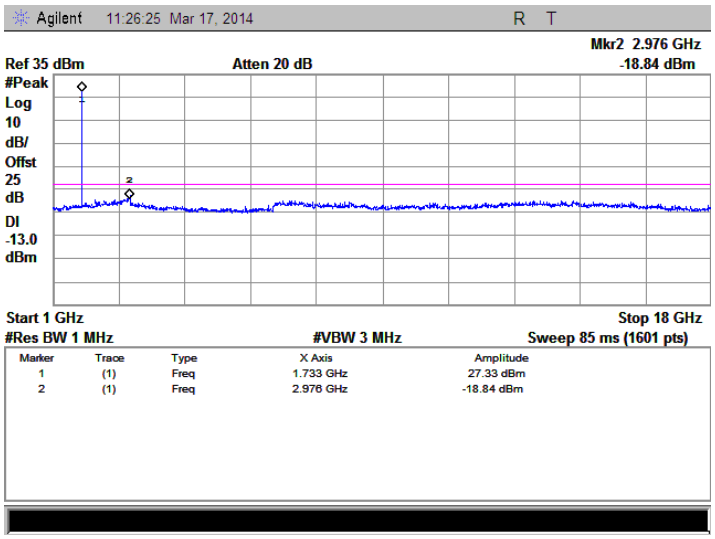
Middle channel:

LTE Band 4 1.4MHz BW, Mid Channel	
QPSK	
	
16QAM	
	

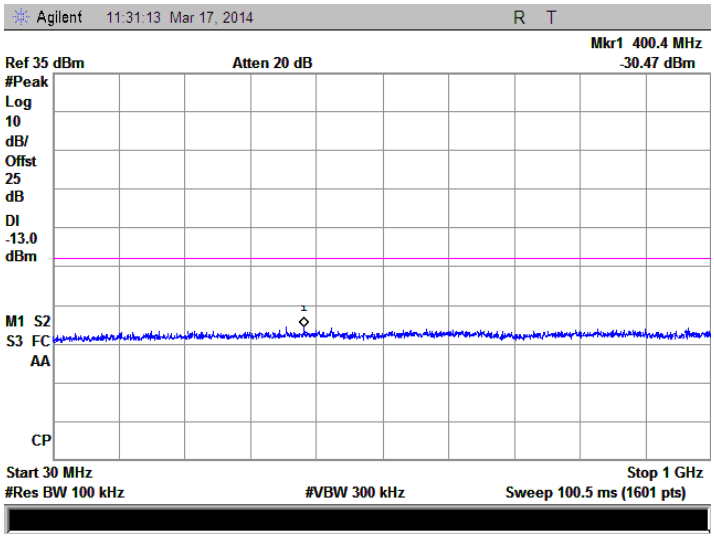
LTE Band 4 3MHz BW, Mid Channel

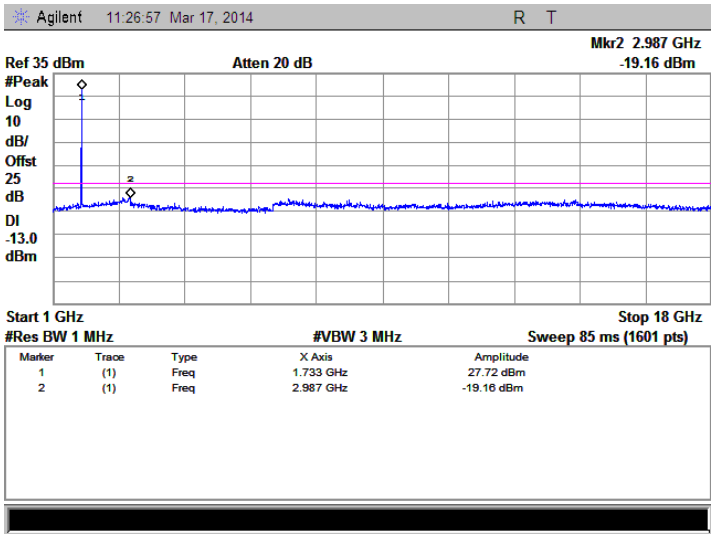
QPSK





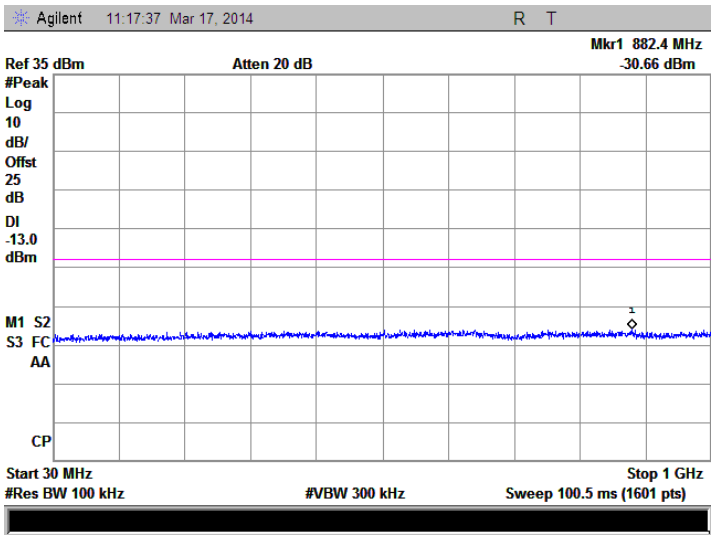
16QAM

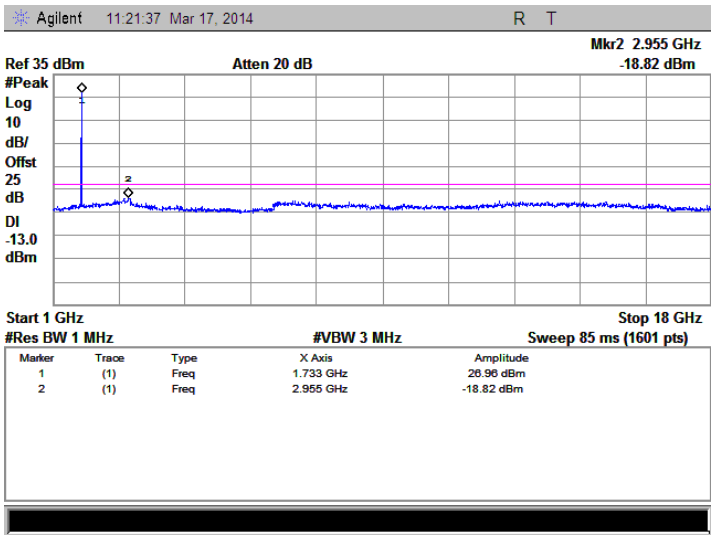




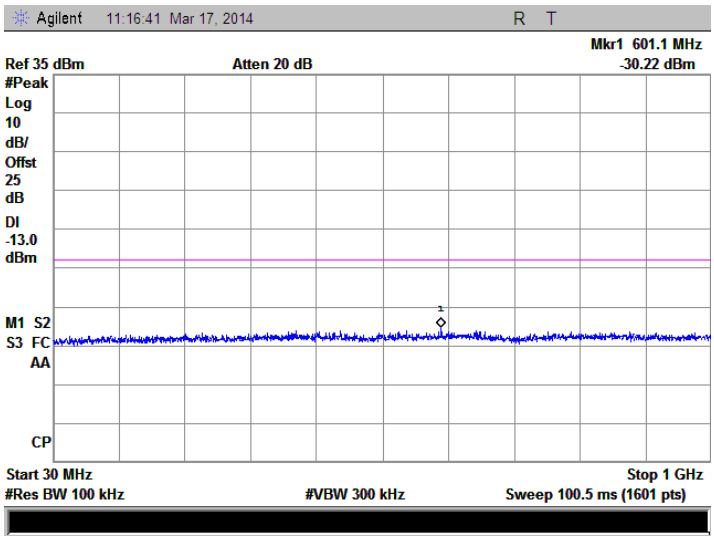
LTE Band 4 5MHz BW, Mid Channel

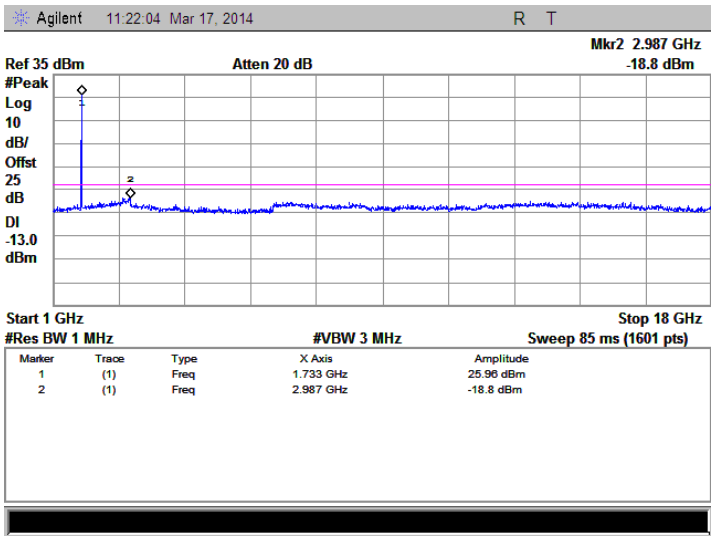
QPSK





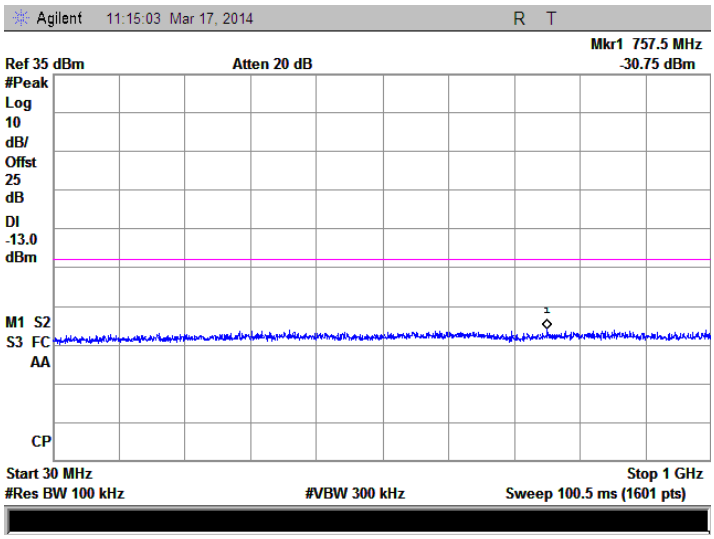
16QAM

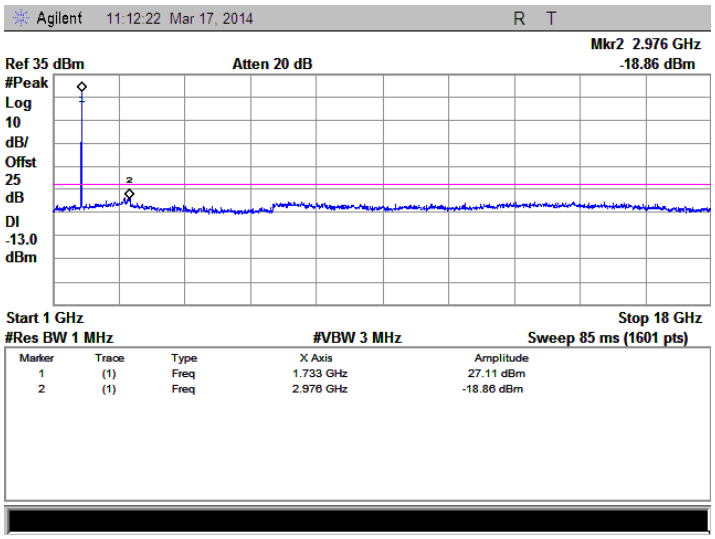




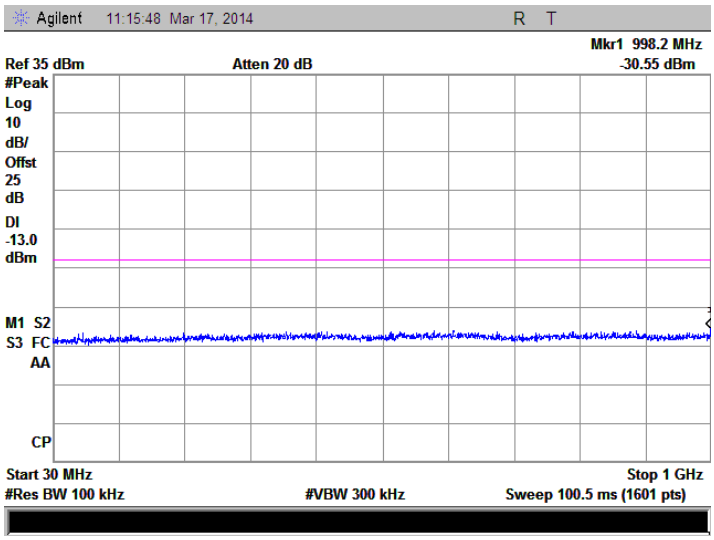
LTE Band 4 10MHz BW, Mid Channel

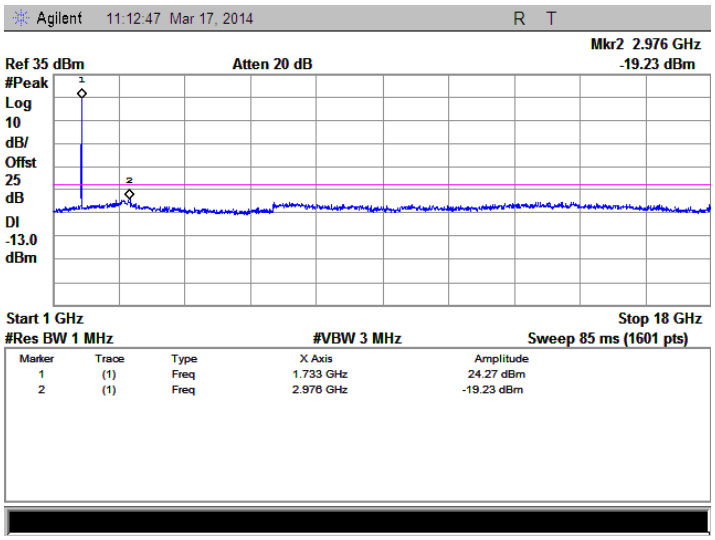
QPSK





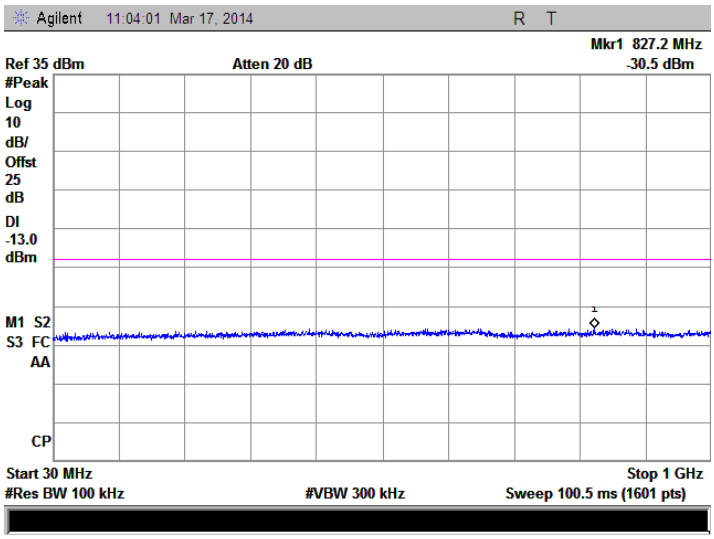
16QAM

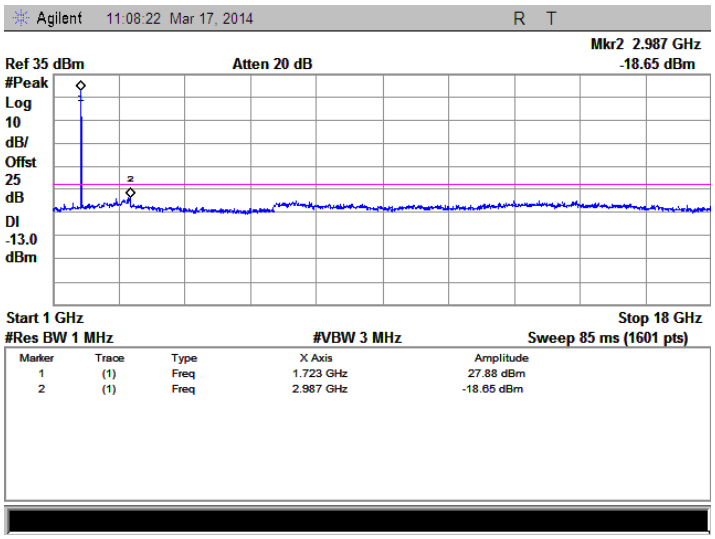




LTE Band 4 15MHz BW, Mid Channel

QPSK





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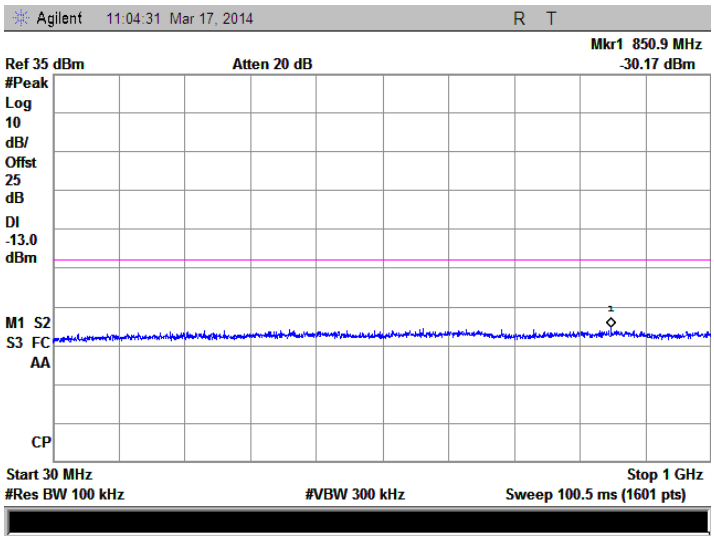
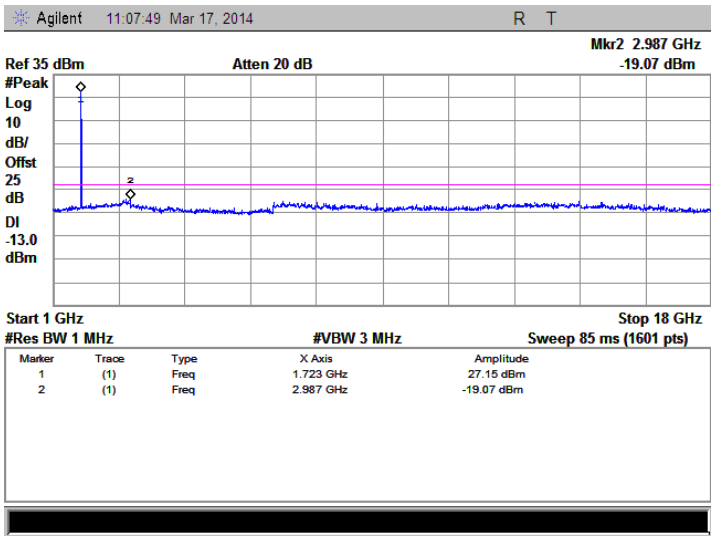
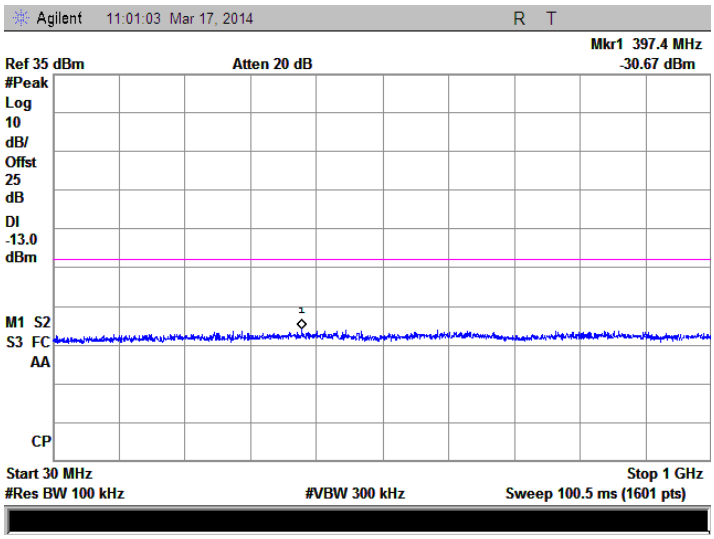
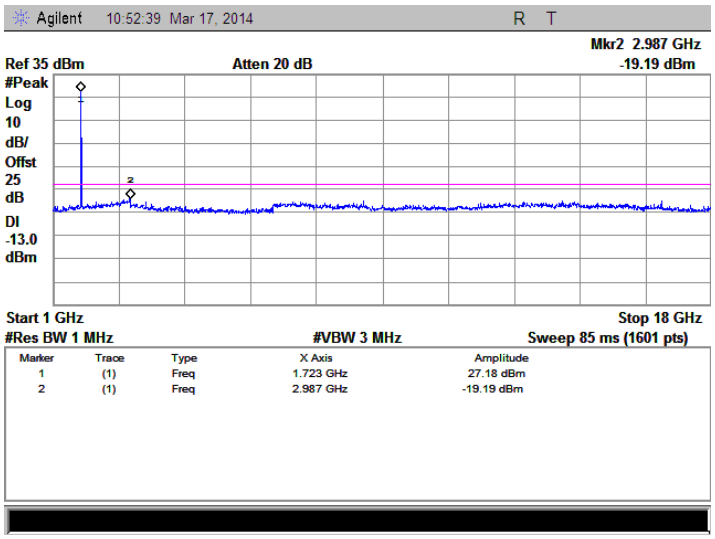




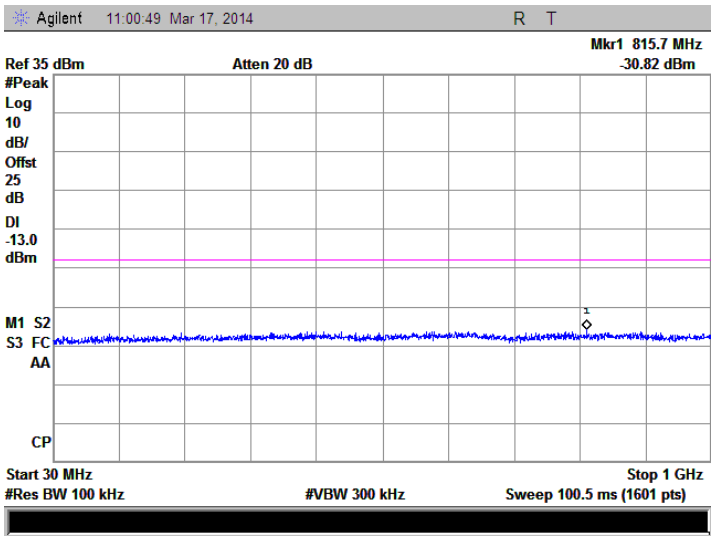
LTE Band 4 20MHz BW, Mid Channel

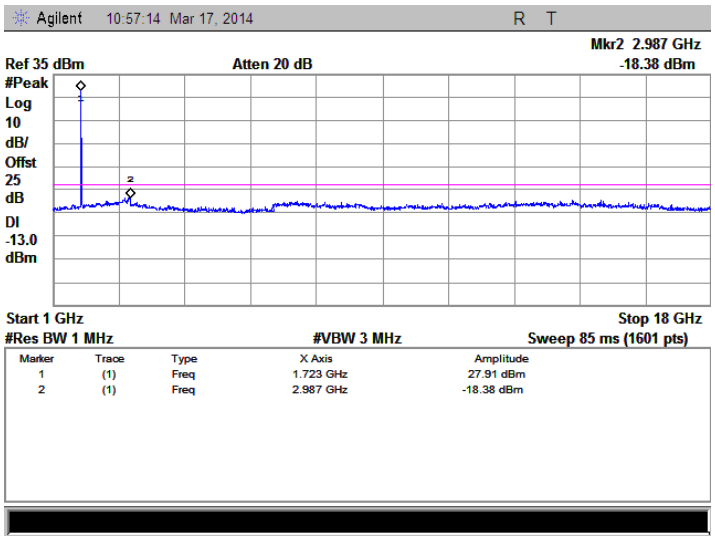
QPSK



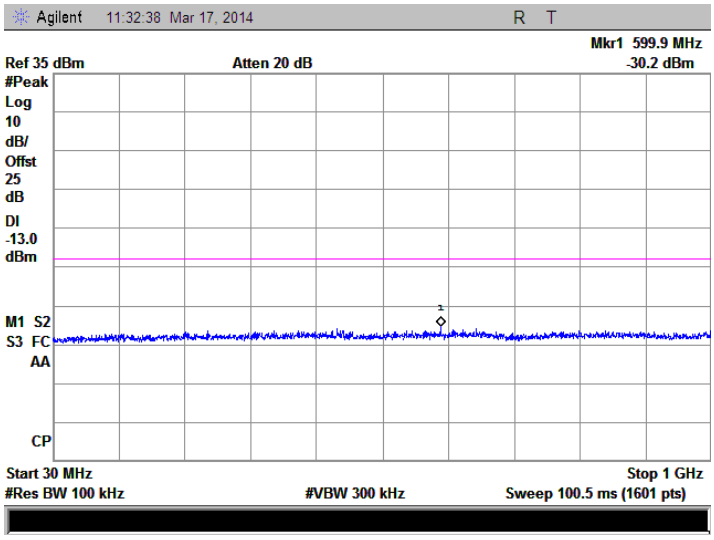
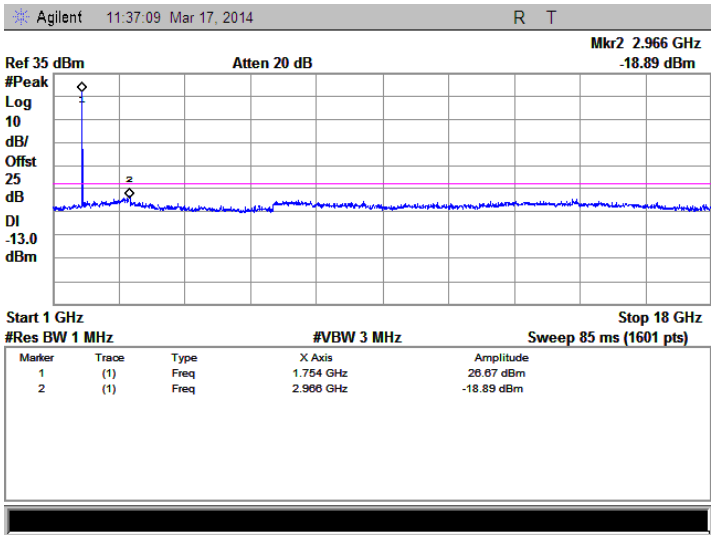
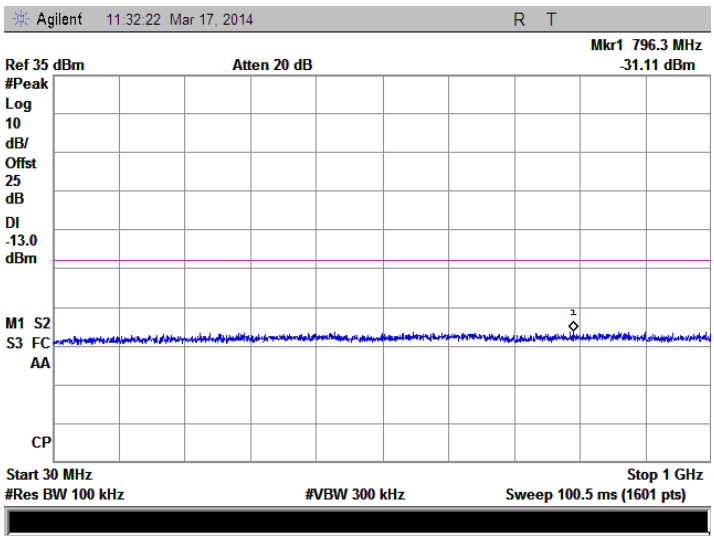
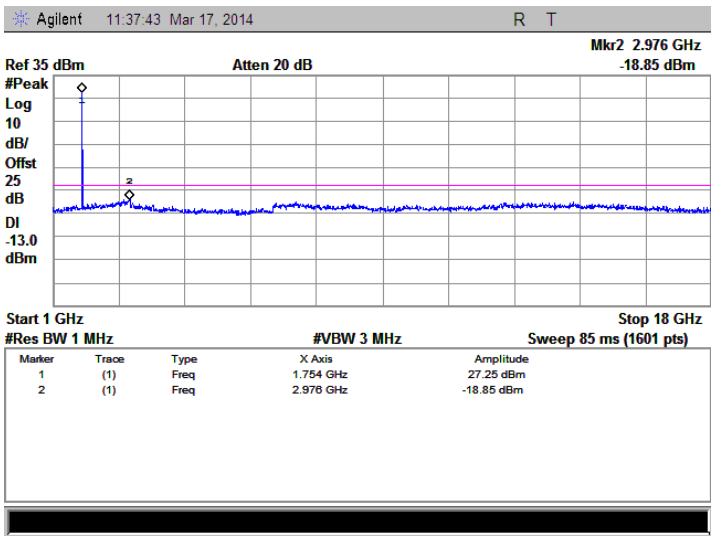


16QAM



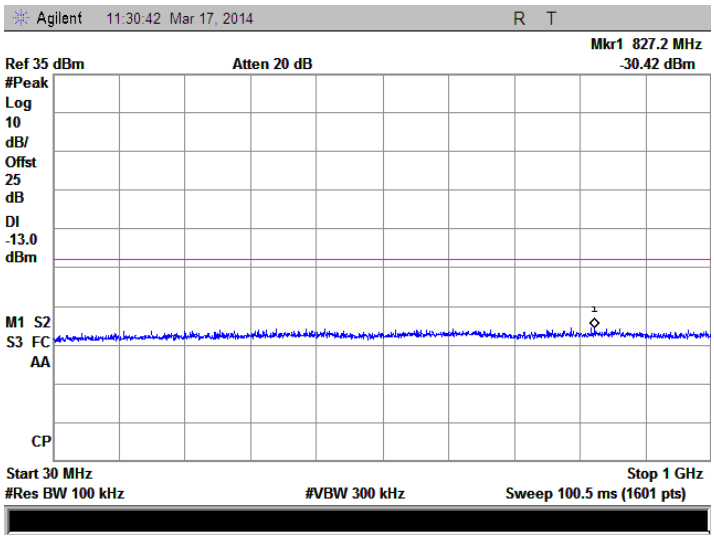


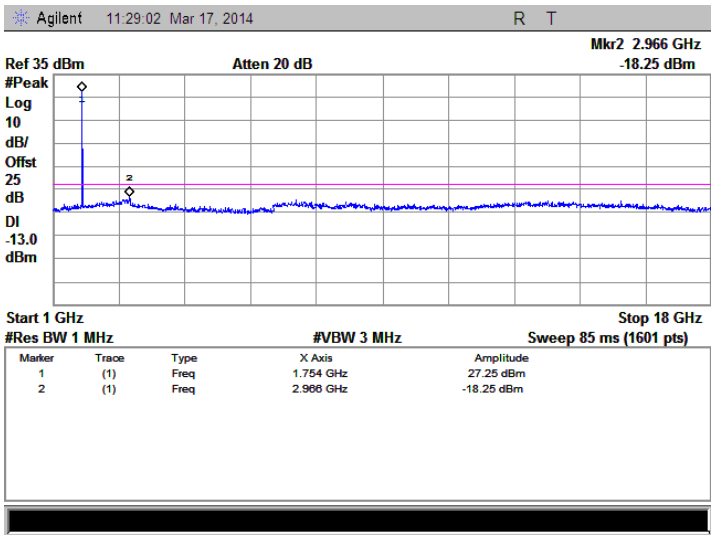
High channel:

LTE Band 4 1.4MHz BW, High Channel	
QPSK	
	
16QAM	
	

LTE Band 4 3MHz BW, High Channel

QPSK





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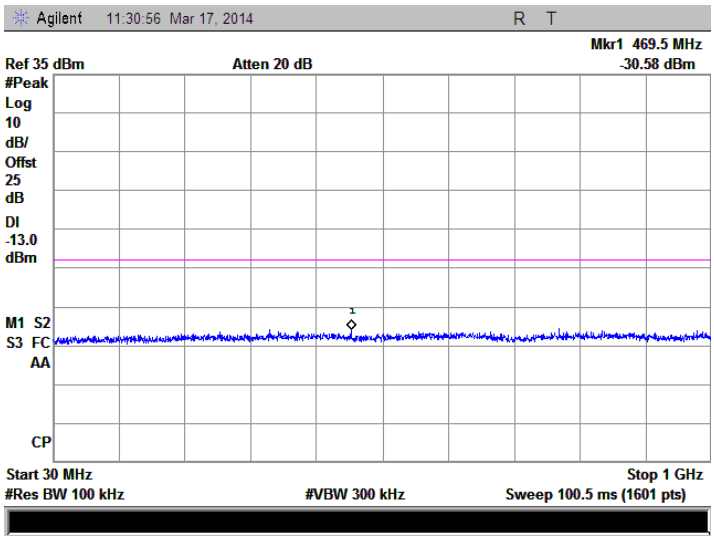
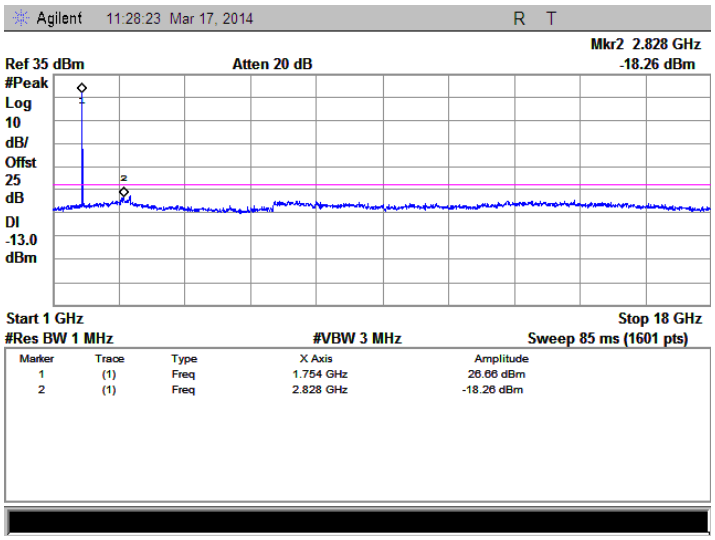
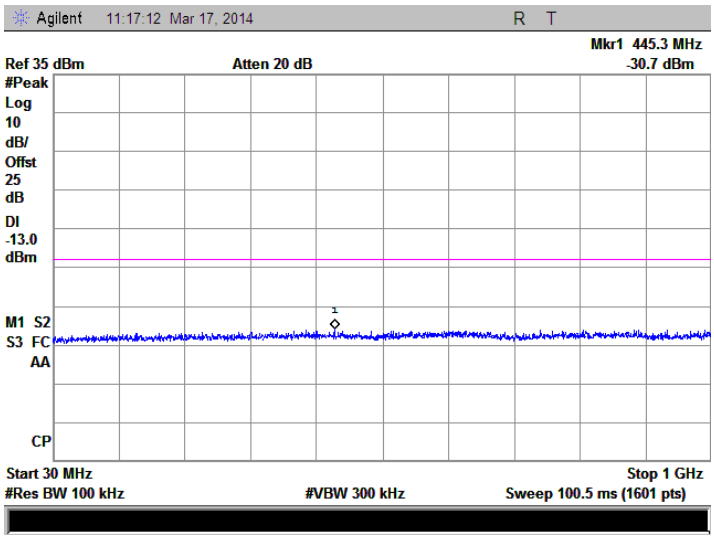
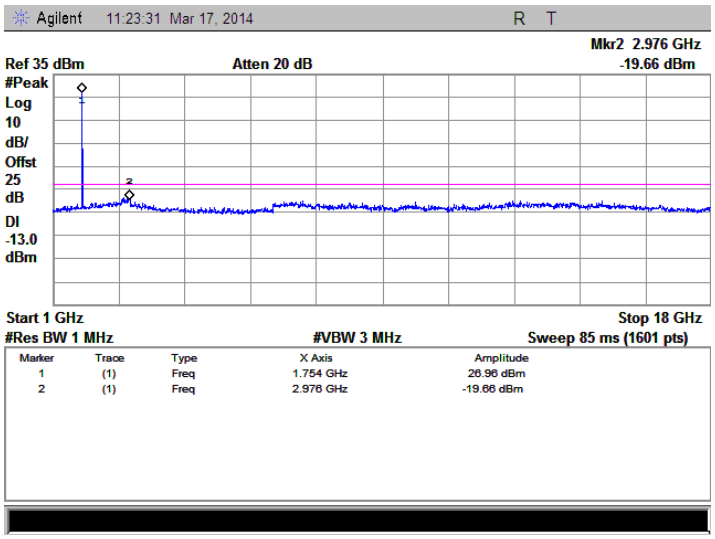




LTE Band 4 5MHz BW, High Channel

QPSK





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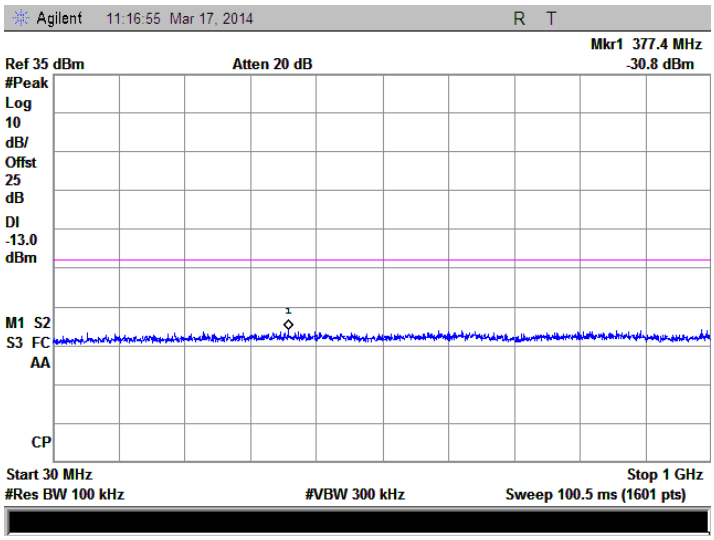
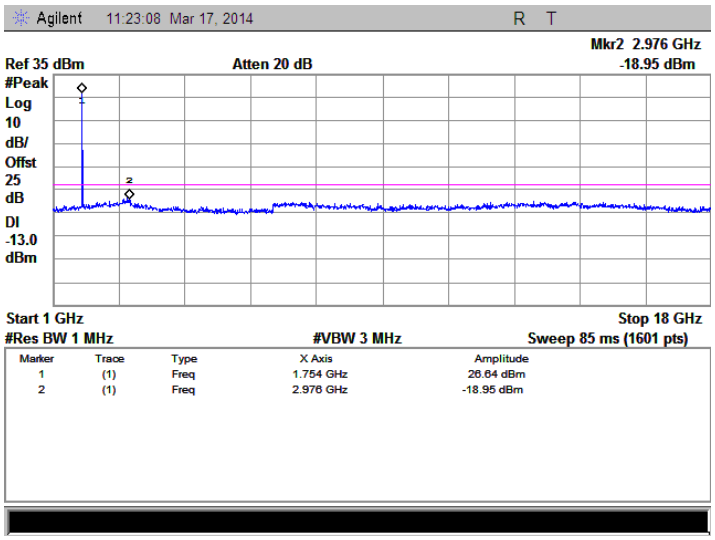
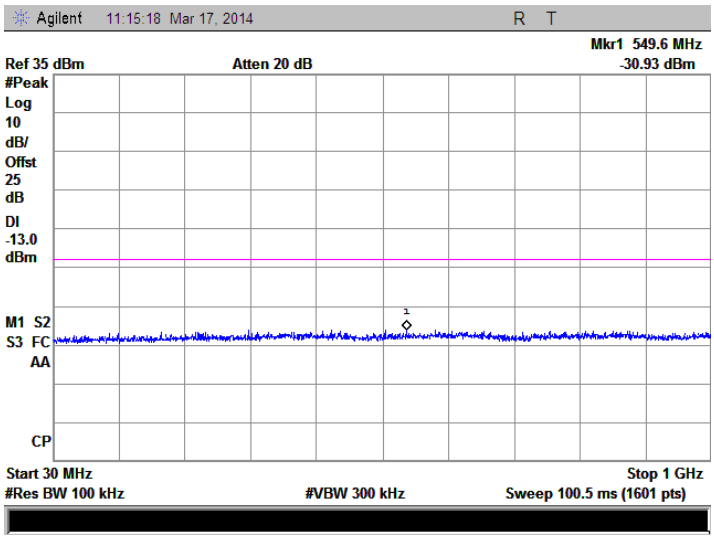
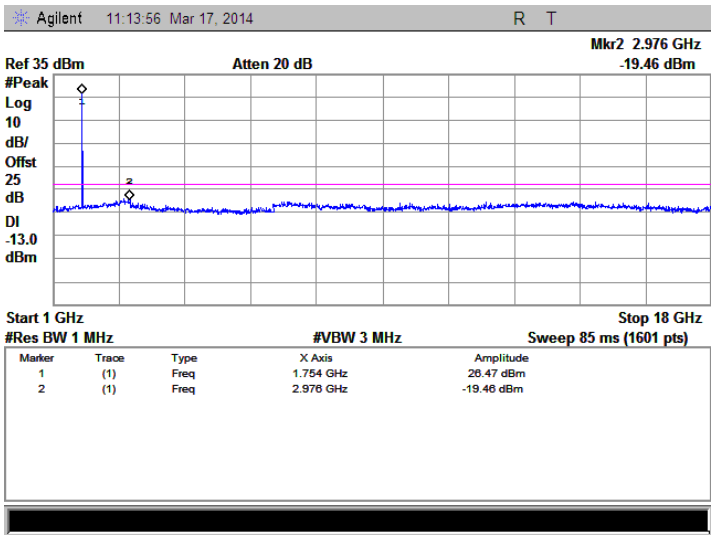




LTE Band 4 10MHz BW, High Channel

QPSK





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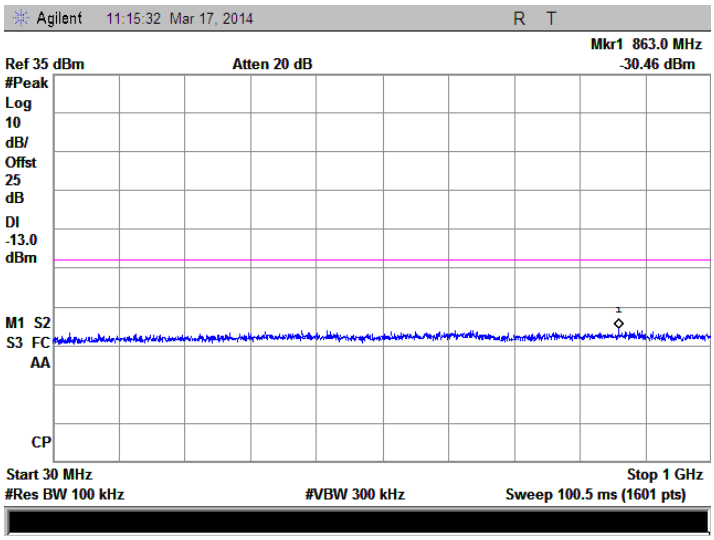
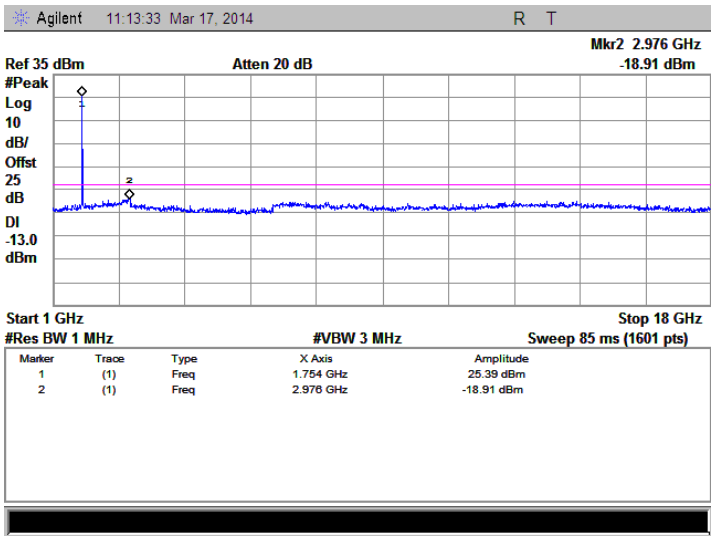
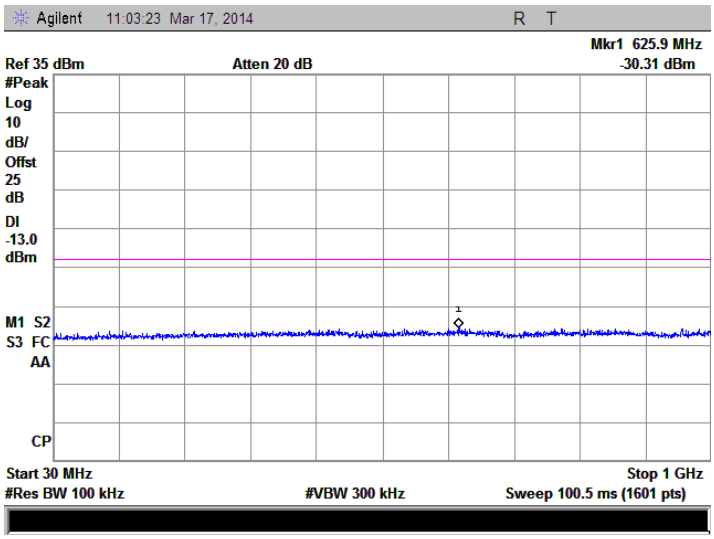
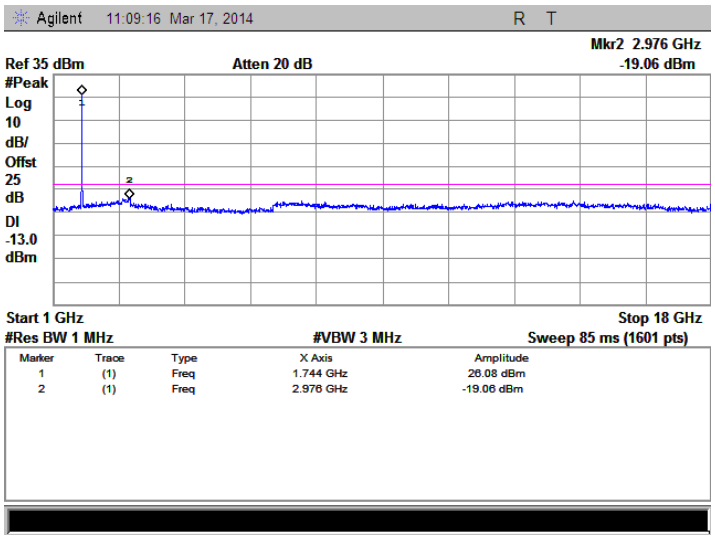




LTE Band 4 15MHz BW, High Channel

QPSK





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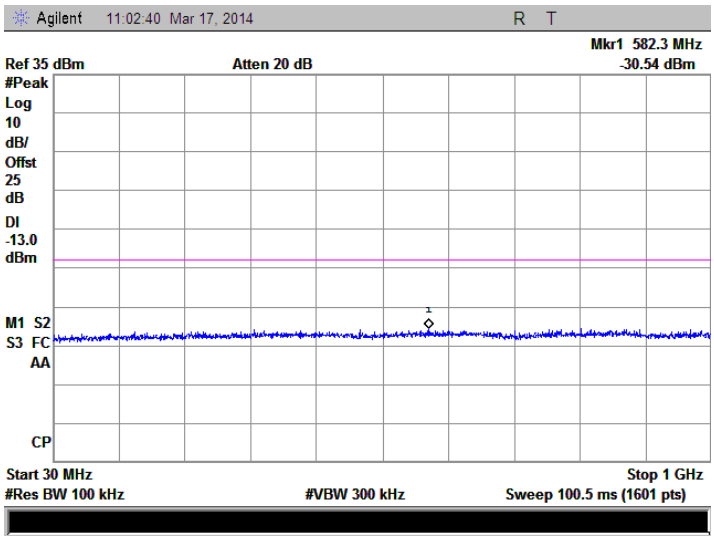
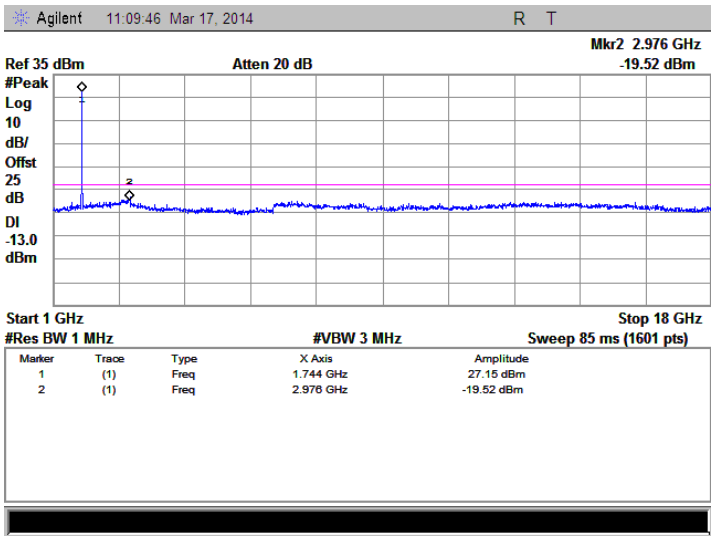
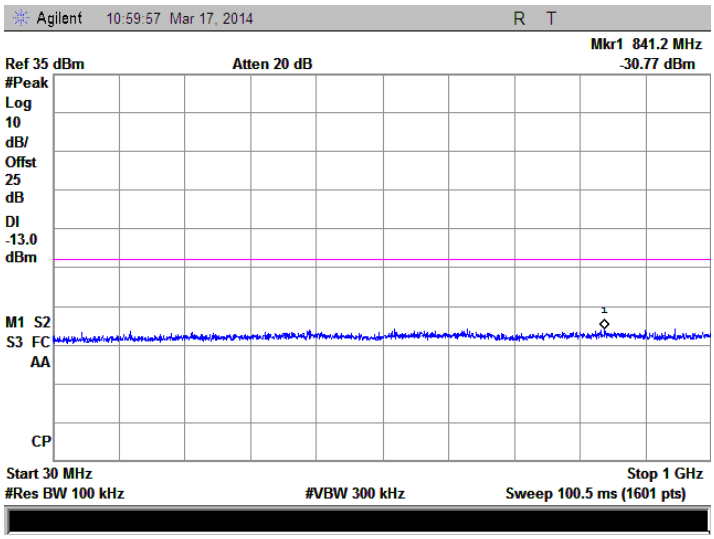
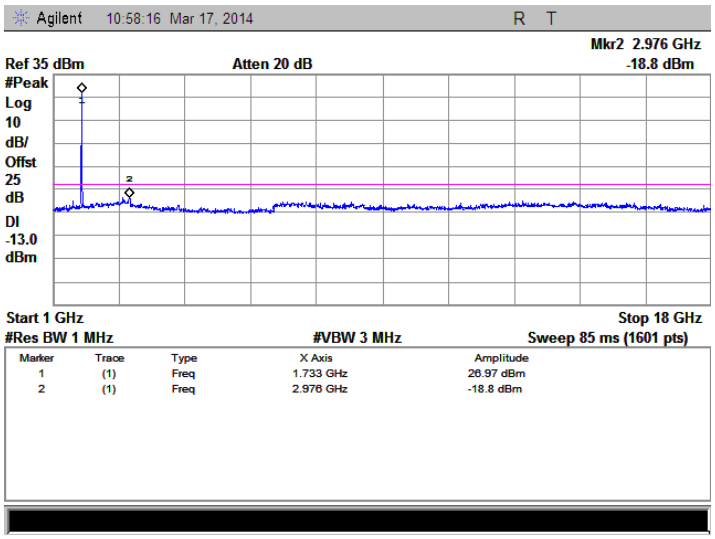




LTE Band 4 20MHz BW, High Channel

QPSK





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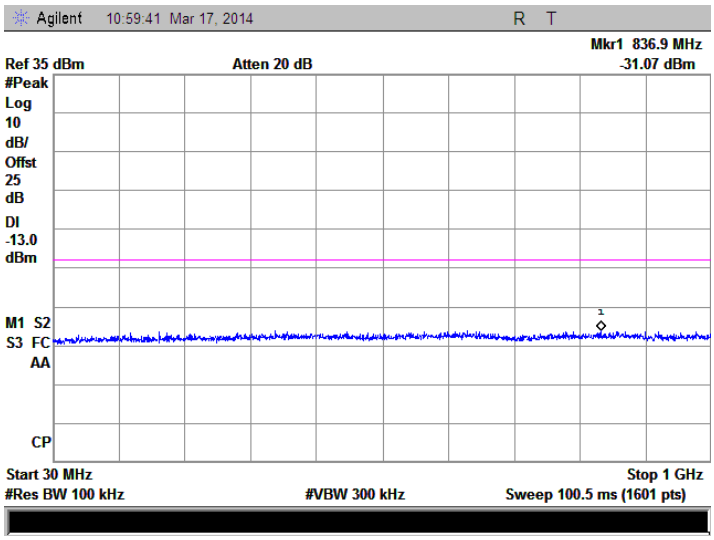
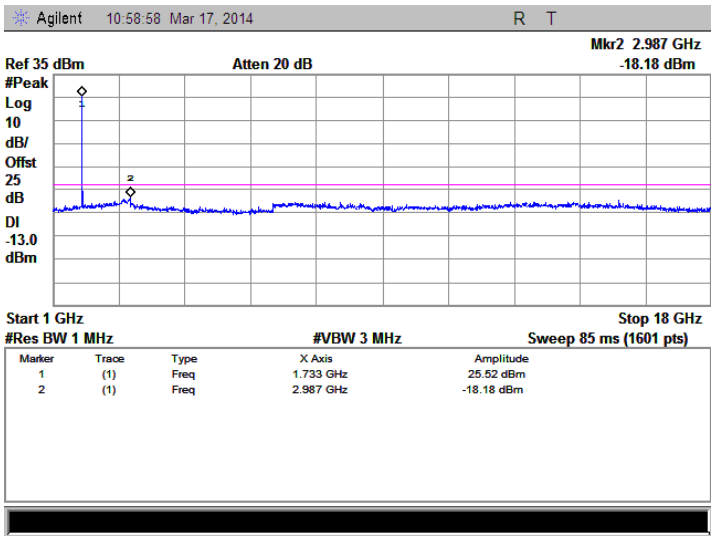




2.6 Band Edge

2.6.1 Requirement

According to FCC section 27.53(g) (h), (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(h) For operations in the 1710–1755 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10(P) dB.

2.6.2 Test Description

See section 2.1.2 of this report.

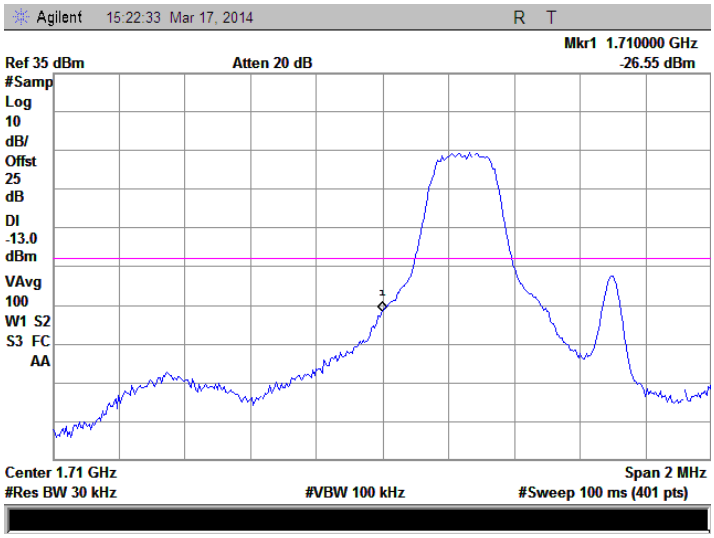
2.6.3 Test Result

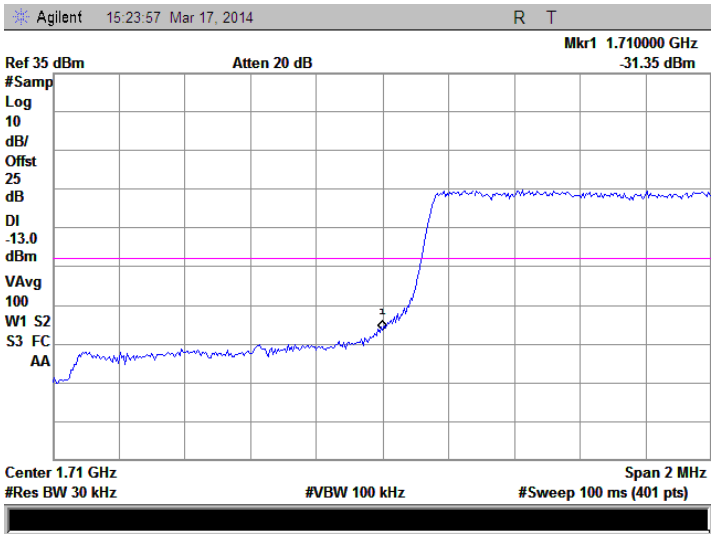
The center frequency of spectrum is the band edge frequency and span is 2MHz, Record the max trace into the test report.

PASS. See the attached plots.

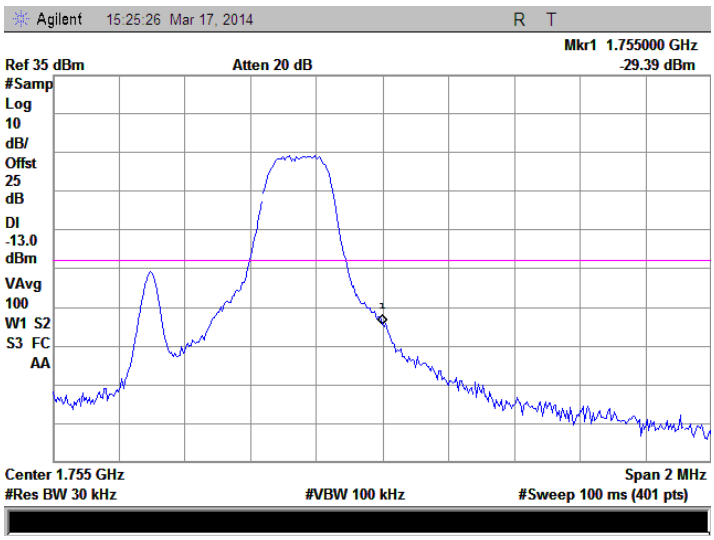
LTE Band 4:

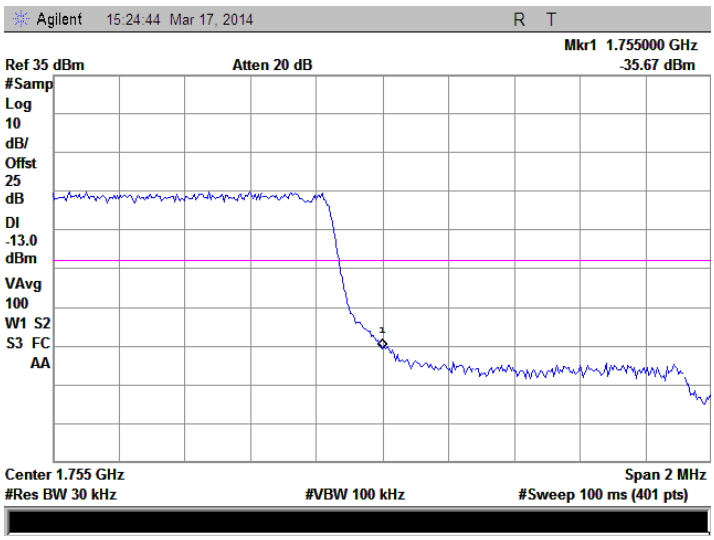
Channel Bandwidth: 1.4MHz							
Channel	19957	RB Size 1	RB Offset 0	Channel	19957	RB Size 6	RB Offset 0





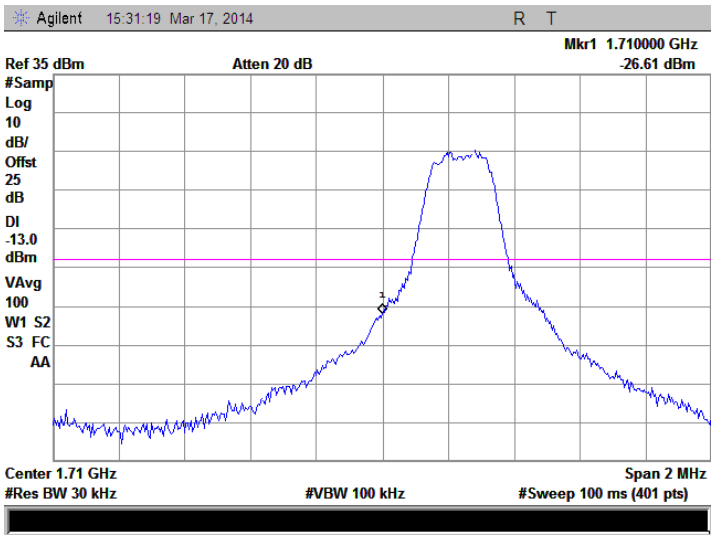
Channel Bandwidth: 1.4MHz							
Channel	20393	RB Size 1	RB Offset 5	Channel	20393	RB Size 6	RB Offset 0

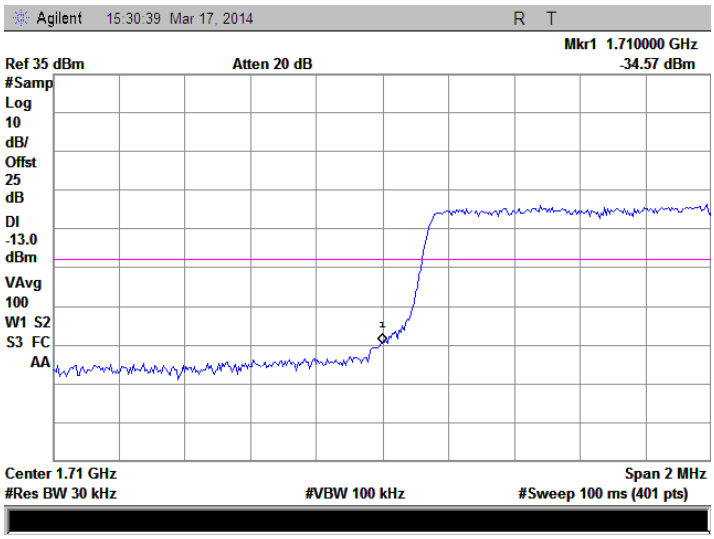




Channel Bandwidth: 3MHz

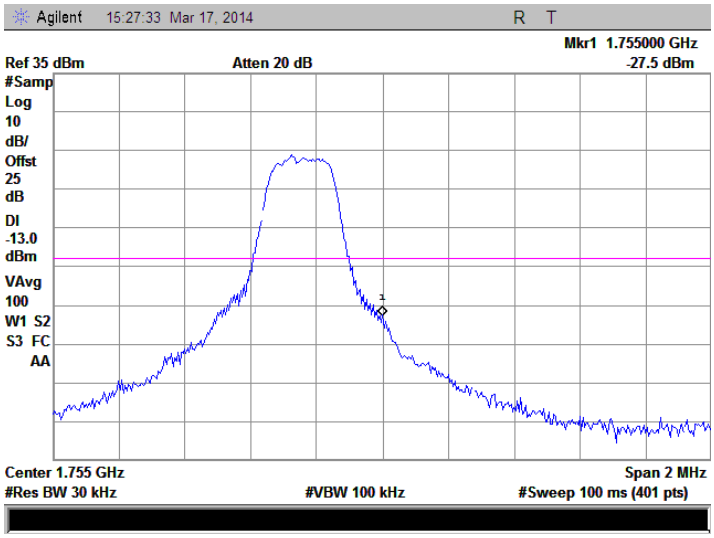
Channel	19965	RB Size 1	RB Offset 0	Channel	19965	RB Size 15	RB Offset 0

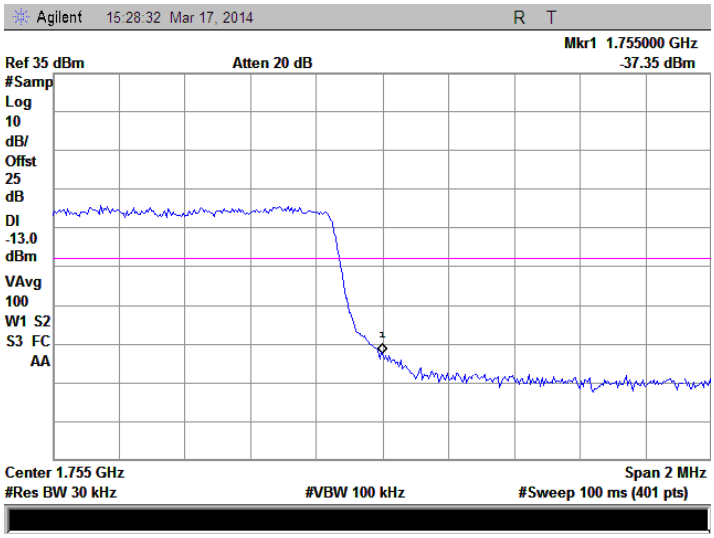




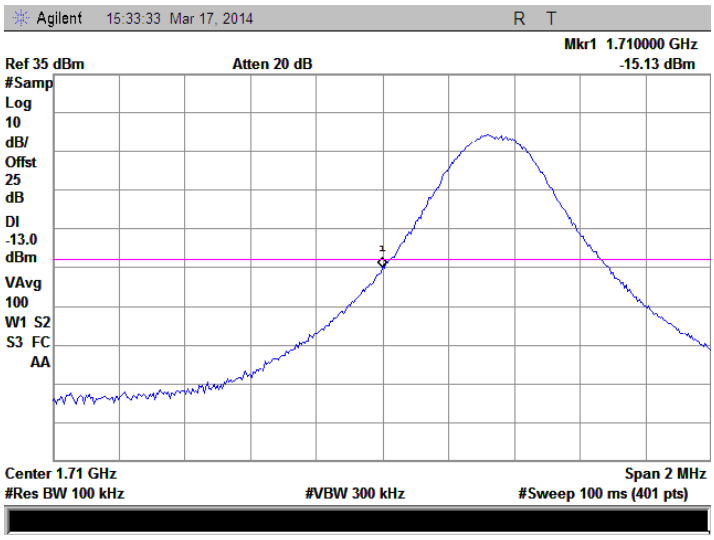
Channel Bandwidth: 3MHz

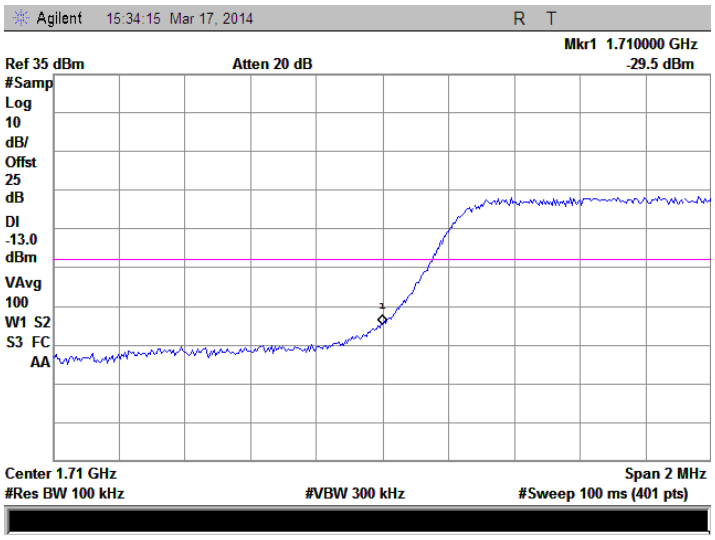
Channel	20385	RB Size 1	RB Offset 14	Channel	20385	RB Size 15	RB Offset 0



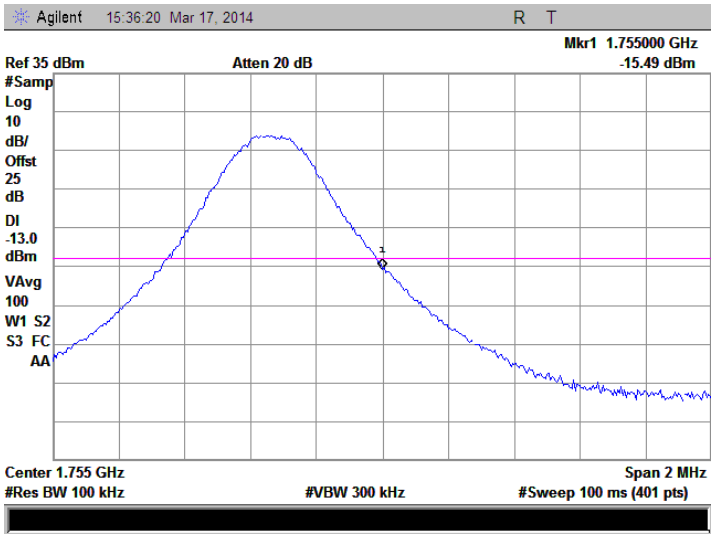


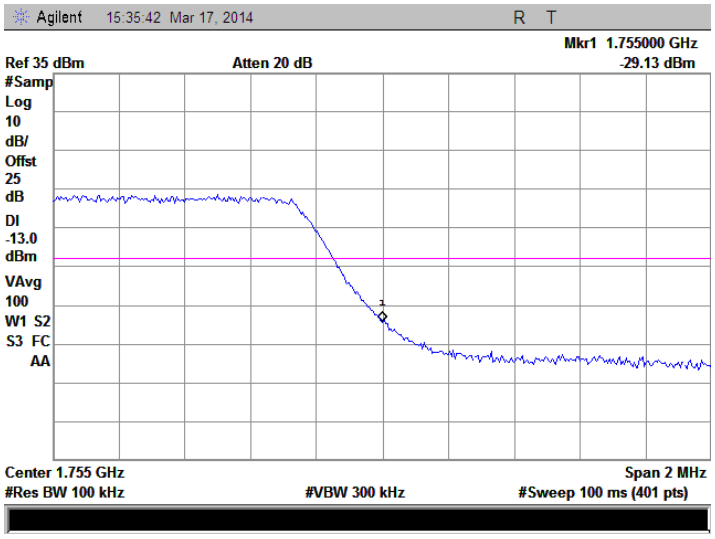
Channel Bandwidth: 5MHz							
Channel	19975	RB Size 1	RB Offset 0	Channel	19975	RB Size 25	RB Offset 0





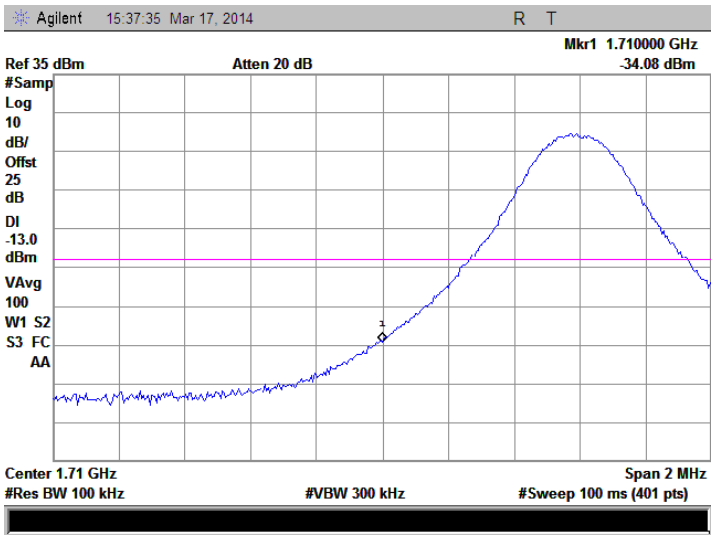
Channel Bandwidth: 5MHz							
Channel	20375	RB Size 1	RB Offset 24	Channel	20375	RB Size 25	RB Offset 0

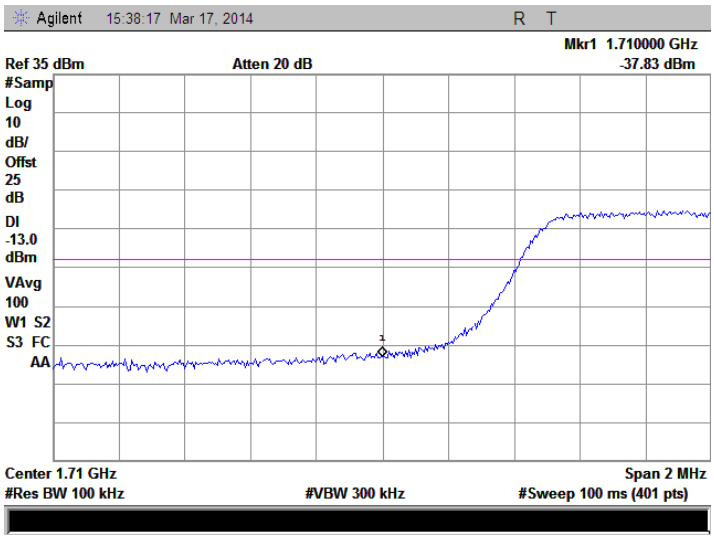




Channel Bandwidth: 10MHz

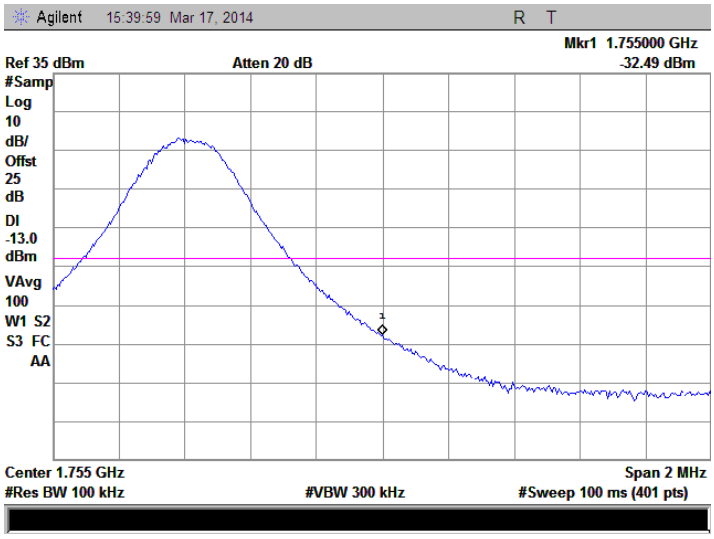
Channel	20000	RB Size 1	RB Offset 0	Channel	20000	RB Size 50	RB Offset 0

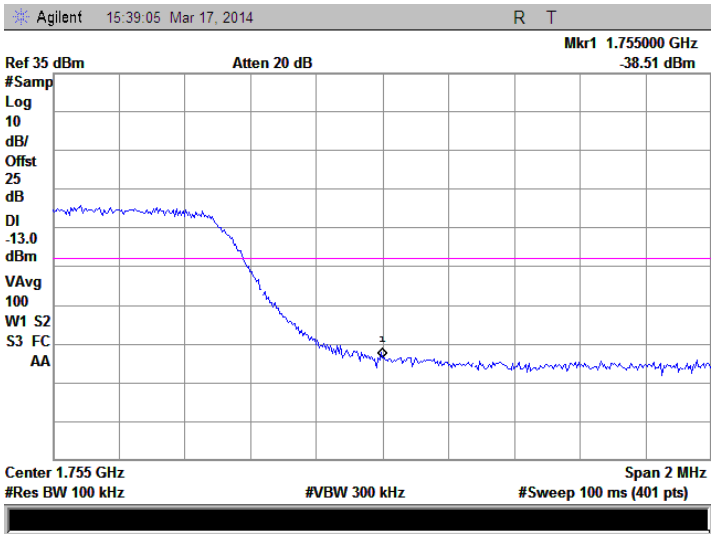




Channel Bandwidth: 10MHz

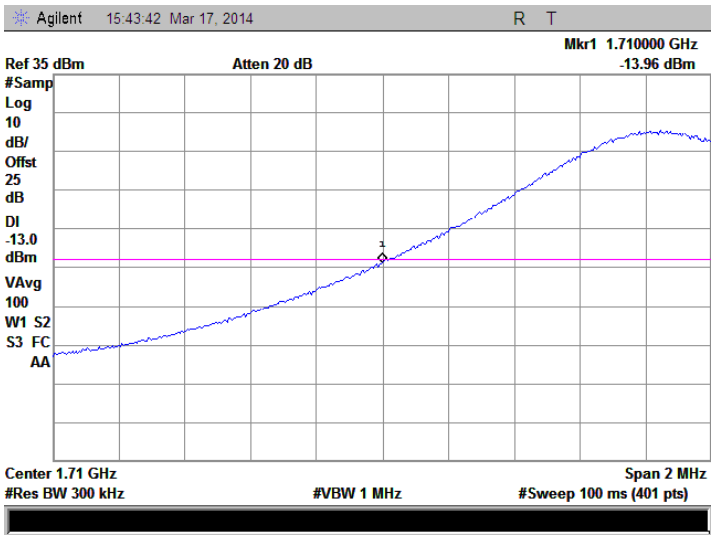
Channel	20350	RB Size 1	RB Offset 49	Channel	20350	RB Size 50	RB Offset 0

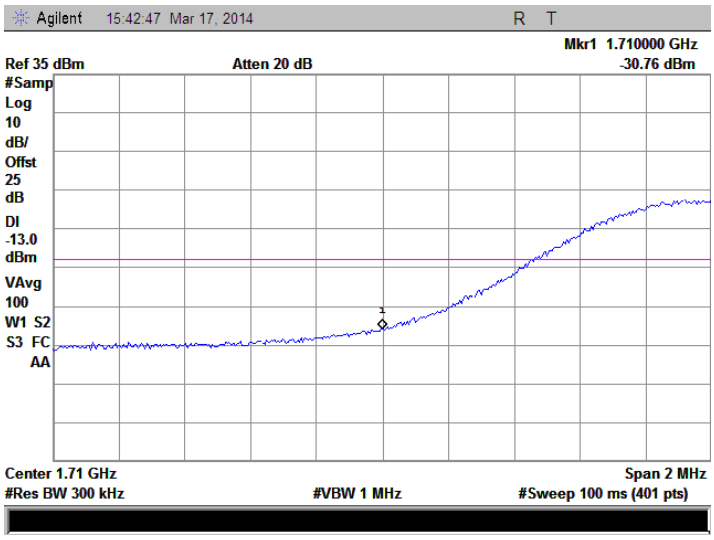




Channel Bandwidth: 15MHz

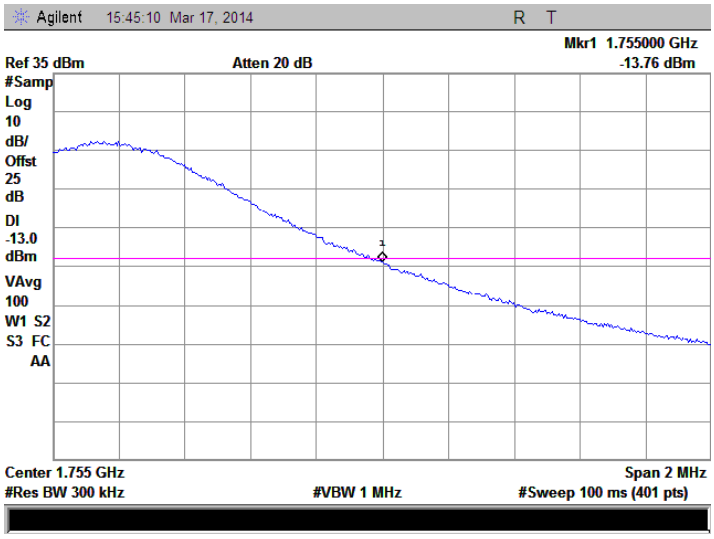
Channel	20025	RB Size 1	RB Offset 0	Channel	20025	RB Size 75	RB Offset 0

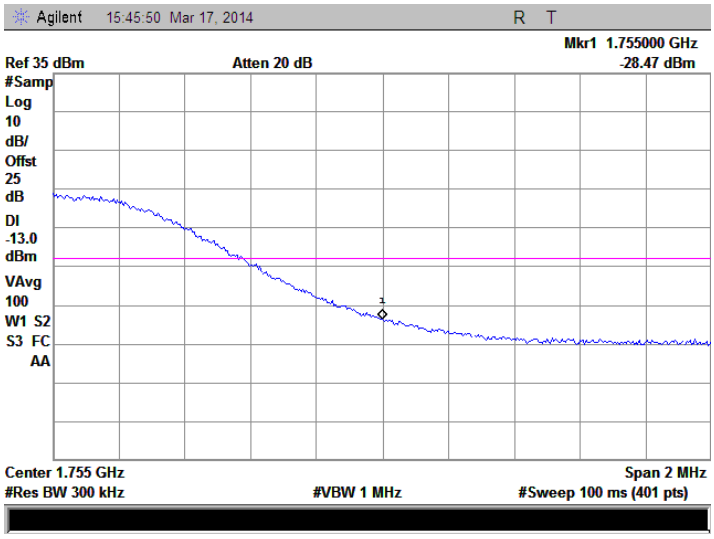




Channel Bandwidth: 15MHz

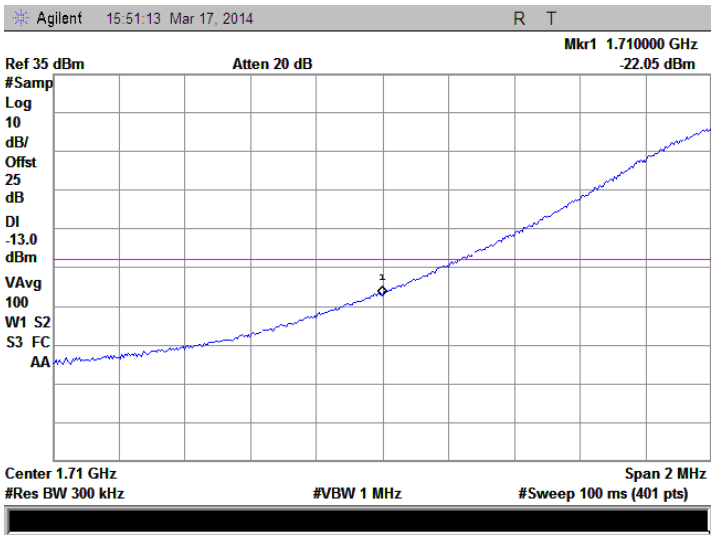
Channel	20325	RB Size 1	RB Offset 74	Channel	20325	RB Size 75	RB Offset 0

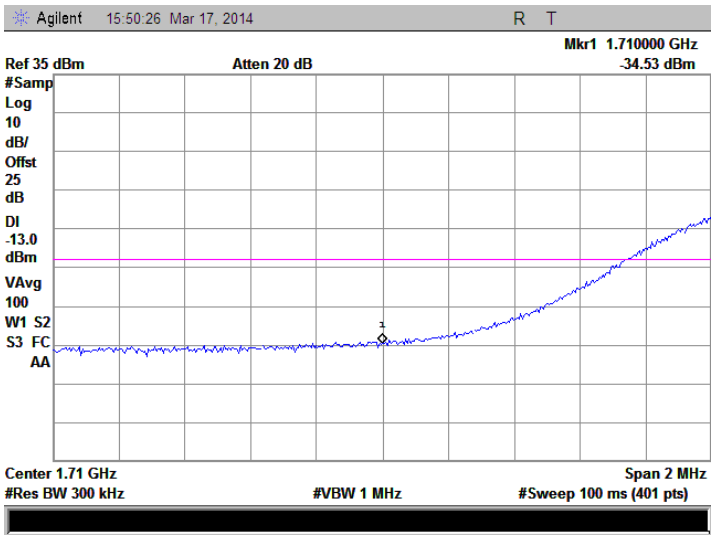




Channel Bandwidth: 20MHz

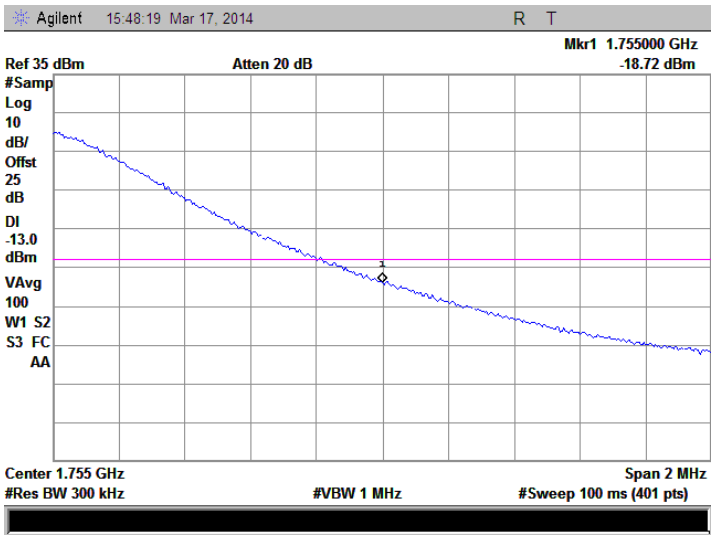
Channel	20050	RB Size 1	RB Offset 0	Channel	20050	RB Size 100	RB Offset 0

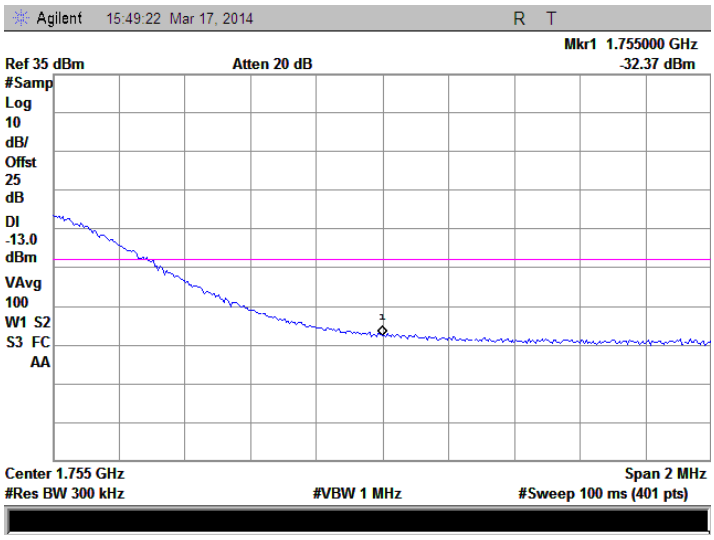




Channel Bandwidth: 20MHz

Channel	20300	RB Size 1	RB Offset 99	Channel	20300	RB Size 100	RB Offset 0





2.7 Transmitter Radiated Power (EIRP/ERP)

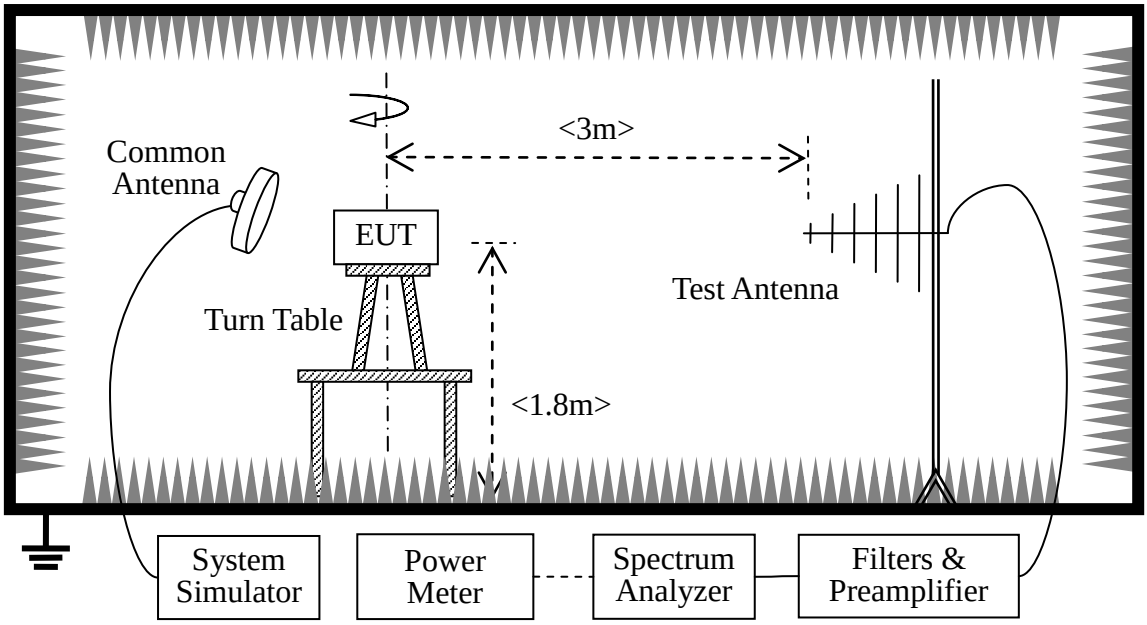
2.7.1 Requirement

According to FCC section 27.50 (d), fixed, mobile and portable (hand-held) stations in the 1710-1755MHz band are limited to 1wat EIRP.

Portable stations (hand-held devices) operating in the 704-716MHz band are limited to 3watts ERP.

2.7.2 Test Description

1. Test Setup:



The EUT, which is powered by the PC, is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), and it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde&	CMW500	1201.0002k50/	2014.02.26	2015.02.25

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
	Schwarz		124534/wk		
Spectrum Analyzer	Rohde& Schwarz	FSL	10246	2014.02.26	2015.02.25
Spectrum Analyzer	Agilent	E4445A	MY44200685	2014.02.26	2015.02.25
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2014.02.26	2015.02.25
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2014.02.26	2015.02.25
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2014.02.26	2015.02.25

2.7.3 Test Result

The EUT was verified under all configurations (RB size and offset) and the worst case radiated power reported for each modulation/channel bandwidth.

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

The substitution corrections are obtained as described below:

$A_{SUBST} = P_{SUBST\_TX} - P_{SUBST\_RX} - L_{SUBST\_CABLES} + G_{SUBST\_TX\_ANT}$

$A_{TOT} = L_{CABLES} + A_{SUBST}$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

P_{SUBST_TX} is signal generator level,

P_{SUBST_RX} is receiver level,

L_{SUBST_CABLES} is cable losses including TX cable,

$G_{SUBST\_TX\_ANT}$ is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

During the test, the data of A_{TOT} was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of A_{TOT}.

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		ERP (dBm)
					RB Size	RB Offset	
LTE Band 4	20MHz	L 20050	1720	QPSK	1	0	22.61
					1	49	22.13
					1	99	22.72
					50	0	20.89
					50	25	20.78
					50	49	21.32
					100	0	21.09
				16-QAM	1	0	20.87
					1	49	20.78
					1	99	21.68
					50	0	21.52
					50	25	21.14
					50	49	21.12
					100	0	20.46
		M 20175	1732.5	QPSK	1	0	22.81
					1	49	22.92
					1	99	22.94
					50	0	22.04
					50	25	22.12
					50	49	22.76
					100	0	20.49
				16-QAM	1	0	23.34
					1	49	21.42
					1	99	22.69
					50	0	22.41
					50	25	22.17
					50	49	22.56
					100	0	23.41
		H 20300	1745	QPSK	1	0	22.53
					1	49	22.34
					1	99	23.08
					50	0	23.61
					50	25	23.12
					50	49	23.34
					100	0	23.41
				16-QAM	1	0	22.98
					1	49	23.12

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		ERP (dBm)
					RB Size	RB Offset	
					1	99	22.83
					50	0	22.32
					50	25	22.12
					50	49	22.44
					100	0	21.67
	15MHz	L 20025	1717.5	QPSK	1	0	22.84
					1	37	23,12
					1	74	23.35
					36	0	23.14
					36	18	23.26
					36	35	22.34
					75	0	21.62
				16-QAM	1	0	22.26
					1	37	22.23
					1	74	22.67
					36	0	22.54
					36	18	21.98
					36	35	21.12
					75	0	21.51
		M 20175	1732.5	QPSK	1	0	23.78
					1	37	23.21
					1	74	23.64
					36	0	23.89
					36	18	22.76
					36	35	23.23
					75	0	22.62
				16-QAM	1	0	22.94
					1	37	23.78
					1	74	23.31
					36	0	22.98
					36	18	22.65
					36	35	22.34
					75	0	21.35
		H 20325	1747.5	QPSK	1	0	23.41
					1	37	23.76
					1	74	23.81
					36	0	23.34

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		ERP (dBm)
					RB Size	RB Offset	
					36	18	23.13
					36	35	22.87
					75	0	22.38
				16-QAM	1	0	22.84
					1	37	23.43
					1	74	23.19
					36	0	23.46
					36	18	23.32
					36	35	22.34
					75	0	22.82
	10MHz	L 20000	1715	QPSK	1	0	23.03
					1	24	23.08
					1	49	23.51
					25	0	23.03
					25	12	22.12
					25	24	22.65
					50	0	21.85
				16-QAM	1	0	23.64
					1	24	23.01
					1	49	23.8
					25	0	23.34
					25	12	23.54
					25	24	21.87
					50	0	20.83
		M 20175	1732.5	QPSK	1	0	24.06
					1	24	24.05
					1	49	23.66
					25	0	22.54
					25	12	23.34
					25	24	24.64
					50	0	23.32
				16-QAM	1	0	23.05
					1	24	23.03
					1	49	23.44
					25	0	22.43
					25	12	22.64
					25	24	23.75

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		ERP (dBm)
					RB Size	RB Offset	
					50	0	22.03
		H 20350	1750	QPSK	1	0	22.84
					1	24	22.67
					1	49	22.96
					25	0	23.34
					25	12	23.78
					25	24	24.54
					50	0	23.05
				16-QAM	1	0	21.88
					1	24	22.65
					1	49	22.21
					25	0	22.34
					25	12	21.85
					25	24	22.43
					50	0	21.69
	5MHz	L 19975	1712.5	QPSK	1	0	23.63
					1	12	23.53
					1	24	23.54
					12	0	23.87
					12	6	22.64
					12	11	23.42
					25	0	22.51
				16-QAM	1	0	22.33
					1	12	23.64
					1	24	23.04
					12	0	23.74
					12	6	23.53
					12	11	22.24
					25	0	21.33
		M 20175	1732.5	QPSK	1	0	23.65
					1	12	23.23
					1	24	23.44
					12	0	23.43
					12	6	23.68
					12	11	23.43
					25	0	22.25
				16-QAM	1	0	22.38

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		ERP (dBm)
					RB Size	RB Offset	
					1	12	22.18
					1	24	22.94
					12	0	22.89
					12	6	23.43
					12	11	22.43
					25	0	21.88
		H 20375	1752.5	QPSK	1	0	23.09
					1	12	23.37
					1	24	23.27
					12	0	23.87
					12	6	23.67
					12	11	24.23
					25	0	23.07
				16-QAM	1	0	23.6
					1	12	23.74
					1	24	23.83
					12	0	23.34
					12	6	22.36
					12	11	22.57
					25	0	21.46
	3MHz	L 19965	1711.5	QPSK	1	0	23.69
					1	7	23.34
					1	14	23.84
					8	0	23.65
					8	4	23.85
					8	7	23.45
					15	0	22.35
				16-QAM	1	0	23.39
					1	7	22.65
					1	14	23.95
					8	0	23.54
					8	4	22.45
					8	7	22.56
					15	0	21.63
		M 20175	1732.5	QPSK	1	0	23.81
					1	7	23.05
					1	14	23.34

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		ERP (dBm)
					RB Size	RB Offset	
					8	0	23.54
					8	4	23.76
					8	7	22.54
					15	0	21.88
				16-QAM	1	0	22.06
					1	7	22.43
					1	14	22.21
					8	0	23.23
					8	4	22.76
					8	7	22.65
					15	0	21.35
		H 20385	1753.5	QPSK	1	0	21.66
					1	7	23.78
					1	14	23.64
					8	0	23.43
					8	4	22.56
					8	7	23.74
					15	0	22.09
				16-QAM	1	0	23.81
					1	7	23.65
					1	14	23.45
					8	0	22.89
					8	4	23.21
					8	7	22.78
					15	0	21.66
	1.4MHz	L 19957	1710.7	QPSK	1	0	23.26
					1	2	23.58
					1	5	23.51
					3	0	23.92
					3	1	23.62
					3	2	23.34
					6	0	22.39
				16-QAM	1	0	23.22
					1	2	22.34
					1	5	23.13
					3	0	23.74
					3	1	23.83

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		ERP (dBm)
					RB Size	RB Offset	
					3	2	22.76
					6	0	21.55
		M 20175	1732.5	QPSK	1	0	23.88
					1	2	24.98
					1	5	24.11
					3	0	24.34
					3	1	24.45
					3	2	24.85
					6	0	23.16
				16-QAM	1	0	22.98
					1	2	23.09
					1	5	23.55
					3	0	23.77
					3	2	23.34
					3	5	23.48
					6	0	22.51
		H 20393	1754.5	QPSK	1	0	23.85
					1	2	23.48
					1	5	23.77
					3	0	23.38
					3	1	23.74
					3	2	22.98
					6	0	22.53
				16-QAM	1	0	23.2
					1	2	23.68
					1	5	22.93
					3	0	22.38
					3	1	22.73
					3	2	22.98
					6	0	21.85

2.8 Radiated Spurious Emissions

2.8.1 Requirement

According to FCC section 2.1053 and section 27.53(g), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

2.8.2 Test Description

See section 2.7.2 of this report.

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

2.8.3 Test Result

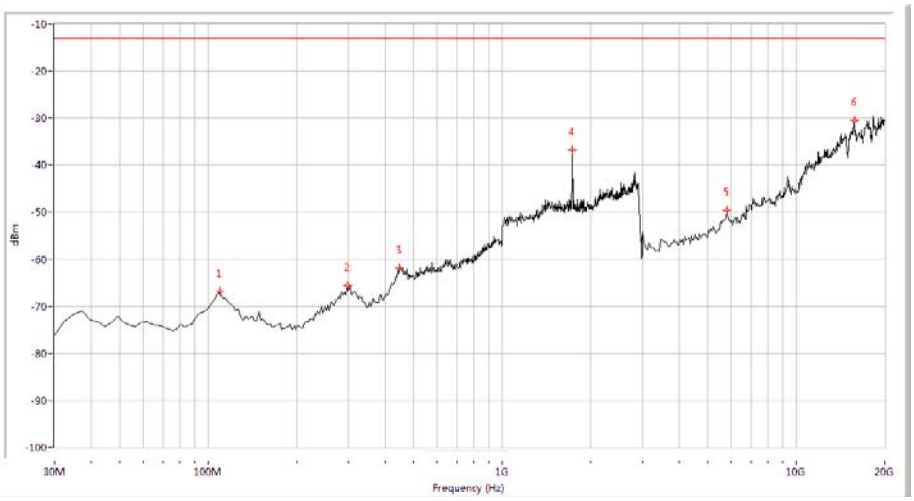
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

Test Plots for the Whole Measurement Frequency Range:

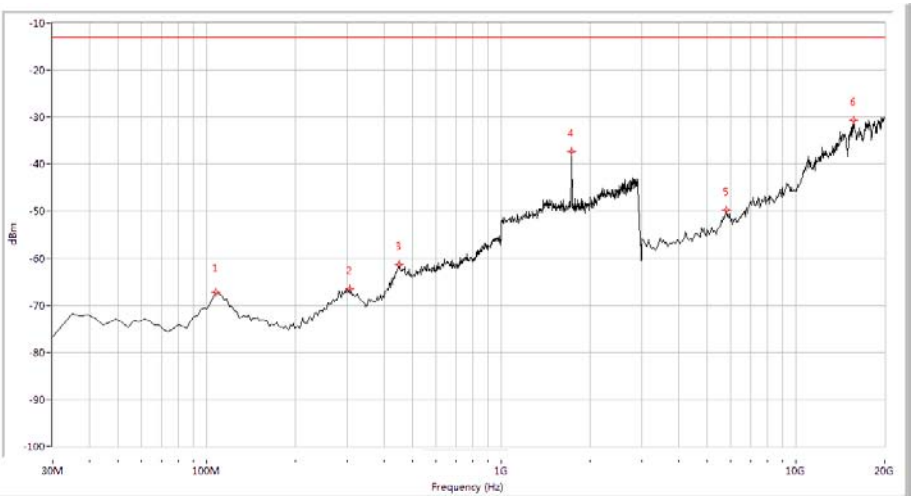
Note1: the power of the EUT transmitting frequency should be ignored.

Note2: All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

LTE Band 4 1.4MHz BW, Mid Channel, QPSK

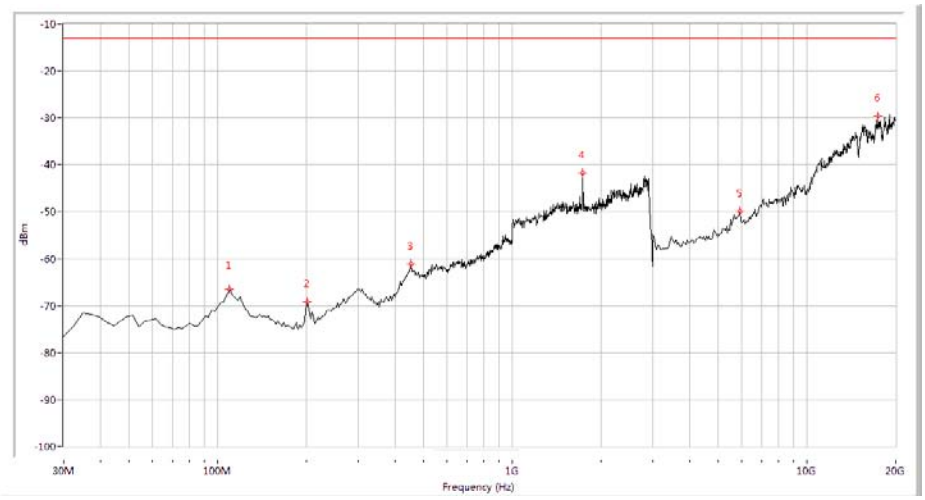


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-66.83	-13.0	53.8	163.5	Horizontal	PASS
298.504	-65.61	-13.0	52.6	78.4	Horizontal	PASS
446.060	-61.81	-13.0	48.8	264.3	Horizontal	PASS
1733.167	-36.70	-13.0	23.7	9.8	Horizontal	PASS
5798.005	-49.55	-13.0	36.6	210.0	Horizontal	PASS
15760.599	-30.53	-13.0	17.5	39.7	Horizontal	PASS

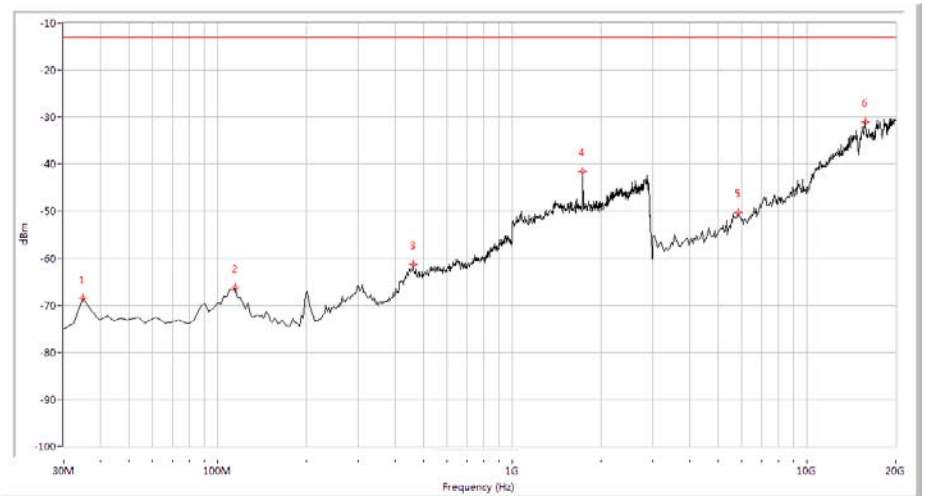


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
107.406	-67.29	-13.0	54.3	136.5	Vertical	PASS
305.761	-66.52	-13.0	53.5	47.8	Vertical	PASS
450.898	-61.30	-13.0	48.3	9.9	Vertical	PASS
1733.167	-37.25	-13.0	24.3	205.4	Vertical	PASS
5798.005	-49.65	-13.0	36.7	63.6	Vertical	PASS
15718.204	-30.61	-13.0	17.6	323.1	Vertical	PASS

LTE Band 4 1.4MHz BW, Mid Channel, 16QAM

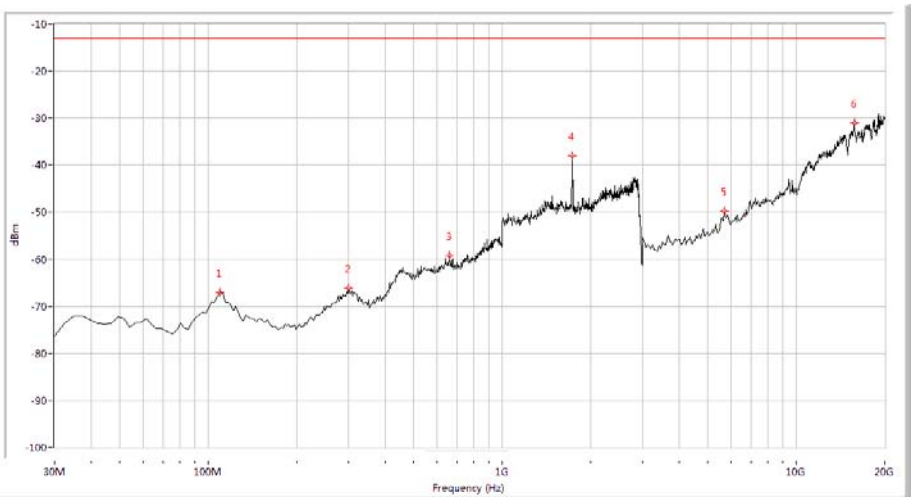


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-66.41	-13.0	53.4	136.5	Horizontal	PASS
201.746	-69.19	-13.0	56.2	24.7	Horizontal	PASS
453.317	-61.17	-13.0	48.2	203.9	Horizontal	PASS
1733.167	-41.74	-13.0	28.7	338.1	Horizontal	PASS
5925.187	-49.94	-13.0	36.9	16.8	Horizontal	PASS
17456.359	-29.66	-13.0	16.7	8.4	Horizontal	PASS

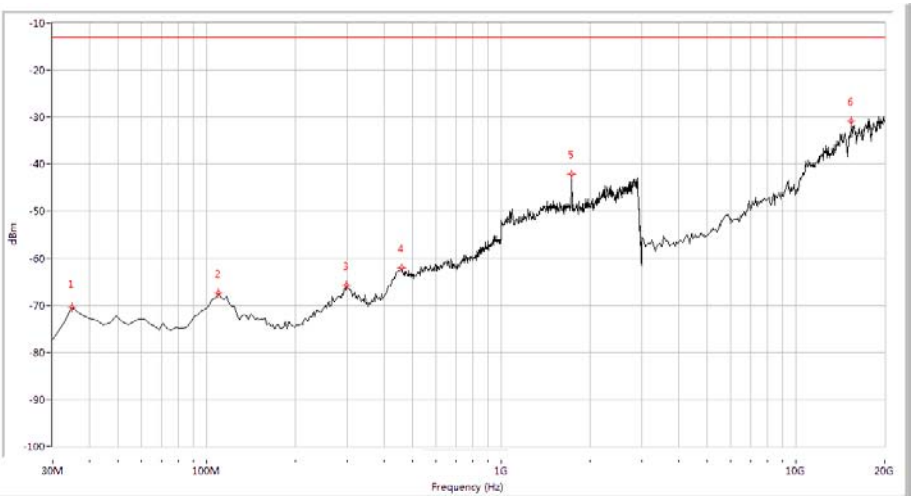


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-68.52	-13.0	55.5	12.4	Vertical	PASS
114.663	-66.28	-13.0	53.3	36.5	Vertical	PASS
460.574	-61.33	-13.0	48.3	234.7	Vertical	PASS
1733.167	-41.60	-13.0	28.6	152.9	Vertical	PASS
5840.399	-50.23	-13.0	37.2	10.8	Vertical	PASS
15845.387	-31.11	-13.0	18.1	77.3	Vertical	PASS

LTE Band 4 3MHz BW, Mid Channel, QPSK

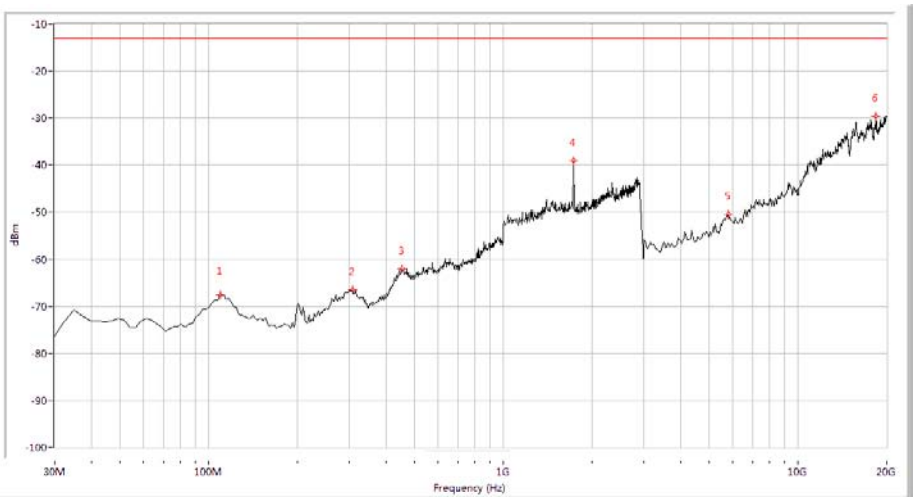


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-67.08	-13.0	54.1	102.3	Horizontal	PASS
300.923	-66.17	-13.0	53.2	45.6	Horizontal	PASS
663.766	-59.24	-13.0	46.2	33.1	Horizontal	PASS
1733.167	-38.05	-13.0	25.1	78.9	Horizontal	PASS
5713.217	-49.73	-13.0	36.7	268.7	Horizontal	PASS
15760.599	-31.11	-13.0	18.1	116.5	Horizontal	PASS

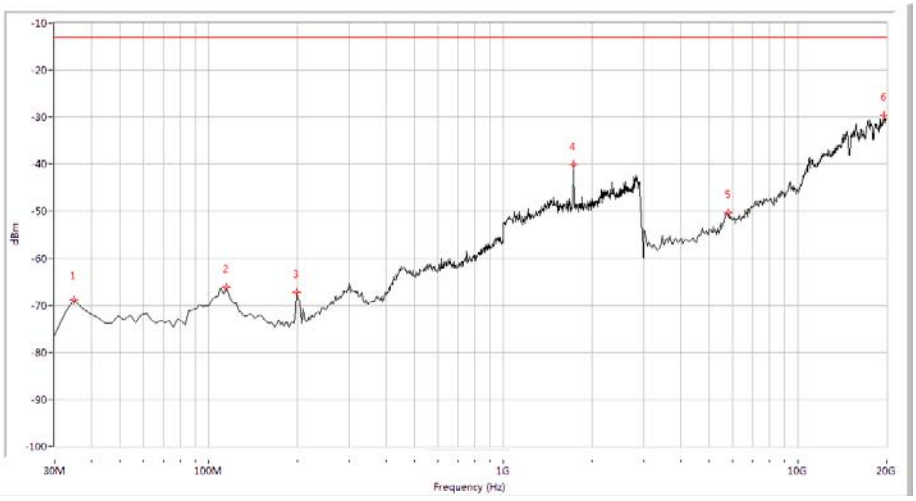


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-70.38	-13.0	57.4	163.4	Vertical	PASS
109.825	-67.36	-13.0	54.4	9.8	Vertical	PASS
298.504	-65.70	-13.0	52.7	214.6	Vertical	PASS
458.155	-62.08	-13.0	49.1	302.8	Vertical	PASS
1733.167	-42.11	-13.0	29.1	47.7	Vertical	PASS
15421.446	-30.79	-13.0	17.8	121.0	Vertical	PASS

LTE Band 4 3MHz BW, Mid Channel, 16QAM

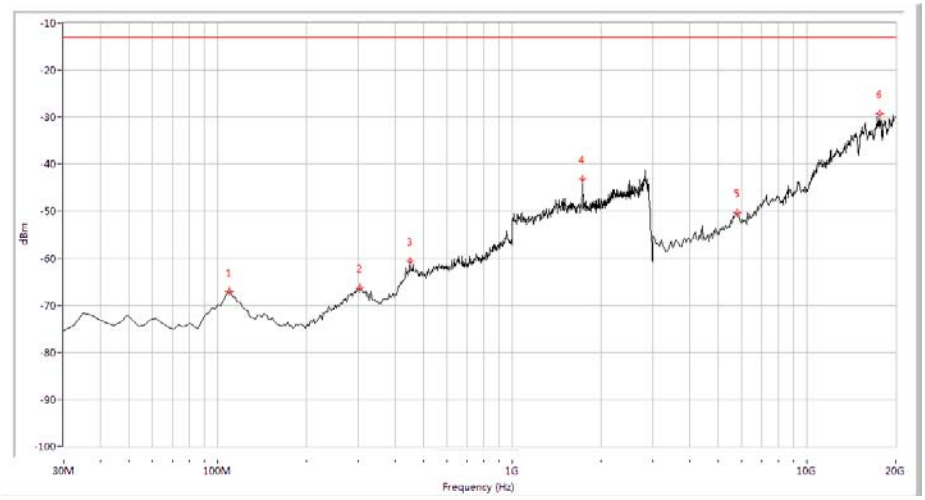


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-67.51	-13.0	54.5	136.5	Horizontal	PASS
308.180	-66.54	-13.0	53.5	27.8	Horizontal	PASS
453.317	-62.08	-13.0	49.1	120.0	Horizontal	PASS
1733.167	-39.11	-13.0	26.1	69.9	Horizontal	PASS
5798.005	-50.44	-13.0	37.4	46.6	Horizontal	PASS
18389.027	-29.64	-13.0	16.6	302.4	Horizontal	PASS

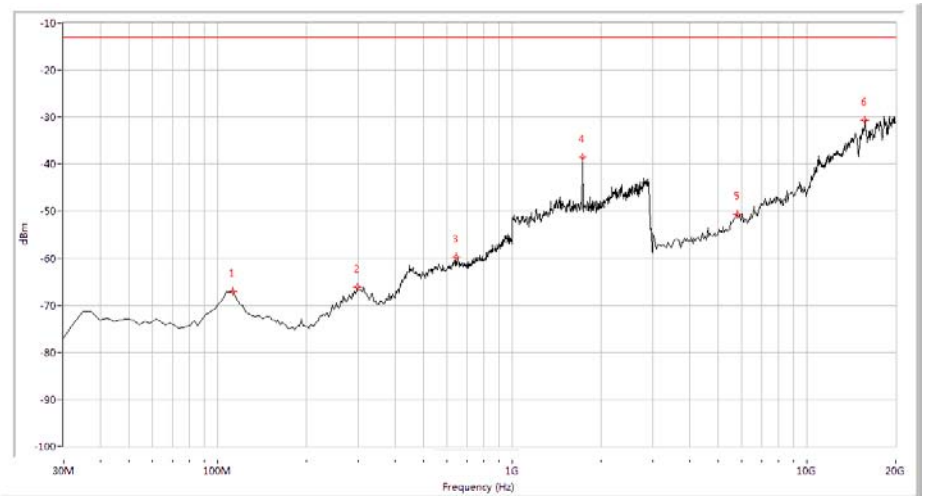


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-68.85	-13.0	55.8	13.2	Vertical	PASS
114.663	-66.13	-13.0	53.1	45.6	Vertical	PASS
199.327	-67.25	-13.0	54.2	7.8	Vertical	PASS
1733.167	-40.12	-13.0	27.1	323.4	Vertical	PASS
5798.005	-50.36	-13.0	37.4	269.8	Vertical	PASS
19660.848	-29.52	-13.0	16.5	131.5	Vertical	PASS

LTE Band 4 5MHz BW, Mid Channel, QPSK

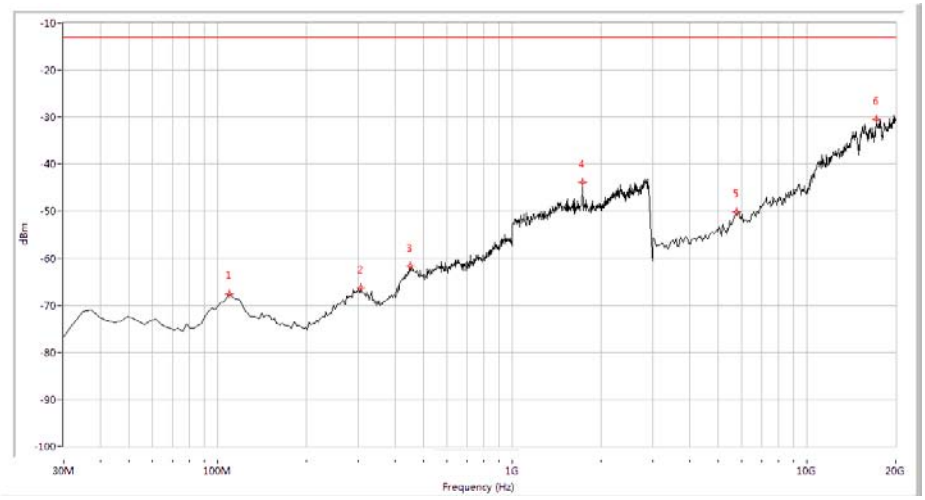


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-67.11	-13.0	54.1	136.4	Horizontal	PASS
303.342	-66.34	-13.0	53.3	275.8	Horizontal	PASS
450.898	-60.69	-13.0	47.7	96.3	Horizontal	PASS
1733.167	-43.15	-13.0	30.1	101.2	Horizontal	PASS
5798.005	-50.26	-13.0	37.3	9.7	Horizontal	PASS
17625.935	-29.30	-13.0	16.3	46.6	Horizontal	PASS

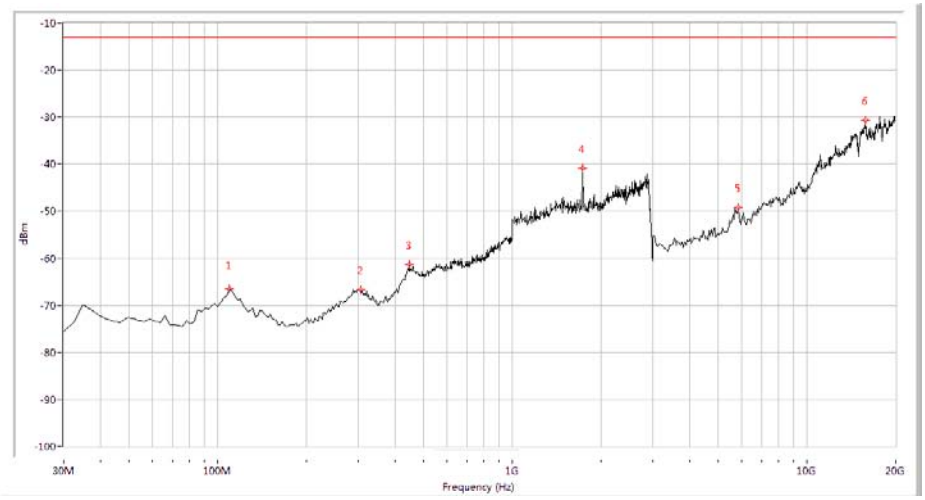


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
112.244	-67.06	-13.0	54.1	16.2	Vertical	PASS
298.504	-66.18	-13.0	53.2	231.3	Vertical	PASS
644.414	-59.74	-13.0	46.7	105.7	Vertical	PASS
1733.167	-38.52	-13.0	25.5	98.9	Vertical	PASS
5798.005	-50.71	-13.0	37.7	45.1	Vertical	PASS
15718.204	-30.76	-13.0	17.8	132.6	Vertical	PASS

LTE Band 4 5MHz BW, Mid Channel, 16QAM

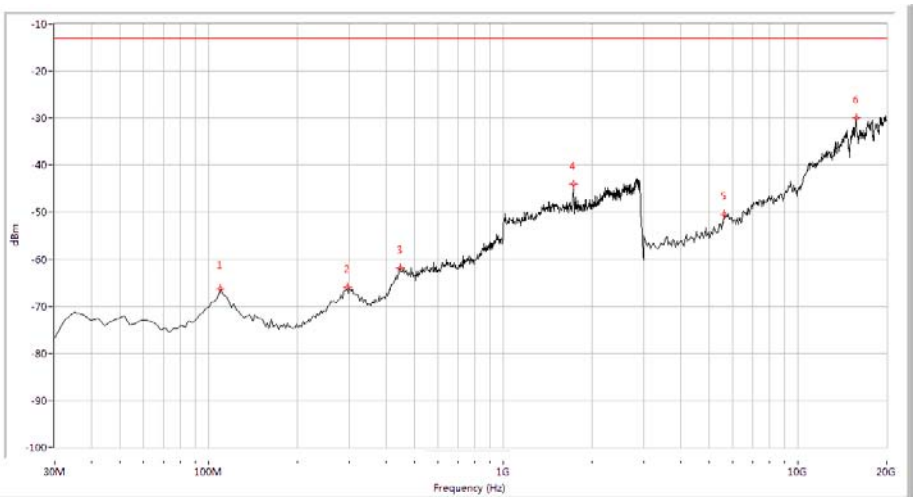


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-67.53	-13.0	54.5	163.5	Horizontal	PASS
305.761	-66.31	-13.0	53.3	48.7	Horizontal	PASS
450.898	-61.70	-13.0	48.7	98.6	Horizontal	PASS
1733.167	-43.92	-13.0	30.9	323.2	Horizontal	PASS
5755.611	-50.13	-13.0	37.1	204.4	Horizontal	PASS
17201.995	-30.48	-13.0	17.5	23.9	Horizontal	PASS

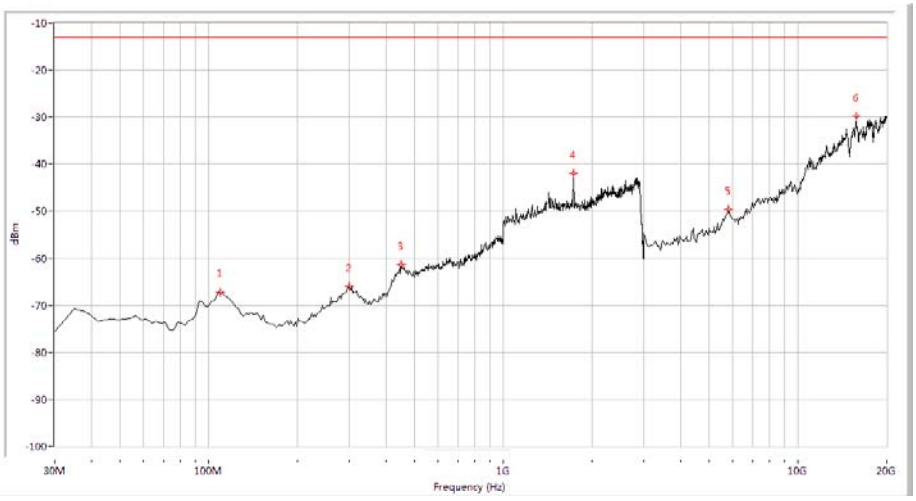


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-66.55	-13.0	53.6	16.5	Vertical	PASS
305.761	-66.71	-13.0	53.7	38.9	Vertical	PASS
448.479	-61.34	-13.0	48.3	245.7	Vertical	PASS
1733.167	-40.86	-13.0	27.9	305.6	Vertical	PASS
5840.399	-49.26	-13.0	36.3	87.0	Vertical	PASS
15845.387	-30.75	-13.0	17.7	6.4	Vertical	PASS

LTE Band 4 10MHz BW, Mid Channel, QPSK

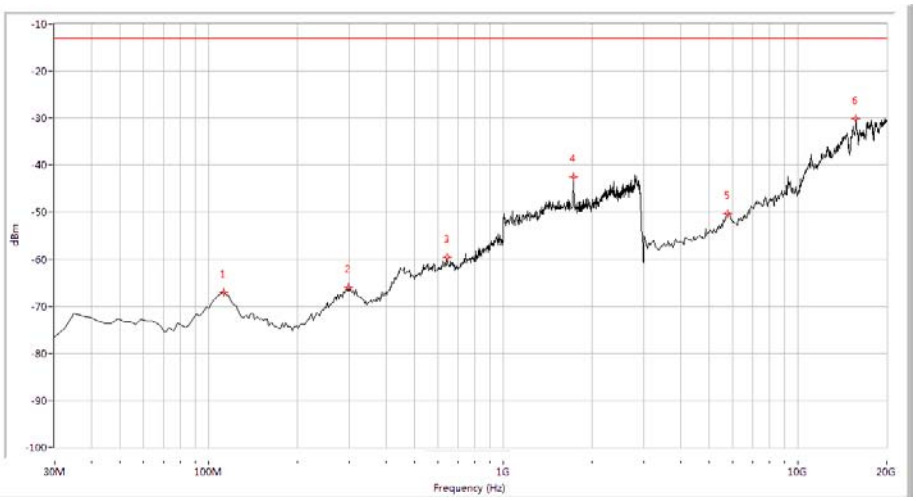


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-66.32	-13.0	53.3	132.4	Horizontal	PASS
296.085	-66.04	-13.0	53.0	236.5	Horizontal	PASS
446.060	-61.81	-13.0	48.8	78.9	Horizontal	PASS
1728.180	-44.10	-13.0	31.1	4.6	Horizontal	PASS
5628.429	-50.43	-13.0	37.4	12.0	Horizontal	PASS
15760.599	-30.04	-13.0	17.0	201.8	Horizontal	PASS

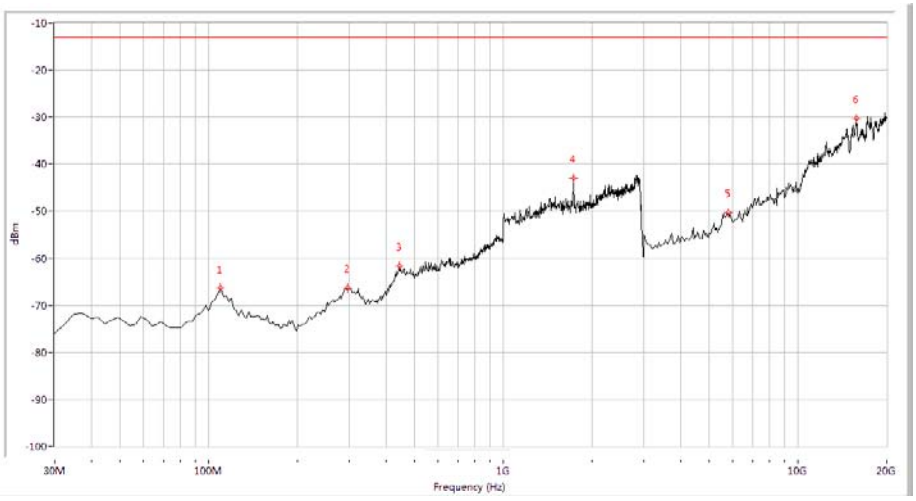


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-67.22	-13.0	54.2	16.4	Vertical	PASS
300.923	-66.04	-13.0	53.0	253.5	Vertical	PASS
450.898	-61.37	-13.0	48.4	8.7	Vertical	PASS
1728.180	-41.90	-13.0	28.9	132.9	Vertical	PASS
5798.005	-49.63	-13.0	36.6	108.8	Vertical	PASS
15760.599	-29.72	-13.0	16.7	36.6	Vertical	PASS

LTE Band 4 10MHz BW, Mid Channel, 16QAM

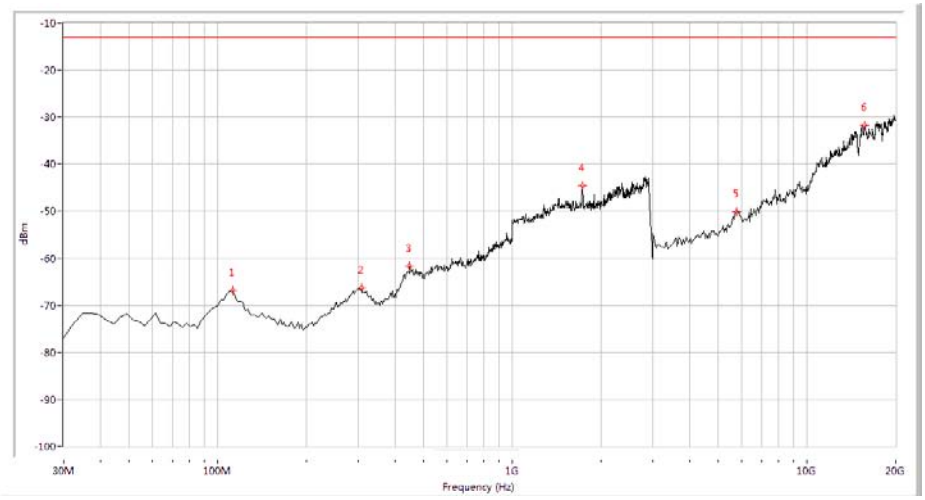


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
112.244	-67.11	-13.0	54.1	136.2	Horizontal	PASS
298.504	-65.94	-13.0	52.9	24.1	Horizontal	PASS
644.414	-59.57	-13.0	46.6	203.8	Horizontal	PASS
1728.180	-42.41	-13.0	29.4	9.9	Horizontal	PASS
5755.611	-50.25	-13.0	37.2	77.4	Horizontal	PASS
15718.204	-30.06	-13.0	17.1	63.5	Horizontal	PASS

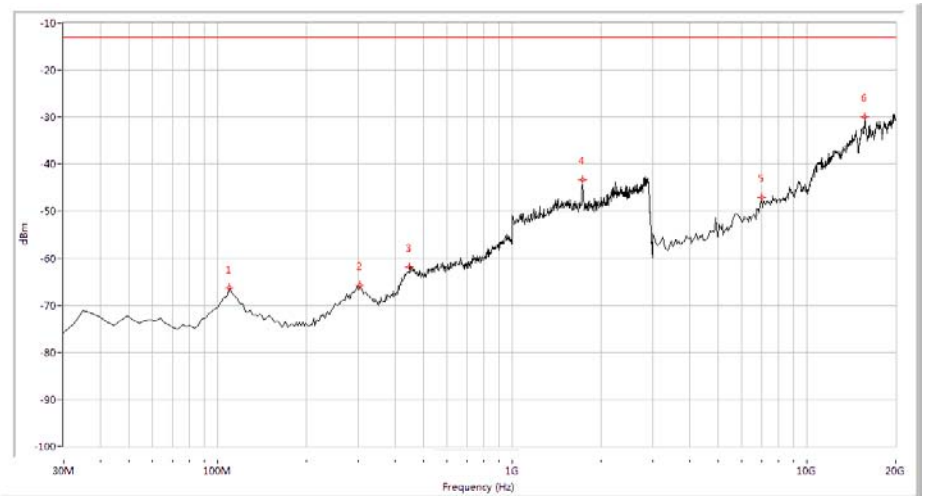


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-66.37	-13.0	53.4	136.4	Vertical	PASS
296.085	-66.29	-13.0	53.3	52.7	Vertical	PASS
443.641	-61.72	-13.0	48.7	241.6	Vertical	PASS
1733.167	-43.00	-13.0	30.0	309.8	Vertical	PASS
5798.005	-50.29	-13.0	37.3	120.5	Vertical	PASS
15845.387	-30.35	-13.0	17.3	6.1	Vertical	PASS

LTE Band 4 15MHz BW, Mid Channel, QPSK

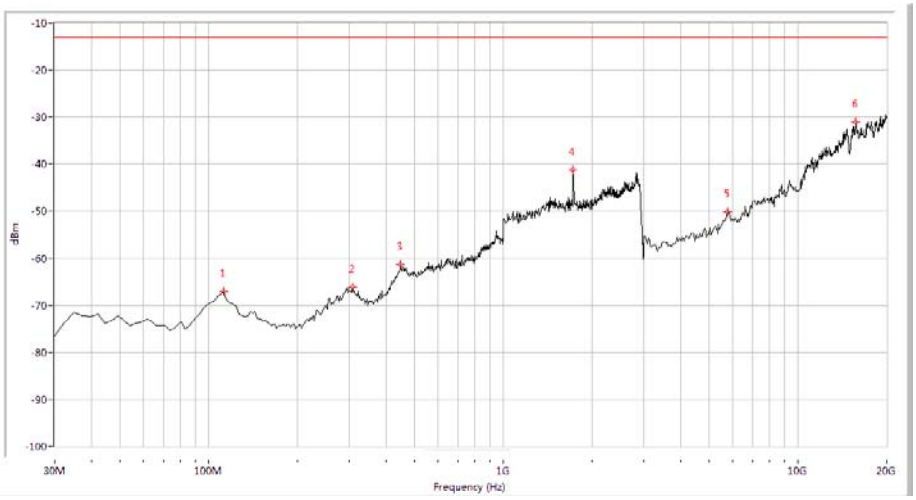


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
112.244	-66.83	-13.0	53.8	63.4	Horizontal	PASS
308.180	-66.29	-13.0	53.3	248.7	Horizontal	PASS
448.479	-61.67	-13.0	48.7	2.0	Horizontal	PASS
1728.180	-44.61	-13.0	31.6	336.9	Horizontal	PASS
5755.611	-50.14	-13.0	37.1	145.8	Horizontal	PASS
15718.204	-31.79	-13.0	18.8	66.2	Horizontal	PASS

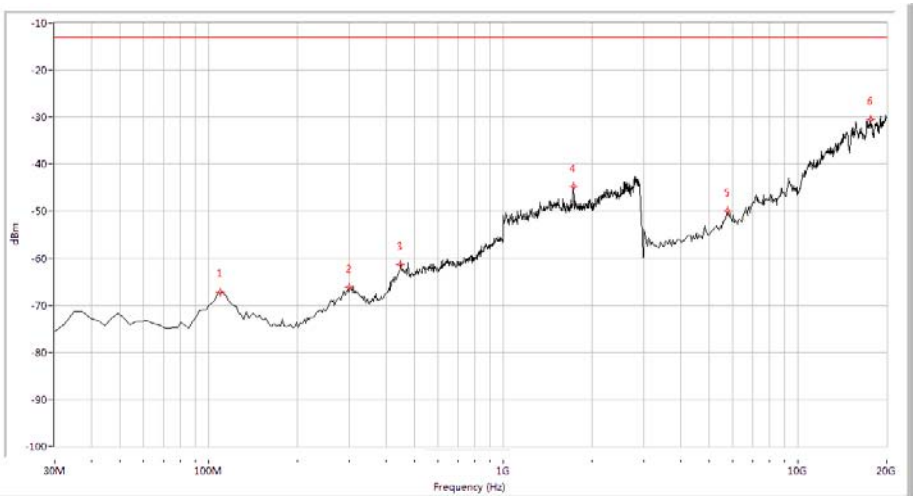


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-66.28	-13.0	53.3	5.9	Vertical	PASS
303.342	-65.77	-13.0	52.8	254.6	Vertical	PASS
448.479	-61.81	-13.0	48.8	28.3	Vertical	PASS
1733.167	-43.39	-13.0	30.4	173.1	Vertical	PASS
7027.431	-47.09	-13.0	34.1	257.9	Vertical	PASS
15718.204	-29.94	-13.0	16.9	233.6	Vertical	PASS

LTE Band 4 15MHz BW, Mid Channel, 16QAM

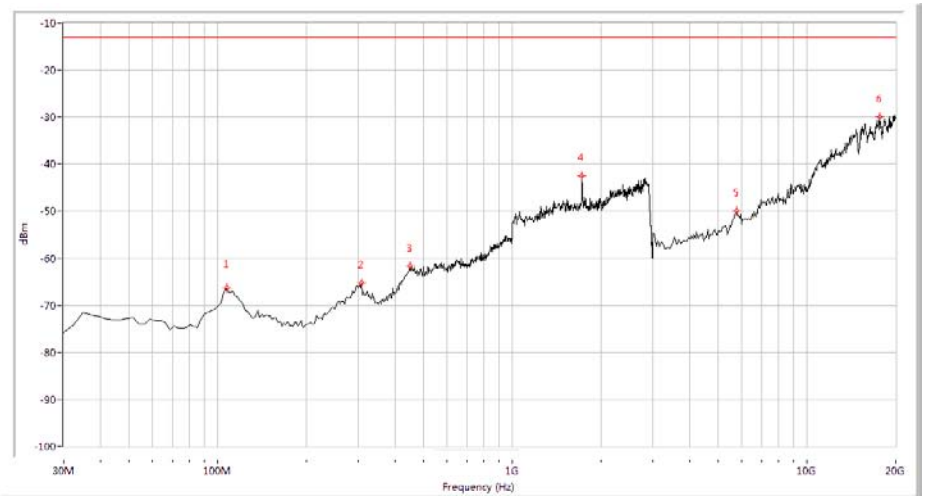


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
112.244	-67.08	-13.0	54.1	163.5	Horizontal	PASS
308.180	-66.12	-13.0	53.1	32.4	Horizontal	PASS
448.479	-61.36	-13.0	48.4	207.8	Horizontal	PASS
1723.192	-41.23	-13.0	28.2	36.9	Horizontal	PASS
5755.611	-50.12	-13.0	37.1	103.0	Horizontal	PASS
15718.204	-30.96	-13.0	18.0	8.7	Horizontal	PASS

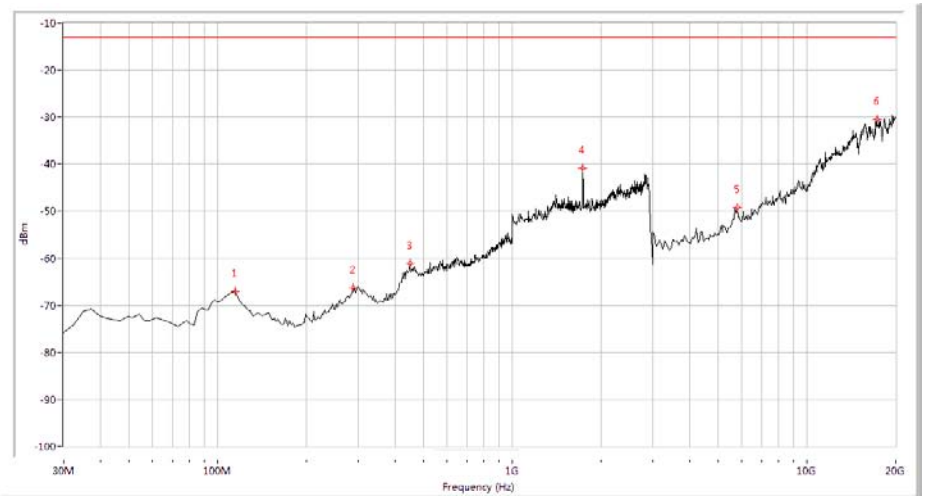


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-67.28	-13.0	54.3	144.	Vertical	PASS
300.923	-66.22	-13.0	53.2	8.7	Vertical	PASS
448.479	-61.37	-13.0	48.4	63.0	Vertical	PASS
1733.167	-44.74	-13.0	31.7	289.3	Vertical	PASS
5755.611	-49.90	-13.0	36.9	23.1	Vertical	PASS
17710.723	-30.45	-13.0	17.5	101.2	Vertical	PASS

LTE Band 4 20MHz BW, Mid Channel, QPSK

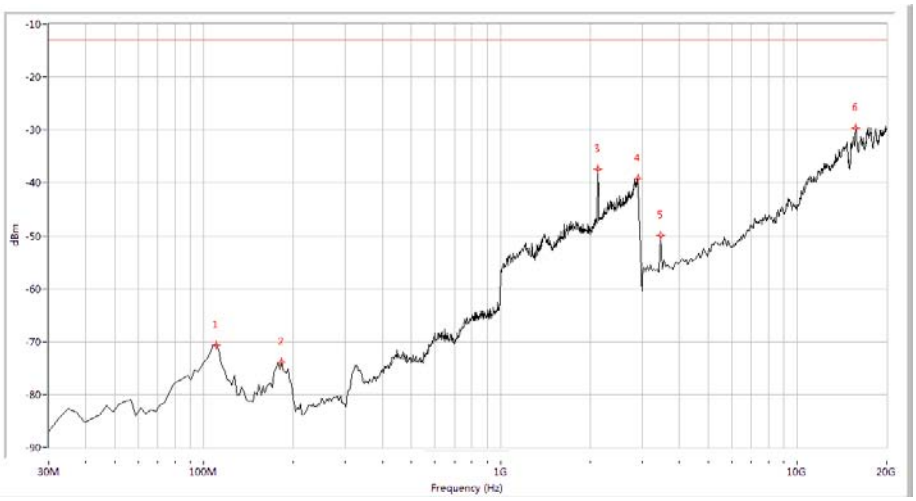


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
107.406	-66.32	-13.0	53.3	15.2	Horizontal	PASS
308.180	-65.20	-13.0	52.2	63.7	Horizontal	PASS
450.898	-61.67	-13.0	48.7	8.9	Horizontal	PASS
1723.192	-42.41	-13.0	29.4	213.0	Horizontal	PASS
5755.611	-49.99	-13.0	37.0	9.8	Horizontal	PASS
17710.723	-29.96	-13.0	17.0	128.3	Horizontal	PASS

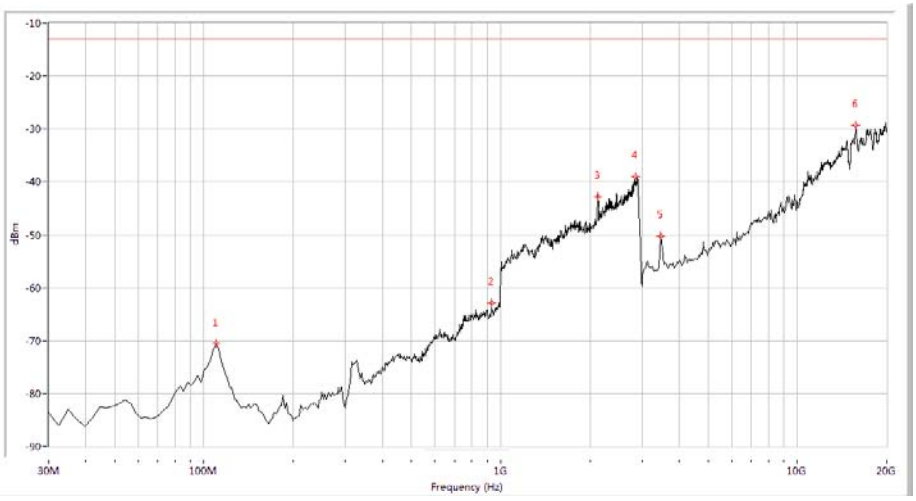


Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
114.663	-67.07	-13.0	54.1	13.4	Vertical	PASS
288.828	-66.36	-13.0	53.4	45.5	Vertical	PASS
450.898	-61.11	-13.0	48.1	245.7	Vertical	PASS
1733.167	-40.75	-13.0	27.7	332.8	Vertical	PASS
5798.005	-49.17	-13.0	36.2	9.6	Vertical	PASS
17286.783	-30.46	-13.0	17.5	12.0	Vertical	PASS

LTE Band 4 20MHz BW, Mid Channel, 16QAM



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-70.61	-13.0	57.6	60.3	Horizontal	PASS
182.394	-73.88	-13.0	60.9	27.9	Horizontal	PASS
2127.182	-37.47	-13.0	24.5	-0.0	Horizontal	PASS
2900.249	-39.07	-13.0	26.1	145.7	Horizontal	PASS
3466.334	-49.97	-13.0	37.0	9.1	Horizontal	PASS
15718.204	-29.63	-13.0	16.6	360.0	Horizontal	PASS



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-70.54	-13.0	57.5	1.9	Vertical	PASS
932.269	-62.88	-13.0	49.9	47.6	Vertical	PASS
2122.195	-42.77	-13.0	29.8	108.8	Vertical	PASS
2845.387	-38.99	-13.0	26.0	291.8	Vertical	PASS
3466.334	-50.23	-13.0	37.2	301.2	Vertical	PASS
15760.599	-29.37	-13.0	16.4	244.7	Vertical	PASS

** END OF REPORT **