REPORT No.: SZ15080014W02

FCC RF TEST REPORT

APPLICANT	:	KPhone USA Inc.
PRODUCT NAME	:	smart phone
MODEL NAME	:	K5
TRADE NAME	:	KPHONE
BRAND NAME	:	KPHONE
FCC ID	:	2AFJ5K5
STANDARD(S)	:	47 CFR Part 27, Subpart H&L&M
ISSUE DATE	:	2015-9-15

SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

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DIRECTORY

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Change History		
Issue	Date	Reason for change
1.0	2015-9-15	First edition

TEST REPORT DECLARATION

Applicant	KPhone USA Inc.
Applicant Address	8333 Foothill Blvd.#840 Rancho Cucamonga, CA 91730
Manufacturer	Beijing Benywave Wireless Communication Co.,Ltd
Manufacturer Address	No. 55, Jiachuang 2 Road, Beijing OPTO-Mechatronics Industrial Park (OIP), Tongzhou District, Beijing, China 101111
Product Name	smart phone
Model Name	K5
Brand Name	KPHONE
HW Version	TBT5755_P2_001
SW Version	575511_1001_VXXXX
Test Standards	47 CFR Part 27, Subpart H&L&M
Test Date	2015-8-10 to 2015-9-14
Test Result	PASS

Tested by : Yuan Ling

Yuan Ling(Test Engineer)

Reviewed by : Qiu Xiaojun

Qiu Xiaojun(RF Manager)

Approved by : Zeng Dexin

Zeng Dexin(Chief Engineer)

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type ..... :	smart phone
Serial No. ..... :	(n.a, marked #1 by test site)
Hardware Version..... :	TBT5755_P2_001
Software Version.....	575511_1001_VXXXX
Applicant ..... :	KPhone USA Inc. 8333 Foothill Blvd.#840 Rancho Cucamonga, CA 91730
Manufacturer..... :	Beijing Benywave Wireless Communication Co.,Ltd No. 55, Jiachuang 2 Road, Beijing OPTO-Mechatronics Industrial Park (OIP), Tongzhou District, Beijing, China 101111
Modulation Type..... :	LTE Band 4: QPSK, 16QAM LTE Band 7: QPSK, 16QAM LTE Band 17: QPSK, 16QAM
Tx Frequency Range..... ..... :	LTE Band 4: 1710.7MHz ~1754.5MHz LTE Band 7: 2502.5MHz ~ 2567.5MHz LTE Band 17: 706.5MHz ~ 713.5MHz
Rx Frequency Range ..... :	LTE Band 4: 2110.7MHz ~ 2154.3MHz LTE Band 7: 2622.5MHz ~ 2687.5MHz LTE Band 17: 736.5MHz ~ 743.5MHz
Emission Designator ..... :	1M11G7D (LTE Band 4, QPSK, BW 1.4MHz) 1M10W7D (LTE Band 4, 16QAM, BW 1.4MHz) 2M72G7D (LTE Band 4, QPSK, BW 3MHz) 2M72W7D (LTE Band 4, 16QAM, BW 3MHz) 4M53G7D (LTE Band 4, QPSK, BW 5MHz) 4M53W7D (LTE Band 4, 16QAM, BW 5MHz) 9M01G7D (LTE Band 4, QPSK, BW 10MHz) 9M01W7D (LTE Band 4, 16QAM, BW 10MHz) 13M52G7D (LTE Band 4, QPSK, BW 15MHz) 13M50W7D (LTE Band 4, 16QAM, BW 15MHz) 17M98G7D (LTE Band 4, QPSK, BW 20MHz) 18M00W7D (LTE Band 4, 16QAM, BW 20MHz) 4M53G7D (LTE Band 7, QPSK, BW 5MHz) 4M54W7D (LTE Band 7, 16QAM, BW 5MHz) 9M02G7D (LTE Band 7, QPSK, BW 10MHz) 9M01W7D (LTE Band 7, 16QAM, BW 10MHz) 13M51G7D (LTE Band 7, QPSK, BW 15MHz)

13M52W7D (LTE Band 7, 16QAM, BW 15MHz)
18M00G7D (LTE Band 7, QPSK, BW 20MHz)
18M05W7D (LTE Band 7, 16QAM, BW 20MHz)
4M53G7D (LTE Band 17, QPSK, BW 5MHz)
4M53W7D (LTE Band 17, 16QAM, BW 5MHz)
9M02G7D (LTE Band 17, QPSK, BW 10MHz)
9M01W7D (LTE Band 17, 16QAM, BW 10MHz)

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, 2.1057, 27.53(g)	Conducted Spurious Emissions	PASS
6	2.1051, 2.1057, 27.53(g)(h), 27.53(m)(4)	Band Edge	PASS
7	24.232, 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 FL.1, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China 518101. 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 & 27 REQUIREMENTS

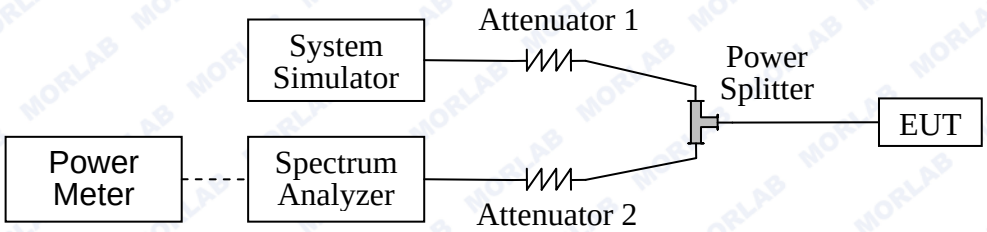
2.1 Transmitter Conducted Output Power

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

Test Setup:



The EUT, which is powered by the Battery, 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.

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50/124534/wk	2015.02.26	2016.02.25
Spectrum Analyzer	Rohde& Schwarz	FSL	10246	2015.02.26	2016.02.25
Spectrum Analyzer	Agilent	E4445A	MY44200685	2015.02.26	2016.02.25
Power Meter	Agilent	E4418B	GB43318055	2015.02.26	2016.02.25
Power Meter	Agilent	E4418B	GB43318055	2015.02.26	2016.02.25
Power Sensor	Agilent	8482A	MY41091706	2015.02.26	2016.02.25
Power Splitter	Weinschel	1506A	NW521	2015.02.26	2016.02.25
Attenuator 1	Resnet	20dB	(n.a.)	2015.02.26	2016.02.25
Attenuator 2	Resnet	3dB	(n.a.)	2015.02.26	2016.02.25

2.1.3 Test Results

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 4	20MHz	L 20050	1720.0	QPSK	1	0	20.35
					1	49	19.56
					1	99	19.70
					50	0	19.55
					50	25	19.81
					50	49	19.73
					100	0	19.68
				16-QAM	1	0	19.48
					1	49	18.75
					1	99	19.67
					50	0	19.63
					50	25	19.58
					50	49	18.85
					100	0	18.76
		M 20175	1732.5	QPSK	1	0	20.76
					1	49	20.89
					1	99	20.22
					50	0	20.11
					50	25	19.60
					50	49	19.75
					100	0	20.09
				16-QAM	1	0	20.04
					1	49	20.12
					1	99	19.35
					50	0	19.98
					50	25	20.03
					50	49	18.90
					100	0	18.85
		H 20300	1745.0	QPSK	1	0	20.58
					1	49	19.61
					1	99	19.63
					50	0	19.65
					50	25	19.70
					50	49	19.53
					100	0	19.51
				16-QAM	1	0	20.01
					1	49	18.53
					1	99	20.25
					50	0	20.05
					50	25	19.85
					50	49	18.75
					100	0	18.52

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 4	15MHz	L 20025	1717.5	QPSK	1	0	19.60
					1	37	20.13
					1	74	19.84
					36	0	19.20
					36	18	19.23
					36	35	20.15
					75	0	18.69
				16-QAM	1	0	19.65
					1	37	19.54
					1	74	19.66
					36	0	19.61
					36	18	20.18
					36	35	20.69
					75	0	18.98
		M 20175	1732.5	QPSK	1	0	19.36
					1	37	20.16
					1	74	20.58
					36	0	20.45
					36	18	19.68
					36	35	19.89
					75	0	19.13
				16-QAM	1	0	20.69
					1	37	20.55
					1	74	20.34
					36	0	19.72
					36	18	19.84
					36	35	20.33
					75	0	19.64
		H 20325	1747.5	QPSK	1	0	20.92
					1	37	20.44
					1	74	20.63
					36	0	20.40
					36	18	19.68
					36	35	19.42
					75	0	19.87
				16-QAM	1	0	20.53
					1	37	20.71
					1	74	20.22
					36	0	19.92
					36	18	20.06
					36	35	19.65
					75	0	19.86

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 4	10MHz	L 20000	1715.0	QPSK	1	0	19.87
					1	24	19.60
					1	49	19.78
					25	0	19.68
					25	12	19.56
					25	24	19.71
					50	0	19.75
				16-QAM	1	0	19.86
					1	24	20.05
					1	49	19.76
					25	0	20.02
					25	12	19.55
					25	24	19.05
					50	0	18.81
		M 20175	1732.5	QPSK	1	0	21.49
					1	24	20.08
					1	49	20.01
					25	0	19.89
					25	12	20.05
					25	24	19.97
					50	0	19.88
				16-QAM	1	0	20.93
					1	24	18.95
					1	49	20.63
					25	0	20.82
					25	12	20.15
					25	24	19.98
					50	0	19.02
		H 20350	1750.0	QPSK	1	0	19.88
					1	24	20.02
					1	49	19.97
					25	0	20.01
					25	12	20.11
					25	24	20.06
					50	0	19.57
				16-QAM	1	0	19.83
					1	24	20.30
					1	49	21.05
					25	0	20.08
					25	12	20.03
					25	24	19.89
					50	0	18.98

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
20.94					1	0	20.05
					1	12	19.65
					1	24	18.95
				QPSK	12	0	19.54
					12	6	19.11
		L			12	11	19.05
			1712.5		25	0	19.23
		19975			1	0	20.21
					1	12	18.83
					1	24	19.24
				16-QAM	12	0	20.15
					12	6	19.88
					12	11	19.50
					25	0	18.96
					1	0	21.37
					1	12	20.04
					1	24	20.01
				QPSK	12	0	19.98
					12	6	20.07
		M			12	11	20.11
LTE			1732.5		25	0	19.97
	5MHz	20175			1	0	20.66
Band 4					1	12	19.20
					1	24	19.85
				16-QAM	12	0	20.50
					12	6	20.33
					12	11	20.06
					25	0	19.03
					1	0	20.86
					1	12	19.76
					1	24	19.79
				QPSK	12	0	19.90
					12	6	18.98
		H			12	11	19.67
			1752.5		25	0	19.77
		20375			1	0	19.93
					1	12	19.20
					1	24	18.81
				16-QAM	12	0	20.01
					12	6	19.91
					12	11	19.85
					25	0	18.73

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 4	3MHz	L 19965	1711.5	QPSK	1	0	20.05
					1	7	19.65
					1	14	18.95
					8	0	19.54
					8	4	19.34
					8	7	19.05
					15	0	19.23
				16-QAM	1	0	20.21
					1	7	18.83
					1	14	19.24
					8	0	20.11
					8	4	19.88
					8	7	19.10
					15	0	18.96
		M 20175	1732.5	QPSK	1	0	21.37
					1	7	20.04
					1	14	20.01
					8	0	19.98
					8	4	20.07
					8	7	19.70
					15	0	19.97
				16-QAM	1	0	20.66
					1	7	19.20
					1	14	19.85
					8	0	20.68
					8	4	20.50
					8	7	19.88
					15	0	19.03
		H 20385	1753.5	QPSK	1	0	20.86
					1	7	19.76
					1	14	19.79
					8	0	19.90
					8	4	18.98
					8	7	19.69
					15	0	19.77
				16-QAM	1	0	19.93
					1	7	19.20
					1	14	18.81
					8	0	20.02
					8	4	19.64
					8	7	19.10
					15	0	18.73

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 4	1.4MHz	L 19957	1710.7	QPSK	1	0	21.03
					1	2	20.85
					1	5	20.64
					3	0	21.02
					3	1	20.85
					3	2	20.55
					6	0	20.67
				16-QAM	1	0	21.01
					1	2	20.00
					1	5	20.72
					3	0	20.90
					3	1	20.72
					3	2	20.03
					6	0	19.97
		M 20175	1732.5	QPSK	1	0	22.01
					1	2	20.83
					1	5	20.75
					3	0	20.81
					3	1	20.77
					3	2	20.64
					6	0	20.62
				16-QAM	1	0	21.03
					1	2	20.71
					1	5	20.38
					3	0	20.93
					3	2	20.66
					3	5	20.32
					6	0	19.62
		H 20393	1754.3	QPSK	1	0	21.05
					1	2	20.38
					1	5	21.96
					3	0	20.49
					3	1	20.47
					3	2	20.43
					6	0	21.03
				16-QAM	1	0	21.02
					1	2	20.85
					1	5	20.56
					3	0	21.05
					3	1	20.38
					3	2	20.20
					6	0	19.98

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 7	20MHz	L 20850	2510	QPSK	1	0	21.93
					1	49	20.85
					1	99	20.64
					50	0	20.92
					50	25	20.85
					50	49	20.72
					100	0	20.67
				16-QAM	1	0	21.01
					1	49	20.00
					1	99	20.72
					50	0	20.88
					50	25	20.55
					50	49	20.01
					100	0	19.97
		M 21100	2535	QPSK	1	0	21.98
					1	49	20.83
					1	99	20.75
					50	0	20.81
					50	25	20.54
					50	49	20.64
					100	0	20.62
				16-QAM	1	0	21.03
					1	49	20.71
					1	99	20.38
					50	0	20.86
					50	25	20.45
					50	49	20.01
					100	0	19.62
		H 21350	2560	QPSK	1	0	21.05
					1	49	20.38
					1	99	21.96
					50	0	20.89
					50	25	20.47
					50	49	20.43
					100	0	21.03
				16-QAM	1	0	21.02
					1	49	20.85
					1	99	20.56
					50	0	20.89
					50	25	20.22
					50	49	20.10
					100	0	19.98

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
2	15MHz	L 20825	2507.5	QPSK	1	0	21.03
					1	37	20.85
					1	74	20.64
					36	0	21.02
					36	18	20.85
					36	35	20.74
					75	0	20.67
				16-QAM	1	0	21.01
					1	37	20.00
					1	74	20.72
					36	0	20.76
					36	18	20.58
					36	35	20.11
					75	0	19.97
LTE Band 7		M 21100	2535	QPSK	1	0	22.01
					1	37	20.83
					1	74	20.75
					36	0	20.81
					36	18	20.71
					36	35	20.64
					75	0	20.62
				16-QAM	1	0	21.03
					1	37	20.71
					1	74	20.38
					36	0	20.85
					36	18	20.56
					36	35	19.98
					75	0	19.62
		H 21375	2562.5	QPSK	1	0	21.05
					1	37	20.38
					1	74	21.96
					36	0	20.49
					36	18	20.47
					36	35	20.38
					75	0	21.03
				16-QAM	1	0	21.02
					1	37	20.85
					1	74	20.56
					36	0	20.76
					36	18	20.58
					36	35	20.21
					75	0	19.98

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 7	10MHz	L 20800	2505	QPSK	1	0	21.83
					1	24	20.59
					1	49	20.61
					25	0	20.62
					25	12	20.60
					25	24	20.52
					50	0	20.59
				16-QAM	1	0	21.26
					1	24	19.72
					1	49	19.75
					25	0	20.97
					25	12	20.77
					25	24	20.08
					50	0	19.73
		M 21100	2535	QPSK	1	0	21.81
					1	24	20.69
					1	49	20.70
					25	0	20.12
					25	12	19.98
					25	24	20.06
					50	0	20.12
				16-QAM	1	0	21.02
					1	24	21.85
					1	49	20.76
					25	0	21.05
					25	12	21.63
					25	24	20.66
					50	0	20.15
		H 21400	2565	QPSK	1	0	21.92
					1	24	20.55
					1	49	20.30
					25	0	20.60
					25	12	20.59
					25	24	20.12
					50	0	20.32
				16-QAM	1	0	21.16
					1	24	19.43
					1	49	19.55
					25	0	21.10
					25	12	19.96
					25	24	19.50
					50	0	19.48

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 7	5MHz	L 20775	2502.5	QPSK	1	0	21.52
					1	12	20.26
					1	24	20.21
					12	0	21.33
					12	6	21.35
					12	11	21.37
					25	0	20.16
				16-QAM	1	0	21.17
					1	12	19.21
					1	24	21.28
					12	0	21.08
					12	6	20.75
					12	11	20.02
					25	0	19.19
		M 21100	2535	QPSK	1	0	21.05
					1	12	20.30
					1	24	20.29
					12	0	21.02
					12	6	21.05
					12	11	21.06
					25	0	20.39
				16-QAM	1	0	19.77
					1	12	19.34
					1	24	19.39
					12	0	20.45
					12	6	20.22
					12	11	20.01
					25	0	19.16
		H 21425	2567.5	QPSK	1	0	21.25
					1	12	21.21
					1	24	21.20
					12	0	21.16
					12	6	21.23
					12	11	21.05
					25	0	21.17
				16-QAM	1	0	20.51
					1	12	19.02
					1	24	20.47
					12	0	20.46
					12	6	20.55
					12	11	20.01
					25	0	19.16

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 17	10MHz	L 23780	709	QPSK	1	0	22.13
					1	24	20.34
					1	49	20.28
					25	0	20.39
					25	12	20.36
					25	24	20.23
					50	0	20.34
				16-QAM	1	0	21.83
					1	24	19.35
					1	49	19.28
					25	0	21.77
					25	12	20.03
					25	24	19.22
					50	0	19.34
		M 23790	710	QPSK	1	0	21.82
					1	24	20.20
					1	49	20.19
					25	0	20.30
					25	12	20.24
					25	24	20.13
					50	0	20.25
				16-QAM	1	0	21.28
					1	24	21.18
					1	49	20.87
					25	0	21.15
					25	12	20.98
					25	24	20.88
					50	0	20.28
		H 23800	711	QPSK	1	0	22.05
					1	24	20.34
					1	49	20.25
					25	0	20.36
					25	12	20.25
					25	24	20.18
					50	0	20.26
				16-QAM	1	0	21.34
					1	24	21.03
					1	49	21.21
					25	0	21.30
					25	12	21.11
					25	24	20.98
					50	0	19.26

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 17	5MHz	L 23755	706.5	QPSK	1	0	21.13
					1	12	20.29
					1	24	22.02
					12	0	21.06
					12	6	21.15
					12	11	21.23
					25	0	21.12
				16-QAM	1	0	21.15
					1	12	20.85
					1	24	21.93
					12	0	21.20
					12	6	20.69
					12	11	20.36
					25	0	20.23
		M 23790	710	QPSK	1	0	21.95
					1	12	21.88
					1	24	22.02
					12	0	21.04
					12	6	20.98
					12	11	20.95
					25	0	21.06
				16-QAM	1	0	20.69
					1	12	20.07
					1	24	20.11
					12	0	21.02
					12	6	20.69
					12	11	20.33
					25	0	20.01
		H 23825	713.5	QPSK	1	0	22.02
					1	12	22.05
					1	24	21.95
					12	0	21.19
					12	6	21.20
					12	11	21.15
					25	0	21.08
				16-QAM	1	0	21.18
					1	12	21.39
					1	24	21.40
					12	0	21.20
					12	6	20.96
					12	11	20.25
					25	0	19.91

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	1.1025	1.1009	19965	1711.5	2.7200	2.7088
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	1.329	1.286	19965	1711.5	3.005	3.003

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	4.5241	4.5268	20000	1715.0	8.9841	9.0062
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.059	5.043	20000	1715.0	9.915	9.980

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	13.466	13.498	20050	1720.0	17.978	17.991
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	14.73	14.75	20050	1720.0	19.58	19.74

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	1.1006	1.1035	20175	1732.5	2.7138	2.7244
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	1.318	1.314	20175	1732.5	3.007	3.028

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	4.5291	4.5271	20175	1732.5	9.0136	9.0130
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.026	5.032	20175	1732.5	10.06	9.915

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	13.518	13.497	20175	1732.5	17.978	18.007
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	14.85	14.72	20175	1732.5	19.60	19.49

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	1.1070	1.1009	20384	1753.4	2.7176	2.7106
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20392	1754.2	1.306	1.319	20384	1753.4	3.017	3.024

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	4.5220	4.3545	20350	1750.0	9.0045	9.0056
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20375	1752.5	4.993	5.033	20350	1750.0	9.939	9.951

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	13.474	13.490	20300	1745.0	17.975	17.959
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20325	1747.5	14.84	14.75	20300	1745.0	19.63	19.54

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

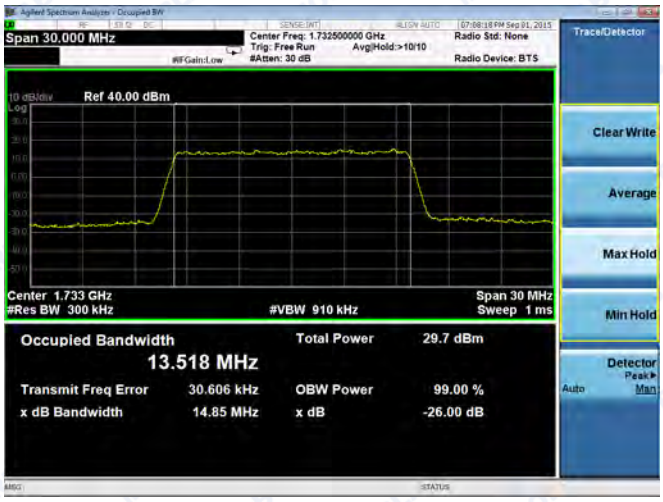
Spectrum Plot of Worst Value

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

LTE Band 7

Low channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20775	2502.5	4.5345	4.5300	20800	2505.0	9.002	9.0113
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20775	2502.5	5.043	5.021	20800	2505.0	9.898	9.969

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20825	2507.5	13.458	13.511	20850	2510.0	17.987	18.001
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20825	2507.5	14.74	14.72	20850	2510.0	19.63	19.81

Middle channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21100	2535.0	4.5336	4.5211	21100	2535.0	9.0214	9.0124
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21100	2535.0	5.006	5.033	21100	2535.0	10.06	9.889

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21100	2535.0	13.515	13.516	21100	2535.0	17.990	18.054
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21100	2535.0	14.87	14.79	21100	2535.0	19.39	19.72

High channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21425	2567.5	4.5296	4.5352	21400	2565.0	9.0124	9.0109
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21425	2567.5	5.019	5.010	21400	2565.0	10.01	9.942

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21375	2562.5	13.512	13.485	21350	2560.0	18.009	17.975
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21375	2562.5	14.84	14.84	21350	2560.0	19.71	19.62

Low channel:

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	
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	
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

LTE Band 17

Low channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23755	706.5	4.5269	4.5314	23780	709.0	8.9985	8.9969
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23755	706.5	5.083	5.021	23780	709.0	9.979	9.888

Middle channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23790	710	4.5316	4.5289	23790	710	9.0188	9.0122
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23790	710	5.010	5.033	23790	710	9.973	9.887

High channel:

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23825	713.5	4.5185	4.5347	23800	711	9.0219	8.9986
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23825	713.5	5.003	4.990	23800	711	9.906	9.990

Low channel:

Spectrum Plot of Worst Value	
5MHz/QPSK	**5MHz/16QAM**

Spectrum Plot of Worst Value	
10MHz/QPSK	**10MHz/16QAM**

Middle channel:

Spectrum Plot of Worst Value	
5MHz/QPSK	**5MHz/16QAM**

Spectrum Plot of Worst Value	
10MHz/QPSK	**10MHz/16QAM**

High channel:

Spectrum Plot of Worst Value	
5MHz/QPSK	**5MHz/16QAM**

Spectrum Plot of Worst Value	
10MHz/QPSK	**10MHz/16QAM**

2.3 Frequency Stability

2.3.1 Requirement

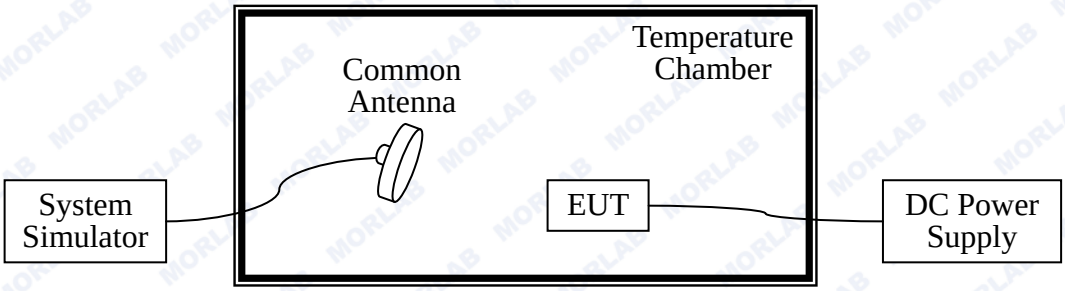
According to FCC section 2.1055 and FCC section 27.54, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(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

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.

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50/124534/wk	2015.02.26	2016.02.25
DC Power Supply	Good Will	GPS-3030DD	EF920938	2015.02.26	2016.02.25
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2015.02.26	2016.02.25

2.3.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.2VDC and 3.45VDC, which are specified by the applicant; the normal temperature here used is 20°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	12.98	PASS
100		-20	-9.24	
100		-10	10.25	
100		0	12.16	
100		+10	10.98	
100		+20	9.9	
100		+30	-10.47	
100		+40	11.25	
100		+50	10.2	
115	4.2	+20	11.98	
85	3.45	+20	13.33	

TE Band 7 – QPSK - Channel 21100 – Frequency 2535MHz – RB 25/0 Limit: 2535MHz*2.5ppm=6337.5Hz				
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Result**
100	3.8	-30	16.51	PASS
100		-20	-5.71	
100		-10	13.78	
100		0	15.69	
100		+10	14.51	
100		+20	13.43	
100		+30	-6.94	
100		+40	14.78	
100		+50	13.73	
115	4.2	+20	15.51	
85	3.45	+20	16.86	

TE Band 17 – QPSK - Channel 23790 – Frequency 710MHz – RB 25/0 Limit: 710MHz*2.5ppm=1775Hz				
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Result**
100	3.8	-30	8.46	PASS
100		-20	13.81	
100		-10	-8.98	
100		0	7.27	
100		+10	9.12	
100		+20	8.03	
100		+30	-11.16	
100		+40	8.52	
100		+50	10.41	
115	4.2	+20	11.7	
85	3.45	+20	11.77	

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.

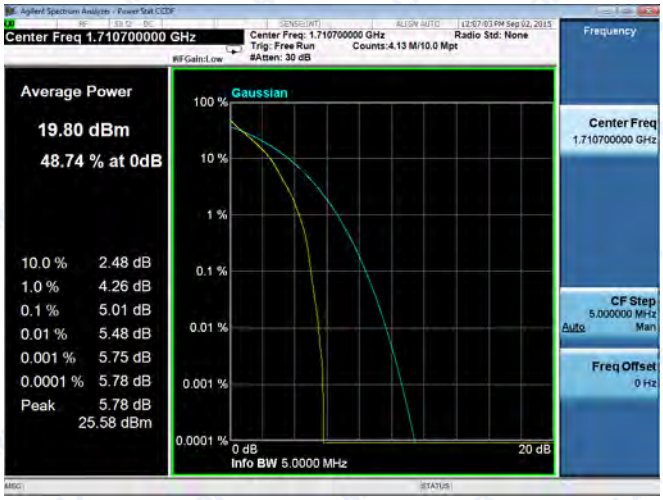
2.4.3 Test Result

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

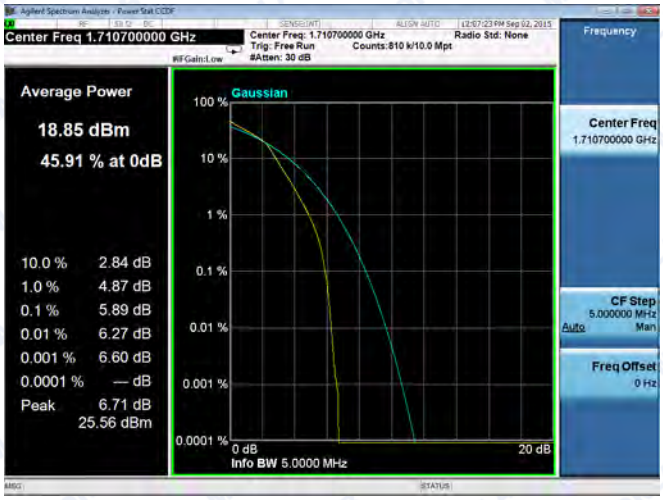
LTE Band 4 Low channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	5.01	5.89	19965	1711.5	5.03	5.90

Spectrum Plot of Worst Value (Low channel)

1.4MHz/QPSK

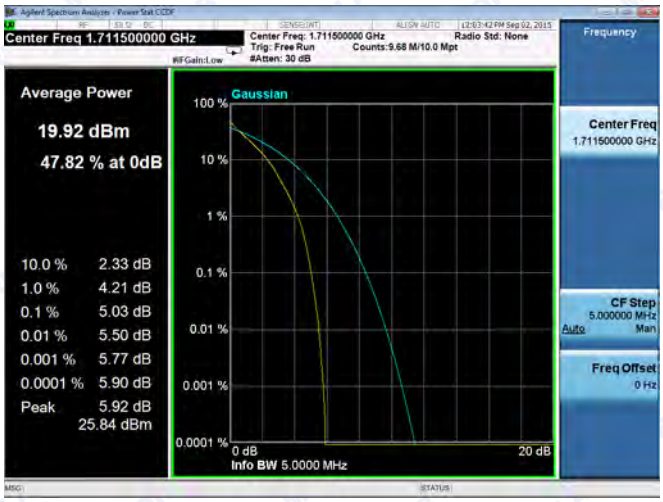


1.4MHz/16QAM

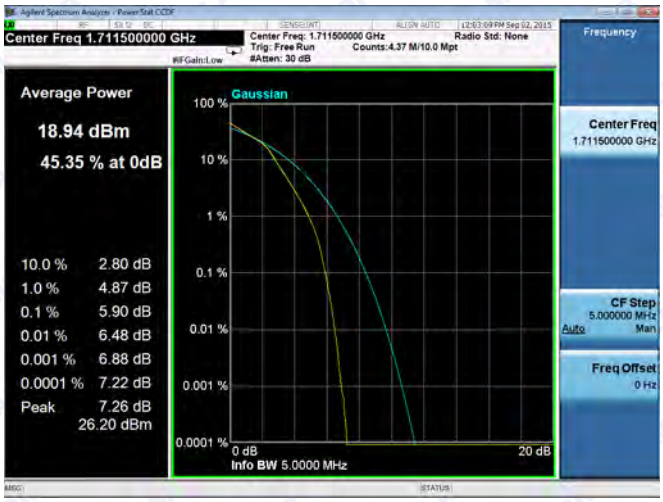


Spectrum Plot of Worst Value

3MHz/QPSK



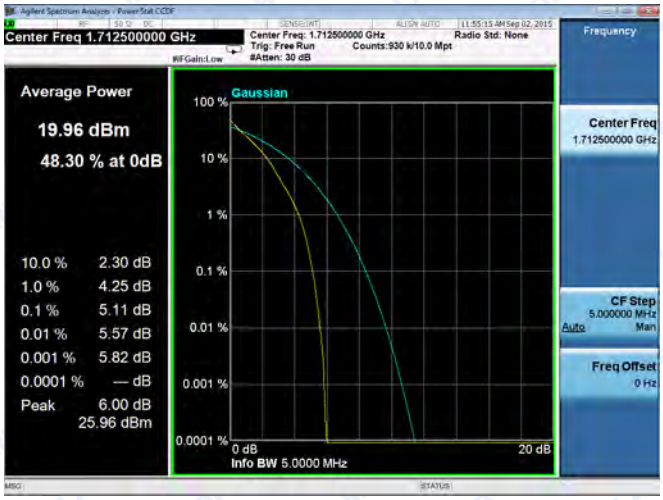
3MHz/16QAM



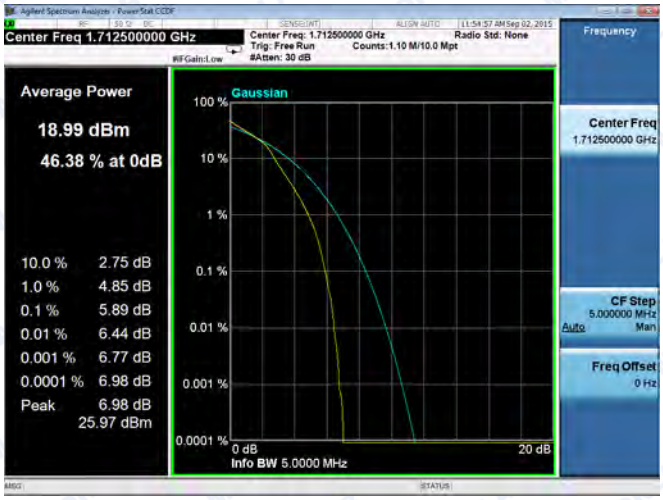
LTE Band 4 Low channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.11	5.89	20000	1715.0	4.64	5.91

Spectrum Plot of Worst Value

5MHz/QPSK

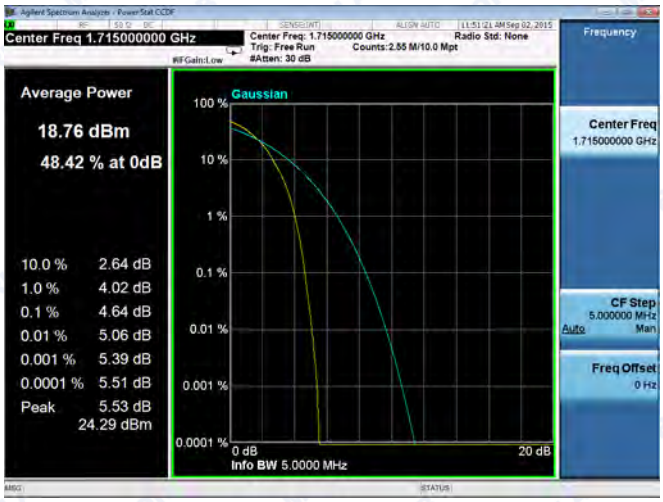


5MHz/16QAM

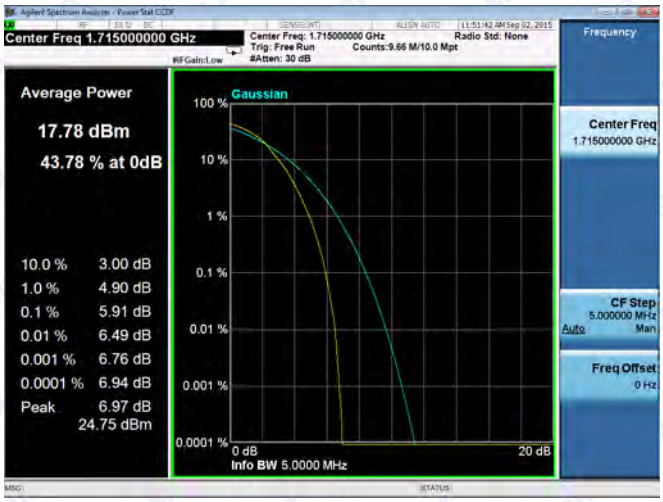


Spectrum Plot of Worst Value

10MHz/QPSK



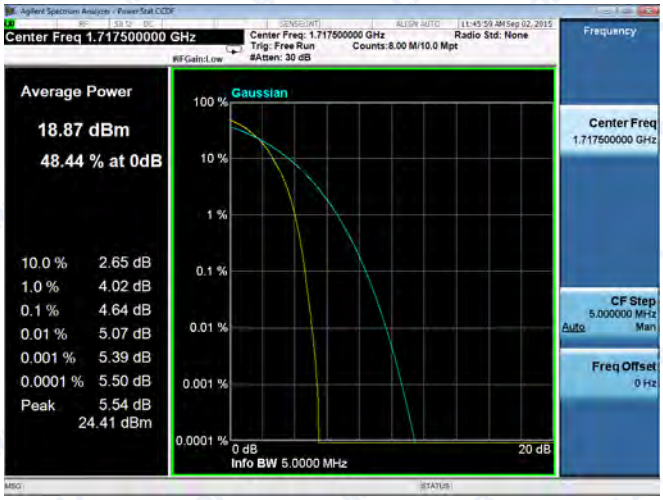
10MHz/16QAM



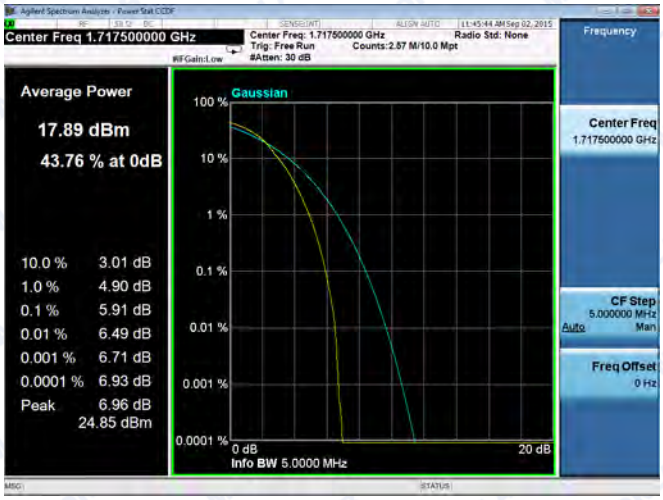
LTE Band 4 Low channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	4.64	5.91	20050	1720.0	6.47	7.13

Spectrum Plot of Worst Value

15MHz/QPSK

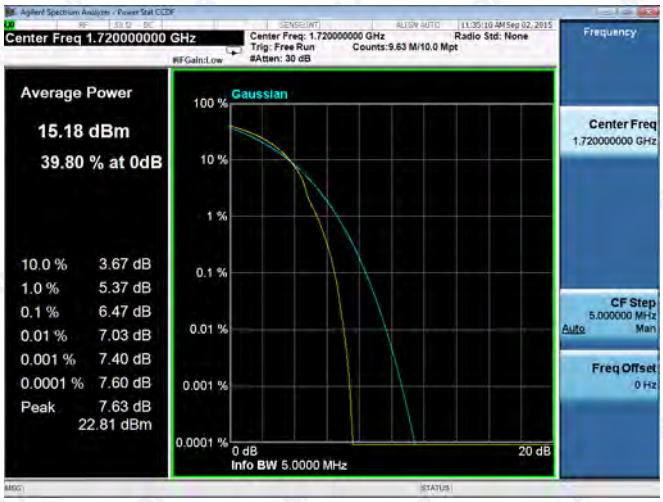


15MHz/16QAM

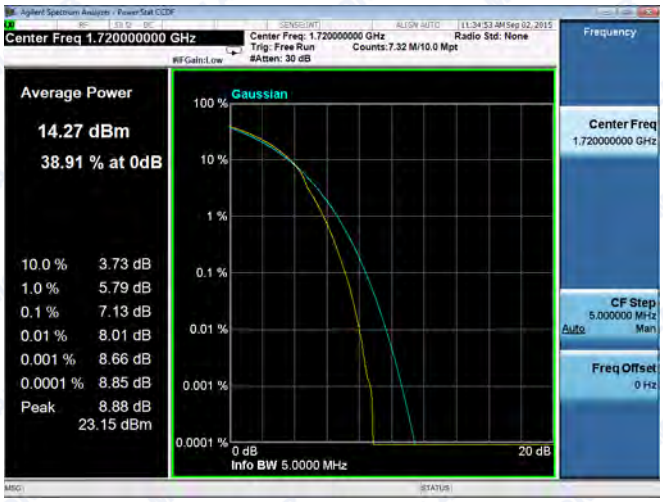


Spectrum Plot of Worst Value

20MHz/QPSK



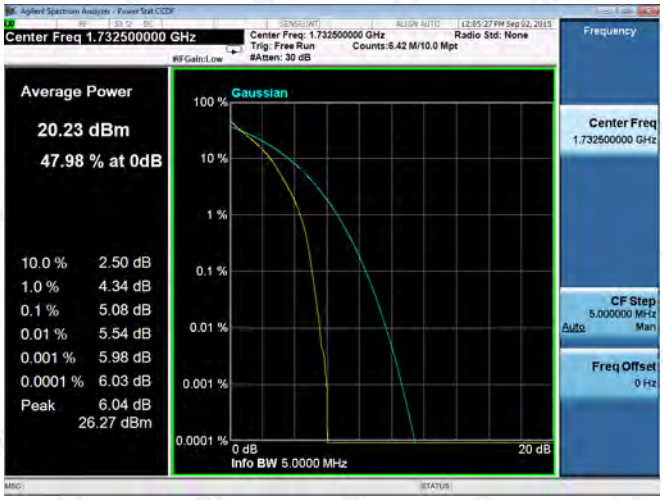
20MHz/16QAM



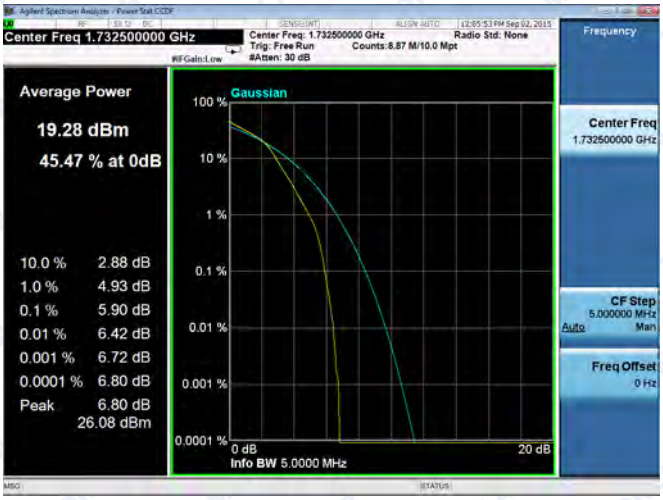
LTE Band 4 Middle channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.08	5.90	20175	1732.5	5.14	5.98

Spectrum Plot of Worst Value

1.4MHz/QPSK

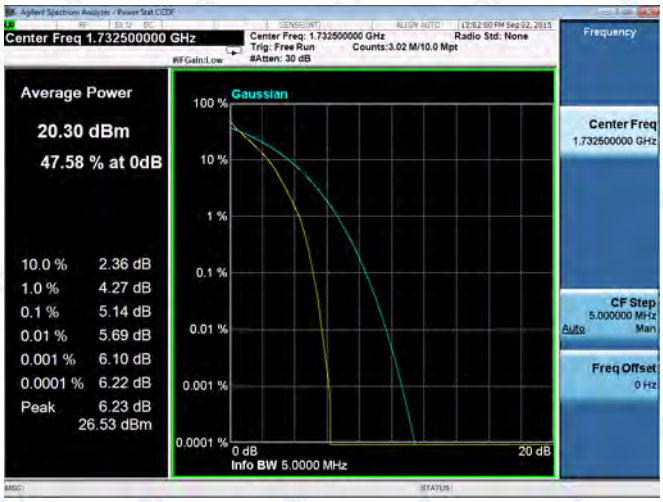


1.4MHz/16QAM

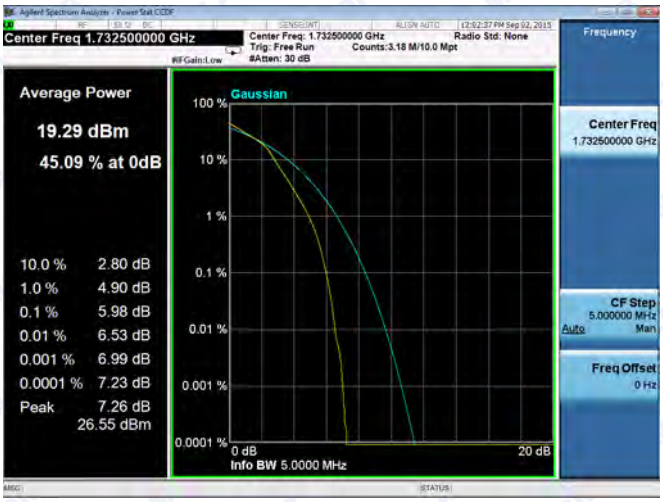


Spectrum Plot of Worst Value

3MHz/QPSK



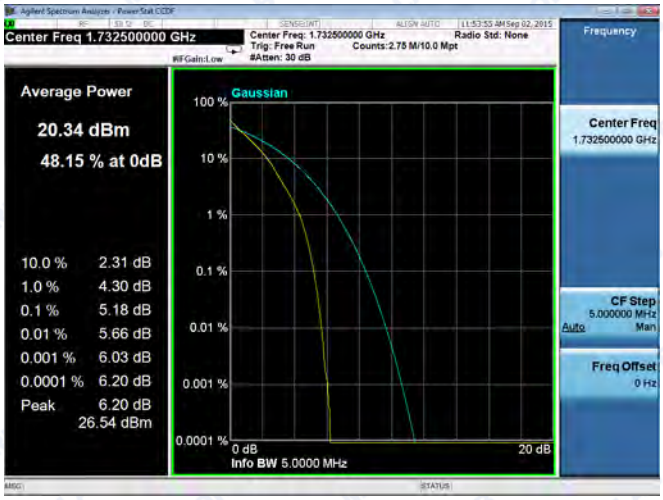
3MHz/16QAM



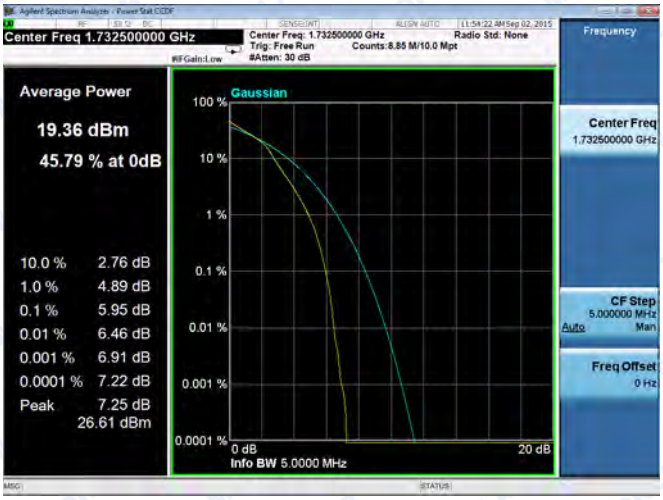
LTE Band 4 Middle channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.18	5.95	20175	1732.5	4.61	5.98

Spectrum Plot of Worst Value

5MHz/QPSK

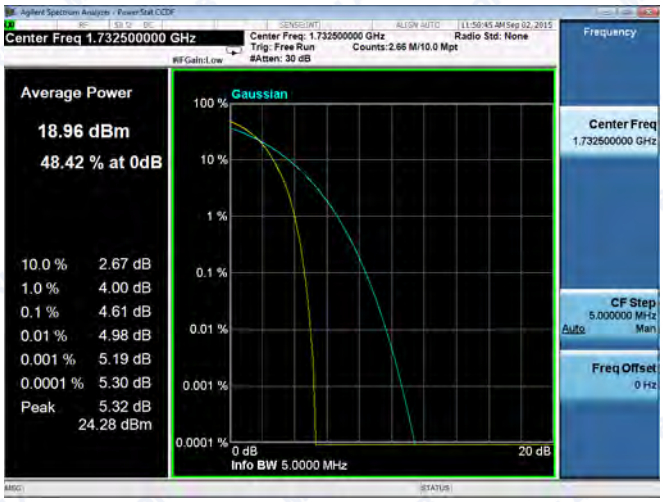


5MHz/16QAM

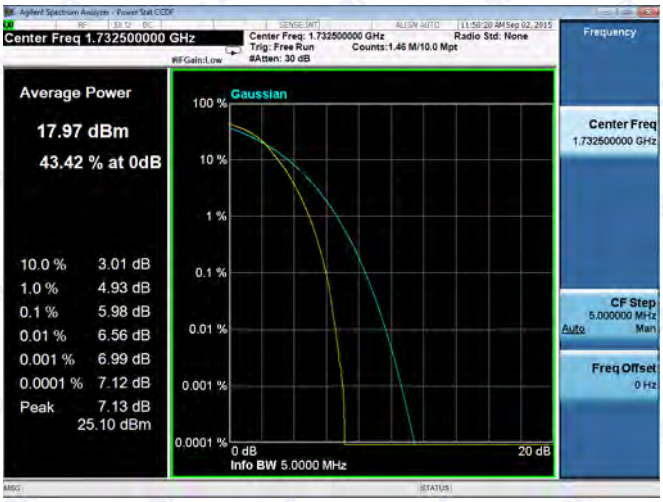


Spectrum Plot of Worst Value

10MHz/QPSK



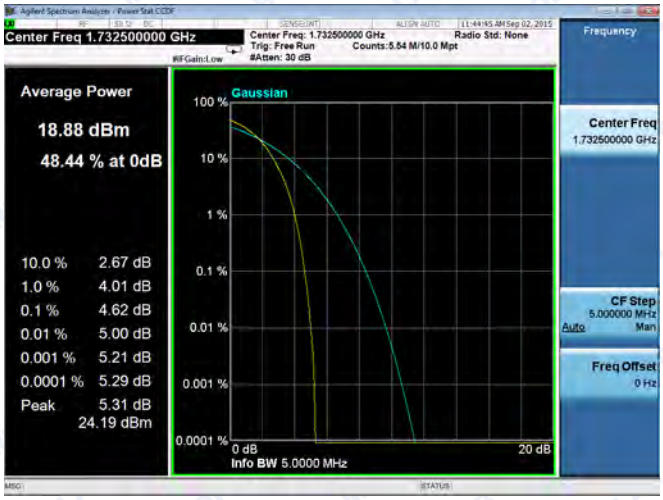
10MHz/16QAM



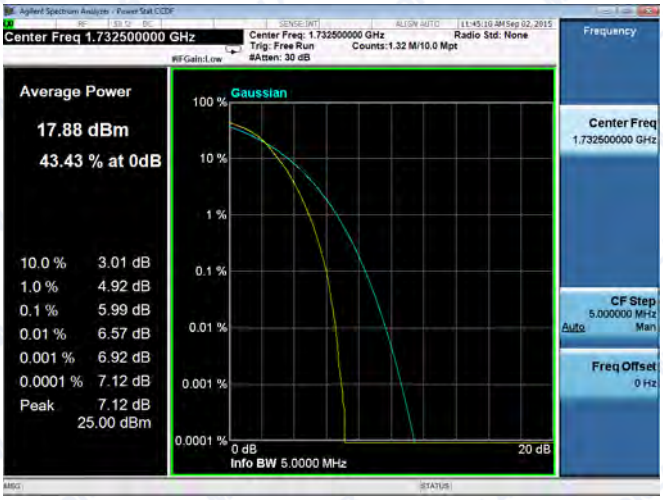
LTE Band 4 Middle channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	4.62	5.99	20175	1732.5	6.46	7.11

Spectrum Plot of Worst Value

15MHz/QPSK

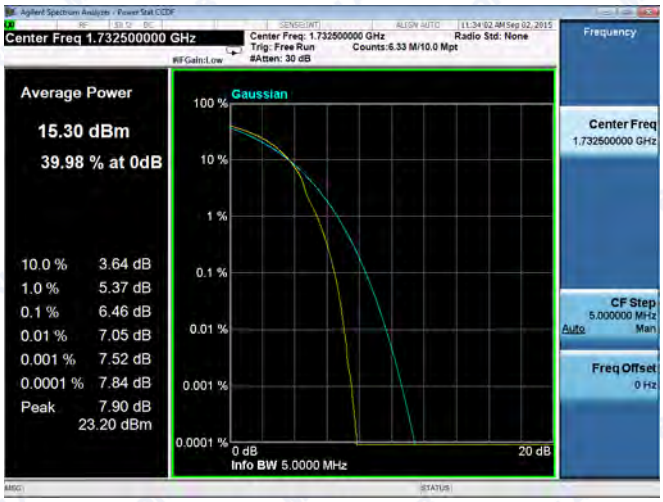


15MHz/16QAM

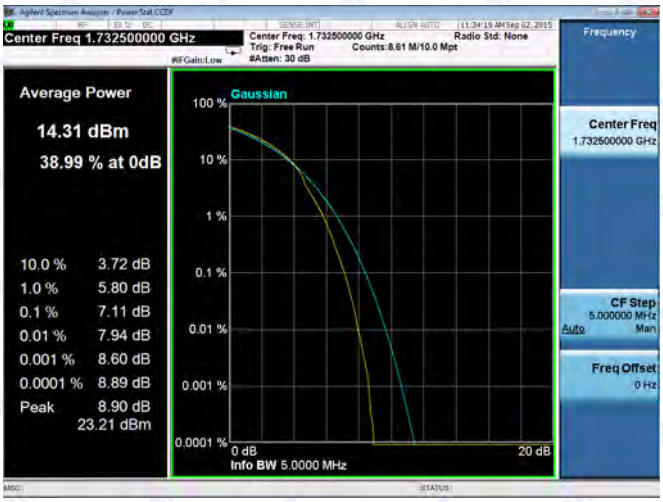


Spectrum Plot of Worst Value

20MHz/QPSK



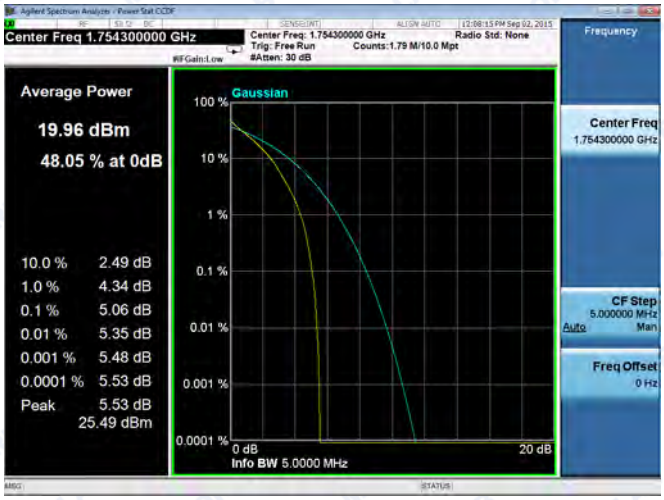
20MHz/16QAM



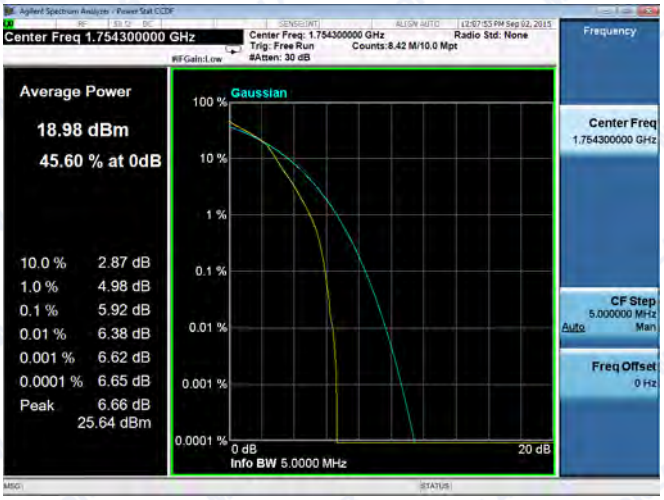
LTE Band 4 High channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20393	1754.3	5.06	5.92	20385	1753.5	5.09	5.92

Spectrum Plot of Worst Value

1.4MHz/QPSK

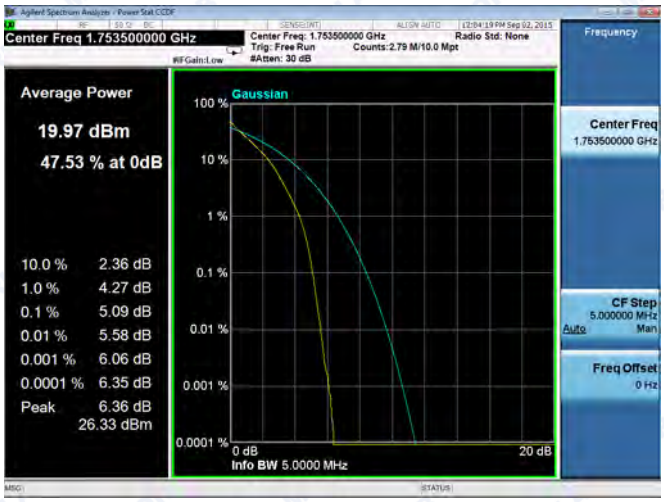


1.4MHz/16QAM

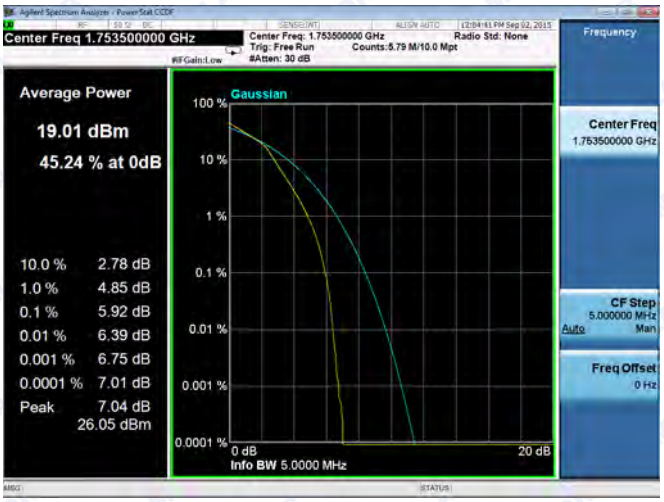


Spectrum Plot of Worst Value

3MHz/QPSK



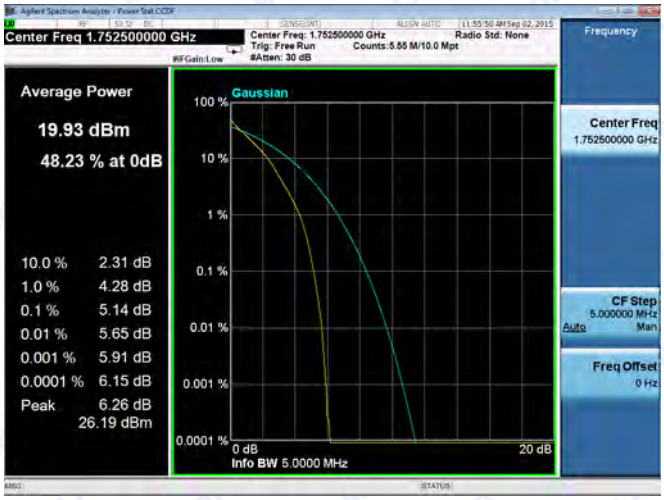
3MHz/16QAM



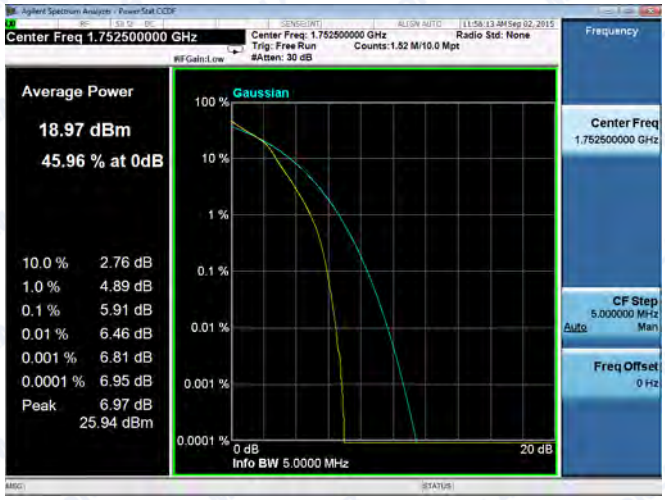
LTE Band 4 High channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20375	1752.5	5.14	5.91	20350	1750.0	4.59	5.97

Spectrum Plot of Worst Value

5MHz/QPSK

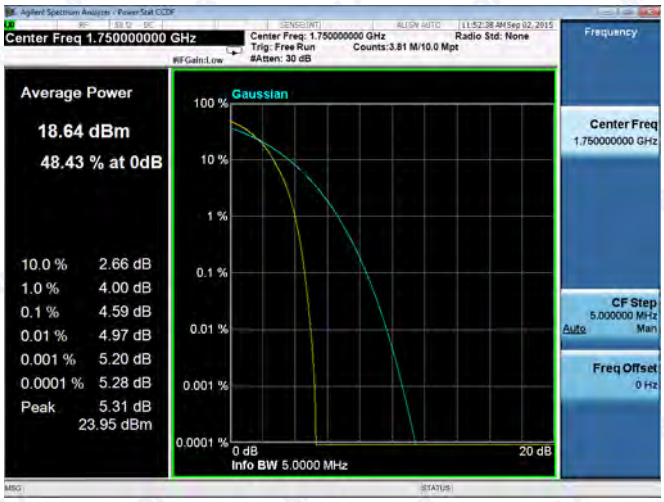


5MHz/16QAM

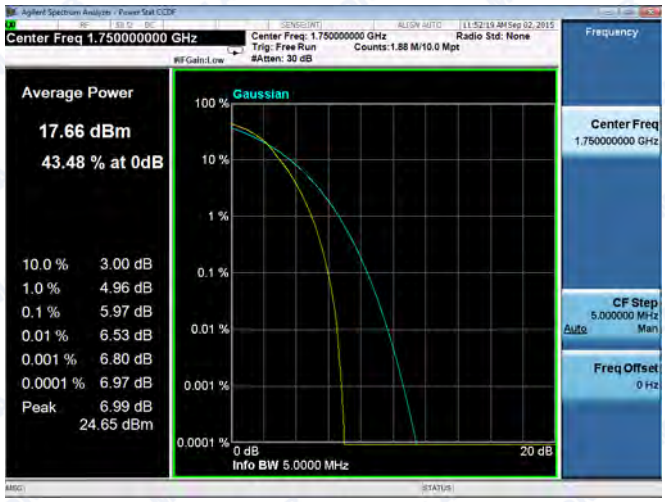


Spectrum Plot of Worst Value

10MHz/QPSK



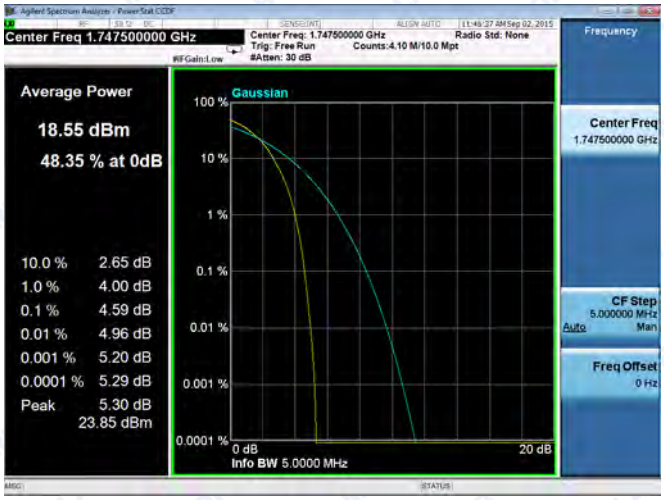
10MHz/16QAM



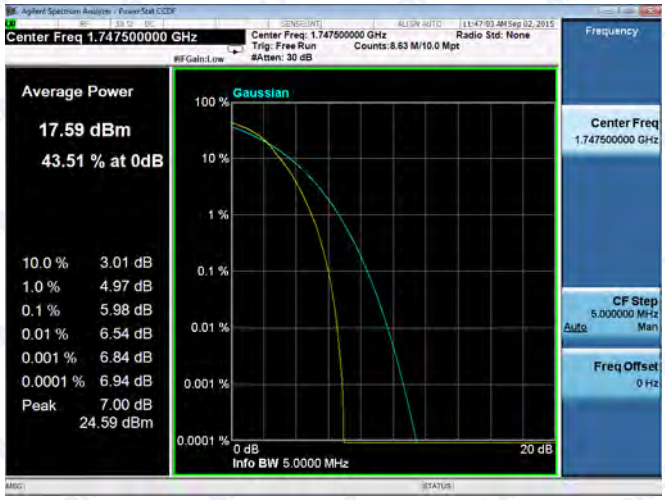
LTE Band 4 High channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20325	1747.5	4.59	5.98	20300	1745.0	6.43	7.01

Spectrum Plot of Worst Value

15MHz/QPSK

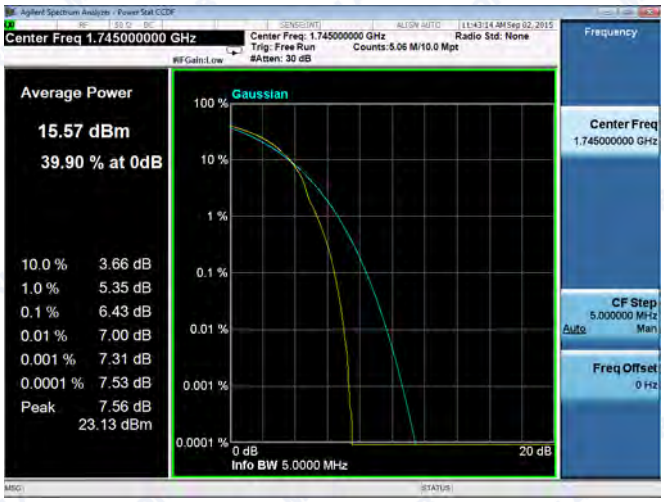


15MHz/16QAM

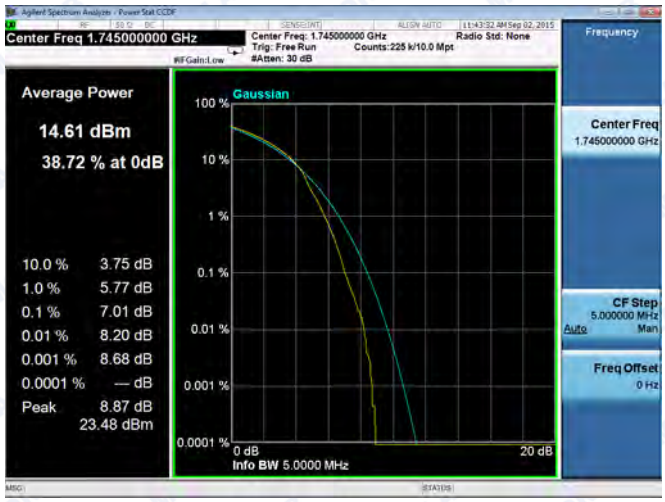


Spectrum Plot of Worst Value

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.

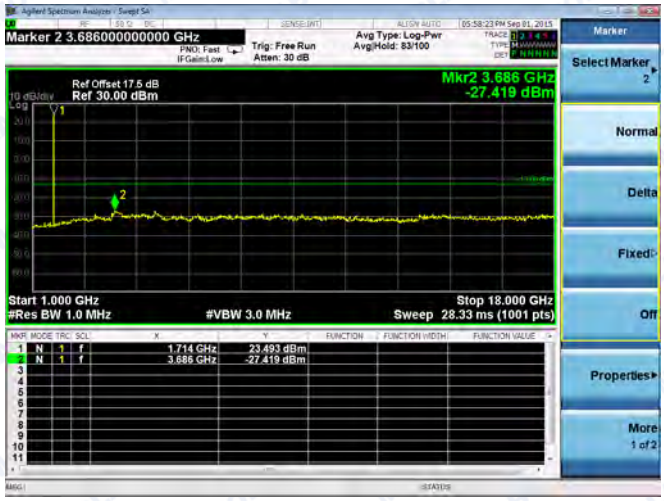
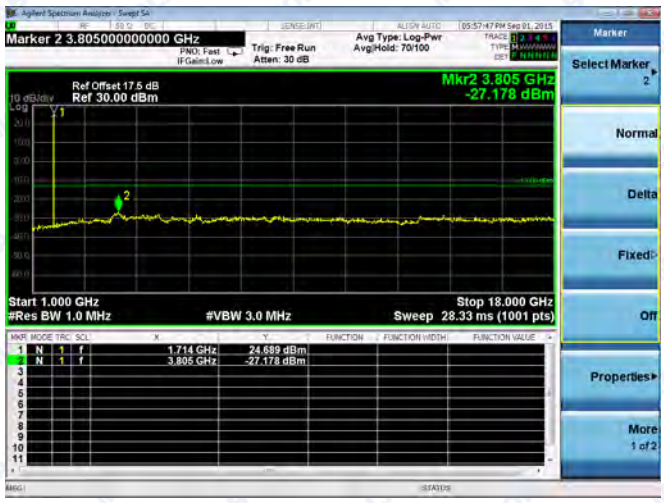
2.5.2 Test Procedure

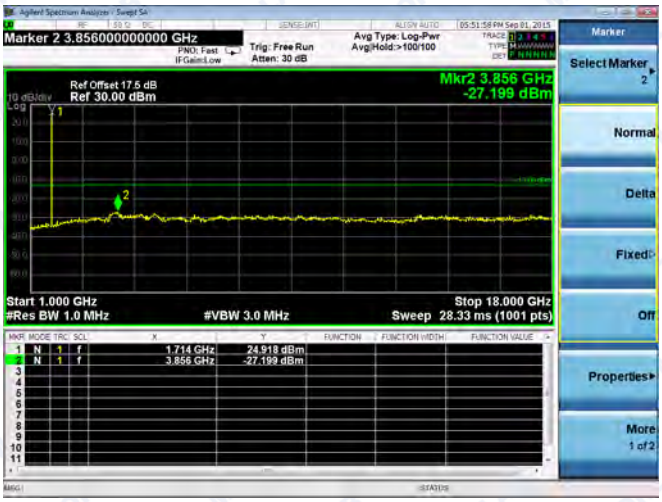
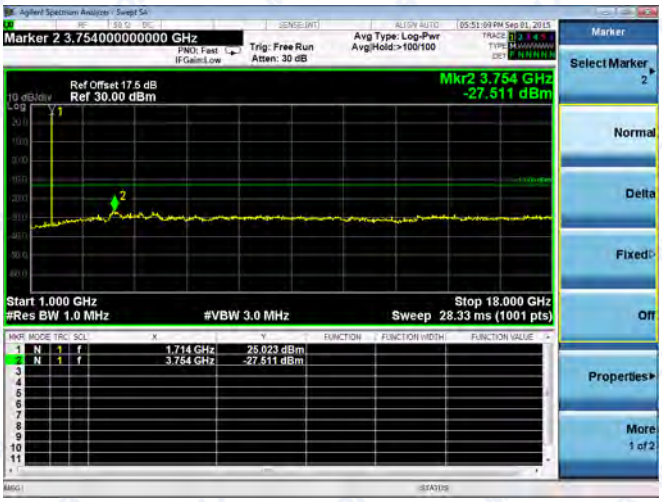
See section 2.1.2 of this report.

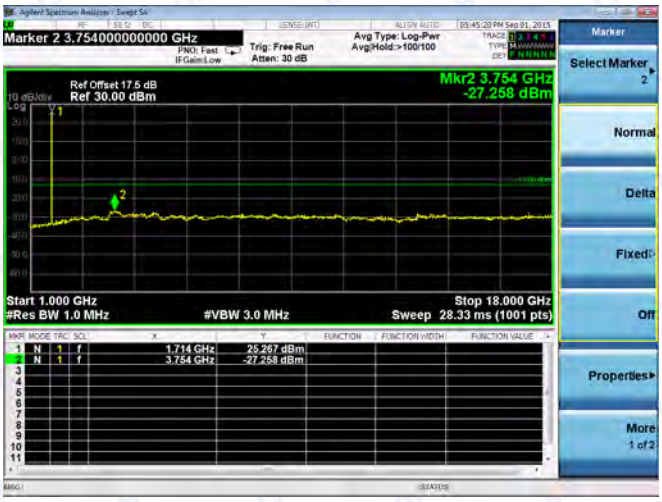
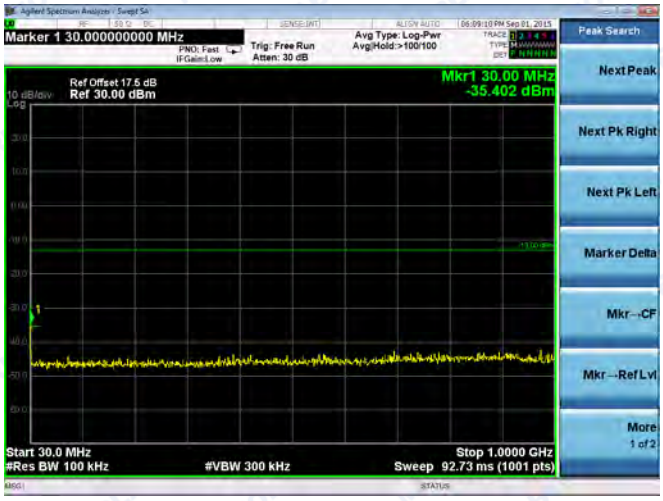
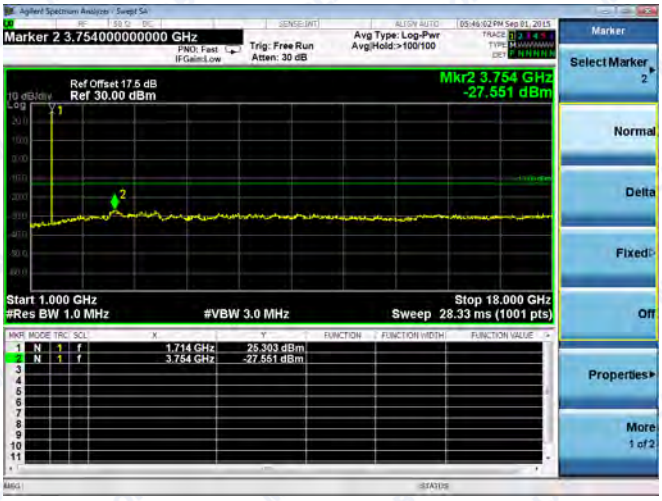
Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

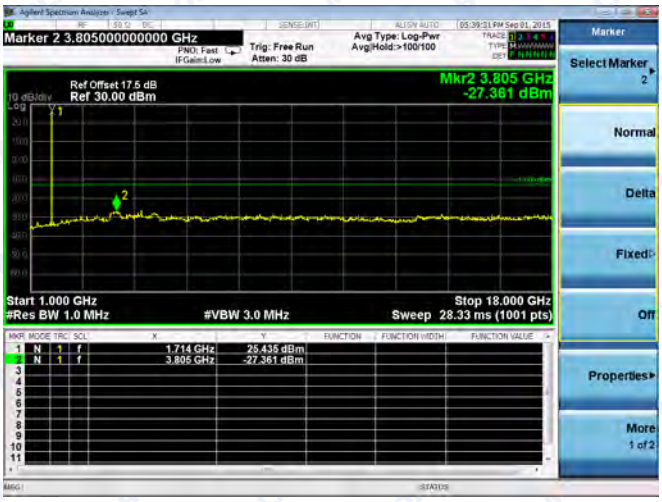
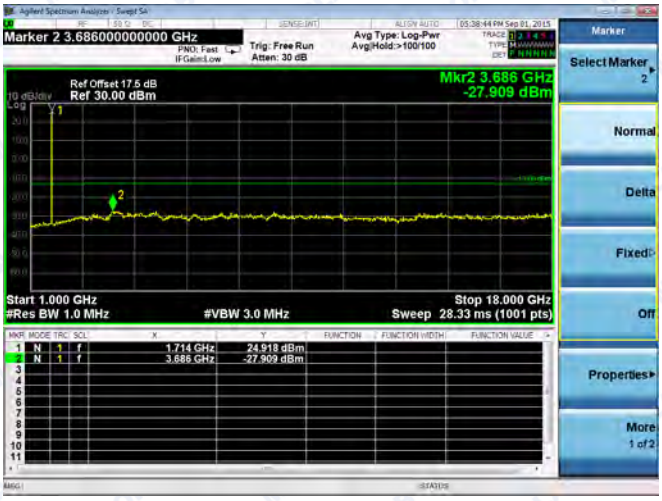
2.5.3 Test Result

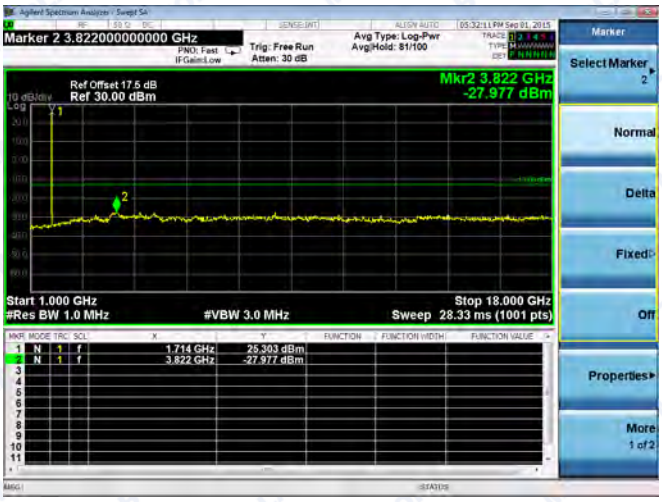
Compliant. See attached pots.

LTE Band 4 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	
	
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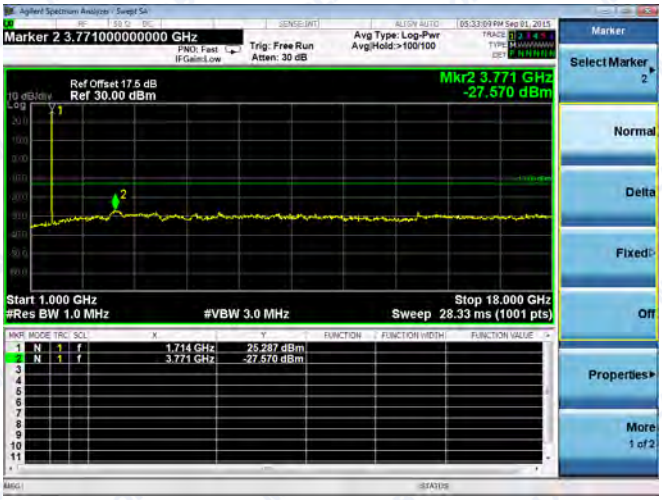
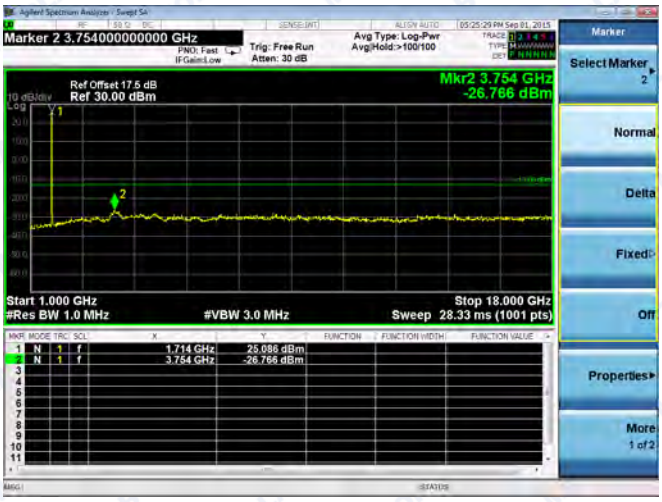
	

LTE Band 4 20MHz BW Low Channel	
QPSK	
	
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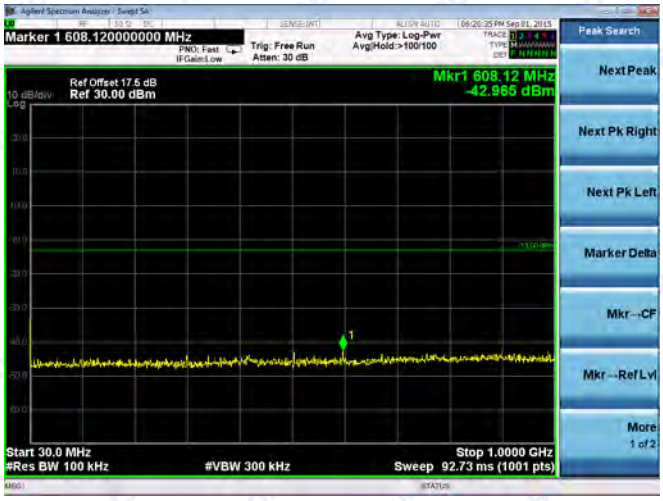
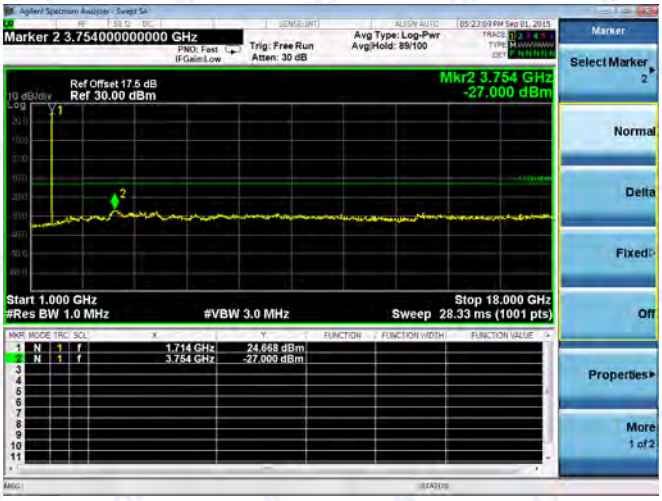
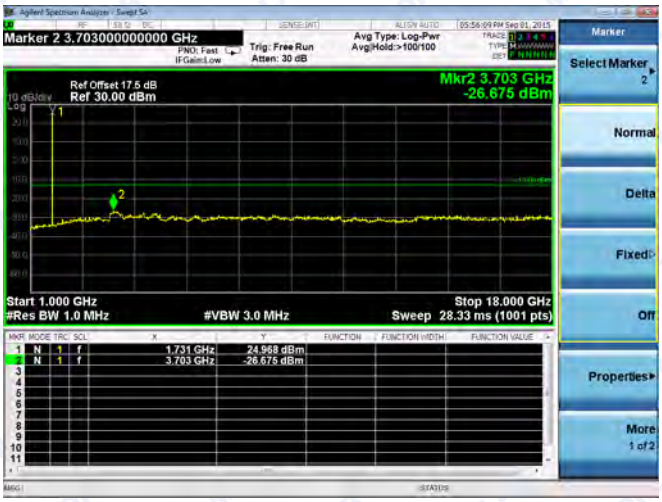
	

Middle channel:

LTE Band 4 1.4MHz BW Mid Channel	
QPSK	
	
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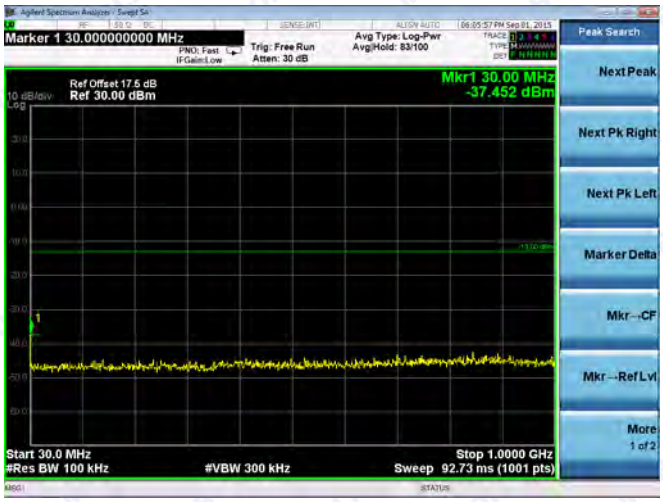
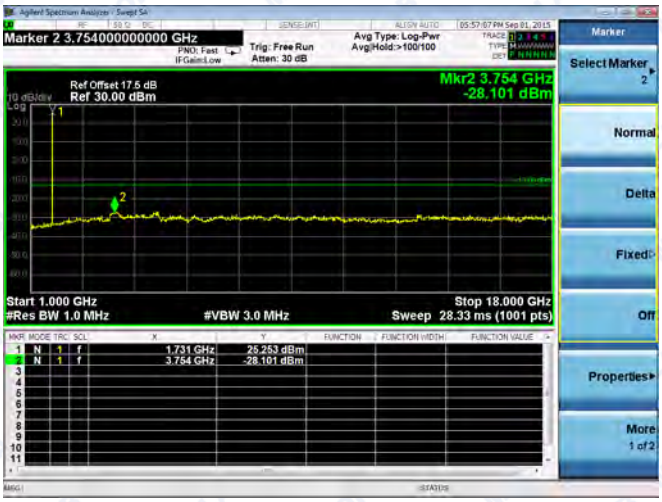
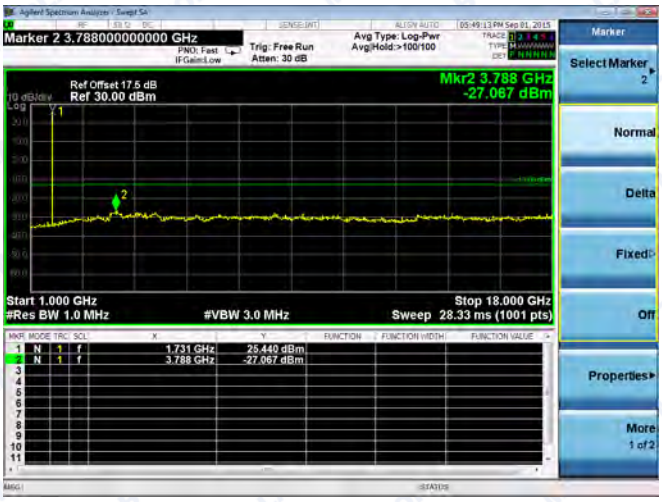
	

LTE Band 4 3MHz BW Mid Channel	
QPSK	
	
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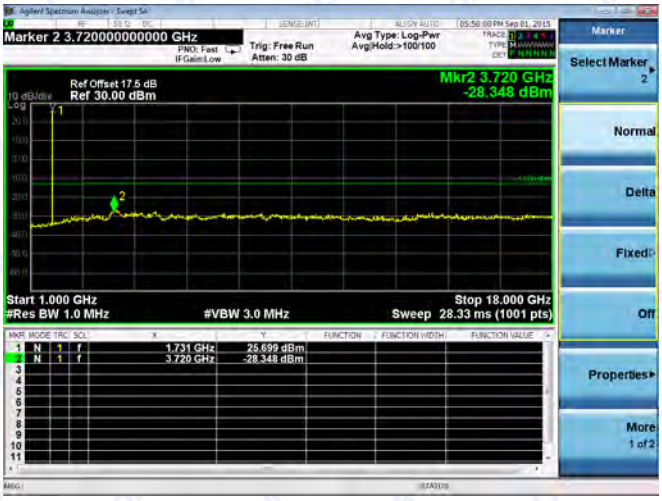
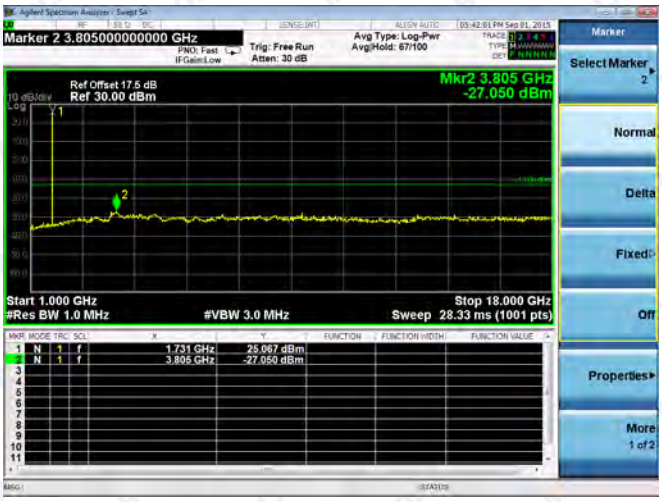
	

LTE Band 4 5MHz BW Mid Channel

QPSK



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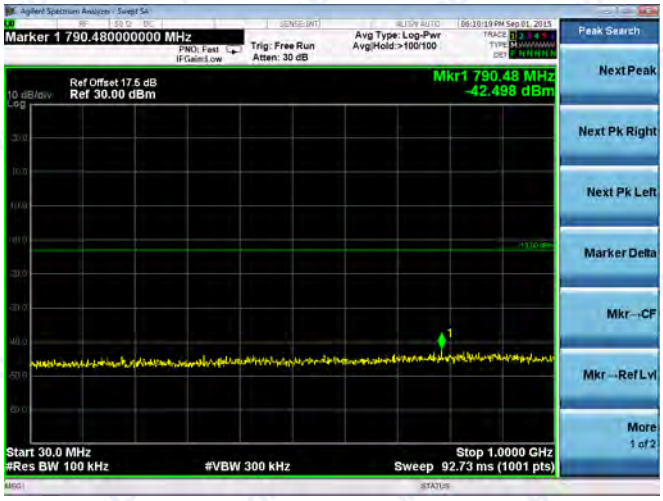
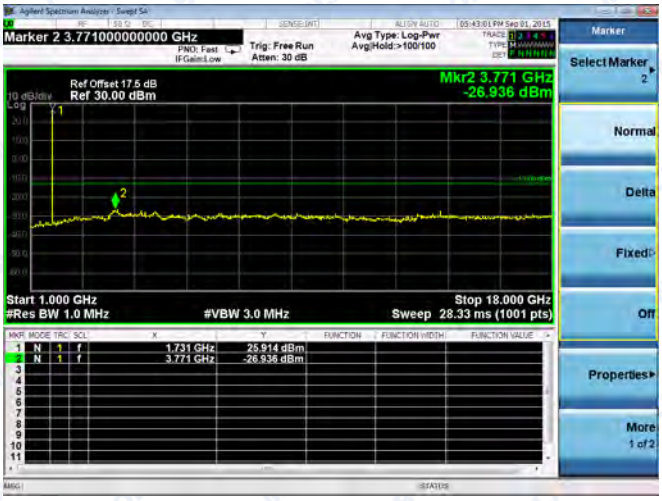
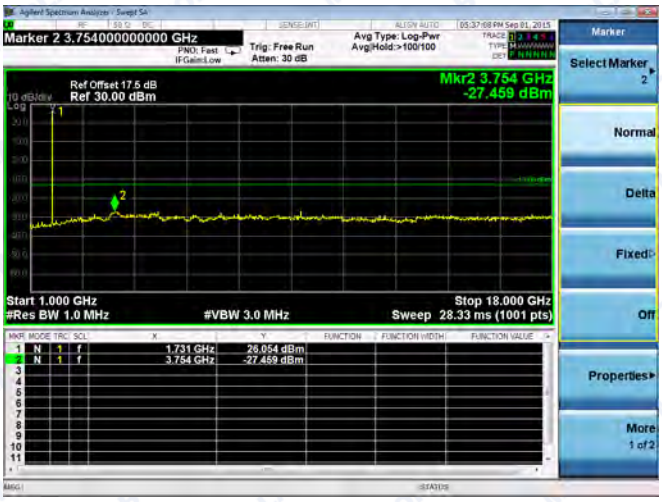




LTE Band 4 10MHz BW Mid Channel

QPSK



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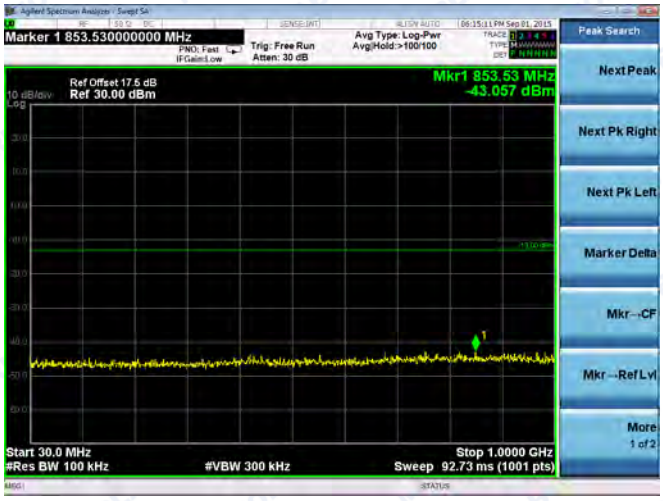
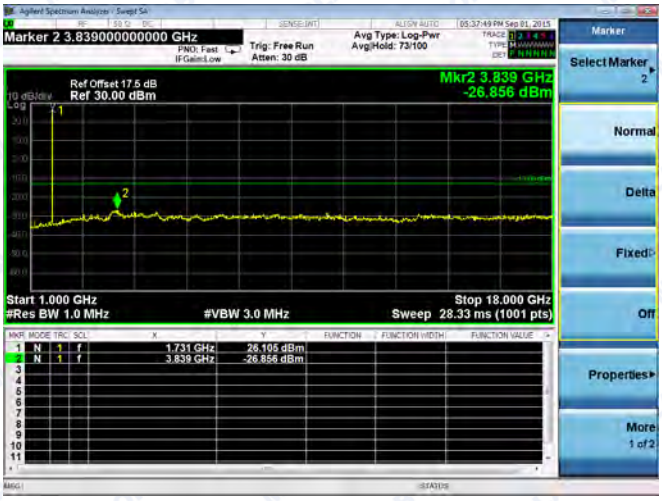
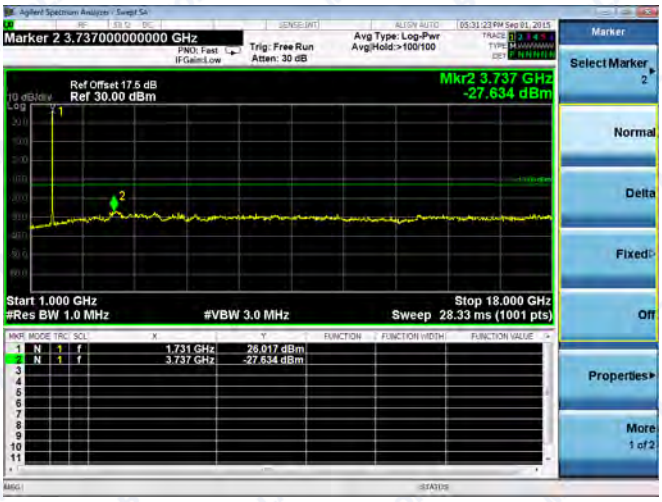




LTE Band 4 15MHz BW Mid Channel

QPSK



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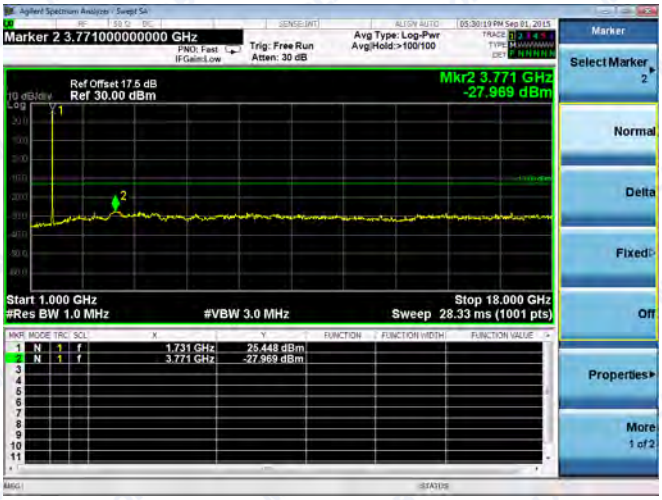
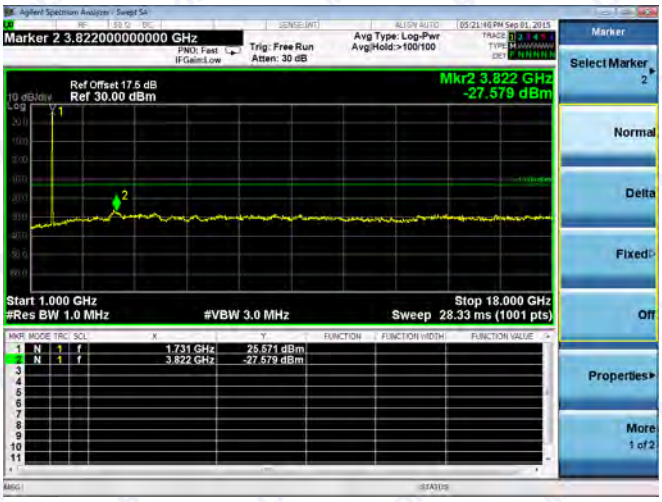


LTE Band 4 20MHz BW Mid Channel

QPSK



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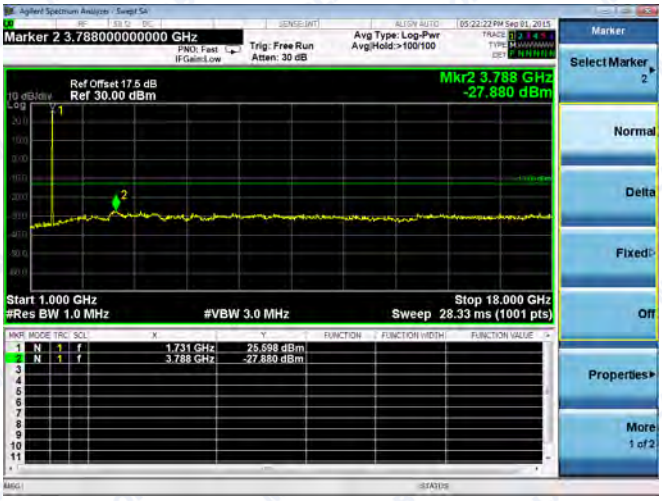
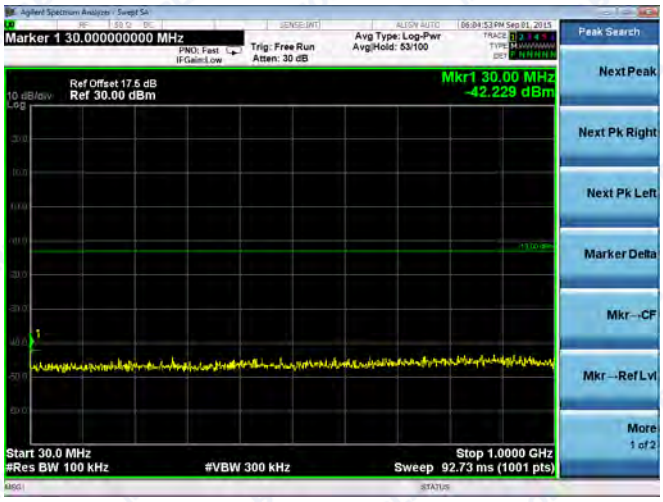
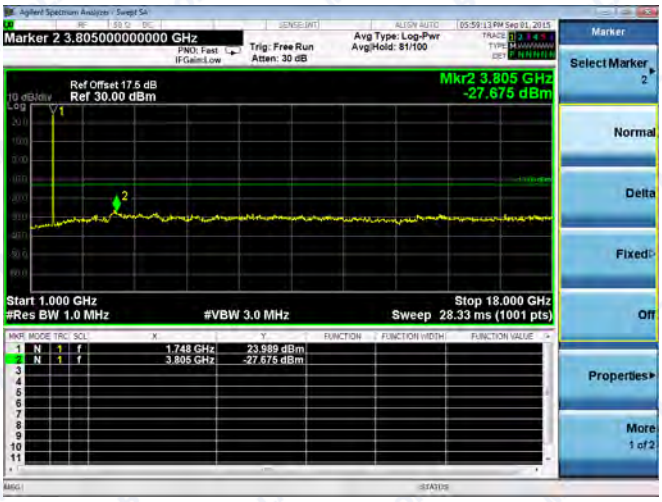


LTE Band 4 1.4MHz BW High Channel

QPSK





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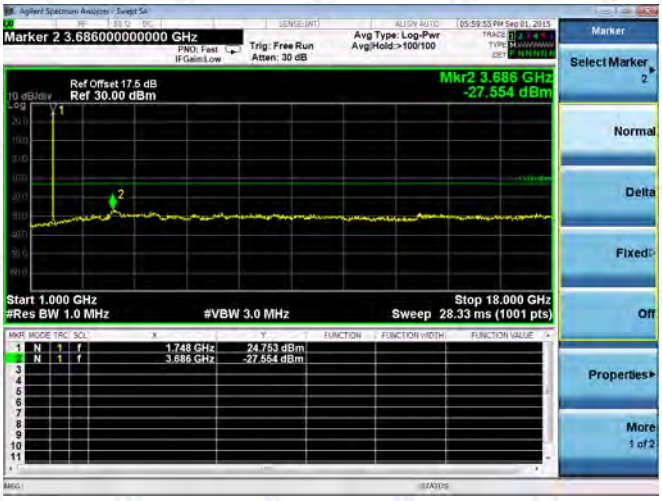
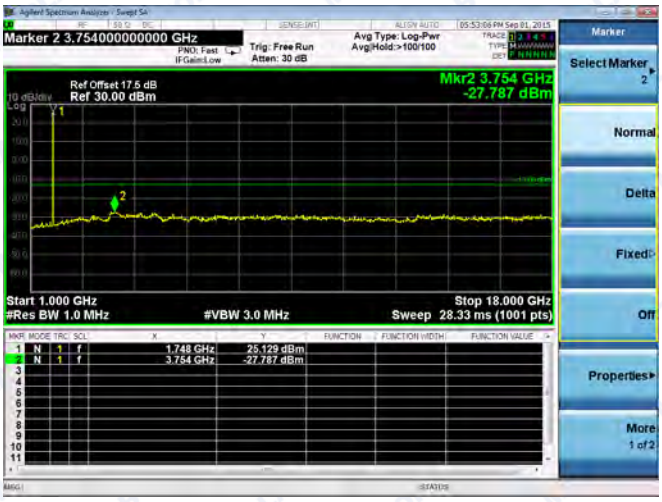


LTE Band 4 3MHz BW High Channel	
QPSK	
	
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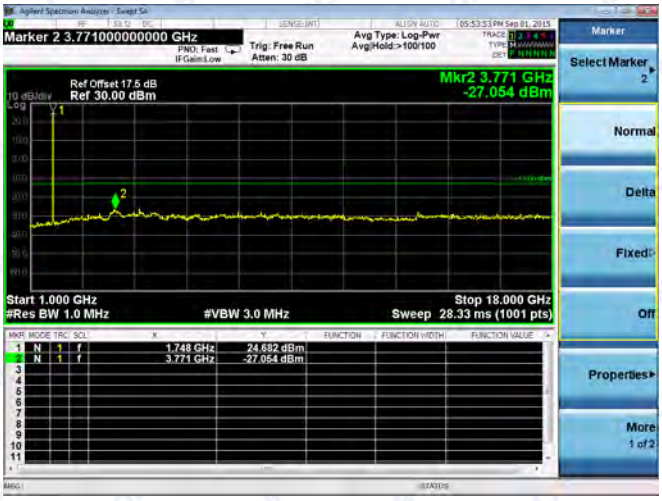
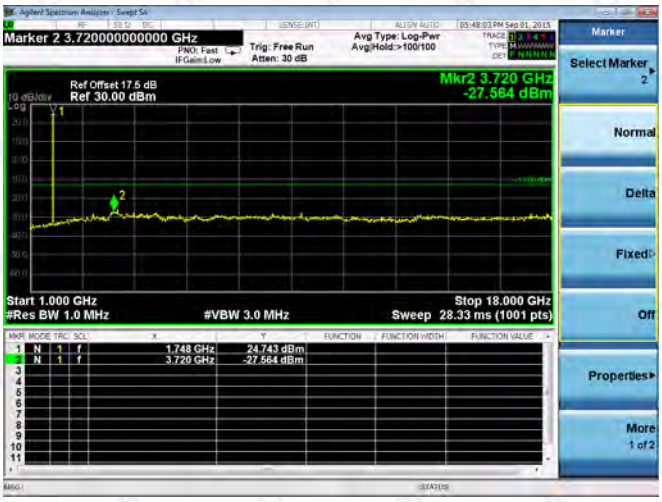
	

LTE Band 4 5MHz BW High Channel

QPSK



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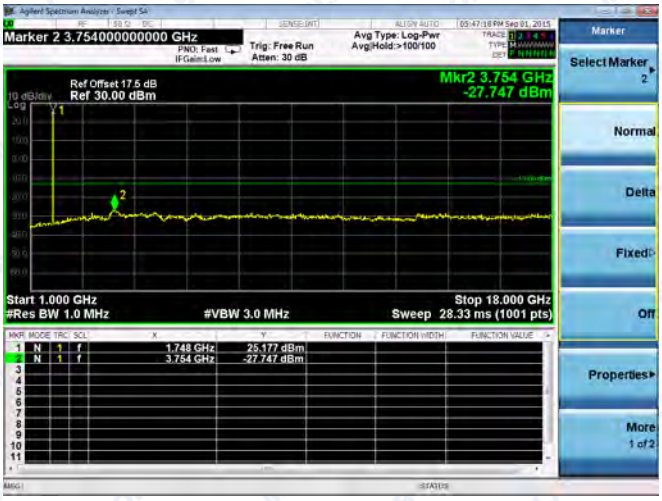
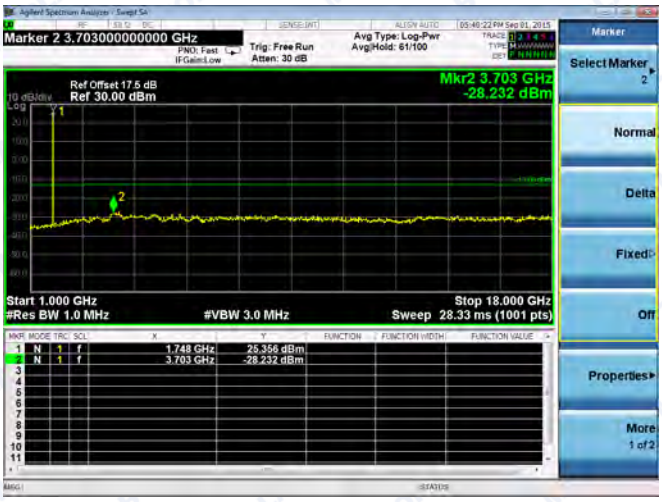
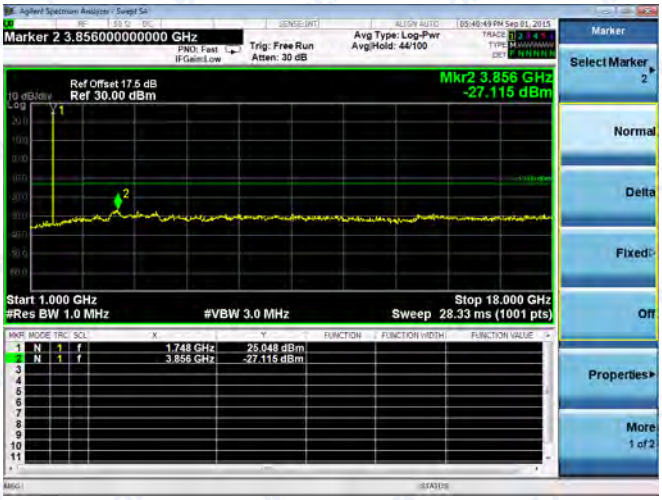


LTE Band 4 10MHz BW High Channel

QPSK



16QAM