REPORT No.: SZ15060018W02

FCC RF TEST REPORT

APPLICANT	:	GUANGDONG OPPO MOBILE TELECOMMUNICATIONS CORP.,LTD
PRODUCT NAME	:	Mobile Phone
MODEL NAME	:	OPPO A51f
TRADE NAME	:	OPPO
BRAND NAME	:	OPPO
FCC ID	:	R9C-A51F
STANDARD(S)	:	47 CFR Part 27, Subpart H&L&M
ISSUE DATE	:	2015-6-25

SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

MORLAB GROUP
FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China
Tel: 86-755-36698555 Fax: 86-755-36698525
Http://www.morlab.com E-mail: service@morlab.cn

DIRECTORY

TEST REPORT DECLARATION 4

1. GENERAL INFORMATION 5

1.1 EUT DESCRIPTION 5
1.2 TEST STANDARDS AND RESULTS 6
1.3 FACILITIES AND ACCREDITATIONS 7
1.3.1 FACILITIES 7
1.3.2 TEST ENVIRONMENT CONDITIONS 7

2. 47 CFR PART 2, 27H&L&M REQUIREMENTS 8

2.1 TRANSMITTER CONDUCTED OUTPUT POWER 8
2.1.1 REQUIREMENT 8
2.1.2 TEST DESCRIPTION 8
2.1.3 TEST RESULTS 8
2.2 OCCUPIED BANDWIDTH 21
2.2.1 DEFINITION 21
2.2.2 TEST DESCRIPTION 21
2.2.3 TEST RESULTS 21
2.3 FREQUENCY STABILITY 45
2.3.1 REQUIREMENT 45
2.3.2 TEST DESCRIPTION 45
2.3.3 TEST VERDICT 46
2.4 PEAK TO AVERAGE RADIO 47
2.4.1 REQUIREMENT 47
2.4.2 TEST DESCRIPTION 47
2.4.3 TEST RESULT 47
2.5 CONDUCTED SPURIOUS EMISSIONS 57
2.5.1 TEST REQUIREMENT 57
2.5.2 TEST PROCEDURE 57
2.5.3 TEST RESULT 57
2.6 BAND EDGE 93
2.6.1 REQUIREMENT 93
2.6.2 TEST DESCRIPTION 93

2.6.3 TEST RESULT 93
2.7 TRANSMITTER RADIATED POWER (EIRP/ERP) 114
2.7.1 REQUIREMENT 114
2.7.2 TEST DESCRIPTION 114
2.7.3 TEST RESULT 115
2.8 RADIATED SPURIOUS EMISSIONS 120
2.8.1 REQUIREMENT 120
2.8.2 TEST DESCRIPTION 120
2.8.3 TEST RESULT 120

Change History		
Issue	Date	Reason for change
1.0	2015-6-25	First edition

TEST REPORT DECLARATION

Applicant	GUANGDONG OPPO MOBILE TELECOMMUNICATIONS CORP., LTD
Applicant Address	NO.18 HAIBIN ROAD, WUSHA, CHANG'AN, DONGGUAN, GUANGDONG, CHINA
Manufacturer	GUANGDONG OPPO MOBILE TELECOMMUNICATIONS CORP., LTD
Manufacturer Address	NO.18 HAIBIN ROAD, WUSHA, CHANG'AN, DONGGUAN, GUANGDONG, CHINA
Product Name	Mobile Phone
Model Name	OPPO A51f
Brand Name	OPPO
HW Version	11
SW Version	ColorOS V2.1.0i
Test Standards	47 CFR Part 27, Subpart H&L&M
Test Date	2015-6-5 to 2015-6-19
Test Result	PASS

Tested by : Zou Jian

Zou Jian(Test Engineer)

Reviewed by : Qiu Xiaojun

Qiu Xiaojun(RF Manager)

Approved by : Peng Huarui

Peng Huarui(Chief Engineer)

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type ……..:	Mobile Phone
Serial No……..:	(n.a, marked #1 by test site)
Hardware Version…….:	11
Software Version…....:	ColorOS V2.1.0i
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 LTE Band 7: QPSK, 16QAM LTE Band 17: QPSK, 16QAM
Tx Frequency Range…:	LTE Band 4: 1710MHz ~1755MHz LTE Band 7: 2500MHz ~ 2570MHz LTE Band 17: 704MHz ~ 716MHz
Rx Frequency Range...:	LTE Band 4: 2110MHz ~ 2155MHz LTE Band 7: 2620MHz ~ 2690MHz LTE Band 17: 734MHz ~ 746MHz
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) 9M02G7D (LTE Band 4, QPSK, BW 10MHz) 9M02W7D (LTE Band 4, 16QAM, BW 10MHz) 13M51G7D (LTE Band 4, QPSK, BW 15MHz) 13M50W7D (LTE Band 4, 16QAM, BW 15MHz) 18M02G7D (LTE Band 4, QPSK, BW 20MHz) 18M03W7D (LTE Band 4, 16QAM, BW 20MHz) 4M53G7D (LTE Band 7, QPSK, BW 5MHz) 4M54W7D (LTE Band 7, 16QAM, BW 5MHz)

9M03G7D (LTE Band 7, QPSK, BW 10MHz)
9M02W7D (LTE Band 7, 16QAM, BW 10MHz)
13M51G7D (LTE Band 7, QPSK, BW 15MHz)
13M51W7D (LTE Band 7, 16QAM, BW 15MHz)
18M00G7D (LTE Band 7, QPSK, BW 20MHz)
18M03W7D (LTE Band 7, 16QAM, BW 20MHz)
4M53G7D (LTE Band 17, QPSK, BW 5MHz)
4M53W7D (LTE Band 17, 16QAM, BW 5MHz)
9M00G7D (LTE Band 17, QPSK, BW 10MHz)
8M99W7D (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	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, 27H&L&M REQUIREMENTS

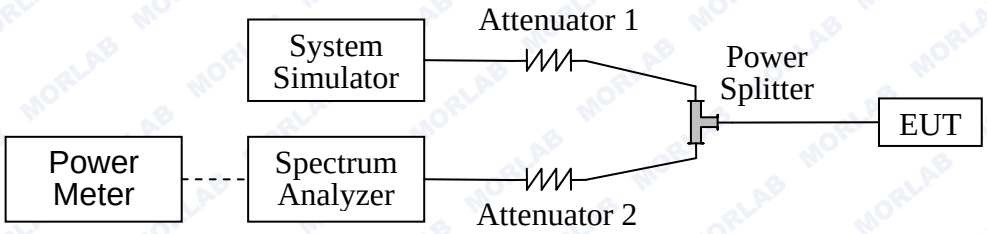
2.1 Transmitter Conducted Output Power

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	21.42
					1	49	21.30
					1	99	21.13
					50	0	20.46
					50	25	20.35
					50	49	20.23
					100	0	20.30
				16-QAM	1	0	21.05
					1	49	21.31
					1	99	20.84
					50	0	20.45
					50	25	20.51
					50	49	20.50
					100	0	19.22
		M 20175	1732.5	QPSK	1	0	21.12
					1	49	21.23
					1	99	20.48
					50	0	20.28
					50	25	20.15
					50	49	20.11
					100	0	20.15
				16-QAM	1	0	20.37
					1	49	20.46
					1	99	20.21
					50	0	19.54
					50	25	19.59
					50	49	19.55
					100	0	19.09
		H 20300	1745.0	QPSK	1	0	21.16
					1	49	21.21
					1	99	21.18
					50	0	20.17
					50	25	20.16
					50	49	20.10
					100	0	20.20
				16-QAM	1	0	20.60
					1	49	20.57
					1	99	20.05
					50	0	19.56
					50	25	19.55
					50	49	19.51
					100	0	19.24

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	21.52
					1	37	21.31
					1	74	21.28
					36	0	20.39
					36	18	20.21
					36	35	20.11
					75	0	20.25
				16-QAM	1	0	20.50
					1	37	20.16
					1	74	20.25
					36	0	19.58
					36	18	19.61
					36	35	19.59
					75	0	19.17
		M 20175	1732.5	QPSK	1	0	21.28
					1	37	21.13
					1	74	21.25
					36	0	20.17
					36	18	20.15
					36	35	20.08
					75	0	20.06
				16-QAM	1	0	20.27
					1	37	20.10
					1	74	20.22
					36	0	19.54
					36	18	19.53
					36	35	19.48
					75	0	19.05
		H 20325	1747.5	QPSK	1	0	21.39
					1	37	21.12
					1	74	21.09
					36	0	20.26
					36	18	20.19
					36	35	20.18
					75	0	20.13
				16-QAM	1	0	20.33
					1	37	20.08
					1	74	20.10
					36	0	19.56
					36	18	19.59
					36	35	19.58
					75	0	19.15

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	21.88
					1	24	21.62
					1	49	21.43
					25	0	20.72
					25	12	20.61
					25	24	20.51
					50	0	20.62
				16-QAM	1	0	21.60
					1	24	21.06
					1	49	21.16
					25	0	20.85
					25	12	20.75
					25	24	20.70
					50	0	19.65
		M 20175	1732.5	QPSK	1	0	20.99
					1	24	20.70
					1	49	20.79
					25	0	20.08
					25	12	20.04
					25	24	19.86
					50	0	19.95
				16-QAM	1	0	20.29
					1	24	20.17
					1	49	19.93
					25	0	19.52
					25	12	19.48
					25	24	19.49
					50	0	18.95
		H 20350	1750.0	QPSK	1	0	20.56
					1	24	20.31
					1	49	20.32
					25	0	19.52
					25	12	19.42
					25	24	19.33
					50	0	19.42
				16-QAM	1	0	19.82
					1	24	19.23
					1	49	19.23
					25	0	19.08
					25	12	19.05
					25	24	19.12
					50	0	18.43

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 4	5MHz	L 19975	1712.5	QPSK	1	0	21.53
					1	12	21.40
					1	24	21.35
					12	0	20.44
					12	6	20.31
					12	11	20.24
					25	0	20.34
				16-QAM	1	0	20.92
					1	12	20.85
					1	24	20.77
					12	0	20.51
					12	6	20.42
					12	11	20.34
					25	0	19.37
		M 20175	1732.5	QPSK	1	0	20.42
					1	12	20.34
					1	24	20.11
					12	0	19.75
					12	6	19.51
					12	11	19.44
					25	0	19.56
				16-QAM	1	0	19.64
					1	12	19.47
					1	24	19.34
					12	0	19.08
					12	6	19.12
					12	11	19.11
					25	0	18.45
		H 20375	1752.5	QPSK	1	0	19.83
					1	12	19.80
					1	24	19.79
					12	0	18.85
					12	6	18.81
					12	11	18.81
					25	0	18.84
				16-QAM	1	0	18.87
					1	12	18.87
					1	24	18.91
					12	0	18.51
					12	6	18.45
					12	11	18.35
					25	0	18.06

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power
					RB Size	RB Offset	(dBm)
LTE Band 4	3MHz	L 19965	1711.5	QPSK	1	0	21.62
					1	7	21.35
					1	14	21.41
					8	0	20.80
					8	4	20.78
					8	7	20.75
					15	0	20.48
				16-QAM	1	0	20.56
					1	7	20.39
					1	14	20.43
					8	0	20.12
					8	4	20.05
					8	7	20.16
					15	0	19.37
		M 20175	1732.5	QPSK	1	0	20.71
					1	7	20.55
					1	14	20.57
					8	0	20.11
					8	4	20.12
					8	7	20.16
					15	0	19.69
				16-QAM	1	0	19.68
					1	7	19.63
					1	14	19.74
					8	0	19.25
					8	4	19.24
					8	7	19.21
					15	0	18.46
		H 20385	1753.5	QPSK	1	0	19.55
					1	7	19.49
					1	14	19.60
					8	0	19.25
					8	4	19.21
					8	7	19.18
					15	0	18.81
				16-QAM	1	0	18.76
					1	7	18.65
					1	14	18.71
					8	0	18.25
					8	4	18.35
					8	7	18.30
					15	0	17.78

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power
					RB Size	RB Offset	(dBm)
LTE Band 4	1.4MHz	L 19957	1710.7	QPSK	1	0	21.90
					1	2	21.94
					1	5	21.91
					3	0	21.91
					3	1	21.88
					3	2	21.89
					6	0	20.92
				16-QAM	1	0	21.15
					1	2	21.22
					1	5	21.03
					3	0	20.85
					3	1	20.75
					3	2	20.76
					6	0	19.98
		M 20175	1732.5	QPSK	1	0	21.08
					1	2	20.98
					1	5	21.12
					3	0	21.17
					3	1	21.18
					3	2	21.09
					6	0	20.12
				16-QAM	1	0	20.22
					1	2	20.15
					1	5	20.18
					3	0	20.01
					3	2	20.06
					3	5	19.95
					6	0	19.23
		H 20393	1754.3	QPSK	1	0	20.18
					1	2	20.25
					1	5	20.17
					3	0	20.30
					3	1	20.25
					3	2	20.28
					6	0	19.37
				16-QAM	1	0	18.79
					1	2	18.82
					1	5	18.80
					3	0	18.72
					3	1	18.72
					3	2	18.70
					6	0	18.44

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	20.92
					1	49	20.94
					1	99	20.85
					50	0	20.70
					50	25	20.81
					50	49	20.86
					100	0	20.27
				16-QAM	1	0	20.26
					1	49	21.58
					1	99	20.26
					50	0	20.08
					50	25	20.12
					50	49	20.05
					100	0	19.78
		M 21100	2535	QPSK	1	0	20.32
					1	49	20.61
					1	99	20.89
					50	0	20.53
					50	25	20.40
					50	49	20.32
					100	0	20.41
				16-QAM	1	0	19.73
					1	49	20.08
					1	99	20.17
					50	0	20.01
					50	25	19.98
					50	49	19.94
					100	0	19.54
		H 21350	2560	QPSK	1	0	20.88
					1	49	20.24
					1	99	19.62
					50	0	20.49
					50	25	20.61
					50	49	19.49
					100	0	20.35
				16-QAM	1	0	21.45
					1	49	19.70
					1	99	18.07
					50	0	19.15
					50	25	19.20
					50	49	19.21
					100	0	19.53

Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 7	15MHz	L 20825	2507.5	QPSK	1	0	21.57
					1	37	21.97
					1	74	21.78
					36	0	20.89
					36	18	20.85
					36	35	20.93
					75	0	20.89
				16-QAM	1	0	21.21
					1	37	21.14
					1	74	20.78
					36	0	20.51
					36	18	20.42
					36	35	20.44
					75	0	20.02
		M 21100	2535	QPSK	1	0	20.48
					1	37	20.60
					1	74	21.61
					36	0	20.23
					36	18	20.43
					36	35	20.65
					75	0	20.67
				16-QAM	1	0	19.94
					1	37	20.18
					1	74	21.02
					36	0	20.54
					36	18	20.48
					36	35	20.39
					75	0	19.56
		H 21375	2562.5	QPSK	1	0	21.03
					1	37	20.45
					1	74	20.41
					36	0	20.26
					36	18	20.05
					36	35	19.82
					75	0	20.06
				16-QAM	1	0	20.96
					1	37	19.22
					1	74	19.51
					36	0	19.42
					36	18	19.41
					36	35	19.35
					75	0	19.31

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	21.41
					1	24	21.71
					1	49	21.78
					25	0	20.87
					25	12	20.85
					25	24	20.83
					50	0	20.82
				16-QAM	1	0	21.07
					1	24	20.88
					1	49	21.19
					25	0	20.51
					25	12	20.44
					25	24	20.46
					50	0	19.92
		M 21100	2535	QPSK	1	0	20.58
					1	24	20.54
					1	49	21.44
					25	0	20.30
					25	12	20.43
					25	24	20.63
					50	0	20.52
				16-QAM	1	0	20.25
					1	24	20.20
					1	49	20.98
					25	0	20.51
					25	12	20.49
					25	24	20.42
					50	0	19.64
		H 21400	2565	QPSK	1	0	21.07
					1	24	19.75
					1	49	20.08
					25	0	20.20
					25	12	19.76
					25	24	19.75
					50	0	19.77
				16-QAM	1	0	20.02
					1	24	19.80
					1	49	19.82
					25	0	19.31
					25	12	19.40
					25	24	19.35
					50	0	19.09

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	21.77
					1	12	21.75
					1	24	21.73
					12	0	20.80
					12	6	20.71
					12	11	20.68
					25	0	20.75
				16-QAM	1	0	20.99
					1	12	21.35
					1	24	19.81
					12	0	19.75
					12	6	19.80
					12	11	19.82
					25	0	19.72
		M 21100	2535	QPSK	1	0	20.58
					1	12	20.46
					1	24	20.95
					12	0	20.27
					12	6	20.40
					12	11	20.56
					25	0	20.41
				16-QAM	1	0	19.82
					1	12	19.81
					1	24	19.95
					12	0	19.85
					12	6	19.81
					12	11	19.75
					25	0	19.62
		H 21425	2567.5	QPSK	1	0	20.29
					1	12	20.47
					1	24	20.60
					12	0	19.88
					12	6	19.89
					12	11	20.06
					25	0	20.08
				16-QAM	1	0	20.38
					1	12	20.03
					1	24	20.10
					12	0	19.59
					12	6	19.61
					12	11	19.54
					25	0	19.23

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	23.09
					1	24	22.93
					1	49	23.05
					25	0	21.97
					25	12	21.80
					25	24	21.88
					50	0	21.84
				16-QAM	1	0	22.17
					1	24	21.98
					1	49	22.03
					25	0	21.56
					25	12	21.50
					25	24	21.61
					50	0	20.70
		M 23790	710	QPSK	1	0	23.22
					1	24	22.89
					1	49	22.91
					25	0	21.98
					25	12	21.85
					25	24	21.86
					50	0	21.88
				16-QAM	1	0	22.45
					1	24	22.29
					1	49	22.22
					25	0	21.68
					25	12	21.70
					25	24	21.62
					50	0	20.83
		H 23800	711	QPSK	1	0	23.00
					1	24	22.86
					1	49	22.72
					25	0	21.98
					25	12	21.88
					25	24	21.89
					50	0	21.87
				16-QAM	1	0	21.20
					1	24	21.29
					1	49	20.94
					25	0	20.92
					25	12	20.89
					25	24	20.88
					50	0	20.86

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	23.08
					1	12	23.12
					1	24	22.95
					12	0	21.85
					12	6	21.88
					12	11	21.84
					25	0	21.87
				16-QAM	1	0	22.66
					1	12	22.97
					1	24	23.00
					12	0	21.61
					12	6	21.59
					12	11	21.64
					25	0	20.77
		M 23790	710	QPSK	1	0	22.80
					1	12	22.74
					1	24	22.69
					12	0	21.85
					12	6	21.80
					12	11	21.84
					25	0	21.82
				16-QAM	1	0	21.40
					1	12	21.38
					1	24	21.53
					12	0	21.12
					12	6	21.08
					12	11	21.15
					25	0	20.78
		H 23825	713.5	QPSK	1	0	22.95
					1	12	22.94
					1	24	22.70
					12	0	21.89
					12	6	21.75
					12	11	21.76
					25	0	21.86
				16-QAM	1	0	22.16
					1	12	22.22
					1	24	22.07
					12	0	21.55
					12	6	21.49
					12	11	21.53
					25	0	20.75

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	1.0989	1.0932	19965	1711.5	2.7175	2.7076
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	1.320	1.283	19965	1711.5	2.995	3.006

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	4.5267	4.5284	20000	1715.0	8.9907	9.0064
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	5.052	5.037	20000	1715.0	10.03	9.842

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	13.46	13.497	20050	1720.0	17.965	17.967
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	14.64	14.77	20050	1720.0	19.56	19.66

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	1.0992	1.1023	20175	1732.5	2.7164	2.7184
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	1.292	1.299	20175	1732.5	3.011	3.013

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	4.529	4.5313	20175	1732.5	9.0168	9.018
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	4.991	5.037	20175	1732.5	9.911	9.94

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	13.512	13.502	20175	1732.5	17.941	18.032
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	14.79	20175	1732.5	19.44	19.54

High channel:

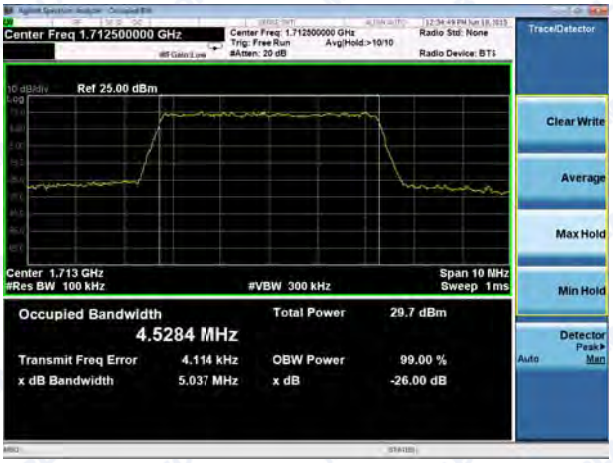
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20392	1754.2	1.107	1.1011	20384	1753.4	2.7179	2.7119
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20392	1754.2	1.301	1.306	20384	1753.4	3.018	3.017

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	4.5291	4.5252	20350	1750.0	9.0163	9.0139
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	5.015	4.998	20350	1750.0	9.928	9.963

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	13.492	13.496	20300	1745.0	18.016	17.965
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	14.8	14.78	20300	1745.0	19.71	19.56

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	4.531	4.5433	20800	2505.0	8.9907	9.0167
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	5.053	5.072	20800	2505.0	9.924	10.02

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	13.422	13.481	20850	2510.0	17.917	17.946
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	14.67	14.79	20850	2510.0	19.42	19.46

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	4.5309	4.5206	21100	2535.0	9.0077	9.0087
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	4.986	5.004	21100	2535.0	9.957	9.952

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	13.503	13.514	21100	2535.0	17.985	18.032
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	14.79	14.76	21100	2535.0	19.49	19.60

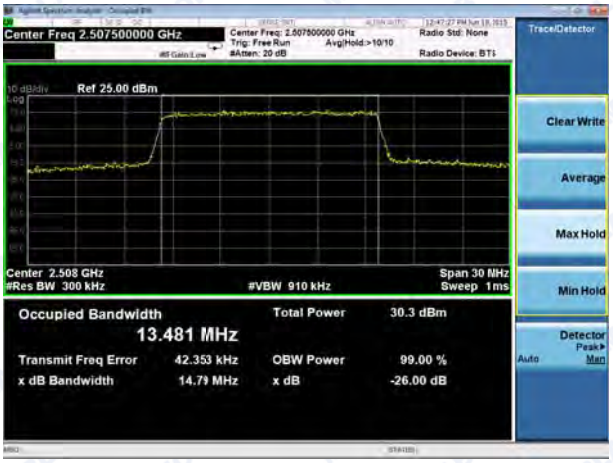
High channel:

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	4.5228	4.5312	21400	2565.0	9.0316	9.0147
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	4.999	5.046	21400	2565.0	10.04	9.987

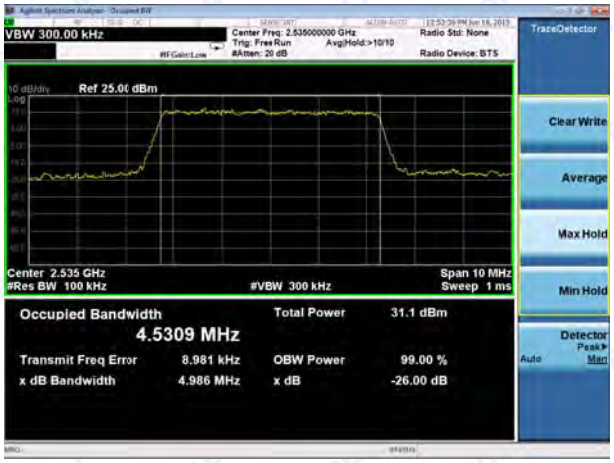
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21375	2562.5	13.513	13.513	21350	2560.0	18.001	18.000
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21375	2562.5	14.80	14.78	21350	2560.0	19.61	19.42

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:

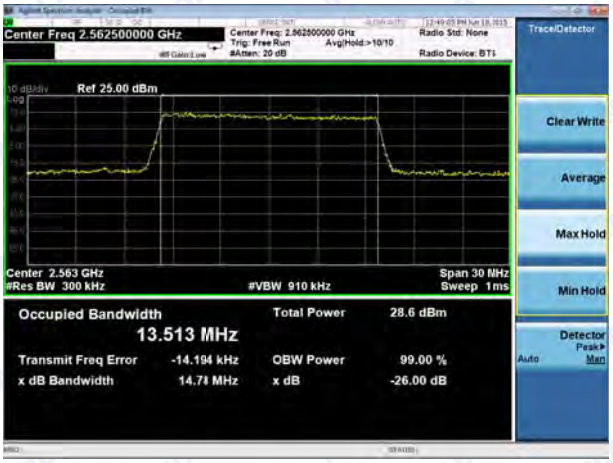
Spectrum Plot of Worst Value	
5MHz/QPSK	5MHz/16QAM
	
Spectrum Plot of Worst Value	
10MHz/QPSK	10MHz/16QAM
	

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	4.5283	4.5293	23780	709.0	8.9781	8.9939
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	5.075	5.019	23780	709.0	9.911	9.906

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	4.5227	4.5236	23790	710	8.9965	8.9756
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23790	710	4.984	5.05	23790	710	9.968	9.907

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	4.5191	4.5271	23800	711	8.9775	8.9696
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	4.999	5.013	23800	711	9.947	9.922

Low channel:

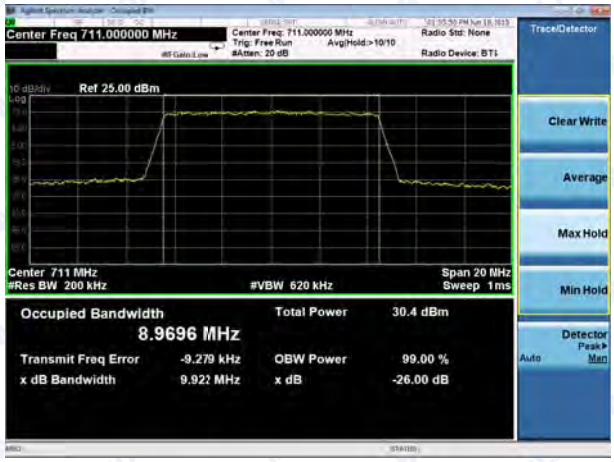
Spectrum Plot of Worst Value	
5MHz/QPSK	5MHz/16QAM
	

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

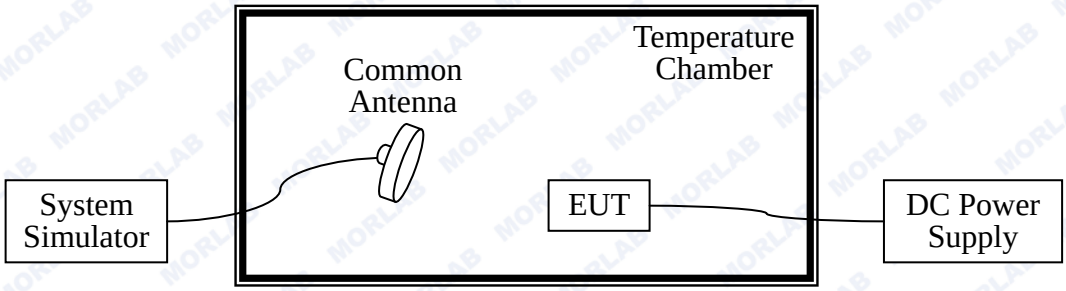
According to FCC section 2.1055 and FCC section 27.54, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(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	10.48	PASS
100		-20	-11.74	
100		-10	7.75	
100		0	9.66	
100		+10	8.48	
100		+20	7.4	
100		+30	-12.97	
100		+40	8.75	
100		+50	7.7	
115	4.2	+20	9.48	
85	3.45	+20	10.83	

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	3.23	PASS
100		-20	-7.82	
100		-10	-7.86	
100		0	1.6	
100		+10	-4.49	
100		+20	5.44	
100		+30	2.3	
100		+40	4.49	
100		+50	-6.29	
115	4.2	+20	-3.58	
85	3.45	+20	-5.7	

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	4.26	PASS
100		-20	-6.79	
100		-10	-6.83	
100		0	2.63	
100		+10	-3.46	
100		+20	4.50	
100		+30	1.36	
100		+40	3.55	
100		+50	-7.23	
115	4.2	+20	-4.52	
85	3.45	+20	-6.64	

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.

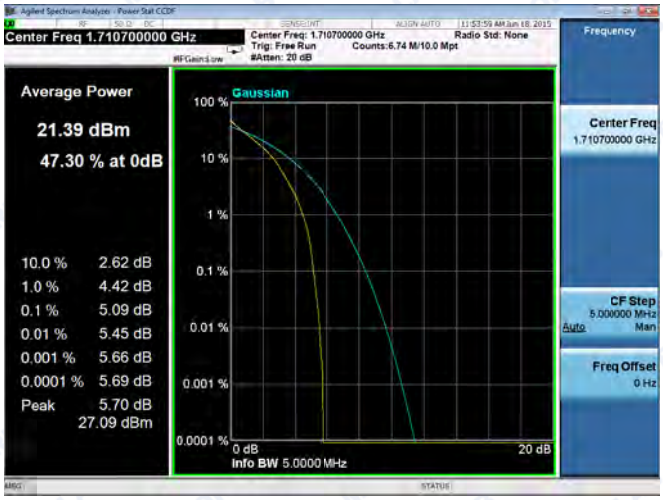
2.4.3 Test Result

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

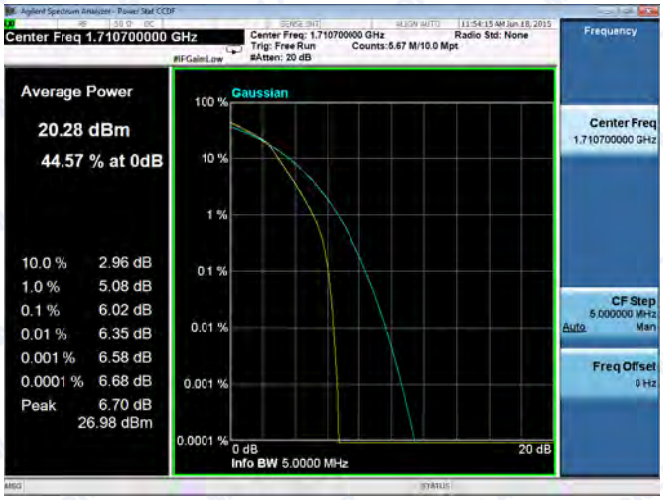
LTE Band 4 Low channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	5.09	6.02	19965	1711.5	5.19	6.09

Spectrum Plot of Worst Value (Low channel)

1.4MHz/QPSK

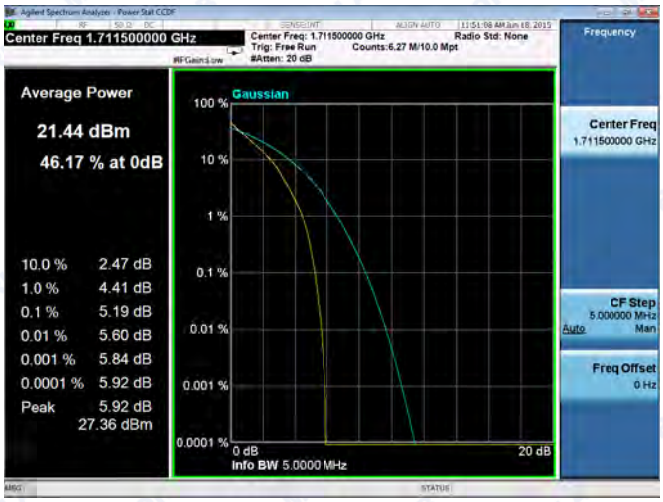


1.4MHz/16QAM

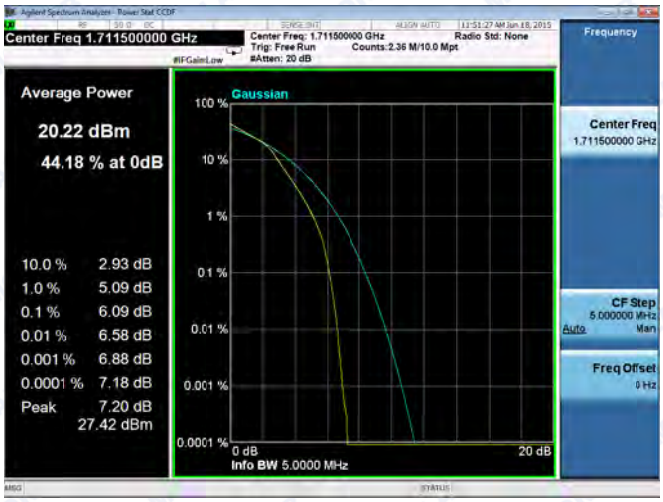


Spectrum Plot of Worst Value

3MHz/QPSK



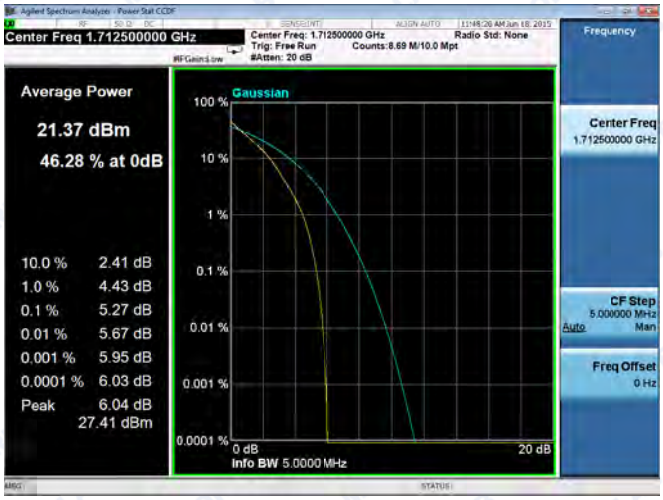
3MHz/16QAM



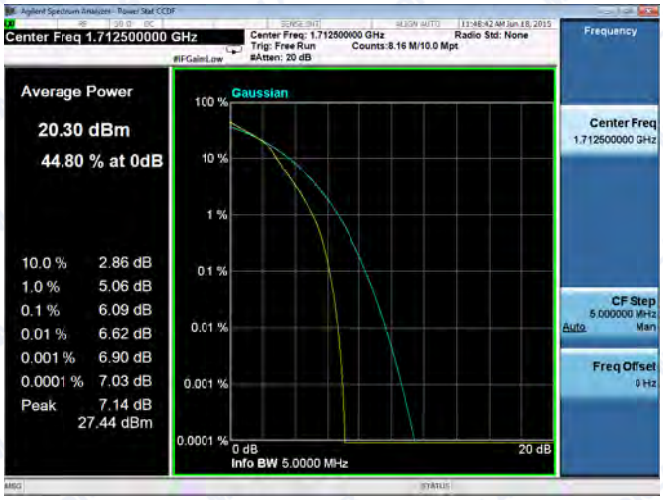
LTE Band 4 Low channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.27	6.09	20000	1715.0	4.68	6.06

Spectrum Plot of Worst Value

5MHz/QPSK

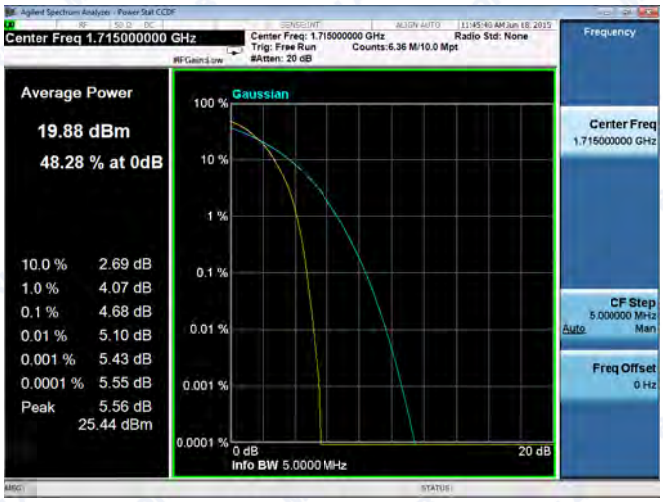


5MHz/16QAM

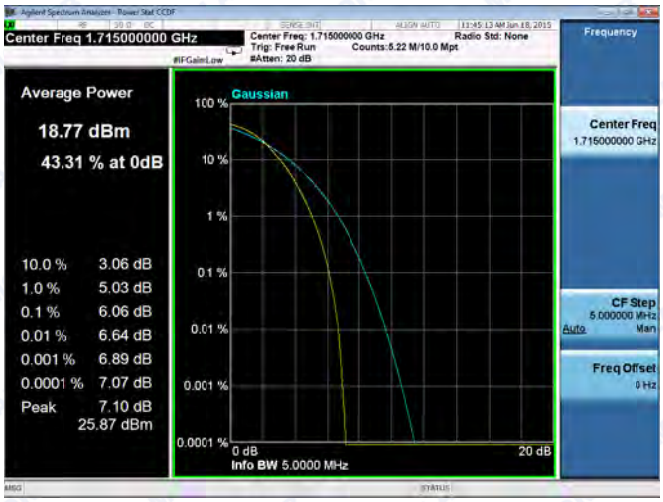


Spectrum Plot of Worst Value

10MHz/QPSK



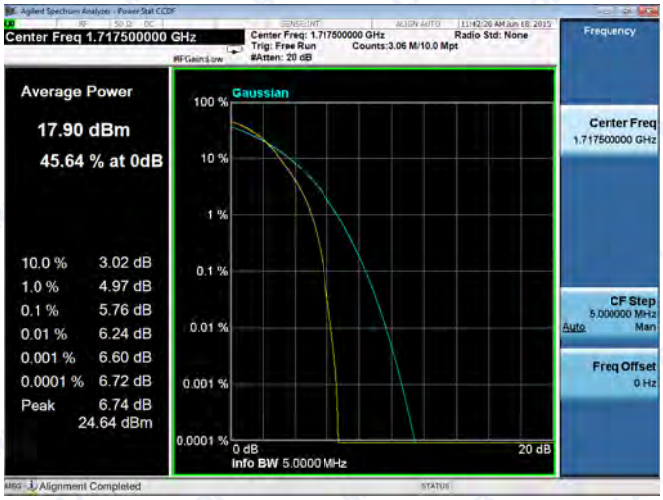
10MHz/16QAM



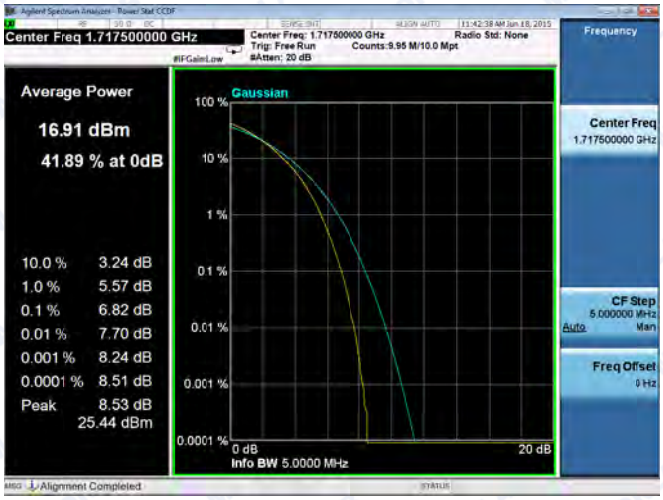
LTE Band 4 Low channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	5.76	6.82	20050	1720.0	6.61	7.31

Spectrum Plot of Worst Value

15MHz/QPSK

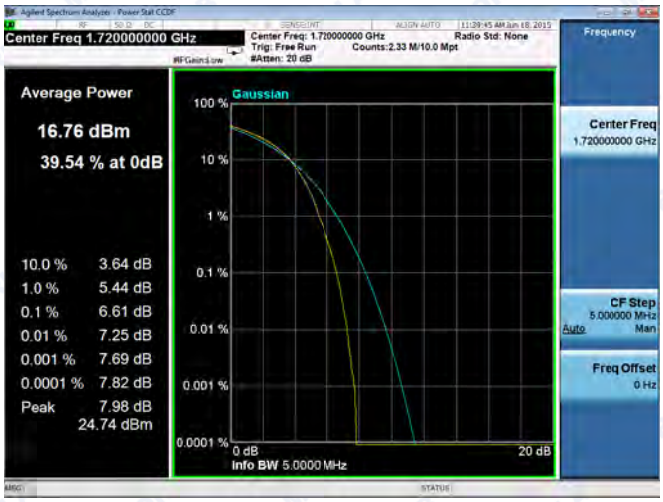


15MHz/16QAM

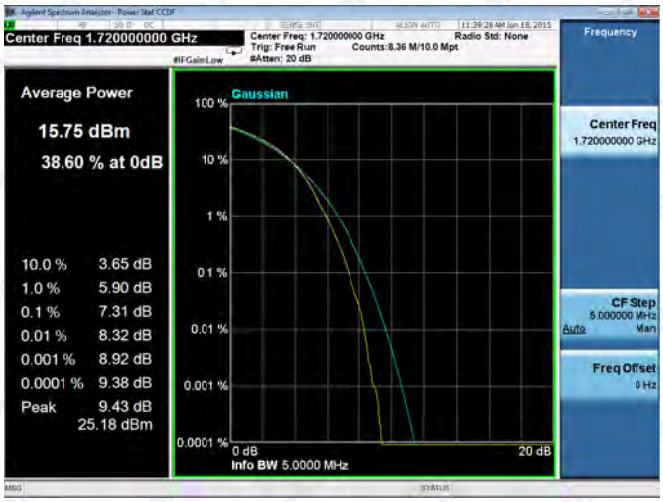


Spectrum Plot of Worst Value

20MHz/QPSK



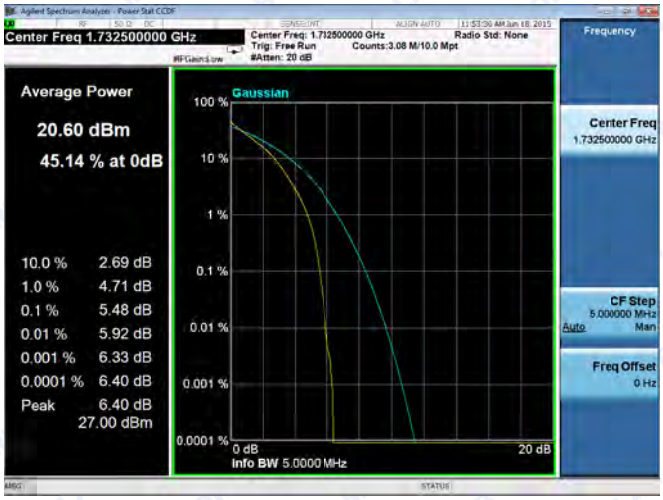
20MHz/16QAM



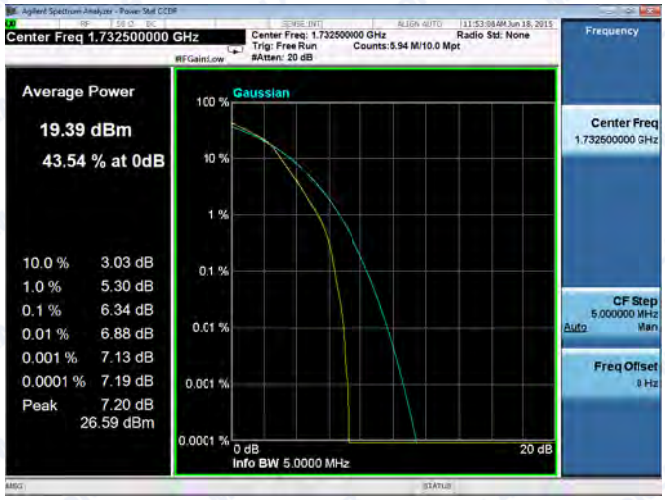
LTE Band 4 Middle channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.48	6.34	20175	1732.5	5.57	6.44

Spectrum Plot of Worst Value

1.4MHz/QPSK

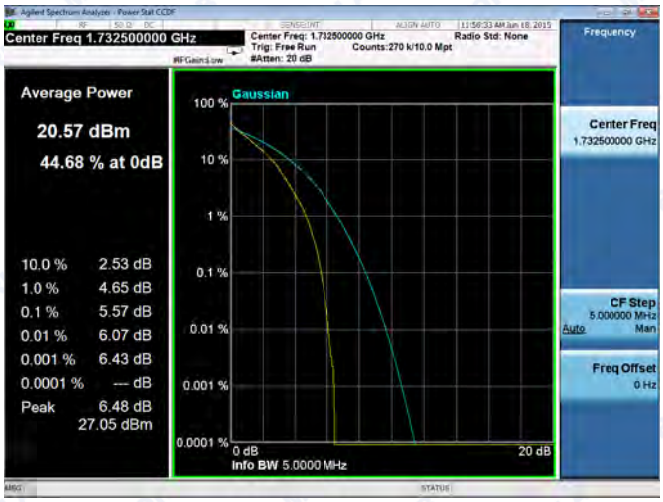


1.4MHz/16QAM

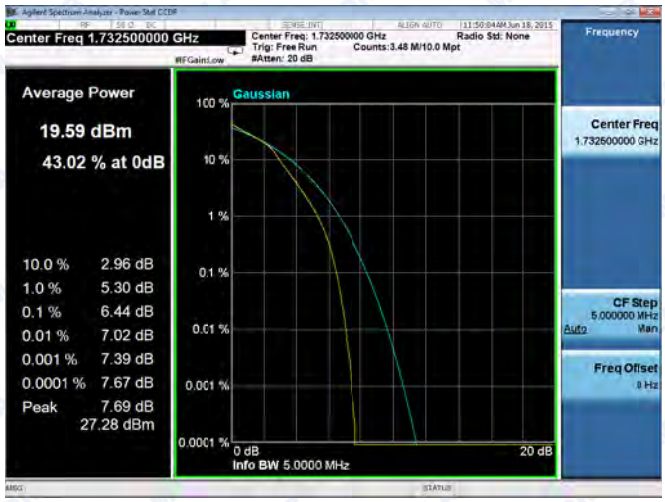


Spectrum Plot of Worst Value

3MHz/QPSK



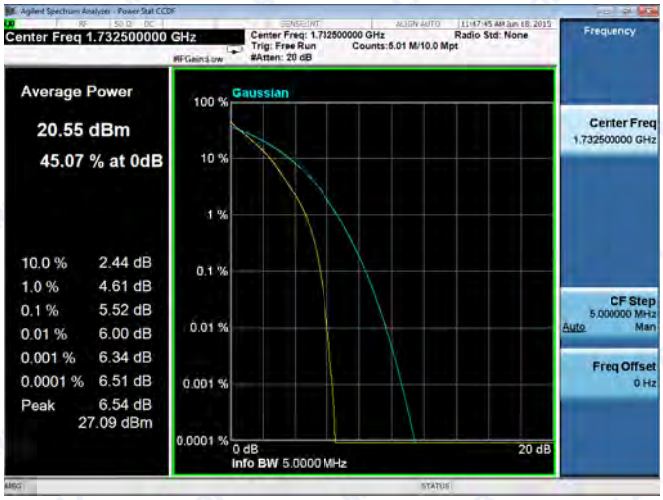
3MHz/16QAM



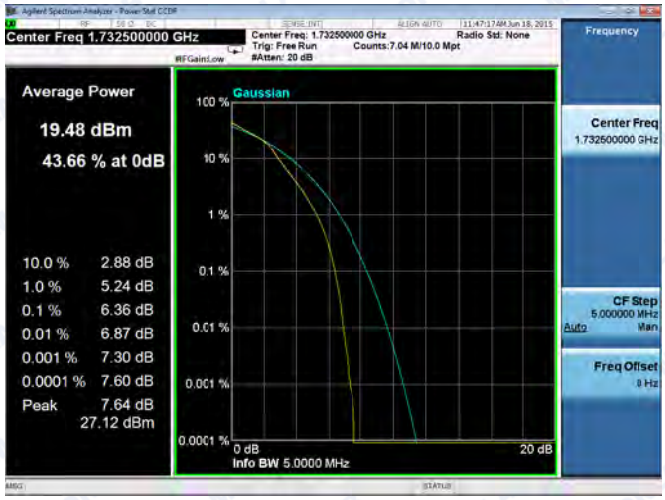
LTE Band 4 Middle channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.52	6.36	20175	1732.5	4.68	6.19

Spectrum Plot of Worst Value

5MHz/QPSK

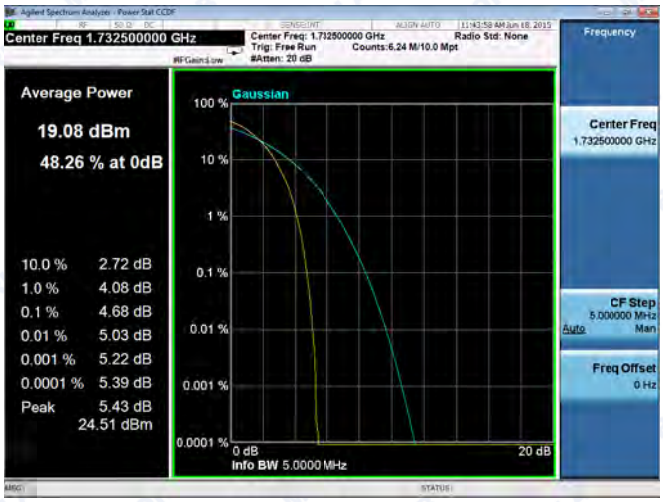


5MHz/16QAM

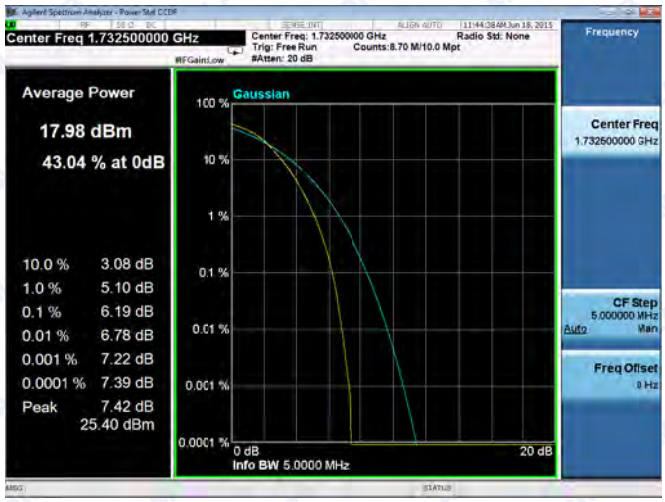


Spectrum Plot of Worst Value

10MHz/QPSK



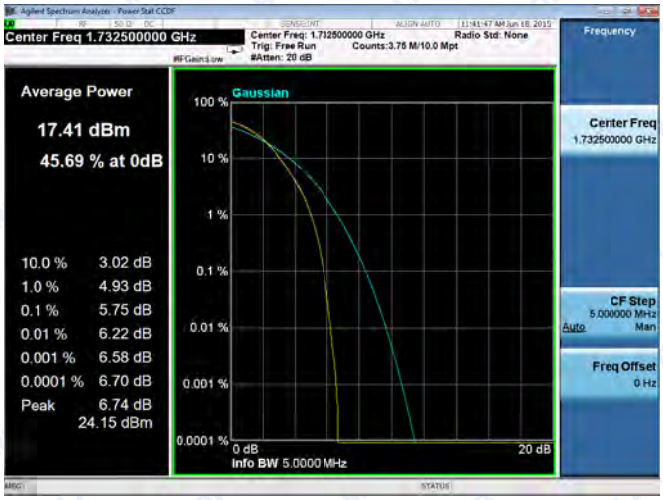
10MHz/16QAM



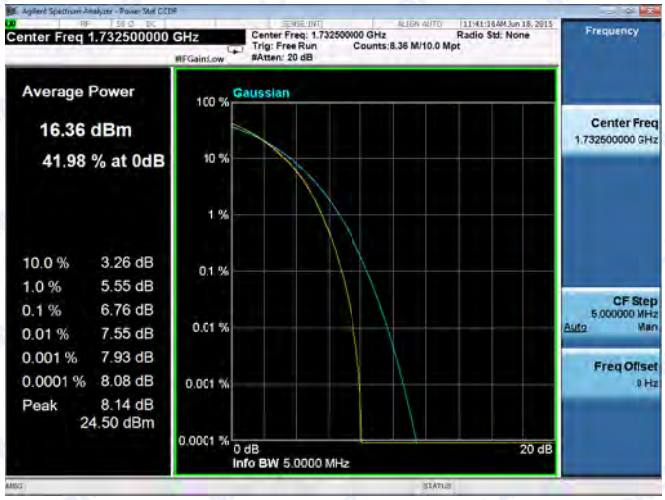
LTE Band 4 Middle channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.75	6.76	20175	1732.5	6.60	7.27

Spectrum Plot of Worst Value

15MHz/QPSK

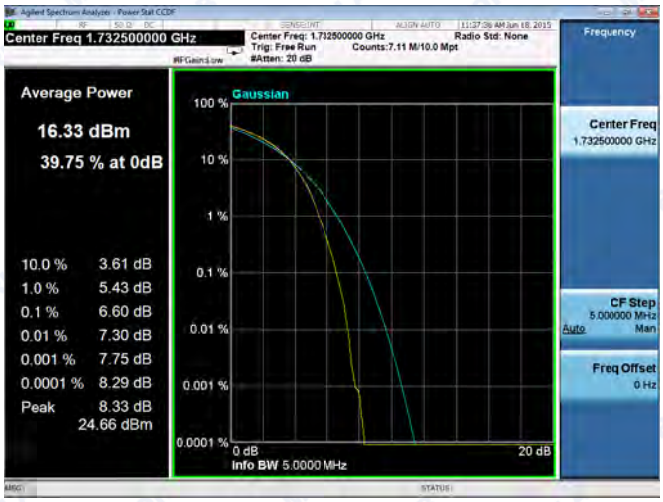


15MHz/16QAM

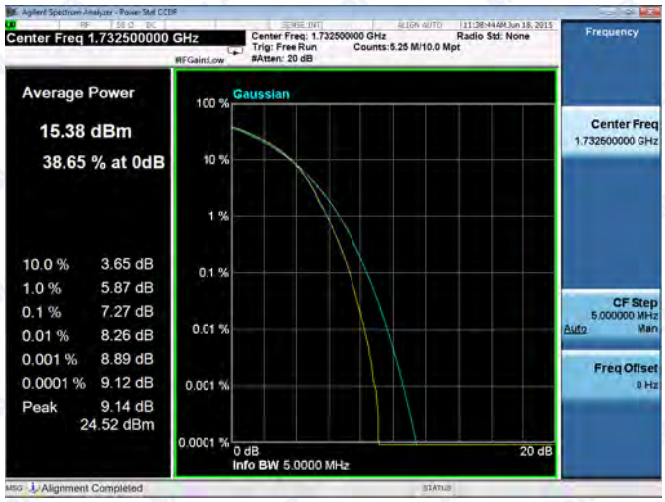


Spectrum Plot of Worst Value

20MHz/QPSK



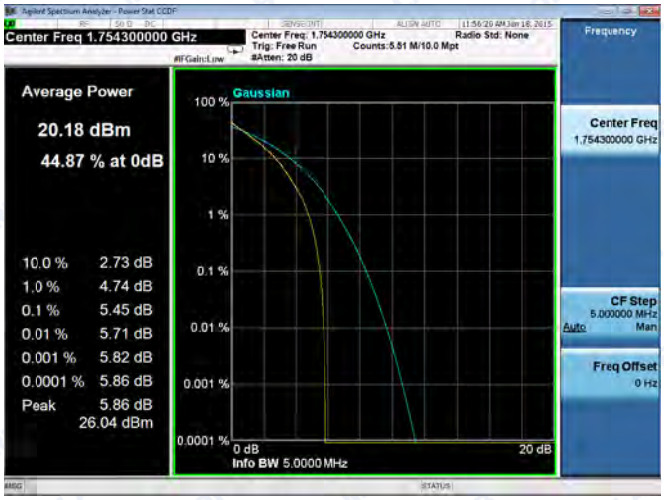
20MHz/16QAM



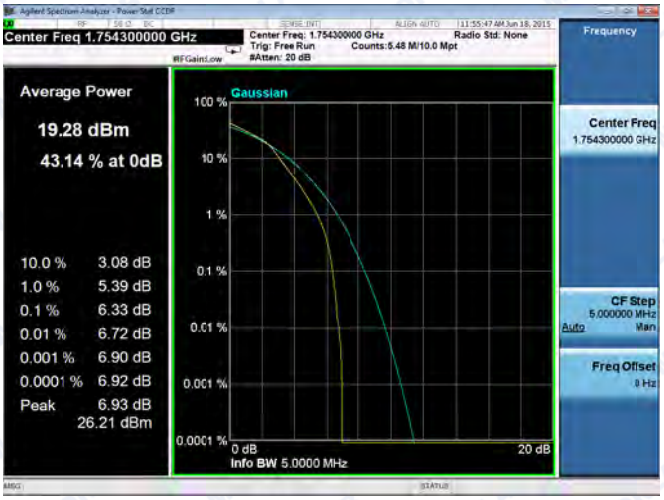
LTE Band 4 High channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20393	1754.3	5.45	6.33	20385	1753.5	5.56	6.45

Spectrum Plot of Worst Value

1.4MHz/QPSK

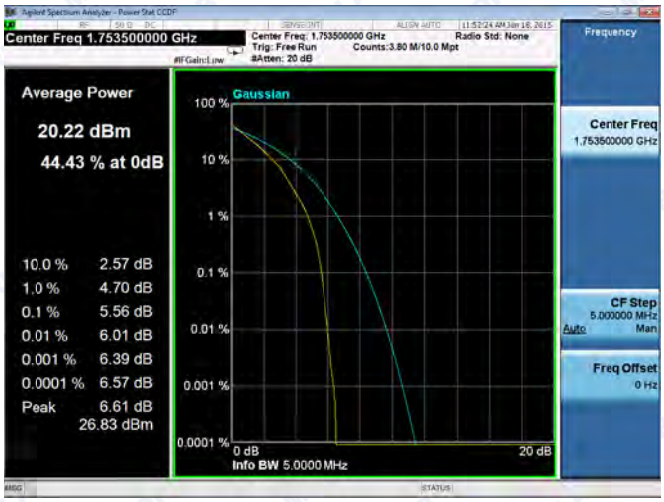


1.4MHz/16QAM

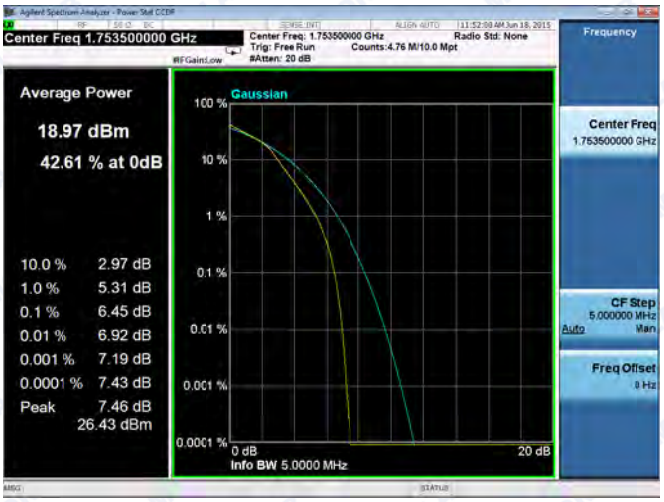


Spectrum Plot of Worst Value

3MHz/QPSK



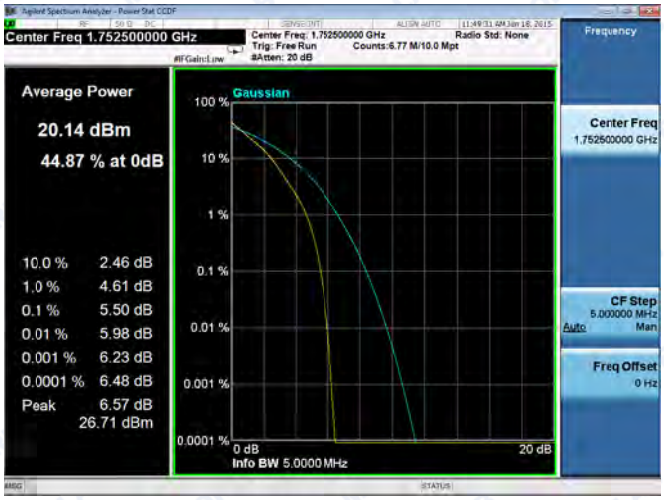
3MHz/16QAM



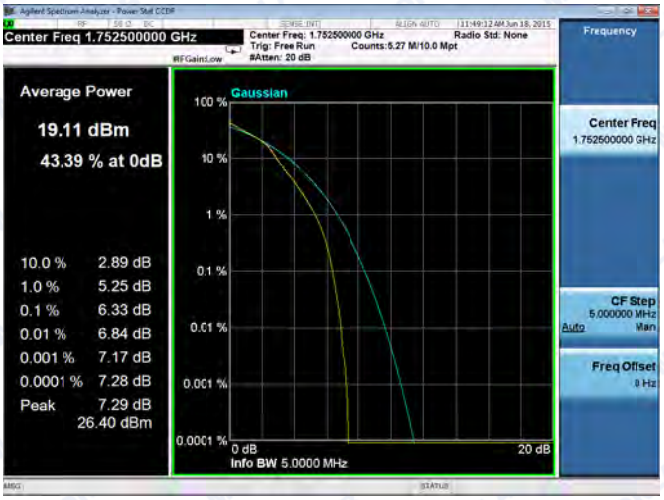
LTE Band 4 High channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20375	1752.5	5.50	6.33	20350	1750.0	4.65	6.20

Spectrum Plot of Worst Value

5MHz/QPSK

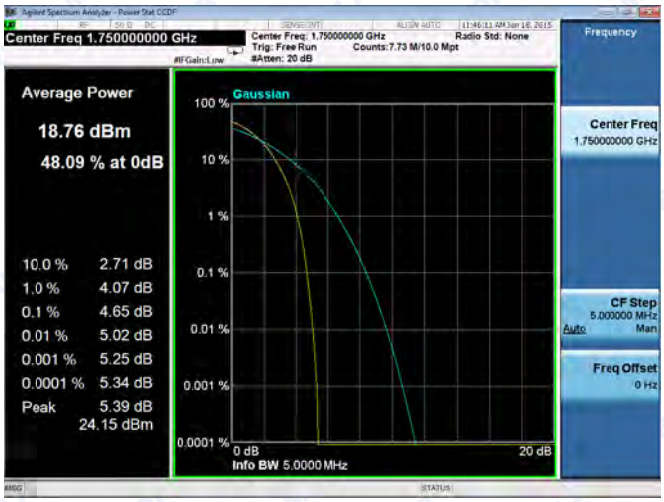


5MHz/16QAM

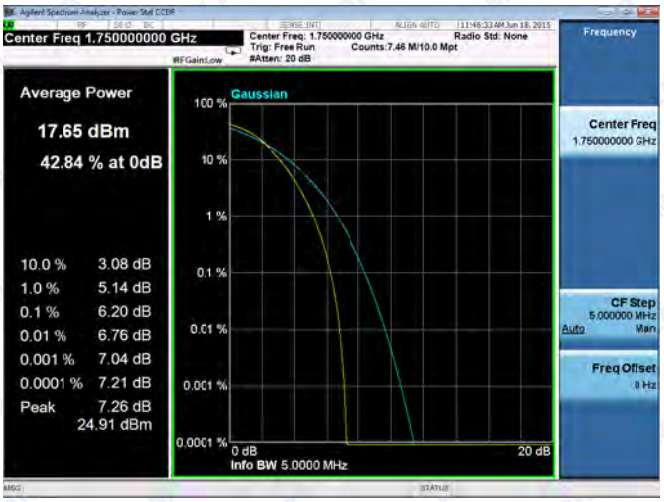


Spectrum Plot of Worst Value

10MHz/QPSK



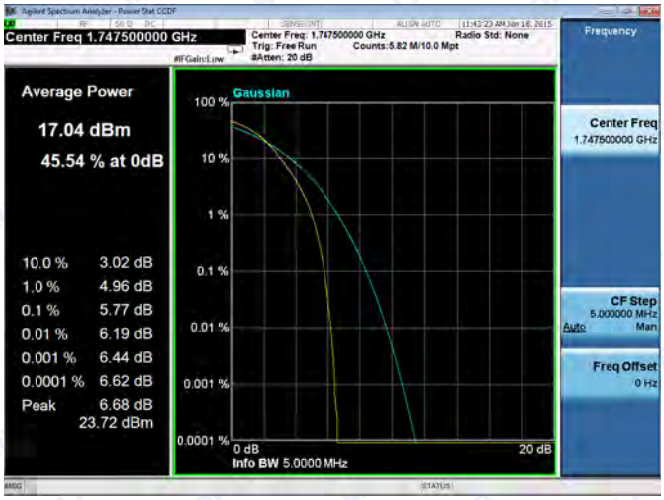
10MHz/16QAM



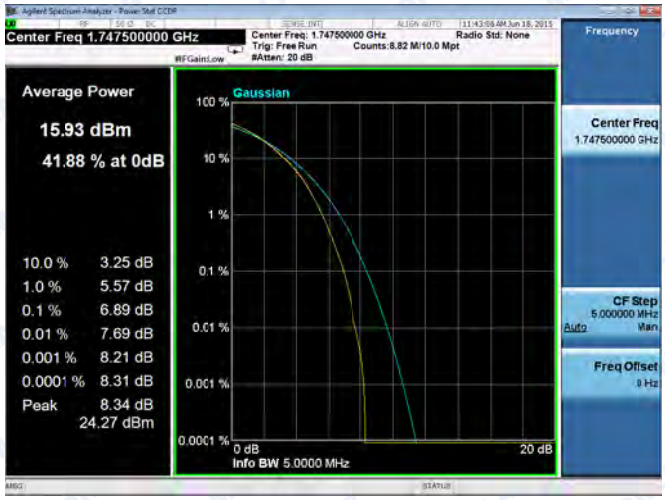
LTE Band 4 High channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20325	1747.5	5.77	6.89	20300	1745.0	6.55	7.29

Spectrum Plot of Worst Value

15MHz/QPSK

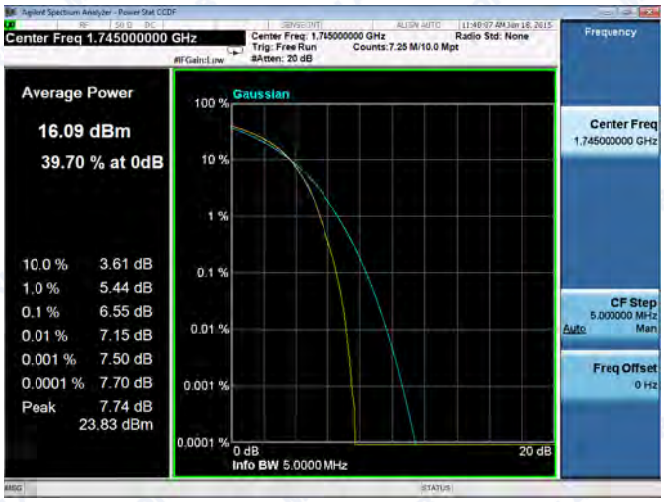


15MHz/16QAM

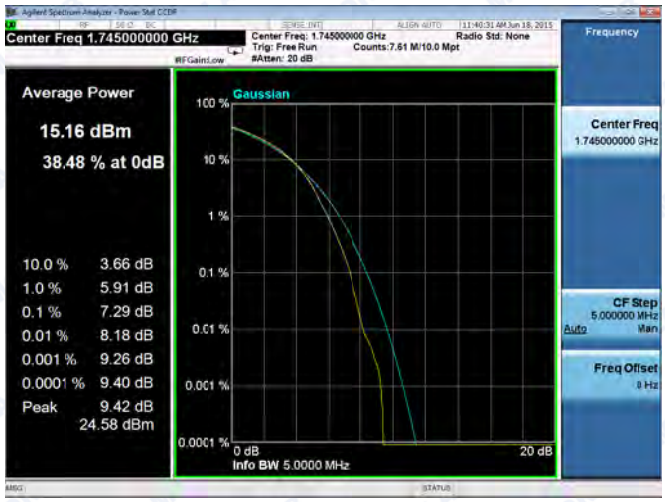


Spectrum Plot of Worst Value

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.

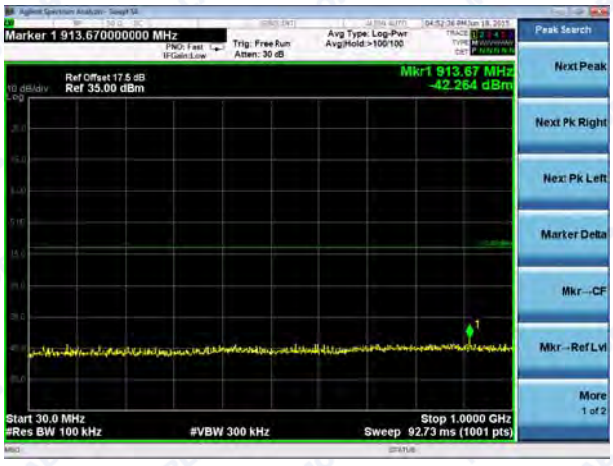
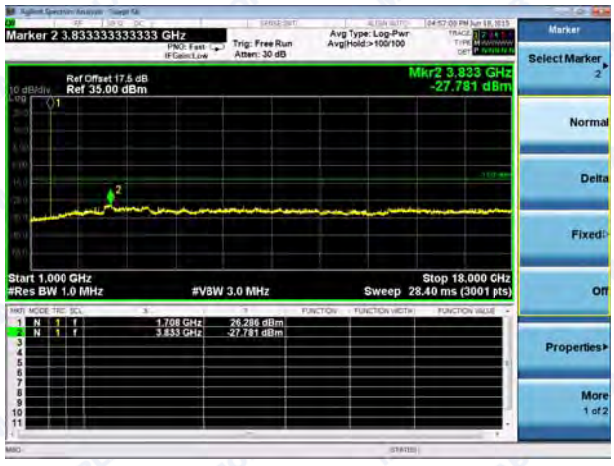
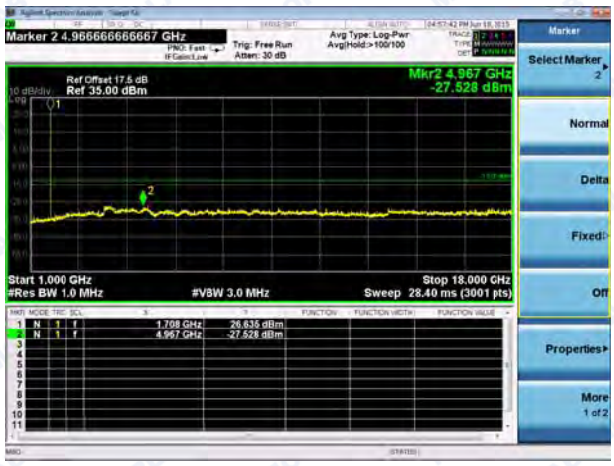
2.5.2 Test Procedure

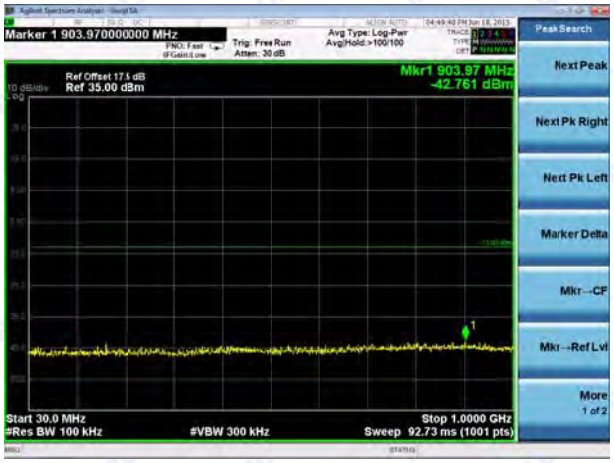
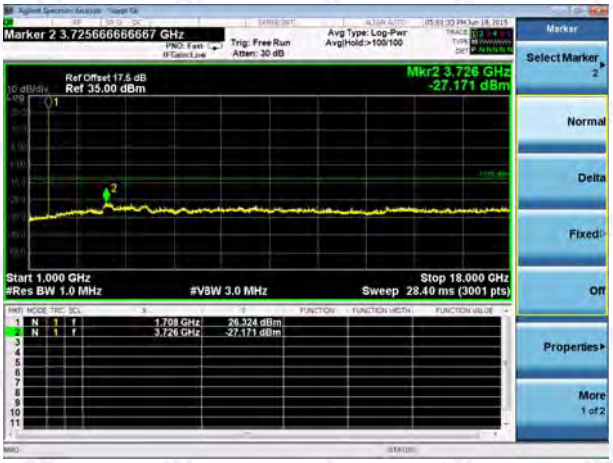
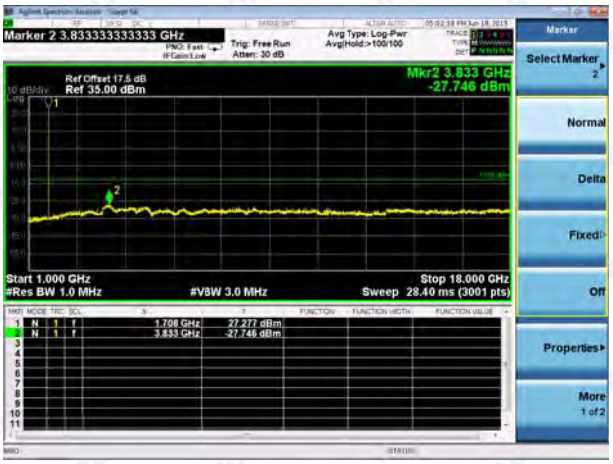
See section 2.1.2 of this report.

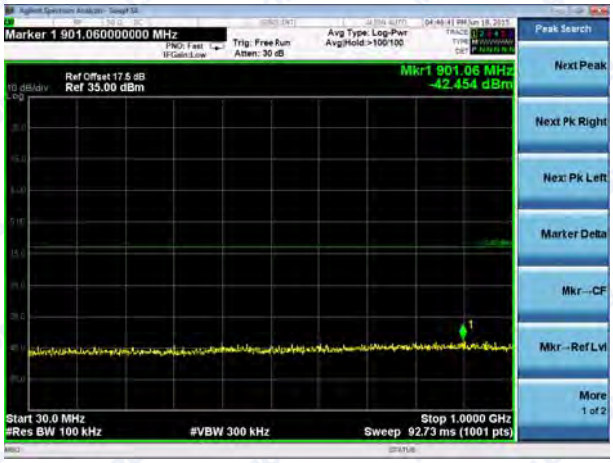
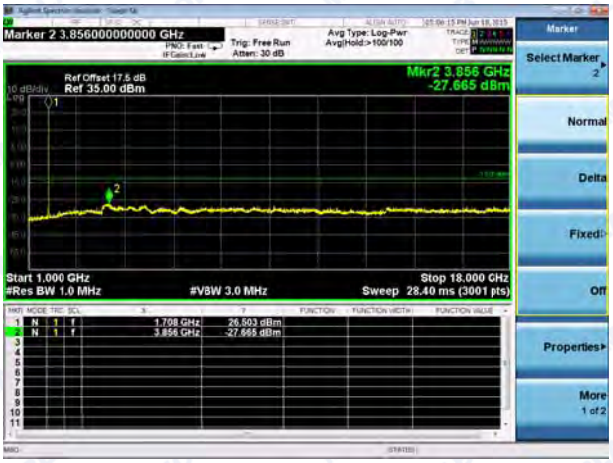
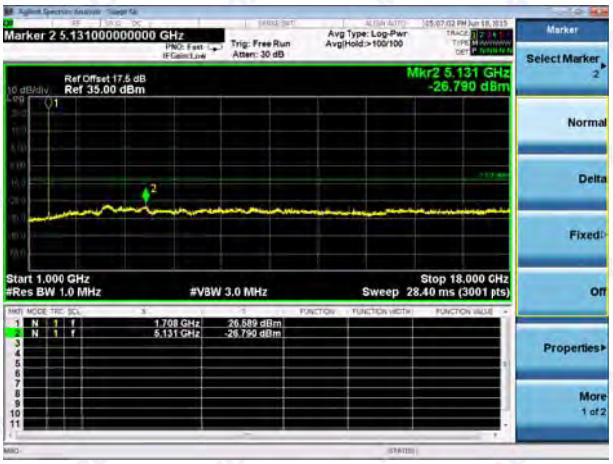
Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

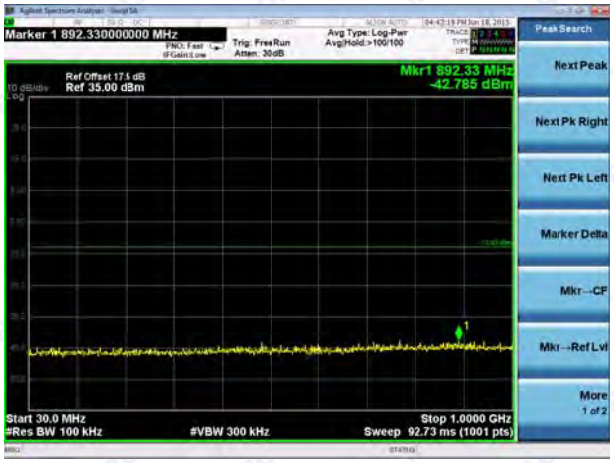
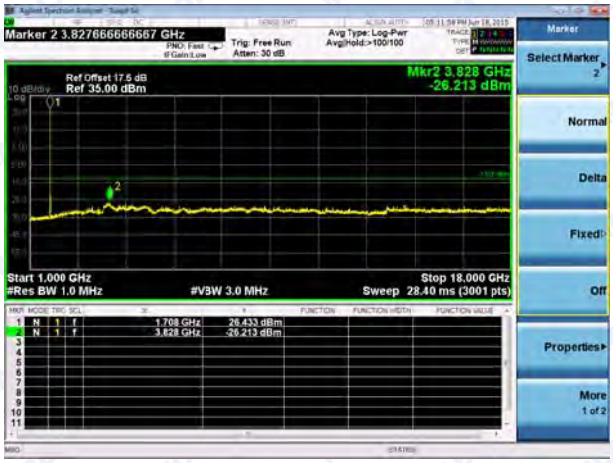
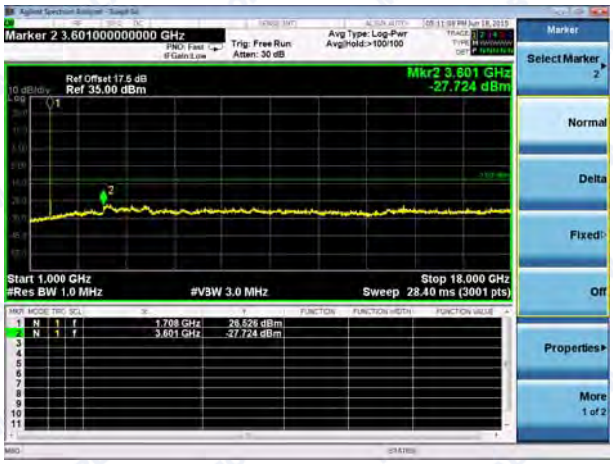
2.5.3 Test Result

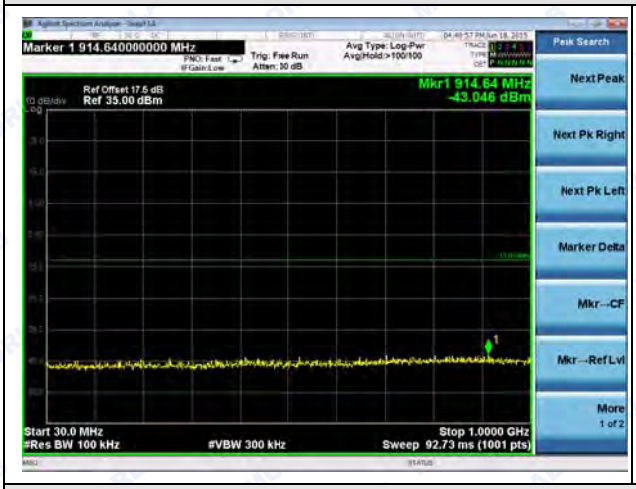
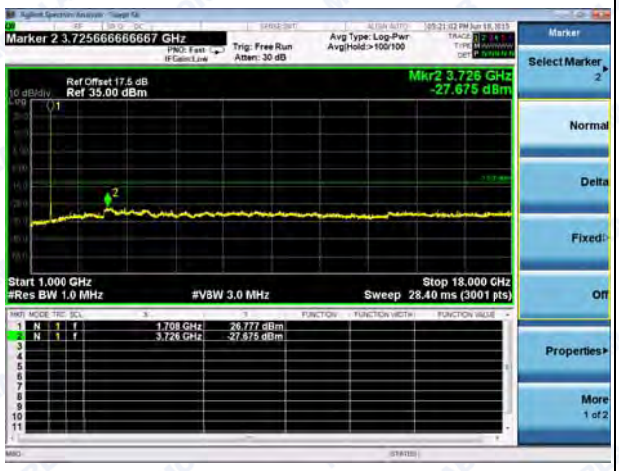
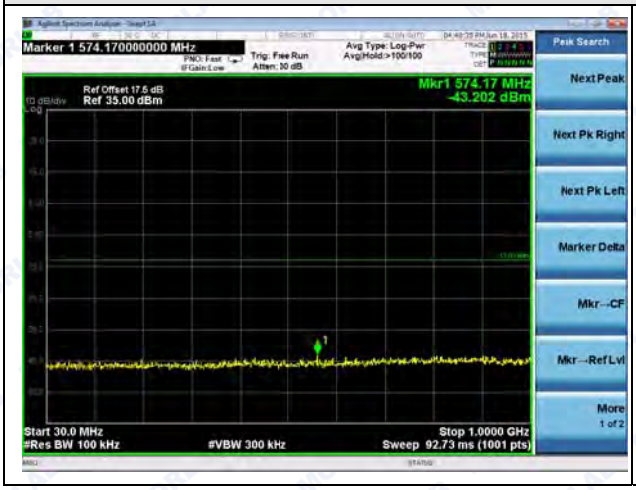
Compliant. See attached pots.

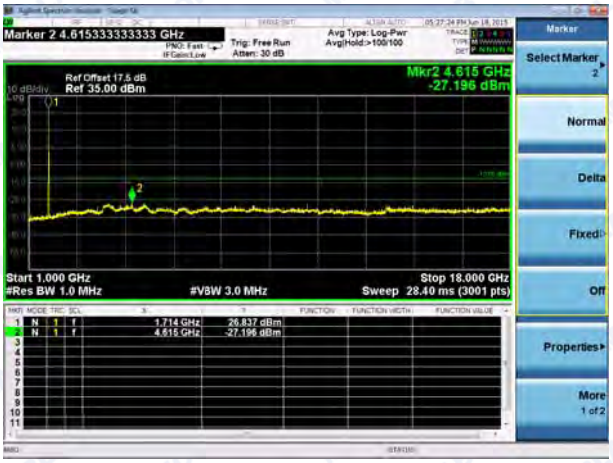
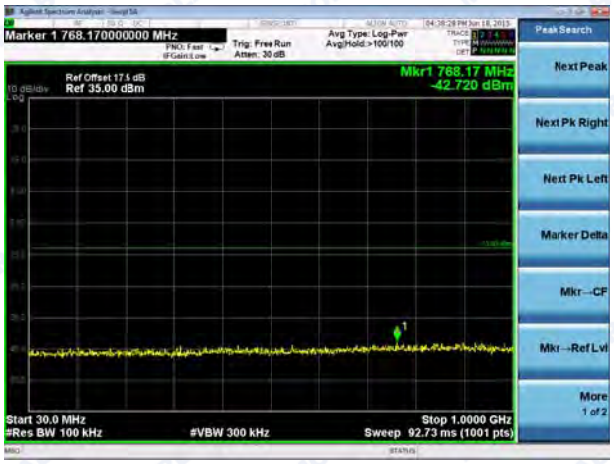
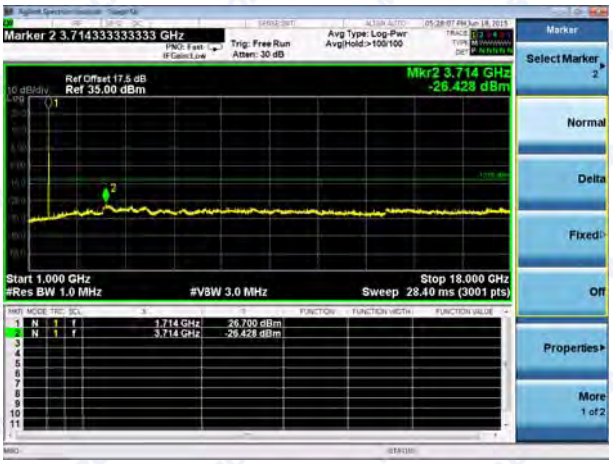
LTE Band 4 1.4MHz BW Low Channel	
QPSK	
	
16QAM	
	

LTE Band 4 3MHz BW Low Channel	
QPSK	
	
16QAM	
	

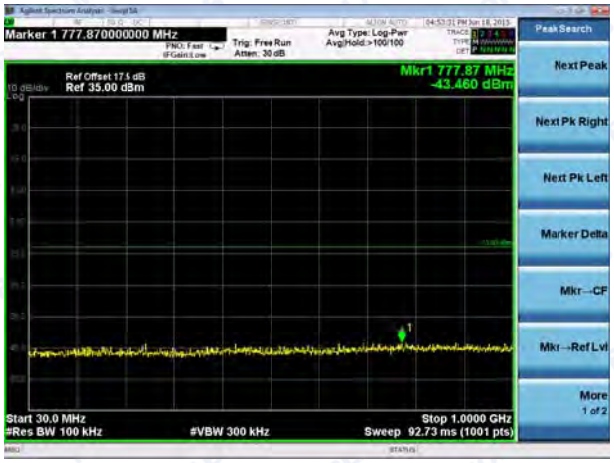
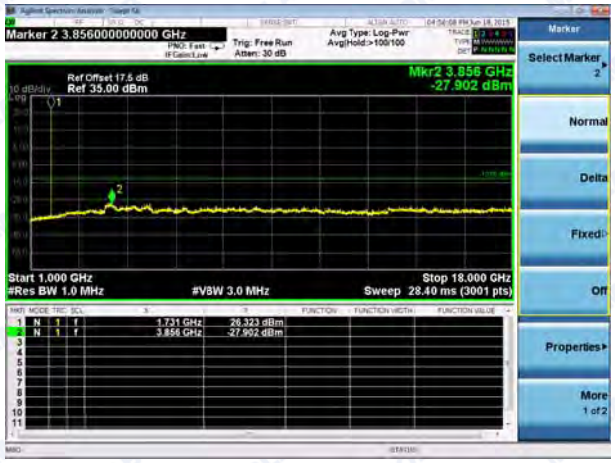
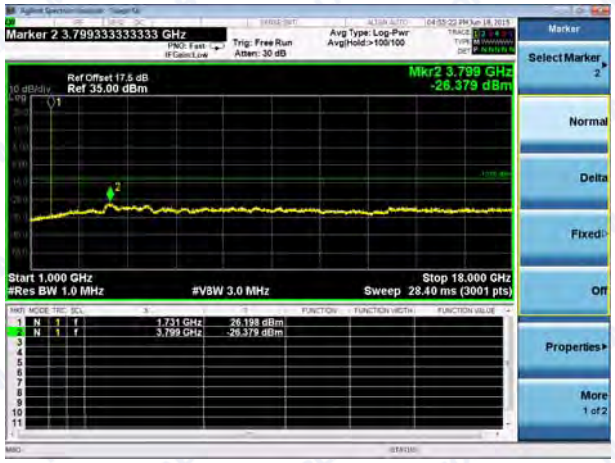
LTE Band 4 5MHz BW Low Channel	
QPSK	
	
16QAM	
	

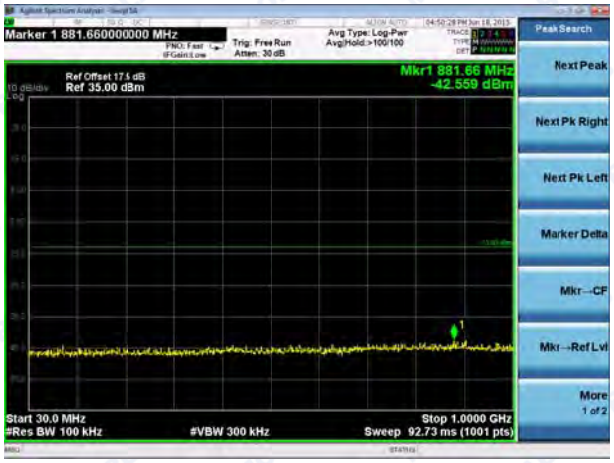
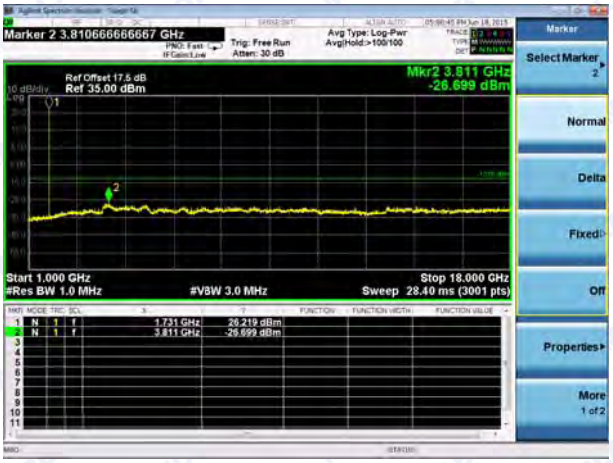
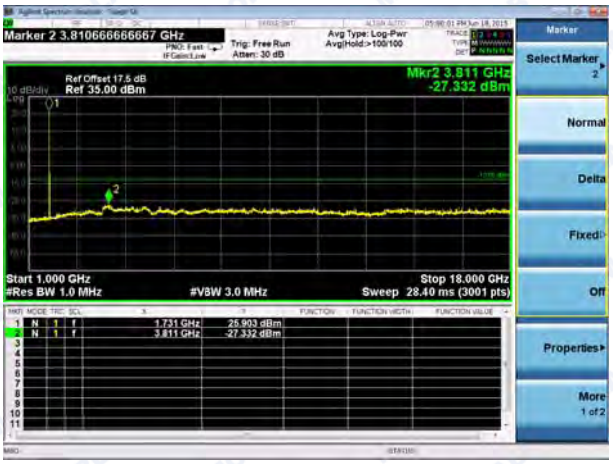
LTE Band 4 10MHz BW Low Channel	
QPSK	
	
16QAM	
	

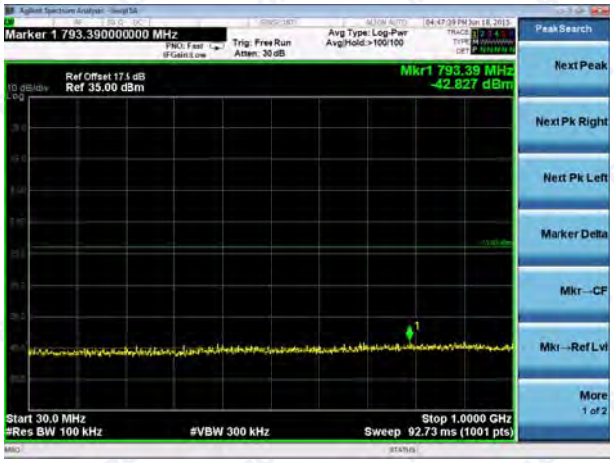
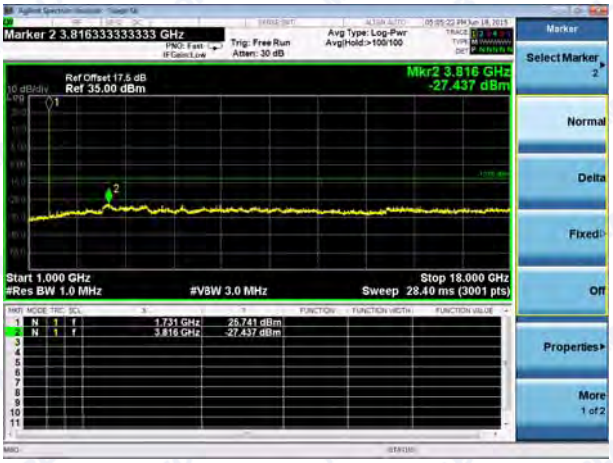
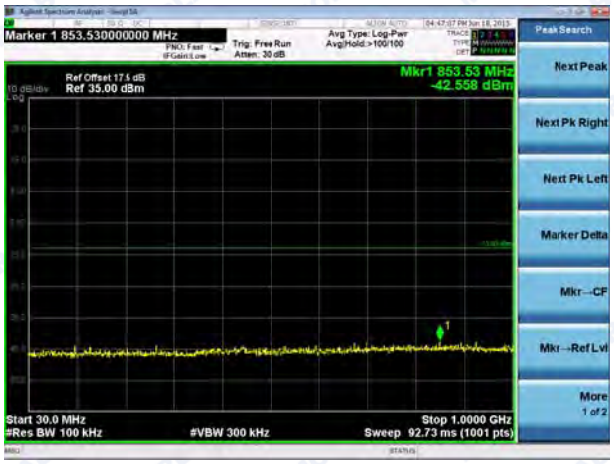
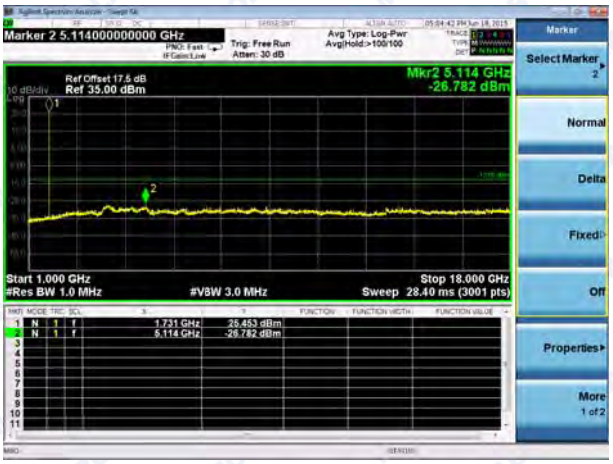
LTE Band 4 15MHz BW Low Channel	
QPSK	
	
16QAM	
	

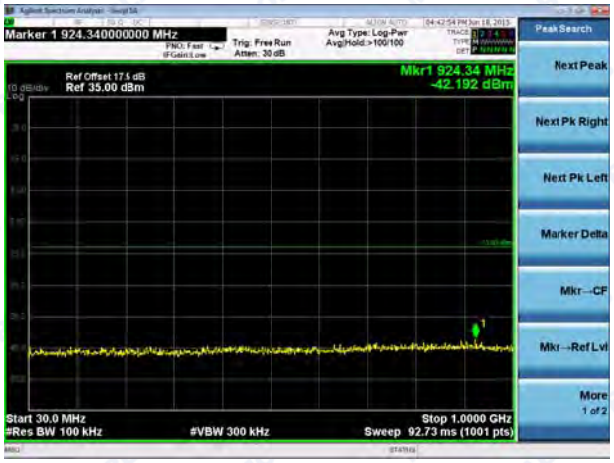
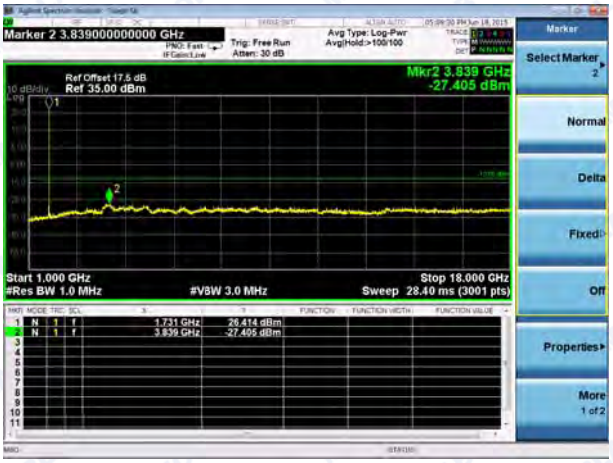
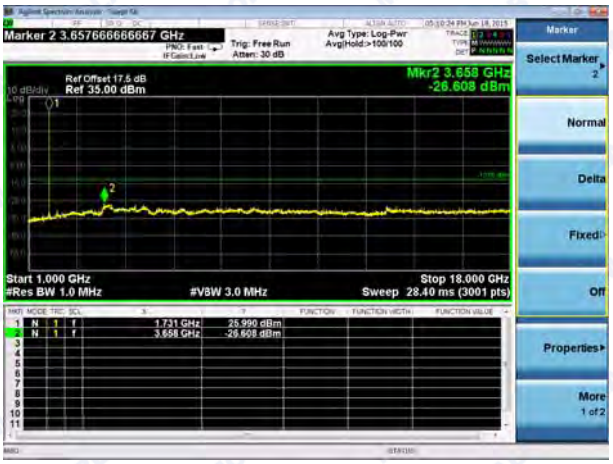
LTE Band 4 20MHz BW Low Channel	
QPSK	
	
16QAM	
	

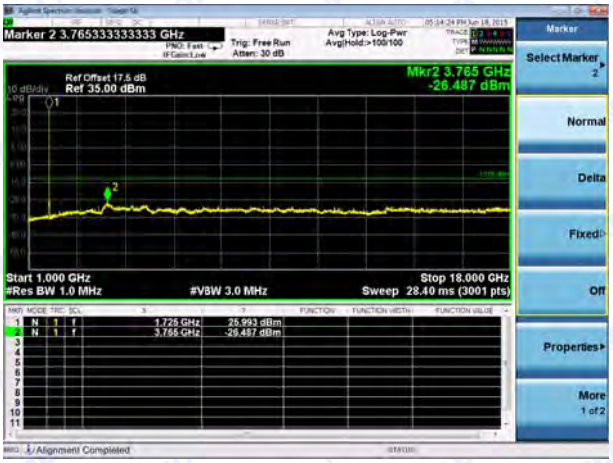
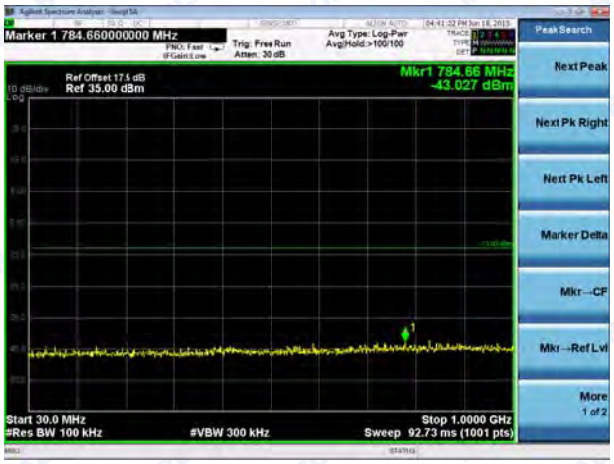
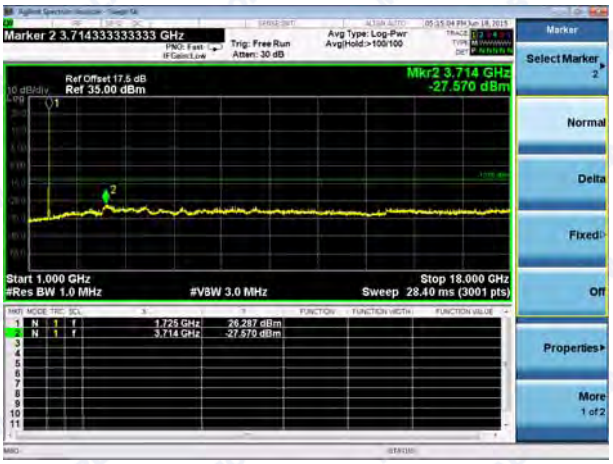
Middle channel:

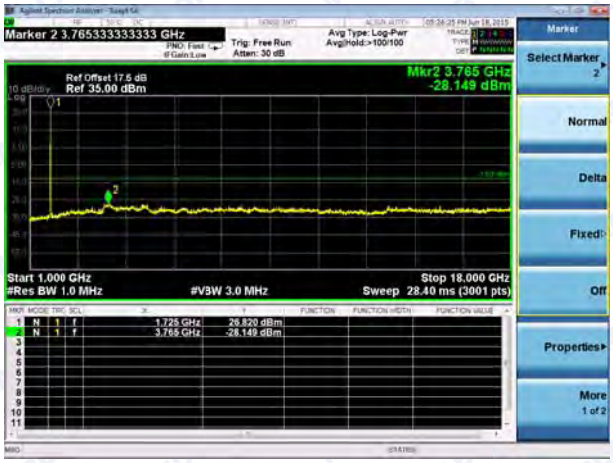
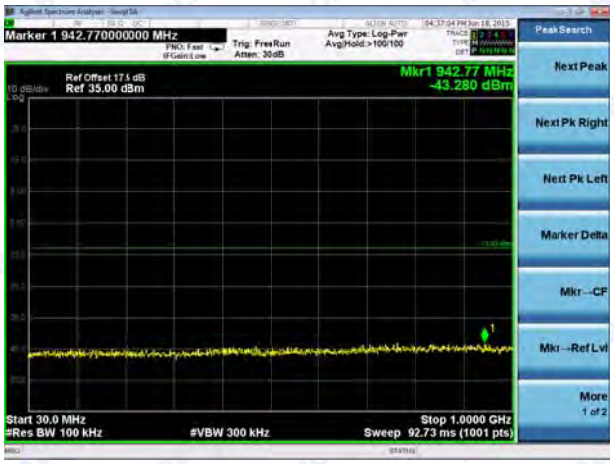
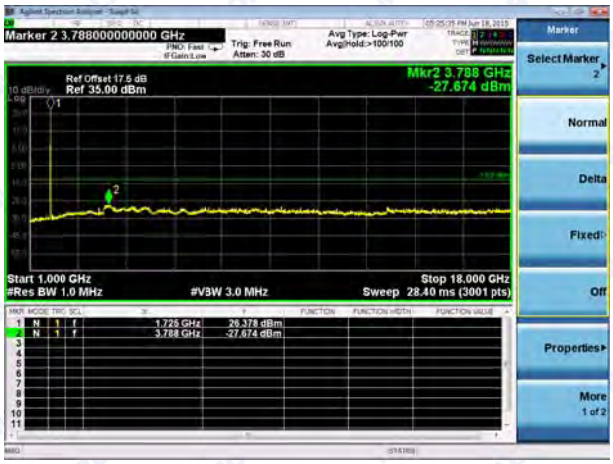
LTE Band 4 1.4MHz BW Mid Channel	
QPSK	
	
16QAM	
	

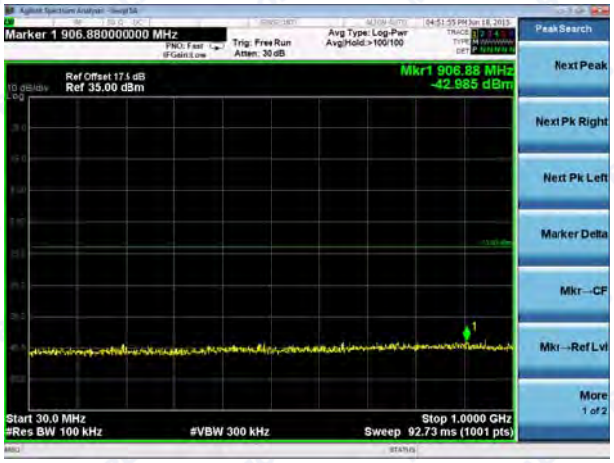
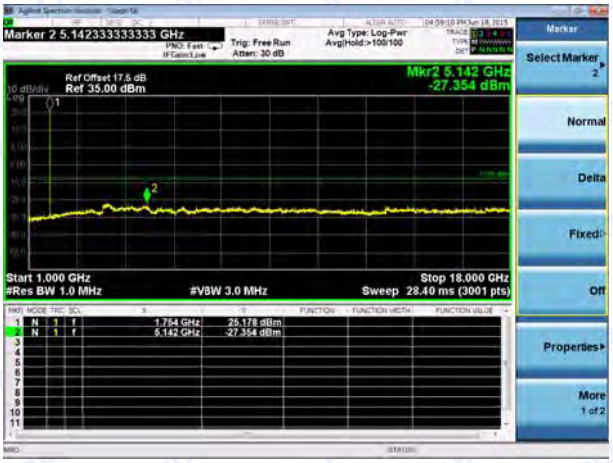
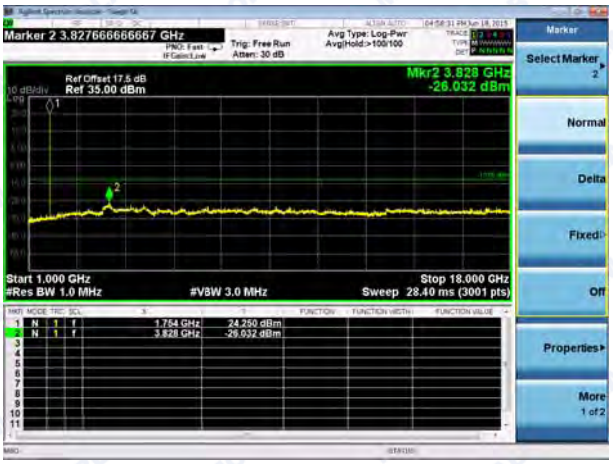
LTE Band 4 3MHz BW Mid Channel	
QPSK	
	
16QAM	
	

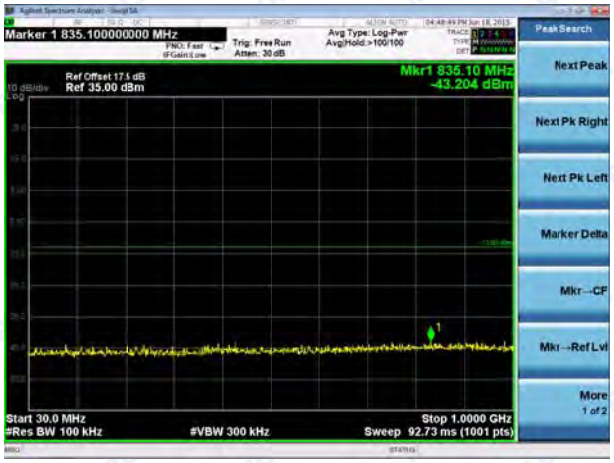
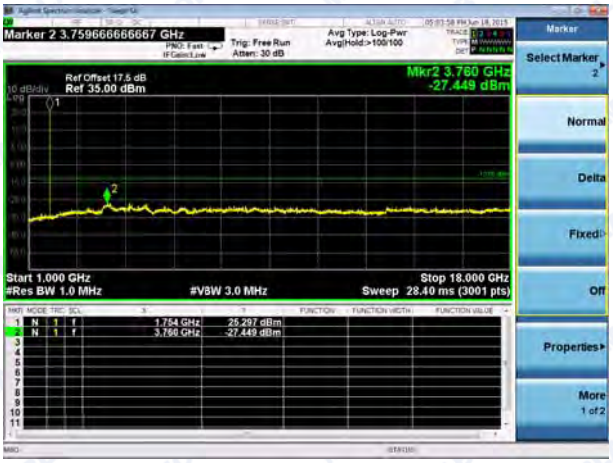
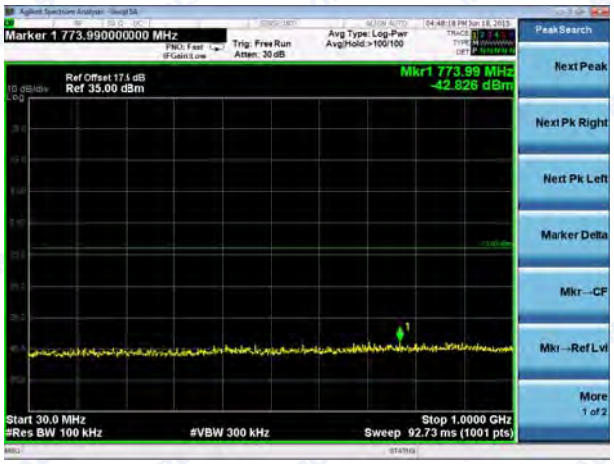
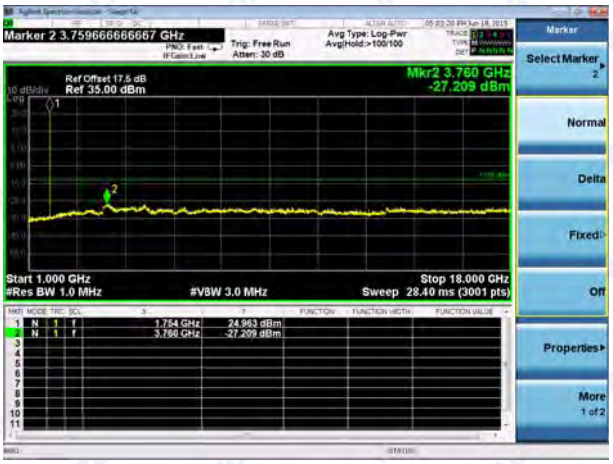
LTE Band 4 5MHz BW Mid Channel	
QPSK	
	
16QAM	
	

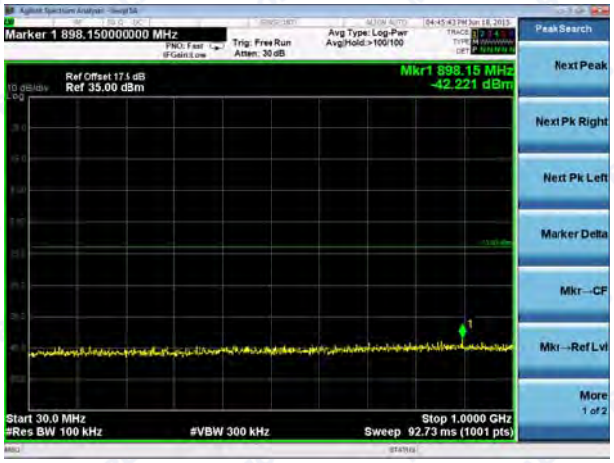
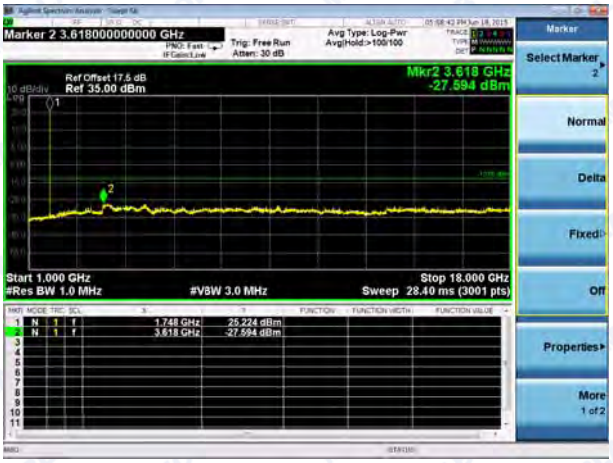
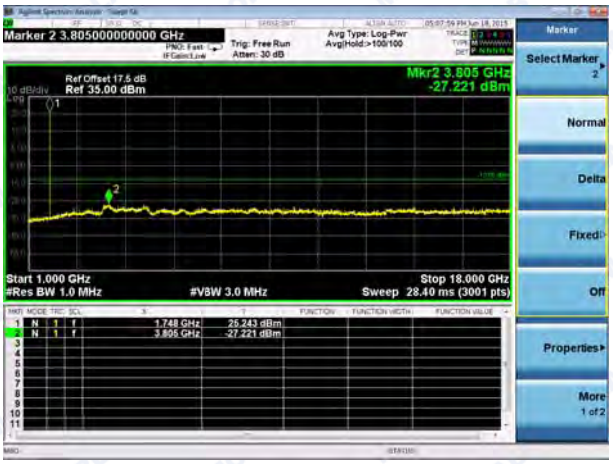
LTE Band 4 10MHz BW Mid Channel	
QPSK	
	
16QAM	
	

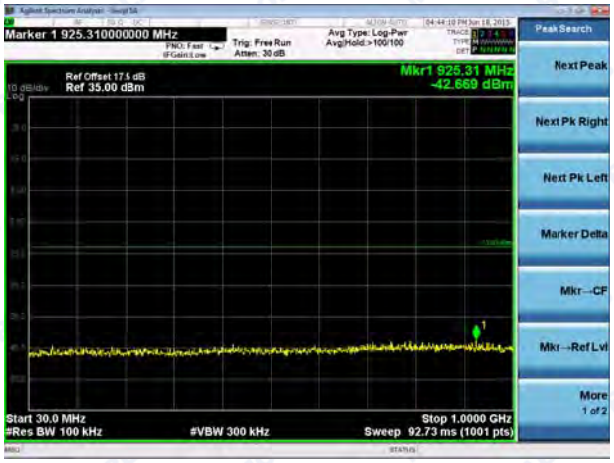
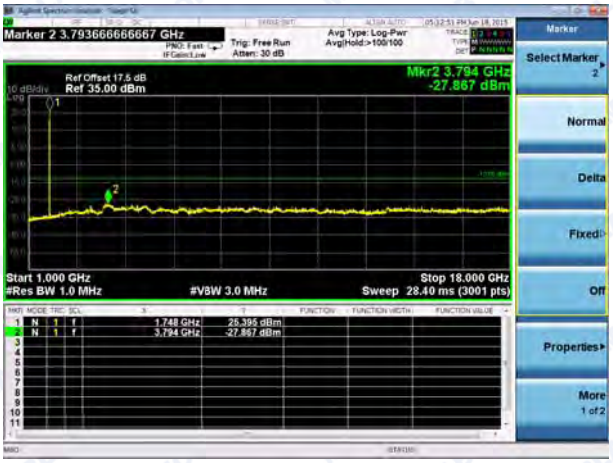
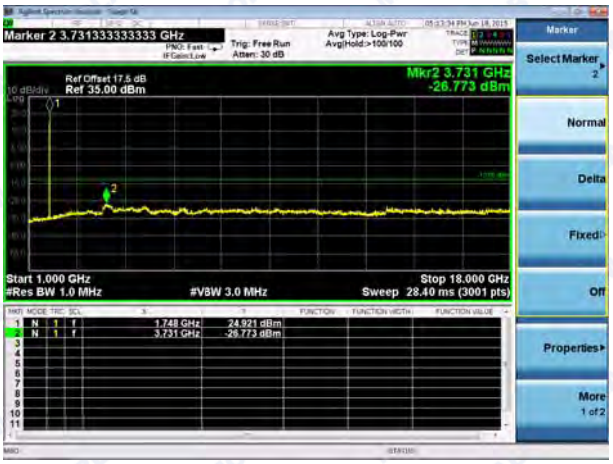
LTE Band 4 15MHz BW Mid Channel	
QPSK	
	
16QAM	
	

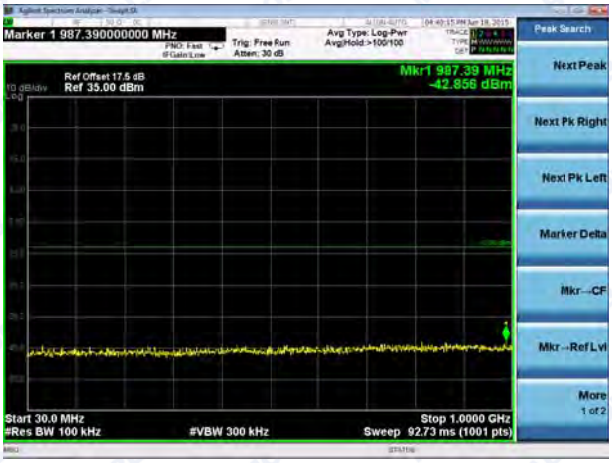
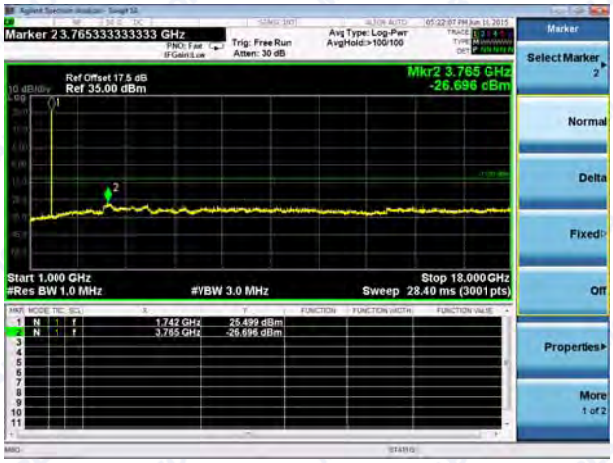
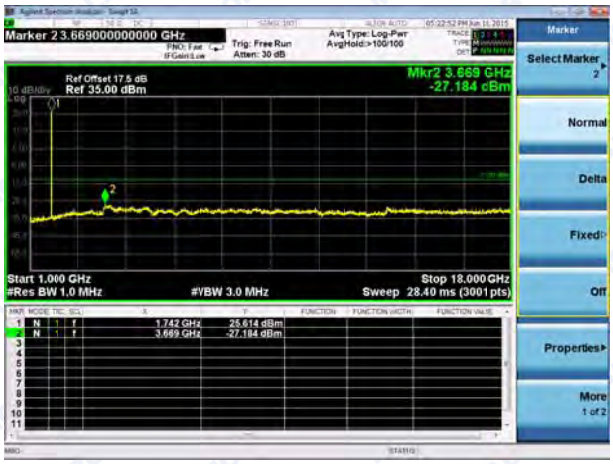
LTE Band 4 20MHz BW Mid Channel	
QPSK	
	
16QAM	
	

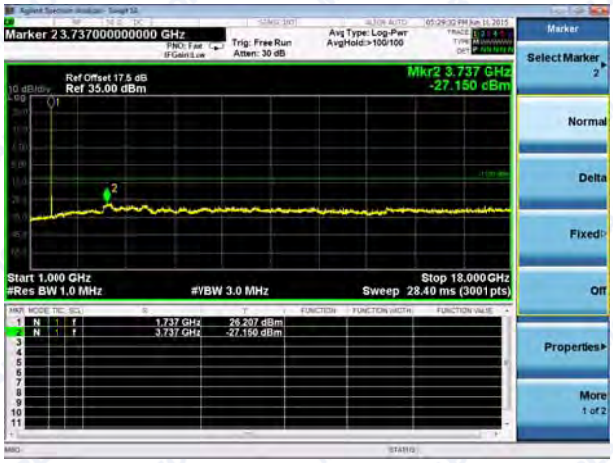
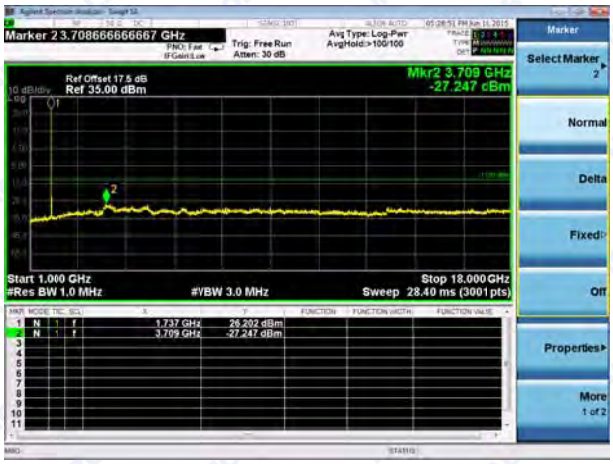
LTE Band 4 1.4MHz BW High Channel	
QPSK	
	
16QAM	
	

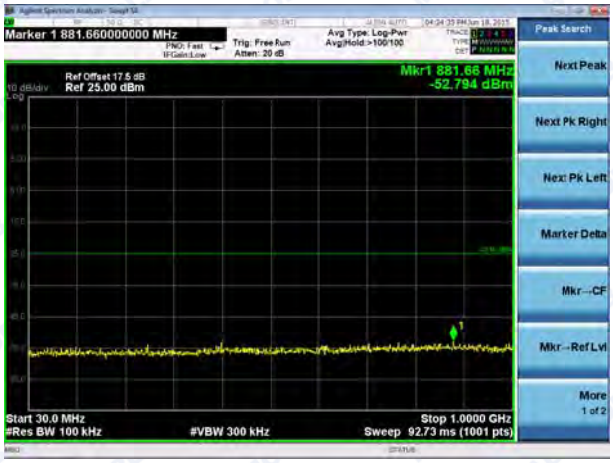
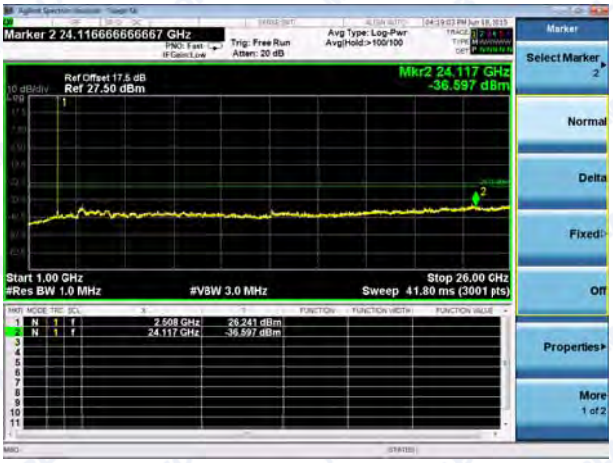
LTE Band 4 3MHz BW High Channel	
QPSK	
	
16QAM	
	

LTE Band 4 5MHz BW High Channel	
QPSK	
	
16QAM	
	

LTE Band 4 10MHz BW High Channel	
QPSK	
	
16QAM	
	

LTE Band 4 15MHz BW High Channel	
QPSK	
	
16QAM	
	

LTE Band 4 20MHz BW High Channel	
QPSK	
	
16QAM	
	

LTE Band 7 5MHz BW Low Channel	
QPSK	
	
16QAM