



REPORT No.: SZ15060079W02

FCC RF TEST REPORT

APPLICANT : ZTE Corporation
PRODUCT NAME : LTE Digital Mobile Phone Handset
MODEL NAME : ZTE Blade A475
TRADE NAME : ZTE
BRAND NAME : ZTE
FCC ID : SRQ-A475
STANDARD(S) : 47 CFR Part 24, Subpart E
47 CFR Part 27, Subpart L&M
ISSUE DATE : 2015-7-16



SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

NOTE: This document is issued by MORLAB, the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.

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
Http://www.morlab.com

Fax: 86-755-36698525
E-mail: service@morlab.cn



DIRECTORY

TEST REPORT DECLARATION.....4

1. GENERAL INFORMATION.....5

1.1 EUT DESCRIPTION.....5

1.2 TEST STANDARDS AND RESULTS6

1.3 FACILITIES AND ACCREDITATIONS.....7

1.3.1 FACILITIES7

1.3.2 TEST ENVIRONMENT CONDITIONS.....7

2. 47 CFR PART 2, PART 24E & 27L REQUIREMENTS.....8

2.1 TRANSMITTER CONDUCTED OUTPUT POWER.....8

2.1.1 REQUIREMENT.....8

2.1.2 TEST DESCRIPTION8

2.1.3 TEST RESULTS8

2.2 OCCUPIED BANDWIDTH25

2.2.1 DEFINITION 25

2.2.2 TEST DESCRIPTION 25

2.2.3 TEST RESULTS 25

2.3 FREQUENCY STABILITY57

2.3.1 REQUIREMENT..... 57

2.3.2 TEST DESCRIPTION 57

2.3.3 TEST VERDICT..... 58

2.4 PEAK TO AVERAGE RADIO59

2.4.1 REQUIREMENT..... 59

2.4.2 TEST DESCRIPTION 59

2.4.3 TEST RESULT..... 59

2.5 CONDUCTED SPURIOUS EMISSIONS78

2.5.1 TEST REQUIREMENT 78

2.5.2 TEST PROCEDURE 78

2.5.3 TEST RESULT..... 78

2.6 BAND EDGE126

2.6.1 REQUIREMENT..... 126

2.6.2 TEST DESCRIPTION 126



2.6.3 TEST RESULT..... 126

2.7 TRANSMITTER RADIATED POWER (EIRP/ERP)151

2.7.1 REQUIREMENT..... 151

2.7.2 TEST DESCRIPTION 151

2.7.3 TEST RESULT..... 152

2.8 RADIATED SPURIOUS EMISSIONS159

2.8.1 REQUIREMENT..... 159

2.8.2 TEST DESCRIPTION 159

2.8.3 TEST RESULT..... 159

Change History		
Issue	Date	Reason for change
1.0	2015-7-16	First edition

**TEST REPORT DECLARATION**

Applicant	ZTE Corporation
Applicant Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China
Manufacturer	ZTE Corporation
Manufacturer Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China
Product Name	LTE Digital Mobile Phone Handset
Model Name	ZTE Blade A475
Brand Name	ZTE
HW Version	A475_V1AMB
SW Version	A475_Z98_MX_7SSOH1I500H001
Test Standards	47 CFR Part 24, Subpart E 47 CFR Part 27, Subpart L&M
Test Date	2015-6-10 to 2015-7-14
Test Result	PASS

Tested by : Zou Jian
Zou Jian(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 LTE Digital Mobile Phone Handset
Serial No. (n.a, marked #1 by test site)
Hardware Version..... A475_V1AMB
Software Version..... A475_Z98_MX_7SSOH1I500H001
Applicant ZTE Corporation
ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China
Manufacturer ZTE Corporation
ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China
Modulation Type..... LTE Band 2: QPSK, 16QAM
LTE Band 4: QPSK, 16QAM
LTE Band 7: QPSK, 16QAM
Tx Frequency Range..... LTE Band 2: 1850MHz ~1910MHz
LTE Band 4: 1710MHz ~1755MHz
LTE Band 7: 2502.5MHz ~ 2567.5MHz
Rx Frequency Range LTE Band 2: 1930MHz ~ 1990MHz
LTE Band 4: 2110MHz ~ 2155MHz
LTE Band 7: 2622.5MHz ~ 2687.5MHz
Emission Designator 1M11G7D (LTE Band 2, QPSK, BW 1.4MHz)
1M10W7D (LTE Band 2, 16QAM, BW 1.4MHz)
2M72G7D (LTE Band 2, QPSK, BW 3MHz)
2M72 W7D (LTE Band 2, 16QAM, BW 3MHz)
4M54G7D (LTE Band 2, QPSK, BW 5MHz)
4M55 W7D (LTE Band 2, 16QAM, BW 5MHz)
9M01G7D (LTE Band 2, QPSK, BW 10MHz)
9M01W7D (LTE Band 2, 16QAM, BW 10MHz)
13M52G7D (LTE Band 2, QPSK, BW 15MHz)
13M51W7D (LTE Band 2, 16QAM, BW 15MHz)
18M01G7D (LTE Band 2, QPSK, BW 20MHz)
18M05W7D (LTE Band 2, 16QAM, BW 20MHz)
1M10G7D (LTE Band 4, QPSK, BW 1.4MHz)
1M11W7D (LTE Band 4, 16QAM, BW 1.4MHz)
2M72G7D (LTE Band 4, QPSK, BW 3MHz)
2M72W7D (LTE Band 4, 16QAM, BW 3MHz)



- 4M54G7D (LTE Band 4, QPSK, BW 5MHz)
- 4M54W7D (LTE Band 4, 16QAM, BW 5MHz)
- 9M01G7D (LTE Band 4, QPSK, BW 10MHz)
- 9M01W7D (LTE Band 4, 16QAM, BW 10MHz)
- 13M53G7D (LTE Band 4, QPSK, BW 15MHz)
- 13M53W7D (LTE Band 4, 16QAM, BW 15MHz)
- 18M03G7D (LTE Band 4, QPSK, BW 20MHz)
- 18M01W7D (LTE Band 4, 16QAM, BW 20MHz)
- 4M55G7D (LTE Band 7, QPSK, BW 5MHz)
- 4M56W7D (LTE Band 7, 16QAM, BW 5MHz)
- 9M03G7D (LTE Band 7, QPSK, BW 10MHz)
- 9M02W7D (LTE Band 7, 16QAM, BW 10MHz)
- 13M55G7D (LTE Band 7, QPSK, BW 15MHz)
- 13M56W7D (LTE Band 7, 16QAM, BW 15MHz)
- 18M04G7D (LTE Band 7, QPSK, BW 20MHz)
- 18M09W7D (LTE Band 7, 16QAM, BW 20MHz)

Antenna Type..... PIFA Antenna
 Power Supply..... 3.8V DC Power

1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2 and Part 24, 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 24 (10-1-09 Edition)	Personal Communications Services
3	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	<u>PASS</u>
2	24.232(d), 27.50(d)(5)	Occupied Bandwidth	<u>PASS</u>
3	2.1049, 24.238, 27.53(g)	Frequency Stability	<u>PASS</u>
4	2.1055, 24.235, 27.54	Peak to Average Ratio	<u>PASS</u>
5	2.1051, 2.1057 24.238, 27.53(g)	Conducted Spurious Emissions	<u>PASS</u>
6	2.1051, 2.1057, 24.238, 27.53(g)(h), 27.53(m)(4)	Band Edge	<u>PASS</u>
7	22.913, 24.232, 27.50(d)(4)	Equivalent Isotropic Radiated Power	<u>PASS</u>
8	2.1053, 2.1057, 24.238, 27.53(g)	Radiated Spurious Emissions	<u>PASS</u>

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, PART 24E & 27L REQUIREMENTS

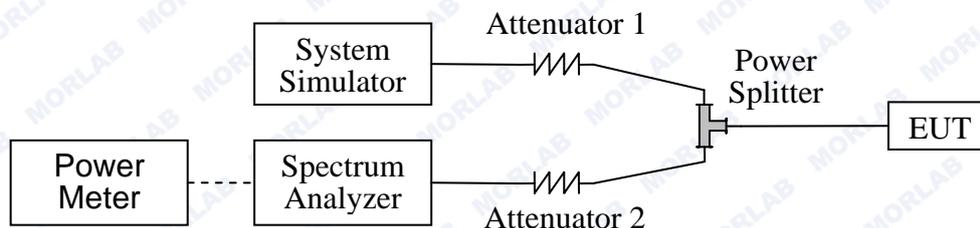
2.1 Transmitter Conducted Output Power

2.1.1 Requirement

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

2.1.2 Test Description

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	1201.0002k5 0/124534/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 2	20MHz	L 18700	1860	QPSK	1	0	21.76
					1	49	21.89
					1	99	21.94
					50	0	20.95
					50	25	20.56
					50	49	21.01
				100	0	21.00	
				16-QAM	1	0	20.98
					1	49	21.02
					1	99	21.00
					50	0	20.54
					50	25	20.37
		50	49		20.64		
		M 18900	1880	QPSK	1	0	22.13
					1	49	22.03
					1	99	22.11
					50	0	21.08
					50	25	20.91
					50	49	20.92
				100	0	20.91	
				16-QAM	1	0	21.30
					1	49	21.24
					1	99	21.26
					50	0	20.15
					50	25	20.16
		50	49		20.19		
		H 19100	1900	QPSK	1	0	22.11
					1	49	21.79
					1	99	21.29
					50	0	21.05
50	25				20.98		
50	49				20.99		
100	0			20.99			
16-QAM	1			0	21.46		
	1			49	21.34		
	1			99	20.88		
	50			0	20.45		
	50			25	20.51		
	50	49	20.39				
100	0	20.01					



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 2	15MHz	L 18675	1857.5	QPSK	1	0	22.26
					1	37	22.29
					1	74	22.30
					36	0	21.20
					36	18	21.21
					36	35	21.25
				16-QAM	75	0	21.12
					1	0	21.38
					1	37	21.27
					1	74	21.82
					36	0	21.35
					36	18	21.29
		M 18900	1880	QPSK	36	35	21.39
					75	0	19.99
					1	0	22.43
					1	37	22.31
					1	74	22.40
					36	0	21.38
				16-QAM	36	18	21.12
					36	35	20.96
					75	0	21.16
					1	0	21.21
					1	37	21.11
					1	74	21.08
		H 19125	1902.5	QPSK	36	0	21.05
					36	18	20.98
					36	35	20.89
					75	0	20.30
					1	0	22.28
					1	37	22.46
16-QAM	1			74	22.49		
	36			0	21.31		
	36			18	21.22		
	36			35	21.28		
	75			0	21.16		
	1			0	21.12		
1	37	21.13					
1	74	21.18					
36	0	20.56					
36	18	20.61					
36	35	20.59					
75	0	20.13					



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 2	10MHz	L 18650	1855	QPSK	1	0	22.19
					1	24	22.12
					1	49	22.18
					25	0	21.18
					25	12	21.19
					25	24	21.21
				50	0	21.26	
				16-QAM	1	0	21.60
					1	24	21.65
					1	49	21.83
					25	0	21.32
					25	12	21.28
		25	24		21.35		
		M 18900	1880	QPSK	1	0	22.35
					1	24	22.43
					1	49	22.26
					25	0	21.38
					25	12	21.31
					25	24	21.30
				50	0	21.27	
				16-QAM	1	0	21.37
					1	24	21.44
					1	49	21.14
					25	0	21.15
					25	12	21.08
		25	24		21.09		
		H 19150	1905	QPSK	1	0	22.27
					1	24	22.23
					1	49	22.21
					25	0	21.38
25	12				21.31		
25	24				21.33		
50	0			21.35			
16-QAM	1			0	21.26		
	1			24	21.16		
	1			49	21.13		
	25			0	20.89		
	25			12	20.80		
	25	24	20.76				
50	0	20.29					



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 2	5MHz	L 18625	1852.5	QPSK	1	0	22.23
					1	12	22.28
					1	24	22.18
					12	0	21.77
					12	6	21.70
					12	11	21.69
				16-QAM	25	0	21.26
					1	0	20.86
					1	12	20.88
					1	24	20.76
					12	0	20.35
					12	6	20.29
		M 18900	1880	QPSK	12	11	20.31
					25	0	19.93
					1	0	22.16
					1	12	22.09
					1	24	22.13
					12	0	21.86
				16-QAM	12	6	21.79
					12	11	21.82
					25	0	21.32
					1	0	20.45
					1	12	20.49
					1	24	20.61
		H 19175	1907.5	QPSK	12	0	20.50
					12	6	20.45
					12	11	20.46
					25	0	20.39
					1	0	22.51
					1	12	22.15
16-QAM	1			24	22.21		
	12			0	21.76		
	12			6	21.70		
	12			11	21.81		
	25			0	21.34		
	1			0	21.83		
1	12	21.64					
1	24	21.91					
12	0	21.52					
12	6	21.59					
12	11	21.61					
25	0	20.34					



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 2	3MHz	L 18615	1851.5	QPSK	1	0	21.97
					1	7	21.87
					1	14	21.97
					8	0	21.59
					8	4	21.61
					8	7	21.55
				16-QAM	15	0	21.01
					1	0	21.74
					1	7	21.88
					1	14	21.73
					8	0	20.88
					8	4	20.86
		M 18900	1880	QPSK	8	7	20.79
					15	0	19.95
					1	0	22.58
					1	7	22.38
					1	14	22.04
					8	0	22.24
				16-QAM	8	4	21.29
					8	7	21.21
					15	0	21.19
					1	0	21.60
					1	7	21.56
					1	14	21.58
		H 19185	1908.5	QPSK	8	0	21.21
					8	4	21.18
					8	7	21.09
					15	0	20.15
					1	0	21.85
					1	7	21.83
				16-QAM	1	14	21.77
					8	0	21.35
					8	4	21.28
					8	7	21.30
					15	0	20.98
					1	0	21.44
					1	7	21.23
					1	14	21.50
					8	0	21.28
					8	4	21.30
					8	7	21.34
					15	0	20.08



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 2	1.4MHz	L 18607	1850.7	QPSK	1	0	21.74
					1	2	21.89
					1	5	21.92
					3	0	22.03
					3	1	22.00
					3	2	21.99
				6	0	21.05	
				16-QAM	1	0	21.11
					1	2	21.45
					1	5	21.33
					3	0	21.08
					3	1	21.18
		3	2		21.12		
		M 18900	1880	QPSK	1	0	22.20
					1	2	22.10
					1	5	22.16
					3	0	22.18
					3	1	22.16
					3	2	22.25
				6	0	21.18	
				16-QAM	1	0	21.12
					1	2	21.25
					1	5	21.31
					3	0	21.16
					3	2	21.18
		3	5		21.21		
		H 19193	1909.3	QPSK	1	0	22.02
					1	2	22.28
					1	5	22.08
					3	0	22.19
					3	1	22.18
					3	2	22.06
				6	0	21.15	
				16-QAM	1	0	21.24
					1	2	21.34
					1	5	21.20
3	0				21.18		
3	1				21.20		
3	2	21.12					
6	0	20.32					



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	21.45
					1	49	21.31
					1	99	21.41
					50	0	20.63
					50	25	20.59
					50	49	20.59
				16-QAM	100	0	20.61
					1	0	20.69
					1	49	20.62
					1	99	20.67
					50	0	20.12
					50	25	20.18
		M 20175	1732.5	QPSK	50	49	20.16
					100	0	19.62
					1	0	21.63
					1	49	21.60
					1	99	21.65
					50	0	20.68
				16-QAM	50	25	20.69
					50	49	20.66
					100	0	20.42
					1	0	20.77
					1	49	20.72
					1	99	20.63
		H 20300	1745.0	QPSK	50	0	20.21
					50	25	20.18
					50	49	20.19
					100	0	19.44
					1	0	21.64
					1	49	20.96
16-QAM	1			99	20.91		
	50			0	20.10		
	50			25	19.72		
	50			49	19.70		
	100			0	19.71		
	1			0	20.17		
					1	49	20.10
					1	99	20.03
					50	0	19.02
					50	25	19.10
					50	49	19.08
					100	0	18.73



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	21.19
					1	24	20.80
					1	49	20.74
					25	0	19.83
					25	12	19.81
					25	24	19.78
				16-QAM	50	0	19.75
					1	0	19.72
					1	24	20.06
					1	49	19.77
					25	0	19.35
					25	12	19.31
		M 20175	1732.5	QPSK	25	24	19.36
					50	0	18.85
					1	0	20.77
					1	24	20.75
					1	49	20.82
					25	0	19.83
				16-QAM	25	12	19.81
					25	24	19.80
					50	0	19.77
					1	0	19.3
					1	24	19.74
					1	49	19.85
		H 20350	1750.0	QPSK	25	0	19.34
					25	12	19.33
					25	24	19.26
					50	0	18.48
					1	0	20.48
					1	24	20.35
16-QAM	1			49	20.55		
	25			0	19.47		
	25			12	19.46		
	25			24	19.44		
	50			0	19.48		
	1			0	19.66		
					1	24	19.65
					1	49	19.19
					25	0	19.08
					25	12	19.14
					25	24	19.19
					50	0	18.28
					50	0	18.28



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	21.08
					1	12	20.92
					1	24	20.86
					12	0	20.39
					12	6	20.45
					12	11	20.40
				16-QAM	25	0	19.83
					1	0	19.41
					1	12	19.36
					1	24	19.38
					12	0	19.09
					12	6	19.11
		M 20175	1732.5	QPSK	12	11	19.04
					25	0	18.83
					1	0	20.55
					1	12	20.48
					1	24	20.51
					12	0	20.28
				16-QAM	12	6	20.41
					12	11	20.31
					25	0	19.76
					1	0	19.11
					1	12	19.09
					1	24	19.05
		H 20375	1752.5	QPSK	12	0	18.84
					12	6	18.76
					12	11	18.68
					25	0	18.53
					1	0	20.78
					1	12	20.68
				16-QAM	1	24	20.56
					12	0	20.39
					12	6	20.29
					12	11	20.32
					25	0	19.51
					1	0	19.76
					1	12	19.68
					1	24	19.66
					12	0	18.74
					12	6	19.03
					12	11	18.93
					25	0	18.30
					25	0	18.30



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	20.86
					1	7	20.94
					1	14	20.80
					8	0	20.48
					8	4	20.31
					8	7	20.41
				15	0	19.89	
				16-QAM	1	0	19.68
					1	7	19.70
					1	14	19.88
					8	0	19.81
					8	4	19.74
		8	7		19.80		
		M 20175	1732.5	QPSK	1	0	20.70
					1	7	20.68
					1	14	20.71
					8	0	20.41
					8	4	20.39
					8	7	20.26
				15	0	19.78	
				16-QAM	1	0	19.39
					1	7	19.27
					1	14	19.28
					8	0	19.06
					8	4	18.98
		8	7		18.89		
		H 20385	1753.5	QPSK	1	0	20.48
					1	7	20.46
					1	14	20.50
					8	0	20.31
8	4				20.29		
8	7				20.32		
15	0			19.62			
16-QAM	1			0	19.25		
	1			7	19.19		
	1			14	19.22		
	8			0	19.02		
	8			4	18.89		
	8	7	18.92				
15	0	18.53					



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	20.86
					1	2	20.94
					1	5	20.80
					3	0	20.48
					3	1	20.31
					3	2	20.41
				16-QAM	6	0	20.78
					1	0	20.84
					1	2	20.87
					1	5	20.91
					3	0	21.01
					3	1	20.95
		M 20175	1732.5	QPSK	3	2	19.98
					3	0	20.01
					6	0	20.00
					1	0	20.00
					1	2	19.94
					1	5	19.38
				16-QAM	3	0	19.30
					3	1	19.26
					3	2	18.75
					6	0	20.63
					1	0	20.70
					1	2	20.61
		H 20393	1754.3	QPSK	1	5	20.68
					3	0	20.65
					3	2	20.71
					3	5	19.71
					6	0	19.67
					1	0	19.57
				16-QAM	1	2	19.62
					1	5	19.31
					3	0	19.26
					3	1	19.09
					3	2	18.77
					6	0	20.45
16-QAM	1	0	20.39				
	1	2	20.49				
	1	5	20.62				
	3	0	20.58				
	3	1	20.50				
	3	2	19.66				
6	0	19.51					



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	21.06	
					1	49	20.86	
					1	99	20.75	
					50	0	19.84	
					50	25	19.81	
					50	49	19.90	
				16-QAM	100	0	19.83	
					1	0	19.85	
					1	49	19.88	
					1	99	19.84	
					50	0	19.12	
					50	25	19.15	
		M 21100	2535	QPSK	2535	50	49	19.13
						100	0	18.78
						1	0	21.38
						1	49	21.40
						1	99	21.42
						50	0	20.31
				16-QAM	50	25	20.28	
					50	49	20.26	
					100	0	20.32	
					1	0	20.63	
					1	49	20.64	
					1	99	20.69	
		H 21350	2560	QPSK	2560	50	0	20.12
						50	25	20.10
						50	49	20.13
						100	0	20.16
						1	0	21.28
						1	49	21.16
16-QAM	1			99	21.07			
	50			0	20.12			
	50			25	20.10			
	50			49	20.13			
	100			0	20.16			
	1			0	20.56			
1	49	20.51						
1	99	20.45						
50	0	20.01						
50	25	20.11						
50	49	20.08						
100	0	19.12						



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	20.84
					1	24	20.97
					1	49	20.96
					25	0	19.55
					25	12	19.61
					25	24	19.48
				16-QAM	50	0	19.61
					1	0	20.11
					1	24	20.08
					1	49	19.97
					25	0	19.73
					25	12	19.65
		M 21100	2535	QPSK	25	24	19.51
					50	0	18.54
					1	0	20.71
					1	24	20.48
					1	49	20.42
					25	0	19.27
				16-QAM	25	12	19.31
					25	24	19.29
					50	0	19.37
					1	0	19.51
					1	24	19.31
					1	49	19.10
		H 21400	2565	QPSK	25	0	18.65
					25	12	18.85
					25	24	18.71
					50	0	18.26
					1	0	20.55
					1	24	20.44
16-QAM	1			49	20.30		
	25			0	19.45		
	25			12	19.31		
	25			24	19.28		
	50			0	19.38		
	1			0	18.99		
					1	24	18.96
					1	49	18.83
					25	0	18.85
					25	12	18.74
					25	24	18.65
					50	0	18.34
					50	0	18.34



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	20.66	
					1	12	20.58	
					1	24	20.68	
					12	0	19.75	
					12	6	20.09	
					12	11	19.87	
				16-QAM	25	0	19.44	
					1	0	19.51	
					1	12	19.48	
					1	24	19.13	
					12	0	19.21	
					12	6	19.17	
		M 21100	2535	QPSK	2535	12	11	18.65
						25	0	18.46
						1	0	20.43
						1	12	20.39
						1	24	20.17
						12	0	19.06
				16-QAM	12	6	19.26	
					12	11	19.11	
					25	0	19.36	
					1	0	19.06	
					1	12	18.96	
					1	24	19.21	
		H 21425	2567.5	QPSK	2567.5	12	0	19.09
						12	6	18.96
						12	11	18.98
						25	0	18.28
						1	0	20.43
						1	12	20.38
				16-QAM	1	24	20.34	
					12	0	20.03	
					12	6	19.99	
					12	11	19.85	
					25	0	19.42	
					1	0	19.31	
1	12	19.26						
1	24	19.16						
12	0	19.09						
12	6	19.21						
12	11	19.16						
25	0	18.89						



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 2

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
18607	1850.7	1.0993	1.0948	18615	1851.5	2.7169	2.7060
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18607	1850.7	1.283	1.264	18615	1851.5	2.970	2.990

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18625	1852.5	4.5358	4.5332	18650	1855.0	8.9756	8.9922
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18625	1852.5	5.085	5.048	18650	1855.0	9.891	9.971

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18675	1857.5	13.466	13.497	18700	1860.0	17.955	17.984
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18675	1857.5	14.86	14.82	18700	1860.0	19.62	19.77



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
18900	1880.0	1.0991	1.1034	18900	1880.0	2.7078	2.7153

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	1.277	1.284	18900	1880.0	2.993	3.008

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	4.5317	4.5257	18900	1880.0	9.0110	9.0117

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	5.090	5.093	18900	1880.0	10.04	9.908

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	13.521	13.499	18900	1880.0	17.992	18.054

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	14.87	14.90	18900	1880.0	19.74	19.67



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
19192	1909.2	1.1119	1.1016	19184	1908.4	2.7169	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
19192	1909.2	1.312	1.288	19184	1908.4	3.008	3.010

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19175	1907.5	4.5323	4.5461	19150	1905.0	9.0094	8.9944

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19175	1907.5	5.071	5.083	19150	1905.0	10.08	10.05

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19125	1902.5	13.511	13.507	19100	1900.0	18.006	17.989

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19125	1902.5	15.02	15.02	19100	1900.0	19.89	19.68

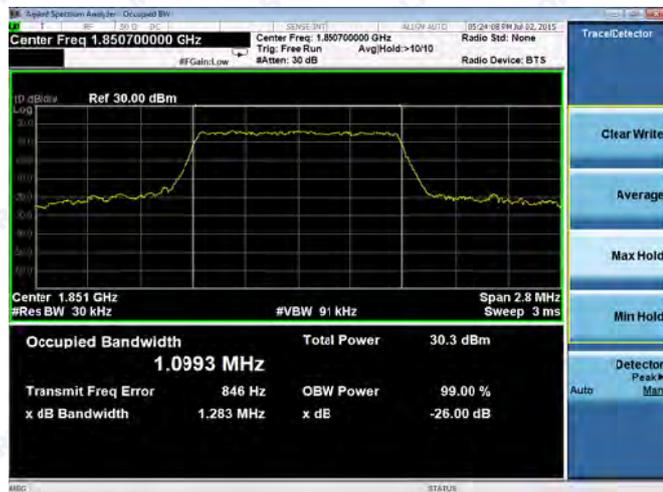


Low channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

3MHz/16QAM

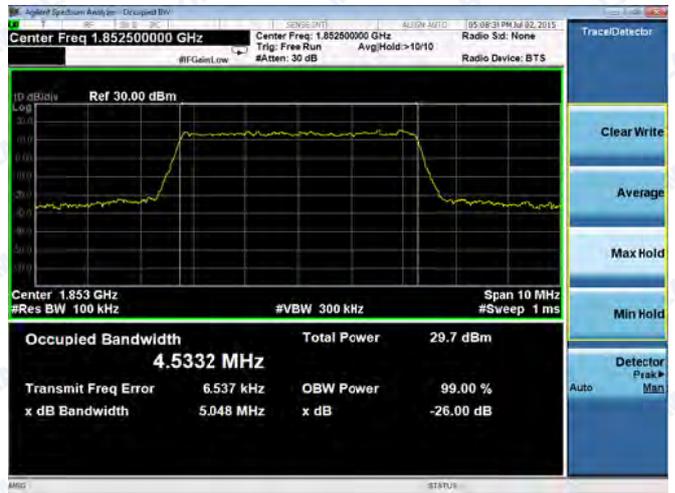




Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

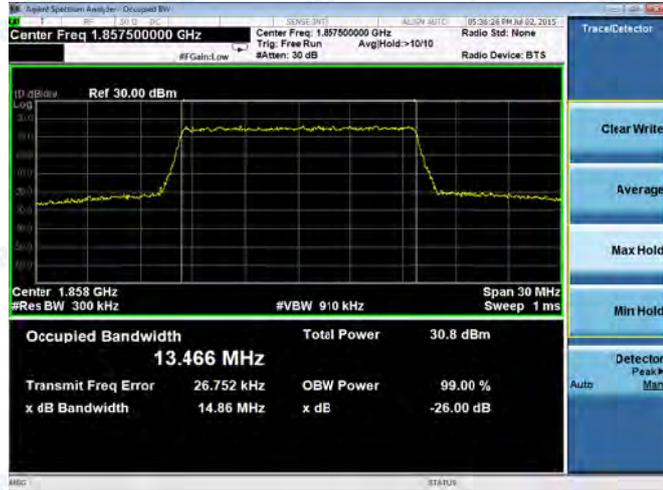




Spectrum Plot of Worst Value

15MHz/QPSK

15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM



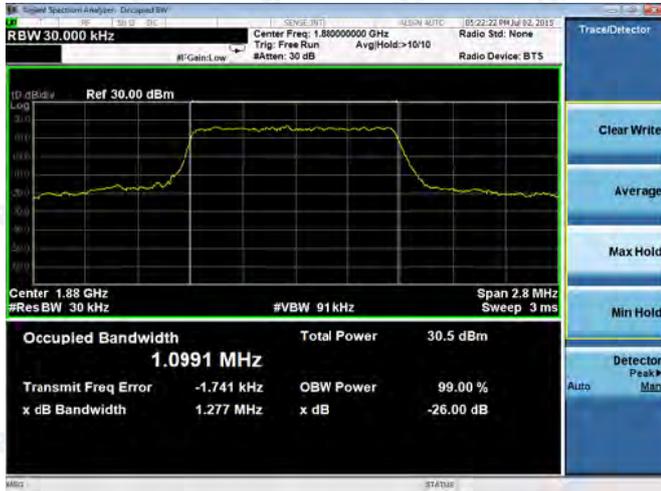


Middle channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

3MHz/16QAM

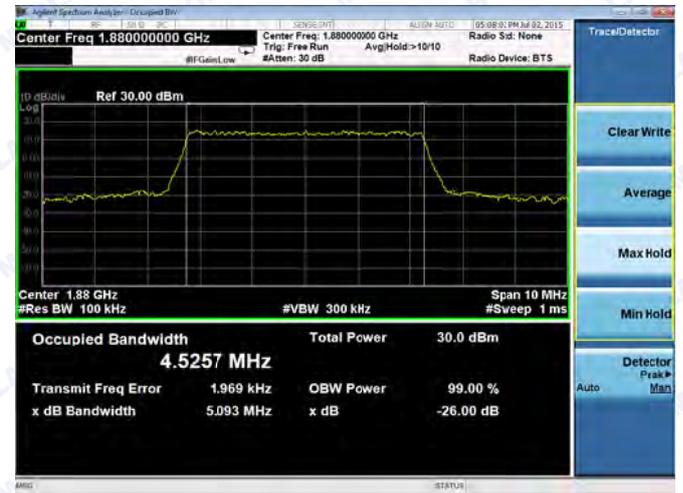




Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

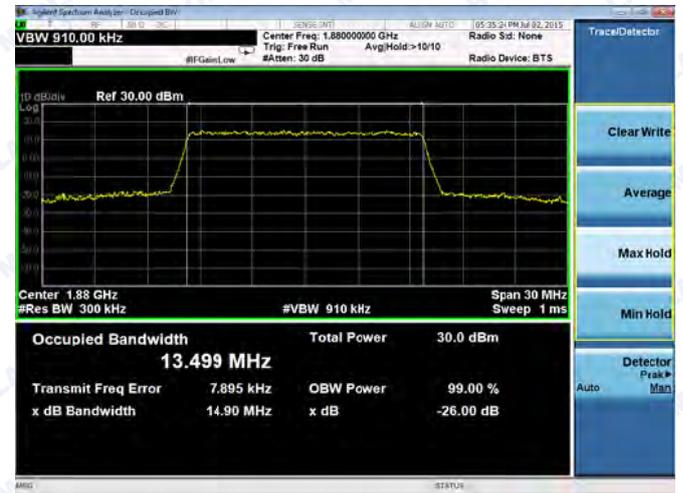
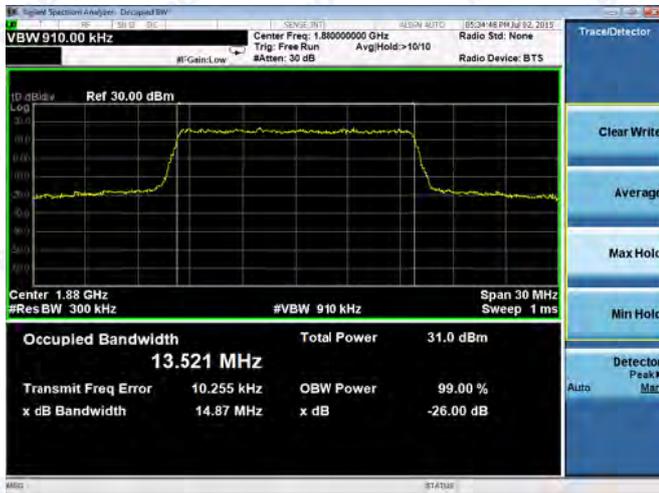




Spectrum Plot of Worst Value

15MHz/QPSK

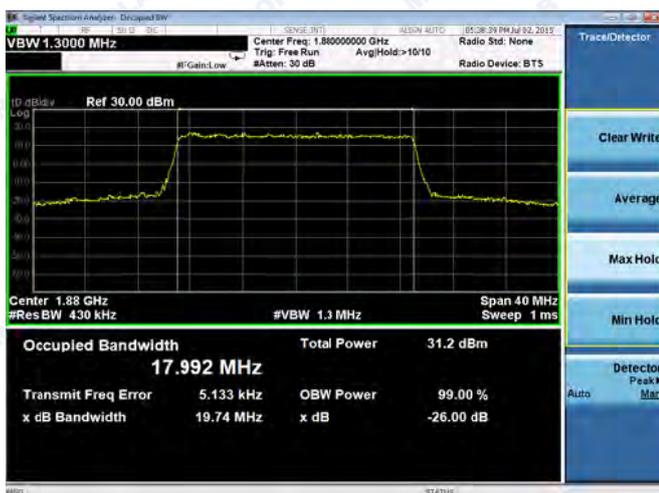
15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM



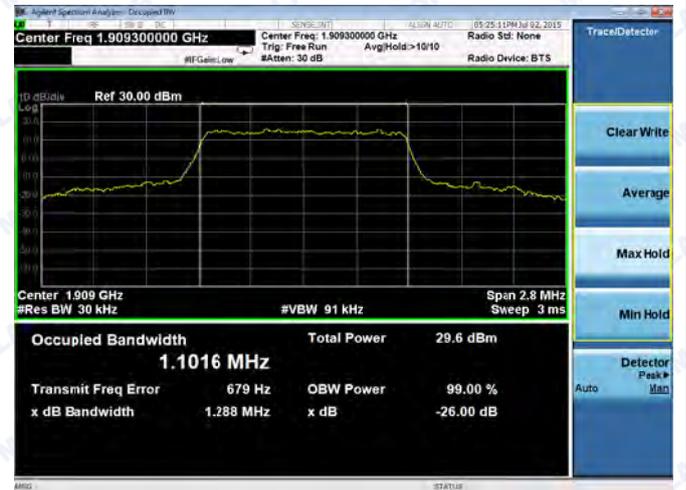
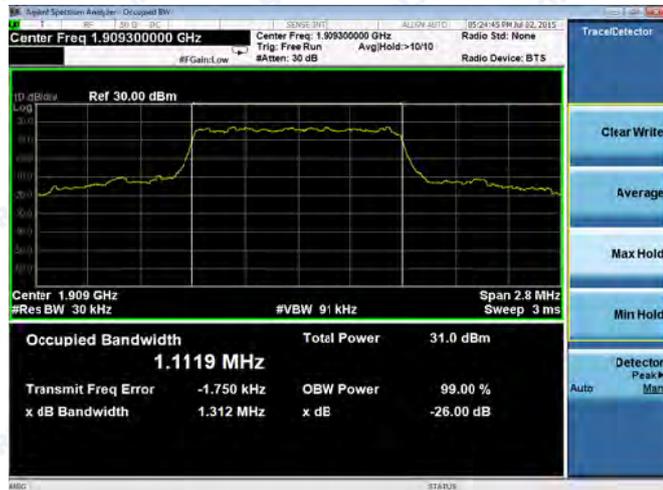


High channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

3MHz/16QAM

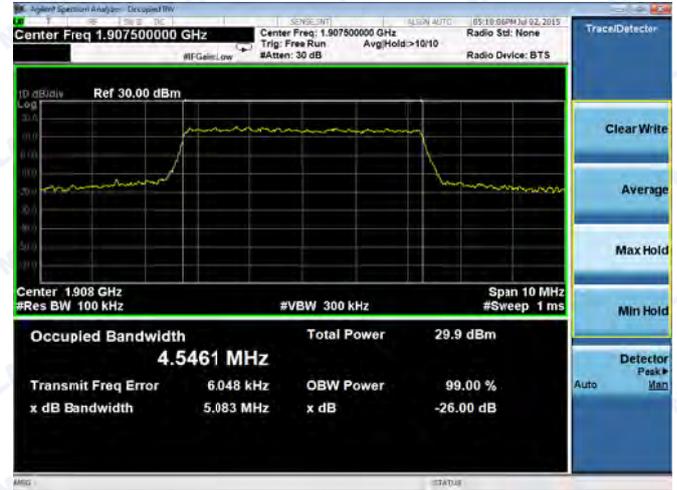




Spectrum Plot of Worst Value

5MHz/QPSK

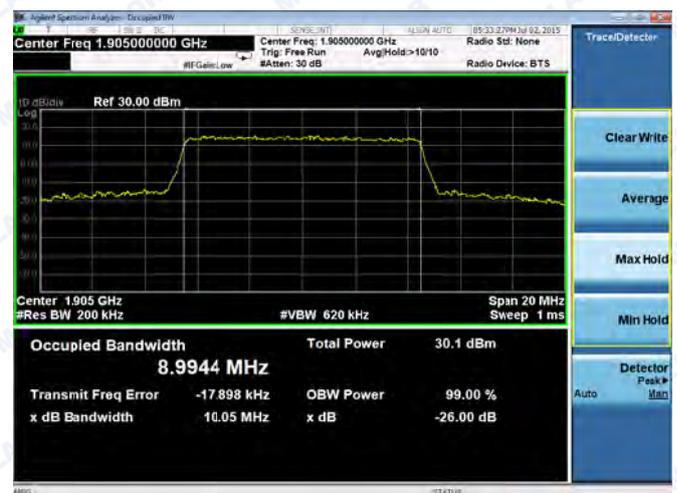
5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

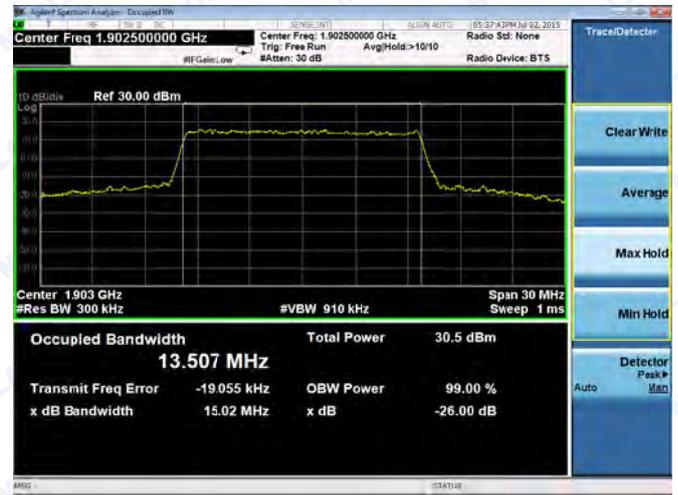
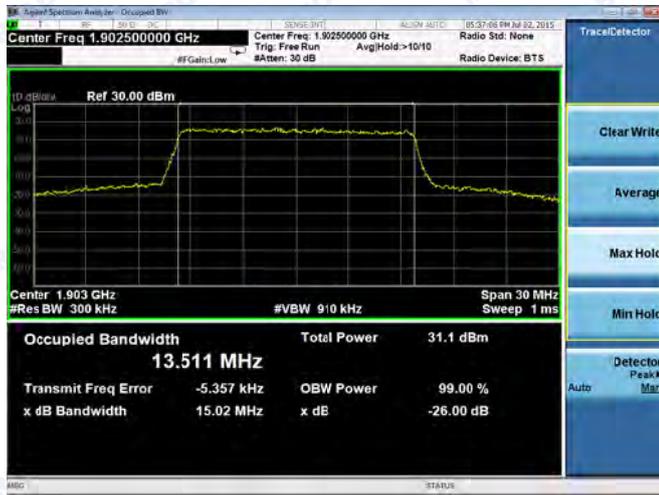




Spectrum Plot of Worst Value

15MHz/QPSK

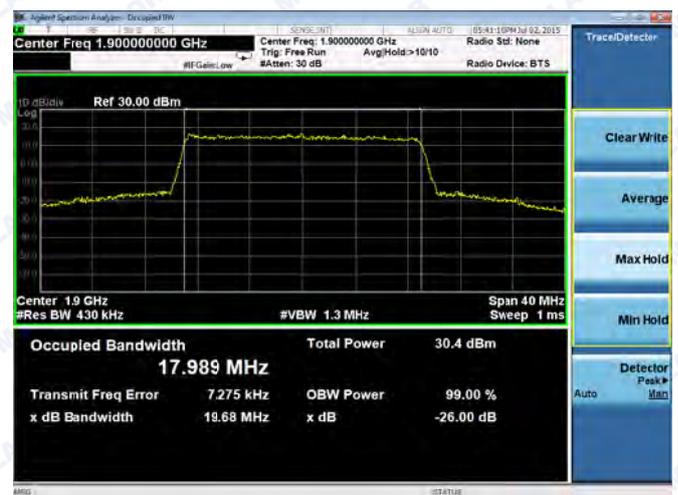
15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM





LTE Band 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	1.0977	1.0961	19965	1711.5	2.7166	2.7063

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	1.279	1.264	19965	1711.5	2.975	2.986

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	4.5356	4.5299	20000	1715.0	8.9824	8.9945

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	5.091	5.039	20000	1715.0	9.882	9.943

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	13.463	13.511	20050	1720.0	17.959	17.993

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	14.85	14.85	20050	1720.0	19.62	19.62



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	1.1003	1.1047	20175	1732.5	2.7099	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	1.302	1.298	20175	1732.5	2.985	3.005

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	4.5319	4.5316	20175	1732.5	9.0119	9.0136

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	5.094	5.094	20175	1732.5	10.14	9.870

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	13.526	13.530	20175	1732.5	18.001	18.003

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	14.95	14.89	20175	1732.5	19.80	19.72



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	1.1030	1.0982	20384	1753.4	2.7128	2.7055
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	1.269	1.269	20384	1753.4	2.989	2.989

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	4.5280	4.5403	20350	1750.0	8.9938	8.9933
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	5.005	5.081	20350	1750.0	9.966	10.00

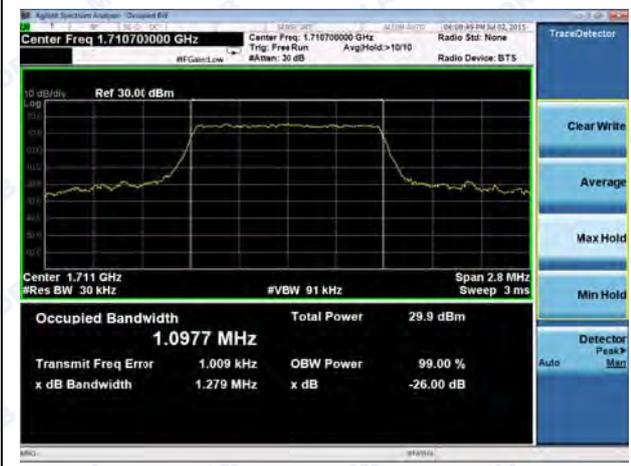
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20325	1747.5	13.503	13.523	20300	1745.0	18.026	18.008
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20325	1747.5	14.96	14.93	20300	1745.0	19.75	19.73



Low channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK



1.4MHz/16QAM

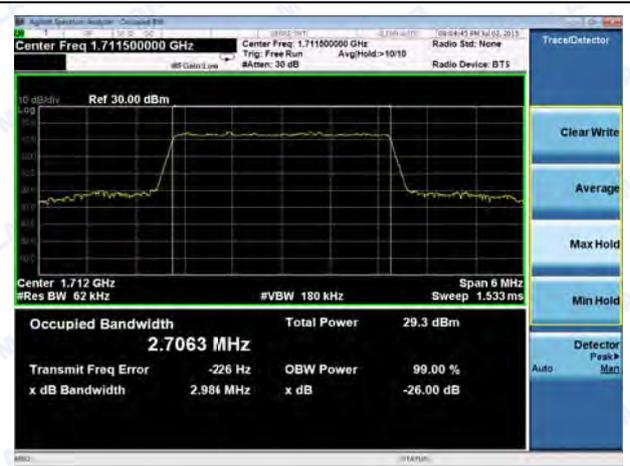


Spectrum Plot of Worst Value

3MHz/QPSK



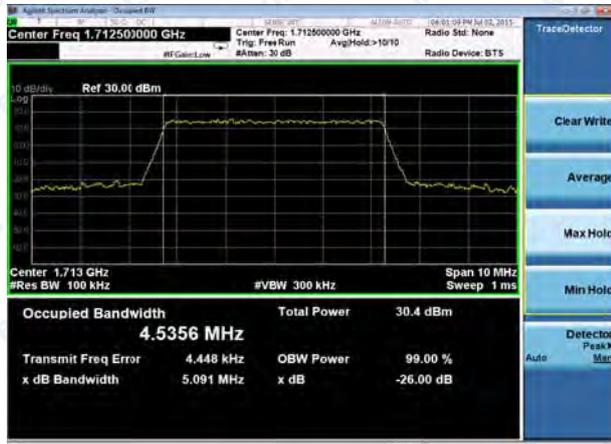
3MHz/16QAM





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

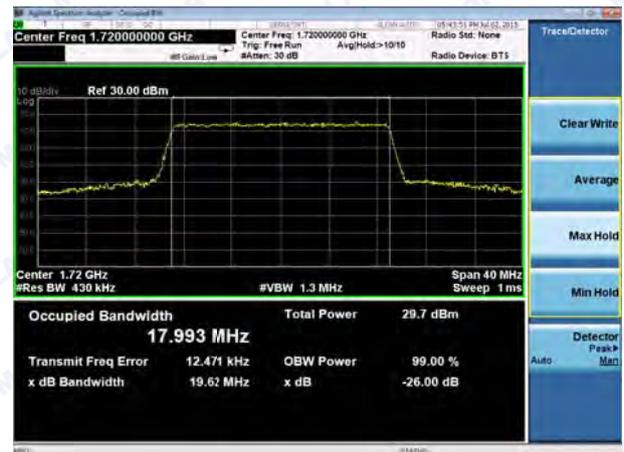
15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM





Middle channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK



1.4MHz/16QAM

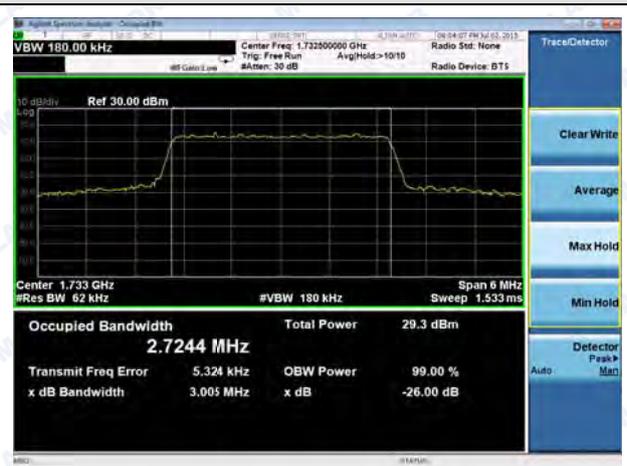


Spectrum Plot of Worst Value

3MHz/QPSK



3MHz/16QAM



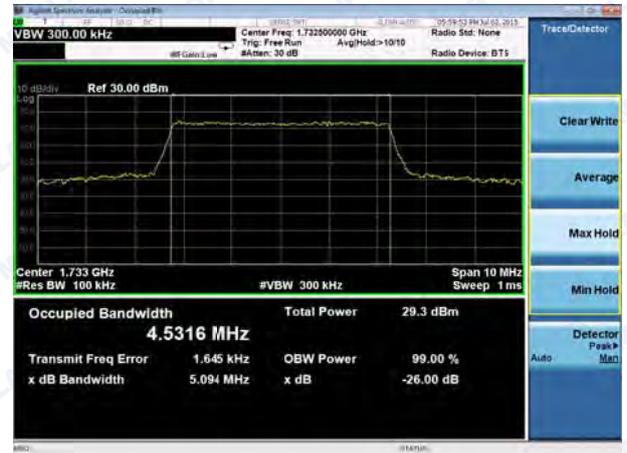


Spectrum Plot of Worst Value

5MHz/QPSK

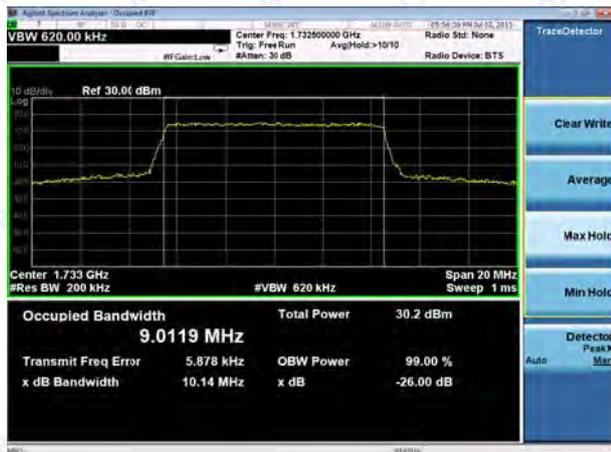


5MHz/16QAM

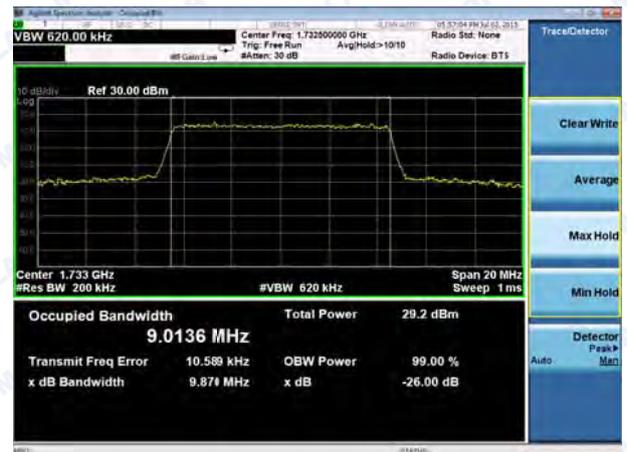


Spectrum Plot of Worst Value

10MHz/QPSK



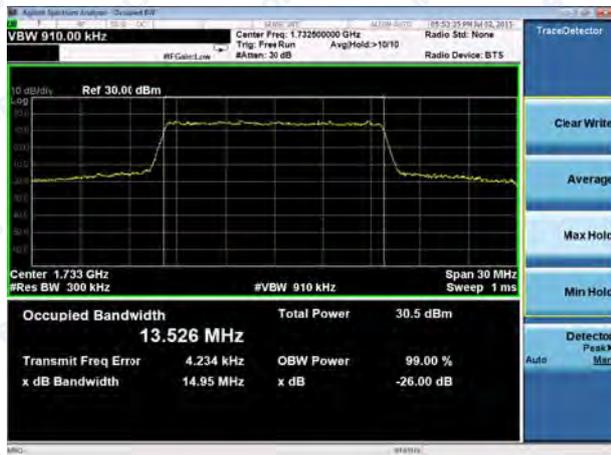
10MHz/16QAM



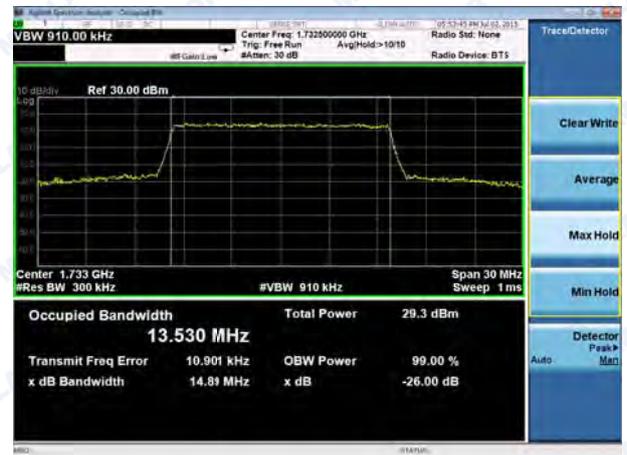


Spectrum Plot of Worst Value

15MHz/QPSK



15MHz/16QAM

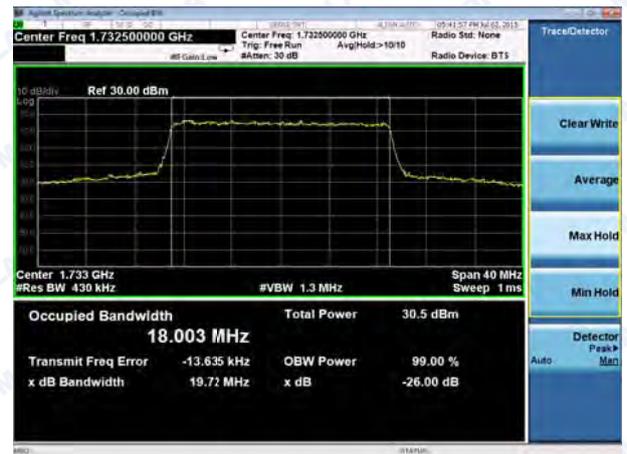


Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM

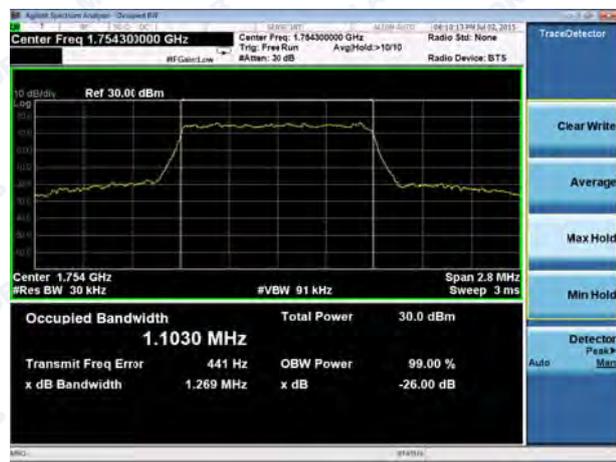




High channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK



1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK



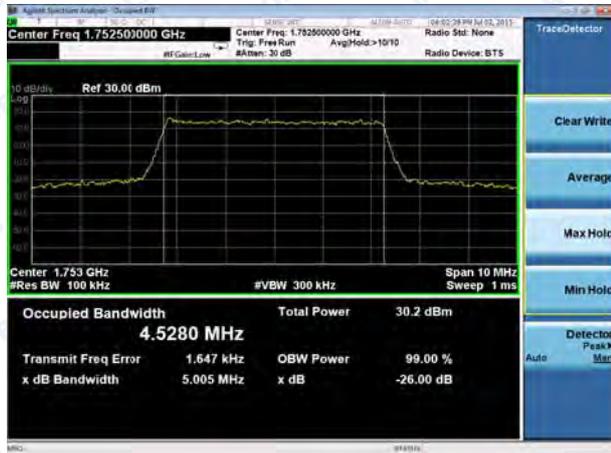
3MHz/16QAM





Spectrum Plot of Worst Value

5MHz/QPSK

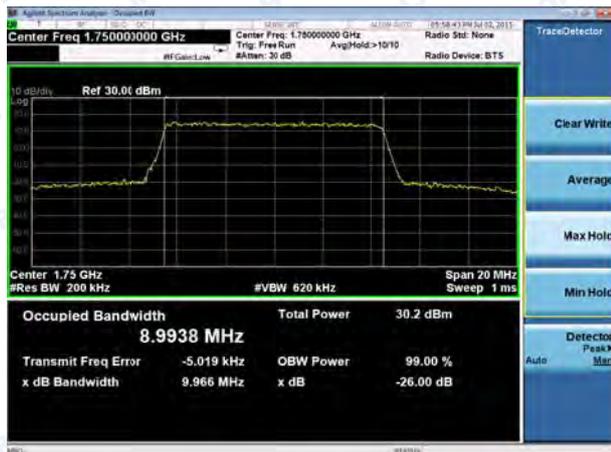


5MHz/16QAM

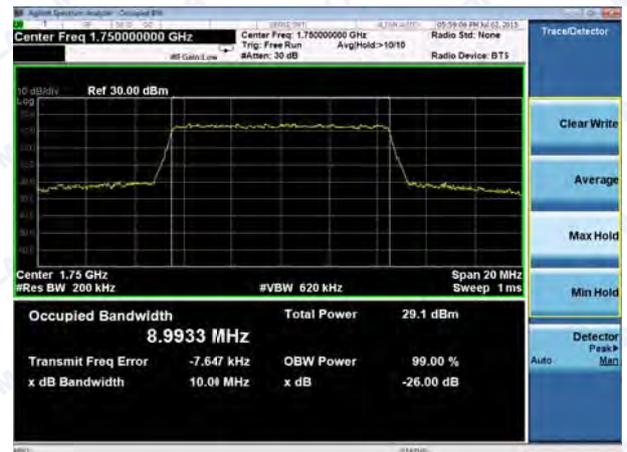


Spectrum Plot of Worst Value

10MHz/QPSK



10MHz/16QAM



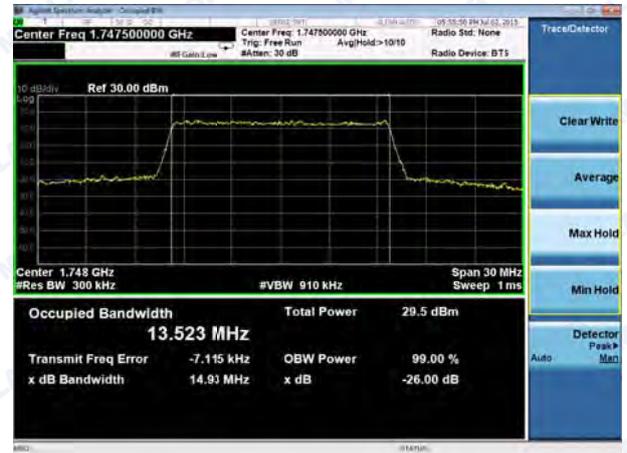


Spectrum Plot of Worst Value

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	4.5448	4.5457	20800	2505.0	9.0039	9.0038
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	5.124	5.088	20800	2505.0	10.02	10.11

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	13.503	13.547	20850	2510.0	18.035	18.050
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	15.03	14.91	20850	2510.0	19.83	19.92

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	4.5457	4.5354	21100	2535.0	9.0302	9.0232
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	5.082	5.105	21100	2535.0	10.21	9.905



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	13.543	13.530	21100	2535.0	18.004	18.087
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	14.94	14.90	21100	2535.0	19.86	19.71

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	4.5414	4.5570	21400	2565.0	9.0258	9.0024
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	5.132	5.135	21400	2565.0	10.05	9.984

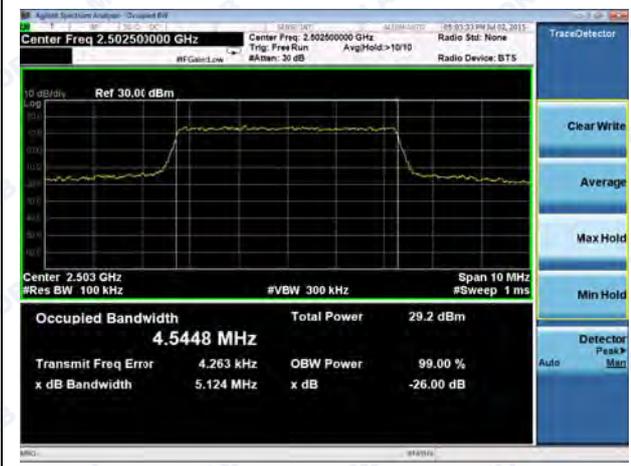
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21375	2562.5	13.553	13.560	21350	2560.0	18.044	18.085
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
21375	2562.5	15.38	14.88	21350	2560.0	19.89	19.85



Low channel:

Spectrum Plot of Worst Value

5MHz/QPSK



5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK



10MHz/16QAM



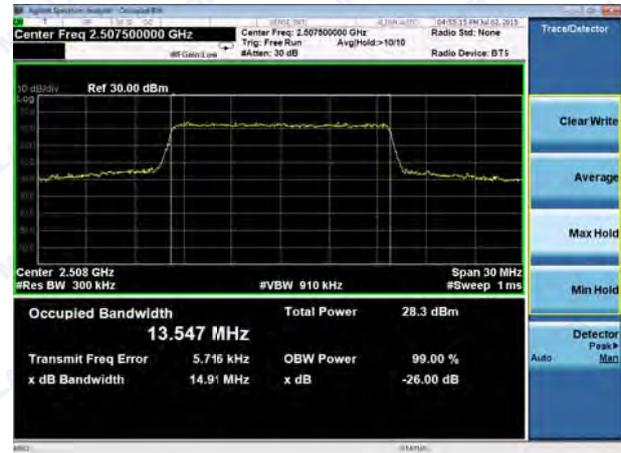


Spectrum Plot of Worst Value

15MHz/QPSK



15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM

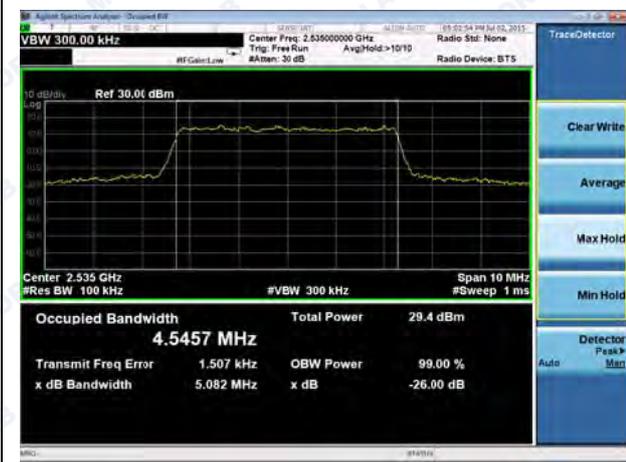




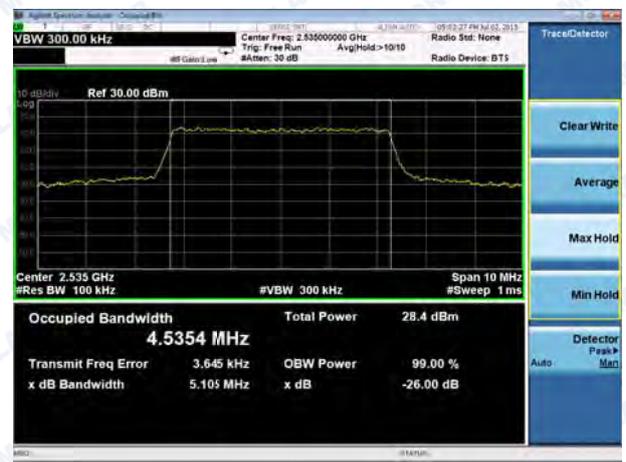
Middle channel:

Spectrum Plot of Worst Value

5MHz/QPSK



5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK



10MHz/16QAM



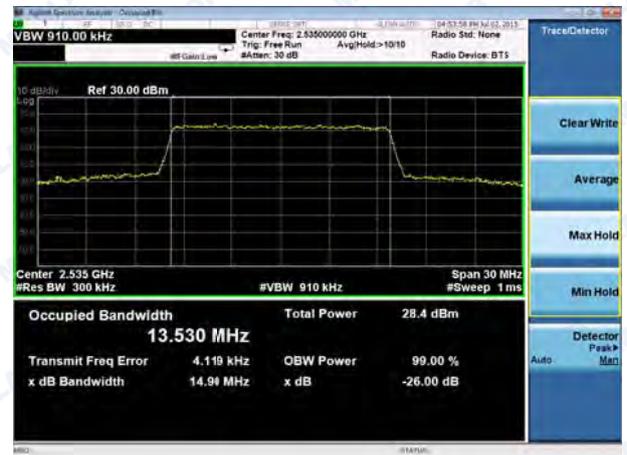


Spectrum Plot of Worst Value

15MHz/QPSK



15MHz/16QAM

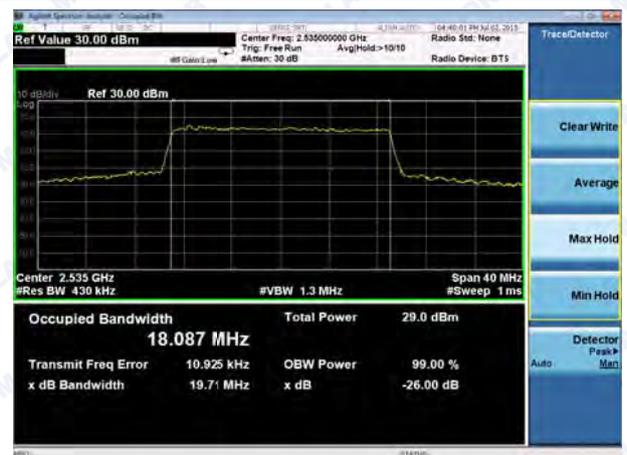


Spectrum Plot of Worst Value

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



2.3 Frequency Stability

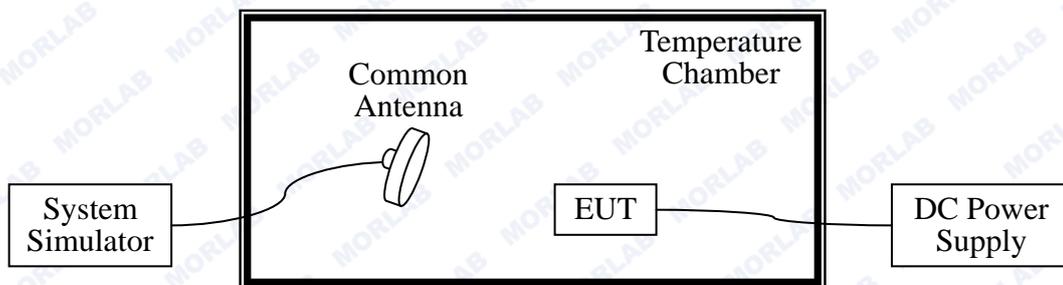
2.3.1 Requirement

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	1201.0002k5 0/124534/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 2 – QPSK - Channel 18900 – Frequency 1880.0MHz – RB 6/0				
Limit: 1880.0MHz*1ppm=1880.0Hz				
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Result
100	3.8	-30	7.28	PASS
100		-20	-13.09	
100		-10	8.63	
100		0	7.58	
100		+10	9.36	
100		+20	10.71	
100		+30	10.36	
100		+40	-11.86	
100		+50	7.63	
115		4.2	+20	
85	3.45	+20	8.36	

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	5.36	PASS
100		-20	2.22	
100		-10	4.41	
100		0	-6.37	
100		+10	-3.66	
100		+20	-5.78	
100		+30	5.12	
100		+40	-5.93	
100		+50	-5.97	
115		4.2	+20	
85	3.45	+20	-2.6	



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	9.53	<u>PASS</u>
100		-20	-9.66	
100		-10	10.02	
100		0	11.91	
100		+10	13.2	
100		+20	13.27	
100		+30	9.96	
100		+40	15.31	
100		+50	-7.48	
115		4.2	+20	
85	3.45	+20	10.62	

2.4 Peak to Average Ratio

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%.

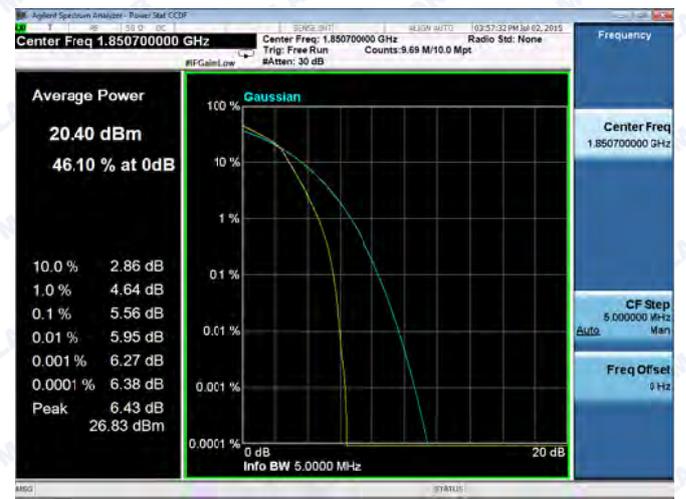
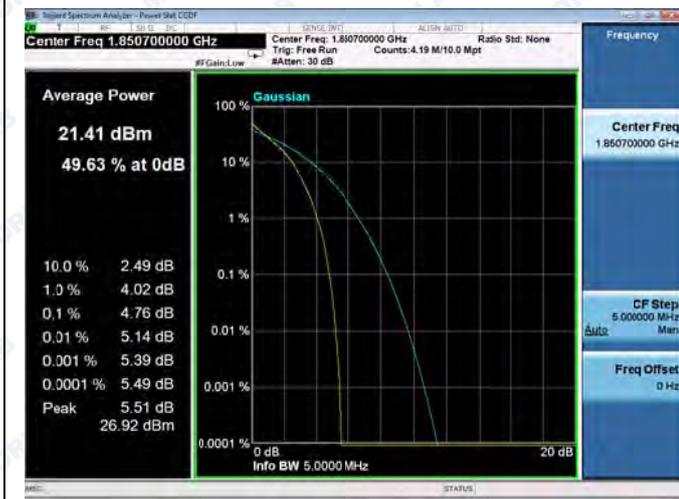


LTE Band 2 Low channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18607	1850.7	4.76	5.56	18615	1851.5	4.99	5.77

Spectrum Plot of Worst Value (Low channel)

1.4MHz/QPSK

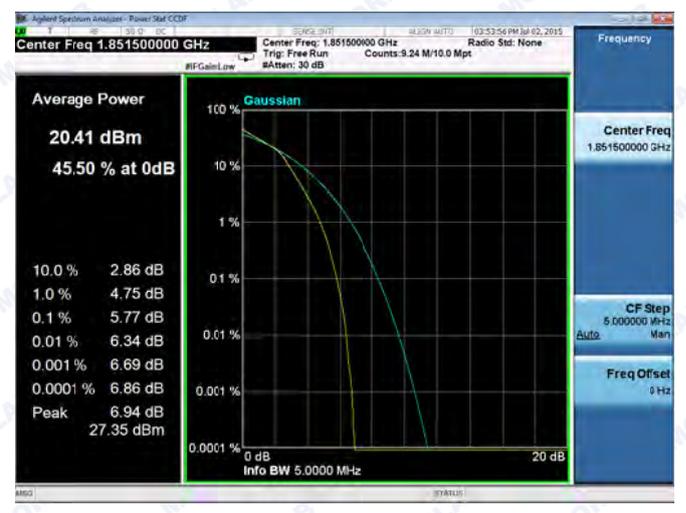
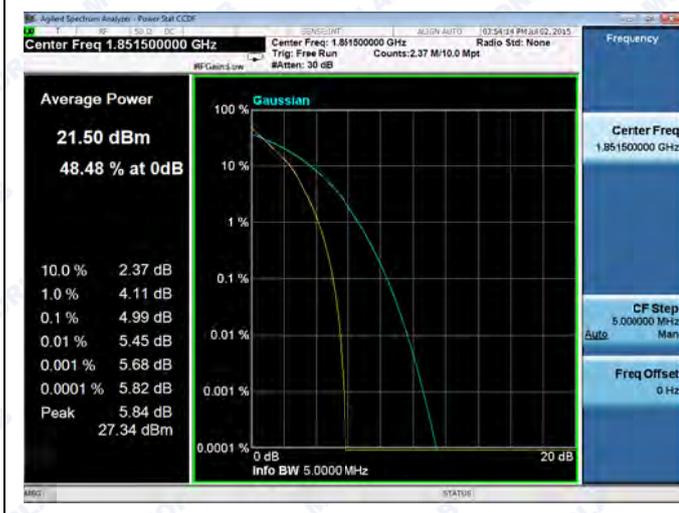
1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

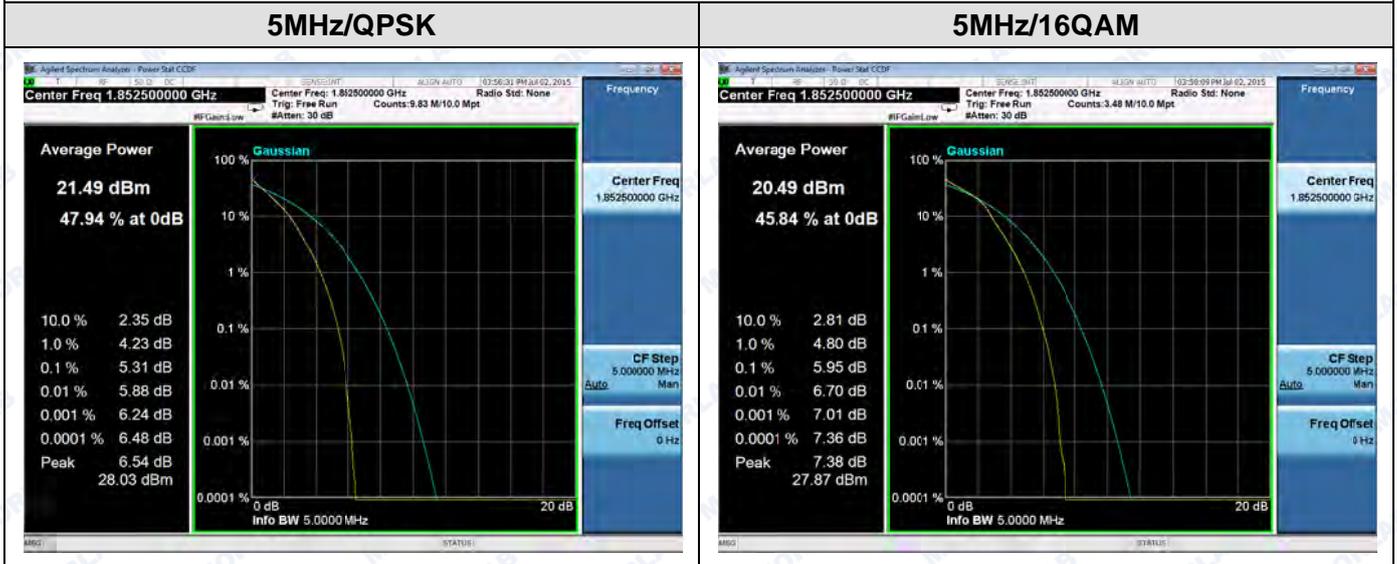
3MHz/16QAM



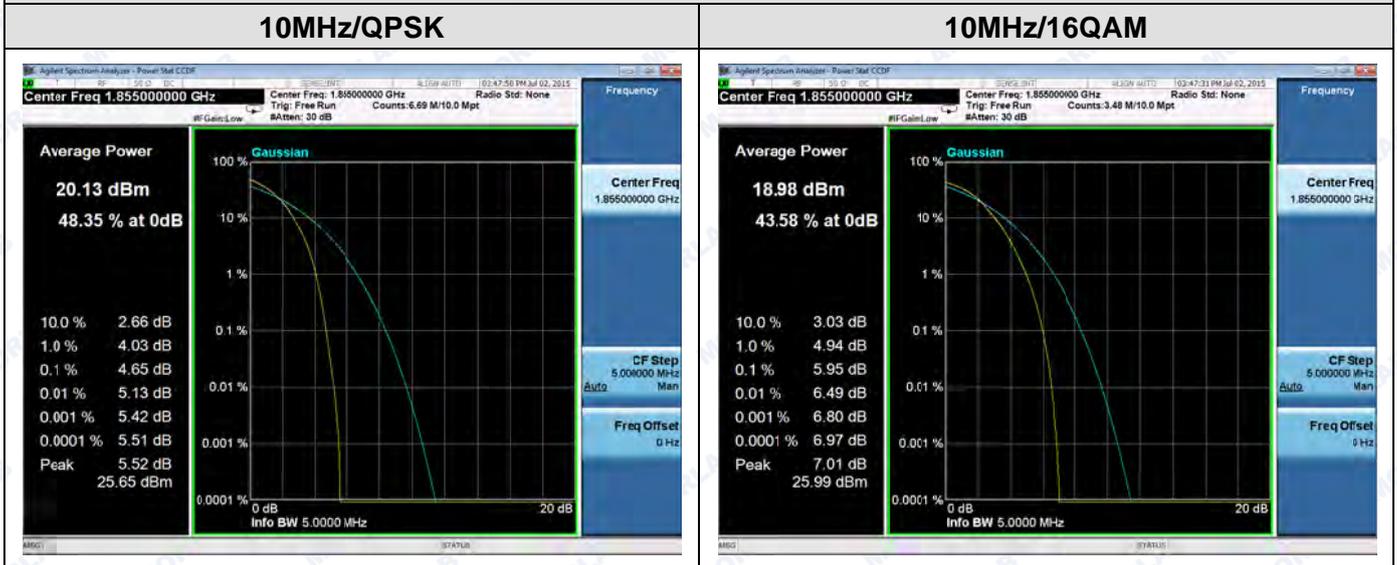


LTE Band 2 Low channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18625	1852.5	5.31	5.95	18650	1855.0	5.13	5.95

Spectrum Plot of Worst Value



Spectrum Plot of Worst Value



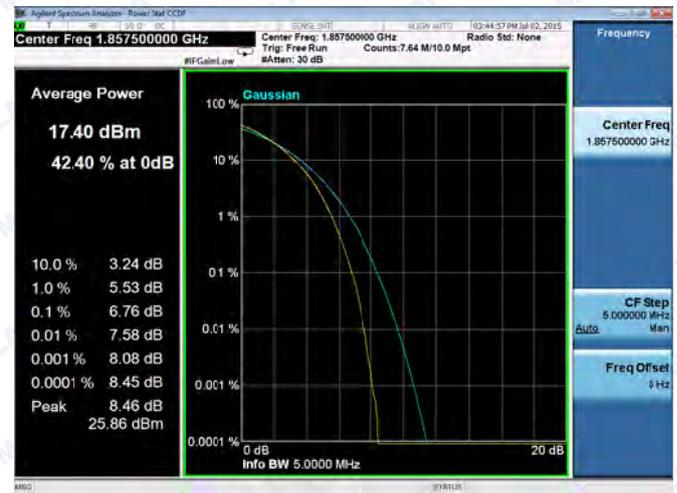


LTE Band 2 Low channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18675	1857.5	5.77	6.76	18700	1860.0	6.48	7.15

Spectrum Plot of Worst Value

15MHz/QPSK

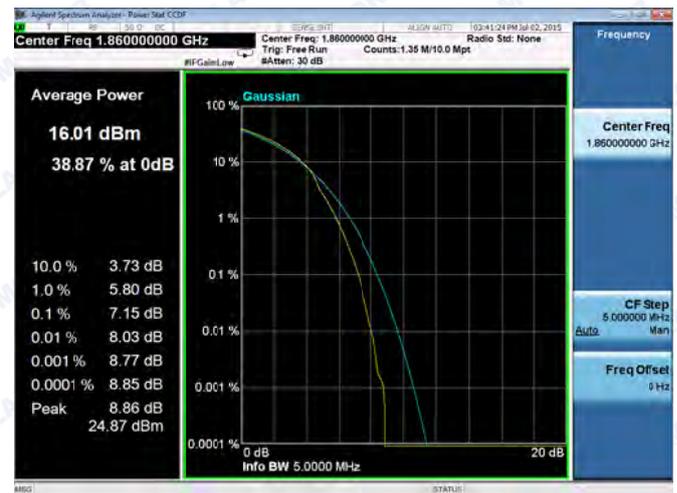
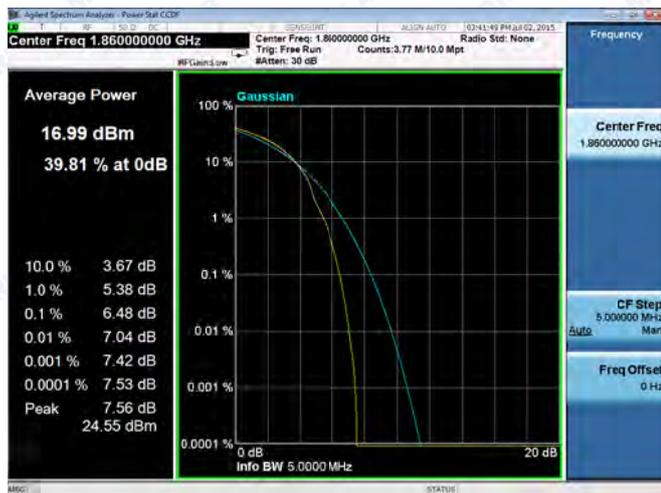
15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM



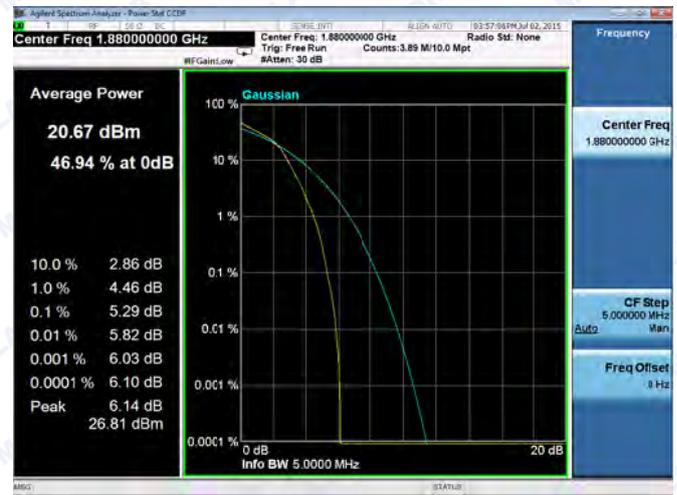
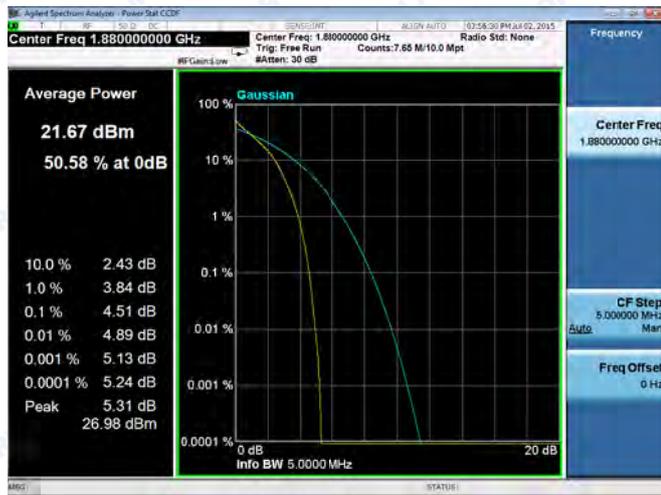


LTE Band 2 Middle channel							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	4.51	5.29	18900	1880.0	4.74	5.52

Spectrum Plot of Worst Value

1.4MHz/QPSK

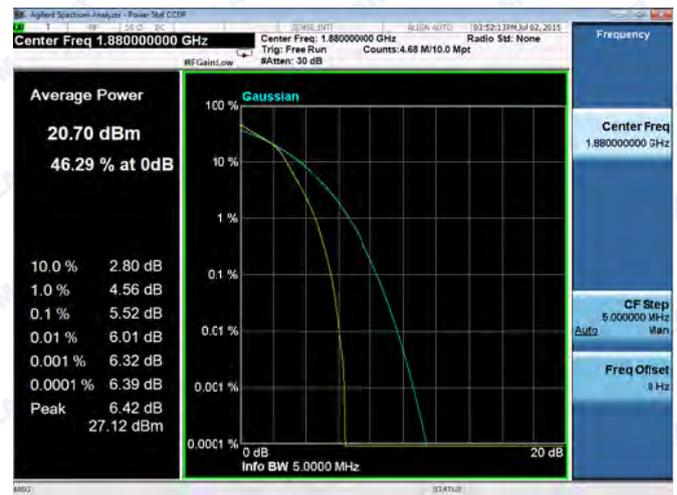
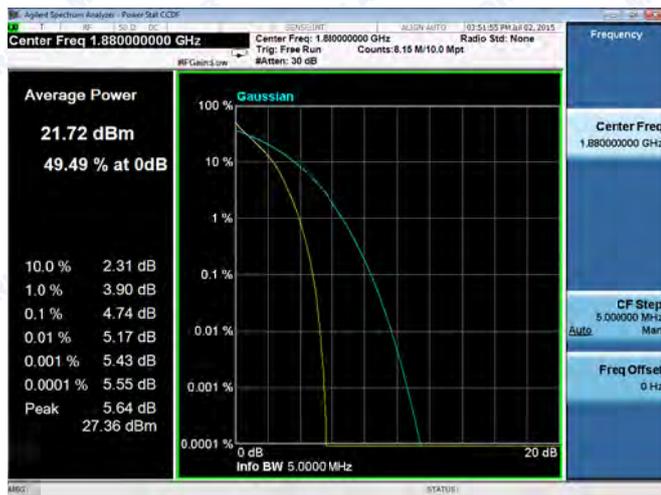
1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

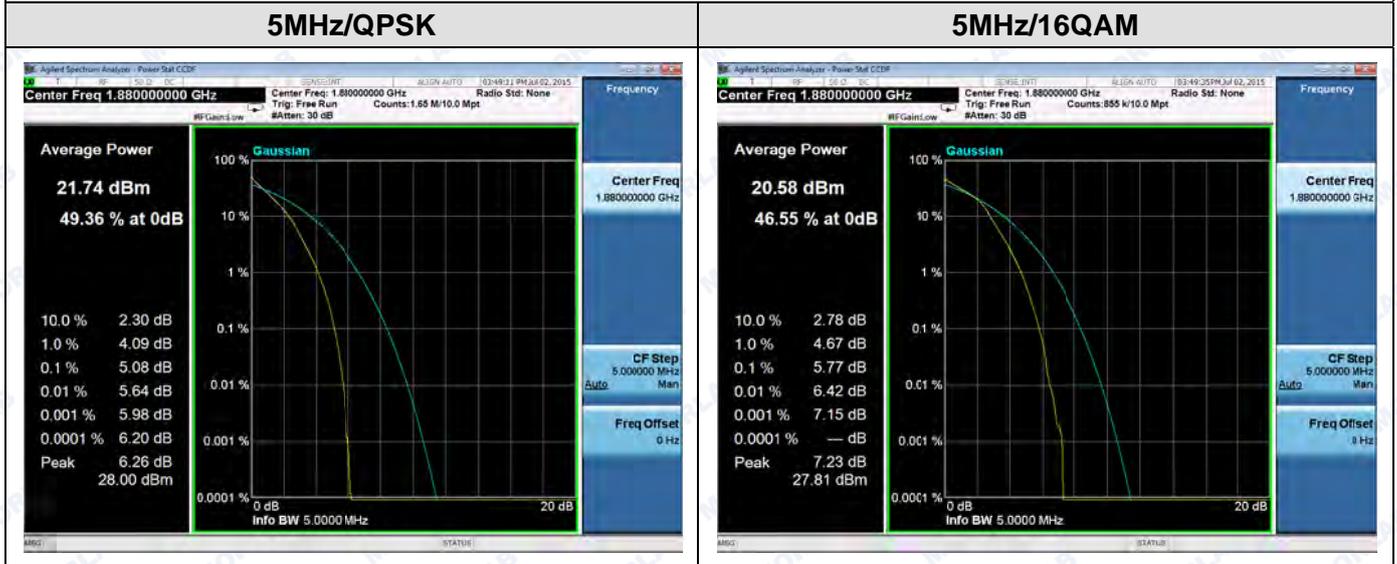
3MHz/16QAM



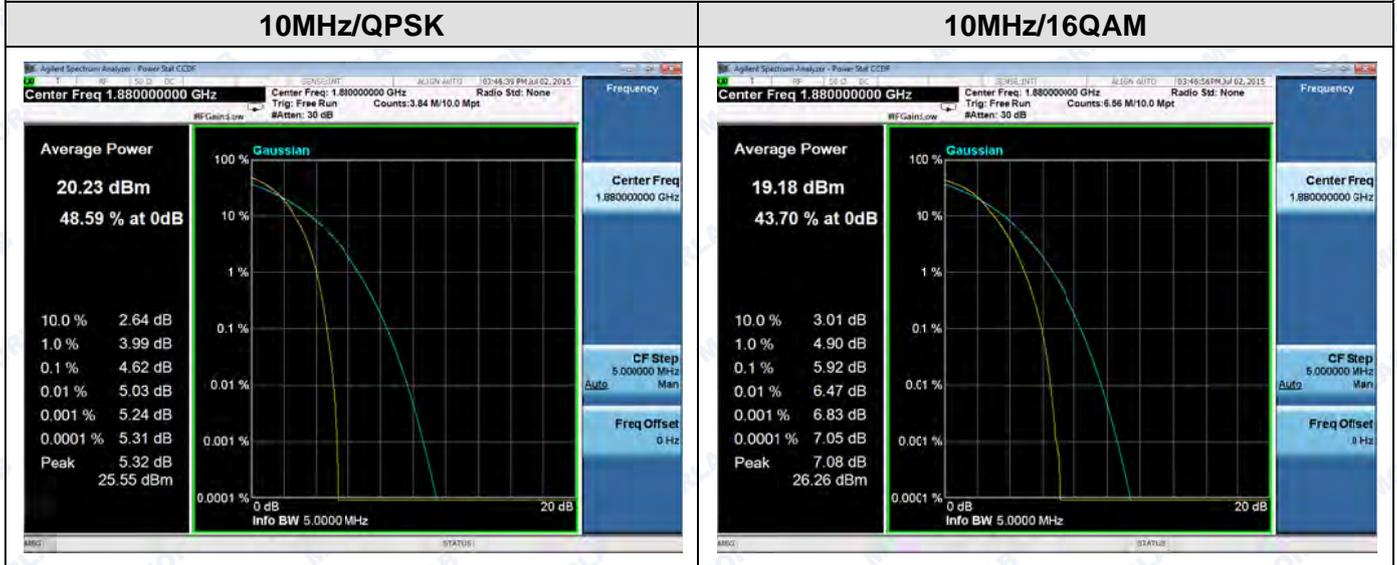


LTE Band 2 Middle channel							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	5.08	5.77	18900	1880.0	4.62	5.92

Spectrum Plot of Worst Value



Spectrum Plot of Worst Value



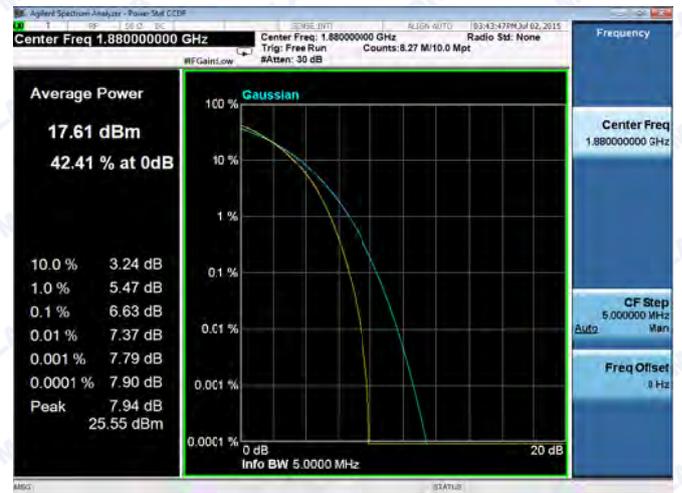
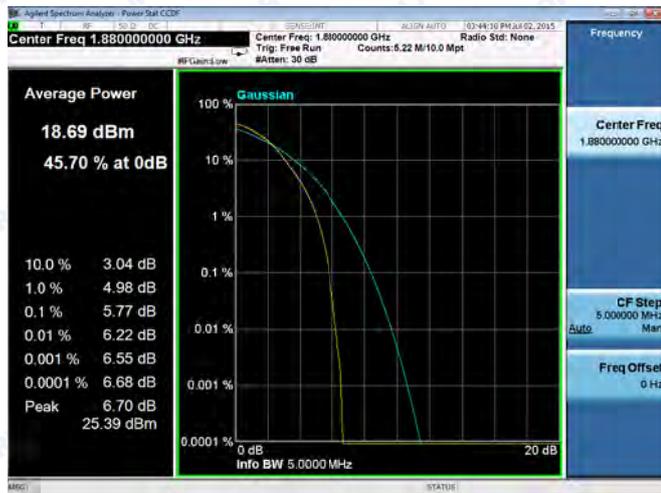


LTE Band 2 Middle channel							
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18900	1880.0	5.77	6.63	18900	1880.0	6.50	7.11

Spectrum Plot of Worst Value

15MHz/QPSK

15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM

