



REPORT No.: SZ15070060W02

FCC RF TEST REPORT

APPLICANT : ZTE Corporation

PRODUCT NAME : LTE Digital Mobile Handset

MODEL NAME : ZTE Blade A465

TRADE NAME : ZTE

BRAND NAME : ZTE

FCC ID : SRQ-A465

STANDARD(S) : 47 CFR Part 24, Subpart E
47 CFR Part 27, Subpart H&L&M

ISSUE DATE : 2015-8-21



SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

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Change History		
Issue	Date	Reason for change
1.0	2015-8-21	First edition



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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 Handset
Model Name	ZTE Blade A465
Brand Name	ZTE
HW Version	A465_V1AMB
SW Version	A465_Z98_MX_7SSOH1I500H001
Test Standards	47 CFR Part 24, Subpart E 47 CFR Part 27, Subpart H&L&M
Test Date	2015-7-15 to 2015-8-2
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 Handset
Serial No.: (n.a, marked #1 by test site)
Hardware Version.....: A465_V1AMB
Software Version..... A465_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
LTE Band 17: QPSK, 16QAM
Tx Frequency Range.....: LTE Band 2: 1850MHz ~1910MHz
LTE Band 4: 1710MHz ~1755MHz
LTE Band 7: 2500MHz ~ 2570MHz
LTE Band 17: 704MHz ~ 716MHz
Rx Frequency Range: LTE Band 2: 1930MHz ~ 1990MHz
LTE Band 4: 2110MHz ~ 2155MHz
LTE Band 7: 2620MHz ~ 2690MHz
LTE Band 17: 734MHz ~ 746MHz
Emission Designator: 1M11G7D (LTE Band 2, QPSK, BW 1.4MHz)
1M10W7D (LTE Band 2, 16QAM, BW 1.4MHz)
2M71G7D (LTE Band 2, QPSK, BW 3MHz)
2M71 W7D (LTE Band 2, 16QAM, BW 3MHz)
4M53G7D (LTE Band 2, QPSK, BW 5MHz)
4M53W7D (LTE Band 2, 16QAM, BW 5MHz)
9M00G7D (LTE Band 2, QPSK, BW 10MHz)
8M99W7D (LTE Band 2, 16QAM, BW 10MHz)
13M52G7D (LTE Band 2, QPSK, BW 15MHz)
13M51W7D (LTE Band 2, 16QAM, BW 15MHz)
18M03G7D (LTE Band 2, QPSK, BW 20MHz)
18M06W7D (LTE Band 2, 16QAM, BW 20MHz)
1M10G7D (LTE Band 4, QPSK, BW 1.4MHz)



1M10W7D (LTE Band 4, 16QAM, BW 1.4MHz)
2M71G7D (LTE Band 4, QPSK, BW 3MHz)
2M71W7D (LTE Band 4, 16QAM, BW 3MHz)
4M53G7D (LTE Band 4, QPSK, BW 5MHz)
4M53W7D (LTE Band 4, 16QAM, BW 5MHz)
9M00G7D (LTE Band 4, QPSK, BW 10MHz)
8M99W7D (LTE Band 4, 16QAM, BW 10MHz)
13M51G7D (LTE Band 4, QPSK, BW 15MHz)
13M52W7D (LTE Band 4, 16QAM, BW 15MHz)
18M01G7D (LTE Band 4, QPSK, BW 20MHz)
18M06W7D (LTE Band 4, 16QAM, BW 20MHz)
4M53G7D (LTE Band 7, QPSK, BW 5MHz)
4M55W7D (LTE Band 7, 16QAM, BW 5MHz)
9M01G7D (LTE Band 7, QPSK, BW 10MHz)
9M01W7D (LTE Band 7, 16QAM, BW 10MHz)
13M53G7D (LTE Band 7, QPSK, BW 15MHz)
13M53W7D (LTE Band 7, 16QAM, BW 15MHz)
18M06G7D (LTE Band 7, QPSK, BW 20MHz)
18M06W7D (LTE Band 7, 16QAM, BW 20MHz)
4M55G7D (LTE Band 17, QPSK, BW 5MHz)
4M54W7D (LTE Band 17, 16QAM, BW 5MHz)
9M02G7D (LTE Band 17, QPSK, BW 10MHz)
9M01W7D (LTE Band 17, 16QAM, BW 10MHz)

Antenna Type: PIFA Antenna

Power Supply 3.8V DC Power

1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2 and Part 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
3	47 CFR Part 24 (10-1-09 Edition)	Personal Communications Services
4	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	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 & 27 REQUIREMENTS

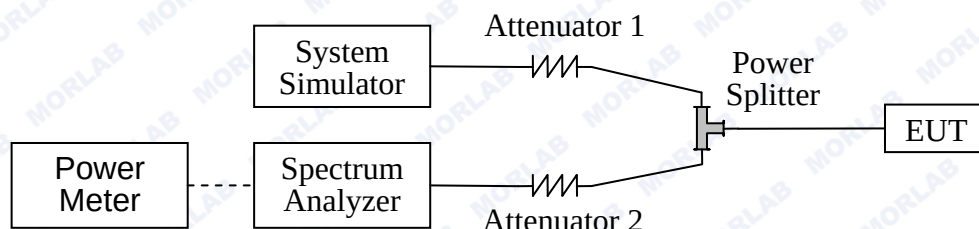
2.1 Transmitter Conducted Output Power

2.1.1 Requirement

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

2.1.2 Test Description

Test Setup:



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

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k5 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



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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	17.62
					1	49	16.45
					1	99	16.47
					50	0	17.35
					50	25	17.21
					50	49	17.12
					100	0	16.45
				16-QAM	1	0	16.89
					1	49	15.41
					1	99	16.80
					50	0	15.98
					50	25	16.04
					50	49	16.15
					100	0	15.40
		M 18900	1880	QPSK	1	0	17.48
					1	49	16.45
					1	99	16.40
					50	0	17.42
					50	25	17.25
					50	49	17.18
					100	0	16.39
				16-QAM	1	0	16.75
					1	49	15.38
					1	99	16.70
					50	0	16.28
					50	25	16.18
					50	49	16.26
					100	0	15.39
		H 19100	1900	QPSK	1	0	17.47
					1	49	16.33
					1	99	16.15
					50	0	17.22
					50	25	16.25
					50	49	16.28
					100	0	16.01
				16-QAM	1	0	16.80
					1	49	15.01
					1	99	16.62
					50	0	15.28
					50	25	15.38
					50	49	15.39
					100	0	14.96



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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	17.41
					1	37	16.24
					1	74	16.26
					36	0	17.14
					36	18	17.00
					36	35	16.91
					75	0	16.24
				16-QAM	1	0	16.68
					1	37	15.20
					1	74	16.59
					36	0	15.77
					36	18	15.83
					36	35	15.94
					75	0	15.19
		M 18900	1880	QPSK	1	0	17.27
					1	37	16.24
					1	74	16.19
					36	0	17.21
					36	18	17.04
					36	35	16.97
					75	0	16.18
				16-QAM	1	0	16.54
					1	37	15.17
					1	74	16.49
					36	0	16.07
					36	18	15.97
					36	35	16.05
					75	0	15.18
		H 19125	1902.5	QPSK	1	0	17.26
					1	37	16.12
					1	74	15.94
					36	0	17.01
					36	18	16.04
					36	35	16.07
					75	0	15.80
				16-QAM	1	0	16.59
					1	37	14.80
					1	74	16.41
					36	0	15.07
					36	18	15.17
					36	35	15.18
					75	0	14.75



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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	17.37
					1	24	16.20
					1	49	16.22
					25	0	17.10
					25	12	16.96
					25	24	16.87
					50	0	16.20
				16-QAM	1	0	16.64
					1	24	15.16
					1	49	16.55
					25	0	15.73
					25	12	15.79
					25	24	15.90
					50	0	15.15
		M 18900	1880	QPSK	1	0	17.23
					1	24	16.20
					1	49	16.15
					25	0	17.17
					25	12	17.00
					25	24	16.93
					50	0	16.14
				16-QAM	1	0	16.50
					1	24	15.13
					1	49	16.45
					25	0	16.03
					25	12	15.93
					25	24	16.01
					50	0	15.14
		H 19150	1905	QPSK	1	0	17.22
					1	24	16.08
					1	49	15.90
					25	0	16.97
					25	12	16.00
					25	24	16.03
					50	0	15.76
				16-QAM	1	0	16.55
					1	24	14.76
					1	49	16.37
					25	0	15.03
					25	12	15.13
					25	24	15.14
					50	0	14.71



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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	17.43
					1	12	16.26
					1	24	16.28
					12	0	17.16
					12	6	17.02
					12	11	16.93
					25	0	16.26
		M 18900	1880	16-QAM	1	0	16.70
					1	12	15.22
					1	24	16.61
					12	0	15.79
					12	6	15.85
					12	11	15.96
					25	0	15.21
		H 19175	1907.5	QPSK	1	0	17.29
					1	12	16.26
					1	24	16.21
					12	0	17.23
					12	6	17.06
					12	11	16.99
					25	0	16.20
				16-QAM	1	0	16.56
					1	12	15.19
					1	24	16.51
					12	0	16.09
					12	6	15.99
					12	11	16.07
					25	0	15.20
				QPSK	1	0	17.28
					1	12	16.14
					1	24	15.96
					12	0	17.03
					12	6	16.06
					12	11	16.09
					25	0	15.82
				16-QAM	1	0	16.61
					1	12	14.82
					1	24	16.43
					12	0	15.09
					12	6	15.19
					12	11	15.20
					25	0	14.77



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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	17.36
					1	7	16.19
					1	14	16.21
					8	0	17.09
					8	4	16.95
					8	7	16.86
					15	0	16.19
				16-QAM	1	0	16.63
					1	7	15.15
					1	14	16.54
					8	0	15.72
					8	4	15.78
					8	7	15.89
					15	0	15.14
		M 18900	1880	QPSK	1	0	17.22
					1	7	16.19
					1	14	16.14
					8	0	17.16
					8	4	16.99
					8	7	16.92
					15	0	16.13
				16-QAM	1	0	16.49
					1	7	15.12
					1	14	16.44
					8	0	16.02
					8	4	15.92
					8	7	16.00
					15	0	15.13
		H 19185	1908.5	QPSK	1	0	17.21
					1	7	16.07
1	14				15.89		
8	0				16.96		
8	4				15.99		
8	7				16.02		
15	0				15.75		
16-QAM	1			0	16.54		
	1			7	14.75		
	1			14	16.36		
	8			0	15.02		
	8			4	15.12		
	8			7	15.13		
	15			0	14.70		



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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	17.33
					1	2	16.16
					1	5	16.18
					3	0	17.06
					3	1	16.92
					3	2	16.83
					6	0	16.16
		M 18900	1880	16-QAM	1	0	16.60
					1	2	15.12
					1	5	16.51
					3	0	15.69
					3	1	15.75
					3	2	15.86
					6	0	15.11
		H 19193	1909.3	QPSK	1	0	17.19
					1	2	16.16
					1	5	16.11
					3	0	17.13
					3	1	16.96
					3	2	16.89
					6	0	16.10
				16-QAM	1	0	16.46
					1	2	15.09
					1	5	16.41
					3	0	15.99
					3	2	15.89
					3	5	15.97
					6	0	15.10
				QPSK	1	0	17.18
					1	2	16.04
					1	5	15.86
					3	0	16.93
					3	1	15.96
					3	2	15.99
					6	0	15.72
				16-QAM	1	0	16.51
					1	2	14.72
					1	5	16.33
					3	0	14.99
					3	1	15.09
					3	2	15.10
					6	0	14.67



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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	17.85
					1	49	16.78
					1	99	16.75
					50	0	17.53
					50	25	17.58
					50	49	17.59
					100	0	16.67
				16-QAM	1	0	17.26
					1	49	15.70
					1	99	17.14
					50	0	16.85
					50	25	16.81
					50	49	16.72
					100	0	15.69
		M 20175	1732.5	QPSK	1	0	17.60
					1	49	16.57
					1	99	16.61
					50	0	17.61
					50	25	16.87
					50	49	16.98
					100	0	16.61
				16-QAM	1	0	16.83
					1	49	15.61
					1	99	16.99
					50	0	16.08
					50	25	16.12
					50	49	16.21
					100	0	15.60
		H 20300	1745.0	QPSK	1	0	17.58
					1	49	16.55
					1	99	16.41
					50	0	17.44
					50	25	16.12
					50	49	16.29
					100	0	16.44
				16-QAM	1	0	17.10
					1	49	15.45
					1	99	17.08
					50	0	16.01
					50	25	16.24
					50	49	16.28
					100	0	15.42



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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	17.15
					1	37	15.98
					1	74	17.05
					36	0	17.95
					36	18	17.70
					36	35	17.64
					75	0	16.79
		M 20175	1732.5	16-QAM	1	0	16.71
					1	37	15.90
					1	74	17.25
					36	0	16.97
					36	18	16.87
					36	35	16.98
					75	0	15.75
				QPSK	1	0	16.37
					1	37	15.42
					1	74	15.75
					36	0	16.53
					36	18	15.97
					36	35	15.61
					75	0	15.60
		H 20325	1747.5	16-QAM	1	0	15.54
					1	37	14.42
					1	74	15.81
					36	0	15.62
					36	18	15.58
					36	35	15.40
					75	0	14.75
				QPSK	1	0	17.69
					1	37	14.92
					1	74	15.27
					36	0	16.34
					36	18	15.41
					36	35	14.47
					75	0	13.30
				16-QAM	1	0	15.90
					1	37	14.33
					1	74	15.40
					36	0	15.23
					36	18	15.33
					36	35	15.24
					75	0	12.69



REPORT No.: SZ15070060W02

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	16.87
					1	24	15.70
					1	49	16.77
					25	0	17.67
					25	12	17.42
					25	24	17.36
					50	0	16.51
				16-QAM	1	0	16.43
					1	24	15.62
					1	49	16.97
					25	0	16.69
					25	12	16.59
					25	24	16.70
					50	0	15.47
		M 20175	1732.5	QPSK	1	0	16.09
					1	24	15.14
					1	49	15.47
					25	0	16.25
					25	12	15.69
					25	24	15.33
					50	0	15.32
				16-QAM	1	0	15.26
					1	24	14.14
					1	49	15.53
					25	0	15.34
					25	12	15.30
					25	24	15.12
					50	0	14.47
		H 20350	1750.0	QPSK	1	0	17.41
					1	24	14.64
					1	49	14.99
					25	0	16.06
					25	12	15.13
					25	24	14.19
					50	0	13.02
				16-QAM	1	0	15.62
					1	24	14.05
					1	49	15.12
					25	0	14.95
					25	12	15.05
					25	24	14.96
					50	0	12.41



REPORT No.: SZ15070060W02

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	16.80
					1	12	15.63
					1	24	16.70
					12	0	17.60
					12	6	17.35
					12	11	17.29
					25	0	16.44
		M 20175	1732.5	16-QAM	1	0	16.36
					1	12	15.55
					1	24	16.90
					12	0	16.62
					12	6	16.52
					12	11	16.63
					25	0	15.40
		H 20375	1752.5	QPSK	1	0	16.02
					1	12	15.07
					1	24	15.40
					12	0	16.18
					12	6	15.62
					12	11	15.26
					25	0	15.25
				16-QAM	1	0	15.19
					1	12	14.07
					1	24	15.46
					12	0	15.27
					12	6	15.23
					12	11	15.05
					25	0	14.40
				QPSK	1	0	17.34
					1	12	14.57
					1	24	14.92
					12	0	15.99
					12	6	15.06
					12	11	14.12
					25	0	12.95
				16-QAM	1	0	15.55
					1	12	13.98
					1	24	15.05
					12	0	14.88
					12	6	14.98
					12	11	14.89
					25	0	12.34



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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	16.84
					1	7	15.67
					1	14	16.74
					8	0	17.64
					8	4	17.39
					8	7	17.33
					15	0	16.48
				16-QAM	1	0	16.40
					1	7	15.59
					1	14	16.94
					8	0	16.66
					8	4	16.56
					8	7	16.67
					15	0	15.44
		M 20175	1732.5	QPSK	1	0	16.06
					1	7	15.11
					1	14	15.44
					8	0	16.22
					8	4	15.66
					8	7	15.30
					15	0	15.29
				16-QAM	1	0	15.23
					1	7	14.11
					1	14	15.50
					8	0	15.31
					8	4	15.27
					8	7	15.09
					15	0	14.44
		H 20385	1753.5	QPSK	1	0	17.38
					1	7	14.61
					1	14	14.96
					8	0	16.03
					8	4	15.10
					8	7	14.16
					15	0	12.99
				16-QAM	1	0	15.59
					1	7	14.02
					1	14	15.09
					8	0	14.92
					8	4	15.02
					8	7	14.93
					15	0	12.38



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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	16.69
					1	2	15.52
					1	5	16.59
					3	0	17.49
					3	1	17.24
					3	2	17.18
					6	0	16.33
				16-QAM	1	0	16.25
					1	2	15.44
					1	5	16.79
					3	0	16.51
					3	1	16.41
					3	2	16.52
					6	0	15.29
		M 20175	1732.5	QPSK	1	0	15.91
					1	2	14.96
					1	5	15.29
					3	0	16.07
					3	1	15.51
					3	2	15.15
					6	0	15.14
				16-QAM	1	0	15.08
					1	2	13.96
					1	5	15.35
					3	0	15.16
					3	2	15.12
					3	5	14.94
					6	0	14.29
		H 20393	1754.3	QPSK	1	0	17.23
					1	2	14.46
					1	5	14.81
					3	0	15.88
					3	1	14.95
					3	2	14.01
					6	0	12.84
				16-QAM	1	0	15.44
					1	2	13.87
					1	5	14.94
					3	0	14.77
					3	1	14.87
					3	2	14.78
					6	0	12.23



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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	17.46
					1	49	15.49
					1	99	15.34
					50	0	16.53
					50	25	16.48
					50	49	16.52
					100	0	15.75
				16-QAM	1	0	16.73
					1	49	14.51
					1	99	15.69
					50	0	15.25
					50	25	15.18
					50	49	15.20
					100	0	14.59
		M 21100	2535	QPSK	1	0	16.39
					1	49	15.53
					1	99	15.48
					50	0	16.92
					50	25	15.95
					50	49	15.98
					100	0	15.60
				16-QAM	1	0	15.84
					1	49	14.48
					1	99	15.69
					50	0	15.25
					50	25	15.21
					50	49	15.28
					100	0	14.25
		H 21350	2560	QPSK	1	0	16.39
					1	49	15.59
					1	99	15.41
					50	0	16.33
					50	25	15.98
					50	49	15.88
					100	0	15.45
				16-QAM	1	0	16.04
					1	49	14.30
					1	99	15.79
					50	0	15.15
					50	25	15.25
					50	49	15.31
					100	0	14.26



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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	16.75
					1	37	15.58
					1	74	16.65
					36	0	17.55
					36	18	17.30
					36	35	17.24
					75	0	16.39
		M 21100	2535	16-QAM	1	0	16.31
					1	37	15.50
					1	74	16.85
					36	0	16.57
					36	18	16.47
					36	35	16.58
					75	0	15.35
		H 21375	2562.5	QPSK	1	0	15.97
					1	37	15.02
					1	74	15.35
					36	0	16.13
					36	18	15.57
					36	35	15.21
					75	0	15.20
				16-QAM	1	0	15.14
					1	37	14.02
					1	74	15.41
					36	0	15.22
					36	18	15.18
					36	35	15.00
					75	0	14.35
				QPSK	1	0	17.29
					1	37	14.52
					1	74	14.87
					36	0	15.94
					36	18	15.01
					36	35	14.07
					75	0	12.90
				16-QAM	1	0	15.50
					1	37	13.93
					1	74	15.00
					36	0	14.83
					36	18	14.93
					36	35	14.84
					75	0	12.29



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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	17.03
					1	24	15.96
					1	49	15.44
					25	0	16.83
					25	12	16.81
					25	24	16.58
					50	0	15.68
				16-QAM	1	0	16.50
					1	24	14.61
					1	49	15.98
					25	0	15.15
					25	12	15.29
					25	24	15.35
					50	0	14.81
		M 21100	2535	QPSK	1	0	16.49
					1	24	15.64
					1	49	15.40
					25	0	16.43
					25	12	16.40
					25	24	16.38
					50	0	15.26
				16-QAM	1	0	15.97
					1	24	14.43
					1	49	16.30
					25	0	15.28
					25	12	15.25
					25	24	15.35
					50	0	14.51
		H 21400	2565	QPSK	1	0	16.19
					1	24	15.45
					1	49	15.41
					25	0	13.68
					25	12	14.28
					25	24	14.95
					50	0	15.45
				16-QAM	1	0	16.12
					1	24	14.71
					1	49	15.90
					25	0	15.55
					25	12	15.56
					25	24	15.61
					50	0	14.21



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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	17.03
					1	12	15.86
					1	24	16.93
					12	0	17.83
					12	6	17.58
					12	11	17.52
					25	0	16.67
		M 21100	2535	16-QAM	1	0	16.59
					1	12	15.78
					1	24	17.13
					12	0	16.85
					12	6	16.75
					12	11	16.86
					25	0	15.63
		H 21425	2567.5	QPSK	1	0	16.25
					1	12	15.30
					1	24	15.63
					12	0	16.41
					12	6	15.85
					12	11	15.49
					25	0	15.48
				16-QAM	1	0	15.42
					1	12	14.30
					1	24	15.69
					12	0	15.50
					12	6	15.46
					12	11	15.28
					25	0	14.63
				QPSK	1	0	17.57
					1	12	14.80
					1	24	15.15
					12	0	16.22
					12	6	15.29
					12	11	14.35
					25	0	13.18
				16-QAM	1	0	15.78
					1	12	14.21
					1	24	15.28
					12	0	15.11
					12	6	15.21
					12	11	15.12
					25	0	12.57



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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	17.61
					1	24	16.07
					1	49	16.33
					25	0	16.02
					25	12	16.12
					25	24	16.25
					50	0	16.49
				16-QAM	1	0	14.88
					1	24	14.62
					1	49	15.73
					25	0	15.71
					25	12	15.62
					25	24	15.60
					50	0	14.61
		M 23790	710	QPSK	1	0	15.70
					1	24	15.15
					1	49	16.71
					25	0	17.53
					25	12	17.41
					25	24	16.52
					50	0	15.74
				16-QAM	1	0	17.18
					1	24	15.03
					1	49	17.19
					25	0	16.52
					25	12	16.15
					25	24	15.25
					50	0	14.50
		H 23800	711	QPSK	1	0	15.50
					1	24	15.35
					1	49	15.75
					25	0	16.89
					25	12	16.82
					25	24	16.21
					50	0	15.40
				16-QAM	1	0	15.16
					1	24	14.69
					1	49	16.40
					25	0	16.15
					25	12	16.51
					25	24	16.28
					50	0	16.04



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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	16.22
					1	12	14.65
					1	24	14.75
					12	0	15.36
					12	6	15.34
					12	11	15.28
					25	0	14.62
		M 23790	710	16-QAM	1	0	15.52
					1	12	13.85
					1	24	15.03
					12	0	14.55
					12	6	14.59
					12	11	14.60
					25	0	13.55
		H 23825	713.5	QPSK	1	0	16.42
					1	12	15.45
					1	24	15.88
					12	0	16.84
					12	6	15.61
					12	11	15.65
					25	0	15.67
				16-QAM	1	0	15.78
					1	12	15.05
					1	24	16.78
					12	0	15.25
					12	6	15.40
					12	11	15.38
					25	0	14.96
				QPSK	1	0	17.67
					1	12	16.39
					1	24	15.89
					12	0	16.93
					12	6	16.85
					12	11	16.88
					25	0	15.96
				16-QAM	1	0	17.04
					1	12	14.96
					1	24	16.73
					12	0	15.85
					12	6	15.91
					12	11	15.88
					25	0	15.23



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	1.0925	1.0910	18615	1851.5	2.6996	2.7010
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	1.271	1.258	18615	1851.5	2.968	2.983

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	4.5248	4.5255	18650	1855.0	8.9681	8.9833
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	5.076	5.040	18650	1855.0	9.900	9.925

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	13.463	13.501	18700	1860.0	17.986	18.001
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	14.78	14.82	18700	1860.0	19.57	19.59

**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	1.0960	1.1002	18900	1880.0	2.7045	2.7105
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	1.271	1.275	18900	1880.0	2.970	2.995

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	4.5293	4.5198	18900	1880.0	8.9837	8.9939
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	5.055	5.075	18900	1880.0	9.950	9.863

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	13.523	13.514	18900	1880.0	18.020	18.060
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	14.92	14.74	18900	1880.0	19.60	19.68



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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	1.1077	1.0993	19184	1908.4	2.7120	2.7028
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	1.310	1.277	19184	1908.4	2.984	3.001

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	4.5262	4.5290	19150	1905.0	8.9991	8.9896
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	5.067	5.083	19150	1905.0	9.957	10.00

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	13.503	13.492	19100	1900.0	18.026	17.993
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	14.86	14.92	19100	1900.0	19.65	19.61



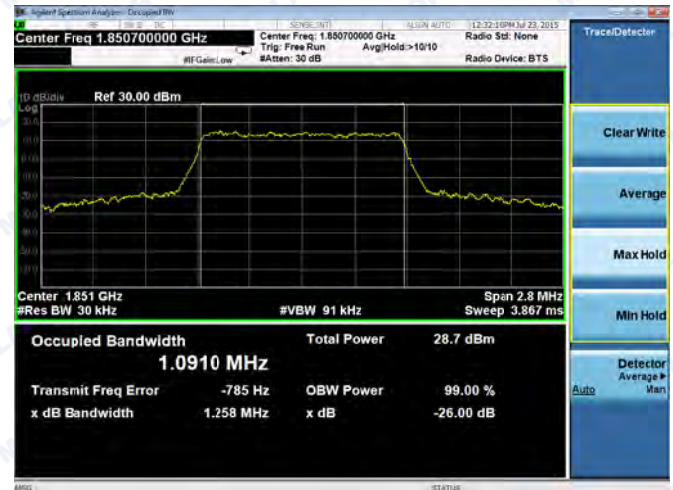
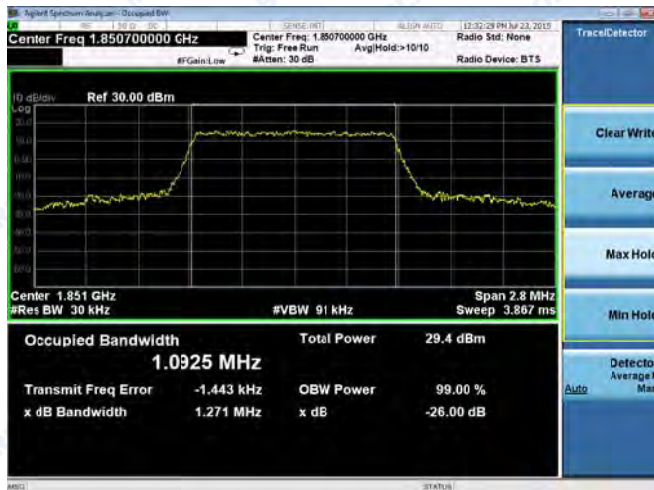
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Low channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

3MHz/16QAM

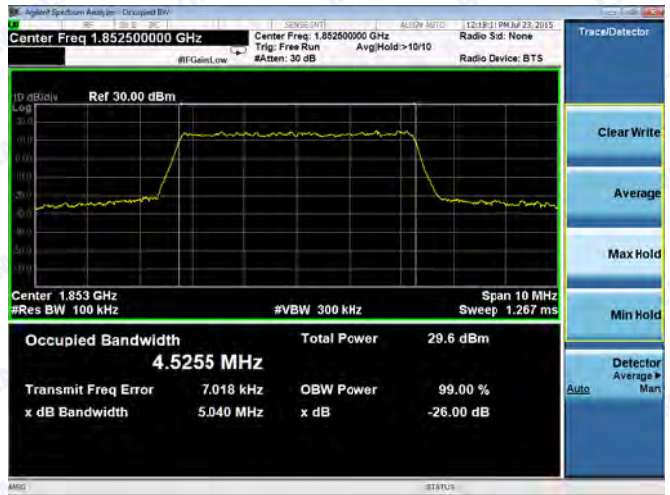




Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

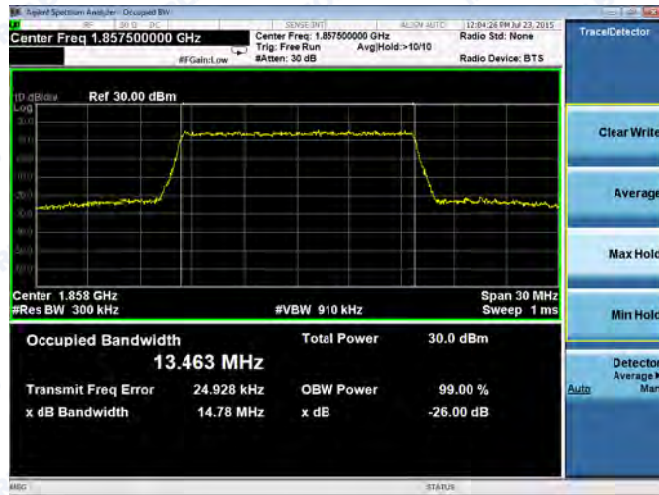




Spectrum Plot of Worst Value

15MHz/QPSK

15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM





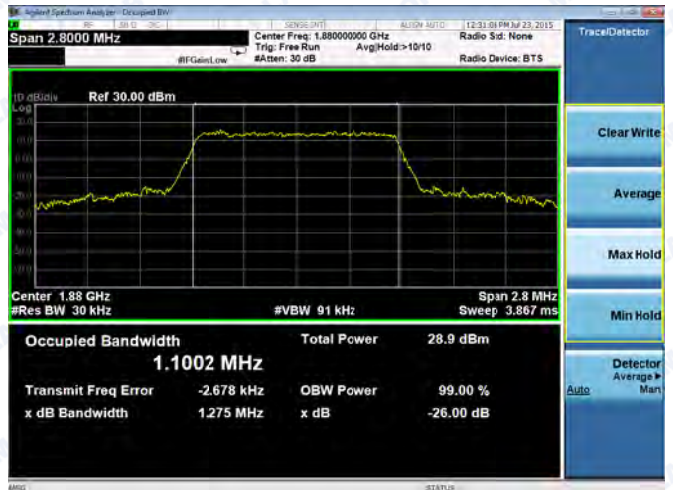
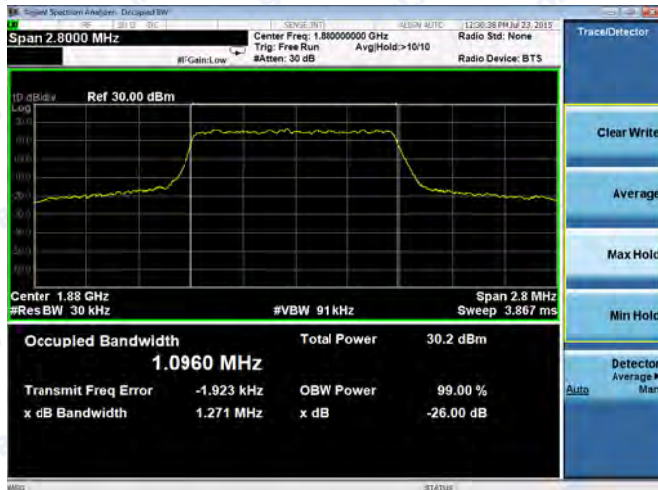
REPORT No.: SZ15070060W02

Middle channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

3MHz/16QAM

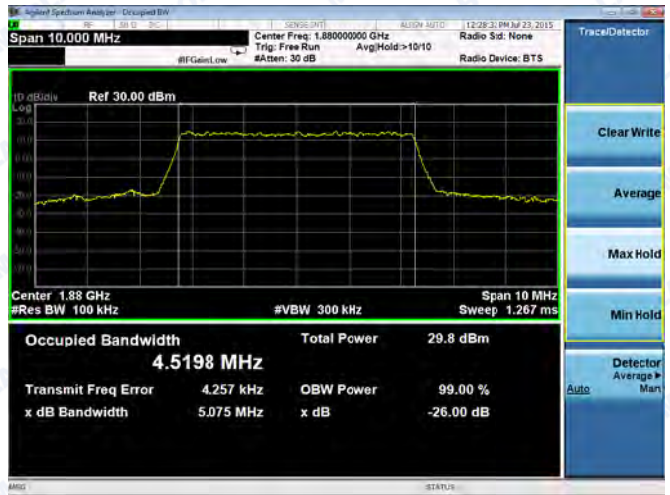
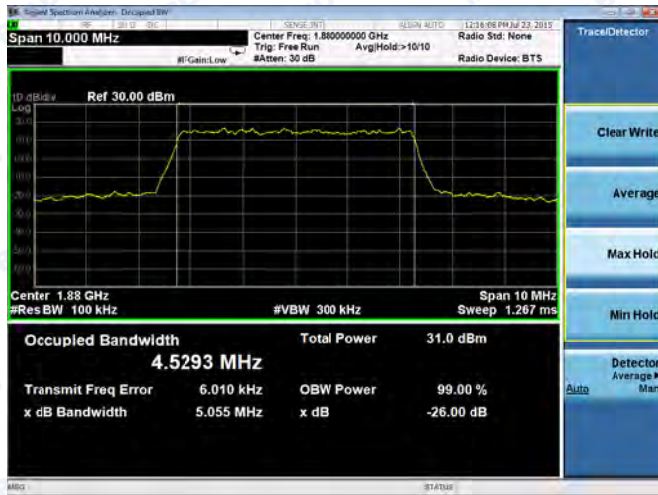




Spectrum Plot of Worst Value

5MHz/QPSK

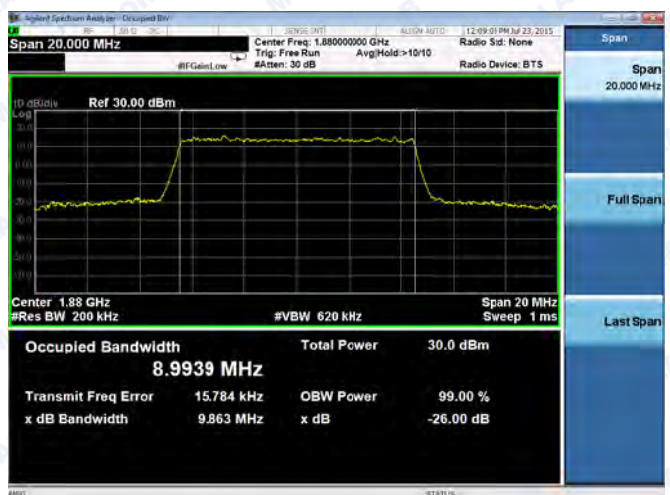
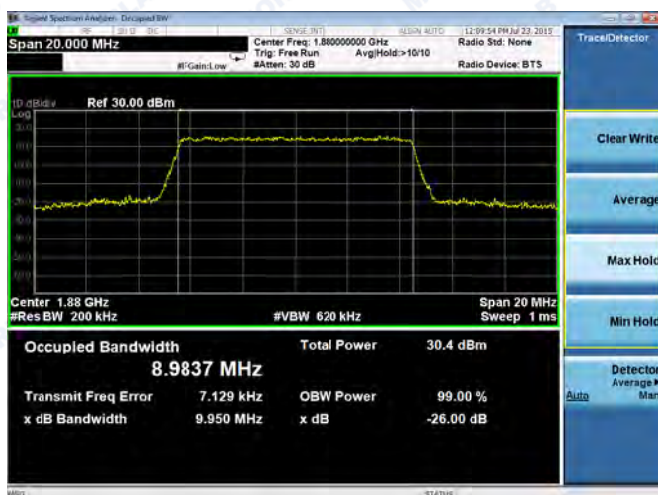
5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

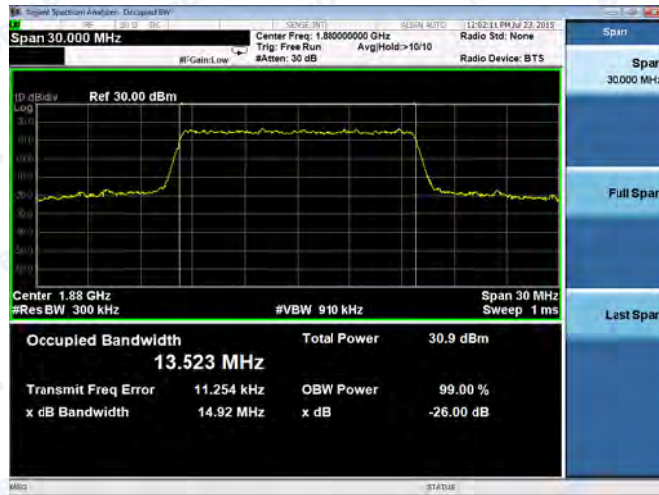
10MHz/16QAM



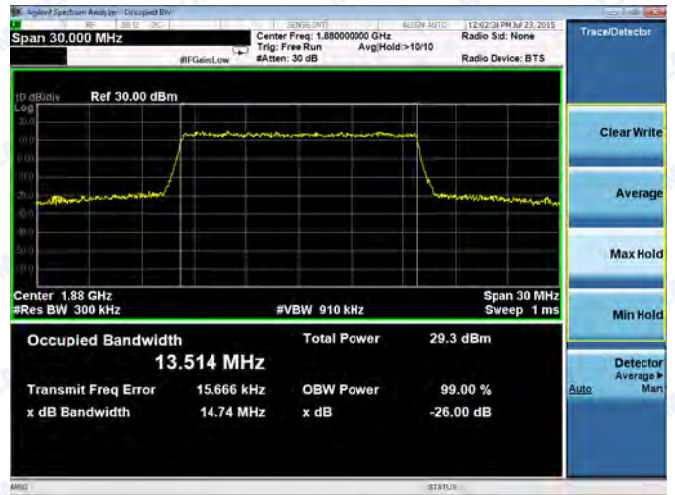


Spectrum Plot of Worst Value

15MHz/QPSK



15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM





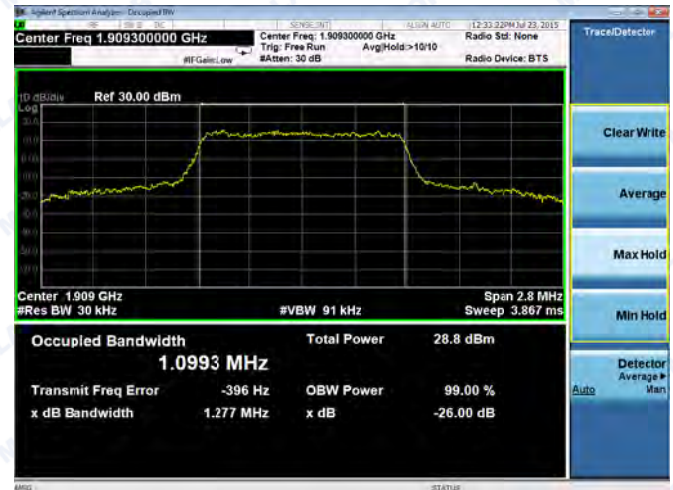
REPORT No.: SZ15070060W02

High channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

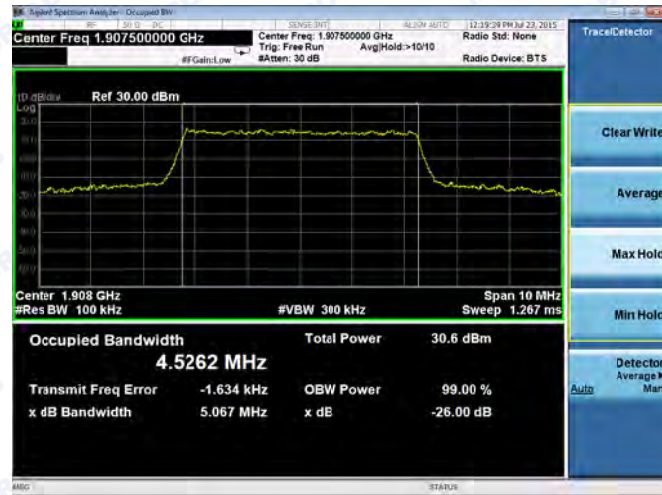
3MHz/16QAM



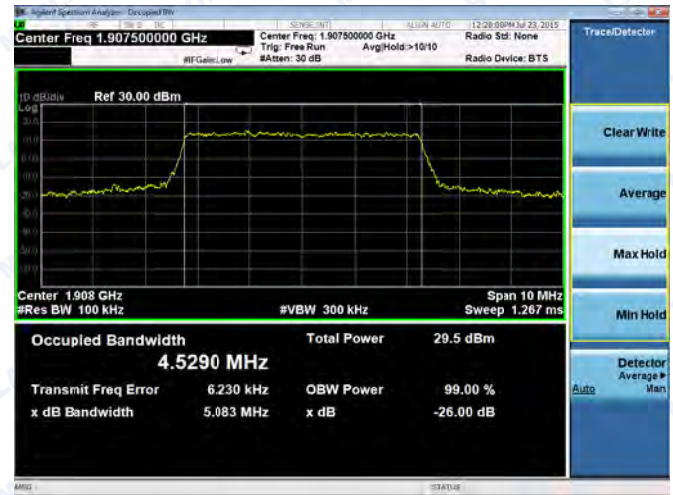


Spectrum Plot of Worst Value

5MHz/QPSK



5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK



10MHz/16QAM

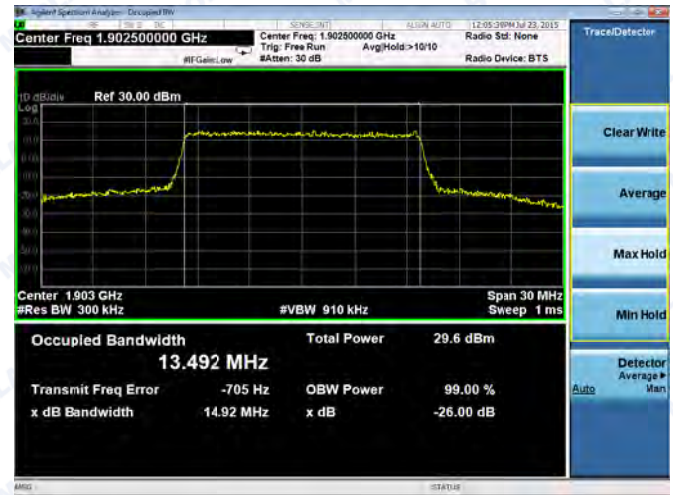
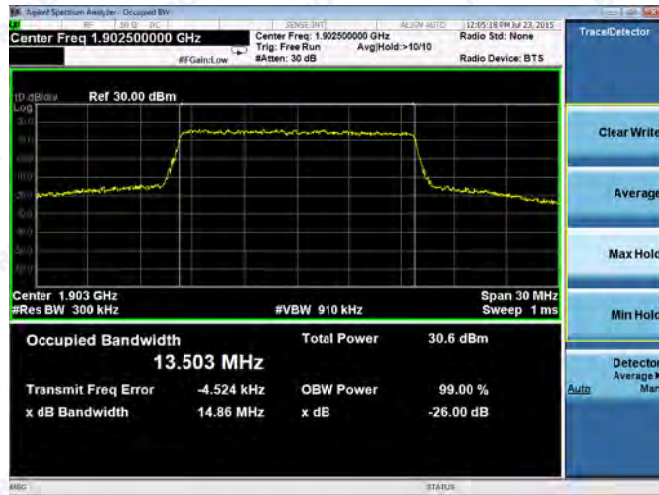




Spectrum Plot of Worst Value

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	1.0973	1.0978	19965	1711.5	2.7115	2.6998
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	1.276	1.277	19965	1711.5	2.958	2.981

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	4.5254	4.5218	20000	1715.0	8.9598	8.9925
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	5.087	5.040	20000	1715.0	9.863	9.819

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	13.444	13.460	20050	1720.0	17.971	17.991
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	14.82	14.77	20050	1720.0	19.51	19.46



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	1.0961	1.1026	20175	1732.5	2.7042	2.7142
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	1.299	1.291	20175	1732.5	2.973	2.990

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	4.5203	4.5231	20175	1732.5	9.0031	8.9823
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	5.037	5.092	20175	1732.5	10.11	9.853

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	13.514	13.517	20175	1732.5	18.002	18.058
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	14.81	20175	1732.5	19.41	19.56



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	1.1008	1.0957	20384	1753.4	2.7071	2.6992
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	1.263	1.264	20384	1753.4	2.966	2.982

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	4.5228	4.5269	20350	1750.0	8.9979	8.9830
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	5.088	5.039	20350	1750.0	9.865	9.918

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	13.501	13.518	20300	1745.0	18.013	18.001
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	14.88	14.79	20300	1745.0	19.76	19.53



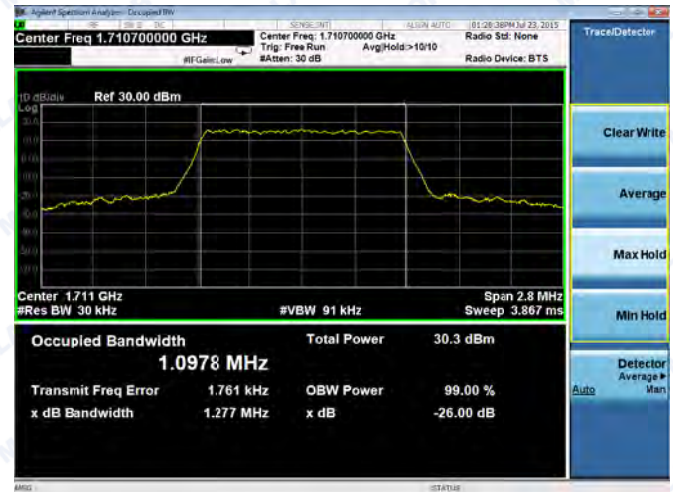
REPORT No.: SZ15070060W02

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

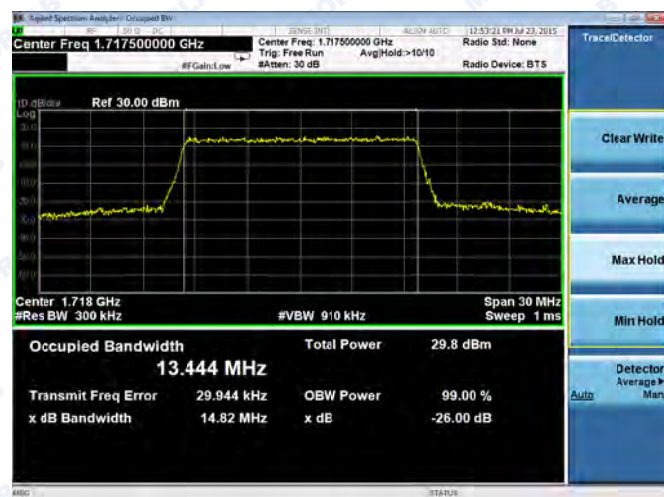
10MHz/16QAM





Spectrum Plot of Worst Value

15MHz/QPSK



15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK



20MHz/16QAM





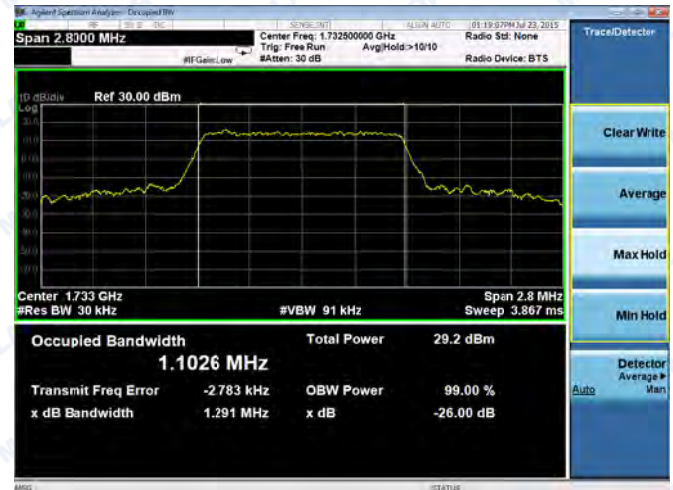
REPORT No.: SZ15070060W02

Middle channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

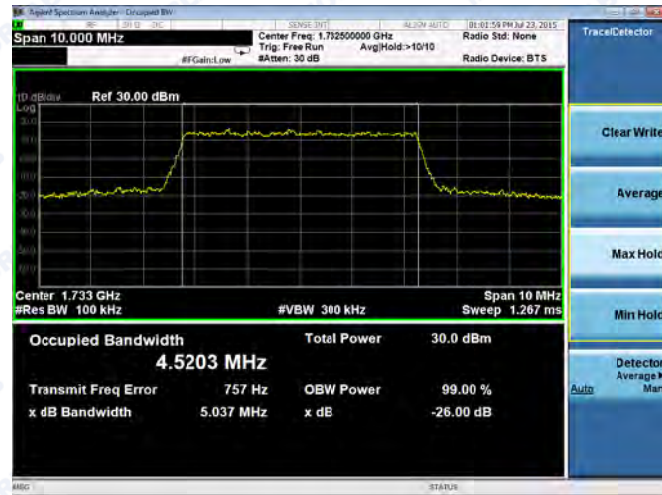
3MHz/16QAM



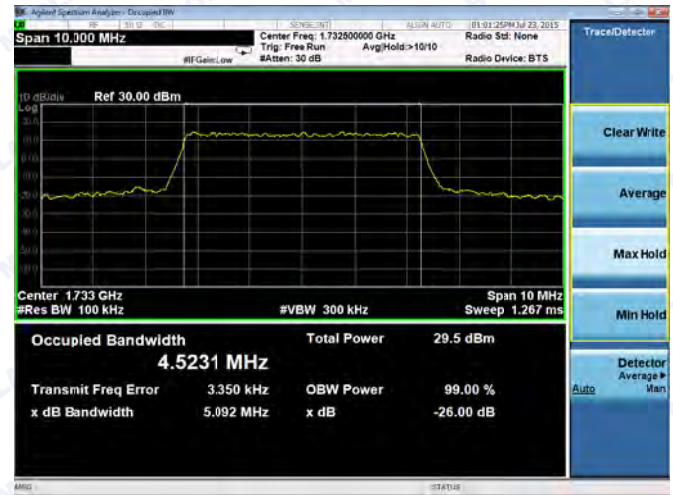


Spectrum Plot of Worst Value

5MHz/QPSK



5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK



10MHz/16QAM

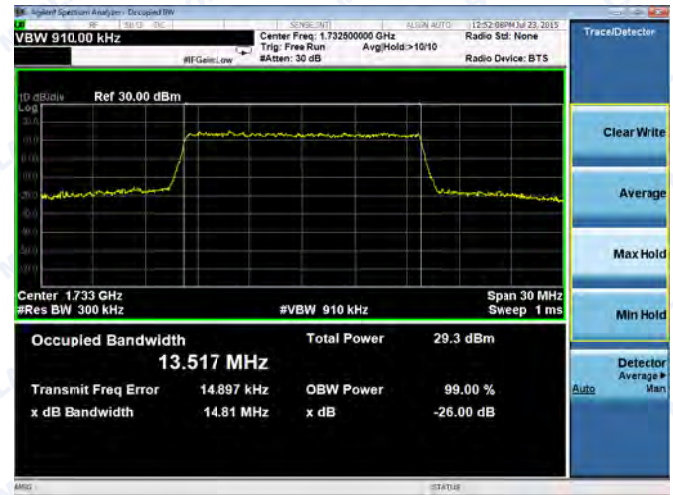
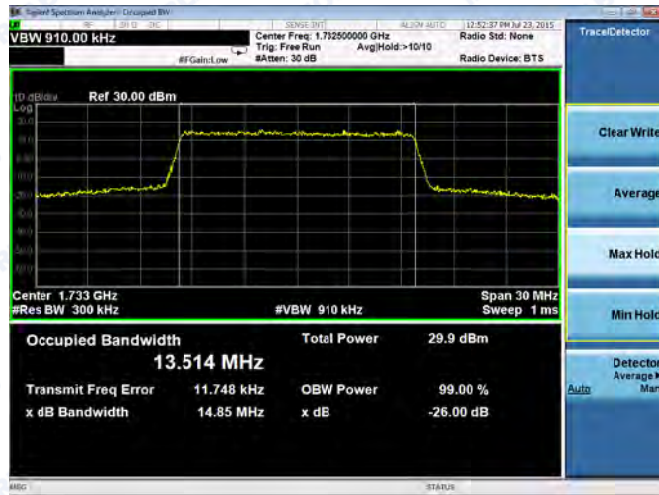




Spectrum Plot of Worst Value

15MHz/QPSK

15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM





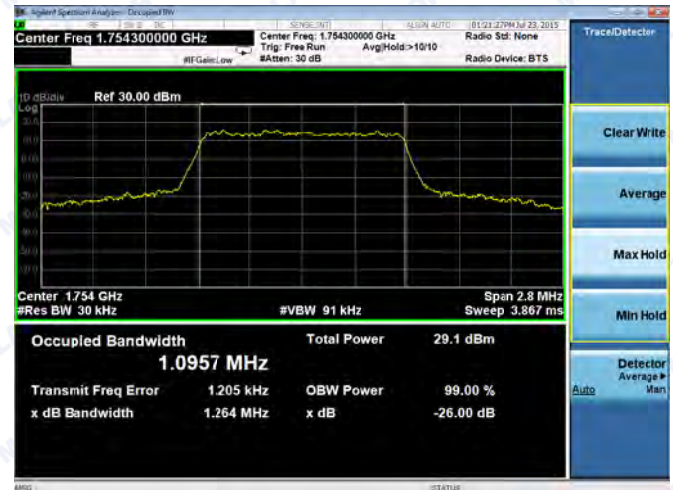
REPORT No.: SZ15070060W02

High channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

3MHz/16QAM

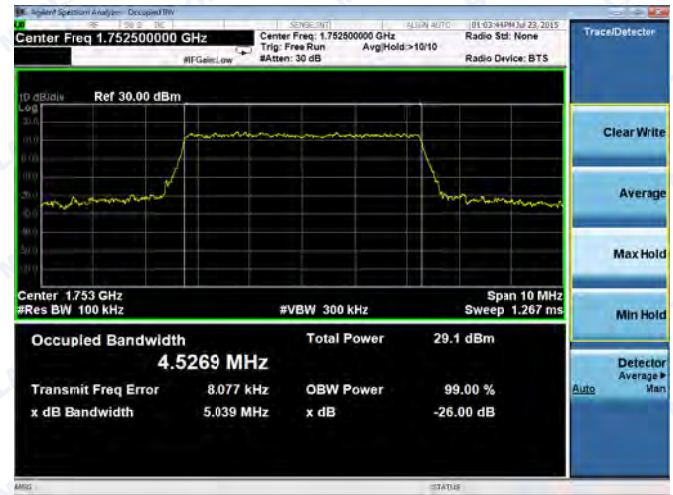




Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

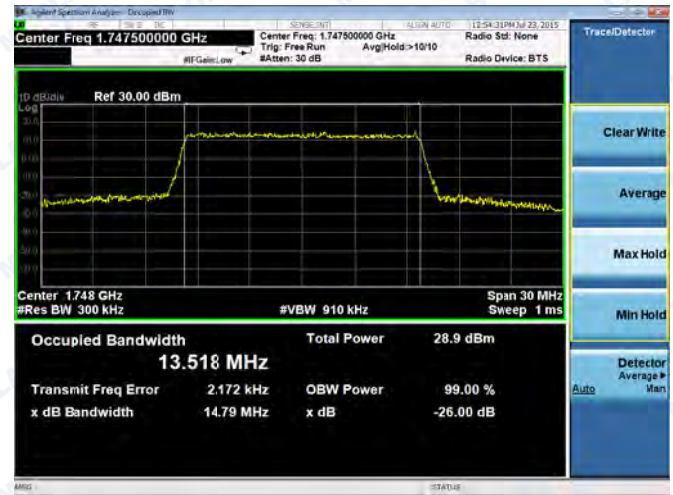
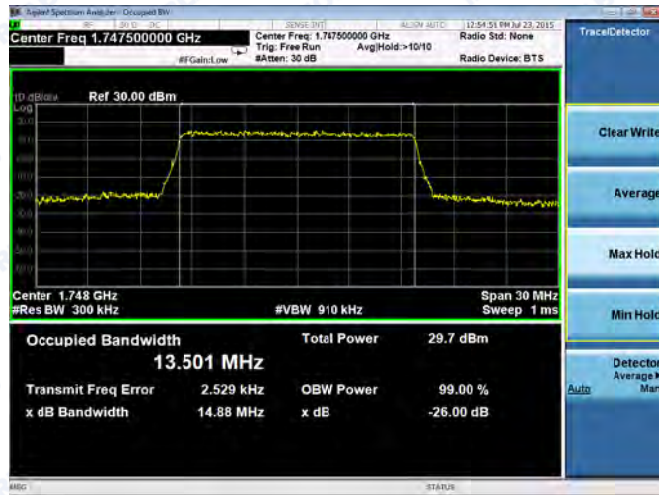




Spectrum Plot of Worst Value

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	4.5330	4.5313	20800	2505.0	8.9831	8.9929
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	5.112	5.085	20800	2505.0	10.01	9.963

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	13.486	13.526	20850	2510.0	18.012	18.007
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	14.96	14.82	20850	2510.0	19.57	19.60

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	4.5288	4.5292	21100	2535.0	9.0095	9.0049
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	5.104	5.094	21100	2535.0	10.13	9.902



REPORT No.: SZ15070060W02

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	13.533	13.531	21100	2535.0	17.977	18.057
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	14.85	14.81	21100	2535.0	19.66	19.69

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	4.5178	4.5445	21400	2565.0	9.0050	8.9886
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	5.066	5.097	21400	2565.0	9.926	10.00

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	13.517	13.523	21350	2560.0	18.057	18.035
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	14.97	14.89	21350	2560.0	19.73	19.69



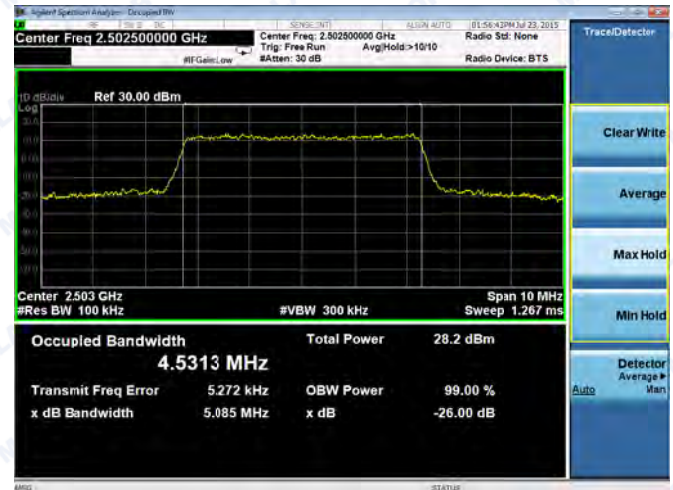
REPORT No.: SZ15070060W02

Low channel:

Spectrum Plot of Worst Value

5MHz/QPSK

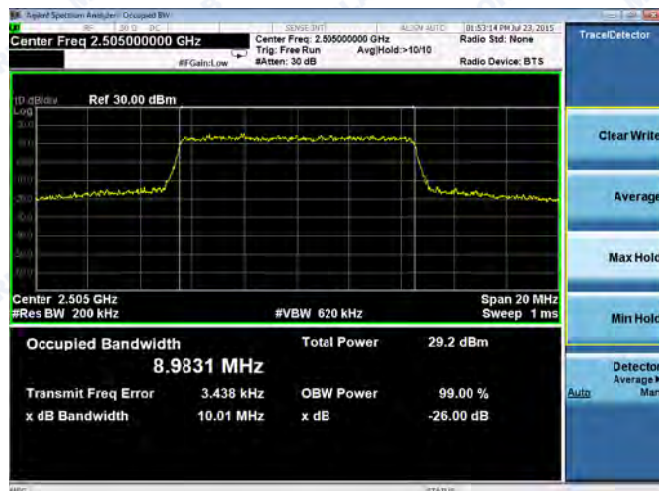
5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

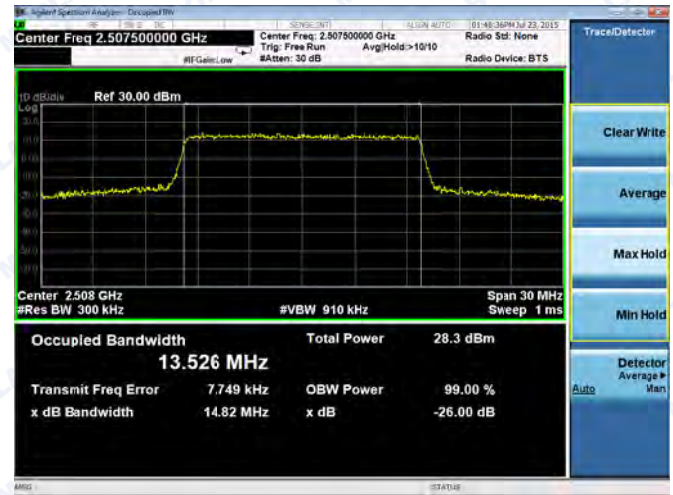
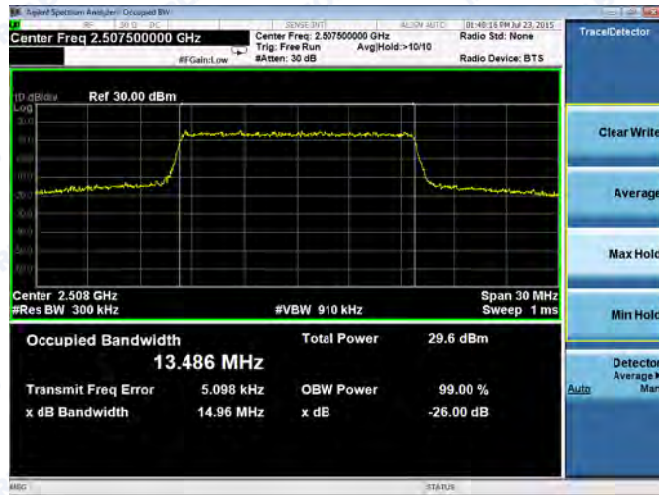




Spectrum Plot of Worst Value

15MHz/QPSK

15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM





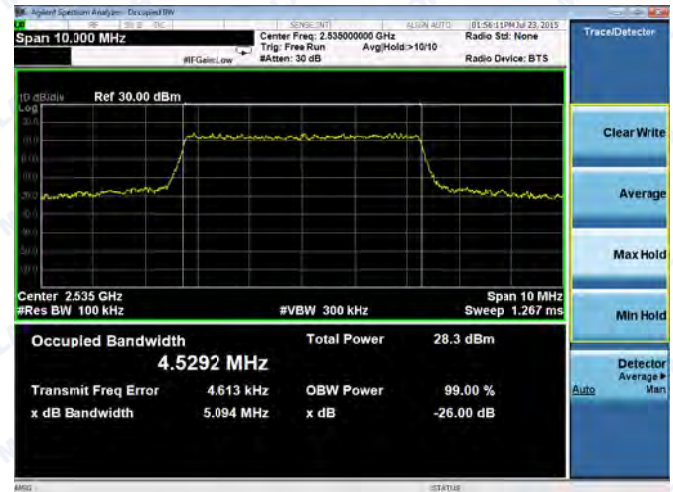
REPORT No.: SZ15070060W02

Middle channel:

Spectrum Plot of Worst Value

5MHz/QPSK

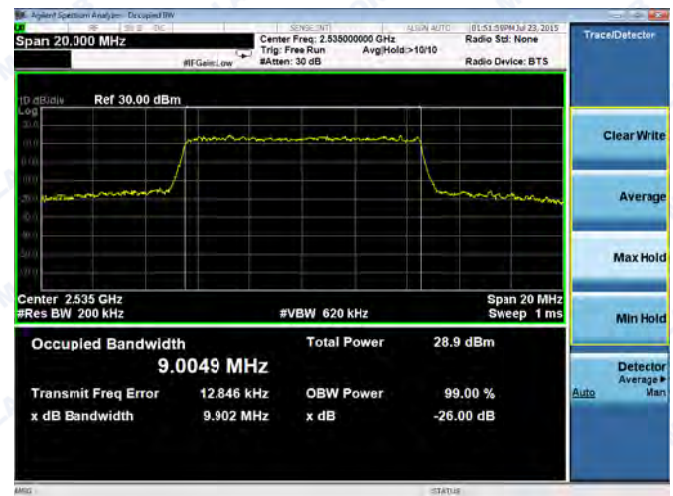
5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

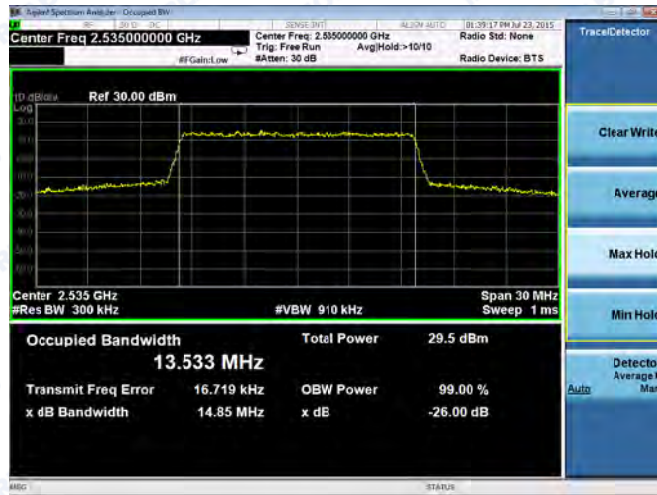




Spectrum Plot of Worst Value

15MHz/QPSK

15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM





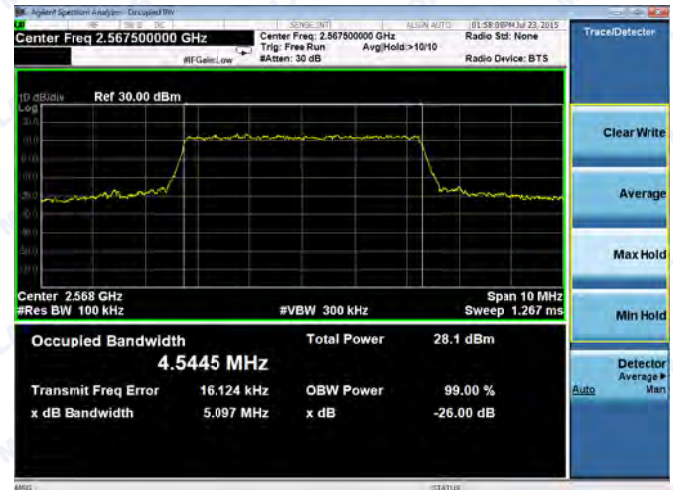
REPORT No.: SZ15070060W02

High channel:

Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

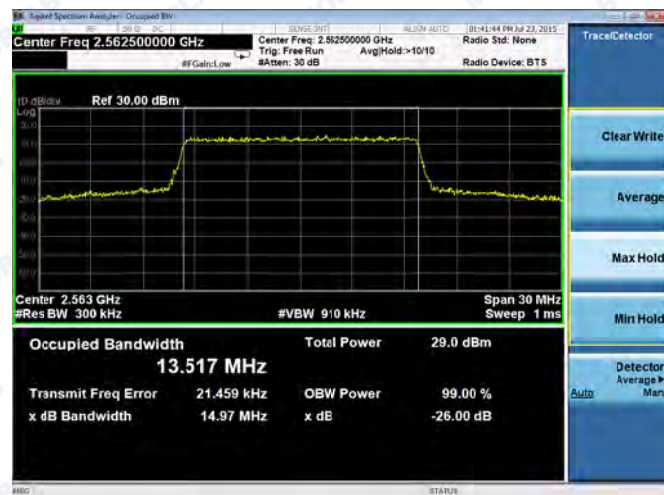




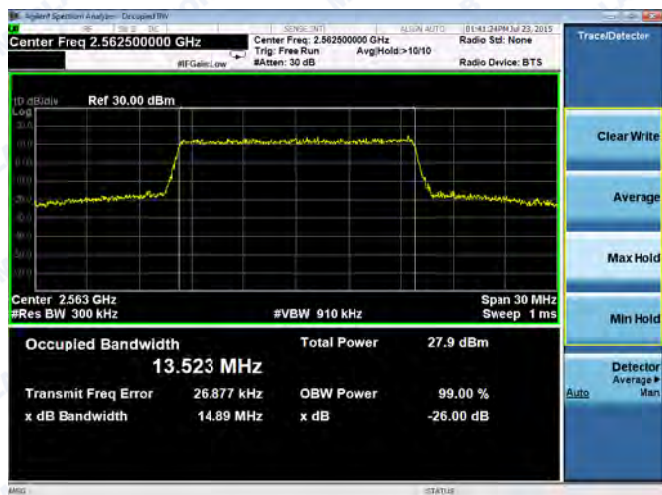
REPORT No.: SZ15070060W02

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	4.5466	4.5365	23780	709.0	9.0207	9.0121
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	5.098	5.054	23780	709.0	9.993	9.981

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	4.5327	4.5321	23790	710	8.9835	8.9919
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23790	710	5.023	5.074	23790	710	9.932	9.775

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	4.5240	5.5257	23800	711	9.0135	8.9914
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	4.992	5.009	23800	711	9.896	9.753



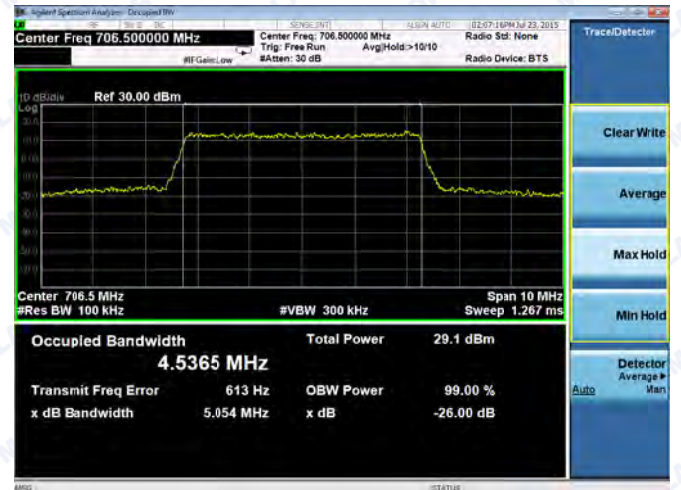
REPORT No.: SZ15070060W02

Low channel:

Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM





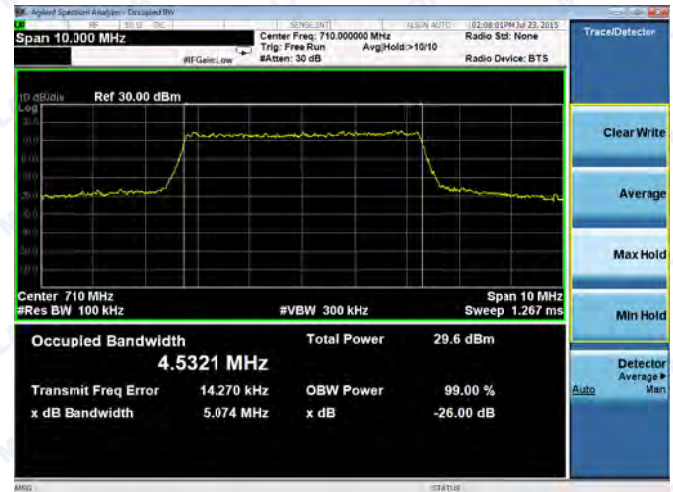
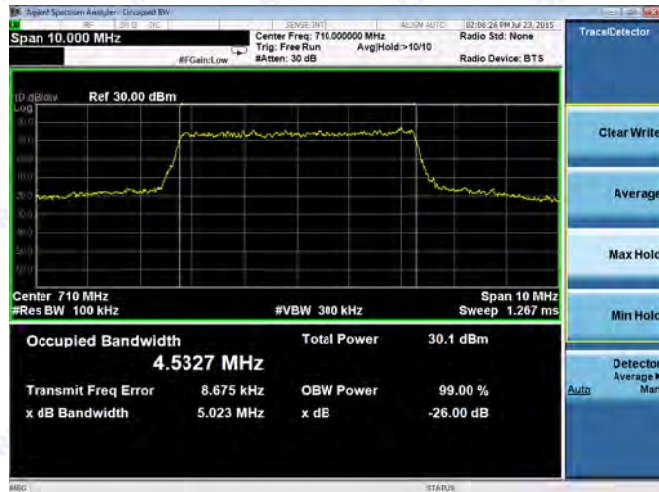
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Middle channel:

Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM





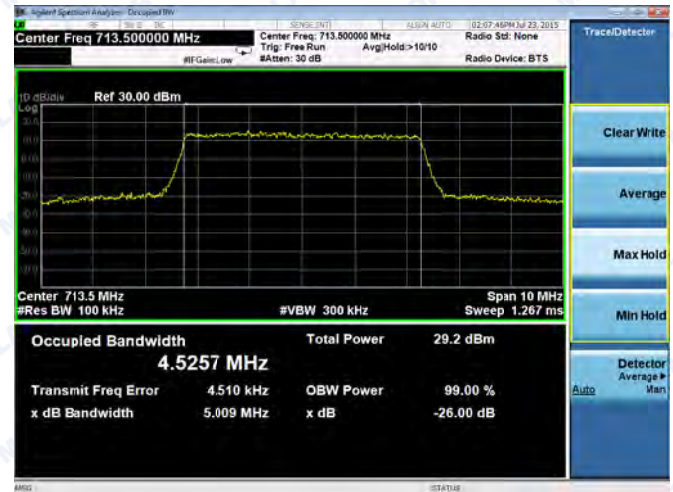
REPORT No.: SZ15070060W02

High channel:

Spectrum Plot of Worst Value

5MHz/QPSK

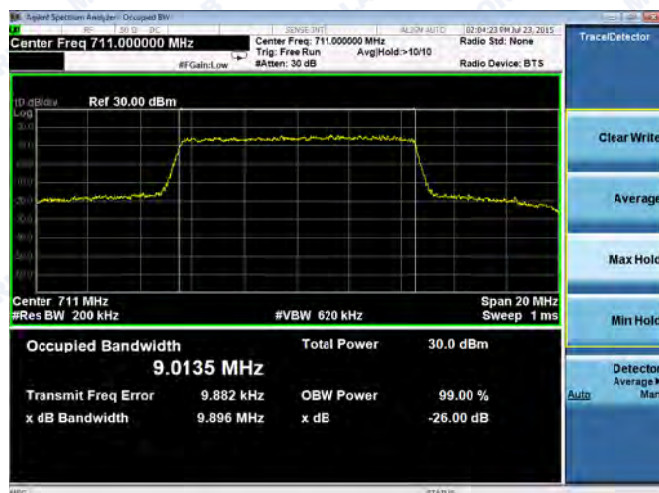
5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM



2.3 Frequency Stability

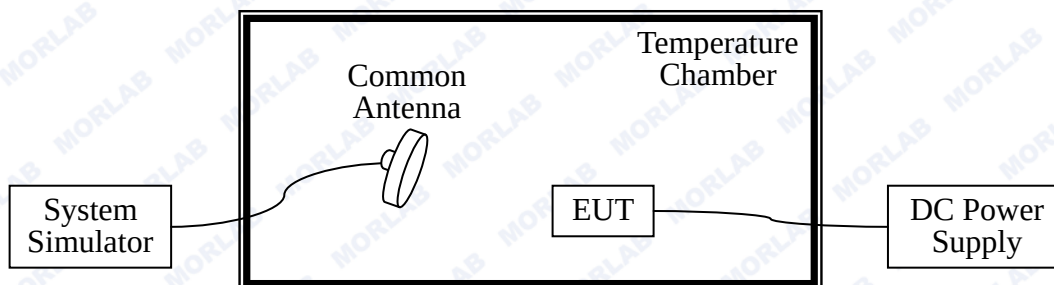
2.3.1 Requirement

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 $+50^{\circ}\text{C}$ 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 $\pm 2.5\text{ppm}$.

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	10.04	PASS
100		-20	-1.01	
100		-10	-1.05	
100		0	8.41	
100		+10	2.32	
100		+20	10.28	
100		+30	7.14	
100		+40	9.33	
100		+50	-1.45	
115	4.2	+20	1.26	
85	3.45	+20	-0.86	

LTE Band 4 – QPSK - Channel 20175 – Frequency 1732.5MHz – RB 6/0				
Limit: 1732.5MHz*2.5ppm=4331.25Hz				
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Result
100	3.8	-30	12.48	PASS
100		-20	-9.74	
100		-10	9.75	
100		0	11.66	
100		+10	10.48	
100		+20	9.4	
100		+30	-10.97	
100		+40	10.75	
100		+50	9.7	
115	4.2	+20	11.48	
85	3.45	+20	12.83	



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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	15.81	<u>PASS</u>
100		-20	-6.41	
100		-10	13.08	
100		0	14.99	
100		+10	13.81	
100		+20	12.73	
100		+30	-7.64	
100		+40	14.08	
100		+50	13.03	
115	4.2	+20	14.81	
85	3.45	+20	16.16	

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	7.76	<u>PASS</u>
100		-20	13.11	
100		-10	-9.68	
100		0	6.57	
100		+10	8.42	
100		+20	7.33	
100		+30	-11.86	
100		+40	7.82	
100		+50	9.71	
115	4.2	+20	11	
85	3.45	+20	11.07	



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%.



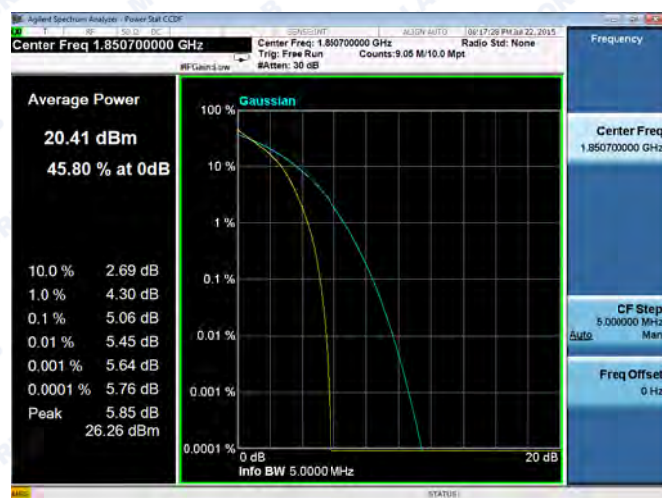
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LTE Band 2 Low channel

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	5.06	5.83	18615	1851.5	5.31	6.07

Spectrum Plot of Worst Value (Low channel)

1.4MHz/QPSK



1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK



3MHz/16QAM





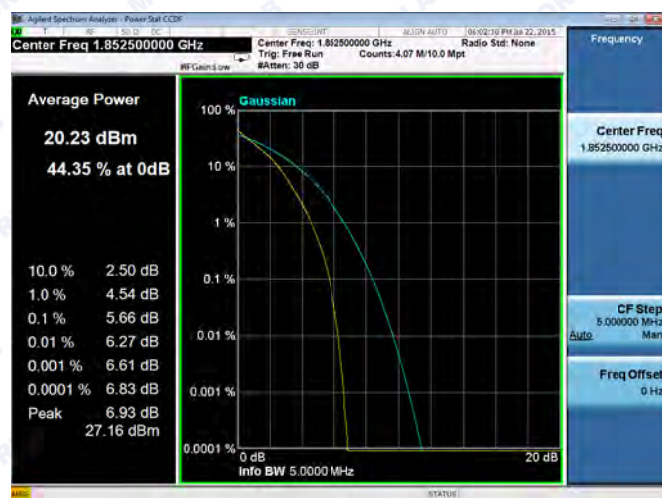
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LTE Band 2 Low channel

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	5.66	6.26	18650	1855.0	4.73	6.15

Spectrum Plot of Worst Value

5MHz/QPSK



5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK



10MHz/16QAM





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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	5.76	6.86	18700	1860.0	6.45	7.21

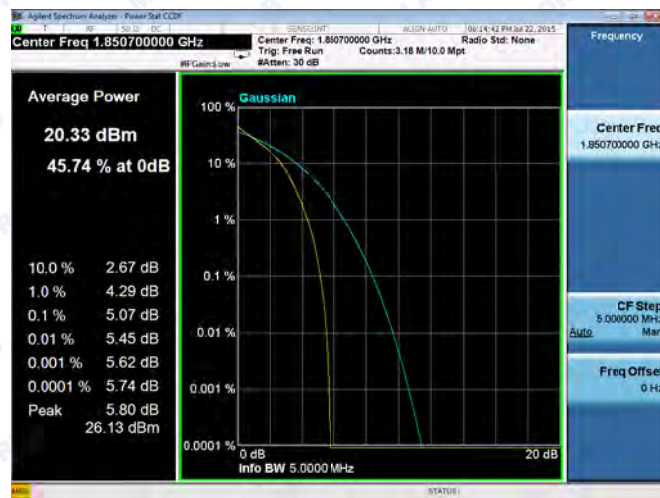
Spectrum Plot of Worst Value**15MHz/QPSK****15MHz/16QAM****Spectrum Plot of Worst Value****20MHz/QPSK****20MHz/16QAM**



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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	5.07	5.85	18900	1880.0	4.82	5.60

Spectrum Plot of Worst Value**1.4MHz/QPSK****1.4MHz/16QAM****Spectrum Plot of Worst Value****3MHz/QPSK****3MHz/16QAM**