



REPORT No.: SZ16050107W12

FCC RF TEST REPORT

APPLICANT : Shakespeare Company,LLC
PRODUCT NAME : WebWatch
MODEL NAME : WCT-1,WC-1
TRADE NAME : WebWatch
BRAND NAME : Shakespeare
FCC ID : I4O-WW01
STANDARD(S) : 47 CFR Part 22, Subpart H
47 CFR Part 24, Subpart E
47 CFR Part 27, Subpart H&L
ISSUE DATE : 2016-07-20



SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

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DIRECTORY

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Change History

Issue	Date	Reason for change
1.0	2016-07-20	First edition

**TEST REPORT DECLARATION**

Applicant	Shakespeare Company,LLC
Applicant Address	6111 Shakespeare Rd, Columbia, SC,29223 United States
Manufacturer	Shakespeare Company,LLC
Manufacturer Address	6111 Shakespeare Rd, Columbia, SC,29223 United States
Product Name	WebWatch
Model Name	WCT-1,WC-1
Brand Name	Shakespeare
HW Version	V1.0
SW Version	V1.0
Test Standards	47 CFR Part 22, Subpart H 47 CFR Part 24, Subpart E 47 CFR Part 27, Subpart H&L
Test Date	2016-05-30 to 2016-06-15
Test Result	PASS

Tested by : Yuan Ling
Yuan Ling

Reviewed by : Qiu Xiaojun
Qiu Xiaojun

Approved by : Peng Huarui
Peng Huarui



1. GENERAL INFORMATION

1.1 EUT Description

EUT Type: WebWatch
Serial No.: (n.a, marked #1 by test site)
Hardware Version.....: V1.0
Software Version..... V1.0
Applicant: Shakespeare Company,LLC
6111 Shakespeare Rd, Columbia, SC,29223 United States
Manufacturer: Shakespeare Company,LLC
6111 Shakespeare Rd, Columbia, SC,29223 United States
Modulation Type.....: LTE Band 2: QPSK, 16QAM
LTE Band 4: QPSK, 16QAM
LTE Band 5: QPSK, 16QAM
LTE Band 17: QPSK, 16QAM
Tx Frequency Range.....: LTE Band 2: 1850MHz ~1910MHz
LTE Band 4: 1710MHz ~1755MHz
LTE Band 5: 824MHz ~ 849MHz
LTE Band 17: 704MHz ~ 716MHz
Rx Frequency Range: LTE Band 2: 1930MHz ~ 1990MHz
LTE Band 4: 2110MHz ~ 2155MHz
LTE Band 5: 869MHz ~ 894MHz
LTE Band 17: 734MHz ~ 746MHz
Emission Designator: 1M10G7D (LTE Band 2, QPSK, BW 1.4MHz)
1M11W7D (LTE Band 2, 16QAM, BW 1.4MHz)
2M72G7D (LTE Band 2, QPSK, BW 3MHz)
2M72 W7D (LTE Band 2, 16QAM, BW 3MHz)
4M53G7D (LTE Band 2, QPSK, BW 5MHz)
4M52 W7D (LTE Band 2, 16QAM, BW 5MHz)
9M01G7D (LTE Band 2, QPSK, BW 10MHz)
9M00W7D (LTE Band 2, 16QAM, BW 10MHz)
13M52G7D (LTE Band 2, QPSK, BW 15MHz)
13M48W7D (LTE Band 2, 16QAM, BW 15MHz)
17M98G7D (LTE Band 2, QPSK, BW 20MHz)
18M05W7D (LTE Band 2, 16QAM, BW 20MHz)
1M11G7D (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)
- 4M53G7D (LTE Band 4, QPSK, BW 5MHz)
- 4M52W7D (LTE Band 4, 16QAM, BW 5MHz)
- 9M00G7D (LTE Band 4, QPSK, BW 10MHz)
- 9M00W7D (LTE Band 4, 16QAM, BW 10MHz)
- 13M48G7D (LTE Band 4, QPSK, BW 15MHz)
- 13M48W7D (LTE Band 4, 16QAM, BW 15MHz)
- 17M98G7D (LTE Band 4, QPSK, BW 20MHz)
- 18M03W7D (LTE Band 4, 16QAM, BW 20MHz)
- 1M10G7D (LTE Band 5, QPSK, BW 1.4MHz)
- 1M10W7D (LTE Band 5, 16QAM, BW 1.4MHz)
- 2M71G7D (LTE Band 5, QPSK, BW 3MHz)
- 2M72W7D (LTE Band 5, 16QAM, BW 3MHz)
- 4M52G7D (LTE Band 5, QPSK, BW 5MHz)
- 4M52W7D (LTE Band 5, 16QAM, BW 5MHz)
- 8M99G7D (LTE Band 5, QPSK, BW 10MHz)
- 8M99W7D (LTE Band 5, 16QAM, BW 10MHz)
- 4M54G7D (LTE Band 17, QPSK, BW 5MHz)
- 4M53W7D (LTE Band 17, 16QAM, BW 5MHz)
- 8M98G7D (LTE Band 17, QPSK, BW 10MHz)
- 9M01W7D (LTE Band 17, 16QAM, BW 10MHz)

Antenna Type: Dedicated Antenna
 Power Supply 12V 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 22, 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 22 (10-1-09 Edition)	Public Mobile Services
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, 22.917 24.238, 27.53(g)	Frequency Stability	<u>PASS</u>
4	2.1055, 22.355 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, 22.917, 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, 22.917, 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 22H & 24E & 27H&L REQUIREMENTS

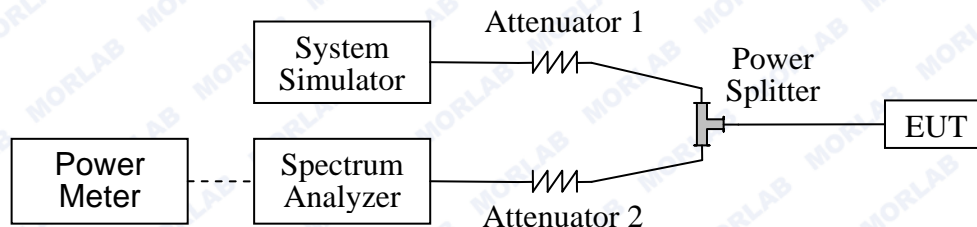
2.1 Transmitter Conducted Output Power

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	2016.03.02	2017.03.01
Spectrum Analyzer	Rohde& Schwarz	FSL	10246	2016.03.02	2017.03.01
Spectrum Analyzer	Agilent	E4445A	MY44200685	2016.03.02	2017.03.01
Power Meter	Agilent	E4418B	GB43318055	2016.03.02	2017.03.01
Power Meter	Agilent	E4418B	GB43318055	2016.03.02	2017.03.01
Power Sensor	Agilent	8482A	MY41091706	2016.03.02	2017.03.01
Power Splitter	Weinschel	1506A	NW521	2016.03.02	2017.03.01
Attenuator 1	Resnet	20dB	(n.a.)	2016.03.02	2017.03.01
Attenuator 2	Resnet	3dB	(n.a.)	2016.03.02	2017.03.01

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	22.10
					1	49	21.84
					1	99	21.50
					50	0	21.05
					50	25	21.12
					50	49	20.49
				16-QAM	100	0	20.96
					1	0	21.04
					1	49	21.82
					1	99	20.40
					50	0	20.59
					50	25	20.64
		M 18900	1880	QPSK	50	49	20.03
					100	0	19.96
					1	0	21.47
					1	49	21.42
					1	99	21.75
					50	0	20.31
				16-QAM	50	25	20.22
					50	49	20.55
					100	0	20.39
					1	0	20.68
					1	49	20.61
					1	99	20.93
H 19100	1900	QPSK	50	0	20.87		
			50	25	20.63		
			50	49	19.34		
			100	0	19.36		
			1	0	21.89		
			1	49	21.71		
		16-QAM	1	99	21.89		
			50	0	20.72		
			50	25	20.54		
			50	49	20.92		
			100	0	20.81		
			1	0	21.06		
1	49	20.84					
1	99	20.96					
50	0	20.56					
50	25	20.75					
50	49	20.36					
100	0	19.87					



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	21.71
					1	37	21.23
					1	74	21.54
					36	0	21.01
					36	18	21.13
					36	35	21.07
				75	0	21.05	
				16-QAM	1	0	21.03
					1	37	21.11
					1	74	21.08
					36	0	21.01
					36	18	20.58
		36	35		20.68		
		M 18900	1880	QPSK	75	0	20.14
					1	0	22.01
					1	37	21.98
					1	74	21.56
					36	0	21.05
					36	18	21.36
				16-QAM	36	35	21.08
					75	0	21.10
					1	0	21.40
					1	37	21.22
					1	74	21.36
					36	0	21.51
		H 19125	1902.5	QPSK	36	18	21.29
					36	35	21.04
					75	0	20.05
					1	0	21.40
					1	37	21.61
					1	74	21.52
				16-QAM	36	0	20.81
					36	18	21.03
					36	35	20.77
					75	0	20.79
					1	0	20.66
1	37				20.45		
1	74	20.78					
36	0	20.89					
36	18	20.36					
36	35	20.03					
75	0	19.90					



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	21.49
					1	24	21.32
					1	49	21.02
					25	0	20.88
					25	12	20.76
					25	24	20.69
				50	0	20.97	
				16-QAM	1	0	20.78
					1	24	20.59
					1	49	20.67
					25	0	20.36
					25	12	20.42
		25	24		20.26		
		M 18900	1880	QPSK	1	0	21.99
					1	24	21.85
					1	49	21.94
					25	0	21.03
					25	12	21.11
					25	24	21.07
				50	0	20.96	
				16-QAM	1	0	21.42
					1	24	21.31
					1	49	21.39
					25	0	21.44
					25	12	21.54
		25	24		21.23		
		H 19150	1905	QPSK	1	0	21.67
					1	24	21.54
					1	49	21.66
					25	0	20.89
25	12				20.78		
25	24				20.96		
50	0			20.69			
16-QAM	1			0	20.37		
	1			24	20.41		
	1			49	20.39		
	25			0	20.44		
	25			12	20.36		
	25	24	20.01				
50	0	19.87					



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	22.05
					1	12	22.11
					1	24	22.01
					12	0	20.85
					12	6	21.03
					12	11	20.96
				16-QAM	25	0	20.89
					1	0	21.53
					1	12	21.67
					1	24	21.66
					12	0	21.52
					12	6	21.47
		M 18900	1880	QPSK	12	11	21.03
					25	0	19.91
					1	0	21.96
					1	12	21.85
					1	24	21.74
					12	0	21.04
				16-QAM	12	6	21.63
					12	11	21.00
					25	0	20.94
					1	0	20.78
					1	12	20.45
					1	24	20.61
		H 19175	1907.5	QPSK	12	0	20.98
					12	6	20.31
					12	11	20.12
					25	0	19.98
					1	0	22.01
					1	12	21.95
16-QAM	1			24	21.85		
	12			0	20.90		
	12			6	20.66		
	12			11	20.54		
	25			0	20.51		
	1			0	21.17		
1	12	21.24					
1	24	21.10					
12	0	21.22					
12	6	21.36					
12	11	21.02					
25	0	19.66					



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	21.88
					1	14	21.94
					8	0	21.63
					8	4	21.52
					8	7	21.34
				15	0	21.22	
				16-QAM	1	0	21.23
					1	7	21.12
					1	14	21.10
					8	0	21.47
					8	4	21.03
		8	7		21.04		
		M 18900	1880	QPSK	1	0	21.84
					1	7	21.88
					1	14	21.82
					8	0	21.89
					8	4	21.74
					8	7	21.65
				15	0	20.92	
				16-QAM	1	0	21.25
					1	7	21.36
					1	14	21.44
					8	0	21.21
					8	4	21.25
		8	7		21.03		
		H 19185	1908.5	QPSK	1	0	21.66
					1	7	20.95
					1	14	20.51
					8	0	20.48
8	4				20.36		
8	7				20.38		
15	0			20.51			
16-QAM	1			0	20.53		
	1			7	20.61		
	1			14	20.36		
	8			0	20.16		
	8			4	20.13		
	8	7	20.02				
15	0	19.72					



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	21.94
					1	2	22.01
					1	5	22.05
					3	0	22.01
					3	1	22.05
					3	2	22.09
				6	0	21.06	
				16-QAM	1	0	21.07
					1	2	20.93
					1	5	21.13
					3	0	21.21
					3	1	21.14
		3	2		21.36		
		M 18900	1880	QPSK	1	0	21.37
					1	2	21.31
					1	5	21.43
					3	0	21.52
					3	1	21.41
					3	2	21.21
				6	0	30.32	
				16-QAM	1	0	20.11
					1	2	19.87
					1	5	20.16
					3	0	20.41
					3	2	20.23
		3	5		20.01		
		H 19193	1909.3	QPSK	1	0	20.55
					1	2	20.43
					1	5	21.72
					3	0	21.89
3	1				21.77		
3	2				21.75		
6	0			20.96			
16-QAM	1			0	20.55		
	1			2	20.44		
	1			5	20.38		
	3			0	20.41		
	3			1	20.36		
	3	2	20.21				
6	0	19.93					



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	22.28
					1	49	22.21
					1	99	21.82
					50	0	21.03
					50	25	21.05
					50	49	20.76
				16-QAM	100	0	20.96
					1	0	21.39
					1	49	21.24
					1	99	20.89
					50	0	20.74
					50	25	20.63
		M 20175	1732.5	QPSK	50	49	20.34
					100	0	19.89
					1	0	22.28
					1	49	21.84
					1	99	21.98
					50	0	20.73
				16-QAM	50	25	20.72
					50	49	20.70
					100	0	20.71
					1	0	21.84
					1	49	21.54
					1	99	21.70
		H 20300	1745.0	QPSK	50	0	21.72
					50	25	21.36
					50	49	20.51
					100	0	19.74
					1	0	21.82
					1	49	21.65
16-QAM	1			99	21.84		
	50			0	20.77		
	50			25	20.64		
	50			49	20.76		
	100			0	20.74		
	1			0	21.49		
1	49	21.52					
1	99	21.45					
50	0	21.31					
50	25	21.02					
50	49	21.11					
100	0	19.73					



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	22.53
					1	37	22.50
					1	74	21.80
					36	0	21.80
					36	18	21.77
					36	35	21.63
				75	0	21.71	
				16-QAM	1	0	21.74
					1	37	21.45
					1	74	21.36
					36	0	21.71
					36	18	21.26
		36	35		21.32		
		M 20175	1732.5	QPSK	1	0	22.25
					1	37	21.50
					1	74	21.73
					36	0	20.82
					36	18	20.45
					36	35	20.36
				75	0	20.70	
				16-QAM	1	0	21.40
					1	37	21.13
					1	74	21.36
					36	0	21.47
					36	18	21.24
		36	35		20.29		
		H 20325	1747.5	QPSK	1	0	21.88
					1	37	22.62
					1	74	22.67
					36	0	21.26
36	18				21.17		
36	35				21.75		
75	0			21.62			
16-QAM	1			0	20.99		
	1			37	20.85		
	1			74	21.74		
	36			0	20.36		
	36			18	20.41		
	36	35	20.39				
75	0	20.71					



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	22.49
					1	24	22.64
					1	49	22.02
					25	0	21.70
					25	12	21.54
					25	24	21.36
				16-QAM	50	0	21.72
					1	0	21.70
					1	24	21.48
					1	49	21.40
					25	0	21.36
					25	12	21.25
		M 20175	1732.5	QPSK	25	24	21.31
					50	0	20.71
					1	0	21.66
					1	24	21.36
					1	49	21.15
					25	0	20.70
				16-QAM	25	12	21.03
					25	24	21.08
					50	0	20.65
					1	0	21.14
					1	24	21.04
					1	49	20.59
		H 20350	1750.0	QPSK	25	0	20.67
					25	12	20.96
					25	24	20.36
					50	0	19.82
					1	0	22.47
					1	24	22.64
16-QAM	1			49	22.71		
	25			0	21.61		
	25			12	21.54		
	25			24	21.38		
	50			0	21.69		
	1			0	21.12		
					1	24	21.44
					1	49	21.42
					25	0	21.39
					25	12	21.30
					25	24	21.23
					50	0	20.72



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	22.73
					1	12	22.78
					1	24	22.72
					12	0	21.64
					12	6	21.53
					12	11	21.58
				25	0	21.61	
				16-QAM	1	0	22.15
					1	12	22.23
					1	24	22.08
					12	0	22.04
					12	6	22.08
		12	11		21.58		
		M 20175	1732.5	QPSK	1	0	21.82
					1	12	21.22
					1	24	21.74
					12	0	20.51
					12	6	21.36
					12	11	20.69
				25	0	20.47	
				16-QAM	1	0	21.38
					1	12	21.12
					1	24	21.31
					12	0	21.20
					12	6	21.36
		12	11		21.01		
		25	0	19.69			
		H 20375	1752.5	QPSK	1	0	22.59
					1	12	22.61
					1	24	21.85
					12	0	21.66
					12	6	21.42
					12	11	21.36
				25	0	21.64	
				16-QAM	1	0	21.91
					1	12	21.62
1	24				21.58		
12	0				21.45		
12	6				21.37		
12	11	21.31					
25	0	20.63					



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	22.41
					1	7	22.45
					1	14	22.43
					8	0	22.05
					8	4	22.34
					8	7	22.11
				15	0	21.62	
				16-QAM	1	0	21.68
					1	7	21.36
					1	14	21.54
					8	0	21.18
					8	4	21.02
		8	7		21.01		
		M 20175	1732.5	QPSK	1	0	22.22
					1	7	21.96
					1	14	22.09
					8	0	22.03
					8	4	22.07
					8	7	21.56
				15	0	21.28	
				16-QAM	1	0	21.73
					1	7	21.48
					1	14	21.57
					8	0	21.41
					8	4	21.53
		8	7		21.49		
		H 20385	1753.5	QPSK	1	0	22.53
					1	7	22.56
					1	14	22.54
					8	0	22.34
8	4				22.12		
8	7				21.78		
15	0			21.59			
16-QAM	1			0	21.34		
	1			7	21.22		
	1			14	21.04		
	8			0	21.17		
	8			4	21.36		
	8	7	21.08				
15	0	20.56					



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	22.39
					1	2	22.13
					1	5	22.17
					3	0	22.29
					3	1	21.08
					3	2	22.15
				16-QAM	6	0	21.41
					1	0	21.04
					1	2	20.85
					1	5	21.06
					3	0	21.14
					3	1	21.03
		M 20175	1732.5	QPSK	3	2	21.21
					6	0	20.33
					1	0	21.76
					1	2	21.83
					1	5	21.79
					3	0	21.92
				16-QAM	3	1	21.84
					3	2	21.99
					6	0	20.84
					1	0	20.28
					1	2	20.36
					1	5	20.49
		H 20393	1754.3	QPSK	3	0	20.36
					3	2	20.41
					3	5	20.31
					6	0	19.87
					1	0	21.83
					1	2	21.91
16-QAM	1			5	21.82		
	3			0	21.96		
	3			1	21.87		
	3			2	21.94		
	6			0	20.97		
	1			0	20.32		
					1	2	20.52
					1	5	20.46
					3	0	20.56
					3	1	20.09
					3	2	20.14
					6	0	20.11



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 5	10MHz	L 20450	829	QPSK	1	0	22.53
					1	24	22.58
					1	49	22.54
					25	0	21.45
					25	12	21.36
					25	24	21.47
				50	0	21.51	
				16-QAM	1	0	20.96
					1	24	20.95
					1	49	21.43
					25	0	21.31
					25	12	21.25
		25	24		21.06		
		M 20525	836.5	QPSK	1	0	22.47
					1	24	22.29
					1	49	21.03
					25	0	21.36
					25	12	21.27
					25	24	21.09
				50	0	21.49	
				16-QAM	1	0	21.92
					1	24	21.78
					1	49	20.89
					25	0	20.36
					25	12	20.14
		25	24		20.22		
		H 20600	844	QPSK	1	0	22.61
					1	24	22.36
					1	49	22.25
					25	0	21.41
25	12				21.36		
25	24				21.36		
50	0			21.35			
16-QAM	1			0	21.37		
	1			24	21.23		
	1			49	21.29		
	25			0	21.10		
	25			12	21.14		
	25	24	21.31				
50	0	20.49					



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 5	5MHz	L 20425	826.5	QPSK	1	0	21.70
					1	12	21.41
					1	24	21.36
					12	0	20.27
					12	6	20.31
					12	11	20.25
				16-QAM	25	0	20.43
					1	0	21.17
					1	12	21.01
					1	24	21.14
					12	0	21.03
					12	6	21.01
		M 20525	836.5	QPSK	12	11	21.06
					25	0	19.57
					1	0	21.22
					1	12	20.61
					1	24	20.99
					12	0	19.77
				16-QAM	12	6	20.03
					12	11	19.85
					25	0	19.74
					1	0	20.07
					1	12	20.01
					1	24	20.03
		H 20625	846.5	QPSK	12	0	19.85
					12	6	19.46
					12	11	19.64
					25	0	18.91
					1	0	22.01
					1	12	22.03
				16-QAM	1	24	21.95
					12	0	20.72
					12	6	21.69
					12	11	21.36
					25	0	20.45
					1	0	21.51
16-QAM	1	12	21.43				
	1	24	21.36				
	12	0	21.38				
	12	6	21.03				
	12	11	20.58				
	25	0	19.67				



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 5	3MHz	L 20415	825.5	QPSK	1	0	21.60
					1	7	21.56
					1	14	21.74
					8	0	21.68
					8	4	20.51
					8	7	20.75
				15	0	20.68	
				16-QAM	1	0	21.04
					1	7	21.07
					1	14	21.11
					8	0	21.36
					8	4	21.21
		8	7		21.03		
		M 20525	836.5	QPSK	1	0	21.28
					1	7	21.03
					1	14	21.11
					8	0	21.23
					8	4	21.30
					8	7	20.10
				15	0	20.13	
				16-QAM	1	0	20.72
					1	7	20.50
					1	14	20.56
					8	0	20.41
					8	4	20.24
		8	7		20.23		
		15	0	19.33			
		H 20635	847.5	QPSK	1	0	21.87
					1	7	21.35
					1	14	21.24
8	0				21.13		
8	4				21.05		
8	7				20.74		
15	0			20.69			
16-QAM	1			0	20.84		
	1			7	20.67		
	1			14	20.52		
	8			0	20.31		
	8			4	20.37		
	8	7	20.26				
15	0	19.89					



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 5	1.4MHz	L 20407	824.7	QPSK	1	0	21.44
					1	2	21.34
					1	5	21.22
					3	0	21.50
					3	1	21.47
					3	2	21.36
				6	0	20.53	
				16-QAM	1	0	20.71
					1	2	20.34
					1	5	20.47
					3	0	20.31
					3	1	20.22
		3	2		20.10		
		M 20525	836.5	QPSK	1	0	21.10
					1	2	20.97
					1	5	21.04
					3	0	21.06
					3	1	21.04
					3	2	21.09
				6	0	20.14	
				16-QAM	1	0	20.03
					1	2	20.11
					1	5	20.06
					3	0	20.12
					3	2	20.31
		3	5		20.05		
		H 20643	848.3	QPSK	1	0	21.38
					1	2	21.24
					1	5	21.34
					3	0	21.28
3	1				21.31		
3	2				21.22		
6	0			20.51			
16-QAM	1			0	20.43		
	1			2	20.34		
	1			5	20.37		
	3			0	20.35		
	3			1	20.37		
	3	2	20.01				
6	0	19.78					



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 17	10MHz	L 23780	709	QPSK	1	0	23.04
					1	24	22.96
					1	49	22.81
					25	0	21.79
					25	12	21.67
					25	24	21.83
		50	0	21.75			
		16-QAM	1	0	22.45		
			1	24	22.34		
			1	49	22.33		
			25	0	22.21		
			25	12	22.41		
	25		24	22.01			
	50	0	20.77				
		M 23790	710	QPSK	1	0	22.88
					1	24	22.87
					1	49	22.85
					25	0	21.86
					25	12	21.73
	25				24	21.71	
	50	0	21.79				
		16-QAM	1	0	21.19		
			1	24	21.33		
			1	49	21.16		
25			0	21.13			
25			12	21.05			
25	24		21.01				
50	0	20.75					
	H 23800	711	QPSK	1	0	22.93	
				1	24	22.75	
				1	49	22.34	
				25	0	21.83	
				25	12	21.67	
25				24	21.78		
50	0	21.77					
	16-QAM	1	0	21.30			
		1	24	21.22			
		1	49	21.94			
		25	0	21.77			
		25	12	21.87			
25		24	21.34				
50	0	20.76					



Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		Average Power (dBm)
					RB Size	RB Offset	
LTE Band 17	5MHz	L 23755	706.5	QPSK	1	0	23.21
					1	12	23.10
					1	24	23.15
					12	0	21.89
					12	6	21.45
					12	11	21.90
				25	0	21.91	
				16-QAM	1	0	22.60
					1	12	22.07
					1	24	22.45
					12	0	22.31
					12	6	22.43
		12	11		22.02		
		M 23790	710	QPSK	1	0	22.73
					1	12	22.91
					1	24	22.89
					12	0	21.92
					12	6	21.37
					12	11	21.92
				25	0	21.82	
				16-QAM	1	0	21.16
					1	12	21.28
					1	24	21.73
					12	0	21.56
					12	6	21.34
		12	11		20.47		
		25	0	20.88			
		H 23825	713.5	QPSK	1	0	22.87
					1	12	22.71
					1	24	22.43
					12	0	21.86
					12	6	21.37
					12	11	21.60
				25	0	21.76	
				16-QAM	1	0	21.16
					1	12	21.13
1	24				20.89		
12	0				20.56		
12	6				20.34		
12	11	20.30					
25	0	21.73					



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	1.1043	1.1003	18615	1851.5	2.7139	2.7103
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	1.340	1.303	18615	1851.5	3.059	3.068

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	4.5168	4.5137	18650	1855.0	8.9576	8.9644
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	5.102	5.093	18650	1855.0	9.889	9.894

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	13.435	13.459	18700	1860.0	17.949	17.961
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	14.89	14.85	18700	1860.0	19.67	19.83



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	1.0998	1.1033	18900	1880.0	2.7167	2.7234

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	1.317	1.334	18900	1880.0	3.048	3.080

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	4.5267	4.5162	18900	1880.0	8.9962	8.9804

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	5.107	5.133	18900	1880.0	10.01	9.924

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	13.502	13.480	18900	1880.0	17.979	18.012

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	15.11	14.88	18900	1880.0	19.75	19.80



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	1.0991	1.1068	19184	1908.4	2.7137	2.7171

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	1.316	1.346	19184	1908.4	3.064	3.084

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	4.5237	4.5223	19150	1905.0	9.0123	8.9998

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	5.057	5.066	19150	1905.0	10.04	10.04

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	13.524	13.488	19100	1900.0	17.981	18.045

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	15.09	15.01	19100	1900.0	19.72	19.65

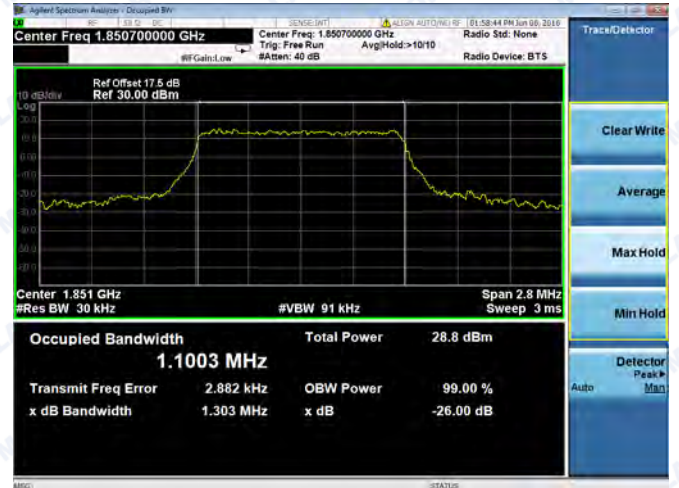
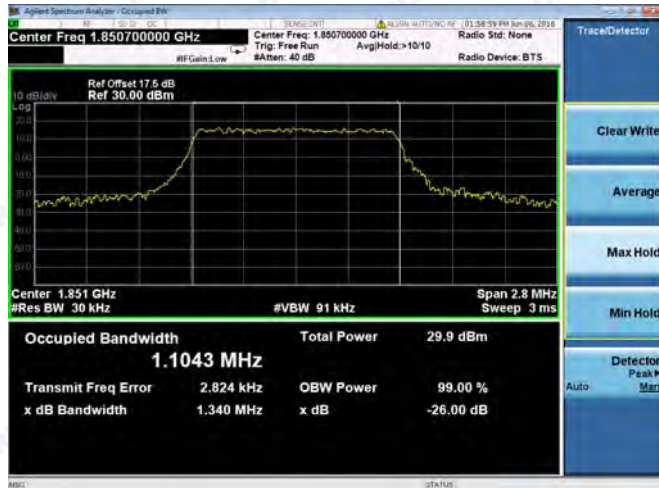


Low channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

1.4MHz/16QAM



Spectrum Plot of Worst Value

3MHz/QPSK

3MHz/16QAM

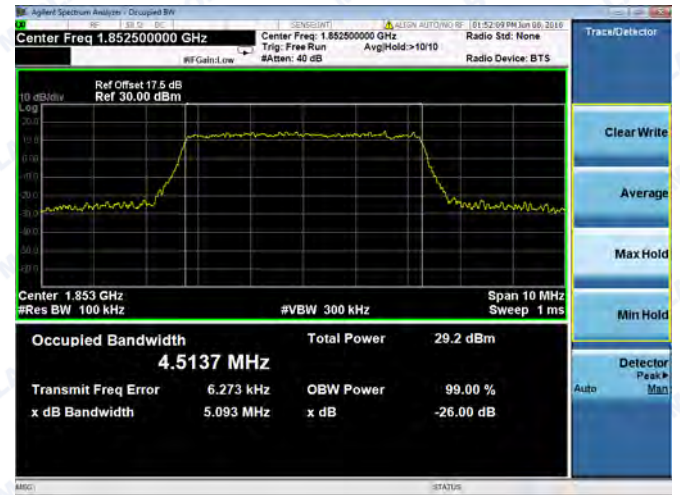




Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

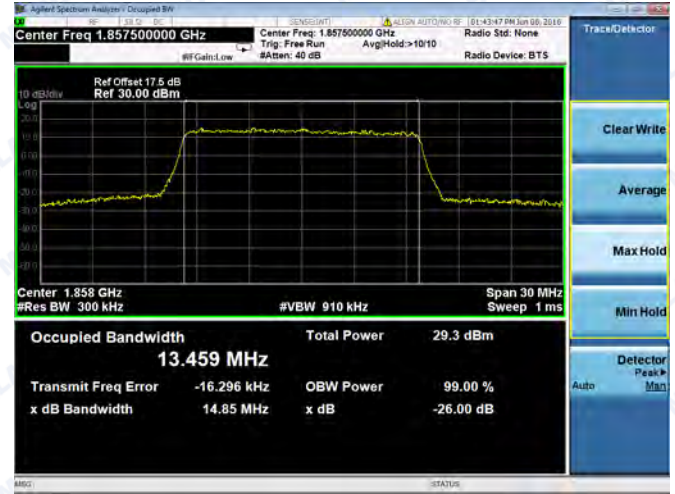




Spectrum Plot of Worst Value

15MHz/QPSK

15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM



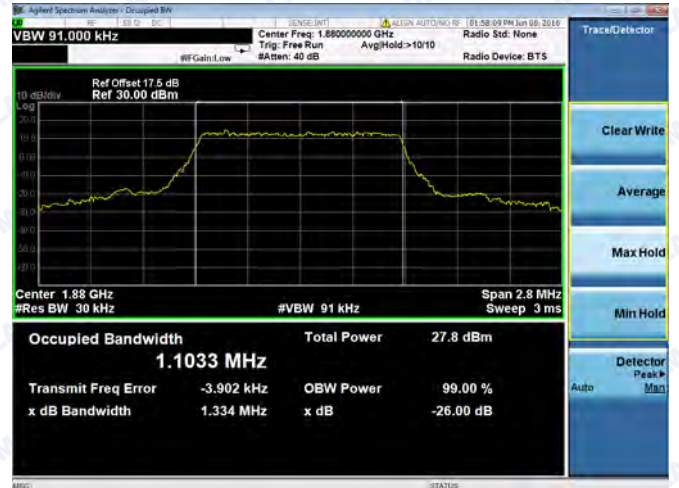


Middle channel:

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

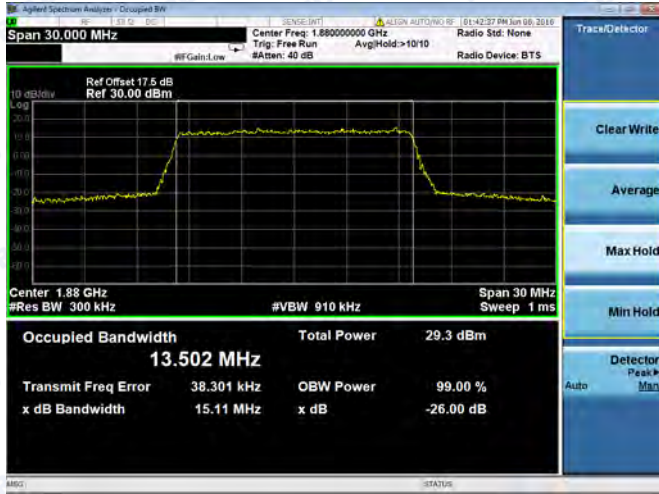




Spectrum Plot of Worst Value

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

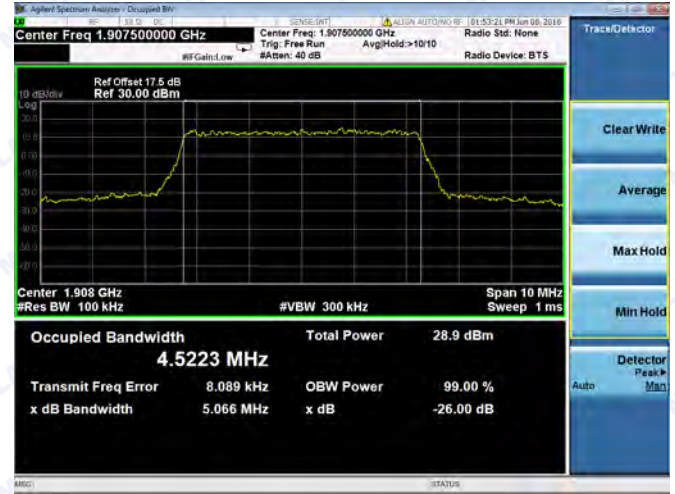




Spectrum Plot of Worst Value

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	1.1050	1.1039	19965	1711.5	2.7169	2.7072

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	1.337	1.290	19965	1711.5	3.081	3.064

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	4.5291	4.5206	20000	1715.0	8.9718	8.9783

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	5.166	5.127	20000	1715.0	9.885	9.882

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	13.419	13.435	20050	1720.0	17.923	17.943

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	14.91	20050	1720.0	19.69	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
20175	1732.5	1.0935	1.1031	20175	1732.5	2.7178	2.7189

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	1.300	1.344	20175	1732.5	3.026	3.104

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	4.5265	4.5211	20175	1732.5	9.0052	9.0035

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	5.099	5.156	20175	1732.5	9.865	9.860

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	13.485	13.480	20175	1732.5	17.984	18.034

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	15.01	14.88	20175	1732.5	19.64	19.82



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	1.0983	1.1053	20384	1753.4	2.7111	2.7237
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	1.308	1.326	20384	1753.4	3.037	3.077

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20375	1752.5	4.5291	4.5235	20350	1750.0	8.9795	8.9818
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	5.051	5.130	20350	1750.0	9.945	9.885

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	13.460	13.458	20300	1745.0	17.969	17.999
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	15.10	14.84	20300	1745.0	19.67	19.77



Low channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

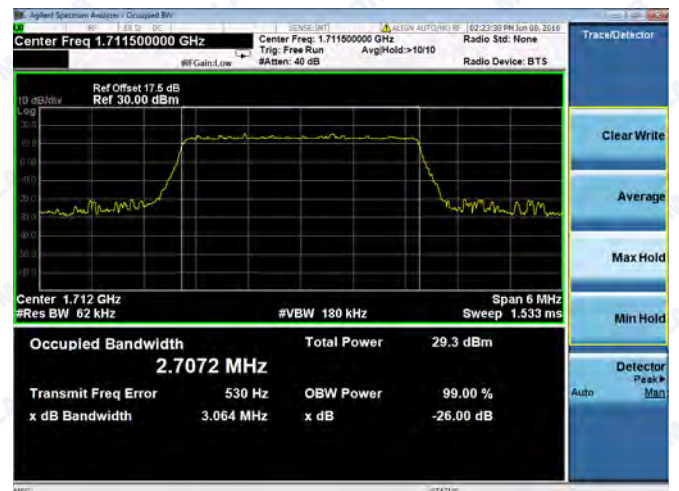
1.4MHz/16QAM



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

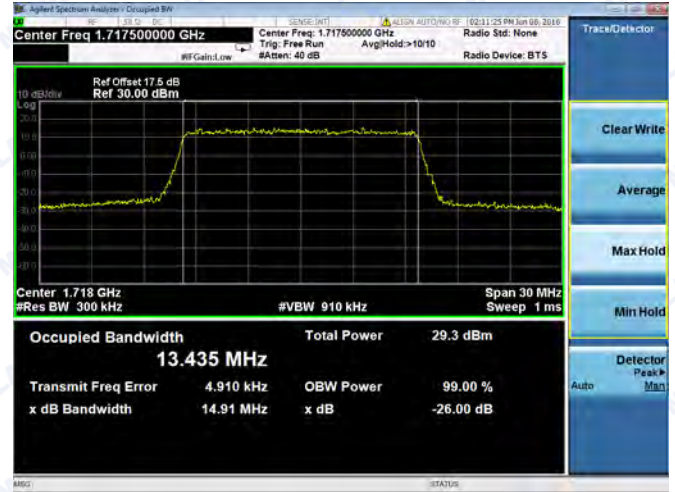




Spectrum Plot of Worst Value

15MHz/QPSK

15MHz/16QAM



Spectrum Plot of Worst Value

20MHz/QPSK

20MHz/16QAM



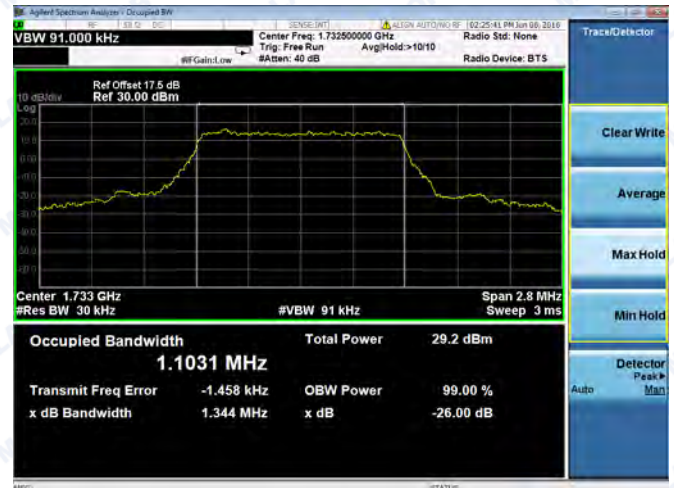


Middle channel:

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

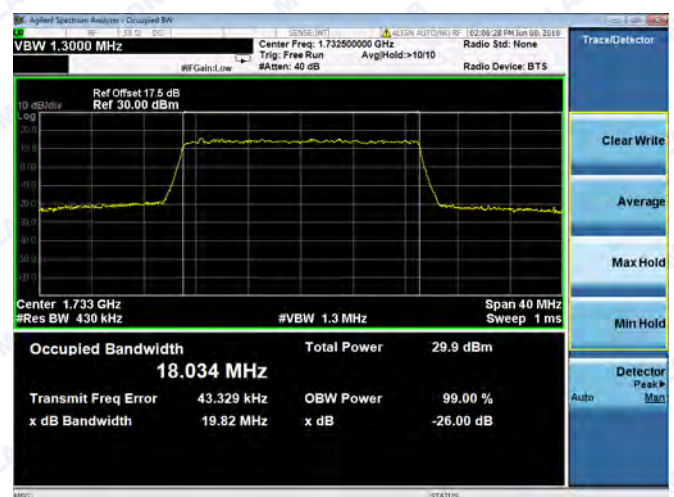
15MHz/16QAM



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 5

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
20407	824.7	1.1010	1.1000	20415	825.5	2.7053	2.7005
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20407	824.7	1.330	1.281	20415	825.5	3.071	3.026

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20425	826.5	4.5226	4.5175	20450	829.0	8.9868	8.9857
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20425	826.5	5.132	5.134	20450	829.0	9.940	8.254

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
20525	836.5	1.0968	1.0958	20525	836.5	2.7108	2.7223
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20525	836.5	1.302	1.309	20525	836.5	3.042	3.074



Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20525	836.5	4.5095	4.5077	20525	836.5	8.9808	8.9775
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20525	836.5	5.046	5.092	20525	836.5	10.03	9.887

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
20643	848.3	1.0951	1.1023	20635	847.5	2.7088	2.7110
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20643	848.3	1.317	1.323	20635	847.5	3.087	3.103

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20625	846.5	4.5082	4.5152	20600	844.0	9.0120	8.9948
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20625	846.5	5.055	5.087	20600	844.0	9.958	9.958

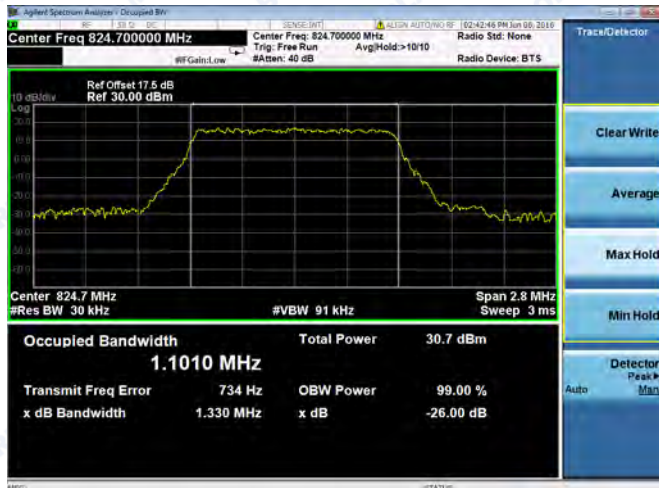


Low channel:

Spectrum Plot of Worst Value

1.4MHz/QPSK

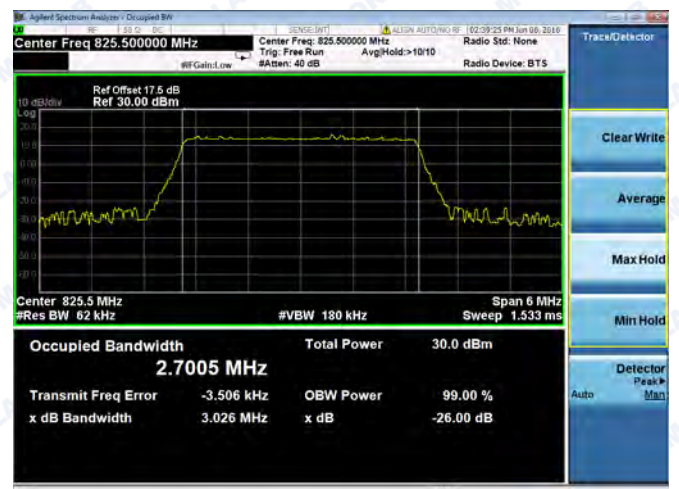
1.4MHz/16QAM



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



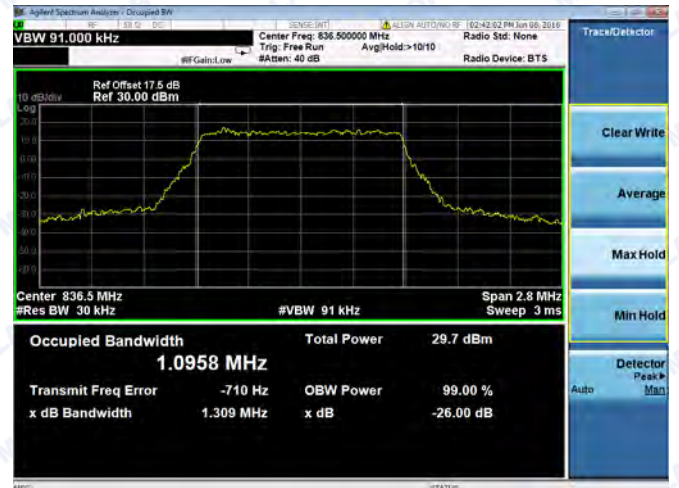


Middle channel:

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



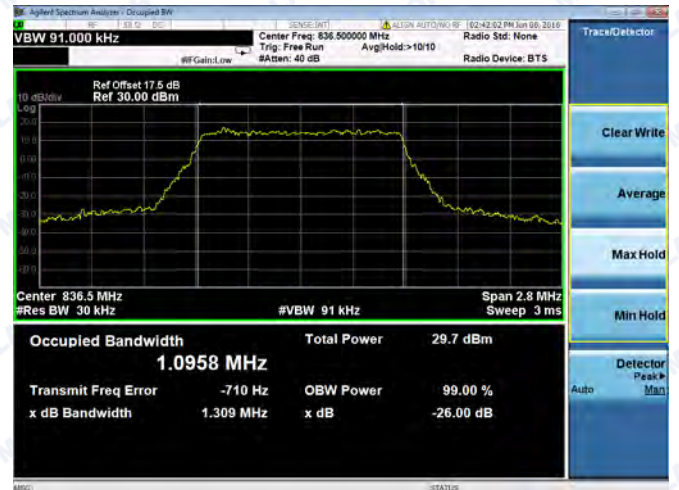


High channel:

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





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	4.5279	4.5259	23780	709.0	8.9565	8.9638

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	5.137	5.086	23780	709.0	9.814	9.855

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	4.5172	4.5253	23790	710	8.9762	8.9924

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23790	710	5.068	5.144	23790	710	9.975	9.835

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	4.5353	4.5185	23800	711	8.9824	9.0088

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz)	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23825	713.5	5.035	5.078	23800	711	9.891	9.859



Low channel:

Spectrum Plot of Worst Value

5MHz/QPSK

5MHz/16QAM



Spectrum Plot of Worst Value

10MHz/QPSK

10MHz/16QAM

