FCC TEST REPORT

TESTING
CNAS L3572

Issued to

Shenzhen OnePlus Science and Technology Co.,Ltd

For

Mobile Phone

Model Name:	ONE A0001
Trade Name:	ONEPLUS
Brand Name:	ONEPLUS
FCC ID :	2ABZ2-A0001
Standard:	47 CFR Part 27, Subpart L
Test date:	2014-4-1 to 2014-4-22
Issue date:	2014-4-25

By

Shenzhen Morlab Communications Technology Co., Ltd.
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Tested by Liu Zhisen
Liu Zhisen
(Test Engineer)
Date 2014.4.25.

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Date 2014.4.25

Reviewed by Peng Huarui
Peng Huarui
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Date 2014.4.25

TABLE OF CONTENTS

Change History		
Issue	Date	Reason for change
1.0	Apr 25, 2014	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type	Mobile Phone
Serial No.	(n.a, marked #1 by test site)
Hardware Version	214001
Software Version	A0001_12_140215
Applicant	Shenzhen OnePlus Science and Technology Co.,Ltd 18C01 Shenye Tairan Building, Binhe Road North, Futian District, Shenzhen
Manufacturer	Shenzhen OnePlus Science and Technology Co.,Ltd 18C01 Shenye Tairan Building, Binhe Road North, Futian District, Shenzhen
Modulation Type	LTE Band 17: QPSK, 16QAM LTE Band 4: QPSK, 16QAM
Tx Frequency Range	LTE Band 17: 704MHz~716MHz LTE Band 4: 1710MHz~1755MHz
Rx Frequency Range	LTE Band 17: 734MHz~746MHz LTE Band 4: 2110MHz~2155MHz
Emission Designator	4M53G7D (LTE Band 17, QPSK, BW 5MHz) 4M53W7D (LTE Band 17, 16QAM, BW 5MHz) 9M07G7D (LTE Band 17, QPSK, BW 10MHz) 9M06W7D (LTE Band 17, 16QAM, BW 10MHz) 1M11G7D (LTE Band 4, QPSK, BW 1.4MHz) 1M10W7D (LTE Band 4, 16QAM, BW 1.4MHz) 2M74G7D (LTE Band 4, QPSK, BW 3MHz) 2M76 W7D (LTE Band 4, 16QAM, BW 3MHz) 4M52G7D (LTE Band 4, QPSK, BW 5MHz) 4M53 W7D (LTE Band 4, 16QAM, BW 5MHz) 9M06G7D (LTE Band 4, QPSK, BW 10MHz) 9M06 W7D (LTE Band 4, 16QAM, BW 10MHz) 13M49G7D (LTE Band 4, QPSK, BW 15MHz) 13M48 W7D (LTE Band 4, 16QAM, BW 15MHz) 18M43G7D (LTE Band 4, QPSK, BW 20MHz) 18M44W7D (LTE Band 4, 16QAM, BW 20MHz)
Antenna Type	PIFA Antenna
Power Supply	3.8V DC Power

1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2 and Part 27 for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 27	Miscellaneous Wireless Communications Services

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	2.1046	Transmitter Conducted Output Power	PASS
2	27.50(d)(5)	Occupied Bandwidth	PASS
3	2.1049,27.53(g)	Frequency Stability	PASS
4	2.1055, 27.54	Peak to Average Radio	PASS
5	2.1051,2.105727.53(g)	Conducted Spurious Emissions	PASS
6	2.1051,2.1057 27.53(g)(h)	Band Edge	PASS
7	27.50(d)(4)	Equivalent Isotropic Radiated Power	PASS
8	2.1053,2.1057 27.53(g)	Radiated Spurious Emissions	PASS

1.3 Facilities and Accreditations

1.3.1 Facilities

Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L3572.

All measurement facilities used to collect the measurement data are located at 3/F, Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055 P. R. China. 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 27L REQUIREMENTS

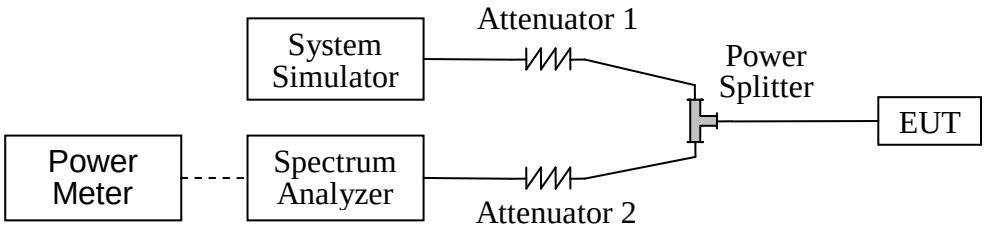
2.1 Transmitter Conducted Output Power

2.1.1 Requirement

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

2.1.2 Test Description

1. Test Setup:



The EUT, which is powered 5V DC power (USB port), 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.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50 /124534/wk	2014.02.26	2015.02.25
Spectrum Analyzer	Rohde& Schwarz	FSL	10246	2014.02.26	2015.02.25
Spectrum Analyzer	Agilent	E4445A	MY44200685	2014.02.26	2015.02.25
Power Meter	Agilent	E4418B	GB43318055	2014.02.26	2015.02.25
Power Meter	Agilent	E4418B	GB43318055	2014.02.26	2015.02.25
Power Sensor	Agilent	8482A	MY41091706	2014.02.26	2015.02.25
Power Splitter	Weinschel	1506A	NW521	2014.02.26	2015.02.25
Attenuator 1	Resnet	20dB	(n.a.)	2014.02.26	2015.02.25

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Attenuator 2	Resnet	3dB	(n.a.)	2014.02.26	2015.02.25

2.1.3 Test Results

LTE BAND 4

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
20MHz	L 20050	1720.0	QPSK	1	0	23.31
				1	49	23.28
				1	99	23.32
				50	0	22.54
				50	25	22.46
				50	49	22.61
				100	0	22.41
			16-QAM	1	0	22.52
				1	49	22.48
				1	99	22.53
				50	0	22.06
				50	25	21.86
				50	49	22.10
				100	0	22.03
	M 20175	1732.5	QPSK	1	0	23.23
				1	49	23.35
				1	99	23.24
				50	0	22.67
				50	25	22.82
				50	49	22.36
				100	0	22.31
			16-QAM	1	0	22.43
				1	49	22.58
				1	99	22.37
				50	0	21.67
				50	25	22.03
				50	49	21.74
				100	0	22.11
	H 20300	1745.0	QPSK	1	0	23.26
				1	49	23.41
				1	99	23.27
				50	0	22.57
				50	25	22.62
				50	49	22.45
				100	0	22.32
			16-QAM	1	0	22.28
				1	49	22.33

				1	99	22.29
				50	0	21.95
				50	25	22.00
				50	49	21.76
				100	0	22.05

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
15MHz	L 20025	1717.5	QPSK	1	0	23.22
				1	37	23.18
				1	74	23.21
				36	0	22.62
				36	18	22.43
				36	35	22.51
				75	0	22.49
			16-QAM	1	0	22.42
				1	37	22.26
				1	74	22.38
				36	0	21.66
				36	18	21.49
				36	35	21.58
				75	0	21.60
	M 20175	1732.5	QPSK	1	0	23.15
				1	37	23.06
				1	74	23.14
				36	0	22.75
				36	18	22.53
				36	35	22.61
				75	0	22.32
			16-QAM	1	0	22.48
				1	37	22.52
				1	74	22.62
				36	0	21.95
				36	18	22.01
				36	35	21.86
				75	0	21.88
	H 20325	1747.5	QPSK	1	0	23.04
				1	37	23.00
				1	74	23.03
				36	0	22.24
				36	18	22.16
				36	35	22.20
				75	0	22.18

			16-QAM	1	0	22.24
				1	37	22.12
				1	74	22.35
				36	0	21.86
				36	18	21.78
				36	35	21.92
				75	0	22.02

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
10MHz	L 20000	1715.0	QPSK	1	0	23.17
				1	24	23.21
				1	49	23.19
				25	0	22.44
				25	12	22.38
				25	24	22.51
				50	0	22.55
			16-QAM	1	0	22.46
				1	24	22.39
				1	49	22.51
				25	0	21.85
				25	12	21.82
				25	24	21.92
				50	0	21.98
	M 20175	1732.5	QPSK	1	0	23.11
				1	24	23.24
				1	49	23.11
				25	0	22.67
				25	12	22.55
				25	24	22.62
				50	0	22.59
			16-QAM	1	0	22.61
				1	24	22.52
				1	49	22.56
				25	0	21.85
				25	12	21.79
				25	24	21.92
				50	0	21.89
	H 20350	1750.0	QPSK	1	0	23.13
				1	24	23.22
				1	49	23.12
				25	0	22.84

				25	12	22.85
				25	24	22.71
				50	0	22.65
			16-QAM	1	0	22.98
				1	24	22.85
				1	49	22.96
				25	0	22.13
				25	12	22.20
				25	24	22.17
				50	0	21.85

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
5MHz	L 19975	1712.5	QPSK	1	0	23.16
				1	12	23.06
				1	24	23.17
				12	0	22.35
				12	6	22.28
				12	11	22.41
				25	0	22.43
			16-QAM	1	0	22.44
				1	12	22.38
				1	24	22.33
				12	0	21.84
				12	6	21.69
				12	11	21.91
				25	0	21.88
	M 20175	1732.5	QPSK	1	0	23.08
				1	12	23.11
				1	24	23.09
				12	0	22.42
				12	6	22.51
				12	11	22.36
				25	0	22.41
			16-QAM	1	0	22.51
				1	12	22.46
				1	24	22.39
				12	0	21.86
				12	6	21.75
				12	11	21.94
				25	0	21.89
	H	1752.5	QPSK	1	0	23.04
				1	12	23.00

	20375			1	24	23.01
				12	0	22.24
				12	6	22.16
				12	11	22.21
				25	0	22.34
			16-QAM	1	0	22.89
				1	12	22.71
				1	24	22.83
				12	0	22.01
				12	6	21.89
				12	11	22.03
				25	0	21.94

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
3MHz	L 19965	1711.5	QPSK	1	0	23.21
				1	7	23.16
				1	14	23.23
				8	0	22.24
				8	4	22.20
				8	7	22.31
				15	0	22.35
			16-QAM	1	0	22.42
				1	7	22.35
				1	14	22.38
				8	0	21.95
				8	4	21.93
				8	7	21.96
				15	0	21.88
	M 20175	1732.5	QPSK	1	0	23.25
				1	7	23.11
				1	14	23.24
				8	0	22.51
				8	4	22.46
				8	7	22.52
				15	0	22.49
			16-QAM	1	0	22.37
				1	7	22.42
				1	14	22.39
				8	0	21.86
				8	4	21.79
				8	7	21.92
				15	0	21.87

	H 20384	1753.4	QPSK	1	0	23.13
				1	7	23.15
				1	14	23.12
				8	0	22.43
				8	4	22.57
				8	7	22.31
				15	0	22.44
			16-QAM	1	0	22.38
				1	7	22.41
				1	14	22.36
				8	0	21.85
				8	4	21.95
				8	7	21.88
				15	0	21.90

LTE BAND 4 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
1.4MHz	L 19957	1710.7	QPSK	1	0	23.21
				1	2	23.16
				1	5	23.20
				3	0	22.34
				3	1	22.28
				3	2	22.41
				6	0	22.29
			16-QAM	1	0	22.42
				1	2	22.39
				1	5	22.51
				3	0	21.86
				3	1	21.91
				3	2	21.89
				6	0	21.88
	M 20175	1732.5	QPSK	1	0	23.12
				1	2	23.09
				1	5	23.10
				3	0	22.19
				3	1	22.16
				3	2	22.24
				6	0	22.36
			16-QAM	1	0	22.35
				1	2	22.24
				1	5	22.26
				3	0	21.76
				3	2	21.68

				3	5	21.84
				6	0	21.86
	H 20392	1754.2	QPSK	1	0	23.02
				1	2	22.94
				1	5	23.03
				3	0	22.16
				3	1	22.09
				3	2	22.13
				6	0	22.21
			16-QAM	1	0	22.59
				1	2	22.74
				1	5	22.87
				3	0	22.00
				3	1	21.95
				3	2	21.86
				6	0	22.01

LTE BAND 17

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
10MHz	L 23780	709.0	QPSK	1	0	23.16
				1	24	23.02
				1	49	23.17
				25	0	22.38
				25	12	22.26
				25	24	22.40
				50	0	22.33
			16-QAM	1	0	22.21
				1	24	22.19
				1	49	22.26
				25	0	21.85
				25	12	21.76
				25	24	21.87
				50	0	21.89
	M 23790	710.0	QPSK	1	0	23.07
				1	24	23.10
				1	49	23.08
				25	0	22.24
				25	12	22.16
				25	24	22.20
				50	0	22.18
			16-QAM	1	0	22.29
				1	24	22.21
				1	49	22.24

				25	0	21.95
				25	12	21.84
				25	24	21.92
				50	0	21.86
	H 23800	711.0	QPSK	1	0	23.13
				1	24	23.20
				1	49	23.12
				25	0	22.51
				25	12	22.46
				25	24	22.57
				50	0	22.43
			16-QAM	1	0	22.41
				1	24	22.35
				1	49	22.52
				25	0	21.95
				25	12	21.86
				25	24	21.99
				50	0	21.85

LTE BAND 17 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power (dBm)
				RB Size	RB Offset	
5MHz	L 23755	706.5	QPSK	1	0	23.14
				1	12	23.02
				1	24	23.16
				12	0	22.28
				12	6	22.17
				12	11	22.30
				25	0	22.41
			16-QAM	1	0	22.38
				1	12	22.29
				1	24	22.31
				12	0	21.76
				12	6	21.69
				12	11	21.81
				25	0	21.79
	M 23790	710.0	QPSK	1	0	23.15
				1	12	23.10
				1	24	23.15
				12	0	22.52
				12	6	22.49
				12	11	22.62
				25	0	22.53
			16-QAM	1	0	22.62

				1	12	22.52
				1	24	22.63
				12	0	22.03
				12	6	21.76
				12	11	21.92
				25	0	21.87
	H 23825	713.5	QPSK	1	0	23.11
				1	12	23.05
				1	24	23.09
				12	0	22.41
				12	6	22.36
				12	11	22.39
				25	0	22.51
			16-QAM	1	0	22.57
				1	12	22.61
				1	24	22.89
				12	0	21.94
				12	6	22.03
				12	11	21.86
				25	0	21.99

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 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	4.5266	4.5198	23780	709	9.0687	9.0623
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23755	706.5	5.026	5.016	23780	709	10.24	10.05

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	710.0	4.5276	4.5246	23790	710.0	9.0268	9.0473
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23790	710.0	5.032	5.044	23790	710.0	10.09	10.06

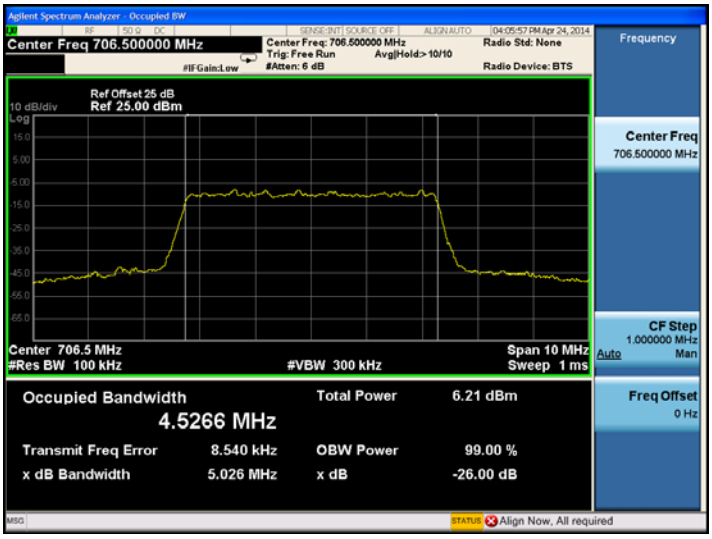
High channel:

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	4.5274	4.5336	23800	711	9.0535	9.0552
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
23825	713.5	5.004	5.036	23800	711	10.16	10.09

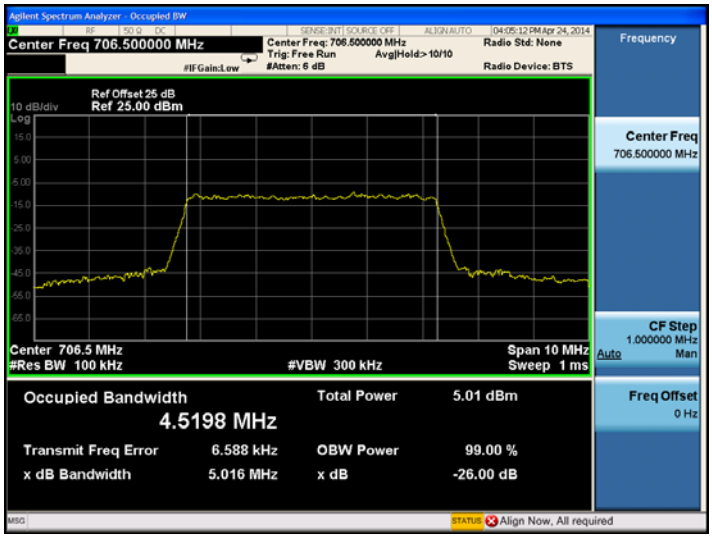
Low channel:

Spectrum Plot of Worst Value

5MHz/QPSK

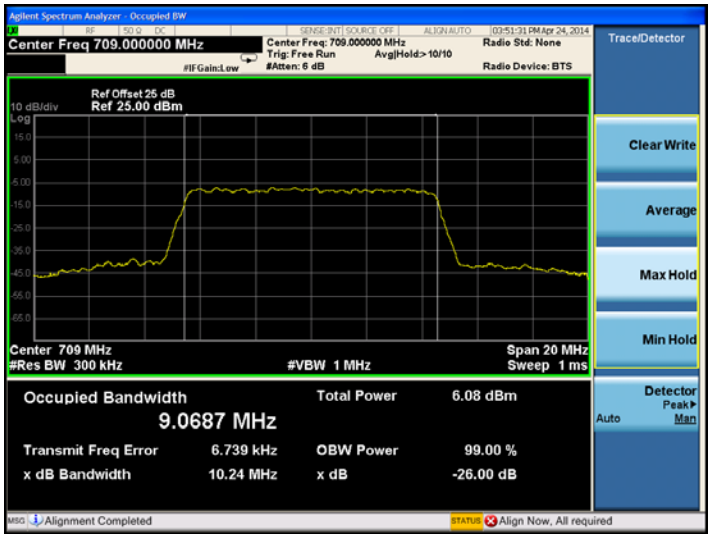


5MHz/16QAM



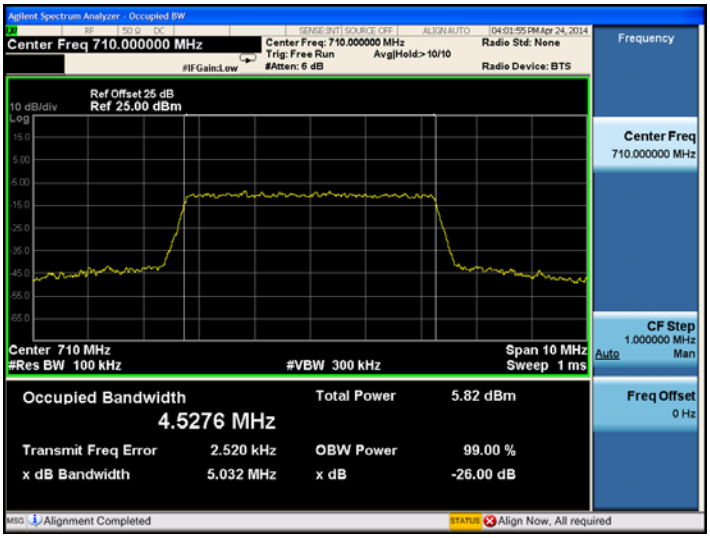
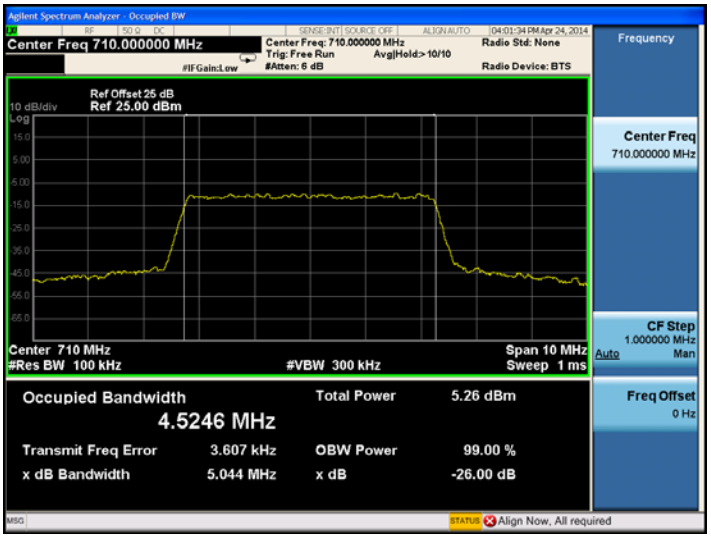
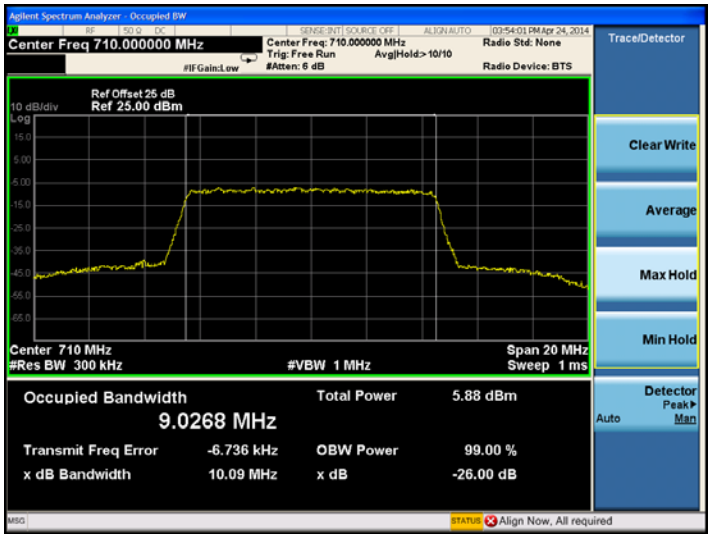
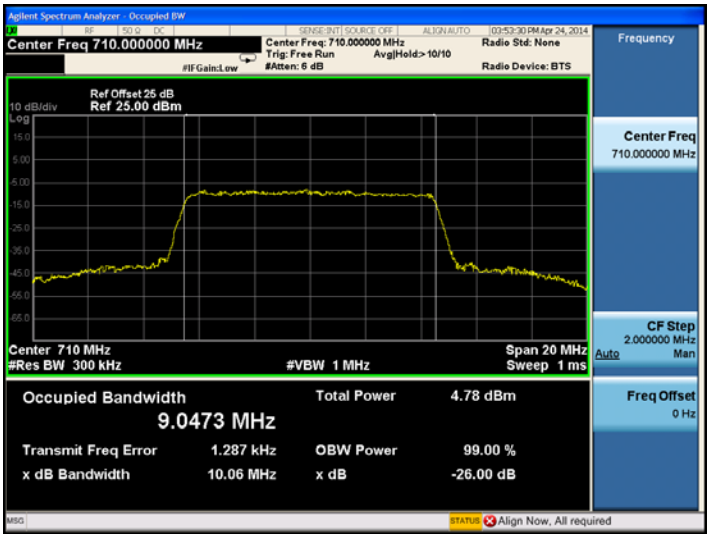
Spectrum Plot of Worst Value

10MHz/QPSK

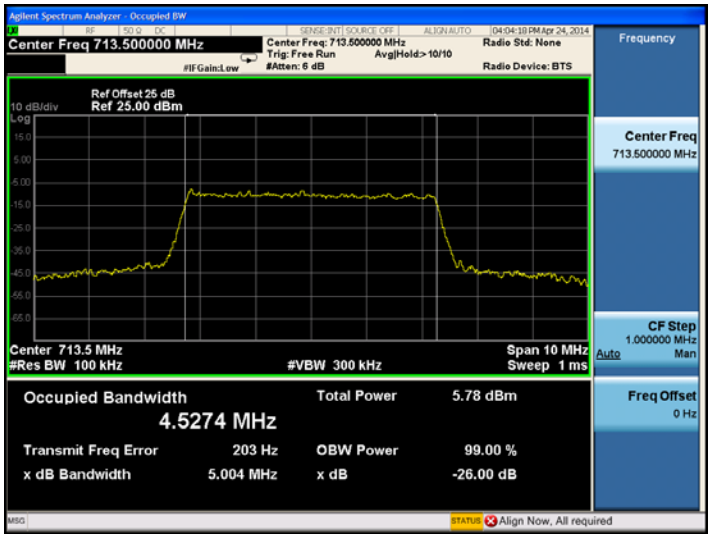
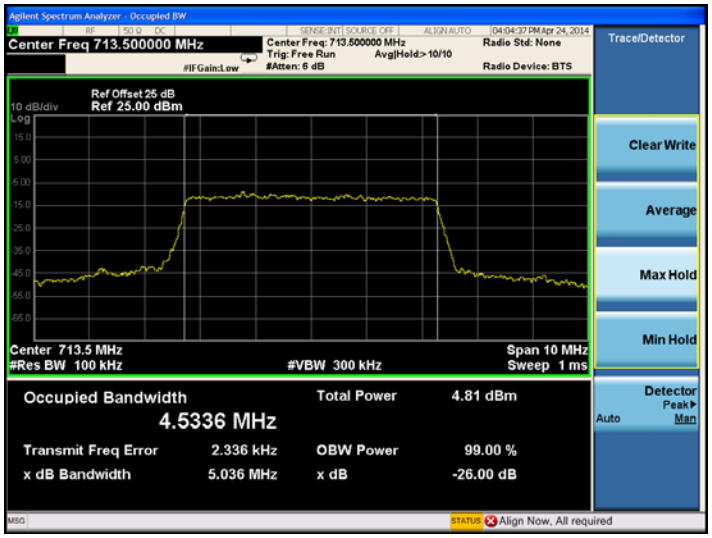


10MHz/16QAM

Middle channel:

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

High channel:

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

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	1.0986	1.1036	19965	1711.5	2.7444	2.7626
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	1.293	1.302	19965	1711.5	3.075	3.070

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	4.5188	4.5157	20000	1715.0	9.0617	9.0574
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.007	5.048	20000	1715.0	10.12	10.03

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	13.489	13.476	20050	1720.0	18.364	18.431
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	14.78	14.74	20050	1720.0	20.42	20.51

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	1.1032	1.1005	20175	1732.5	2.7368	2.7356
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	1.307	1.291	20175	1732.5	3.046	3.063

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	4.5202	4.5201	20175	1732.5	9.0340	9.0505
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	5.051	5.019	20175	1732.5	10.12	10.09

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	13.449	13.470	20175	1732.5	18.431	18.441
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20175	1732.5	14.73	14.66	20175	1732.5	20.71	20.55

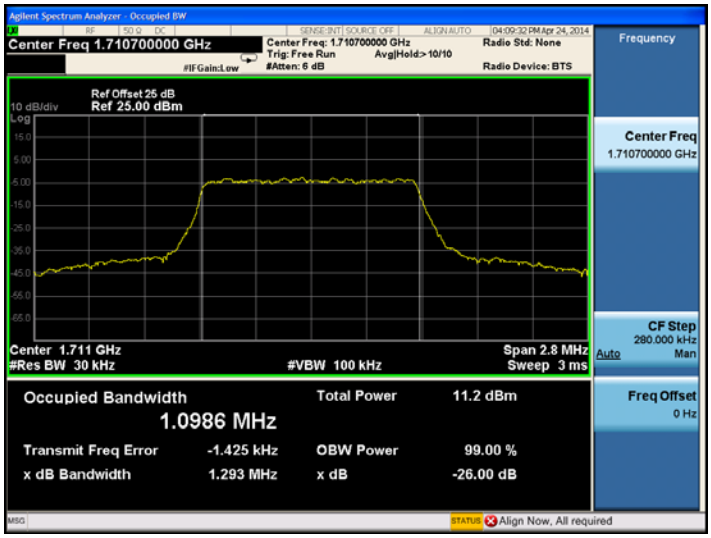
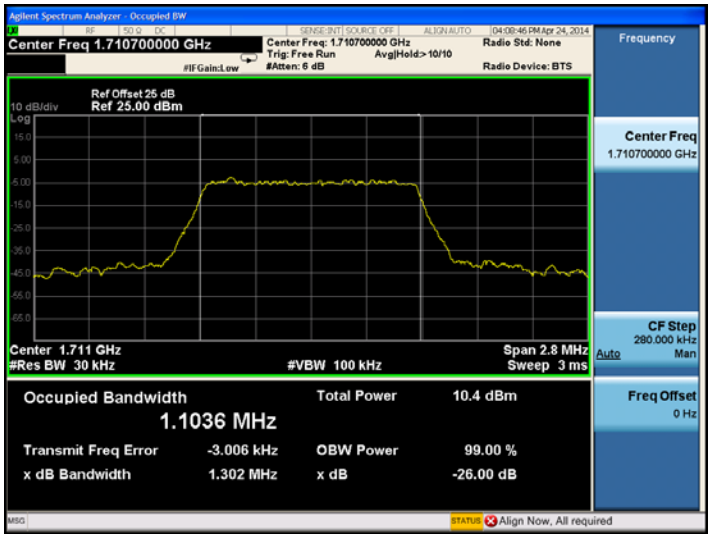
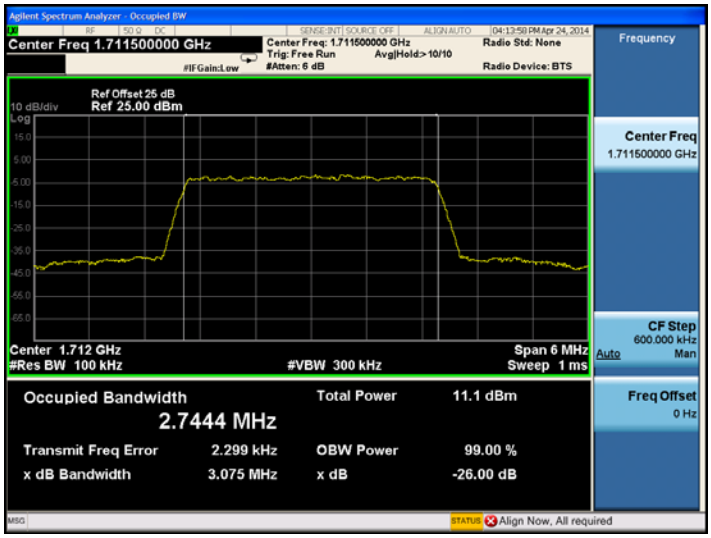
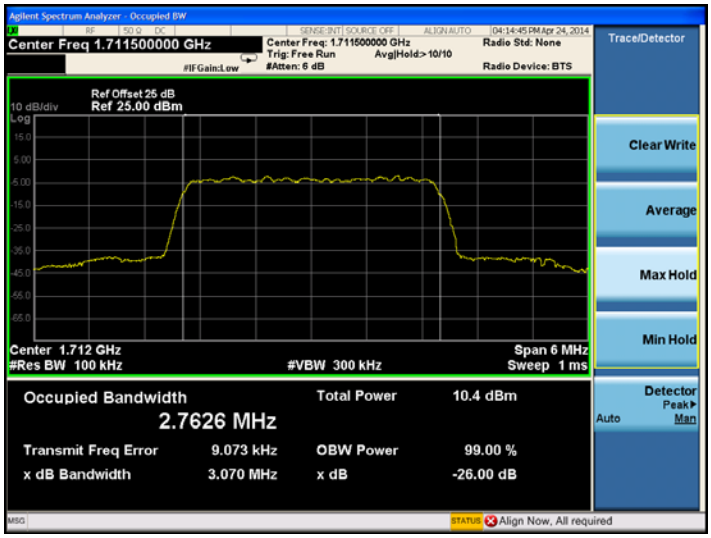
High channel:

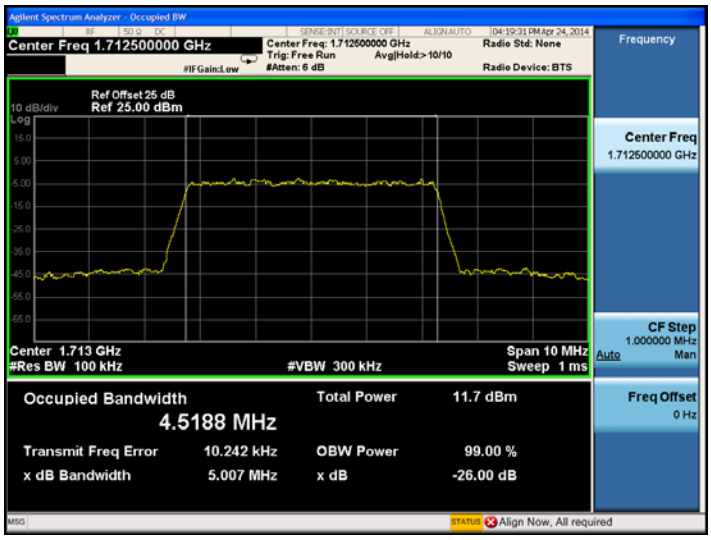
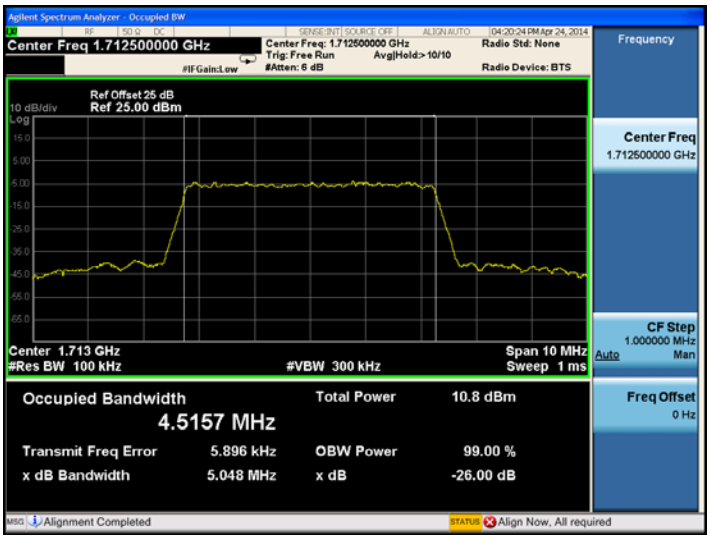
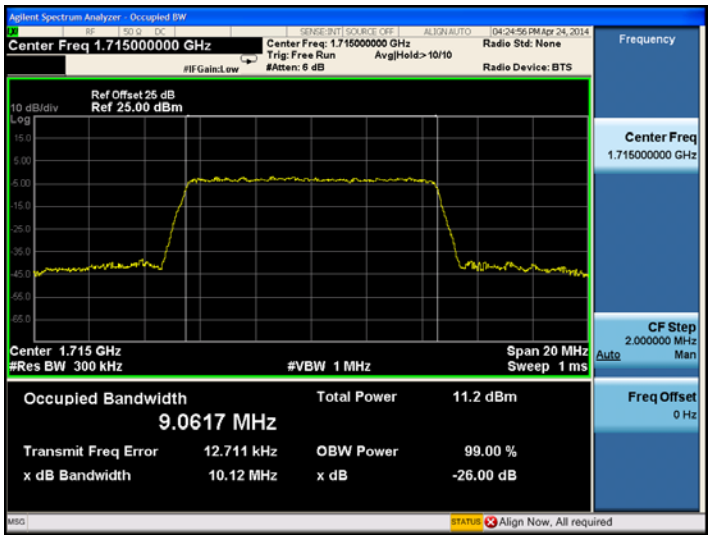
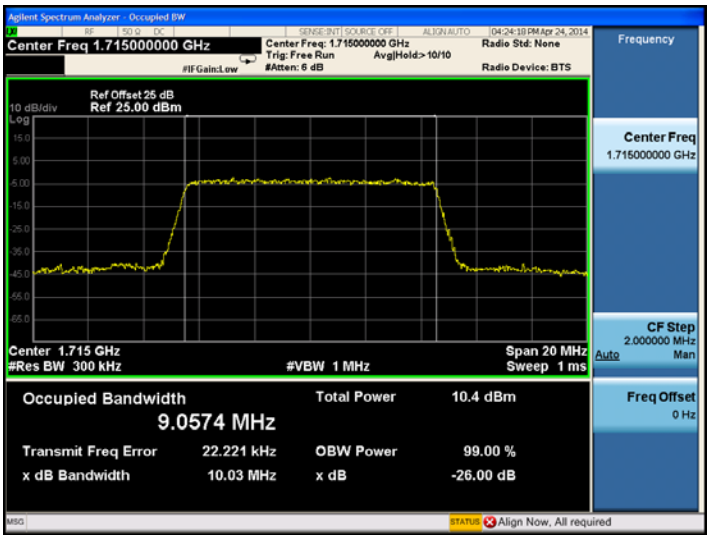
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20392	1754.2	1.1104	1.0996	20384	1753.4	2.7423	2.7390
Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20392	1754.2	1.285	1.300	20384	1753.4	3.063	3.071

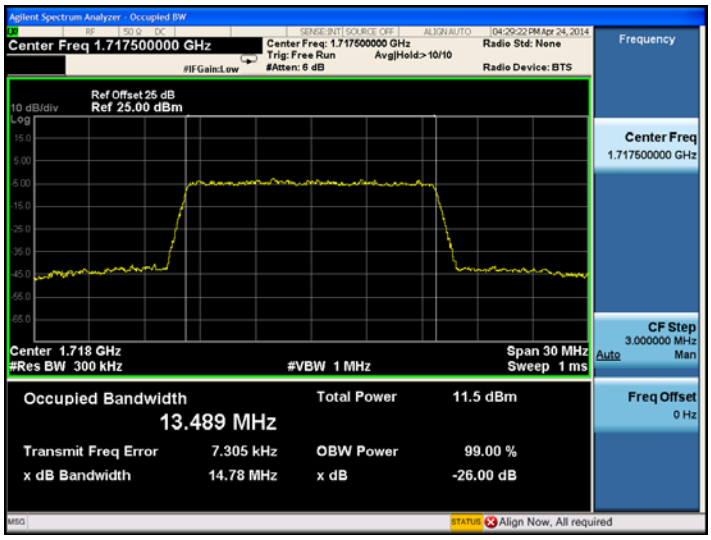
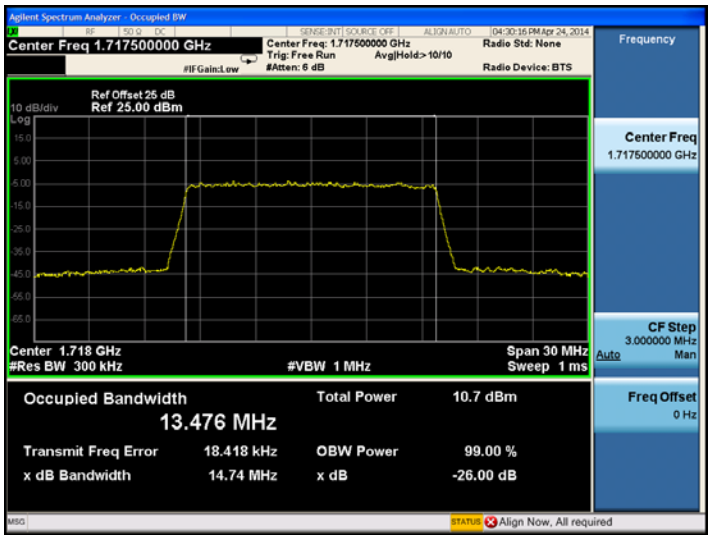
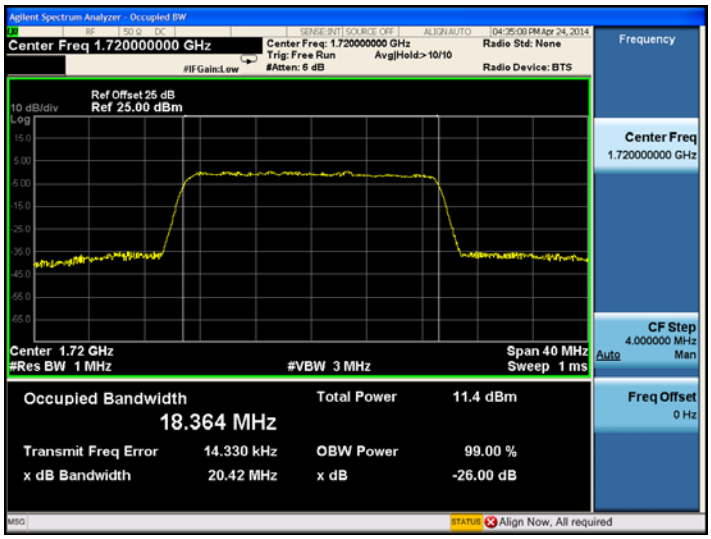
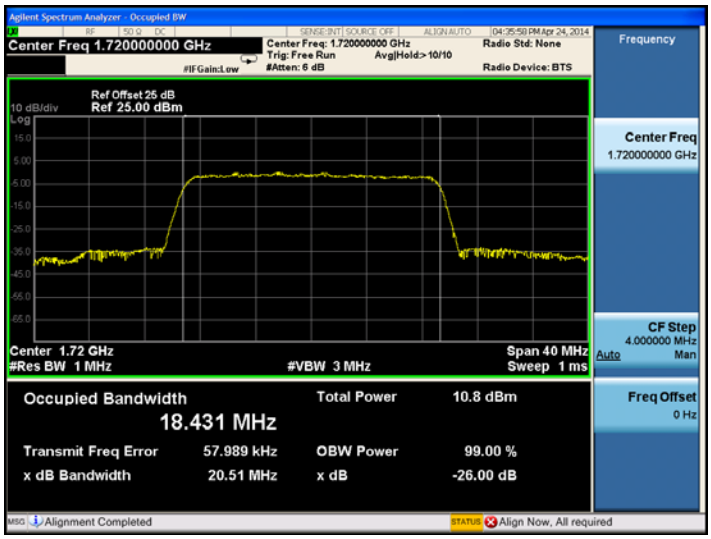
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Bandwidth (MHz)		Channel	Frequency (MHz)	99% Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20375	1752.5	4.5175	4.5291	20350	1750.0	9.0622	9.0573
Channel Bandwidth: 5MHz				**Channel Bandwidth: 10MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20375	1752.5	4.985	5.013	20350	1750.0	10.11	10.07

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	13.457	13.472	20300	1745.0	18.334	18.380
Channel Bandwidth: 15MHz				**Channel Bandwidth: 20MHz**			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		Channel	Frequency (MHz) QPSK	26dB Bandwidth(MHz)	
		QPSK	16QAM			QPSK	16QAM
20325	1747.5	14.84	14.75	20300	1745.0	20.33	20.46

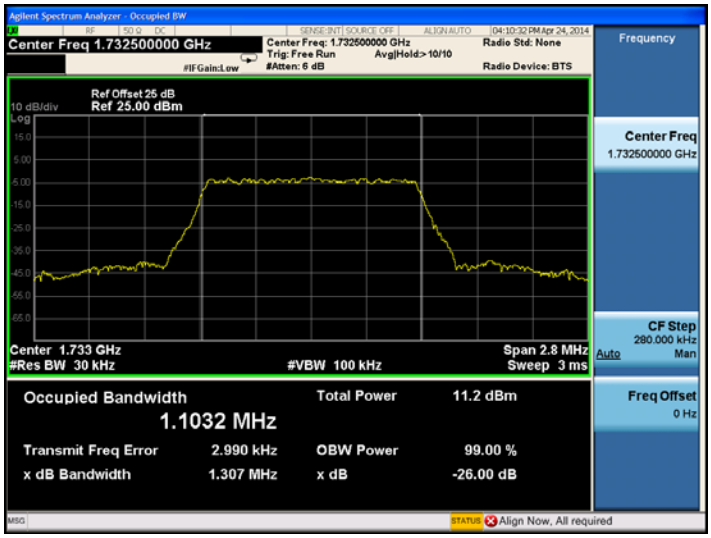
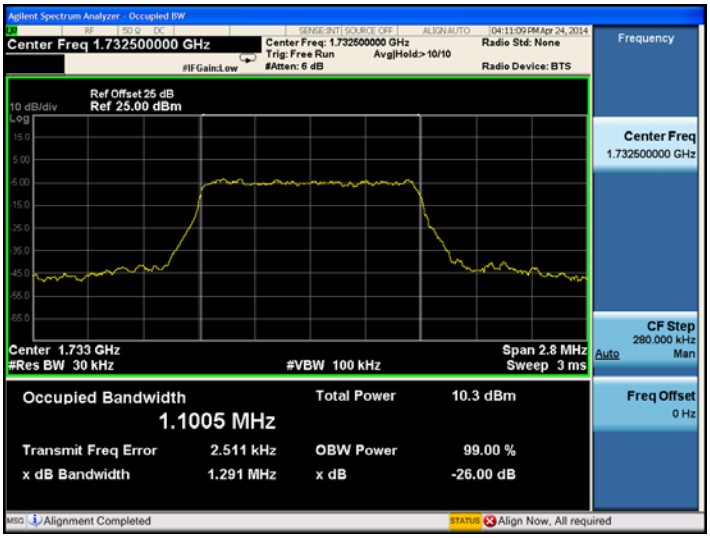
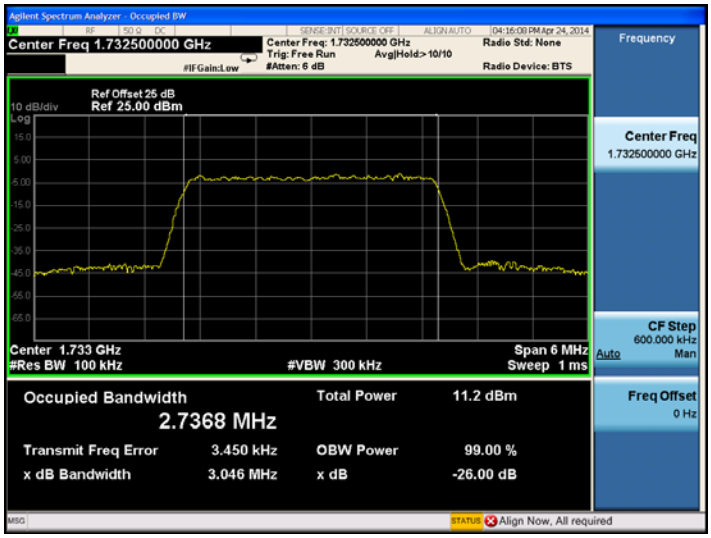
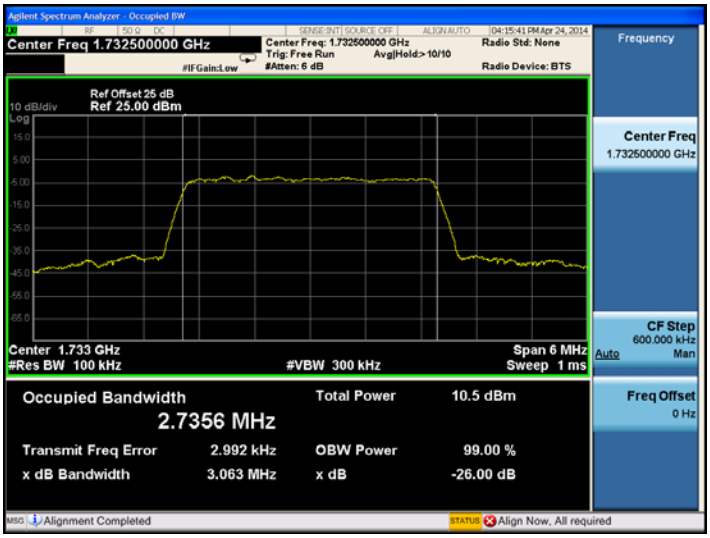
Low channel:

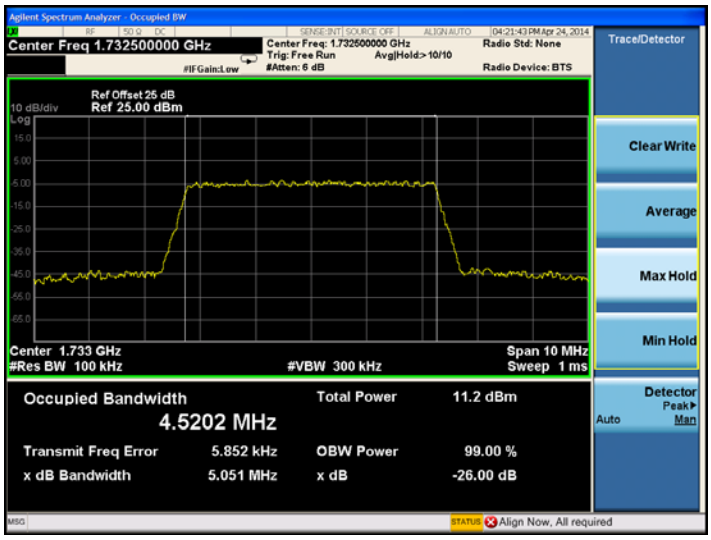
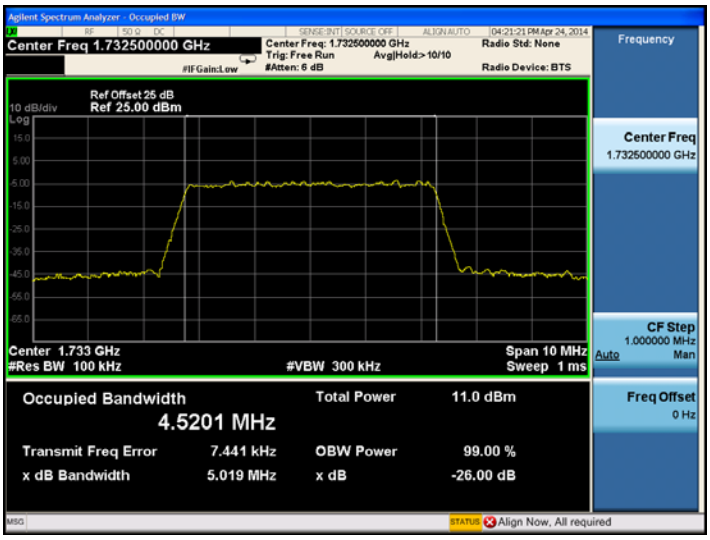
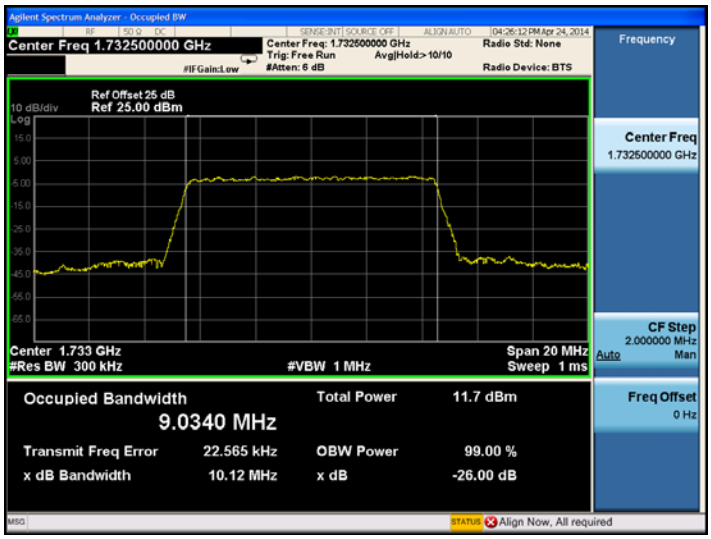
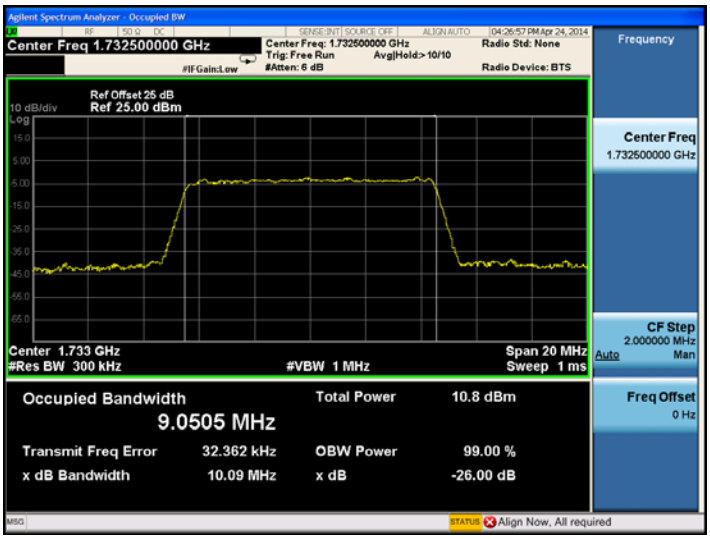
Spectrum Plot of Worst Value	
1.4MHz/QPSK	1.4MHz/16QAM
	
Spectrum Plot of Worst Value	
3MHz/QPSK	3MHz/16QAM
	

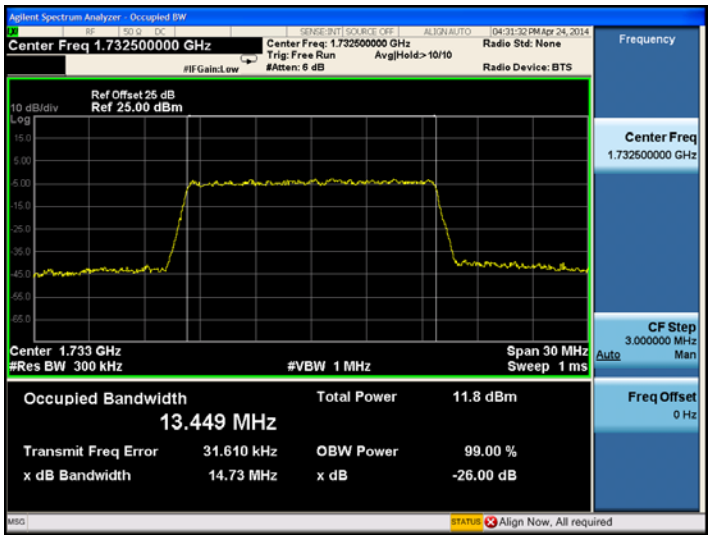
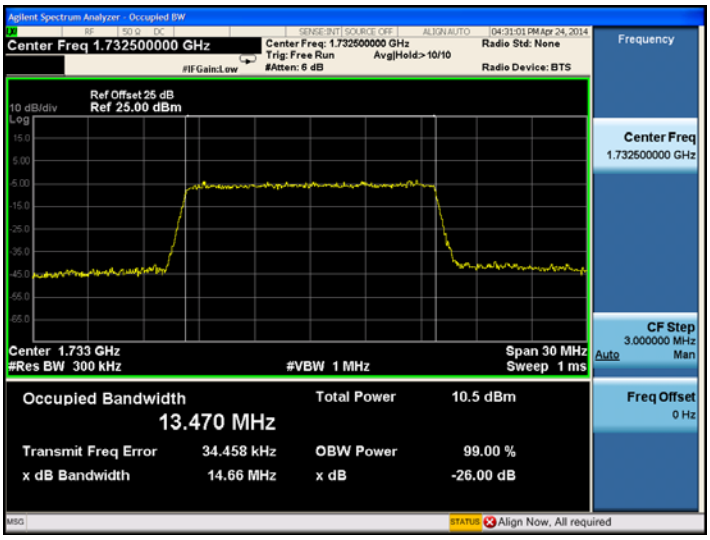
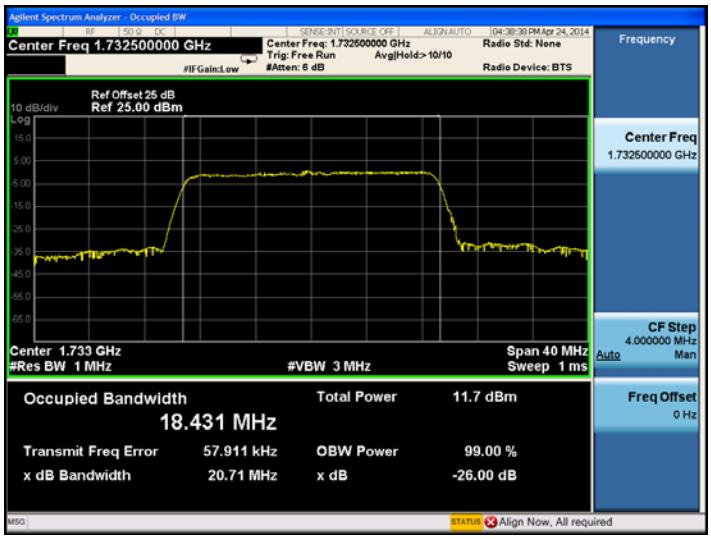
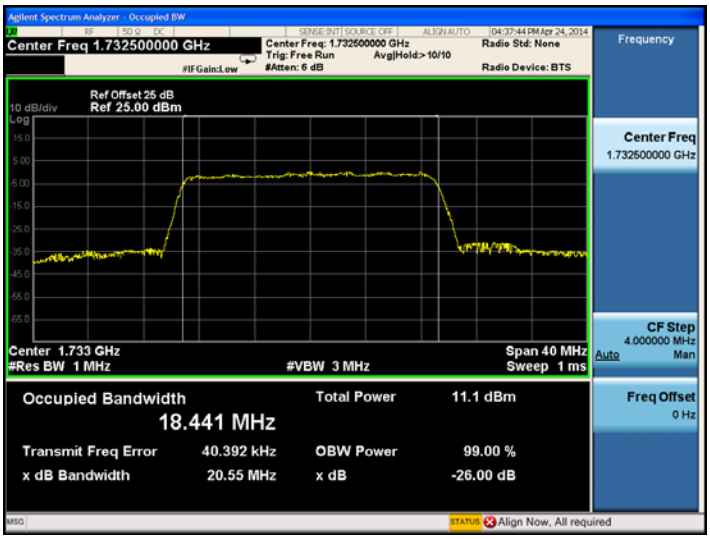
Spectrum Plot of Worst Value	
5MHz/QPSK	5MHz/16QAM
	
Spectrum Plot of Worst Value	
10MHz/QPSK	10MHz/16QAM
	

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

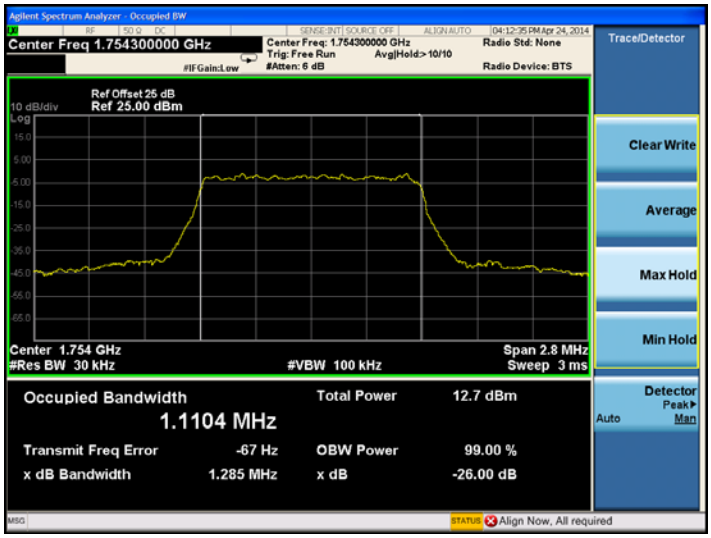
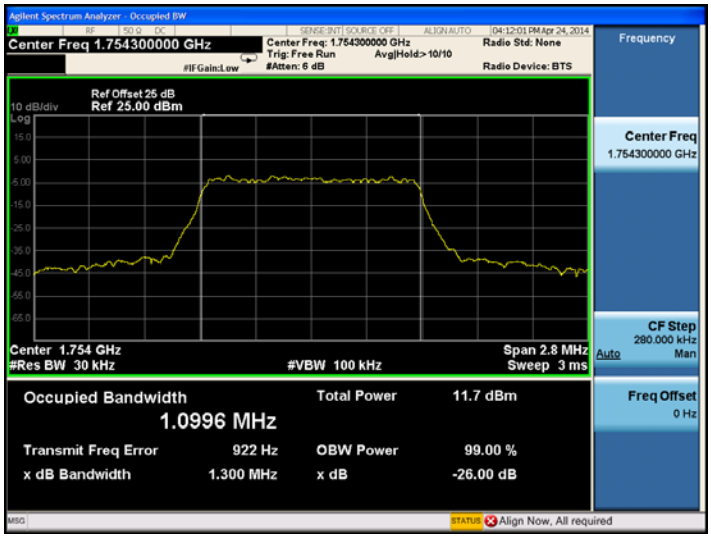
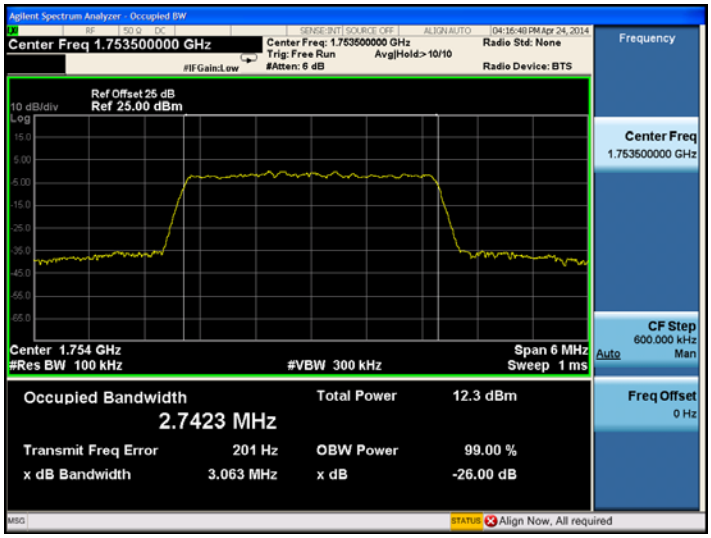
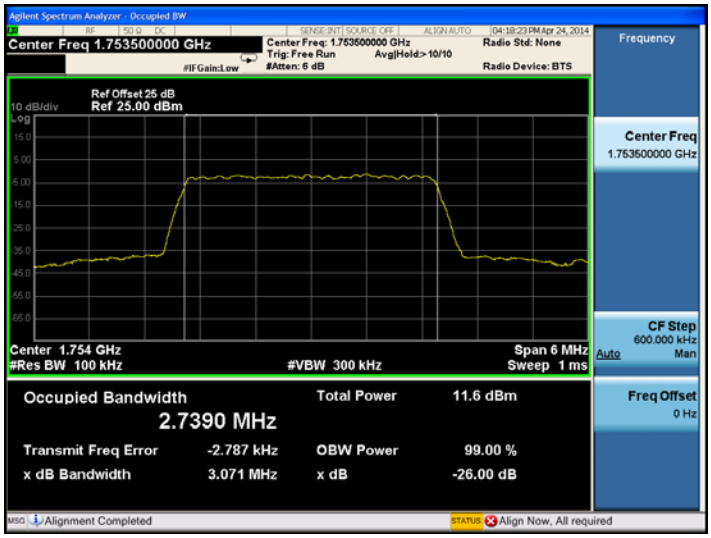
Middle channel:

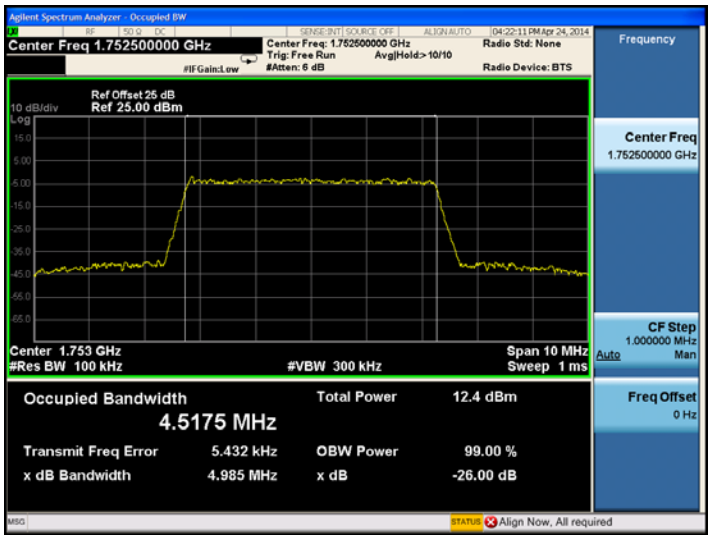
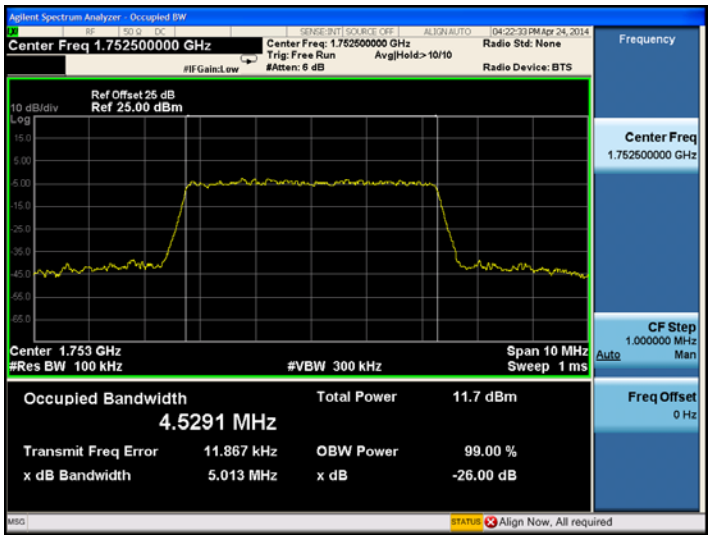
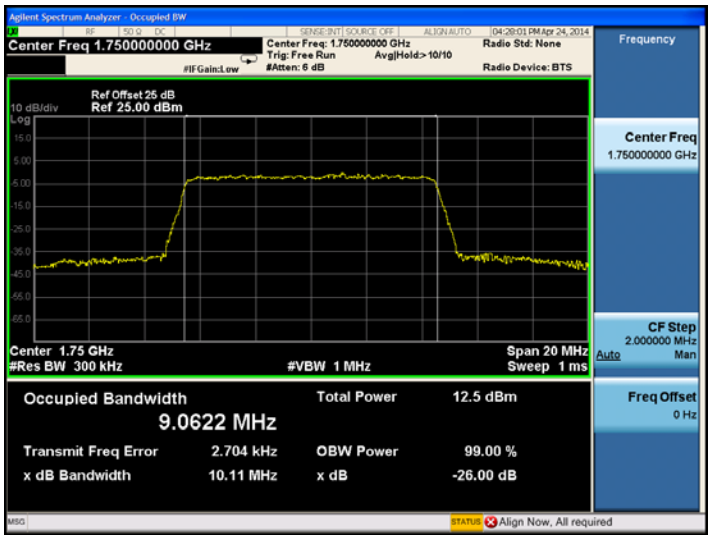
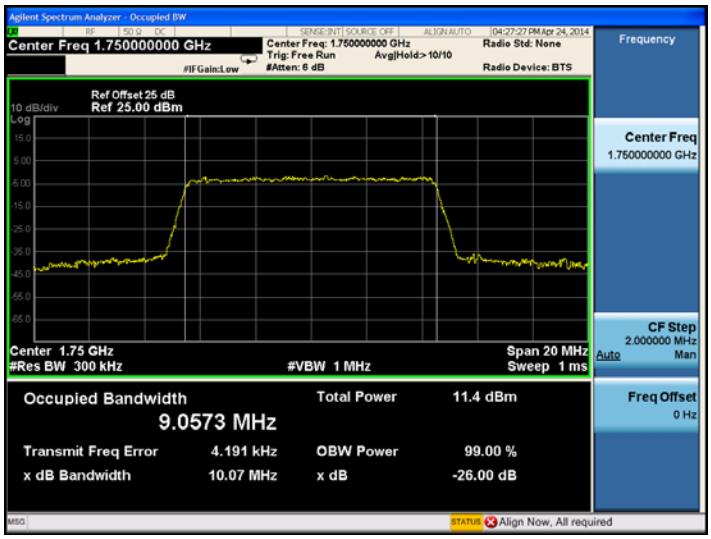
Spectrum Plot of Worst Value	
1.4MHz/QPSK	1.4MHz/16QAM
	
Spectrum Plot of Worst Value	
3MHz/QPSK	3MHz/16QAM
	

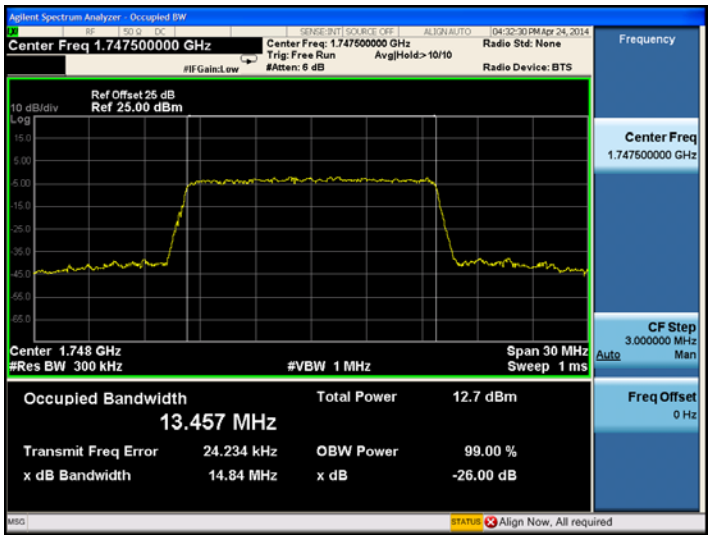
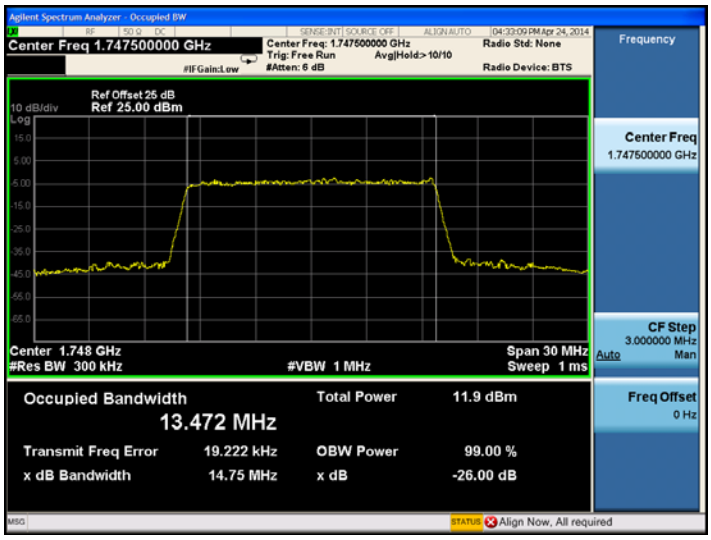
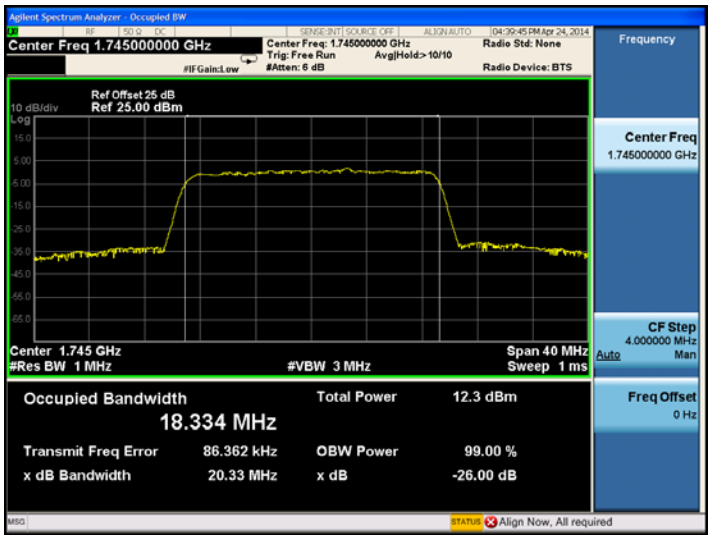
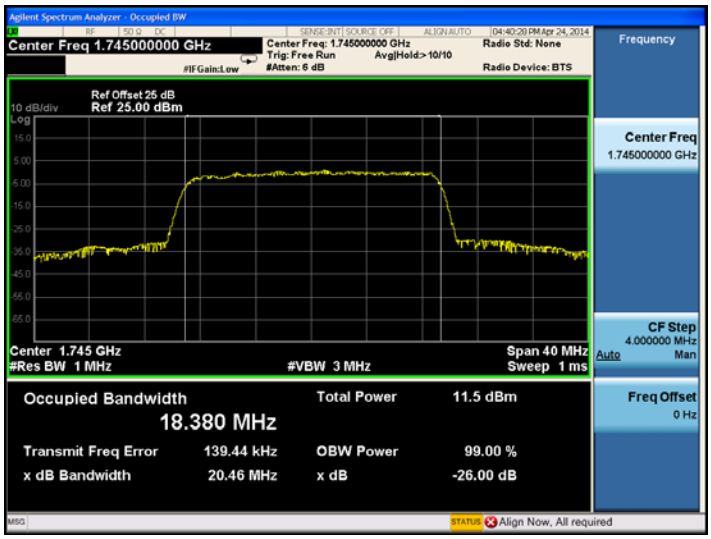
Spectrum Plot of Worst Value	
5MHz/QPSK	5MHz/16QAM
	
Spectrum Plot of Worst Value	
10MHz/QPSK	10MHz/16QAM
	

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
	

2.3 Frequency Stability

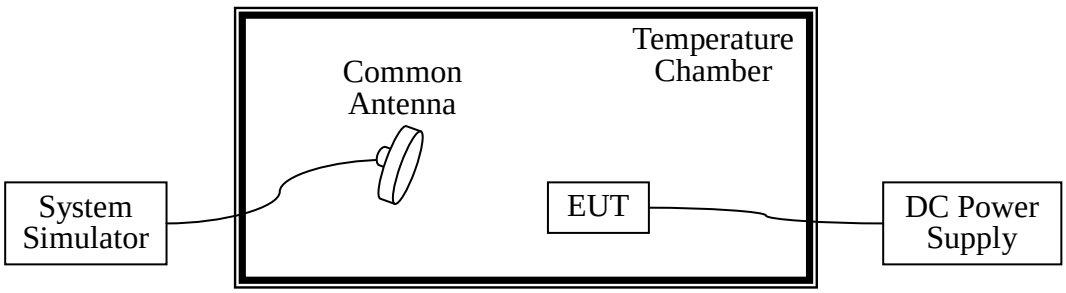
2.3.1 Requirement

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

(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.
(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.3.2 Test Description

1. 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.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50/124534/wk	2014.02.26	2015.02.25
DC Power Supply	Good Will	GPS-3030DD	EF920938	2014.02.26	2015.02.25
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2014.02.26	2015.02.25

2.3.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.35VDC and 3.6VDC, which are specified by the applicant; the normal temperature here used is 20°C. The frequency deviation limit is

±2.5ppm.

The testing was performed using one RB and Bandwidth setting for each band.

LTE Band 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	5.31	PASS
100		-20	-5.74	
100		-10	-5.78	
100		0	-4.68	
100		+10	-4.41	
100		+20	5.55	
100		+30	-5.41	
100		+40	4.60	
100		+50	-6.18	
115	4.35	+20	-6.47	
85	3.6	+20	-5.59	

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	12.56	PASS
100		-20	11.66	
100		-10	10.50	
100		0	11.74	
100		+10	11.56	
100		+20	9.48	
100		+30	-10.89	
100		+40	10.83	
100		+50	12.62	
115	4.35	+20	11.12	
85	3.6	+20	12.52	

2.4 Peak to Average Radio

2.4.1 Requirement

According to FCC section 27.50(d) (5), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2 Test Description

See section 2.1.2 of this report.

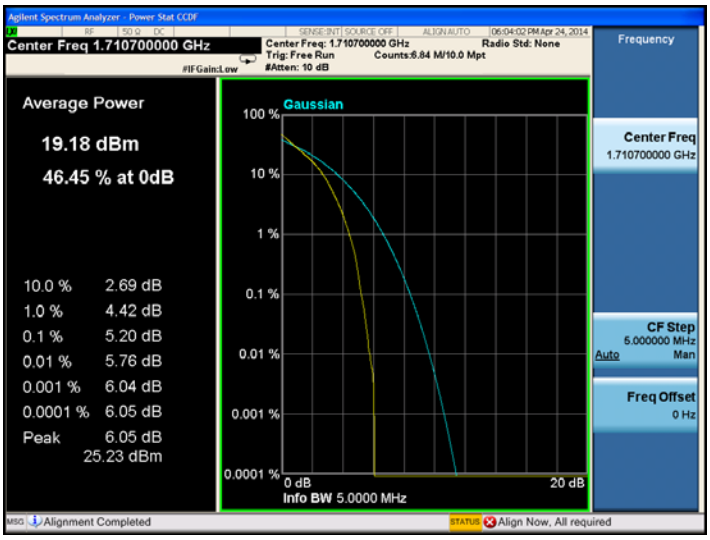
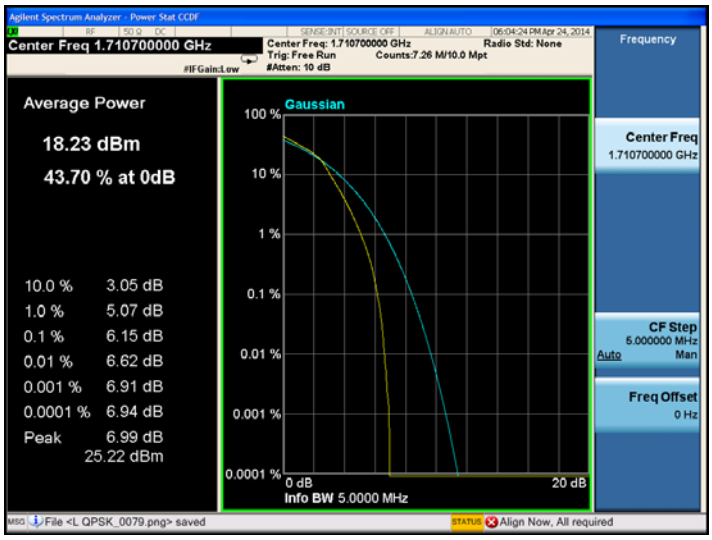
2.4.3 Test Result

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

LTE Band 4:

Low channel:

Channel Bandwidth: 1.4MHz				**Channel Bandwidth: 3MHz**			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	5.20	6.15	19965	1771.5	5.38	6.24
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	QPSK	16QAM
19975	1712.5	5.53	6.31	20000	1715.0	4.69	6.18
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	QPSK	16QAM
20025	1717.5	5.78	6.79	20050	1720.0	6.46	7.18

Spectrum Plot of Worst Value (Low channel)	
1.4MHz/QPSK	1.4MHz/16QAM
	
Spectrum Plot of Worst Value	
3MHz/QPSK	3MHz/16QAM