



FCC CFR47 PART 22 SUBPART H  
FCC CFR47 PART 24 SUBPART E  
FCC CFR47 PART 27 SUBPART C, D, F, H, L, and M  
FCC CFR47 PART 90 SUBPART S  
INDUSTRY CANADA RSS-130 ISSUE 1  
INDUSTRY CANADA RSS-132 ISSUE 3  
INDUSTRY CANADA RSS-133 ISSUE 6  
INDUSTRY CANADA RSS-139 ISSUE 3  
INDUSTRY CANADA RSS-199 ISSUE 2

**CERTIFICATION TEST REPORT**

**GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC**

**FCC ID: PY7-PM0944**

**REPORT NUMBER: R11139405A-E1V2**

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**Revision History**

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V1	4/13/2016	Initial Issue	C. OOI
V2	4/27/2016	Updated table of content, section 5.5, 6, 10.1, 12.1, 13.1 and 14.1	C. OOI

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SONY MOBILE COMMUNICATIONS, INC  
**EUT DESCRIPTION:** GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC  
**SERIAL NUMBER:** Conducted: GSM/WCDMA: 245-586570-3 LTE:245-586578-8  
Radiated: WCDMA/GSM SN: CB5129Z13M, LTE #1 SN: CB5129Z10L &  
LTE #2 SN: CB5129Z0WQ  
**DATE TESTED:** March 23 ~ April 12, 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E, 27H, 27F, 27L, 27M, 90S	PASS
INDUSTRY CANADA RSS-130,132,133,139,199	PASS

UL LLC reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. UL LLC shall have no liability for any deductions, inferences or generalizations drawn by the client or others from UL LLC issued reports. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

This report may contain test results that are not covered by the NVLAP or A2LA accreditation. The scope of accreditation is limited to the specific tests that are listed on the NVLAP and/or A2LA websites referenced at the end of this report.

Approved & Released For  
UL LLC. By:



FRANK IBRAHIM  
CONSUMER TECHNOLOGY DIVISION  
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CHOON OOI  
CONSUMER TECHNOLOGY DIVISION  
WISE PROJECT LEAD

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-D for FCC and ANSI C63.26:2015 for IC, FCC CFR 47 Part 22, FCC CFR Part 24, FCC CFR 47 Part 27, and FCC CFR 47 Part 90, RSS-130, 32, 133, 139, 139 and RSS-GEN Issue 4.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Dr., Research Triangle Park, NC 27709, USA and 2800 Suite B, Perimeter Park Drive, Morrisville, NC 27560.

12 Laboratory Dr., RTP, NC 27709
<input type="checkbox"/> Chamber A
<input type="checkbox"/> Chamber C

2800 Suite B Perimeter Park Dr., Morrisville, NC 27560
<input checked="" type="checkbox"/> Chamber NORTH
<input type="checkbox"/> Chamber SOUTH

The onsite chambers are covered under Industry Canada company address code 2180C with site numbers 2180C -1 through 2180C-4

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0. The full scope of accreditation can be viewed at <http://www.nist.gov/nvlap/>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

EIRP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss( between the SG and substitution antenna) + Substitution Antenna Factor (dBi)

ERP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss( between the SG and substitution antenna)

(Path loss = Signal generator output – PSA reading with substitution antenna)

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER		UNCERTAINTY
Total RF power, conducted	+/-	0.45
RF power density, conducted	+/-	1.50
Spurious emissions, conducted	+/-	2.94
All emissions, radiated up to 26 GHz	+/-	5.36
Temperature	+/-	0.07
Humidity	+/-	2.26
DC and low frequency voltages	+/-	1.27
Conducted Emissions (0.150-30MHz)	+/-	2.37

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

This EUT is a GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC.

### 5.2. MAXIMUM OUTPUT POWER (GSM/EGPRS)

The transmitter has a maximum peak conducted and radiated ERP / EIRP output powers as follows:

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GMSK	32.4	1737.80		
	824~849	GPRS	32.4	1737.80	24.32	270.40
	824~849	EGPRS	27.4	549.54	20.45	110.92
GSM1900	1850~1910	GMSK	30.0	1000.00		
	1850~1910	GPRS	30.0	1000.00	28.10	645.65
	1850~1910	EGPRS	26.3	426.58	23.80	239.88

### 5.3. MAXIMUM OUTPUT POWER (WCDMA)

The transmitter has a maximum peak conducted and radiated ERP / EIRP output powers as follows:

FCC Part 22/24/27						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
Band 2	1850~1910	REL99	23.0	199.53	20.90	123.03
	1850~1910	HSDPA	22.4	173.78	19.51	89.33
	1850~1910	HSUPA	21.7	147.91		
Band 4	1710~1755	REL99	23.8	239.88	19.51	89.33
	1710~1755	HSDPA	22.8	190.55	18.90	77.62
	1710~1755	HSUPA	22.3	169.82		
Band 5	824~849	REL99	24.0	251.19	18.39	69.02
	824~849	HSDPA	23.3	213.80	17.22	52.72
	824~849	HSUPA	22.7	186.21		

### 5.4. MAXIMUM OUTPUT POWER (LTE)

The transmitter has a maximum peak conducted and radiated ERP/EIRP output powers as follows:

#### LTE Band 2

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	1.4MHz	QPSK	23.1	204.17	19.31	85.31
			16QAM	22.2	165.96	18.59	72.28
		3MHz	QPSK	23.0	199.53	18.89	77.45
			16QAM	22.4	173.78	18.31	67.76
		5MHz	QPSK	23.1	204.17	18.12	64.86
			16QAM	22.5	177.83	17.32	53.95
		10MHz	QPSK	23.3	213.80	18.62	72.78
			16QAM	22.6	180.72	17.98	62.81
		15MHz	QPSK	23.6	226.46	17.67	58.48
			16QAM	22.6	182.81	17.20	52.48
		20MHz	QPSK	23.7	233.35	18.42	69.50
			16QAM	22.6	181.55	17.24	52.97

**LTE Band 4**

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	1.4MHz	QPSK	23.5	223.87	19.60	91.20
			16QAM	22.7	186.21	18.94	78.34
		3MHz	QPSK	23.4	218.78	19.56	90.36
			16QAM	22.8	190.55	18.72	74.47
		5MHz	QPSK	23.5	223.87	20.87	122.18
			16QAM	22.6	181.97	19.71	93.54
		10MHz	QPSK	23.5	223.87	19.81	95.72
			16QAM	22.9	194.98	18.83	76.38
		15MHz	QPSK	23.6	229.09	20.03	100.69
			16QAM	22.9	194.98	19.33	85.70
		20MHz	QPSK	23.9	245.47	19.79	95.28
			16QAM	22.7	186.21	18.94	78.34

**LTE Band 5**

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	1.4MHz	QPSK	23.9	245.47	17.71	59.02
			16QAM	23.0	199.53	16.97	49.77
		3MHz	QPSK	23.8	239.88	17.51	56.36
			16QAM	23.0	199.53	16.93	49.32
		5MHz	QPSK	23.9	245.47	17.51	56.36
			16QAM	23.3	213.80	16.54	45.08
		10MHz	QPSK	23.8	239.88	18.14	65.16
			16QAM	22.9	194.98	17.20	52.48

**LTE Band 7**

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	PEAK(dBm)	PEAK(mW)
LTE7	2500~2570	5MHz	QPSK	23.7	236.05	22.52	178.65
			16QAM	23.5	221.82	22.17	164.82
		10MHz	QPSK	24.1	254.68	21.19	131.52
			16QAM	23.5	223.87	20.85	121.62
		15MHz	QPSK	24.2	263.03	21.09	128.53
			16QAM	23.5	221.31	20.93	123.88
		20MHz	QPSK	24.0	250.61	21.86	153.46
			16QAM	23.5	223.87	21.41	138.36

**LTE Band 12**

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE12	699~716	1.4MHz	QPSK	23.8	239.88	15.68	36.98
			16QAM	22.9	194.98	14.77	29.99
		3MHz	QPSK	23.8	239.88	15.75	37.58
			16QAM	22.9	194.98	14.96	31.33
		5MHz	QPSK	23.8	239.88	15.78	37.84
			16QAM	23.2	208.93	14.98	31.48
		10MHz	QPSK	24.0	251.19	15.76	37.67
			16QAM	23.3	213.80	14.76	29.92

**LTE Band 13**

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE13	777~787	5MHz	QPSK	23.0	200.45	11.55	14.29
			16QAM	22.2	164.82	10.72	11.80
		10MHz	QPSK	23.2	208.45	10.79	11.99
			16QAM	22.4	172.19	9.70	9.33

**LTE Band 17**

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	5MHz	QPSK	23.4	218.78	15.41	34.75
			16QAM	22.5	175.79	14.61	28.91
		10MHz	QPSK	23.6	228.56	15.44	34.99
			16QAM	22.7	185.35	14.60	28.84

**LTE Band 26**

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE26	824~849	1.4MHz	QPSK	23.8	239.88	17.53	56.62
			16QAM	23.1	204.17	16.59	45.60
		3MHz	QPSK	23.8	239.88	17.56	57.02
			16QAM	23.1	204.17	16.83	48.19
		5MHz	QPSK	23.6	229.09	17.65	58.21
			16QAM	22.7	186.21	16.95	49.55
		10MHz	QPSK	23.5	223.87	17.85	60.95
			16QAM	23.0	199.53	16.77	47.53
		15MHz	QPSK	24.2	263.03	18.33	68.08
			16QAM	22.8	190.55	16.14	41.11

FCC Part 90							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE26	814~824	1.4MHz	QPSK	23.5	223.87	17.51	56.36
			16QAM	22.5	177.83	16.62	45.92
		3MHz	QPSK	23.5	223.87	17.58	57.28
			16QAM	22.4	173.78	16.63	46.03
		5MHz	QPSK	23.6	229.09	17.68	58.61
			16QAM	23.2	208.93	16.67	46.45
		10MHz	QPSK	23.6	229.09	17.26	53.21
			16QAM	22.5	177.83	16.33	42.95

**LTE Band 41**

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	PEAK(dBm)	PEAK(mW)
LTE41	2496~2690	5MHz	QPSK	23.5	223.87	20.02	100.46
			16QAM	22.3	169.82	20.12	102.80
		10MHz	QPSK	23.5	223.87	19.85	96.61
			16QAM	22.3	169.82	19.86	96.83
		15MHz	QPSK	24.4	275.42	20.10	102.33
			16QAM	23.3	213.80	20.25	105.93
		20MHz	QPSK	24.1	257.04	20.22	105.20
			16QAM	23.4	218.78	20.28	106.66

### 5.5. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the [List the bands supported] with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
GSM850, 824~849MHz	-3.9
GSM1900, 1850~1910MHz	-2.8
WCDMA Band 2, 1850~1910	-2.8
WCDMA Band 4, 1710~1755	-2.8
WCDMA Band 5, 824~849	-3.9
LTE Band 2, 1850~1910MHz	-2.8
LTE Band 4, 1710~1755MHz	-2.8
LTE Band 5, 824~849MHz	-3.9
LTE Band 7, 2500~2570MHz	-4.6
LTE Band 12, 699~716MHz	-6.1
LTE Band 13, 777~787MHz	-10.9
LTE Band 17, 704~716MHz	-6.1
LTE Band 26, 824~849MHz	-3.9
LTE Band 41, 2496~2690MHz	-4.6

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SONY	UCH 20 1295-70821	N/A	N/A
Earphone	SONY	N/A	N/A	N/A

### I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	Port	# of Identical ports	Connector Type	Serial Type	Cable Length (m)	Remarks
1	RF Out	1	Spectrum Analyzer	Shielded	None	NA
2	Antenna Port	1	EUT	Shielded	0.1m	NA
3	RF In/Out	1	Communication Test Set	Shielded	1m	NA

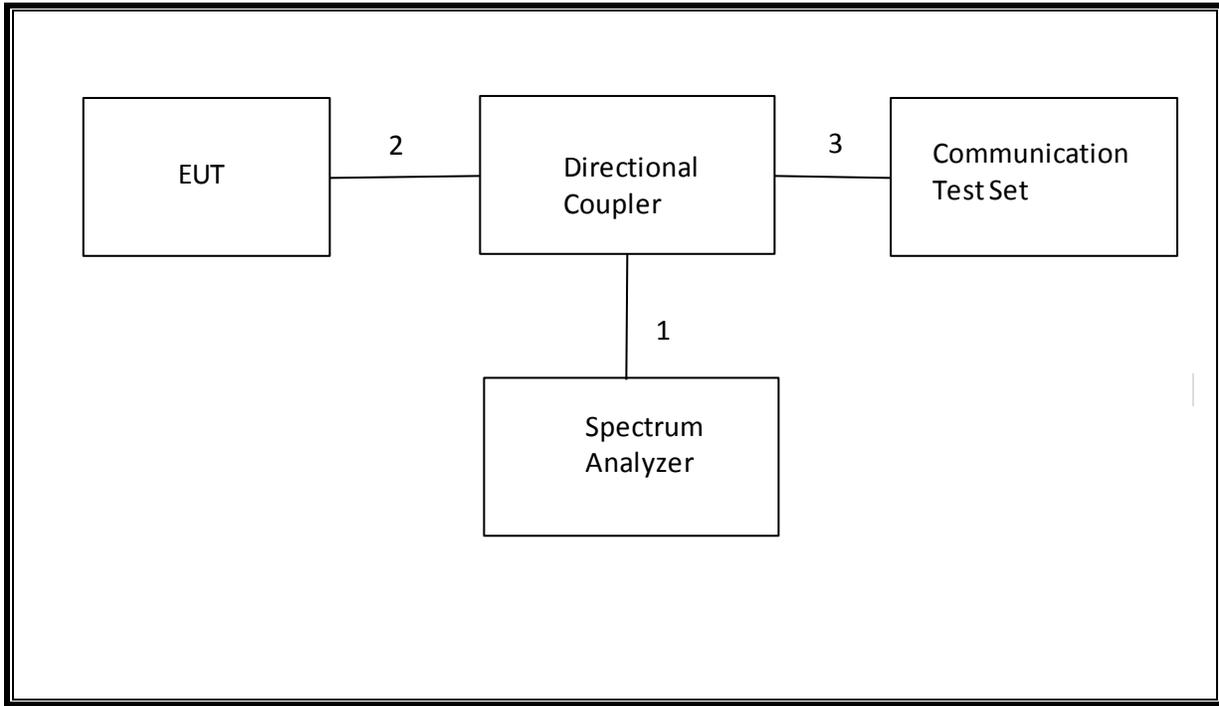
### I/O CABLES (RADIATED SETUP)

I/O Cable List						
Cable No	Port	# of Identical ports	Connector Type	Serial Type	Cable Length (m)	Remarks
1	USB	1	AC Adapter	Un-shielded	1.2m	No
2	Jack	1	Headset	Shielded	1m	No
3	RF In/out	1	Communication Test Set	Un-shielded	2m	Yes

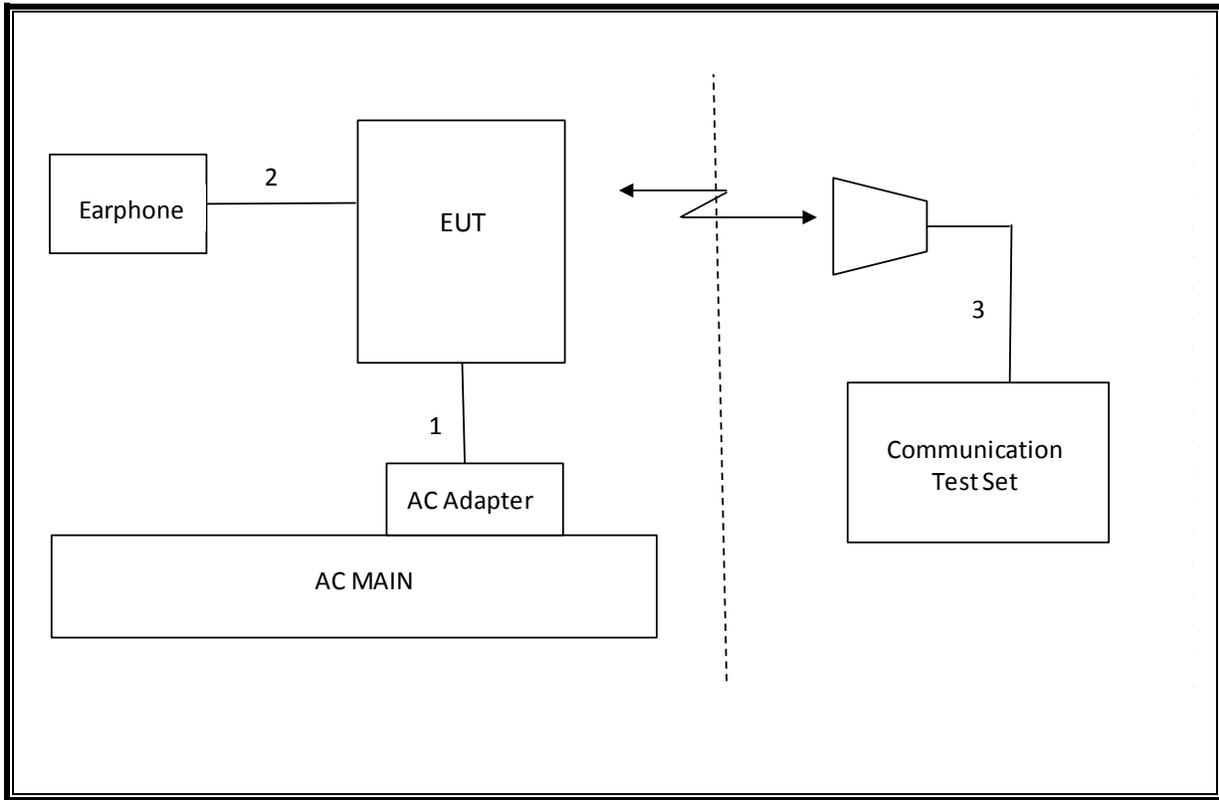
### TEST SETUP

The EUT is continuously communicated to the call box during the tests.

**SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)**



**SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)**



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - North Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	<b>0.009-30MHz</b>	<b>(Loop Ant.)</b>			
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2015-12-08	2016-12-31
	<b>30-1000 MHz</b>				
AT0073	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2015-06-10	2016-06-30
	<b>1-18 GHz</b>				
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2016-03-07	2017-03-31
	<b>Tuned Dipole Set</b>				
AT0013-AT0016	Four Dipole Antenna Set, 30 to 1000 MHz	EMCO	3121C-DB-1, -2, -3, -4	2015-05-06	2016-05-31
	<b>Gain-Loss Chains</b>				
N-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2015-10-07	2016-10-31
N-SAC02	Gain-loss string: 30-1000MHz	Various	Various	2015-06-04	2016-06-30
N-SAC03	Gain-loss string: 1-18GHz	Various	Various	2015-09-29	2016-09-30
	<b>Receiver &amp; Software</b>				
SA0027	Spectrum Analyzer	Agilent	N9030A	2016-02-08	2017-02-08
T374	Wideband Radio Communications Tester	Rohde and Schwartz	CMW500	2015-10-21	2016-10-31
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
	<b>Additional Equipment used</b>				
HI0079	Temp/Humid/Pressure Meter (Module)	Springfield Precision	PreciseTemp	2015-07-01	2016-07-31
AT0078	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz. Used for substitution.	ETS Lindgren	3117	2015-10-15	2016-10-31

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
<b>Conducted Room 1</b>					
SA0026	Spectrum Analyzer	Agilent	N9030A	2016-02-24	2017-02-28
PWM004	RF Power Meter	Keysight Technologies	N1911A	2015-06-08	2016-06-08
PWS004	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	E9323A	2015-06-05	2016-06-05
HI0079	Temp/Humid/Pressure Meter (Base)	Springfield	PreciseTemp	2015-07-01	2016-07-31
MM0167	True RMS Multimeter	Agilent	U1232A	2015-08-17	2016-08-31
76022	DC Regulated Power Supply	CircuitSpecialists. Com	CSI3005X5	NA	NA
<b>Conducted Room 2</b>					
SA0026	Spectrum Analyzer	Agilent	N9030A	2016-02-24	2017-02-28
PWM003	RF Power Meter	Keysight Technologies	N1911A	2015-06-08	2016-06-08
PWS003	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	E9323A	2015-06-05	2016-06-05
1100502	Temp/Humid Chamber	Cincinnati Sub-Zero	ZPH-8-3.5-SCT/AC	2015-05-13	2016-05-31
HI0080	Temp/Humid/Pressure Meter (Module)	Springfield Precision	PreciseTemp	2015-07-01	2016-07-31
MM0168	True RMS Multimeter	Agilent	U1232A	2015-08-17	2016-08-31
76021	DC Regulated Power Supply	CircuitSpecialists. Com	CSI3005X5	NA	NA
<b>Additional Equipment used</b>					
T918	Wideband Radio Communications Tester	Rohde and Schwartz	CMW500	2016-01-21	2017-01-21

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
CLT Software	UL	UL RF	Ver 1.0, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 3.7, Nov 12, 2015

## 7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result
2.1049	N/A	Occupied Bandwidth (99%)	N/A	Conducted	Pass
22.917(a) 24.238(a) 27.53(g) 90.691	RSS-130(4.6) RSS-132(5.5) RSS-133(6.5.1) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emission	-13dBm		Pass
27.53(m)	RSS-199(4.5)		-25dBm		
2.1046	N/A		Conducted output power		
27.53(m) 90.691	RSS-199(4.5)	Emission Mask	Please refer to limit under section 11		Pass
22.355 90.213	RSS-132(5.3) RSS-133(6.3)	Frequency Stability	2.5PPM		Pass
24.235 27.54	RSS-130(4.3) RSS-139(6.3) RSS-199(4.3)		Please refer to limit under section 13		Pass
22.913(a)(2)		Effective Radiated Power	38dBm		Pass
27.50©(10)			34.77dBm		Pass
90.635			50dBm		Pass
	RSS-130 (4.4)	Equivalent Isotropic Radiated Power	36.98dBm	Pass	
	RSS-132 (5.4)		40.6dBm		
24.232(c ) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)		33dBm	Pass	
27.50(d)(4)	RSS-139(6.4)		30dBm	Pass	
22.917(a) 24.238(a) 27.53(g) 90.691	RSS-130 (4.6) RSS-132(5.5) RSS-133(6.5.1) RSS-139(6.5.1)	Radiated Spurious Emission	-13dBm	Pass	
27.53(m)	RSS-199(4.5)		-25dBm		Pass

## 8. RF POWER OUTPUT VERIFICATION

### 8.1. GSM/GPRS/EDGE

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900  
Press Connection control to choose the different menus  
Press RESET > choose all to reset all settings  
Connection Press Signal Off to turn off the signal and change settings  
Network Support > GSM+GPRS or GSM+EGPRS  
Main Service > Packet Data  
Service selection > Test Mode A – Auto Slot Config. off  
MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting  
    > Slot configuration      > Uplink/Gamma  
    > 33 dBm for GPRS 850/900  
    > 30 dBm for GPRS1800/1900  
BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel  
Frequency Offset > + 0 Hz  
Mode > BCCH and TCH  
BCCH Level > -85 dBm (May need to adjust if link is not stable)  
BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]  
Channel Type > Off  
P0> 4 dB  
Slot Config > Unchanged (if already set under MS Signal)  
TCH > choose desired test channel  
Hopping > Off  
Main Timeslot > 3 (Default)  
Network Coding Scheme > CS4 (GPRS) and MCS5 ~ MCS9 (EGPRS)  
    Bit Stream > 2E9-1PSR Bit Pattern  
AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input  
Connection Press Signal On to turn on the signal and change settings

## 8.2. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM (Voice)	CS1	1	128	824.4	32.4	23.4
			190	836.6	32.2	23.2
			251	848.8	32.2	23.2
GPRS (GMSK)	CS1	1	128	824.4	32.4	23.4
			190	836.6	32.2	23.2
			251	848.8	32.2	23.2
		2	128	824.4	31.7	25.7
			190	836.6	31.5	25.5
			251	848.8	31.4	25.4
		3	128	824.4	29.8	25.5
			190	836.6	29.6	25.3
			251	848.8	29.5	25.2
		4	128	824.4	28.9	25.9
			190	836.6	28.6	25.6
			251	848.8	28.5	25.5

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
EGPRS (8PSK)	MCS5	1	128	824.4	27.4	18.4
			190	836.6	27.3	18.3
			251	848.8	27.2	18.2
		2	128	824.4	25.9	19.9
			190	836.6	25.6	19.6
			251	848.8	25.5	19.5
		3	128	824.4	23.9	19.6
			190	836.6	23.7	19.4
			251	848.8	23.6	19.3
		4	128	824.4	22.8	19.8
			190	836.6	22.6	19.6
			251	848.8	22.5	19.5

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	30.0	21.0
			661	1880.0	30.0	21.0
			810	1909.8	30.0	21.0
GPRS (GMSK)	CS1	1	512	1850.2	30.0	21.0
			661	1880.0	30.0	21.0
			810	1909.8	30.0	21.0
		2	512	1850.2	28.6	22.6
			661	1880.0	28.6	22.6
			810	1909.8	28.6	22.6
		3	512	1850.2	26.7	22.4
			661	1880.0	26.6	22.3
			810	1909.8	26.7	22.4
		4	512	1850.2	25.6	22.6
			661	1880.0	25.6	22.6
			810	1909.8	25.8	22.8

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
EGPRS (8PSK)	MCS5	1	512	1850.2	26.1	17.1
			661	1880.0	26.1	17.1
			810	1909.8	26.3	17.3
		2	512	1850.2	24.5	18.5
			661	1880.0	24.6	18.6
			810	1909.8	24.7	18.7
		3	512	1850.2	22.2	17.9
			661	1880.0	22.2	17.9
			810	1909.8	22.4	18.1
		4	512	1850.2	21.2	18.2
			661	1880.0	21.3	18.3
			810	1909.8	21.5	18.5

### 8.3. UMTS REL 99

#### TEST PROCEDURE

The following summary of these settings are illustrated below:

	Mode	Rel99
	Subtest	-
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	HSDPA FRC	Not Applicable
	HSUPA Test	Not Applicable
	Power Control Algorithm	Algorithm2
	$\beta_c$	Not Applicable
	$\beta_d$	Not Applicable
	$\beta_{ec}$	Not Applicable
	$\beta_c/\beta_d$	8/15
	$\beta_{hs}$	Not Applicable
	$\beta_{ed}$	Not Applicable

### 8.4. UMTS REL 99 OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	0	22.9
		9400	1880.0	0	23.0
		9538	1907.6	0	22.9

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	0	23.7
		1413	1732.6	0	23.8
		1513	1752.6	0	23.5

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Rel 99 (RMC, 12.2 kbps)	4132	826.4	0	24.0
		4183	836.6	0	23.9
		4233	846.6	0	23.8

## 8.5. UMTS HSDPA

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	Rel5 HSDPA			
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	$\beta_c$	2/15	12/15	15/15	15/15
	$\beta_d$	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	$\beta_c/\beta_d$	2/15	12/15	15/8	15/4
	$\beta_{hs}$	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	$D_{ACK}$	8			
	$D_{NAK}$	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	$A_{hs} = \beta_{hs}/\beta_c$	30/15			

### 8.6. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	22.0
		9400	1880.0	0	22.1
		9538	1907.6	0	22.1
	Subtest 2	9262	1852.4	0	22.4
		9400	1880.0	0	22.4
		9538	1907.6	0	22.3
	Subtest 3	9262	1852.4	0.5	22.1
		9400	1880.0	0.5	22.2
		9538	1907.6	0.5	22.2
	Subtest 4	9262	1852.4	0.5	22.1
		9400	1880.0	0.5	22.2
		9538	1907.6	0.5	22.2

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	22.8
		1413	1732.6	0	22.8
		1513	1752.6	0	22.7
	Subtest 2	1312	1712.4	0	22.5
		1413	1732.6	0	22.5
		1513	1752.6	0	22.5
	Subtest 3	1312	1712.4	0.5	22.5
		1413	1732.6	0.5	22.5
		1513	1752.6	0.5	22.5
	Subtest 4	1312	1712.4	0.5	22.5
		1413	1732.6	0.5	22.5
		1513	1752.6	0.5	22.5

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	23.3
		4183	836.6	0	23.2
		4233	846.6	0	23.1
	Subtest 2	4132	826.4	0	23.0
		4183	836.6	0	23.0
		4233	846.6	0	22.9
	Subtest 3	4132	826.4	0.5	22.5
		4183	836.6	0.5	22.5
		4233	846.6	0.5	22.5
	Subtest 4	4132	826.4	0.5	22.5
		4183	836.6	0.5	22.5
		4233	846.6	0.5	22.5

## 8.7. UMTS HSUPA

### TEST PROCEDURE

The following summary of these settings are illustrated below: (ETSI TS 134.121-1 Table C.11.1)

	Mode	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	P-CPICH (dB)	-10				
	P-CCPCH (dB)	-12				
	SCH (dB)	-12				
	PICH(dB)	-15				
	DPCH (dB)	-9				
	HS-SCCH_1 (dB)	-8				
	HS-PDSCH (dB)	-3				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	Bc	11/15	6/15	15/15	2/15	15/15
	Bd	15/15	15/15	9/15	15/15	15/15
	Bec	209/225	12/15	30/15	2/15	5/15
	$\beta c/\beta d$	11/15	6/15	15/9	2/15	15/15
Bhs	22/15	12/15	30/15	4/15	30/15	
$\beta ed$ (note1)	1309/225	94/75	47/15	56/75	134/15	
MPR	0	2	1	2	0	
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
Ahs = $\beta hs/\beta c$	30/15					
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	Reference E-TFCIs	5	5	2	5	5
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18		E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27

Note1:  $\beta ed$  cannot be set directly, it is set by Absolute Grant Value.

### 8.8. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	21.7
		9400	1880.0	0	21.6
		9538	1907.6	0	21.6
	Subtest 2	9262	1852.4	2	19.9
		9400	1880.0	2	19.9
		9538	1907.6	2	19.8
	Subtest 3	9262	1852.4	1	20.9
		9400	1880.0	1	20.8
		9538	1907.6	1	20.8
	Subtest 4	9262	1852.4	2	19.9
		9400	1880.0	2	19.9
		9538	1907.6	2	19.8
	Subtest 5	9262	1852.4	0	21.7
		9400	1880.0	0	21.6
		9538	1907.6	0	21.6

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	22.3
		1413	1732.6	0	22.3
		1513	1752.6	0	22.3
	Subtest 2	1312	1712.4	2	20.8
		1413	1732.6	2	20.8
		1513	1752.6	2	20.8
	Subtest 3	1312	1712.4	1	21.2
		1413	1732.6	1	21.2
		1513	1752.6	1	21.2
	Subtest 4	1312	1712.4	2	20.8
		1413	1732.6	2	20.8
		1513	1752.6	2	20.8
	Subtest 5	1312	1712.4	0	22.3
		1413	1732.6	0	22.3
		1513	1752.6	0	22.3

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	22.6
		4183	836.6	0	22.7
		4233	846.6	0	22.7
	Subtest 2	4132	826.4	2	20.9
		4183	836.6	2	20.4
		4233	846.6	2	20.3
	Subtest 3	4132	826.4	1	21.7
		4183	836.6	1	21.8
		4233	846.6	1	21.6
	Subtest 4	4132	826.4	2	20.9
		4183	836.6	2	20.4
		4233	846.6	2	20.3
	Subtest 5	4132	826.4	0	22.6
		4183	836.6	0	22.7
		4233	846.6	0	22.7

### 8.9. LTE OUTPUT POWER RESULT

#### LTE Band 2

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18607	18900	19193
						1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	22.90	22.80	22.90
			1	3	0	23.10	22.80	23.00
			1	5	0	23.00	22.80	22.90
			3	0	0	22.90	22.70	22.80
			3	1	0	22.90	22.80	22.80
			3	3	0	23.00	22.80	22.80
		16QAM	6	0	1	22.00	21.70	21.80
			1	0	1	22.00	22.10	21.90
			1	3	1	22.10	22.10	21.90
			1	5	1	22.00	22.10	21.90
			3	0	1	22.10	21.90	21.90
			3	1	1	22.20	22.00	21.90
			3	3	1	22.10	21.90	21.90
			6	0	2	21.10	20.60	21.00

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18615	18900	19185
						1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	23.00	22.90	22.70
			1	8	0	23.00	22.90	22.70
			1	14	0	22.90	22.90	22.90
			8	0	1	22.00	21.80	21.90
			8	4	1	22.00	21.80	21.90
			8	7	1	22.00	21.80	21.90
			15	0	1	22.00	21.80	21.90
		16QAM	1	0	1	22.40	21.70	21.90
			1	8	1	22.40	21.70	22.00
			1	14	1	22.30	21.70	22.00
			8	0	2	21.00	20.90	21.00
			8	4	2	21.10	20.90	21.00
			8	7	2	21.00	20.90	20.90
			15	0	2	21.00	20.80	20.80

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18625	18900	19175
						1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	23.00	23.00	23.00
			1	12	0	23.00	22.90	23.00
			1	24	0	23.10	22.90	23.00
			12	0	1	22.10	21.80	21.90
			12	7	1	22.00	21.80	21.90
			12	13	1	22.10	21.80	21.90
		16QAM	25	0	1	22.00	21.80	21.90
			1	0	1	22.50	22.10	22.10
			1	12	1	22.50	21.90	22.10
			1	24	1	22.50	22.00	22.10
			12	0	2	21.10	20.90	20.90
			12	7	2	21.10	20.90	21.00
			12	13	2	21.10	20.90	21.00
			25	0	2	21.10	20.80	20.90

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18650	18900	19150
						1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	23.21	23.18	23.12
			1	25	0	23.18	22.97	23.02
			1	49	0	23.30	23.18	23.15
			25	0	1	22.18	22.08	22.06
			25	12	1	22.24	22.02	22.09
			25	25	1	22.19	22.10	22.08
			50	0	1	22.19	22.05	22.12
		16QAM	1	0	1	22.23	22.52	22.15
			1	25	1	22.14	22.36	22.04
			1	49	1	22.22	22.57	22.22
			25	0	2	21.18	21.15	21.27
			25	12	2	21.28	21.05	21.27
			25	25	2	21.19	21.13	21.25
			50	0	2	21.18	21.05	21.23

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18675	18900	19125
						1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	22.98	22.86	22.94
			1	37	0	23.55	23.50	23.42
			1	74	0	23.33	23.23	23.24
			36	0	1	22.42	22.29	22.24
			36	20	1	22.59	22.45	22.51
			36	39	1	22.61	22.53	22.40
		16QAM	75	0	1	22.47	22.35	22.38
			1	0	1	22.05	22.27	22.32
			1	37	1	22.51	22.60	22.55
			1	74	1	22.34	22.62	22.48
			36	0	2	21.44	21.40	21.28
			36	20	2	21.63	21.53	21.57
			36	39	2	21.69	21.59	21.47
			75	0	2	21.54	21.44	21.45

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						18700	18900	19100
						1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	22.93	22.90	23.03
			1	49	0	23.52	23.52	23.68
			1	99	0	23.36	23.20	23.23
			50	0	1	22.22	22.18	22.37
			50	24	1	22.53	22.49	22.58
			50	50	1	22.43	22.43	22.46
		16QAM	100	0	1	22.34	22.31	22.41
			1	0	1	22.47	22.31	22.45
			1	49	1	22.50	22.48	22.45
			1	99	1	22.50	22.59	22.59
			50	0	2	21.27	21.27	21.40
			50	24	2	21.59	21.58	21.59
			50	50	2	21.50	21.45	21.55
			100	0	2	21.38	21.34	21.51

**LTE Band 4**

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						19957	20175	20393
						1710.7 MHz	1732.5 MHz	1754.3 MHz
LTE Band 4	1.4	QPSK	1	0	0	23.40	23.30	23.00
			1	3	0	23.40	23.50	23.10
			1	5	0	23.30	23.40	23.10
			3	0	0	23.50	23.20	23.10
			3	1	0	23.50	23.30	23.10
			3	3	0	23.40	23.30	23.10
		16QAM	6	0	1	22.40	22.20	22.10
			1	0	1	22.70	22.30	22.20
			1	3	1	22.70	22.50	22.20
			1	5	1	22.70	22.40	22.20
			3	0	1	22.70	22.30	22.30
			3	1	1	22.70	22.30	22.40
			3	3	1	22.50	22.40	22.30
			6	0	2	21.40	21.40	21.30

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						19965	20175	20385
						1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	23.40	23.30	23.10
			1	8	0	23.40	23.40	23.10
			1	14	0	23.40	23.30	23.10
			8	0	1	22.40	22.30	22.20
			8	4	1	22.50	22.40	22.20
			8	7	1	22.50	22.30	22.20
			15	0	1	22.50	22.40	22.20
		16QAM	1	0	1	22.80	22.20	22.20
			1	8	1	22.80	22.30	22.30
			1	14	1	22.70	22.20	22.20
			8	0	2	21.50	21.50	21.20
			8	4	2	21.60	21.60	21.30
			8	7	2	21.60	21.50	21.30
			15	0	2	21.50	21.50	21.20

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						19975	20175	20375
						1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	23.50	23.40	23.30
			1	12	0	23.40	23.50	23.30
			1	24	0	23.50	23.50	23.40
			12	0	1	22.50	22.40	22.30
			12	7	1	22.50	22.40	22.30
			12	13	1	22.50	22.40	22.30
		16QAM	25	0	1	22.50	22.40	22.30
			1	0	1	22.56	22.50	22.40
			1	12	1	22.60	22.60	22.30
			1	24	1	22.50	22.50	22.40
			12	0	2	21.60	21.50	21.30
			12	7	2	21.60	21.60	21.40
			12	13	2	21.70	21.50	21.40
			25	0	2	21.60	21.50	21.30

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20000	20175	20350
						1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	23.50	23.50	23.40
			1	25	0	23.40	23.40	23.20
			1	49	0	23.40	23.40	23.40
			25	0	1	22.40	22.30	22.30
			25	12	1	22.40	22.30	22.30
			25	25	1	22.40	22.30	22.20
		16QAM	50	0	1	22.40	22.30	22.30
			1	0	1	22.90	22.40	22.50
			1	25	1	22.80	22.20	22.30
			1	49	1	22.90	22.30	22.40
			25	0	2	21.40	21.40	21.50
			25	12	2	21.50	21.40	21.40
			25	25	2	21.50	21.40	21.40
			50	0	2	21.60	21.40	21.40

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20025	20175	20325
						1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	23.30	23.30	23.20
			1	37	0	23.60	23.10	23.60
			1	74	0	23.40	23.20	23.20
			36	0	1	22.60	22.50	22.60
			36	20	1	22.80	22.70	22.70
			36	39	1	22.70	22.60	22.50
		16QAM	75	0	1	22.70	22.50	22.50
			1	0	1	22.70	22.30	22.50
			1	37	1	22.77	22.70	22.90
			1	74	1	22.80	22.30	22.40
			36	0	2	21.70	21.70	21.60
			36	20	2	21.90	21.80	21.70
			36	39	2	21.90	21.70	21.60
			75	0	2	21.80	21.60	21.60

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20050	20175	20300
						1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0	23.00	23.10	23.20
			1	49	0	23.90	23.70	23.90
			1	99	0	23.00	22.80	23.00
			50	0	1	22.60	22.50	22.70
			50	24	1	22.90	22.70	22.80
			50	50	1	22.70	22.50	22.60
		16QAM	100	0	1	22.60	22.40	22.80
			1	0	1	22.50	22.70	22.70
			1	49	1	22.68	22.70	22.64
			1	99	1	22.40	22.40	22.40
			50	0	2	21.70	21.60	21.80
			50	24	2	21.74	21.80	21.80
			50	50	2	21.80	21.50	21.60
			100	0	2	21.70	21.50	21.90

**LTE Band 5**

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20407	20525	20643
						824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 5	1.4	QPSK	1	0	0	23.50	23.60	23.80
			1	3	0	23.60	23.60	23.90
			1	5	0	23.60	23.60	23.80
			3	0	0	23.60	23.70	23.80
			3	1	0	23.60	23.60	23.80
			3	3	0	23.60	23.60	23.80
		16QAM	6	0	1	22.50	22.50	22.80
			1	0	1	22.60	23.00	22.90
			1	3	1	22.60	23.00	22.80
			1	5	1	22.60	22.90	22.80
			3	0	1	22.70	22.80	22.90
			3	1	1	22.80	22.80	22.90
			3	3	1	22.70	22.80	23.00
			6	0	2	21.70	21.50	21.90

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	23.60	23.60	23.80
			1	8	0	23.60	23.60	23.70
			1	14	0	23.60	23.70	23.80
			8	0	1	22.60	22.60	22.80
			8	4	1	22.60	22.60	22.80
			8	7	1	22.60	22.60	22.80
			15	0	1	22.60	22.60	22.80
		16QAM	1	0	1	22.90	22.50	22.90
			1	8	1	22.90	22.50	22.90
			1	14	1	23.00	22.60	22.90
			8	0	2	21.70	21.70	21.90
			8	4	2	21.70	21.70	21.90
			8	7	2	21.70	21.70	21.90
			15	0	2	21.70	21.60	21.90

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20425	20525	20625
						826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	23.70	23.70	23.50
			1	12	0	23.70	23.70	23.60
			1	24	0	23.80	23.90	23.70
			12	0	1	22.70	22.60	22.60
			12	7	1	22.80	22.60	22.70
			12	13	1	22.70	22.70	22.60
		16QAM	25	0	1	22.70	22.70	22.70
			1	0	1	23.20	22.80	22.70
			1	12	1	23.30	22.70	22.70
			1	24	1	23.30	22.90	22.80
			12	0	2	21.90	21.70	21.70
			12	7	2	21.90	21.70	21.70
			12	13	2	21.90	21.80	21.70
			25	0	2	21.80	21.70	21.70

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20450	20525	20600
						829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0	23.80	23.70	23.60
			1	25	0	23.60	23.60	23.50
			1	49	0	23.90	23.80	23.70
			25	0	1	22.70	22.60	22.50
			25	12	1	22.70	22.60	22.60
			25	25	1	22.80	22.70	22.60
		16QAM	50	0	1	22.75	22.60	22.60
			1	0	1	22.90	22.60	22.90
			1	25	1	22.80	22.50	22.80
			1	49	1	22.90	22.70	22.90
			25	0	2	21.80	21.70	21.50
			25	12	2	21.90	21.60	21.60
			25	25	2	21.90	21.70	21.70
			50	0	2	21.60	21.60	21.60

**LTE Band 7**

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20775	21100	21425
						2502.5 MHz	2535 MHz	2567.5 MHz
LTE Band 7	5	QPSK	1	0	0	23.58	23.53	23.30
			1	12	0	23.65	23.57	23.33
			1	24	0	23.73	23.67	23.36
			12	0	1	23.03	22.98	22.75
			12	7	1	23.00	23.07	22.82
			12	13	1	23.12	23.11	22.81
			25	0	1	23.09	23.03	22.77
		16QAM	1	0	1	23.19	23.43	22.83
			1	12	1	23.27	23.46	22.86
			1	24	1	23.39	23.40	22.94
			12	0	2	22.13	22.14	21.77
			12	7	2	22.12	22.25	21.85
			12	13	2	22.21	22.30	21.83
			25	0	2	22.15	22.14	21.77

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20800	21100	21400
						2505 MHz	2535 MHz	2565 MHz
LTE Band 7	10	QPSK	1	0	0	23.63	23.76	23.42
			1	25	0	23.49	23.50	23.28
			1	49	0	24.02	24.06	23.76
			25	0	1	23.11	22.96	22.79
			25	12	1	23.09	23.12	22.84
			25	25	1	23.26	23.20	22.96
			50	0	1	23.13	23.07	22.90
		16QAM	1	0	1	23.15	23.11	23.27
			1	25	1	23.07	22.94	23.18
			1	49	1	23.50	23.45	23.50
			25	0	2	22.23	21.97	21.81
			25	12	2	22.21	22.10	21.81
			25	25	2	22.37	22.20	21.90
			50	0	2	22.16	22.08	21.84

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20825	21100	21375
						2507.5 MHz	2535 MHz	2562.5 MHz
LTE Band 7	15	QPSK	1	0	0	23.72	23.54	23.40
			1	37	0	24.14	24.20	23.96
			1	74	0	23.68	23.54	23.40
			36	0	1	23.50	23.44	23.30
			36	20	1	23.48	23.49	23.41
			36	39	1	23.45	23.45	23.30
		16QAM	75	0	1	23.50	23.39	23.34
			1	0	1	23.50	22.99	23.39
			1	37	1	23.50	23.45	23.45
			1	74	1	23.45	23.06	23.31
			36	0	2	22.49	22.44	22.36
			36	20	2	22.43	22.50	22.44
			36	39	2	22.49	22.49	22.35
			75	0	2	22.48	22.42	22.32

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20850	21100	21350
						2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	23.44	23.35	23.37
			1	49	0	23.94	23.99	23.83
			1	99	0	23.63	23.74	23.44
			50	0	1	23.42	23.33	23.23
			50	24	1	23.50	23.50	23.34
			50	50	1	23.39	23.38	23.27
		16QAM	100	0	1	23.44	23.39	23.20
			1	0	1	23.36	23.38	23.33
			1	49	1	23.43	23.50	23.50
			1	99	1	23.50	23.47	23.50
			50	0	2	22.43	22.35	22.26
			50	24	2	22.49	22.50	22.33
			50	50	2	22.43	22.44	22.26
			100	0	2	22.45	22.44	22.20

**LTE Band 12**

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						23017	23095	23173
						699.7 MHz	707.5 MHz	715.3 MHz
LTE Band 12	1.4	QPSK	1	0	0	23.50	23.20	23.70
			1	3	0	23.60	23.30	23.70
			1	5	0	23.60	23.30	23.70
			3	0	0	23.70	23.60	23.70
			3	1	0	23.70	23.60	23.80
			3	3	0	23.70	23.60	23.70
		16QAM	6	0	1	22.50	22.50	22.70
			1	0	1	22.60	22.80	22.70
			1	3	1	22.60	22.90	22.80
			1	5	1	22.60	22.80	22.70
			3	0	1	22.70	22.70	22.80
			3	1	1	22.70	22.70	22.80
			3	3	1	22.70	22.60	22.80
			6	0	2	21.70	21.40	21.80

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						23025	23095	23165
						700.5 MHz	707.5 MHz	714.5 MHz
LTE Band 12	3	QPSK	1	0	0	23.70	23.50	23.80
			1	8	0	23.70	23.50	23.70
			1	14	0	23.60	23.50	23.70
			8	0	1	22.60	22.60	22.70
			8	4	1	22.60	22.60	22.80
			8	7	1	22.60	22.50	22.70
			15	0	1	22.50	22.50	22.70
		16QAM	1	0	1	22.90	22.30	22.80
			1	8	1	22.90	22.40	22.80
			1	14	1	22.80	22.30	22.70
			8	0	2	21.70	21.60	21.80
			8	4	2	21.70	21.70	21.80
			8	7	2	21.60	21.60	21.80
			15	0	2	21.60	21.60	21.70

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						23035	23095	23155
						701.5 MHz	707.5 MHz	713.5 MHz
LTE Band 12	5	QPSK	1	0	0	23.60	23.70	23.80
			1	12	0	23.60	23.70	23.80
			1	24	0	23.50	23.60	23.80
			12	0	1	22.60	22.60	22.80
			12	7	1	22.70	22.70	22.80
			12	13	1	22.60	22.60	22.70
		16QAM	25	0	1	22.60	22.60	22.80
			1	0	1	23.20	22.80	22.90
			1	12	1	23.10	22.70	23.00
			1	24	1	23.10	22.70	23.00
			12	0	2	21.80	21.70	21.90
			12	7	2	21.80	21.70	21.90
			12	13	2	21.80	21.70	21.80
			25	0	2	21.80	21.70	21.80

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						23060	23095	23130
						704 MHz	707.5 MHz	711 MHz
LTE Band 12	10	QPSK	1	0	0	24.0	24.0	23.9
			1	25	0	23.6	23.7	23.9
			1	49	0	23.6	23.8	23.7
			25	0	1	22.7	22.8	22.7
			25	12	1	22.6	22.8	22.7
			25	25	1	22.6	22.7	22.7
			50	0	1	22.6	22.7	22.8
		16QAM	1	0	1	22.8	22.8	23.3
			1	25	1	22.7	22.6	23.2
			1	49	1	22.6	22.6	23.1
			25	0	2	21.7	21.8	21.9
			25	12	2	21.7	21.8	21.9
			25	25	2	21.7	21.7	21.9
			50	0	2	21.7	21.7	21.9

**LTE Band 13**

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23230
						782 MHz
LTE Band 13	5	QPSK	1	0	0	23.01
			1	12	0	22.89
			1	24	0	23.02
			12	0	1	21.92
			12	7	1	21.96
			12	13	1	22.00
			25	0	1	21.97
		16QAM	1	0	1	22.17
			1	12	1	22.09
			1	24	1	22.19
			12	0	2	21.01
			12	7	2	21.03
			12	13	2	21.07
			25	0	2	21.00

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23230
						782 MHz
LTE Band 13	10	QPSK	1	0	0	22.91
			1	25	0	22.91
			1	49	0	23.19
			25	0	1	22.03
			25	12	1	22.04
			25	25	1	22.18
			50	0	1	22.03
		16QAM	1	0	1	22.02
			1	25	1	22.01
			1	49	1	22.36
			25	0	2	21.06
			25	12	2	21.11
			25	25	2	21.21
			50	0	2	21.05

**LTE Band 17**

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	5	QPSK	1	0	0	23.40
			1	12	0	23.36
			1	24	0	23.33
			12	0	1	22.32
			12	7	1	22.36
			12	13	1	22.42
			25	0	1	22.27
		16QAM	1	0	1	22.44
			1	12	1	22.36
			1	24	1	22.45
			12	0	2	21.40
			12	7	2	21.44
			12	13	2	21.51
			25	0	2	21.26

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	10	QPSK	1	0	0	23.59
			1	25	0	23.28
			1	49	0	23.19
			25	0	1	22.34
			25	12	1	22.41
			25	25	1	22.32
			50	0	1	22.35
		16QAM	1	0	1	22.68
			1	25	1	22.34
			1	49	1	22.27
			25	0	2	21.44
			25	12	2	21.49
			25	25	2	21.40
			50	0	2	21.42

**LTE Band 26**

BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
					26697	26865	27033
					814.7 MHz	831.5 MHz	848.3 MHz
1.4	QPSK	1	0	0	23.50	23.30	23.80
		1	3	0	23.50	23.40	23.70
		1	5	0	23.40	23.30	23.70
		3	0	0	23.50	23.30	23.80
		3	1	0	23.50	23.30	23.80
		3	3	0	23.50	23.30	23.80
		6	0	1	22.40	22.30	22.70
	16QAM	1	0	1	22.50	22.40	23.10
		1	3	1	22.50	22.40	23.10
		1	5	1	22.50	22.30	23.10
		3	0	1	22.50	22.50	23.00
		3	1	1	22.60	22.50	23.00
		3	3	1	22.60	22.50	23.00
		6	0	2	21.50	21.50	21.60

BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
					26705	26865	27025
					815.5 MHz	831.5 MHz	847.5 MHz
3	QPSK	1	0	0	23.50	23.30	23.60
		1	8	0	23.50	23.30	23.70
		1	14	0	23.40	23.30	23.80
		8	0	1	22.50	22.30	22.80
		8	4	1	22.50	22.40	22.70
		8	7	1	22.40	22.30	22.80
		15	0	1	22.50	22.40	22.80
	16QAM	1	0	1	22.40	22.40	23.00
		1	8	1	22.30	22.50	23.00
		1	14	1	22.30	22.40	23.10
		8	0	2	21.60	21.40	21.90
		8	4	2	21.60	21.50	21.90
		8	7	2	21.60	21.30	21.80
		15	0	2	21.50	21.30	21.80

BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
					26715	26865	27015
					816.5 MHz	831.5 MHz	846.5 MHz
5	QPSK	1	0	0	23.40	23.60	23.50
		1	12	0	23.40	23.60	23.40
		1	24	0	23.60	23.50	23.50
		12	0	1	22.60	22.40	22.50
		12	7	1	22.60	22.40	22.50
		12	13	1	22.60	22.40	22.40
	16QAM	25	0	1	22.50	22.40	22.50
		1	0	1	23.20	22.70	22.50
		1	12	1	23.00	22.70	22.50
		1	24	1	23.20	22.60	22.50
		12	0	2	21.80	21.40	21.60
		12	7	2	21.70	21.40	21.60
		12	13	2	21.70	21.40	21.50
		25	0	2	21.60	21.40	21.50

BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
					26740	26865	26990
					819 MHz	831.5 MHz	844 MHz
10	QPSK	1	0	0	23.60	23.30	23.50
		1	25	0	23.50	23.30	23.40
		1	49	0	23.50	23.30	23.50
		25	0	1	22.60	22.40	22.50
		25	12	1	22.60	22.40	22.50
		25	25	1	22.50	22.40	22.50
		50	0	1	22.60	22.40	22.60
	16QAM	1	0	1	22.50	22.30	22.80
		1	25	1	22.40	22.40	22.80
		1	49	1	22.30	22.30	23.00
		25	0	2	21.60	21.50	21.60
		25	12	2	21.60	21.50	21.60
		25	25	2	21.60	21.50	21.60
		50	0	2	21.60	21.50	21.60

BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
					26765	26865	26965
					821.5 MHz	831.5 MHz	841.5 MHz
15	QPSK	1	0	0	23.40	23.00	23.40
		1	37	0	23.70	23.10	24.20
		1	74	0	23.70	23.30	23.60
		36	0	1	22.70	22.20	22.60
		36	20	1	22.70	22.40	22.70
		36	39	1	22.60	22.40	22.70
		75	0	1	22.60	22.30	22.50
	16QAM	1	0	1	22.70	21.80	22.60
		1	37	1	22.90	22.20	22.80
		1	74	1	22.90	22.20	22.80
		36	0	2	21.80	21.30	21.60
		36	20	2	21.80	21.40	21.70
		36	39	2	21.70	21.40	21.70
		75	0	2	21.70	21.30	21.70

**LTE Band 41**

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)				
						39750	40185	40620	41055	41490
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	5	QPSK	1	0	0	23.30	23.40	23.20	23.00	23.20
			1	12	0	23.20	23.50	23.10	23.10	23.30
			1	24	0	23.20	23.40	23.10	23.10	23.30
			12	0	1	22.10	22.30	22.20	22.00	22.20
			12	7	1	22.20	22.30	22.20	22.00	22.10
			12	13	1	22.10	22.30	22.10	22.00	22.10
		16QAM	25	0	1	22.20	22.30	22.10	22.00	22.20
			1	0	1	22.20	22.30	22.40	22.00	22.10
			1	12	1	22.20	22.30	22.30	22.00	22.10
			1	24	1	22.20	22.30	22.30	22.00	22.20
			12	0	2	21.10	21.20	21.20	21.00	21.10
			12	7	2	21.10	21.20	21.10	21.00	21.10
			12	13	2	21.10	21.20	21.10	21.00	21.10
			25	0	2	21.10	21.20	21.10	21.00	21.10

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)				
						39750	40185	40620	41055	41490
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	10	QPSK	1	0	0	23.10	23.50	23.30	23.10	23.20
			1	25	0	23.20	23.40	23.20	23.10	23.20
			1	49	0	23.20	23.40	23.30	23.10	23.30
			25	0	1	22.10	22.40	22.30	22.00	22.20
			25	12	1	22.10	22.40	22.20	22.00	22.20
			25	25	1	22.20	22.40	22.20	22.10	22.30
		16QAM	50	0	1	22.20	22.50	22.20	22.00	22.30
			1	0	1	22.00	22.20	22.30	21.90	22.20
			1	25	1	22.00	22.20	22.20	21.80	22.20
			1	49	1	21.90	22.20	22.20	21.90	22.30
			25	0	2	21.10	21.40	21.20	21.00	21.20
			25	12	2	21.20	21.40	21.20	21.10	21.20
			25	25	2	21.20	21.40	21.10	21.10	21.20
			50	0	2	21.10	21.30	21.20	21.10	21.30

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)				
						39750	40185	40620	41055	41490
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	15	QPSK	1	0	0	23.90	23.50	23.40	23.10	23.20
			1	37	0	24.40	24.30	24.10	23.80	23.90
			1	74	0	24.00	23.50	23.50	23.30	23.30
			36	0	1	23.10	22.90	23.00	22.60	22.60
			36	20	1	23.40	23.00	23.10	22.70	22.70
			36	39	1	23.20	22.90	22.90	22.60	22.60
			75	0	1	23.20	22.90	22.90	22.60	22.50
		16QAM	1	0	1	22.70	22.60	22.20	22.10	22.20
			1	37	1	23.30	22.80	22.60	22.70	22.40
			1	74	1	22.90	22.60	22.20	22.20	22.10
			36	0	2	22.00	21.90	21.90	21.50	21.40
			36	20	2	22.20	22.00	22.00	21.60	21.50
			36	39	2	22.20	21.80	21.80	21.60	21.50
			75	0	2	22.10	21.90	21.80	21.50	21.60

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)				
						39750	40185	40620	41055	41490
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	23.40	23.30	23.30	22.90	23.00
			1	49	0	24.10	24.00	23.90	23.60	23.70
			1	99	0	23.50	23.30	23.20	23.00	23.10
			50	0	1	22.90	23.00	22.60	22.40	22.50
			50	24	1	23.20	23.20	22.90	22.70	22.80
			50	50	1	23.00	22.90	22.70	22.50	22.60
			100	0	1	22.90	23.00	22.60	22.40	22.60
		16QAM	1	0	1	22.90	22.40	22.40	22.00	22.20
			1	49	1	23.40	23.10	23.00	22.70	22.90
			1	99	1	23.00	22.40	22.30	22.00	22.20
			50	0	2	21.90	22.00	21.70	22.40	21.40
			50	24	2	22.00	22.10	21.90	21.60	21.70
			50	50	2	22.00	21.80	21.60	21.40	21.50
			100	0	2	21.90	21.90	21.60	21.40	21.60

## 9. PEAK TO AVERAGE RATIO

### TEST PROCEDURE

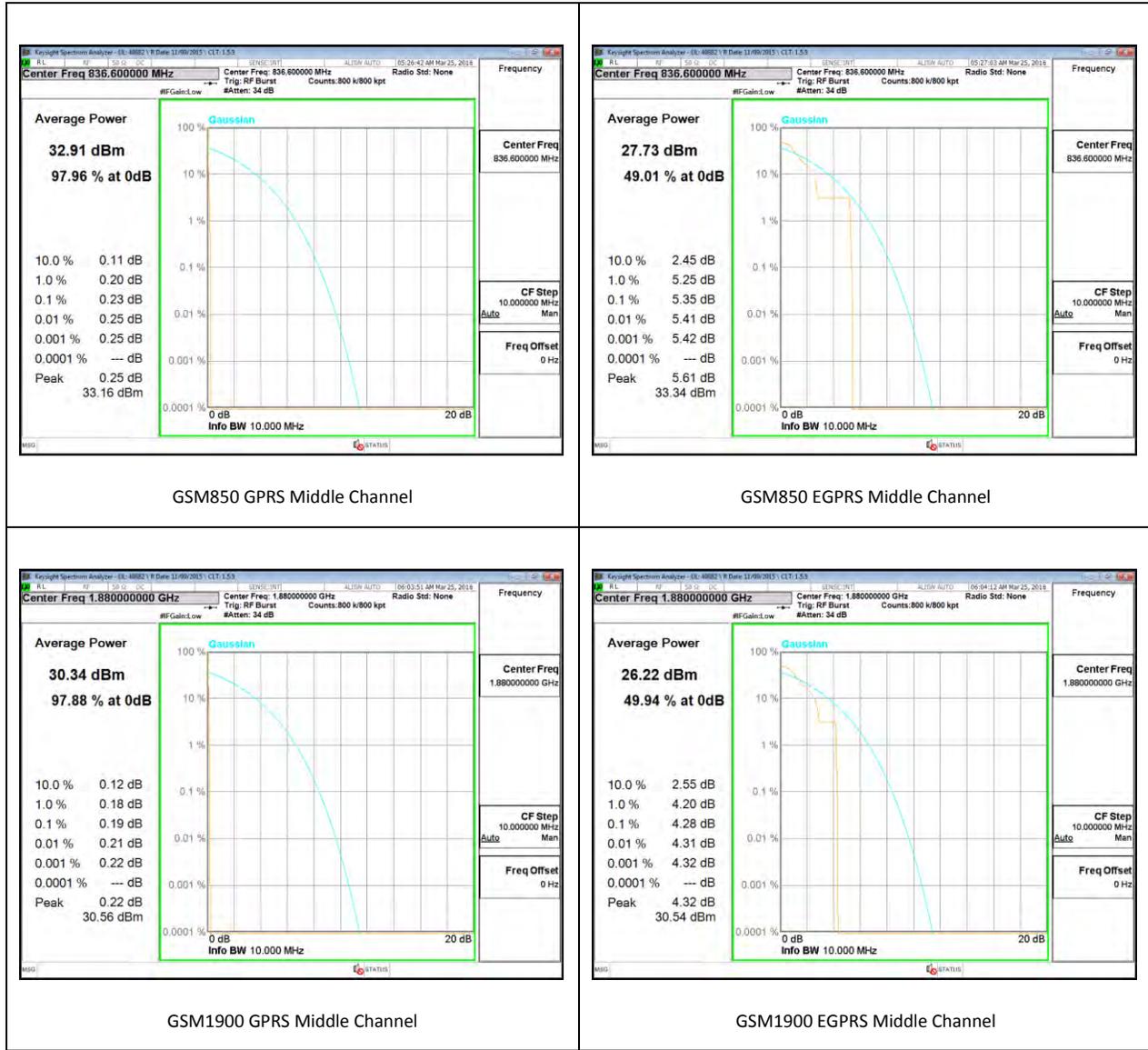
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

### TEST SPEC

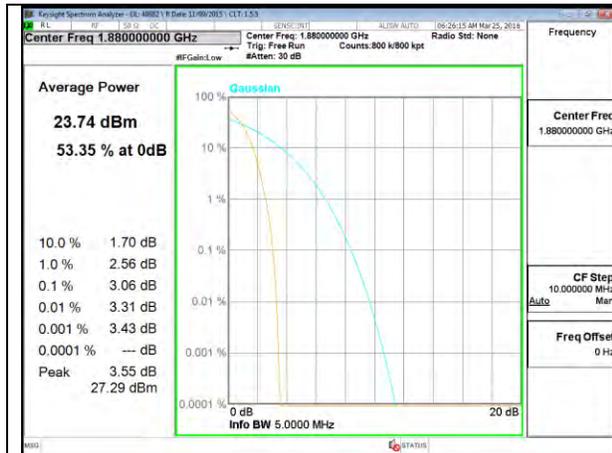
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

## 9.1. CONDUCTED PEAK TO AVERAGE RESULT

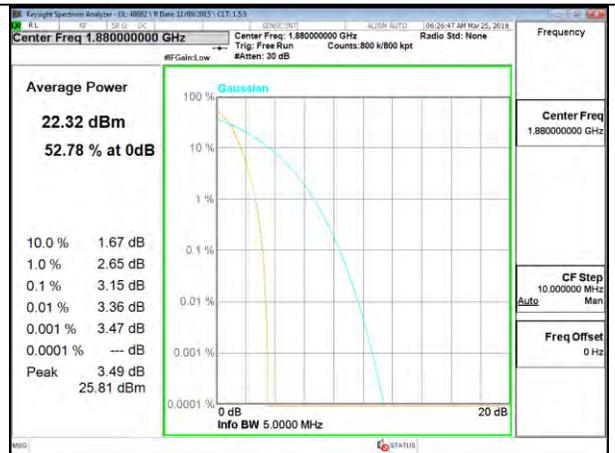
### GSM



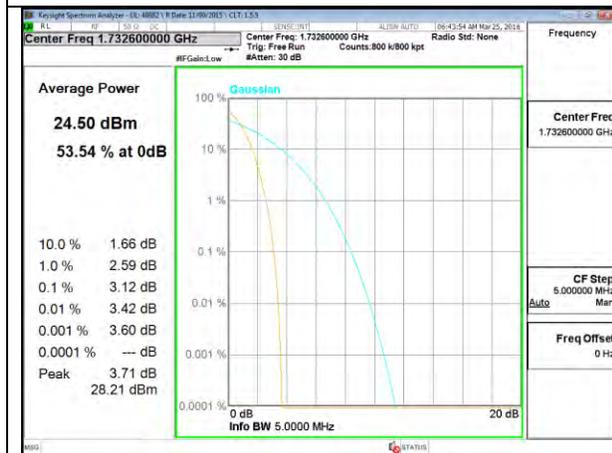
**WCDMA**



B2 REL99



B2 HSDPA



B4 REL99



B4 HSDPA



B5 REL99

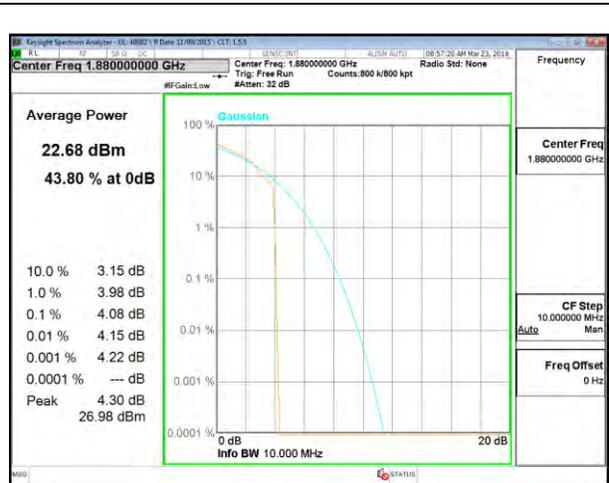


B5 HSDPA

**LTE Band 2**



LTE B2 1.4MHz QPSK Middle Channel



LTE B2 1.4MHz 16QAM Middle Channel



LTE B2 3MHz QPSK Middle Channel



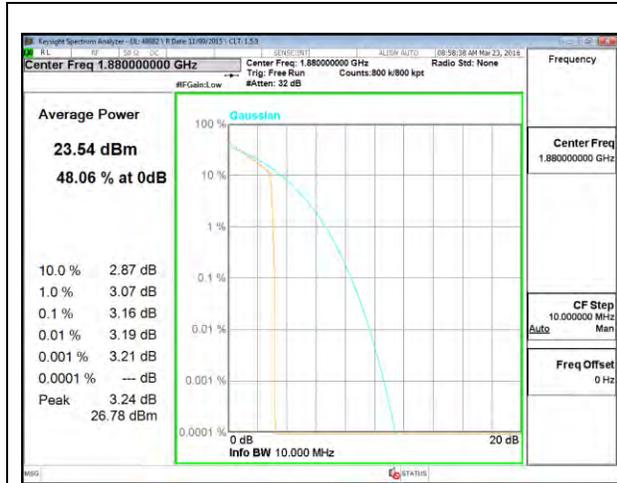
LTE B2 3MHz 16QAM Middle Channel



LTE B2 5MHz QPSK Middle Channel



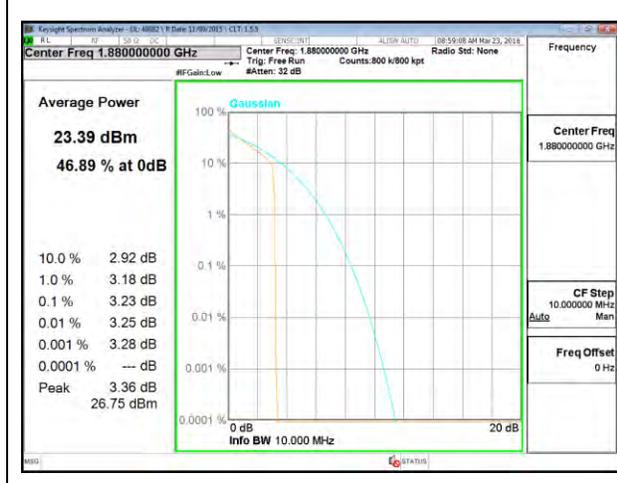
LTE B2 5MHz 16QAM Middle Channel



LTE B2 10MHz QPSK Middle Channel



LTE B2 10MHz 16QAM Middle Channel



LTE B2 15MHz QPSK Middle Channel



LTE B2 15MHz 16QAM Middle Channel



LTE B2 20MHz QPSK Middle Channel



LTE B2 20MHz 16QAM Middle Channel

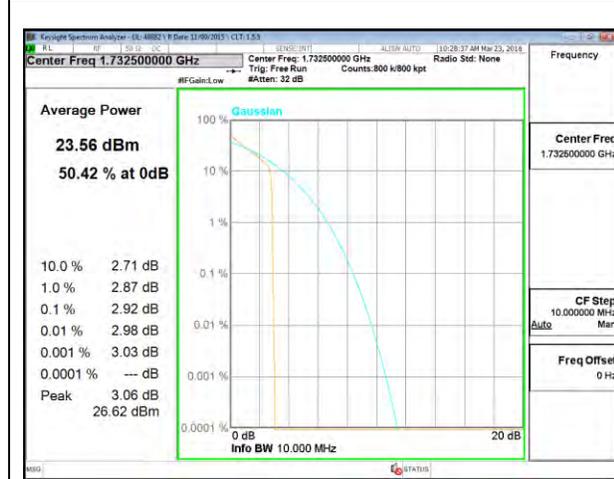
**LTE Band 4**



LTE B4 1.4MHz QPSK Middle Channel



LTE B4 1.4MHz 16QAM Middle Channel



LTE B4 3MHz QPSK Middle Channel



LTE B4 3MHz 16QAM Middle Channel



LTE B4 5MHz QPSK Middle Channel



LTE B4 5MHz 16QAM Middle Channel



LTE B4 10MHz QPSK Middle Channel



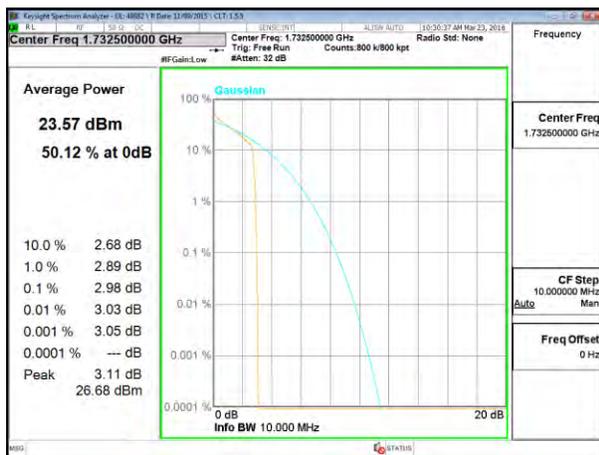
LTE B4 10MHz 16QAM Middle Channel



LTE B4 15MHz QPSK Middle Channel



LTE B4 15MHz 16QAM Middle Channel



LTE B4 20MHz QPSK Middle Channel

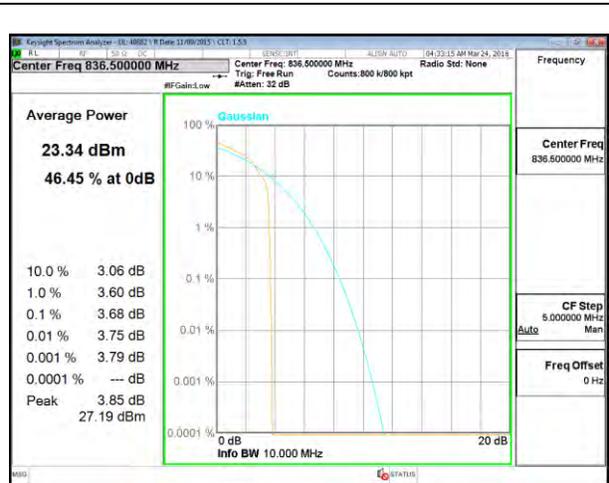


LTE B4 20MHz 16QAM Middle Channel

**LTE Band 5**



LTE B5 1.4MHz QPSK Middle Channel



LTE B5 1.4MHz 16QAM Middle Channel



LTE B5 3MHz QPSK Middle Channel



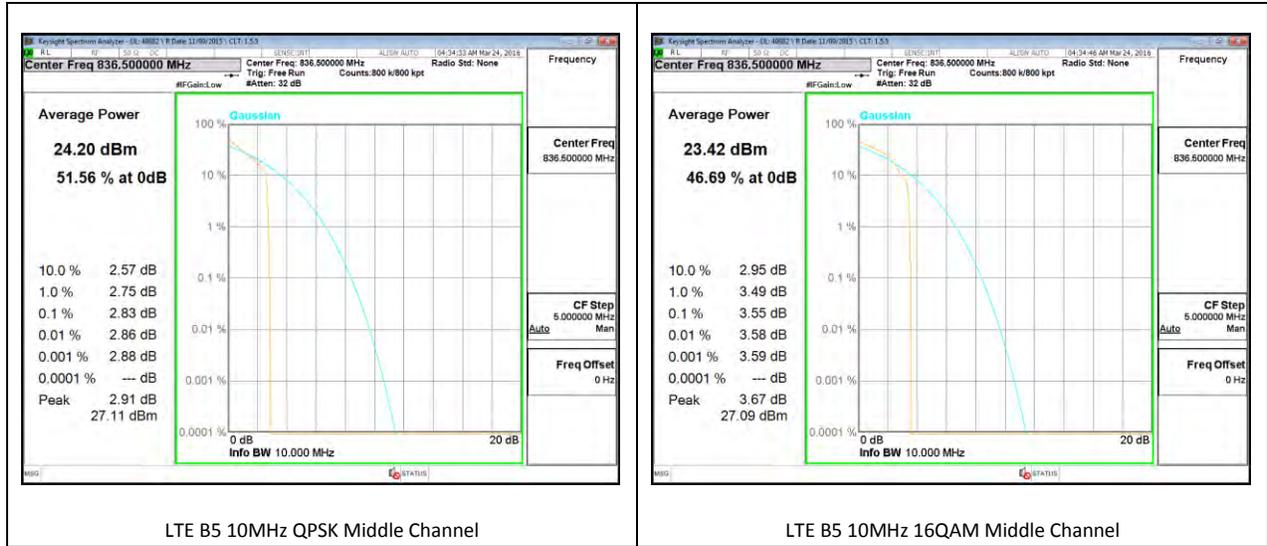
LTE B5 3MHz 16QAM Middle Channel



LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel



**LTE Band 7**



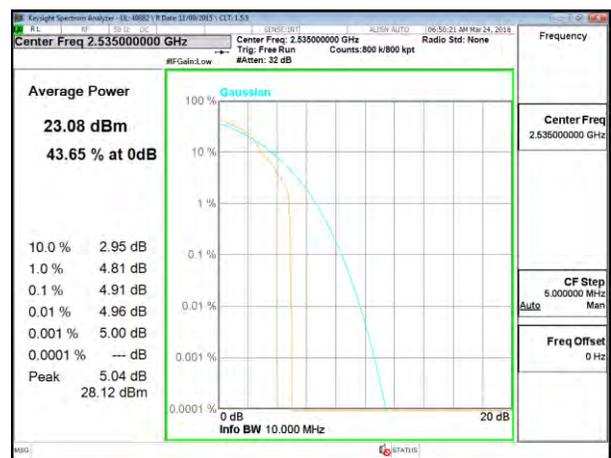
LTE B7 5MHz QPSK Middle Channel



LTE B7 5MHz 16QAM Middle Channel



LTE B7 10MHz QPSK Middle Channel



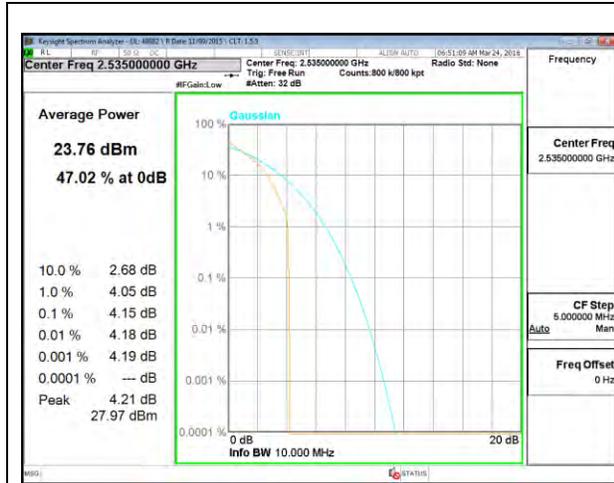
LTE B7 10MHz 16QAM Middle Channel



LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel



LTE B7 20MHz QPSK Middle Channel



LTE B7 20MHz 16QAM Middle Channel

**LTE Band 12**



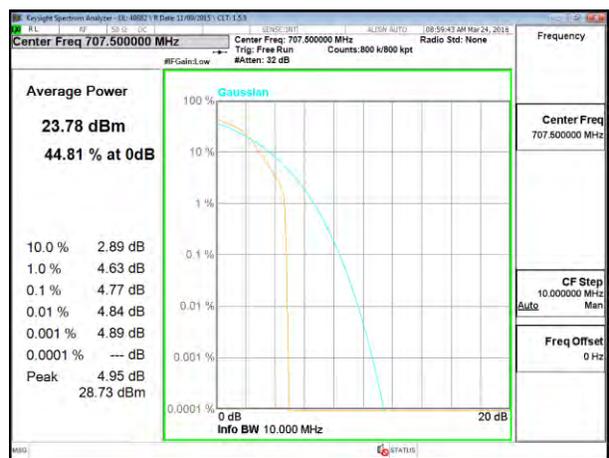
LTE B12 1.4MHz QPSK Middle Channel



LTE B12 1.4MHz 16QAM Middle Channel



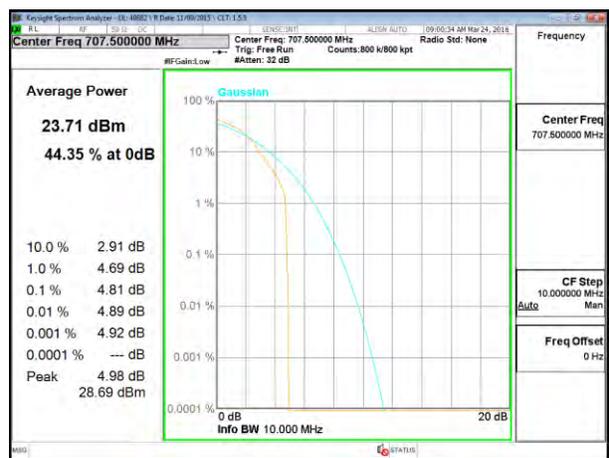
LTE B12 3MHz QPSK Middle Channel



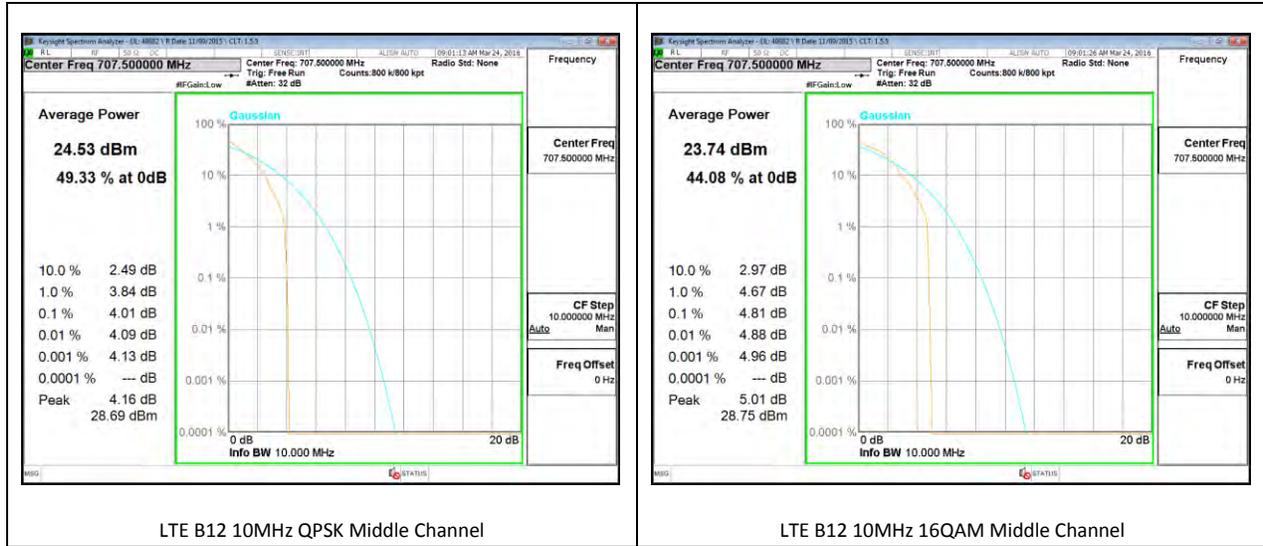
LTE B12 3MHz 16QAM Middle Channel



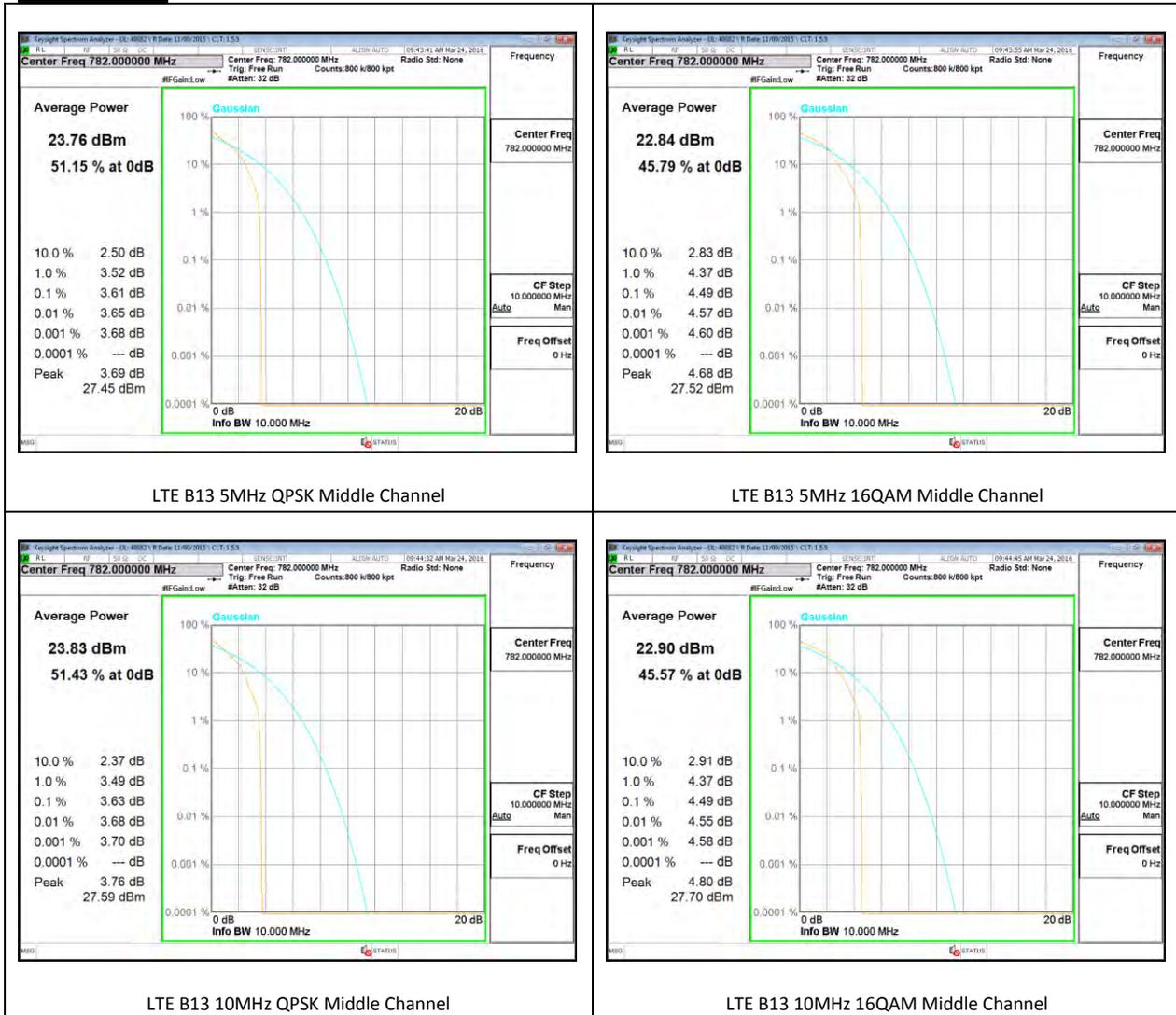
LTE B12 5MHz QPSK Middle Channel



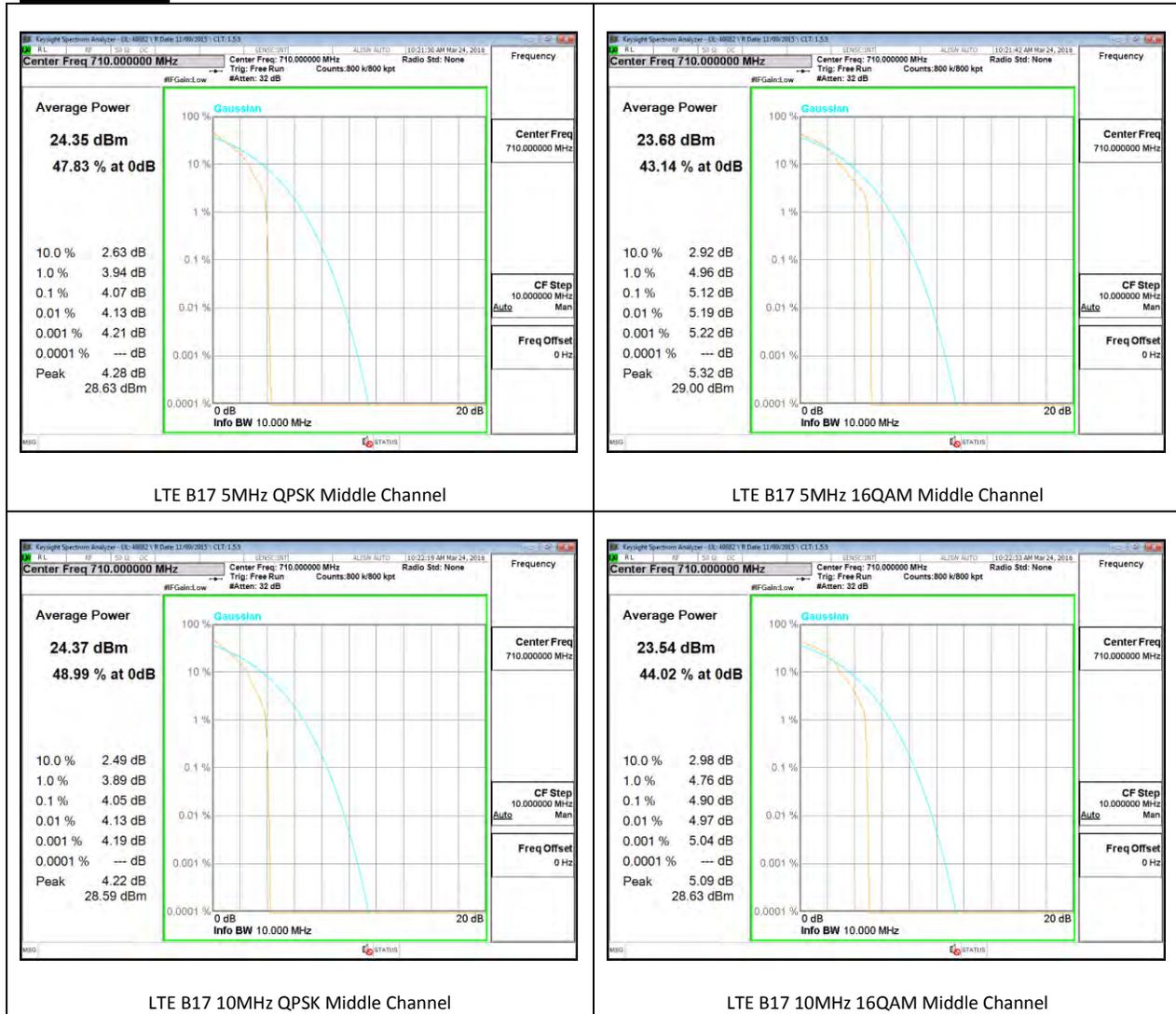
LTE B12 5MHz 16QAM Middle Channel



**LTE Band 13**



**LTE Band 17**



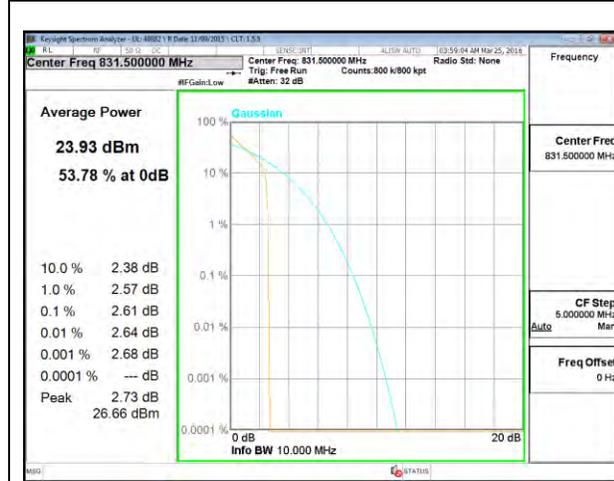
**LTE Band 26**



LTE B26 1.4MHz QPSK Middle Channel



LTE B26 1.4MHz 16QAM Middle Channel



LTE B26 3MHz QPSK Middle Channel



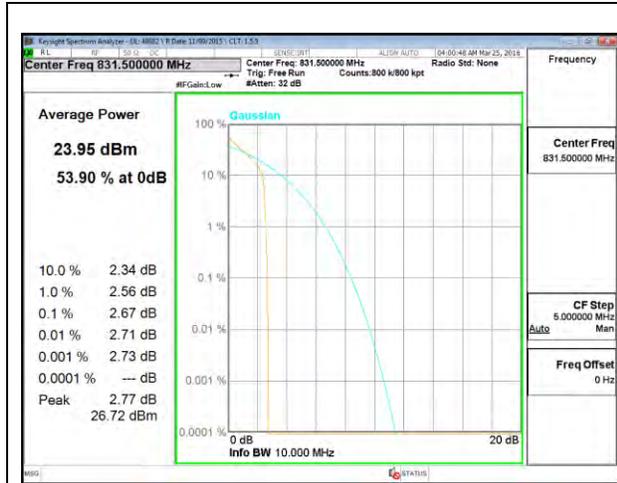
LTE B26 3MHz 16QAM Middle Channel



LTE B26 5MHz QPSK Middle Channel



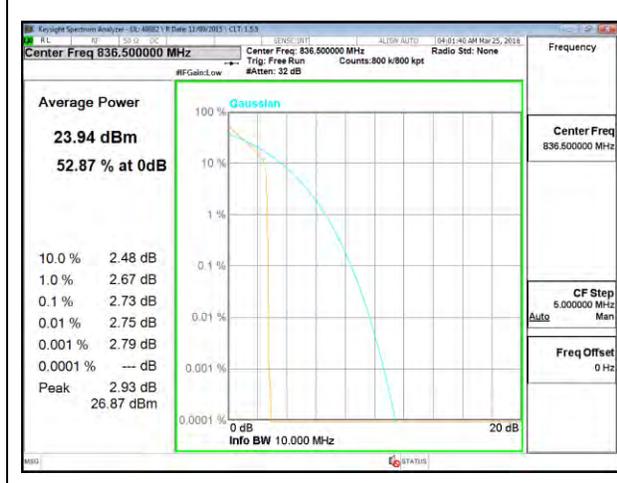
LTE B26 5MHz 16QAM Middle Channel



LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

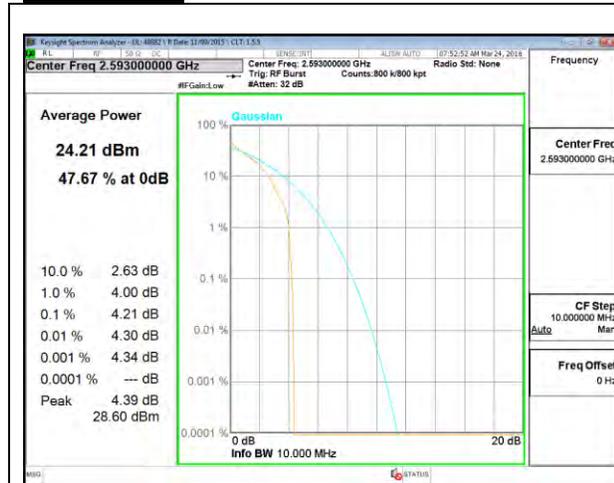


LTE B26 15MHz QPSK Middle Channel



LTE B26 15MHz 16QAM Middle Channel

**LTE Band 41**



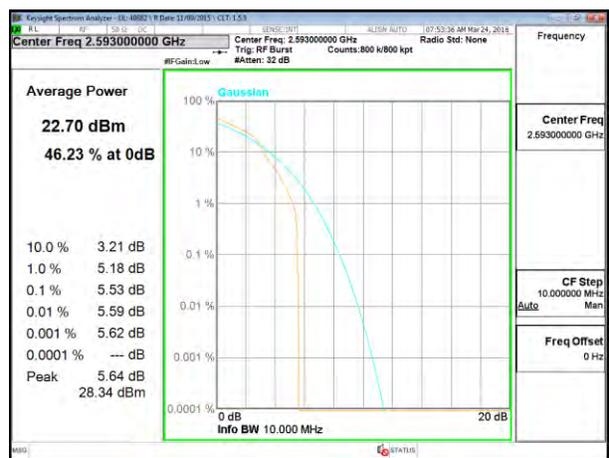
LTE B41 5MHz QPSK Middle Channel



LTE B41 5MHz 16QAM Middle Channel



LTE B41 10MHz QPSK Middle Channel



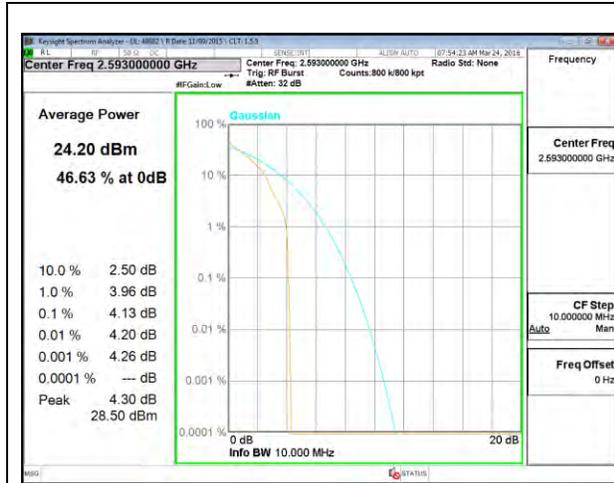
LTE B41 10MHz 16QAM Middle Channel



LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



LTE B41 20MHz QPSK Middle Channel



LTE B41 20MHz 16QAM Middle Channel

## 10. OCCUPIED BANDWIDTH

### RULE PART(S)

FCC: §2.1049

### LIMITS

For reporting purposes only

### TEST PROCEDURE

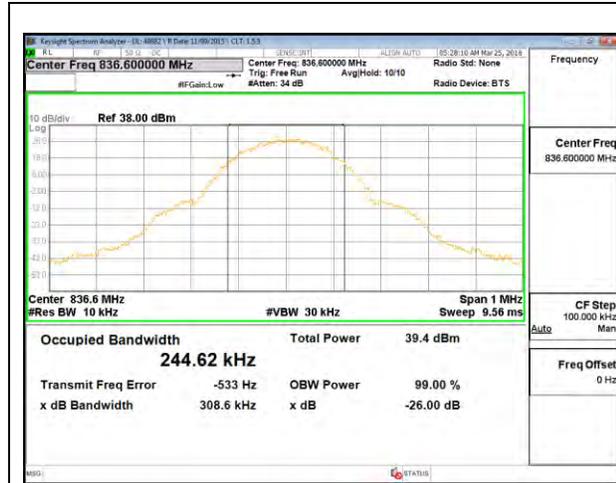
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

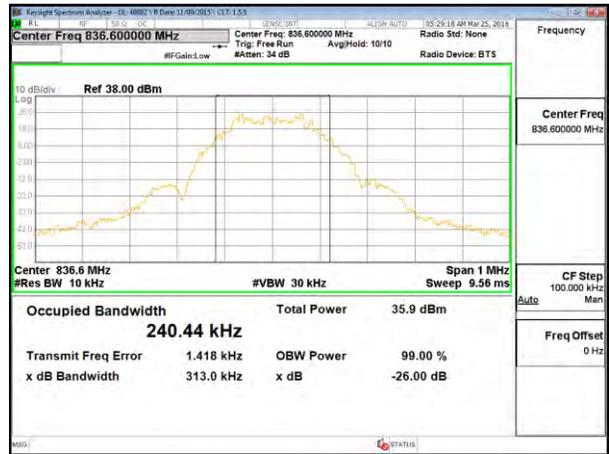
## 10.1. OCCUPIED BANDWIDTH RESULTS AND PLOTS

### GSM

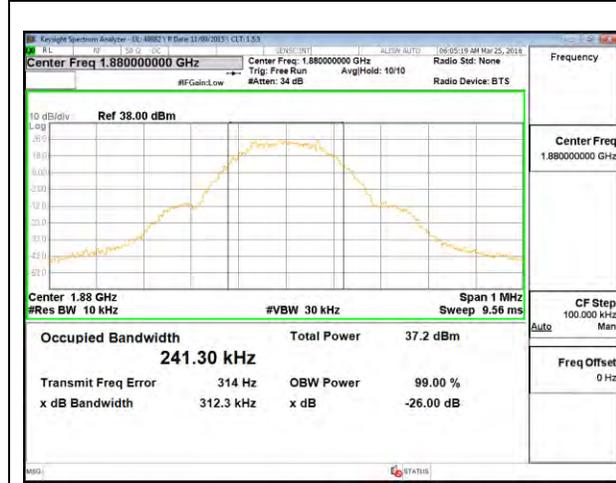
Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM850	GPRS	128	824.2	247.1	313.3
GSM850	GPRS	190	836.6	244.6	308.6
GSM850	GPRS	251	848.8	242.4	319.8
GSM850	EGPRS	128	824.2	243.4	301.6
GSM850	EGPRS	190	836.6	240.4	313
GSM850	EGPRS	251	848.8	238.2	301.2
GSM1900	GPRS	512	1850.2	240.8	316.7
GSM1900	GPRS	661	1880	241.3	312.3
GSM1900	GPRS	810	1909.8	243.5	313
GSM1900	EGPRS	512	1850.2	245.9	318
GSM1900	EGPRS	661	1880	236.9	299.2
GSM1900	EGPRS	810	1909.8	239.9	317.8



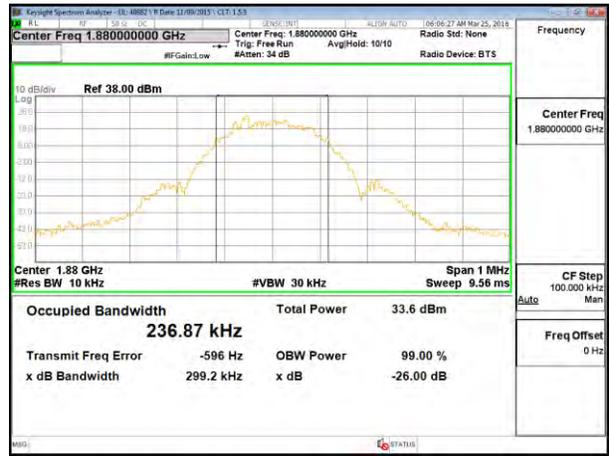
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel



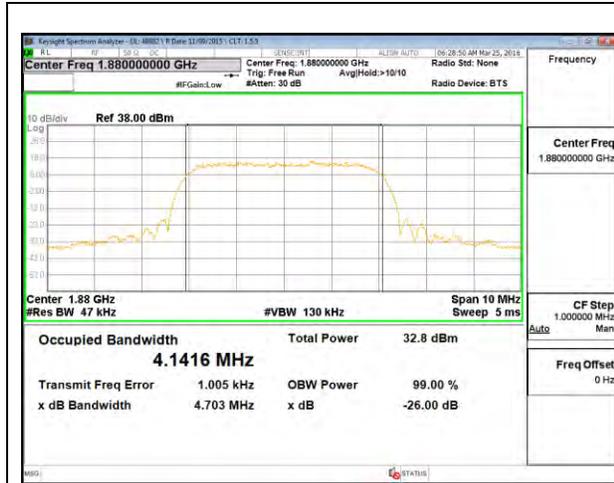
GSM1900 GPRS Middle Channel



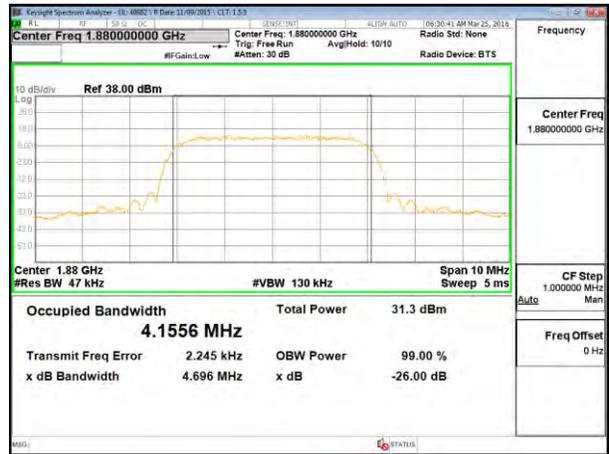
GSM1900 EGPRS Middle Channel

**WCDMA**

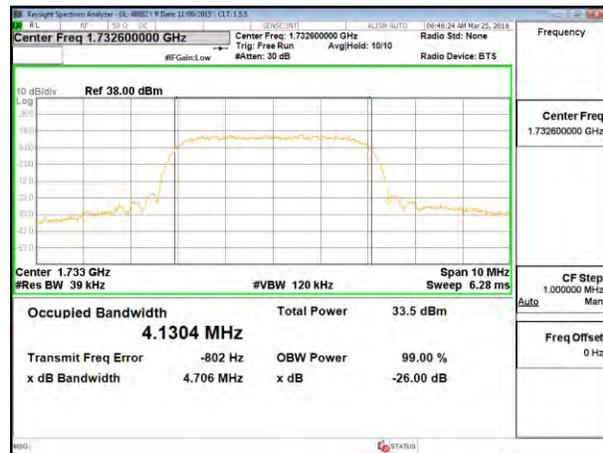
Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
Band 2	REL99	9262	1852.4	4.153	4.724
Band 2	REL99	9400	1880	4.142	4.703
Band 2	REL99	9538	1907.6	4.151	4.699
Band 2	HSDPA	9262	1852.4	4.166	4.706
Band 2	HSDPA	9400	1880	4.156	4.696
Band 2	HSDPA	9538	1907.6	4.156	4.676
Band 4	REL99	9262	1712.4	4.138	4.693
Band 4	REL99	9400	1732.6	4.13	4.706
Band 4	REL99	9538	1752.6	4.128	4.692
Band 4	HSDPA	9262	1712.4	4.134	4.701
Band 4	HSDPA	9400	1732.6	4.137	4.685
Band 4	HSDPA	9538	1752.6	4.136	4.674
Band 5	REL99	4132	826.4	4.128	4.706
Band 5	REL99	4183	836.6	4.121	4.681
Band 5	REL99	4233	846.6	4.135	4.718
Band 5	HSDPA	4132	826.4	4.138	4.698
Band 5	HSDPA	4183	836.6	4.138	4.688
Band 5	HSDPA	4233	846.6	4.144	4.701



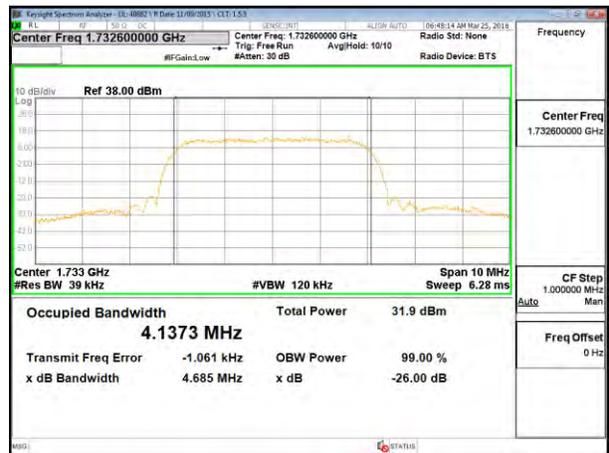
B2 REL99 Middle Channel



B2 HSDPA Middle Channel



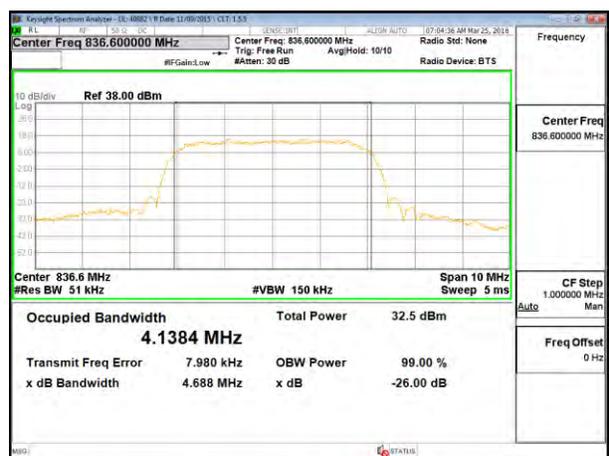
B4 REL99 Middle Channel



B4 HSDPA Middle Channel



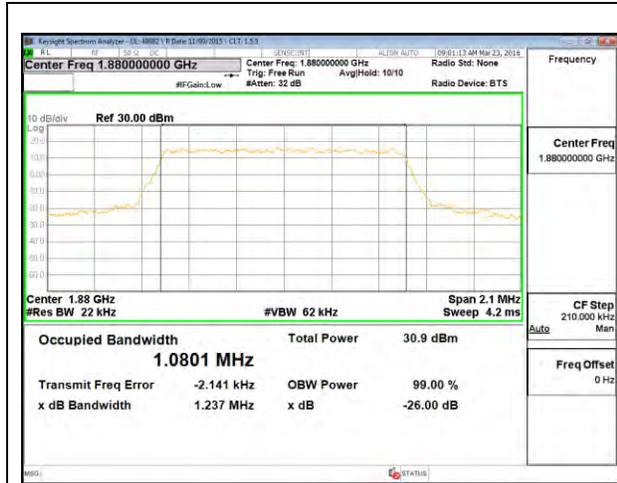
B5 REL99 Middle Channel



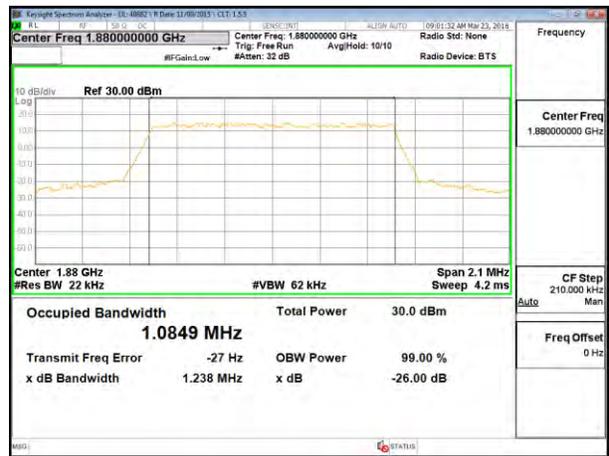
B5 HSDPA Middle Channel

**LTE Band 2**

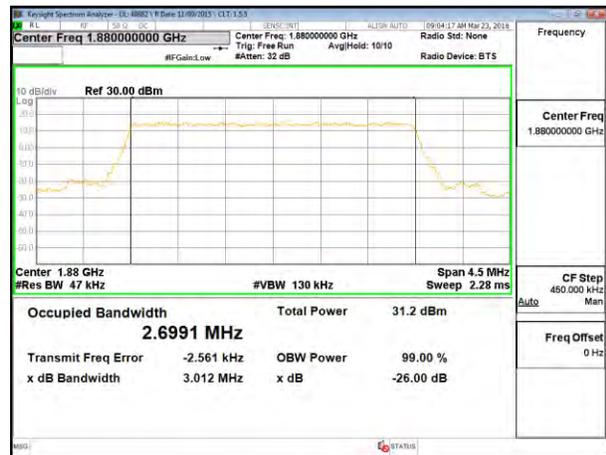
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	1850.7	1.086	1.233
1.4	QPSK	6/0	1880	1.080	1.237
1.4	QPSK	6/0	1909.3	1.084	1.232
1.4	16QAM	6/0	1850.7	1.083	1.232
1.4	16QAM	6/0	1880	1.085	1.238
1.4	16QAM	6/0	1909.3	1.092	1.243
3	QPSK	15/0	1851.5	2.697	2.982
3	QPSK	15/0	1880	2.699	3.012
3	QPSK	15/0	1908.5	2.694	2.995
3	16QAM	15/0	1851.5	2.695	2.988
3	16QAM	15/0	1880	2.694	2.988
3	16QAM	15/0	1908.5	2.701	3.004
5	QPSK	25/0	1852.5	4.501	4.936
5	QPSK	25/0	1880	4.499	4.960
5	QPSK	25/0	1907.5	4.483	4.933
5	16QAM	25/0	1852.5	4.501	4.958
5	16QAM	25/0	1880	4.492	4.934
5	16QAM	25/0	1907.5	4.486	4.925
10	QPSK	50/0	1855	8.985	9.856
10	QPSK	50/0	1880	8.976	9.793
10	QPSK	50/0	1905	8.961	9.78
10	16QAM	50/0	1855	8.964	9.757
10	16QAM	50/0	1880	8.956	9.781
10	16QAM	50/0	1905	8.998	9.775
15	QPSK	75/0	1857.5	13.431	14.682
15	QPSK	75/0	1880	13.440	14.600
15	QPSK	75/0	1902.5	13.472	14.712
15	16QAM	75/0	1857.5	13.44	14.633
15	16QAM	75/0	1880	13.434	14.570
15	16QAM	75/0	1902.5	13.445	14.659
20	QPSK	100/0	1860	17.919	19.295
20	QPSK	100/0	1880	17.911	19.410
20	QPSK	100/0	1900	17.923	19.689
20	16QAM	100/0	1860	17.937	19.263
20	16QAM	100/0	1880	17.896	19.380
20	16QAM	100/0	1900	17.937	19.540



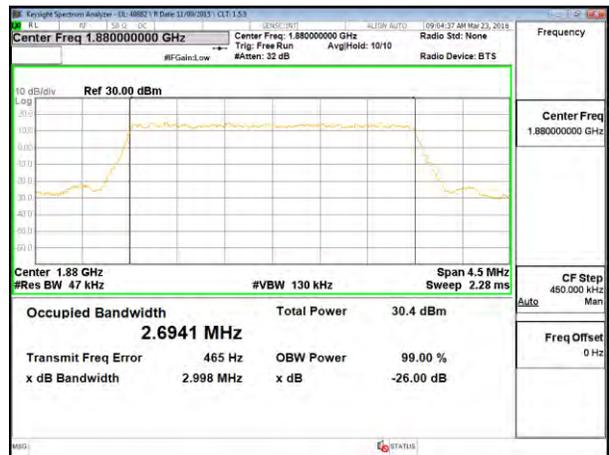
LTE B2 1.4MHz QPSK Middle Channel



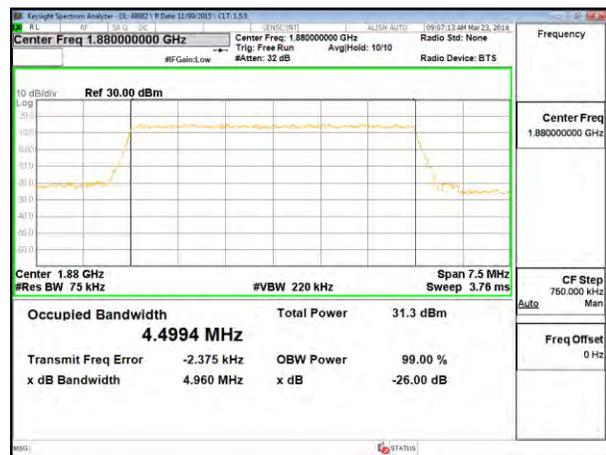
LTE B2 1.4MHz 16QAM Middle Channel



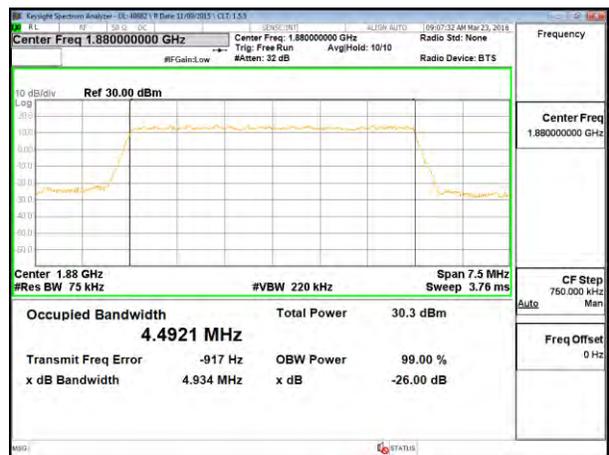
LTE B2 3MHz QPSK Middle Channel



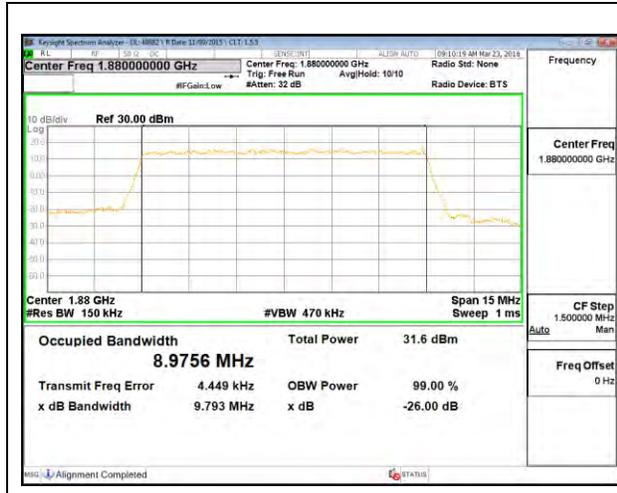
LTE B2 3MHz 16QAM Middle Channel



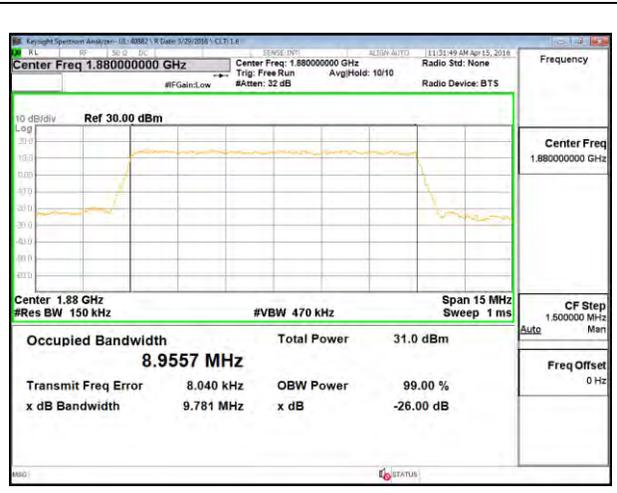
LTE B2 5MHz QPSK Middle Channel



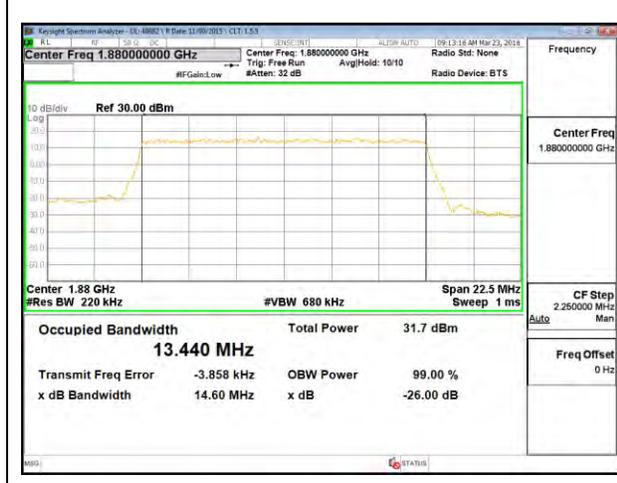
LTE B2 5MHz 16QAM Middle Channel



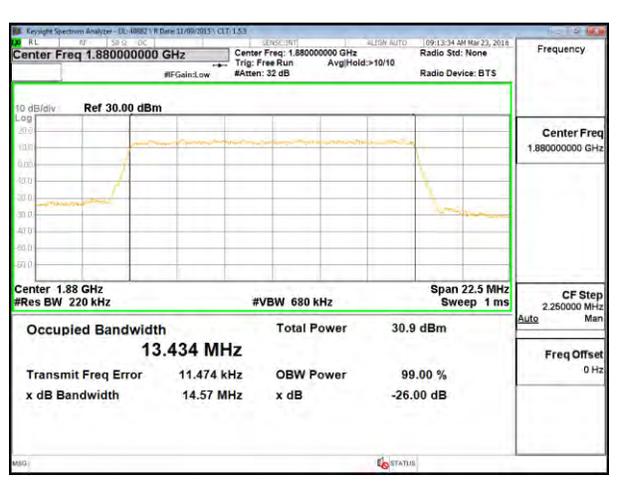
LTE B2 10MHz QPSK Middle Channel



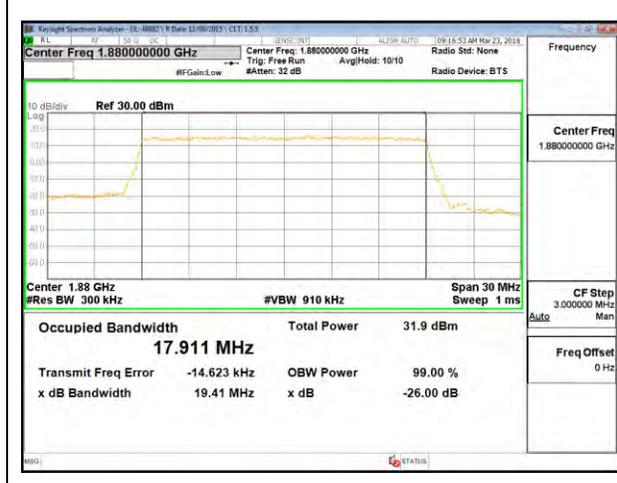
LTE B2 10MHz 16QAM Middle Channel



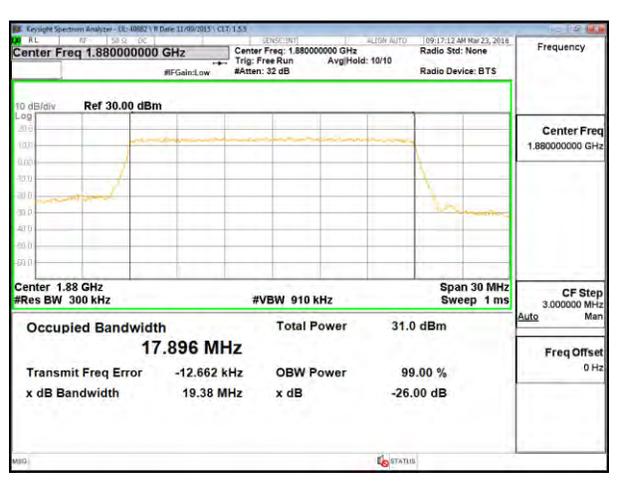
LTE B2 15MHz QPSK Middle Channel



LTE B2 15MHz 16QAM Middle Channel



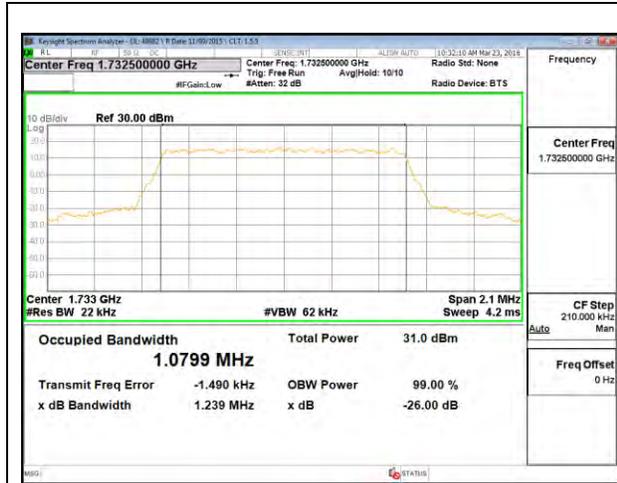
LTE B2 20MHz QPSK Middle Channel



LTE B2 20MHz 16QAM Middle Channel

**LTE Band 4**

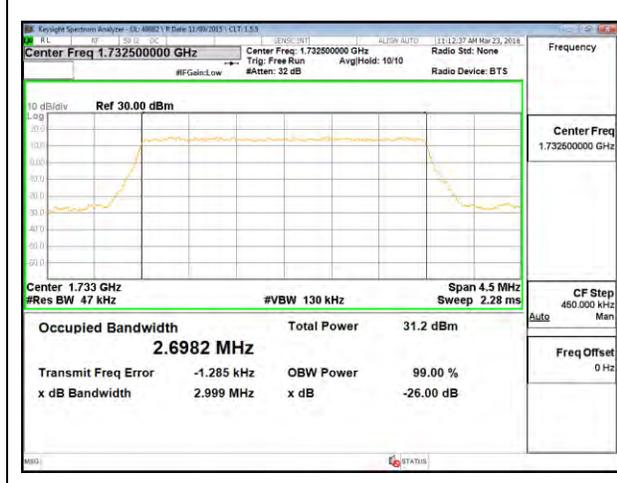
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	1710.7	1.0855	1.245
1.4	QPSK	6/0	1732.5	1.0799	1.239
1.4	QPSK	6/0	1754.3	1.0865	1.245
1.4	16QAM	6/0	1710.7	1.0849	1.236
1.4	16QAM	6/0	1732.5	1.0846	1.246
1.4	16QAM	6/0	1754.3	1.0928	1.246
3	QPSK	15/0	1711.5	2.696	2.997
3	QPSK	15/0	1732.5	2.698	2.999
3	QPSK	15/0	1753.5	2.701	3.027
3	16QAM	15/0	1711.5	2.699	3.034
3	16QAM	15/0	1732.5	2.696	3.001
3	16QAM	15/0	1753.5	2.694	3.025
5	QPSK	25/0	1712.5	4.482	4.955
5	QPSK	25/0	1732.5	4.508	4.936
5	QPSK	25/0	1752.5	4.487	4.965
5	16QAM	25/0	1712.5	4.487	4.947
5	16QAM	25/0	1732.5	4.499	4.966
5	16QAM	25/0	1752.5	4.49	4.934
10	QPSK	50/0	1715	8.958	9.784
10	QPSK	50/0	1732.5	8.969	9.726
10	QPSK	50/0	1750	8.957	9.832
10	16QAM	50/0	1715	8.976	9.787
10	16QAM	50/0	1732.5	8.98	9.763
10	16QAM	50/0	1750	8.961	9.865
15	QPSK	75/0	1717.5	13.443	14.59
15	QPSK	75/0	1732.5	13.462	14.723
15	QPSK	75/0	1747.5	13.437	14.68
15	16QAM	75/0	1717.5	13.423	14.65
15	16QAM	75/0	1732.5	13.45	14.681
15	16QAM	75/0	1747.5	13.42	14.615
20	QPSK	100/0	1720	17.905	19.493
20	QPSK	100/0	1732.5	17.943	19.494
20	QPSK	100/0	1745	17.909	19.324
20	16QAM	100/0	1720	17.901	19.486
20	16QAM	100/0	1732.5	17.946	19.472
20	16QAM	100/0	1745	17.885	19.388



LTE B4 1.4MHz QPSK Middle Channel



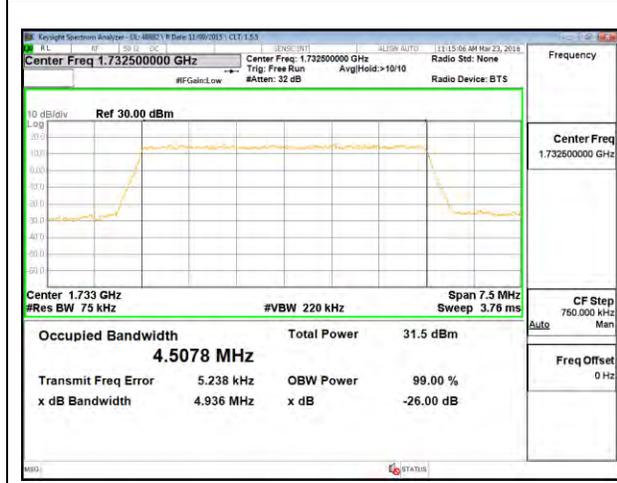
LTE B4 1.4MHz 16QAM Middle Channel



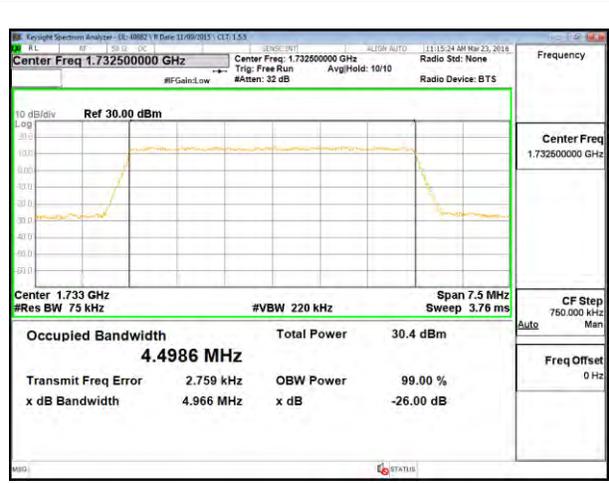
LTE B4 3MHz QPSK Middle Channel



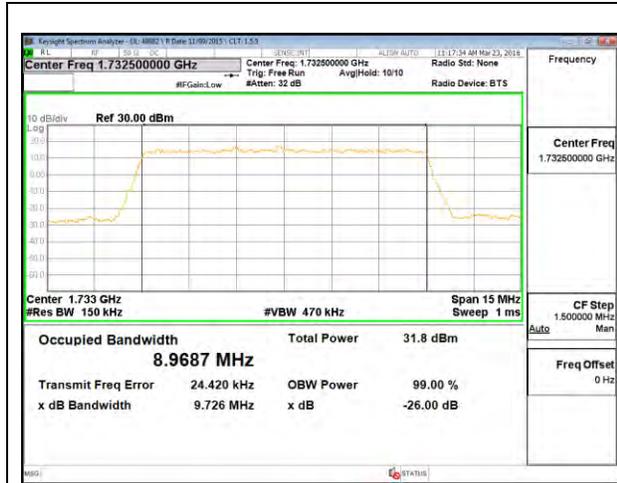
LTE B4 3MHz 16QAM Middle Channel



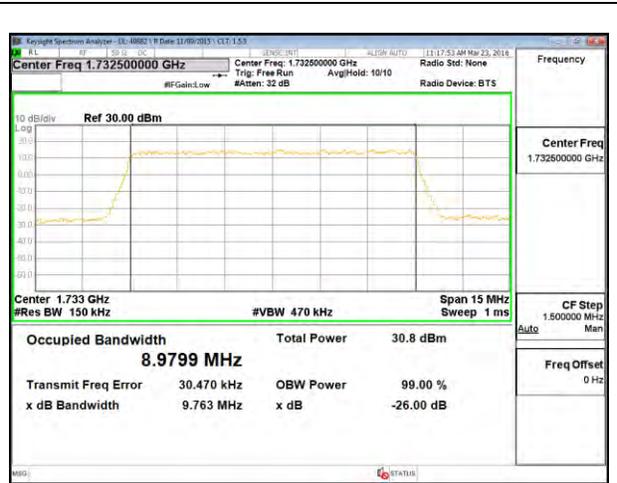
LTE B4 5MHz QPSK Middle Channel



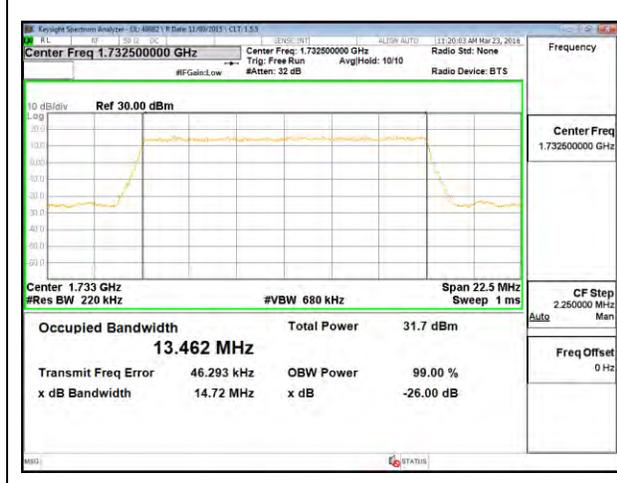
LTE B4 5MHz 16QAM Middle Channel



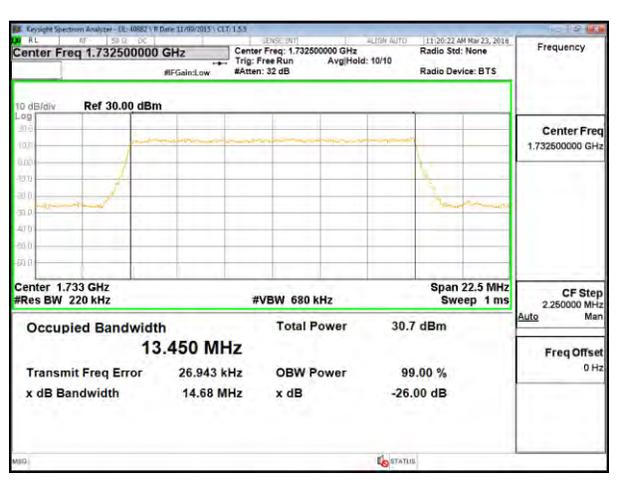
LTE B4 10MHz QPSK Middle Channel



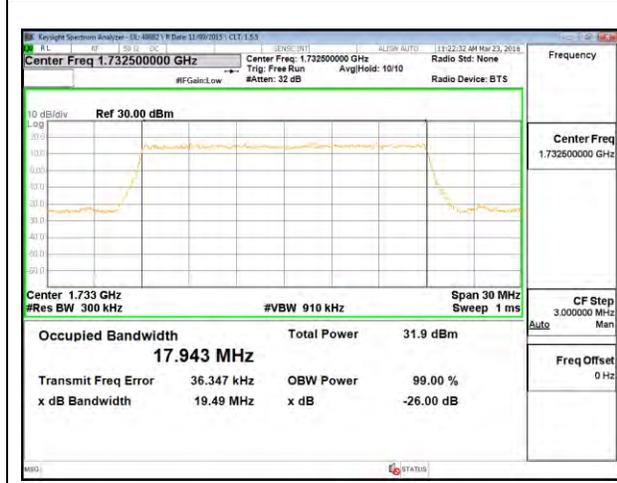
LTE B4 10MHz 16QAM Middle Channel



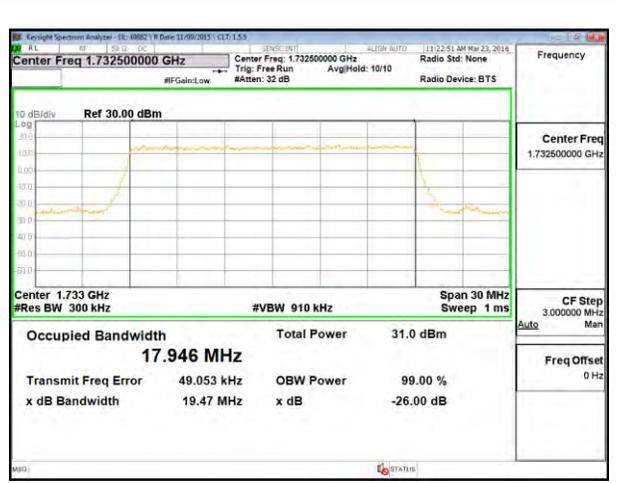
LTE B4 15MHz QPSK Middle Channel



LTE B4 15MHz 16QAM Middle Channel



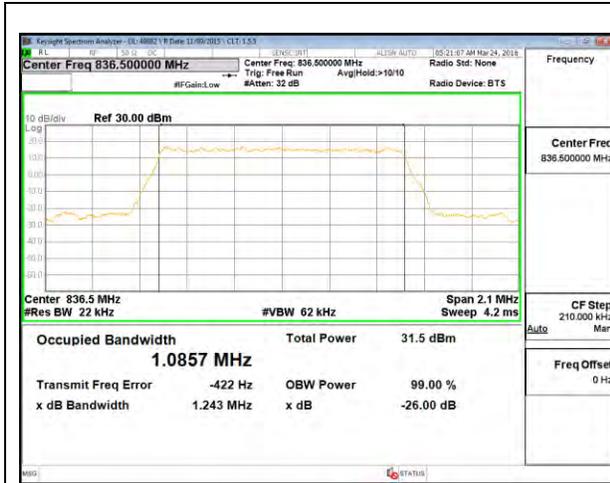
LTE B4 20MHz QPSK Middle Channel



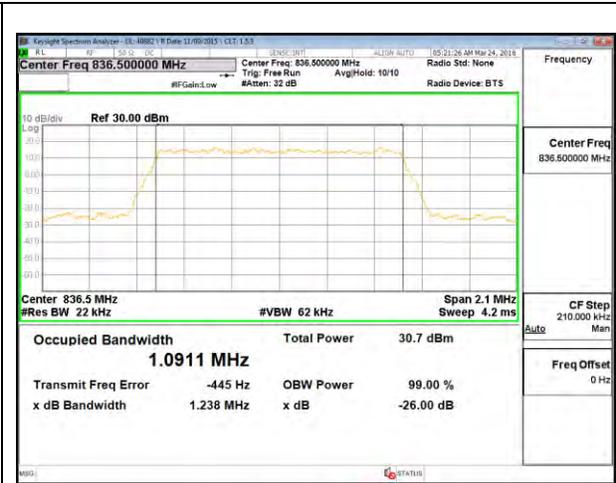
LTE B4 20MHz 16QAM Middle Channel

LTE Band 5

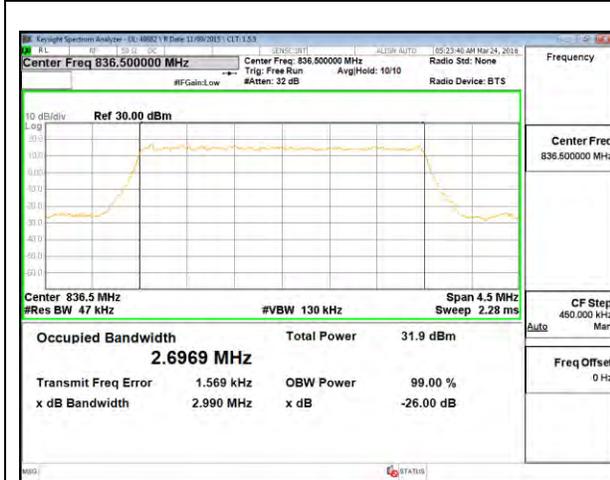
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	824.7	1.079	1.244
1.4	QPSK	6/0	836.5	1.086	1.243
1.4	QPSK	6/0	848.3	1.085	1.245
1.4	16QAM	6/0	824.7	1.085	1.237
1.4	16QAM	6/0	836.5	1.091	1.238
1.4	16QAM	6/0	848.3	1.084	1.24
3	QPSK	15/0	825.5	2.699	2.994
3	QPSK	15/0	836.5	2.697	2.99
3	QPSK	15/0	847.5	2.698	3.029
3	16QAM	15/0	825.5	2.696	3.018
3	16QAM	15/0	836.5	2.699	3.005
3	16QAM	15/0	847.5	2.698	3.008
5	QPSK	25/0	826.5	4.482	4.925
5	QPSK	25/0	836.5	4.507	4.949
5	QPSK	25/0	846.5	4.497	5.003
5	16QAM	25/0	826.5	4.481	4.925
5	16QAM	25/0	836.5	4.501	4.971
5	16QAM	25/0	846.5	4.497	4.949
10	QPSK	50/0	829	8.95	9.792
10	QPSK	50/0	836.5	8.975	9.821
10	QPSK	50/0	844	8.962	9.738
10	16QAM	50/0	829	8.99	9.783
10	16QAM	50/0	836.5	8.978	9.77
10	16QAM	50/0	844	8.953	9.79



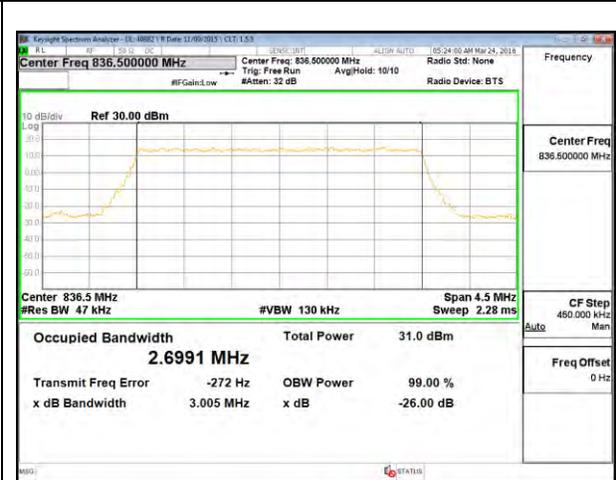
LTE B5 1.4MHz QPSK Middle Channel



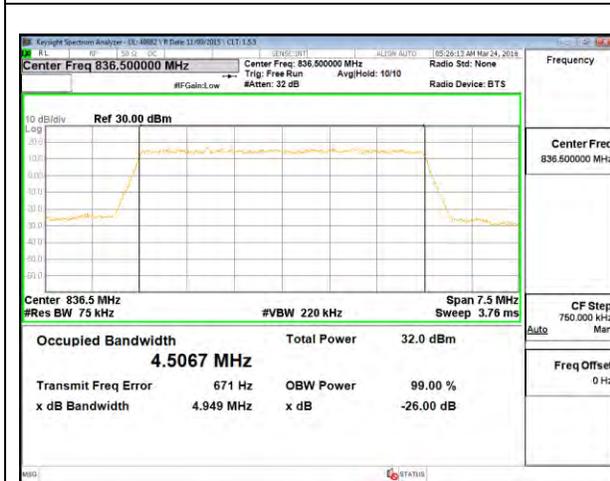
LTE B5 1.4MHz 16QAM Middle Channel



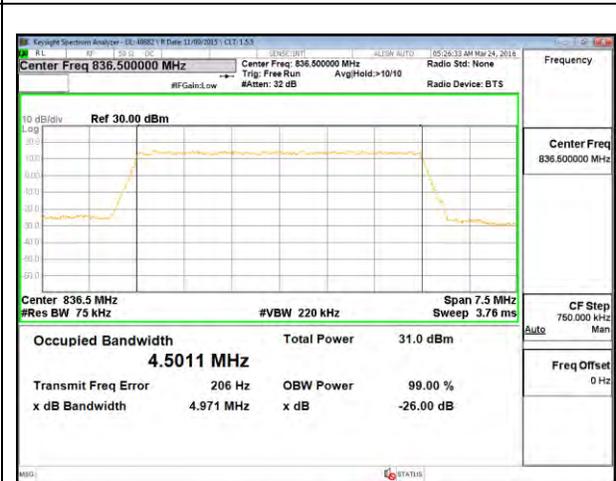
LTE B5 3MHz QPSK Middle Channel



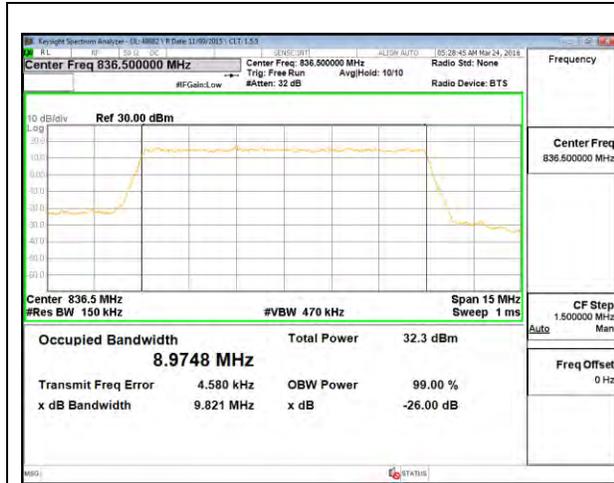
LTE B5 3MHz 16QAM Middle Channel



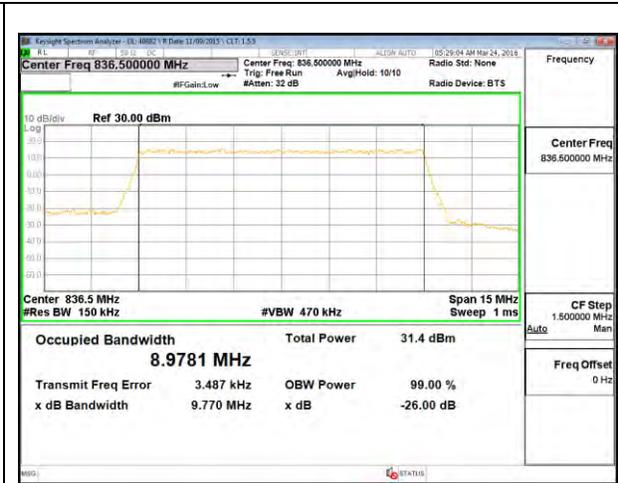
LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel



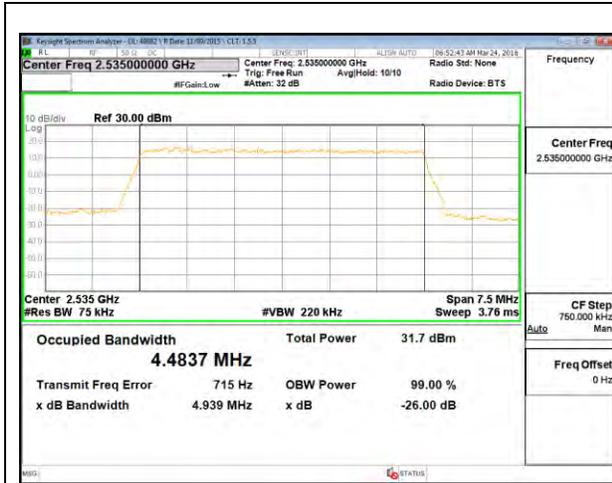
LTE B5 10MHz QPSK Middle Channel



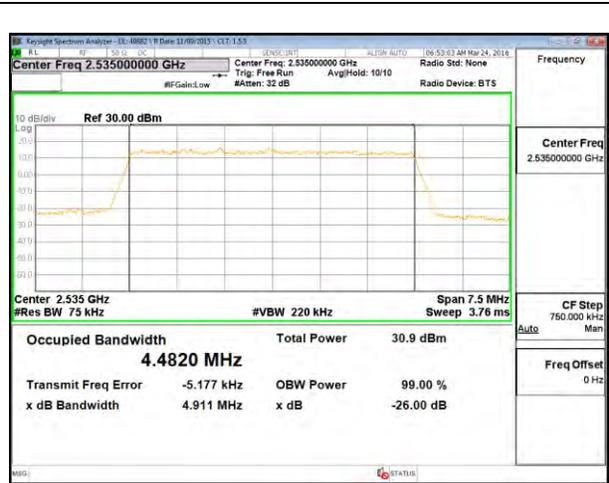
LTE B5 10MHz 16QAM Middle Channel

**LTE Band 7**

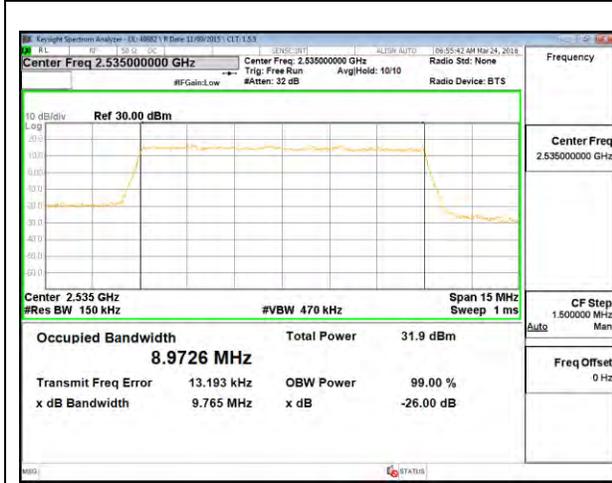
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	2502.5	4.496	4.927
5	QPSK	25/0	2535	4.484	4.939
5	QPSK	25/0	2567.5	4.503	4.947
5	16QAM	25/0	2502.5	4.491	4.924
5	16QAM	25/0	2535	4.482	4.911
5	16QAM	25/0	2567.5	4.497	4.921
10	QPSK	50/0	2505	8.977	9.765
10	QPSK	50/0	2535	8.973	9.765
10	QPSK	50/0	2565	8.917	9.734
10	16QAM	50/0	2505	8.969	9.764
10	16QAM	50/0	2535	8.962	9.741
10	16QAM	50/0	2565	8.953	9.728
15	QPSK	75/0	2507.5	13.445	14.583
15	QPSK	75/0	2535	13.464	14.592
15	QPSK	75/0	2562.5	13.397	14.514
15	16QAM	75/0	2507.5	13.446	14.571
15	16QAM	75/0	2535	13.42	14.563
15	16QAM	75/0	2562.5	13.364	14.496
20	QPSK	100/0	2510	17.915	19.277
20	QPSK	100/0	2535	17.931	19.27
20	QPSK	100/0	2560	17.828	19.338
20	16QAM	100/0	2510	17.923	19.325
20	16QAM	100/0	2535	17.905	19.393
20	16QAM	100/0	2560	17.797	19.224



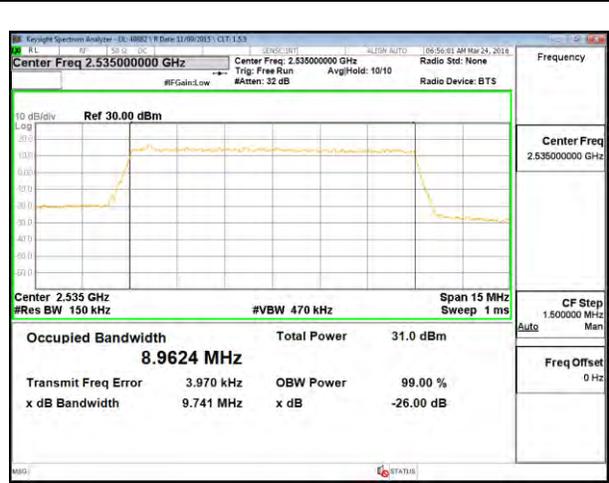
LTE B7 5MHz QPSK Middle Channel



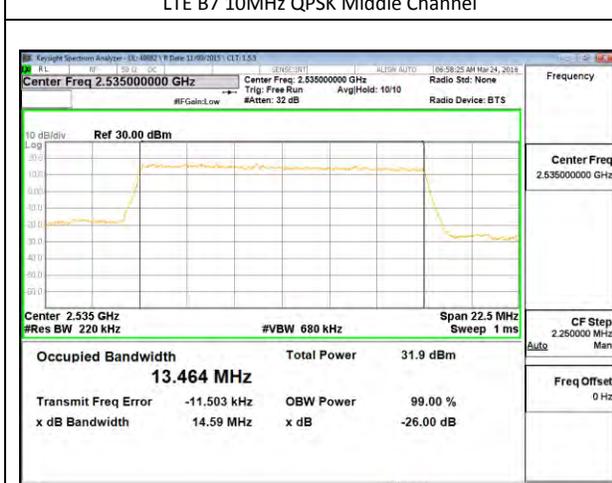
LTE B7 5MHz 16QAM Middle Channel



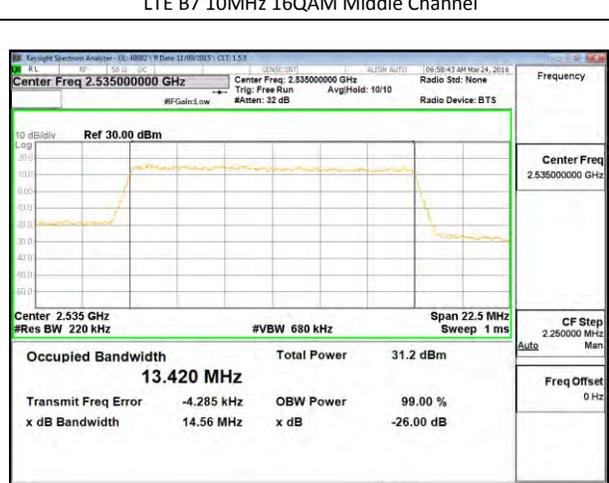
LTE B7 10MHz QPSK Middle Channel



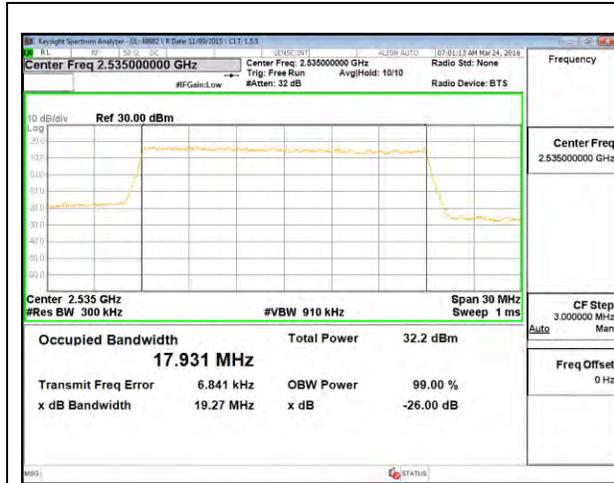
LTE B7 10MHz 16QAM Middle Channel



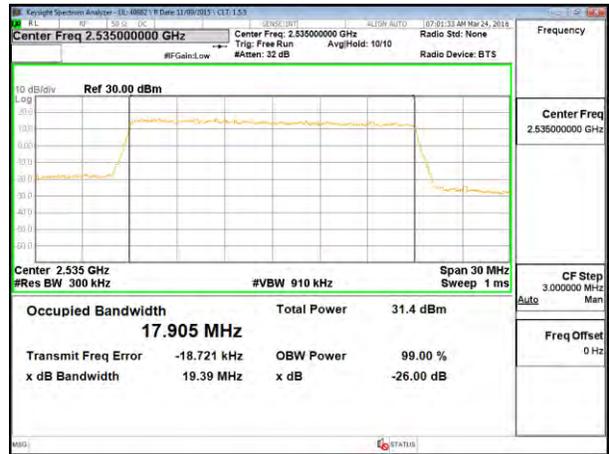
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel



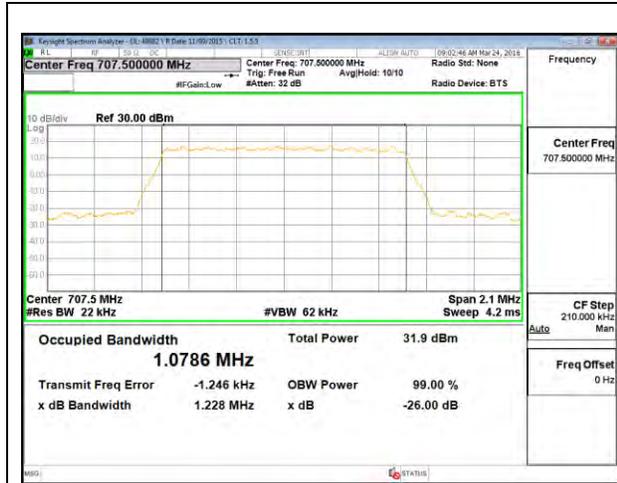
LTE B7 20MHz QPSK Middle Channel



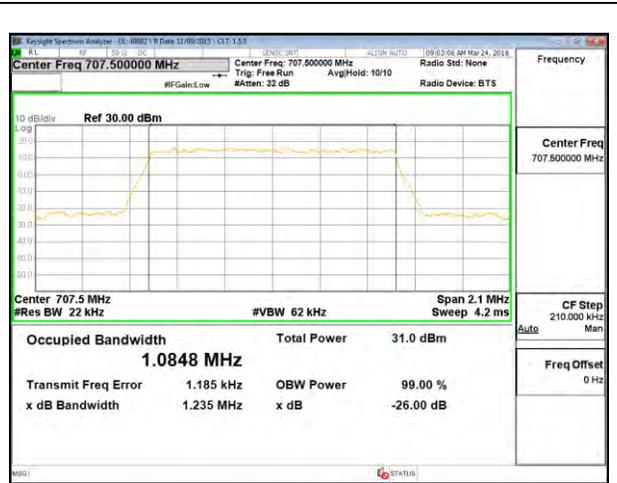
LTE B7 20MHz 16QAM Middle Channel

**LTE Band 12**

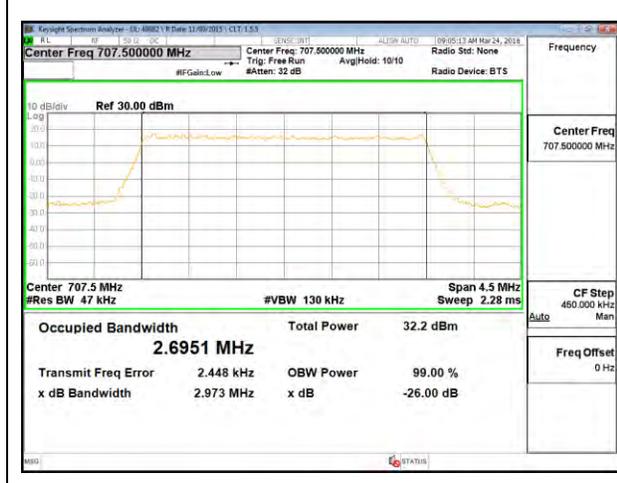
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	699.7	1.086	1.227
1.4	QPSK	6/0	707.5	1.079	1.228
1.4	QPSK	6/0	715.3	1.085	1.228
1.4	16QAM	6/0	699.7	1.084	1.236
1.4	16QAM	6/0	707.5	1.085	1.235
1.4	16QAM	6/0	715.3	1.094	1.241
3	QPSK	15/0	700.5	2.705	2.997
3	QPSK	15/0	707.5	2.695	2.973
3	QPSK	15/0	714.5	2.695	2.995
3	16QAM	15/0	700.5	2.694	3.004
3	16QAM	15/0	707.5	2.703	3.002
3	16QAM	15/0	714.5	2.698	2.987
5	QPSK	25/0	701.5	4.485	4.922
5	QPSK	25/0	707.5	4.505	4.956
5	QPSK	25/0	713.5	4.497	4.951
5	16QAM	25/0	701.5	4.482	4.916
5	16QAM	25/0	707.5	4.502	4.934
5	16QAM	25/0	713.5	4.492	4.936
10	QPSK	50/0	704	8.952	9.737
10	QPSK	50/0	707.5	8.966	9.733
10	QPSK	50/0	711	8.989	9.752
10	16QAM	50/0	704	8.988	9.753
10	16QAM	50/0	707.5	8.968	9.793
10	16QAM	50/0	711	8.961	9.726



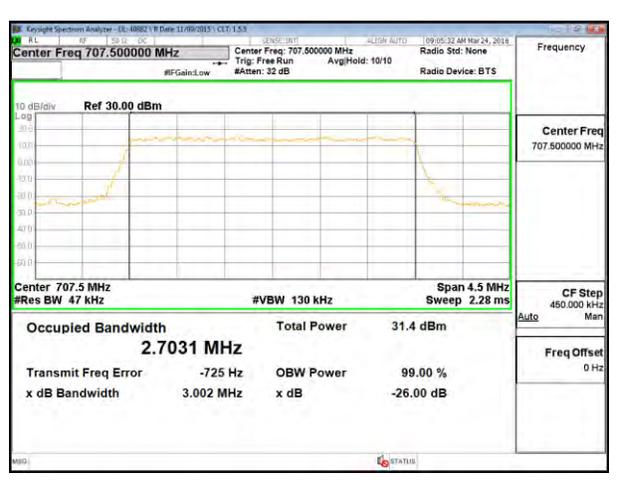
LTE B12 1.4MHz QPSK Middle Channel



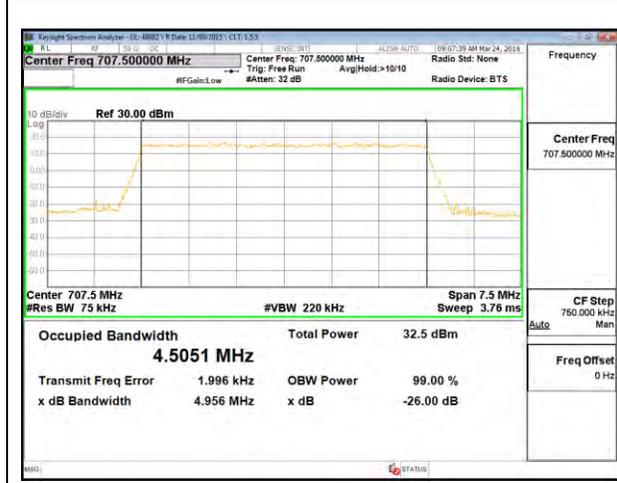
LTE B12 1.4MHz 16QAM Middle Channel



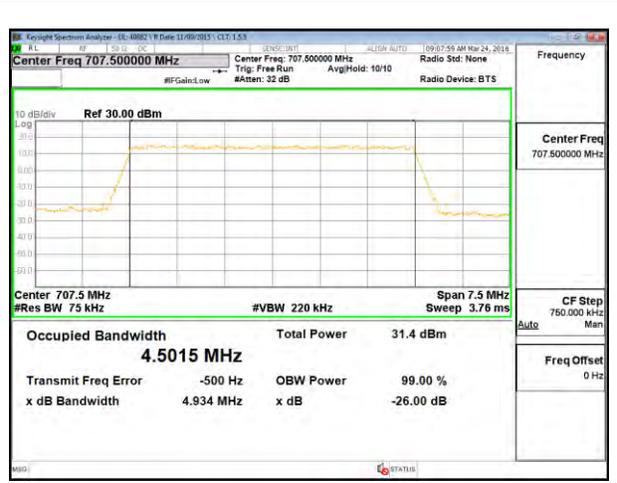
LTE B12 3MHz QPSK Middle Channel



LTE B12 3MHz 16QAM Middle Channel



LTE B12 5MHz QPSK Middle Channel

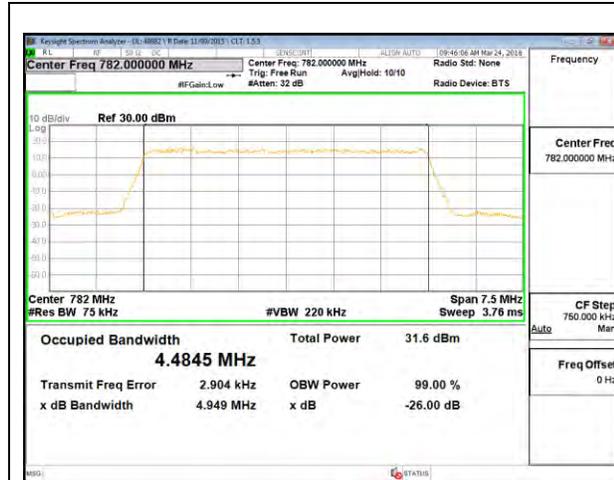


LTE B12 5MHz 16QAM Middle Channel

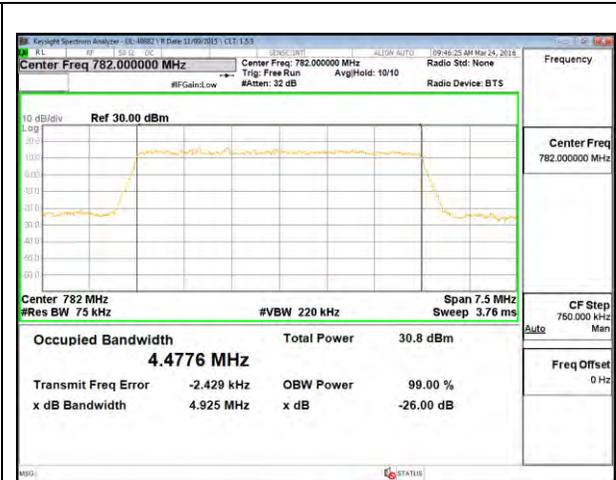


**LTE Band 13**

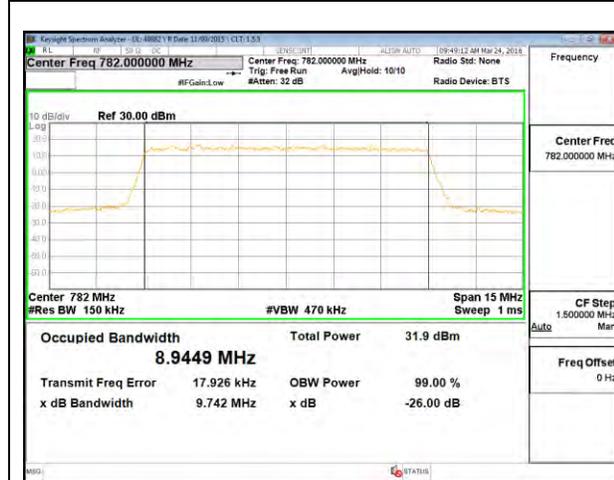
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	779.5	4.487	4.953
5	QPSK	25/0	782	4.484	4.949
5	QPSK	25/0	784.5	4.498	4.932
5	16QAM	25/0	779.5	4.488	4.937
5	16QAM	25/0	782	4.478	4.925
5	16QAM	25/0	784.5	4.495	4.948
10	QPSK	50/0	782	8.944	9.742
10	16QAM	50/0	782	8.974	9.756



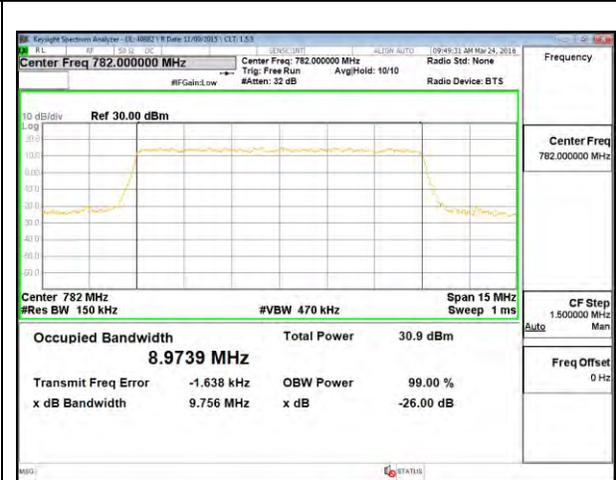
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



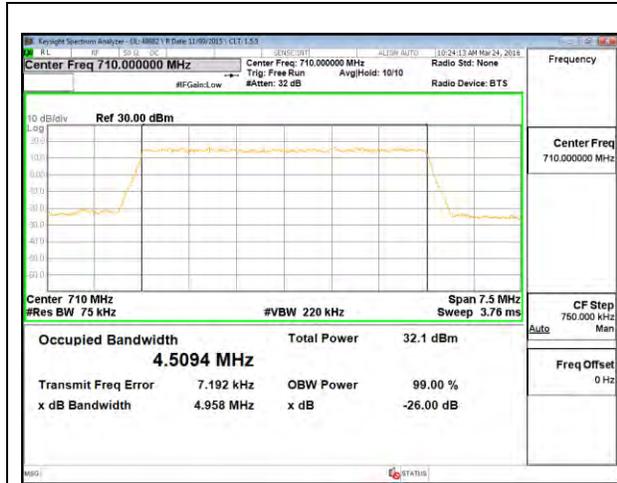
LTE B13 10MHz QPSK Middle Channel



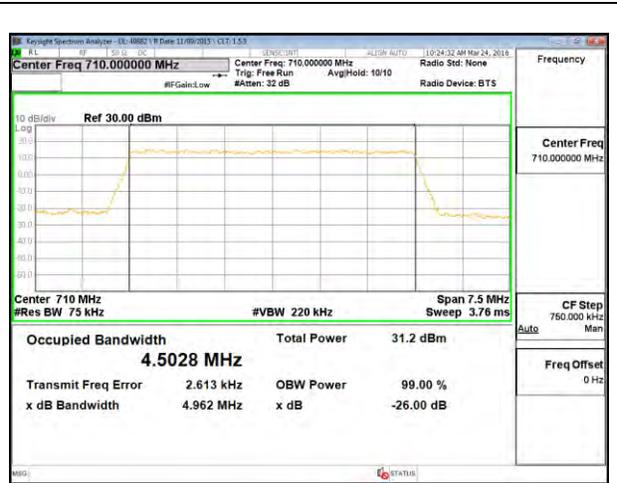
LTE B13 10MHz 16QAM Middle Channel

**LTE Band 17**

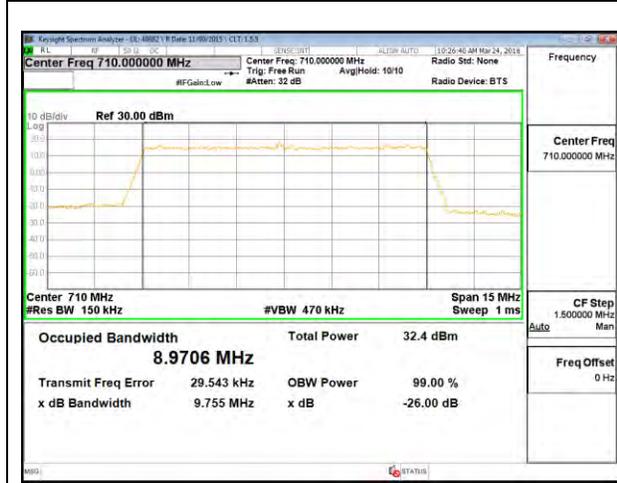
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	706.5	4.484	4.909
5	QPSK	25/0	710	4.509	4.958
5	QPSK	25/0	713.5	4.495	4.938
5	16QAM	25/0	706.5	4.481	4.893
5	16QAM	25/0	710	4.503	4.962
5	16QAM	25/0	713.5	4.492	4.93
10	QPSK	50/0	709	8.965	9.749
10	QPSK	50/0	710	8.971	9.755
10	QPSK	50/0	711	8.99	9.751
10	16QAM	50/0	709	9.002	9.81
10	16QAM	50/0	710	8.978	9.788
10	16QAM	50/0	711	8.962	9.791



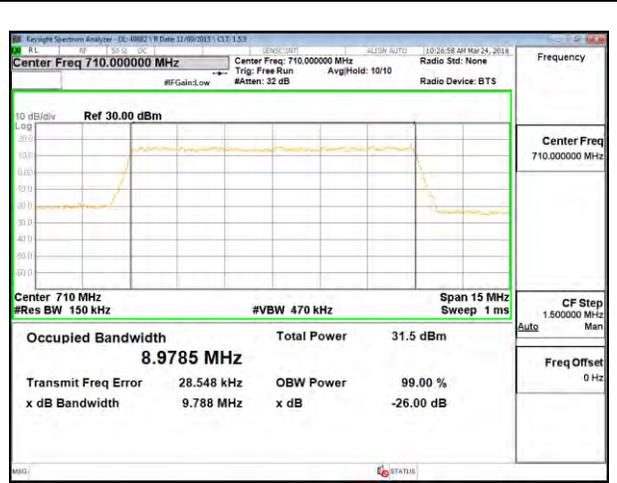
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel



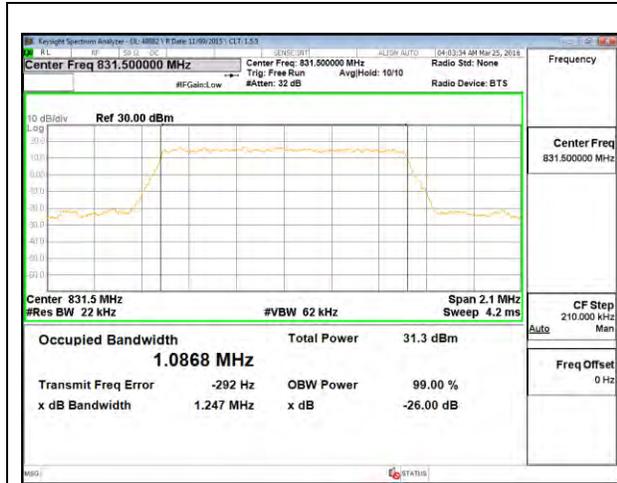
LTE B17 10MHz QPSK Middle Channel



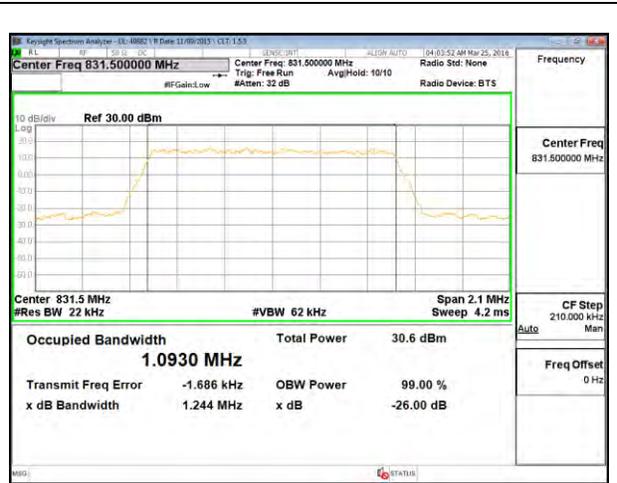
LTE B17 10MHz 16QAM Middle Channel

**LTE Band 26**

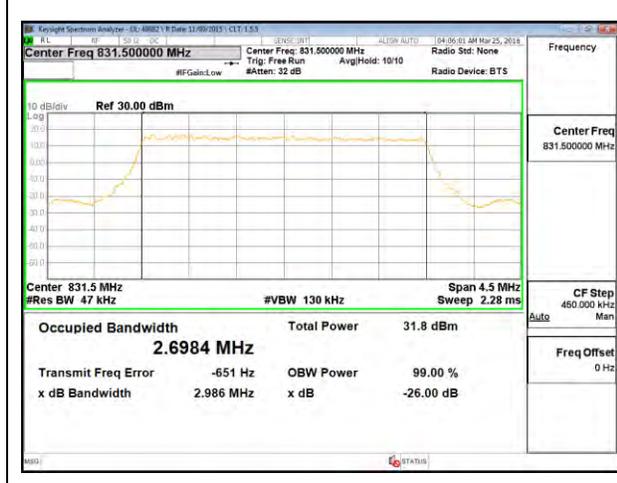
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	814.7	1.079	1.246
1.4	QPSK	6/0	831.5	1.087	1.247
1.4	QPSK	6/0	848.3	1.085	1.243
1.4	16QAM	6/0	814.7	1.086	1.239
1.4	16QAM	6/0	831.5	1.093	1.244
1.4	16QAM	6/0	848.3	1.084	1.239
3	QPSK	15/0	815.5	2.704	3.025
3	QPSK	15/0	831.5	2.698	2.986
3	QPSK	15/0	847.5	2.695	3.032
3	16QAM	15/0	815.5	2.694	3.024
3	16QAM	15/0	831.5	2.702	3.022
3	16QAM	15/0	847.5	2.699	3.016
5	QPSK	25/0	816.5	4.486	4.952
5	QPSK	25/0	831.5	4.502	4.956
5	QPSK	25/0	846.5	4.495	4.981
5	16QAM	25/0	816.5	4.484	4.917
5	16QAM	25/0	831.5	4.5	4.977
5	16QAM	25/0	846.5	4.491	4.948
10	QPSK	50/0	819	8.951	9.794
10	QPSK	50/0	831.5	8.978	9.775
10	QPSK	50/0	844	8.972	9.769
10	16QAM	50/0	819	9.001	9.811
10	16QAM	50/0	831.5	8.982	9.775
10	16QAM	50/0	844	8.941	9.749
15	QPSK	75/0	831.5	13.469	14.644
15	QPSK	75/0	836.5	13.431	14.748
15	QPSK	75/0	841.5	13.427	14.607
15	16QAM	75/0	831.5	13.464	14.662
15	16QAM	75/0	836.5	13.443	14.592
15	16QAM	75/0	841.5	13.415	14.659



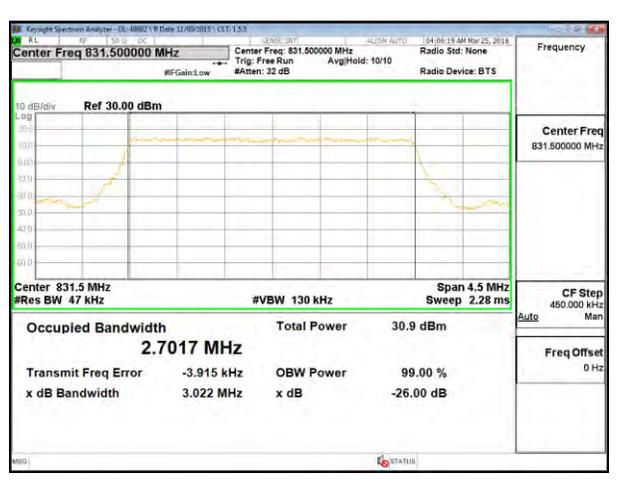
LTE B26 1.4MHz QPSK Middle Channel



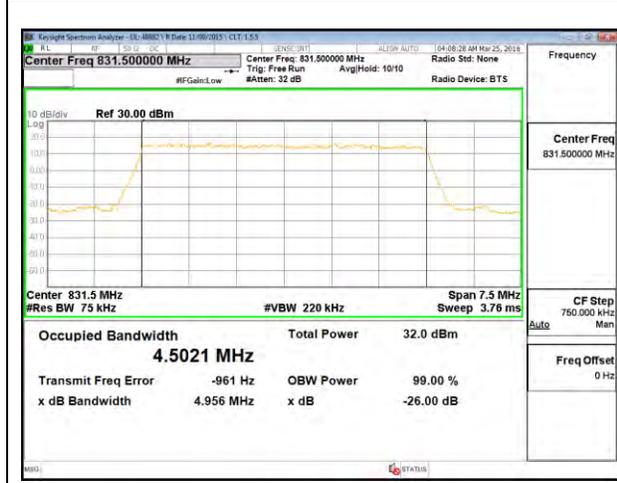
LTE B26 1.4MHz 16QAM Middle Channel



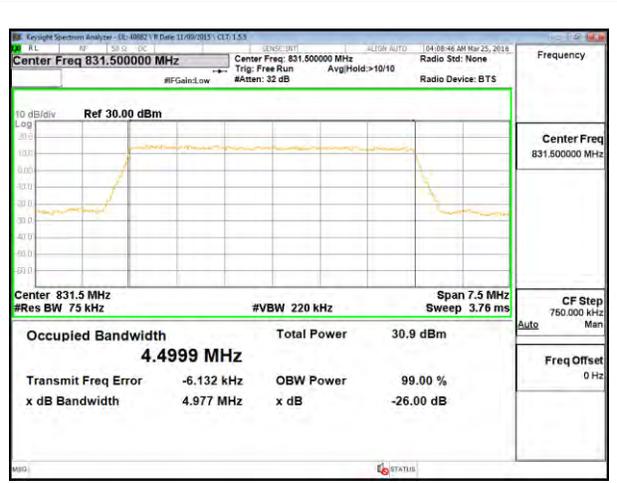
LTE B26 3MHz QPSK Middle Channel



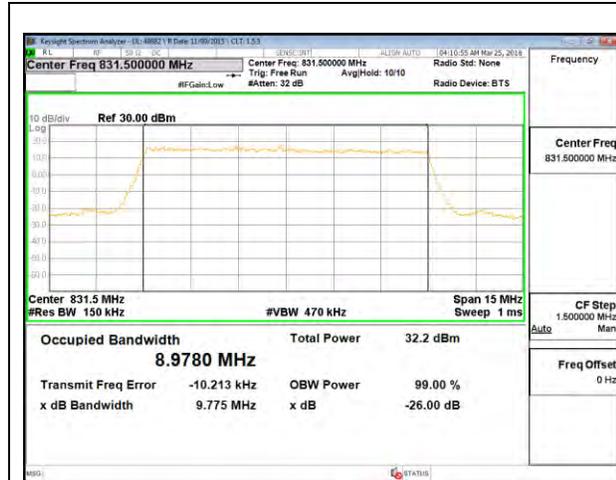
LTE B26 3MHz 16QAM Middle Channel



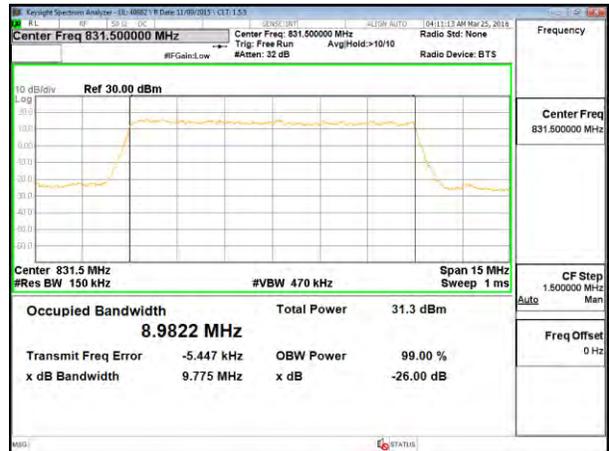
LTE B26 5MHz QPSK Middle Channel



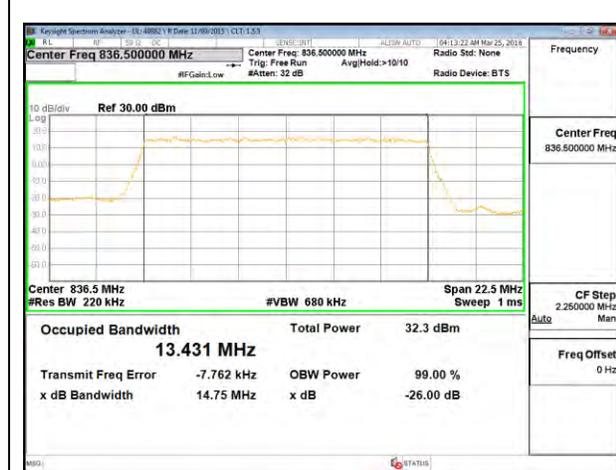
LTE B26 5MHz 16QAM Middle Channel



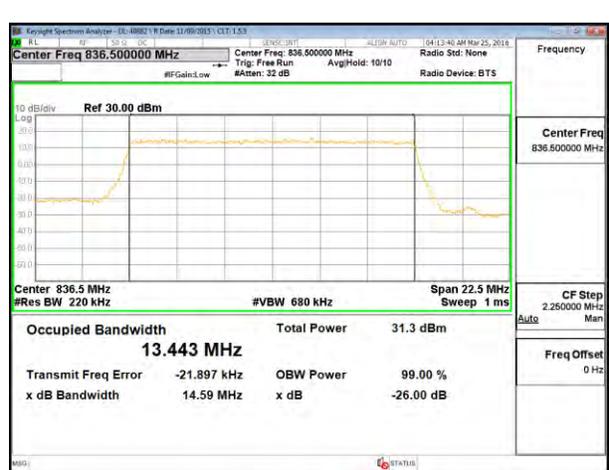
LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel



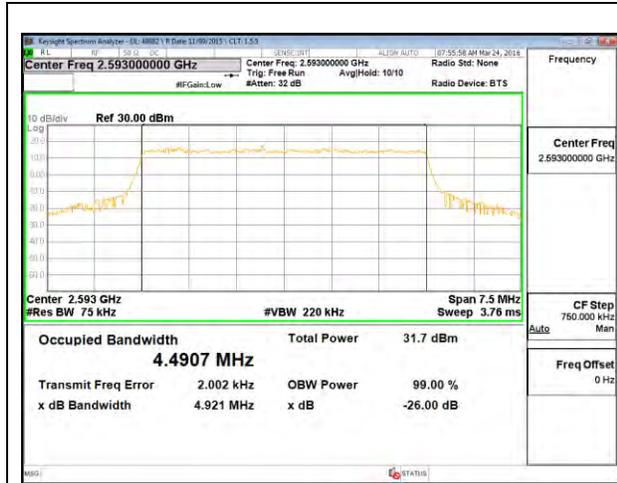
LTE B26 15MHz QPSK Middle Channel



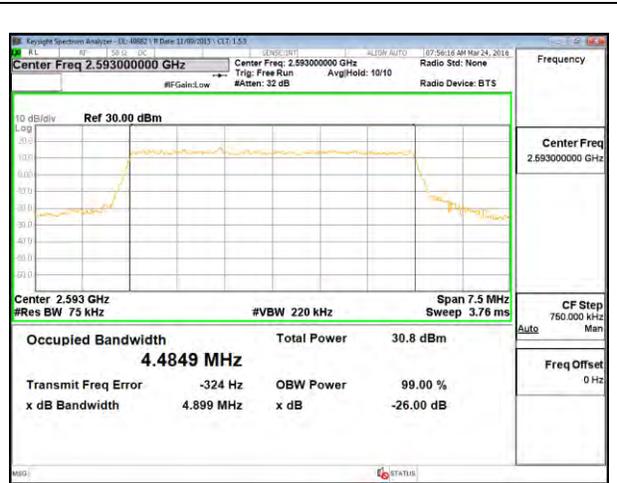
LTE B26 15MHz 16QAM Middle Channel

**LTE Band 41**

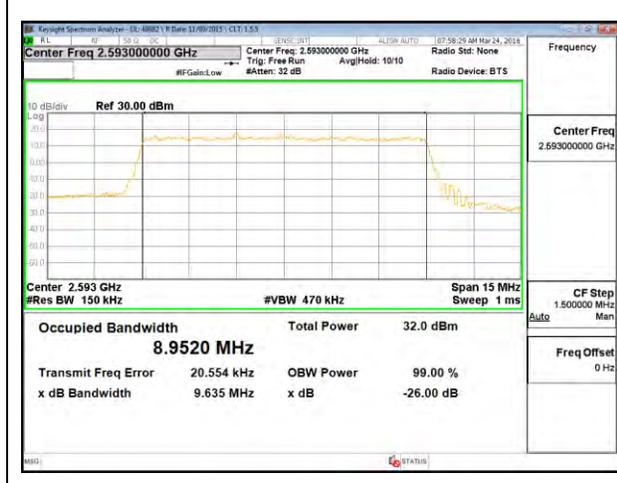
BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
5	QPSK	25/0	2498.5	4.497	4.895
5	QPSK	25/0	2593	4.491	4.921
5	QPSK	25/0	2687.5	4.491	4.929
5	16QAM	25/0	2498.5	4.49	4.935
5	16QAM	25/0	2593	4.485	4.899
5	16QAM	25/0	2687.5	4.494	4.956
10	QPSK	50/0	2501	8.955	9.759
10	QPSK	50/0	2593	8.952	9.635
10	QPSK	50/0	2685	8.984	9.75
10	16QAM	50/0	2501	8.998	9.727
10	16QAM	50/0	2593	8.974	9.743
10	16QAM	50/0	2685	8.947	9.785
15	QPSK	75/0	2503.5	13.441	14.661
15	QPSK	75/0	2593	13.448	14.664
15	QPSK	75/0	2682.5	13.466	14.74
15	16QAM	75/0	2503.5	13.431	14.76
15	16QAM	75/0	2593	13.457	15.112
15	16QAM	75/0	2682.5	13.46	14.678
20	QPSK	100/0	2506	17.915	19.947
20	QPSK	100/0	2593	17.946	19.214
20	QPSK	100/0	2680	17.949	19.367
20	16QAM	100/0	2506	17.933	19.285
20	16QAM	100/0	2593	17.939	19.34
20	16QAM	100/0	2680	17.914	19.812



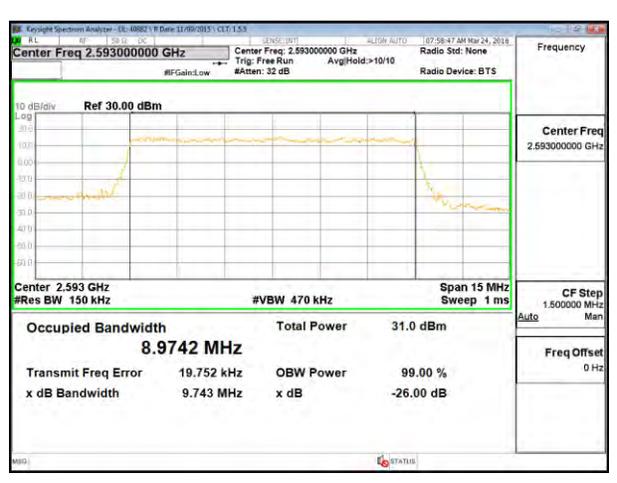
LTE B41 5MHz QPSK Middle Channel



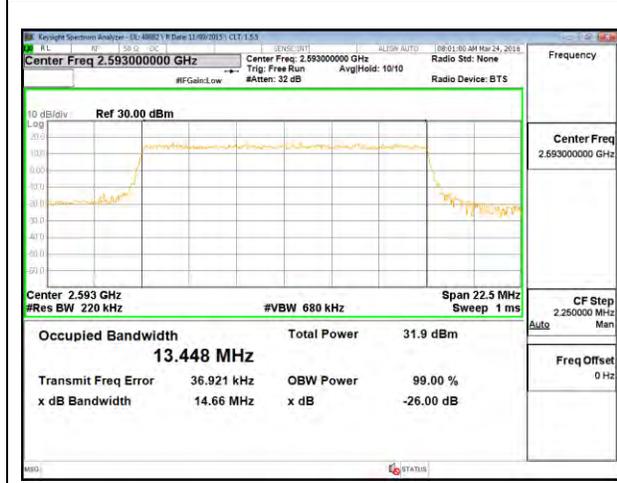
LTE B41 5MHz 16QAM Middle Channel



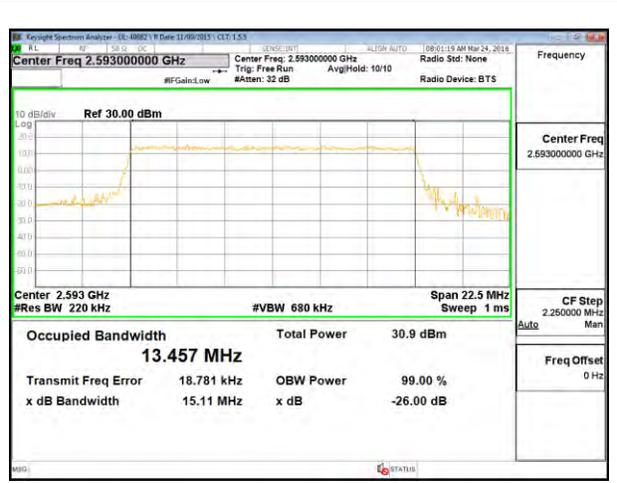
LTE B41 10MHz QPSK Middle Channel



LTE B41 10MHz 16QAM Middle Channel



LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel