FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART H and M

CERTIFICATION TEST REPORT

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

FCC ID: PY7-30637Z

REPORT NUMBER: 16J23633Y-E1V2

ISSUE DATE: 09/21/16

Prepared for

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Revision History

Ver.	Issue Date	Revisions	Revised By
V1	09/15/16	Initial Review	C. Vergonio
V2	09/21/16	Updated Section 9.2 page 55 and Section 9.5 page 123.	C. Vergonio

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	SONY MOBILE COMMUNICATIONS, INC. 4-12-3 HIGASHI-SHINAGAWA, SHINAGAWA -KU, TOKYO, 140-0002, JAPAN
EUT DESCRIPTION:	GSM/WCDMA/LTE Phone with BT, BLE, DTS/UNII a/b/g/n/ac & NFC
SERIAL NUMBER:	Conducted: CB512B01L2, CB512B01C2 Radiated: CB512B01DH, CB512B01LN
DATE TESTED:	2016-08-22 to 2016-09-14

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 22H, 24E, 27H 27L, and 27M	Pass

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. 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.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-D, FCC CFR 47 Part 2, 22, 24, and FCC CFR 47 Part 27.

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
☐ Chamber A
☐ Chamber C

2800 Suite B Perimeter Park Dr., Morrisville, NC 27560
☒ Chamber NORTH
☐ Chamber SOUTH

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 dB
RF power density, conducted	±1.5 dB
Spurious emissions, conducted	±2.94 dB
All emissions, radiated up to 40 GHz	±5.36 dB
Temperature	±0.07°C
Humidity	±2.26% RH
DC and low frequency voltages	±1.27%

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 + BLUETOOTH, 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	31.60	1445.44		
	824~849	GPRS	31.60	1445.44	25.99	397.19
	824~849	EGPRS	27.00	501.19	21.54	142.56
GSM1900	1850~1910	GMSK	28.30	676.08		
	1850~1910	GPRS	28.30	676.08	25.45	350.75
	1850~1910	EGPRS	26.00	398.11	23.23	210.38

5.3. MAXIMUM OUTPUT POWER (WCDMA)

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

FCC Part 24/27						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
Band 2	1850~1910	REL99	20.00	100.00	17.96	62.52
	1850~1910	HSDPA	18.47	70.31	16.53	44.98
	1850~1910	HSUPA	18.71	74.30		
Band 4	1710~1755	REL99	20.49	111.94	18.23	66.53
	1710~1755	HSDPA	18.98	79.07	16.71	46.88
	1710~1755	HSUPA	19.00	79.43		

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	19.04	80.17	17.06	50.82
			16QAM	18.40	69.18	16.25	42.17
		3MHz	QPSK	19.33	85.70	17.16	52.00
			16QAM	18.43	69.66	16.16	41.30
		5MHz	QPSK	19.15	82.22	16.87	48.64
			16QAM	18.39	69.02	16.26	42.27
		10MHz	QPSK	19.21	83.37	17.18	52.24
			16QAM	18.44	69.82	16.32	42.85
		15MHz	QPSK	19.24	83.95	17.64	58.08
			16QAM	18.41	69.34	16.66	46.34
		20MHz	QPSK	19.34	85.90	15.95	39.36
			16QAM	18.92	77.98	15.25	33.50

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	20.25	105.93	18.14	65.16
			16QAM	19.36	86.30	17.35	54.33
		3MHz	QPSK	20.36	108.64	18.16	65.46
			16QAM	19.60	91.20	17.37	54.58
		5MHz	QPSK	20.32	107.65	18.39	69.02
			16QAM	19.80	95.50	17.55	56.89
		10MHz	QPSK	20.37	108.89	17.41	55.08
			16QAM	19.72	93.76	16.60	45.71
		15MHz	QPSK	20.16	103.75	17.52	56.49
			16QAM	19.50	89.13	16.79	47.75
		20MHz	QPSK	20.34	108.14	17.15	51.88
			16QAM	19.81	95.72	16.37	43.35

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	23.60	229.09	13.44	22.08
			16QAM	22.79	190.11	12.41	17.42
		3MHz	QPSK	23.59	228.56	13.57	22.75
			16QAM	22.95	197.24	12.66	18.45
		5MHz	QPSK	23.57	227.51	13.84	24.21
			16QAM	23.05	201.84	12.92	19.59
		10MHz	QPSK	24.20	263.03	13.75	23.71
			16QAM	23.20	208.93	12.95	19.72

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	23.65	231.74	13.99	25.06
			16QAM	22.87	193.64	13.06	20.23
		10MHz	QPSK	23.72	235.50	14.51	28.25
			16QAM	22.86	193.20	13.63	23.07

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	20.49	111.94	25.88	387.26
			16QAM	19.26	84.33	25.74	374.97
		10MHz	QPSK	20.41	109.90	26.08	405.51
			16QAM	19.46	88.31	26.04	401.79
		15MHz	QPSK	20.04	100.93	25.66	368.13
			16QAM	19.19	82.99	25.55	358.92
		20MHz	QPSK	20.42	110.15	26.10	407.38
			16QAM	19.59	90.99	25.88	387.26

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	-6.5
GSM1900, 1850~1910MHz	-2.1
WCDMA Band 2, 1850~1910	-2.1
WCDMA Band 4, 1710~1755	-0.7
LTE Band 2, 1850~1910MHz	-2.1
LTE Band 4, 1710~1755MHz	-0.7
LTE Band 12, 699~716MHz	-7.4
LTE Band 17, 704~716MHz	-7.4
LTE Band 41, 2496~2690MHz	-1.4

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	SONY	1300-7146.1B	5816W02400051	N/A
Earphone	SONY	12271A100010396	12271A100010396	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

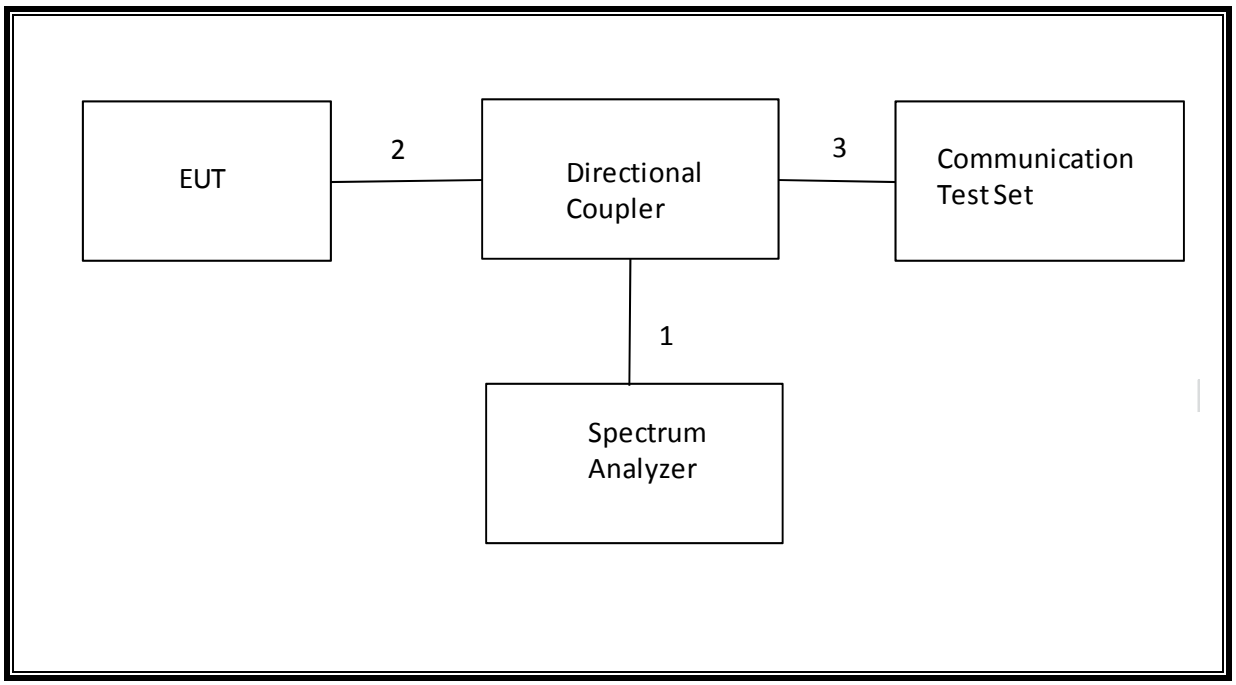
I/O CABLES (RADIATED SETUP)

I/O Cable List						
Cable No	**Port**	**# of Identical ports**	**Connector Type**	**Serial Type**	**Cable Length (m)**	**Remarks**
1	USB	1	AC Adapter	Unshielded	1.2m	No
2	Audio	1	3.5mm	Shielded	>1m	Headset
3	RF In/out	1	Communication Test Set	Unshielded	2m	Yes

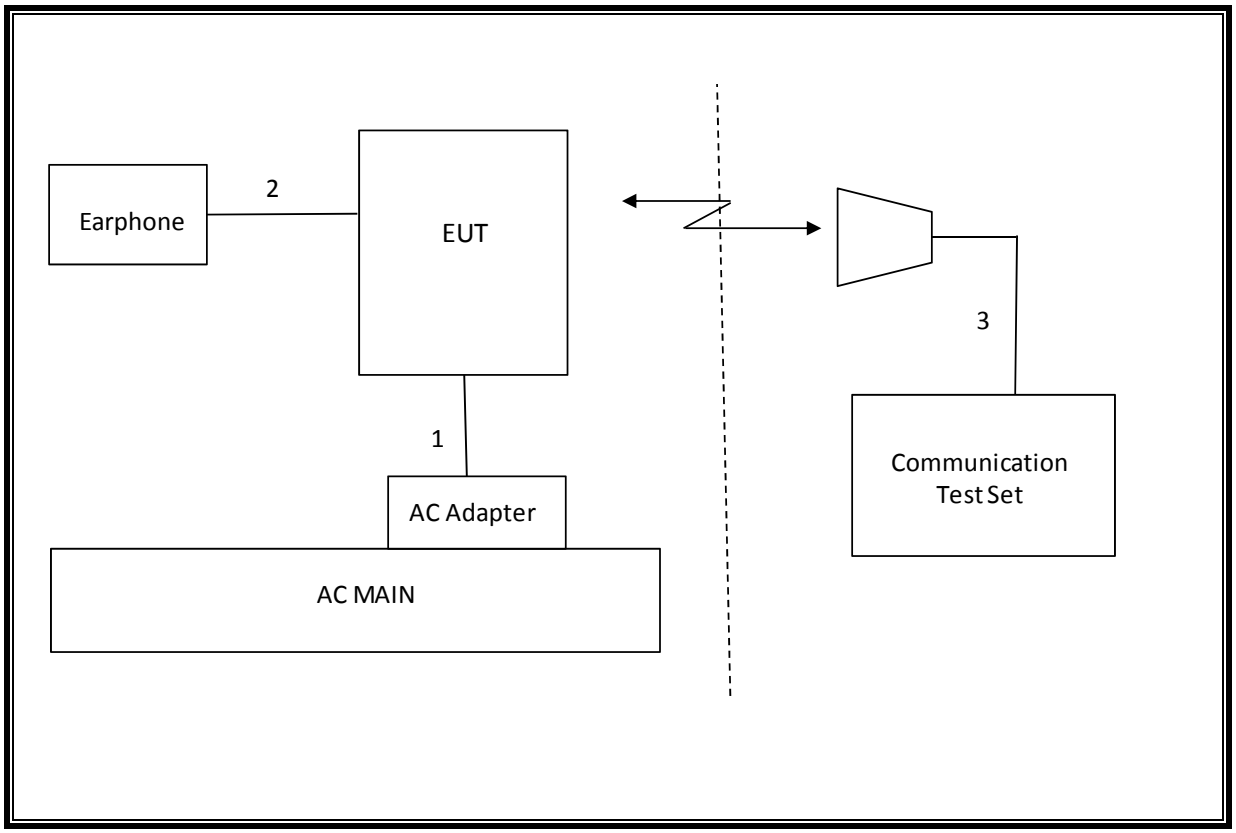
TEST SETUP

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:

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	30-1000 MHz				
AT0073	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2016-06-27	2017-06-27
	1-18 GHz				
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2016-03-07	2017-03-31
	Tuned Dipole Set				
AT0013-AT0016	Four Dipole Antenna Set, 30 to 1000 MHz	EMCO	3121C-DB-1, -2, -3, -4	2016-06-14	2017-06-14
	Gain-Loss Chains				
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	2016-06-26	2017-06-16
N-SAC03	Gain-loss string: 1-18GHz	Various	Various	2015-09-29	2016-09-30
	Receiver & Software				
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
	Additional Equipment used				
HI0078	Temp/Humid/Pressure Meter (Module)	Springfield Precision	PreciseTemp	2016-06-13	2017-06-13
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.
	Conducted Room 1				
SA0026	Spectrum Analyzer	Agilent	N9030A	2016-02-24	2017-02-28
PWM004	RF Power Meter	Keysight Technologies	N1911A	2015-06-08	2017-06-08
PWS004	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	E9323A	2016-06-22	2017-06-22
MM0167	True RMS Multimeter	Agilent	U1232A	2015-08-17	2016-09-31
76022	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
	Conducted Room 2				
SA0026	Spectrum Analyzer	Agilent	N9030A	2016-02-24	2017-02-28
PWM003	RF Power Meter	Keysight Technologies	N1911A	2016-06-21	2017-06-21
PWS003	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	E9323A	2016-06-21	2017-06-21
1100502	Temp/Humid Chamber	Cincinnati Sub-Zero	ZPH-8-3.5-SCT/AC	2016-06-06	2017-06-06
MM0168	True RMS Multimeter	Agilent	U1232A	2015-08-17	2016-09-31
76021	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
	Additional Equipment used				
T918	Wideband Radio Communications Tester	Rohde and Schwartz	CMW500	2016-01-21	2017-01-21

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
2.1049	Occupied Bandwidth (99%)	N/A	Conducted	Pass
22.917(a) 24.238(a) 27.53(g)	Band Edge / Conducted Spurious Emission	-13dBm		Pass
27.53(m)		-25dBm		
2.1046	Conducted output power	N/A		Pass
27.53(m)	Emission Mask			Pass
22.355 24.235 27.54	Frequency Stability	2.5PPM		Pass
22.913(a)(2)	Effective Radiated Power	38dBm	Radiated	Pass
27.50©(10)		34.77dBm		Pass
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power	33dBm		Pass
27.50(d)(4)		30dBm		Pass
22.917(a) 24.238(a) 27.53(g)	Radiated Spurious Emission	-13dBm		Pass
27.53(m)		-25dBm		Pass

8. RF POWER OUTPUT VERIFICATION

8.1. GSM Power Results

GSM/GPRS/EDGE Setup Procedures used to establish the test signals

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

Test Information

Date: 2016-07-12

Tester: 45211 LL

GSM 850

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM	CS4	1	128	824.4	31.6	22.5
			190	836.6	31.6	22.6
			251	848.8	31.2	22.1
GPRS	CS4	1	128	824.4	31.6	22.5
			190	836.6	31.6	22.6
			251	848.8	31.2	22.1
		2	128	824.4	30.5	24.5
			190	836.6	30.6	24.6
			251	848.8	30.7	24.7
		3	128	824.4	29.1	24.8
			190	836.6	28.7	24.4
			251	848.8	28.7	24.4
		4	128	824.4	27.6	24.5
			190	836.6	27.7	24.6
			251	848.8	27.6	24.6
EGPRS	MCS9	1	128	824.4	27.0	18.0
			190	836.6	27.0	18.0
			251	848.8	27.0	18.0
		2	128	824.4	25.6	19.6
			190	836.6	25.8	19.8
			251	848.8	25.8	19.8
		3	128	824.4	23.9	19.6
			190	836.6	23.9	19.6
			251	848.8	23.9	19.6
		4	128	824.4	22.1	19.1
			190	836.6	22.1	19.1
			251	848.8	22.2	19.1

GSM 1900

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM	CS4	1	512	1850.2	28.2	19.2
			661	1880.0	28.3	19.3
			810	1909.8	28.2	19.2
GPRS	CS4	1	512	1850.2	28.2	19.2
			661	1880.0	28.3	19.3
			810	1909.8	28.2	19.2
		2	512	1850.2	26.6	20.6
			661	1880.0	26.8	20.7
			810	1909.8	26.5	20.5
		3	512	1850.2	24.6	20.4
			661	1880.0	24.7	20.5
			810	1909.8	24.6	20.3
		4	512	1850.2	23.6	20.5
			661	1880.0	23.6	20.6
			810	1909.8	23.5	20.5
EGPRS	MCS9	1	512	1850.2	25.9	16.9
			661	1880.0	26.0	16.9
			810	1909.8	25.9	16.8
		2	512	1850.2	24.5	18.5
			661	1880.0	24.5	18.5
			810	1909.8	24.4	18.3
		3	512	1850.2	22.8	18.5
			661	1880.0	22.9	18.6
			810	1909.8	22.7	18.4
		4	512	1850.2	21.8	18.7
			661	1880.0	21.9	18.9
			810	1909.8	21.7	18.7

8.2. WCDMA Power Results

Release 99 Setup Procedures used to establish the test signals

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

Test Information

Date: 2016-07-12

Tester: 45211 LL

rel 99

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	19.90
		9400	1880.0	0	20.00
		9538	1907.6	0	19.92

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	20.38
		1413	1732.6	0	20.44
		1513	1752.6	0	20.49

HSDPA Setup Procedures used to establish the test signals

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	11/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	11/15	15/8	15/4
	βhs	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			
	Ahs=βhs/βc	30/15			

Test Information

Date: 2016-07-12

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HSDPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	18.22
		9400	1880.0	0	18.47
		9538	1907.6	0	18.33
	Subtest 2	9262	1852.4	0	17.97
		9400	1880.0	0	18.28
		9538	1907.6	0	18.23
	Subtest 3	9262	1852.4	0.5	18.03
		9400	1880.0	0.5	18.19
		9538	1907.6	0.5	18.10
	Subtest 4	9262	1852.4	0.5	18.03
		9400	1880.0	0.5	18.15
		9538	1907.6	0.5	18.08

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	18.85
		1413	1732.6	0	18.97
		1513	1752.6	0	18.98
	Subtest 2	1312	1712.4	0	18.63
		1413	1732.6	0	18.72
		1513	1752.6	0	18.72
	Subtest 3	1312	1712.4	0.5	18.58
		1413	1732.6	0.5	18.68
		1513	1752.6	0.5	18.69
	Subtest 4	1312	1712.4	0.5	18.49
		1413	1732.6	0.5	18.65
		1513	1752.6	0.5	18.67

HSPA (HSDPA & HSUPA) Setup Procedures used to establish the test signals

	Mode	HSPA				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	15/1
	βhs	22/15	12/15	30/15	4/15	5/15
	βed	1309/225	94/75	47/15	56/75	47/15
	CM (dB)	1	3	2	3	1
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	E-DPDCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	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	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
	Reference E-TFCI PO	27	27	27	27	27
	Maximum Channelization Codes	2xSF2				SF4

Test Information

Date: 2016-07-12

Tester: 45211 LL

HSUPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	18.71
		9400	1880.0	0	18.58
		9538	1907.6	0	18.48
	Subtest 2	9262	1852.4	2	16.86
		9400	1880.0	2	16.82
		9538	1907.6	2	16.75
	Subtest 3	9262	1852.4	1	17.66
		9400	1880.0	1	17.80
		9538	1907.6	1	17.66
	Subtest 4	9262	1852.4	2	16.67
		9400	1880.0	2	16.73
		9538	1907.6	2	16.77
	Subtest 5	9262	1852.4	0	18.20
		9400	1880.0	0	18.55
		9538	1907.6	0	18.40

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	18.88
		1413	1732.6	0	19.00
		1513	1752.6	0	18.99
	Subtest 2	1312	1712.4	2	17.41
		1413	1732.6	2	17.50
		1513	1752.6	2	17.50
	Subtest 3	1312	1712.4	1	17.88
		1413	1732.6	1	17.97
		1513	1752.6	1	18.02
	Subtest 4	1312	1712.4	2	17.38
		1413	1732.6	2	17.43
		1513	1752.6	2	17.48
	Subtest 5	1312	1712.4	0	18.88
		1413	1732.6	0	18.96
		1513	1752.6	0	18.97

8.3. LTE Power Results

Test Information

Date: 2016-07-12

Tester: 45211 LL

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	19.04	18.94	18.71
			1	3	0	18.95	18.99	18.80
			1	5	0	18.87	18.94	18.73
			3	0	0	18.83	18.98	18.80
			3	1	0	18.97	19.01	18.83
			3	3	0	18.90	19.01	18.85
			6	0	1	17.77	17.95	17.72
		16QAM	1	0	1	17.98	18.30	17.75
			1	3	1	17.98	18.40	17.83
			1	5	1	17.86	18.32	17.76
			3	0	1	17.81	18.18	17.91
			3	1	1	18.17	18.20	17.95
			3	3	1	18.15	18.20	17.96
			6	0	2	16.97	16.92	16.95
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	19.03	18.88	18.83
			1	8	0	19.33	19.07	19.02
			1	14	0	19.09	18.69	18.77
			8	0	1	18.10	17.94	17.87
			8	4	1	18.15	18.00	17.92
			8	7	1	18.14	18.00	17.97
			15	0	1	18.21	17.95	17.84
		16QAM	1	0	1	17.88	18.24	17.85
			1	8	1	18.14	18.43	18.03
			1	14	1	17.79	18.04	17.80
			8	0	2	17.25	16.85	17.10
			8	4	2	17.26	16.93	17.19
			8	7	2	17.24	16.94	17.18
			15	0	2	17.11	16.98	16.89

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	19.15	18.97	18.99
			1	12	0	19.01	18.92	18.92
			1	24	0	19.13	18.85	18.97
			12	0	1	18.09	17.90	17.98
			12	7	1	18.10	17.96	17.93
			12	13	1	18.09	17.91	17.93
			25	0	1	18.08	17.93	17.88
		16QAM	1	0	1	18.30	18.18	18.39
			1	12	1	18.25	18.10	18.35
			1	24	1	18.26	18.09	18.40
			12	0	2	17.20	17.01	17.12
			12	7	2	17.20	17.07	17.06
			12	13	2	17.18	17.01	17.07
			25	0	2	17.10	17.01	16.98
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	18.98	19.08	18.99
			1	25	0	18.96	18.99	18.96
			1	49	0	19.21	19.03	19.09
			25	0	1	17.95	18.08	17.87
			25	12	1	17.97	18.02	18.07
			25	25	1	17.97	17.94	17.97
			50	0	1	17.98	18.01	18.10
		16QAM	1	0	1	18.00	18.44	17.94
			1	25	1	17.82	18.37	17.95
			1	49	1	17.95	18.44	18.07
			25	0	2	17.05	17.14	17.09
			25	12	2	17.06	17.09	17.22
			25	25	2	17.07	16.97	17.06
			50	0	2	17.02	17.10	17.14

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	19.21	19.15	19.16
			1	37	0	19.24	19.08	18.97
			1	74	0	19.20	19.15	19.04
			36	0	1	17.97	18.12	18.10
			36	20	1	17.97	18.10	18.04
			36	39	1	17.96	18.10	18.17
			75	0	1	17.95	18.09	18.03
		16QAM	1	0	1	18.20	18.08	18.37
			1	37	1	18.11	17.92	18.35
			1	74	1	18.31	18.01	18.41
			36	0	2	17.06	17.18	17.22
			36	20	2	17.05	17.17	17.15
			36	39	2	17.07	17.22	17.21
			75	0	2	17.04	17.19	17.10
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	19.05	19.27	19.07
			1	49	0	19.02	19.19	19.12
			1	99	0	19.34	19.30	19.33
			50	0	1	18.14	18.22	18.16
			50	24	1	18.19	18.30	18.19
			50	50	1	18.37	18.26	18.45
			100	0	1	18.14	18.33	18.16
		16QAM	1	0	1	18.62	18.70	18.40
			1	49	1	18.68	18.60	18.53
			1	99	1	18.92	18.72	18.78
			50	0	2	17.22	17.33	17.20
			50	24	2	17.25	17.37	17.23
			50	50	2	17.36	17.39	17.42
			100	0	2	17.28	17.43	17.28

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	20.18	19.86	19.96
			1	3	0	20.24	19.91	20.05
			1	5	0	20.15	19.93	20.03
			3	0	0	20.19	19.83	20.01
			3	1	0	20.23	19.89	20.03
			3	3	0	20.25	19.91	20.04
			6	0	1	19.14	18.83	18.91
		16QAM	1	0	1	19.28	19.23	19.00
			1	3	1	19.36	19.31	19.06
			1	5	1	19.32	19.31	19.05
			3	0	1	19.24	19.06	19.19
			3	1	1	19.31	19.12	19.22
			3	3	1	19.30	19.13	19.25
			6	0	2	18.35	17.82	18.17
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	20.16	20.06	20.08
			1	8	0	20.36	20.15	20.26
			1	14	0	20.14	19.88	20.13
			8	0	1	19.16	19.08	19.14
			8	4	1	19.23	19.09	19.16
			8	7	1	19.20	19.00	19.16
			15	0	1	19.24	19.08	19.12
		16QAM	1	0	1	19.20	18.96	19.46
			1	8	1	19.40	19.07	19.60
			1	14	1	19.17	18.80	19.52
			8	0	2	18.42	18.23	18.07
			8	4	2	18.49	18.27	18.12
			8	7	2	18.48	18.17	18.11
			15	0	2	18.24	18.11	18.20

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	20.24	20.11	20.14
			1	12	0	20.31	20.13	20.19
			1	24	0	20.31	20.00	20.32
			12	0	1	19.30	19.15	19.12
			12	7	1	19.36	19.19	19.19
			12	13	1	19.32	19.08	19.15
			25	0	1	19.31	19.12	19.18
		16QAM	1	0	1	19.39	19.35	19.57
			1	12	1	19.40	19.36	19.70
			1	24	1	19.41	19.23	19.80
			12	0	2	18.40	18.25	18.31
			12	7	2	18.46	18.29	18.38
			12	13	2	18.37	18.19	18.35
			25	0	2	18.35	18.21	18.30
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	20.36	20.21	20.18
			1	25	0	20.32	20.12	20.14
			1	49	0	20.37	20.09	20.34
			25	0	1	19.31	19.14	19.13
			25	12	1	19.29	19.15	19.15
			25	25	1	19.20	19.05	19.21
			50	0	1	19.31	19.02	19.11
		16QAM	1	0	1	19.35	19.16	19.53
			1	25	1	19.30	19.11	19.52
			1	49	1	19.32	19.02	19.72
			25	0	2	18.47	18.22	18.20
			25	12	2	18.45	18.24	18.24
			25	25	2	18.36	18.14	18.30
			50	0	2	18.40	18.09	18.21

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	20.16	20.04	19.95
			1	37	0	20.13	20.15	20.01
			1	74	0	20.09	19.83	20.06
			36	0	1	19.01	18.97	18.84
			36	20	1	18.94	18.95	18.85
			36	39	1	18.98	18.96	18.90
			75	0	1	18.99	18.96	18.90
		16QAM	1	0	1	19.50	19.03	19.31
			1	37	1	19.31	18.93	19.13
			1	74	1	19.39	18.81	19.43
			36	0	2	18.09	18.08	17.98
			36	20	2	18.04	18.05	18.01
			36	39	2	18.11	18.05	18.04
			75	0	2	18.08	18.04	17.99
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	20.17	20.11	20.11
			1	49	0	20.05	20.16	19.85
			1	99	0	20.26	20.12	20.34
			50	0	1	19.12	19.11	19.04
			50	24	1	19.13	19.14	19.04
			50	50	1	19.27	19.13	19.17
			100	0	1	19.21	19.14	19.05
		16QAM	1	0	1	19.71	19.48	19.52
			1	49	1	19.60	19.48	19.28
			1	99	1	19.81	19.49	19.75
			50	0	2	18.22	18.21	18.08
			50	24	2	18.23	18.24	18.09
			50	50	2	18.33	18.22	18.21
			100	0	2	18.31	18.21	18.14

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	22.87	22.92	22.87
			1	3	0	22.94	22.91	22.99
			1	5	0	22.90	22.88	22.89
			3	0	0	23.49	23.37	23.52
			3	1	0	23.51	23.48	23.60
			3	3	0	23.51	23.50	23.60
			6	0	1	22.41	22.40	22.48
		16QAM	1	0	1	22.50	22.77	22.42
			1	3	1	22.56	22.79	22.52
			1	5	1	22.43	22.73	22.42
			3	0	1	22.46	22.53	22.62
			3	1	1	22.61	22.60	22.68
			3	3	1	22.60	22.61	22.67
			6	0	2	21.56	21.31	21.60
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	23.46	23.50	23.50
			1	8	0	23.49	23.59	23.54
			1	14	0	23.34	23.50	23.44
			8	0	1	22.50	22.48	22.53
			8	4	1	22.52	22.47	22.47
			8	7	1	22.48	22.51	22.54
			15	0	1	22.55	22.48	22.48
		16QAM	1	0	1	22.31	22.83	22.55
			1	8	1	22.35	22.95	22.62
			1	14	1	22.21	22.87	22.50
			8	0	2	21.60	21.33	21.70
			8	4	2	21.62	21.35	21.67
			8	7	2	21.60	21.39	21.69
			15	0	2	21.58	21.51	21.38

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	23.54	23.51	23.57
			1	12	0	23.51	23.46	23.57
			1	24	0	23.44	23.50	23.57
			12	0	1	22.52	22.45	22.51
			12	7	1	22.54	22.51	22.58
			12	13	1	22.42	22.52	22.47
			25	0	1	22.49	22.41	22.54
		16QAM	1	0	1	22.71	23.00	22.57
			1	12	1	22.73	22.98	22.61
			1	24	1	22.64	23.05	22.59
			12	0	2	21.63	21.53	21.56
			12	7	2	21.63	21.58	21.62
			12	13	2	21.48	21.63	21.52
			25	0	2	21.54	21.47	21.48
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	24.20	24.00	23.90
			1	25	0	23.80	23.70	23.70
			1	49	0	23.90	23.80	23.80
			25	0	1	22.90	22.80	22.80
			25	12	1	22.80	22.80	22.80
			25	25	1	22.70	22.80	22.80
			50	0	1	22.80	22.80	22.80
		16QAM	1	0	1	23.20	22.70	22.90
			1	25	1	22.90	22.50	22.80
			1	49	1	23.00	22.50	22.80
			25	0	2	21.60	21.60	21.80
			25	12	2	21.50	21.50	21.80
			25	25	2	21.50	21.60	21.90
			50	0	2	21.60	21.50	21.70

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	23.65
			1	12	0	23.55
			1	24	0	23.62
			12	0	1	22.61
			12	7	1	22.63
			12	13	1	22.57
			25	0	1	22.62
		16QAM	1	0	1	22.87
			1	12	1	22.79
			1	24	1	22.84
			12	0	2	21.71
			12	7	2	21.68
			12	13	2	21.63
			25	0	2	21.61
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	10	QPSK	1	0	0	23.72
			1	25	0	23.36
			1	49	0	23.47
			25	0	1	22.62
			25	12	1	22.54
			25	25	1	22.42
			50	0	1	22.59
		16QAM	1	0	1	22.86
			1	25	1	22.38
			1	49	1	22.48
			25	0	2	21.68
			25	12	2	21.52
			25	25	2	21.48
			50	0	2	21.58

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	20.45	20.49	19.95	20.26	20.10
			1	12	0	20.48	20.46	20.04	20.35	20.15
			1	24	0	20.42	20.47	19.92	20.22	19.96
			12	0	1	19.32	19.31	18.83	19.13	18.97
			12	7	1	19.33	19.30	18.85	19.19	18.97
			12	13	1	19.29	19.30	18.81	19.17	19.00
			25	0	1	19.32	19.32	18.80	19.12	18.93
		16QAM	1	0	1	19.19	19.21	18.72	19.04	19.21
			1	12	1	19.14	19.18	18.86	19.18	19.16
			1	24	1	19.22	19.26	18.79	19.11	19.07
			12	0	2	18.34	18.34	17.75	18.06	17.98
			12	7	2	18.32	18.31	17.79	18.13	18.06
			12	13	2	18.25	18.27	17.77	18.11	18.07
			25	0	2	18.28	18.33	17.82	18.14	17.99

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	20.36	20.41	19.87	20.07	20.33
			1	25	0	20.31	20.35	19.83	20.14	20.18
			1	49	0	20.40	20.40	19.76	20.20	20.07
			25	0	1	19.39	19.38	18.82	19.12	19.24
			25	12	1	19.32	19.37	18.87	19.16	19.10
			25	25	1	19.36	19.40	18.89	19.16	19.01
			50	0	1	19.29	19.32	18.89	19.16	19.09
		16QAM	1	0	1	19.43	19.44	18.85	18.99	19.15
			1	25	1	19.31	19.37	18.75	19.03	19.00
			1	49	1	19.40	19.46	18.69	19.08	18.95
			25	0	2	18.34	18.37	17.78	18.08	18.19
			25	12	2	18.29	18.32	17.77	18.13	18.07
			25	25	2	18.33	18.40	17.84	18.14	17.98
			50	0	2	18.36	18.34	17.82	18.16	18.07

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	20.01	19.80	19.71	19.82	20.04
			1	37	0	19.81	19.50	19.62	19.81	19.76
			1	74	0	19.76	19.55	19.50	19.81	19.54
			36	0	1	19.08	18.89	18.86	18.94	18.94
			36	20	1	19.04	18.78	18.74	18.94	18.90
			36	39	1	18.99	18.80	18.70	18.91	18.69
			75	0	1	19.04	18.75	18.70	18.94	18.87
		16QAM	1	0	1	19.19	19.00	18.79	18.91	18.92
			1	37	1	19.05	18.81	18.67	18.90	18.73
			1	74	1	18.94	18.72	18.58	18.82	18.51
			36	0	2	18.10	17.86	17.75	17.86	17.92
			36	20	2	18.05	17.72	17.63	17.88	17.83
			36	39	2	18.03	17.76	17.65	17.89	17.66
			75	0	2	18.06	17.68	17.66	17.91	17.84

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	20.39	20.14	20.13	20.10	20.30
			1	49	0	20.08	19.85	19.84	20.05	20.01
			1	99	0	20.40	20.14	20.02	20.42	19.96
			50	0	1	19.19	18.94	18.93	19.02	19.12
			50	24	1	19.19	18.93	18.90	19.09	19.11
			50	50	1	19.22	19.02	18.85	19.16	18.99
			100	0	1	19.21	18.96	18.92	19.11	19.13
		16QAM	1	0	1	19.59	19.30	18.99	18.96	19.25
			1	49	1	19.25	19.05	18.72	18.91	18.97
			1	99	1	19.58	19.29	18.92	19.30	18.94
			50	0	2	18.23	17.94	17.85	17.95	18.09
			50	24	2	18.20	17.90	17.82	18.05	18.10
			50	50	2	18.29	18.02	17.76	18.08	18.01
			100	0	2	18.19	17.92	17.88	18.08	18.14

9. Conducted Test Results

9.1. PEAK-TO-AVERAGE RATIO

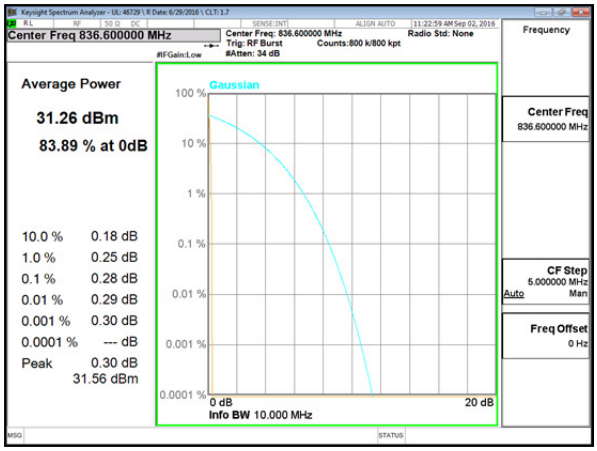
TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

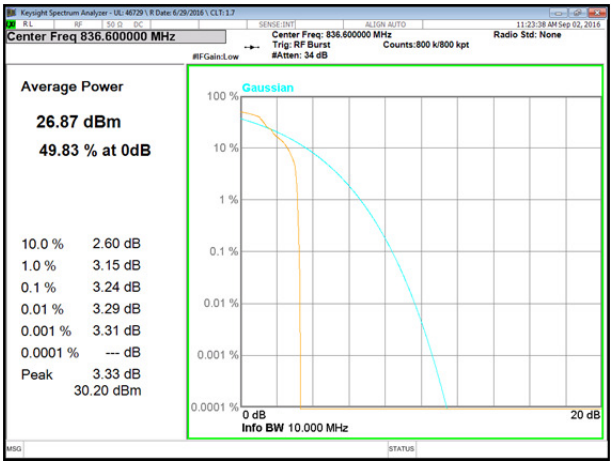
TEST SPEC

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.

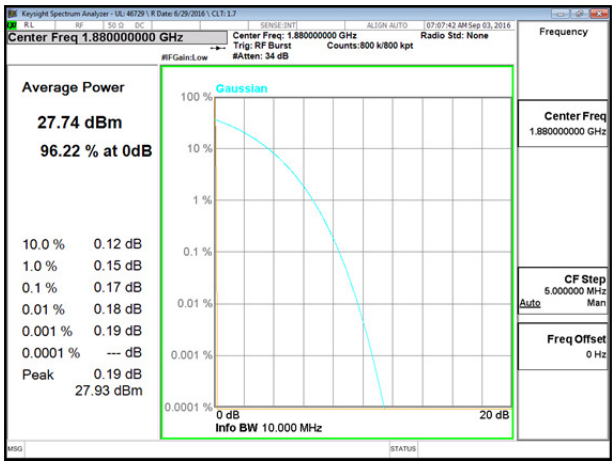
GSM



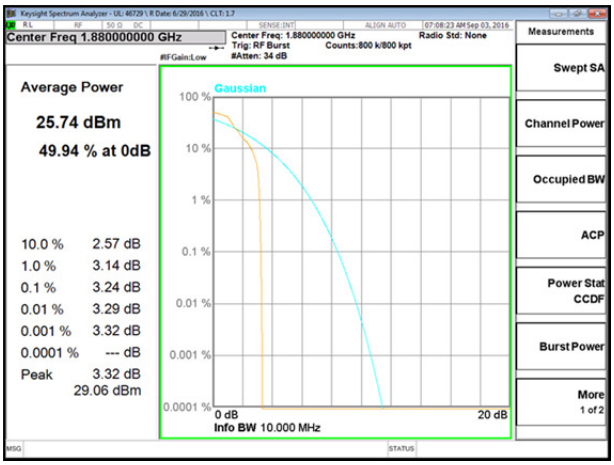
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel

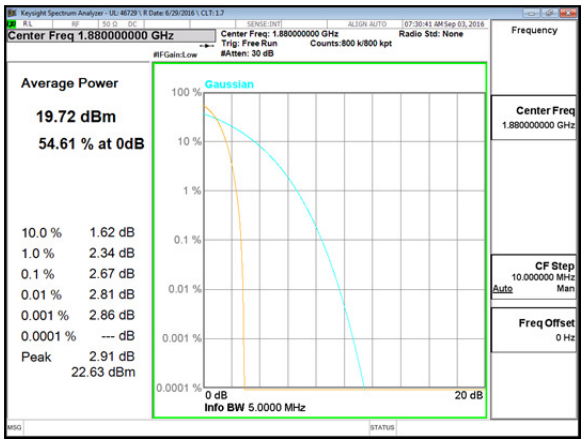


GSM1900 GPRS Middle Channel

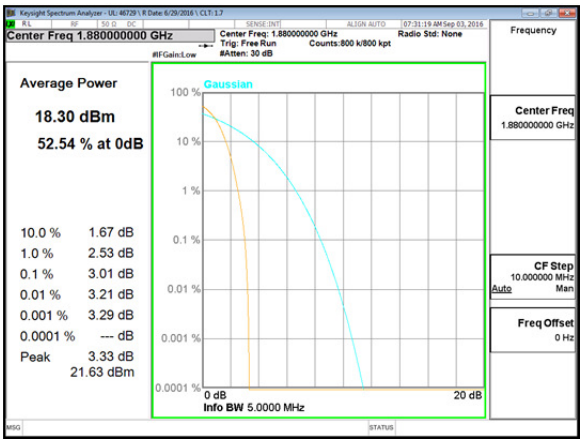


GSM1900 EGPRS Middle Channel

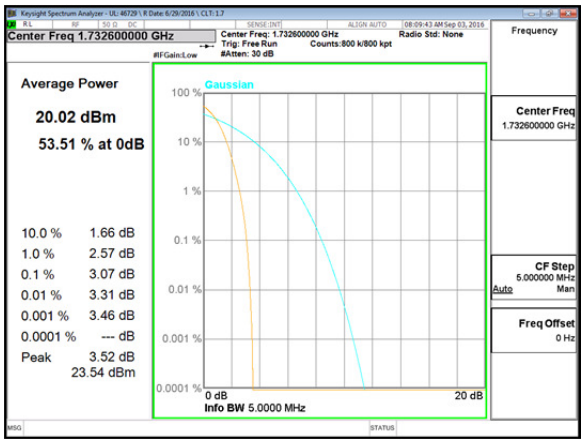
WCDMA Plots



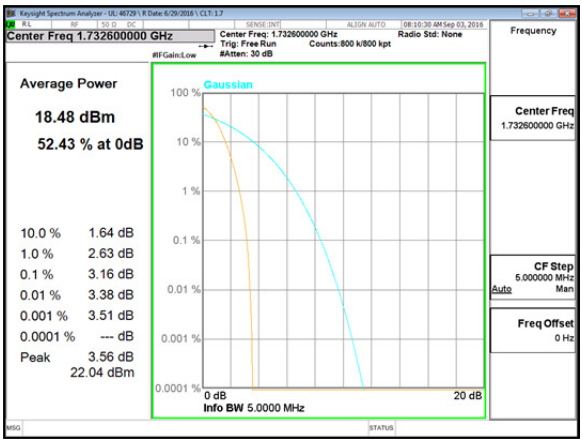
B2 REL99



B2 HSDPA

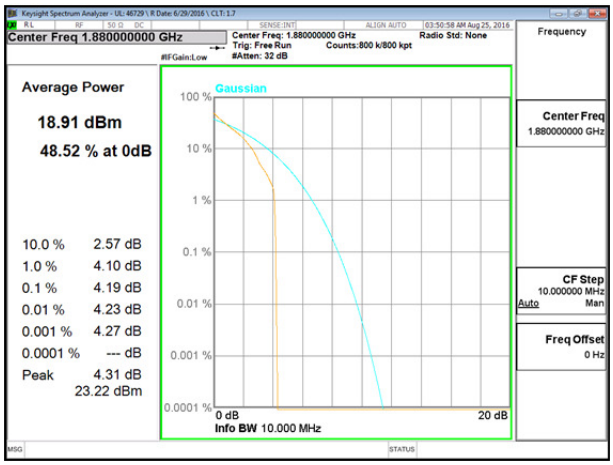


B4 REL99

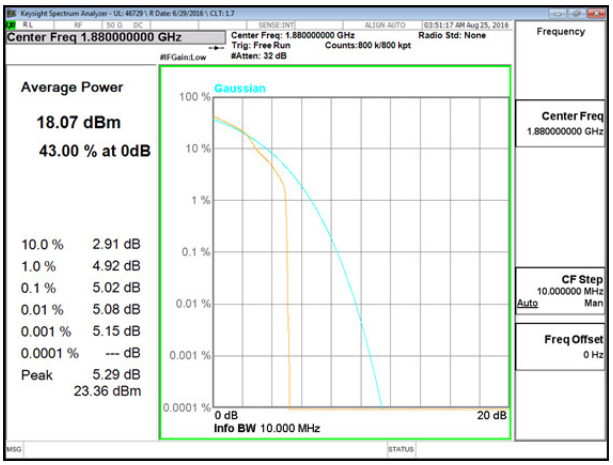


B4 HSDPA

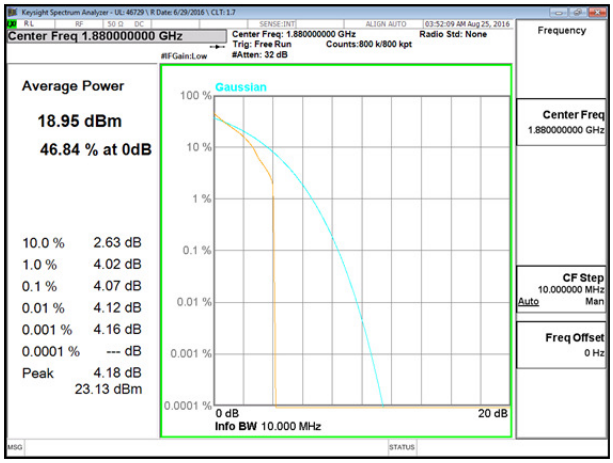
LTE Band 2



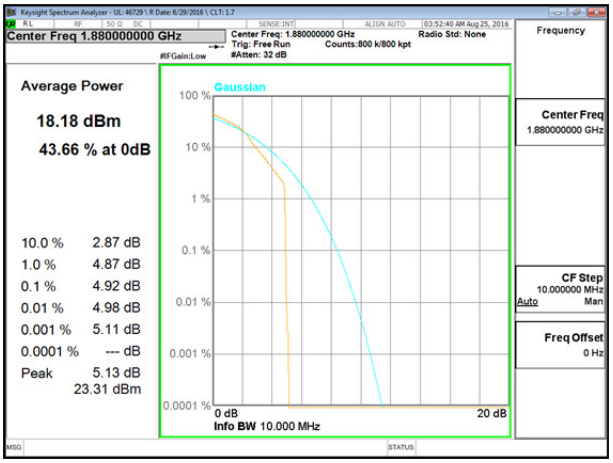
LTE B2 1.4MHz QPSK Middle Channel



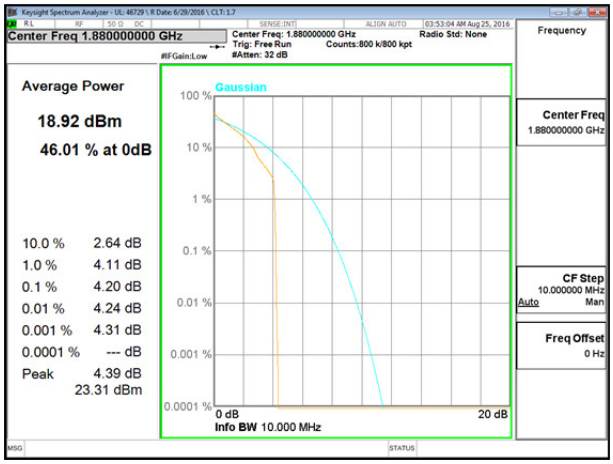
LTE B2 1.4MHz 16QAM Middle Channel



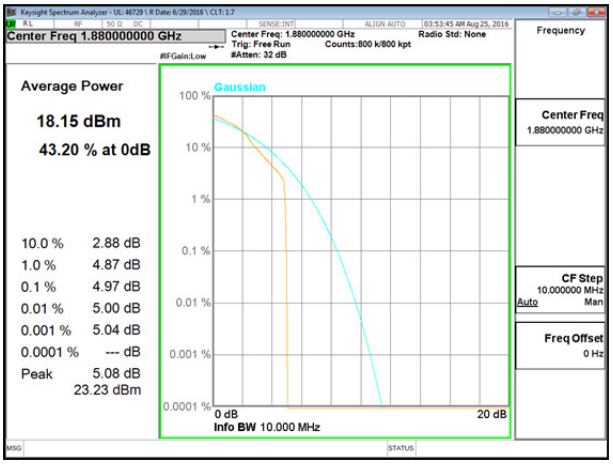
LTE B2 3MHz QPSK Middle Channel



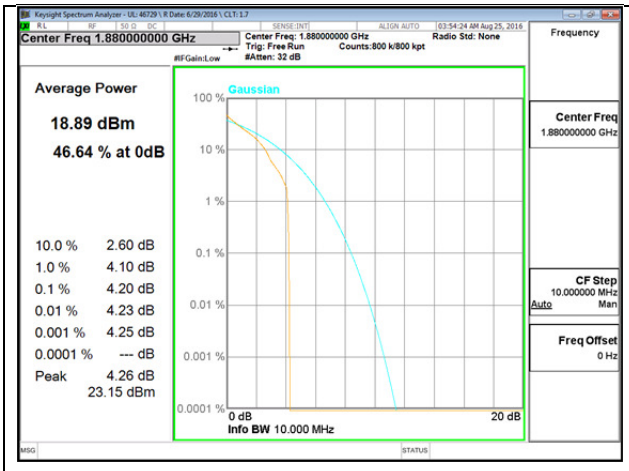
LTE B2 3MHz 16QAM Middle Channel



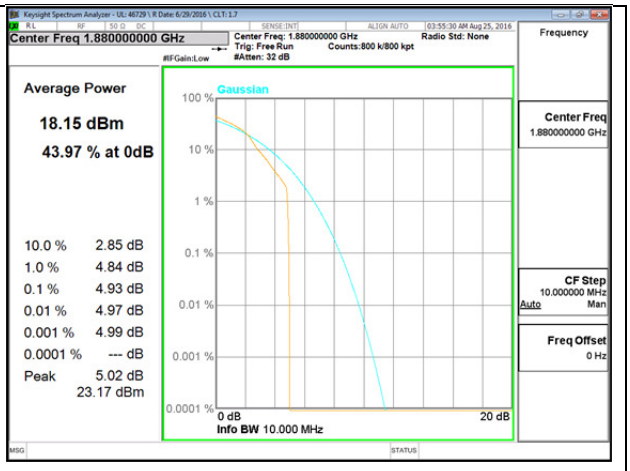
LTE B2 5MHz QPSK Middle Channel



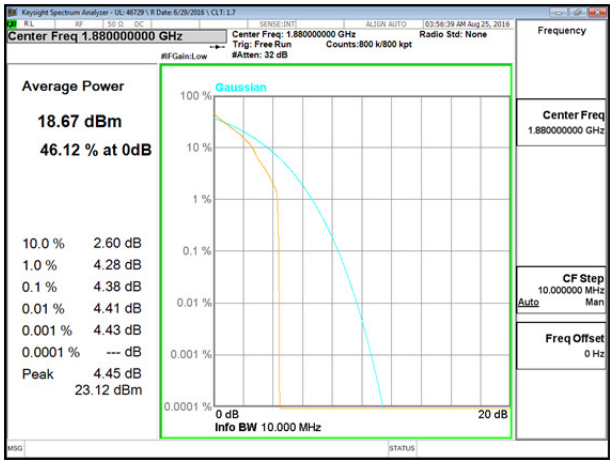
LTE B2 5MHz 16QAM Middle Channel



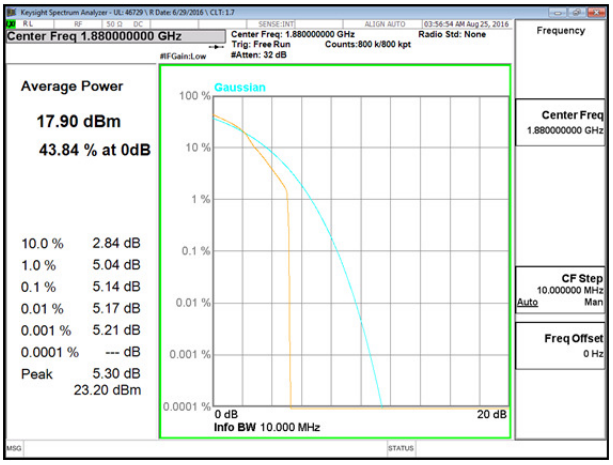
LTE B2 10MHz QPSK Middle Channel



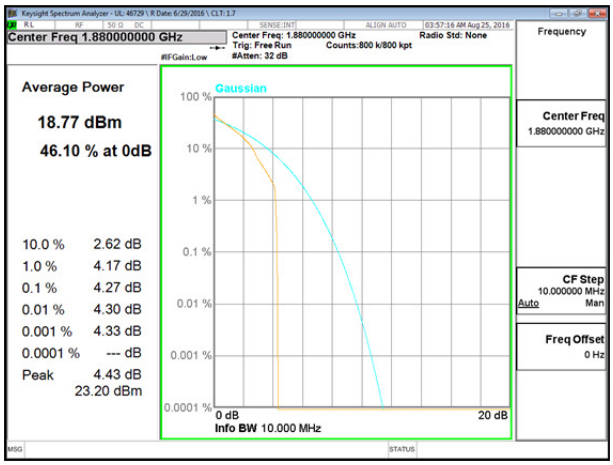
LTE B2 10MHz 16QAM Middle Channel



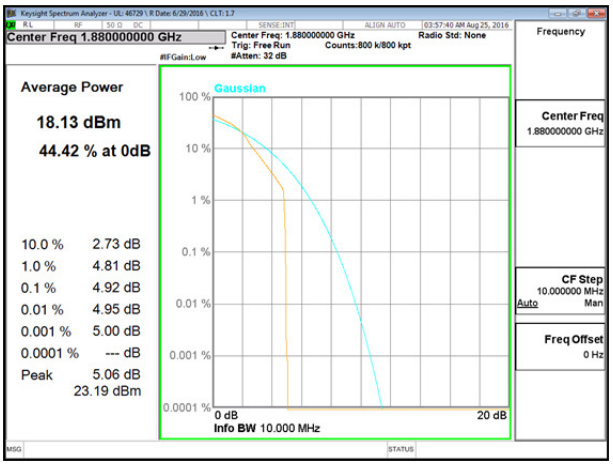
LTE B2 15MHz QPSK Middle Channel



LTE B2 15MHz 16QAM Middle Channel

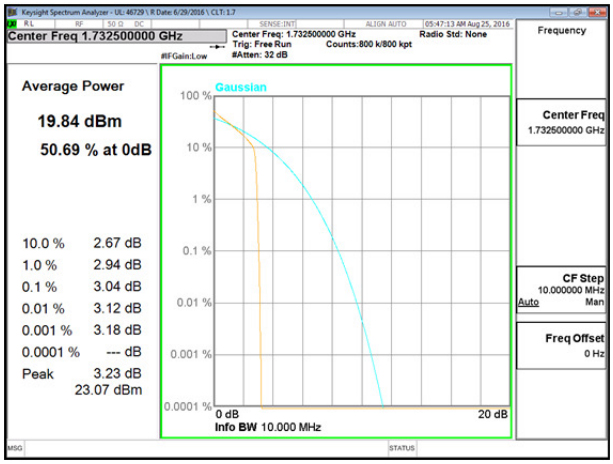


LTE B2 20MHz QPSK Middle Channel

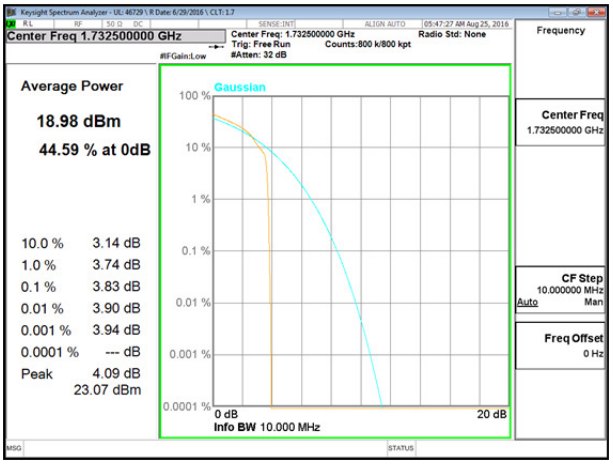


LTE B2 20MHz 16QAM Middle Channel

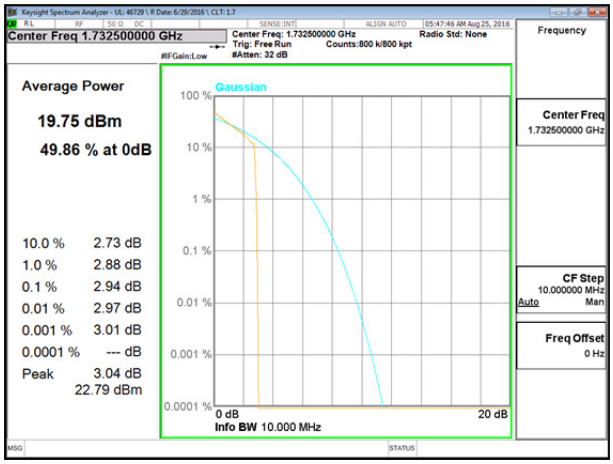
LTE Band 4



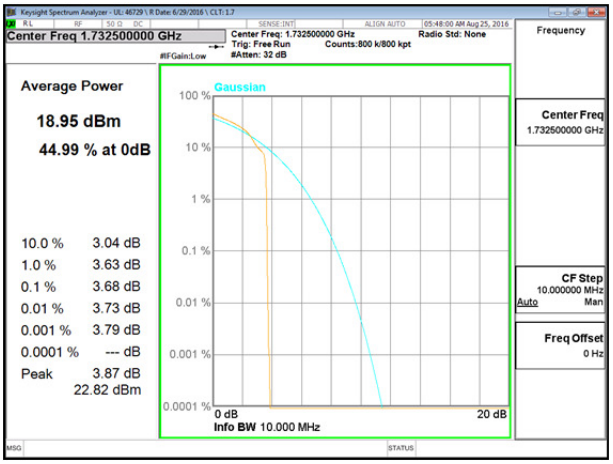
LTE B4 1.4MHz QPSK Middle Channel



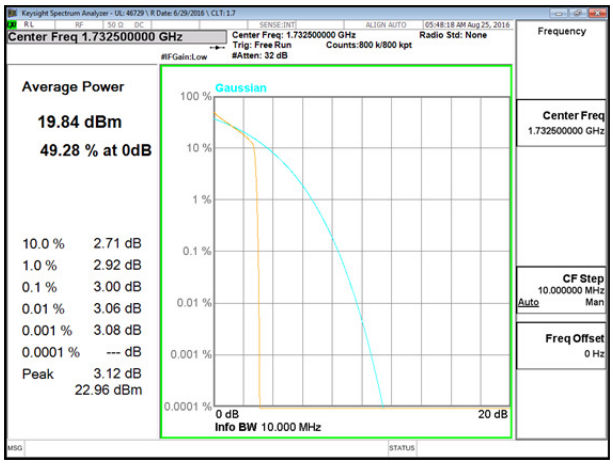
LTE B4 1.4MHz 16QAM Middle Channel



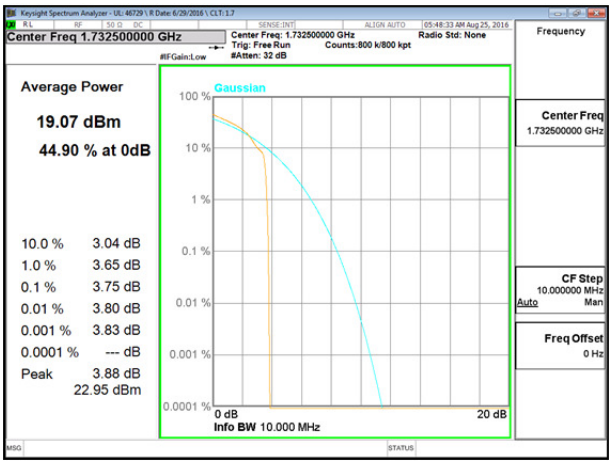
LTE B4 3MHz QPSK Middle Channel



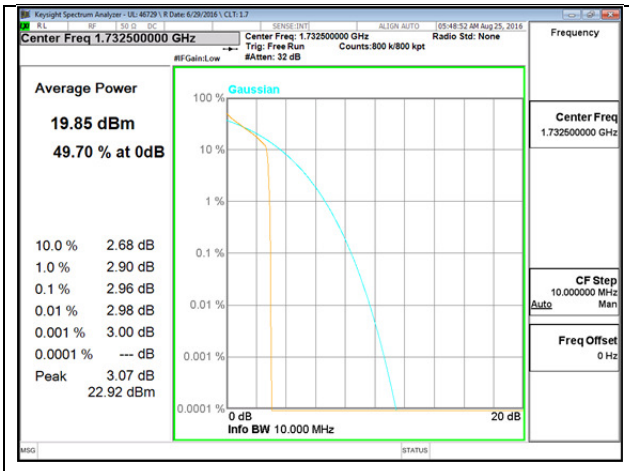
LTE B4 3MHz 16QAM Middle Channel



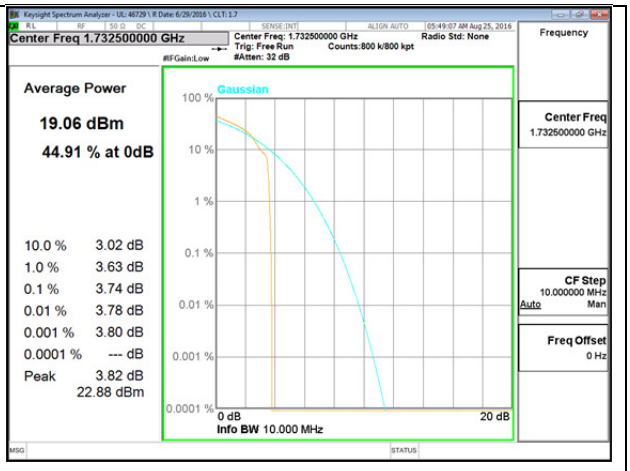
LTE B4 5MHz QPSK Middle Channel



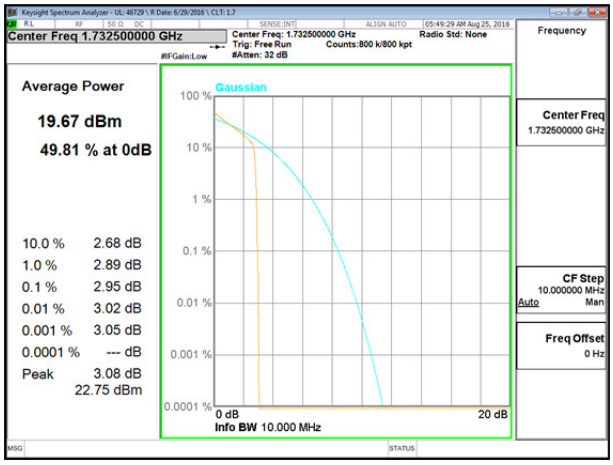
LTE B4 5MHz 16QAM Middle Channel



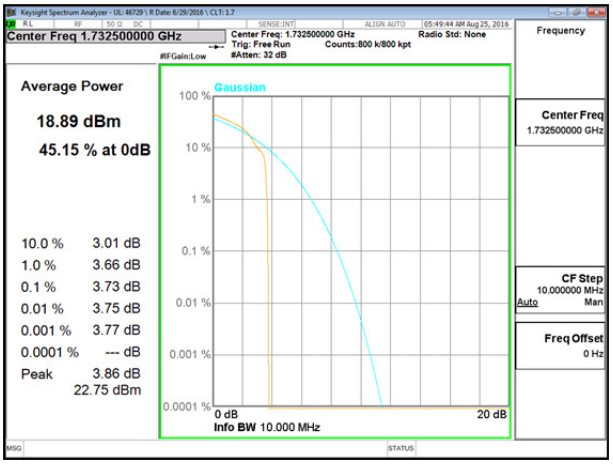
LTE B4 10MHz QPSK Middle Channel



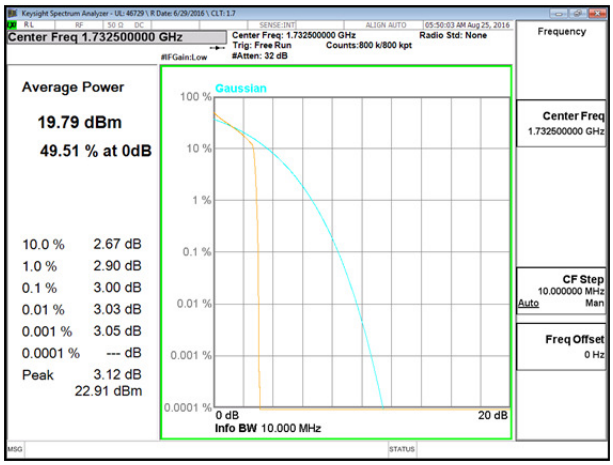
LTE B4 10MHz 16QAM Middle Channel



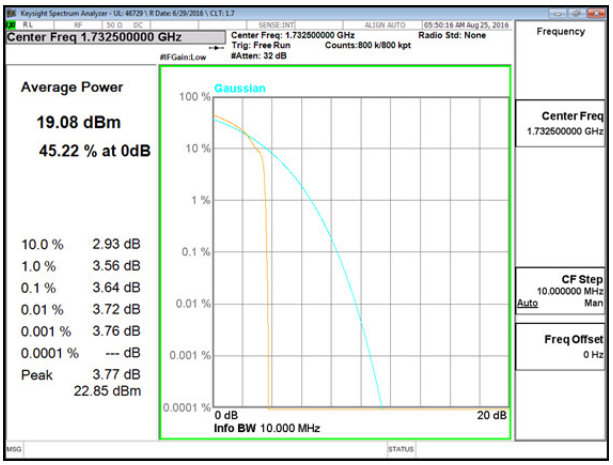
LTE B4 15MHz QPSK Middle Channel



LTE B4 15MHz 16QAM Middle Channel

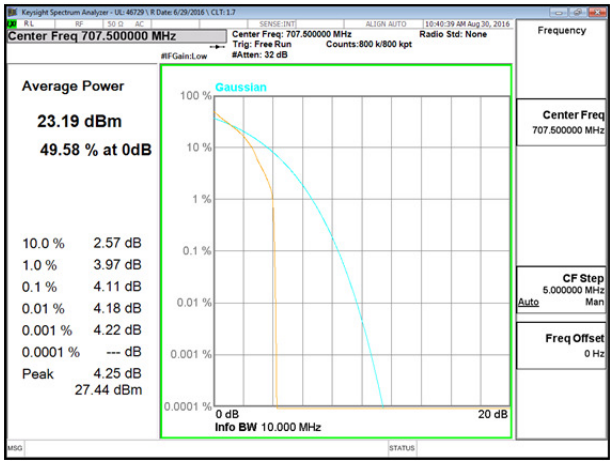


LTE B4 20MHz QPSK Middle Channel

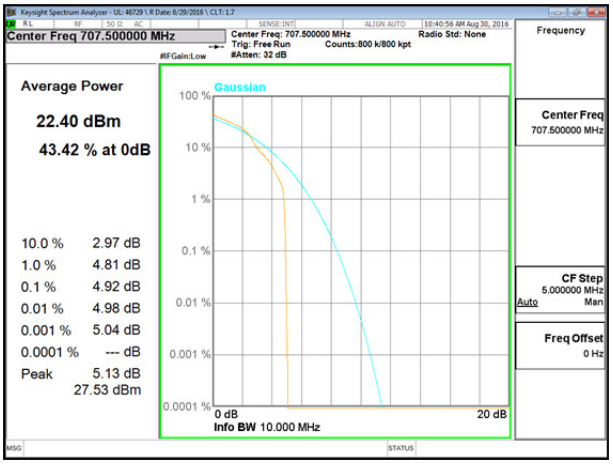


LTE B4 20MHz 16QAM Middle Channel

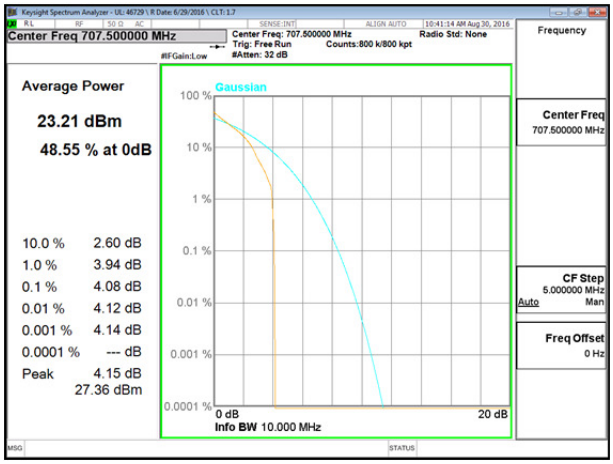
LTE Band 12



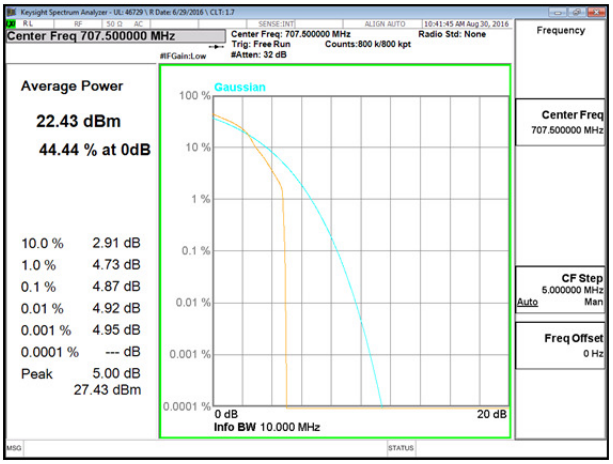
LTE B12 1.4MHz QPSK Middle Channel



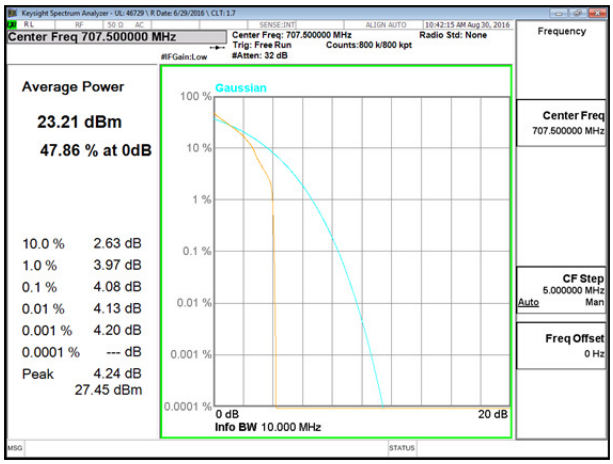
LTE B12 1.4MHz 16QAM Middle Channel



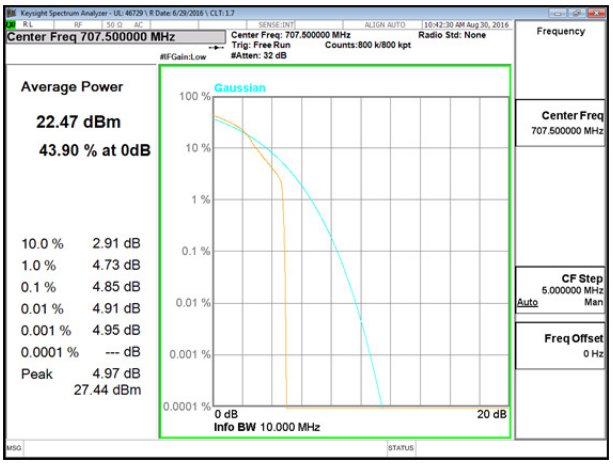
LTE B12 3MHz QPSK Middle Channel



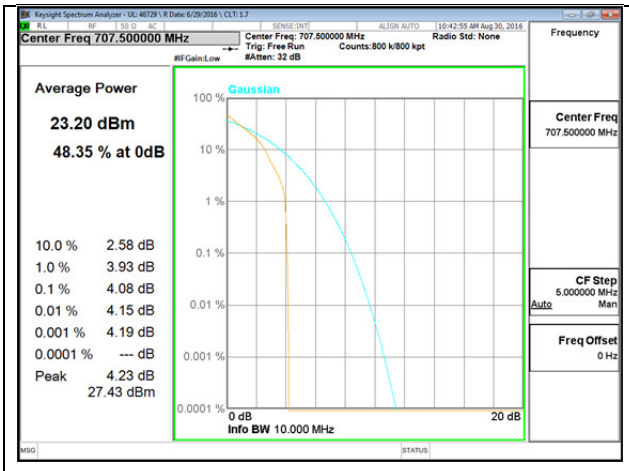
LTE B12 3MHz 16QAM Middle Channel



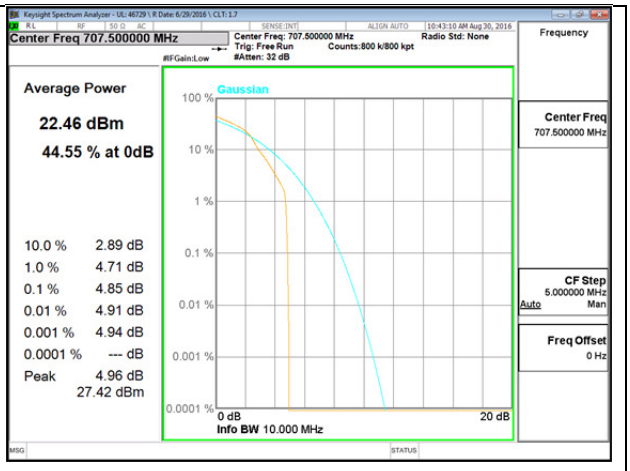
LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel

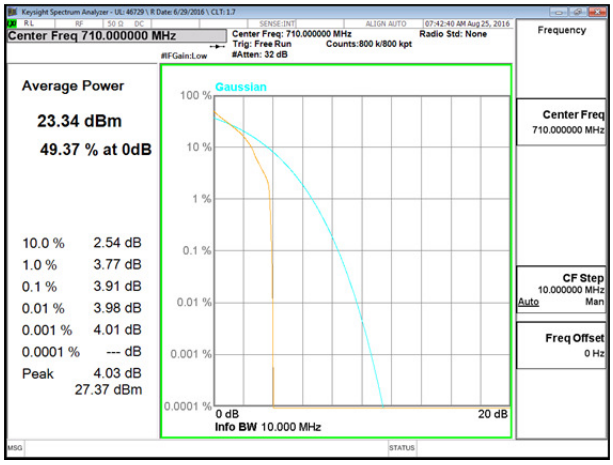


LTE B12 10MHz QPSK Middle Channel

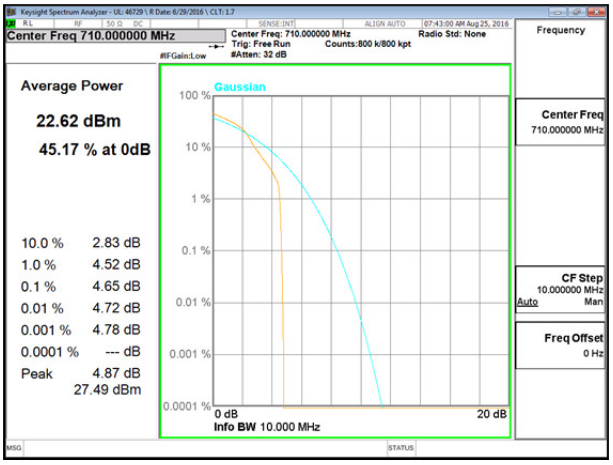


LTE B12 10MHz 16QAM Middle Channel

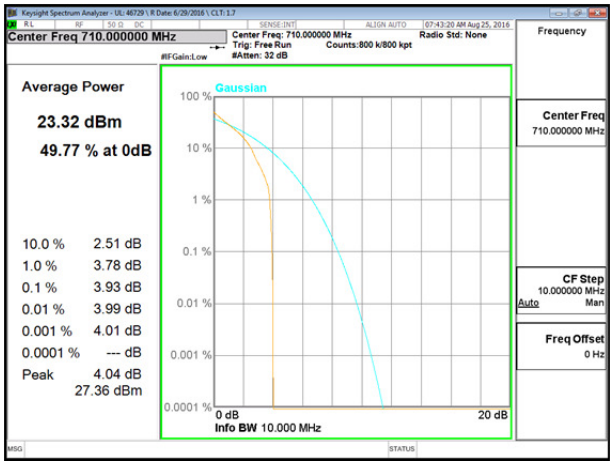
LTE Band 17



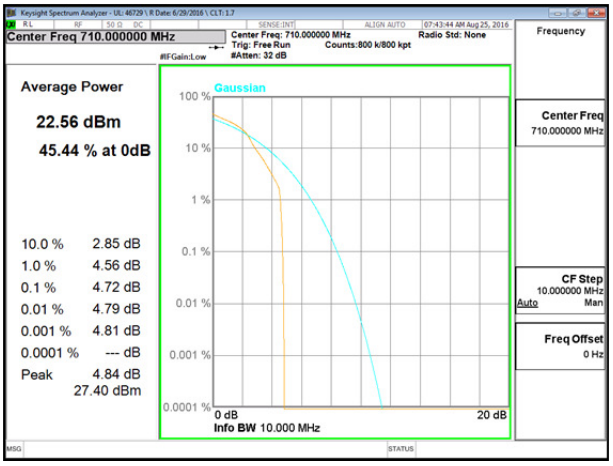
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel

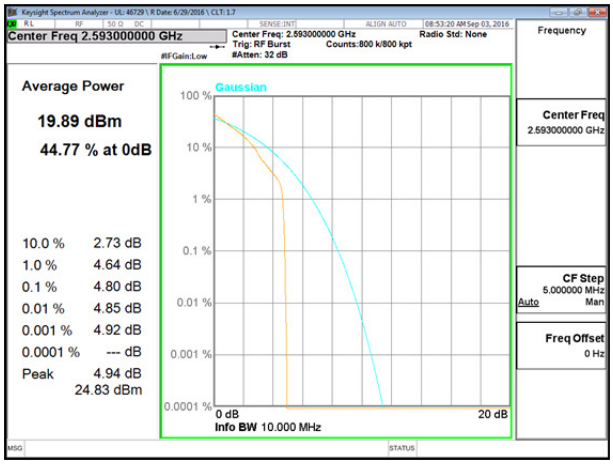


LTE B17 10MHz QPSK Middle Channel

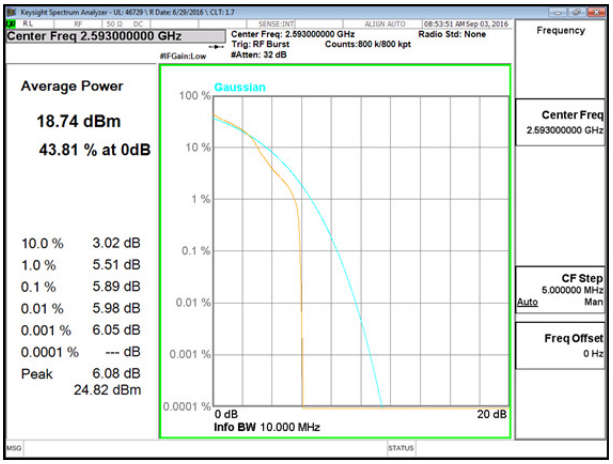


LTE B17 10MHz 16QAM Middle Channel

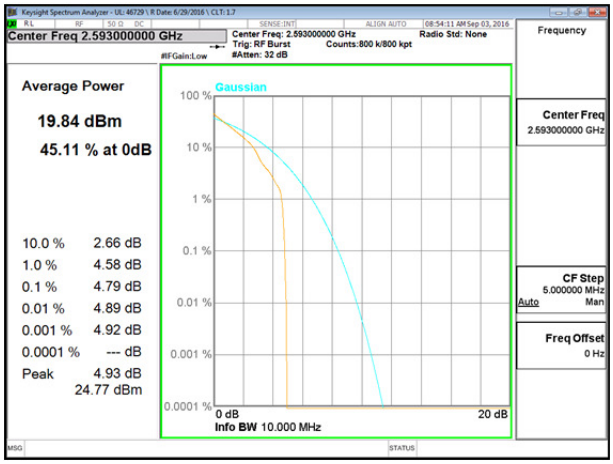
LTE Band 41



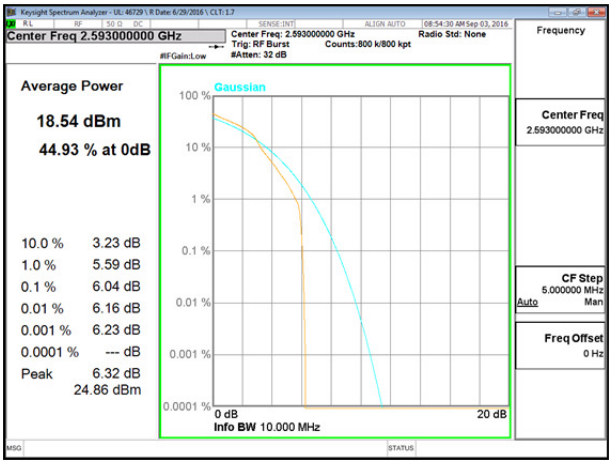
LTE B41 5MHz QPSK Middle Channel



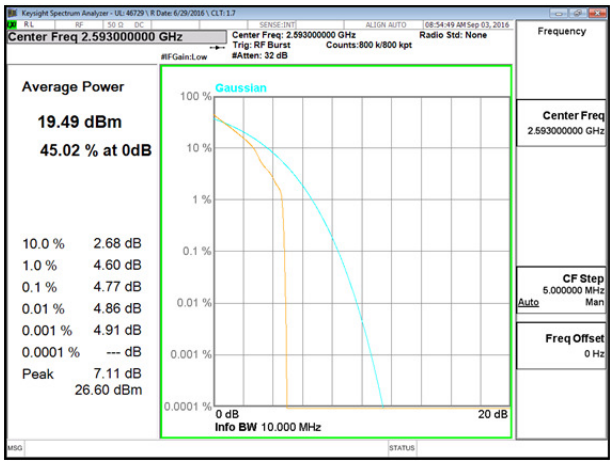
LTE B41 5MHz 16QAM Middle Channel



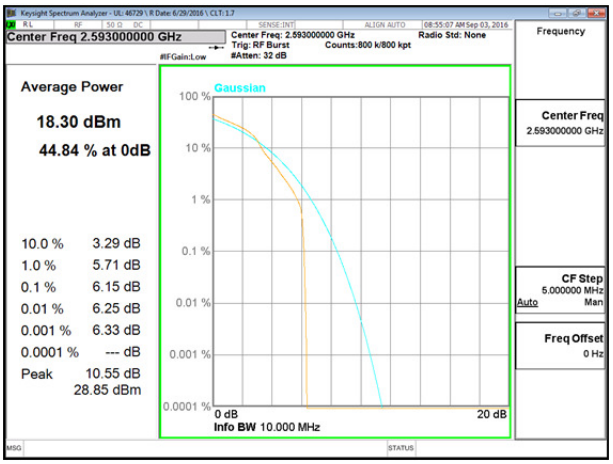
LTE B41 10MHz QPSK Middle Channel



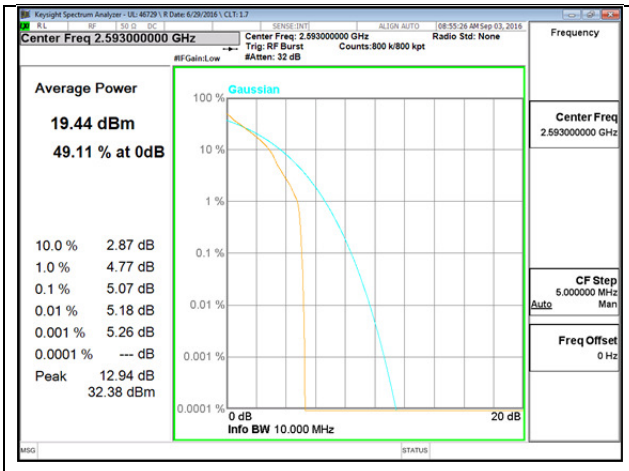
LTE B41 10MHz 16QAM Middle Channel



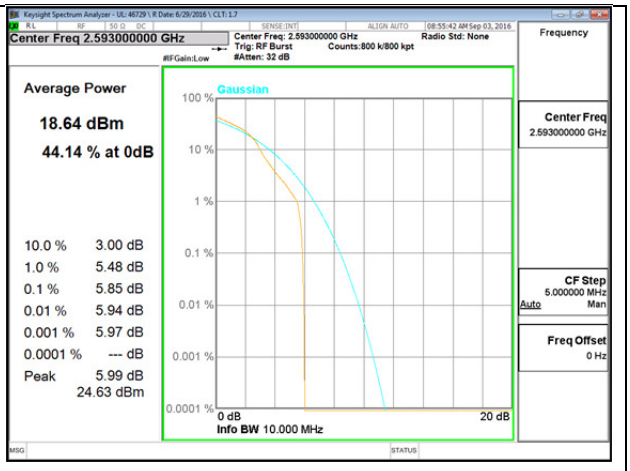
LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



LTE B41 20MHz QPSK Middle Channel



LTE B41 20MHz 16QAM Middle Channel

9.2. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

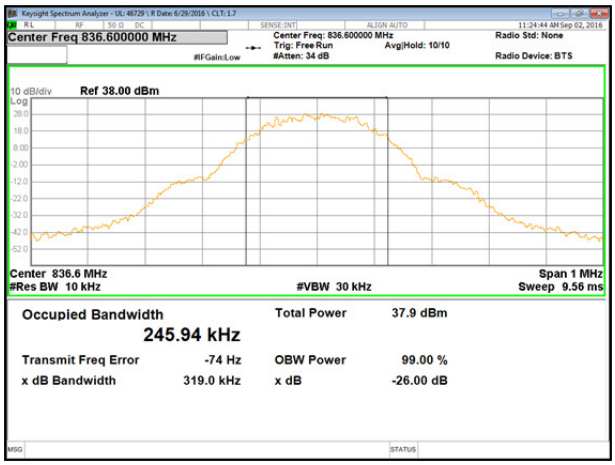
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

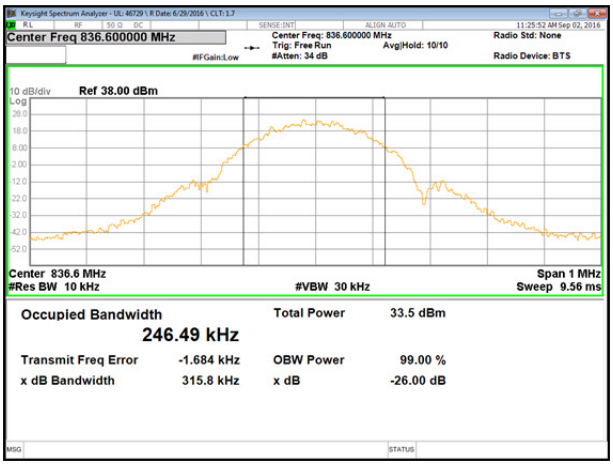
GSM Data

Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM850	GPRS	128	824.2	239.5	310.8
		190	836.6	245.9	319
		251	848.8	241	314.3
	EGPRS	128	824.2	245	315.7
		190	836.6	246.5	315.8
		251	848.8	242.3	304.6
GSM1900	GPRS	512	1850.2	246.4	318.8
		661	1880.0	246.8	322.5
		810	1909.8	245	321.9
	EGPRS	512	1850.2	242	309.7
		661	1880.0	245.2	312.8
		810	1909.8	248.5	310.9

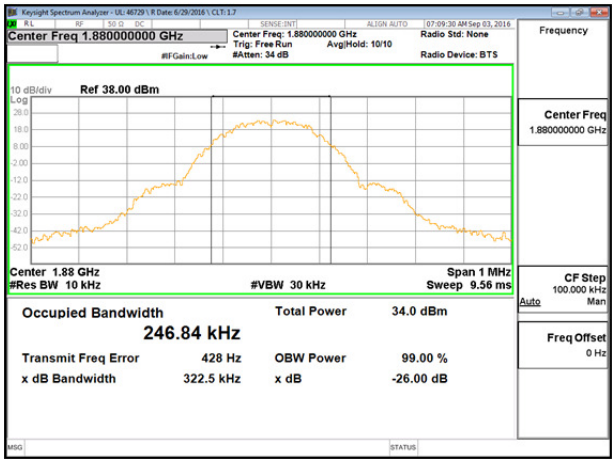
GSM Plots



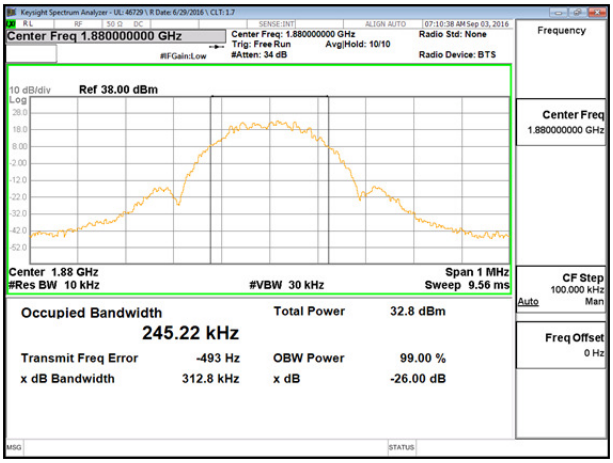
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel



GSM1900 GPRS Middle Channel

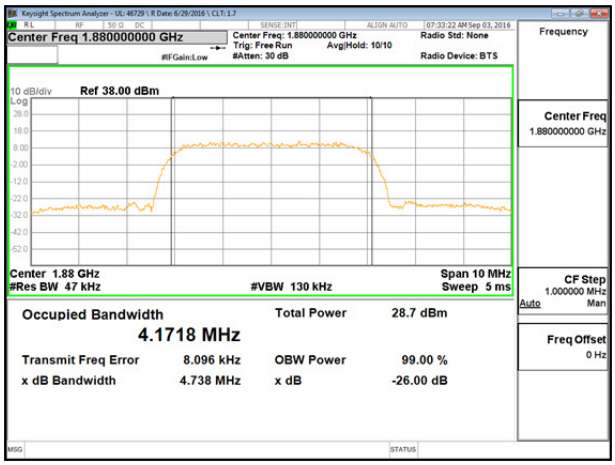


GSM1900 EGPRS Middle Channel

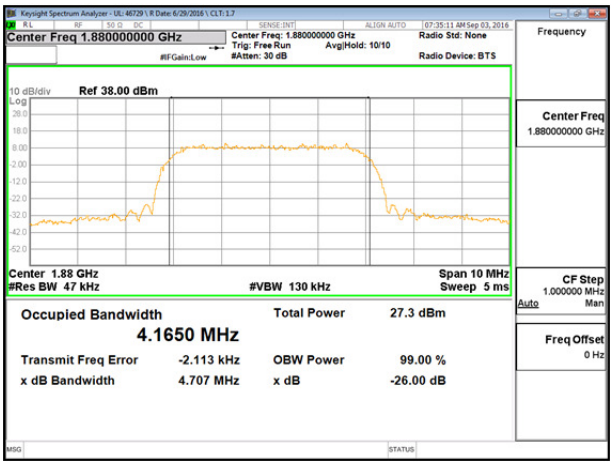
WCDMA Data

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
Band 2	REL99	9262	1852.4	4.175	4.756
		9400	1880.0	4.172	4.738
		9538	1907.6	4.145	4.691
	HSDPA	9262	1852.4	4.151	4.711
		9400	1880.0	4.165	4.707
		9538	1907.6	4.162	4.697
Band 4	REL99	9262	1712.4	4.131	4.683
		9400	1732.6	4.140	4.695
		9538	1752.6	4.131	4.687
	HSDPA	9262	1712.4	4.132	4.706
		9400	1732.6	4.141	4.699
		9538	1752.6	4.139	4.672

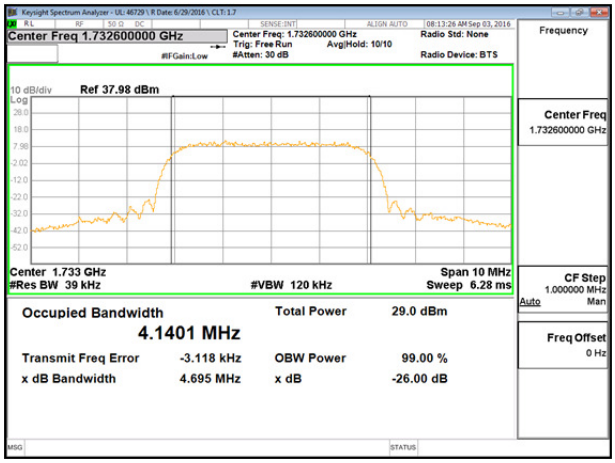
WCDMA Plots



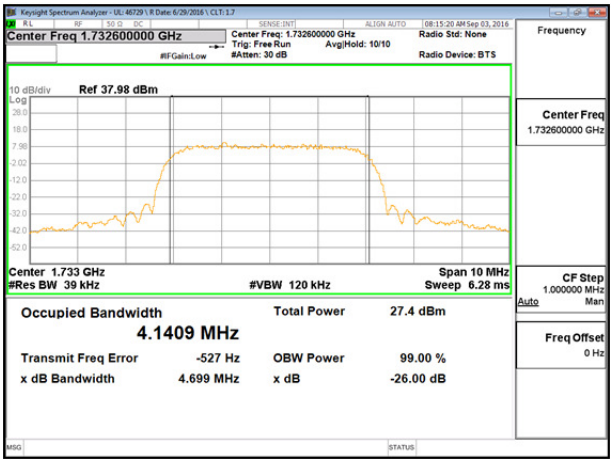
B2 REL99 Middle Channel



B2 HSDPA Middle Channel



B4 REL99 Middle Channel

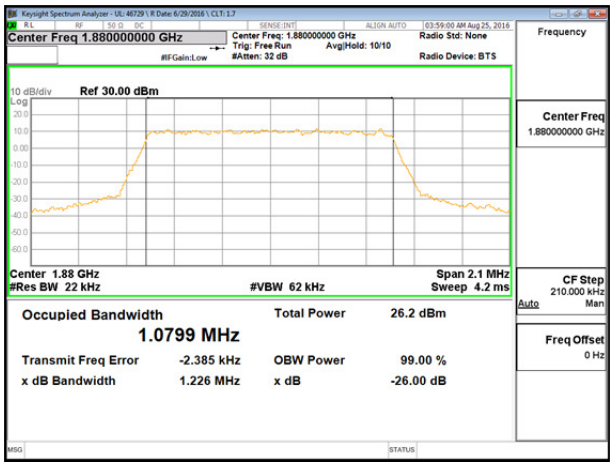


B4 HSDPA Middle Channel

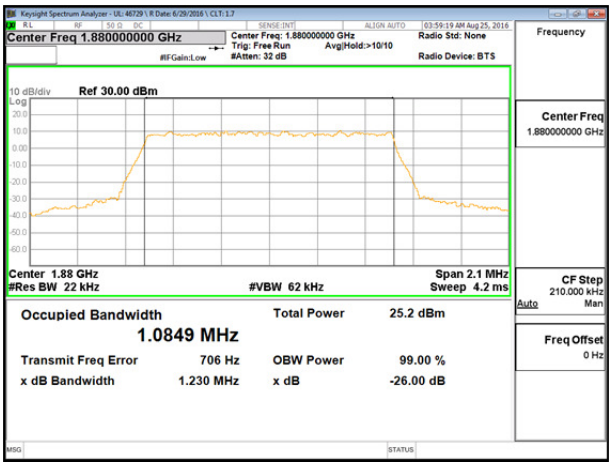
LTE Band 2 Data

BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	1850.7	1.086	1.244
		6/0	1880.0	1.080	1.226
		6/0	1909.3	1.086	1.240
	16QAM	6/0	1850.7	1.085	1.238
		6/0	1880.0	1.085	1.230
		6/0	1909.3	1.091	1.241
3	QPSK	15/0	1851.5	2.697	2.999
		15/0	1880.0	2.698	3.000
		15/0	1908.5	2.701	2.992
	16QAM	15/0	1851.5	2.702	3.050
		15/0	1880.0	2.698	2.981
		15/0	1908.5	2.694	3.016
5	QPSK	25/0	1852.5	4.507	4.958
		25/0	1880.0	4.498	4.954
		25/0	1907.5	4.478	4.935
	16QAM	25/0	1852.5	4.500	4.988
		25/0	1880.0	4.488	4.926
		25/0	1907.5	4.482	4.906
10	QPSK	50/0	1855.0	8.967	9.786
		50/0	1880.0	8.978	9.736
		50/0	1905.0	8.955	9.752
	16QAM	50/0	1855.0	8.967	9.827
		50/0	1880.0	8.951	9.755
		50/0	1905.0	8.991	9.745
15	QPSK	75/0	1857.5	13.429	14.710
		75/0	1880.0	13.440	14.610
		75/0	1902.5	13.475	14.630
	16QAM	75/0	1857.5	13.455	14.620
		75/0	1880.0	13.437	14.590
		75/0	1902.5	13.451	14.530
20	QPSK	100/0	1860.0	17.933	19.380
		100/0	1880.0	17.928	19.300
		100/0	1900.0	17.996	19.600
	16QAM	100/0	1860.0	17.917	19.470
		100/0	1880.0	17.892	19.290
		100/0	1900.0	17.957	19.520

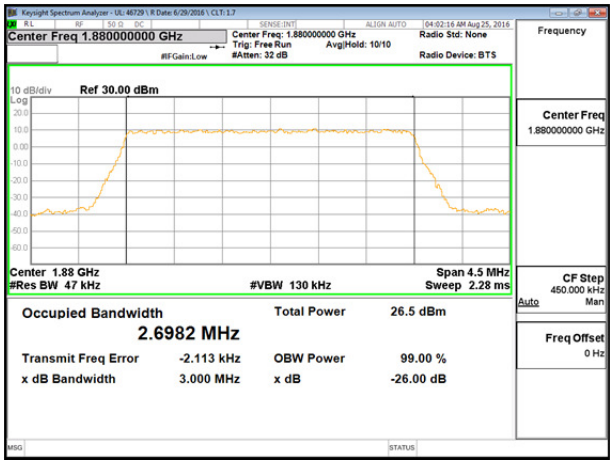
LTE Band 2 Plots



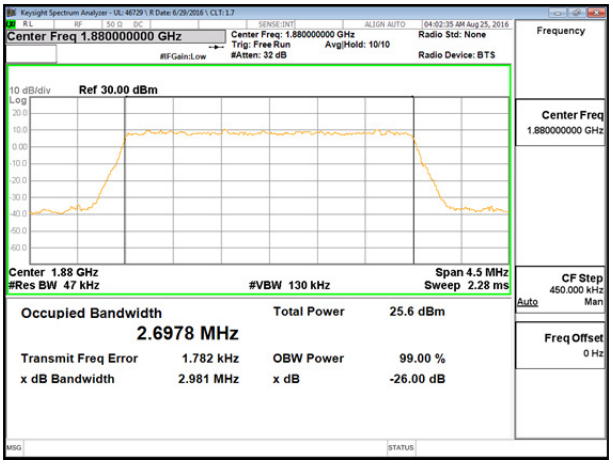
LTE B2 1.4MHz QPSK Middle Channel



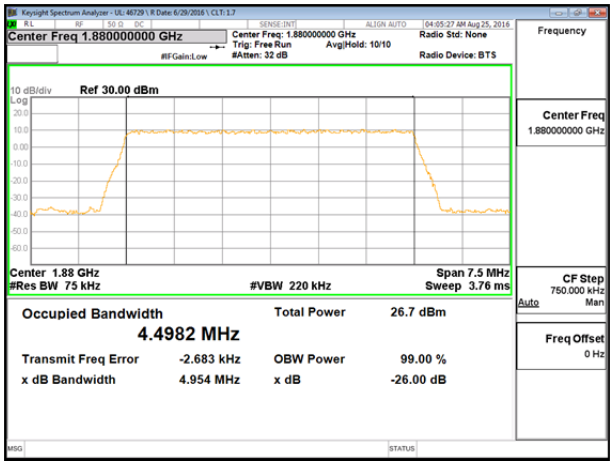
LTE B2 1.4MHz 16QAM Middle Channel



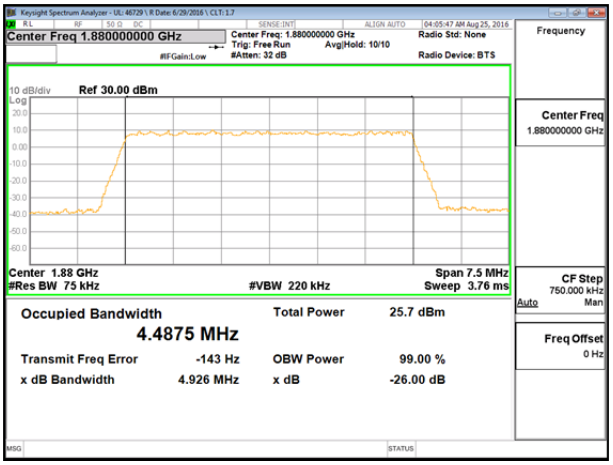
LTE B2 3MHz QPSK Middle Channel



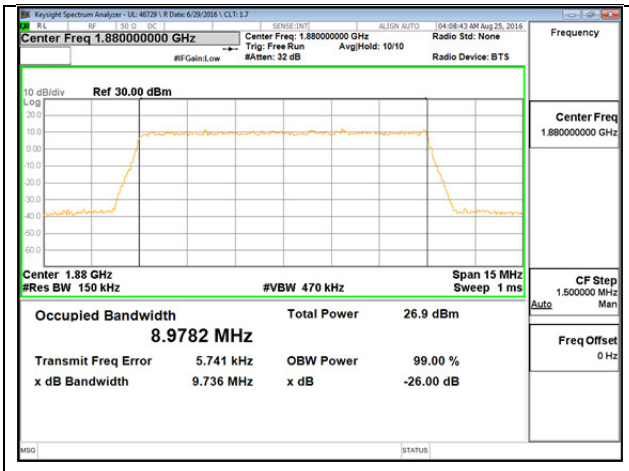
LTE B2 3MHz 16QAM Middle Channel



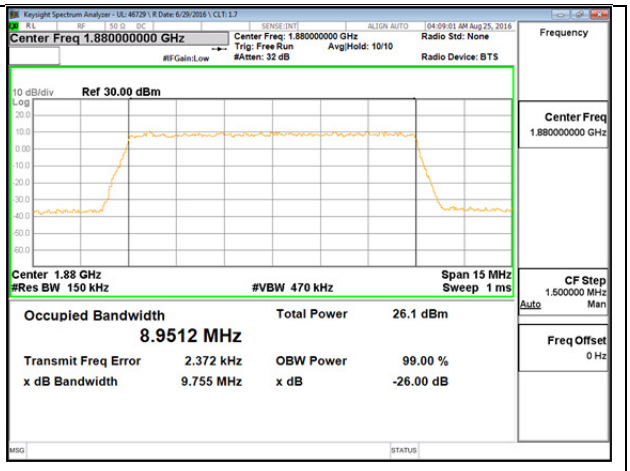
LTE B2 5MHz QPSK Middle Channel



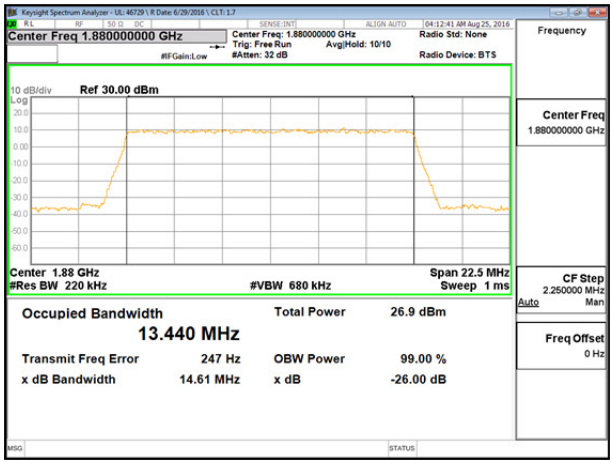
LTE B2 5MHz 16QAM Middle Channel



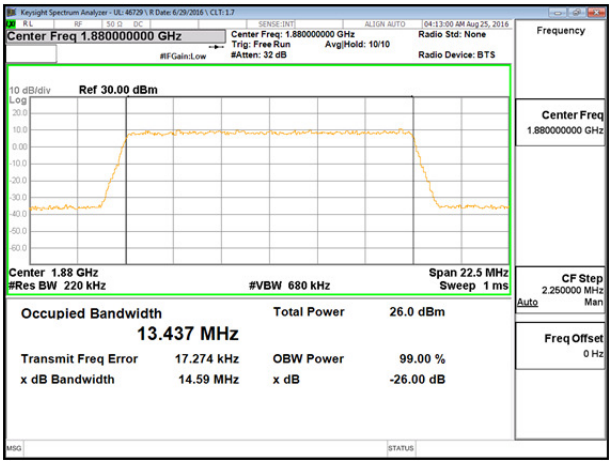
LTE B2 10MHz QPSK Middle Channel



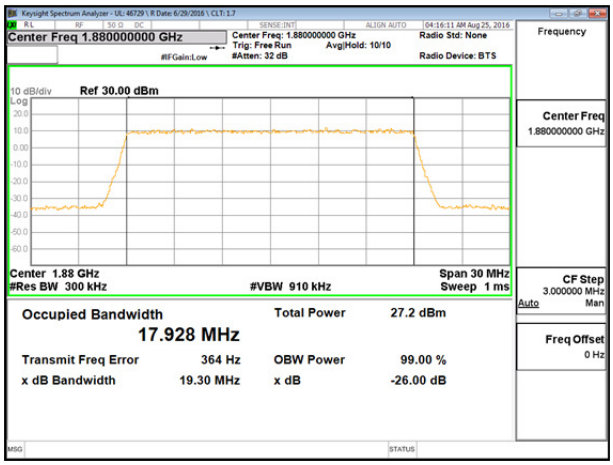
LTE B2 10MHz 16QAM Middle Channel



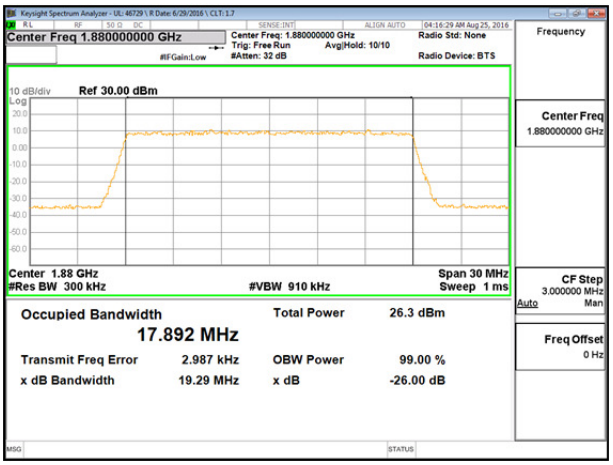
LTE B2 15MHz QPSK Middle Channel



LTE B2 15MHz 16QAM Middle Channel



LTE B2 20MHz QPSK Middle Channel



LTE B2 20MHz 16QAM Middle Channel

LTE Band 4 Data

BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
1.4	QPSK	6/0	1710.7	1.084	1.240
		6/0	1732.5	1.085	1.242
		6/0	1754.3	1.079	1.239
	16QAM	6/0	1710.7	1.089	1.249
		6/0	1732.5	1.084	1.238
		6/0	1754.3	1.084	1.240
3	QPSK	15/0	1711.5	2.700	2.989
		15/0	1732.5	2.694	2.989
		15/0	1753.5	2.701	3.003
	16QAM	15/0	1711.5	2.701	2.991
		15/0	1732.5	2.698	3.006
		15/0	1753.5	2.695	3.009
5	QPSK	25/0	1712.5	4.504	4.947
		25/0	1732.5	4.493	4.989
		25/0	1752.5	4.483	4.938
	16QAM	25/0	1712.5	4.499	4.990
		25/0	1732.5	4.490	4.938
		25/0	1752.5	4.479	4.934
10	QPSK	50/0	1715.0	8.976	9.855
		50/0	1732.5	8.974	9.797
		50/0	1750.0	8.945	9.800
	16QAM	50/0	1715.0	8.975	9.835
		50/0	1732.5	8.956	9.853
		50/0	1750.0	8.989	9.756
15	QPSK	75/0	1717.5	13.438	14.760
		75/0	1732.5	13.468	14.630
		75/0	1747.5	13.440	14.730
	16QAM	75/0	1717.5	13.458	14.620
		75/0	1732.5	13.438	14.630
		75/0	1747.5	13.435	14.640
20	QPSK	100/0	1720.0	17.926	19.390
		100/0	1732.5	17.930	19.400
		100/0	1745.0	17.960	19.590
	16QAM	100/0	1720.0	17.900	19.420
		100/0	1732.5	17.926	19.430
		100/0	1745.0	17.912	19.550