



**FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART F, H, and M
FCC CFR47 PART 90 SUBPART S**

CERTIFICATION TEST REPORT

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

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Prepared for

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V1	8/31/16	Initial Issue	C. Vergonio
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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 5

2. TEST METHODOLOGY 6

3. FACILITIES AND ACCREDITATION 6

4. CALIBRATION AND UNCERTAINTY 7

 4.1. *MEASURING INSTRUMENT CALIBRATION 7*

 4.2. *SAMPLE CALCULATION 7*

 4.3. *MEASUREMENT UNCERTAINTY..... 7*

5. EQUIPMENT UNDER TEST 8

 5.1. *DESCRIPTION OF EUT 8*

 5.2. *MAXIMUM OUTPUT POWER (GSM/EGPRS)..... 8*

 5.3. *MAXIMUM OUTPUT POWER (WCDMA) 9*

 5.4. *MAXIMUM OUTPUT POWER (LTE)..... 10*

 5.5. *DESCRIPTION OF AVAILABLE ANTENNAS 14*

 5.6. *DESCRIPTION OF TEST SETUP..... 15*

6. TEST AND MEASUREMENT EQUIPMENT 18

7. SUMMARY TABLE 20

8. RF POWER OUTPUT VERIFICATION..... 21

 8.1. *GSM OUTPUT POWER RESULT..... 21*

 8.2. *UMTS REL 99 OUTPUT POWER RESULT 24*

 8.3. *UMTS HSDPA OUTPUT POWER RESULT..... 25*

 8.4. *UMTS HSUPA OUTPUT POWER RESULT..... 28*

 8.5. *LTE OUTPUT POWER RESULT 31*

9. PEAK TO AVERAGE RATIO 47

 9.1. *CONDUCTED PEAK TO AVERAGE RESULT..... 48*

10. OCCUPIED BANDWIDTH..... 63

 10.1. *OCCUPIED BANDWIDTH RESULTS AND PLOTS..... 64*

11. BAND EDGE EMISSIONS 89

 11.1. *BAND EDGE PLOTS..... 90*

 11.2. *EMISSION MASK PLOTS 128*

12. OUT OF BAND EMISSIONS 144

 12.1. *OUT OF BAND EMISSIONS RESULT AND PLOTS 145*

13. FREQUENCY STABILITY..... 168

13.1.	FREQUENCY STABILITY RESULTS.....	169
14.	RADIATED TEST RESULTS	176
14.1.	RADIATED POWER (ERP & EIRP.....	176
14.1.1.	ERP/EIRP RESULTS AND TABLE	177
14.2.	FIELD STRENGTH OF SPURIOUS RADIATION.....	200
14.2.1.	SPURIOUS RADIATION RESULTS.....	201
15.	SETUP PHOTOS	220

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONY MOBILE COMMUNICATIONS, INC.
EUT DESCRIPTION: GSM/WCDMA/LTE Phone with BT, BLE, DTS/UNII a/b/g/n/ac & NFC
SERIAL NUMBER: CB512AWNG1, CB512AW71V, CB512AXMTZ, CB512AXN0Z, CB512AXMZ1, CB512AXMVM, CB512AXMV9
DATE TESTED: August 5- 31, 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E, 27H, 27F,90S	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, 27 and 90.

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

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	32.5	1778.28		
	824~849	GPRS	32.5	1778.28	27.43	553.35
	824~849	EGPRS	27.0	501.19	21.97	157.40
GSM1900	1850~1910	GMSK	29.2	824.14		
	1850~1910	GPRS	29.2	824.14	27.13	516.42
	1850~1910	EGPRS	26.1	407.38	24.20	263.03

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	19.8	95.50	18.49	70.68
	1850~1910	HSDPA	18.3	67.61	17.00	50.15
	1850~1910	HSUPA	18.6	72.44		
Band 4	1710~1755	REL99	19.9	97.72	18.51	71.03
	1710~1755	HSDPA	18.4	69.18	16.91	49.14
	1710~1755	HSUPA	18.5	70.79		
Band 5	824~849	REL99	24.3	269.15	19.82	95.94
	824~849	HSDPA	23.2	208.93	19.31	85.31
	824~849	HSUPA	23.4	218.78		

5.4. MAXIMUM OUTPUT POWER (LTE)

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

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	20.5	113.03	17.39	54.83
			16QAM	19.6	91.97	16.61	45.81
		3MHz	QPSK	20.5	112.09	17.15	51.88
			16QAM	19.8	96.35	16.30	42.66
		5MHz	QPSK	20.4	110.42	17.50	56.23
			16QAM	20.0	98.86	16.68	46.56
		10MHz	QPSK	20.6	115.10	17.84	60.81
			16QAM	20.0	99.26	17.00	50.12
		15MHz	QPSK	20.4	108.52	17.59	57.41
			16QAM	19.7	93.70	16.75	47.32
		20MHz	QPSK	20.6	114.22	17.15	51.88
			16QAM	20.0	99.40	16.26	42.27

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	24.0	249.92	19.03	79.98
			16QAM	23.1	201.90	18.05	63.83
		3MHz	QPSK	24.2	263.91	19.06	80.54
			16QAM	23.2	211.25	18.19	65.92
		5MHz	QPSK	23.8	242.62	19.05	80.35
			16QAM	23.1	204.64	18.28	67.30
		10MHz	QPSK	24.3	270.58	19.03	79.98
			16QAM	23.3	214.02	18.33	68.08

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	19.7	93.29	20.83	121.06
			16QAM	18.9	77.93	20.74	118.58
		10MHz	QPSK	19.6	90.97	21.46	139.96
			16QAM	18.5	70.75	21.43	139.00
		15MHz	QPSK	19.6	91.56	20.93	123.88
			16QAM	18.9	78.21	20.87	122.18
		20MHz	QPSK	19.7	93.73	20.69	117.22
			16QAM	19.0	79.31	20.58	114.29

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	23.2	209.22	17.16	52.00
			16QAM	22.5	177.37	16.33	42.95
		10MHz	QPSK	23.6	226.55	16.35	43.15
			16QAM	22.9	196.41	15.51	35.56

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	23.8	240.47	19.46	88.31
			16QAM	23.0	199.64	18.63	72.95
		10MHz	QPSK	24.1	257.18	19.43	87.70
			16QAM	23.1	206.15	18.54	71.45

LTE Band 26 PART 90

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	23.81	240.31	16.55	45.19
			16QAM	22.88	194.06	15.63	36.56
		3MHz	QPSK	23.95	248.05	16.65	46.24
			16QAM	23.01	199.80	15.78	37.84
		5MHz	QPSK	23.95	248.57	16.98	49.89
			16QAM	23.05	201.69	16.20	41.69
		10MHz	QPSK	23.30	214.02	15.97	39.54
			16QAM	22.28	169.22	15.13	32.58

LTE Band 26 PART 22

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	23.9	247.02	18.17	65.61
			16QAM	23.3	212.48	17.23	52.84
		3MHz	QPSK	24.0	248.75	18.16	65.46
			16QAM	22.9	196.14	17.35	54.33
		5MHz	QPSK	24.0	248.65	18.25	66.83
			16QAM	23.2	211.29	17.49	56.10
		10MHz	QPSK	24.0	248.97	18.17	65.61
			16QAM	23.1	204.04	17.17	52.12
		15MHz	QPSK	24.1	256.86	18.77	75.34
			16QAM	23.4	218.40	18.00	63.10

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	22.0	158.91	23.69	233.88
			16QAM	20.8	120.81	23.73	236.05
		10MHz	QPSK	21.9	156.38	23.67	232.81
			16QAM	21.0	125.27	23.72	235.50
		15MHz	QPSK	21.7	146.91	23.55	226.46
			16QAM	20.8	120.39	23.69	233.88
		20MHz	QPSK	22.0	157.13	23.75	237.14
			16QAM	21.1	129.04	23.82	240.99

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	-3.4
GSM1900, 1850~1910MHz	-1.4
WCDMA Band 2, 1850~1910	-1.4
WCDMA Band 4, 1710~1755	-1.0
WCDMA Band 5, 824~849	-3.4
LTE Band 4, 1710~1755MHz	-1.0
LTE Band 5, 824~849MHz	-3.4
LTE Band 7, 2500~2570MHz	-1.2
LTE Band 13, 777~787MHz	-3.8
LTE Band 17, 704~716MHz	-3.4
LTE Band 26, 824~849MHz	-3.1
LTE Band 41, 2496~2690MHz	-1.2

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

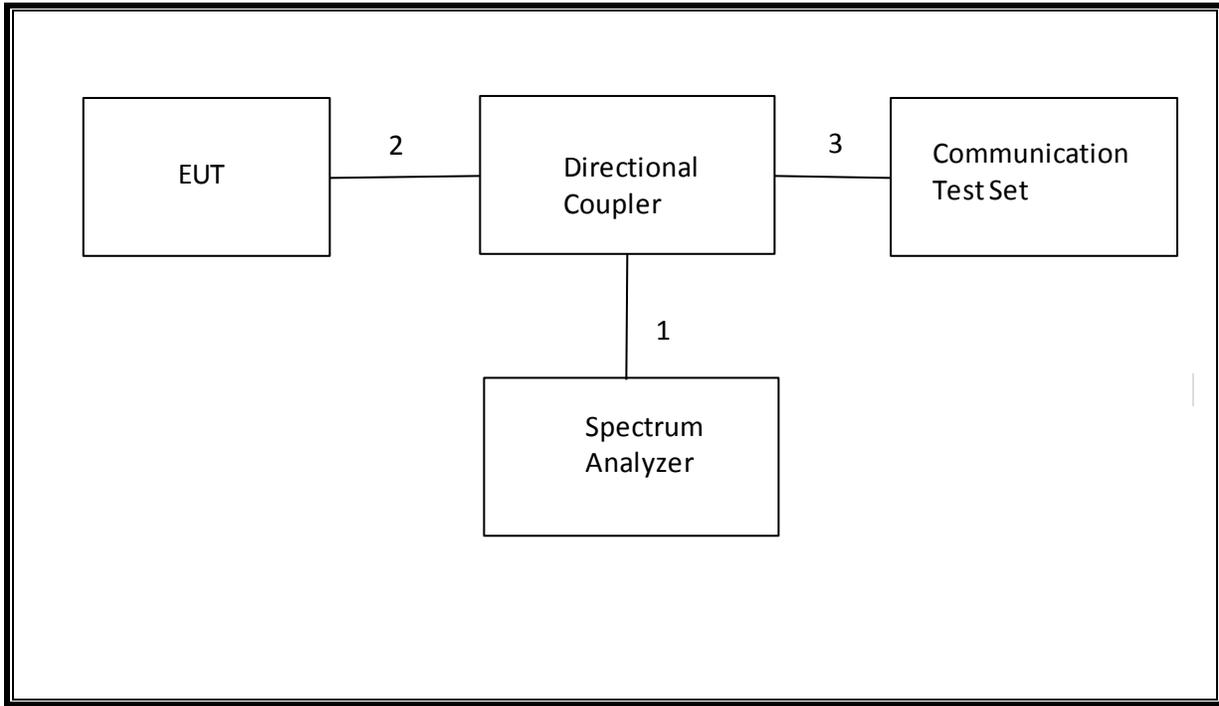
I/O CABLES (RADIATED SETUP)

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

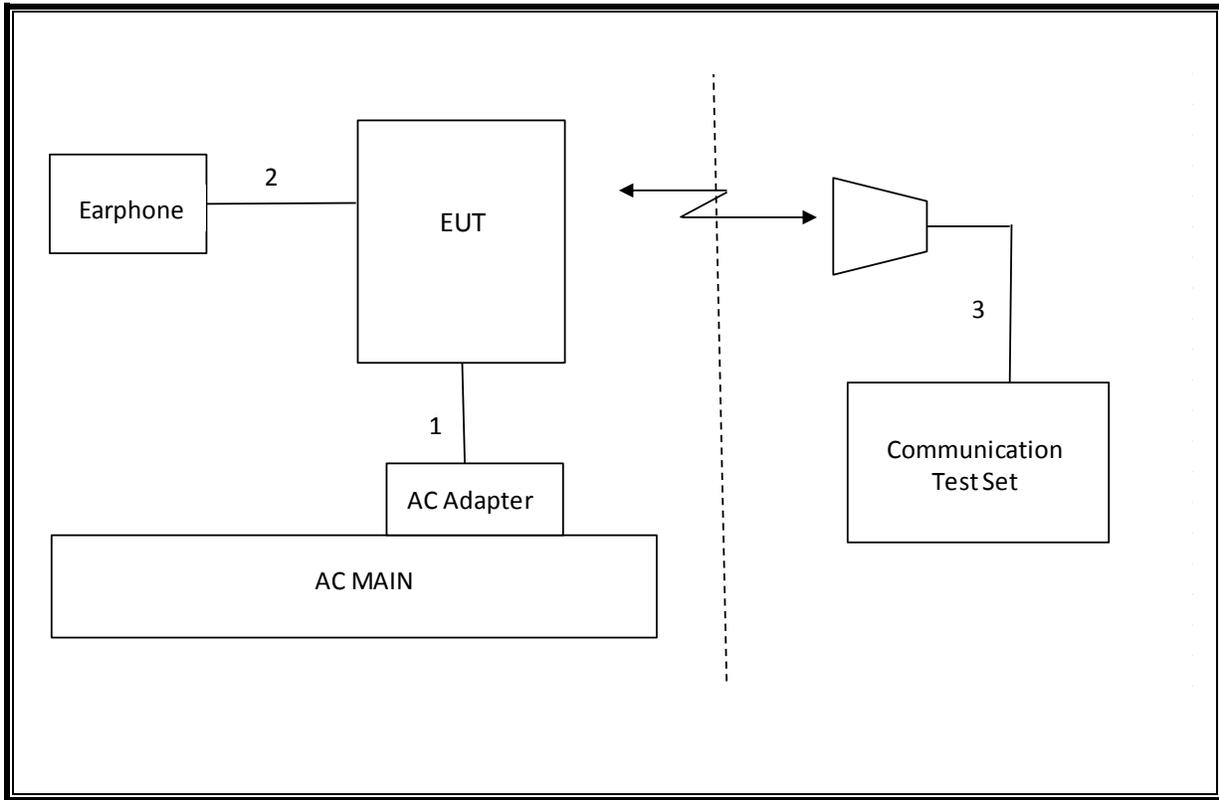
TEST SETUP

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:

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	2016-08-31
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	2016-08-31
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) 90.691	Band Edge / Conducted Spurious Emission	-13dBm		Pass
27.53(m)		-25dBm		
2.1046	Conducted output power	N/A		Pass
27.53(m) 90.691	Emission Mask			Pass
22.355 24.235 27.54 90.213	Frequency Stability	2.5PPM		Pass
90.635	Effective Radiated Power	50dBm		Radiated
22.913(a)(2)	Effective Radiated Power	38dBm	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 OUTPUT POWER RESULT

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: 8/5/2016

Tester: Bell Nguyen/Aj Newcomer

GSM 850

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM (Voice)	CS4	1	128	824.4	32.3	23.3
			190	836.6	32.4	23.4
			251	848.8	32.5	23.5
GPRS (GMSK)	CS4	1	128	824.4	32.3	23.3
			190	836.6	32.4	23.4
			251	848.8	32.5	23.5
		2	128	824.4	31.5	25.5
			190	836.6	31.6	25.6
			251	848.8	31.5	25.5
		3	128	824.4	29.4	25.1
			190	836.6	29.4	25.1
			251	848.8	29.5	25.2
		4	128	824.4	28.4	25.4
			190	836.6	28.5	25.5
			251	848.8	28.5	25.5
EGPRS (8PSK)	MCS9	1	128	824.4	26.9	17.9
			190	836.6	27.0	18.0
			251	848.8	27.0	18.0
		2	128	824.4	25.4	19.4
			190	836.6	25.5	19.5
			251	848.8	25.5	19.5
		3	128	824.4	23.6	19.3
			190	836.6	23.7	19.4
			251	848.8	23.7	19.4
		4	128	824.4	22.4	19.4
			190	836.6	22.5	19.5
			251	848.8	22.5	19.5

GSM 1900

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM (Voice)	CS4	1	512	1850.2	29.1	20.0
			661	1880.0	29.2	20.1
			810	1909.8	29.0	20.0
GPRS (GMSK)	CS4	1	512	1850.2	29.1	20.0
			661	1880.0	29.2	20.1
			810	1909.8	29.0	20.0
		2	512	1850.2	27.4	21.4
			661	1880.0	27.6	21.6
			810	1909.8	27.4	21.4
		3	512	1850.2	25.6	21.4
			661	1880.0	25.8	21.5
			810	1909.8	25.6	21.3
		4	512	1850.2	24.4	21.4
			661	1880.0	24.5	21.5
			810	1909.8	24.5	21.5
EGPRS (8PSK)	MCS9	1	512	1850.2	26.1	17.1
			661	1880.0	26.1	17.1
			810	1909.8	26.0	17.0
		2	512	1850.2	24.4	18.4
			661	1880.0	24.5	18.5
			810	1909.8	24.4	18.4
		3	512	1850.2	22.7	18.4
			661	1880.0	22.8	18.5
			810	1909.8	22.6	18.3
		4	512	1850.2	21.7	18.7
			661	1880.0	21.7	18.7
			810	1909.8	21.7	18.7

8.2. UMTS REL 99 OUTPUT POWER RESULT

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
	β_c/β_d	8/15

Test Information

Date: 8/5/2016

Tester: Bell Nguyen/Aj Newcomer

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	19.7
		9400	1880.0	0	19.8
		9538	1907.6	0	19.8

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	19.90
		1413	1732.6	0	19.90
		1513	1752.6	0	19.90

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	24.30
		4183	836.6	0	24.30
		4233	846.6	0	24.30

8.3. UMTS HSDPA OUTPUT POWER RESULT

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			
	β_c	2/15	11/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	11/15	15/8	15/4
	β_{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			

Test Information

Date: 8/8/2016

Tester: Tony Soares

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	18.3
		9400	1880.0	0	18.3
		9538	1907.6	0	18.3
	Subtest 2	9262	1852.4	0	18.3
		9400	1880.0	0	18.3
		9538	1907.6	0	18.3
	Subtest 3	9262	1852.4	0.5	18.3
		9400	1880.0	0.5	18.3
		9538	1907.6	0.5	18.3
	Subtest 4	9262	1852.4	0.5	18.3
		9400	1880.0	0.5	18.3
		9538	1907.6	0.5	18.3

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	18.40
		1413	1732.6	0	18.30
		1513	1752.6	0	18.30
	Subtest 2	1312	1712.4	0	18.00
		1413	1732.6	0	18.00
		1513	1752.6	0	18.00
	Subtest 3	1312	1712.4	0.5	18.04
		1413	1732.6	0.5	18.02
		1513	1752.6	0.5	18.06
	Subtest 4	1312	1712.4	0.5	18.01
		1413	1732.6	0.5	18.04
		1513	1752.6	0.5	18.07

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	23.20
		4183	836.6	0	23.20
		4233	846.6	0	23.20
	Subtest 2	4132	826.4	0	23.00
		4183	836.6	0	23.00
		4233	846.6	0	23.00
	Subtest 3	4132	826.4	0.5	22.50
		4183	836.6	0.5	22.50
		4233	846.6	0.5	22.50
	Subtest 4	4132	826.4	0.5	22.50
		4183	836.6	0.5	22.50
		4233	846.6	0.5	22.50

8.4. UMTS HSUPA OUTPUT POWER RESULT

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				Algorith m 1
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	15/1
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	β_{ed}	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				
	A _{hs} = β_{hs}/β_c	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: 8/8/2016

Tester: Tony Soares

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	18.4
		9400	1880.0	0	18.6
		9538	1907.6	0	18.4
	Subtest 2	9262	1852.4	2	16.5
		9400	1880.0	2	16.7
		9538	1907.6	2	16.6
	Subtest 3	9262	1852.4	1	17.6
		9400	1880.0	1	17.7
		9538	1907.6	1	17.6
	Subtest 4	9262	1852.4	2	16.5
		9400	1880.0	2	16.6
		9538	1907.6	2	16.5
	Subtest 5	9262	1852.4	0	18.4
		9400	1880.0	0	18.6
		9538	1907.6	0	18.4

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	18.40
		1413	1732.6	0	18.40
		1513	1752.6	0	18.40
	Subtest 2	1312	1712.4	2	16.90
		1413	1732.6	2	16.90
		1513	1752.6	2	17.00
	Subtest 3	1312	1712.4	1	17.30
		1413	1732.6	1	17.40
		1513	1752.6	1	17.40
	Subtest 4	1312	1712.4	2	17.00
		1413	1732.6	2	16.90
		1513	1752.6	2	16.90
	Subtest 5	1312	1712.4	0	18.50
		1413	1732.6	0	18.40
		1513	1752.6	0	18.50

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	23.30
		4183	836.6	0	23.30
		4233	846.6	0	23.30
	Subtest 2	4132	826.4	2	21.30
		4183	836.6	2	21.30
		4233	846.6	2	21.30
	Subtest 3	4132	826.4	1	22.20
		4183	836.6	1	22.30
		4233	846.6	1	22.20
	Subtest 4	4132	826.4	2	21.30
		4183	836.6	2	21.30
		4233	846.6	2	21.20
	Subtest 5	4132	826.4	0	23.40
		4183	836.6	0	23.30
		4233	846.6	0	23.30

8.5. LTE OUTPUT POWER RESULT

Test Information

Date: 8/5-9/2016

Tester: Tony Soares/ Bell Nguyen/ AJ Newcomer

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	20.34	20.17	20.05
			1	3	0	20.50	20.22	20.15
			1	5	0	20.43	20.15	20.14
			3	0	0	20.47	20.14	20.11
			3	1	0	20.51	20.21	20.11
			3	3	0	20.53	20.24	20.23
		16QAM	6	0	1	19.44	19.16	19.10
			1	0	1	19.56	19.55	19.09
			1	3	1	19.64	19.63	19.15
			1	5	1	19.59	19.55	19.17
			3	0	1	19.52	19.37	19.25
			3	1	1	19.58	19.43	19.33
			3	3	1	19.58	19.44	19.45
			6	0	2	18.64	18.16	18.37
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	20.31	20.16	20.09
			1	8	0	20.50	20.31	20.23
			1	14	0	20.29	20.07	20.09
			8	0	1	19.36	19.15	19.08
			8	4	1	19.38	19.15	19.19
			8	7	1	19.39	19.14	19.17
			15	0	1	19.36	19.17	19.17
		16QAM	1	0	1	19.69	19.12	19.02
			1	8	1	19.84	19.29	19.16
			1	14	1	19.67	19.06	19.04
			8	0	2	18.31	18.37	18.26
			8	4	2	18.35	18.39	18.37
			8	7	2	18.36	18.40	18.31
			15	0	2	18.45	18.15	18.23

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	20.43	20.25	20.12
			1	12	0	20.42	20.25	20.19
			1	24	0	20.40	20.26	20.27
			12	0	1	19.39	19.22	19.19
			12	7	1	19.44	19.26	19.21
			12	13	1	19.42	19.25	19.26
			25	0	1	19.39	19.20	19.17
		16QAM	1	0	1	19.88	19.37	19.32
			1	12	1	19.95	19.31	19.41
			1	24	1	19.88	19.37	19.48
			12	0	2	18.59	18.30	18.31
			12	7	2	18.62	18.31	18.32
			12	13	2	18.63	18.31	18.36
			25	0	2	18.54	18.23	18.25
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	20.61	20.44	20.37
			1	25	0	20.34	20.24	20.10
			1	49	0	20.49	20.33	20.48
			25	0	1	19.43	19.23	19.21
			25	12	1	19.33	19.21	19.13
			25	25	1	19.36	19.27	19.20
			50	0	1	19.42	19.27	19.13
		16QAM	1	0	1	19.97	19.42	19.33
			1	25	1	19.70	19.19	19.10
			1	49	1	19.90	19.26	19.39
			25	0	2	18.52	18.44	18.29
			25	12	2	18.41	18.39	18.24
			25	25	2	18.43	18.42	18.30
			50	0	2	18.51	18.35	18.19

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	20.36	20.27	20.09
			1	37	0	20.08	20.12	19.94
			1	74	0	20.17	20.14	20.03
			36	0	1	19.20	19.07	18.90
			36	20	1	19.06	19.05	18.92
			36	39	1	19.05	19.04	18.90
			75	0	1	19.12	19.08	18.95
		16QAM	1	0	1	19.72	19.59	19.08
			1	37	1	19.34	19.33	18.81
			1	74	1	19.52	19.49	19.02
			36	0	2	18.32	18.16	18.00
			36	20	2	18.22	18.12	18.05
			36	39	2	18.20	18.13	18.00
			75	0	2	18.22	18.16	18.04
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	20.49	20.35	20.28
			1	49	0	20.09	20.08	19.90
			1	99	0	20.58	20.42	20.39
			50	0	1	19.27	19.21	19.05
			50	24	1	19.26	19.29	19.00
			50	50	1	19.33	19.28	19.17
			100	0	1	19.29	19.30	19.06
		16QAM	1	0	1	19.85	19.77	19.83
			1	49	1	19.43	19.50	19.46
			1	99	1	19.92	19.83	19.97
			50	0	2	18.39	18.25	18.16
			50	24	2	18.37	18.28	18.08
			50	50	2	18.42	18.29	18.26
			100	0	2	18.36	18.37	18.19

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	23.90	23.52	23.40
			1	3	0	23.95	23.56	23.48
			1	5	0	23.91	23.55	23.43
			3	0	0	23.93	23.49	23.48
			3	1	0	23.93	23.56	23.47
			3	3	0	23.98	23.59	23.52
		16QAM	6	0	1	22.89	22.53	22.32
			1	0	1	22.96	22.85	22.43
			1	3	1	23.04	22.96	22.49
			1	5	1	23.03	22.93	22.44
			3	0	1	22.95	22.73	22.58
			3	1	1	23.05	22.78	22.63
			3	3	1	23.04	22.79	22.67
			6	0	2	22.10	21.52	21.63
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	24.11	23.57	23.53
			1	8	0	24.21	23.69	23.56
			1	14	0	24.15	23.65	23.54
			8	0	1	23.09	22.56	22.56
			8	4	1	23.09	22.61	22.49
			8	7	1	23.11	22.63	22.57
			15	0	1	23.19	22.65	22.57
		16QAM	1	0	1	23.13	22.45	22.85
			1	8	1	23.25	22.58	22.88
			1	14	1	23.18	22.56	22.88
			8	0	2	22.34	21.72	21.48
			8	4	2	22.33	21.77	21.47
			8	7	2	22.37	21.78	21.54
			15	0	2	22.14	21.69	21.63

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	23.81	23.51	23.54
			1	12	0	23.79	23.60	23.55
			1	24	0	23.85	23.62	23.57
			12	0	1	22.84	22.58	22.48
			12	7	1	22.87	22.66	22.49
			12	13	1	22.89	22.71	22.48
		16QAM	25	0	1	22.82	22.63	22.60
			1	0	1	22.91	22.77	23.04
			1	12	1	22.88	22.86	23.08
			1	24	1	22.96	22.84	23.11
			12	0	2	21.92	21.69	21.72
			12	7	2	21.94	21.78	21.74
			12	13	2	21.95	21.83	21.68
			25	0	2	21.88	21.71	21.71
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	24.29	23.84	23.84
			1	25	0	24.10	23.58	23.62
			1	49	0	24.32	23.67	23.54
			25	0	1	23.13	22.59	22.65
			25	12	1	23.15	22.65	22.67
			25	25	1	23.26	22.65	22.59
		16QAM	50	0	1	23.18	22.63	22.63
			1	0	1	23.30	22.75	23.18
			1	25	1	23.12	22.58	22.98
			1	49	1	23.29	22.57	22.91
			25	0	2	22.28	21.67	21.70
			25	12	2	22.29	21.72	21.72
			25	25	2	22.35	21.75	21.65
			50	0	2	22.23	21.66	21.68

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	19.55	19.43	19.14
			1	12	0	19.54	19.70	19.16
			1	24	0	19.53	19.55	19.17
			12	0	1	18.42	18.45	18.05
			12	7	1	18.42	18.55	18.13
			12	13	1	18.45	18.50	18.12
			25	0	1	18.38	18.52	18.07
		16QAM	1	0	1	18.66	18.92	18.27
			1	12	1	18.68	18.35	18.25
			1	24	1	18.70	18.31	18.31
			12	0	2	17.51	17.61	17.11
			12	7	2	17.55	17.76	17.18
			12	13	2	17.54	17.67	17.17
			25	0	2	17.42	17.62	17.11
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	19.59	19.43	19.10
			1	25	0	19.32	19.42	19.01
			1	49	0	19.29	19.40	19.03
			25	0	1	18.43	18.41	18.18
			25	12	1	18.48	18.54	18.19
			25	25	1	18.35	18.44	18.11
			50	0	1	18.36	18.48	18.15
		16QAM	1	0	1	18.50	18.43	18.47
			1	25	1	18.25	18.48	18.41
			1	49	1	18.21	18.36	18.39
			25	0	2	17.49	17.43	17.22
			25	12	2	17.56	17.58	17.23
			25	25	2	17.45	17.46	17.16
			50	0	2	17.40	17.45	17.13

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	19.62	19.57	19.22
			1	37	0	19.35	19.49	19.25
			1	74	0	19.30	19.21	19.14
			36	0	1	18.62	18.66	18.35
			36	20	1	18.50	18.60	18.39
			36	39	1	18.50	18.51	18.34
			75	0	1	18.53	18.62	18.36
		16QAM	1	0	1	18.03	18.58	18.59
			1	37	1	18.93	18.50	18.63
			1	74	1	18.80	18.23	18.53
			36	0	2	17.54	17.63	17.35
			36	20	2	17.47	17.55	17.44
			36	39	2	17.48	17.53	17.37
			75	0	2	17.55	17.56	17.39
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	19.72	19.63	19.35
			1	49	0	19.35	19.45	19.19
			1	99	0	19.26	19.42	19.26
			50	0	1	18.49	18.60	18.29
			50	24	1	18.37	18.51	18.21
			50	50	1	18.34	18.47	18.22
			100	0	1	18.51	18.60	18.29
		16QAM	1	0	1	18.69	18.69	18.67
			1	49	1	18.73	18.99	18.60
			1	99	1	18.63	18.93	18.67
			50	0	2	17.54	17.59	17.27
			50	24	2	17.42	17.51	17.24
			50	50	2	17.37	17.49	17.27
			100	0	2	17.53	17.58	17.31

LTE Band 13

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)	
						23230	782 MHz
						LTE Band 13	5
			1	12	0	23.11	
			1	24	0	23.21	
			12	0	1	22.19	
			12	7	1	22.26	
			12	13	1	22.16	
			25	0	1	22.18	
		16QAM	1	0	1	22.38	
			1	12	1	22.27	
			1	24	1	22.49	
			12	0	2	21.25	
			12	7	2	21.34	
			12	13	2	21.22	
			25	0	2	21.19	
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)	
						23230	782 MHz
						LTE Band 13	10
			1	25	0	23.39	
			1	49	0	23.55	
			25	0	1	22.37	
			25	12	1	22.39	
			25	25	1	22.47	
			50	0	1	22.42	
		16QAM	1	0	1	22.70	
			1	25	1	22.72	
			1	49	1	22.93	
			25	0	2	21.34	
			25	12	2	21.37	
			25	25	2	21.42	
			50	0	2	21.33	

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	23.69
			1	12	0	23.72
			1	24	0	23.81
			12	0	1	22.68
			12	7	1	22.77
			12	13	1	22.70
			25	0	1	22.75
		16QAM	1	0	1	22.85
			1	12	1	22.93
			1	24	1	23.00
			12	0	2	21.66
			12	7	2	21.81
			12	13	2	21.78
			25	0	2	21.73
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	10	QPSK	1	0	0	24.10
			1	25	0	23.71
			1	49	0	23.77
			25	0	1	22.82
			25	12	1	22.81
			25	25	1	22.73
			50	0	1	22.80
		16QAM	1	0	1	23.14
			1	25	1	22.73
			1	49	1	22.79
			25	0	2	21.88
			25	12	2	21.82
			25	25	2	21.78
			50	0	2	21.79

LTE Band 26- Part 90

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						26697
						814.7 MHz
LTE Band 26	1.4	QPSK	1	0	0	23.77
			1	3	0	23.80
			1	5	0	23.76
			3	0	0	23.77
			3	1	0	23.81
			3	3	0	23.79
			6	0	1	22.70
		16QAM	1	0	1	22.77
			1	3	1	22.84
			1	5	1	22.79
			3	0	1	22.79
			3	1	1	22.85
			3	3	1	22.88
			6	0	2	21.89
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						26705
						815.5 MHz
LTE Band 26	3	QPSK	1	0	0	23.87
			1	8	0	23.95
			1	14	0	23.84
			8	0	1	22.80
			8	4	1	22.80
			8	7	1	22.81
			15	0	1	22.89
		16QAM	1	0	1	22.86
			1	8	1	23.01
			1	14	1	22.84
			8	0	2	22.06
			8	4	2	22.04
			8	7	2	22.10
			15	0	2	21.86

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						26715
						816.5 MHz
LTE Band 26	5	QPSK	1	0	0	23.95
			1	12	0	23.81
			1	24	0	23.95
			12	0	1	22.91
			12	7	1	22.85
			12	13	1	22.90
			25	0	1	22.84
		16QAM	1	0	1	23.05
			1	12	1	22.86
			1	24	1	23.02
			12	0	2	21.98
			12	7	2	21.94
			12	13	2	21.94
			25	0	2	21.84
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						26740
						819 MHz
LTE Band 26	10	QPSK	1	0	0	23.30
			1	25	0	22.93
			1	49	0	23.25
			25	0	1	22.10
			25	12	1	22.06
			25	25	1	22.12
			50	0	1	22.11
		16QAM	1	0	1	22.28
			1	25	1	21.95
			1	49	1	22.18
			25	0	2	21.12
			25	12	2	21.04
			25	25	2	21.12
			50	0	2	21.10

LTE Band 26- Part 22

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)	
						26865	27033
						831.5 MHz	848.3 MHz
LTE Band 26	1.4	QPSK	1	0	0	23.86	23.50
			1	3	0	23.93	23.50
			1	5	0	23.80	23.50
			3	0	0	23.79	23.51
			3	1	0	23.92	23.52
			3	3	0	23.91	23.53
			6	0	1	22.83	22.50
		16QAM	1	0	1	23.16	22.50
			1	3	1	23.27	22.50
			1	5	1	23.13	22.50
			3	0	1	22.99	22.64
			3	1	1	23.13	22.67
			3	3	1	23.09	22.70
			6	0	2	21.80	21.58
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)	
						26865	27025
						831.5 MHz	847.5 MHz
LTE Band 26	3	QPSK	1	0	0	23.92	23.58
			1	8	0	23.96	23.55
			1	14	0	23.88	23.51
			8	0	1	22.93	22.60
			8	4	1	22.83	22.51
			8	7	1	22.90	22.57
			15	0	1	22.94	22.63
		16QAM	1	0	1	22.79	22.93
			1	8	1	22.86	22.90
			1	14	1	22.74	22.89
			8	0	2	22.08	21.53
			8	4	2	22.01	21.50
			8	7	2	22.03	21.52
			15	0	2	21.96	21.65

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)	
						26865	27015
						831.5 MHz	846.5 MHz
LTE Band 26	5	QPSK	1	0	0	23.96	23.65
			1	12	0	23.89	23.67
			1	24	0	23.90	23.57
			12	0	1	22.99	22.58
			12	7	1	22.96	22.50
			12	13	1	22.94	22.50
		16QAM	25	0	1	22.96	22.64
			1	0	1	23.18	23.05
			1	12	1	23.16	23.25
			1	24	1	23.10	23.15
			12	0	2	22.01	21.79
			12	7	2	22.06	21.73
			12	13	2	22.05	21.68
			25	0	2	22.00	21.77
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)	
						26865	26990
						831.5 MHz	844 MHz
LTE Band 26	10	QPSK	1	0	0	23.96	23.76
			1	25	0	23.92	23.63
			1	49	0	23.88	23.50
			25	0	1	22.96	22.72
			25	12	1	22.98	22.71
			25	25	1	22.90	22.58
		16QAM	50	0	1	22.96	22.64
			1	0	1	22.84	23.10
			1	25	1	22.84	22.97
			1	49	1	22.76	22.78
			25	0	2	22.04	21.77
			25	12	2	22.06	21.75
			25	25	2	21.98	21.60
			50	0	2	22.00	21.68

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)	
						26865	26965
						831.5 MHz	841.5 MHz
LTE Band 26	15	QPSK	1	0	0	23.94	24.10
			1	37	0	23.70	23.53
			1	74	0	23.82	23.71
			36	0	1	22.75	22.86
			36	20	1	22.71	22.68
			36	39	1	22.80	22.68
			75	0	1	22.78	22.78
		16QAM	1	0	1	22.87	23.39
			1	37	1	22.63	22.91
			1	74	1	22.73	23.00
			36	0	2	21.87	21.98
			36	20	2	21.79	21.77
			36	39	2	21.89	21.76
			75	0	2	21.87	21.81

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	21.98	22.00	21.76	21.75	21.80
			1	12	0	22.01	21.95	21.79	21.75	21.67
			1	24	0	21.88	21.99	21.72	21.67	21.62
			12	0	1	20.85	20.82	20.74	20.61	20.67
			12	7	1	20.89	20.85	20.64	20.65	20.66
			12	13	1	20.84	20.95	20.67	20.63	20.59
		16QAM	25	0	1	20.88	20.81	20.59	20.61	20.67
			1	0	1	20.79	20.73	20.79	20.56	20.65
			1	12	1	20.82	20.70	20.74	20.59	20.54
			1	24	1	20.77	20.79	20.82	20.55	20.54
			12	0	2	19.78	19.88	19.71	19.57	19.60
			12	7	2	19.80	19.85	19.67	19.60	19.63
			12	13	2	19.78	19.94	19.71	19.58	19.57
			25	0	2	19.89	19.85	19.61	19.69	19.64

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	21.80	21.90	21.94	21.74	21.80
			1	25	0	21.67	21.77	21.87	21.68	21.67
			1	49	0	21.62	21.80	21.88	21.63	21.62
			25	0	1	20.67	20.88	20.91	20.68	20.67
			25	12	1	20.66	20.83	20.86	20.64	20.66
			25	25	1	20.59	20.88	20.87	20.59	20.59
			50	0	1	20.67	20.86	20.88	20.62	20.67
		16QAM	1	0	1	20.65	20.84	20.98	20.56	20.65
			1	25	1	20.54	20.77	20.88	20.52	20.54
			1	49	1	20.54	20.74	20.92	20.53	20.54
			25	0	2	19.60	19.89	19.82	19.63	19.60
			25	12	2	19.63	19.84	19.84	19.58	19.63
			25	25	2	19.57	19.88	19.85	19.59	19.57
			50	0	2	19.64	19.88	19.87	19.58	19.63

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	21.67	21.46	21.52	21.55	21.67
			1	37	0	21.49	21.27	21.36	21.32	21.32
			1	74	0	21.45	21.25	21.36	21.23	21.32
			36	0	1	20.77	20.63	20.65	20.66	20.66
			36	20	1	20.74	20.51	20.51	20.49	20.53
			36	39	1	20.65	20.49	20.53	20.40	20.46
			75	0	1	20.66	20.47	20.52	20.51	20.49
		16QAM	1	0	1	20.81	20.64	20.66	20.62	20.63
			1	37	1	20.74	20.59	20.45	20.45	20.34
			1	74	1	20.57	20.47	20.44	20.28	20.28
			36	0	2	19.71	19.59	19.60	19.60	19.62
			36	20	2	19.66	19.46	19.47	19.43	19.49
			36	39	2	19.62	19.48	19.47	19.40	19.42
			75	0	2	19.59	19.42	19.49	19.52	19.49
LTE Band 41	20	QPSK	1	0	0	21.96	21.78	21.87	21.88	21.87
			1	49	0	21.81	21.55	21.62	21.61	21.58
			1	99	0	21.95	21.73	21.85	21.65	21.64
			50	0	1	20.89	20.74	20.76	20.76	20.78
			50	24	1	20.89	20.67	20.69	20.71	20.78
			50	50	1	20.91	20.69	20.76	20.63	20.66
			100	0	1	20.93	20.66	20.70	20.71	20.73
		16QAM	1	0	1	21.11	20.95	20.77	20.81	20.82
			1	49	1	20.99	20.76	20.48	20.52	20.55
			1	99	1	21.10	20.87	20.79	20.63	20.64
			50	0	2	19.88	19.74	19.65	19.72	19.79
			50	24	2	19.86	19.62	19.62	19.69	19.77
			50	50	2	19.93	19.67	19.66	19.58	19.68
			100	0	2	19.90	19.65	19.67	19.68	19.73

9. PEAK TO AVERAGE RATIO

TEST PROCEDURE

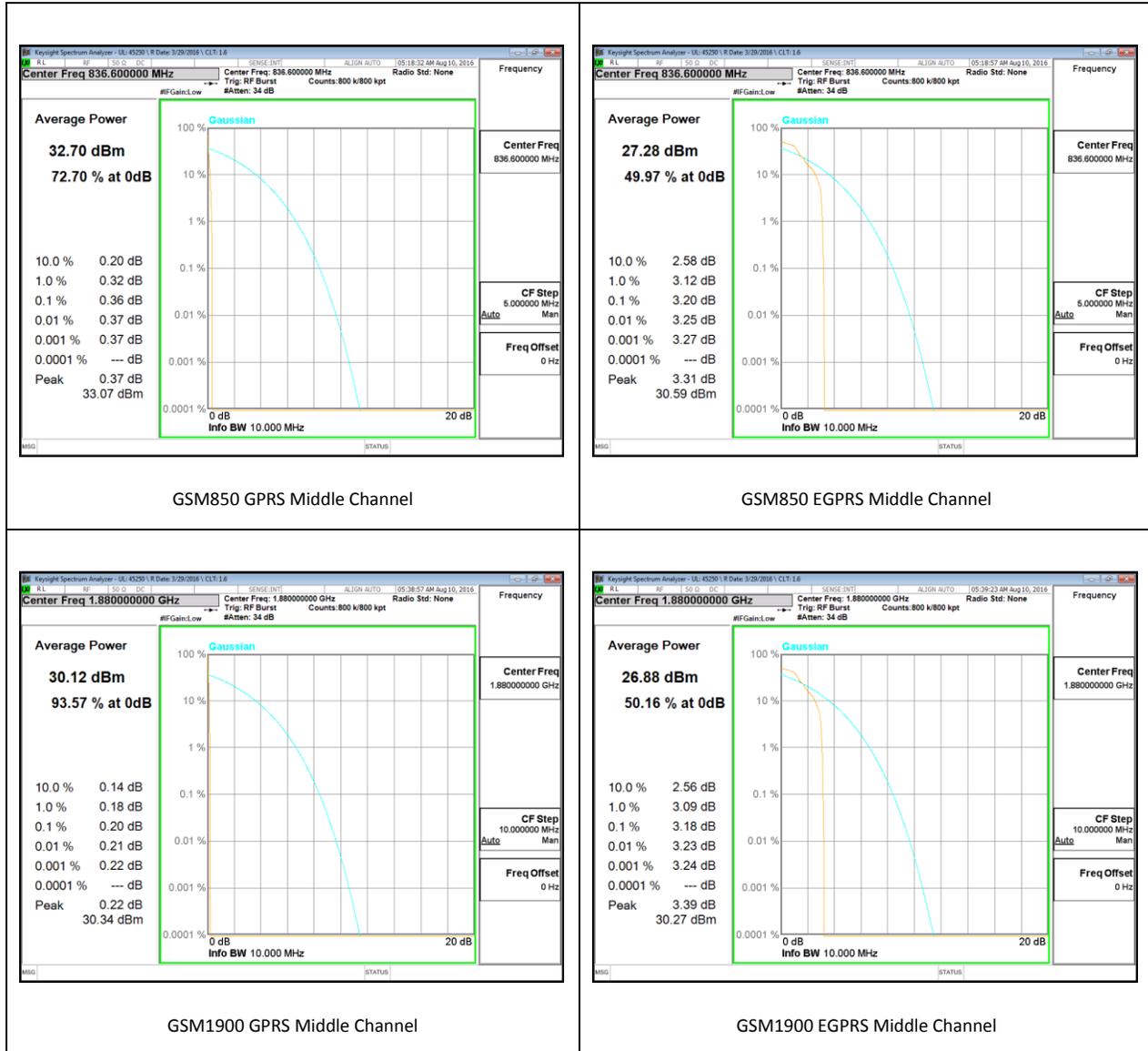
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

TEST SPEC

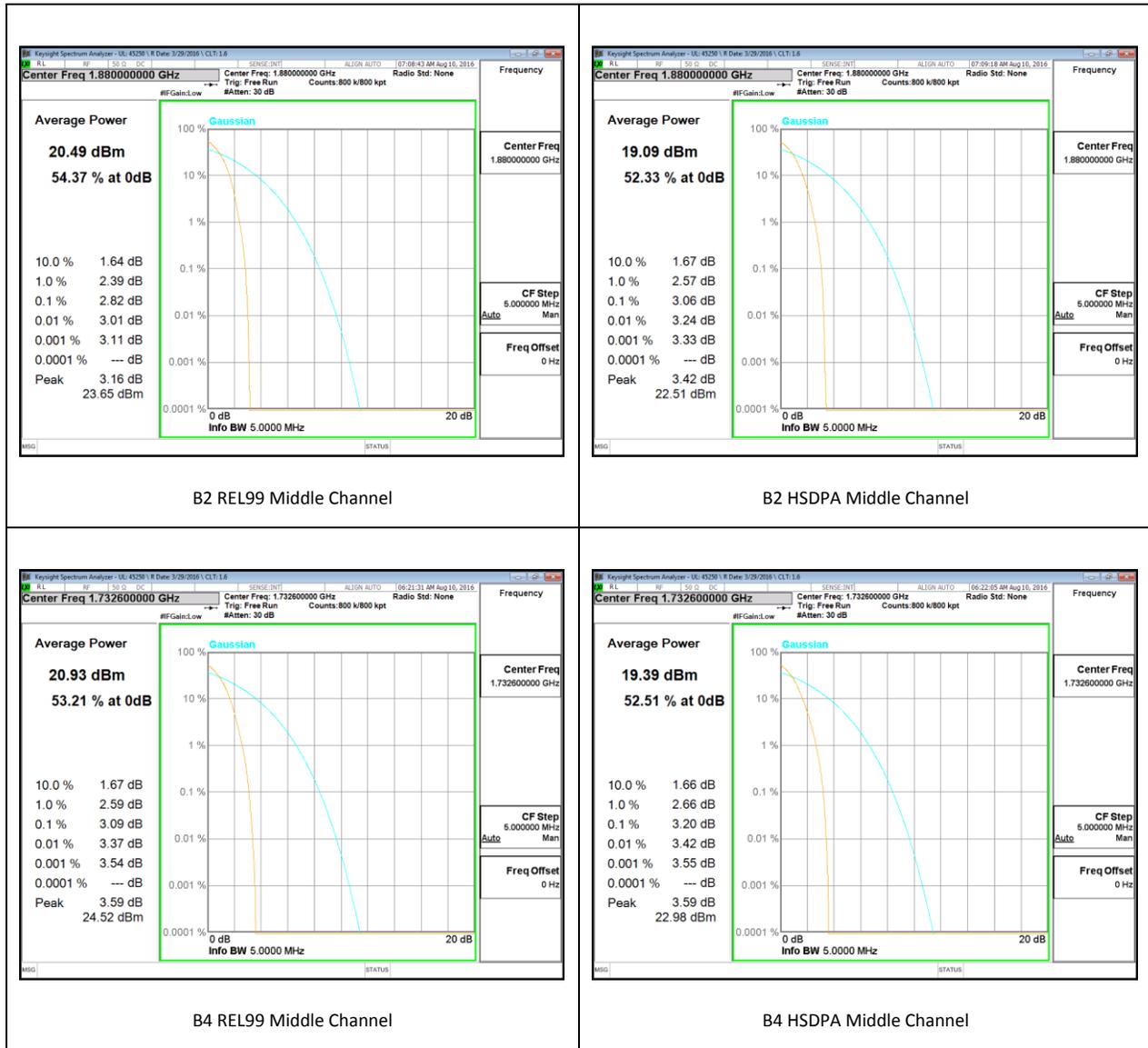
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

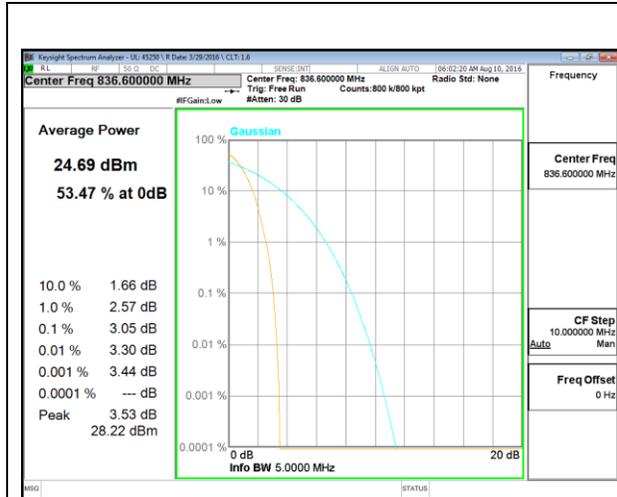
9.1. CONDUCTED PEAK TO AVERAGE RESULT

GSM

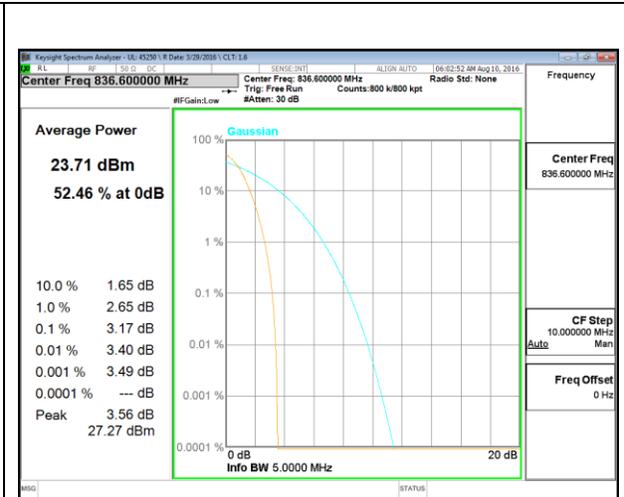


WCDMA



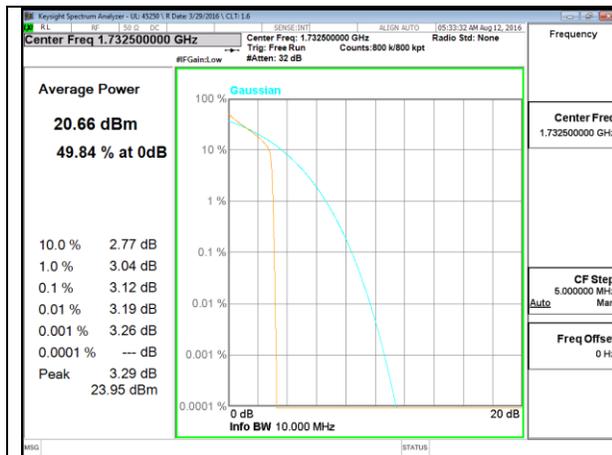


B5 REL99 Middle Channel

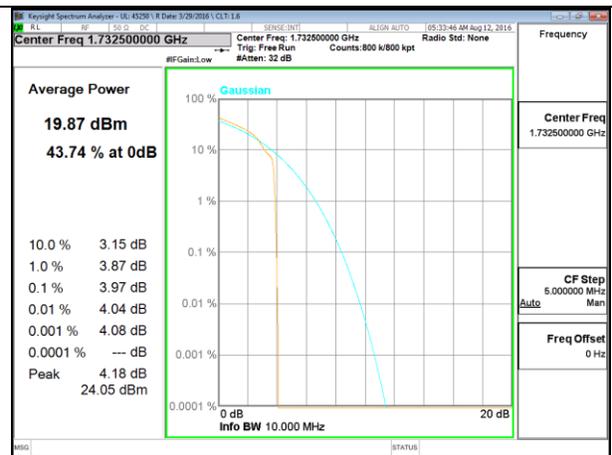


B5 HSDPA Middle Channel

LTE Band 4



LTE B4 1.4MHz QPSK Middle Channel



LTE B4 1.4MHz 16QAM Middle Channel



LTE B4 3MHz QPSK Middle Channel



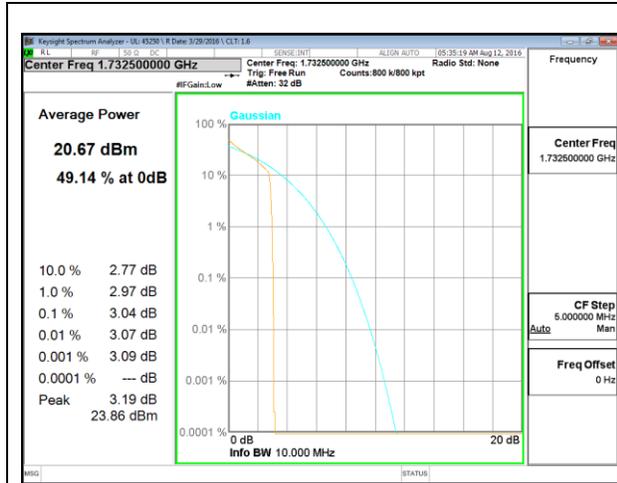
LTE B4 3MHz 16QAM Middle Channel



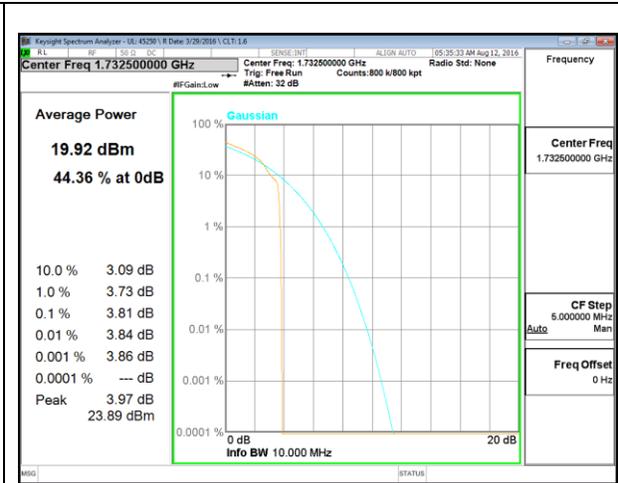
LTE B4 5MHz QPSK Middle Channel



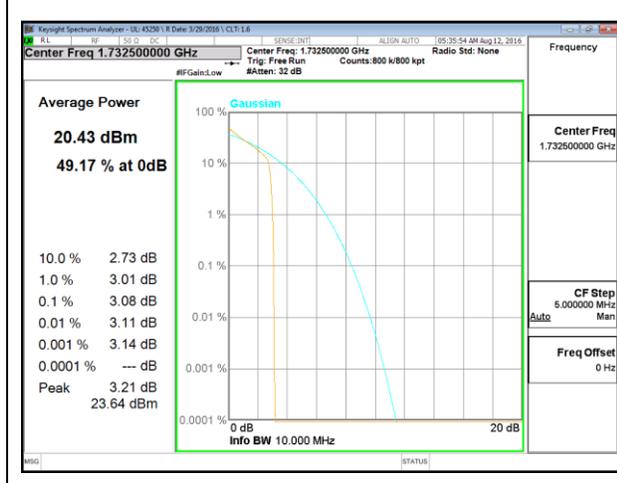
LTE B4 5MHz 16QAM Middle Channel



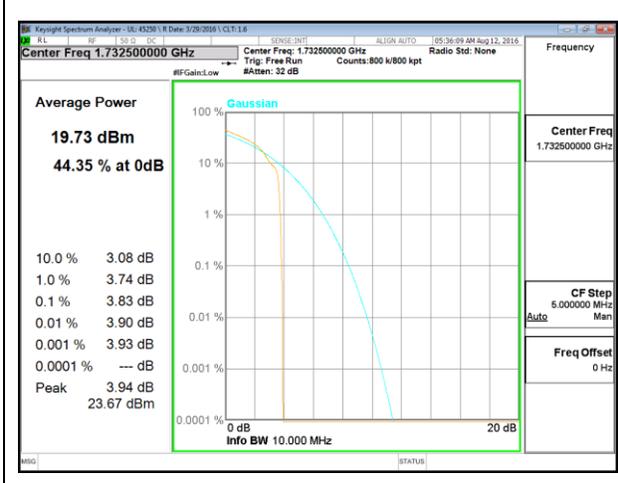
LTE B4 10MHz QPSK Middle Channel



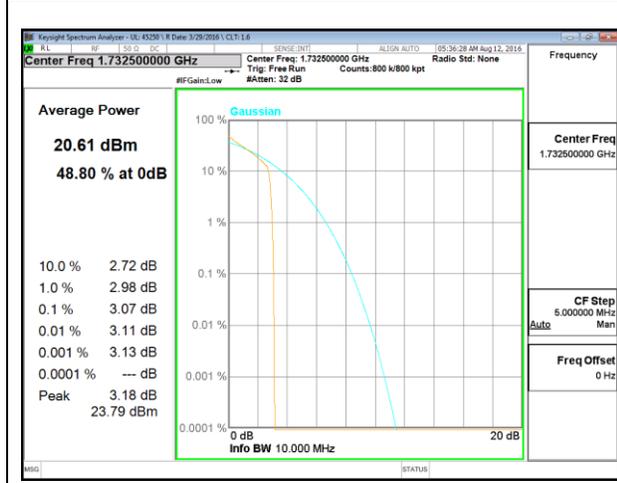
LTE B4 10MHz 16QAM Middle Channel



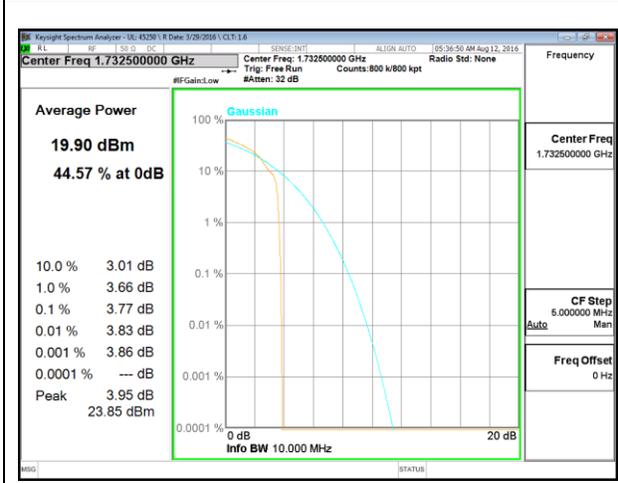
LTE B4 15MHz QPSK Middle Channel



LTE B4 15MHz 16QAM Middle Channel

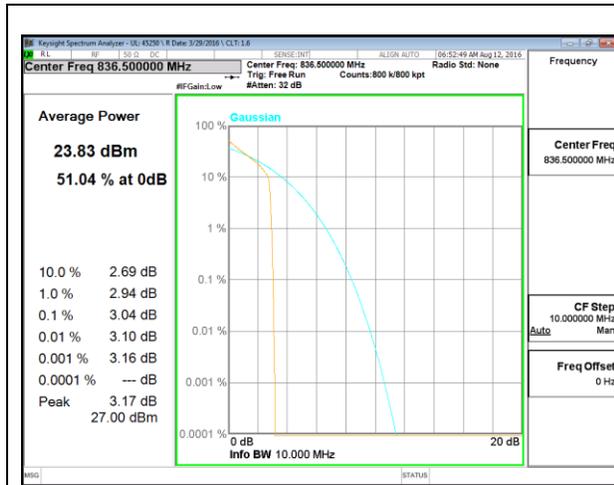


LTE B4 20MHz QPSK Middle Channel

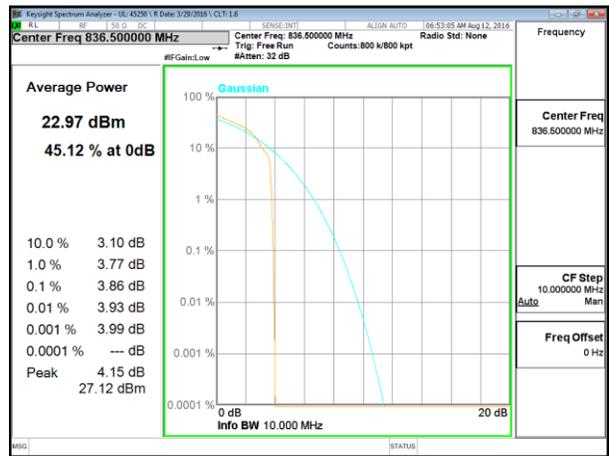


LTE B4 20MHz 16QAM Middle Channel

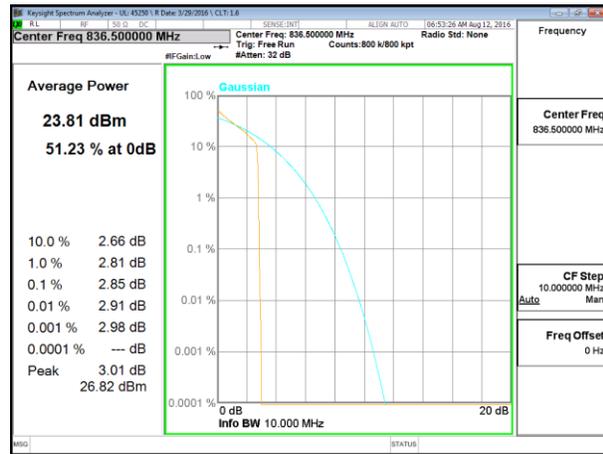
LTE Band 5



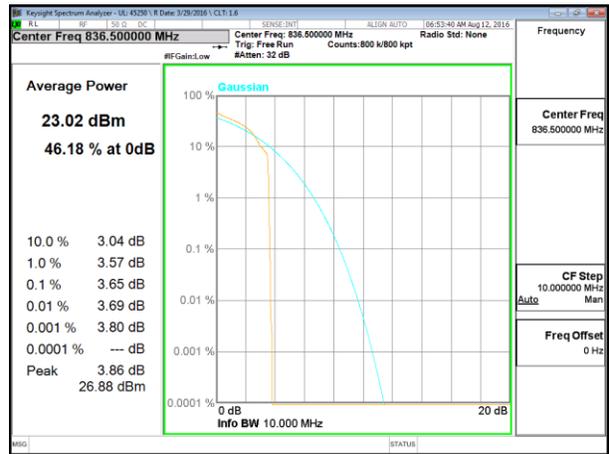
LTE B5 1.4MHz QPSK Middle Channel



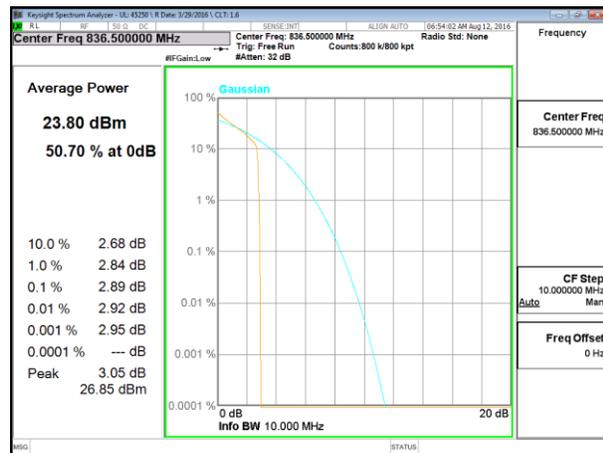
LTE B5 1.4MHz 16QAM Middle Channel



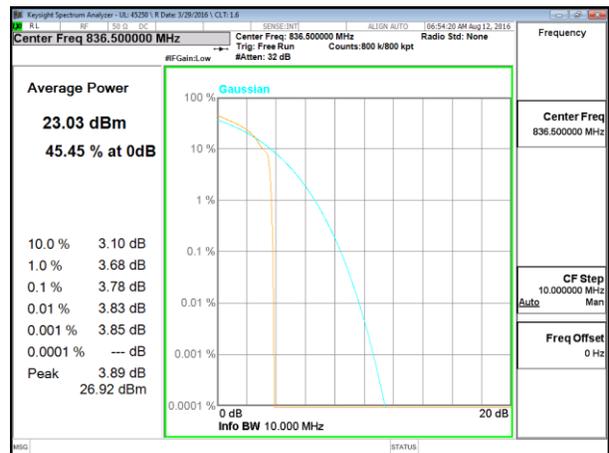
LTE B5 3MHz QPSK Middle Channel



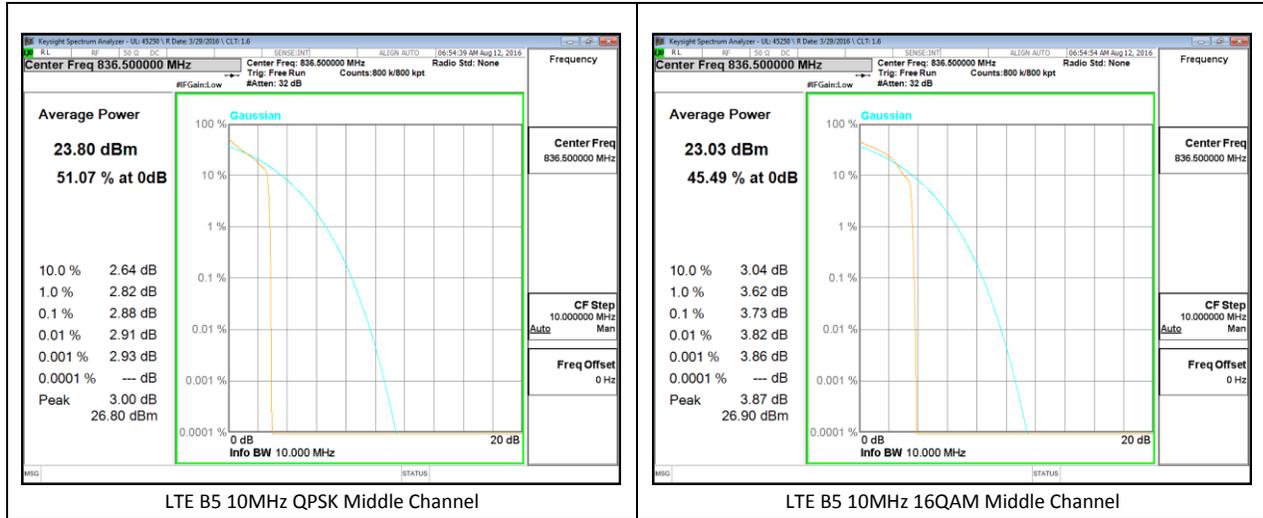
LTE B5 3MHz 16QAM Middle Channel



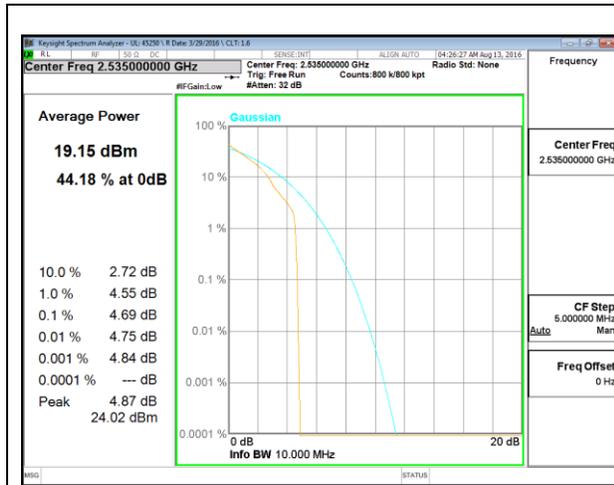
LTE B5 5MHz QPSK Middle Channel



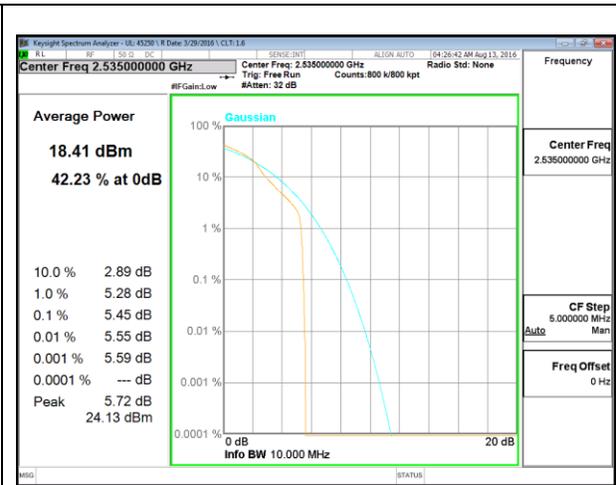
LTE B5 5MHz 16QAM Middle Channel



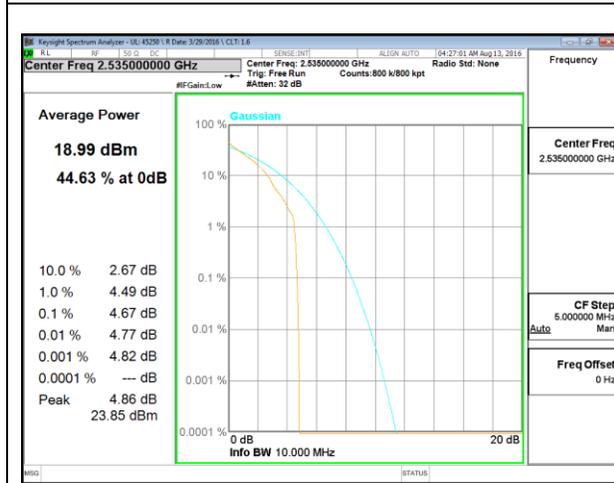
LTE Band 7



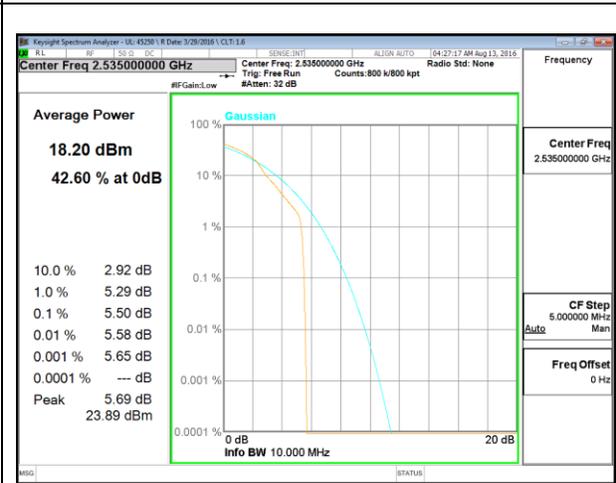
LTE B7 5MHz QPSK Middle Channel



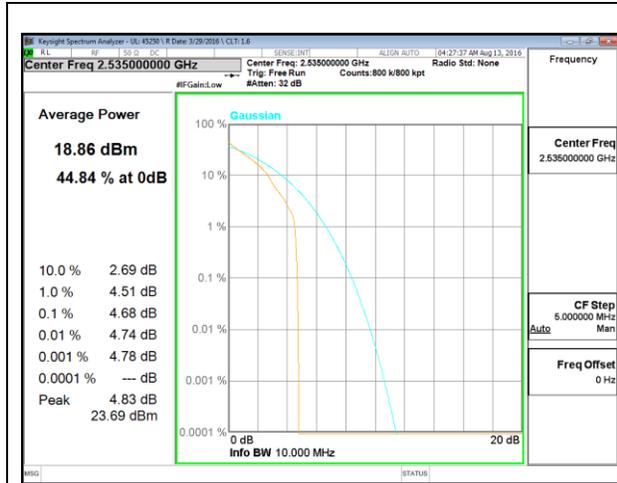
LTE B7 5MHz 16QAM Middle Channel



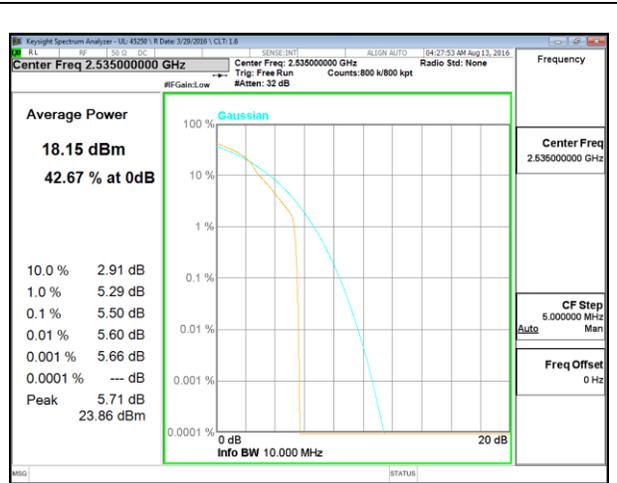
LTE B7 10MHz QPSK Middle Channel



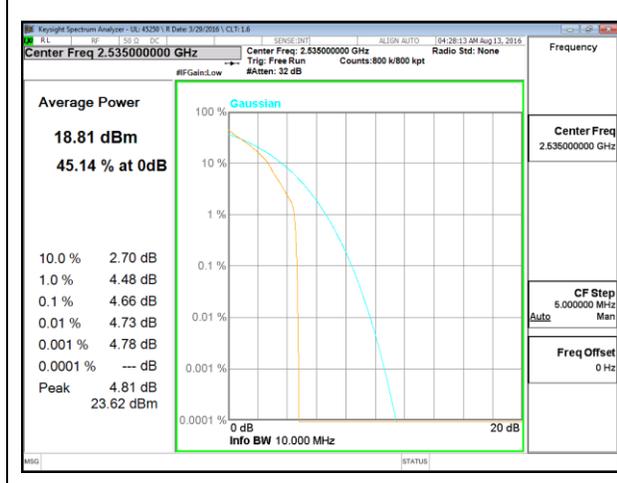
LTE B7 10MHz 16QAM Middle Channel



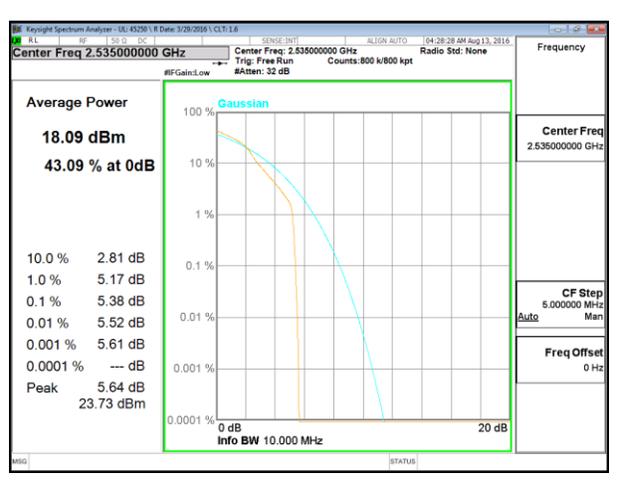
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel

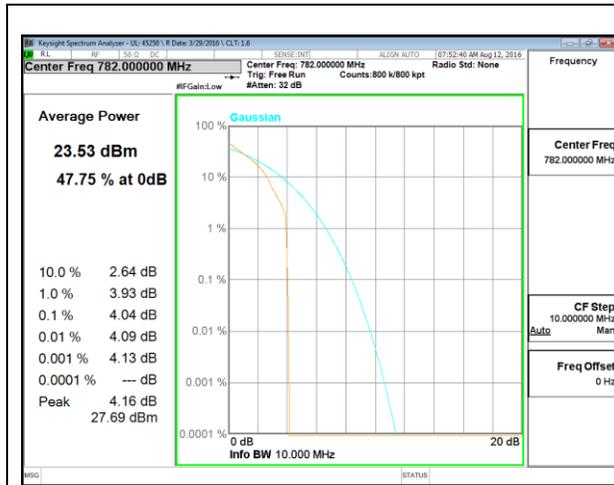


LTE B7 20MHz QPSK Middle Channel

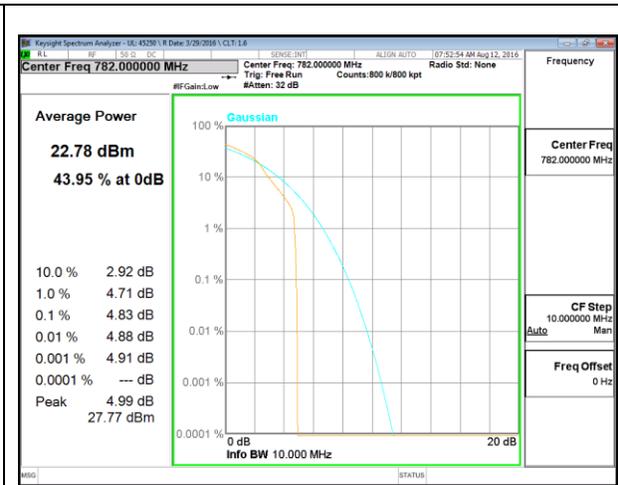


LTE B7 20MHz 16QAM Middle Channel

LTE Band 13



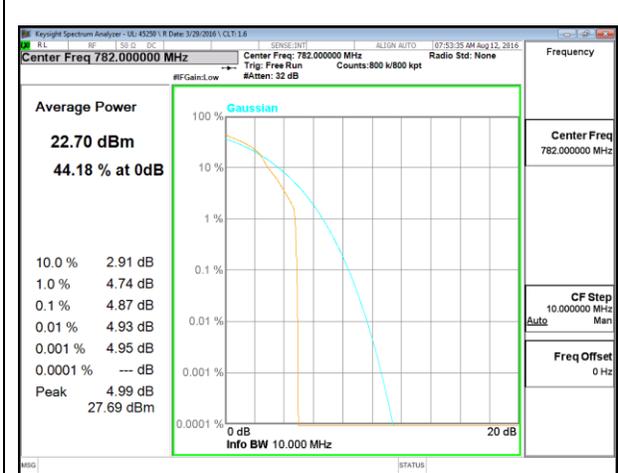
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel

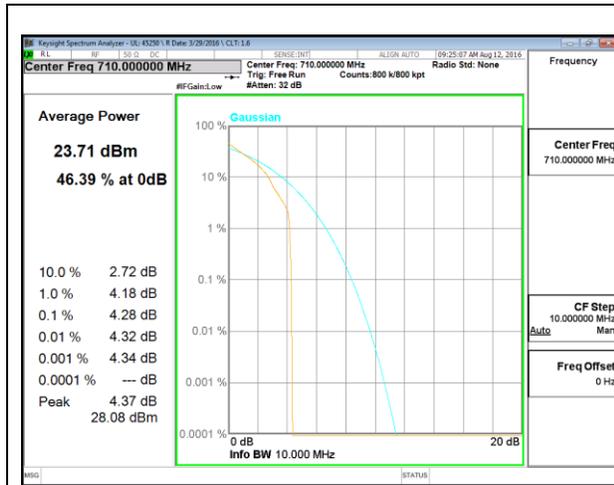


LTE B13 10MHz QPSK Middle Channel

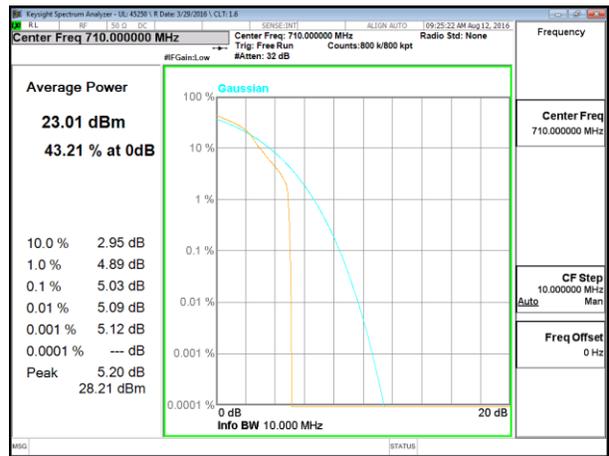


LTE B13 10MHz 16QAM Middle Channel

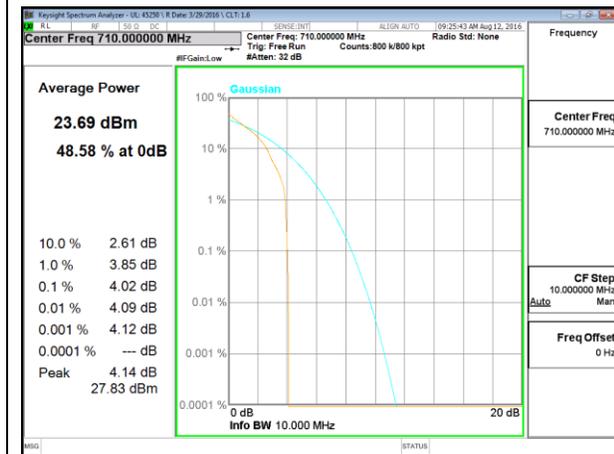
LTE Band 17



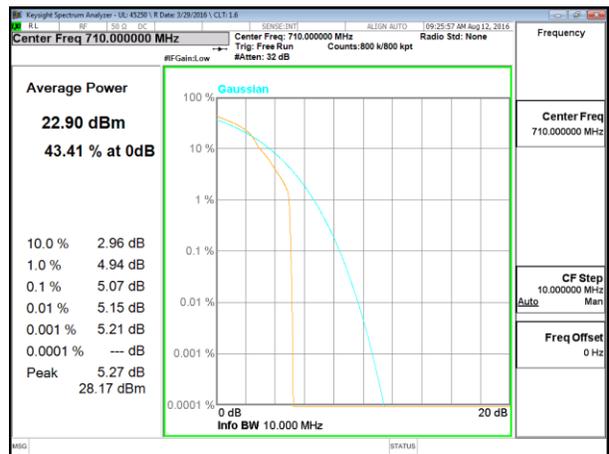
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel

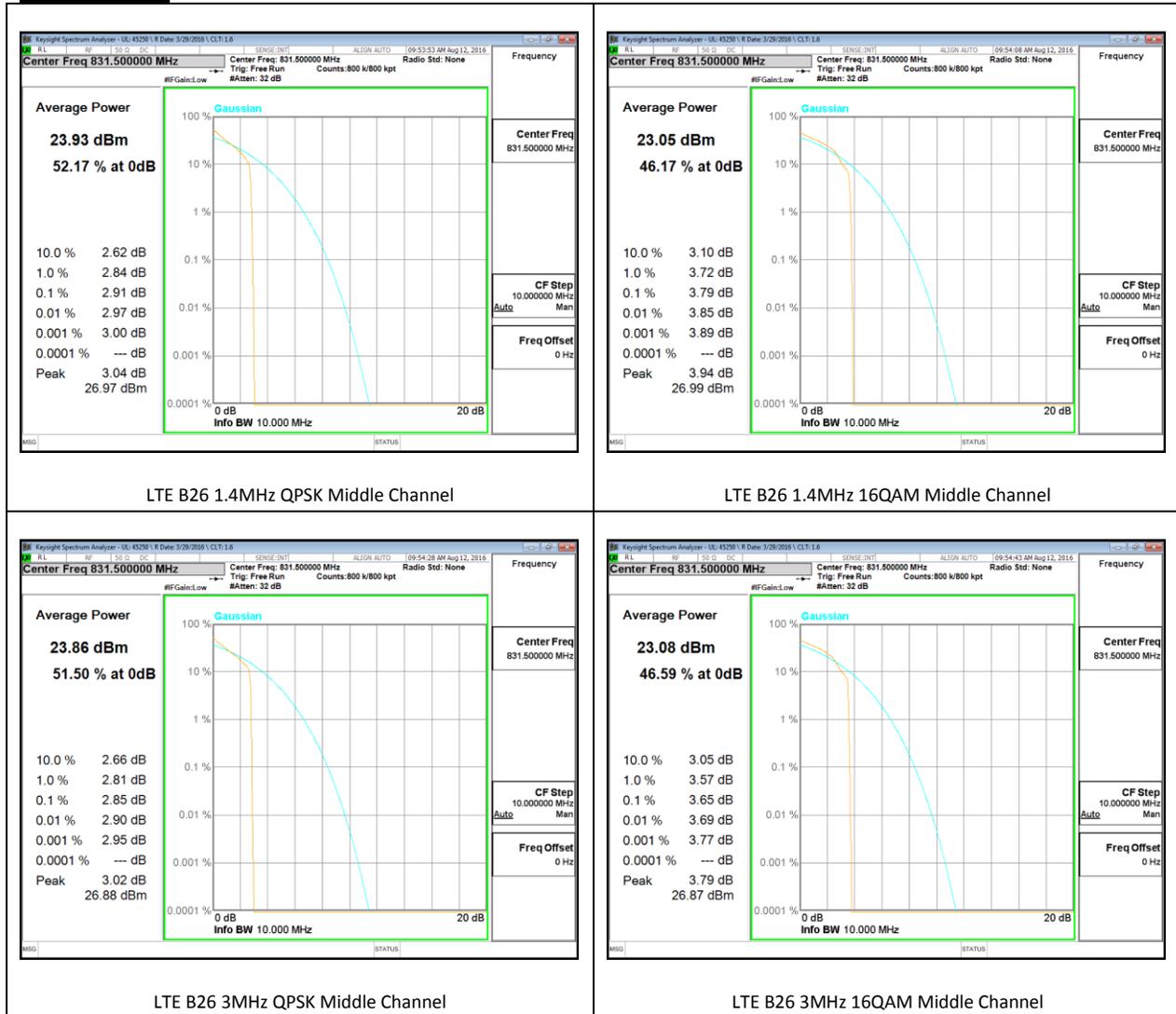


LTE B17 10MHz QPSK Middle Channel



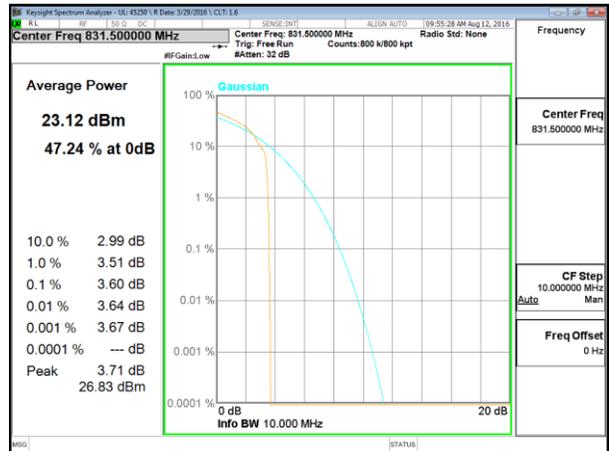
LTE B17 10MHz 16QAM Middle Channel

LTE Band 26

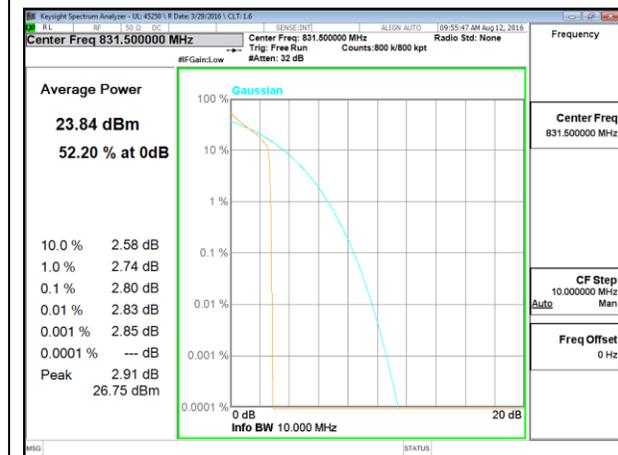




LTE B26 5MHz QPSK Middle Channel



LTE B26 5MHz 16QAM Middle Channel



LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

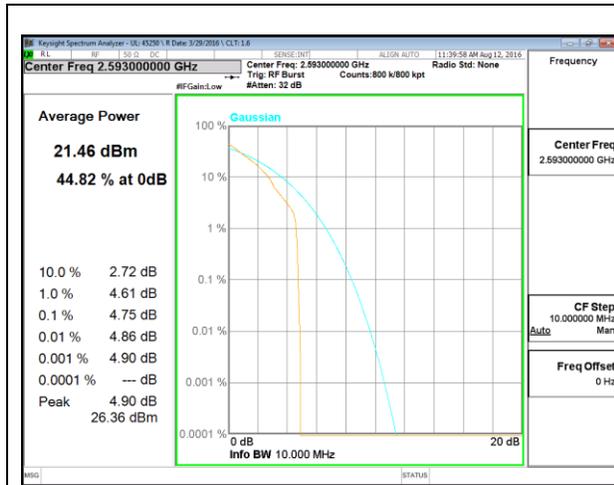


LTE B26 15MHz QPSK Middle Channel

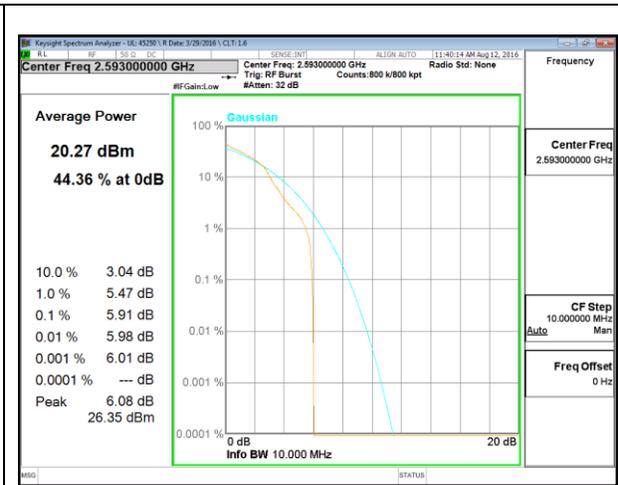


LTE B26 15MHz 16QAM Middle Channel

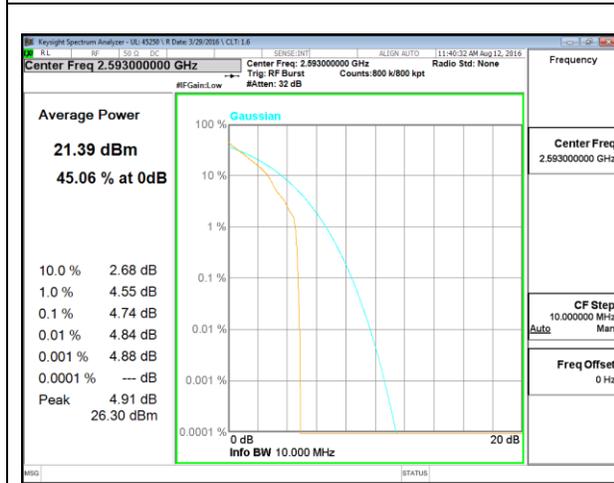
LTE Band 41



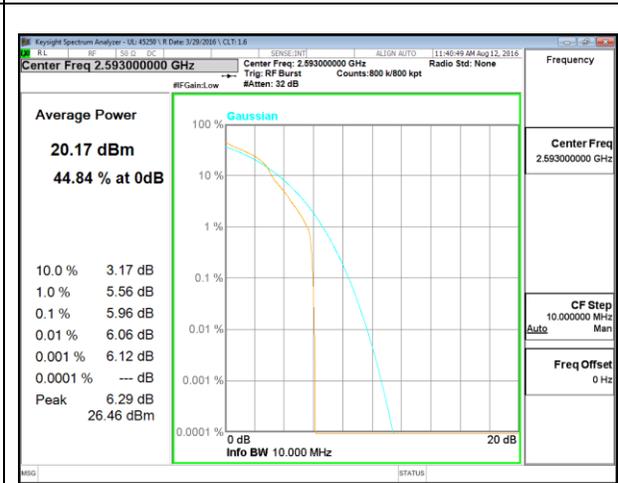
LTE B41 5MHz QPSK Middle Channel



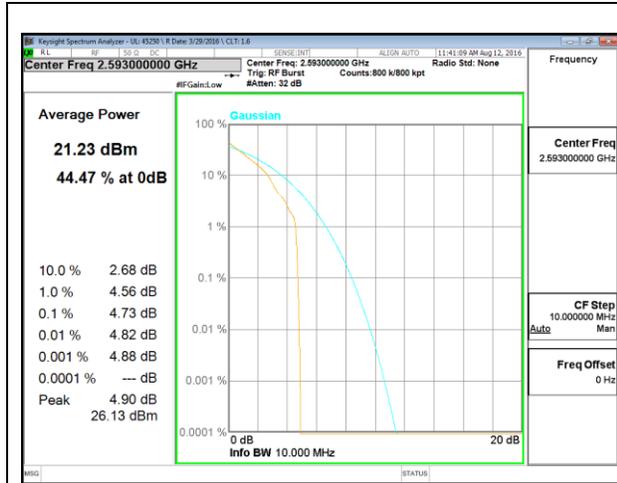
LTE B41 5MHz 16QAM Middle Channel



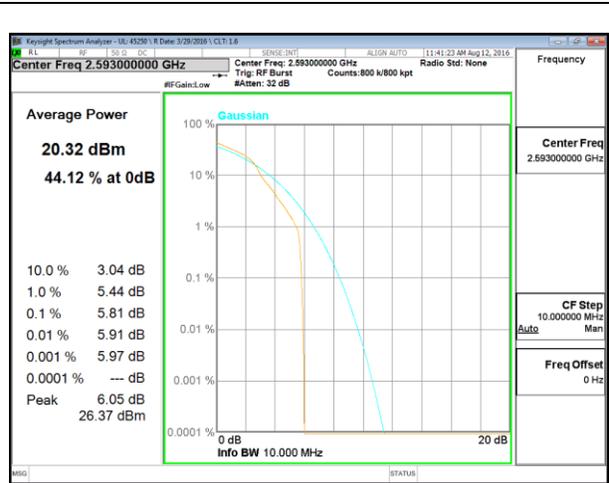
LTE B41 10MHz QPSK Middle Channel



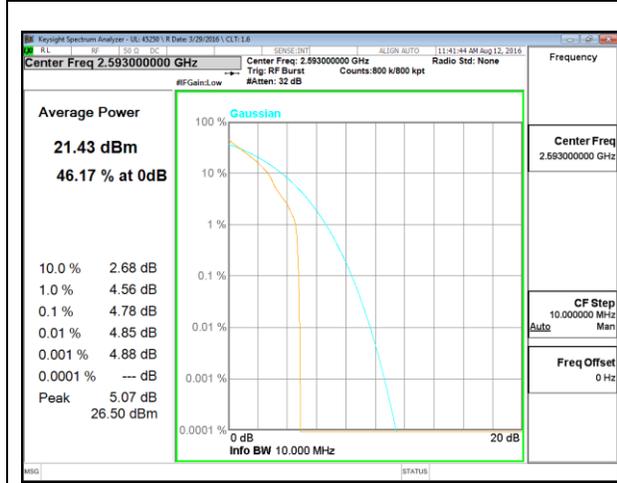
LTE B41 10MHz 16QAM Middle Channel



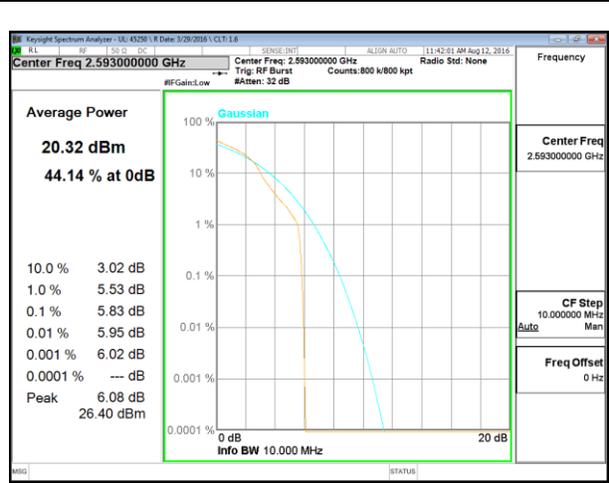
LTE B41 15MHz QPSK Middle Channel



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

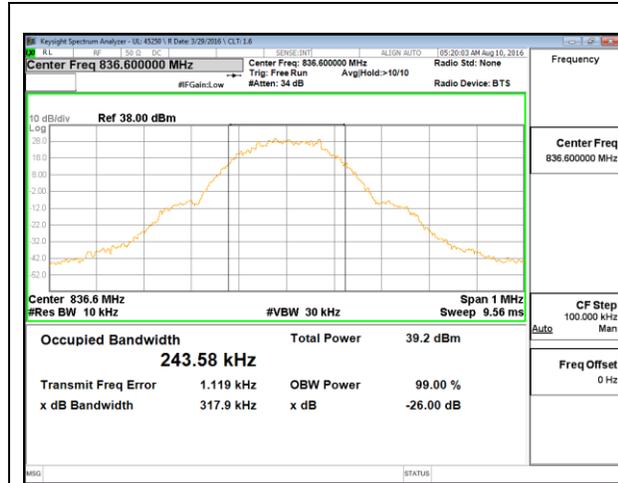
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

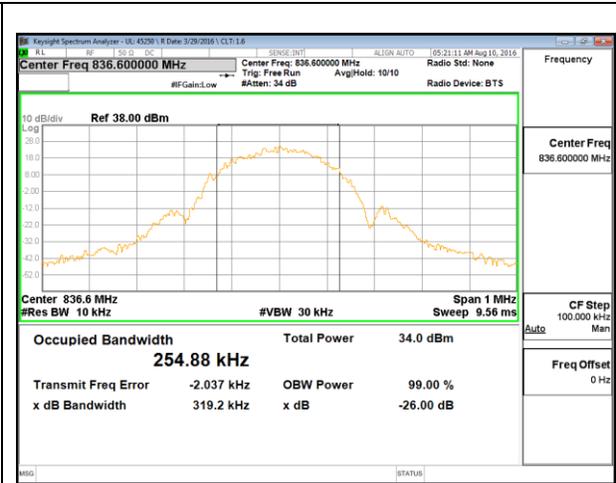
10.1. OCCUPIED BANDWIDTH RESULTS AND PLOTS

GSM

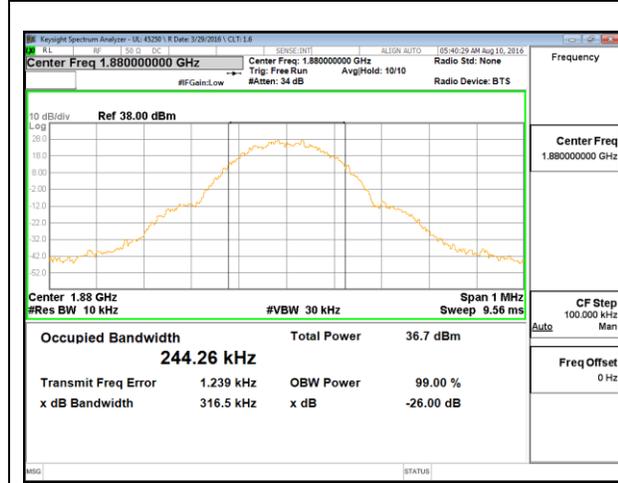
Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM850	GPRS	128	824.2	246	315.8
		190	836.6	243.6	317.9
		251	848.8	246.5	309.5
	EGPRS	128	824.2	250.6	325.9
		190	836.6	254.9	319.2
		251	848.8	243.4	312.9
GSM1900	GPRS	512	1850.2	244.2	312.7
		661	1880	244.3	316.5
		810	1909.8	244	323.1
	EGPRS	512	1850.2	240.6	308.5
		661	1880	237.4	296
		810	1909.8	239.9	304.6



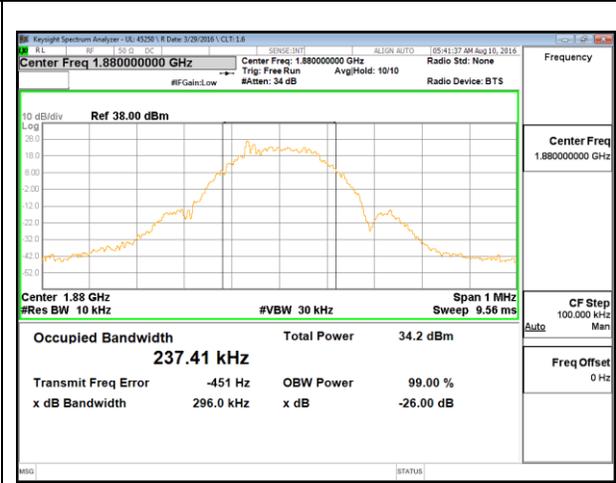
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel



GSM1900 GPRS Middle Channel



GSM1900 EGPRS Middle Channel