



FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART F
FCC CFR47 PART 27 SUBPART L
FCC CFR47 PART 27 SUBPART M

FOR

GSM/WCDMA/LTE + BLUETOOTH, DTS/UNII a/b/g/n/ac, ANT+ & NFC

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONY MOBILE COMMUNICATIONS, INC.
EUT DESCRIPTION: GSM/WCDMA/LTE + BLUETOOTH, DTS/UNII a/b/g/n/ac, ANT+ & NFC
SERIAL NUMBER: CB5A23NF3G (Conducted), CB5A24D6BL (Radiated)
DATE TESTED: May 1, 2015

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

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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-C, FCC CFR 47 Part 22, FCC CFR Part 24, and FCC CFR 47 Part 27.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
<input type="checkbox"/> Chamber A	<input type="checkbox"/> Chamber D
<input checked="" type="checkbox"/> Chamber B	<input type="checkbox"/> Chamber E
<input checked="" type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

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:

$EIRP = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$

$ERP = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)}$

(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
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB
Radiated Disturbance, 1GHz to 40GHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE + BLUETOOTH, DTS/UNII a/b/g/n/ac + ANT+ and NFC

5.2. MAXIMUM OUTPUT POWER

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

GSM and WCDMA

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation mW	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GMSK	32.7	1862.09		
	824~849	GPRS	32.7	1862.09	28.77	753.36
	824~849	EGPRS	27.7	588.84	24.52	283.14
GSM1900	1850~1910	GMSK	29.7	933.25		
	1850~1910	GPRS	29.7	933.25	30.03	1006.93
	1850~1910	EGPRS	26.5	446.68	27.41	550.81
Band 5	824~849	REL99	24.5	281.84	21.04	127.06
	824~849	HSDPA	22.8	190.55	18.94	78.34
	824~849	HSUPA	23.2	213.80		
Band 2	1850~1910	REL99	23.7	234.42	23.94	247.74
	1850~1910	HSDPA	22.8	186.21	22.61	182.39
	1850~1910	HSUPA	22.8	190.55		

LTE Band 12

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE12	699~716	10MHz	QPSK	23.40	218.78	15.60	36.31
			16QAM	22.59	181.55	15.10	32.36
		5MHz	QPSK	23.34	215.77	15.69	37.07
			16QAM	22.94	196.79	15.06	32.06
		3MHz	QPSK	23.56	226.99	15.66	36.81
			16QAM	22.54	179.47	14.50	28.18
		1.4MHz	QPSK	23.33	215.28	15.66	36.81
			16QAM	22.71	186.64	14.79	36.31

LTE Band 17

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	709~711	10MHz	QPSK	23.29	213.30	15.28	33.73
			16QAM	22.43	174.98	14.30	26.92
		5MHz	QPSK	23.26	211.84	15.60	36.31
			16QAM	22.21	166.34	15.04	31.92

LTE Band 5

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	10MHz	QPSK	23.14	206.06	19.33	85.70
			16QAM	22.31	170.22	18.73	74.64
		5MHz	QPSK	23.07	202.77	19.77	94.84
			16QAM	22.77	189.23	18.94	78.34
		3MHz	QPSK	23.40	218.78	19.75	94.41
			16QAM	22.32	170.61	19.77	94.84
		1.4MHz	QPSK	22.92	195.88	19.55	85.70
			16QAM	22.22	166.72	18.81	74.64

LTE Band 4

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	20MHz	QPSK	22.83	191.87	18.37	68.71
			16QAM	22.40	173.78	17.55	56.89
		15MHz	QPSK	22.80	190.55	18.02	63.39
			16QAM	22.18	165.20	17.23	52.84
		10MHz	QPSK	22.80	190.55	17.91	61.80
			16QAM	21.97	157.40	17.13	51.64
		5MHz	QPSK	22.88	194.09	18.56	71.78
			16QAM	21.81	151.71	17.88	61.38
		3MHz	QPSK	22.99	199.07	18.68	73.79
			16QAM	21.99	158.12	17.95	68.71
		1.4MHz	QPSK	22.94	196.79	18.58	56.89
			16QAM	22.07	161.06	17.80	63.39

LTE Band 2

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	20MHz	QPSK	23.25	211.35	23.10	204.17
			16QAM	22.79	190.11	22.36	172.19
		15MHz	QPSK	23.02	200.45	22.69	185.78
			16QAM	23.37	217.27	21.85	153.11
		10MHz	QPSK	22.92	195.88	22.56	180.30
			16QAM	21.95	156.68	21.62	145.21
		5MHz	QPSK	22.88	194.09	22.33	171.00
			16QAM	22.16	164.44	21.51	141.58
		3MHz	QPSK	22.93	196.34	22.53	179.06
			16QAM	22.17	164.82	21.66	204.17
		1.4MHz	QPSK	22.63	183.23	22.35	172.19
			16QAM	21.64	145.88	21.43	185.78

LTE Band 7

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE7	2500~2570	20MHz	QPSK	22.25	167.88	20.20	104.71
			16QAM	21.89	154.53	19.70	93.33
		15MHz	QPSK	22.22	166.72	20.4	109.65
			16QAM	21.96	157.04	20	100.00
		10MHz	QPSK	22.80	190.55	20.80	120.23
			16QAM	21.98	167.88	21	125.89
		5MHz	QPSK	22.80	154.53	19.80	104.71
			16QAM	22.41	166.72	19.40	93.33

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency (MHz)	Peak Gain (dBi)
GSM850, 824~849MHz	-2.6
GSM1900, 1850~1910MHz	-3.1
Band 5, 824~849MHz	-2.6
Band 2, 1850~1910MHz	-3.1
LTE4, 1710~1755MHz	-6.5
LTE5, 824~849MHz	-2.6
LTE7, 2500~2570MHz	-1.4
LTE12, 699~716MHz	-9.0
LTE17, 704~716MHz	-9.0

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

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SONY	EP880	3514W 01 S08328	N/A
Earphone	N/A	N/A	N/A	N/A

I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable 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

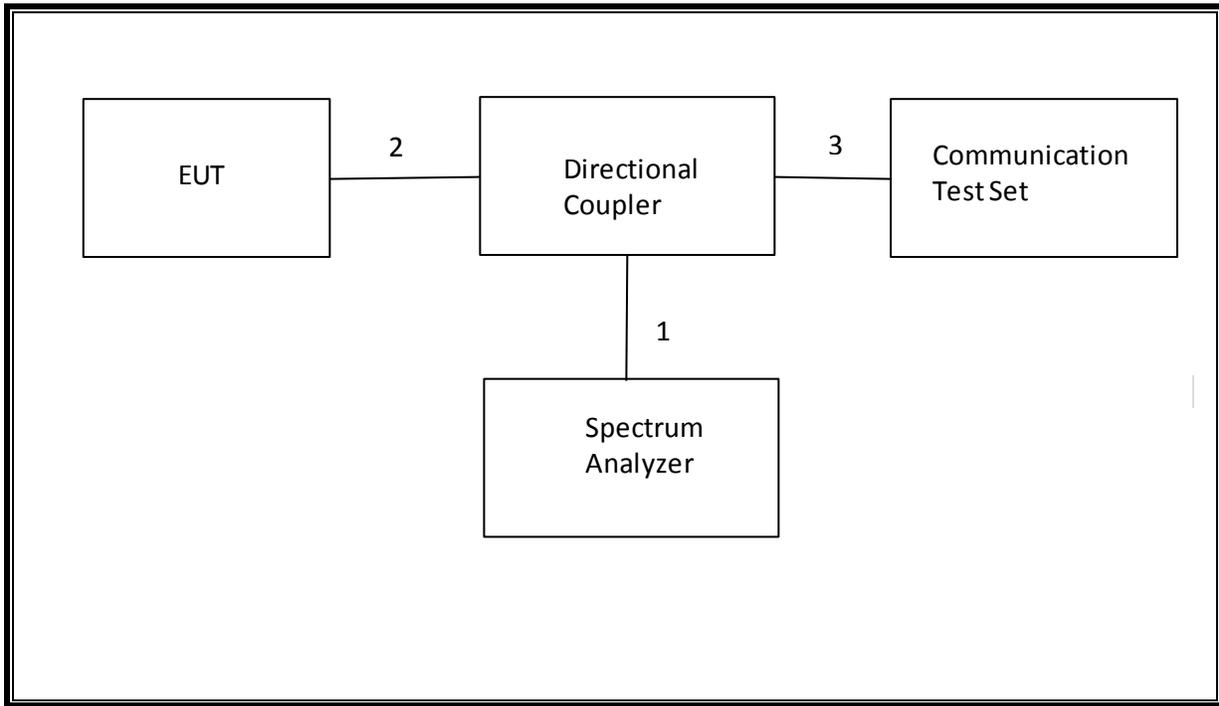
I/O CABLES (RADIATED SETUP)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	USB	1	AC Adapter	Un-shielded	1.2m	No
2	Jack	1	Headset	Shielded	1m	No
3	RF In/out	1	Communication Test Set	Un-shielded	2m	Yes

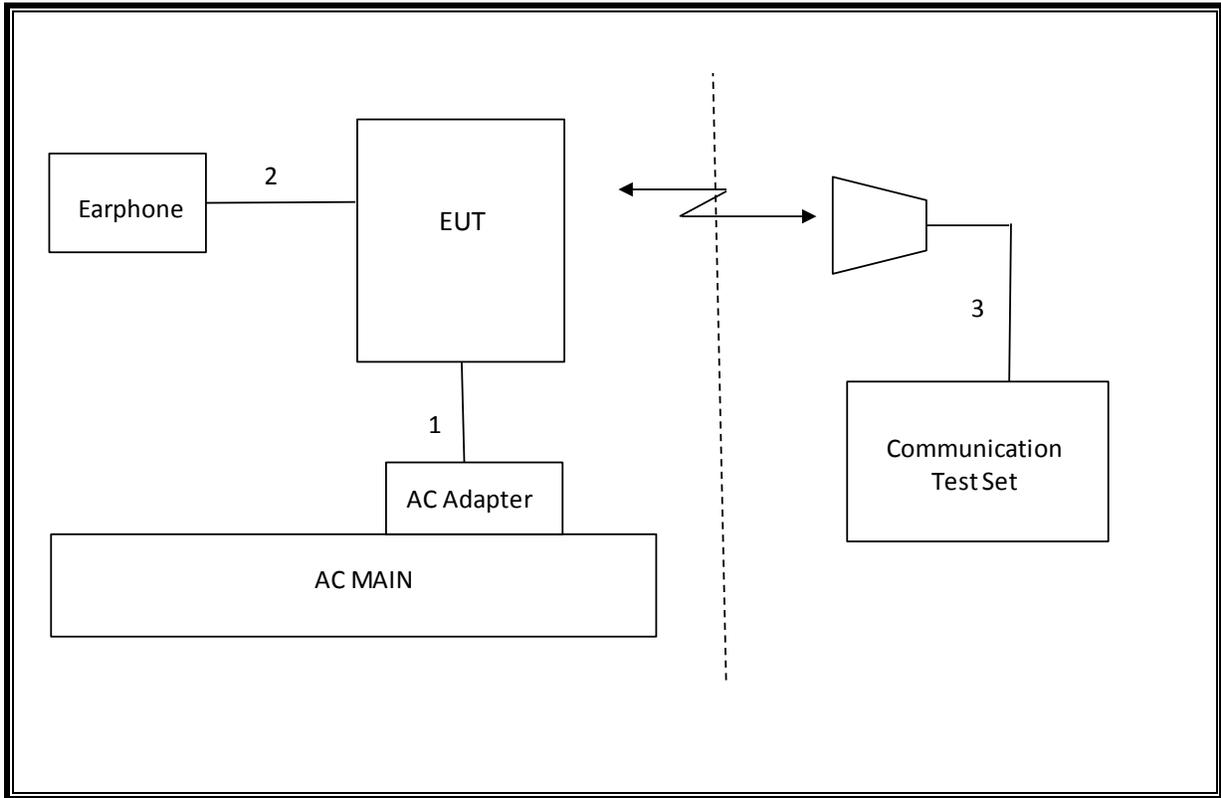
TEST SETUP

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

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	T123	10/28/15
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	T185	02/18/16
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn, 18 GHz	EMCO	3115	C00784	10/25/15
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	05/11/15
Communications Test Set	R&S	CMW500	T159	07/02/15
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Vector signal generator, 6 GHz	Agilent / HP	E4438C	None	06/18/15
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	C00993	02/11/16
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/15

7. Summary Table

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Note
2.1049	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	18.1MHz
22.917(a) 24.238(a) 27.53(g) 90.691	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emission	-13dBm		Pass	-13.6dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-27.6dBm
2.1046	N/A	Conducted output power	N/A		Pass	32.7dBm
27.53(m) 90.691	RSS-199(4.5)	Emission Mask	N/A		Pass	-24.5dBm
22.355 24.235 27.54 90.213	RSS-132(4.3) RSS-133(6.3) RSS-139(6.3) RSS-199(4.3)	Frequency Stability	2.5PPM		Pass	0.011 PPM
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38 dBm		Pass	28.77dBm
27.50(c)(10)	N/A		34.77 dBm	Pass	15.69dBm	
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm	Pass	30.03dBm	
27.50(d)(4)	RSS-139(6.4)		30dBm	Pass	18.68dBm	
22.917(a) 24.238(a) 27.53(g)	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Radiated Spurious Emission	-13dBm	Pass	-45.1dBm	
27.53(m)	RSS-199(4.5)		-25dBm	Pass	-45.3dBm	

8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

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

8.1.1. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	128	824.2	32.7
			190	836.6	32.7
			251	848.8	32.7
GPRS (GMSK)	CS1	1	128	824.2	32.7
			190	836.6	32.7
			251	848.8	32.7
		2	128	824.2	32.0
			190	836.6	32.1
			251	848.8	32.1
		3	128	824.2	30.2
			190	836.6	30.2
			251	848.8	30.2
		4	128	824.2	29.2
			190	836.6	29.2
			251	848.8	29.2
EGPRS (8PSK)	MCS5	1	128	824.2	27.7
			190	836.6	27.7
			251	848.8	27.7
		2	128	824.2	25.6
			190	836.6	25.5
			251	848.8	25.4
		3	128	824.2	24.0
			190	836.6	24.1
			251	848.8	24.0
		4	128	824.2	22.4
			190	836.6	22.1
			251	848.8	21.9

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	29.7
			661	1880.0	29.9
			810	1909.8	29.9
GPRS (GMSK)	CS1	1	512	1850.2	29.7
			661	1880.0	29.9
			810	1909.8	29.9
		2	512	1850.2	28.8
			661	1880.0	29.0
			810	1909.8	29.0
		3	512	1850.2	27.8
			661	1880.0	28.0
			810	1909.8	27.3
		4	512	1850.2	26.7
			661	1880.0	26.9
			810	1909.8	27.1
EGPRS (8PSK)	MCS5	1	512	1850.2	26.5
			661	1880.0	26.6
			810	1909.8	26.7
		2	512	1850.2	24.6
			661	1880.0	24.5
			810	1909.8	24.6
		3	512	1850.2	22.4
			661	1880.0	22.6
			810	1909.8	22.7
		4	512	1850.2	21.6
			661	1880.0	21.8
			810	1909.8	21.9

8.2. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

	Mode	Rel99
	Subtest	-
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	HSDPA FRC	Not Applicable
	HSUPA Test	Not Applicable
	Power Control Algorithm	Algorithm2
	β_c	Not Applicable
	β_d	Not Applicable
	β_{ec}	Not Applicable
	β_c/β_d	8/15
	β_{hs}	Not Applicable
	β_{ed}	Not Applicable

8.2.1. UMTS REL 99 OUTPUT POWER RESULT

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	24.5
		4183	836.6	0	24.5
		4233	846.6	0	24.5
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	0	23.7
		9400	1880.0	0	23.9
		9538	1907.6	0	23.7

8.3. UMTS HSDPA

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

	Mode	Rel5 HSDPA			
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	12/15	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			

8.3.1. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	22.8
		4183	836.6	0	22.8
		4233	846.6	0	22.8
	Subtest 2	4132	826.4	0	22.8
		4183	836.6	0	22.8
		4233	846.6	0	22.8
	Subtest 3	4132	826.4	0.5	22.3
		4183	836.6	0.5	22.3
		4233	846.6	0.5	22.4
	Subtest 4	4132	826.4	0.5	22.3
		4183	836.6	0.5	22.3
		4233	846.6	0.5	22.4

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	22.7
		9400	1880.0	0	22.8
		9538	1907.6	0	22.8
	Subtest 2	9262	1852.4	0	22.5
		9400	1880.0	0	22.6
		9538	1907.6	0	22.6
	Subtest 3	9262	1852.4	0.5	21.9
		9400	1880.0	0.5	22.1
		9538	1907.6	0.5	22.1
	Subtest 4	9262	1852.4	0.5	22.0
		9400	1880.0	0.5	22.0
		9538	1907.6	0.5	22.1

8.3.2. UMTS HSUPA

TEST PROCEDURE

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

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

Note1: β_{ed} cannot be set directly, it is set by Absolute Grant Value

8.3.1. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	23.2
		4183	836.6	0	23.2
		4233	846.6	0	23.2
	Subtest 2	4132	826.4	2	22.0
		4183	836.6	2	22.0
		4233	846.6	2	22.0
	Subtest 3	4132	826.4	1	22.2
		4183	836.6	1	22.1
		4233	846.6	1	22.2
	Subtest 4	4132	826.4	2	22.0
		4183	836.6	2	22.0
		4233	846.6	2	22.0
	Subtest 5	4132	826.4	0	23.3
		4183	836.6	0	23.2
		4233	846.6	0	23.3

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	22.8
		9400	1880.0	0	22.9
		9538	1907.6	0	22.9
	Subtest 2	9262	1852.4	2	21.3
		9400	1880.0	2	21.3
		9538	1907.6	2	21.3
	Subtest 3	9262	1852.4	1	21.6
		9400	1880.0	1	21.8
		9538	1907.6	1	21.8
	Subtest 4	9262	1852.4	2	21.6
		9400	1880.0	2	21.7
		9538	1907.6	2	21.7
	Subtest 5	9262	1852.4	0	22.8
		9400	1880.0	0	22.9
		9538	1907.6	0	22.9

8.4. LTE OUTPUT VERIFICATION

8.4.1. LTE OUTPUT RESULT

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18700	18900	19100
						1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	23.03	23.25	23.20
			1	49	0	23.08	22.43	23.01
			1	99	0	22.54	22.75	22.42
			50	0	1	21.64	22.05	21.75
			50	24	1	21.40	21.72	21.44
			50	50	1	21.35	21.70	21.38
		16QAM	100	0	1	21.51	21.87	21.57
			1	0	1	22.63	22.79	22.28
			1	49	1	21.80	22.10	21.46
			1	99	1	22.10	22.20	21.87
			50	0	2	20.71	21.09	20.68
			50	24	2	20.46	20.75	20.42
			50	50	2	20.39	20.72	20.38
			100	0	2	20.54	20.90	20.59
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18675	18900	19125
						1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	22.54	23.02	22.83
			1	37	0	22.20	22.40	22.11
			1	74	0	22.19	22.55	22.39
			36	0	1	21.47	21.77	21.58
			36	20	1	21.33	21.59	21.44
			36	39	1	21.31	21.53	21.40
			75	0	1	21.39	21.63	21.47
		16QAM	1	0	1	21.74	22.37	22.05
			1	37	1	21.12	21.68	21.96
			1	74	1	21.40	21.85	21.59
			36	0	2	20.51	20.86	20.57
			36	20	2	20.38	20.66	20.40
			36	39	2	20.34	20.55	20.38
			75	0	2	20.40	20.68	20.50

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18650	18900	19150
						1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	22.89	22.85	22.72
			1	25	0	22.56	22.92	22.42
			1	49	0	22.63	22.56	22.18
			25	0	1	21.76	21.73	21.79
			25	12	1	21.60	21.62	21.71
			25	25	1	21.59	21.58	21.60
			50	0	1	21.65	21.65	21.67
		16QAM	1	0	1	21.91	22.18	21.78
			1	25	1	21.78	21.95	21.50
			1	49	1	21.64	21.88	21.26
			25	0	2	20.81	20.75	20.97
			25	12	2	20.67	20.66	20.90
			25	25	2	20.66	20.61	20.76
			50	0	2	20.63	20.69	20.80
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18625	18900	19175
						1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	22.60	22.73	22.43
			1	12	0	22.88	22.60	22.36
			1	24	0	22.43	22.62	22.18
			12	0	1	21.60	21.63	21.62
			12	7	1	21.59	21.69	21.60
			12	13	1	21.56	21.59	21.53
			25	0	1	21.56	21.58	21.54
		16QAM	1	0	1	21.46	21.95	22.16
			1	12	1	21.34	21.90	22.10
			1	24	1	21.40	21.75	21.94
			12	0	2	20.70	20.76	20.74
			12	7	2	20.74	20.76	20.73
			12	13	2	20.71	20.68	20.67
			25	0	2	20.80	20.63	20.60

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18615	18900	19185
						1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	22.54	22.57	22.55
			1	8	0	22.93	22.65	22.53
			1	14	0	22.49	22.52	22.34
			8	0	1	21.58	21.68	21.70
			8	4	1	21.57	21.63	21.67
			8	7	1	21.59	21.66	21.66
			15	0	1	21.57	21.56	21.66
		16QAM	1	0	1	21.50	22.17	21.65
			1	8	1	21.39	22.00	21.61
			1	14	1	21.50	22.06	21.43
			8	0	2	20.76	20.58	20.98
			8	4	2	20.77	20.56	20.95
			8	7	2	20.76	20.60	20.94
			15	0	2	20.65	20.67	20.72
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18607	18900	19193
						1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	22.57	22.63	22.24
			1	3	0	22.54	22.54	22.26
			1	5	0	22.55	22.17	22.14
			3	0	0	22.37	22.16	22.21
			3	1	0	22.43	22.21	22.23
			3	3	0	22.42	22.21	22.21
			6	0	1	21.51	21.35	21.35
		16QAM	1	0	1	21.64	22.17	21.30
			1	3	1	21.56	21.96	21.32
			1	5	1	21.66	22.11	21.24
			3	0	1	21.48	22.00	21.45
			3	1	1	21.53	22.04	21.48
			3	3	1	21.52	22.03	21.46
			6	0	2	20.68	20.96	20.63

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20050	20175	20300
						1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0	22.83	22.78	22.66
			1	49	0	22.15	22.35	22.14
			1	99	0	22.38	22.75	22.70
			50	0	1	21.43	21.67	21.57
			50	24	1	21.23	21.42	21.22
			50	50	1	21.12	21.35	21.29
		16QAM	100	0	1	21.32	21.56	21.41
			1	0	1	22.40	22.19	22.09
			1	49	1	21.85	21.88	21.52
			1	99	1	22.01	22.17	22.00
			50	0	2	20.45	20.75	20.54
			50	24	2	20.27	20.48	20.27
			50	50	2	20.18	20.42	20.31
			100	0	2	20.38	20.56	20.46
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20025	20175	20325
						1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	22.74	22.75	22.80
			1	37	0	22.13	22.46	22.25
			1	74	0	22.30	22.56	22.57
			36	0	1	21.33	21.50	21.26
			36	20	1	21.18	21.35	21.15
			36	39	1	21.11	21.22	21.16
		16QAM	75	0	1	21.16	21.42	21.20
			1	0	1	21.83	22.18	22.10
			1	37	1	21.13	21.80	21.08
			1	74	1	21.42	21.94	21.80
			36	0	2	20.40	20.60	20.26
			36	20	2	20.21	20.43	20.20
			36	39	2	20.17	20.36	20.19
			75	0	2	20.18	20.45	20.21

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20000	20175	20350
						1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	22.68	22.48	22.75
			1	25	0	22.75	22.44	22.67
			1	49	0	22.80	22.60	22.64
			25	0	1	21.84	21.65	21.64
			25	12	1	21.69	21.53	21.57
			25	25	1	21.66	21.50	21.47
		16QAM	50	0	1	21.82	21.52	21.55
			1	0	1	21.67	21.90	21.83
			1	25	1	21.99	21.88	21.88
			1	49	1	21.85	21.97	21.62
			25	0	2	20.93	20.71	20.76
			25	12	2	20.79	20.56	20.71
			25	25	2	20.79	20.58	20.58
			50	0	2	20.85	20.59	20.64
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19975	20175	20375
						1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	22.64	22.60	22.69
			1	12	0	22.88	22.48	22.63
			1	24	0	22.54	22.51	22.64
			12	0	1	21.61	21.51	21.58
			12	7	1	21.54	21.48	21.58
			12	13	1	21.54	21.53	21.54
			25	0	1	21.57	21.52	21.52
		16QAM	1	0	1	21.67	21.81	22.41
			1	12	1	21.55	21.72	22.36
			1	24	1	21.55	21.73	22.41
			12	0	2	20.68	20.68	20.63
			12	7	2	20.61	20.62	20.64
			12	13	2	20.59	20.66	20.60
			25	0	2	20.64	20.59	20.50

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19965	20175	20385
						1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	22.70	22.55	22.68
			1	8	0	22.91	22.55	22.99
			1	14	0	22.51	22.44	22.75
			8	0	1	21.64	21.47	21.48
			8	4	1	21.52	21.42	21.43
			8	7	1	21.56	21.54	21.50
			15	0	1	21.56	21.53	21.52
		16QAM	1	0	1	21.67	21.99	21.74
			1	8	1	21.50	22.00	21.51
			1	14	1	21.59	21.90	21.65
			8	0	2	20.77	20.45	20.74
			8	4	2	20.72	20.43	20.68
			8	7	2	20.76	20.56	20.76
			15	0	2	20.61	20.63	20.53
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target 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	22.58	22.48	22.91
			1	3	0	22.62	22.19	22.61
			1	5	0	22.51	22.10	22.94
			3	0	0	22.42	22.16	23.06
			3	1	0	22.48	22.19	23.09
			3	3	0	22.35	22.47	23.07
			6	0	1	21.39	21.32	22.11
		16QAM	1	0	1	21.71	21.85	22.07
			1	3	1	21.63	21.88	22.14
			1	5	1	21.48	21.88	21.84
			3	0	1	21.54	21.59	22.07
			3	1	1	21.54	21.62	22.11
			3	3	1	21.46	21.74	22.10
			6	0	2	20.59	20.35	21.19

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20450	20525	20600
						829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0	22.81	22.78	23.14
			1	25	0	22.64	22.97	23.07
			1	49	0	22.69	22.80	22.99
			25	0	1	21.59	21.63	21.98
			25	12	1	21.54	21.77	21.93
			25	25	1	21.58	21.69	21.90
			50	0	1	21.60	21.64	21.94
		16QAM	1	0	1	21.93	22.06	22.14
			1	25	1	21.96	22.11	22.31
			1	49	1	21.78	22.14	22.08
			25	0	2	20.70	20.71	20.97
			25	12	2	20.71	20.78	21.06
			25	25	2	20.65	20.85	21.00
			50	0	2	20.64	20.82	21.02
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20425	20525	20625
						826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	22.71	22.87	23.07
			1	12	0	22.86	22.78	22.95
			1	24	0	22.56	22.84	23.00
			12	0	1	21.57	21.58	21.96
			12	7	1	21.53	21.77	21.95
			12	13	1	21.54	21.75	21.92
			25	0	1	21.58	21.71	21.89
		16QAM	1	0	1	21.70	22.02	22.77
			1	12	1	21.85	22.03	22.77
			1	24	1	21.67	22.07	22.73
			12	0	2	20.71	20.82	20.96
			12	7	2	20.66	20.91	20.98
			12	13	2	20.65	20.88	20.94
			25	0	2	20.71	20.76	20.87

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	22.71	22.71	23.10
			1	8	0	23.04	22.75	23.40
			1	14	0	22.64	22.73	23.01
			8	0	1	21.56	21.61	21.88
			8	4	1	21.59	21.67	21.85
			8	7	1	21.65	21.69	21.85
			15	0	1	21.62	21.65	21.87
		16QAM	1	0	1	21.74	22.21	22.20
			1	8	1	21.55	22.21	22.12
			1	14	1	21.69	22.32	22.09
			8	0	2	20.76	20.56	21.09
			8	4	2	20.80	20.72	21.09
			8	7	2	20.82	20.78	21.11
			15	0	2	20.70	20.84	20.89
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target 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	22.75	22.71	23.21
			1	3	0	22.78	22.72	22.89
			1	5	0	22.74	22.64	22.92
			3	0	0	22.57	22.61	23.14
			3	1	0	22.63	22.65	23.12
			3	3	0	22.61	22.68	23.07
			6	0	1	21.50	21.60	22.09
		16QAM	1	0	1	21.88	22.10	22.21
			1	3	1	21.77	22.17	22.22
			1	5	1	21.95	22.01	22.01
			3	0	1	21.64	21.82	22.40
			3	1	1	21.64	21.87	22.39
			3	3	1	21.70	21.87	22.33
			6	0	2	20.70	20.61	21.38

Band	BW	Mode	RB	RB	Target	Avg Pwr (dBm)
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	(MHz)		Allocation	offset	MPR	20850	21100	21350
						2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	22.22	22.30	22.13
			1	49	0	22.20	22.08	22.10
			1	99	0	22.18	22.25	22.15
			50	0	1	21.12	21.29	21.20
			50	24	1	21.08	21.28	21.07
			50	50	1	21.09	21.15	21.94
			100	0	1	21.05	21.20	21.05
		16QAM	1	0	1	21.89	21.81	21.44
			1	49	1	21.47	21.77	21.39
			1	99	1	21.21	21.40	21.50
			50	0	2	20.22	20.40	20.23
			50	24	2	20.25	20.44	20.11
			50	50	2	20.09	20.26	20.20
			100	0	2	20.19	20.33	20.09
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20825	21100	21375
						2507.5 MHz	2535 MHz	2562.5 MHz
LTE Band 7	15	QPSK	1	0	0	22.31	22.30	22.33
			1	37	0	22.18	22.22	22.05
			1	74	0	22.20	22.04	22.30
			36	0	1	21.22	21.32	21.12
			36	20	1	21.24	21.33	21.07
			36	39	1	21.22	21.26	21.24
			75	0	1	21.04	21.27	21.00
		16QAM	1	0	1	21.44	21.62	21.96
			1	37	1	21.24	21.53	21.19
			1	74	1	21.11	21.33	21.44
			36	0	2	20.28	20.45	20.16
			36	20	2	20.25	20.44	20.18
			36	39	2	20.07	20.36	20.12
			75	0	2	20.13	20.37	20.14

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20800	21100	21400
						2505 MHz	2535 MHz	2565 MHz
LTE Band 7	10	QPSK	1	0	0	22.56	22.68	22.46
			1	25	0	22.45	22.80	22.52
			1	49	0	22.08	22.39	22.25
			25	0	1	21.52	21.46	21.41
			25	12	1	21.57	21.59	21.45
			25	25	1	21.31	21.50	21.37
			50	0	1	21.42	21.53	21.43
		16QAM	1	0	1	21.53	21.98	21.61
			1	25	1	21.41	21.98	21.77
			1	49	1	21.08	21.83	21.37
			25	0	2	20.60	20.65	20.54
			25	12	2	20.67	20.74	20.58
			25	25	2	20.44	20.62	20.45
			50	0	2	20.56	20.68	20.51
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20775	21100	21425
						2502.5 MHz	2535 MHz	2567.5 MHz
LTE Band 7	5	QPSK	1	0	0	22.56	22.80	22.68
			1	12	0	22.60	22.78	22.49
			1	24	0	22.50	22.73	22.40
			12	0	1	21.57	21.71	21.50
			12	7	1	21.66	21.73	21.50
			12	13	1	21.51	21.68	21.46
			25	0	1	21.54	21.68	21.46
		16QAM	1	0	1	21.72	22.06	22.44
			1	12	1	21.62	22.21	22.41
			1	24	1	21.51	21.99	22.17
			12	0	2	20.65	20.87	20.55
			12	7	2	20.68	20.86	20.54
			12	13	2	20.57	20.83	20.49
			25	0	2	20.61	20.70	20.43

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23060	23095	23130
						704 MHz	707.5 MHz	711 MHz
LTE Band 12	10	QPSK	1	0	0	23.40	23.06	23.26
			1	25	0	23.24	23.21	23.19
			1	49	0	23.20	22.84	23.11
			25	0	1	22.24	21.92	21.99
			25	12	1	22.27	21.85	22.11
			25	25	1	22.18	21.79	21.96
			50	0	1	22.27	21.82	22.08
		16QAM	1	0	1	22.44	22.35	22.47
			1	25	1	22.53	22.27	22.59
			1	49	1	22.26	22.22	22.28
			25	0	2	21.29	20.94	21.12
			25	12	2	21.30	20.92	21.19
			25	25	2	21.24	20.84	21.03
			50	0	2	21.24	20.86	21.06
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23035	23095	23155
						701.5 MHz	707.5 MHz	713.5 MHz
LTE Band 12	5	QPSK	1	0	0	23.22	23.11	23.20
			1	12	0	23.34	23.02	23.15
			1	24	0	23.27	23.08	23.08
			12	0	1	22.10	21.85	22.01
			12	7	1	22.14	21.84	22.01
			12	13	1	22.10	21.89	21.98
			25	0	1	22.14	21.80	21.92
		16QAM	1	0	1	22.23	22.28	22.94
			1	12	1	22.23	22.21	22.81
			1	24	1	22.28	22.22	22.80
			12	0	2	21.09	20.90	21.03
			12	7	2	21.11	20.94	20.98
			12	13	2	21.05	20.95	20.99
			25	0	2	21.19	20.84	20.85

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23025	23095	23165
						700.5 MHz	707.5 MHz	714.5 MHz
LTE Band 12	3	QPSK	1	0	0	23.21	23.02	23.22
			1	8	0	23.56	23.09	23.39
			1	14	0	23.12	22.88	23.14
			8	0	1	22.12	21.88	21.91
			8	4	1	22.16	21.86	21.87
			8	7	1	22.04	21.95	21.94
			15	0	1	22.16	21.90	21.98
		16QAM	1	0	1	22.22	22.54	22.40
			1	8	1	22.06	22.40	22.34
			1	14	1	22.14	22.46	22.24
			8	0	2	21.26	20.77	21.11
			8	4	2	21.24	20.77	21.06
			8	7	2	21.14	20.83	21.10
			15	0	2	21.16	20.93	20.90
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23017	23095	23173
						699.7 MHz	707.5 MHz	715.3 MHz
LTE Band 12	1.4	QPSK	1	0	0	23.05	22.98	23.33
			1	3	0	23.06	22.92	23.00
			1	5	0	23.05	23.10	23.04
			3	0	0	22.84	22.81	23.15
			3	1	0	22.95	22.83	23.12
			3	3	0	23.02	22.82	23.00
			6	0	1	21.94	21.76	21.78
		16QAM	1	0	1	22.50	22.77	22.06
			1	3	1	22.71	22.58	22.20
			1	5	1	22.19	22.76	22.05
			3	0	1	22.03	22.40	22.03
			3	1	1	22.14	22.41	22.04
			3	3	1	22.20	22.40	22.12
			6	0	2	21.22	21.10	20.98

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	10	QPSK	1	0	0	23.24
			1	25	0	23.21
			1	49	0	23.29
			25	0	1	22.05
			25	12	1	22.14
			25	25	1	22.10
			50	0	1	22.07
		16QAM	1	0	1	22.43
			1	25	1	22.37
			1	49	1	22.43
			25	0	2	21.09
			25	12	2	21.21
			25	25	2	21.16
			50	0	2	21.09
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	5	QPSK	1	0	0	23.15
			1	12	0	23.26
			1	24	0	23.12
			12	0	1	22.06
			12	7	1	22.01
			12	13	1	21.95
			25	0	1	22.04
		16QAM	1	0	1	22.18
			1	12	1	22.20
			1	24	1	22.21
			12	0	2	21.07
			12	7	2	21.01
			12	13	2	20.98
			25	0	2	21.15

9. PEAK TO AVERAGE RATIO

Test Procedure

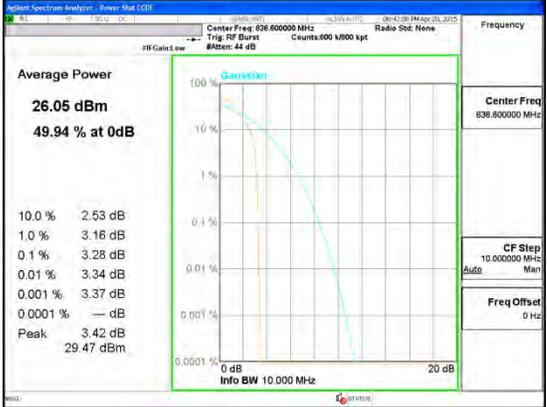
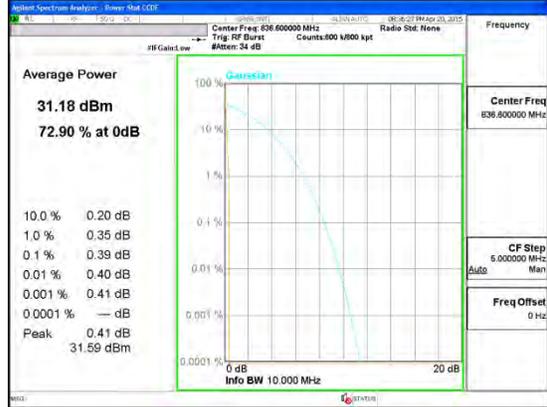
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

Test Spec

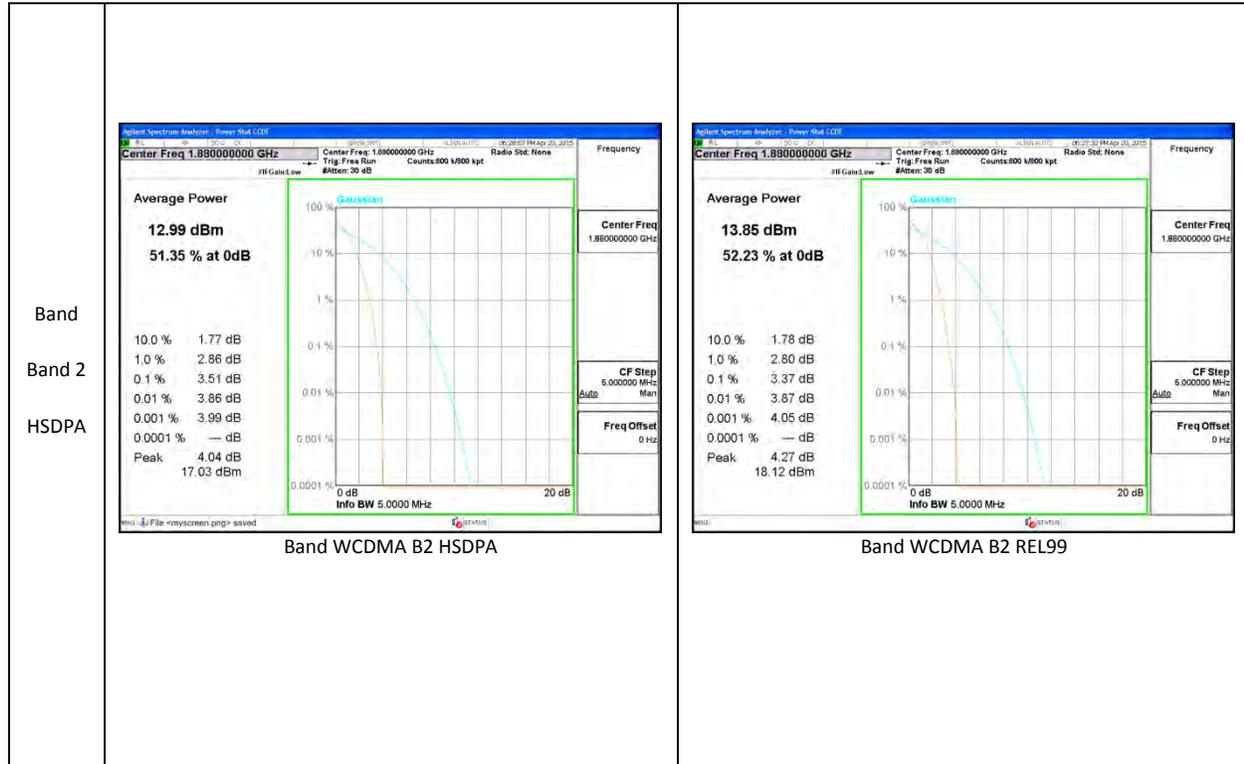
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

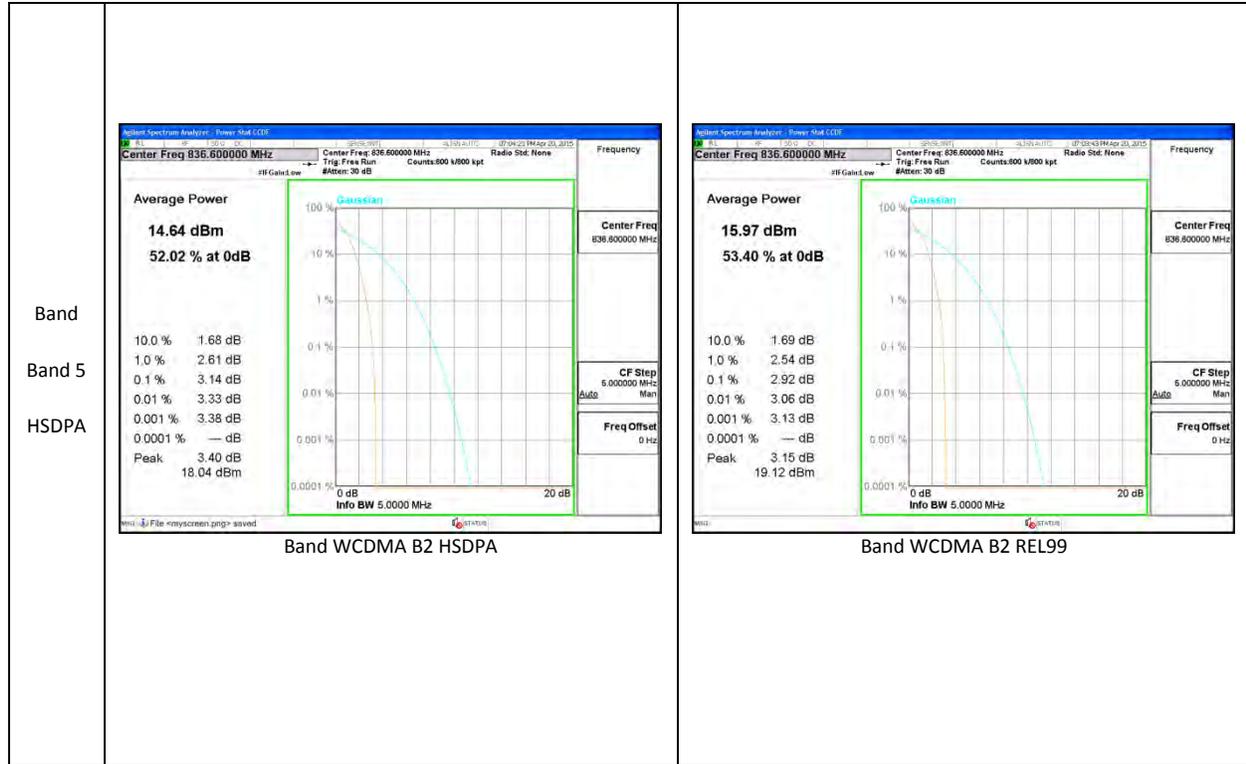
9.1. CONDUCTED PEAK TO AVERAGE RESULT

GSM

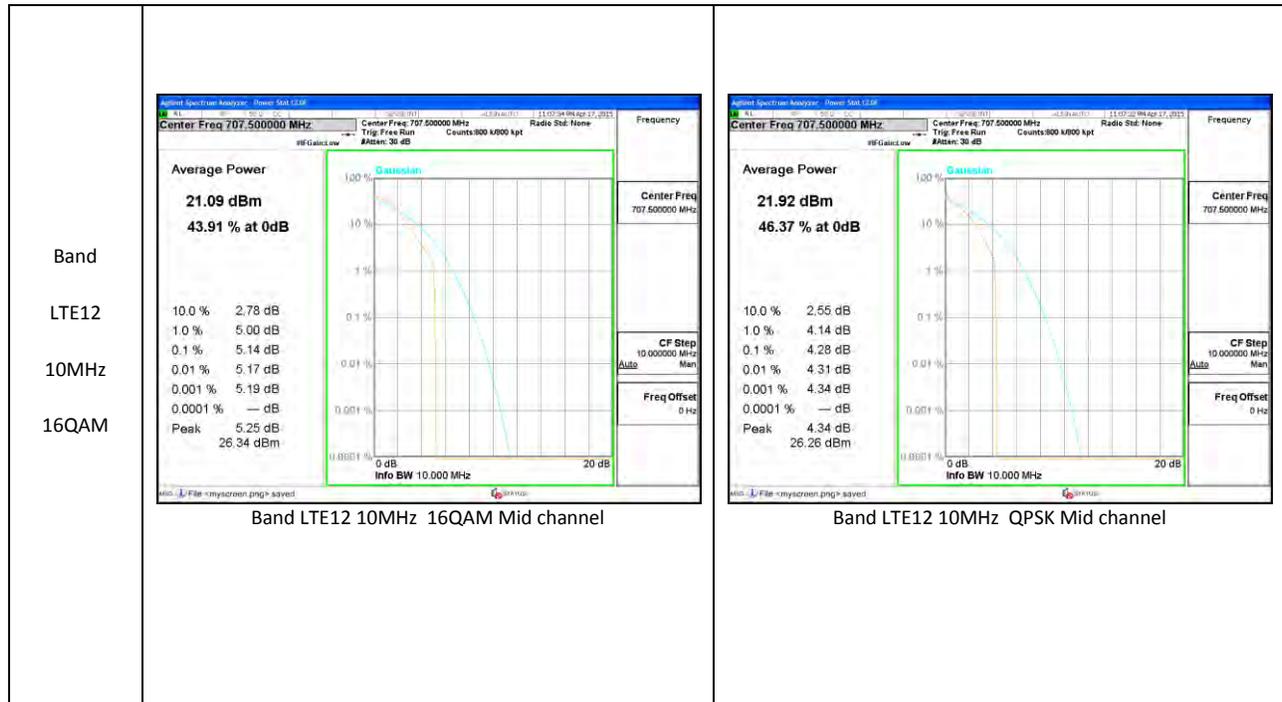
<p>Band GSM 1900</p>	 <p>Average Power 26.45 dBm 51.93 % at 0dB</p> <table border="1"> <tr><td>10.0 %</td><td>2.36 dB</td></tr> <tr><td>1.0 %</td><td>2.69 dB</td></tr> <tr><td>0.1 %</td><td>2.77 dB</td></tr> <tr><td>0.01 %</td><td>2.82 dB</td></tr> <tr><td>0.001 %</td><td>2.84 dB</td></tr> <tr><td>0.0001 %</td><td>— dB</td></tr> <tr><td>Peak</td><td>2.98 dB</td></tr> <tr><td></td><td>29.43 dBm</td></tr> </table> <p>Center Freq: 1.88000000 GHz Info BW: 10.0000 MHz</p>	10.0 %	2.36 dB	1.0 %	2.69 dB	0.1 %	2.77 dB	0.01 %	2.82 dB	0.001 %	2.84 dB	0.0001 %	— dB	Peak	2.98 dB		29.43 dBm	 <p>Average Power 28.93 dBm 87.78 % at 0dB</p> <table border="1"> <tr><td>10.0 %</td><td>0.18 dB</td></tr> <tr><td>1.0 %</td><td>0.24 dB</td></tr> <tr><td>0.1 %</td><td>0.26 dB</td></tr> <tr><td>0.01 %</td><td>0.27 dB</td></tr> <tr><td>0.001 %</td><td>0.27 dB</td></tr> <tr><td>0.0001 %</td><td>— dB</td></tr> <tr><td>Peak</td><td>0.27 dB</td></tr> <tr><td></td><td>29.20 dBm</td></tr> </table> <p>Center Freq: 1.88000000 GHz Info BW: 10.0000 MHz</p>	10.0 %	0.18 dB	1.0 %	0.24 dB	0.1 %	0.26 dB	0.01 %	0.27 dB	0.001 %	0.27 dB	0.0001 %	— dB	Peak	0.27 dB		29.20 dBm
10.0 %	2.36 dB																																	
1.0 %	2.69 dB																																	
0.1 %	2.77 dB																																	
0.01 %	2.82 dB																																	
0.001 %	2.84 dB																																	
0.0001 %	— dB																																	
Peak	2.98 dB																																	
	29.43 dBm																																	
10.0 %	0.18 dB																																	
1.0 %	0.24 dB																																	
0.1 %	0.26 dB																																	
0.01 %	0.27 dB																																	
0.001 %	0.27 dB																																	
0.0001 %	— dB																																	
Peak	0.27 dB																																	
	29.20 dBm																																	
<p>Band GSM 850</p>	 <p>Average Power 26.05 dBm 49.94 % at 0dB</p> <table border="1"> <tr><td>10.0 %</td><td>2.53 dB</td></tr> <tr><td>1.0 %</td><td>3.16 dB</td></tr> <tr><td>0.1 %</td><td>3.28 dB</td></tr> <tr><td>0.01 %</td><td>3.34 dB</td></tr> <tr><td>0.001 %</td><td>3.37 dB</td></tr> <tr><td>0.0001 %</td><td>— dB</td></tr> <tr><td>Peak</td><td>3.42 dB</td></tr> <tr><td></td><td>29.47 dBm</td></tr> </table> <p>Center Freq: 836.800000 MHz Info BW: 10.0000 MHz</p>	10.0 %	2.53 dB	1.0 %	3.16 dB	0.1 %	3.28 dB	0.01 %	3.34 dB	0.001 %	3.37 dB	0.0001 %	— dB	Peak	3.42 dB		29.47 dBm	 <p>Average Power 31.18 dBm 72.90 % at 0dB</p> <table border="1"> <tr><td>10.0 %</td><td>0.20 dB</td></tr> <tr><td>1.0 %</td><td>0.35 dB</td></tr> <tr><td>0.1 %</td><td>0.39 dB</td></tr> <tr><td>0.01 %</td><td>0.40 dB</td></tr> <tr><td>0.001 %</td><td>0.41 dB</td></tr> <tr><td>0.0001 %</td><td>— dB</td></tr> <tr><td>Peak</td><td>0.41 dB</td></tr> <tr><td></td><td>31.59 dBm</td></tr> </table> <p>Center Freq: 836.800000 MHz Info BW: 10.0000 MHz</p>	10.0 %	0.20 dB	1.0 %	0.35 dB	0.1 %	0.39 dB	0.01 %	0.40 dB	0.001 %	0.41 dB	0.0001 %	— dB	Peak	0.41 dB		31.59 dBm
10.0 %	2.53 dB																																	
1.0 %	3.16 dB																																	
0.1 %	3.28 dB																																	
0.01 %	3.34 dB																																	
0.001 %	3.37 dB																																	
0.0001 %	— dB																																	
Peak	3.42 dB																																	
	29.47 dBm																																	
10.0 %	0.20 dB																																	
1.0 %	0.35 dB																																	
0.1 %	0.39 dB																																	
0.01 %	0.40 dB																																	
0.001 %	0.41 dB																																	
0.0001 %	— dB																																	
Peak	0.41 dB																																	
	31.59 dBm																																	

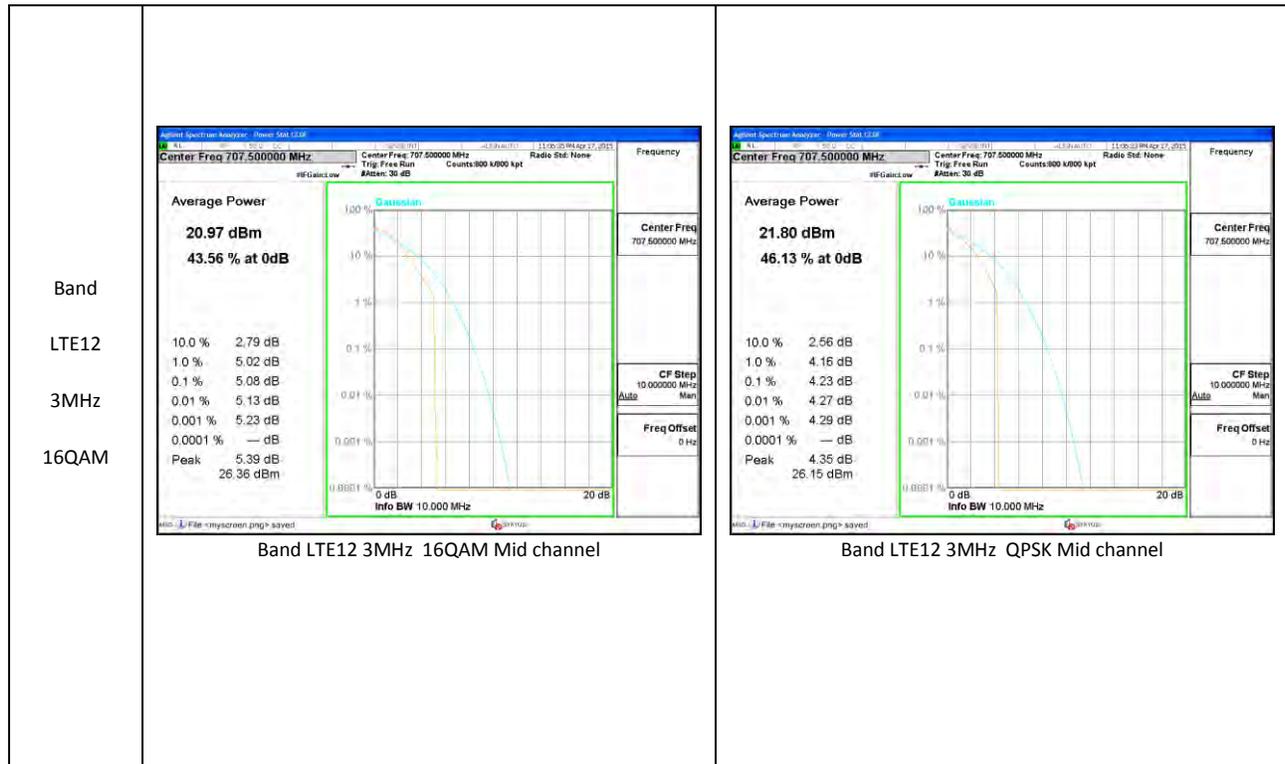
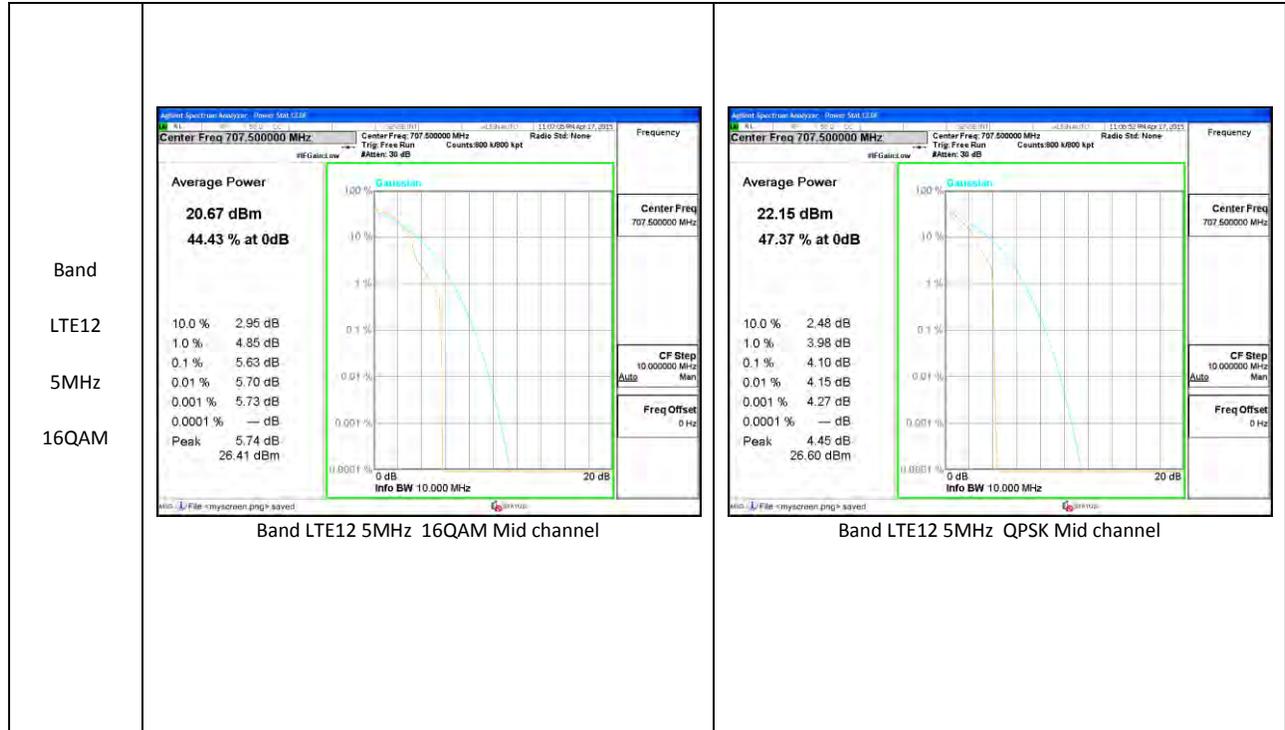
WCDMA





LTE BAND 12

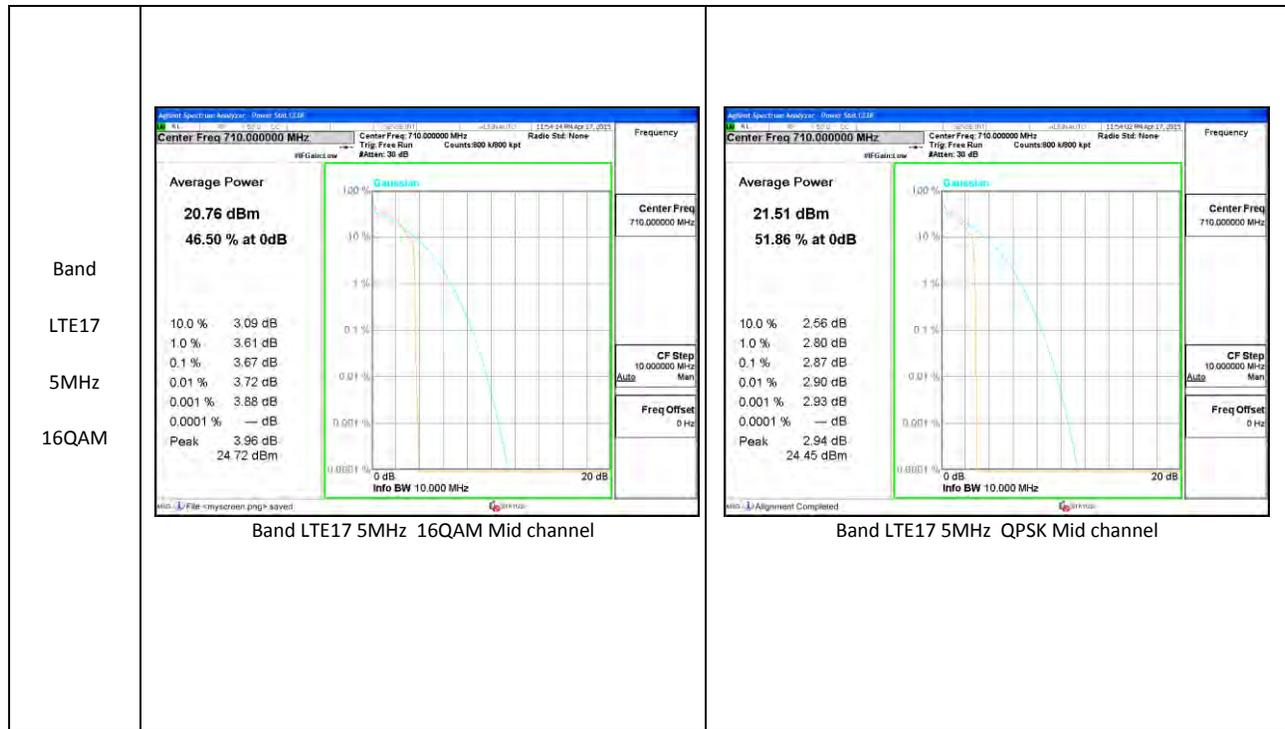




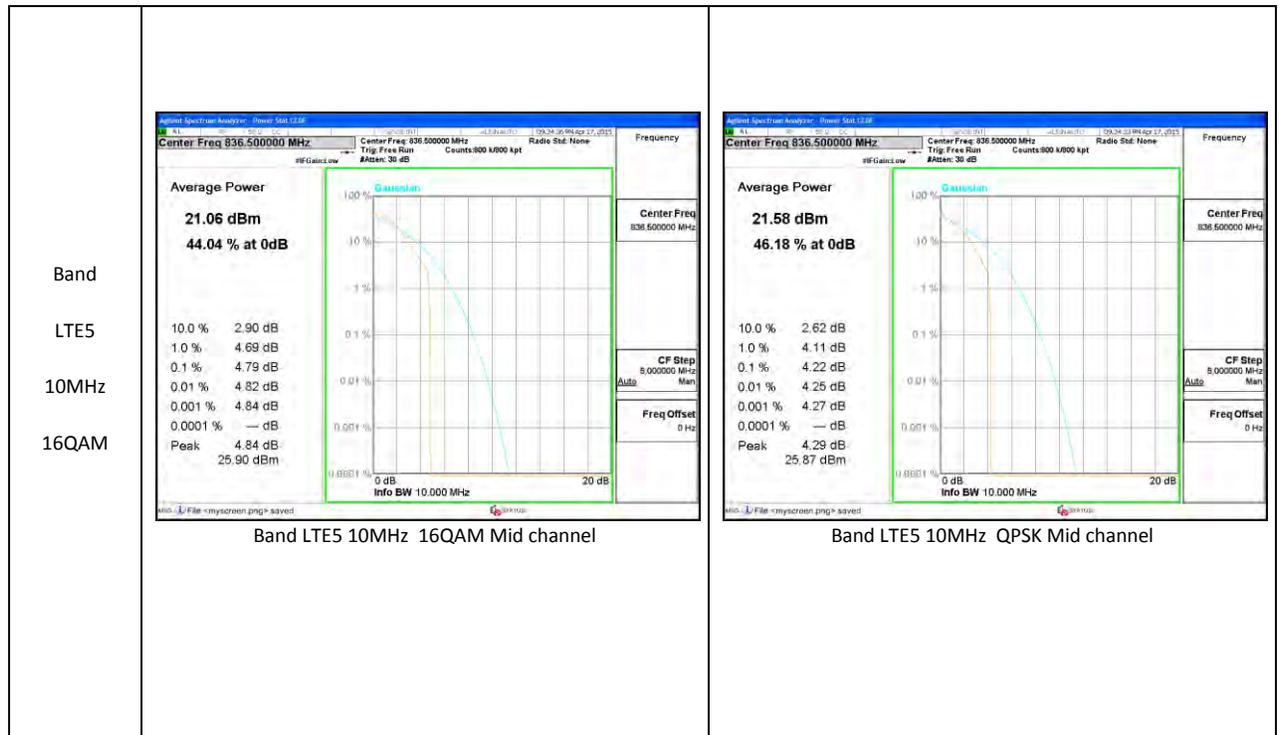
<p>Band</p> <p>LTE12</p> <p>1.4MHz</p> <p>16QAM</p>	 <p>Band LTE12 1.4MHz 16QAM Mid channel</p>	 <p>Band LTE12 1.4MHz QPSK Mid channel</p>
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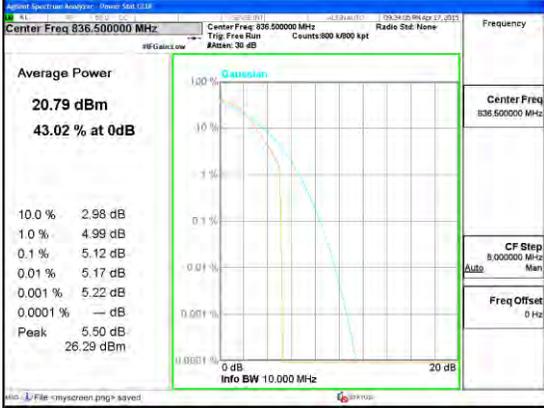
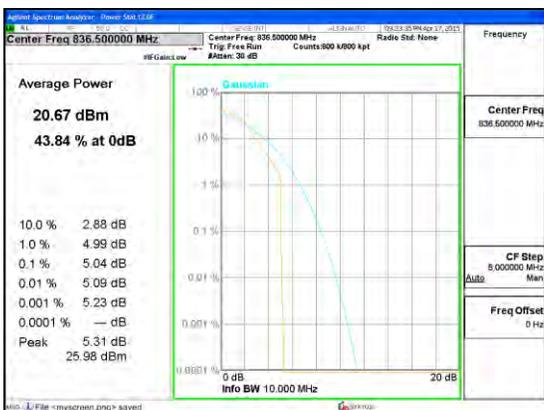
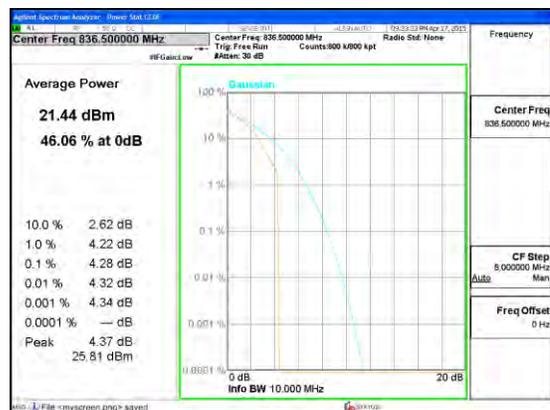
LTE BAND 17

<p>Band</p> <p>LTE17</p> <p>10MHz</p> <p>16QAM</p>	 <p>Band LTE17 10MHz 16QAM Mid channel</p>	 <p>Band LTE17 10MHz QPSK Mid channel</p>
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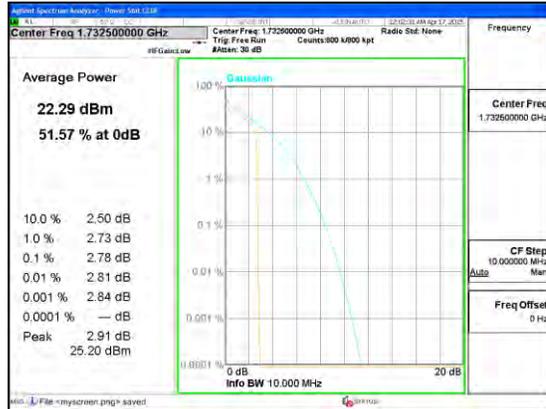
LTE BAND 5

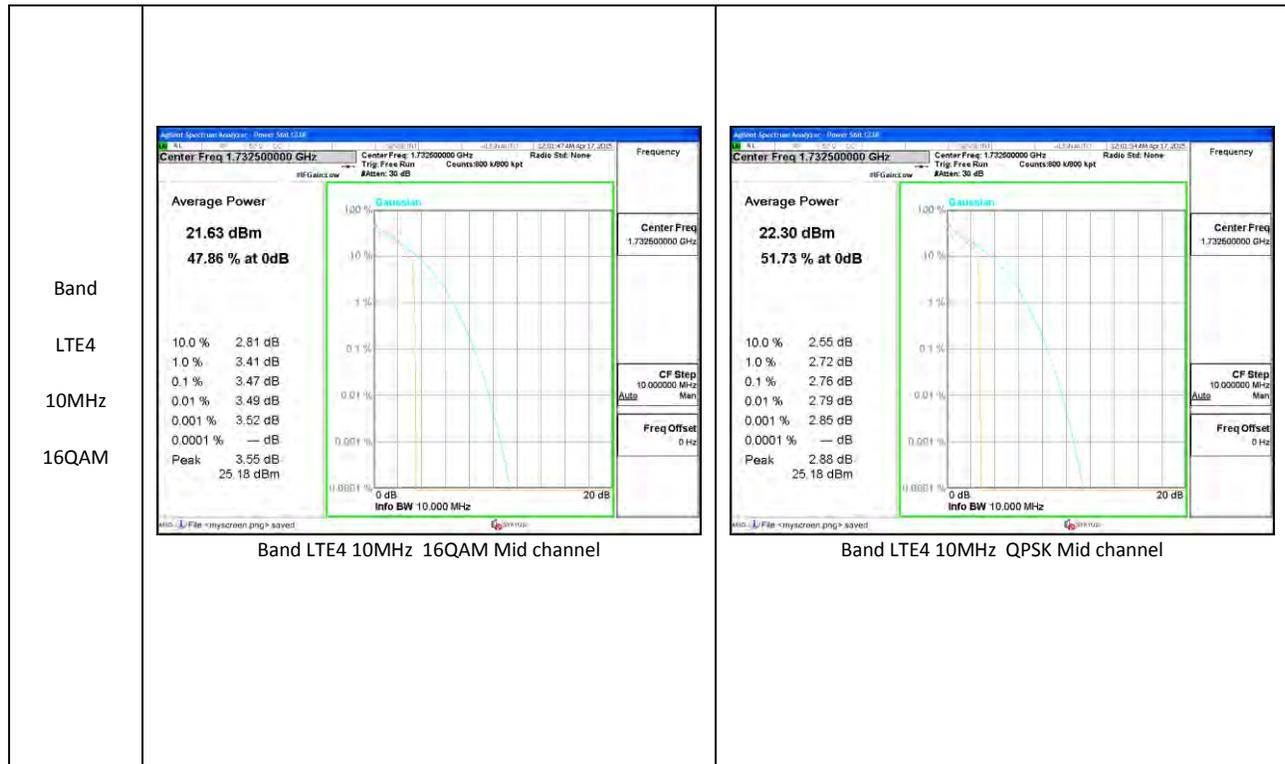
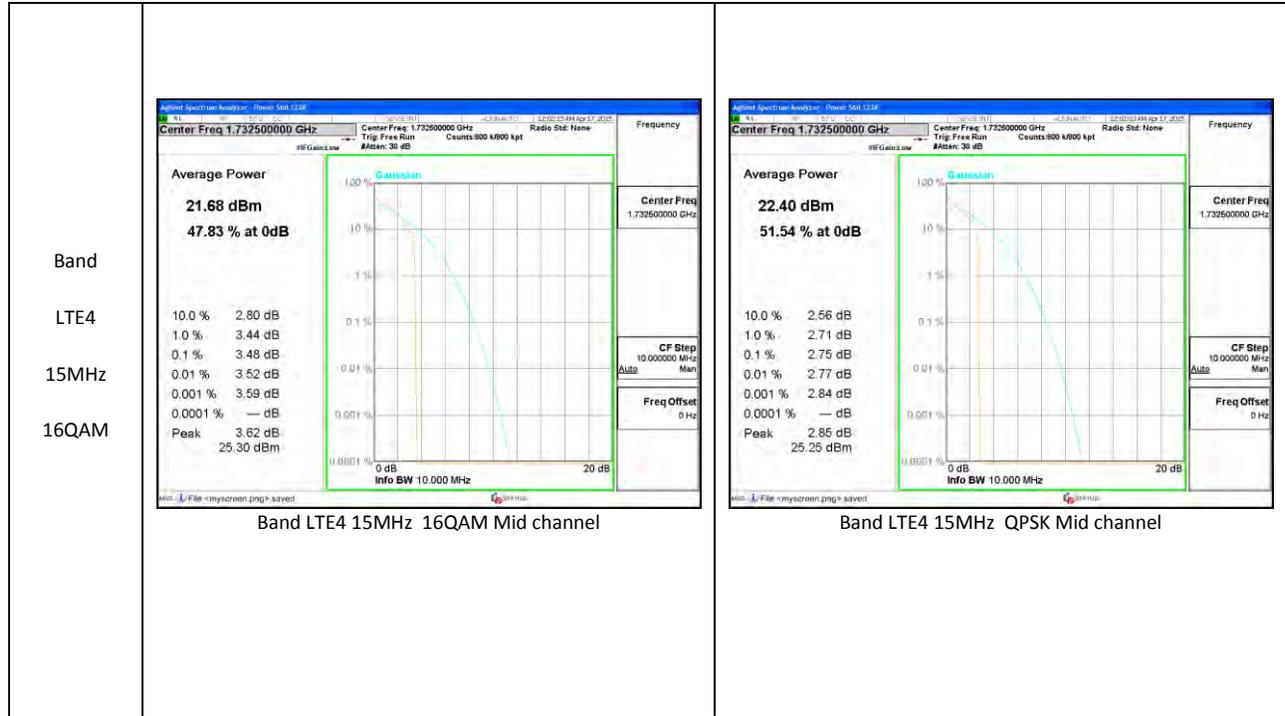


<p>Band</p> <p>LTE5</p> <p>5MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE5 5MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE5 5MHz QPSK Mid channel</p>
<p>Band</p> <p>LTE5</p> <p>3MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE5 3MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE5 3MHz QPSK Mid channel</p>

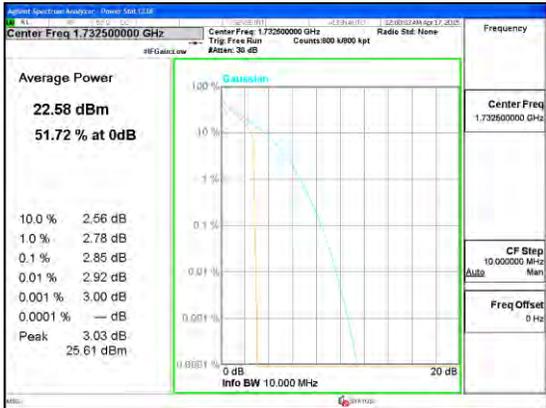
<p>Band</p> <p>LTE5</p> <p>1.4MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE5 1.4MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE5 1.4MHz QPSK Mid channel</p>
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LTE BAND 4

<p>Band</p> <p>LTE4</p> <p>20MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE4 20MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE4 20MHz QPSK Mid channel</p>
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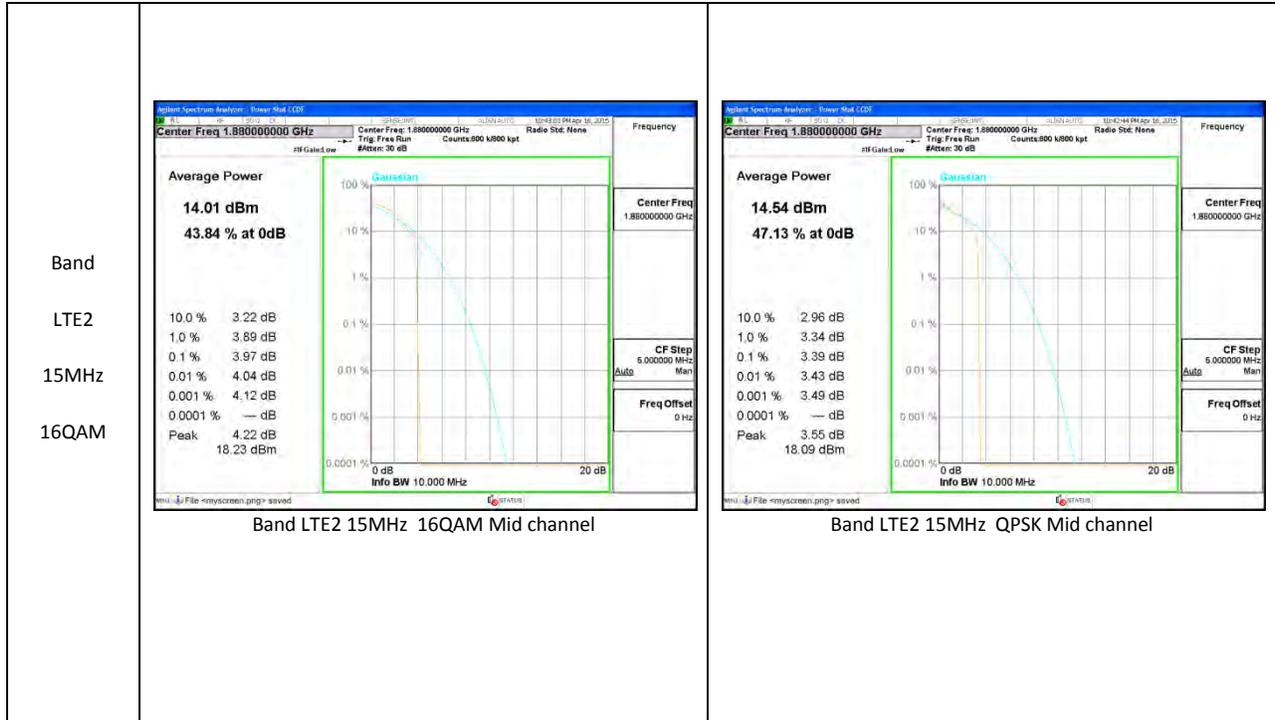


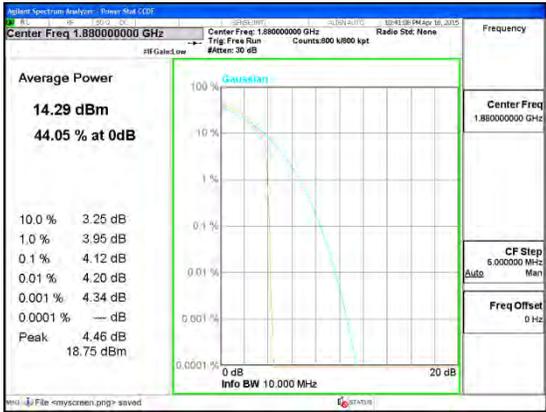
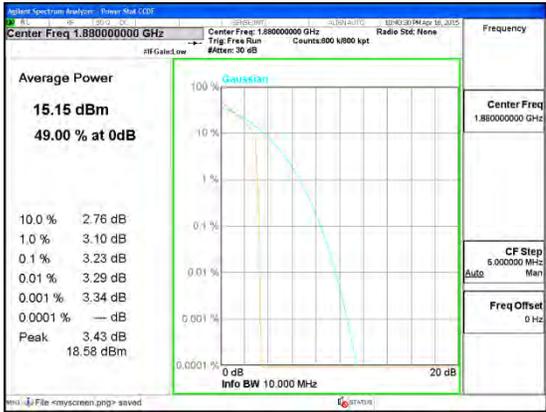
<p>Band</p> <p>LTE4</p> <p>5MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE4 5MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE4 5MHz QPSK Mid channel</p>
<p>Band</p> <p>LTE4</p> <p>3MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE4 3MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE4 3MHz QPSK Mid channel</p>

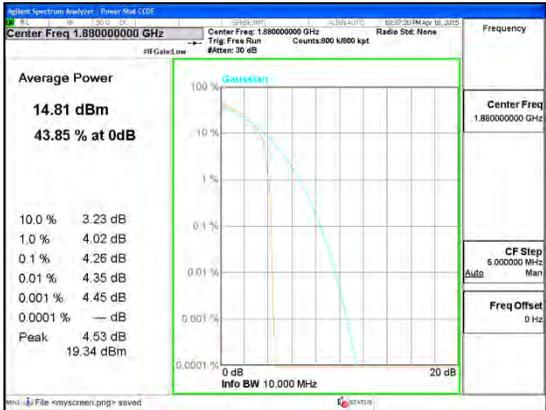
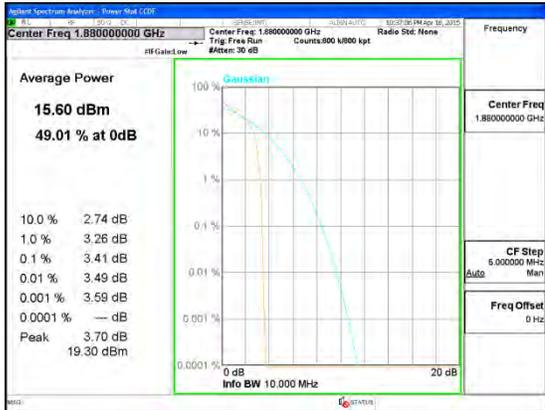
Band	 <p>Average Power 21.82 dBm 46.59 % at 0dB</p> <p>10.0 % 2.85 dB 1.0 % 3.55 dB 0.1 % 3.62 dB 0.01 % 3.69 dB 0.001 % 3.74 dB 0.0001 % — dB Peak 3.77 dBm 25.59 dBm</p> <p>Center Freq: 1.732500000 GHz Info BW: 10.000 MHz</p>	 <p>Average Power 22.58 dBm 51.72 % at 0dB</p> <p>10.0 % 2.56 dB 1.0 % 2.78 dB 0.1 % 2.85 dB 0.01 % 2.92 dB 0.001 % 3.00 dB 0.0001 % — dB Peak 3.03 dBm 25.61 dBm</p> <p>Center Freq: 1.732500000 GHz Info BW: 10.000 MHz</p>
	LTE4 1.4MHz 16QAM	Band LTE4 1.4MHz 16QAM Mid channel

LTE BAND 2

Band	 <p>Average Power 13.77 dBm 43.50 % at 0dB</p> <p>10.0 % 3.11 dB 1.0 % 4.14 dB 0.1 % 4.21 dB 0.01 % 4.26 dB 0.001 % 4.37 dB 0.0001 % — dB Peak 4.46 dBm 18.23 dBm</p> <p>Center Freq: 1.880000000 GHz Info BW: 10.000 MHz</p>	 <p>Average Power 14.52 dBm 46.98 % at 0dB</p> <p>10.0 % 2.98 dB 1.0 % 3.36 dB 0.1 % 3.41 dB 0.01 % 3.46 dB 0.001 % 3.58 dB 0.0001 % — dB Peak 3.65 dBm 18.17 dBm</p> <p>Center Freq: 1.880000000 GHz Info BW: 10.000 MHz</p>
	LTE2 20MHz 16QAM	Band LTE2 20MHz 16QAM Mid channel

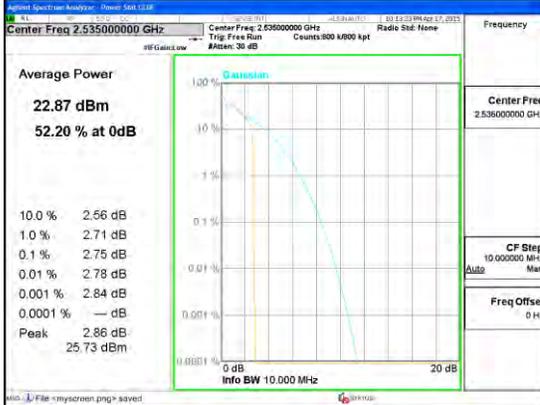
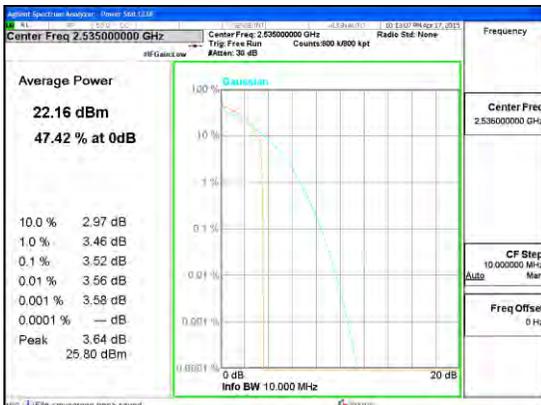


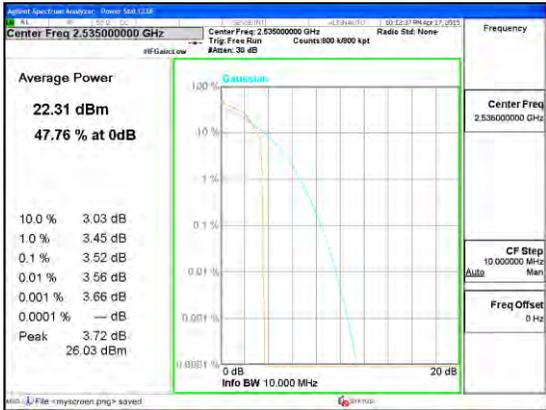
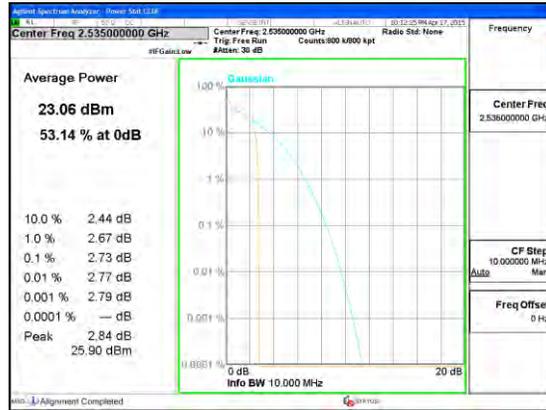
<p>Band LTE2 5MHz 16QAM</p>	 <p style="text-align: center;">Band LTE2 5MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE2 5MHz QPSK Mid channel</p>
<p>Band LTE2 3MHz 16QAM</p>	 <p style="text-align: center;">Band LTE2 3MHz 16QAM Mid channel</p>	<p style="text-align: center;">B</p>  <p style="text-align: center;">and LTE2 3MHz QPSK Mid channel</p>

<p>Band</p> <p>LTE2</p> <p>1.4MHz</p> <p>16QAM</p>	 <p>Band LTE2 1.4MHz 16QAM Mid channel</p>	 <p>Band LTE2 1.4MHz QPSK Mid channel</p>
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LTE BAND 7

<p>Band</p> <p>LTE7</p> <p>20MHz</p> <p>16QAM</p>	 <p>Band LTE7 20MHz 16QAM Mid channel</p>	 <p>Band LTE7 20MHz QPSK Mid channel</p>
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<p>Band</p> <p>LTE7</p> <p>15MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE7 15MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE7 15MHz QPSK Mid channel</p>
<p>Band</p> <p>LTE7</p> <p>10MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE7 10MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE7 10MHz QPSK Mid channel</p>

<p>Band</p> <p>LTE7</p> <p>5MHz</p> <p>16QAM</p>	 <p style="text-align: center;">Band LTE7 5MHz 16QAM Mid channel</p>	 <p style="text-align: center;">Band LTE7 5MHz QPSK Mid channel</p>
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10. LIMITS AND CONDUCTED RESULTS

10.1. 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)

MODES TESTED

GSM, WCDMA and LTE

10.1.1. OCCUPIED BANDWIDTH RESULTS

GSM

Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM 850	GPRS	128	824.2	242.74	312.5
		190	836.6	244.76	316.0
		251	848.8	246.44	310.8
	EGPRS	128	824.2	254.11	316.8
		190	836.6	245.53	326.2
		251	848.8	244.88	310.2
GSM 1900	GPRS	512	1850.2	245.10	320.2
		661	1880	244.97	319.7
		810	1909.8	245.26	317.7
	EGPRS	512	1850.2	241.83	310.6
		661	1880	242.66	308.7
		810	1909.8	238.98	305.9

WCDAM

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
Band 5	REL99	4132	826.4	4.147	4.667
		4183	836.6	4.146	4.706
		4233	846.6	4.112	4.652
	HSDPA	4132	826.4	4.140	4.679
		4183	836.6	4.125	4.648
		4233	846.6	4.167	4.732
Band 2	REL99	9262	1852.4	4.125	4.686
		9400	1880	4.146	4.676
		9538	1907.6	4.159	4.679
	HSDPA	9262	1852.4	4.141	4.677
		9400	1880	4.140	4.682
		9538	1907.6	4.135	4.658

LTE Band 12

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE12	10	QPSK	50/0	704	9.026	14.28
			50/0	707.5	8.999	13.55
			50/0	711	9.053	13.30
		16QAM	50/0	704	9.008	13.98
			50/0	707.5	8.977	12.68
			50/0	711	9.058	13.24
	5	QPSK	25/0	701.5	4.519	5.734
			25/0	707.5	4.503	5.677
			25/0	713.5	4.504	5.692
		16QAM	25/0	701.5	4.520	5.721
			25/0	707.5	4.512	6.777
			25/0	713.5	4.516	6.089
	3	QPSK	15/0	700.5	2.699	2.99
			15/0	707.5	2.702	3.015
			15/0	714.5	2.704	2.997
		16QAM	15/0	700.5	2.700	3.028
			15/0	707.5	2.699	3.034
			15/0	714.5	2.696	3.025
	1.4	QPSK	6/0	699.7	1.087	1.239
			6/0	707.5	1.081	1.240
			6/0	715.3	1.087	1.231
		16QAM	6/0	699.7	1.087	1.245
			6/0	707.5	1.089	1.244
			6/0	715.3	1.0954	1.238

LTE Band 17

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW
LTE17	10	QPSK	50/0	709	9.010	12.96
			50/0	710	9.076	13.83
			50/0	711	9.073	13.09
		16QAM	50/0	709	9.015	13.40
			50/0	710	9.034	12.22
			50/0	711	9.087	13.56
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW
LTE17	5	QPSK	25/0	706.5	4.503	6.810
			25/0	710	4.529	6.396
			25/0	713.5	4.518	5.769
		16QAM	25/0	706.5	4.504	6.294
			25/0	710	4.526	6.716
			25/0	713.5	4.518	5.692

LTE Band 5

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	10	QPSK	50/0	829	9.027	10.33
			50/0	836.5	8.970	9.750
			50/0	844	8.988	10.02
		16QAM	50/0	829	9.024	10.38
			50/0	836.5	8.931	9.756
			50/0	844	9.036	9.851
	5	QPSK	25/0	826.5	4.502	4.966
			25/0	836.5	7.795	4.960
			25/0	846.5	4.488	4.952
		16QAM	25/0	826.5	4.508	4.952
			25/0	836.5	4.496	4.949
			25/0	846.5	4.508	4.977
	3	QPSK	15/0	825.5	2.696	3.001
			15/0	836.5	2.695	3.014
			15/0	847.5	2.700	3.001
		16QAM	15/0	825.5	2.669	3.060
			15/0	836.5	2.693	2.993
			15/0	847.5	2.693	3.012
	1.4	QPSK	6/0	824.7	1.086	1.241
			6/0	836.5	1.079	1.228
			6/0	848.3	1.0854	1.235
		16QAM	6/0	824.7	1.083	1.234
			6/0	836.5	1.087	1.236
			6/0	848.3	1.093	1.237

LTE Band 4

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	20	QPSK	100/0	1720	17.988	21.55
			100/0	1732.5	18.064	24.38
			100/0	1745	17.906	24.30
		16QAM	100/0	1720	17.973	19.34
			100/0	1732.5	18.025	24.66
			100/0	1745	17.911	22.19
	15	QPSK	75/0	1717.5	13.472	14.73
			75/0	1732.5	13.429	14.64
			75/0	1747.5	13.492	14.85
		16QAM	75/0	1717.5	13.484	14.89
			75/0	1732.5	13.418	14.62
			75/0	1747.5	13.476	14.63
	10	QPSK	50/0	1715	8.992	9.843
			50/0	1732.5	8.994	9.730
			50/0	1750	8.979	9.988
		16QAM	50/0	1715	8.992	11.70
			50/0	1732.5	8.962	9.693
			50/0	1750	9.014	11.05
	5	QPSK	25/0	1712.5	4.489	4.915
			25/0	1732.5	4.495	4.964
			25/0	1752.5	4.491	4.940
16QAM		25/0	1712.5	4.499	4.990	
		25/0	1732.5	4.505	4.974	
		25/0	1752.5	4.506	4.995	

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	3	QPSK	15/0	1711.5	2.697	3.001
			15/0	1732.5	2.695	3.039
			15/0	1753.5	2.702	3.029
		16QAM	15/0	1711.5	2.702	3.026
			15/0	1732.5	2.695	3.017
			15/0	1753.5	2.692	3.014
	1.4	QPSK	6/0	1710.7	1.086	1.252
			6/0	1732.5	1.083	1.244
			6/0	1754.3	1.090	1.253
		16QAM	6/0	1710.7	1.085	1.239
			6/0	1732.5	1.088	1.264
			6/0	1754.3	1.091	1.240

LTE Band 2

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	20	QPSK	100/0	1860	17.896	19.28
			100/0	1880	17.954	19.37
			100/0	1900	17.907	19.53
		16QAM	100/0	1860	17.904	19.44
			100/0	1880	17.941	19.58
			100/0	1900	17.923	19.48
	15	QPSK	75/0	1857.5	13.437	14.62
			75/0	1880	13.460	14.78
			75/0	1902.5	13.469	14.60
		16QAM	75/0	1857.5	13.452	14.66
			75/0	1880	13.446	14.69
			75/0	1902.5	13.444	14.70
	10	QPSK	50/0	1855	8.965	9.790
			50/0	1880	9.004	10.31
			50/0	1905	8.984	9.931
		16QAM	50/0	1855	8.982	9.772
			50/0	1880	8.978	9.756
			50/0	1905	9.010	10.64
	5	QPSK	25/0	1852.5	4.498	4.910
			25/0	1880	4.501	4.972
			25/0	1907.5	4.492	4.938
		16QAM	25/0	1852.5	4.499	4.946
			25/0	1880	4.506	4.953
			25/0	1907.5	4.499	4.953

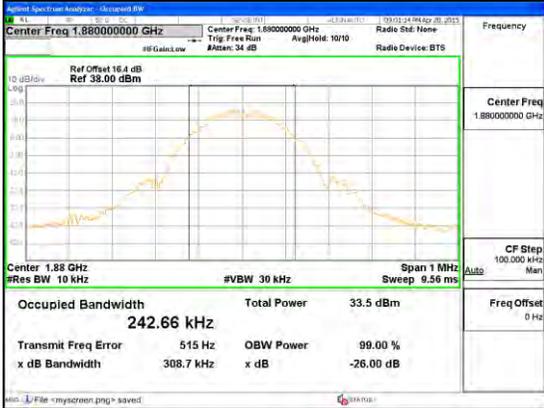
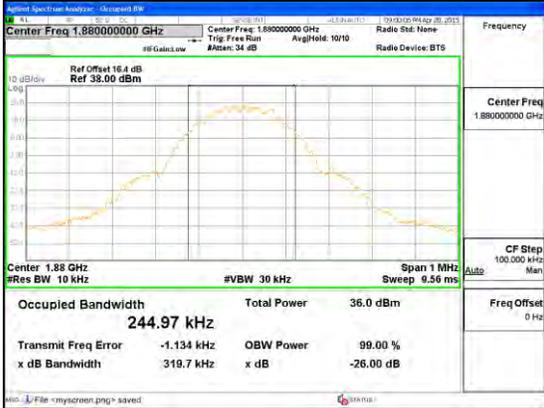
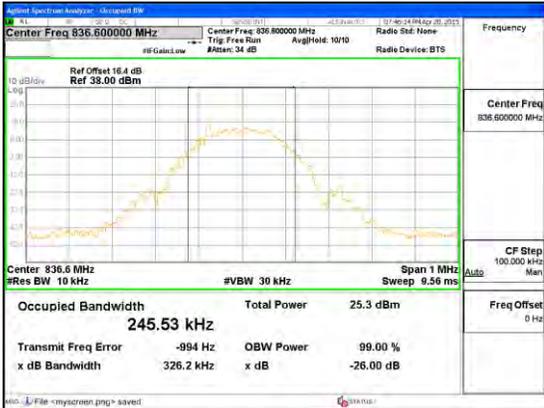
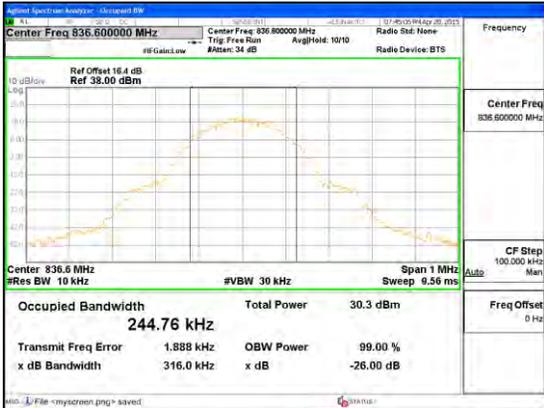
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	3	QPSK	15/0	1851.5	2.696	2.991
			15/0	1880	2.700	2.982
			15/0	1908.5	2.695	2.993
		16QAM	15/0	1851.5	2.704	3.002
			15/0	1880	2.697	2.997
			15/0	1908.5	2.695	3.022
	1.4	QPSK	6/0	1850.7	1.088	1.229
			6/0	1880	1.082	1.242
			6/0	1909.3	1.085	1.233
		16QAM	6/0	1850.7	1.086	1.230
			6/0	1880	1.088	1.245
			6/0	1909.3	1.094	1.239

LTE Band 7

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW
LTE7	20	QPSK	100/0	2510	17.919	19.42
			100/0	2535	17.926	19.30
			100/0	2560	17.872	19.59
		16QAM	100/0	2510	17.874	19.39
			100/0	2535	17.907	19.40
			100/0	2560	17.886	19.36
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW
LTE7	15	QPSK	75/0	2507.5	13.461	14.73
			75/0	2535	13.443	14.71
			75/0	2562.5	13.447	14.59
		16QAM	75/0	2507.5	13.44	14.62
			75/0	2535	13.448	14.74
			75/0	2562.5	13.441	14.72
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW
LTE7	10	QPSK	50/0	2505	8.978	9.715
			50/0	2535	8.979	9.796
			50/0	2565	8.951	9.805
		16QAM	50/0	2505	8.972	9.792
			50/0	2535	8.954	9.774
			50/0	2565	8.982	9.836
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW
LTE7	5	QPSK	25/0	2502.5	4.492	4.888
			25/0	2535	4.483	4.916
			25/0	2567.5	4.489	4.911
		16QAM	25/0	2502.5	4.501	4.928
			25/0	2535	4.4993	4.985
			25/0	2567.5	4.499	4.956

10.1.1. OCCUPIED BANDWIDTH PLOTS

GSM

<p>Band GSM 1900 EGPRS</p>	 <p style="text-align: center;">Band GSM1900 EGPRS OBW Mid channel</p>	 <p style="text-align: center;">Band GSM1900 GPRS OBW Mid channel</p>
<p>Band GSM 850 EGPRS</p>	 <p style="text-align: center;">Band GSM850 EGPRS OBW Mid channel</p>	 <p style="text-align: center;">Band GSM850 GPRS OBW Mid channel</p>

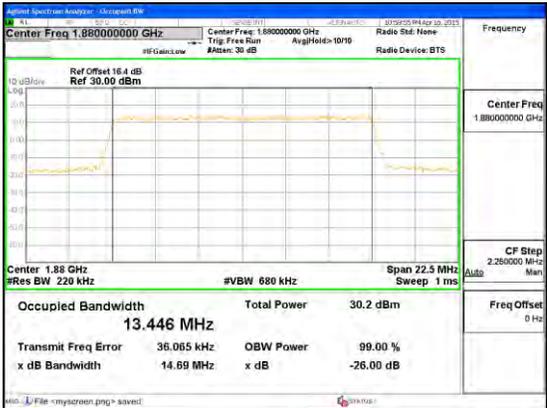
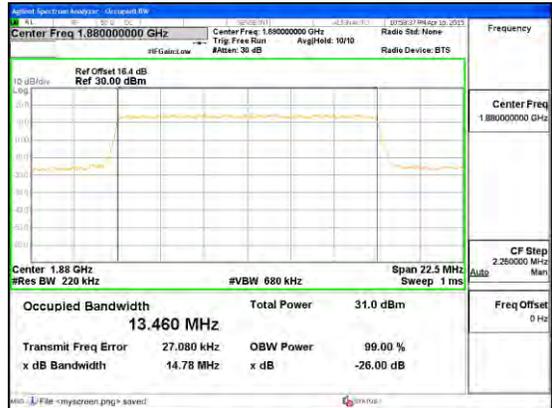
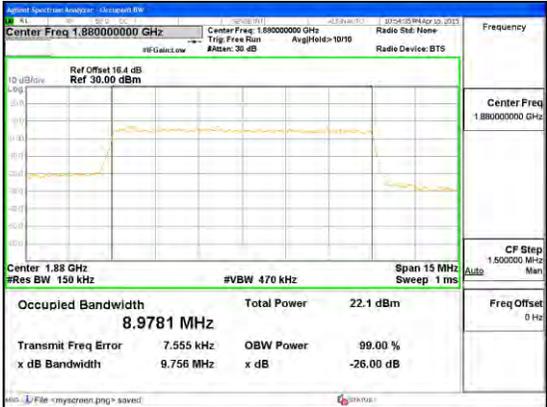
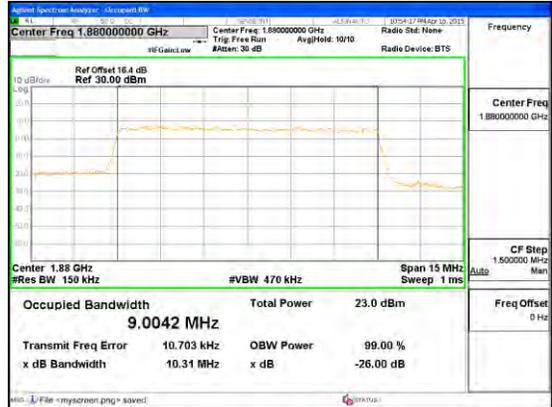
WCDMA

Band		
Band 2		
HSDPA	<p>Band WCDMA B2 HSDPA OBW</p>	<p>Band WCDMA B2 REL99 OBW</p>



LTE Band 2



<p>Band LTE2 15MHz 16QAM</p>	 <p>Band LTE2 15MHz OBW 16QAM Mid Channel FRB.gif</p>	 <p>Band LTE2 15MHz OBW QPSK Mid Channel FRB.gif</p>
<p>Band LTE2 10MHz 16QAM</p>	 <p>Band LTE2 10MHz OBW 16QAM Mid Channel FRB.gif</p>	 <p>Band LTE2 10MHz OBW QPSK Mid Channel FRB.gif</p>

<p>Band LTE4 15MHz 16QAM</p>	<p>Center Freq 1.732500000 GHz</p> <p>Ref Offset 16.4 dB Ref 30.00 dBm</p> <p>Center Freq 1.733 GHz</p> <p>#Res BW 220 kHz #VBW 680 kHz Span 22.5 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 13.418 MHz Total Power 29.1 dBm</p> <p>Transmit Freq Error -471 Hz OBW Power 99.00 %</p> <p>x dB Bandwidth 14.62 MHz x dB -26.00 dB</p>	<p>Center Freq 1.732500000 GHz</p> <p>Ref Offset 16.4 dB Ref 30.00 dBm</p> <p>Center Freq 1.733 GHz</p> <p>#Res BW 220 kHz #VBW 680 kHz Span 22.5 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 13.429 MHz Total Power 30.1 dBm</p> <p>Transmit Freq Error -15.028 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 14.64 MHz x dB -26.00 dB</p>
<p>Band LTE4 10MHz 16QAM</p>	<p>Center Freq 1.732500000 GHz</p> <p>Ref Offset 16.4 dB Ref 30.00 dBm</p> <p>Center Freq 1.733 GHz</p> <p>#Res BW 150 kHz #VBW 470 kHz Span 15 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 8.9623 MHz Total Power 21.5 dBm</p> <p>Transmit Freq Error 25.768 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 9.693 MHz x dB -26.00 dB</p>	<p>Center Freq 1.732500000 GHz</p> <p>Ref Offset 16.4 dB Ref 30.00 dBm</p> <p>Center Freq 1.733 GHz</p> <p>#Res BW 150 kHz #VBW 470 kHz Span 15 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 8.9941 MHz Total Power 22.3 dBm</p> <p>Transmit Freq Error 27.258 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 9.730 MHz x dB -26.00 dB</p>

<p>Band LTE4 5MHz 16QAM</p>	<p>Center Freq 1.73250000 GHz</p> <p>Ref Offset 16.4 dB Ref 30.00 dBm</p> <p>Center 1.733 GHz Res BW 75 kHz #VBW 220 kHz Span 7.5 MHz Sweep 3.76 ms</p> <p>Occupied Bandwidth 4.5054 MHz Total Power 21.2 dBm</p> <p>Transmit Freq Error 4.704 kHz OBW Power 99.00 % x dB Bandwidth 4.974 MHz x dB -26.00 dB</p>	<p>Center Freq 1.73250000 GHz</p> <p>Ref Offset 16.4 dB Ref 30.00 dBm</p> <p>Center 1.733 GHz Res BW 75 kHz #VBW 220 kHz Span 7.5 MHz Sweep 3.76 ms</p> <p>Occupied Bandwidth 4.4953 MHz Total Power 22.2 dBm</p> <p>Transmit Freq Error 7.589 kHz OBW Power 99.00 % x dB Bandwidth 4.964 MHz x dB -26.00 dB</p>
<p>Band LTE4 3MHz 16QAM</p>	<p>Center Freq 1.73250000 GHz</p> <p>Ref Offset 16.4 dB Ref 30.00 dBm</p> <p>Center 1.733 GHz Res BW 47 kHz #VBW 130 kHz Span 4.5 MHz Sweep 2.28 ms</p> <p>Occupied Bandwidth 2.6951 MHz Total Power 29.7 dBm</p> <p>Transmit Freq Error 2.210 kHz OBW Power 99.00 % x dB Bandwidth 3.017 MHz x dB -26.00 dB</p>	<p>Center Freq 1.73250000 GHz</p> <p>Ref Offset 16.4 dB Ref 30.00 dBm</p> <p>Center 1.733 GHz Res BW 47 kHz #VBW 130 kHz Span 4.5 MHz Sweep 2.28 ms</p> <p>Occupied Bandwidth 2.6958 MHz Total Power 30.4 dBm</p> <p>Transmit Freq Error -3.310 kHz OBW Power 99.00 % x dB Bandwidth 3.039 MHz x dB -26.00 dB</p>



LTE Band 5



<p>Band LTE5 5MHz 16QAM</p>	<p>Center Freq 836.500000 MHz Ref Offset 16.4 dB Ref 30.00 dBm #Res BW 75 kHz #VBW 220 kHz Span 7.5 MHz Sweep 3.76 ms CF Step 750.000 kHz Freq Offset 0 Hz</p> <p>Occupied Bandwidth 4.4966 MHz Total Power 28.0 dBm Transmit Freq Error 4.807 kHz OBW Power 99.00 % x dB Bandwidth 4.949 MHz x dB -26.00 dB</p>	<p>Center Freq 836.500000 MHz Ref Offset 16.4 dB Ref 30.00 dBm #Res BW 75 kHz #VBW 220 kHz Span 7.5 MHz Sweep 3.76 ms CF Step 750.000 kHz Freq Offset 0 Hz</p> <p>Occupied Bandwidth 4.4956 MHz Total Power 29.1 dBm Transmit Freq Error 1.207 kHz OBW Power 99.00 % x dB Bandwidth 4.960 MHz x dB -26.00 dB</p>
<p>Band LTE5 5MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Band LTE5 5MHz OBW QPSK Mid Channel FRB.gif</p>	
<p>Band LTE5 3MHz 16QAM</p>	<p>Center Freq 836.500000 MHz Ref Offset 16.4 dB Ref 30.00 dBm #Res BW 47 kHz #VBW 130 kHz Span 4.5 MHz Sweep 2.28 ms CF Step 450.000 kHz Freq Offset 0 Hz</p> <p>Occupied Bandwidth 2.6935 MHz Total Power 28.5 dBm Transmit Freq Error 1.247 kHz OBW Power 99.00 % x dB Bandwidth 2.993 MHz x dB -26.00 dB</p>	<p>Center Freq 836.500000 MHz Ref Offset 16.4 dB Ref 30.00 dBm #Res BW 47 kHz #VBW 130 kHz Span 4.5 MHz Sweep 2.28 ms CF Step 450.000 kHz Freq Offset 0 Hz</p> <p>Occupied Bandwidth 2.6950 MHz Total Power 29.3 dBm Transmit Freq Error -3.333 kHz OBW Power 99.00 % x dB Bandwidth 3.014 MHz x dB -26.00 dB</p>
<p>Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif</p>	<p>Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif</p>	



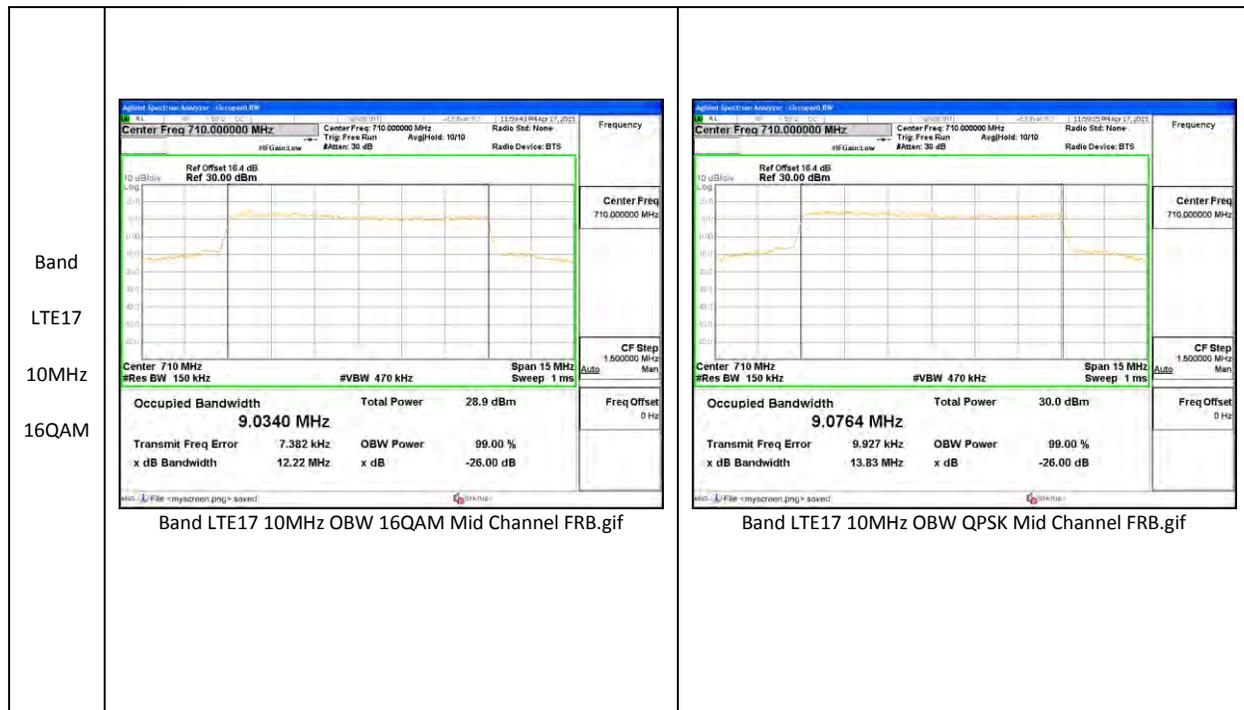
LTE Band 7



<p>Band LTE7 15MHz 16QAM</p>	<p>Center Freq 2.53500000 GHz</p> <p>Center Freq 2.53500000 GHz</p> <p>Center Freq 2.53500000 GHz</p> <p>Occupied Bandwidth 13.448 MHz</p> <p>Total Power 30.1 dBm</p> <p>Transmit Freq Error 27.675 kHz</p> <p>OBW Power 99.0 %</p> <p>x dB Bandwidth -26.00 dB</p>	<p>Center Freq 2.53500000 GHz</p> <p>Center Freq 2.53500000 GHz</p> <p>Center Freq 2.53500000 GHz</p> <p>Occupied Bandwidth 13.443 MHz</p> <p>Total Power 31.0 dBm</p> <p>Transmit Freq Error 41.331 kHz</p> <p>OBW Power 99.0 %</p> <p>x dB Bandwidth -26.00 dB</p>
<p>Band LTE7 10MHz 16QAM</p>	<p>Center Freq 2.53500000 GHz</p> <p>Center Freq 2.53500000 GHz</p> <p>Center Freq 2.53500000 GHz</p> <p>Occupied Bandwidth 8.9545 MHz</p> <p>Total Power 30.2 dBm</p> <p>Transmit Freq Error 21.780 kHz</p> <p>OBW Power 99.0 %</p> <p>x dB Bandwidth -26.00 dB</p>	<p>Center Freq 2.53500000 GHz</p> <p>Center Freq 2.53500000 GHz</p> <p>Center Freq 2.53500000 GHz</p> <p>Occupied Bandwidth 8.9799 MHz</p> <p>Total Power 31.0 dBm</p> <p>Transmit Freq Error 22.341 kHz</p> <p>OBW Power 99.0 %</p> <p>x dB Bandwidth -26.00 dB</p>



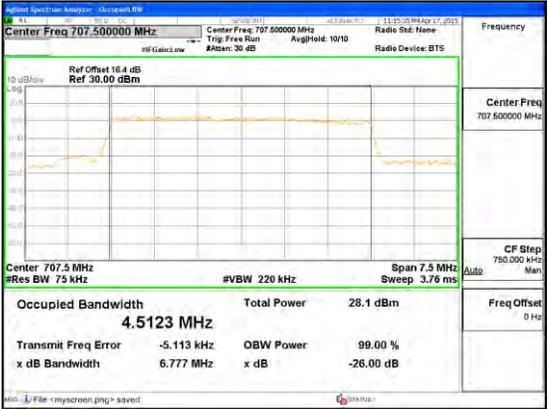
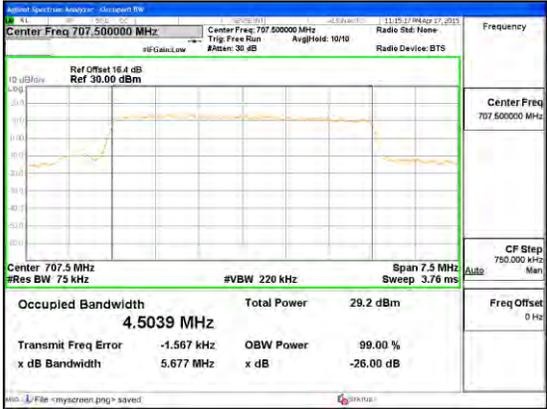
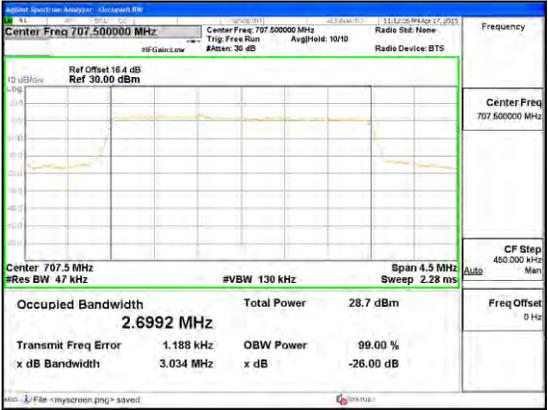
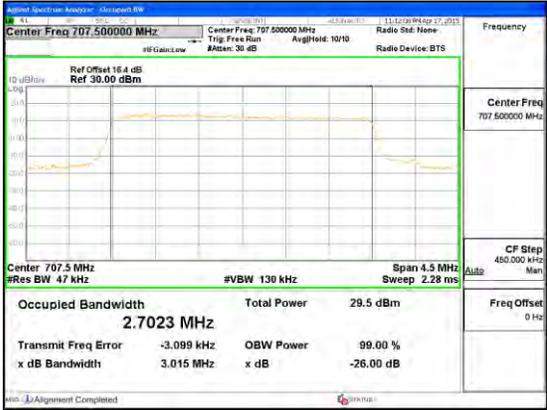
LTE Band 17





LTE Band 12



<p>Band LTE12 5MHz 16QAM</p>	 <p>Band LTE12 5MHz OBW 16QAM Mid Channel FRB.gif</p>	 <p>Band LTE12 5MHz OBW QPSK Mid Channel FRB.gif</p>
<p>Band LTE12 3MHz 16QAM</p>	 <p>Band LTE12 3MHz OBW 16QAM Mid Channel FRB.gif</p>	 <p>Band LTE12 3MHz OBW QPSK Mid Channel FRB.gif</p>



10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27.53

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

Part 27: (m)(4) (4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

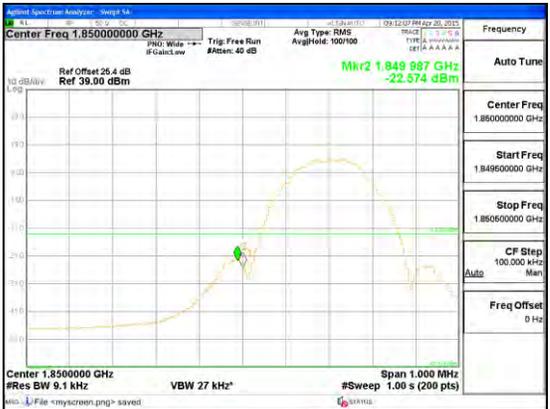
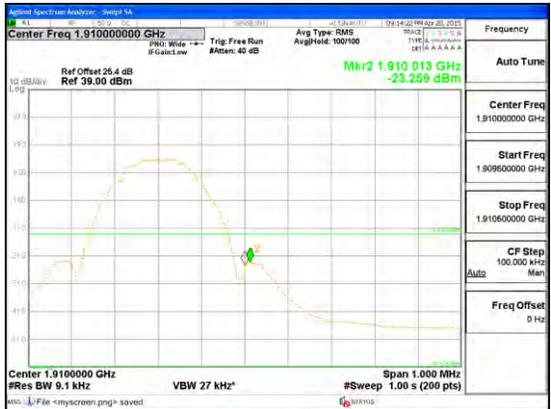
MODES TESTED

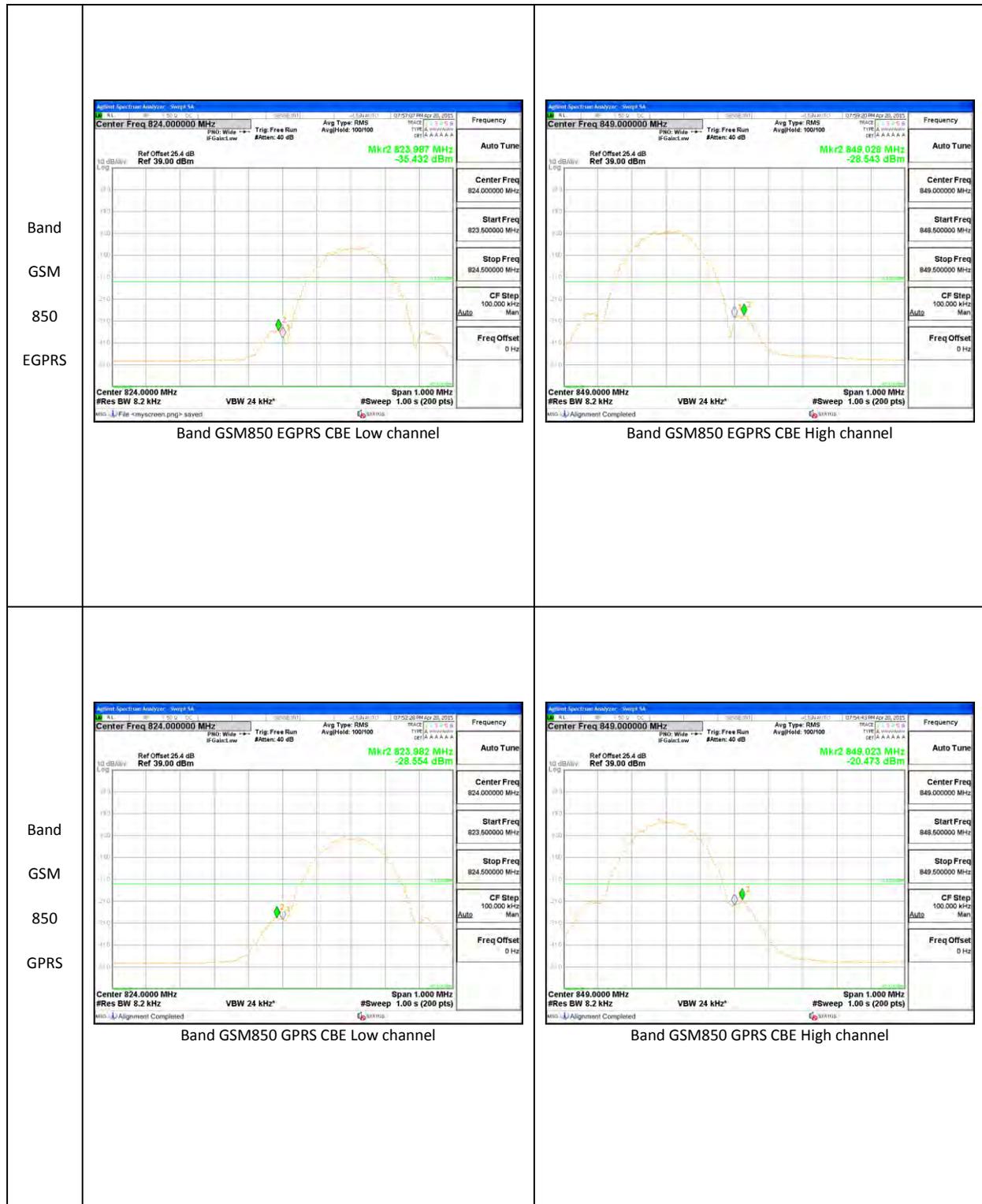
GSM, WCDMA and LTE

RESULTS

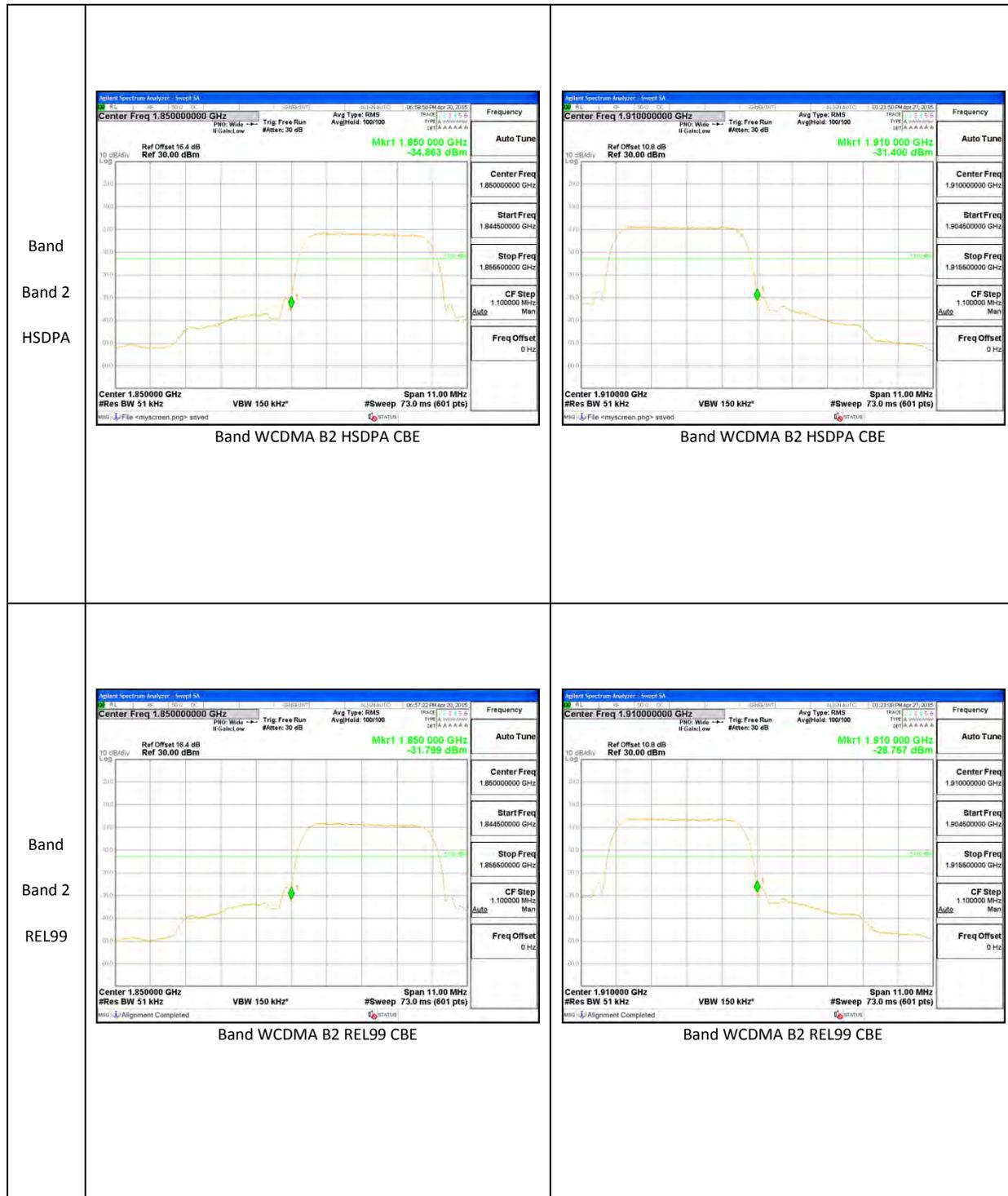
10.2.1. BAND EDGE PLOTS

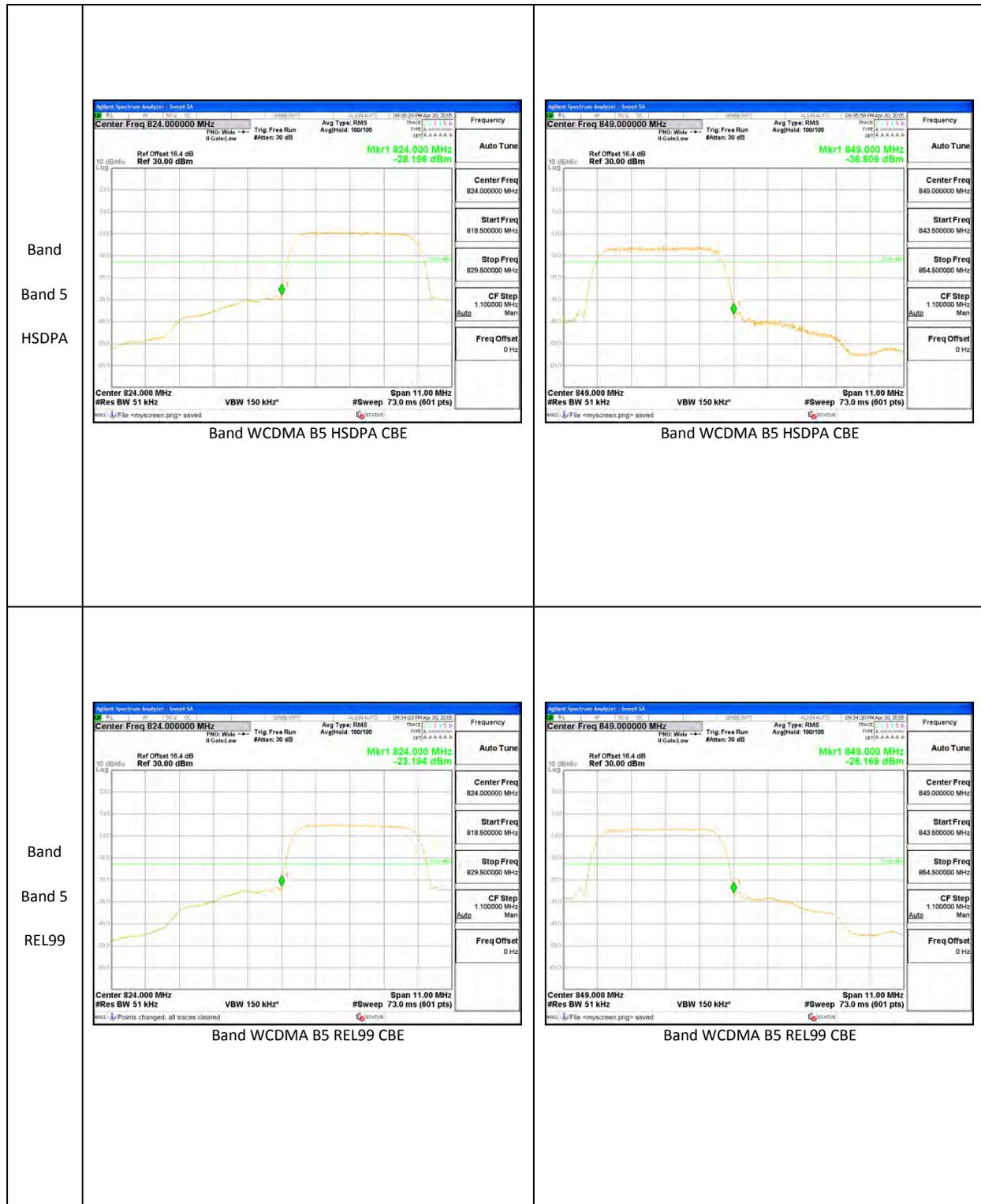
GSM

<p>Band GSM 1900 EGPRS</p>	 <p>Band GSM1900 EGPRS CBE Low channel</p>	 <p>Band GSM1900 EGPRS CBE High channel</p>
<p>Band GSM 1900 GPRS</p>	 <p>Band GSM1900 GPRS CBE Low channel</p>	 <p>Band GSM1900 GPRS CBE High channel</p>

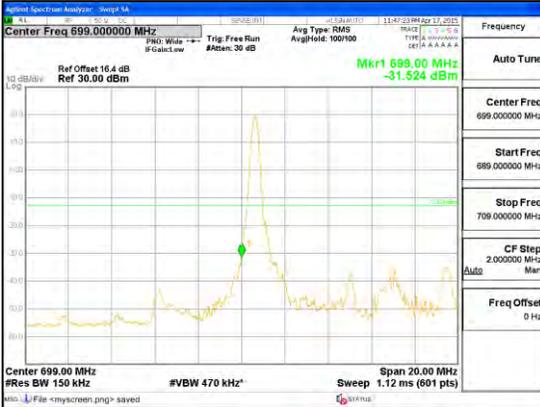
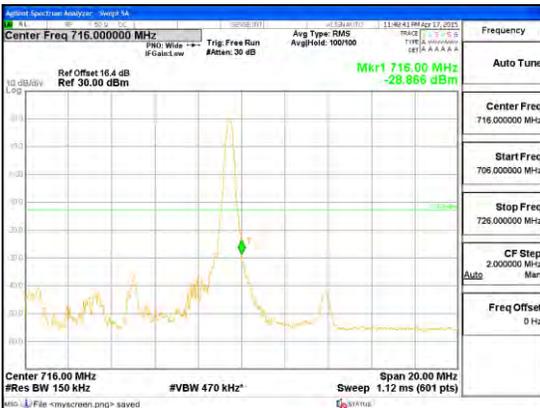


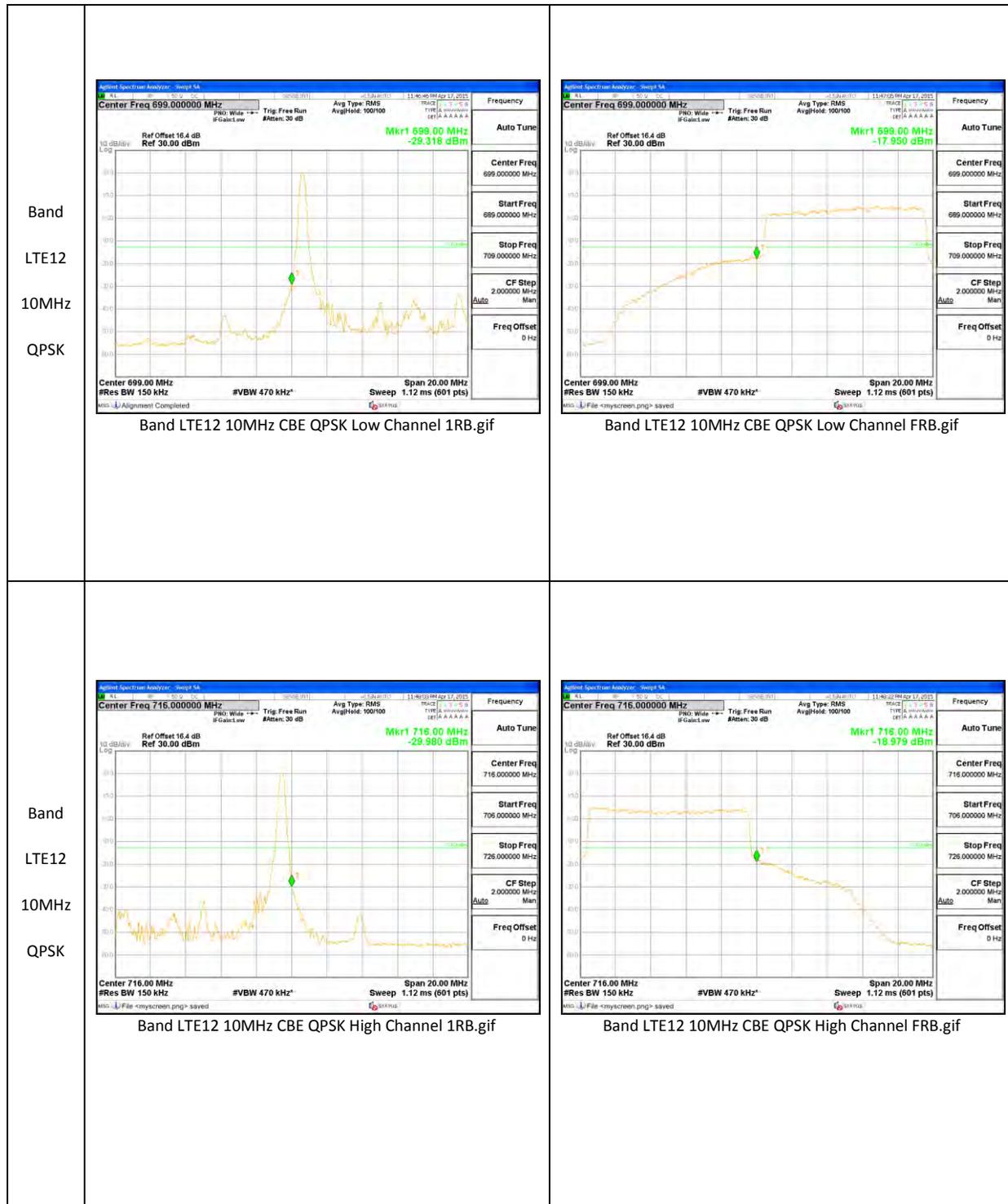
WCDMA

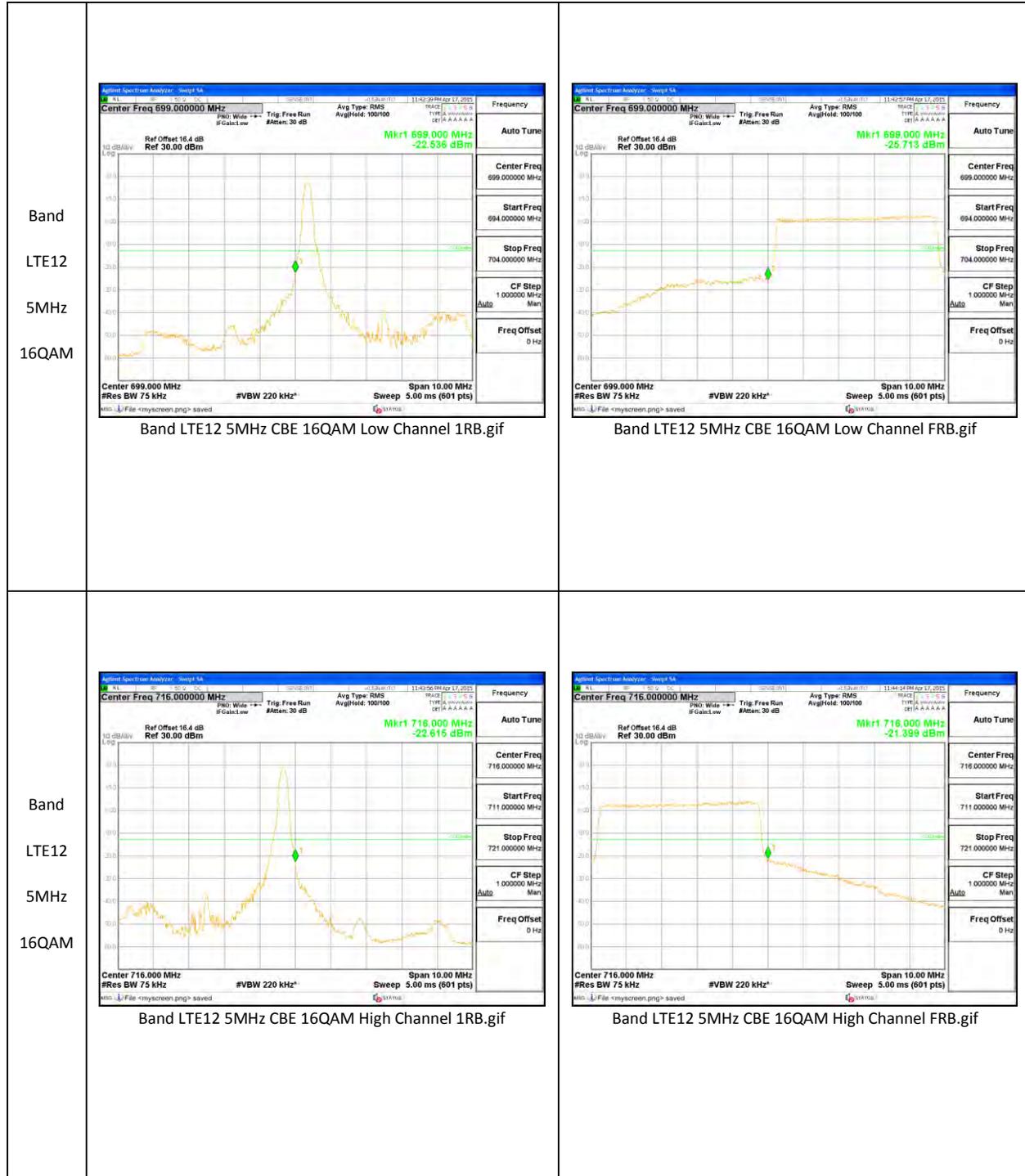


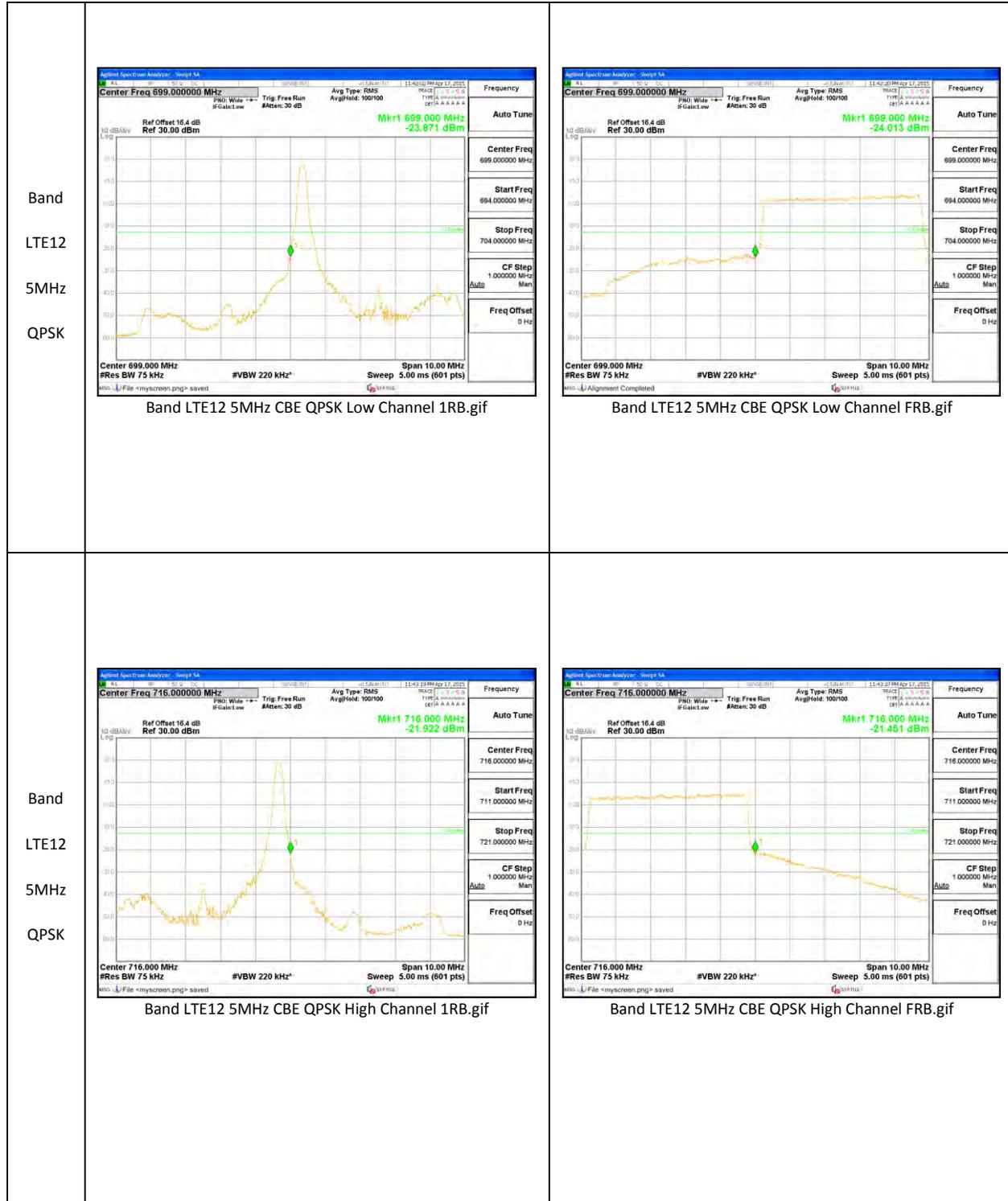


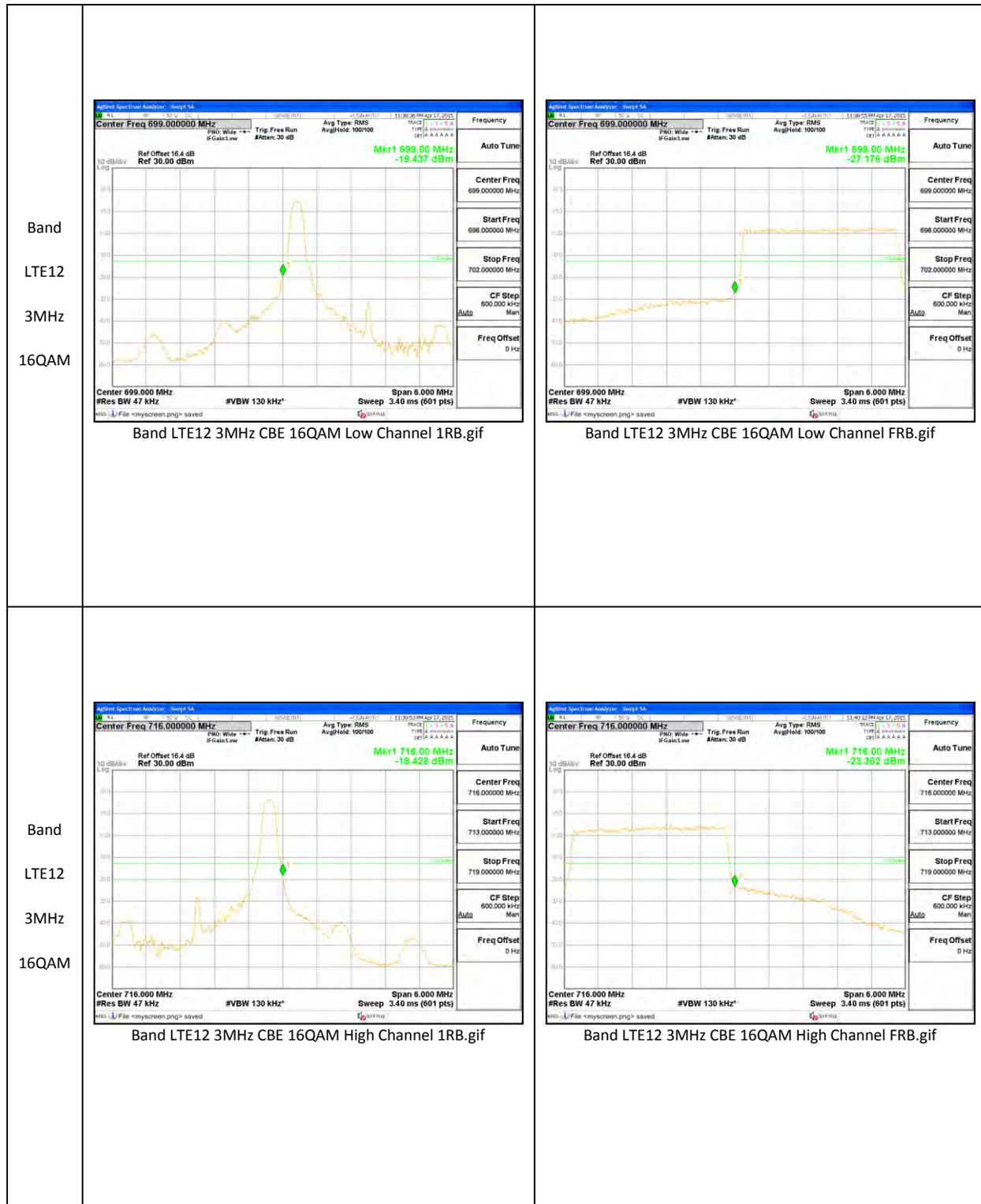
LTE Band 12

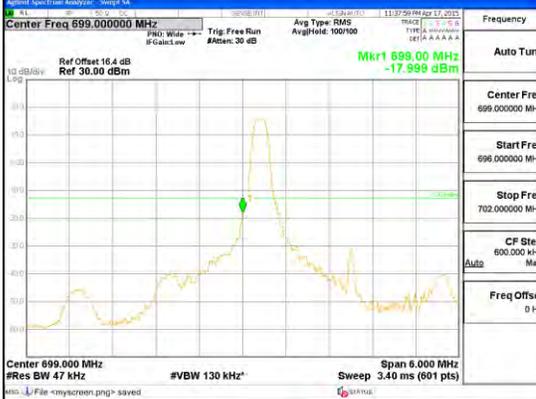
<p>Band LTE12 10MHz 16QAM</p>	 <p>Band LTE12 10MHz CBE 16QAM Low Channel 1RB.gif</p>	 <p>Band LTE12 10MHz CBE 16QAM Low Channel FRB.gif</p>
<p>Band LTE12 10MHz 16QAM</p>	 <p>Band LTE12 10MHz CBE 16QAM High Channel 1RB.gif</p>	 <p>Band LTE12 10MHz CBE 16QAM High Channel FRB.gif</p>

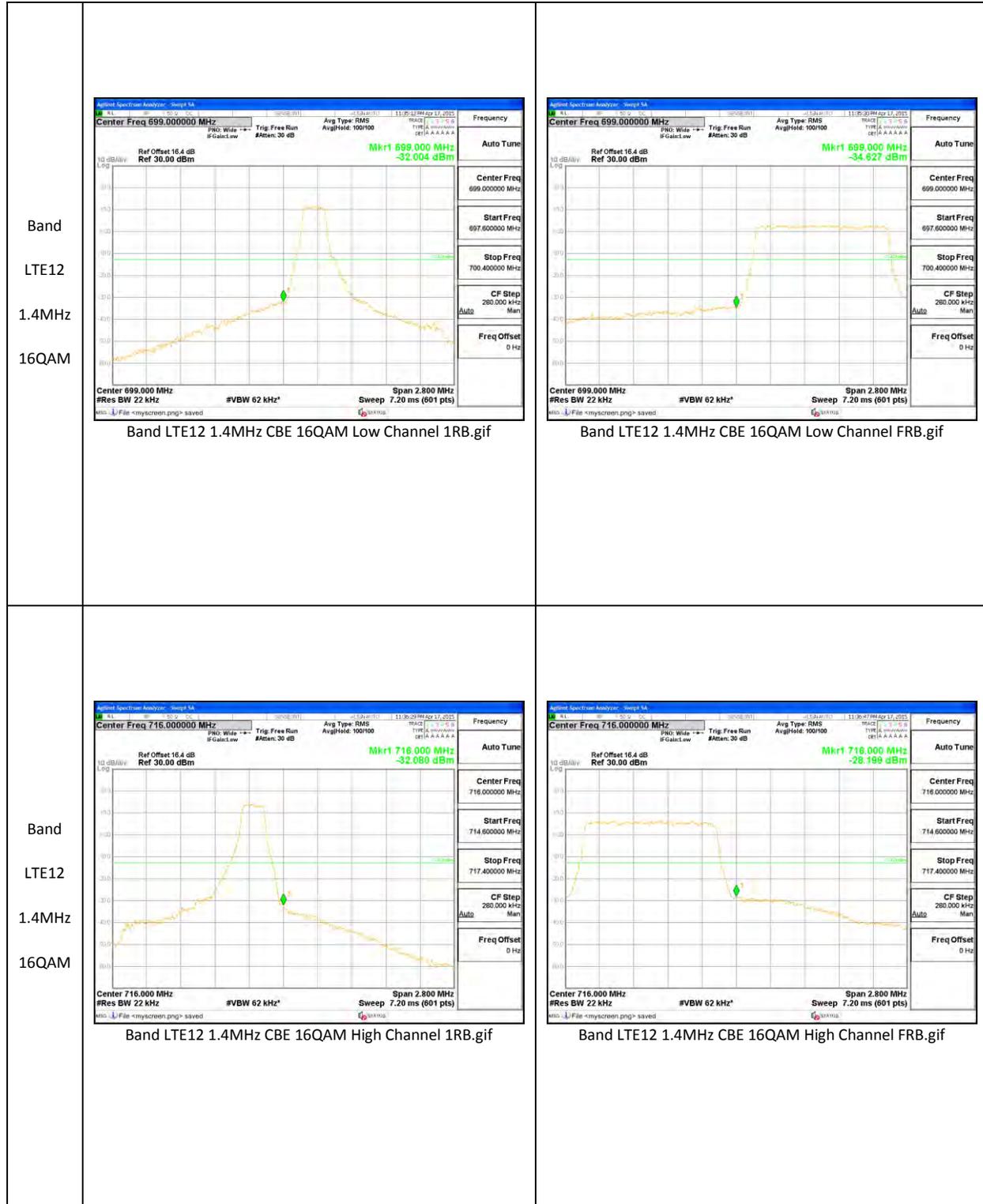






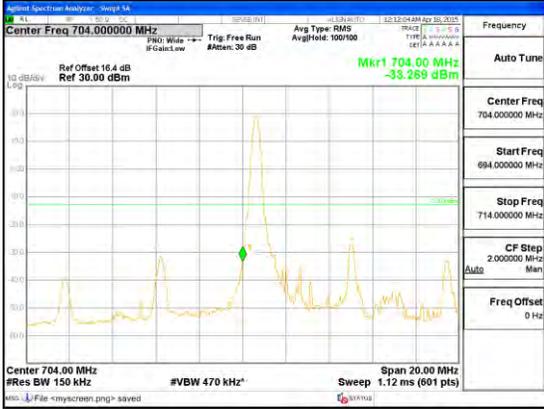
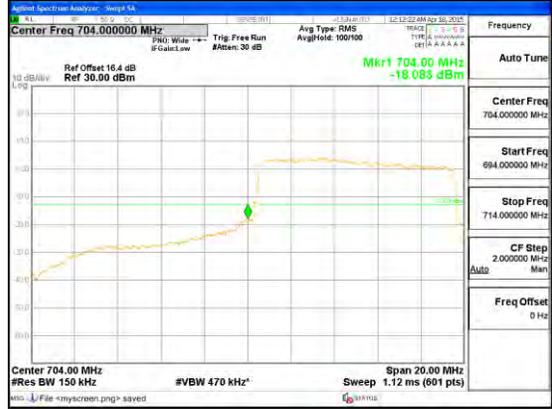
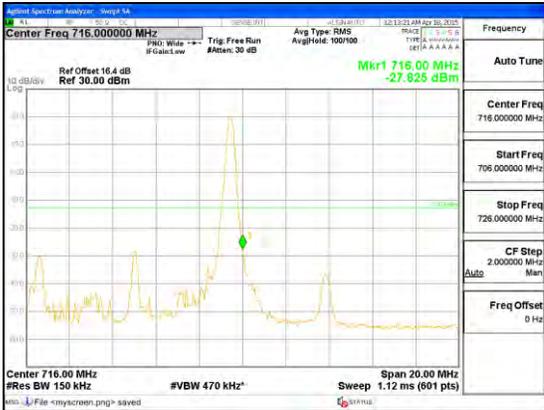


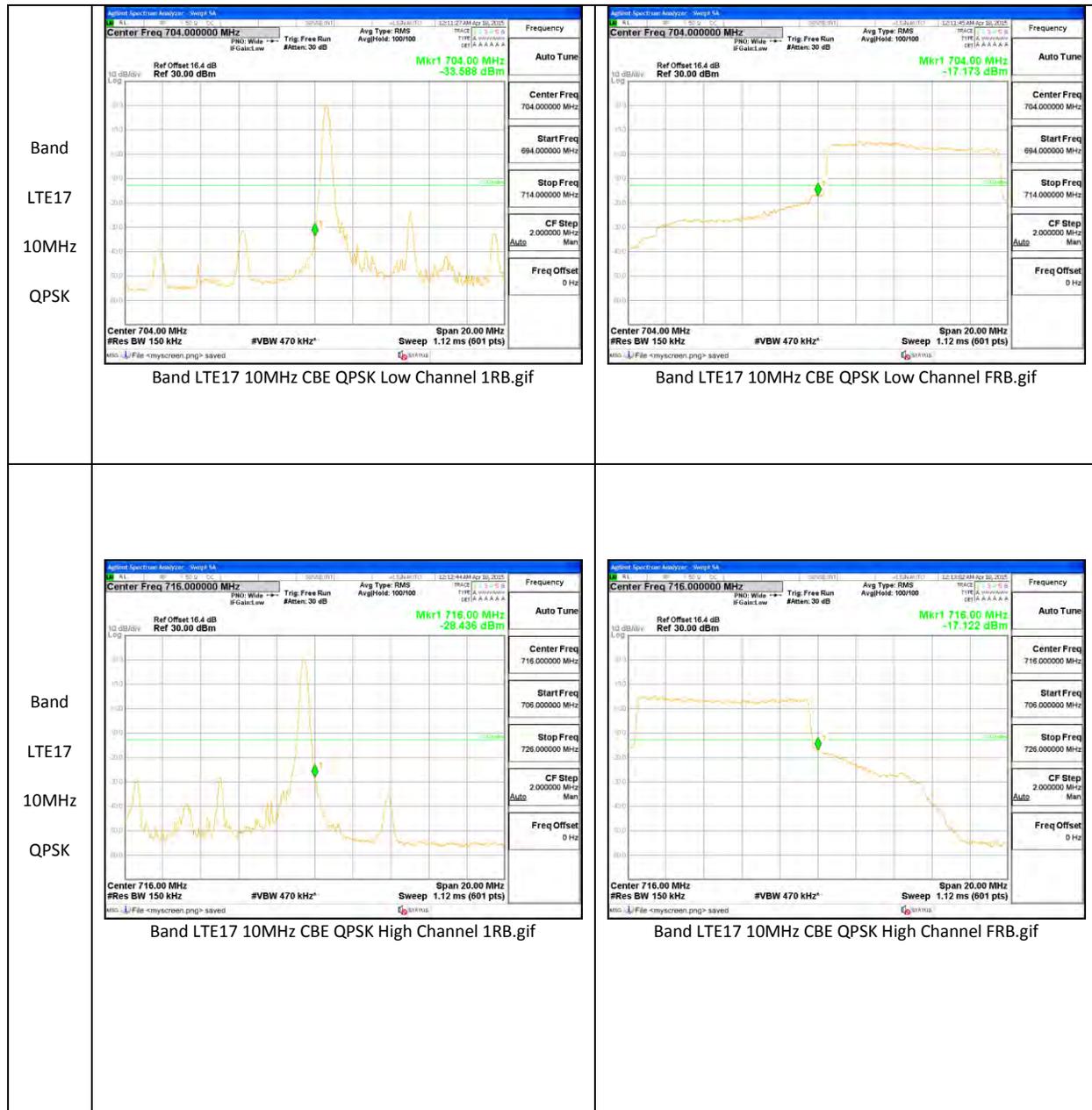
<p>Band LTE12 3MHz QPSK</p>	 <p>Band LTE12 3MHz CBE QPSK Low Channel 1RB.gif</p>	 <p>Band LTE12 3MHz CBE QPSK Low Channel FRB.gif</p>
<p>Band LTE12 3MHz QPSK</p>	 <p>Band LTE12 3MHz CBE QPSK High Channel 1RB.gif</p>	 <p>Band LTE12 3MHz CBE QPSK High Channel FRB.gif</p>

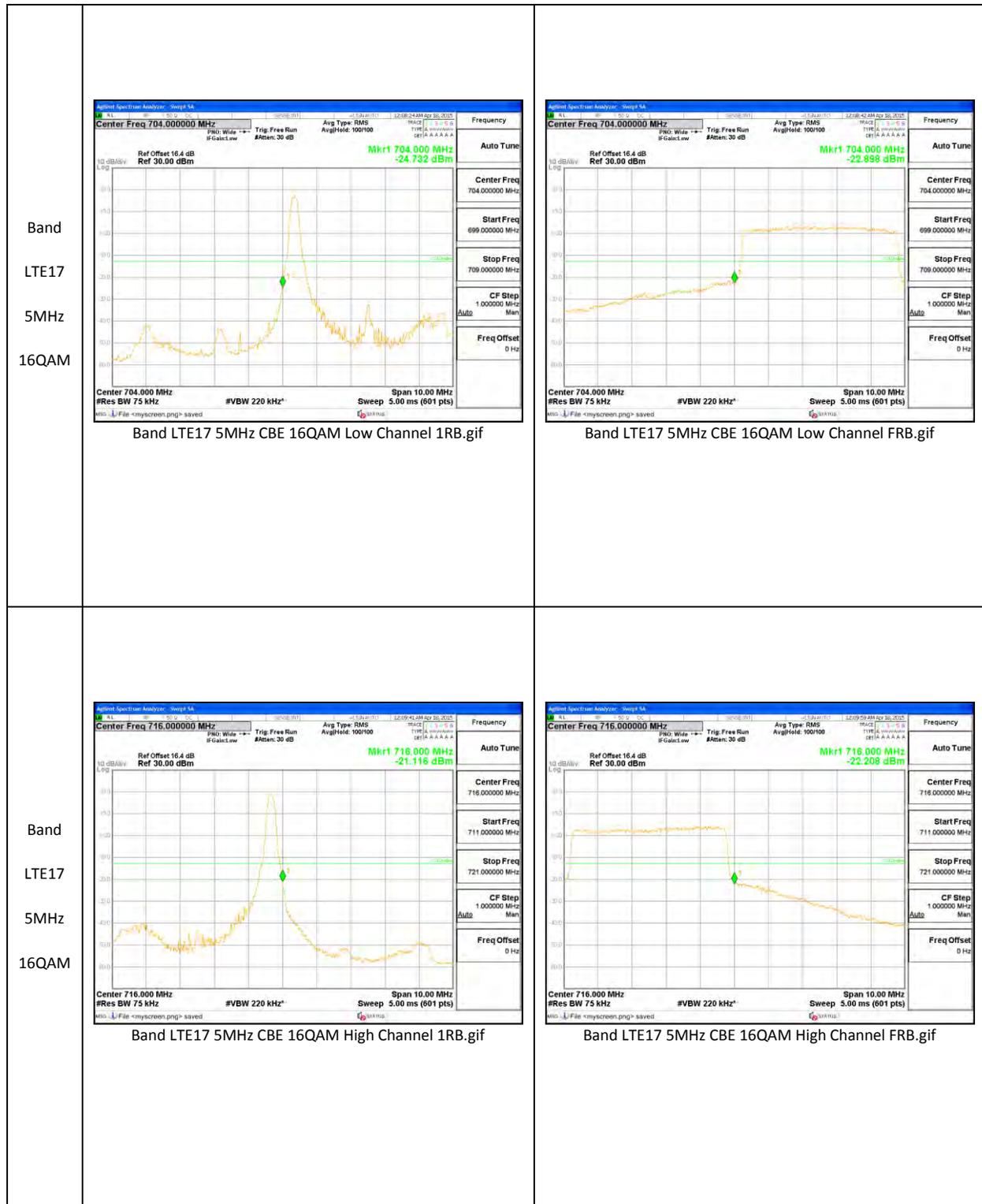


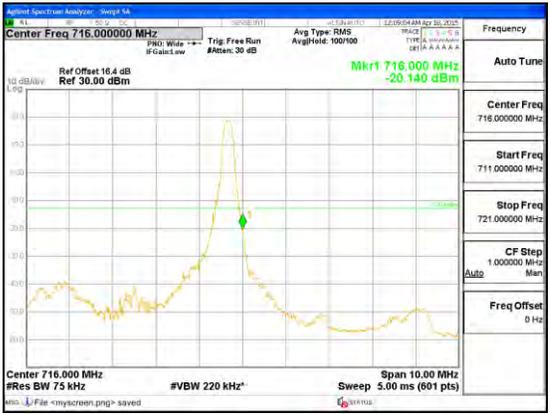
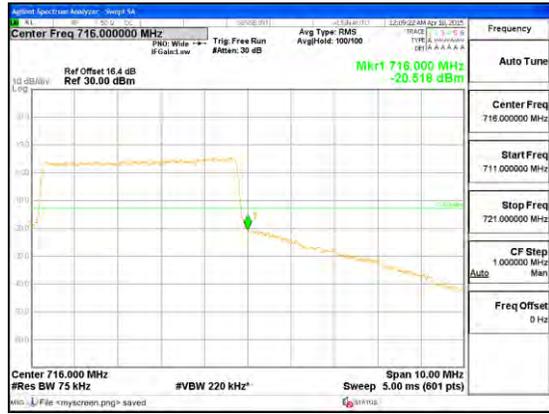
<p>Band LTE12 1.4MHz QPSK</p>	<p>Center Freq 699.000000 MHz Mkr1 699.000 MHz -32.346 dBm</p> <p>Center Freq 699.000 MHz #Res BW 22 kHz #VBW 62 kHz* Span 2.800 MHz Sweep 7.20 ms (601 pts)</p>	<p>Center Freq 699.000000 MHz Mkr1 699.000 MHz -34.935 dBm</p> <p>Center Freq 699.000 MHz #Res BW 22 kHz #VBW 62 kHz* Span 2.800 MHz Sweep 7.20 ms (601 pts)</p>
	<p>Band LTE12 1.4MHz CBE QPSK Low Channel 1RB.gif</p>	<p>Band LTE12 1.4MHz CBE QPSK Low Channel FRB.gif</p>
<p>Band LTE12 1.4MHz QPSK</p>	<p>Center Freq 716.000000 MHz Mkr1 716.000 MHz -32.285 dBm</p> <p>Center Freq 716.000 MHz #Res BW 22 kHz #VBW 62 kHz* Span 2.800 MHz Sweep 7.20 ms (601 pts)</p>	<p>Center Freq 716.000000 MHz Mkr1 716.000 MHz -26.786 dBm</p> <p>Center Freq 716.000 MHz #Res BW 22 kHz #VBW 62 kHz* Span 2.800 MHz Sweep 7.20 ms (601 pts)</p>
	<p>Band LTE12 1.4MHz CBE QPSK High Channel 1RB.gif</p>	<p>Band LTE12 1.4MHz CBE QPSK High Channel FRB.gif</p>

LTE Band 17

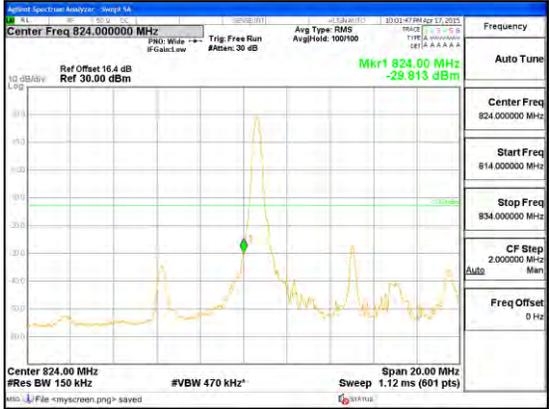
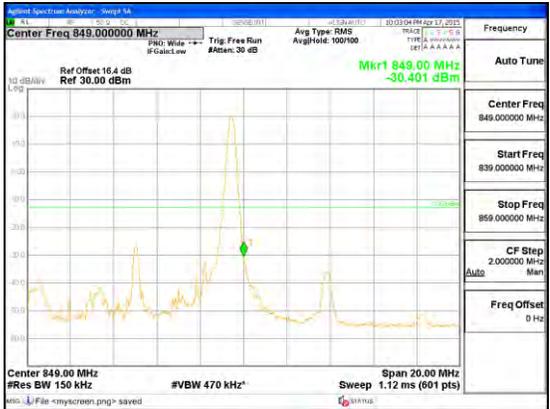
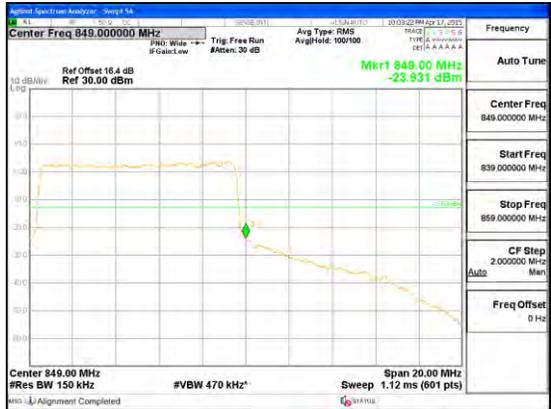
<p>Band LTE17 10MHz 16QAM</p>	 <p>Band LTE17 10MHz CBE 16QAM Low Channel 1RB.gif</p>	 <p>Band LTE17 10MHz CBE 16QAM Low Channel FRB.gif</p>
<p>Band LTE17 10MHz 16QAM</p>	 <p>Band LTE17 10MHz CBE 16QAM High Channel 1RB.gif</p>	 <p>Band LTE17 10MHz CBE 16QAM High Channel FRB.gif</p>

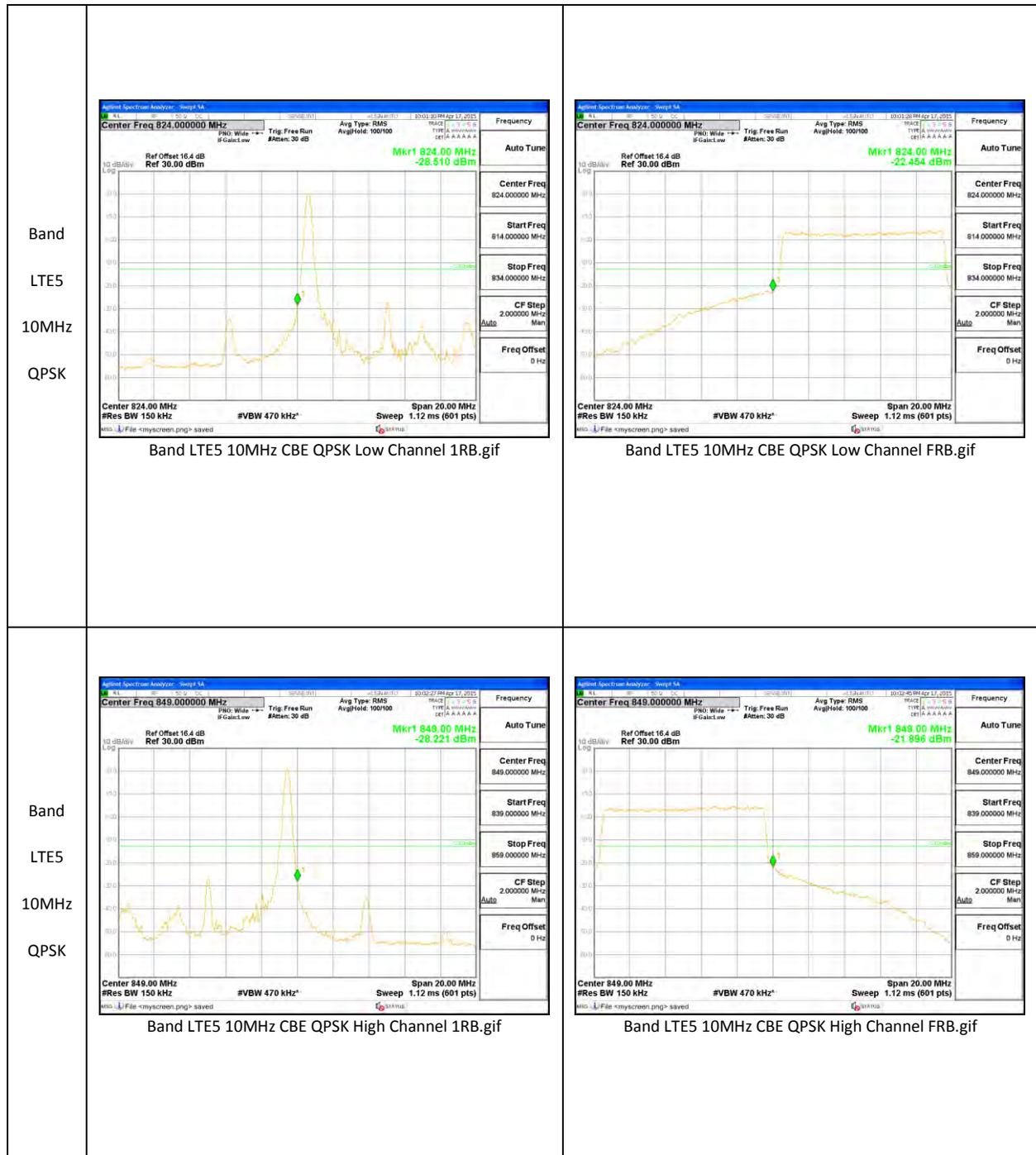


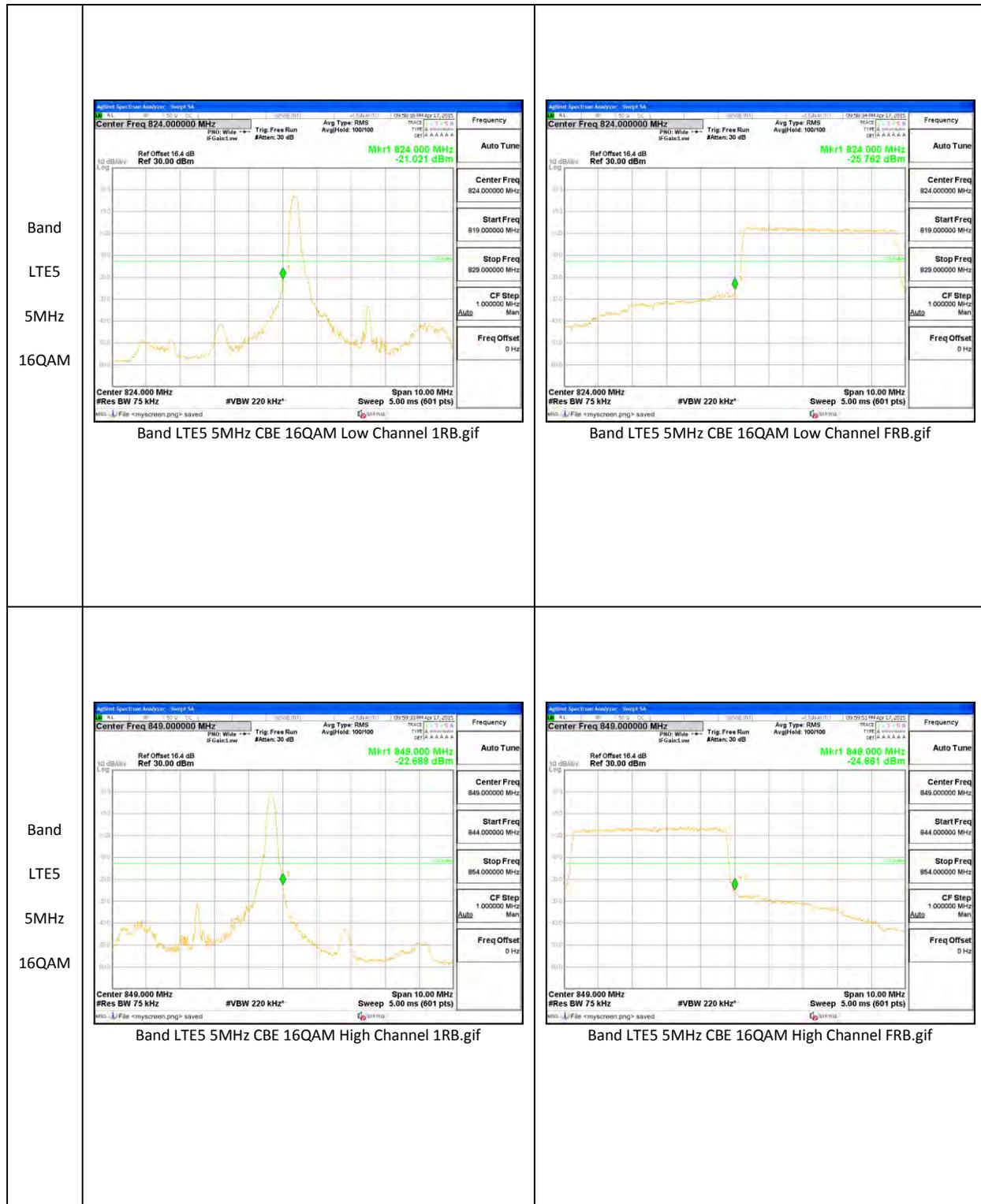


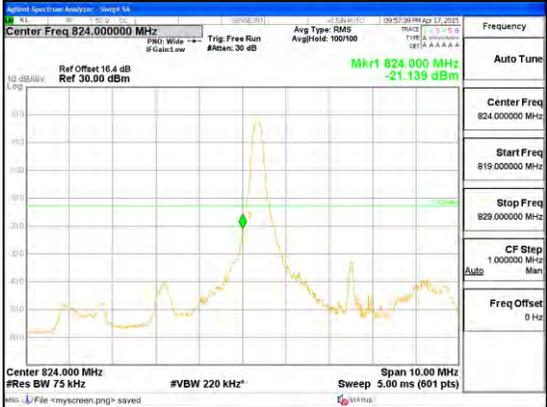
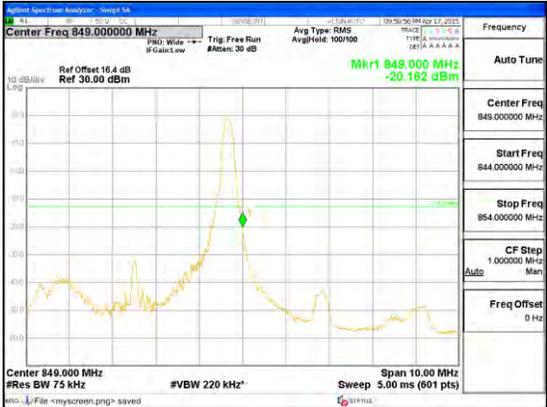
<p>Band LTE17 5MHz QPSK</p>	 <p>Band LTE17 5MHz CBE QPSK Low Channel 1RB.gif</p>	 <p>Band LTE17 5MHz CBE QPSK Low Channel FRB.gif</p>
<p>Band LTE17 5MHz QPSK</p>	 <p>Band LTE17 5MHz CBE QPSK High Channel 1RB.gif</p>	 <p>Band LTE17 5MHz CBE QPSK High Channel FRB.gif</p>

LTE Band 5

<p>Band LTE5 10MHz 16QAM</p>	 <p>Band LTE5 10MHz CBE 16QAM Low Channel 1RB.gif</p>	 <p>Band LTE5 10MHz CBE 16QAM Low Channel FRB.gif</p>
<p>Band LTE5 10MHz 16QAM</p>	 <p>Band LTE5 10MHz CBE 16QAM High Channel 1RB.gif</p>	 <p>Band LTE5 10MHz CBE 16QAM High Channel FRB.gif</p>





<p>Band LTE5 5MHz QPSK</p>	 <p>Band LTE5 5MHz CBE QPSK Low Channel 1RB.gif</p>	 <p>Band LTE5 5MHz CBE QPSK Low Channel FRB.gif</p>
<p>Band LTE5 5MHz QPSK</p>	 <p>Band LTE5 5MHz CBE QPSK High Channel 1RB.gif</p>	 <p>Band LTE5 5MHz CBE QPSK High Channel FRB.gif</p>