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

CERTIFICATION TEST REPORT

FOR

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

FCC ID: PY7-TM0061
IC: 4170B-TM0061

REPORT NUMBER: 15U20030-E3, Revision A
ISSUE DATE: APRIL 17, 2015

Prepared for
SONY MOBILE COMMUNICATIONS, INC.
1-8-15 KONAN, MINATO-KU
TOKYO, 108-0075 JAPAN

Prepared by
UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
-	03/16/15	Initial Issue	OOI, CHOON
A	04/17/15	Revised LTE Band 4 table on Page 11 Revised section 10.2, 10.3, 10.4 and 11.2 to include correct references. Removed Peak Reference from Section 11.1	OOI, CHOON

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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 8
5.3. MAXIMUM OUTPUT POWER (LTE) 9
5.4. DESCRIPTION OF AVAILABLE ANTENNAS 12
5.5. DESCRIPTION OF TEST SETUP 13
6. TEST AND MEASUREMENT EQUIPMENT 16
7. Summary Table 17
8. RF POWER OUTPUT VERIFICATION 18
8.1. GSM/GPRS/EDGE 18
8.1.1. GSM OUTPUT POWER RESULT 19
8.2. UMTS REL 99 21
8.2.1. UMTS REL 99 OUTPUT POWER RESULT 21
8.3. UMTS HSDPA 22
8.3.1. UMTS HSDPA OUTPUT POWER RESULT 23
8.4. UMTS HSUPA 24
8.4.1. UMTS HSUPA OUTPUT POWER RESULT 25
8.5. DC-HSDPA 26
8.5.1. UMTS DC-HSDPA OUTPUT POWER RESULT 28
8.6. LTE OUTPUT VERIFICATION 30
8.6.1. LTE OUTPUT RESULT 30
9. PEAK TO AVERAGE RATIO 43
9.1. CONDUCTED PEAK TO AVERAGE RESULT 43
10. LIMITS AND CONDUCTED RESULTS 59
10.1. OCCUPIED BANDWIDTH 59

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10.1.1. OCCUPIED BANDWIDTH RESULTS 60
10.1.2. LTE OCCUPIED BANDWIDTH RESULTS 62
10.1.3. OCCUPIED BANDWIDTH PLOTS 70
10.2. BAND EDGE EMISSIONS 86
10.2.1. BAND EDGE PLOTS 87
10.3. OUT OF BAND EMISSIONS 144
10.3.1. OUT OF BAND EMISSIONS RESULT 145
10.3.2. OUT OF BAND EMISSIONS PLOTS 155
10.4. FREQUENCY STABILITY 171
10.4.1. FREQUENCY STABILITY RESULTS 172
11. RADIATED TEST RESULTS 178
11.1. RADIATED POWER (ERP & EIRP) 178
11.1.1. ERP/EIRP Results 179
11.1.2. LTE ERP/EIRP Results 181
11.1.3. ERP/EIRP PLOTS 189
11.2. FIELD STRENGTH OF SPURIOUS RADIATION 249
11.2.1. SPURIOUS RADIATION PLOTS 250
12. SETUP PHOTOS 310

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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+ and NFC

SERIAL NUMBER: 2062720(Conducted), 2067228(Radiated)

DATE TESTED: FEBRUARY 13-MARCH 13, 2015

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 22H, 24E, 27F, 27L, 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.

Approved & Released For
UL Verification Services Inc. By:

CHOON OOI
CONSUMER TECHNOLOGY DIVISION
WiSE PROJECT LEAD
UL Verification Services Inc.

Tested By:

STEVEN TRAN
CONSUMER TECHNOLOGY DIVISION
WiSE LAB ENGINEER
UL Verification Services Inc.

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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
☐ Chamber A	☐ Chamber D
☒ Chamber B	☐ Chamber E
☐ Chamber C	☐ Chamber F

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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
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%.

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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

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation mW	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GMSK	33.2	2089.30		
	824~849	GPRS	33.2	2089.30	30.41	1099.26
	824~849	EGPRS	26.8	478.63	24.52	283.14
GSM1900	1850~1910	GMSK	30	1000.00		
	1850~1910	GPRS	30	1000.00	32.81	1911.44
	1850~1910	EGPRS	25.4	346.74	28.51	709.58
Band 5	824~849	REL99	24.6	288.40	22.05	160.36
	824~849	HSDPA	20.6	114.82	21.80	151.39
	824~849	HSUPA	21.8	151.36		
Band 2	1850~1910	REL99	23.1	204.17	25.23	333.43
	1850~1910	HSDPA	20.5	112.20	23.81	240.64
	1850~1910	HSUPA	20	100		

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

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5.3. MAXIMUM OUTPUT POWER (LTE)

LTE Band 17

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			mW	AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	10MHz	QPSK	23.20	208.93	22.17	164.82
			16QAM	22.54	179.47	21.08	128.23
		5MHz	QPSK	23.42	219.79	21.96	157.04
			16QAM	22.36	172.19	21.04	127.06

LTE Band 12

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			mW	AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE12	699~716	10MHz	QPSK	23.48	222.84	21.98	157.76
			16QAM	22.96	197.70	21.11	129.12
		5MHz	QPSK	23.30	213.80	21.97	157.40
			16QAM	23.01	199.99	21.05	127.35
		3MHz	QPSK	23.71	234.96	21.87	153.82
			16QAM	22.69	185.78	20.99	125.60
		1.4MHz	QPSK	23.29	213.30	21.86	153.46
			16QAM	22.62	182.81	21.00	125.89

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LTE Band 7

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			mW	AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE7	2500~2570	20MHz	QPSK	22.83	191.87	25.39	345.62
			16QAM	22.31	170.22	24.60	288.14
		15MHz	QPSK	22.89	194.54	25.50	355.06
			16QAM	22.24	167.49	24.74	298.06
		10MHz	QPSK	22.62	182.81	25.27	336.74
			16QAM	22.03	159.59	24.58	287.28
		5MHz	QPSK	22.68	185.35	25.64	366.44
			16QAM	22.44	175.39	25.05	319.89

LTE Band 5

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			mW	AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	10MHz	QPSK	23.67	232.81	20.99	125.60
			16QAM	22.89	194.54	19.66	92.47
		5MHz	QPSK	23.7	234.42	20.95	124.45
			16QAM	22.98	198.61	20.19	104.47
		3MHz	QPSK	23.66	232.27	20.69	117.22
			16QAM	22.32	170.61	19.89	97.50
		1.4MHz	QPSK	23.76	237.68	20.54	113.24
			16QAM	23.02	200.45	19.76	94.62

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LTE Band 4

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			mW	AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	20MHz	QPSK	23.1	204.17	23.92	246.60
			16QAM	22.1	162.18	22.98	198.61
		15MHz	QPSK	22.8	190.55	23.29	213.30
			16QAM	21.8	151.36	22.36	172.19
		10MHz	QPSK	22.7	186.21	23.29	213.30
			16QAM	21.9	154.88	22.36	172.19
		5MHz	QPSK	22.8	190.55	23.37	217.27
			16QAM	21.8	151.36	22.40	173.78
		3MHz	QPSK	22.8	190.55	23.36	216.77
			16QAM	22	158.49	22.60	181.97
		1.4MHz	QPSK	23.2	208.93	23.39	218.27
			16QAM	22.1	162.18	22.45	175.79

LTE Band 2

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			mW	AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	20MHz	QPSK	22.90	194.98	25.56	359.75
			16QAM	22.00	158.49	24.80	302.00
		15MHz	QPSK	22.90	194.98	24.75	298.54
			16QAM	22.10	162.18	24.01	251.77
		10MHz	QPSK	23.10	204.17	25.23	333.43
			16QAM	22.20	165.96	24.49	281.19
		5MHz	QPSK	22.90	194.98	25.17	328.85
			16QAM	22.20	165.96	24.70	295.12
		3MHz	QPSK	23.10	204.17	25.66	368.13
			16QAM	22.10	162.18	24.83	304.09
		1.4MHz	QPSK	22.80	190.55	25.07	321.37
			16QAM	22.10	162.18	24.39	274.79

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5.4. 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	-4.2
GSM1900, 1850~1910MHz	0.1
Band 5, 824~849MHz	-4.2
Band 2, 1850~1910MHz	0.1
LTE2, 1850~1910MHz	0.1
LTE4, 1710~1755MHz	-0.1
LTE5, 824~849MHz	-4.2
LTE7, 2500~2570MHz	-0.1
LTE12, 699~716MHz	--4.5
LTE17, 704~716MHz	--4.5

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5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

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**
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.

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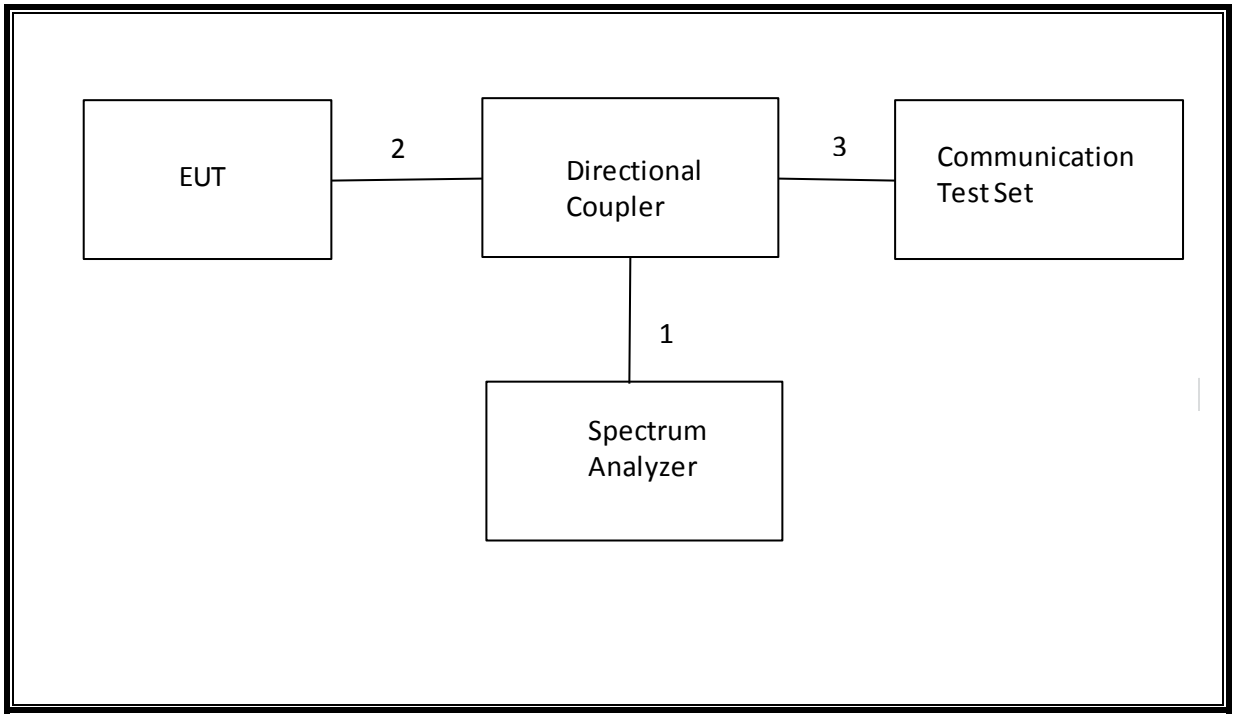
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



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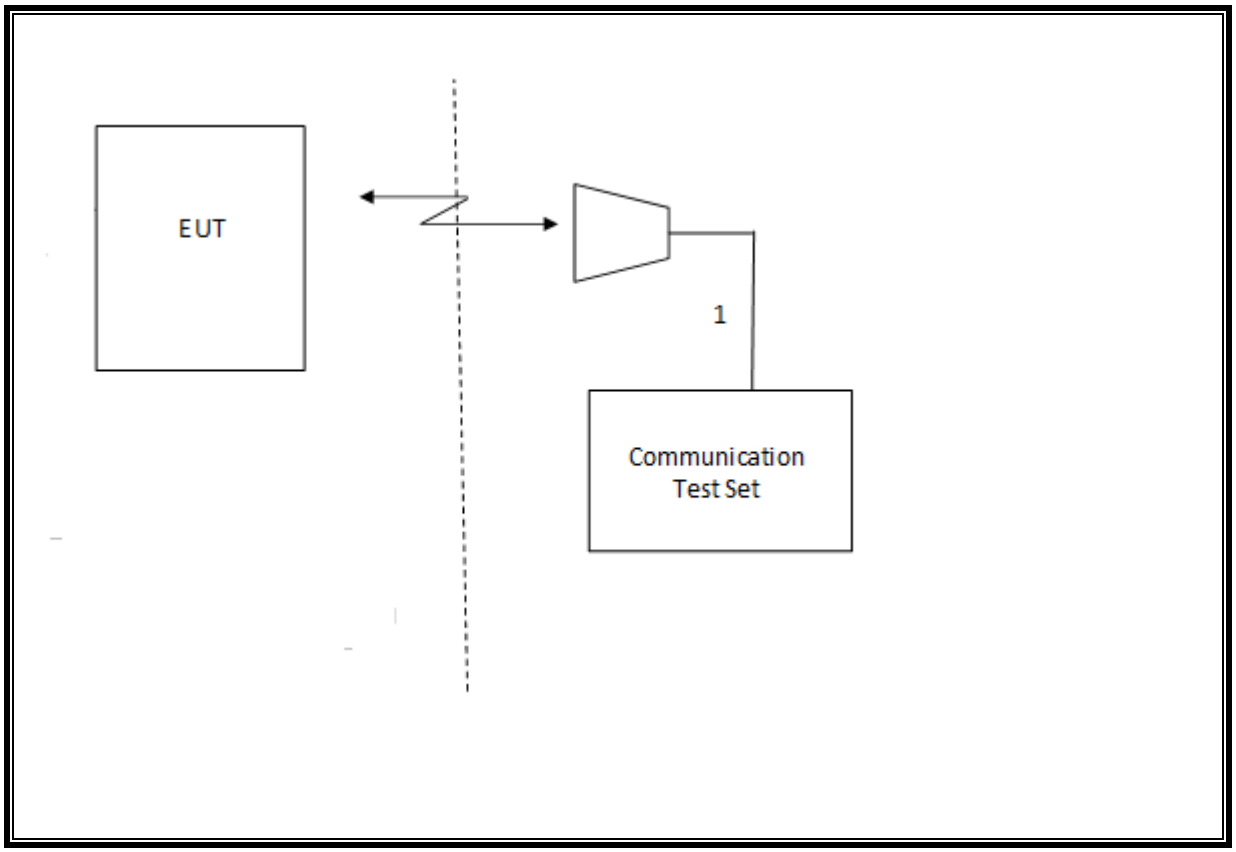
SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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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	C01179	05/01/15
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	04/22/15
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

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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	17.95 MHz
22.917(a) 24.238(a) 27.53(g)	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emission	-13dBm		Pass	-20.1 dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-30.1 dBm
2.1046	N/A	Conducted output power	N/A		Pass	33.2 dBm
27.53(m)	RSS-199(4.5)	Emission Mask			Pass	
22.355 24.235 27.54	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	Radiated	Pass	Band 5
27.50(c)(10)	N/A		34.77 dBm		Pass	22.2 dBm
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	32.8 dBm
27.50(d)(4)	RSS-139(6.4)		30dBm		Pass	23.9 dBm
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	-43.3 dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-50.6 dBm

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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

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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	33.1
			190	836.6	33.2
			251	848.8	33.2
GPRS (GMSK)	CS1	1	128	824.2	33.1
			190	836.6	33.2
			251	848.8	33.2
		2	128	824.2	29.9
			190	836.6	29.9
			251	848.8	30.0
		3	128	824.2	27.9
			190	836.6	27.9
			251	848.8	28.0
		4	128	824.2	27.1
			190	836.6	27.1
			251	848.8	27.1
EGPRS (8PSK)	MCS5	1	128	824.2	26.6
			190	836.6	26.7
			251	848.8	26.8
		2	128	824.2	24.7
			190	836.6	24.8
			251	848.8	25.0
		3	128	824.2	23.6
			190	836.6	23.6
			251	848.8	23.8
		4	128	824.2	21.5
			190	836.6	21.6
			251	848.8	21.7

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Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	29.8
			661	1880.0	30.0
			810	1909.8	30.0
GPRS (GMSK)	CS1	1	512	1850.2	29.8
			661	1880.0	30.0
			810	1909.8	30.0
		2	512	1850.2	27.0
			661	1880.0	27.0
			810	1909.8	26.9
		3	512	1850.2	25.9
			661	1880.0	25.7
			810	1909.8	25.8
		4	512	1850.2	24.9
			661	1880.0	24.8
			810	1909.8	24.7
EGPRS (8PSK)	MCS5	1	512	1850.2	25.4
			661	1880.0	25.4
			810	1909.8	25.3
		2	512	1850.2	23.6
			661	1880.0	23.5
			810	1909.8	23.5
		3	512	1850.2	22.5
			661	1880.0	22.4
			810	1909.8	22.4
		4	512	1850.2	21.4
			661	1880.0	21.3
			810	1909.8	21.3

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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
	βc	Not Applicable
	βd	Not Applicable
	βec	Not Applicable
	βc/βd	8/15
	βhs	Not Applicable
	βed	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	24.6
		4183	836.6	0	24.5
		4233	846.6	0	24.6
W-CDMA Band II		9262	1852.4	0	23.0
		9400	1880.0	0	23.1
		9538	1907.6	0	23.1

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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			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

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8.3.1. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	Subset	Ch.	f(MHz)	Conducted Power (dBm) Avg (dBm)
Band 5	HSDPA	1	4132	826.4	19.5
			4183	836.6	20.1
			4233	846.6	20.5
		2	4132	826.4	19.6
			4183	836.6	20.2
			4233	846.6	20.6
		3	4132	826.4	19.0
			4183	836.6	19.7
			4233	846.6	20.0
		4	4132	826.4	19.0
			4183	836.6	19.7
			4233	846.6	20.0
Band 2	HSDPA	1	9262	1852.4	20.0
			9400	1880.0	20.0
			9538	1907.6	19.5
		2	9262	1852.4	20.0
			9400	1880.0	20.1
			9538	1907.6	19.5
		3	9262	1852.4	19.4
			9400	1880.0	19.5
			9538	1907.6	18.9
		4	9262	1852.4	18.6
			9400	1880.0	18.6
			9538	1907.6	18.6

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8.4. 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
	βc/βd	11/15	6/15	15/9	2/15	15/15
	Bhs	22/15	12/15	30/15	4/15	30/15
	βed (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 = βhs/βc	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: βed cannot be set directly, it is set by Absolute Grant Value.

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8.4.1. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	Subset	Ch.	f(MHz)	Conducted Power (dBm) Avg (dBm)
Band 5	HSUPA	1	9262	1852.4	21.8
			9400	1880.0	21.5
			9538	1907.6	21.5
		2	9262	1852.4	20.4
			9400	1880.0	20.5
			9538	1907.6	20.7
		3	9262	1852.4	20.9
			9400	1880.0	20.7
			9538	1907.6	20.8
		4	9262	1852.4	20.6
			9400	1880.0	21.2
			9538	1907.6	21.5
		5	9262	1852.4	21.5
			9400	1880.0	21.7
			9538	1907.6	21.8
Band 2	HSUPA	1	4132	826.4	22.6
			4183	836.6	22.0
			4233	846.6	22.1
		2	4132	826.4	21.6
			4183	836.6	21.6
			4233	846.6	21.7
		3	4132	826.4	21.8
			4183	836.6	21.7
			4233	846.6	21.8
		4	4132	826.4	21.8
			4183	836.6	21.8
			4233	846.6	21.8
		5	4132	826.4	22.3
			4183	836.6	22.2
			4233	846.6	22.3

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8.5. DC-HSDPA

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH _Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

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Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

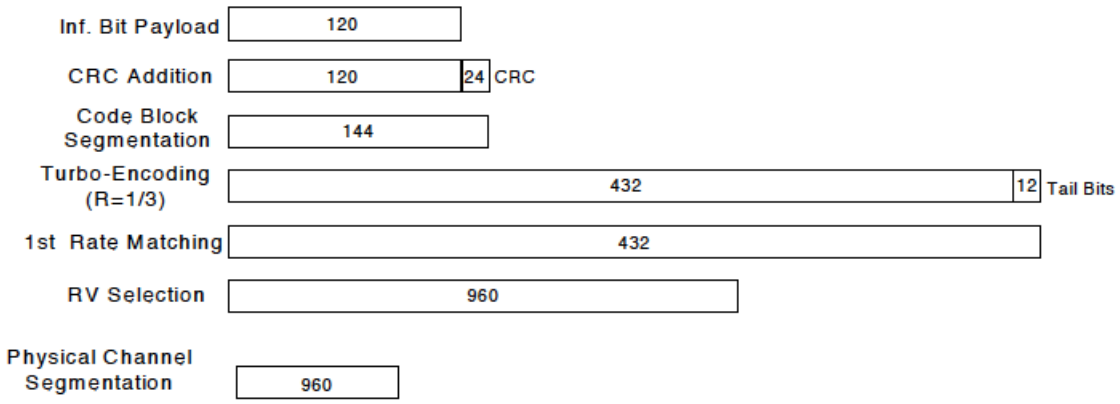

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

	Mode	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA	Rel6 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	Algorithm2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15

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	MPR	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs = βhs/ βc	30/15			

Up commands are set continuously to set the UE to Max power.

8.5.1. UMTS DC-HSDPA OUTPUT POWER RESULT

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Band	Mode	Subset	Ch.	f(MHz)	Conducted Power (dBm) Avg (dBm)
Band 5	HSDPA	1	4132	826.4	19.5
			4183	836.6	20.1
			4233	846.6	20.5
		2	4132	826.4	19.6
			4183	836.6	20.5
			4233	846.6	20.6
		3	4132	826.4	19.1
			4183	836.6	20.0
			4233	846.6	20.0
		4	4132	826.4	19.0
			4183	836.6	20.0
			4233	846.6	20.0
Band 2	HSDPA	1	9262	1852.4	20.0
			9400	1880.0	20.1
			9538	1907.6	19.5
		2	9262	1852.4	20.1
			9400	1880.0	20.1
			9538	1907.6	19.5
		3	9262	1852.4	19.4
			9400	1880.0	19.5
			9538	1907.6	19.0
		4	9262	1852.4	18.6
			9400	1880.0	18.7
			9538	1907.6	18.6

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8.6. LTE OUTPUT VERIFICATION

8.6.1. LTE OUTPUT RESULT

LTE Band 17

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm) 23790 710 MHz
LTE Band 17	10	QPSK	1	0	0	23.19
			1	25	0	23.20
			1	49	0	23.19
			25	0	1	22.13
			25	12	1	22.18
			25	25	1	22.10
			50	0	1	22.24
		16QAM	1	0	1	22.51
			1	25	1	22.54
			1	49	1	22.47
			25	0	2	21.13
			25	12	2	21.15
			25	25	2	21.13
			50	0	2	21.18
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm) 23790 710 MHz
LTE Band 17	5	QPSK	1	0	0	23.14
			1	12	0	23.42
			1	24	0	23.27
			12	0	1	22.10
			12	7	1	22.21
			12	13	1	22.12
			25	0	1	22.11
		16QAM	1	0	1	22.23
			1	12	1	22.36
			1	24	1	22.35
			12	0	2	21.13
			12	7	2	21.19
			12	13	2	21.10
			25	0	2	21.18

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LTE Band 12

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	23.23	23.15	23.48
			1	25	0	23.20	23.36	23.21
			1	49	0	23.20	23.02	23.42
			25	0	1	22.22	22.08	22.04
			25	12	1	22.17	22.09	22.10
			25	25	1	22.19	22.07	22.11
			50	0	1	22.28	22.06	22.20
		16QAM	1	0	1	22.32	22.47	22.56
			1	25	1	22.96	22.50	22.86
			1	49	1	22.42	22.40	22.60
			25	0	2	21.24	21.04	21.16
			25	12	2	21.19	21.12	21.19
			25	25	2	21.19	21.05	21.18
			50	0	2	21.16	21.08	21.15

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	23.01	23.22	23.14
			1	12	0	23.27	23.30	23.95
			1	24	0	23.11	23.18	23.34
			12	0	1	21.93	22.09	22.08
			12	7	1	21.99	22.08	22.20
			12	13	1	21.89	22.15	22.18
			25	0	1	21.99	22.04	22.13
		16QAM	1	0	1	22.14	22.94	22.16
			1	12	1	22.10	23.01	22.52
			1	24	1	22.14	22.91	22.48
			12	0	2	20.86	21.09	21.06
			12	7	2	20.92	21.07	21.17
			12	13	2	20.84	21.13	21.17
			25	0	2	21.08	20.98	21.19

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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	22.97	23.14	23.44
			1	8	0	23.32	23.40	23.71
			1	14	0	22.98	23.10	23.40
			8	0	1	21.99	22.14	22.16
			8	4	1	21.99	22.12	22.11
			8	7	1	21.85	22.19	22.19
			15	0	1	21.99	22.09	22.18
		16QAM	1	0	1	22.14	22.69	22.59
			1	8	1	21.95	22.62	22.66
			1	14	1	22.05	22.70	22.56
			8	0	2	21.10	20.96	21.33
			8	4	2	21.05	20.94	21.23
			8	7	2	20.98	21.04	21.37
			15	0	2	20.99	21.12	21.09

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	22.85	23.13	23.12
			1	3	0	22.88	23.13	23.29
			1	5	0	22.82	23.17	23.30
			3	0	0	22.57	23.06	23.09
			3	1	0	22.68	23.06	23.19
			3	3	0	22.75	23.16	23.15
			6	0	1	21.68	21.97	22.00
		16QAM	1	0	1	22.21	22.48	22.34
			1	3	1	22.40	22.62	22.59
			1	5	1	22.40	22.51	22.32
			3	0	1	21.71	22.21	22.27
			3	1	1	21.83	22.20	22.36
			3	3	1	21.90	22.34	22.39
			6	0	2	20.94	20.92	21.19

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LTE Band 7

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20850	21100	21350
						2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	**22.60**	**22.83**	**22.69**
			1	49	0	22.18	22.48	22.05
			1	99	0	22.55	22.81	22.50
			50	0	1	21.34	21.74	21.43
			50	24	1	21.33	21.65	21.32
			50	50	1	**21.53**	**21.87**	**21.64**
			100	0	1	**21.36**	**21.81**	**21.53**
		16QAM	1	0	1	22.14	22.31	22.13
			1	49	1	21.79	21.95	21.54
			1	99	1	22.18	22.30	21.99
			50	0	2	20.52	20.91	20.56
			50	24	2	20.52	20.88	20.42
			50	50	2	20.73	21.03	20.78
			100	0	2	20.64	20.97	20.74

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	22.67	22.83	22.57
			1	37	0	22.19	22.51	22.21
			1	74	0	22.69	22.89	22.53
			36	0	1	21.46	21.72	21.36
			36	20	1	21.22	21.63	21.34
			36	39	1	21.30	21.79	21.75
			75	0	1	21.41	21.76	21.51
		16QAM	1	0	1	21.60	22.17	21.56
			1	37	1	21.13	21.86	21.24
			1	74	1	21.65	22.24	21.58
			36	0	2	20.54	20.86	20.52
			36	20	2	20.49	20.80	20.55
			36	39	2	20.50	20.93	21.00
			75	0	2	20.58	20.90	20.69

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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	22.37	22.58	22.29
			1	25	0	22.26	22.52	22.62
			1	49	0	22.04	22.64	22.35
			25	0	1	21.33	21.66	21.51
			25	12	1	21.35	21.68	21.88
			25	25	1	21.24	21.71	21.84
			50	0	1	21.23	21.71	21.70
		16QAM	1	0	1	21.28	22.03	21.35
			1	25	1	21.10	21.99	21.69
			1	49	1	20.99	22.11	21.47
			25	0	2	20.57	20.86	20.78
			25	12	2	20.51	20.89	21.13
			25	25	2	20.40	20.84	21.15
			50	0	2	20.37	20.84	20.96

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	22.42	22.68	22.68
			1	12	0	22.28	22.60	22.61
			1	24	0	22.22	22.63	22.37
			12	0	1	21.45	21.72	21.93
			12	7	1	21.32	21.68	21.86
			12	13	1	21.25	21.68	21.76
			25	0	1	21.30	21.66	21.81
		16QAM	1	0	1	21.39	21.91	22.44
			1	12	1	21.28	21.87	22.37
			1	24	1	21.25	21.88	22.18
			12	0	2	20.64	20.91	21.14
			12	7	2	20.53	20.93	21.07
			12	13	2	20.44	20.94	20.98
			25	0	2	20.56	20.84	20.99

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LTE Band 5

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	23.31	23.50	23.74
			1	25	0	23.33	23.66	23.67
			1	49	0	23.31	23.49	23.39
			25	0	1	22.26	22.41	22.47
			25	12	1	22.34	22.43	22.40
			25	25	1	22.26	22.49	22.46
			50	0	1	22.36	22.52	22.43
		16QAM	1	0	1	22.65	22.89	23.02
			1	25	1	22.79	22.85	22.20
			1	49	1	22.62	22.83	22.49
			25	0	2	21.27	21.44	21.57
			25	12	2	21.33	21.49	21.52
			25	25	2	21.31	21.48	21.56
			50	0	2	21.31	21.54	21.48
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	23.31	23.57	23.70
			1	12	0	23.60	23.55	23.70
			1	24	0	23.42	23.66	23.38
			12	0	1	22.29	22.43	22.55
			12	7	1	22.28	22.48	22.51
			12	13	1	22.27	22.40	22.54
			25	0	1	22.25	22.38	22.48
		16QAM	1	0	1	22.45	22.98	22.50
			1	12	1	22.63	22.98	22.60
			1	24	1	22.48	22.96	22.20
			12	0	2	21.28	21.53	21.58
			12	7	2	21.27	21.53	21.51
			12	13	2	21.26	21.46	21.51
			25	0	2	21.33	21.43	21.42

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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	23.36	23.51	23.48
			1	8	0	23.66	23.58	23.88
			1	14	0	23.33	23.51	23.48
			8	0	1	22.27	22.51	22.43
			8	4	1	22.28	22.49	22.43
			8	7	1	22.30	22.49	22.45
			15	0	1	22.28	22.40	22.42
		16QAM	1	0	1	22.32	23.04	22.56
			1	8	1	22.24	22.98	22.35
			1	14	1	22.37	23.05	22.56
			8	0	2	21.37	21.37	21.57
			8	4	2	21.40	21.38	21.54
			8	7	2	21.45	21.39	21.59
			15	0	2	21.32	21.48	21.46

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	23.18	23.76	23.52
			1	3	0	23.17	23.10	23.44
			1	5	0	23.19	23.10	23.27
			3	0	0	23.16	23.10	23.42
			3	1	0	23.22	23.10	23.46
			3	3	0	23.41	23.10	23.41
			6	0	1	22.62	22.10	22.36
		16QAM	1	0	1	22.37	22.20	22.63
			1	3	1	22.46	23.02	22.56
			1	5	1	22.48	22.97	22.40
			3	0	1	22.61	22.69	22.60
			3	1	1	22.36	22.71	22.68
			3	3	1	22.37	22.70	22.64
			6	0	2	21.28	21.33	21.57

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LTE Band 4

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	22.7	22.7	23.1
			1	49	0	22.3	22.6	22.7
			1	99	0	22.4	22.4	22.9
			50	0	1	21.4	21.4	21.7
			50	24	1	21.4	21.3	21.6
			50	50	1	21.3	21.3	21.5
			100	0	1	21.4	21.4	21.6
		16QAM	1	0	1	21.9	22.1	21.5
			1	49	1	21.9	21.8	22.1
			1	99	1	21.6	21.8	21.9
			50	0	2	20.5	20.5	20.8
			50	24	2	20.5	20.4	20.7
			50	50	2	20.5	20.4	20.6
			100	0	2	20.5	20.5	20.7

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	22.5	22.6	22.8
			1	37	0	22.7	22.6	22.7
			1	74	0	22.5	22.5	22.7
			36	0	1	21.5	21.4	21.7
			36	20	1	21.4	21.4	21.5
			36	39	1	21.4	21.4	21.5
			75	0	1	21.4	21.4	21.6
		16QAM	1	0	1	21.8	21.8	21.4
			1	37	1	21.6	21.8	21.4
			1	74	1	21.5	21.6	21.4
			36	0	2	20.5	20.5	20.7
			36	20	2	20.4	20.5	20.6
			36	39	2	20.4	20.5	20.6
			75	0	2	20.5	20.4	20.5

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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	22.7	22.7	23.1
			1	25	0	22.3	22.6	22.7
			1	49	0	22.4	22.4	22.9
			25	0	1	21.4	21.4	21.7
			25	12	1	21.4	21.3	21.6
			25	25	1	21.3	21.3	21.5
			50	0	1	21.4	21.4	21.6
		16QAM	1	0	1	21.9	22.1	21.5
			1	25	1	21.9	21.8	22.1
			1	49	1	21.6	21.8	21.9
			25	0	2	20.5	20.5	20.8
			25	12	2	20.5	20.4	20.7
			25	25	2	20.5	20.4	20.6
			50	0	2	20.5	20.5	20.7

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	22.5	22.6	22.8
			1	12	0	22.7	22.6	22.7
			1	24	0	22.5	22.5	22.7
			12	0	1	21.5	21.4	21.7
			12	7	1	21.4	21.4	21.5
			12	13	1	21.4	21.4	21.5
			25	0	1	21.4	21.4	21.6
		16QAM	1	0	1	21.8	21.8	21.4
			1	12	1	21.6	21.8	21.4
			1	24	1	21.5	21.6	21.4
			12	0	2	20.5	20.5	20.7
			12	7	2	20.4	20.5	20.6
			12	13	2	20.4	20.5	20.6
			25	0	2	20.5	20.4	20.5

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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	22.6	22.5	22.8
			1	8	0	22.8	22.6	23.2
			1	14	0	22.4	22.4	22.7
			8	0	1	21.5	21.4	21.6
			8	4	1	21.4	21.4	21.5
			8	7	1	21.4	21.4	21.6
			15	0	1	21.4	21.4	21.6
		16QAM	1	0	1	21.5	22.0	21.8
			1	8	1	21.3	21.9	21.9
			1	14	1	21.5	21.9	21.8
			8	0	2	20.7	20.3	20.8
			8	4	2	20.6	20.3	20.7
			8	7	2	20.6	20.3	20.8
			15	0	2	20.5	20.5	20.6

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	22.7	22.3	23.2
			1	3	0	22.6	22.4	23.2
			1	5	0	22.6	22.4	23.2
			3	0	0	22.4	22.3	23.2
			3	1	0	22.5	23.2	23.2
			3	3	0	22.4	22.6	23.2
			6	0	1	21.4	21.7	22.2
		16QAM	1	0	1	21.7	21.4	22.1
			1	3	1	21.9	21.3	22.1
			1	5	1	21.8	21.4	22.2
			3	0	1	21.5	21.9	22.2
			3	1	1	21.5	22.1	22.2
			3	3	1	21.4	22.0	22.2
			6	0	2	20.6	21.2	21.2

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LTE Band 2

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	**22.9**	**22.9**	**22.8**
			1	49	0	22.6	22.5	22.5
			1	99	0	22.5	22.5	22.2
			50	0	1	**21.5**	**21.5**	**21.5**
			50	24	1	21.2	21.2	21.3
			50	50	1	21.2	21.2	21.2
			100	0	1	**21.3**	**21.3**	**21.4**
		16QAM	1	0	1	22.0	21.9	22.1
			1	49	1	22.0	21.6	21.4
			1	99	1	21.3	21.3	21.4
			50	0	2	20.5	20.5	20.6
			50	24	2	20.2	20.2	20.4
			50	50	2	20.2	20.2	20.2
			100	0	2	20.4	20.4	20.4

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	22.9	22.9	22.8
			1	37	0	22.6	22.5	22.5
			1	74	0	22.5	22.5	22.2
			36	0	1	21.5	21.5	21.5
			36	20	1	21.2	21.2	21.3
			36	39	1	21.2	21.2	21.2
			75	0	1	21.3	21.3	21.4
		16QAM	1	0	1	22.0	21.9	22.1
			1	37	1	22.0	21.6	21.4
			1	74	1	21.3	21.3	21.4
			36	0	2	20.5	20.5	20.6
			36	20	2	20.2	20.2	20.4
			36	39	2	20.2	20.2	20.2
			75	0	2	20.4	20.4	20.4

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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	22.9	22.8	23.1
			1	25	0	22.6	22.8	22.8
			1	49	0	22.5	22.4	22.6
			25	0	1	21.7	21.7	21.9
			25	12	1	21.6	21.5	21.7
			25	25	1	21.6	21.5	21.8
			50	0	1	21.7	21.7	21.8
		16QAM	1	0	1	21.9	22.2	22.2
			1	25	1	21.9	21.8	22.0
			1	49	1	21.6	21.7	21.7
			25	0	2	20.7	20.7	21.0
			25	12	2	20.7	20.7	20.8
			25	25	2	20.7	20.6	20.8
			50	0	2	20.7	20.6	20.8

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	22.7	22.7	22.9
			1	12	0	22.7	22.7	22.8
			1	24	0	22.5	22.5	22.6
			12	0	1	21.5	21.5	21.8
			12	7	1	21.6	21.6	21.8
			12	13	1	21.6	21.5	21.8
			25	0	1	21.6	21.5	21.7
		16QAM	1	0	1	21.7	21.7	22.0
			1	12	1	21.8	21.7	21.9
			1	24	1	21.6	21.6	21.8
			12	0	2	20.7	20.7	20.8
			12	7	2	20.6	20.6	20.9
			12	13	2	20.6	20.6	20.8
			25	0	2	20.7	20.7	20.8

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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	22.5	22.6	22.9
			1	8	0	23.1	22.6	22.8
			1	14	0	22.4	22.4	22.6
			8	0	1	21.5	21.7	21.8
			8	4	1	21.5	21.6	21.8
			8	7	1	21.5	21.6	21.8
			15	0	1	21.5	21.5	21.8
		16QAM	1	0	1	21.5	22.1	22.0
			1	8	1	21.4	21.9	21.9
			1	14	1	21.5	22.0	21.7
			8	0	2	20.7	20.4	20.9
			8	4	2	20.6	20.5	20.9
			8	7	2	20.7	20.6	21.0
			15	0	2	20.5	20.6	20.7

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	22.4	22.8	22.7
			1	3	0	22.4	22.2	22.5
			1	5	0	22.3	22.5	22.5
			3	0	0	22.4	22.5	22.6
			3	1	0	22.4	22.6	22.6
			3	3	0	22.4	22.6	22.6
			6	0	1	21.6	21.7	21.7
		16QAM	1	0	1	21.6	22.1	21.7
			1	3	1	21.6	22.1	21.7
			1	5	1	21.7	22.2	21.6
			3	0	1	21.6	22.0	21.8
			3	1	1	21.7	22.1	21.9
			3	3	1	21.7	22.1	21.8
			6	0	2	20.9	20.9	20.9

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9. PEAK TO AVERAGE RATIO

Test Procedure

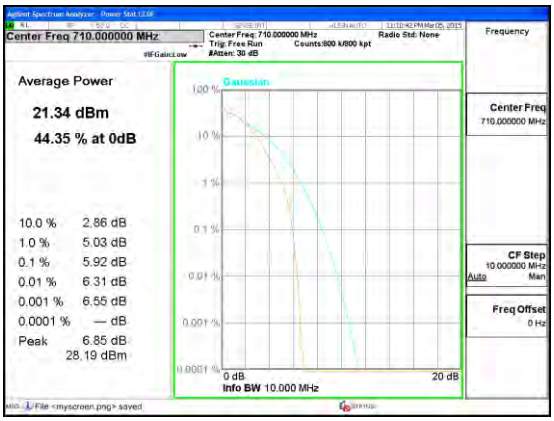
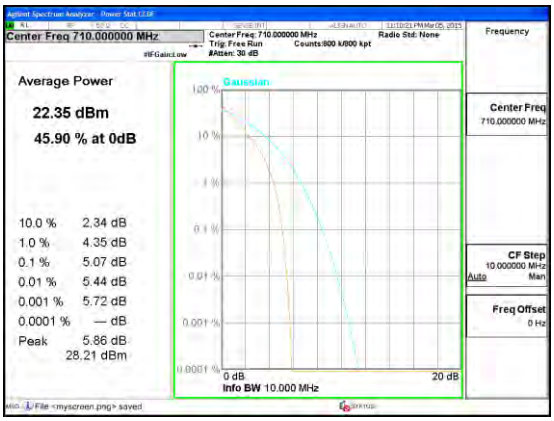
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

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

LTE Band 17

Band LTE17 10MHz 16QAM	 Band LTE17 10MHz 16QAM Mid channel	 Band LTE17 10MHz QPSK Mid channel

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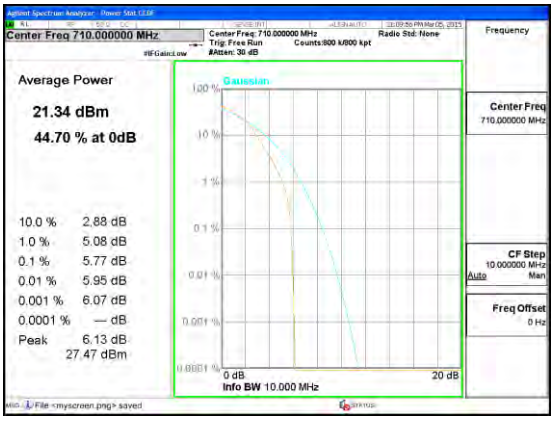
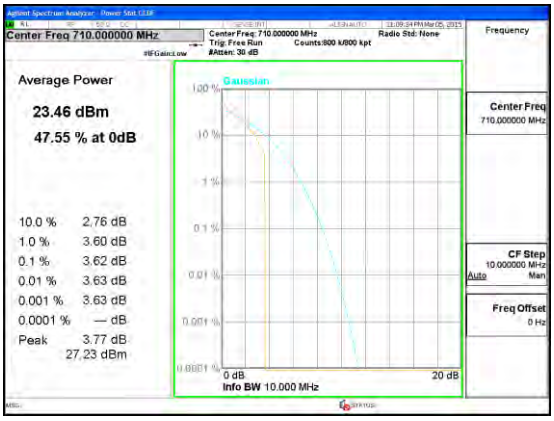
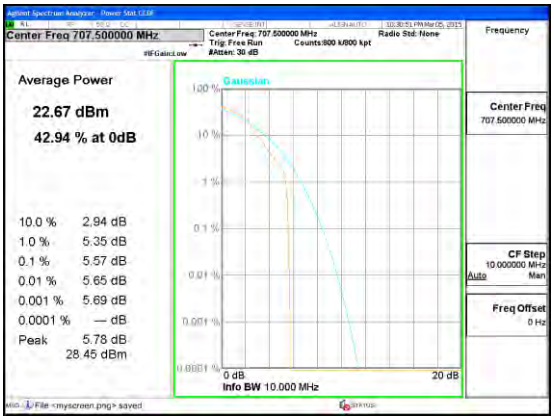
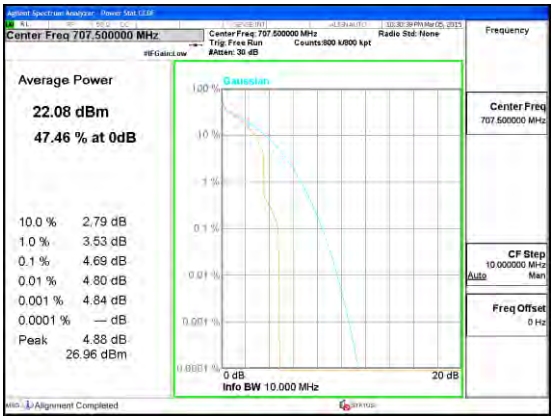
Band LTE17 5MHz 16QAM	 Band LTE17 5MHz 16QAM Mid channel	 Band LTE17 5MHz QPSK Mid channel

LTE Band 12

Band LTE12 10MHz 16QAM	 Band LTE12 10MHz 16QAM Mid channel	 Band LTE12 10MHz QPSK Mid channel

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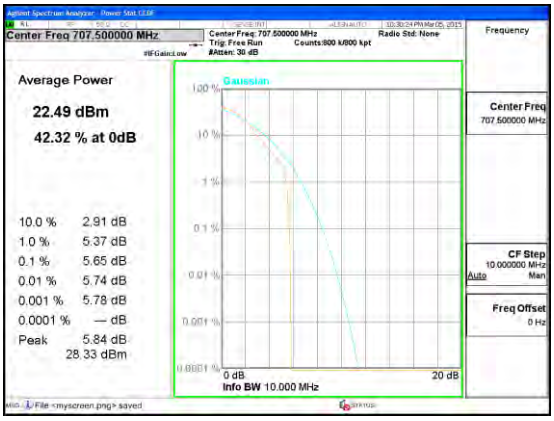
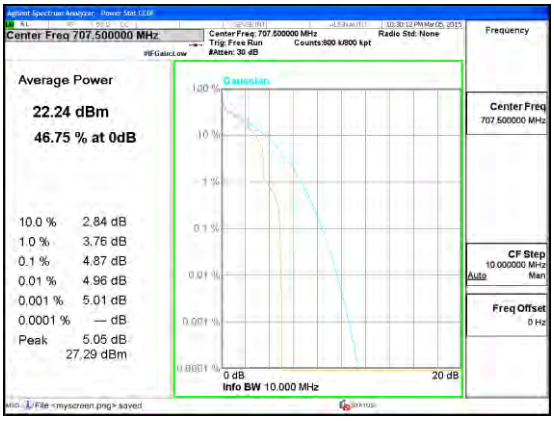
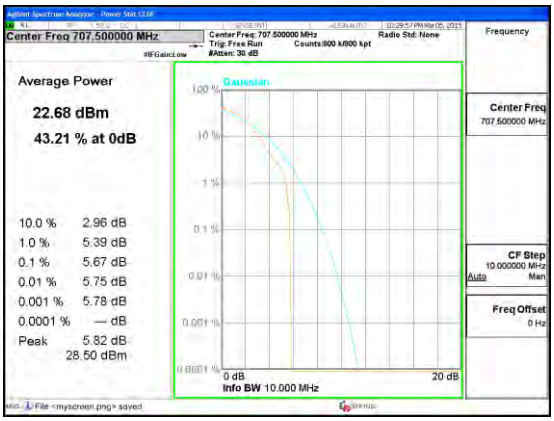
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz 16QAM Mid channel	 Band LTE12 5MHz QPSK Mid channel

Band LTE12 3MHz 16QAM	 Band LTE12 3MHz 16QAM Mid channel	 Band LTE12 3MHz QPSK Mid channel

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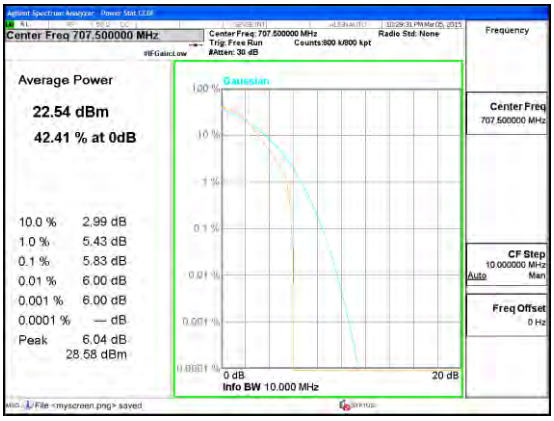
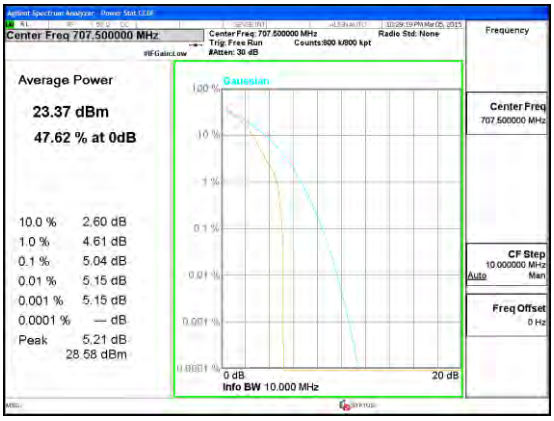
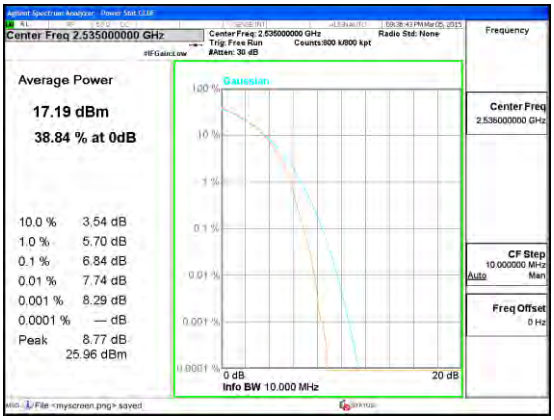
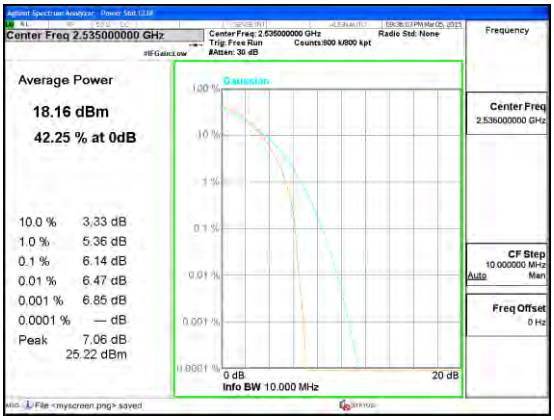
Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz 16QAM Mid channel	 Band LTE12 1.4MHz QPSK Mid channel

LTE Band 7

Band LTE7 20MHz 16QAM	 Band LTE7 20MHz 16QAM Mid channel	 Band LTE7 20MHz QPSK Mid channel

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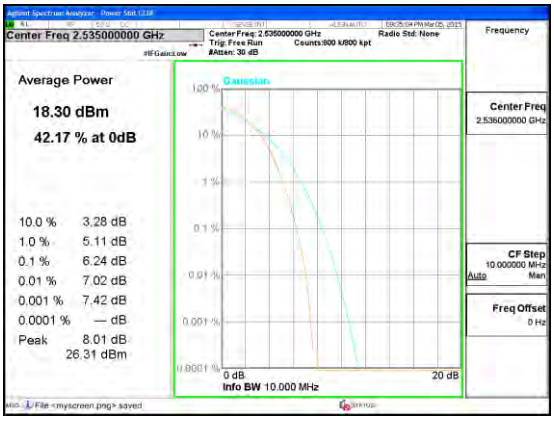
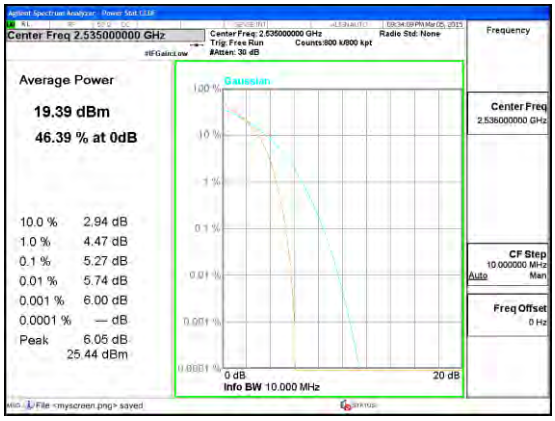
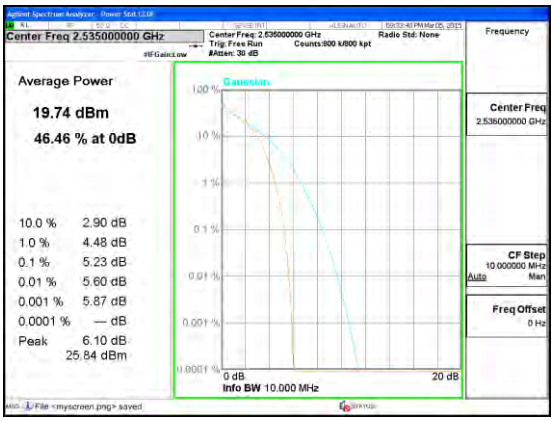
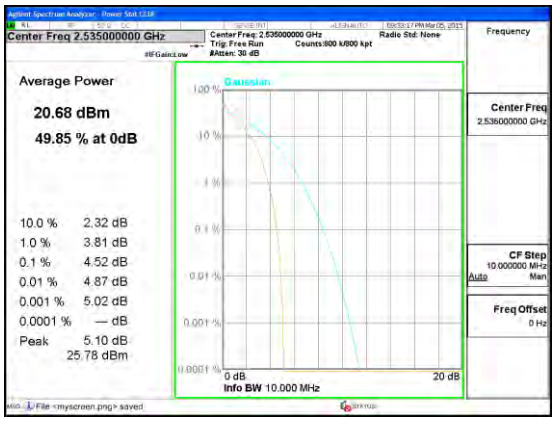
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz 16QAM Mid channel	 Band LTE7 15MHz QPSK Mid channel

Band LTE7 10MHz 16QAM	 Band LTE7 10MHz 16QAM Mid channel	 Band LTE7 10MHz QPSK Mid channel

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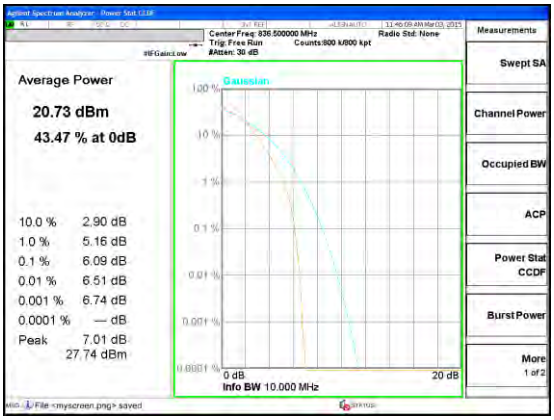
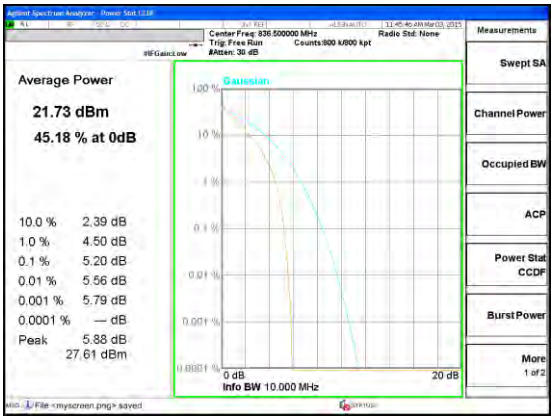
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz 16QAM Mid channel	 Band LTE7 5MHz QPSK Mid channel

LTE Band 5

Band LTE5 10MHz 16QAM	 Band LTE5 10MHz 16QAM Mid channel	 Band LTE5 10MHz QPSK Mid channel

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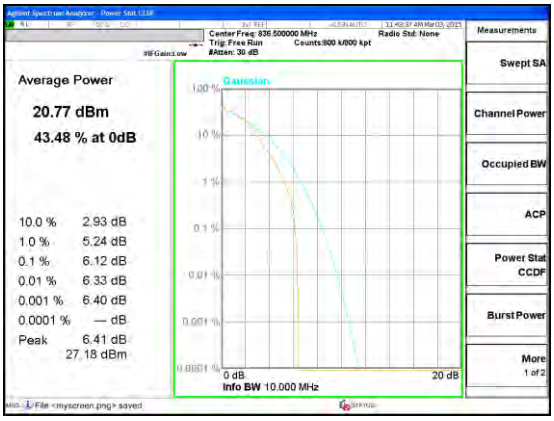
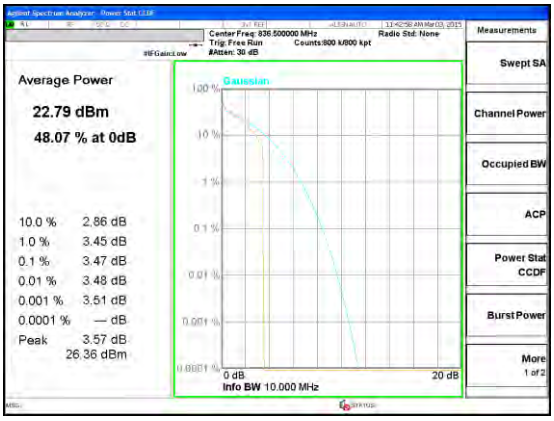
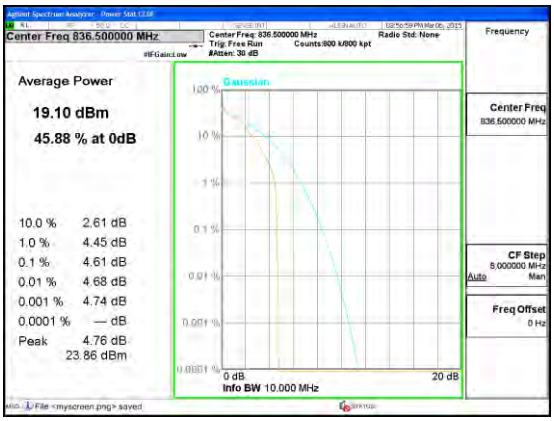
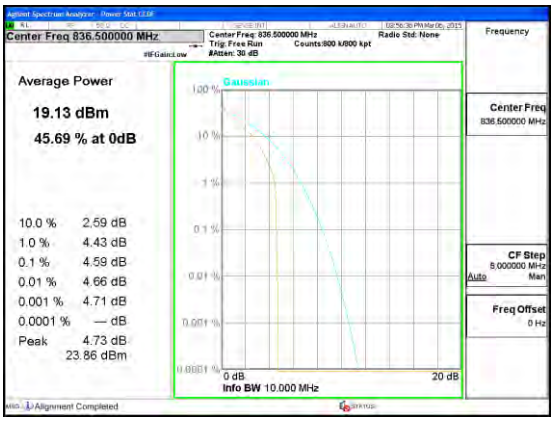
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz 16QAM Mid channel	 Band LTE5 5MHz QPSK Mid channel

Band LTE5 3MHz 16QAM	 Band LTE5 3MHz 16QAM Mid channel	 Band LTE5 3MHz QPSK Mid channel

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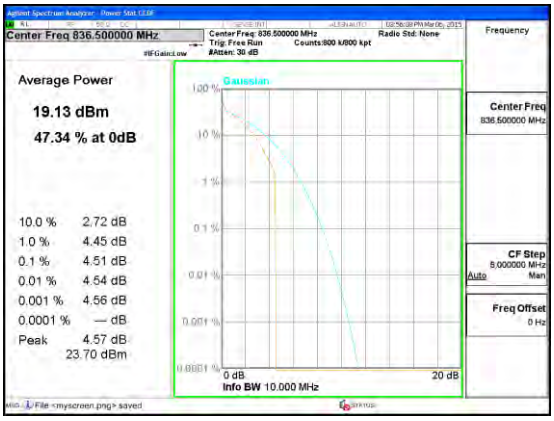
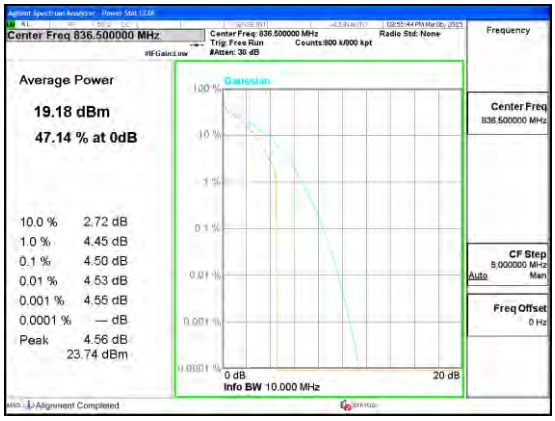
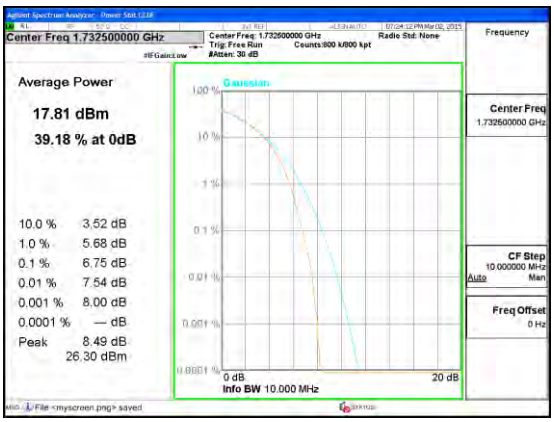
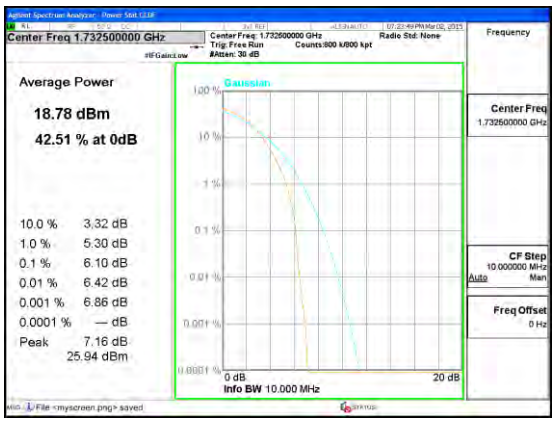
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz 16QAM Mid channel	 Band LTE5 1.4MHz QPSK Mid channel

LTE Band 4

Band LTE4 20MHz 16QAM	 Band LTE4 20MHz 16QAM Mid channel	 Band LTE4 20MHz QPSK Mid channel

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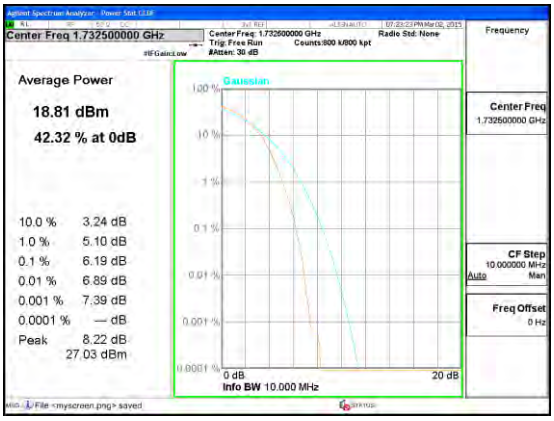
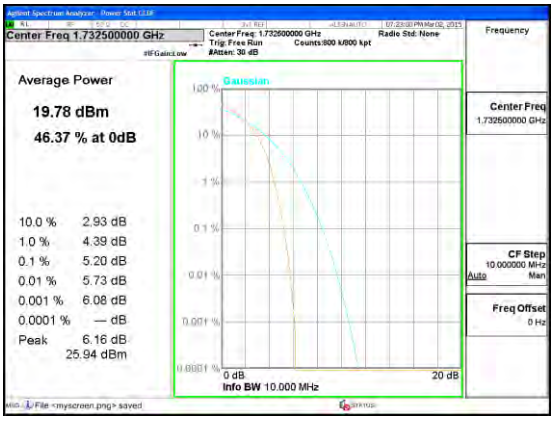
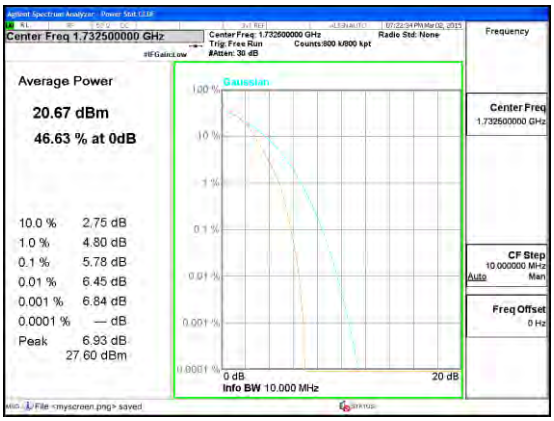
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz 16QAM Mid channel	 Band LTE4 15MHz QPSK Mid channel

Band LTE4 10MHz 16QAM	 Band LTE4 10MHz 16QAM Mid channel	 Band LTE4 10MHz QPSK Mid channel

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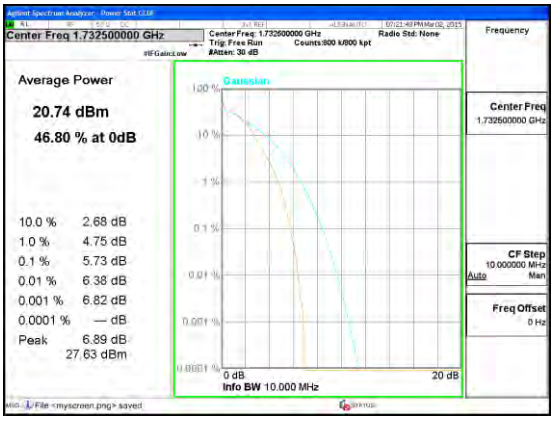
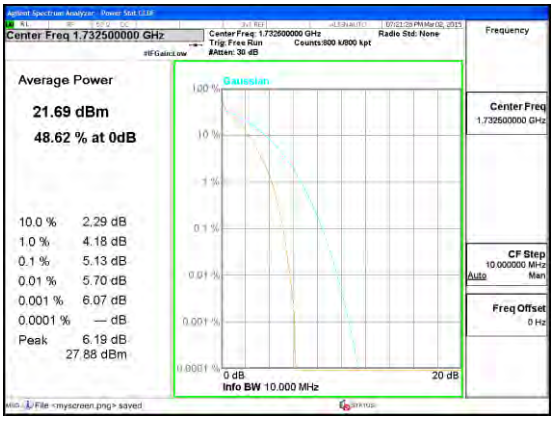
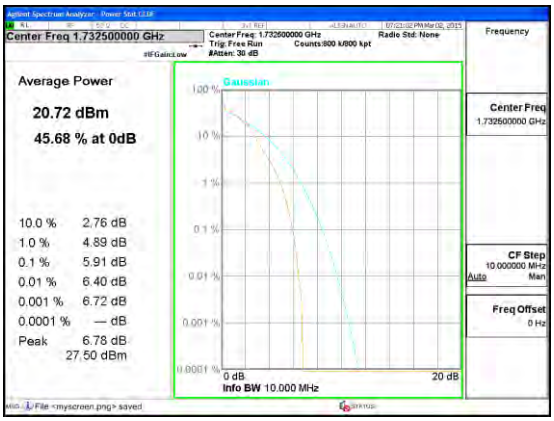
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz 16QAM Mid channel	 Band LTE4 5MHz QPSK Mid channel

Band LTE4 3MHz 16QAM	 Band LTE4 3MHz 16QAM Mid channel	 Band LTE4 3MHz QPSK Mid channel

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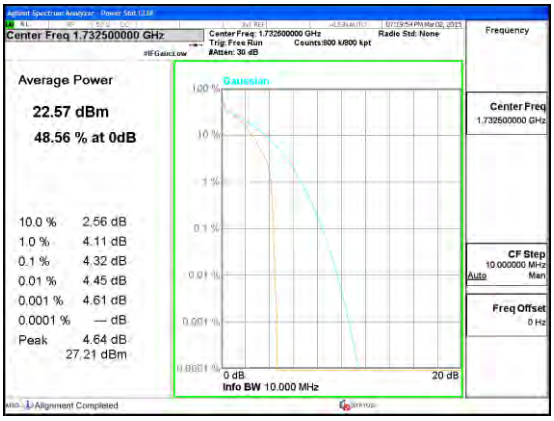
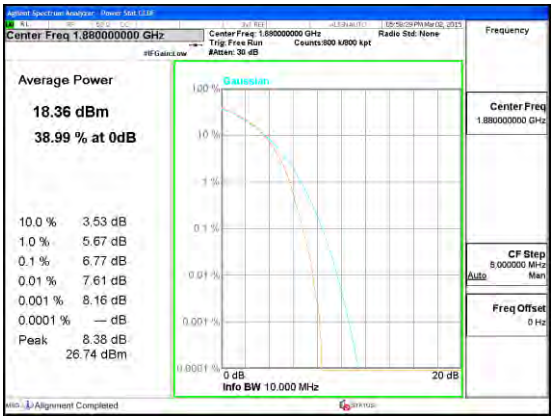
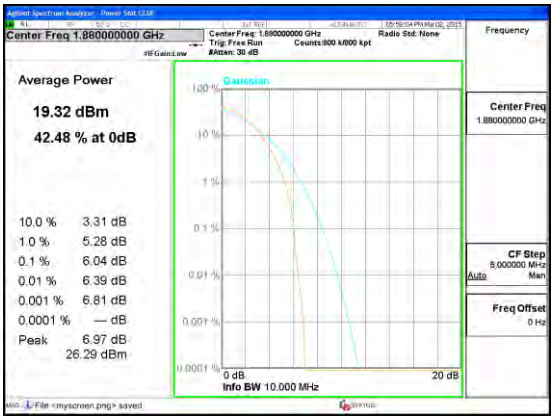
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz 16QAM Mid channel	 Band LTE4 1.4MHz QPSK Mid channel

LTE Band 2

Band LTE2 20MHz 16QAM	 Band LTE2 20MHz 16QAM Mid channel	 Band LTE2 20MHz QPSK Mid channel

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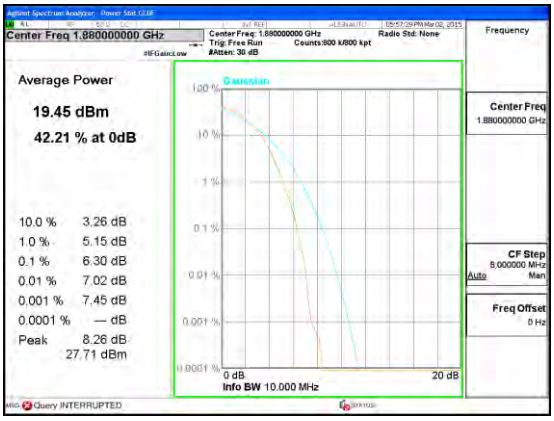
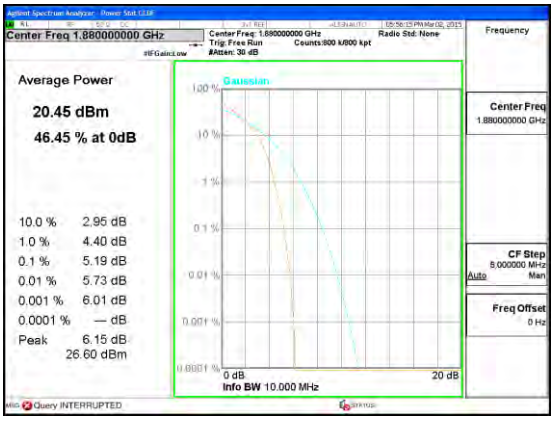
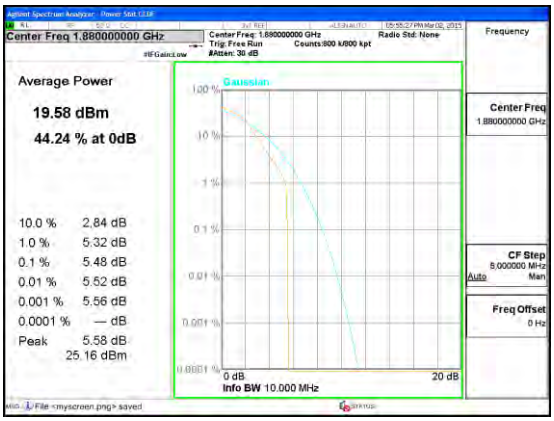
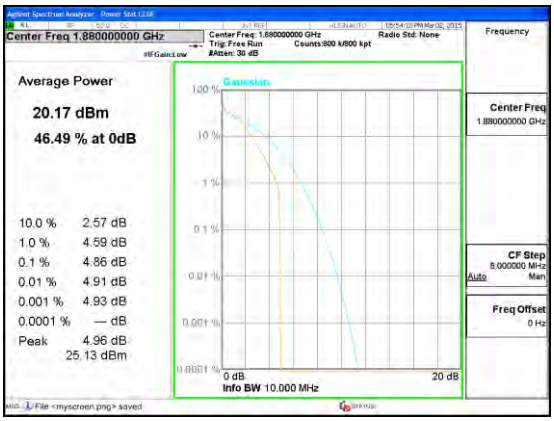
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz 16QAM Mid channel	 Band LTE2 15MHz QPSK Mid channel

Band LTE2 10MHz 16QAM	 Band LTE2 10MHz 16QAM Mid channel	 Band LTE2 10MHz QPSK Mid channel

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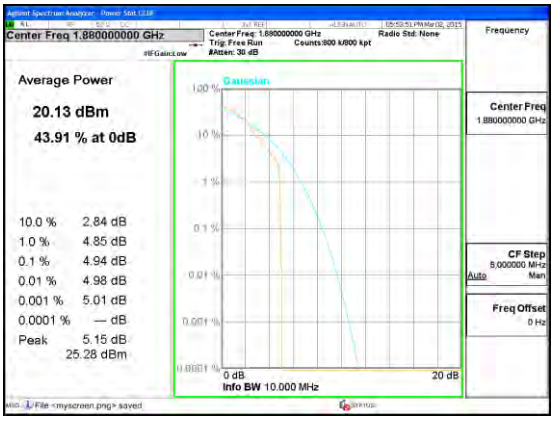
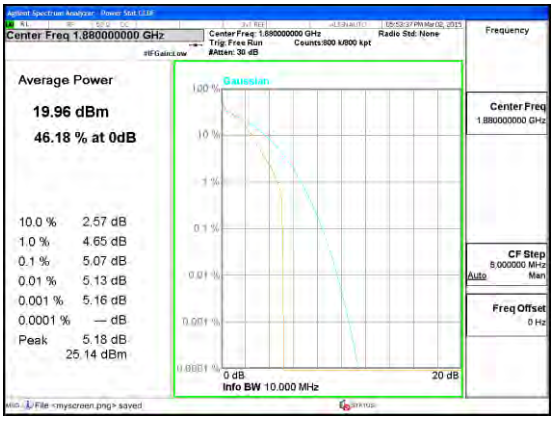
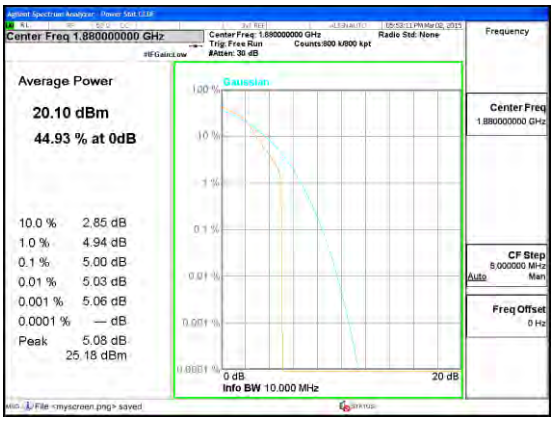
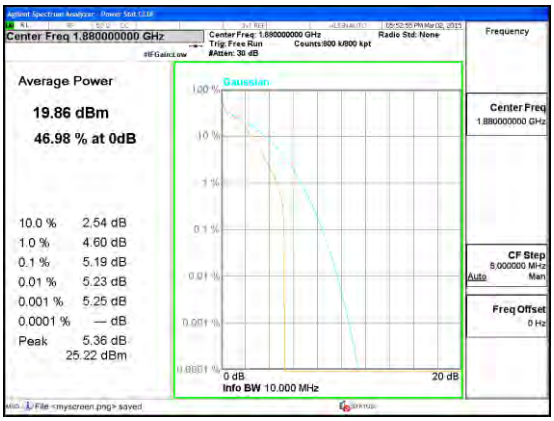
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz 16QAM Mid channel	 Band LTE2 5MHz QPSK Mid channel

Band LTE2 3MHz 16QAM	 Band LTE2 3MHz 16QAM Mid channel	 Band LTE2 3MHz QPSK Mid channel

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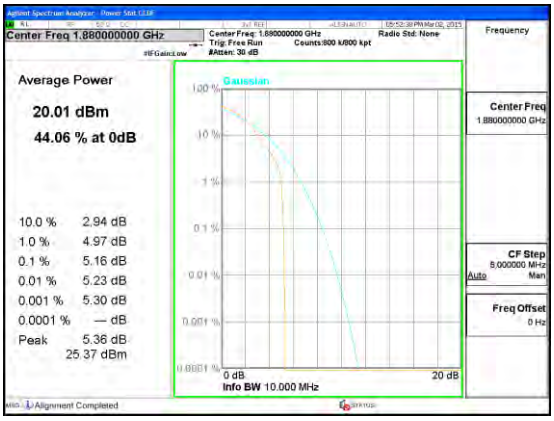
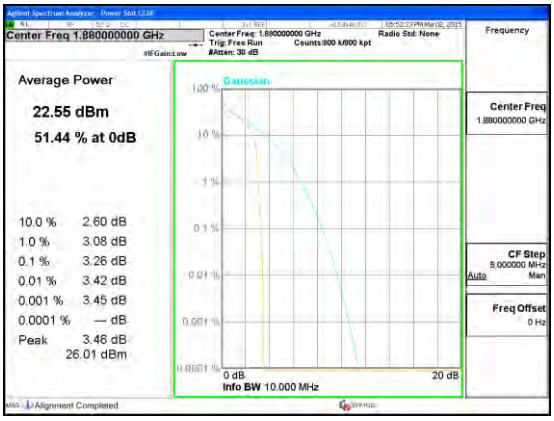
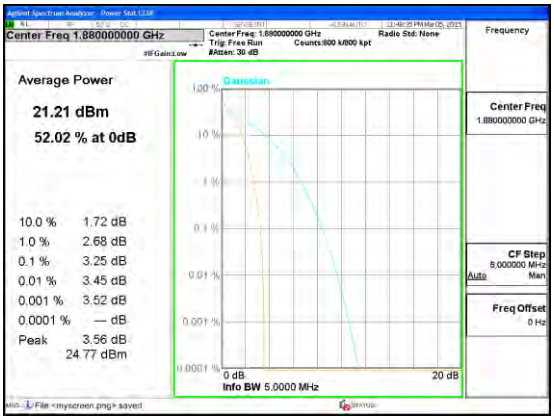
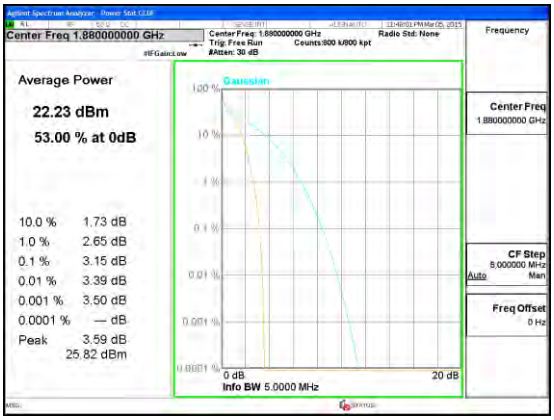
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz 16QAM Mid channel	 Band LTE2 1.4MHz QPSK Mid channel

WCDMA

Band Band 2 HSDPA	 Band WCDMA B2 HSDPA	 Band WCDMA B2 REL99

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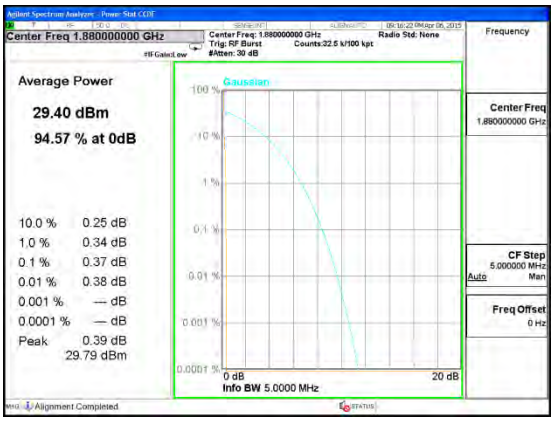
Band Band 5 HSDPA	 Band WCDMA B5 HSDPA	 Band WCDMA B5 REL99

GSM

Band Band 2	 EGPRS	 GPRS

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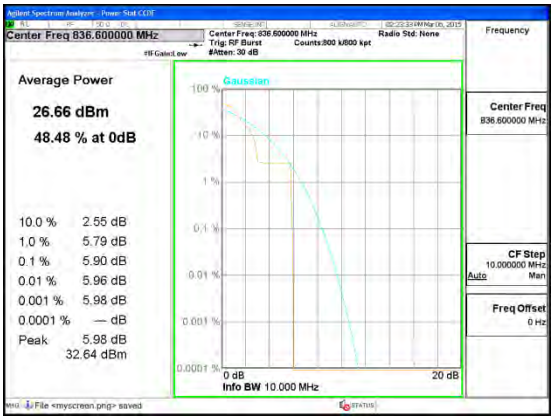
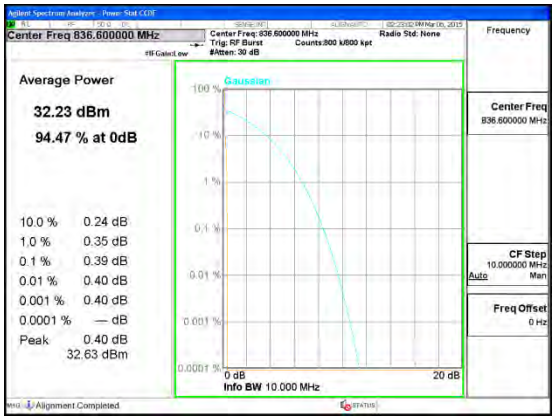
Band Band 5	 EGPRS	 GPRS

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10. LIMITS AND CONDUCTED RESULTS

10.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

IC: RSS-132, 4.5; RSS-133, 6.5

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

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10.1.1. OCCUPIED BANDWIDTH RESULTS

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
GSM850	GPRS	128	824.2	245.6	315.0
		190	836.6	246.3	315.9
		251	848.8	245.3	320.9
	EGPRS	128	824.2	243.6	311.3
		190	836.6	234.6	313.2
		251	848.8	238.7	305.5
GSM1900	GPRS	512	1850.2	242.0	317.4
		661	1880	242.9	310.5
		810	1909.8	246.1	322.7
	EGPRS	512	1850.2	247.5	311.9
		661	1880	232.7	303.3
		810	1909.8	243.9	311.5

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Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
Band 5	REL99	4132	826.4	4.1376	4.697
		4183	836.6	4.1377	4.684
		4233	846.6	4.1419	4.691
	HSDPA	4132	826.4	4.1553	4.678
		4183	836.6	4.1498	4.719
		4233	846.6	4.1300	4.695
Band 2	REL99	9262	1852.4	4.1430	4.696
		9400	1880	4.1450	4.703
		9538	1907.6	4.1400	4.679
	HSDPA	9262	1852.4	4.1500	4.690
		9400	1880	4.1500	4.692
		9538	1907.6	4.1490	4.711

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10.1.2. LTE OCCUPIED BANDWIDTH RESULTS

LTE Band 17

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE17	10	QPSK	50/0	709	8.975	9.773
			50/0	710	8.982	9.742
			50/0	711	8.961	9.781
		16QAM	50/0	709	8.974	9.793
			50/0	710	8.967	9.753
			50/0	711	9.001	9.785
	5	QPSK	25/0	706.5	4.488	4.954
			25/0	710	4.488	4.957
			25/0	713.5	4.505	4.939
		16QAM	25/0	706.5	4.487	4.949
			25/0	710	4.485	4.927
			25/0	713.5	4.499	4.952

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LTE Band 12

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE12	10	QPSK	50/0	704	8.971	9.748
			50/0	707.5	8.981	9.805
			50/0	711	8.964	9.768
		16QAM	50/0	704	8.956	9.777
			50/0	707.5	8.955	9.717
			50/0	711	8.992	9.789
	5	QPSK	25/0	701.5	4.508	4.957
			25/0	707.5	4.489	4.96
			25/0	713.5	4.483	4.936
		16QAM	25/0	701.5	4.497	4.974
			25/0	707.5	4.489	4.938
			25/0	713.5	4.483	4.924
	3	QPSK	15/0	700.5	2.699	3.01
			15/0	707.5	2.693	2.984
			15/0	714.5	2.702	2.986
		16QAM	15/0	700.5	2.700	3.009
			15/0	707.5	2.698	2.995
			15/0	714.5	2.695	2.999
	1.4	QPSK	6/0	699.7	1.087	1.234
			6/0	707.5	1.08	1.224
			6/0	715.3	1.085	1.227
		16QAM	6/0	699.7	1.084	1.232
			6/0	707.5	1.087	1.236
			6/0	715.3	1.095	1.246

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LTE Band 7

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE7	20	QPSK	100/0	2510	17.941	19.604
			100/0	2535	17.948	19.424
			100/0	2560	17.886	19.516
		16QAM	100/0	2510	17.939	19.407
			100/0	2535	17.922	19.441
			100/0	2560	17.894	19.453
	15	QPSK	75/0	2507.5	13.443	14.718
			75/0	2535	13.474	14.670
			75/0	2562.5	13.468	14.678
		16QAM	75/0	2507.5	13.465	14.623
			75/0	2535	13.448	14.744
			75/0	2562.5	13.443	14.567
	10	QPSK	50/0	2505	8.967	9.705
			50/0	2535	8.977	9.789
			50/0	2565	8.956	9.797
		16QAM	50/0	2505	8.982	9.785
			50/0	2535	8.970	9.839
			50/0	2565	8.995	9.805
	5	QPSK	25/0	2502.5	4.498	4.966
			25/0	2535	4.485	4.956
			25/0	2567.5	4.506	4.953
		16QAM	25/0	2502.5	4.492	4.940
			25/0	2535	4.484	4.917
			25/0	2567.5	4.499	4.988

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LTE Band 5

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE5	10	QPSK	50/0	829	8.987	9.737
			50/0	836.5	8.978	9.798
			50/0	844	8.963	9.715
		16QAM	50/0	829	8.974	9.762
			50/0	836.5	8.972	9.769
			50/0	844	8.985	9.754
	5	QPSK	25/0	826.5	4.497	4.952
			25/0	836.5	4.486	4.924
			25/0	846.5	4.504	4.962
		16QAM	25/0	826.5	4.485	4.929
			25/0	836.5	4.485	4.910
			25/0	846.5	4.500	4.970
	3	QPSK	15/0	825.5	2.699	2.966
			15/0	836.5	2.6990	2.963
			15/0	847.5	2.6988	2.994
		16QAM	15/0	825.5	2.697	2.981
			15/0	836.5	2.701	2.984
			15/0	847.5	2.6995	2.985
	1.4	QPSK	6/0	824.7	1.0868	1.231
			6/0	836.5	1.0864	1.233
			6/0	848.3	1.0850	1.234
		16QAM	6/0	824.7	1.0863	1.232
			6/0	836.5	1.0868	1.228
			6/0	848.3	1.0848	1.233

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LTE Band 4

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE4	20	QPSK	100/0	1720	17.925	19.306
			100/0	1732.5	17.930	19.360
			100/0	1745	17.913	19.567
		16QAM	100/0	1720	17.926	19.405
			100/0	1732.5	17.911	19.400
			100/0	1745	17.917	19.420
	15	QPSK	75/0	1717.5	13.464	14.667
			75/0	1732.5	13.462	14.589
			75/0	1747.5	13.436	14.677
		16QAM	75/0	1717.5	13.462	14.548
			75/0	1732.5	13.459	14.687
			75/0	1747.5	13.409	14.608
	10	QPSK	50/0	1715	8.975	9.799
			50/0	1732.5	8.977	9.748
			50/0	1750	8.964	9.729
		16QAM	50/0	1715	8.989	9.859
			50/0	1732.5	8.958	9.760
			50/0	1750	8.988	9.802
	5	QPSK	25/0	1712.5	4.505	4.954
			25/0	1732.5	4.489	4.950
			25/0	1752.5	4.481	4.928
		16QAM	25/0	1712.5	4.500	4.984
			25/0	1732.5	4.490	4.955
			25/0	1752.5	4.483	4.926

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE4	3	QPSK	15/0	1711.5	2.701	2.996
			15/0	1732.5	2.699	3.003
			15/0	1753.5	2.702	3.020
		16QAM	15/0	1711.5	2.702	3.005
			15/0	1732.5	2.696	3.010
			15/0	1753.5	2.696	3.006
	1.4	QPSK	6/0	1710.7	1.087	1.238
			6/0	1732.5	1.082	1.239
			6/0	1754.3	1.087	1.241
		16QAM	6/0	1710.7	1.086	1.236
			6/0	1732.5	1.087	1.240
			6/0	1754.3	1.096	1.244

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LTE Band 2

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE2	20	QPSK	100/0	1860	17.930	19.412
			100/0	1880	17.954	19.407
			100/0	1900	17.938	19.449
		16QAM	100/0	1860	17.939	19.446
			100/0	1880	17.911	19.377
			100/0	1900	17.901	19.440
	15	QPSK	75/0	1857.5	13.460	14.719
			75/0	1880	13.460	14.608
			75/0	1902.5	13.471	14.583
		16QAM	75/0	1857.5	13.468	14.628
			75/0	1880	13.454	14.627
			75/0	1902.5	13.448	14.691
	10	QPSK	50/0	1855	8.996	9.825
			50/0	1880	8.972	9.753
			50/0	1905	8.958	9.766
		16QAM	50/0	1855	8.989	9.845
			50/0	1880	8.936	9.824
			50/0	1905	8.994	9.774
	5	QPSK	25/0	1852.5	4.509	4.970
			25/0	1880	4.498	4.954
			25/0	1907.5	4.484	4.931
		16QAM	25/0	1852.5	4.501	4.975
			25/0	1880	4.488	4.948
			25/0	1907.5	4.482	4.896

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
LTE2	3	QPSK	15/0	1851.5	2.698	3.002
			15/0	1880	2.700	2.987
			15/0	1908.5	2.702	3.003
		16QAM	15/0	1851.5	2.697	3.011
			15/0	1880	2.697	3.009
			15/0	1908.5	2.696	3.012
	1.4	QPSK	6/0	1850.7	1.088	1.233
			6/0	1880	1.082	1.232
			6/0	1909.3	1.087	1.237
		16QAM	6/0	1850.7	1.087	1.233
			6/0	1880	1.087	1.236
			6/0	1909.3	1.094	1.246

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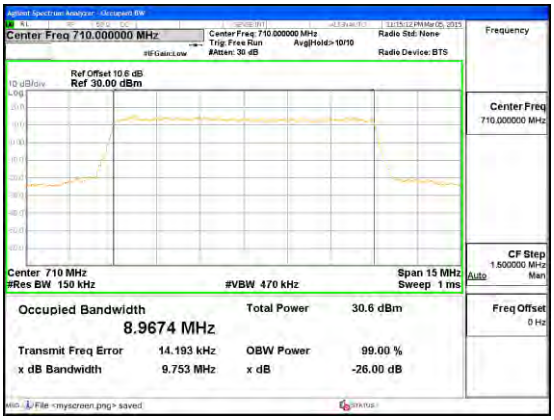
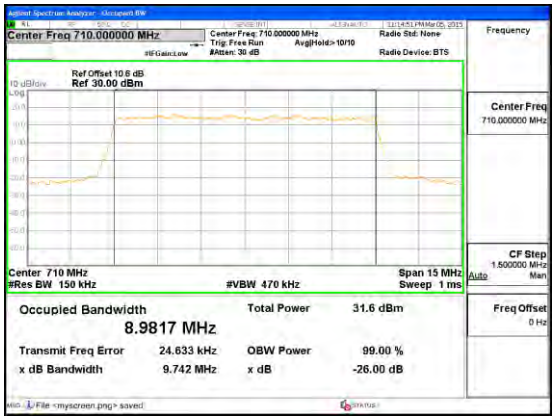
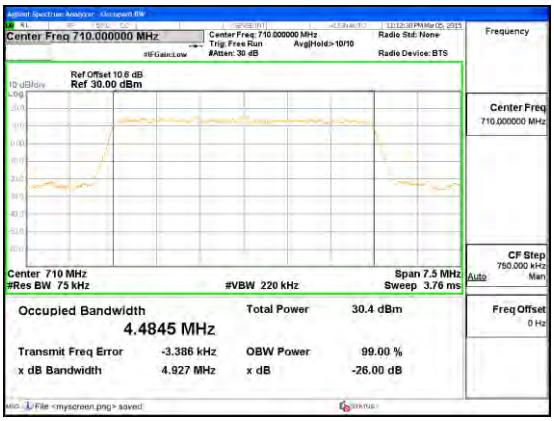
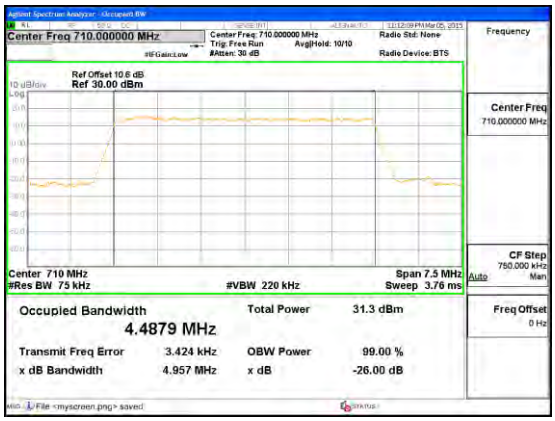
10.1.3. OCCUPIED BANDWIDTH PLOTS

LTE Band 17

Band LTE17 10MHz 16QAM	 Band LTE17 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE17 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE17 5MHz 16QAM	 Band LTE17 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE17 5MHz OBW QPSK Mid Channel FRB.gif

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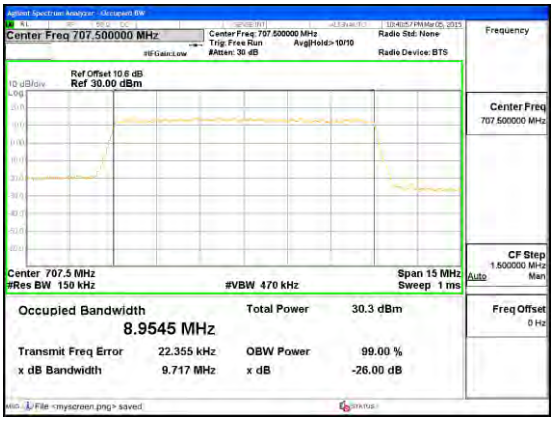
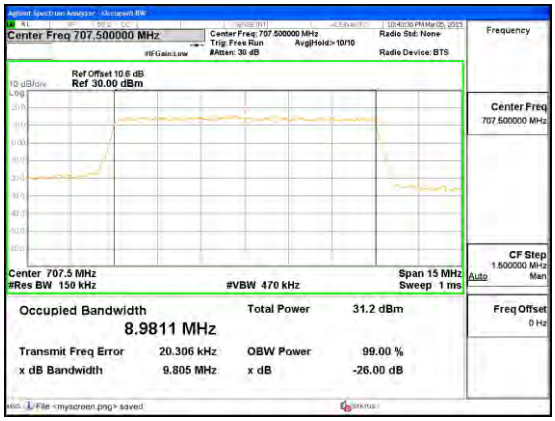
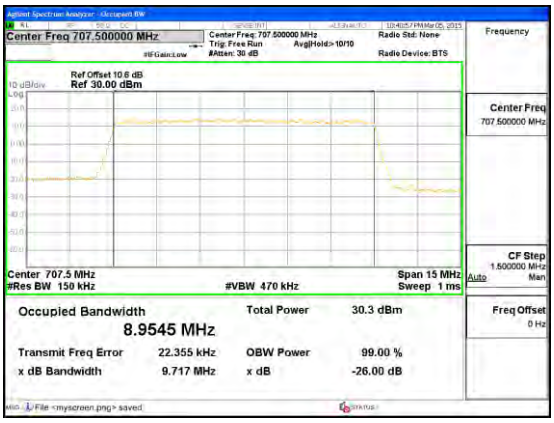
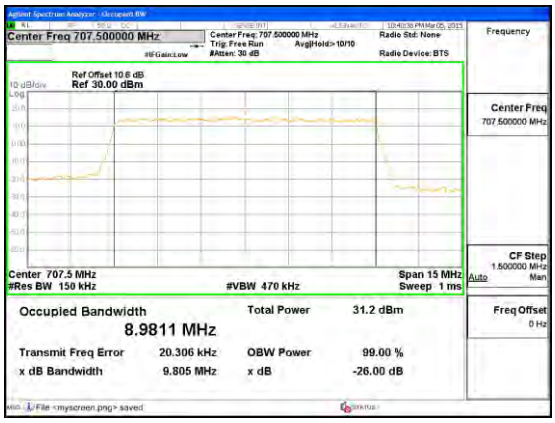
LTE Band 12

Band LTE12 10MHz 16QAM	 Band LTE12 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE12 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE12 10MHz 16QAM	 Band LTE12 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE12 10MHz OBW QPSK Mid Channel FRB.gif

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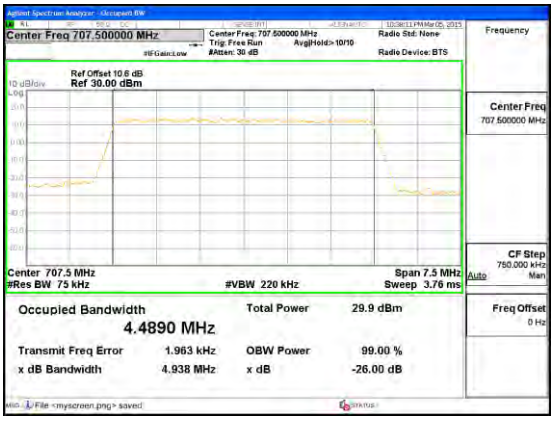
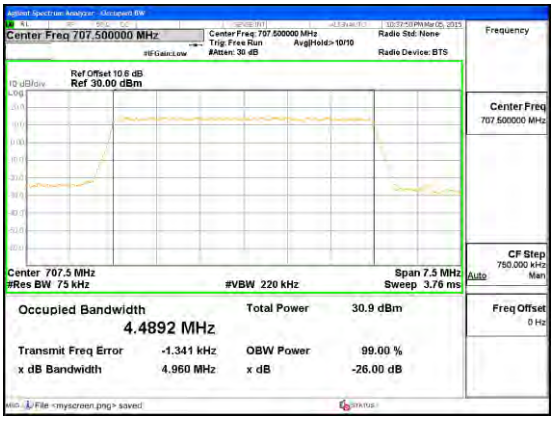
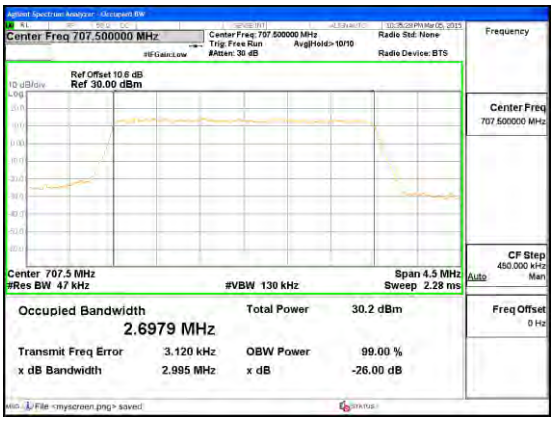
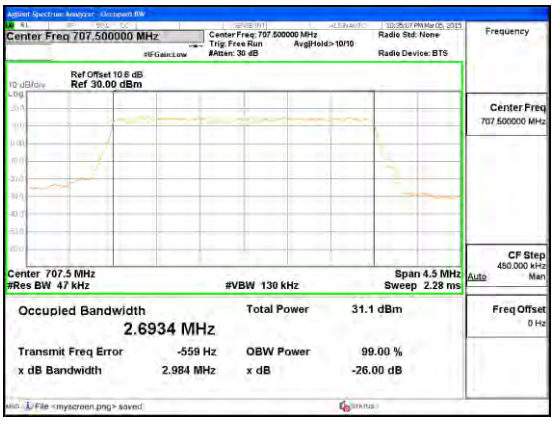
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE12 5MHz OBW QPSK Mid Channel FRB.gif
Band LTE12 3MHz 16QAM	 Band LTE12 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE12 3MHz OBW QPSK Mid Channel FRB.gif

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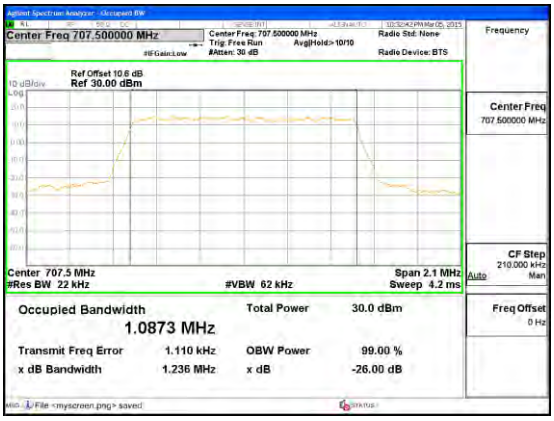
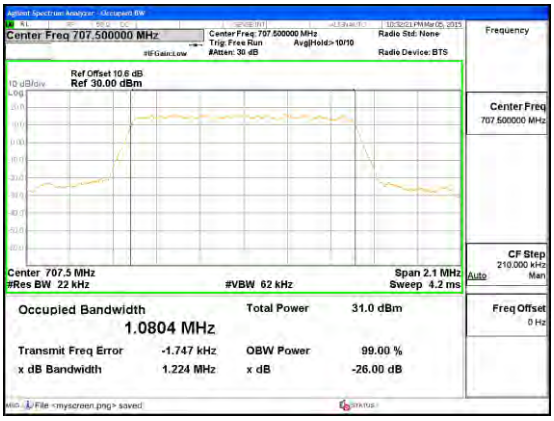
Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE12 1.4MHz OBW QPSK Mid Channel FRB.gif

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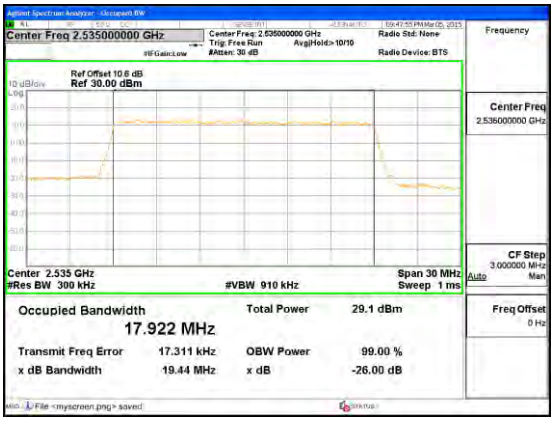
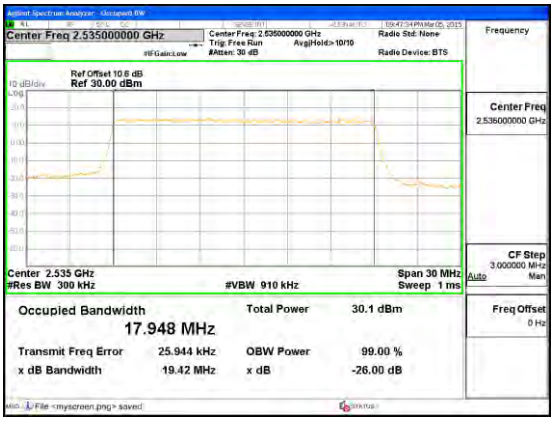
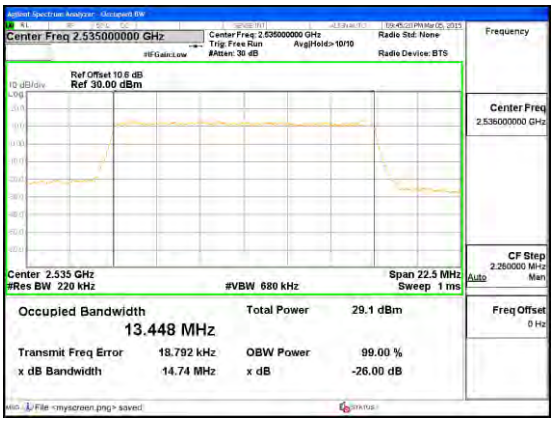
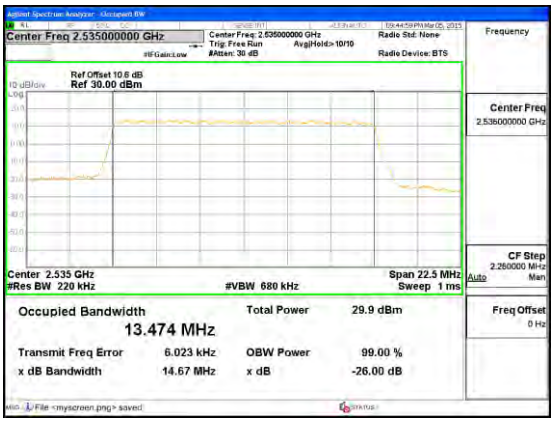
LTE Band 7

Band LTE7 20MHz 16QAM	 Band LTE7 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 15MHz OBW QPSK Mid Channel FRB.gif

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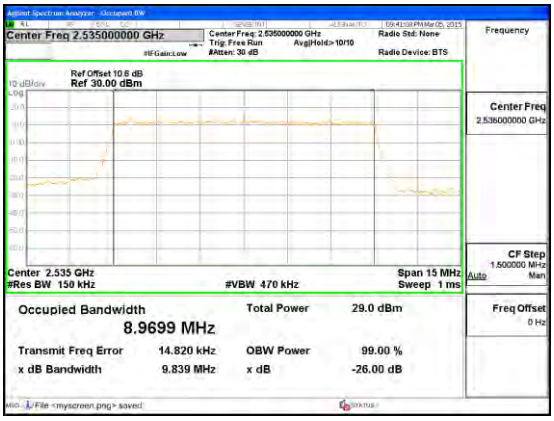
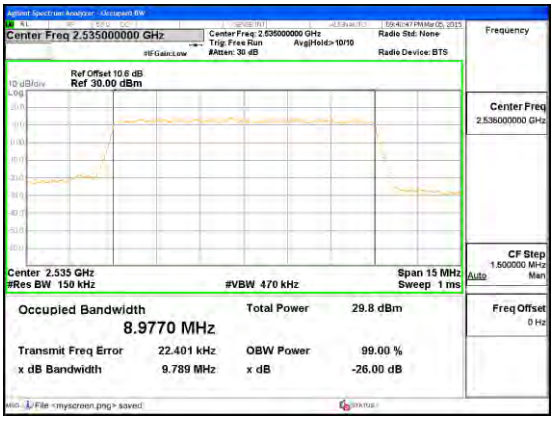
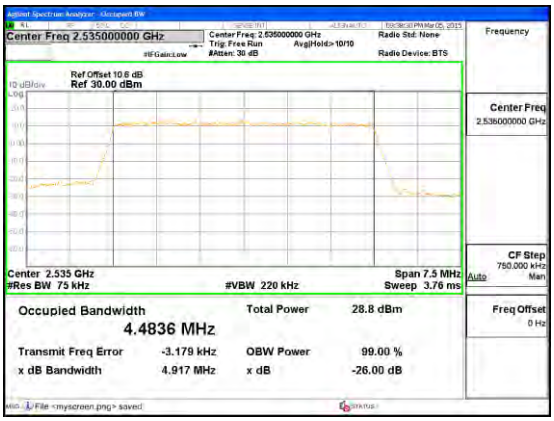
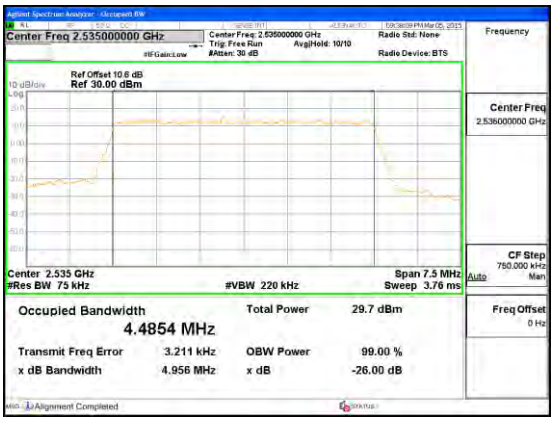
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 5MHz OBW QPSK Mid Channel FRB.gif

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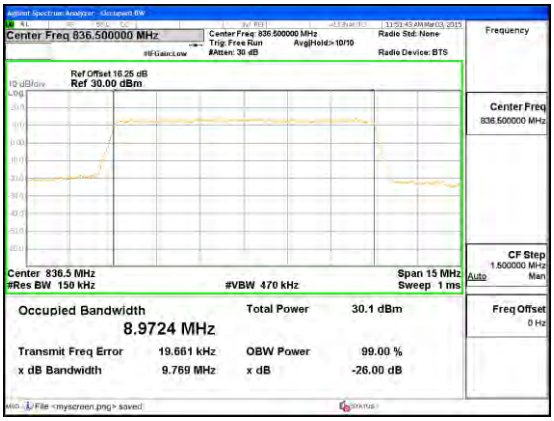
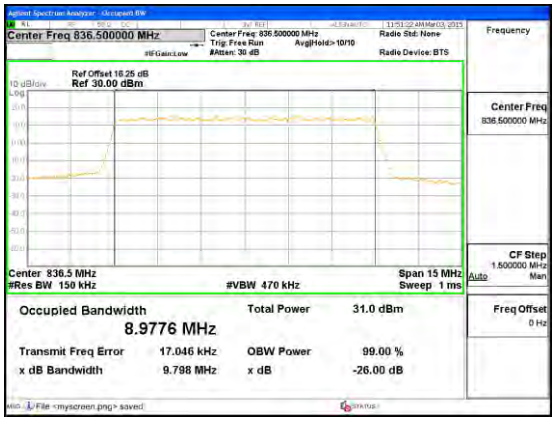
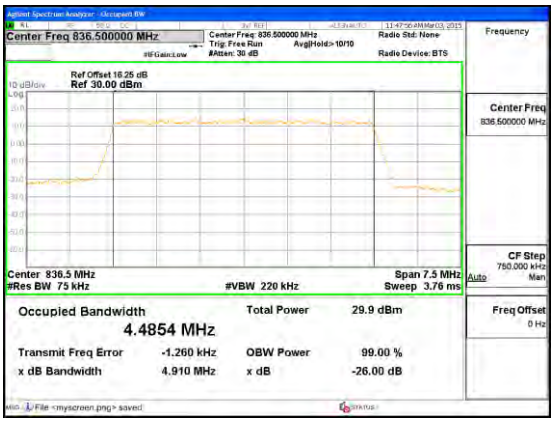
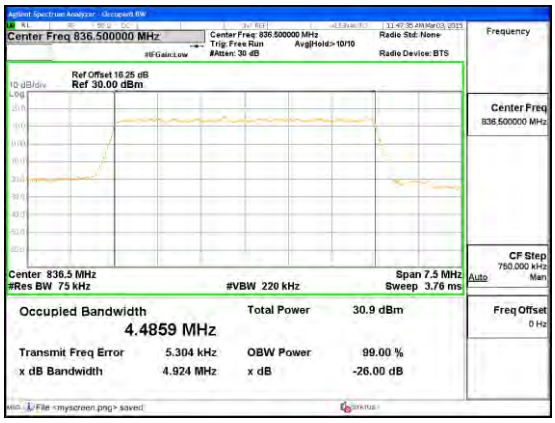
LTE Band 5

Band LTE5 10MHz 16QAM	 Band LTE5 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 5MHz OBW QPSK Mid Channel FRB.gif

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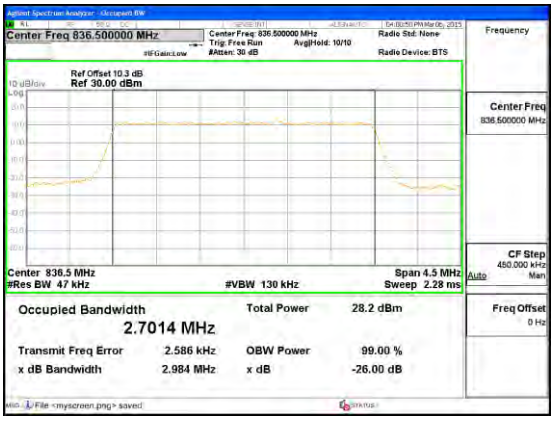
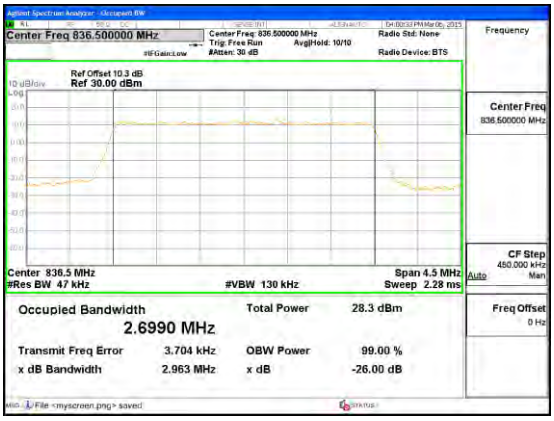
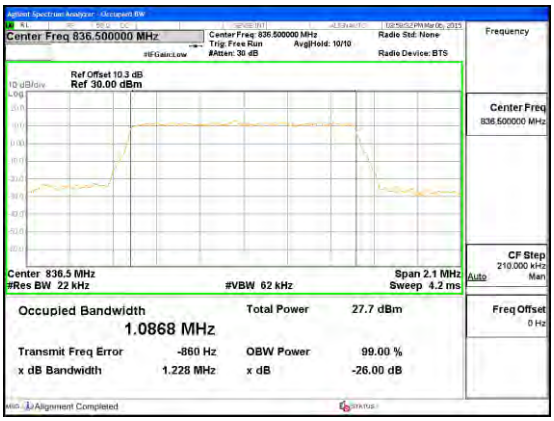
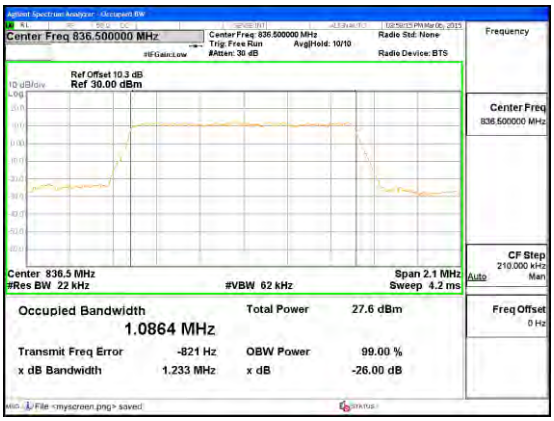
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 1.4MHz OBW QPSK Mid Channel FRB.gif

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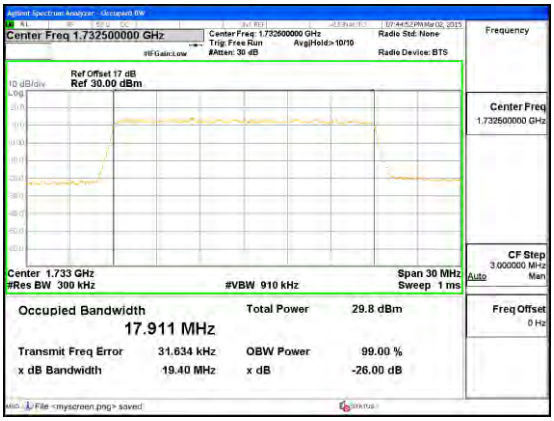
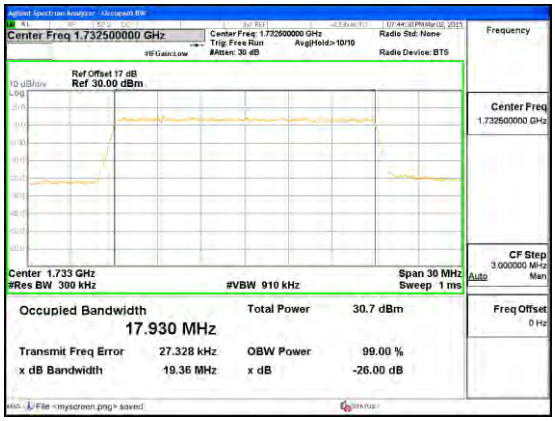
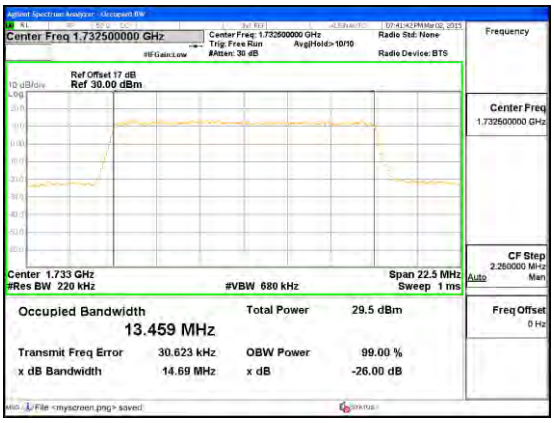
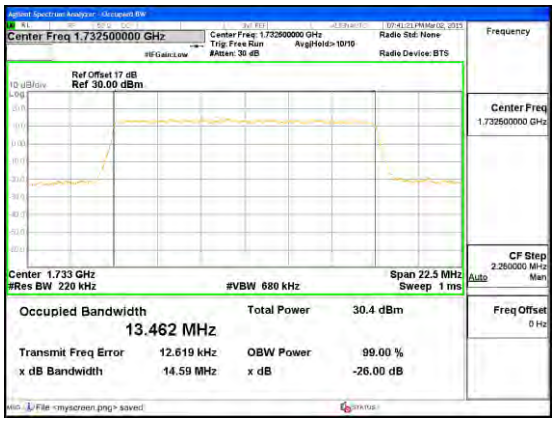
LTE Band 4

Band LTE4 20MHz 16QAM	 Band LTE4 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 15MHz OBW QPSK Mid Channel FRB.gif

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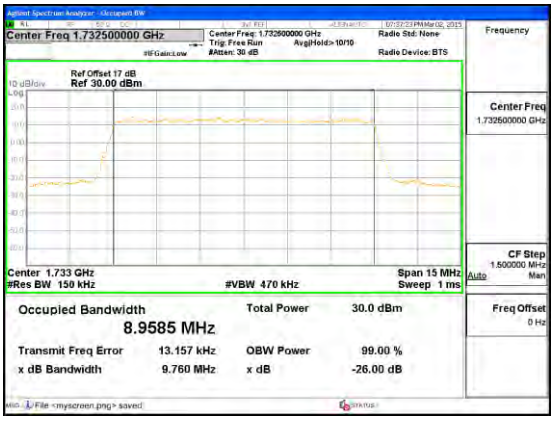
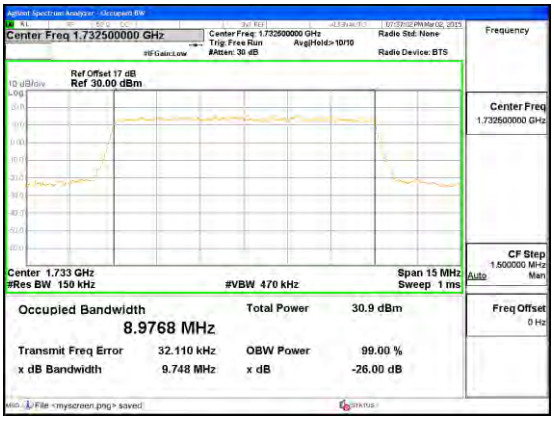
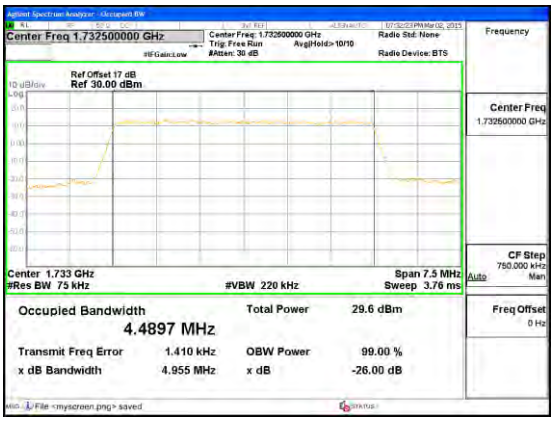
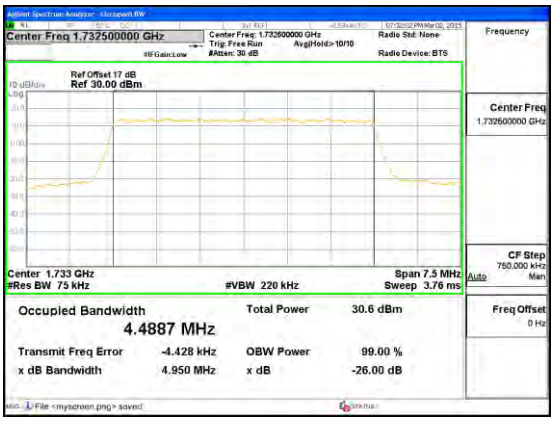
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 5MHz OBW QPSK Mid Channel FRB.gif

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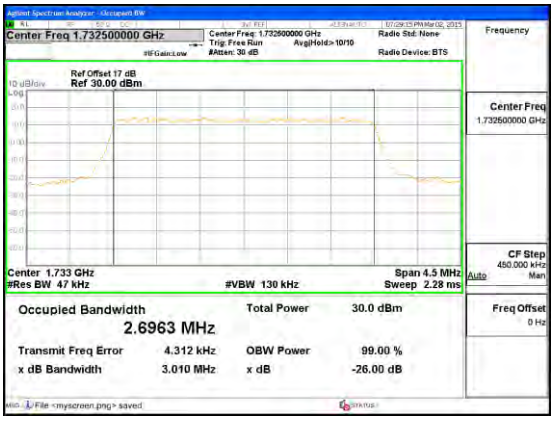
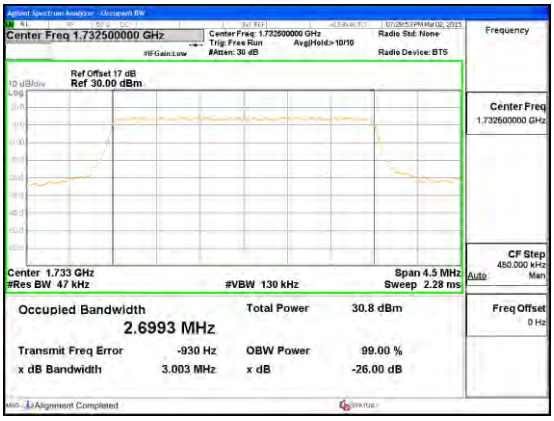
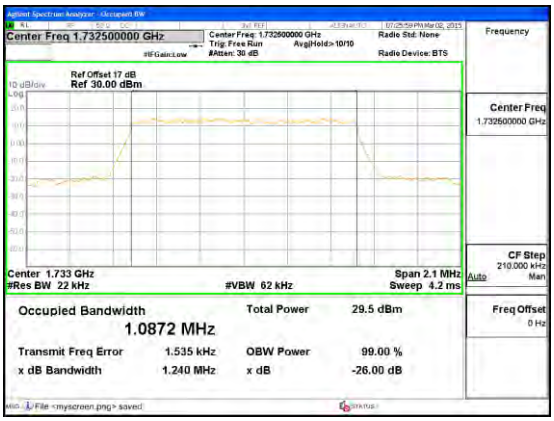
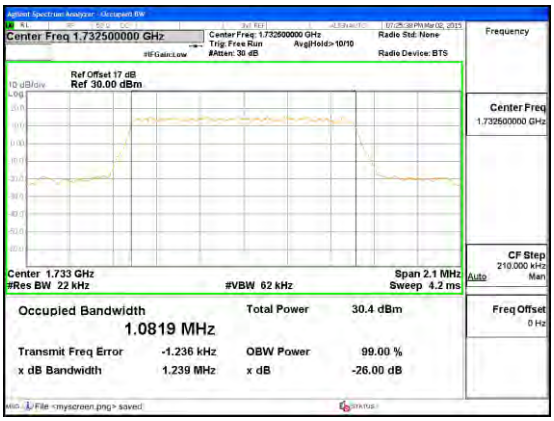
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 1.4MHz OBW QPSK Mid Channel FRB.gif

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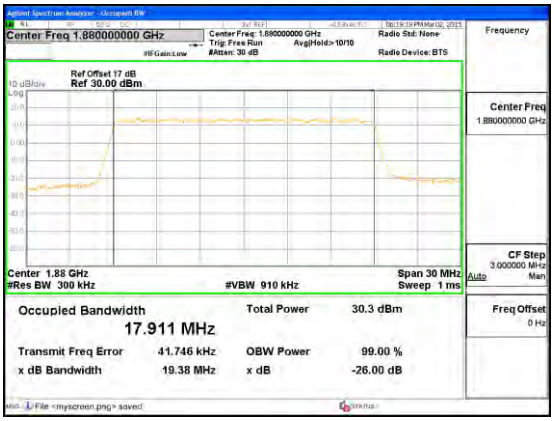
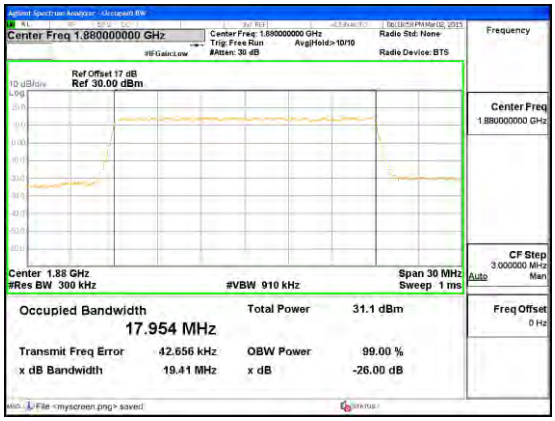
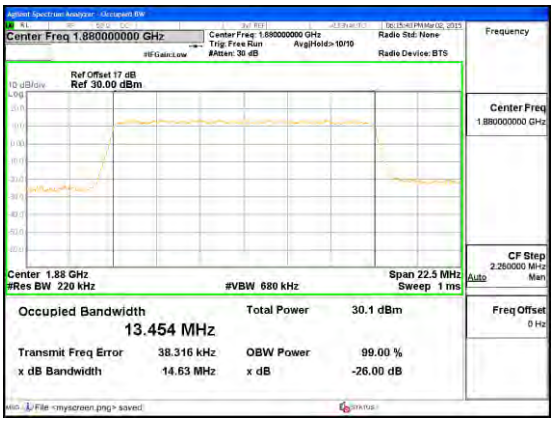
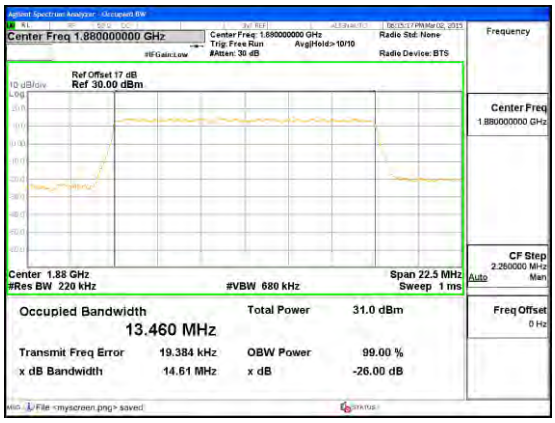
LTE Band 2

Band LTE2 20MHz 16QAM	 Band LTE2 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 15MHz OBW QPSK Mid Channel FRB.gif

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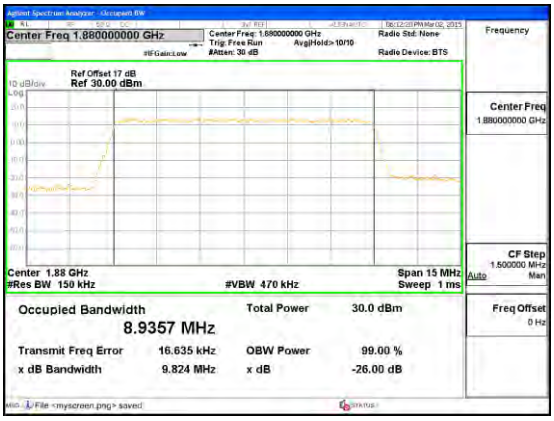
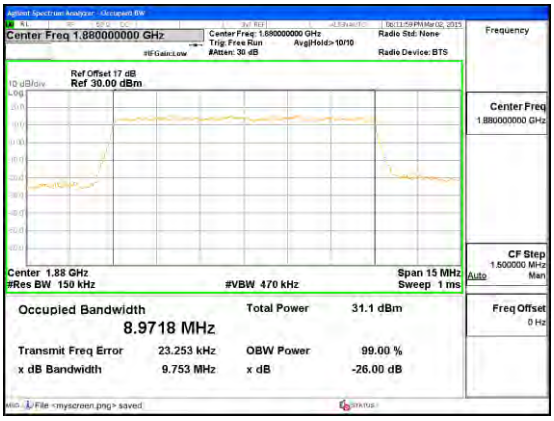
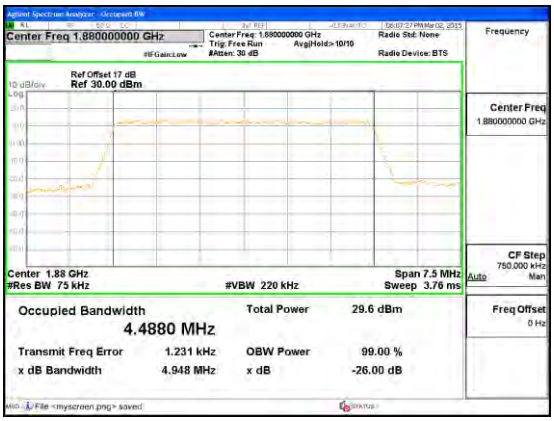
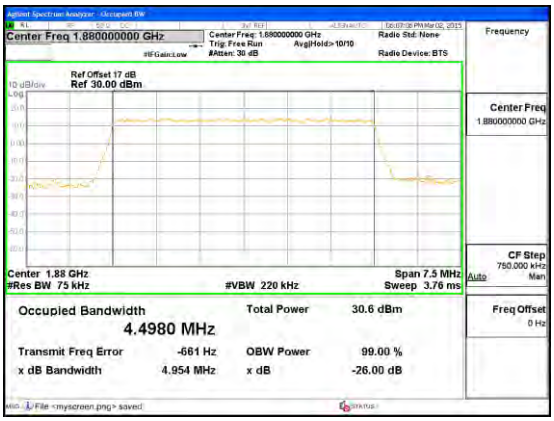
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 5MHz OBW QPSK Mid Channel FRB.gif

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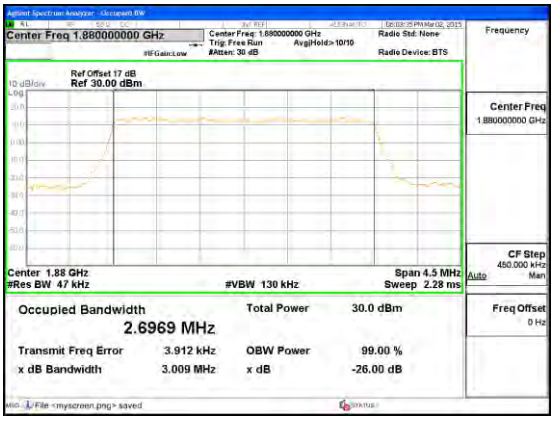
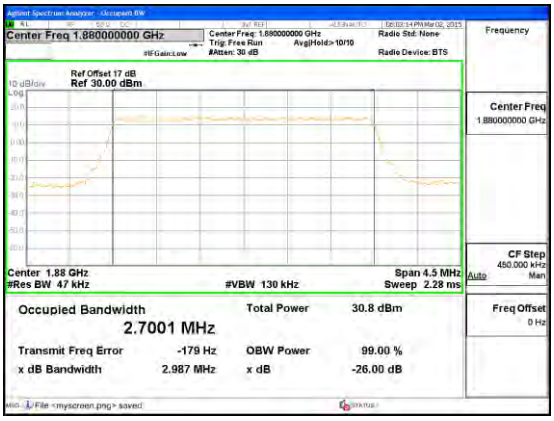
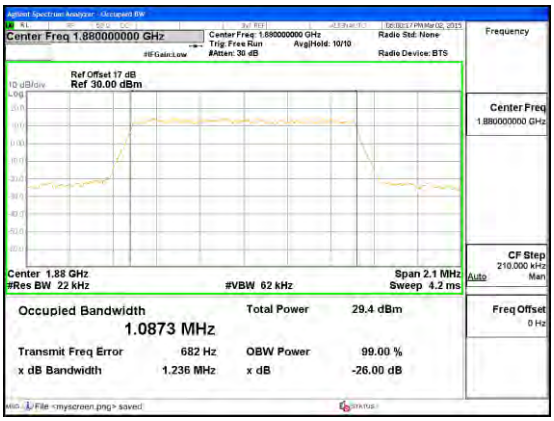
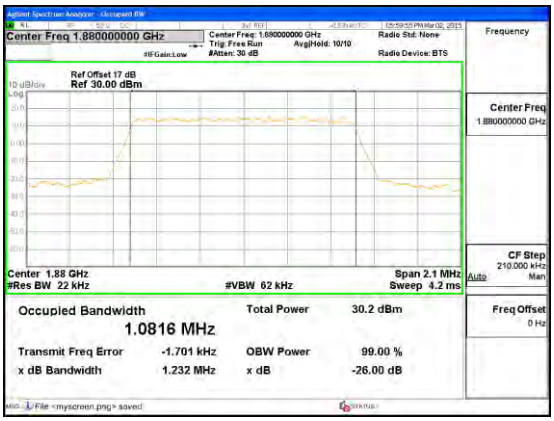
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 1.4MHz OBW QPSK Mid Channel FRB.gif

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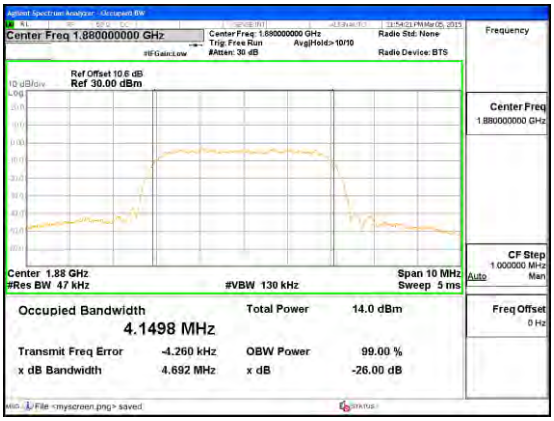
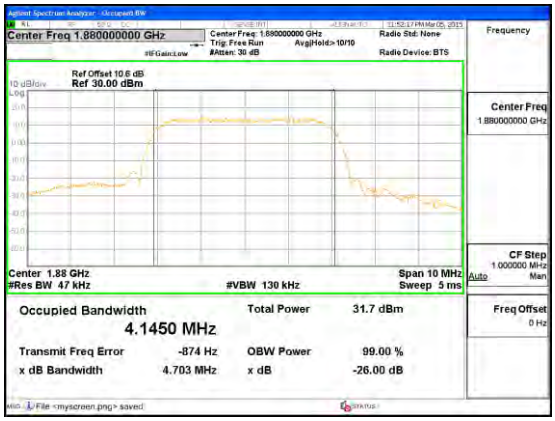
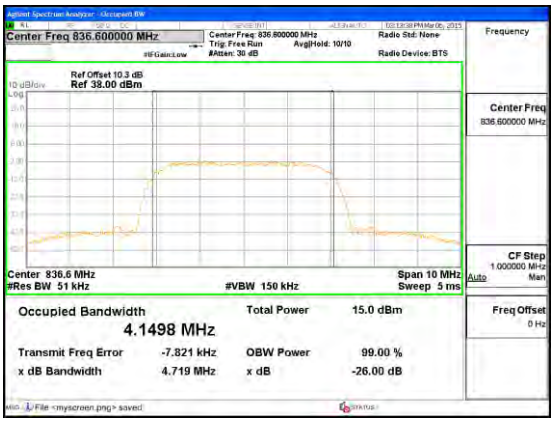
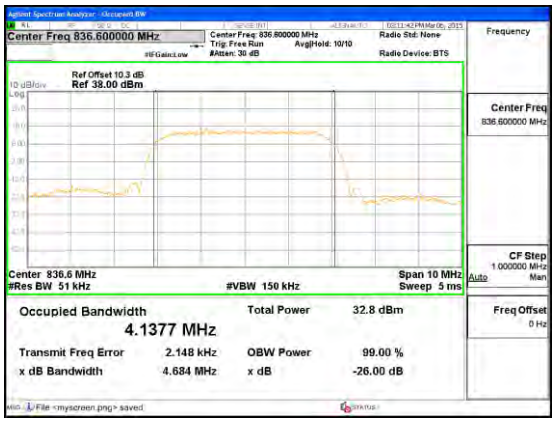
WCDMA

Band		
Band 2 HSDPA	 Band WCDMA B2 HSDPA OBW	 Band WCDMA B2 REL99 OBW
Band 5 HSDPA	 Band WCDMA B5 HSDPA OBW	 Band WCDMA B5 REL99 OBW

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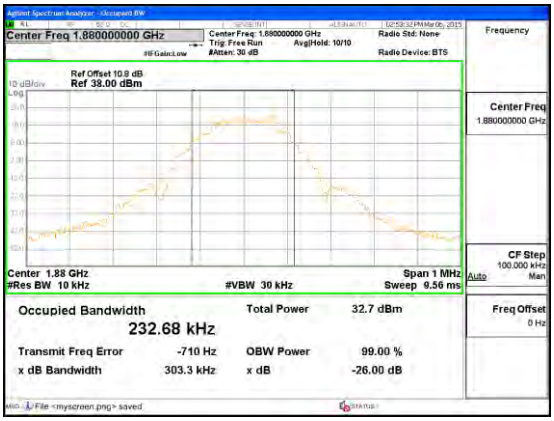
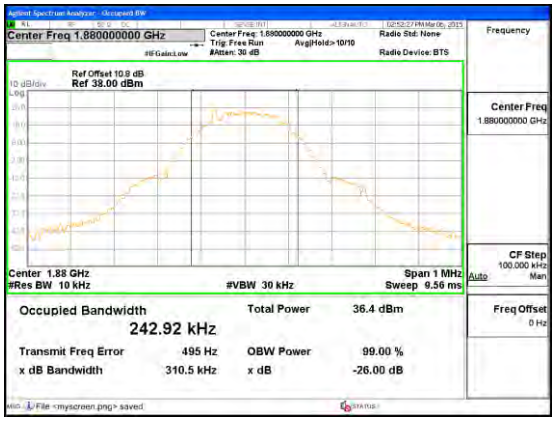
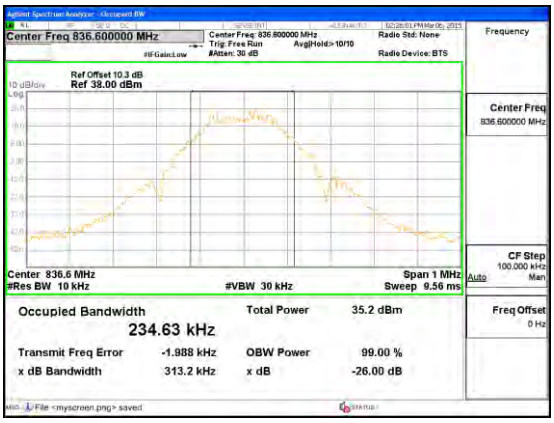
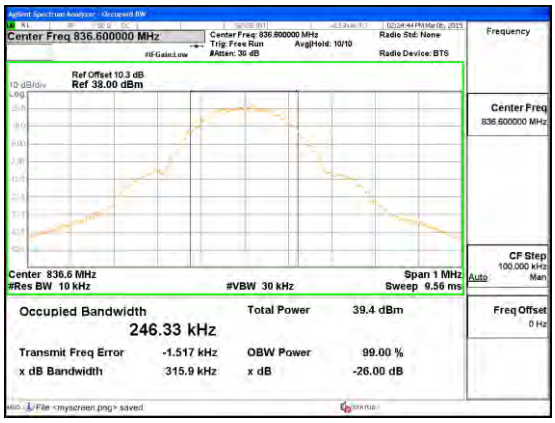
GSM

Band GSM 1900	 Band GSM1900 EGPRS OBW Mid channel	 Band GSM1900 GPRS OBW Mid channel
Band GSM 850	 Band GSM850 EGPRS OBW Mid channel	 Band GSM850 GPRS OBW Mid channel

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10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.917(a), §24.238 (a), §27. 53 (g)

LIMITS

Part 22.917(a) & Part 24.238(a) 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 27.53(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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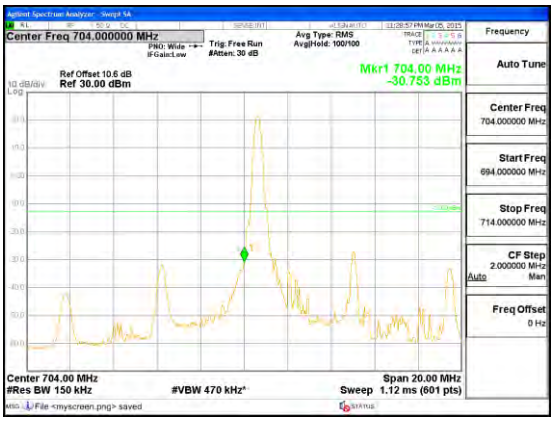
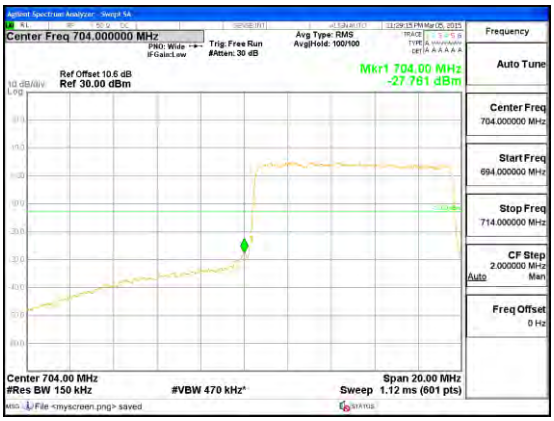
10.2.1. BAND EDGE PLOTS

Band LTE17 10MHz 16QAM	 Band LTE17 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE17 10MHz CBE 16QAM Low Channel FRB.gif

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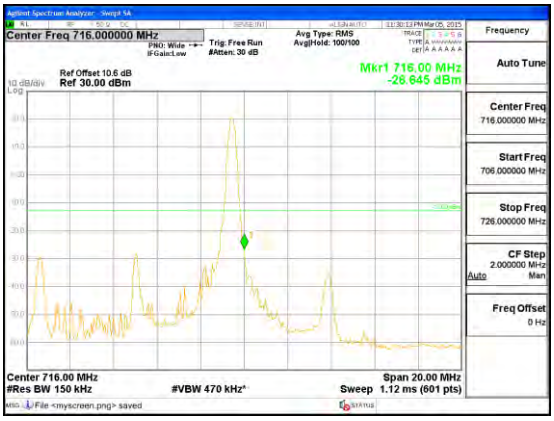
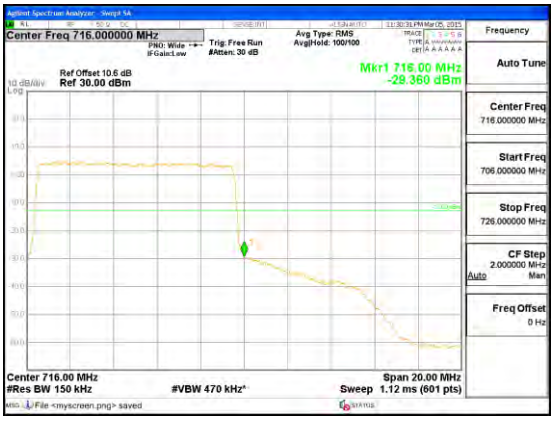
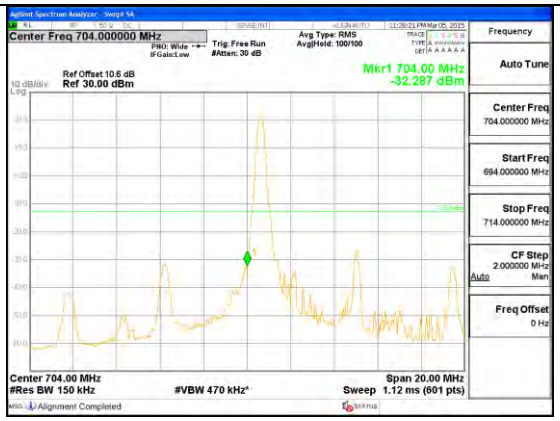
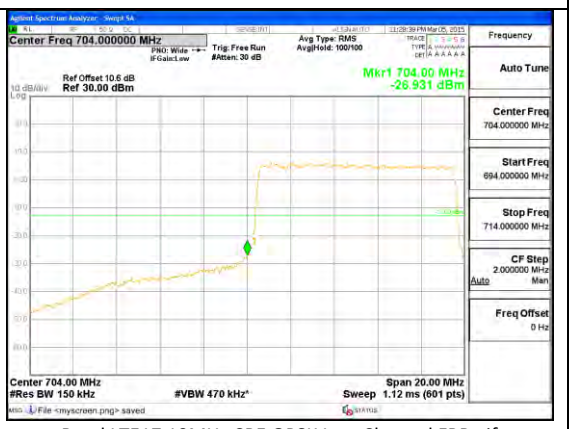
Band LTE17 10MHz 16QAM	 Band LTE17 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE17 10MHz CBE 16QAM High Channel FRB.gif
Band LTE17 10MHz QPSK	 Band LTE17 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE17 10MHz CBE QPSK Low Channel FRB.gif

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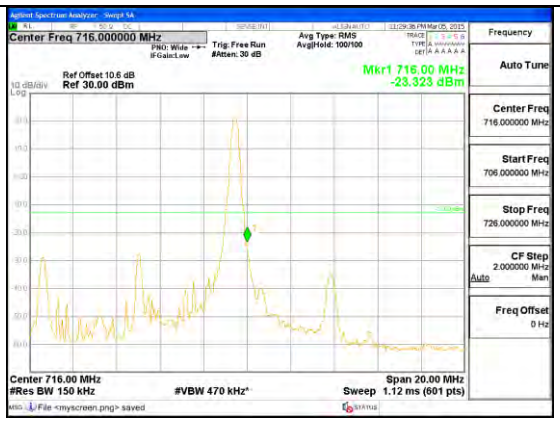
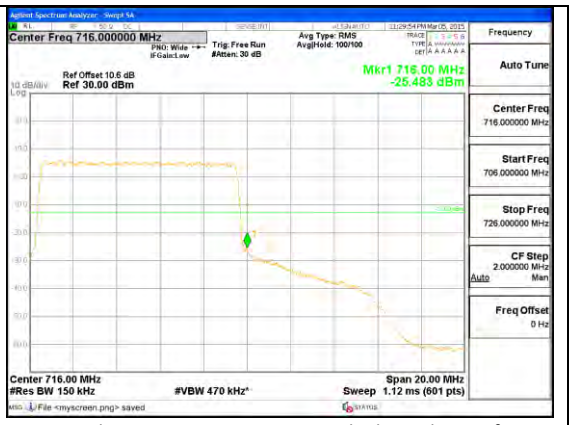
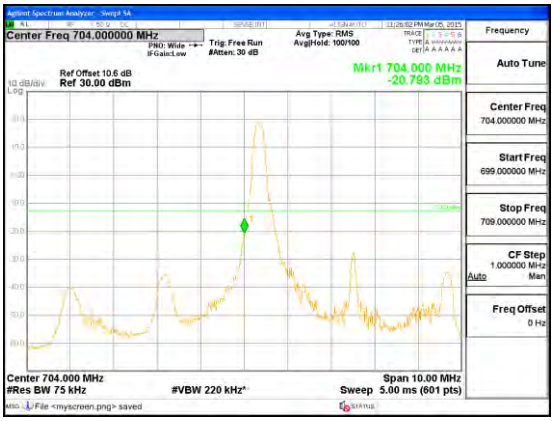
Band LTE17 10MHz QPSK	 Band LTE17 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE17 10MHz CBE QPSK High Channel FRB.gif

Band LTE17 5MHz 16QAM	 Band LTE17 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE17 5MHz CBE 16QAM Low Channel FRB.gif

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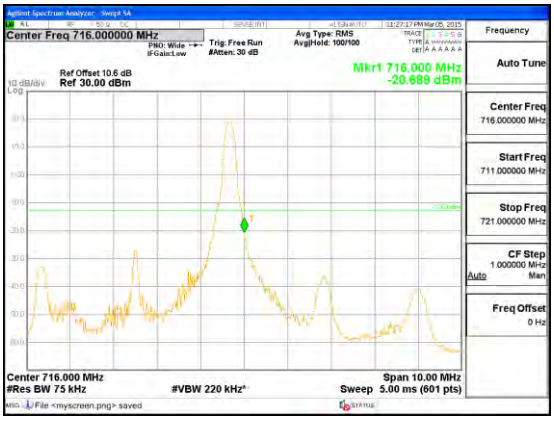
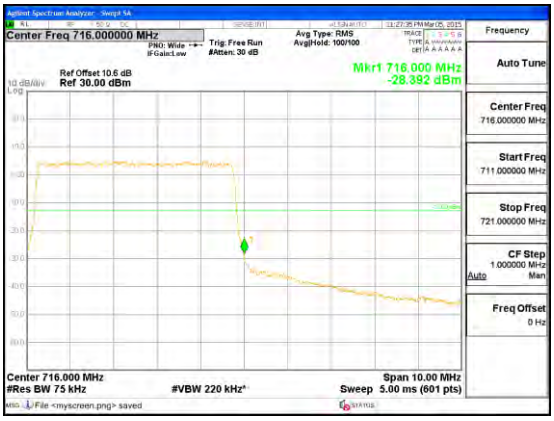
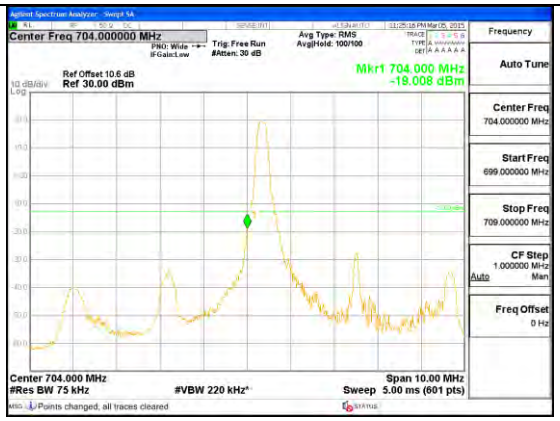
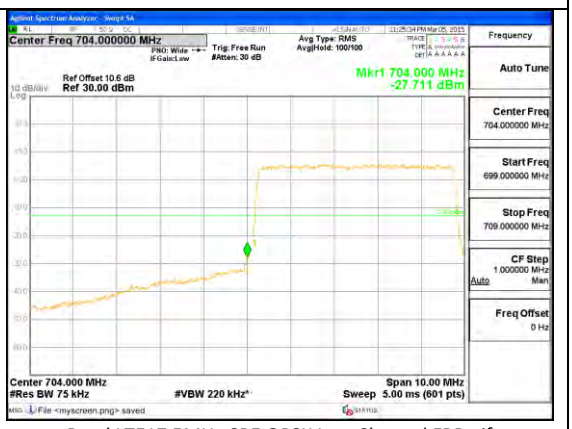
Band LTE17 5MHz 16QAM	 Band LTE17 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE17 5MHz CBE 16QAM High Channel FRB.gif
Band LTE17 5MHz QPSK	 Band LTE17 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE17 5MHz CBE QPSK Low Channel FRB.gif

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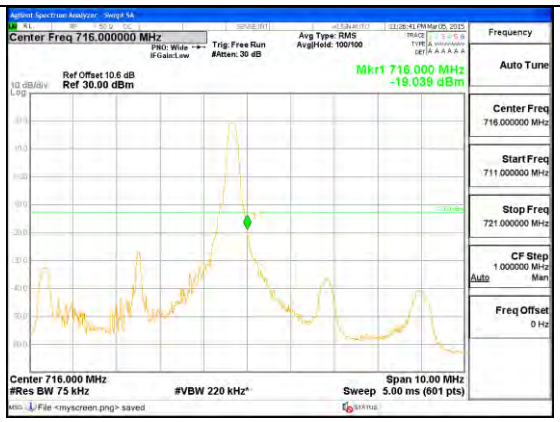
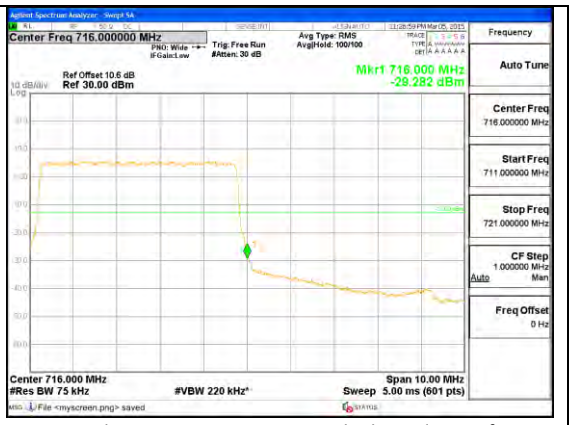
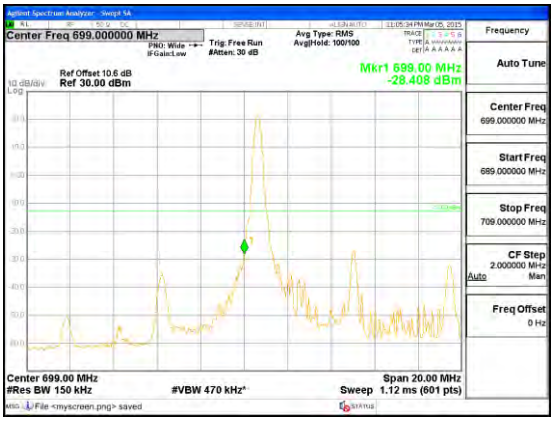
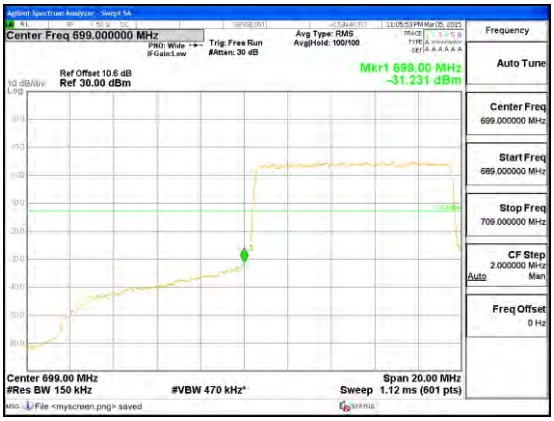
Band LTE17 5MHz QPSK	 Band LTE17 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE17 5MHz CBE QPSK High Channel FRB.gif

Band LTE12 10MHz 16QAM	 Band LTE12 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE12 10MHz CBE 16QAM Low Channel FRB.gif

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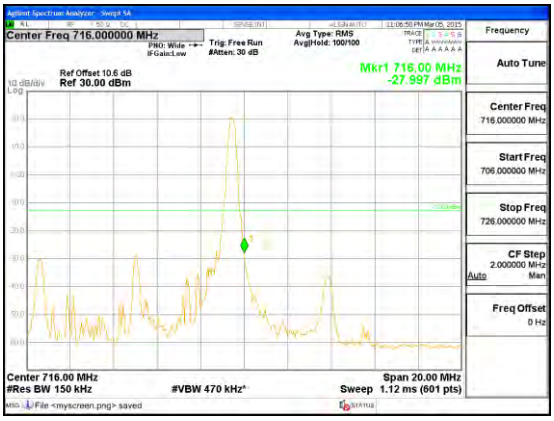
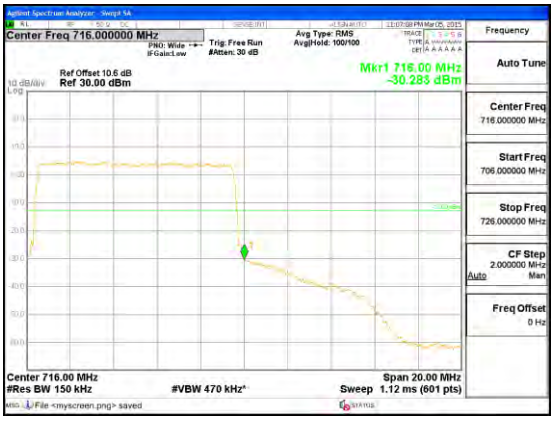
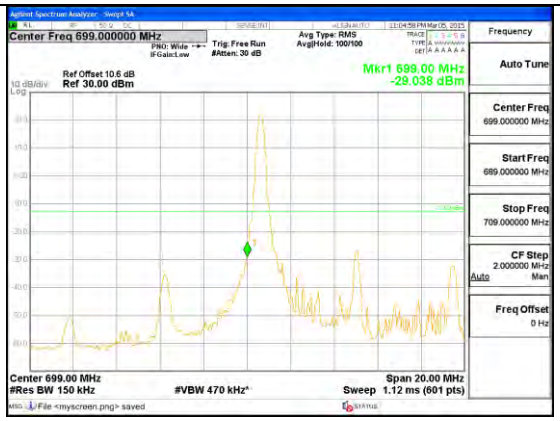
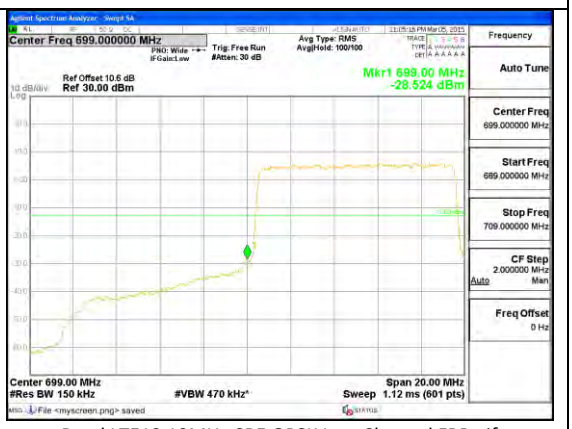
Band LTE12 10MHz 16QAM	 Band LTE12 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE12 10MHz CBE 16QAM High Channel FRB.gif
Band LTE12 10MHz QPSK	 Band LTE12 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE12 10MHz CBE QPSK Low Channel FRB.gif

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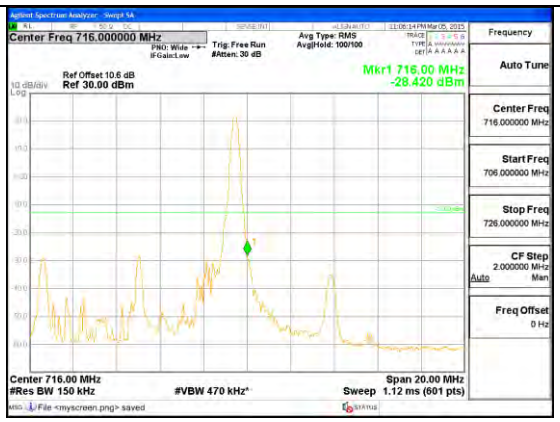
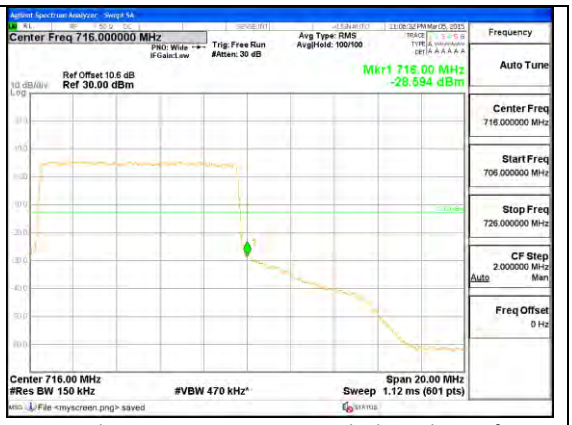
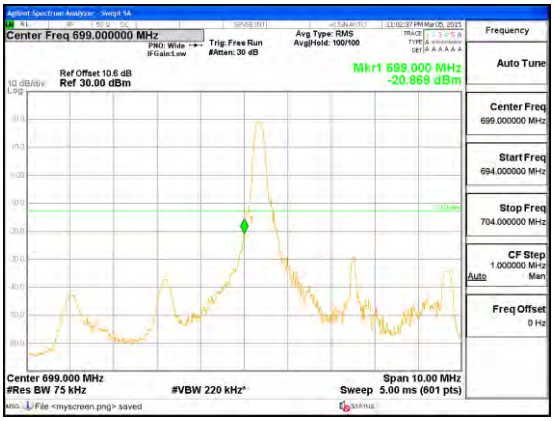
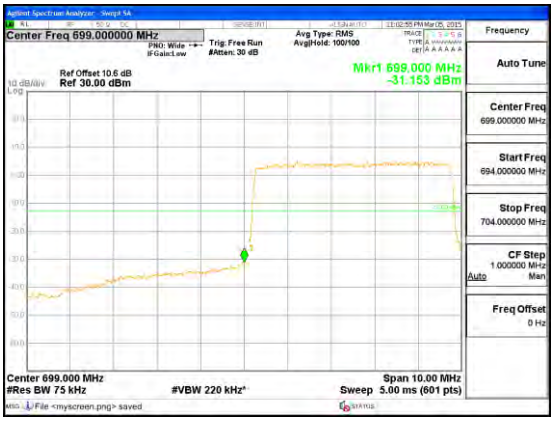
Band LTE12 10MHz QPSK	 Band LTE12 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE12 10MHz CBE QPSK High Channel FRB.gif

Band LTE12 5MHz 16QAM	 Band LTE12 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE12 5MHz CBE 16QAM Low Channel FRB.gif

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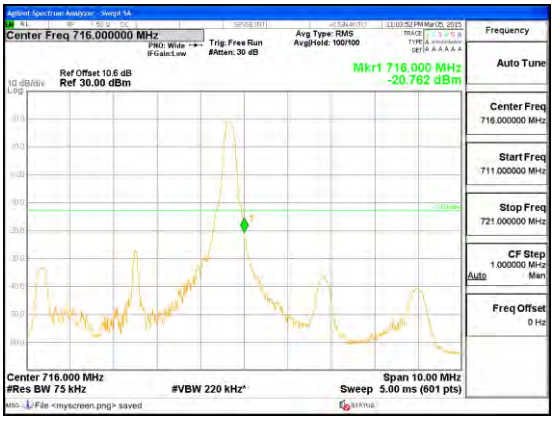
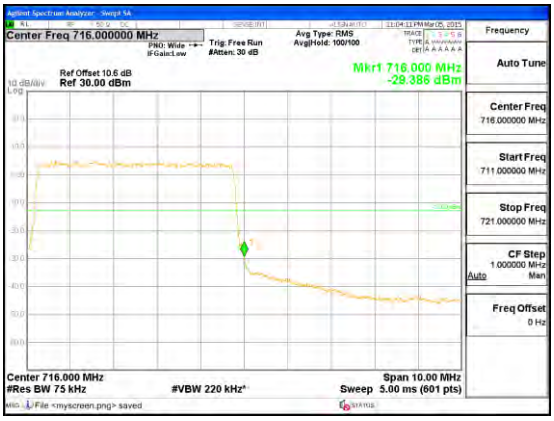
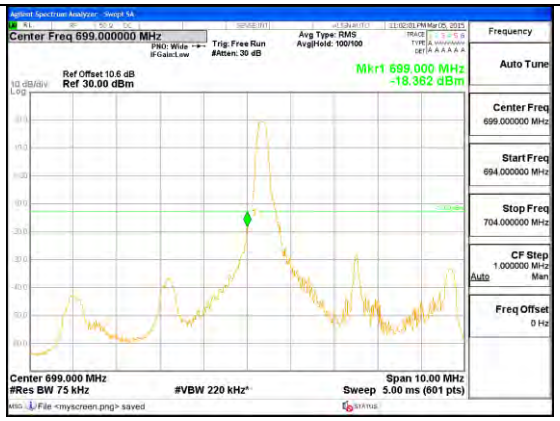
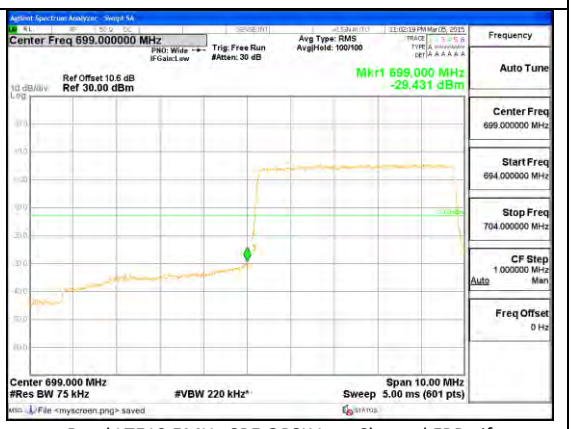
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE12 5MHz CBE 16QAM High Channel FRB.gif
Band LTE12 5MHz QPSK	 Band LTE12 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE12 5MHz CBE QPSK Low Channel FRB.gif

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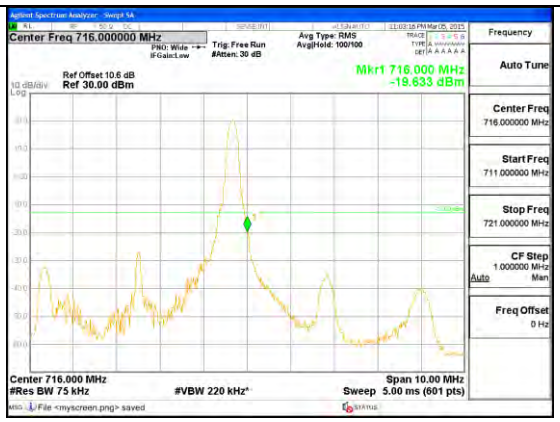
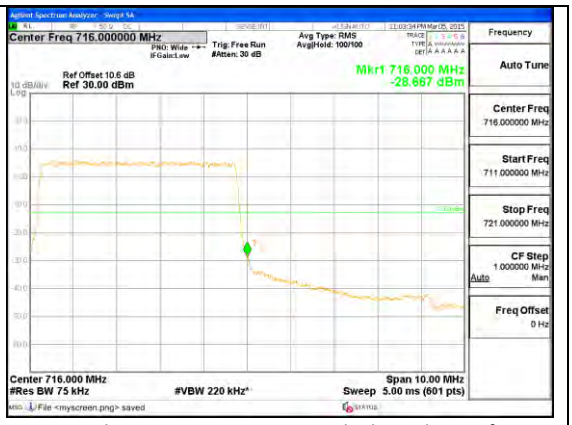
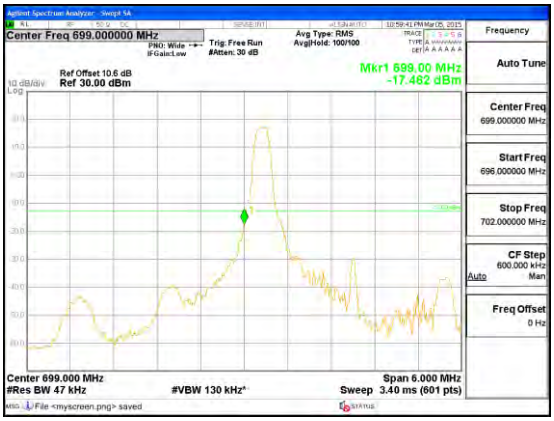
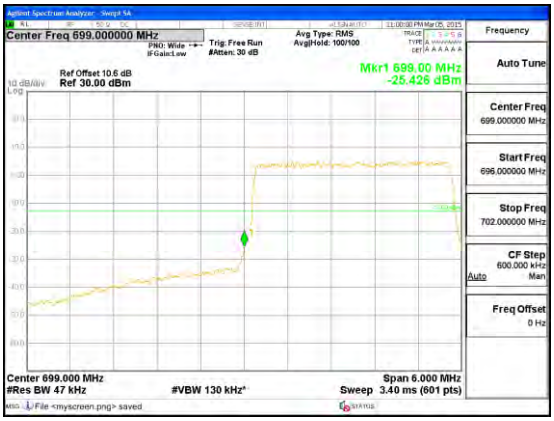
Band LTE12 5MHz QPSK	 Band LTE12 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE12 5MHz CBE QPSK High Channel FRB.gif

Band LTE12 3MHz 16QAM	 Band LTE12 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE12 3MHz CBE 16QAM Low Channel FRB.gif

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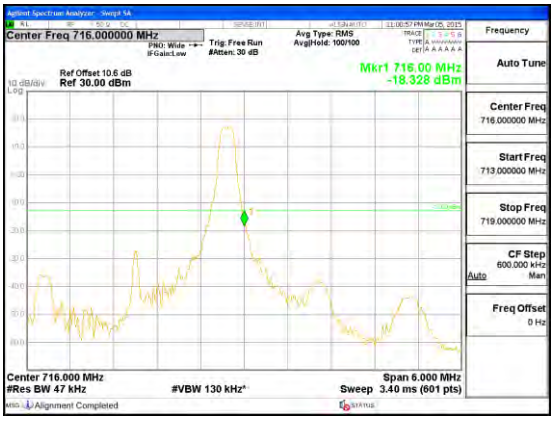
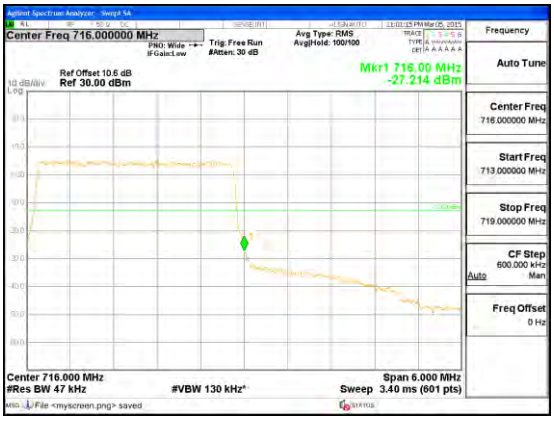
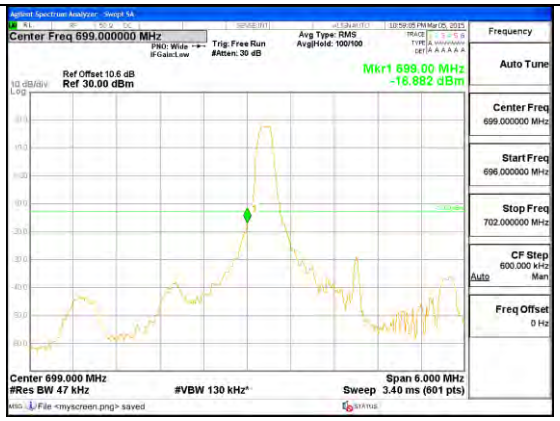
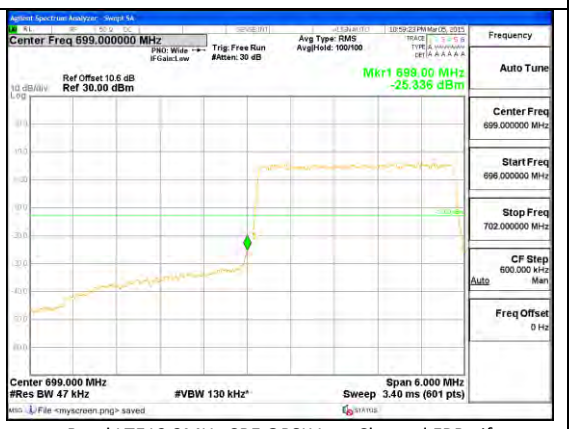
Band LTE12 3MHz 16QAM	 Band LTE12 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE12 3MHz CBE 16QAM High Channel FRB.gif
Band LTE12 3MHz QPSK	 Band LTE12 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE12 3MHz CBE QPSK Low Channel FRB.gif

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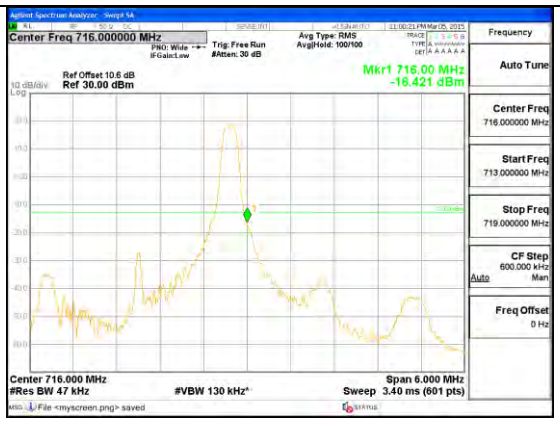
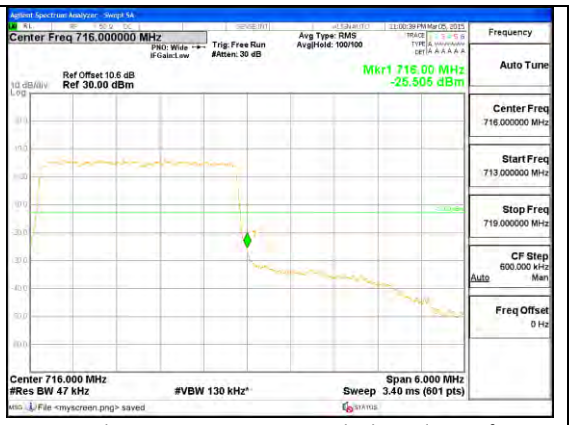
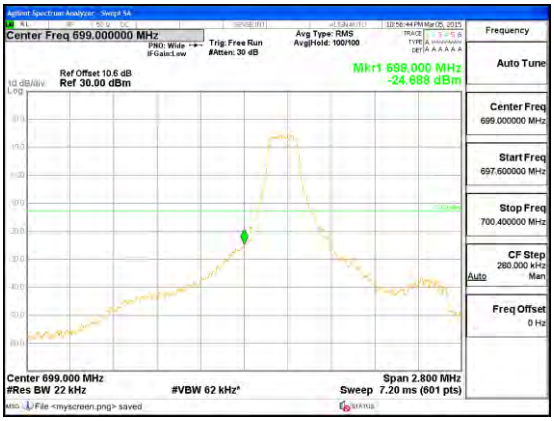
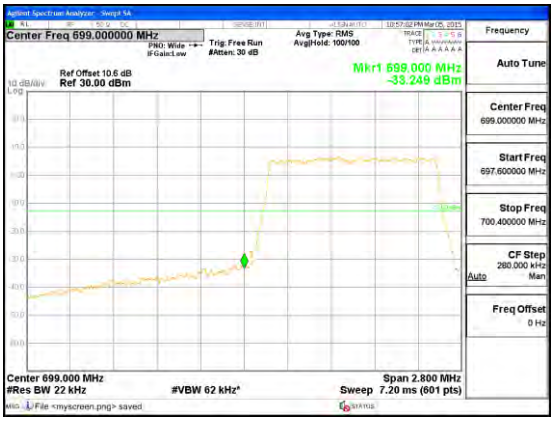
Band LTE12 3MHz QPSK	 Band LTE12 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE12 3MHz CBE QPSK High Channel FRB.gif

Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE12 1.4MHz CBE 16QAM Low Channel FRB.gif

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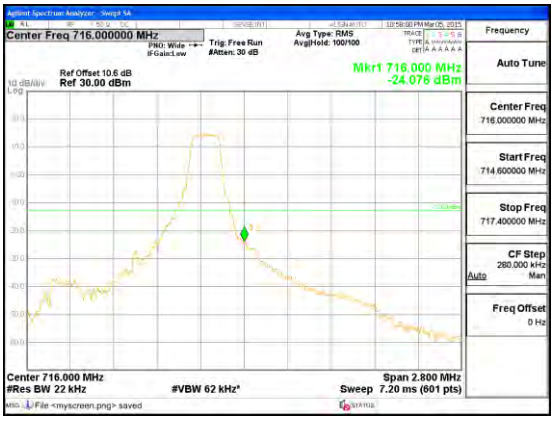
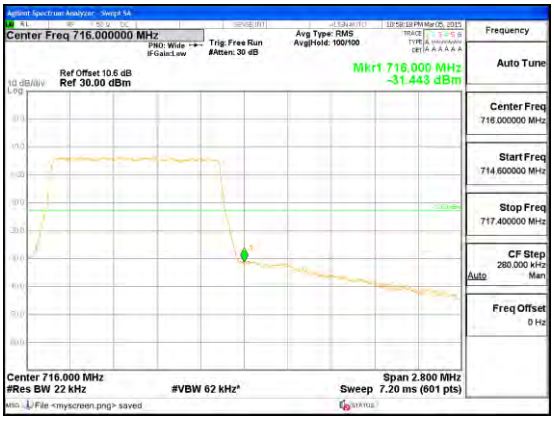
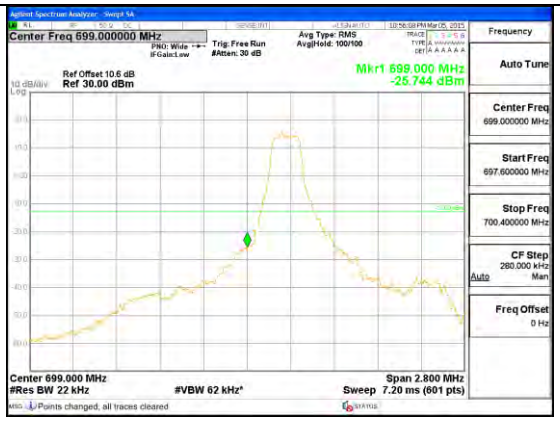
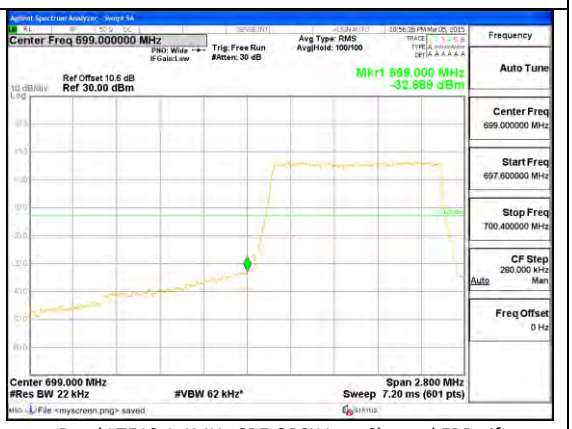
Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE12 1.4MHz CBE 16QAM High Channel FRB.gif
Band LTE12 1.4MHz QPSK	 Band LTE12 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE12 1.4MHz CBE QPSK Low Channel FRB.gif

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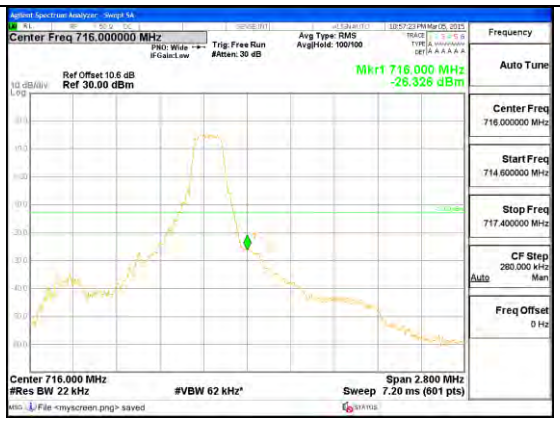
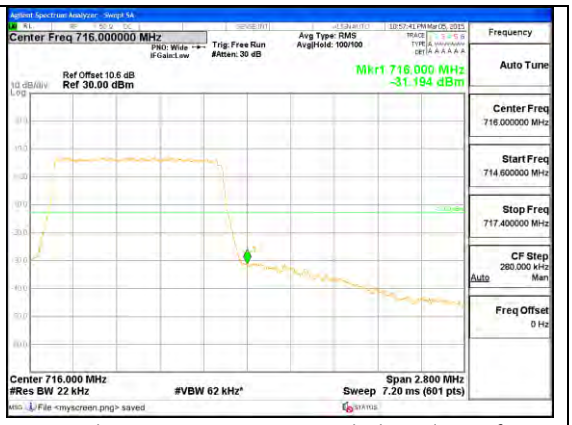
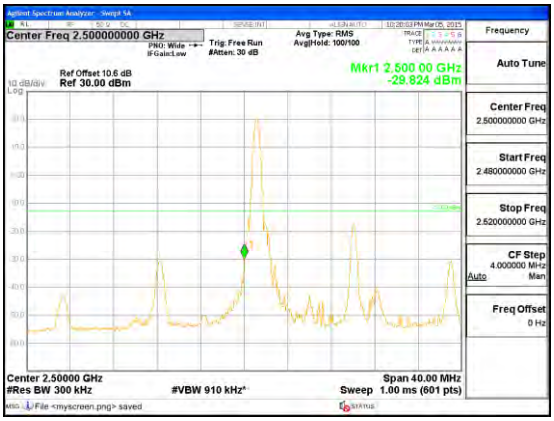
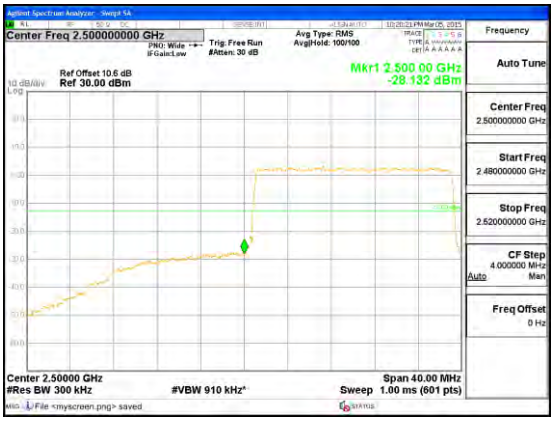
Band LTE12 1.4MHz QPSK	 Band LTE12 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE12 1.4MHz CBE QPSK High Channel FRB.gif

Band LTE7 20MHz 16QAM	 Band LTE7 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 20MHz CBE 16QAM Low Channel FRB.gif

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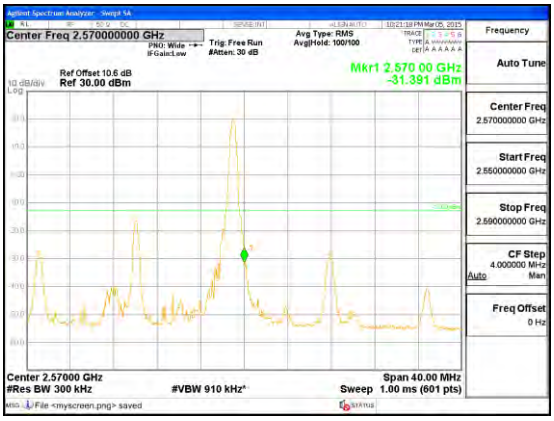
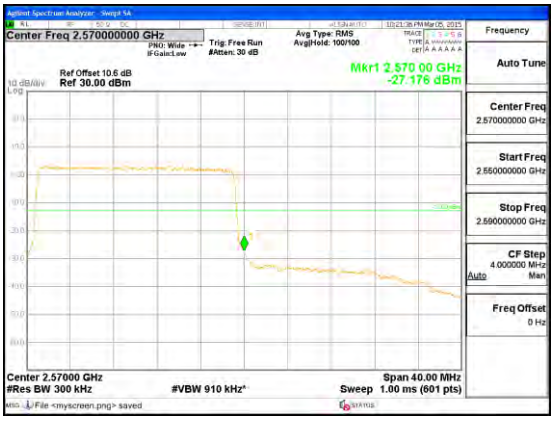
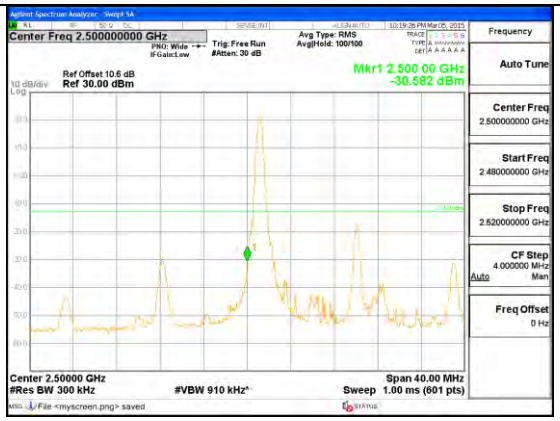
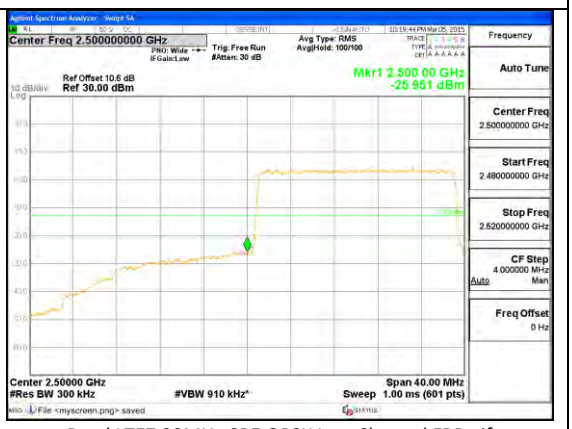
Band LTE7 20MHz 16QAM	 Band LTE7 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 20MHz CBE 16QAM High Channel FRB.gif
Band LTE7 20MHz QPSK	 Band LTE7 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 20MHz CBE QPSK Low Channel FRB.gif

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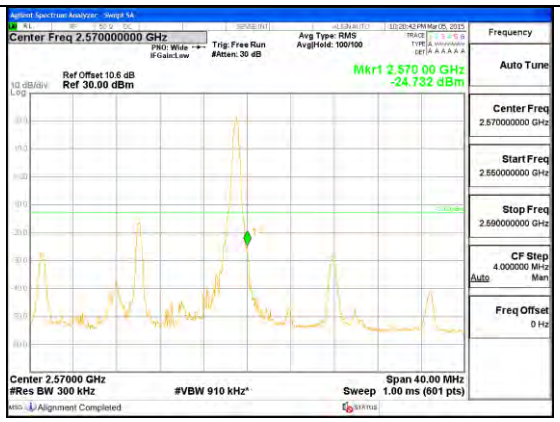
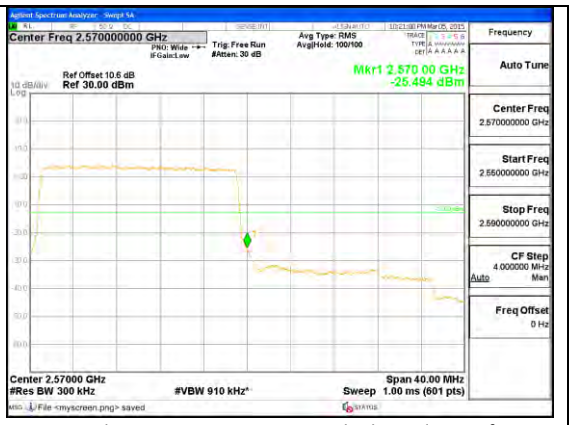
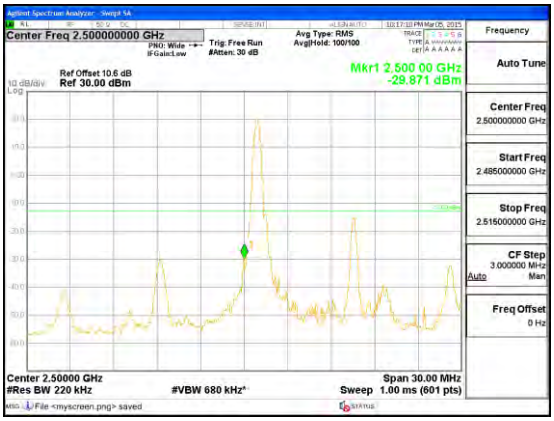
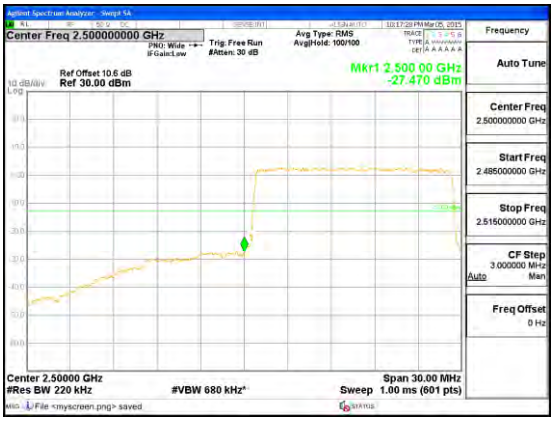
Band LTE7 20MHz QPSK	 Band LTE7 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 20MHz CBE QPSK High Channel FRB.gif

Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 15MHz CBE 16QAM Low Channel FRB.gif

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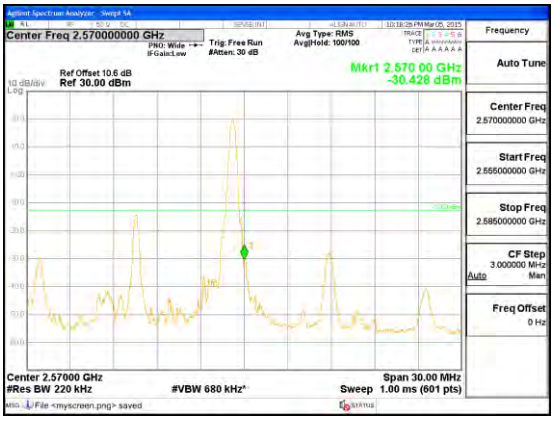
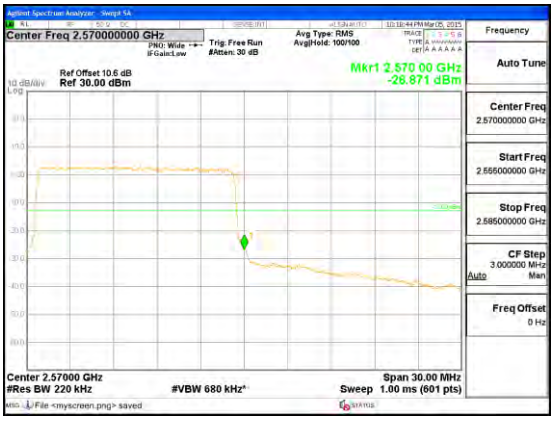
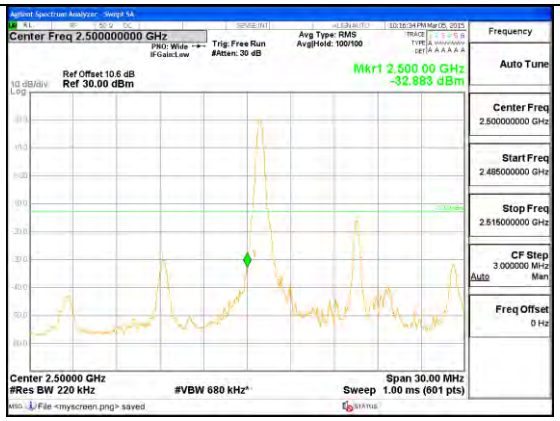
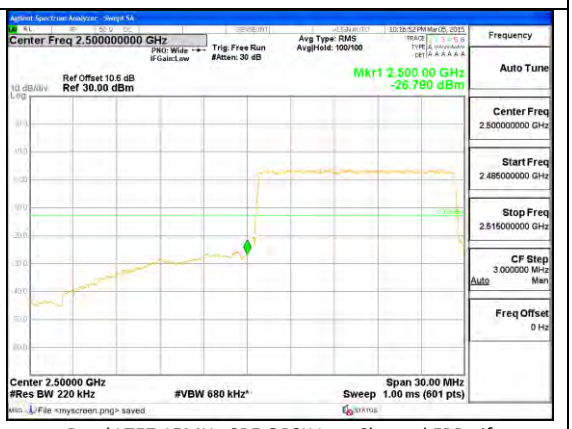
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 15MHz CBE 16QAM High Channel FRB.gif
Band LTE7 15MHz QPSK	 Band LTE7 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 15MHz CBE QPSK Low Channel FRB.gif

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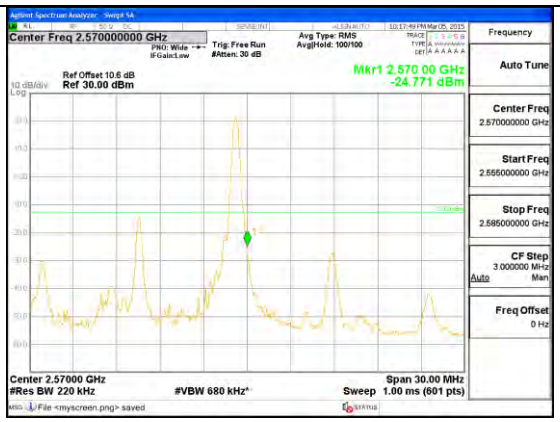
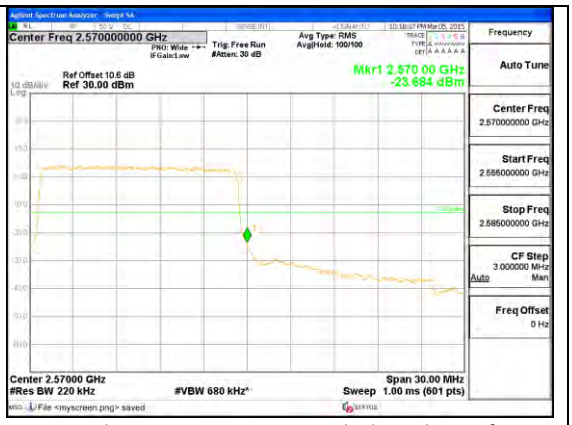
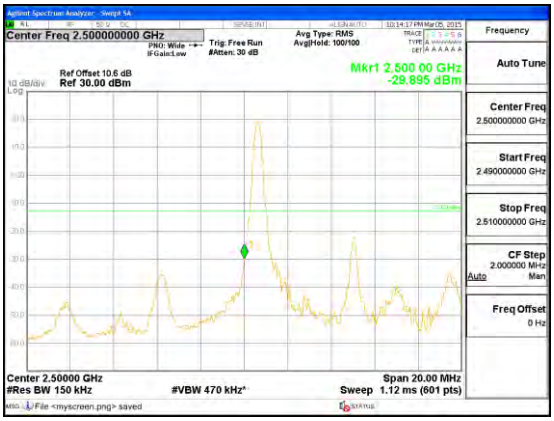
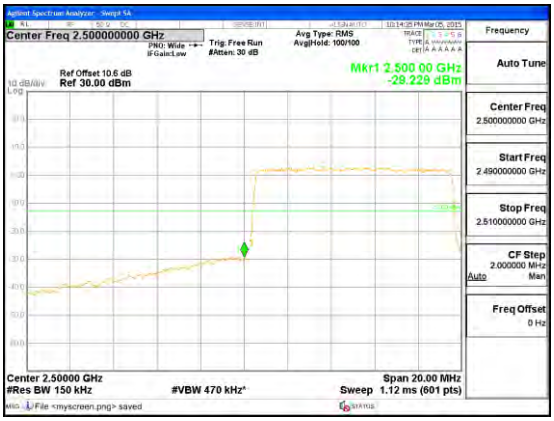
Band LTE7 15MHz QPSK	 Band LTE7 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 15MHz CBE QPSK High Channel FRB.gif

Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 10MHz CBE 16QAM Low Channel FRB.gif

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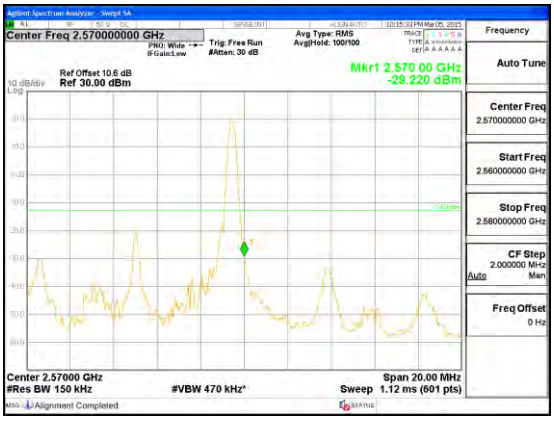
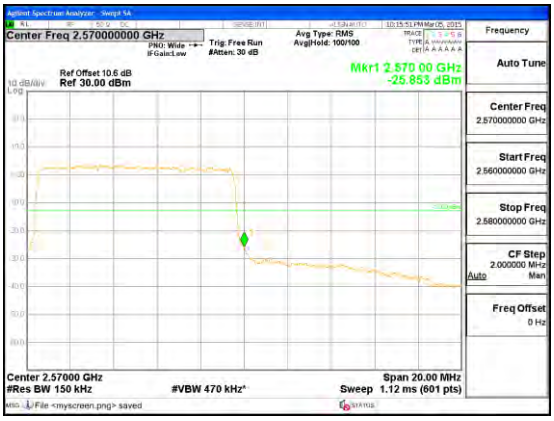
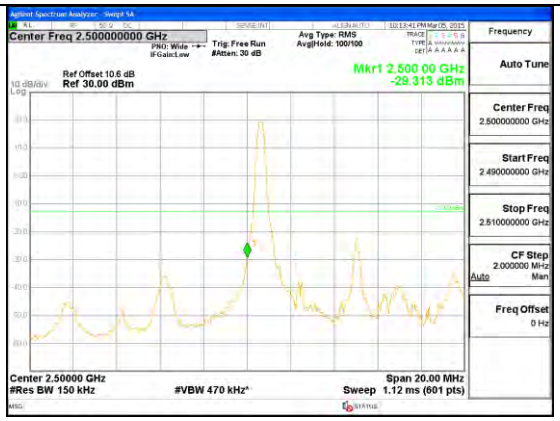
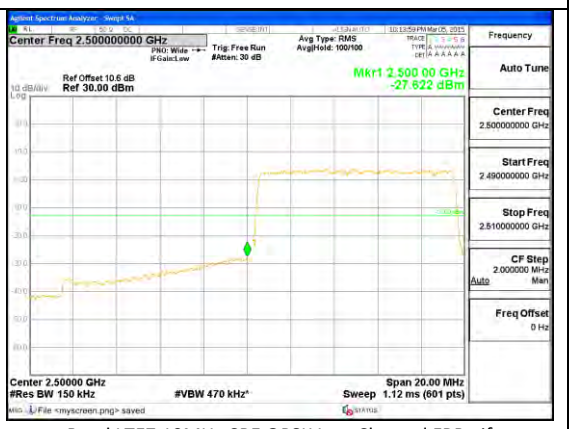
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 10MHz CBE 16QAM High Channel FRB.gif
Band LTE7 10MHz QPSK	 Band LTE7 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 10MHz CBE QPSK Low Channel FRB.gif

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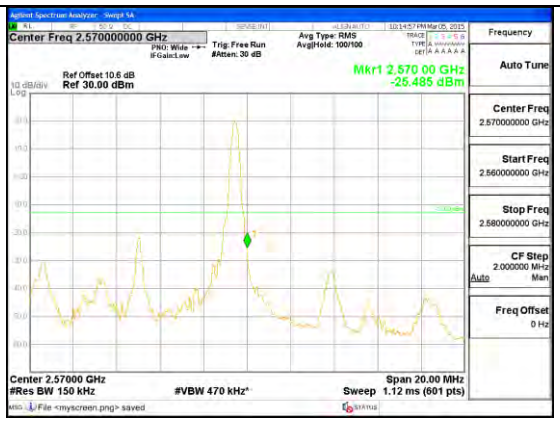
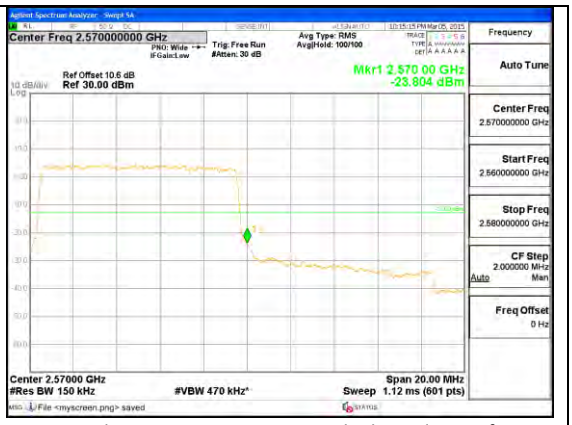
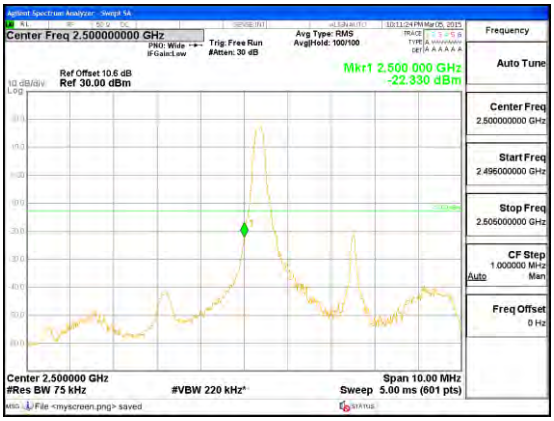
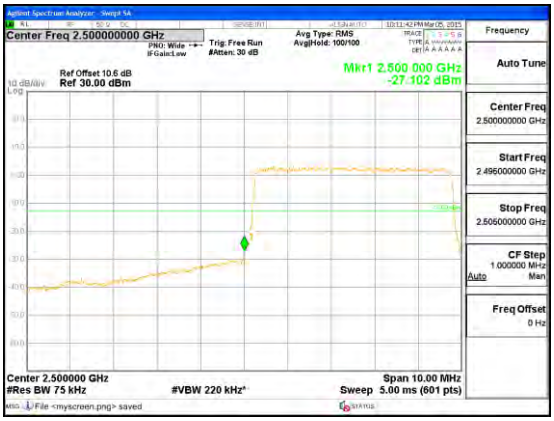
Band LTE7 10MHz QPSK	 Band LTE7 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 10MHz CBE QPSK High Channel FRB.gif

Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 5MHz CBE 16QAM Low Channel FRB.gif

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA
TEL: (510) 771-1000
FAX: (510) 661-0888

FORM NO: CCSUP4701I

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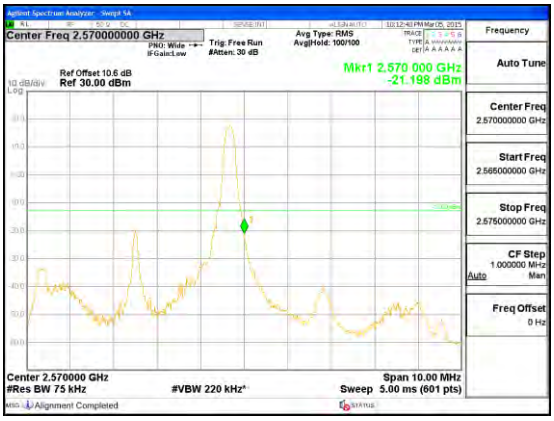
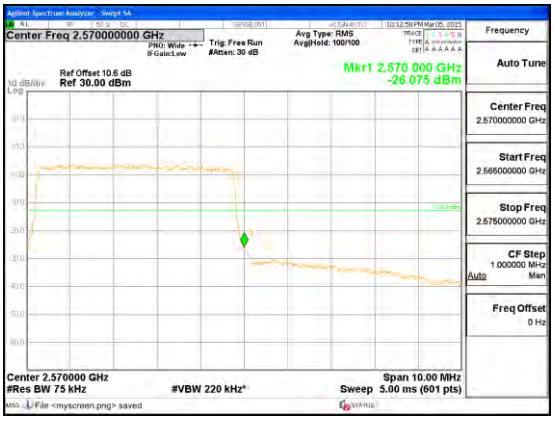
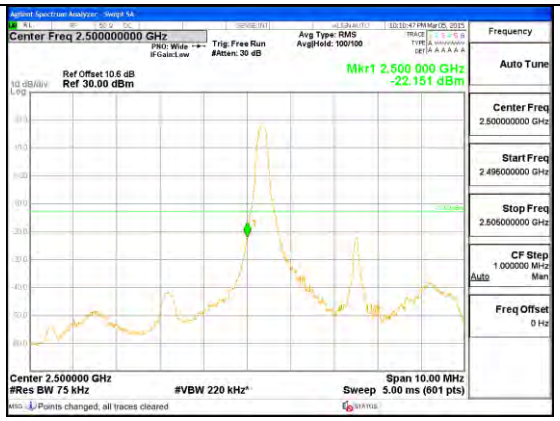
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 5MHz CBE 16QAM High Channel FRB.gif
Band LTE7 5MHz QPSK	 Band LTE7 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 5MHz CBE QPSK Low Channel FRB.gif

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