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
FCC CFR47 PART 90 SUBPART S

CERTIFICATION TEST REPORT

FOR

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

MODEL NUMBER: LG-LS991, LS991, LGLS991

FCC ID: ZNFLS991

REPORT NUMBER: 15I20286-E1A

ISSUE DATE: APRIL 29, 2015

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	04/20/15	Initial Issue	D. Coronia
A	04/29/15	LTE Band 2 Conducted Spurious Emission correction, Section 10.3.1	S.Tran

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS MOBILECOMM U.S.A., INC
EUT DESCRIPTION:	GSM/CDMA/WCDMA/LTE PHONE + BLUETOOTH, with DTS/UNII a/b/g/n/ac & NFC
MODEL:	LG-LS991, LS991, LGLS991
SERIAL NUMBER:	06000445 (Conducted) and 809EB8C34 (Radiated)
DATE TESTED:	MARCH 14- APRIL 3, 2015

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 22H, 24E , 27F, 27L, 27M, and 90S	PASS

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

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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UL VERIFICATION SERVICES INC

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, FCC CFR 47 Part 27, and FCC CFR 47 Part 90.

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(IC: 2324B-1)	☐ Chamber D(IC: 2324B-4)
☒ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 2324B-5)
☐ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 2324B-6)
	☒ Chamber G(IC: 2324B-7)
	☐ Chamber H(IC: 2324B-8)

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

EIRP = 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%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/CDMA/WCDMA/LTE PHONE + BLUETOOTH, with DTS/UNII a/b/g/n/ac & NFC

5.2. MAXIMUM OUTPUT POWER

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

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	29.72	937.56
	824~849	EGPRS	26.9	489.78	23.96	248.89
GSM1900	1850~1910	GMSK	29.4	870.96		
	1850~1910	GPRS	27.7	588.84	29.21	833.68
	1850~1910	EGPRS	27.0	501.19	32.20	1659.59
Band 5	824~849	REL99	23.7	234.42	20.55	113.50
	824~849	HSDPA	23.4	218.78	20.51	112.46
	824~849	HSUPA	23.7	234.42		
Band 2	1850~1910	REL99	23.5	223.87	25.86	385.48
	1850~1910	HSDPA	23.5	223.87	25.85	384.59
	1850~1910	HSUPA	23.7	234.42		
BC10	816~824	1xRTT	25.2	331.13	23.68	233.35
	816~824	EVDO REL. 0	24.9	309.03	23.76	237.68
	816~824	EVDO REV. A	24.9	309.03		
BC0	824~849	1xRTT	24.9	309.03	23.33	215.28
	824~849	EVDO REL. 0	24.7	295.12	22.98	198.61
	824~849	EVDO REV. A	24.7	295.12		
BC1	1850~1910	1xRTT	25.2	331.13	23.68	233.35
	1850~1910	EVDO REL. 0	24.9	309.03	23.76	237.68
	1850~1910	EVDO REV. A	24.9	309.03		

5.3. MAXIMUM OUTPUT POWER (LTE)

LTE Band 2

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

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	20MHz	QPSK	23.52	224.91	25.80	380.19
			16QAM	22.60	181.97	24.97	314.05
		15MHz	QPSK	23.57	227.51	25.37	344.35
			16QAM	22.37	172.58	24.89	308.32
		10MHz	QPSK	23.41	219.28	25.45	350.75
			16QAM	22.66	184.50	24.50	281.84
		5MHz	QPSK	23.33	215.28	25.52	356.45
			16QAM	22.51	178.24	24.53	283.79
		3MHz	QPSK	23.34	215.77	25.33	341.19
			16QAM	22.31	170.22	24.59	287.74
		1.4MHz	QPSK	23.50	223.87	25.28	337.29
			16QAM	22.38	172.98	24.57	286.42

LTE Band 4

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	20MHz	QPSK	23.58	228.03	25.93	391.74
			16QAM	22.57	180.72	25.23	333.43
		15MHz	QPSK	23.55	226.46	24.62	289.73
			16QAM	22.57	180.72	23.92	246.60
		10MHz	QPSK	23.33	215.28	25.21	331.89
			16QAM	22.30	169.82	24.61	289.07
		5MHz	QPSK	23.46	221.82	25.34	341.98
			16QAM	22.50	177.83	24.80	302.00
		3MHz	QPSK	23.44	220.80	25.44	349.95
			16QAM	22.31	170.22	24.79	301.30
		1.4MHz	QPSK	23.55	226.46	25.42	348.34
			16QAM	22.66	184.50	24.59	287.74

LTE Band 5

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	10MHz	QPSK	23.46	221.82	22.58	181.13
			16QAM	22.30	169.82	21.38	137.40
		5MHz	QPSK	23.49	223.36	22.48	177.01
			16QAM	22.28	169.04	21.38	137.40
		3MHz	QPSK	23.40	218.78	22.28	169.04
			16QAM	22.33	171.00	21.18	131.22
		1.4MHz	QPSK	23.42	219.79	23.78	238.78
			16QAM	22.24	167.49	22.18	165.20

LTE Band 12

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE12	699~716	10MHz	QPSK	23.45	221.31	18.20	66.07
			16QAM	22.30	169.82	18.00	63.10
		5MHz	QPSK	23.43	220.29	18.03	63.53
			16QAM	22.46	176.20	17.10	51.29
		3MHz	QPSK	23.50	223.87	18.84	76.56
			16QAM	22.51	178.24	17.70	58.88
		1.4MHz	QPSK	23.53	225.42	18.40	69.18
			16QAM	22.38	172.98	17.30	53.70

LTE Band 25

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE25	1850~1915	20MHz	QPSK	23.59	228.56	25.66	368.13
			16QAM	22.41	174.18	24.73	297.17
		15MHz	QPSK	23.58	228.03	25.63	365.59
			16QAM	22.70	186.21	24.64	291.07
		10MHz	QPSK	23.37	217.27	25.67	368.98
			16QAM	22.42	174.58	24.82	303.39
		5MHz	QPSK	23.54	225.94	25.75	375.84
			16QAM	22.70	186.21	24.88	307.61
		3MHz	QPSK	23.51	224.39	25.72	373.25
			16QAM	22.50	177.83	24.83	304.09
		1.4MHz	QPSK	23.50	223.87	25.70	371.54
			16QAM	22.60	181.97	24.84	304.79

LTE Band 26 PART 90

FCC Part 90							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE26	814~824	10MHz	QPSK	23.42	219.79	22.58	181.13
			16QAM	22.40	173.78	21.38	137.40
		5MHz	QPSK	23.39	218.27	22.48	177.01
			16QAM	22.38	172.98	21.38	137.40
		3MHz	QPSK	23.37	217.27	22.28	169.04
			16QAM	22.42	174.58	21.18	131.22
		1.4MHz	QPSK	23.37	217.27	23.78	238.78
			16QAM	22.29	169.43	22.18	165.20

LTE Band 26 PART 22

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE26	824~849	15MHz	QPSK	23.50	223.87	22.18	165.20
			16QAM	22.51	178.24	21.18	131.22
		10MHz	QPSK	23.45	221.31	22.16	164.44
			16QAM	22.41	174.18	20.92	123.59
		5MHz	QPSK	23.51	224.39	22.10	162.18
			16QAM	22.45	175.79	20.86	121.90
		3MHz	QPSK	23.51	224.39	22.21	166.34
			16QAM	22.45	175.79	21.06	127.64
		1.4MHz	QPSK	23.51	224.39	21.96	157.04
			16QAM	22.37	172.58	20.76	119.12

LTE Band 41

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE41	2496~2690	20MHz	QPSK	23.41	219.28	23.13	205.59
			16QAM	22.39	173.38	22.33	171.00
		15MHz	QPSK	23.38	217.77	22.81	190.99
			16QAM	22.14	163.68	22.21	166.34
		10MHz	QPSK	23.39	218.27	23.71	234.96
			16QAM	22.25	167.88	23.11	204.64
		5MHz	QPSK	23.33	215.28	24.21	263.63
			16QAM	22.37	172.58	23.61	229.61

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)
GSM1900/CDMA BC1/WCDMA B2/LTE B2 1850~1910MHz	-3.5
GSM850/CDMA BC0/WCDMA B5/LTE B5 824~849MHz	-7.1
LTE B4 1710~1755MHz	-5.2
LTE B12 699~716MHz	-5.9
LTE25, 1850~1915MHz	-3.5
CDMA BC10/LTE B26 814~849MHz	-7.1
LTE B41 2496~2690MHz	1.7

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	LG	MCS-04WD2	EAY62991904	N/A
Smart Case Cover	LG	LG-P1	DK0227	N/A
Wireless Charger	LG	WCD-110	LF1212625283010049	N/A
Earphone	LG	N/A	N/A	N/A

I/O CABLES (CONDUCTED SETUP)

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

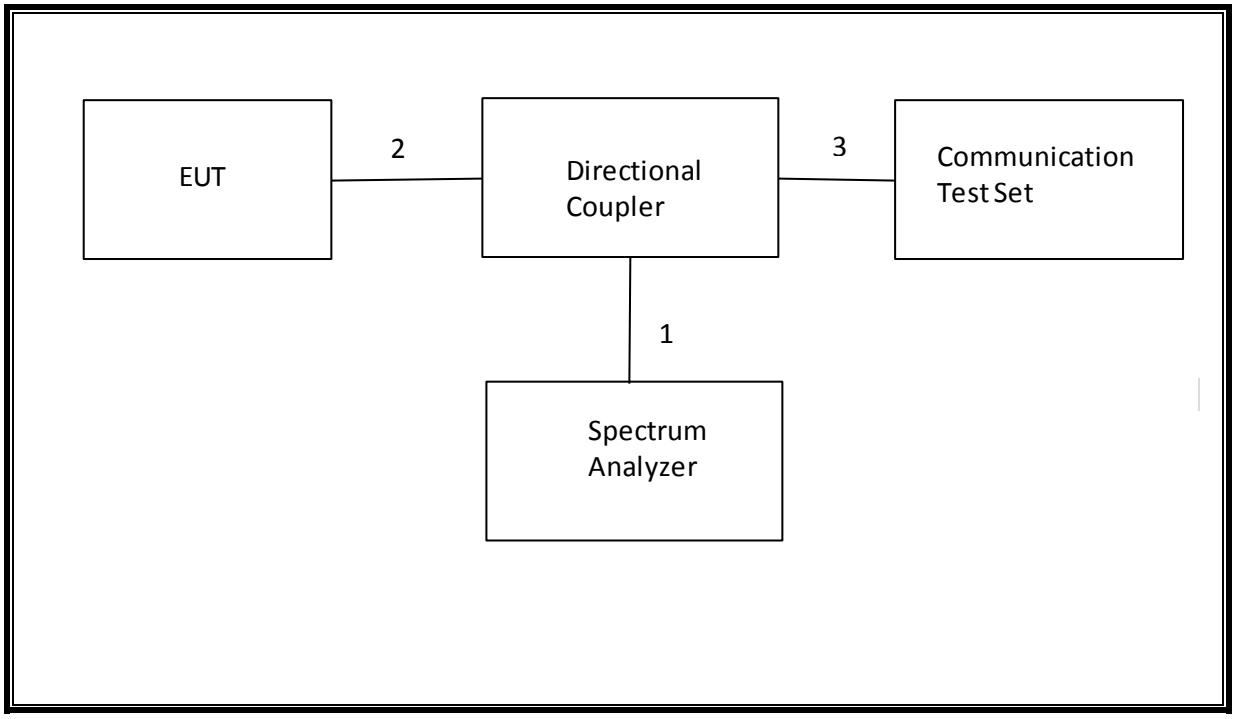
I/O CABLES (RADIATED SETUP)

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

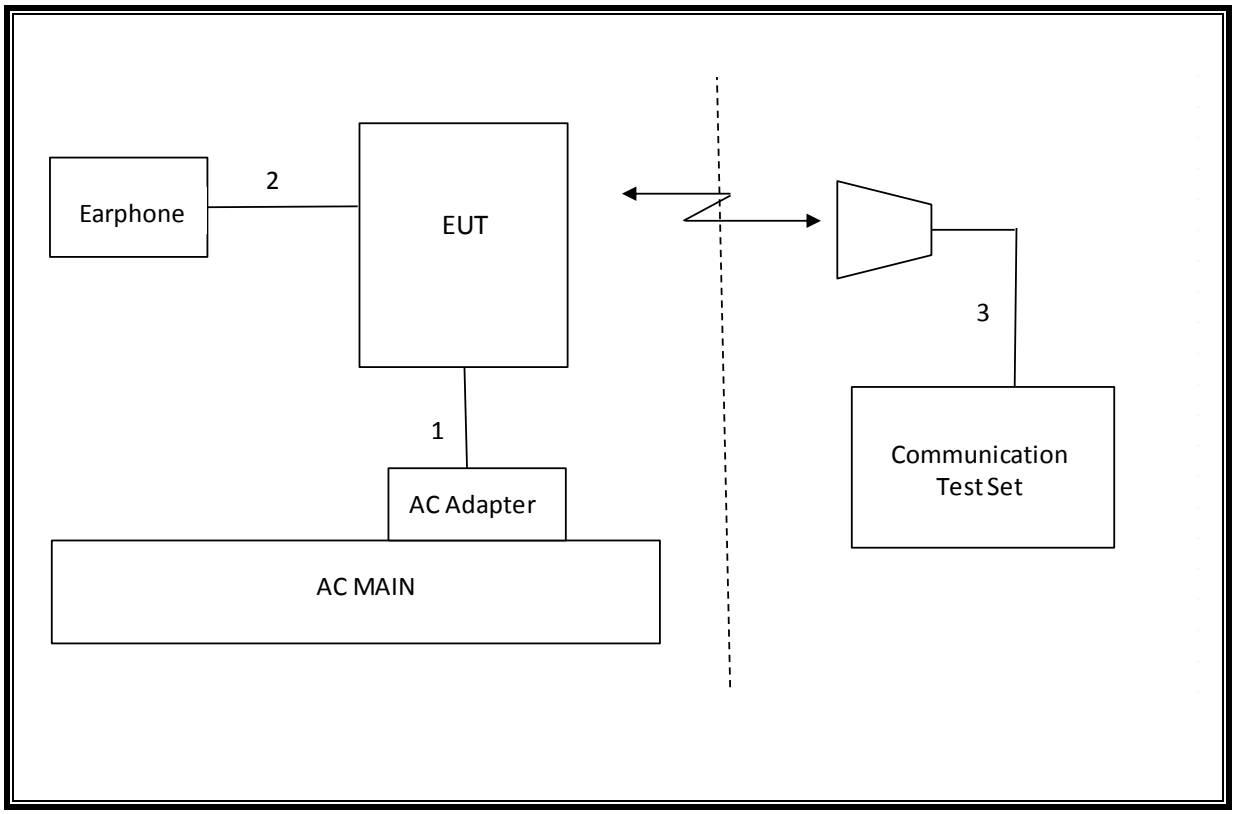
TEST SETUP

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

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



5.6. DESCRIPTION OF TEST SETUP

Mode: LTE

PAR – Full RB is used for testing.

Occupied bandwidth- full RB is used for testing and 10.1.2 table column 4 shows the RB allocation.

Band edge- 1 RB and full RB are used for testing and test plot are provided in section 10.2.1

Out of Band Emission- 1 RB is used for testing

ERP/EIRP – 1RB is used for testing and table 11.1.2 column 4 shows the RB allocation

Spurious Emission- 1RB is used for testing.

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	123	10/28/15
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	05/12/15
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	6502	158071	10/14/15
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/15

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Version 9.5, 07/22/14
Conducted Software	UL	UL EMC	Version 9.5, 05/17/14
CLT Software	UL	UL RF	Version 1.0, 02/02/15
Antenna Port Software	UL	UL RF	Version 2.1.1.1, 1/20/15

7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Note
2.1049	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	17.951 MHz
22.917(a) 24.238(a) 27.53(g) 90.691	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emission	-13dBm		Pass	-15.171 dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-33.05 dBm
2.1046	N/A	Conducted output power	N/A		Pass	33.2 dBm
27.53(m) 90.691	RSS-199(4.5)	Emission Mask			Pass	-20.48dBm
22.355 24.235 27.54 90.213	RSS-132(4.3) RSS-133(6.3) RSS-139(6.3) RSS-199(4.3)	Frequency Stability	2.5PPM		Pass	0.011 PPM
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38 dBm	Radiated	Pass	29.721 dBm
27.50(c)(10)	N/A		34.77 dBm		Pass	18.84 dBm
90.635	N/A		50dBm		Pass	22.28 dBm
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	25.79 dBm
27.50(d)(4)	RSS-139(6.4)		30dBm		Pass	25.44 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	-38.7 dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-31.3 dBm

8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 30 dBm for GPRS1800/1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0> 4 dB

Slot Config > Unchanged (if already set under MS Signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

Network Coding Scheme > CS4 (GPRS) and MCS5 ~ MCS9 (EGPRS)

Bit Stream > 2E9-1PSR Bit Pattern

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal On to turn on the signal and change settings

8.1.1. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	128	824.2	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	31.1
			190	836.6	31.1
			251	848.8	31.1
EGPRS (8PSK)	MCS5	1	128	824.2	26.9
			190	836.6	26.9
			251	848.8	26.9
		2	128	824.2	26.9
			190	836.6	26.9
			251	848.8	26.9

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	29.4
			661	1880.0	29.4
			810	1909.8	29.4
GPRS (GMSK)	CS1	1	512	1850.2	29.4
			661	1880.0	29.4
			810	1909.8	29.4
		2	512	1850.2	27.7
			661	1880.0	27.7
			810	1909.8	27.7
EGPRS (8PSK)	MCS5	1	512	1850.2	26.9
			661	1880.0	27.0
			810	1909.8	27.0
		2	512	1850.2	25.6
			661	1880.0	25.6
			810	1909.8	25.6

8.2. CDMA2000

8.2.1. 1xRTT

TEST PROCEDURE

This procedure assumes the Agilest 8960 Test Set has the following applications installed and with valid license.

Application	Rev, License
CDMA2000 Mobile Test	B.13.08, L

- Call Setup > Shift & Preset
- Cell Info > Cell Parameters > System ID (SID) > 7
  > Network ID (NID) > 1
- Protocol Rev > 6 (IS-2000-0)
- Radio Config (RC) > Please see following table or details
- FCH Service Option (SO) Setup > Please see following table or details
- Traffic Data Rate > Full
- TDSO SCH Info > F-SCH Parameters > F-SCH Data Rate > 153.6 kbps
  > R-SCH Parameters > R-SCH Data Rate > 153.6 kbps
- Rvs Power Ctrl > Active bits
  - Rvs Power Ctrl > All Up bits (Maximum TxPout)

CDMA2000 OUTPUT POWER RESULT

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC10	RC1, SO55 (Loopback)	476	817.90	25.2
		580	820.50	25.2
		684	823.10	25.2
	RC3, SO55 (Loopback)	476	817.90	25.2
		580	820.50	25.2
		684	823.10	25.2
	RC3, SO32 (+F-SCH)	476	817.90	25.2
		580	820.50	25.2
		684	823.10	25.2

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC0	RC1, SO55 (Loopback)	1013	824.70	25.2
		384	836.52	25.2
		777	848.31	25.2
	RC3, SO55 (Loopback)	1013	824.70	25.2
		384	836.52	25.2
		777	848.31	25.2
	RC3, SO32 (+F-SCH)	1013	824.70	25.2
		384	836.52	25.2
		777	848.31	25.2

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC1	RC1, SO55 (Loopback)	25	1851.25	24.9
		600	1880.00	24.9
		1175	1908.75	24.9
	RC3, SO55 (Loopback)	25	1851.25	24.9
		600	1880.00	24.9
		1175	1908.75	24.9
	RC3, SO32 (+F-SCH)	25	1851.25	24.9
		600	1880.00	24.9
		1175	1908.75	24.9

8.2.2. 1xEV-DO Release 0

TEST PROCEDURE

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

Application	Rev, License
1xEV-DO Terminal Test	A.09.13

EVDO Release 0 - RTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Parms:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > RTAP
  - RTAP Rate > 153.6 kbps
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press “Start Data Connection” when “Session Open” appear in “Active Cell”
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

EVDO Release 0 - FTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Parms:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > FTAP (default)
  - FTAP Rate > 307.2 kbps (2 Slot, QPSK)
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press “Start Data Connection” when “Session Open” appear in “Active Cell”
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

1XEVDO REL 0 OUTPUT POWER RESULT

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC10	307.2 kbps (2 slot, QPSK)	476	817.90	24.8
		580	820.50	24.9
		684	823.10	24.9

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC0	307.2 kbps (2 slot, QPSK)	1013	824.70	24.8
		384	836.52	24.9
		777	848.31	24.9

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC1	307.2 kbps (2 slot, QPSK)	25	1851.25	24.6
		600	1880.00	24.7
		1175	1908.75	24.7

8.2.3. 1xEV-DO Rev. A

TEST PROCEDURE

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

Application	Rev, License
1xEV-DO Terminal Test	A.09.13

EVDO Release A – RETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > RETAP
- R-Data Pkt Size > 4096
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2

> PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)

- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

EVDO Release A - FETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > FETAP
- F-Traffic Format > 4 (1024, 2,128) Canonical (307.2k, QPSK)
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2

> PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)

- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

1xEVDO REV A OUTPUT RESULT

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC10	307.2 kbps (2 slot, QPSK)	476	817.90	24.8
		580	820.50	24.9
		684	823.10	24.9

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC0	307.2 kbps (2 slot, QPSK)	1013	824.70	24.8
		384	836.52	24.9
		777	848.31	24.9

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC1	307.2 kbps (2 slot, QPSK)	25	1851.25	24.6
		600	1880.00	24.7
		1175	1908.75	24.7

8.3. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

	Mode	Rel99
	Subtest	-
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	HSDPA FRC	Not Applicable
	HSUPA Test	Not Applicable
	Power Control Algorithm	Algorithm2
	βc	Not Applicable
	βd	Not Applicable
	βec	Not Applicable
	βc/βd	8/15
	βhs	Not Applicable
	βed	Not Applicable

8.3.1. 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	23.6
		4183	836.6	0	23.7
		4233	846.6	0	23.7

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	0	23.4
		9400	1880.0	0	23.5
		9538	1907.6	0	23.5

8.4. 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			

8.4.1. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	23.4
		4183	836.6	0	23.4
		4233	846.6	0	23.5
	Subtest 2	4132	826.4	0	23.3
		4183	836.6	0	23.3
		4233	846.6	0	23.3
	Subtest 3	4132	826.4	0.5	22.7
		4183	836.6	0.5	22.8
		4233	846.6	0.5	22.8
	Subtest 4	4132	826.4	0.5	22.6
		4183	836.6	0.5	22.7
		4233	846.6	0.5	22.7

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.4
		9400	1880.0	0	23.5
		9538	1907.6	0	23.5
	Subtest 2	9262	1852.4	0	23.4
		9400	1880.0	0	23.4
		9538	1907.6	0	23.4
	Subtest 3	9262	1852.4	0.5	22.7
		9400	1880.0	0.5	22.7
		9538	1907.6	0.5	22.7
	Subtest 4	9262	1852.4	0.5	22.8
		9400	1880.0	0.5	22.8
		9538	1907.6	0.5	22.8

8.5. 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.

8.5.1. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	22.6
		4183	836.6	0	22.7
		4233	846.6	0	22.7
	Subtest 2	4132	826.4	2	21.7
		4183	836.6	2	21.7
		4233	846.6	2	21.7
	Subtest 3	4132	826.4	1	22.2
		4183	836.6	1	22.2
		4233	846.6	1	22.2
	Subtest 4	4132	826.4	2	21.6
		4183	836.6	2	21.7
		4233	846.6	2	21.7
	Subtest 5	4132	826.4	0	23.6
		4183	836.6	0	23.7
		4233	846.6	0	23.7

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	22.3
		9400	1880.0	0	22.3
		9538	1907.6	0	22.3
	Subtest 2	9262	1852.4	2	21.5
		9400	1880.0	2	21.5
		9538	1907.6	2	21.5
	Subtest 3	9262	1852.4	1	21.2
		9400	1880.0	1	21.2
		9538	1907.6	1	21.2
	Subtest 4	9262	1852.4	2	21.5
		9400	1880.0	2	21.5
		9538	1907.6	2	21.5
	Subtest 5	9262	1852.4	0	23.7
		9400	1880.0	0	23.7
		9538	1907.6	0	23.7

8.6. LTE OUTPUT VERIFICATION

8.6.1. LTE OUTPUT RESULT

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	23.45	23.52	23.41
			1	49	0	23.44	23.50	23.37
			1	99	0	23.36	23.40	23.35
			50	0	1	22.12	22.35	22.28
			50	24	1	22.20	22.33	22.26
			50	50	1	22.21	22.30	22.23
			100	0	1	22.14	22.32	22.23
		16QAM	1	0	1	22.26	22.12	22.42
			1	49	1	22.30	22.20	22.60
			1	99	1	22.41	22.10	22.42
			50	0	2	20.88	21.44	21.30
			50	24	2	21.67	21.35	21.37
			50	50	2	21.34	21.27	21.22
			100	0	2	21.32	21.27	21.22
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	23.43	23.50	23.45
			1	37	0	23.30	23.45	23.42
			1	74	0	23.36	23.33	23.57
			36	0	1	22.10	22.43	22.50
			36	20	1	21.95	22.33	22.37
			36	39	1	22.00	22.25	22.13
			75	0	1	22.00	22.24	22.16
		16QAM	1	0	1	22.13	22.37	22.30
			1	37	1	21.87	22.20	22.31
			1	74	1	22.20	22.11	22.31
			36	0	2	20.96	21.40	21.44
			36	20	2	20.90	21.33	21.27
			36	39	2	21.00	21.24	21.10
			75	0	2	21.00	21.25	21.20

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	23.39	23.41	23.34
			1	25	0	23.27	23.36	23.25
			1	49	0	23.14	23.20	23.16
			25	0	1	22.44	22.48	22.37
			25	12	1	22.34	22.54	22.32
			25	25	1	22.35	22.46	22.26
			50	0	1	22.35	22.45	22.25
		16QAM	1	0	1	22.12	22.34	22.25
			1	25	1	22.60	22.15	22.17
			1	49	1	22.66	21.90	22.17
			25	0	2	21.31	21.52	21.46
			25	12	2	21.22	21.57	21.41
			25	25	2	21.23	21.48	21.33
			50	0	2	21.19	21.46	21.28
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	23.54	23.33	23.12
			1	12	0	23.56	23.21	23.10
			1	24	0	23.38	23.33	23.25
			12	0	1	22.57	22.31	22.10
			12	7	1	22.54	22.23	22.07
			12	13	1	22.51	22.25	22.15
			25	0	1	22.56	22.27	22.06
		16QAM	1	0	1	22.49	22.29	22.12
			1	12	1	22.51	22.15	22.17
			1	24	1	22.43	22.34	22.18
			12	0	2	21.68	21.35	21.02
			12	7	2	21.66	21.28	21.01
			12	13	2	21.59	21.29	21.08
			25	0	2	21.59	21.32	21.00

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	23.36	23.35	23.09
			1	8	0	23.24	23.21	23.13
			1	14	0	23.16	23.34	23.29
			8	0	1	22.11	22.10	22.03
			8	4	1	22.12	22.11	22.16
			8	7	1	22.09	22.10	22.16
			15	0	1	22.10	22.12	22.15
		16QAM	1	0	1	22.01	22.31	22.18
			1	8	1	21.97	22.15	22.21
			1	14	1	21.88	22.26	22.26
			8	0	2	21.10	21.20	21.15
			8	4	2	21.14	21.22	21.16
			8	7	2	21.10	21.23	21.17
			15	0	2	21.03	21.21	21.10
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	23.42	23.50	23.29
			1	3	0	23.41	23.45	23.34
			1	5	0	23.39	23.42	23.30
			3	0	0	23.30	23.33	23.27
			3	1	0	23.35	23.46	23.33
			3	3	0	23.37	23.42	23.30
			6	0	1	22.44	22.24	22.16
		16QAM	1	0	1	22.35	22.26	22.00
			1	3	1	22.38	22.22	22.10
			1	5	1	22.31	22.21	22.05
			3	0	1	22.29	22.06	22.00
			3	1	1	22.34	22.12	22.04
			3	3	1	22.36	22.10	22.04
			6	0	2	21.43	21.23	21.11

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	23.55	23.58	23.54
			1	49	0	23.53	23.57	23.52
			1	99	0	23.46	23.49	23.44
			50	0	1	22.34	22.42	22.50
			50	24	1	22.43	22.41	22.34
			50	50	1	22.38	22.40	22.36
			100	0	1	22.32	22.35	22.32
		16QAM	1	0	1	22.24	22.57	22.51
			1	49	1	22.07	22.52	22.35
			1	99	1	22.22	22.45	22.28
			50	0	2	21.40	21.44	21.40
			50	24	2	21.44	21.51	21.36
			50	50	2	21.43	21.47	21.31
			100	0	2	21.40	21.43	21.37
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	23.45	23.55	23.54
			1	37	0	23.53	23.47	23.62
			1	74	0	23.46	23.49	23.44
			36	0	1	22.34	22.42	22.50
			36	20	1	22.43	22.41	22.34
			36	39	1	22.38	22.40	22.36
			75	0	1	22.32	22.35	22.32
		16QAM	1	0	1	22.24	22.57	22.51
			1	37	1	22.07	22.52	22.35
			1	74	1	22.22	22.45	22.28
			36	0	2	21.40	21.44	21.40
			36	20	2	21.44	21.51	21.36
			36	39	2	21.43	21.47	21.31
			75	0	2	21.40	21.43	21.37

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	23.09	23.14	23.03
			1	25	0	23.21	23.27	23.33
			1	49	0	23.04	23.08	23.13
			25	0	1	22.04	22.17	22.12
			25	12	1	22.17	22.24	22.13
			25	25	1	22.13	22.21	22.17
			50	0	1	22.06	22.14	22.20
		16QAM	1	0	1	22.30	22.02	21.70
			1	25	1	22.30	22.22	21.95
			1	49	1	22.29	22.05	21.82
			25	0	2	21.03	21.20	21.35
			25	12	2	21.17	21.27	21.39
			25	25	2	21.13	21.25	21.28
			50	0	2	21.04	21.16	21.24
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	23.35	23.46	23.42
			1	12	0	23.34	23.45	23.35
			1	24	0	23.33	23.41	23.33
			12	0	1	22.45	22.48	22.35
			12	7	1	22.44	22.51	22.43
			12	13	1	22.44	22.53	22.50
			25	0	1	22.46	22.49	22.47
		16QAM	1	0	1	22.29	22.44	22.34
			1	12	1	22.22	22.55	22.50
			1	24	1	22.25	22.43	22.47
			12	0	2	21.54	21.57	21.58
			12	7	2	21.51	21.64	21.60
			12	13	2	21.47	21.54	21.67
			25	0	2	21.58	21.51	21.55

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	23.32	23.44	23.32
			1	8	0	23.34	23.39	23.36
			1	14	0	23.18	23.38	23.33
			8	0	1	22.25	22.35	22.20
			8	4	1	22.18	22.37	22.31
			8	7	1	22.21	22.29	22.31
			15	0	1	22.19	22.14	22.30
		16QAM	1	0	1	21.83	22.21	21.99
			1	8	1	21.84	22.31	22.09
			1	14	1	21.70	22.20	22.10
			8	0	2	21.35	21.06	21.42
			8	4	2	21.28	21.09	21.53
			8	7	2	21.32	21.11	21.54
			15	0	2	21.22	21.24	21.28
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	23.45	23.55	23.42
			1	3	0	23.43	23.54	23.42
			1	5	0	23.43	23.54	23.40
			3	0	0	23.40	23.50	23.30
			3	1	0	23.39	23.40	23.37
			3	3	0	23.35	23.30	23.36
			6	0	1	22.42	22.55	22.54
		16QAM	1	0	1	22.49	22.51	22.36
			1	3	1	22.55	22.58	22.37
			1	5	1	22.43	22.46	22.35
			3	0	1	22.45	22.46	22.53
			3	1	1	22.50	22.50	22.57
			3	3	1	22.49	22.52	22.66
			6	0	2	21.30	21.40	21.33

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	23.42	23.46	23.30
			1	25	0	23.35	23.40	23.31
			1	49	0	23.30	23.31	23.29
			25	0	1	22.38	22.50	22.45
			25	12	1	22.40	22.44	22.39
			25	25	1	22.35	22.38	22.30
			50	0	1	22.32	22.35	22.28
		16QAM	1	0	1	22.20	22.30	22.24
			1	25	1	22.17	22.25	22.22
			1	49	1	22.18	22.29	22.00
			25	0	2	21.41	21.51	21.34
			25	12	2	21.40	21.45	21.30
			25	25	2	21.35	21.39	21.24
			50	0	2	21.32	21.33	21.25
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	23.34	23.49	23.42
			1	12	0	23.34	23.44	23.30
			1	24	0	23.35	23.40	23.29
			12	0	1	22.34	22.40	22.32
			12	7	1	22.33	22.35	22.23
			12	13	1	22.33	22.41	22.20
			25	0	1	22.27	22.31	22.25
		16QAM	1	0	1	22.20	22.28	22.24
			1	12	1	22.22	22.25	22.22
			1	24	1	22.23	22.25	22.06
			12	0	2	21.23	21.29	21.20
			12	7	2	21.24	21.30	21.21
			12	13	2	21.23	21.25	21.20
			25	0	2	21.10	21.19	21.18

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	23.31	23.40	23.38
			1	8	0	23.33	23.36	23.24
			1	14	0	23.31	23.31	23.20
			8	0	1	22.35	22.43	22.30
			8	4	1	22.32	22.41	22.31
			8	7	1	22.31	22.39	22.23
			15	0	1	22.33	22.38	22.23
		16QAM	1	0	1	22.33	22.29	22.30
			1	8	1	22.20	22.23	22.24
			1	14	1	22.19	22.19	22.21
			8	0	2	21.33	21.40	21.30
			8	4	2	21.30	21.37	21.25
			8	7	2	21.30	21.32	21.24
			15	0	2	21.09	21.15	21.05
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	23.33	23.42	23.29
			1	3	0	23.32	23.41	23.30
			1	5	0	23.30	23.40	23.20
			3	0	0	23.29	23.39	23.19
			3	1	0	23.31	23.39	23.25
			3	3	0	23.33	23.36	23.24
			6	0	1	22.24	22.32	22.22
		16QAM	1	0	1	21.99	22.24	22.03
			1	3	1	21.94	22.22	22.10
			1	5	1	22.00	22.20	22.00
			3	0	1	21.88	22.13	21.81
			3	1	1	21.93	22.13	21.90
			3	3	1	22.02	22.09	21.89
			6	0	2	21.20	21.30	21.21

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	23.40	23.45	23.30
			1	25	0	23.35	23.40	23.30
			1	49	0	23.36	23.40	23.31
			25	0	1	22.36	22.37	22.29
			25	12	1	22.35	22.40	22.30
			25	25	1	22.33	22.37	22.25
			50	0	1	22.30	22.40	22.29
		16QAM	1	0	1	22.23	22.30	22.23
			1	25	1	22.26	22.30	22.20
			1	49	1	22.30	22.32	22.24
			25	0	2	21.43	21.45	21.29
			25	12	2	21.42	21.45	21.23
			25	25	2	21.34	21.40	21.22
			50	0	2	21.32	21.35	21.20
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	23.42	23.43	23.35
			1	12	0	23.39	23.43	23.33
			1	24	0	23.35	23.40	23.34
			12	0	1	22.40	22.43	22.24
			12	7	1	22.39	22.40	22.32
			12	13	1	22.37	22.39	22.33
			25	0	1	22.34	22.35	22.30
		16QAM	1	0	1	22.43	22.46	22.30
			1	12	1	22.34	22.40	22.32
			1	24	1	22.33	22.39	22.29
			12	0	2	21.48	21.58	21.44
			12	7	2	21.44	21.56	21.42
			12	13	2	21.40	21.50	21.40
			25	0	2	21.33	21.46	21.23

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23025	23095	23165
						700.5 MHz	707.5 MHz	714.5 MHz
LTE Band 12	3	QPSK	1	0	0	23.46	23.50	23.39
			1	8	0	23.44	23.50	23.34
			1	14	0	23.42	23.49	23.33
			8	0	1	22.46	22.56	22.34
			8	4	1	22.45	22.55	22.35
			8	7	1	22.44	22.54	22.30
			15	0	1	22.44	22.53	22.34
		16QAM	1	0	1	22.50	22.51	22.40
			1	8	1	22.49	22.49	22.40
			1	14	1	22.44	22.50	22.34
			8	0	2	21.46	21.57	21.43
			8	4	2	21.44	21.54	21.35
			8	7	2	21.42	21.53	21.42
			15	0	2	21.23	21.33	21.22
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23017	23095	23173
						699.7 MHz	707.5 MHz	715.3 MHz
LTE Band 12	1.4	QPSK	1	0	0	23.51	23.52	23.45
			1	3	0	23.50	23.51	23.44
			1	5	0	23.43	23.45	23.40
			3	0	0	23.46	23.49	23.42
			3	1	0	23.42	23.55	23.40
			3	3	0	23.35	23.53	23.30
			6	0	1	22.40	22.42	22.37
		16QAM	1	0	1	22.34	22.37	22.33
			1	3	1	22.35	22.38	22.30
			1	5	1	22.30	22.37	22.25
			3	0	1	22.28	22.35	22.22
			3	1	1	22.26	22.30	22.22
			3	3	1	22.23	22.30	22.20
			6	0	2	21.54	21.55	21.45

LTE Band 25

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26140	26365	26590
						1860 MHz	1882.5 MHz	1905 MHz
LTE Band 25	20	QPSK	1	0	0	23.5	23.6	23.5
			1	49	0	23.4	23.6	23.2
			1	99	0	23.4	23.4	23.4
			50	0	1	22.3	22.5	22.4
			50	25	1	22.4	22.4	22.2
			50	49	1	22.3	22.4	22.3
			100	0	1	22.5	22.6	22.3
		16QAM	1	0	1	22.3	22.4	22.4
			1	49	1	22.4	22.4	22.4
			1	99	1	22.3	22.4	22.3
			50	0	2	21.4	21.4	21.3
			50	25	2	21.4	21.4	21.2
			50	49	2	21.4	21.4	21.1
			100	0	2	21.3	21.4	21.1
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26115	26365	26615
						1857.5 MHz	1882.5 MHz	1907.5 MHz
LTE Band 25	15	QPSK	1	0	0	23.49	23.57	23.42
			1	37	0	23.40	23.58	23.37
			1	74	0	23.35	23.42	23.40
			36	0	1	22.36	22.60	22.46
			36	18	1	22.37	22.63	22.44
			36	35	1	22.38	22.68	22.43
			75	0	1	22.36	22.66	22.43
		16QAM	1	0	1	22.39	22.70	22.67
			1	37	1	22.30	22.60	22.44
			1	74	1	22.43	22.58	22.53
			36	0	2	21.26	21.55	21.30
			36	18	2	21.24	21.55	21.20
			36	35	2	21.28	21.61	21.17
			75	0	2	21.27	21.60	21.20

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26090	26365	26640
						1855 MHz	1882.5 MHz	1910 MHz
LTE Band 25	10	QPSK	1	0	0	23.34	23.35	23.08
			1	24	0	23.30	23.37	23.20
			1	49	0	23.15	23.26	23.35
			25	0	1	22.33	22.33	22.25
			25	12	1	22.31	22.50	22.27
			25	24	1	22.35	22.55	22.42
			50	0	1	22.31	22.52	22.34
		16QAM	1	0	1	22.19	22.30	22.28
			1	24	1	22.17	22.42	22.35
			1	49	1	22.00	22.31	22.30
			25	0	2	21.20	21.32	21.05
			25	12	2	21.25	21.53	21.13
			25	24	2	21.27	21.53	21.35
			50	0	2	21.20	21.47	21.13

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26065	26365	26665
						1852.5 MHz	1882.5 MHz	1912.5 MHz
LTE Band 25	5	QPSK	1	0	0	23.46	23.48	23.31
			1	12	0	23.45	23.52	23.49
			1	24	0	23.24	23.53	23.54
			12	0	1	22.43	22.52	22.37
			12	6	1	22.44	22.60	22.49
			12	11	1	22.34	22.58	22.54
			25	0	1	22.01	22.68	22.53
		16QAM	1	0	1	22.40	22.41	22.30
			1	12	1	22.55	22.64	22.52
			1	24	1	22.47	22.70	22.56
			12	0	2	21.23	21.48	21.29
			12	6	2	21.29	21.59	21.44
			12	11	2	21.19	21.57	21.46
			25	0	2	21.15	21.56	21.40

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26055	26365	26675
						1851.5 MHz	1882.5 MHz	1913.5 MHz
LTE Band 25	3	QPSK	1	0	0	23.45	23.51	23.46
			1	7	0	23.37	23.49	23.41
			1	14	0	23.40	23.45	23.43
			6	0	1	22.33	22.49	22.33
			6	3	1	22.31	22.47	22.36
			6	5	1	22.35	22.46	22.40
			15	0	1	22.34	22.44	22.33
		16QAM	1	0	1	22.44	22.40	22.37
			1	7	1	22.43	22.45	22.42
			1	14	1	22.40	22.50	22.39
			6	0	2	21.23	21.02	21.04
			6	3	2	21.29	21.16	21.00
			6	5	2	21.26	21.13	21.00
			15	0	2	21.20	21.08	21.01

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26047	26365	26683
						1850.7 MHz	1882.5 MHz	1914.3 MHz
LTE Band 25	1.4	QPSK	1	0	0	23.45	23.50	23.48
			1	2	0	23.44	23.49	23.45
			1	5	0	23.43	23.47	23.40
			3	0	0	23.44	23.47	23.40
			3	1	0	23.42	23.44	23.39
			3	2	0	23.40	23.45	23.41
			6	0	1	22.30	22.34	22.25
		16QAM	1	0	1	22.48	22.61	22.55
			1	2	1	22.48	22.60	22.53
			1	5	1	22.49	22.59	22.52
			3	0	1	22.41	22.44	22.40
			3	1	1	22.43	22.45	22.41
			3	2	1	22.41	22.44	22.40
			6	0	2	21.20	21.47	21.28

LTE Band 26

FCC Part 90	FCC Part 22

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26865	26915	26965
						831.5 MHz	836.5 MHz	841.5 MHz
LTE Band 26	15	QPSK	1	0	0	23.45	23.50	23.43
			1	37	0	23.44	23.47	23.42
			1	74	0	23.42	23.46	23.41
			36	0	1	22.45	22.52	22.43
			36	20	1	22.44	22.51	22.47
			36	39	1	22.44	22.46	22.47
			75	0	1	22.43	22.45	22.42
		16QAM	1	0	1	22.28	22.51	22.47
			1	37	1	22.25	22.44	22.41
			1	74	1	22.24	22.44	22.40
			36	0	2	21.54	21.55	21.45
			36	20	2	21.49	21.57	21.47
			36	39	2	21.46	21.50	21.46
			75	0	2	21.44	21.48	21.42

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)			
						26740	26840	26915	26990
						819 MHz	829 MHz	836.5 MHz	844 MHz
LTE Band 26	10	QPSK	1	0	0	23.42	23.42	23.45	23.30
			1	25	0	23.41	23.41	23.43	23.39
			1	49	0	23.38	23.38	23.40	23.30
			25	0	1	22.44	22.44	22.51	22.39
			25	12	1	22.44	22.44	22.45	22.40
			25	25	1	22.43	22.43	22.45	22.35
			50	0	1	22.40	22.40	22.46	22.34
		16QAM	1	0	1	22.39	22.39	22.42	22.30
			1	25	1	22.40	22.40	22.39	22.37
			1	49	1	22.39	22.39	22.41	22.29
			25	0	2	21.43	21.43	21.50	21.40
			25	12	2	21.51	21.51	21.53	21.41
			25	25	2	21.50	21.50	21.53	21.39
			50	0	2	21.49	21.49	21.50	21.33

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)					
						26715	26740	26765	26815	26915	27015
						816.5 MHz	819 MHz	821.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 26	5	QPSK	1	0	0	23.39	23.42	23.45	23.45	23.51	23.33
			1	12	0	23.35	23.41	23.44	23.44	23.49	23.30
			1	24	0	23.37	23.38	23.42	23.42	23.43	23.30
			12	0	1	22.49	22.44	22.45	22.45	22.52	22.45
			12	7	1	22.40	22.44	22.44	22.44	22.52	22.35
			12	13	1	22.41	22.43	22.44	22.44	22.42	22.30
			25	0	1	22.42	22.40	22.43	22.43	22.50	22.35
		16QAM	1	0	1	22.37	22.39	22.28	22.28	22.40	22.35
			1	12	1	22.36	22.40	22.25	22.25	22.45	22.29
			1	24	1	22.38	22.39	22.24	22.24	22.40	22.36
			12	0	2	21.34	21.43	21.54	21.54	21.45	21.30
			12	7	2	21.35	21.51	21.49	21.49	21.40	21.18
			12	13	2	21.36	21.50	21.46	21.46	21.40	21.30
			25	0	2	21.34	21.8	21.44	21.44	21.39	21.30

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)					
						26705	26740	26775	26805	26915	27025
						815.5 MHz	819 MHz	822.5 MHz	825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 26	3	QPSK	1	0	0	23.37	23.42	23.45	23.42	23.45	23.30
			1	8	0	23.29	23.41	23.44	23.41	23.43	23.39
			1	14	0	23.33	23.38	23.42	23.38	23.40	23.30
			8	0	1	22.39	22.44	22.45	22.44	22.51	22.39
			8	4	1	22.37	22.44	22.44	22.44	22.45	22.40
			8	7	1	22.32	22.43	22.44	22.43	22.45	22.35
			15	0	1	22.32	22.40	22.43	22.40	22.46	22.34
		16QAM	1	0	1	22.42	22.39	22.28	22.39	22.42	22.30
			1	8	1	22.42	22.40	22.25	22.40	22.39	22.37
			1	14	1	22.39	22.39	22.24	22.39	22.41	22.29
			8	0	2	21.46	21.43	21.54	21.43	21.50	21.40
			8	4	2	21.43	21.51	21.49	21.51	21.53	21.41
			8	7	2	21.40	21.50	21.46	21.50	21.53	21.39
			15	0	2	21.40	21.49	21.44	21.49	21.50	21.33

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)					
						26697	26740	26783	26797	26915	27033
						814.7 MHz	819 MHz	823.3 MHz	824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 26	1.4	QPSK	1	0	0	23.37	23.42	23.45	23.45	23.51	23.23
			1	3	0	23.31	23.41	23.44	23.44	23.48	23.31
			1	5	0	23.26	23.38	23.42	23.42	23.44	23.33
			3	0	0	23.32	22.44	22.45	22.45	23.50	23.35
			3	1	0	23.31	22.44	22.44	22.44	23.49	23.41
			3	3	0	23.31	22.43	22.44	22.44	23.47	23.36
			6	0	1	22.31	22.40	22.43	22.43	22.45	22.39
		16QAM	1	0	1	22.29	22.39	22.28	22.28	22.37	22.32
			1	3	1	22.24	22.40	22.25	22.25	22.34	22.30
			1	5	1	22.22	22.39	22.24	22.24	22.23	22.20
			3	0	1	22.14	21.43	21.54	21.54	22.28	22.13
			3	1	1	22.22	21.51	21.49	21.49	22.33	22.14
			3	3	1	22.21	21.50	21.46	21.46	22.32	22.09
			6	0	2	21.39	21.49	21.44	21.44	21.44	21.34

LTE Band 41

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39750	40620	41490
						2506 MHz	2593 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	23.30	23.40	23.28
			1	49	0	23.29	23.41	23.22
			1	99	0	23.27	23.39	23.23
			50	0	1	22.21	22.25	22.20
			50	24	1	22.11	22.26	22.22
			50	50	1	22.07	22.22	22.18
			100	0	1	22.07	22.24	22.15
		16QAM	1	0	1	22.39	22.35	22.00
			1	49	1	22.39	22.30	22.08
			1	99	1	22.23	22.20	22.02
			50	0	2	21.20	21.25	21.15
			50	24	2	21.08	21.26	21.14
			50	50	2	21.06	21.23	21.13
			100	0	2	21.05	21.07	21.10
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39725	40620	41515
						2503.5 MHz	2593 MHz	2682.5 MHz
LTE Band 41	15	QPSK	1	0	0	23.30	23.38	23.30
			1	37	0	23.29	23.31	23.29
			1	74	0	23.25	23.29	23.20
			36	0	1	22.30	22.39	22.25
			36	20	1	22.22	22.25	22.17
			36	39	1	22.22	22.28	22.22
			75	0	1	22.22	22.25	22.16
		16QAM	1	0	1	21.98	22.10	22.00
			1	37	1	21.96	22.11	22.00
			1	74	1	21.70	22.14	21.98
			36	0	2	21.17	21.30	21.20
			36	20	2	21.17	21.22	21.20
			36	39	2	21.20	21.23	21.15
			75	0	2	21.13	21.15	21.00

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39700	40620	41540
						2501 MHz	2593 MHz	2685 MHz
LTE Band 41	10	QPSK	1	0	0	23.24	23.39	23.28
			1	25	0	23.24	23.33	23.25
			1	49	0	23.20	23.32	23.22
			25	0	1	22.30	22.40	22.30
			25	12	1	22.24	22.34	22.29
			25	25	1	22.19	22.20	22.14
			50	0	1	22.18	22.24	22.19
		16QAM	1	0	1	21.98	22.30	22.22
			1	25	1	21.97	22.25	22.18
			1	49	1	21.79	22.24	22.15
			25	0	2	21.30	21.36	21.15
			25	12	2	21.24	21.33	21.30
			25	25	2	21.22	21.24	21.20
			50	0	2	21.00	21.11	21.00
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39675	40620	41565
						2498.5 MHz	2593 MHz	2687.5 MHz
LTE Band 41	5	QPSK	1	0	0	23.25	23.33	23.28
			1	12	0	23.24	23.30	23.24
			1	24	0	23.22	23.29	23.19
			12	0	1	22.23	22.30	22.22
			12	7	1	22.20	22.26	22.20
			12	13	1	22.18	22.25	22.17
			25	0	1	22.10	22.20	22.12
		16QAM	1	0	1	22.27	22.37	22.20
			1	12	1	22.20	22.24	22.13
			1	24	1	22.19	22.23	22.13
			12	0	2	21.20	21.25	21.17
			12	7	2	21.18	21.22	21.20
			12	13	2	21.15	21.20	21.20
			25	0	2	21.09	21.17	21.10

9. PEAK TO AVERAGE RATIO

Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

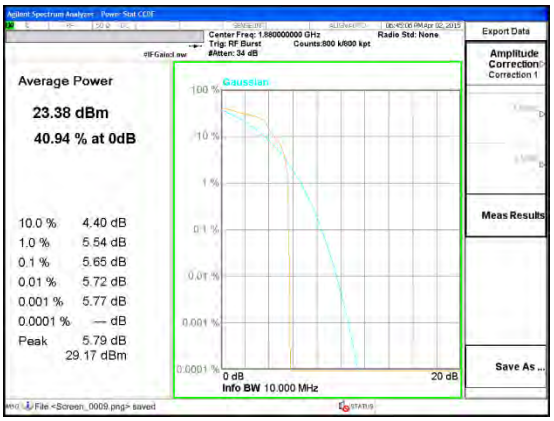
Test Spec

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

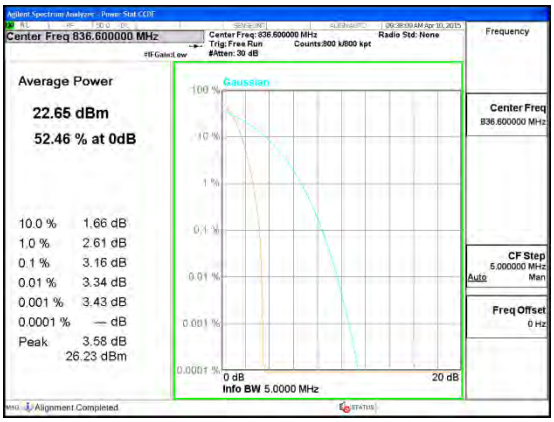
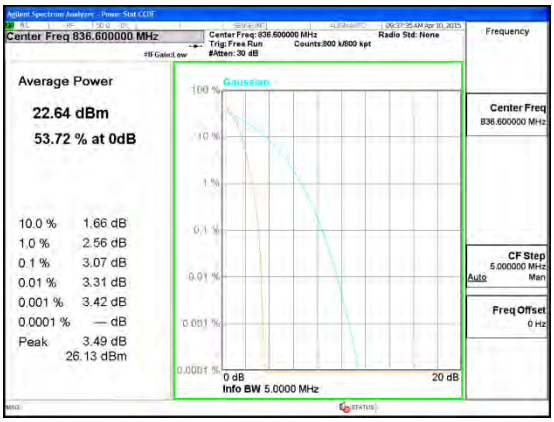
9.1. CONDUCTED PEAK TO AVERAGE RESULT

GSM

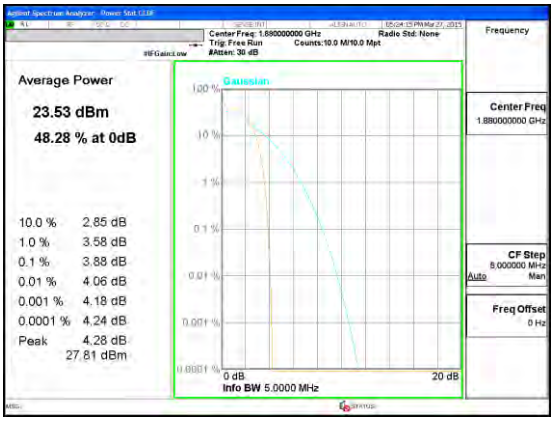
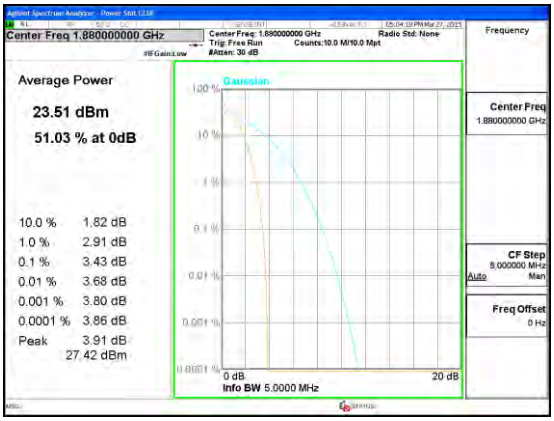
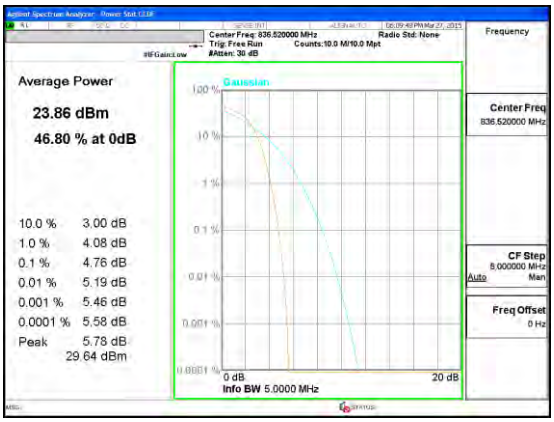
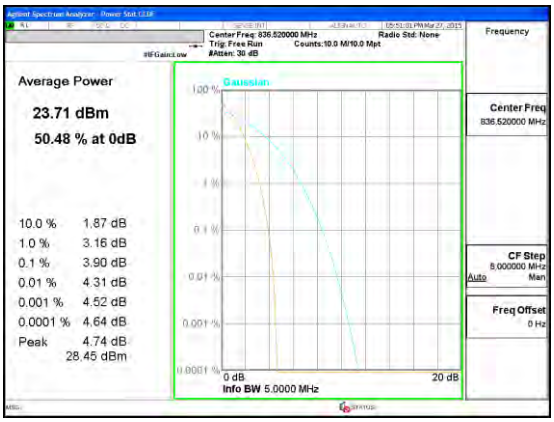
GSM 850	 EGPRS	 GPRS

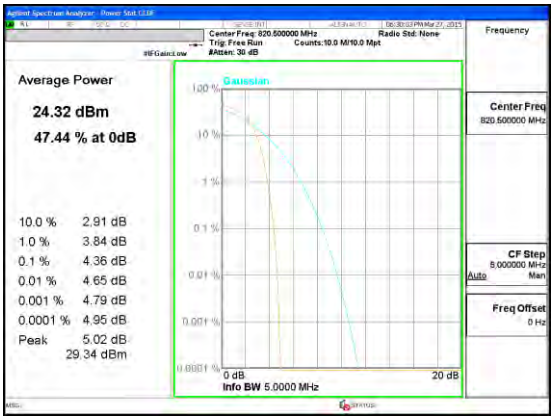
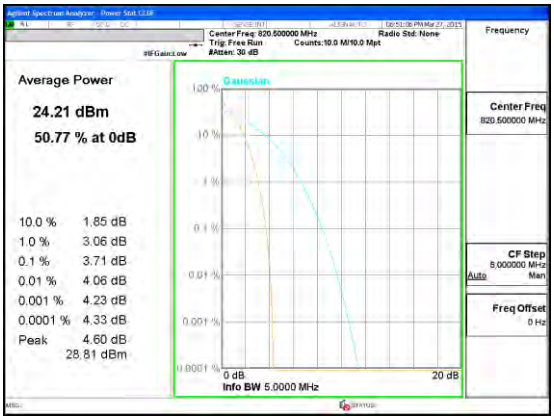
GSM 1900	 EGPRS	 GPRS

WCDMA

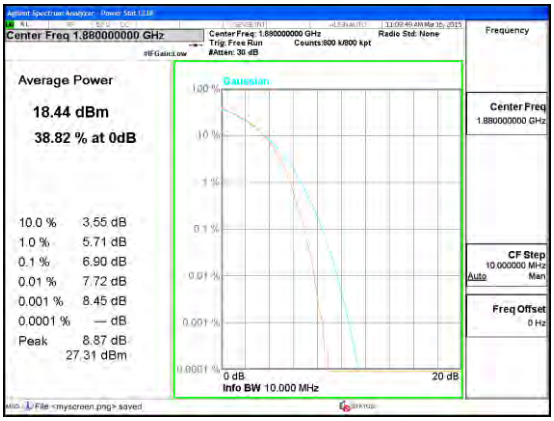
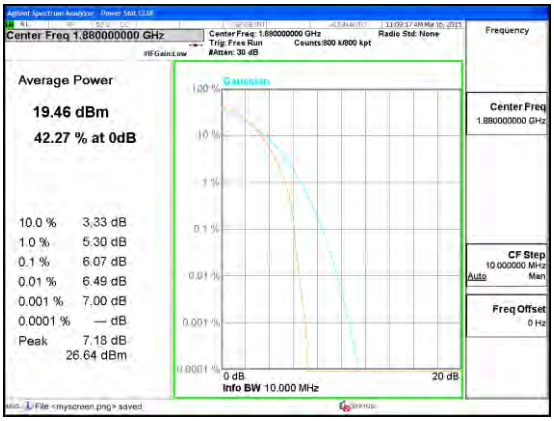
Band Band 2 HSDPA	 Band WCDMA B2 HSDPA	 Band WCDMA B2 REL99
Band Band 5 HSDPA	 Band WCDMA B5 HSDPA	 Band WCDMA B5 REL99

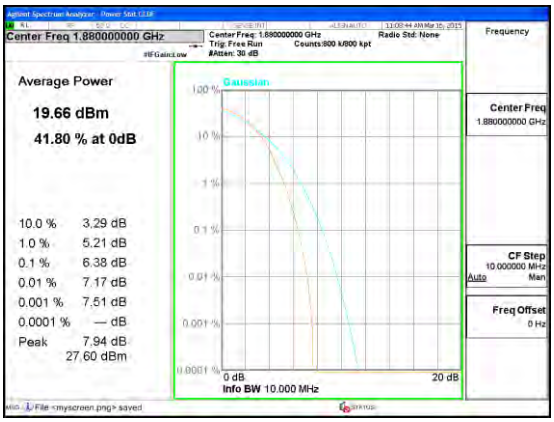
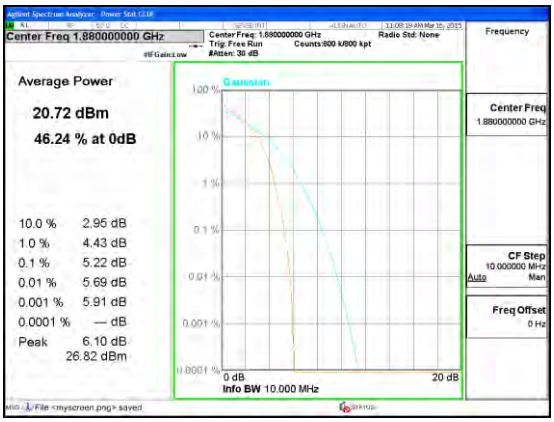
CDMA

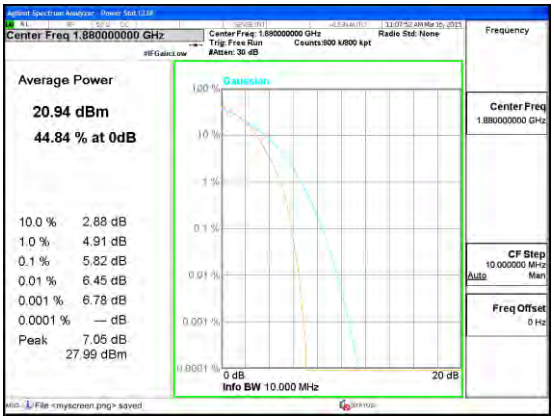
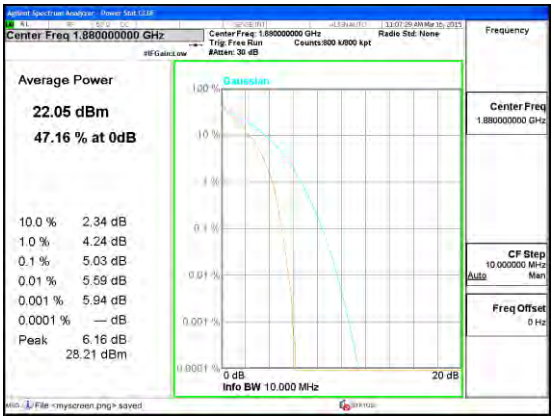
Band BC1 EVDO REL. 0	 Band BC1 EVDO Rel. 0 Mid channel	 Band BC1 1xRTT Mid channel
Band BC0 EVDO REL. 0	 Band BC0 EVDO Rel. 0 Mid channel	 Band BC0 1xRTT Mid channel

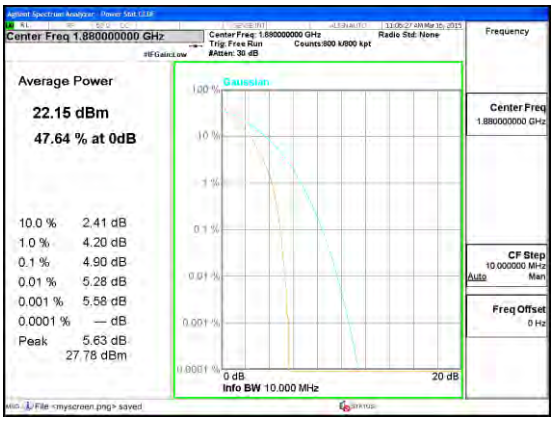
Band BC10 EVDO REL. 0	 Band BC10 EVDO Rel. 0 Mid channel	 Band BC10 1xRTT Mid channel

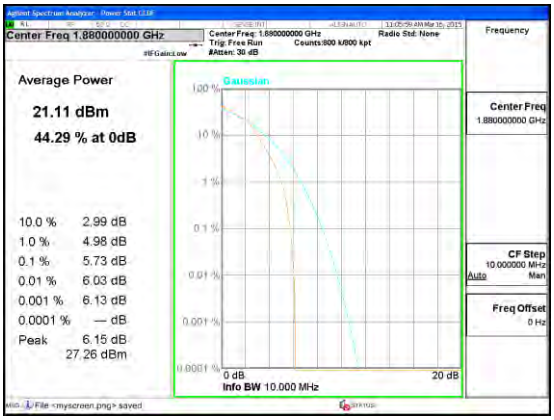
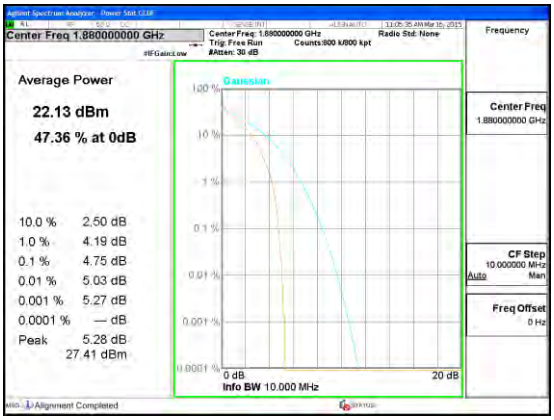
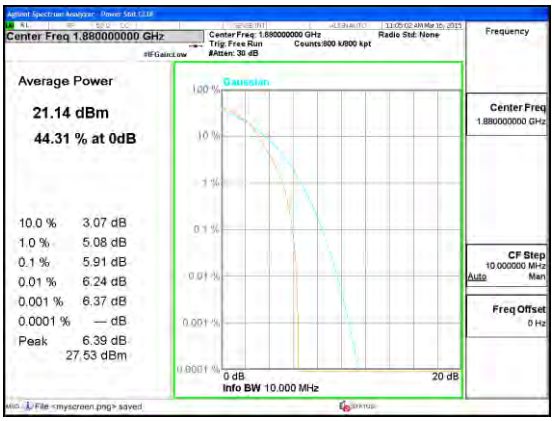
LTE Band 2

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

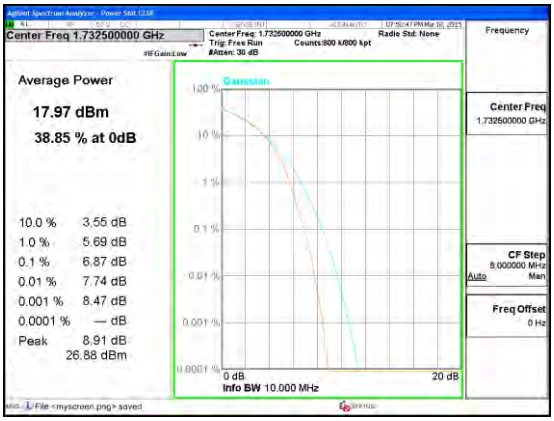
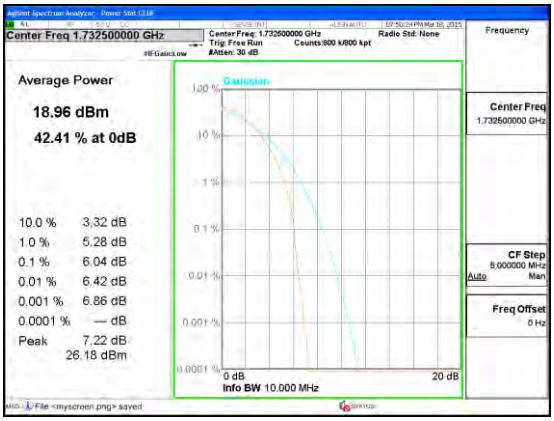
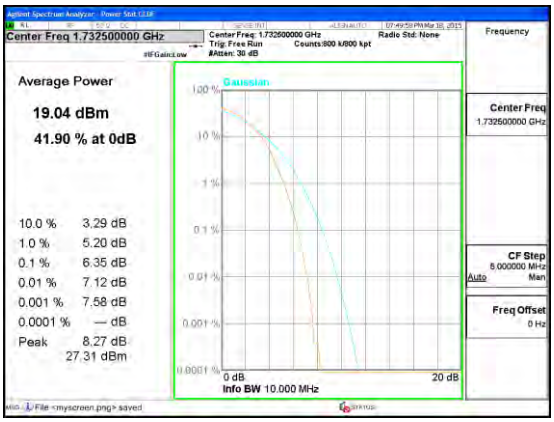
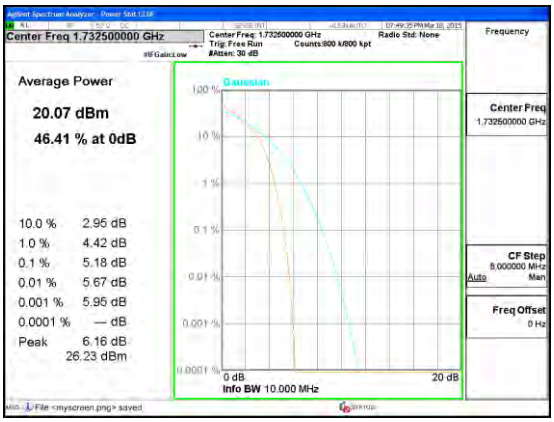
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz 16QAM Mid channel	 Band LTE2 15MHz QPSK Mid channel

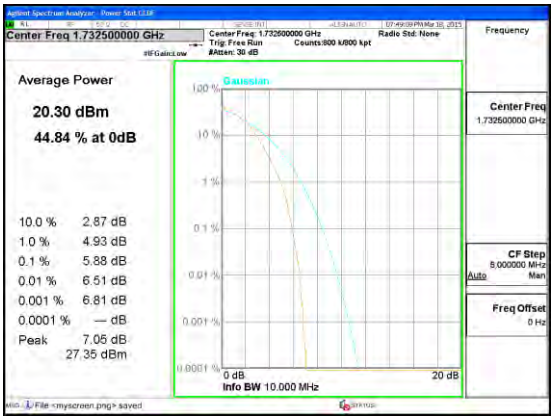
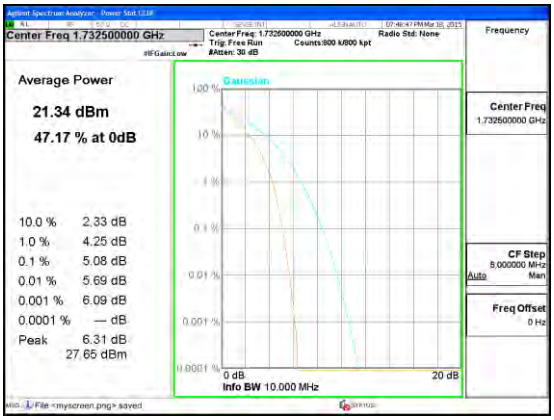
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz 16QAM Mid channel	 Band LTE2 10MHz QPSK Mid channel

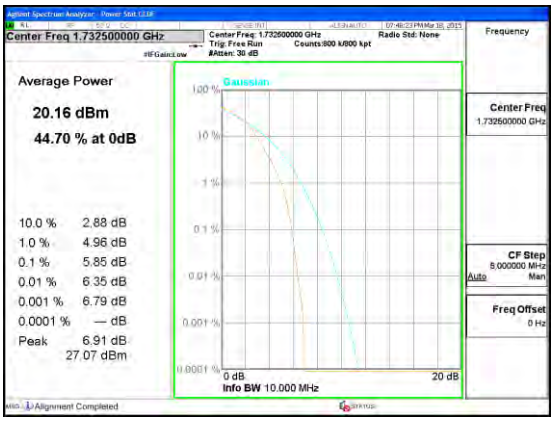
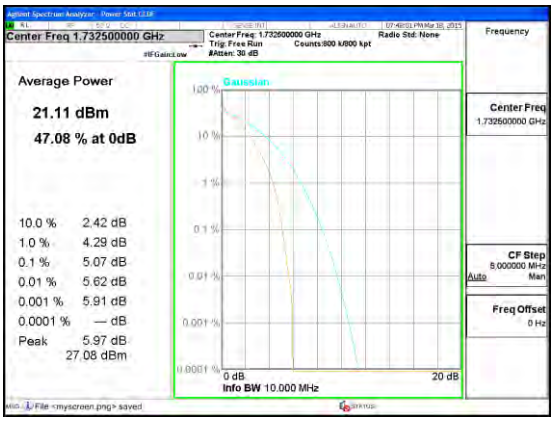
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz 16QAM Mid channel	 Band LTE2 5MHz QPSK Mid channel

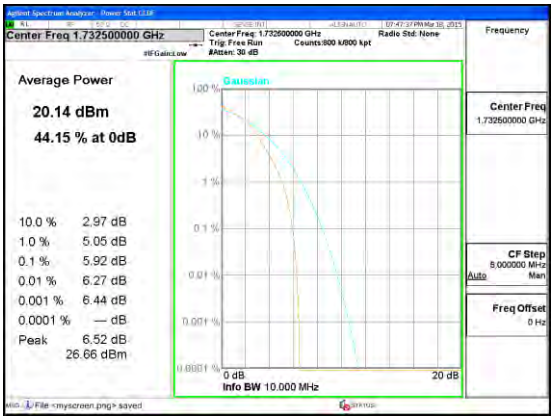
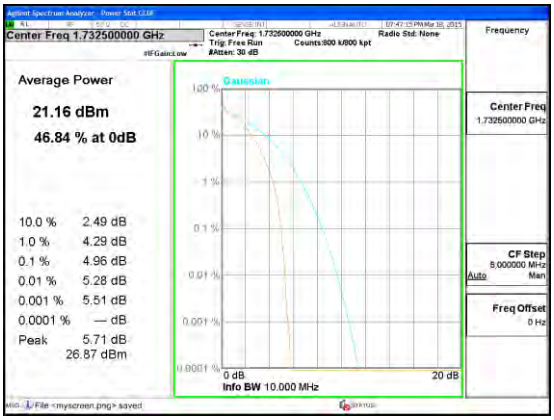
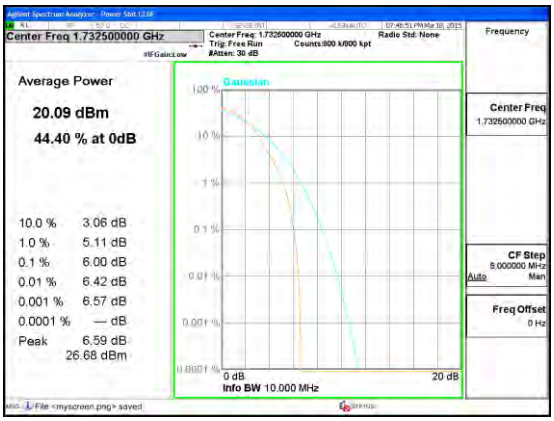
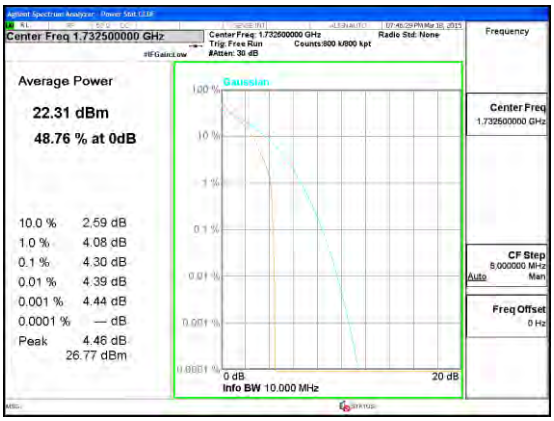
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz 16QAM Mid channel	 Band LTE2 3MHz QPSK Mid channel
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz 16QAM Mid channel	 Band LTE2 1.4MHz QPSK Mid channel

LTE Band 4

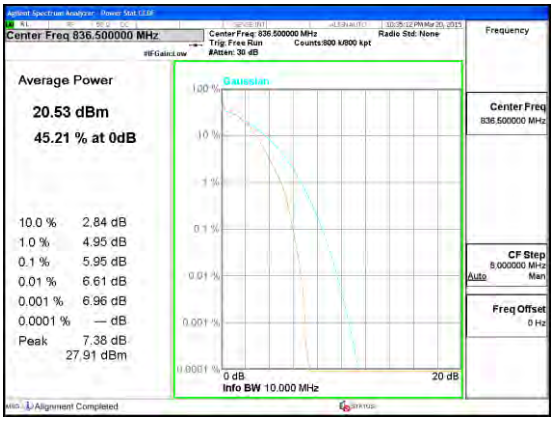
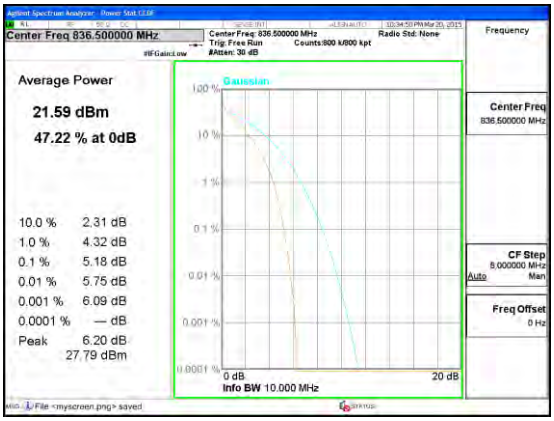
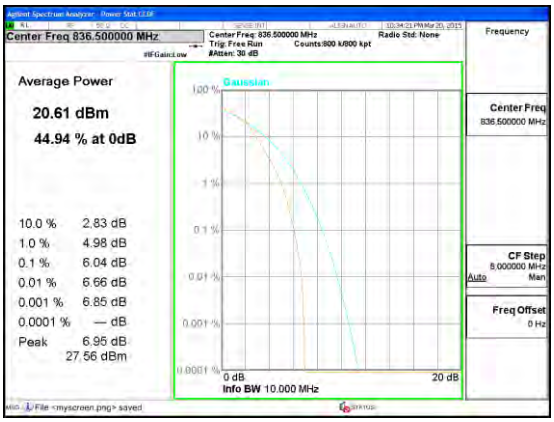
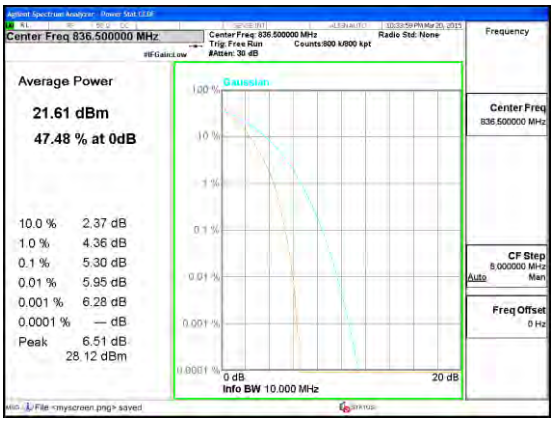
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz 16QAM Mid channel	 Band LTE4 20MHz QPSK Mid channel
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz 16QAM Mid channel	 Band LTE4 15MHz QPSK Mid channel

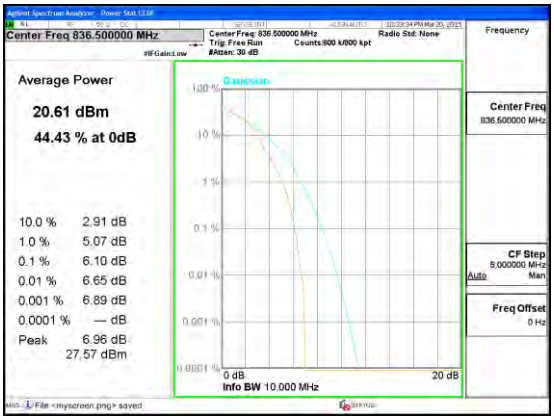
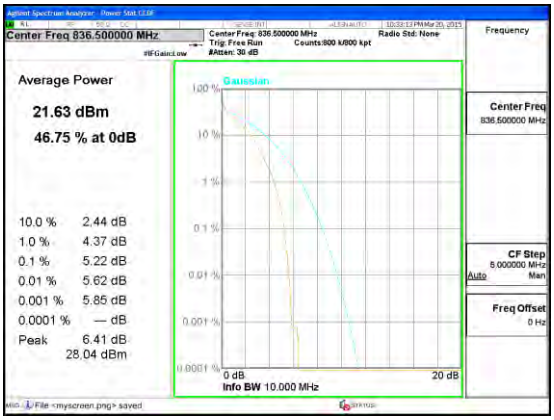
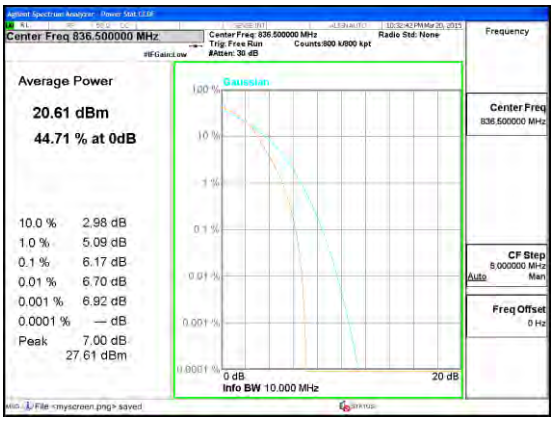
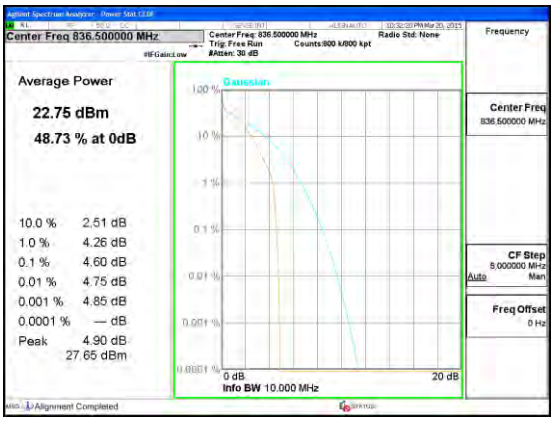
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz 16QAM Mid channel	 Band LTE4 10MHz QPSK Mid channel

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

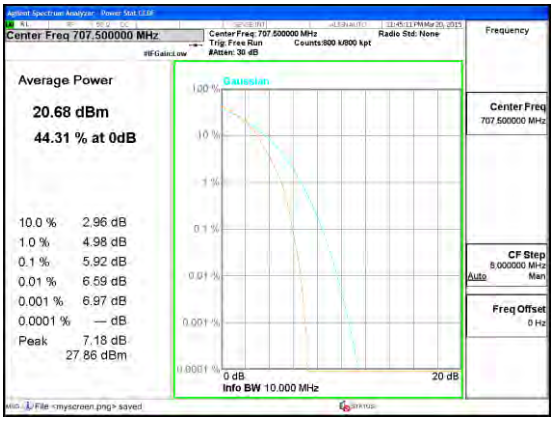
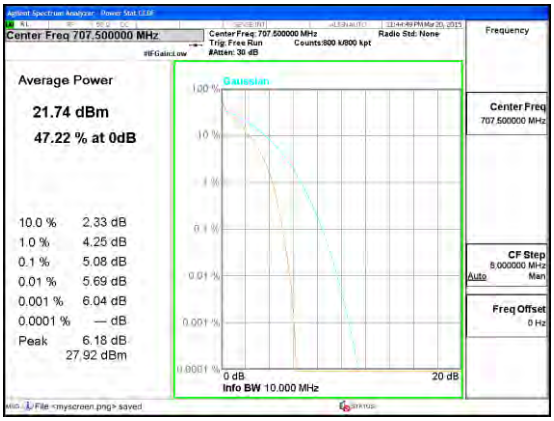
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz 16QAM Mid channel	 Band LTE4 3MHz QPSK Mid channel
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz 16QAM Mid channel	 Band LTE4 1.4MHz QPSK Mid channel

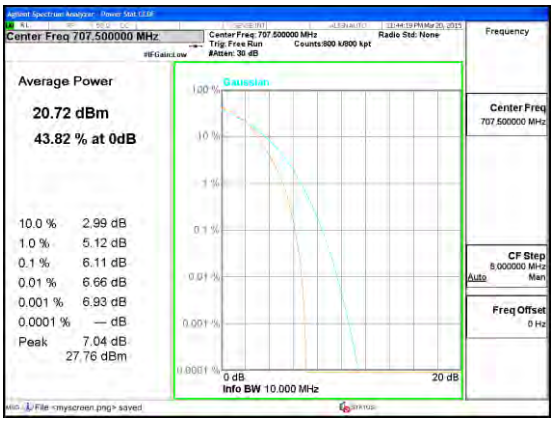
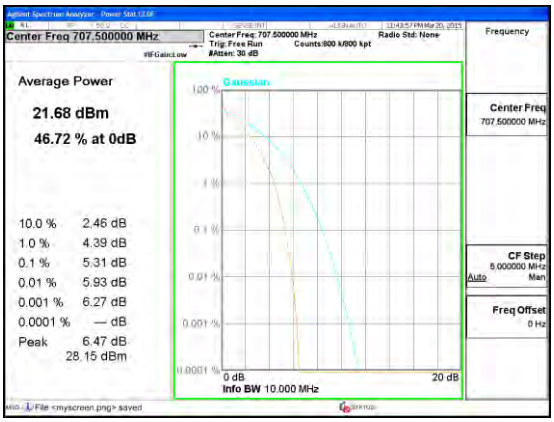
LTE Band 5

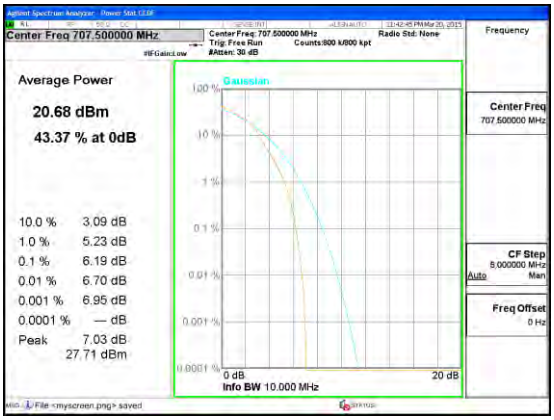
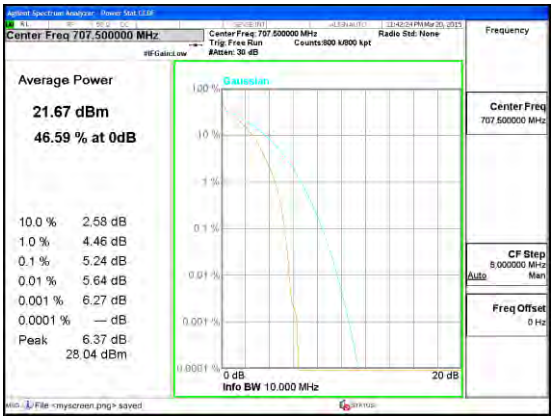
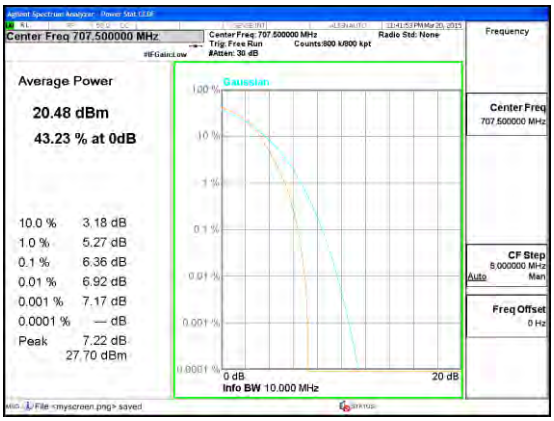
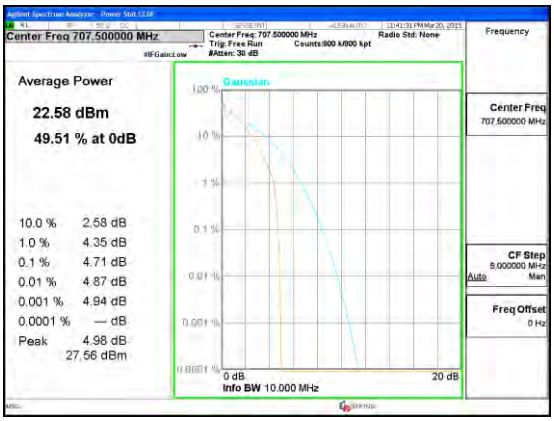
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz 16QAM Mid channel	 Band LTE5 10MHz QPSK Mid channel
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz 16QAM Mid channel	 Band LTE5 5MHz QPSK Mid channel

Band LTE5 3MHz 16QAM	 Band LTE5 3MHz 16QAM Mid channel	 Band LTE5 3MHz QPSK Mid channel
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz 16QAM Mid channel	 Band LTE5 1.4MHz QPSK Mid channel

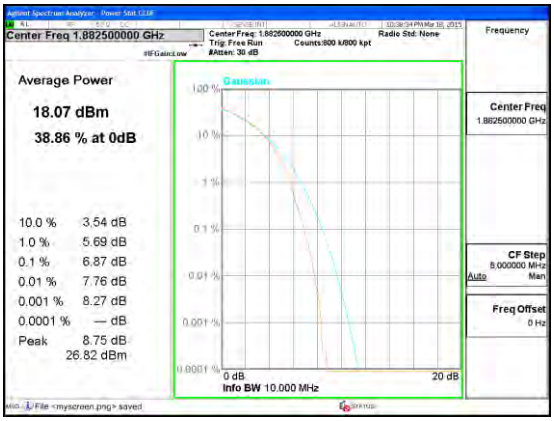
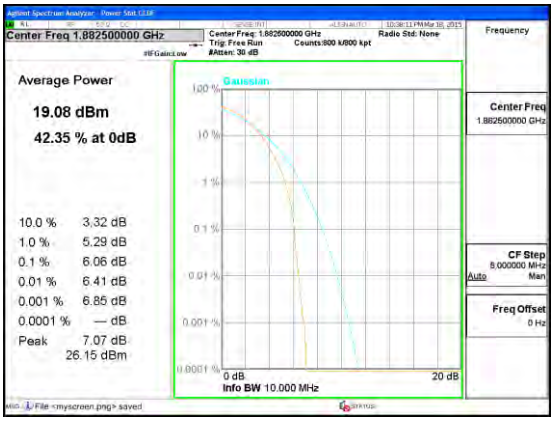
LTE Band 12

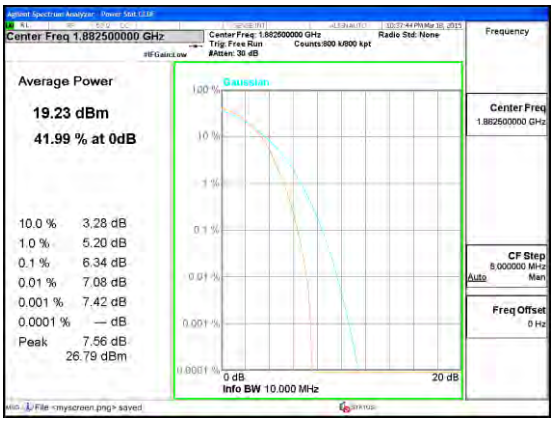
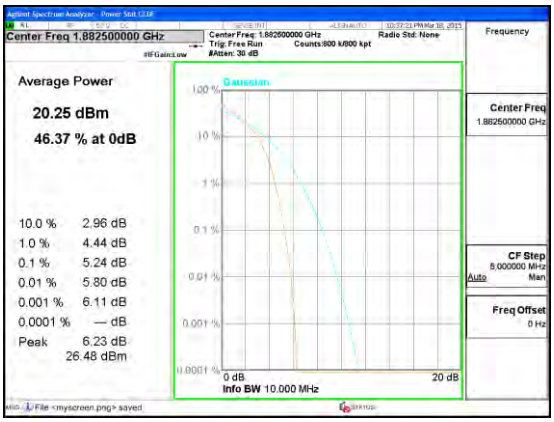
Band LTE12 10MHz 16QAM	 Band LTE12 10MHz 16QAM Mid channel	 Band LTE12 10MHz QPSK Mid channel

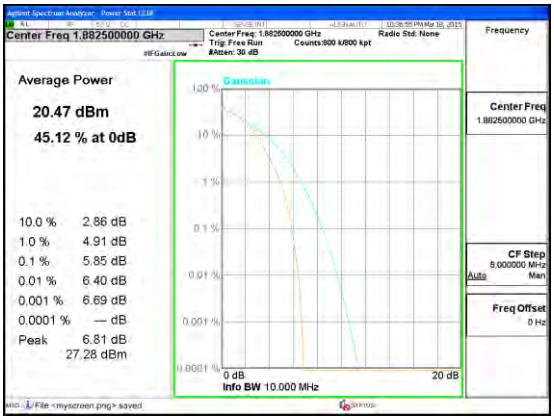
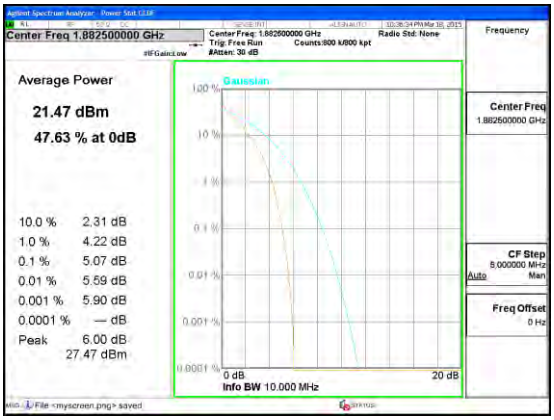
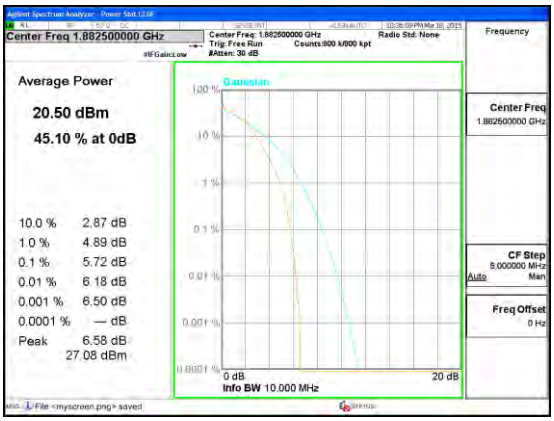
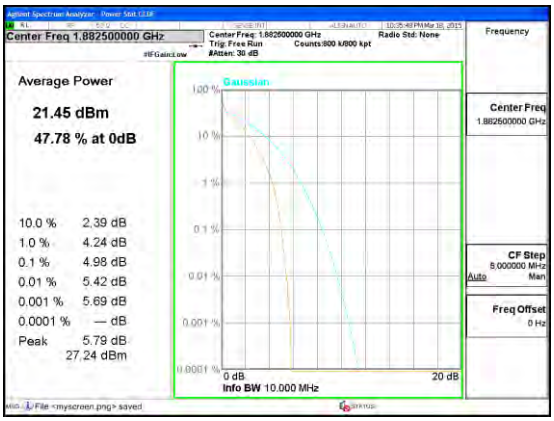
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz 16QAM Mid channel	 Band LTE12 5MHz QPSK Mid channel

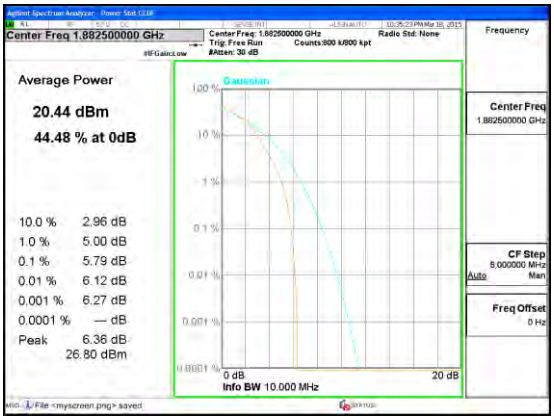
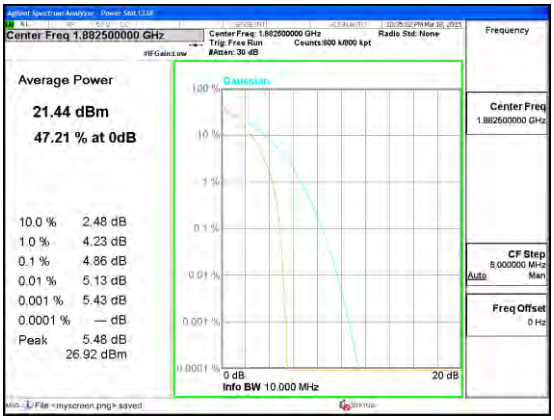
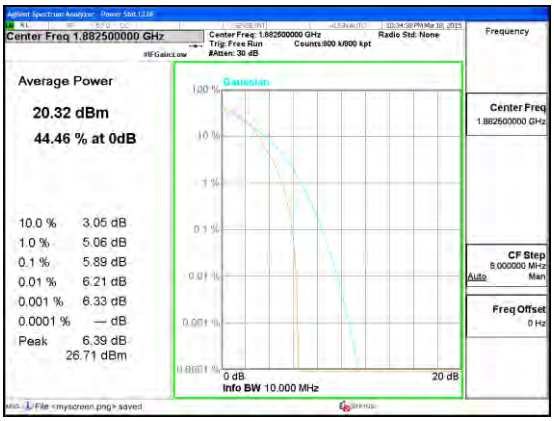
Band LTE12 3MHz 16QAM	 Band LTE12 3MHz 16QAM Mid channel	 Band LTE12 3MHz QPSK Mid channel
Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz 16QAM Mid channel	 Band LTE12 1.4MHz QPSK Mid channel

LTE Band 25

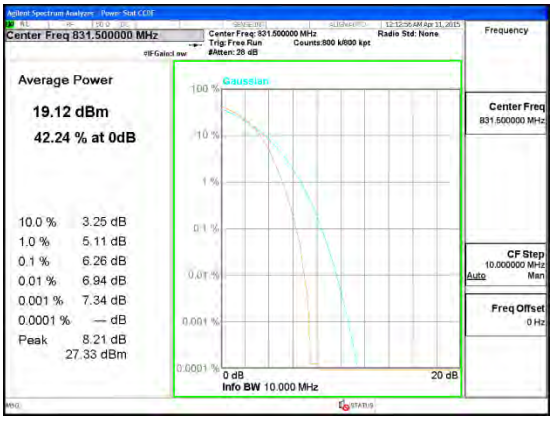
Band LTE25 20MHz 16QAM	 Band LTE25 20MHz 16QAM Mid channel	 Band LTE25 20MHz QPSK Mid channel

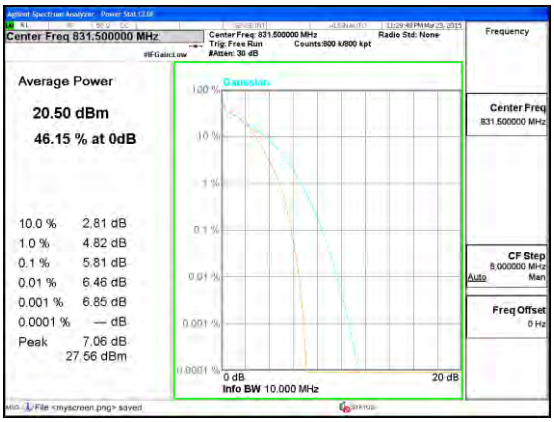
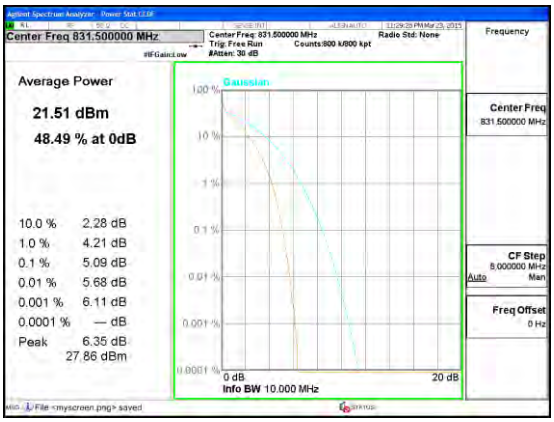
Band LTE25 15MHz 16QAM	 Band LTE25 15MHz 16QAM Mid channel	 Band LTE25 15MHz QPSK Mid channel

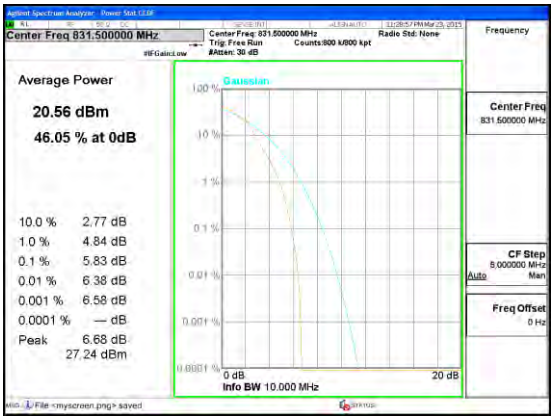
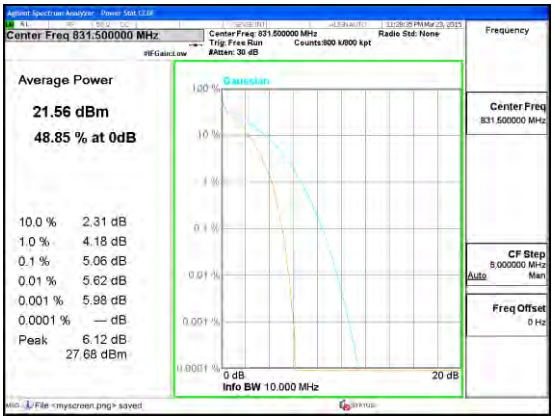
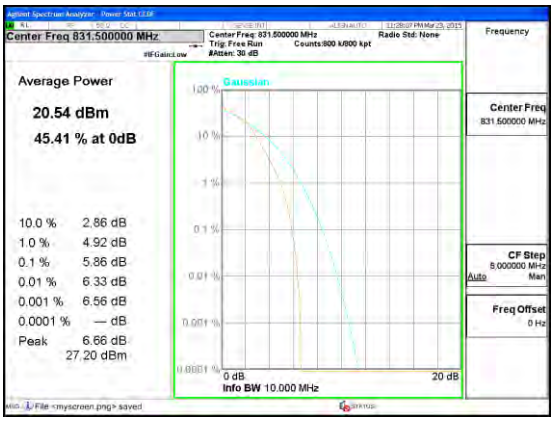
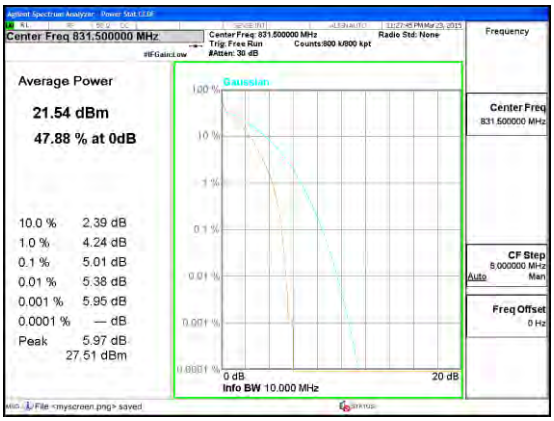
Band LTE25 10MHz 16QAM	 Band LTE25 10MHz 16QAM Mid channel	 Band LTE25 10MHz QPSK Mid channel
Band LTE25 5MHz 16QAM	 Band LTE25 5MHz 16QAM Mid channel	 Band LTE25 5MHz QPSK Mid channel

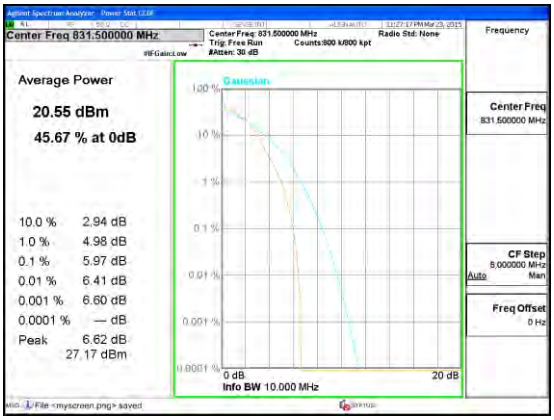
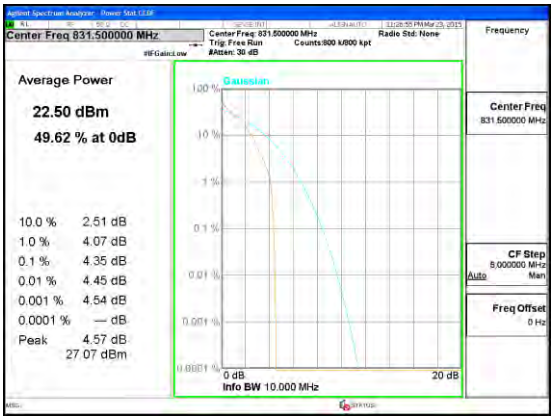
Band LTE25 3MHz 16QAM	 Band LTE25 3MHz 16QAM Mid channel	 Band LTE25 3MHz QPSK Mid channel
Band LTE25 1.4MHz 16QAM	 Band LTE25 1.4MHz 16QAM Mid channel	 Band LTE25 1.4MHz QPSK Mid channel

LTE Band 26

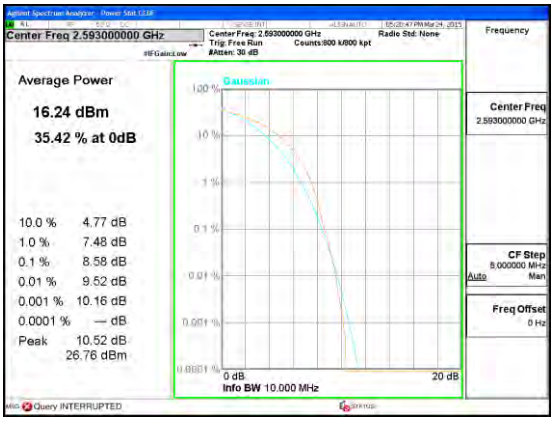
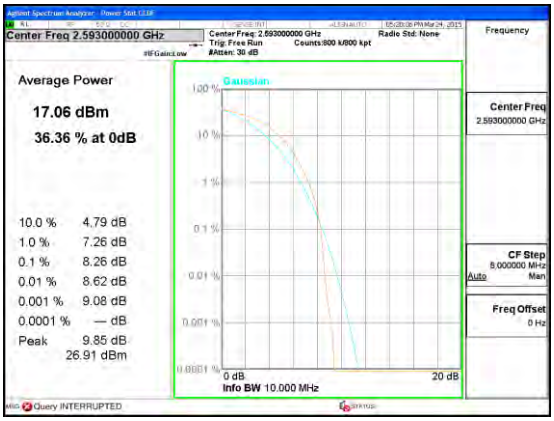
Band LTE26 15MHz 16QAM	 Band LTE26 15MHz 16QAM Mid channel	 Band LTE26 15MHz QPSK Mid channel

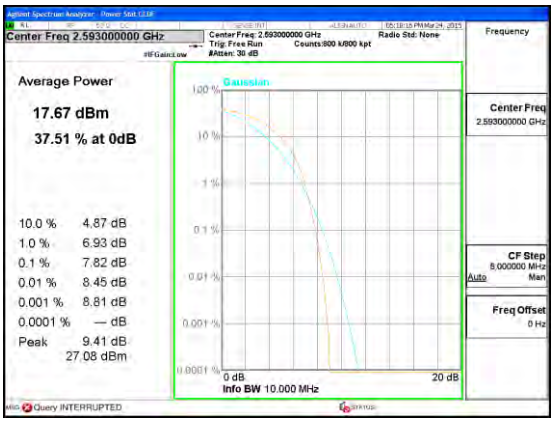
Band LTE26 10MHz 16QAM	 Band LTE26 10MHz 16QAM Mid channel	 Band LTE26 10MHz QPSK Mid channel

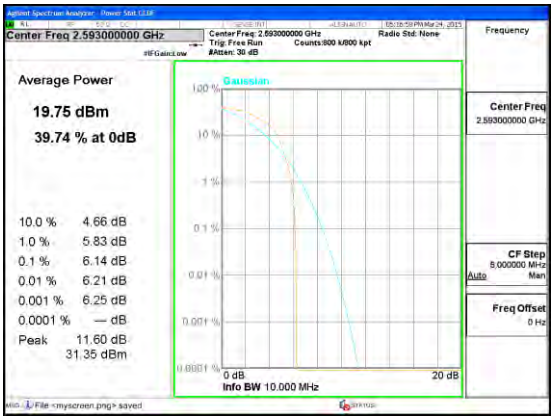
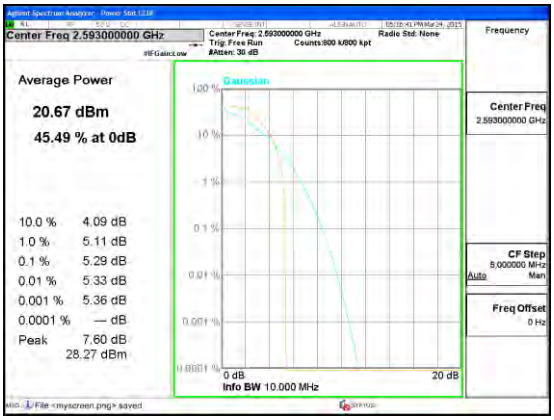
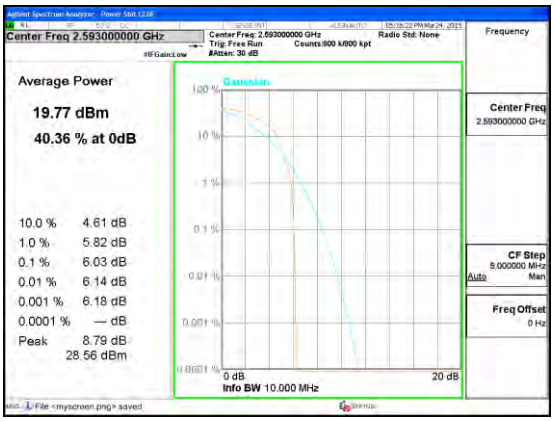
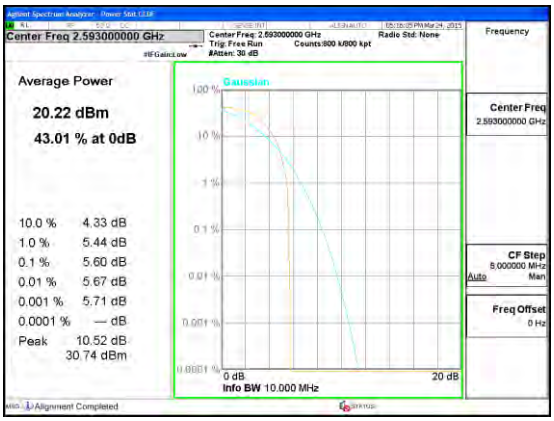
Band LTE26 5MHz 16QAM	 Band LTE26 5MHz 16QAM Mid channel	 Band LTE26 5MHz QPSK Mid channel
Band LTE26 3MHz 16QAM	 Band LTE26 3MHz 16QAM Mid channel	 Band LTE26 3MHz QPSK Mid channel

Band LTE26 1.4MHz 16QAM	 Band LTE26 1.4MHz 16QAM Mid channel	 Band LTE26 1.4MHz QPSK Mid channel

LTE Band 41

Band LTE41 20MHz 16QAM	 Band LTE41 20MHz 16QAM Mid channel	 Band LTE41 20MHz QPSK Mid channel

Band LTE41 15MHz 16QAM	 Band LTE41 15MHz 16QAM Mid channel	 Band LTE41 15MHz QPSK Mid channel

Band LTE41 10MHz 16QAM	 Band LTE41 10MHz 16QAM Mid channel	 Band LTE41 10MHz QPSK Mid channel
Band LTE41 5MHz 16QAM	 Band LTE41 5MHz 16QAM Mid channel	 Band LTE41 5MHz QPSK Mid channel

10. LIMITS AND CONDUCTED RESULTS

10.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

MODES TESTED

GSM, CDMA, WCDMA, LTE

10.1.1. OCCUPIED BANDWIDTH RESULTS

Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM 850	GPRS	128	824.2	248.7	314.2
		190	836.6	246.1	329.7
		251	848.8	248.4	323
	EGPRS	128	824.2	243.9	307.7
		190	836.6	248.1	326.3
		251	848.8	245.5	310.8
GSM 1900	GPRS	512	1850.2	243.9	321
		661	1880	243.5	317.4
		810	1909.8	249	315.9
	EGPRS	512	1850.2	243.6	316.1
		661	1880	245.3	312.7
		810	1909.8	246.4	323.4

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
Band 5	REL99	4132	826.4	4.132	4.698
		4183	836.6	4.12	4.688
		4233	846.6	4.14	4.71
	HSDPA	4132	826.4	4.133	4.719
		4183	836.6	4.141	4.674
		4233	846.6	4.117	4.697
Band 2	REL99	9262	1852.4	4.147	4.716
		9400	1880	4.142	4.712
		9538	1907.6	4.173	4.723
	HSDPA	9262	1852.4	4.16	4.701
		9400	1880	4.13	4.674
		9538	1907.6	4.175	4.719

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
BC10	1xRTT	476	817.9	1.272	1.428
		580	820.5	1.275	1.424
		684	823.1	1.274	1.424
	EVDO REL. 0	476	817.9	1.272	1.425
		580	820.5	1.274	1.422
		684	823.1	1.274	1.422
BC0	1xRTT	1013	824.7	1.276	1.408
		384	836.52	1.266	1.410
		777	848.31	1.273	1.414
	EVDO REL. 0	1013	824.7	1.269	1.411
		384	836.52	1.268	1.408
		777	848.31	1.271	1.413
BC1	1xRTT	25	1851.25	1.288	1.550
		600	1880	1.282	1.474
		1175	1908.75	1.283	1.591
	EVDO REL. 0	25	1851.25	1.291	1.876
		600	1880	1.286	1.647
		1175	1908.75	1.284	1.627

10.1.2. LTE OCCUPIED BANDWIDTH RESULTS

LTE Band 2

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	20	QPSK	100/0	1860	17.921	19.3
			100/0	1880	17.943	19.337
			100/0	1900	17.941	19.453
		16QAM	100/0	1860	17.915	19.328
			100/0	1880	17.918	19.37
			100/0	1900	17.903	19.414
	15	QPSK	75/0	1857.5	13.444	14.6
			75/0	1880	13.456	14.674
			75/0	1902.5	13.461	14.472
		16QAM	75/0	1857.5	13.462	14.577
			75/0	1880	13.45	14.533
			75/0	1902.5	13.429	14.542
	10	QPSK	50/0	1855	8.974	9.755
			50/0	1880	8.98	9.748
			50/0	1905	8.963	9.797
		16QAM	50/0	1855	8.974	9.771
			50/0	1880	8.957	9.728
			50/0	1905	8.987	9.807
	5	QPSK	25/0	1852.5	4.506	4.974
			25/0	1880	4.493	4.963
			25/0	1907.5	4.485	4.903
		16QAM	25/0	1852.5	4.501	4.972
			25/0	1880	4.486	4.95
			25/0	1907.5	4.487	4.913

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	3	QPSK	15/0	1851.5	2.697	2.987
			15/0	1880	2.701	3.015
			15/0	1908.5	2.705	3.005
		16QAM	15/0	1851.5	2.704	3.009
			15/0	1880	2.695	2.999
			15/0	1908.5	2.697	3.037
	1.4	QPSK	6/0	1850.7	1.089	1.284
			6/0	1880	1.083	1.256
			6/0	1909.3	1.091	1.25
		16QAM	6/0	1850.7	1.09	1.291
			6/0	1880	1.092	1.249
			6/0	1909.3	1.096	1.286

LTE Band 4

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	20	QPSK	100/0	1720	17.942	19.315
			100/0	1732.5	17.951	19.296
			100/0	1745	17.889	19.432
		16QAM	100/0	1720	17.914	19.376
			100/0	1732.5	17.913	19.455
			100/0	1745	17.888	19.343
	15	QPSK	75/0	1717.5	13.446	14.654
			75/0	1732.5	13.456	14.596
			75/0	1747.5	13.445	14.525
		16QAM	75/0	1717.5	13.447	14.62
			75/0	1732.5	13.433	14.66
			75/0	1747.5	13.44	14.542
	10	QPSK	50/0	1715	8.966	9.688
			50/0	1732.5	8.971	9.766
			50/0	1750	8.967	9.804
		16QAM	50/0	1715	8.986	9.773
			50/0	1732.5	8.947	9.764
			50/0	1750	8.983	9.759
	5	QPSK	25/0	1712.5	4.505	4.943
			25/0	1732.5	4.493	4.934
			25/0	1752.5	4.486	4.914
		16QAM	25/0	1712.5	4.499	4.968
			25/0	1732.5	4.488	4.927
			25/0	1752.5	4.484	4.914

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	3	QPSK	15/0	1711.5	2.698	2.987
			15/0	1732.5	2.696	2.976
			15/0	1753.5	2.702	3.009
		16QAM	15/0	1711.5	2.701	3.000
			15/0	1732.5	2.695	3.006
			15/0	1753.5	2.695	3.007
	1.4	QPSK	6/0	1710.7	1.089	1.241
			6/0	1732.5	1.082	1.236
			6/0	1754.3	1.087	1.23
		16QAM	6/0	1710.7	1.087	1.24
			6/0	1732.5	1.088	1.242
			6/0	1754.3	1.096	1.24

LTE Band 5

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	10	QPSK	50/0	829	8.977	9.801
			50/0	836.5	8.982	9.720
			50/0	844	8.950	9.741
		16QAM	50/0	829	8.972	9.795
			50/0	836.5	8.958	9.734
			50/0	844	8.965	9.766
	5	QPSK	25/0	826.5	4.495	4.905
			25/0	836.5	4.496	4.940
			25/0	846.5	4.487	4.913
		16QAM	25/0	826.5	4.499	4.943
			25/0	836.5	4.500	4.947
			25/0	846.5	4.497	4.923
	3	QPSK	15/0	825.5	2.698	2.977
			15/0	836.5	2.697	2.993
			15/0	847.5	2.701	3.000
		16QAM	15/0	825.5	2.702	3.000
			15/0	836.5	2.695	2.996
			15/0	847.5	2.695	3.000
	1.4	QPSK	6/0	824.7	1.087	1.229
			6/0	836.5	1.087	1.232
			6/0	848.3	1.080	1.229
		16QAM	6/0	824.7	1.095	1.244
			6/0	836.5	1.086	1.234
			6/0	848.3	1.088	1.233

LTE Band 12

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE12	10	QPSK	50/0	704	8.986	9.779
			50/0	707.5	8.965	9.672
			50/0	711	8.942	9.681
		16QAM	50/0	704	8.998	9.79
			50/0	707.5	8.945	9.791
			50/0	711	8.973	9.767
	5	QPSK	25/0	701.5	4.493	4.913
			25/0	707.5	4.493	4.967
			25/0	713.5	4.496	4.935
		16QAM	25/0	701.5	4.498	4.964
			25/0	707.5	4.502	4.939
			25/0	713.5	4.506	4.948
	3	QPSK	15/0	700.5	2.695	2.979
			15/0	707.5	2.698	2.998
			15/0	714.5	2.705	2.998
		16QAM	15/0	700.5	2.699	2.993
			15/0	707.5	2.696	2.993
			15/0	714.5	2.695	3.004
	1.4	QPSK	6/0	699.7	1.087	1.23
			6/0	707.5	1.082	1.229
			6/0	715.3	1.087	1.227
		16QAM	6/0	699.7	1.087	1.232
			6/0	707.5	1.088	1.235
			6/0	715.3	1.096	1.24

LTE Band 25

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE25	20	QPSK	100/0	1860	17.905	19.302
			100/0	1882.5	17.949	19.363
			100/0	1905	17.945	19.400
		16QAM	100/0	1860	17.930	19.409
			100/0	1882.5	17.910	19.406
			100/0	1905	17.904	19.479
	15	QPSK	75/0	1857.5	13.447	14.723
			75/0	1882.5	13.465	14.608
			75/0	1907.5	13.460	14.572
		16QAM	75/0	1857.5	13.452	14.509
			75/0	1882.5	13.450	14.579
			75/0	1907.5	13.450	14.560
	10	QPSK	50/0	1855	8.972	9.770
			50/0	1882.5	8.969	9.752
			50/0	1910	8.971	9.780
		16QAM	50/0	1855	8.979	9.791
			50/0	1882.5	8.959	9.825
			50/0	1910	8.995	9.789
	5	QPSK	25/0	1852.5	4.500	4.967
			25/0	1882.5	4.498	4.956
			25/0	1912.5	4.485	4.929
		16QAM	25/0	1852.5	4.501	4.958
			25/0	1882.5	4.493	4.938
			25/0	1912.5	4.483	4.916

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE25	3	QPSK	15/0	1851.5	2.698	3.001
			15/0	1882.5	2.699	3.014
			15/0	1913.5	2.702	3.021
		16QAM	15/0	1851.5	2.702	3.022
			15/0	1882.5	2.695	2.988
			15/0	1913.5	2.697	2.998
	1.4	QPSK	6/0	1850.7	1.091	1.357
			6/0	1882.5	1.083	1.258
			6/0	1914.3	1.088	1.252
		16QAM	6/0	1850.7	1.090	1.361
			6/0	1882.5	1.091	1.251
			6/0	1914.3	1.098	1.262

LTE Band 26

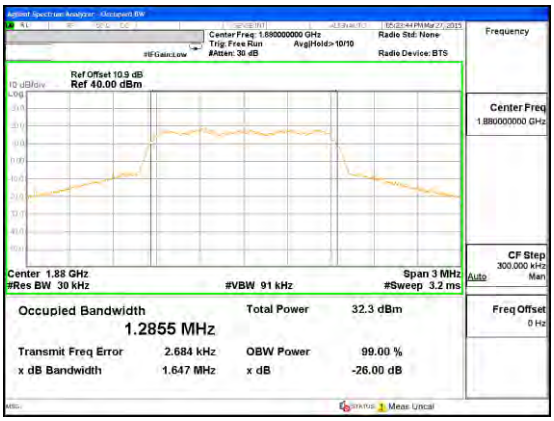
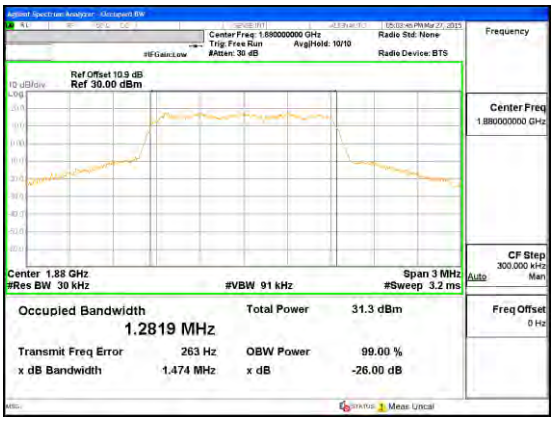
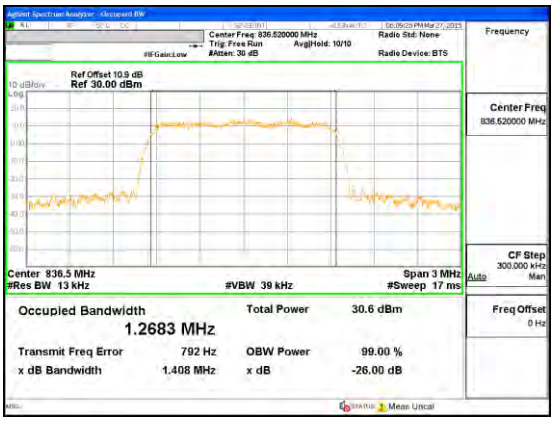
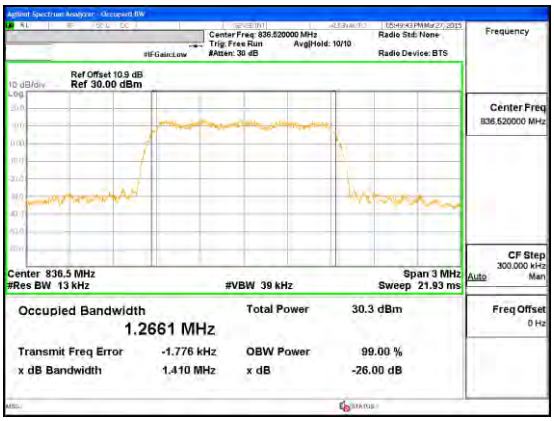
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	15	QPSK	75/0	821.5	13.435	14.63
			75/0	831.5	13.413	14.34
			75/0	841.5	13.490	14.01
		16QAM	75/0	821.5	13.454	14.49
			75/0	831.5	13.428	14.36
			75/0	841.5	13.452	14.41
	10	QPSK	50/0	819	8.964	9.803
			50/0	831.5	8.962	9.762
			50/0	844	8.956	9.759
		16QAM	50/0	819	8.99	9.832
			50/0	831.5	8.96	9.777
			50/0	844	8.979	9.766
	5	QPSK	25/0	816.5	4.493	4.919
			25/0	831.5	4.494	4.957
			25/0	846.5	4.485	4.919
		16QAM	25/0	816.5	4.497	4.917
			25/0	831.5	4.498	4.942
			25/0	846.5	4.496	4.923
	3	QPSK	15/0	815.5	2.699	2.987
			15/0	831.5	2.697	2.998
			15/0	847.5	2.702	2.997
		16QAM	15/0	815.5	2.698	2.98
			15/0	831.5	2.694	2.991
			15/0	847.5	2.694	3.004
	1.4	QPSK	6/0	814.7	1.086	1.234
			6/0	831.5	1.08	1.229
			6/0	848.3	1.086	1.226
		16QAM	6/0	814.7	1.085	1.232
			6/0	831.5	1.087	1.237
			6/0	848.3	1.095	1.239

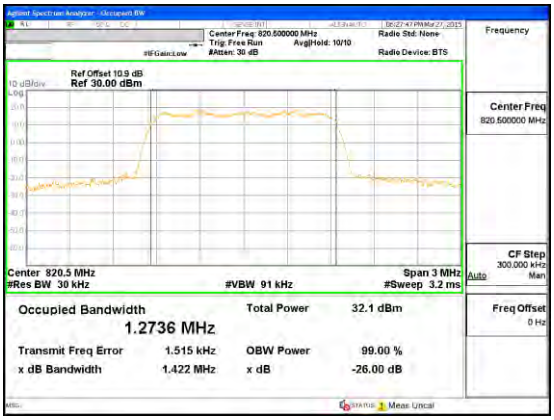
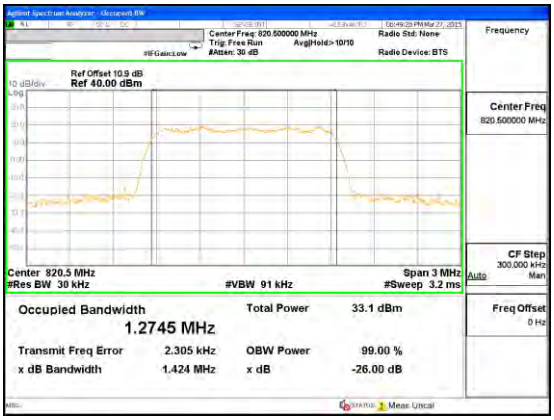
LTE Band 41

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE41	20	QPSK	100/0	2506	17.951	19.909
			100/0	2593	17.937	20.107
			100/0	2680	17.907	19.317
		16QAM	100/0	2506	17.917	19.719
			100/0	2593	17.935	19.565
			100/0	2680	17.889	19.441
	15	QPSK	75/0	2503.5	13.462	14.656
			75/0	2593	13.465	14.778
			75/0	2682.5	13.431	14.598
		16QAM	75/0	2503.5	13.431	14.623
			75/0	2593	13.454	14.602
			75/0	2682.5	13.44	14.594
	10	QPSK	50/0	2501	8.957	9.608
			50/0	2593	8.988	9.798
			50/0	2685	8.963	9.741
		16QAM	50/0	2501	8.977	9.746
			50/0	2593	8.956	9.905
			50/0	2685	8.999	9.751
	5	QPSK	25/0	2498.5	4.496	5.002
			25/0	2593	4.489	4.929
			25/0	2687.5	4.491	4.939
		16QAM	25/0	2498.5	4.489	4.932
			25/0	2593	4.484	4.925
			25/0	2687.5	4.494	4.929

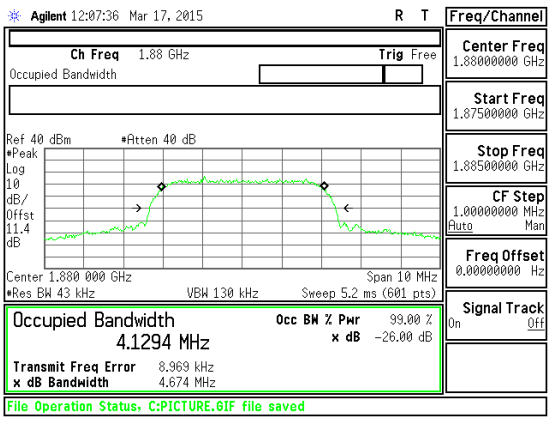
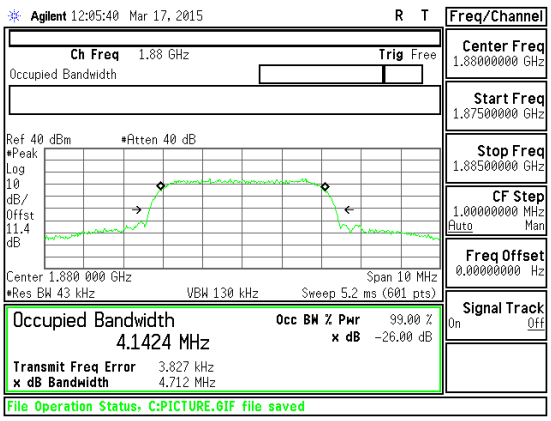
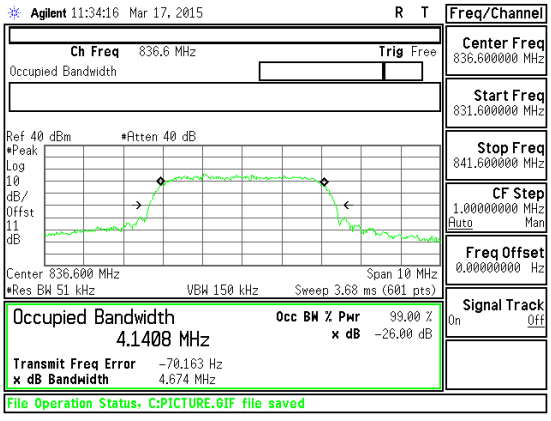
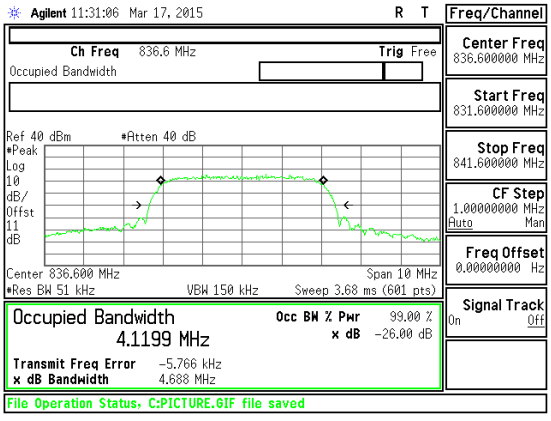
10.1.3. OCCUPIED BANDWIDTH PLOTS

CDMA

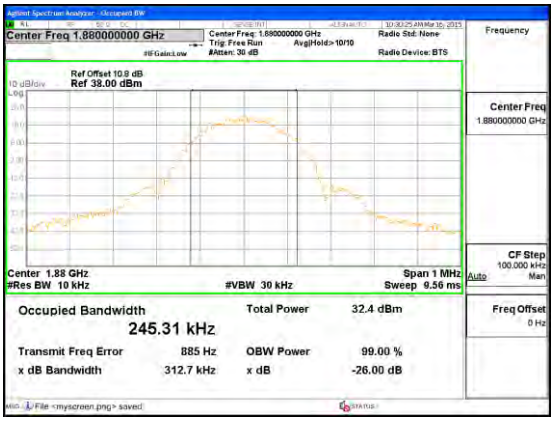
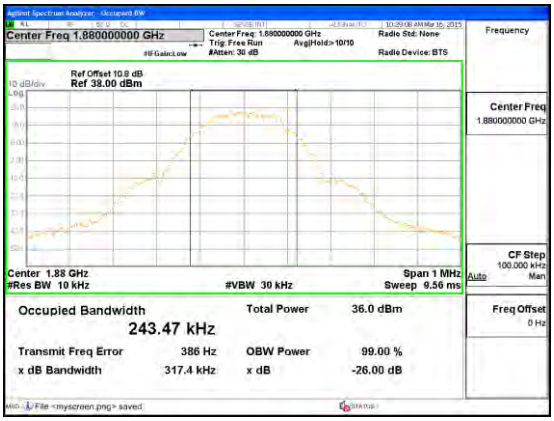
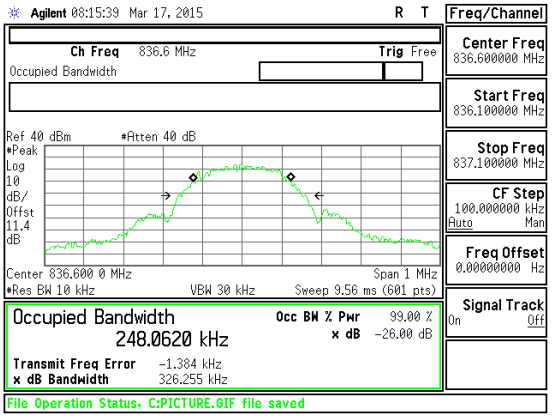
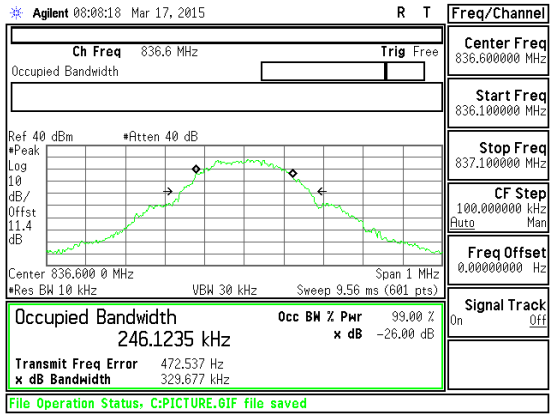
Band BC1 EVDO REL. 0	 Band BC1 EVDO Rel. 0 OBW Mid channel	 Band BC1 1xRTT OBW Mid channel
Band BC0 EVDO REL. 0	 Band BC0 EVDO Rel. 0 OBW Mid channel	 Band BC0 1xRTT OBW Mid channel

Band BC10 EVDO REL. 0	 Band BC10 EVDO Rel. 0 OBW Mid channel	 Band BC10 1xRTT OBW Mid channel

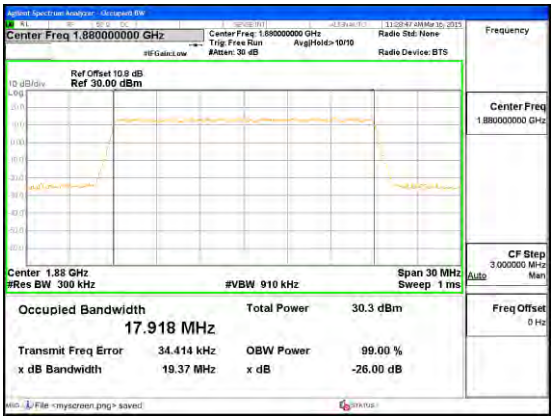
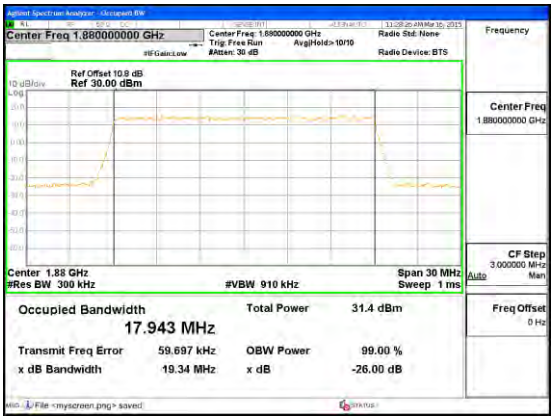
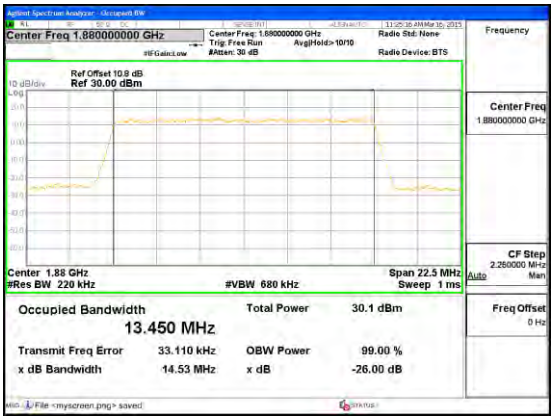
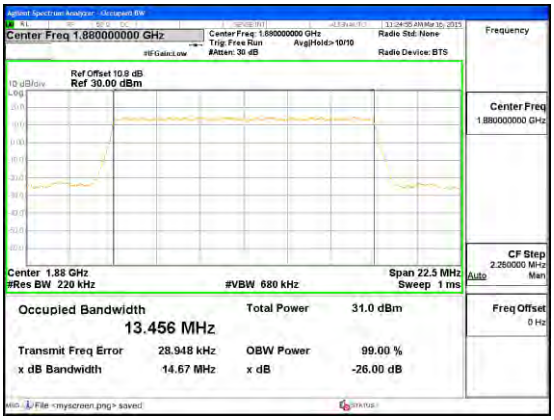
WCDMA

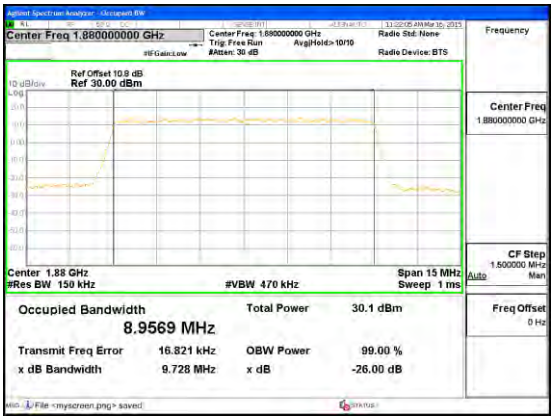
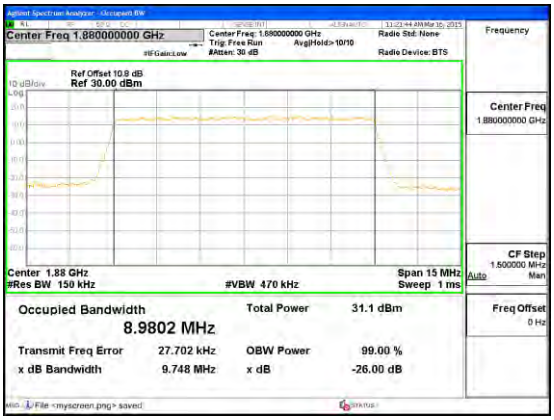
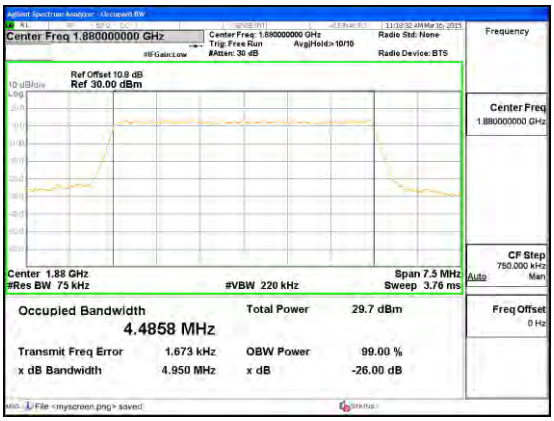
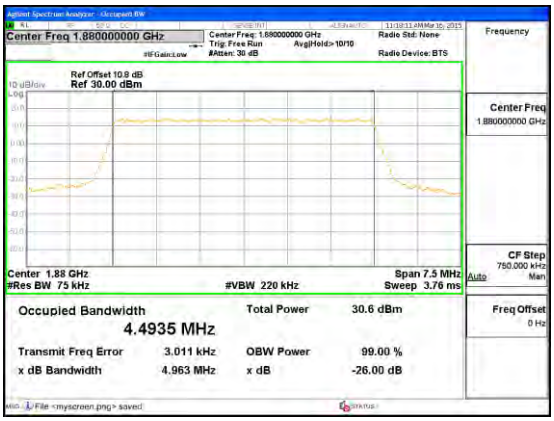
Band Band 2 HSDPA	 Band WCDMA B2 HSDPA OBW	 Band WCDMA B2 REL99 OBW
Band Band 5 HSDPA	 Band WCDMA B5 HSDPA OBW	 Band WCDMA B5 REL99 OBW

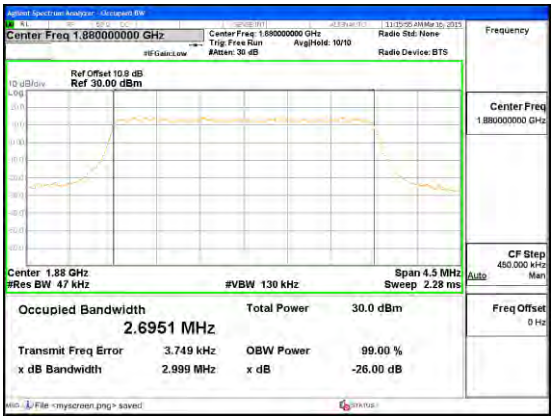
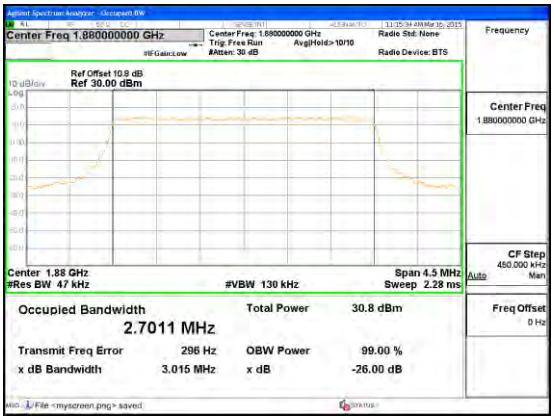
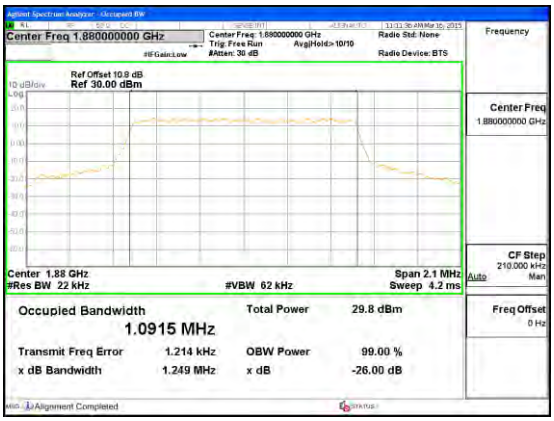
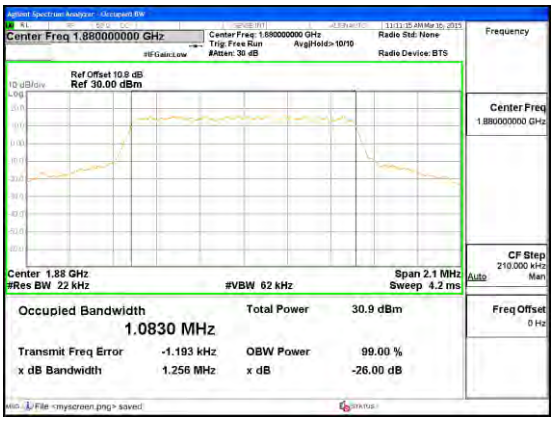
GSM

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

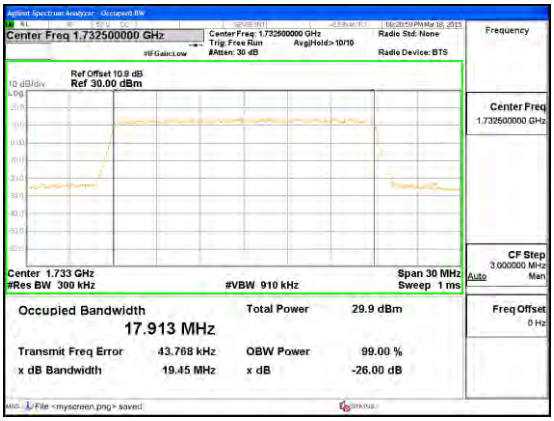
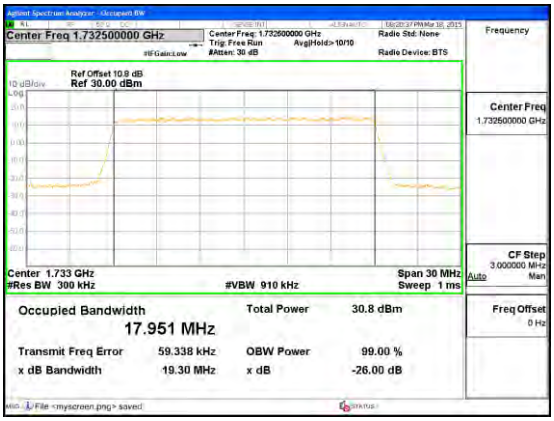
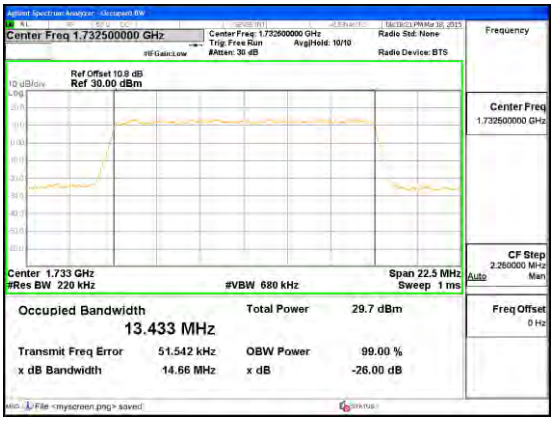
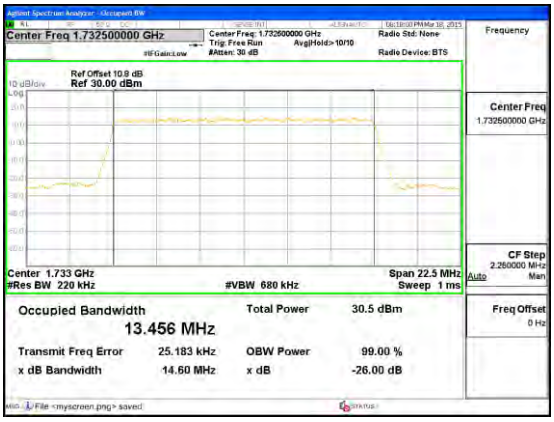
LTE Band 2

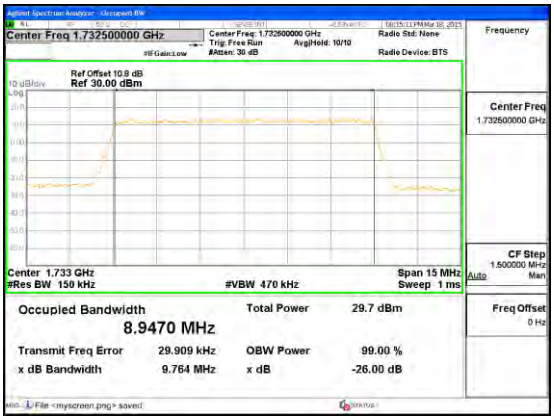
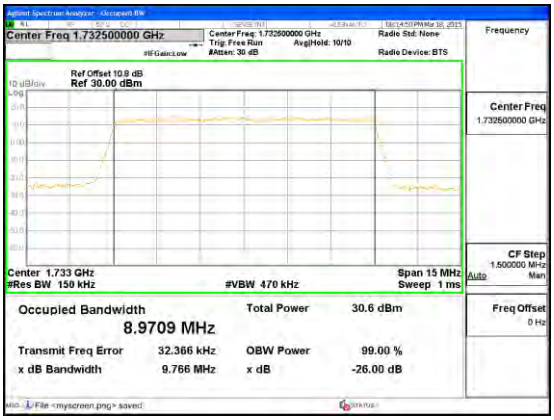
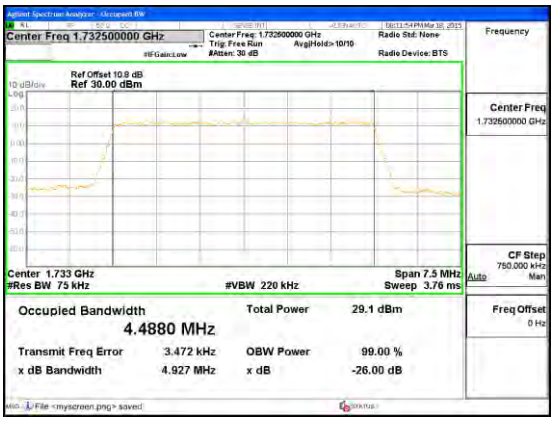
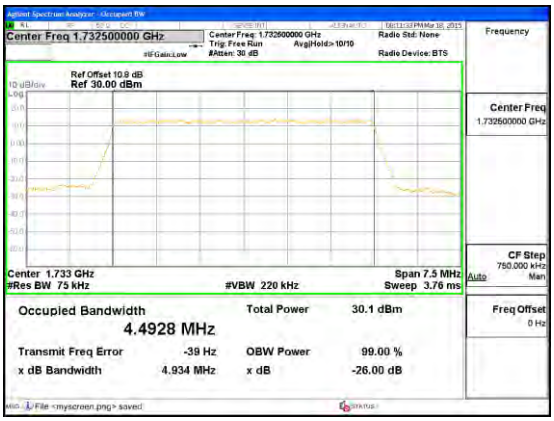
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 15MHz OBW QPSK Mid Channel FRB.gif

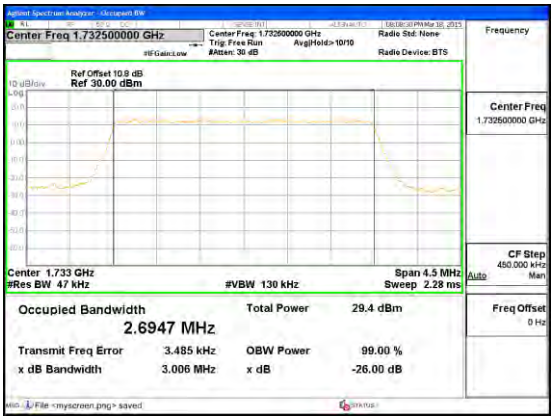
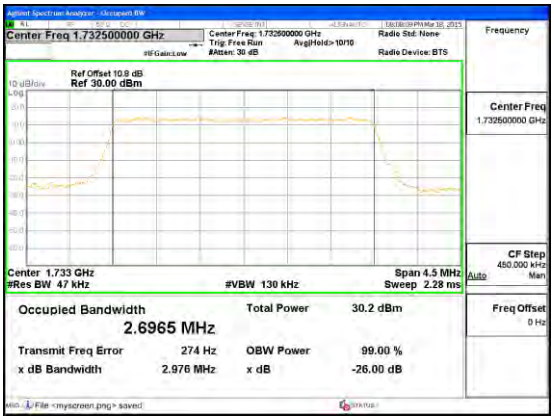
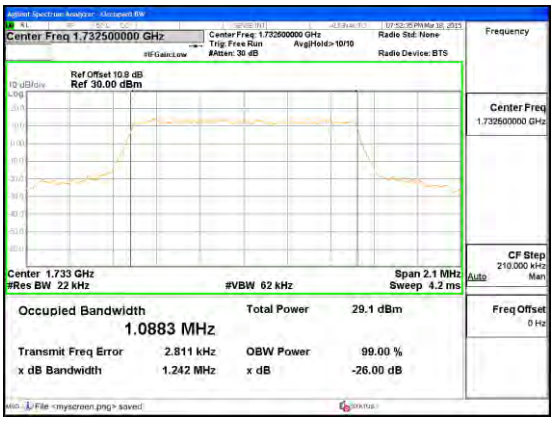
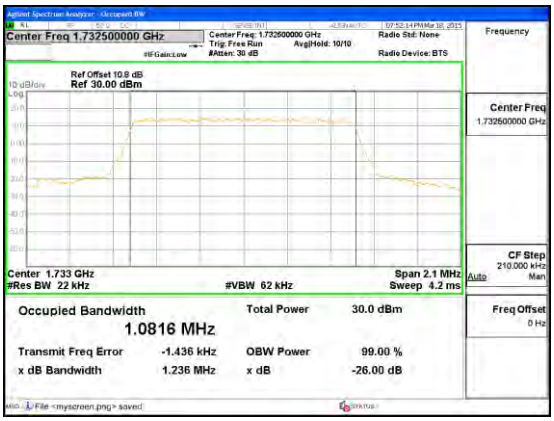
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 5MHz OBW QPSK Mid Channel FRB.gif

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

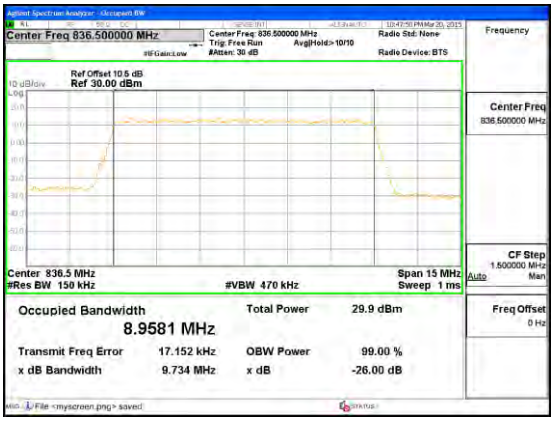
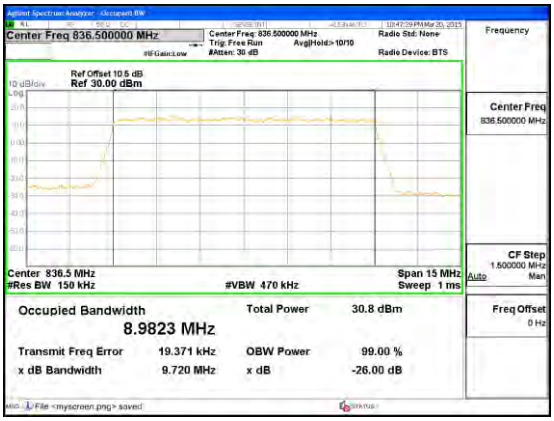
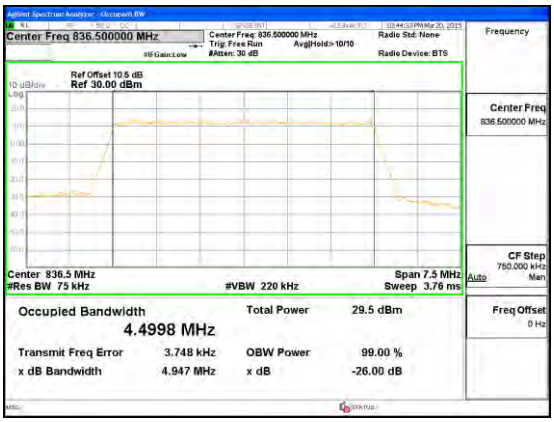
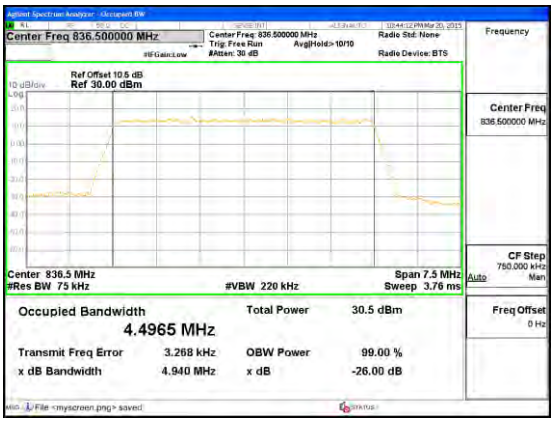
LTE Band 4

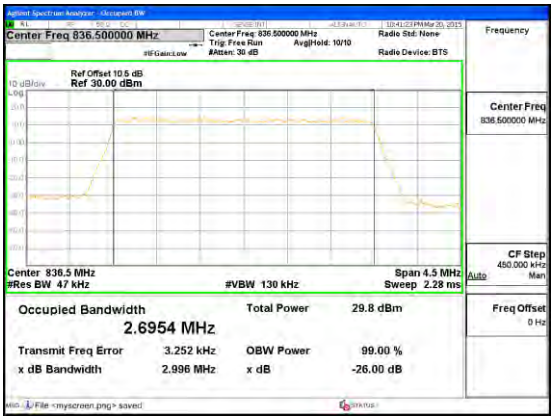
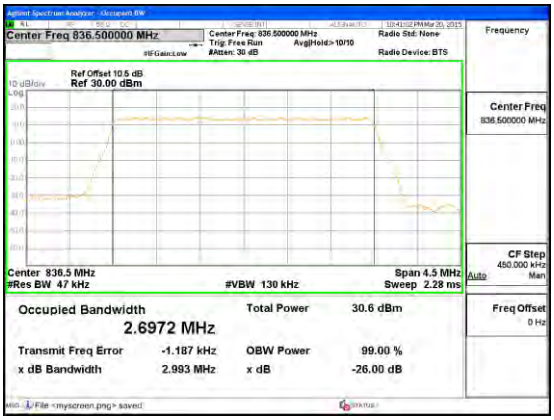
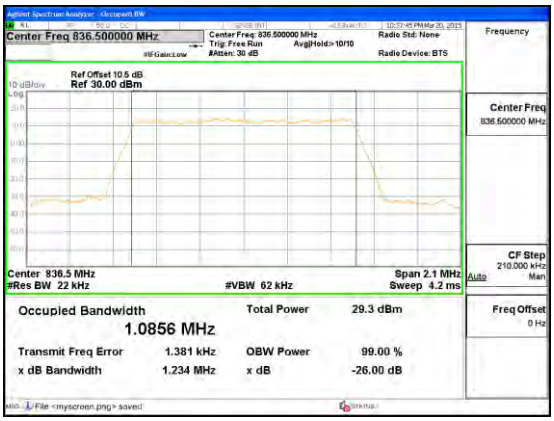
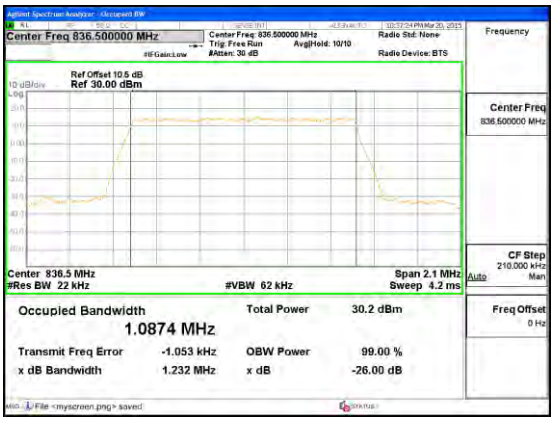
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 15MHz OBW QPSK Mid Channel FRB.gif

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

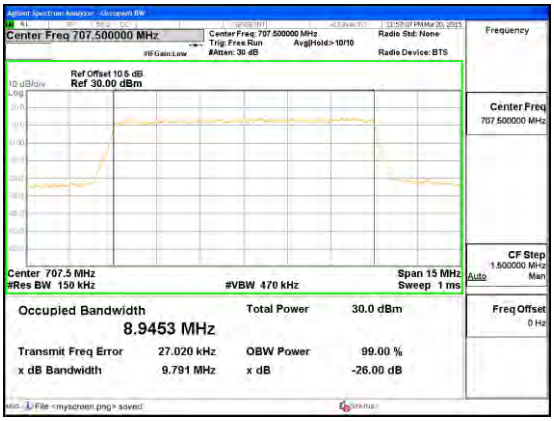
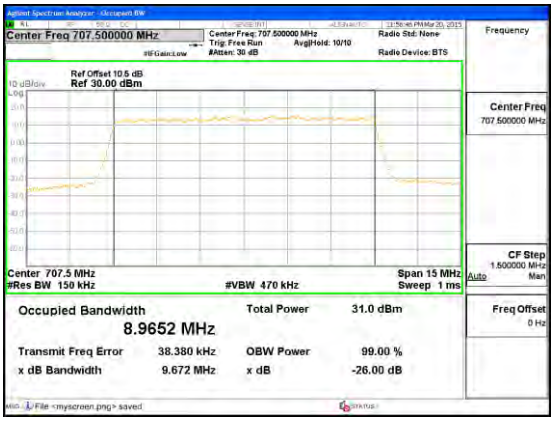
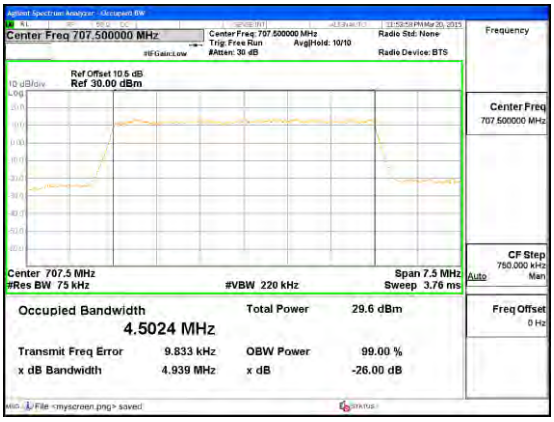
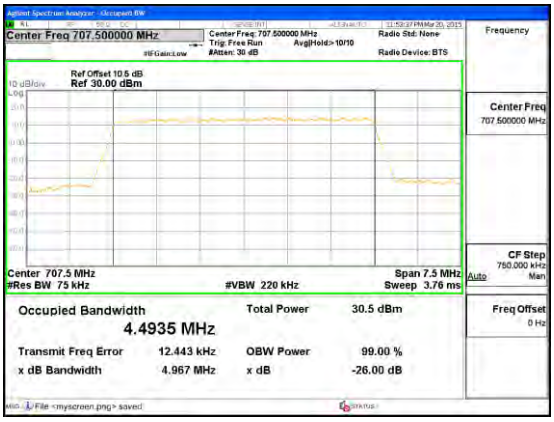
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 1.4MHz OBW QPSK Mid Channel FRB.gif

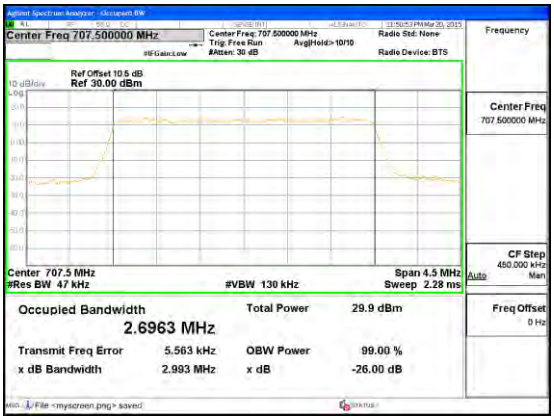
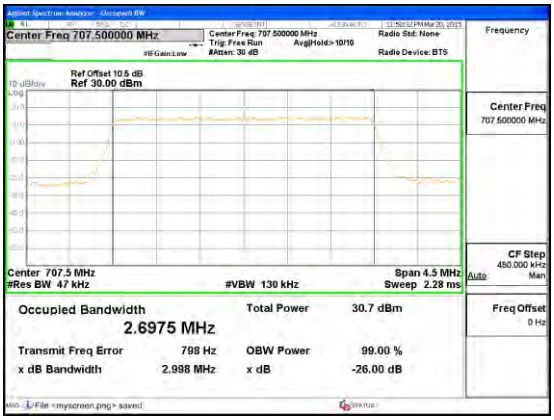
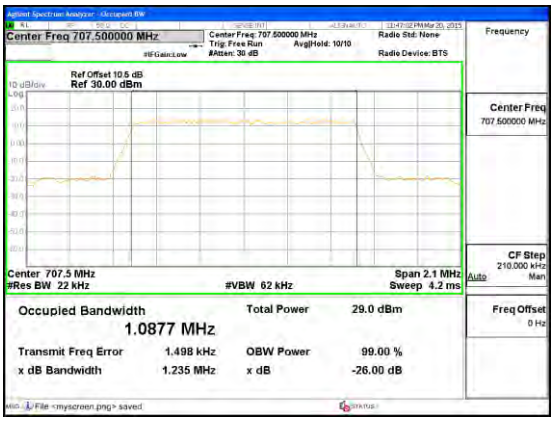
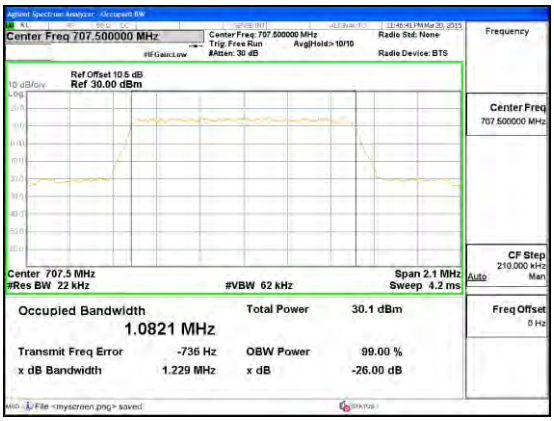
LTE Band 5

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

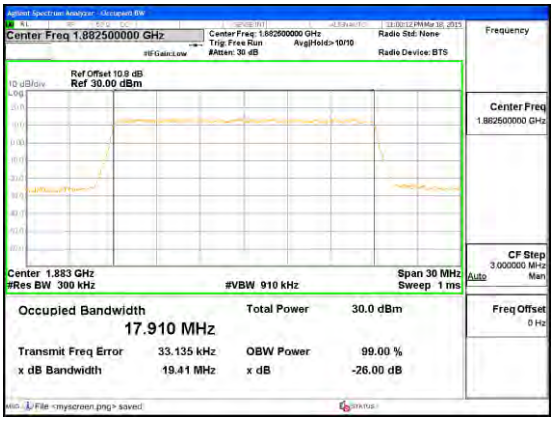
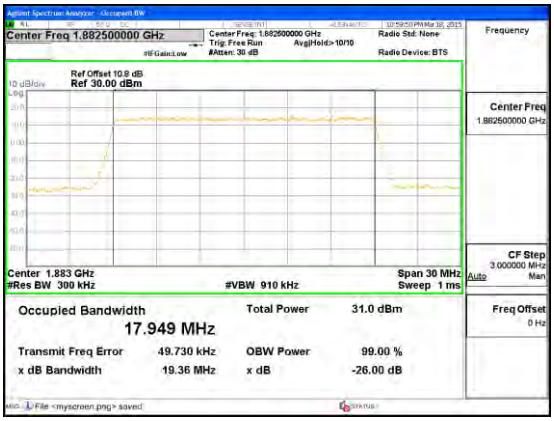
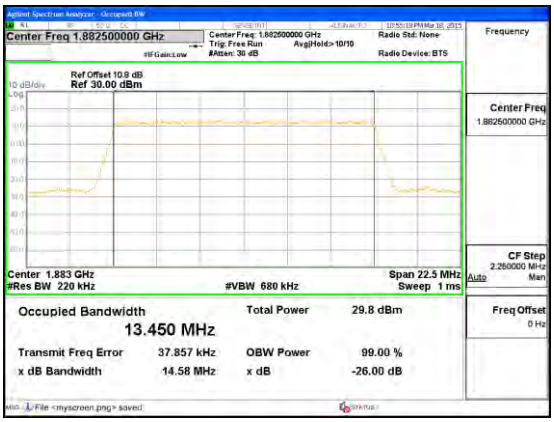
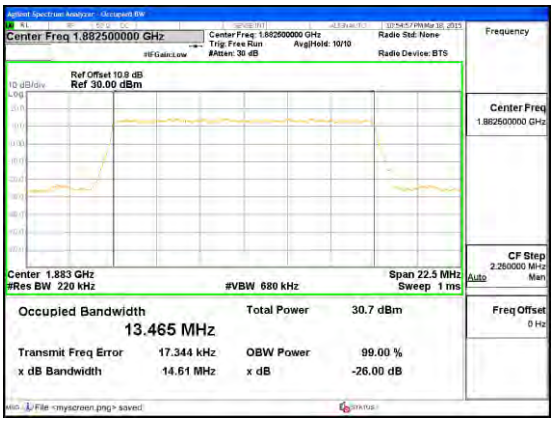
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 1.4MHz OBW QPSK Mid Channel FRB.gif

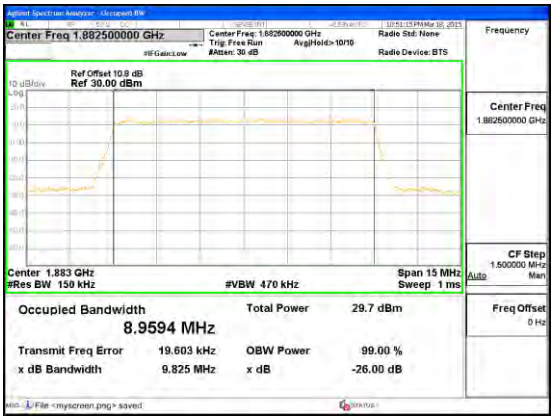
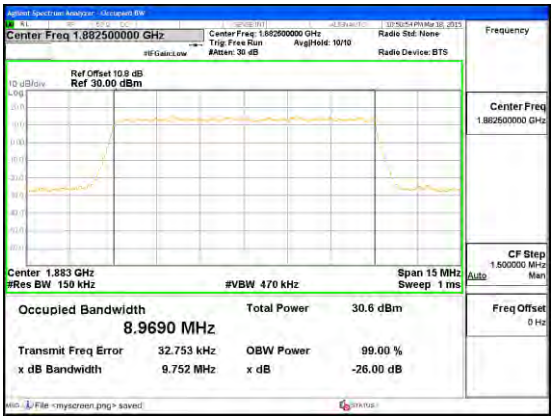
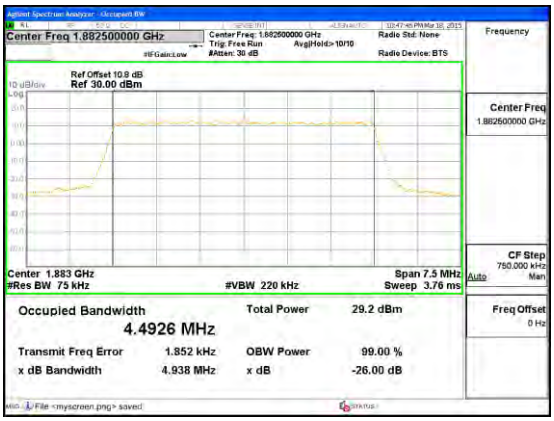
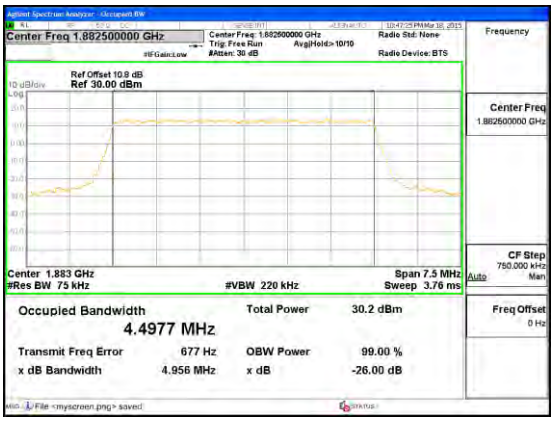
LTE Band 12

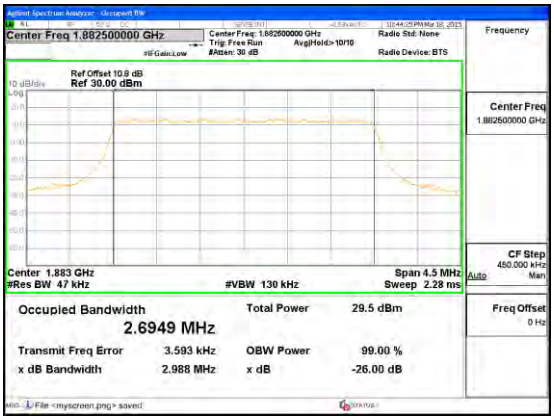
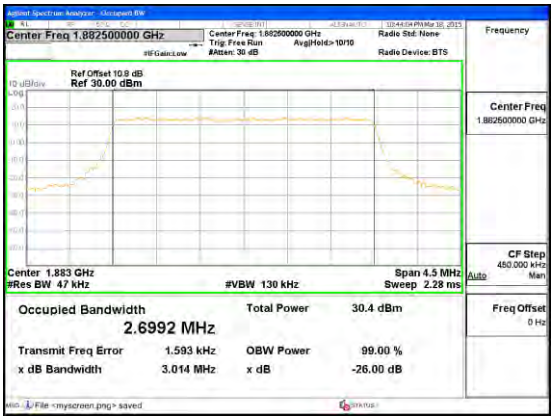
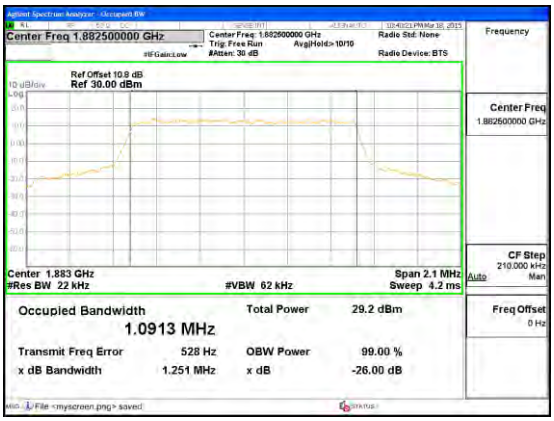
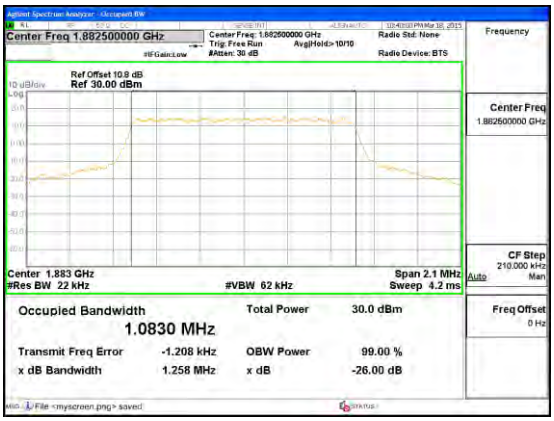
Band LTE12 10MHz 16QAM	 Band LTE12 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE12 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE12 5MHz OBW QPSK Mid Channel FRB.gif

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

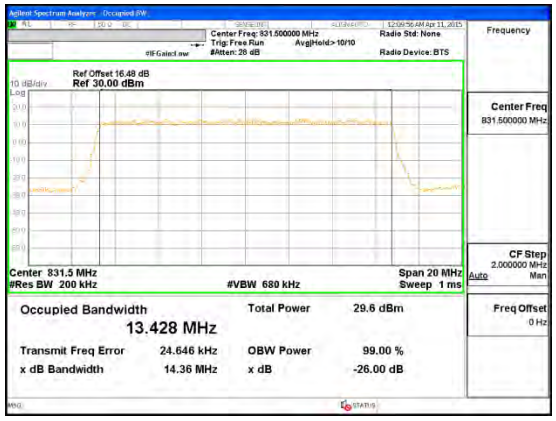
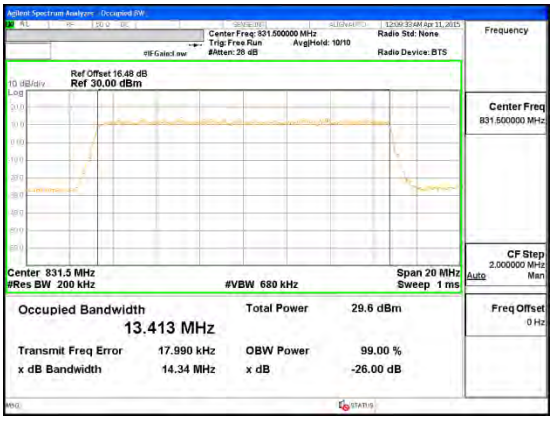
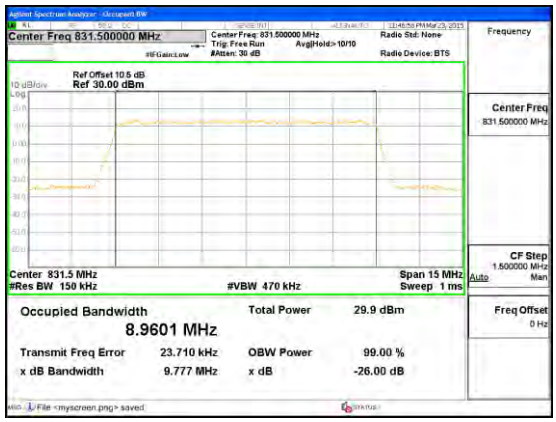
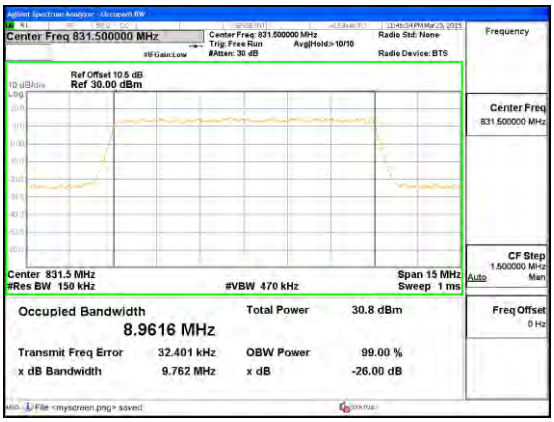
LTE Band 25

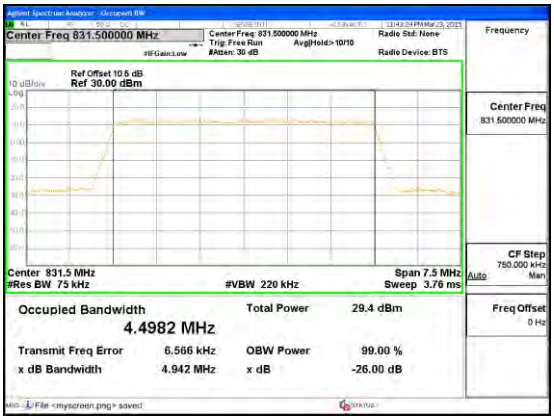
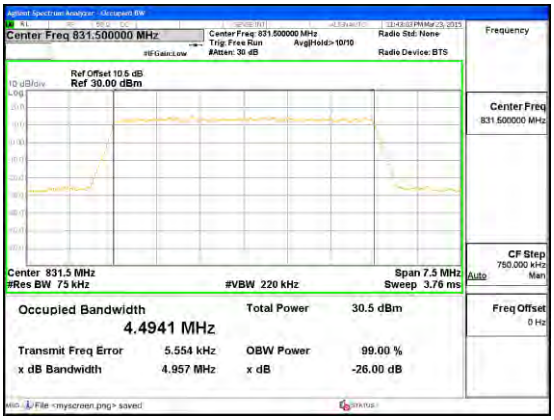
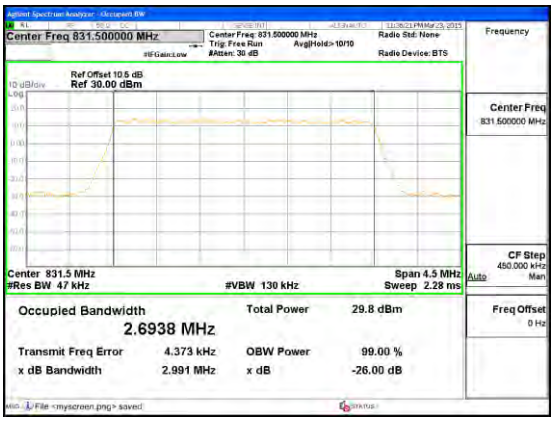
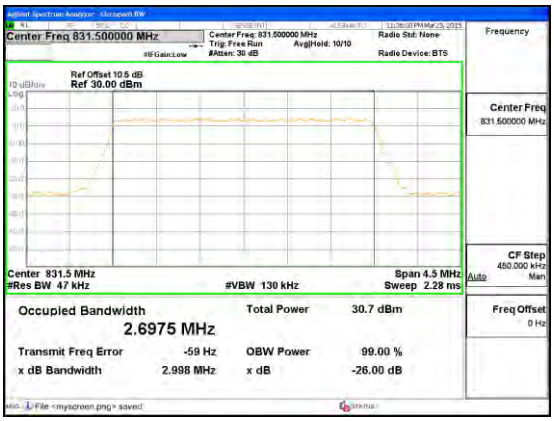
Band LTE25 20MHz 16QAM	 Band LTE25 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE25 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE25 15MHz 16QAM	 Band LTE25 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE25 15MHz OBW QPSK Mid Channel FRB.gif

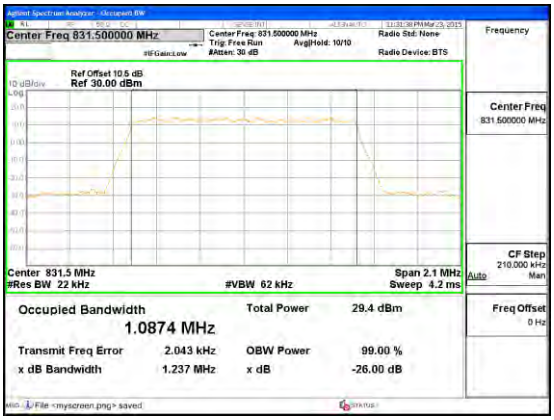
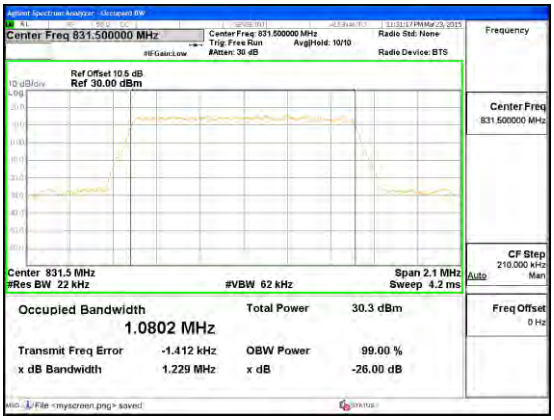
Band LTE25 10MHz 16QAM	 Band LTE25 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE25 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE25 5MHz 16QAM	 Band LTE25 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE25 5MHz OBW QPSK Mid Channel FRB.gif

Band LTE25 3MHz 16QAM	 Band LTE25 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE25 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE25 1.4MHz 16QAM	 Band LTE25 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE25 1.4MHz OBW QPSK Mid Channel FRB.gif

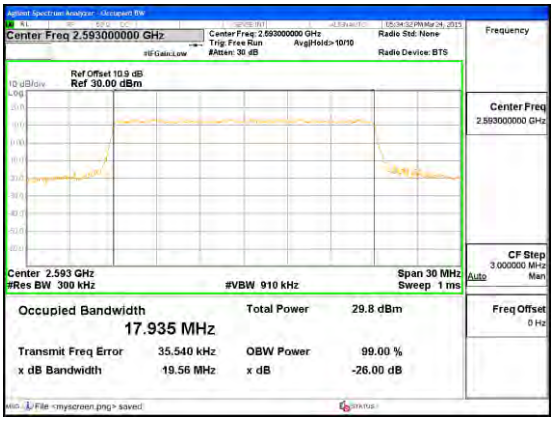
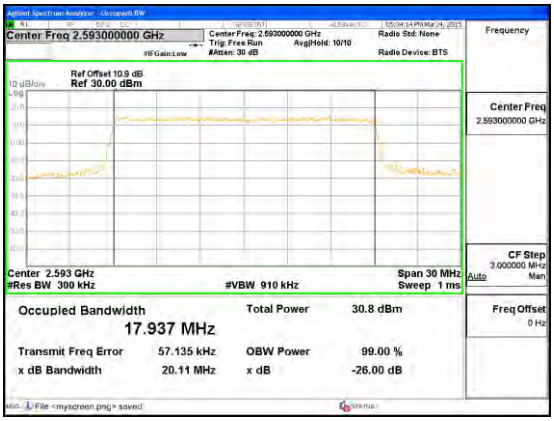
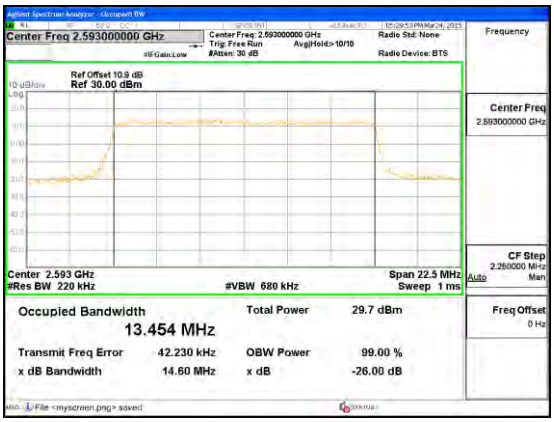
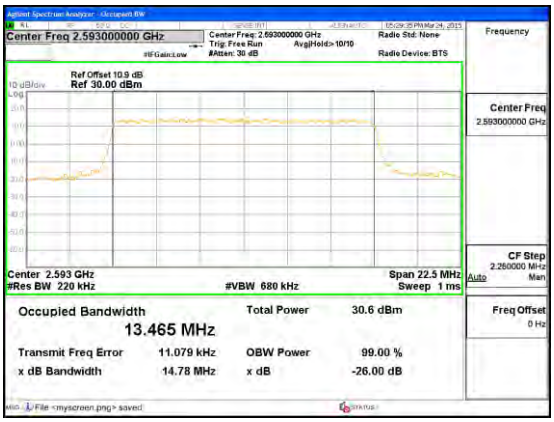
LTE Band 26

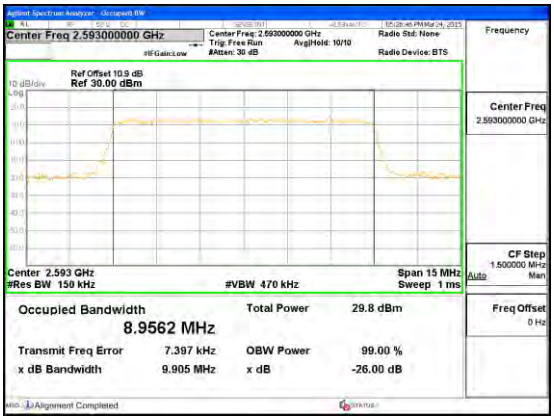
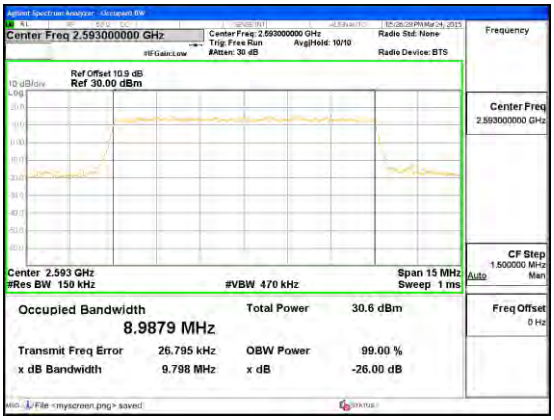
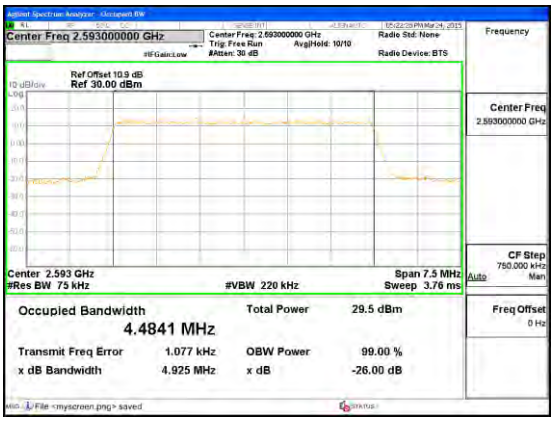
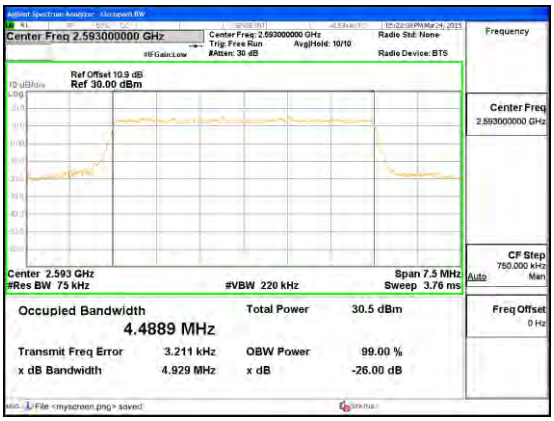
Band LTE26 15MHz 16QAM	 Band LTE26 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 15MHz OBW QPSK Mid Channel FRB.gif
Band LTE26 10MHz 16QAM	 Band LTE26 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 10MHz OBW QPSK Mid Channel FRB.gif

Band LTE26 5MHz 16QAM	 Band LTE26 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 5MHz OBW QPSK Mid Channel FRB.gif
Band LTE26 3MHz 16QAM	 Band LTE26 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE26 1.4MHz 16QAM	 Band LTE26 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 1.4MHz OBW QPSK Mid Channel FRB.gif

LTE Band 41

Band LTE41 20MHz 16QAM	 Band LTE41 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE41 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE41 15MHz 16QAM	 Band LTE41 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE41 15MHz OBW QPSK Mid Channel FRB.gif

Band LTE41 10MHz 16QAM	 Band LTE41 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE41 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE41 5MHz 16QAM	 Band LTE41 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE41 5MHz OBW QPSK Mid Channel FRB.gif

10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27. 53 and § 90.691

LIMITS

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

Part 27: (m)(4) For mobile station, the attenuation factor shall be not less than 43+10Log(P)dB at the channel edge and (55+10Log(P)dB) at 5.5MHz from the channel edges.

Part 90:
(a)(1)For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.
(a)(2)For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz. {NOTE: Use 100 kHz reference bandwidth.}

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.

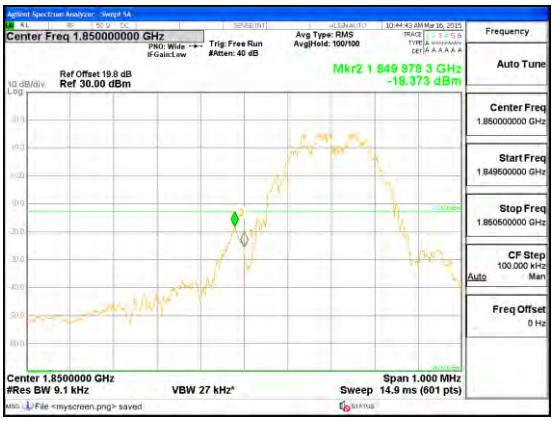
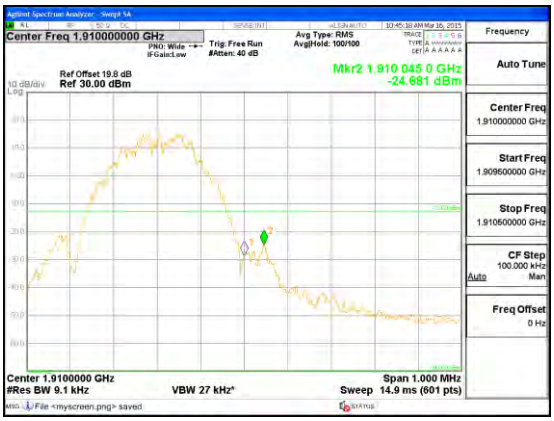
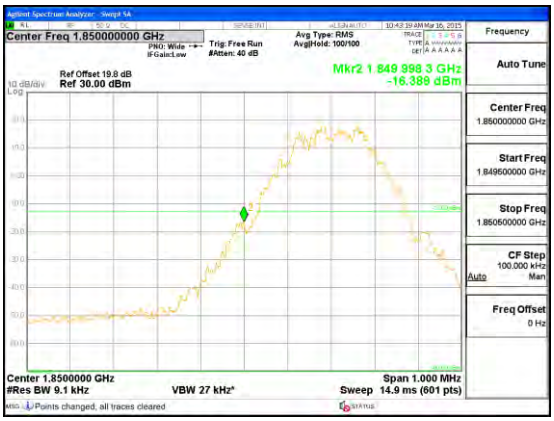
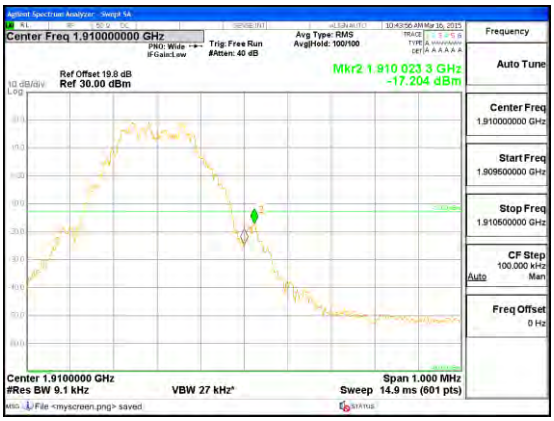
MODES TESTED

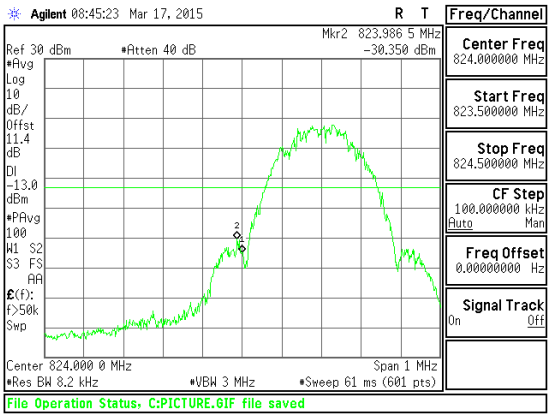
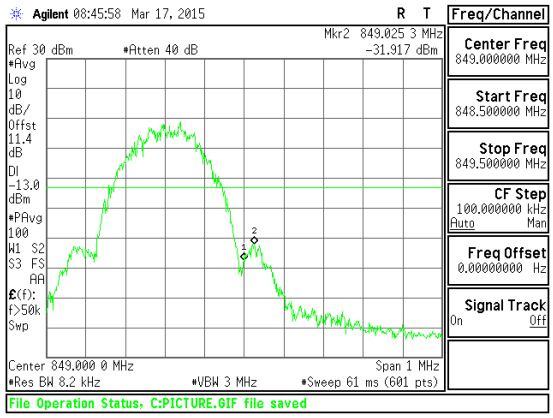
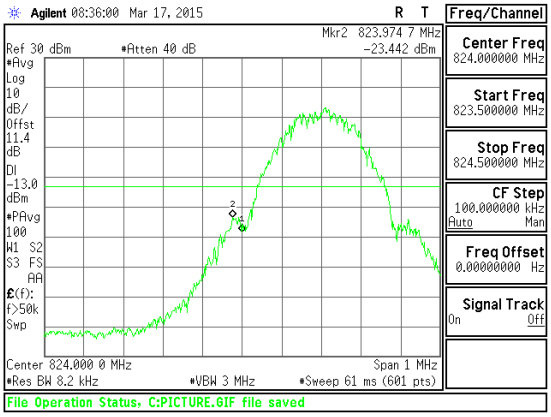
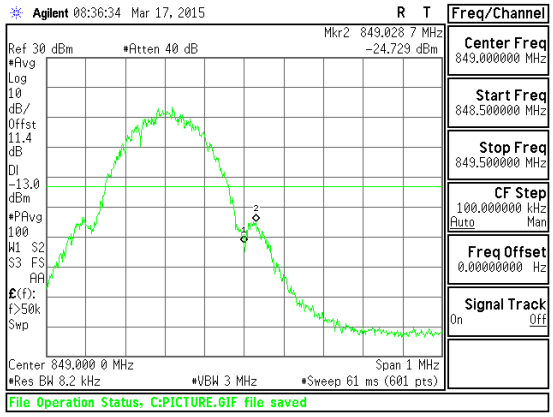
GSM, CDMA, WCDMA, LTE

RESULTS

10.2.1. BAND EDGE PLOTS

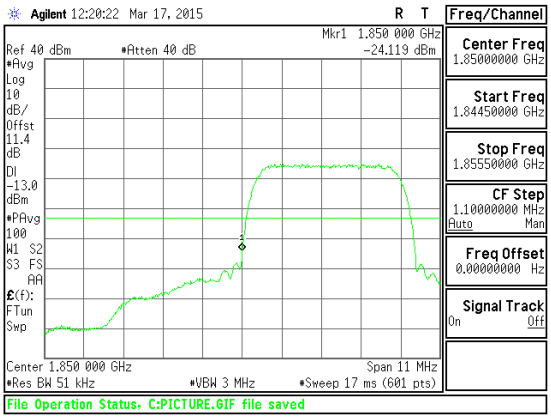
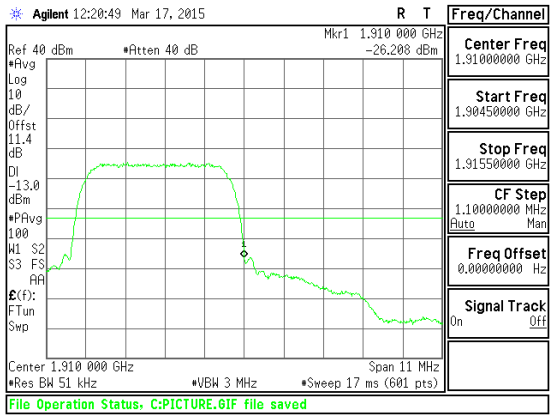
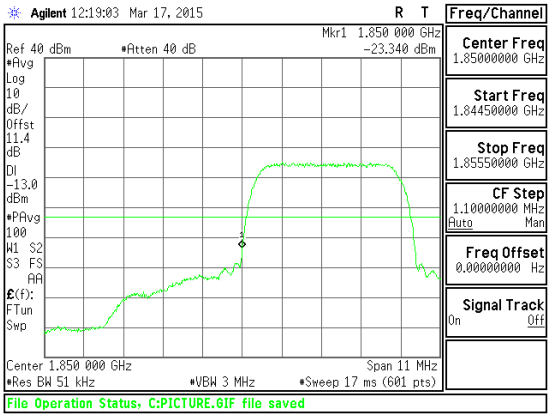
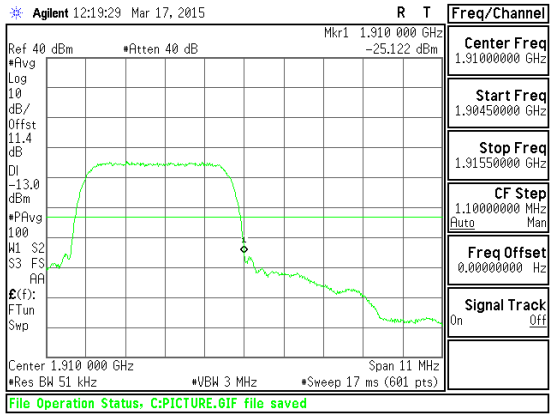
GSM

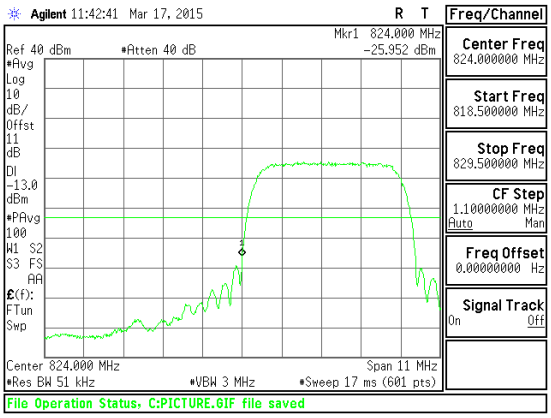
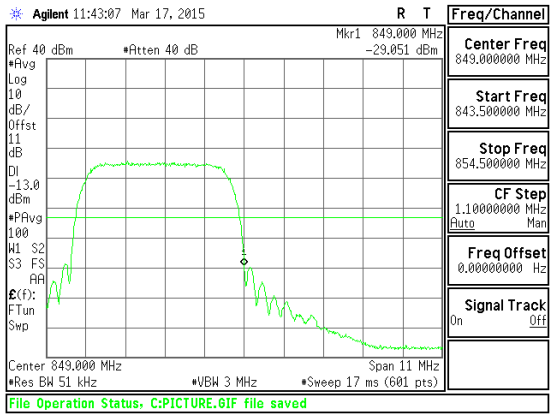
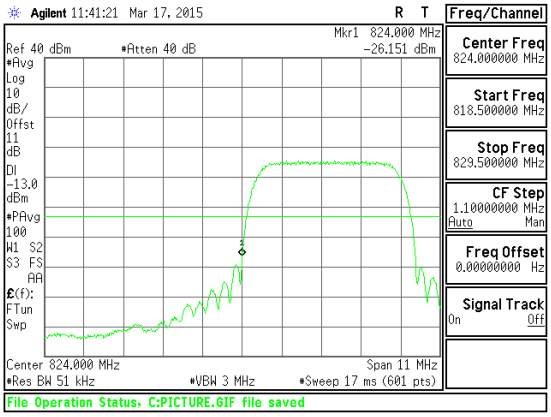
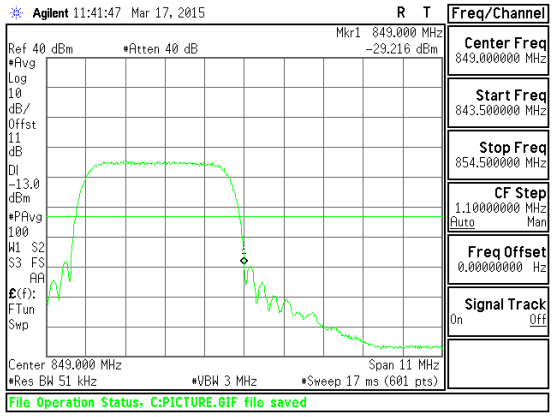
Band GSM 1900 EGPRS	 Band GSM1900 EGPRS CBE Low channel	 Band GSM1900 EGPRS CBE High channel
Band GSM 1900 GPRS	 Band GSM1900 GPRS CBE Low channel	 Band GSM1900 GPRS CBE High channel

Band GSM 850 EGPRS	 Band GSM850 EGPRS CBE Low channel	 Band GSM850 EGPRS CBE High channel
Band GSM 850 GPRS	 Band GSM850 GPRS CBE Low channel	 Band GSM850 GPRS CBE High channel

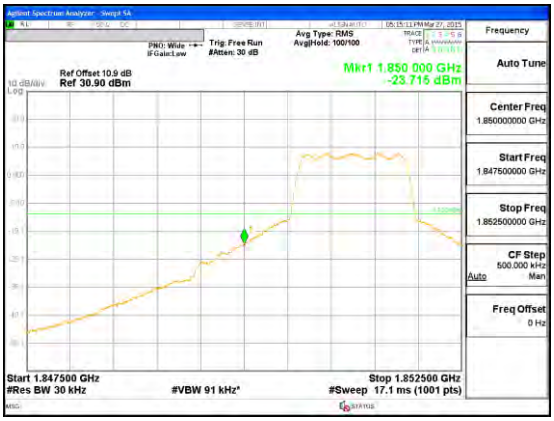
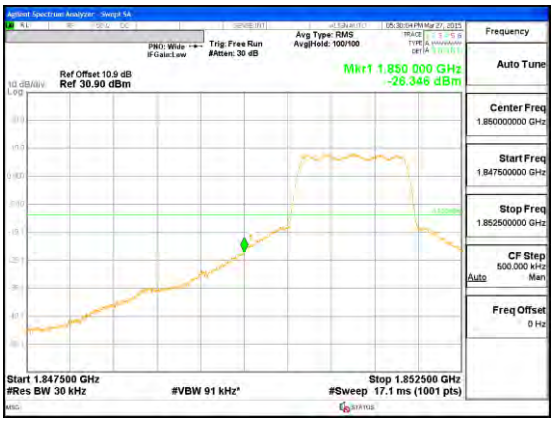
Note: GSM reading need add 9dB DCCF factor due to duty cycle is 12.5% during test.

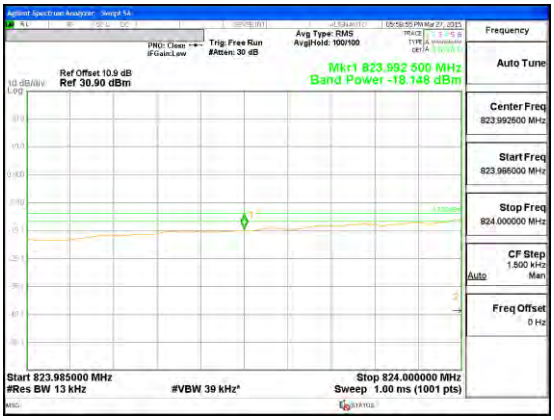
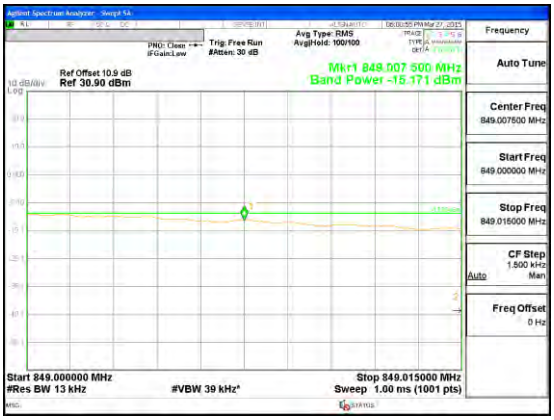
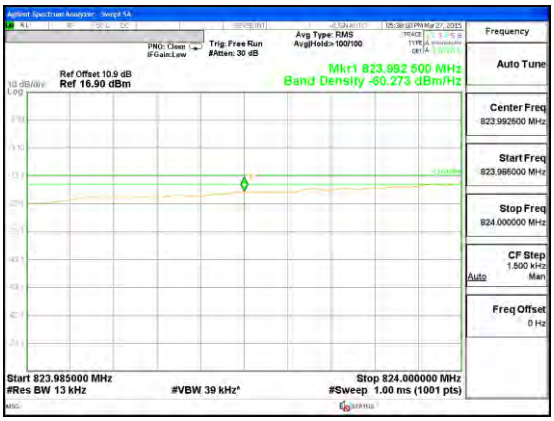
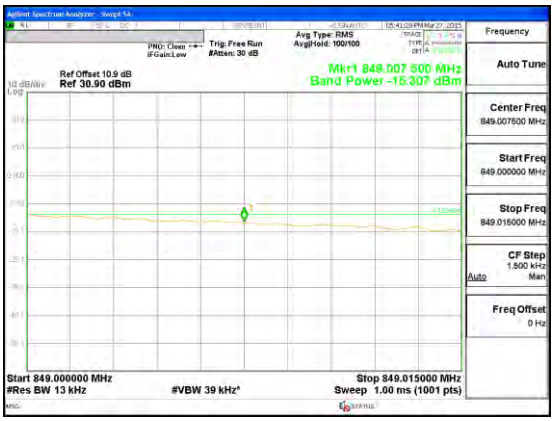
WCDMA

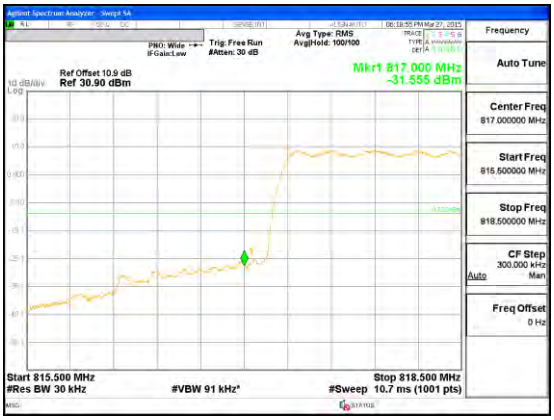
Band Band 2 HSDPA	 Band WCDMA B2 HSDPA CBE	 Band WCDMA B2 HSDPA CBE
Band Band 2 REL99	 Band WCDMA B2 REL99 CBE	 Band WCDMA B2 REL99 CBE

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

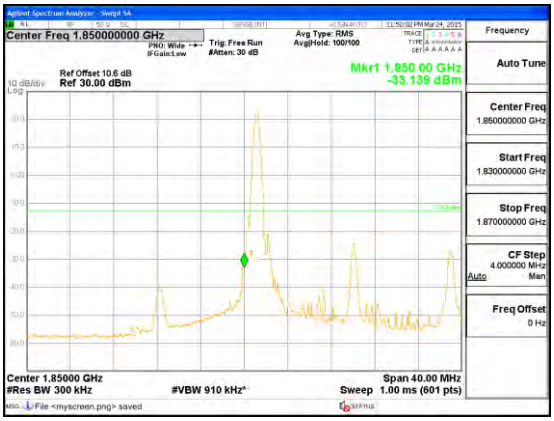
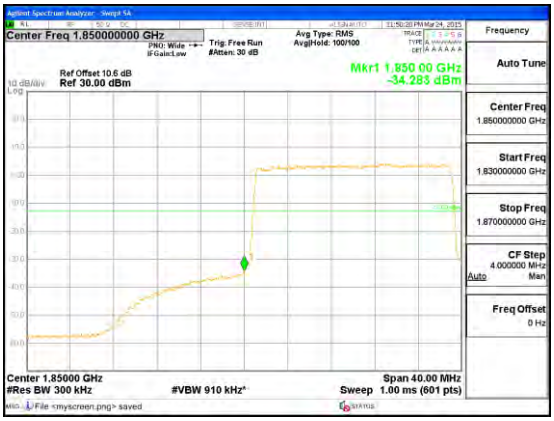
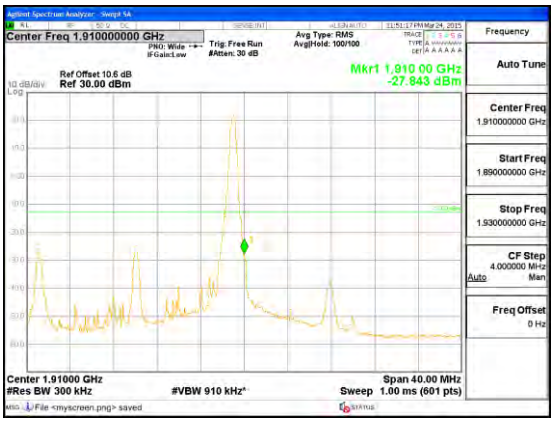
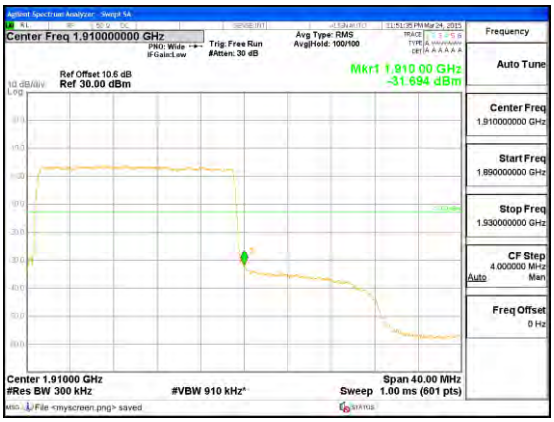
CDMA

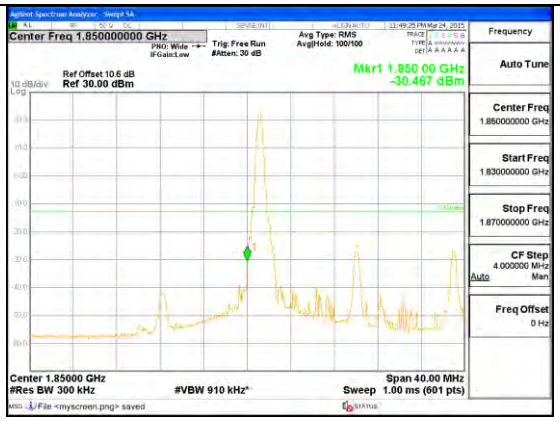
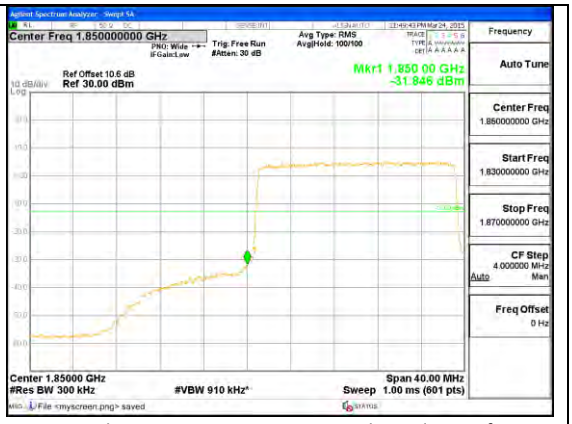
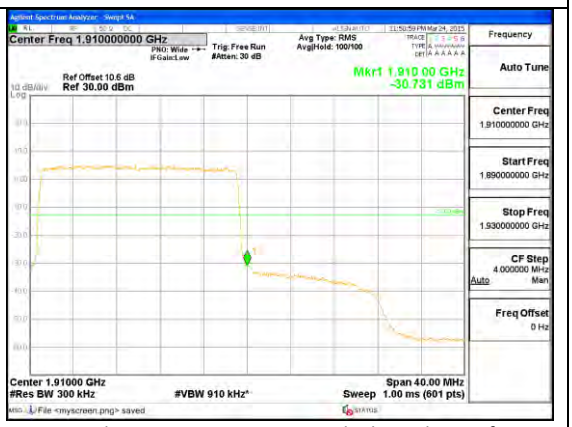
Band BC1 EVDO REL. 0	 Band BC1 EVDO Rel. 0 CBE Low channel	 Band BC1 EVDO Rel. 0 CBE High channel
Band BC1 1xRTT	 Band BC1 1xRTT CBE Low channel	 Band BC1 1xRTT CBE High channel

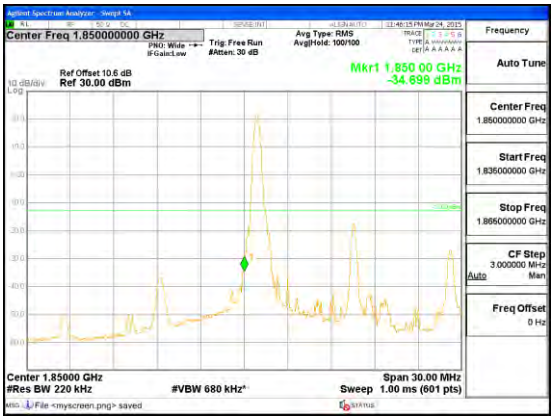
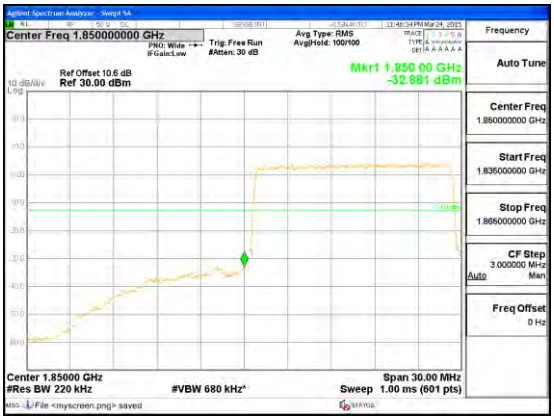
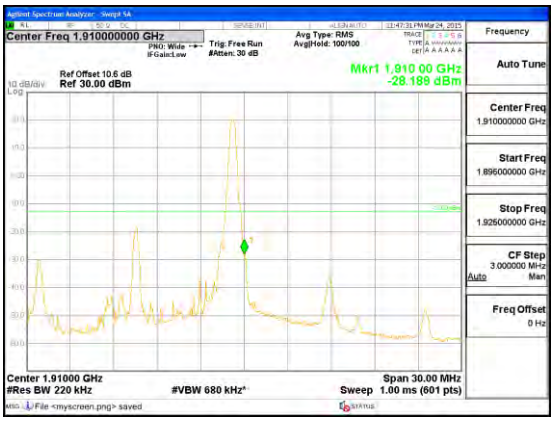
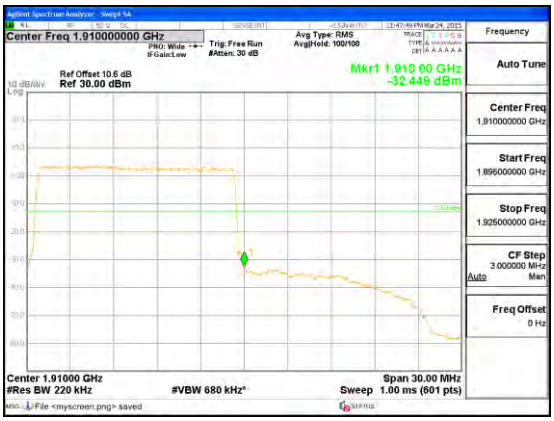
Band BC0 EVDO REL. 0	 Band BC0 EVDO Rel. 0 CBE Low channel	 Band BC0 EVDO Rel. 0 CBE High channel
Band BC0 1xRTT	 Band BC0 1xRTT CBE Low channel	 Band BC0 1xRTT CBE High channel

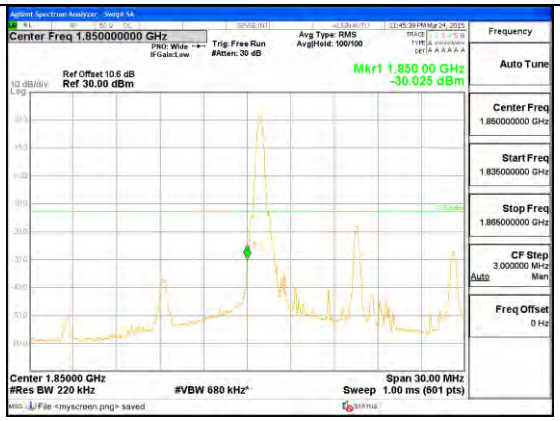
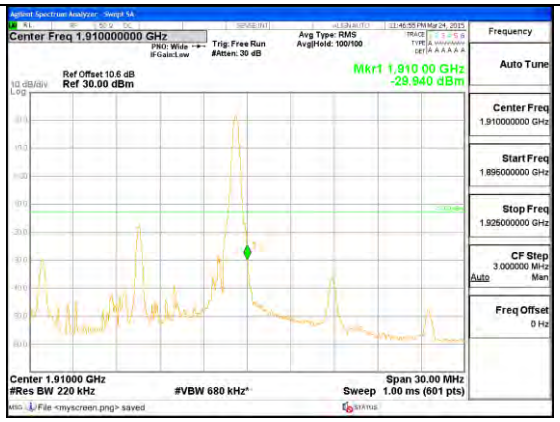
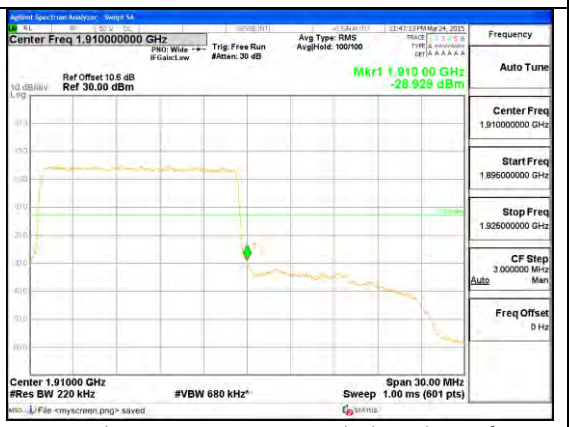
Band BC10 EVDO REL. 0	 Band BC10 EVDO Rel. 0 CBE Low channel	 Band BC10 EVDO Rel. 0 CBE High channel
Band BC10 1xRTT	 Band BC10 1xRTT CBE Low channel	 Band BC10 1xRTT CBE High channel

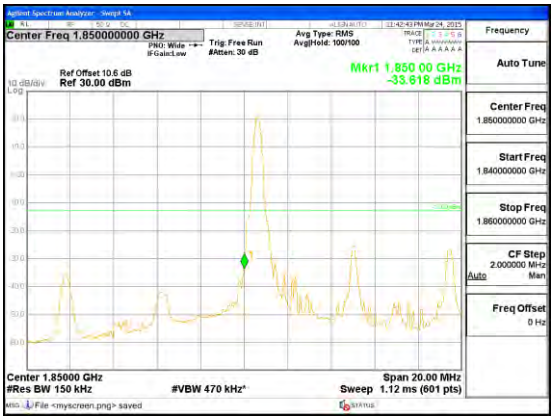
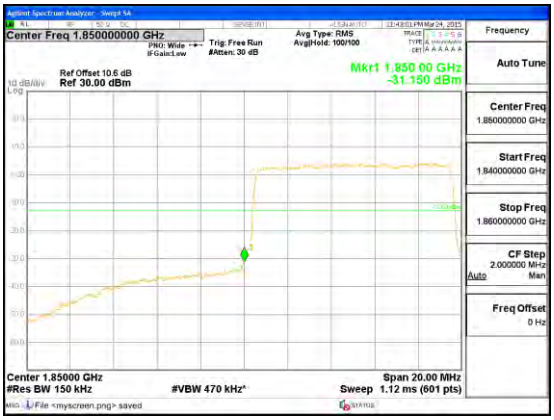
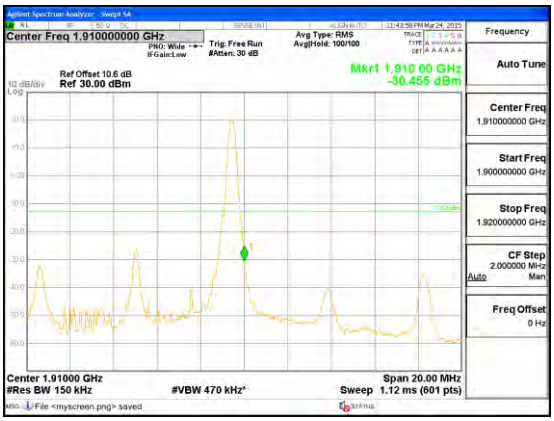
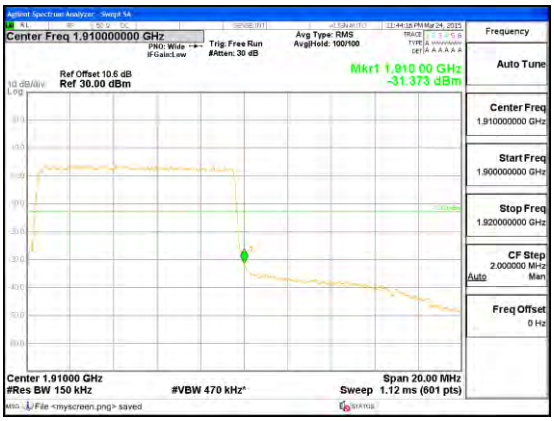
LTE Band 2

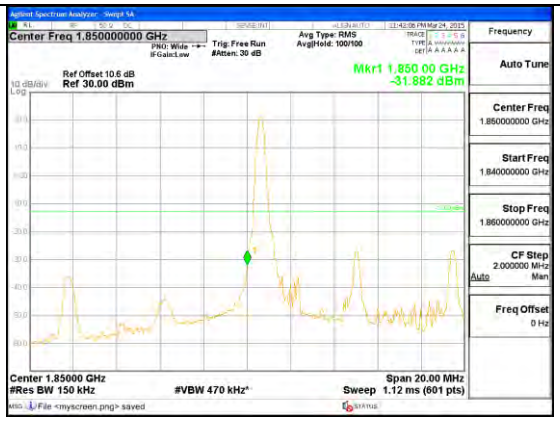
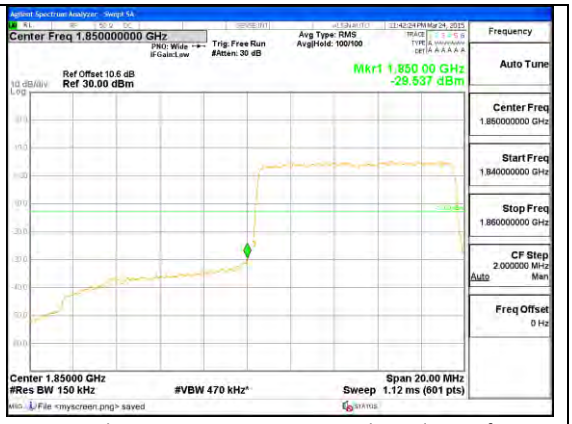
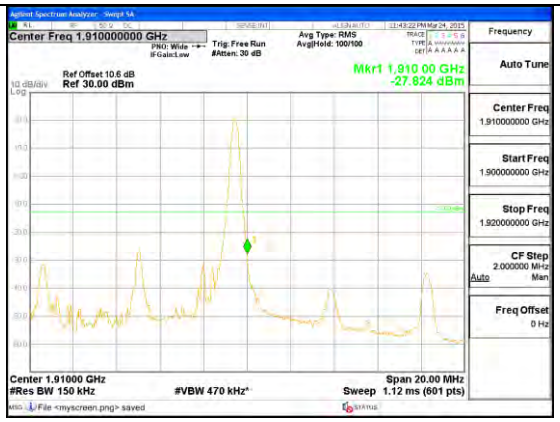
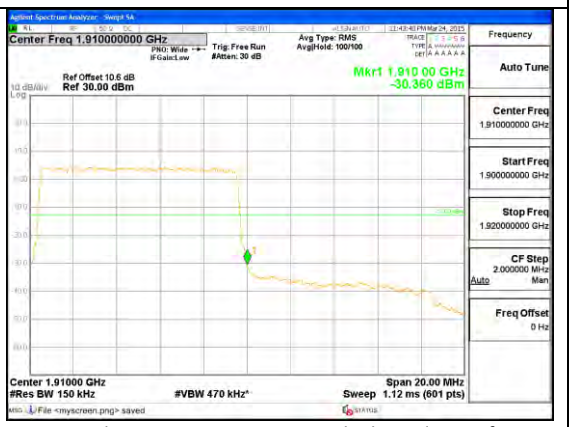
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 20MHz CBE 16QAM High Channel FRB.gif

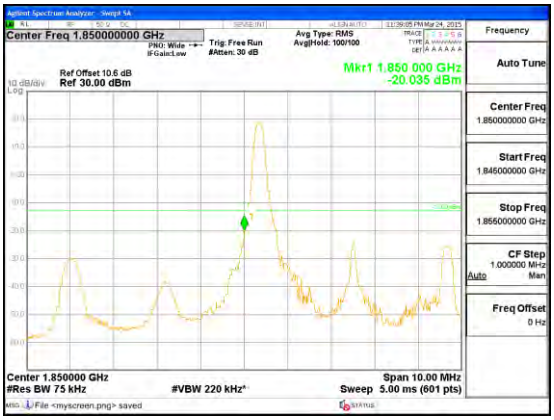
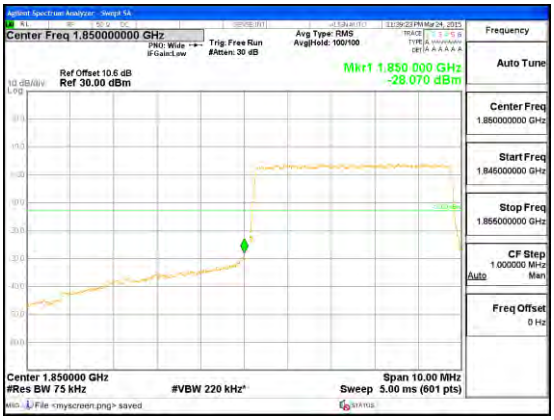
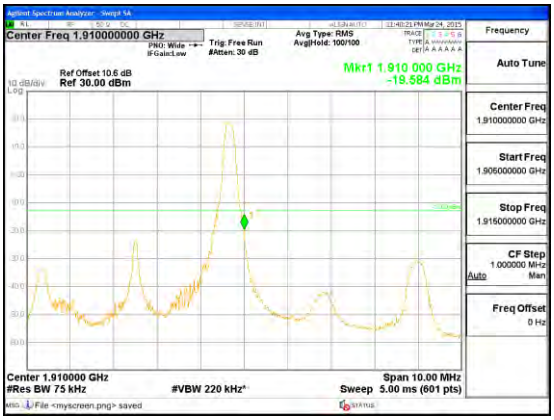
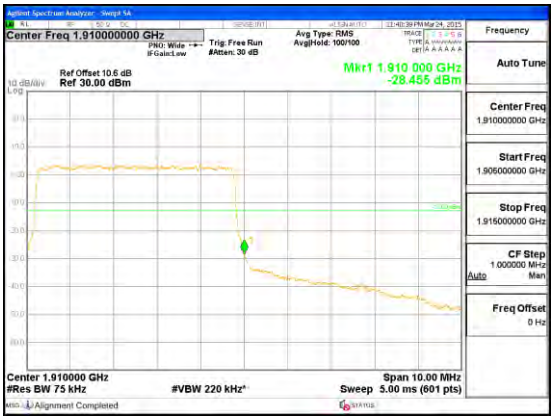
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK Low Channel FRB.gif
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK High Channel FRB.gif

Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM High Channel FRB.gif

Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK Low Channel FRB.gif
Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK High Channel FRB.gif

Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM High Channel FRB.gif

Band LTE2 10MHz QPSK	 Band LTE2 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 10MHz CBE QPSK Low Channel FRB.gif
Band LTE2 10MHz QPSK	 Band LTE2 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 10MHz CBE QPSK High Channel FRB.gif

Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM High Channel FRB.gif