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

CERTIFICATION TEST REPORT

FOR

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

FCC ID: PY7TM-0050
IC ID: 4170B-TM0050

REPORT NUMBER: 14U17933- E1 REVISION A

ISSUE DATE: SEPTEMBER 17, 2014

Prepared for

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Revision History

Rev.	Issue Date	Revisions	Revised By
--	9/4/14	Initial issue	P. Zhang
A	9/17/14	Update report page 65	D. Coronia

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	SONY MOBILE COMMUNICATIONS, INC.
EUT DESCRIPTION:	GSM/WCDMA/LTE Tablet + Bluetooth, DTS/UNII a/b/g/n/ac, ANT+ & NFC
SERIAL NUMBER:	CB5A20E0RY (Radiated), CB5A208FAY (Conducted)
DATE TESTED:	June 24 – Aug 31, 2014

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

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

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

Approved & Released For
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2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street
☒ Chamber A	☐ Chamber D
☒ Chamber B	☐ Chamber E
☒ Chamber C	☐ Chamber F

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)

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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 27000 MHz	4.94 dB

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Tablet + Bluetooth, DTS/UNII a/b/g/n/ac + NFC & ANT+.

5.2. MAXIMUM OUTPUT POWER

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

FCC Part 22/24/27						
Band	Frequency Range(MHz)	Modulation Peak	Conducted		Radiated	
			Avg (dBm)	Avg (mW)	Avg (dBm)	Avg (mW)
GSM850	824~849	GMSK	33.5	2238.72		
	824~849	GPRS	33.5	2238.72	31.925	1557.76
	824~849	EGPRS	27.8	602.56	27.134	516.89
GSM1900	1850~1910	GMSK	30.4	1096.48		
	1850~1910	GPRS	30.4	1096.48	31.152	1303.77
	1850~1910	EGPRS	26.6	457.09	28.237	666.35
Band 5	824~849	REL99	24.5	281.84	23.251	211.4
	824~849	HSDPA	24.5	281.84	23.564	227.2
	824~849	HSUPA	24.5	281.84		
Band 4	1710~1755	REL99	24.0	251.19	24.834	304.37
	1710~1755	HSDPA	24.0	251.19	24.97	314.05
	1710~1755	HSUPA	24.0	251.19		
Band 2	1850~1910	REL99	24.0	251.19	26.273	423.94
	1850~1910	HSDPA	23.5	223.87	25.677	369.57
	1850~1910	HSUPA	23.5	223.87		

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5.3. MAXIMUM OUTPUT POWER (LTE)

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

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE17	704~716	10MHz	QPSK	23.45	221.31	19.658	92.43
	704~716	10MHz	16QAM	22.39	173.38	18.388	68.99

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE17	704~716	5MHz	QPSK	23.44	220.80	19.728	93.93
	704~716	5MHz	16QAM	22.27	168.66	18.758	75.13

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE13	777~787	10MHz	QPSK	23.44	220.80	18.976	79
	777~787	10MHz	16QAM	22.34	171.40	17.916	61.89

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE13	777~787	5MHz	QPSK	23.47	222.33	18.766	75.27
	777~787	5MHz	16QAM	22.33	171.00	17.446	55.54

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE7	2500~2570	20MHz	QPSK	23.82	240.99	26.82	480.84
	2500~2570	20MHz	16QAM	23.00	199.53	25.6	363.08

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FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE7	2500~2570	15MHz	QPSK	23.82	240.99	26.98	498.88
	2500~2570	15MHz	16QAM	23.00	199.53	25.66	368.13

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE7	2500~2570	10MHz	QPSK	23.82	240.99	27.08	510.5
	2500~2570	10MHz	16QAM	22.76	188.80	26.13	410.2

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE7	2500~2570	5MHz	QPSK	23.82	240.99	26.72	469.89
	2500~2570	5MHz	16QAM	22.99	199.07	25.85	384.59

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE5	824~849	10MHz	QPSK	23.53	225.42	22.756	188.63
	824~849	10MHz	16QAM	22.66	184.50	21.486	140.8

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE5	824~849	5MHz	QPSK	23.67	232.81	22.546	179.72
	824~849	5MHz	16QAM	22.96	197.70	21.406	138.23

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FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE5	824~849	3MHz	QPSK	23.54	225.94	22.286	169.28
	824~849	3MHz	16QAM	22.67	184.93	21.646	146.08

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE5	824~849	1.4MHz	QPSK	23.58	228.03	23.306	214.09
	824~849	1.4MHz	16QAM	22.74	187.93	22.526	178.9

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE4	1710~1755	20MHz	QPSK	23.62	230.14	25.86	385.48
	1710~1755	20MHz	16QAM	22.69	185.78	25.12	325.09

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE4	1710~1755	15MHz	QPSK	23.57	227.51	26.07	404.58
	1710~1755	15MHz	16QAM	23.00	199.53	25.29	338.06

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE4	1710~1755	10MHz	QPSK	23.58	228.03	26.35	431.52
	1710~1755	10MHz	16QAM	22.72	187.07	25.53	357.27

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FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE4	1710~1755	5MHz	QPSK	23.69	233.88	25.18	329.61
	1710~1755	5MHz	16QAM	22.97	198.15	24.02	252.35

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE4	1710~1755	3MHz	QPSK	23.60	229.09	25.08	322.11
	1710~1755	3MHz	16QAM	22.76	188.80	23.97	249.46

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE4	1710~1755	1.4MHz	QPSK	23.63	230.67	25.11	324.34
	1710~1755	1.4MHz	16QAM	22.78	189.67	23.99	250.61

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE2	1850~1910	20MHz	QPSK	23.9	245.47	26.41	437.52
	1850~1910	20MHz	16QAM	23.0	199.53	25.41	347.54

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE2	1850~1910	15MHz	QPSK	23.8	239.88	26.39	435.51
	1850~1910	15MHz	16QAM	23.0	199.53	25.36	343.56

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FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE2	1850~1910	10MHz	QPSK	23.8	239.88	26.31	427.56
	1850~1910	10MHz	16QAM	22.9	194.98	25.48	353.18

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE2	1850~1910	5MHz	QPSK	23.9	245.47	26.28	424.62
	1850~1910	5MHz	16QAM	23.0	199.53	25.5	354.81

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE2	1850~1910	3MHz	QPSK	23.8	239.88	25.93	391.74
	1850~1910	3MHz	16QAM	22.9	194.98	24.69	294.44

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation Peak	Conducted		Radiated	
				Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE2	1850~1910	1.4MHz	QPSK	23.9	245.47	26.17	414
	1850~1910	1.4MHz	16QAM	23.0	199.53	25.07	321.37

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5.4. DESCRIPTION OF AVAILABLE ANTENNAS

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

Frequency (MHz)	Peak Gain (dBi)
LTE2, 1850~1910MHz	0
LTE4, 1710~1755MHz	-2
LTE5, 824~849MHz	-0.5
LTE7, 2500~2570MHz	1.7
LTE13, 777~787MHz	-1.8
LTE17, 704~716MHz	-4.1

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5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Sony	EP880	3514W01 S08489 SEM 060	DoC
Earphone	Sony	MH410c	14071EB60060A84	DoC
MHL cable	Sony	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.

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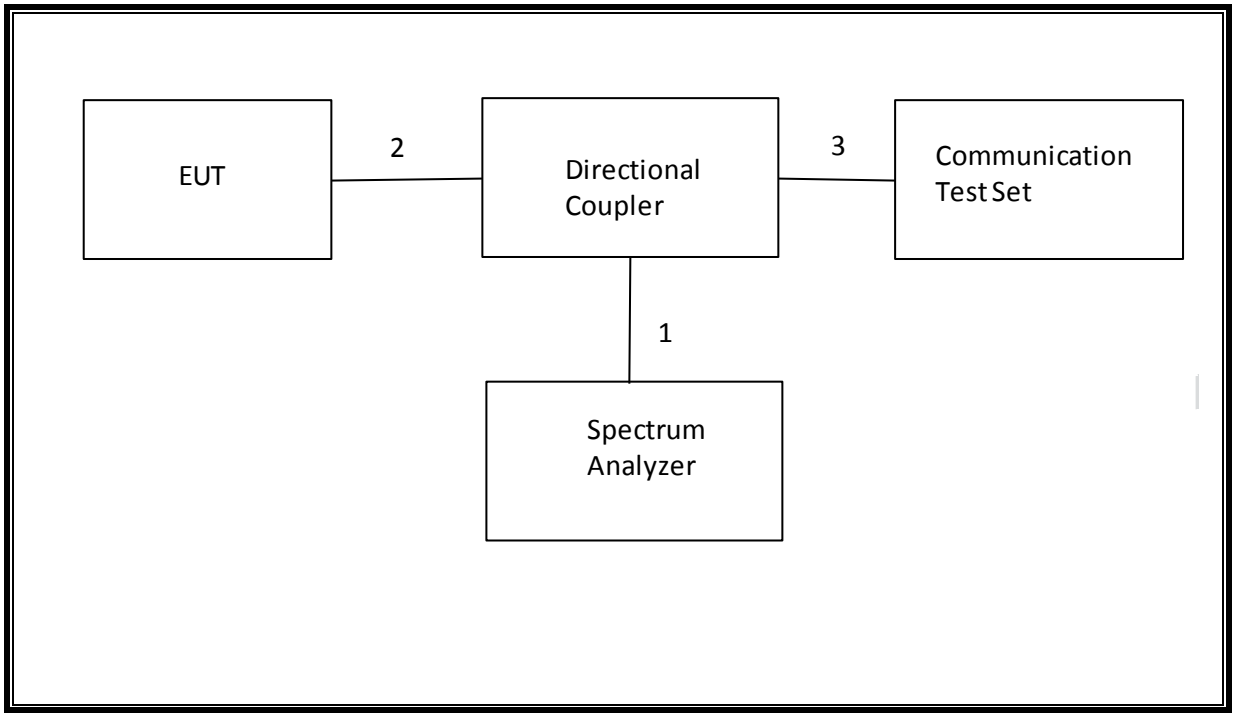
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



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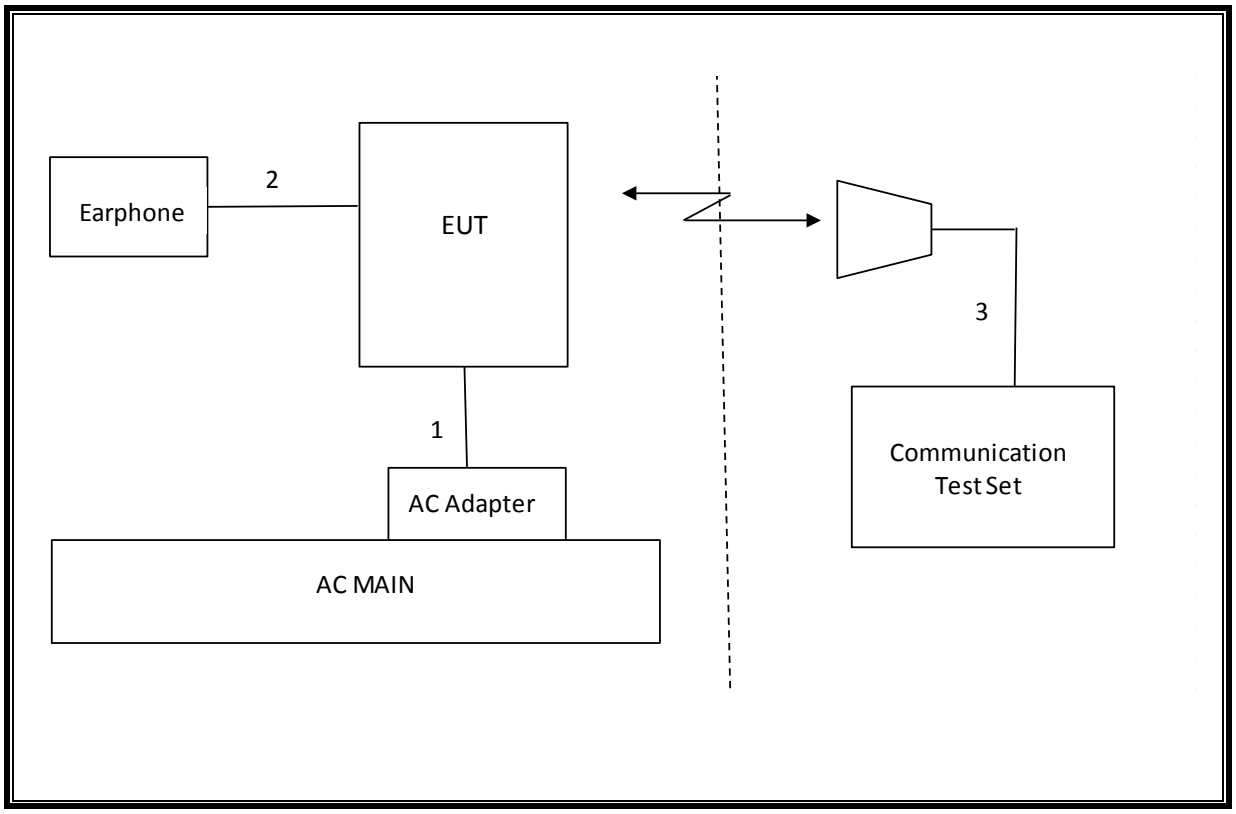
SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01179	02/26/15
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	08/14/15
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/14
Antenna, Horn, 18 GHz	EMCO	3115	C00784	10/25/14
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	01/09/15
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	07/06/15
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	C00993	02/14/15
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/14

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7. Summary Table

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst case
2.1049	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	17.85MHz
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	-16.283dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-25.66dBm
2.1046	N/A	Conducted output power	N/A		Pass	33.5dBm
27.53(m) 90.691	RSS-199(4.5)	Emission Mask			Pass	
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	0.02579PPM
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38 dBm	Radiated	Pass	31.925dBm
27.50(b)(10)	N/A		34.77 dBm		Pass	19.728dBm
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	31.152dBm
27.50(d)(4)	RSS-139(6.4)		30dBm		Pass	26.35dBm
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	-42.3dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-51.3dBm

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8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

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

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

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

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

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

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

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 30 dBm for GPRS1800/1900

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

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

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

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

Channel Type > Off

P0> 4 dB

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

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

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

Bit Stream > 2E9-1PSR Bit Pattern

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

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

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8.1.1. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	128	824.2	33.5
			190	836.6	33.5
			251	848.8	33.5
GPRS (GMSK)	CS1	1	128	824.2	33.5
			190	836.6	33.5
			251	848.8	33.5
		2	128	824.2	31.6
			190	836.6	31.6
			251	848.8	31.6
		3	128	824.2	29.5
			190	836.6	29.6
			251	848.8	29.6
		4	128	824.2	28.6
			190	836.6	28.6
			251	848.8	28.6
EGPRS (8PSK)	MCS5	1	128	824.2	27.7
			190	836.6	27.8
			251	848.8	27.8
		2	128	824.2	25.6
			190	836.6	25.7
			251	848.8	25.7
		3	128	824.2	24.8
			190	836.6	24.9
			251	848.8	24.9
		4	128	824.2	22.8
			190	836.6	22.9
			251	848.8	22.9

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Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	30.1
			661	1880.0	30.4
			810	1909.8	30.2
GPRS (GMSK)	CS1	1	512	1850.2	30.1
			661	1880.0	30.4
			810	1909.8	30.2
		2	512	1850.2	28.4
			661	1880.0	28.5
			810	1909.8	28.4
		3	512	1850.2	27.6
			661	1880.0	27.6
			810	1909.8	27.5
		4	512	1850.2	26.5
			661	1880.0	26.6
			810	1909.8	26.5
EGPRS (8PSK)	MCS5	1	512	1850.2	26.5
			661	1880.0	26.6
			810	1909.8	26.5
		2	512	1850.2	24.7
			661	1880.0	24.8
			810	1909.8	24.7
		3	512	1850.2	23.6
			661	1880.0	23.6
			810	1909.8	23.5
		4	512	1850.2	22.8
			661	1880.0	22.9
			810	1909.8	22.8

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8.2. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

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

8.2.1. UMTS REL 99 OUTPUT POWER RESULT

Release 99				**Tune-up Tolerance (dB):**		0.5		-0.7
Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	0	24.0	24.5	24.0	23.3
		9400	1880.0	0	24.0			
		9538	1907.6	0	23.9			

Release 99				**Tune-up Tolerance (dB):**		0.5		-0.7
Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band IV	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	0	23.8	24.5	24.0	23.3
		1413	1732.6	0	23.9			
		1513	1752.6	0	24.0			

Release 99				**Tune-up Tolerance (dB):**		0.5		-0.7
Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band V	Rel 99 (RMC, 12.2 kbps)	4132	826.4	0	24.5	24.5	24.0	23.3
		4183	836.6	0	24.4			
		4233	846.6	0	24.4			

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8.3. UMTS HSDPA

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

	Mode	Rel5 HSDPA			
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

8.3.1. UMTS HSDPA OUTPUT POWER RESULT

HSDPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.4	24.5	24.0	23.3
		9400	1880.0	0	23.5			
		9538	1907.6	0	23.3			
	Subtest 2	9262	1852.4	0	23.5	24.5	24.0	23.3
		9400	1880.0	0	23.5			
		9538	1907.6	0	23.4			
	Subtest 3	9262	1852.4	0.5	23.5	24.0	23.5	22.8
		9400	1880.0	0.5	23.5			
		9538	1907.6	0.5	23.3			
	Subtest 4	9262	1852.4	0.5	23.4	24.0	23.5	22.8
		9400	1880.0	0.5	23.5			
		9538	1907.6	0.5	23.3			

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HSDPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band IV	Subtest 1	1312	1712.4	0	23.8	24.5	24.0	23.3
		1413	1732.6	0	24.0			
		1513	1752.6	0	24.0			
	Subtest 2	1312	1712.4	0	23.9	24.5	24.0	23.3
		1413	1732.6	0	24.0			
		1513	1752.6	0	23.9			
	Subtest 3	1312	1712.4	0.5	23.9	24.0	23.5	22.8
		1413	1732.6	0.5	24.0			
		1513	1752.6	0.5	23.9			
	Subtest 4	1312	1712.4	0.5	23.9	24.0	23.5	22.8
		1413	1732.6	0.5	23.9			
		1513	1752.6	0.5	23.9			

HSDPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band V	Subtest 1	4132	826.4	0	24.4	24.5	24.0	23.3
		4183	836.6	0	24.4			
		4233	846.6	0	24.5			
	Subtest 2	4132	826.4	0	24.5	24.5	24.0	23.3
		4183	836.6	0	24.4			
		4233	846.6	0	24.4			
	Subtest 3	4132	826.4	0.5	24.0	24.0	23.5	22.8
		4183	836.6	0.5	24.0			
		4233	846.6	0.5	23.9			
	Subtest 4	4132	826.4	0.5	24.0	24.0	23.5	22.8
		4183	836.6	0.5	24.0			
		4233	846.6	0.5	23.9			

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8.3.2. UMTS HSUPA

TEST PROCEDURE

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

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

Note1: βed cannot be set directly, it is set by Absolute Grant Value.

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8.3.3. UMTS HSUPA OUTPUT POWER RESULT

HSUPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.4	24.5	24.0	23.3
		9400	1880.0	0	23.3			
		9538	1907.6	0	23.3			
	Subtest 2	9262	1852.4	2	22.1	22.5	22.0	21.3
		9400	1880.0	2	22.0			
		9538	1907.6	2	22.3			
	Subtest 3	9262	1852.4	1	22.8	23.5	23.0	22.3
		9400	1880.0	1	22.7			
		9538	1907.6	1	22.6			
	Subtest 4	9262	1852.4	2	22.3	22.5	22.0	21.3
		9400	1880.0	2	22.3			
		9538	1907.6	2	22.3			
	Subtest 5	9262	1852.4	0	23.4	24.5	24.0	23.3
		9400	1880.0	0	23.5			
		9538	1907.6	0	23.3			

HSUPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band IV	Subtest 1	1312	1712.4	0	23.5	24.5	24.0	23.3
		1413	1732.6	0	23.9			
		1513	1752.6	0	23.5			
	Subtest 2	1312	1712.4	2	22.3	22.5	22.0	21.3
		1413	1732.6	2	22.5			
		1513	1752.6	2	22.3			
	Subtest 3	1312	1712.4	1	23.1	23.5	23.0	22.3
		1413	1732.6	1	22.9			
		1513	1752.6	1	23.0			
	Subtest 4	1312	1712.4	2	22.4	22.5	22.0	21.3
		1413	1732.6	2	22.5			
		1513	1752.6	2	22.4			
	Subtest 5	1312	1712.4	0	23.9	24.5	24.0	23.3
		1413	1732.6	0	24.0			
		1513	1752.6	0	24.0			

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HSUPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band V	Subtest 1	4132	826.4	0	23.5	24.5	24.0	23.3
		4183	836.6	0	23.3			
		4233	846.6	0	23.4			
	Subtest 2	4132	826.4	2	22.5	22.5	22.0	21.3
		4183	836.6	2	22.5			
		4233	846.6	2	22.5			
	Subtest 3	4132	826.4	1	23.3	23.5	23.0	22.3
		4183	836.6	1	23.2			
		4233	846.6	1	23.4			
	Subtest 4	4132	826.4	2	22.5	22.5	22.0	21.3
		4183	836.6	2	22.5			
		4233	846.6	2	22.5			
	Subtest 5	4132	826.4	0	24.5	24.5	24.0	23.3
		4183	836.6	0	24.4			
		4233	846.6	0	24.4			

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8.3.4. DC-HSDPA

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

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

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

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

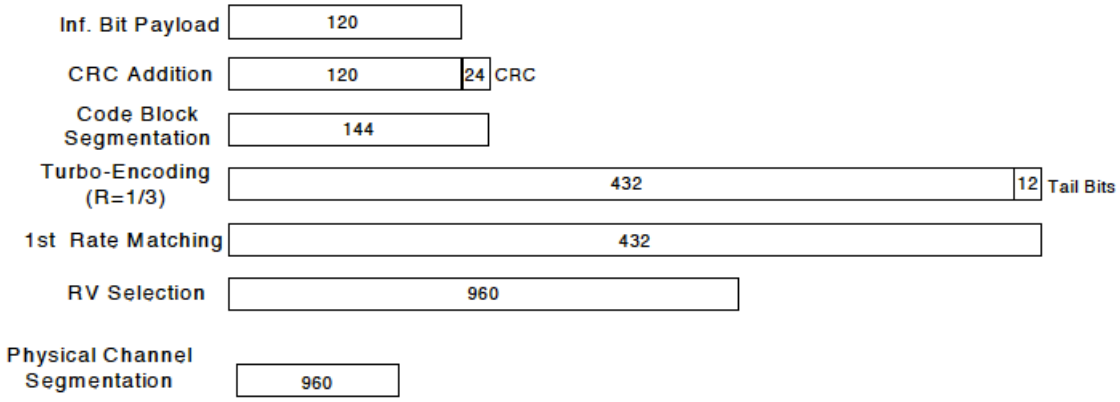

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

	Mode	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15

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

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

8.3.1. UMTS DC-HSDPA OUTPUT POWER RESULT

DC-HSDPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.4	24.5	24.0	23.3
		9400	1880.0	0	23.5			
		9538	1907.6	0	23.3			
	Subtest 2	9262	1852.4	0	23.4	24.5	24.0	23.3
		9400	1880.0	0	23.5			
		9538	1907.6	0	23.3			
	Subtest 3	9262	1852.4	0.5	23.5	24.0	23.5	22.8
		9400	1880.0	0.5	23.5			
		9538	1907.6	0.5	23.3			
	Subtest 4	9262	1852.4	0.5	23.4	24.0	23.5	22.8
		9400	1880.0	0.5	23.5			
		9538	1907.6	0.5	23.3			

DC-HSDPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band IV	Subtest 1	1312	1712.4	0	23.8	24.5	24.0	23.3
		1413	1732.6	0	24.0			
		1513	1752.6	0	24.0			
	Subtest 2	1312	1712.4	0	23.9	24.5	24.0	23.3
		1413	1732.6	0	24.0			
		1513	1752.6	0	23.9			
	Subtest 3	1312	1712.4	0.5	23.9	24.0	23.5	22.8
		1413	1732.6	0.5	24.0			
		1513	1752.6	0.5	23.9			
	Subtest 4	1312	1712.4	0.5	23.9	24.0	23.5	22.8
		1413	1732.6	0.5	23.9			
		1513	1752.6	0.5	23.9			

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DC-HSDPA

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)	Output Power Tolerance (dBm)		
						Maximum	Target	Minimum
W-CDMA Band V	Subtest 1	4132	826.4	0	24.5	24.5	24.0	23.3
		4183	836.6	0	24.4			
		4233	846.6	0	24.3			
	Subtest 2	4132	826.4	0	24.5	24.5	24.0	23.3
		4183	836.6	0	24.4			
		4233	846.6	0	24.4			
	Subtest 3	4132	826.4	0.5	24.0	24.0	23.5	22.8
		4183	836.6	0.5	24.0			
		4233	846.6	0.5	23.9			
	Subtest 4	4132	826.4	0.5	24.0	24.0	23.5	22.8
		4183	836.6	0.5	24.0			
		4233	846.6	0.5	23.9			

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8.4. LTE OUTPUT VERIFICATION

8.4.1. LTE OUTPUT RESULT

Full Power

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	23.8	23.7	**23.9**
			1	49	0	**23.9**	23.8	23.8
			1	99	0	23.8	**23.8**	23.4
			50	0	1	**22.8**	22.8	22.7
			50	24	1	22.7	**22.8**	**22.9**
			50	50	1	22.7	22.8	22.8
			100	0	1	22.7	22.8	**22.8**
		16QAM	1	0	1	22.9	22.8	23.0
			1	49	1	23.0	22.8	22.8
			1	99	1	22.9	22.8	22.9
			50	0	2	21.9	21.8	21.7
			50	24	2	21.8	21.7	21.8
			50	50	2	21.8	21.8	21.7
			100	0	2	21.7	21.8	21.8

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	23.7	23.8	23.8
			1	37	0	23.7	23.8	23.7
			1	74	0	23.7	23.7	23.5
			36	0	1	22.8	22.8	22.8
			36	20	1	22.8	22.8	22.8
			36	39	1	22.7	22.8	22.8
			75	0	1	22.8	22.8	22.9
		16QAM	1	0	1	22.6	22.9	23.0
			1	37	1	22.6	22.9	23.0
			1	74	1	22.6	23.0	23.0
			36	0	2	21.8	21.8	21.7
			36	20	2	21.8	21.8	21.7
			36	39	2	21.7	21.8	21.8
			75	0	2	21.9	21.8	21.8

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18650	18900	19150
						1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	23.7	23.8	23.6
			1	25	0	23.7	23.7	23.7
			1	49	0	23.7	23.8	23.5
			25	0	1	22.7	22.8	22.8
			25	12	1	22.8	22.8	22.8
			25	25	1	22.8	22.8	22.8
			50	0	1	22.8	22.8	22.8
		16QAM	1	0	1	22.6	22.9	22.5
			1	25	1	22.6	22.9	22.6
			1	49	1	22.6	22.9	22.6
			25	0	2	21.8	21.8	21.8
			25	12	2	21.8	21.7	21.9
			25	25	2	21.8	21.7	21.8
			50	0	2	21.8	21.7	21.8

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18625	18900	19175
						1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	23.7	23.9	23.8
			1	12	0	23.7	23.9	23.8
			1	24	0	23.7	23.9	23.5
			12	0	1	22.8	22.8	22.7
			12	7	1	22.8	22.8	22.7
			12	13	1	22.8	22.8	22.8
			25	0	1	22.8	22.8	22.7
		16QAM	1	0	1	22.5	22.7	23.0
			1	12	1	22.5	22.7	23.0
			1	24	1	22.6	22.7	23.0
			12	0	2	21.8	21.7	21.7
			12	7	2	21.8	21.7	21.7
			12	13	2	21.8	21.8	21.8
			25	0	2	21.9	21.7	21.7

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18615	18900	19185
						1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	23.7	23.8	23.7
			1	8	0	23.7	23.8	23.7
			1	14	0	23.7	23.8	23.4
			8	0	1	22.8	22.8	22.9
			8	4	1	22.8	22.8	22.8
			8	7	1	22.7	22.8	22.8
			15	0	1	22.8	22.8	22.8
		16QAM	1	0	1	22.6	22.9	22.6
			1	8	1	22.5	22.9	22.5
			1	14	1	22.6	22.9	22.5
			8	0	2	21.8	21.6	21.8
			8	4	2	21.8	21.6	21.8
			8	7	2	21.8	21.6	21.8
			15	0	2	21.8	21.8	21.7

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18607	18900	19193
						1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	23.8	23.8	23.6
			1	3	0	23.7	23.8	23.6
			1	5	0	23.8	23.8	23.4
			3	0	0	23.9	23.8	23.5
			3	1	0	23.8	23.8	23.6
			3	3	0	23.8	23.8	23.5
			6	0	1	22.8	22.8	22.6
		16QAM	1	0	1	22.9	23.0	22.7
			1	3	1	22.8	22.9	22.6
			1	5	1	22.9	23.0	22.5
			3	0	1	22.7	22.7	22.8
			3	1	1	22.7	22.7	22.8
			3	3	1	22.7	22.7	22.8
			6	0	2	21.8	21.6	21.9

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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	23.50	23.48	23.52
			1	49	0	23.50	**23.56**	23.59
			1	99	0	**23.57**	23.55	**23.62**
			50	0	1	22.55	**22.57**	22.55
			50	24	1	**22.57**	22.55	22.57
			50	50	1	22.56	22.56	**22.63**
			100	0	1	22.50	22.56	**22.63**
		16QAM	1	0	1	22.59	22.54	22.62
			1	49	1	22.60	22.57	22.67
			1	99	1	22.65	22.58	22.69
			50	0	2	21.46	21.50	21.48
			50	24	2	21.48	21.50	21.50
			50	50	2	21.57	21.48	21.55
			100	0	2	21.48	21.56	21.54

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	23.41	23.48	23.51
			1	37	0	23.40	23.53	23.57
			1	74	0	23.50	23.46	23.54
			36	0	1	22.50	22.60	22.63
			36	20	1	22.49	22.59	22.61
			36	39	1	22.58	22.61	22.66
			75	0	1	22.58	22.65	22.71
		16QAM	1	0	1	22.32	22.71	22.90
			1	37	1	22.32	22.71	22.97
			1	74	1	22.40	22.69	23.00
			36	0	2	21.44	21.59	21.46
			36	20	2	21.43	21.56	21.53
			36	39	2	21.41	21.60	21.56
			75	0	2	21.52	21.62	21.63

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20000	20175	20350
						1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	23.42	23.55	23.45
			1	25	0	23.39	23.58	23.50
			1	49	0	23.46	23.49	23.45
			25	0	1	22.49	22.52	22.57
			25	12	1	22.53	22.59	22.64
			25	25	1	22.51	22.57	22.56
			50	0	1	22.52	22.60	22.69
		16QAM	1	0	1	22.32	22.69	22.37
			1	25	1	22.31	22.72	22.40
			1	49	1	22.31	22.64	22.35
			25	0	2	21.43	21.52	21.64
			25	12	2	21.47	21.53	21.67
			25	25	2	21.46	21.58	21.58
			50	0	2	21.43	21.55	21.58
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	23.40	23.65	23.66
			1	12	0	23.38	23.65	23.55
			1	24	0	23.42	23.69	23.61
			12	0	1	22.51	22.59	22.55
			12	7	1	22.46	22.58	22.57
			12	13	1	22.53	22.56	22.55
			25	0	1	22.55	22.56	22.55
		16QAM	1	0	1	22.27	22.55	22.97
			1	12	1	22.26	22.55	22.88
			1	24	1	22.32	22.54	22.92
			12	0	2	21.47	21.56	21.51
			12	7	2	21.50	21.55	21.52
			12	13	2	21.50	21.57	21.57
			25	0	2	21.58	21.51	21.48

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19965	20175	20385
						1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	23.45	23.59	23.49
			1	8	0	23.38	23.55	23.43
			1	14	0	23.44	23.60	23.50
			8	0	1	22.50	22.60	22.59
			8	4	1	22.53	22.58	22.56
			8	7	1	22.53	22.58	22.54
			15	0	1	22.55	22.60	22.62
		16QAM	1	0	1	22.31	22.71	22.39
			1	8	1	22.25	22.72	22.32
			1	14	1	22.35	22.76	22.37
			8	0	2	21.49	21.35	21.63
			8	4	2	21.46	21.36	21.60
			8	7	2	21.48	21.34	21.60
			15	0	2	21.50	21.62	21.50

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	23.52	23.62	23.55
			1	3	0	23.42	23.52	23.53
			1	5	0	23.46	23.60	23.60
			3	0	0	23.55	23.54	23.63
			3	1	0	23.49	23.59	23.56
			3	3	0	23.51	23.59	23.59
			6	0	1	22.55	22.63	22.62
		16QAM	1	0	1	22.63	22.78	22.66
			1	3	1	22.55	22.75	22.62
			1	5	1	22.60	22.76	22.68
			3	0	1	22.47	22.56	22.54
			3	1	1	22.46	22.54	22.52
			3	3	1	22.45	22.54	22.53
			6	0	2	21.56	21.42	21.64

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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	23.36	**23.50**	**23.53**
			1	25	0	23.40	23.48	23.37
			1	49	0	**23.44**	23.47	23.47
			25	0	1	22.54	22.53	**22.58**
			25	12	1	22.49	22.54	22.57
			25	25	1	**22.56**	**22.60**	22.56
			50	0	1	22.52	22.51	**22.57**
		16QAM	1	0	1	22.31	22.66	22.42
			1	25	1	22.35	22.66	22.25
			1	49	1	22.34	22.66	22.35
			25	0	2	21.55	21.58	21.75
			25	12	2	21.62	21.54	21.75
			25	25	2	21.59	21.68	21.75
			50	0	2	21.62	21.55	21.68

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	23.36	23.63	23.67
			1	12	0	23.40	23.54	23.65
			1	24	0	23.43	23.61	23.67
			12	0	1	22.42	22.54	22.59
			12	7	1	22.50	22.49	22.53
			12	13	1	22.50	22.50	22.53
			25	0	1	22.53	22.47	22.53
		16QAM	1	0	1	22.23	22.54	22.96
			1	12	1	22.29	22.48	22.91
			1	24	1	22.36	22.52	22.93
			12	0	2	21.51	21.59	21.64
			12	7	2	21.59	21.58	21.65
			12	13	2	21.64	21.58	21.68
			25	0	2	21.71	21.51	21.60

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	23.40	23.53	23.54
			1	8	0	23.31	23.49	23.47
			1	14	0	23.48	23.51	23.50
			8	0	1	22.45	22.54	22.56
			8	4	1	22.44	22.47	22.55
			8	7	1	22.47	22.48	22.58
			15	0	1	22.47	22.56	22.60
		16QAM	1	0	1	22.28	22.67	22.44
			1	8	1	22.26	22.64	22.35
			1	14	1	22.38	22.67	22.35
			8	0	2	21.51	21.38	21.75
			8	4	2	21.48	21.37	21.70
			8	7	2	21.50	21.34	21.72
			15	0	2	21.49	21.61	21.57

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	23.42	23.53	23.55
			1	3	0	23.34	23.48	23.48
			1	5	0	23.46	23.55	23.58
			3	0	0	23.47	23.52	23.57
			3	1	0	23.45	23.48	23.58
			3	3	0	23.40	23.50	23.55
			6	0	1	22.52	22.53	22.62
		16QAM	1	0	1	22.56	22.74	22.68
			1	3	1	22.51	22.69	22.60
			1	5	1	22.55	22.68	22.67
			3	0	1	22.41	22.48	22.52
			3	1	1	22.40	22.47	22.52
			3	3	1	22.38	22.46	22.50
			6	0	2	21.56	21.43	21.69

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20850	21100	21350
						2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	23.70	**23.66**	**23.66**
			1	49	0	**23.82**	23.63	23.60
			1	99	0	23.68	23.61	23.08
			50	0	1	**22.85**	**22.68**	22.58
			50	24	1	22.81	22.63	**22.62**
			50	50	1	22.79	22.65	22.55
			100	0	1	**22.83**	22.58	22.55
		16QAM	1	0	1	23.00	22.74	22.71
			1	49	1	22.90	22.69	22.67
			1	99	1	22.78	22.65	22.53
			50	0	2	21.89	21.74	21.59
			50	24	2	21.83	21.65	21.64
			50	50	2	21.85	21.71	21.50
			100	0	2	21.79	21.64	21.66

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20825	21100	21375
						2507.5 MHz	2535 MHz	2562.5 MHz
LTE Band 7	15	QPSK	1	0	0	23.82	23.64	23.54
			1	37	0	23.77	23.66	23.55
			1	74	0	23.64	23.61	23.29
			36	0	1	22.85	22.66	22.64
			36	20	1	22.90	22.70	22.56
			36	39	1	22.81	22.62	22.59
			75	0	1	22.89	22.64	22.55
		16QAM	1	0	1	22.74	23.00	22.37
			1	37	1	22.68	23.00	22.46
			1	74	1	22.52	22.98	22.25
			36	0	2	21.70	21.71	21.68
			36	20	2	21.81	21.74	21.57
			36	39	2	21.73	21.66	21.56
			75	0	2	21.79	21.65	21.64

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20800	21100	21400
						2505 MHz	2535 MHz	2565 MHz
LTE Band 7	10	QPSK	1	0	0	23.82	23.65	23.56
			1	25	0	23.68	23.63	23.49
			1	49	0	23.77	23.60	23.38
			25	0	1	22.80	22.69	22.69
			25	12	1	22.83	22.67	22.61
			25	25	1	22.89	22.65	22.62
			50	0	1	22.93	22.62	22.60
		16QAM	1	0	1	22.76	22.52	22.45
			1	25	1	22.59	22.50	22.41
			1	49	1	22.65	22.46	22.34
			25	0	2	21.74	21.84	21.67
			25	12	2	21.72	21.84	21.60
			25	25	2	21.85	21.82	21.61
			50	0	2	21.86	21.69	21.58

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20775	21100	21425
						2502.5 MHz	2535 MHz	2567.5 MHz
LTE Band 7	5	QPSK	1	0	0	23.82	23.77	23.61
			1	12	0	23.70	23.79	23.46
			1	24	0	23.71	23.77	23.39
			12	0	1	22.90	22.74	22.65
			12	7	1	22.83	22.69	22.55
			12	13	1	22.83	22.69	22.55
			25	0	1	22.80	22.71	22.58
		16QAM	1	0	1	22.63	22.68	22.97
			1	12	1	22.55	22.68	22.96
			1	24	1	22.57	22.67	22.99
			12	0	2	21.92	21.83	21.65
			12	7	2	21.78	21.82	21.66
			12	13	2	21.79	21.78	21.66
			25	0	2	21.84	21.74	21.60

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23230
						782 MHz
LTE Band 13	10	QPSK	1	0	0	23.39
			1	25	0	23.40
			1	49	0	**23.44**
			25	0	1	22.50
			25	12	1	22.48
			25	25	1	**22.53**
			50	0	1	**22.51**
		16QAM	1	0	1	22.30
			1	25	1	22.29
			1	49	1	22.34
			25	0	2	21.54
			25	12	2	21.51
			25	25	2	21.50
			50	0	2	21.53

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23230
						782 MHz
LTE Band 13	5	QPSK	1	0	0	23.38
			1	12	0	23.45
			1	24	0	23.47
			12	0	1	22.51
			12	7	1	22.48
			12	13	1	22.48
			25	0	1	22.54
		16QAM	1	0	1	22.22
			1	12	1	22.28
			1	24	1	22.33
			12	0	2	21.60
			12	7	2	21.58
			12	13	2	21.60
			25	0	2	21.64

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	10	QPSK	1	0	0	**23.45**
			1	25	0	23.30
			1	49	0	23.32
			25	0	1	22.39
			25	12	1	**22.47**
			25	25	1	22.47
			50	0	1	**22.42**
		16QAM	1	0	1	22.39
			1	25	1	22.21
			1	49	1	22.21
			25	0	2	21.37
			25	12	2	21.47
			25	25	2	21.47
			50	0	2	21.36

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	5	QPSK	1	0	0	23.36
			1	12	0	23.31
			1	24	0	23.44
			12	0	1	22.41
			12	7	1	22.36
			12	13	1	22.48
			25	0	1	22.45
		16QAM	1	0	1	22.16
			1	12	1	22.16
			1	24	1	22.27
			12	0	2	21.40
			12	7	2	21.43
			12	13	2	21.52
			25	0	2	21.58

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9. PEAK TO AVERAGE RATIO

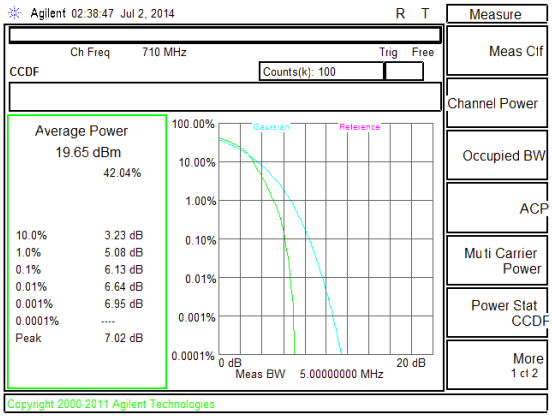
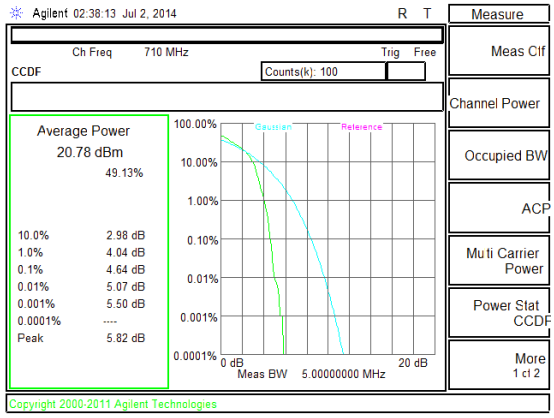
Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

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

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

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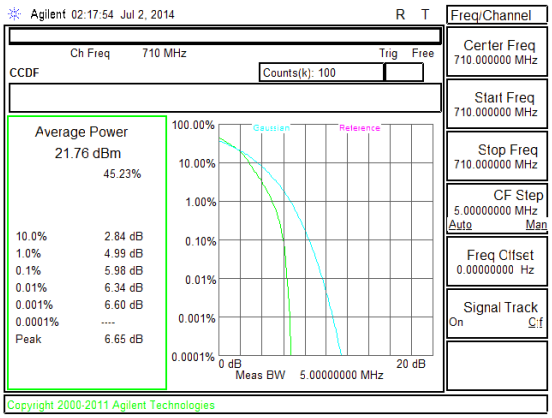
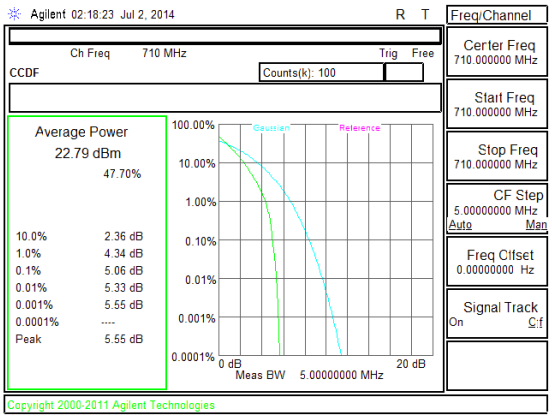
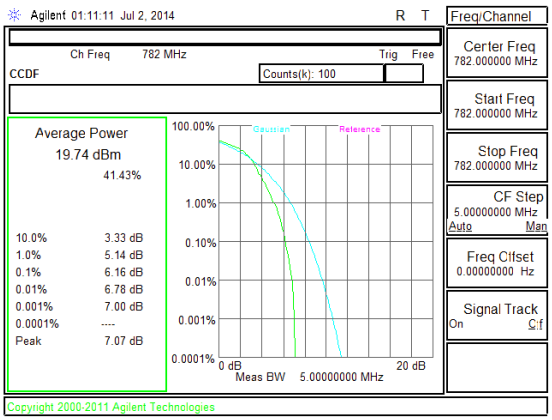
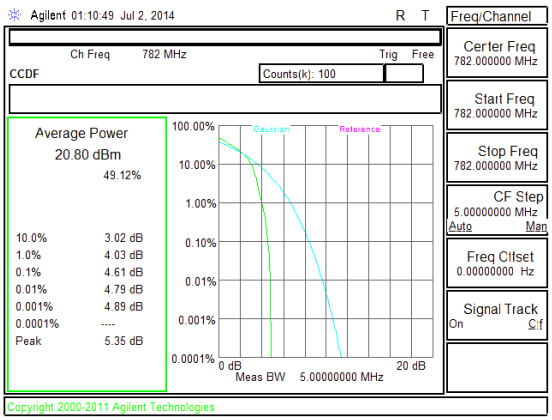
Band LTE17 5MHz 16QAM	 Band LTE17 5MHz 16QAM Mid channel	 Band LTE17 5MHz QPSK Mid channel

Band LTE13 10MHz 16QAM	 Band LTE13 10MHz 16QAM High channel	 Band LTE13 10MHz QPSK High channel

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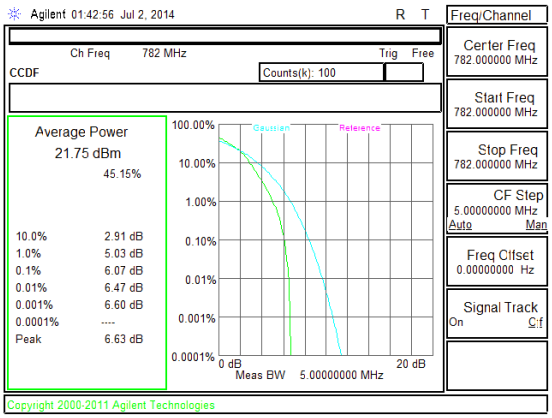
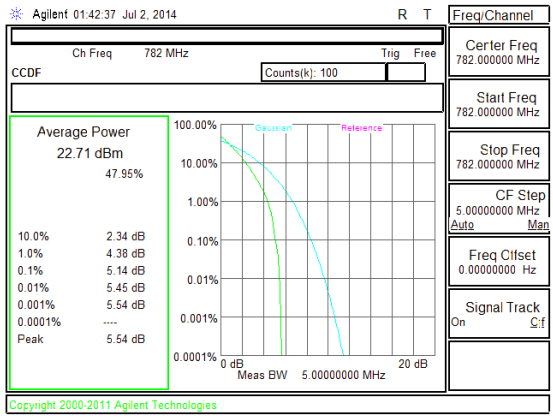
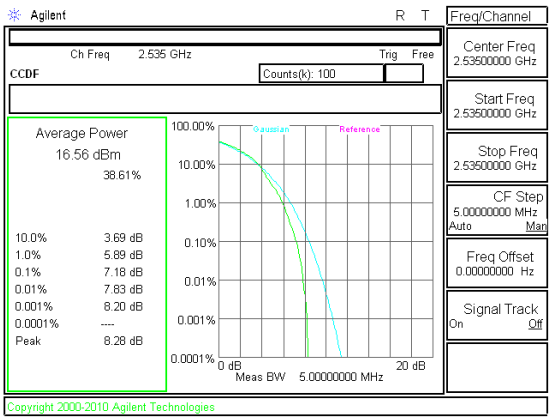
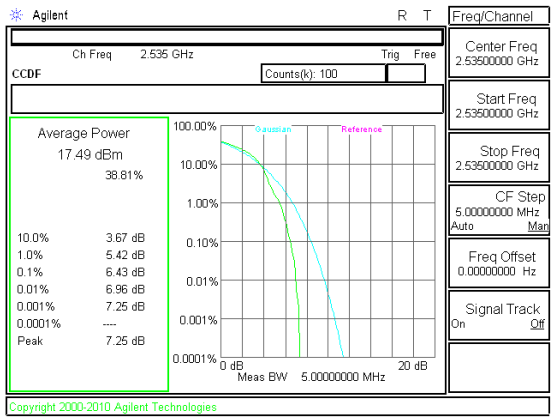
Band LTE13 5MHz 16QAM	 Band LTE13 5MHz 16QAM Mid channel	 Band LTE13 5MHz QPSK Mid channel

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

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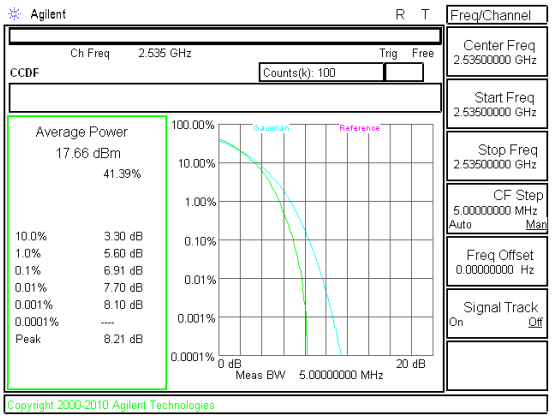
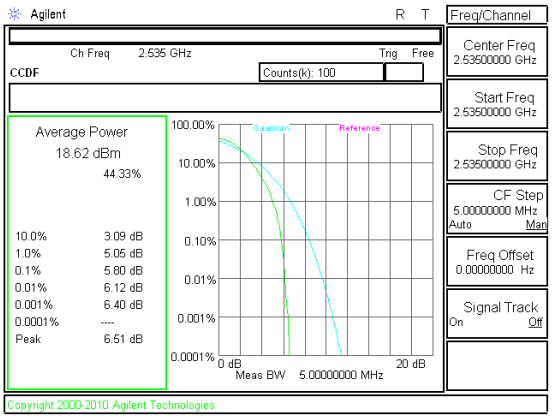
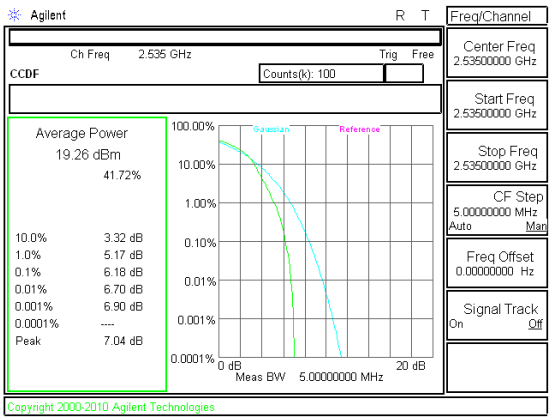
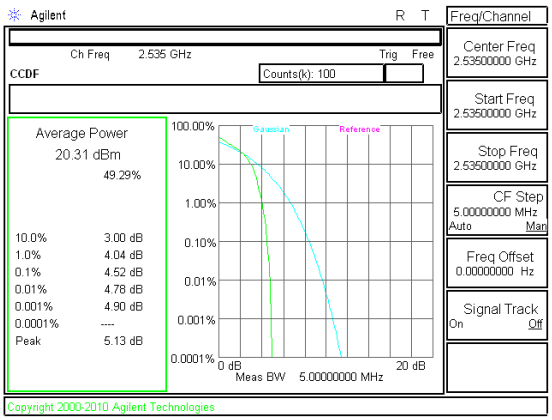
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz 16QAM Mid channel	 Band LTE7 15MHz QPSK Mid channel
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz 16QAM Mid channel	 Band LTE7 10MHz QPSK Mid channel

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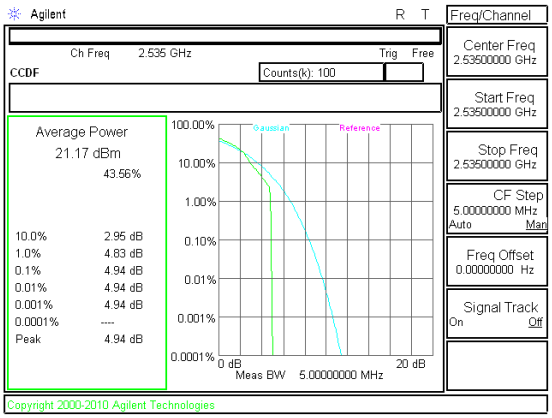
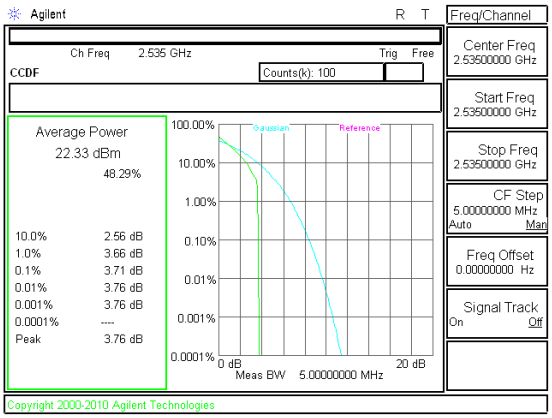
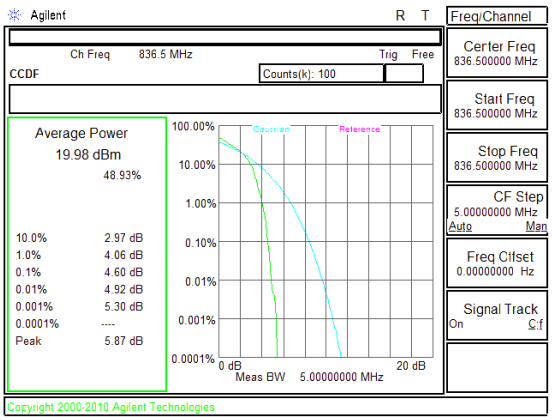
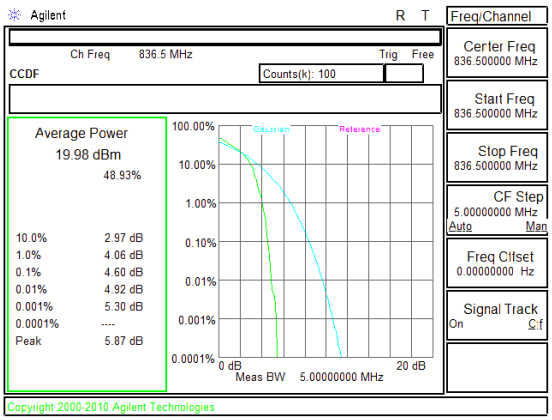
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz 16QAM Mid channel	 Band LTE7 5MHz QPSK Mid channel

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

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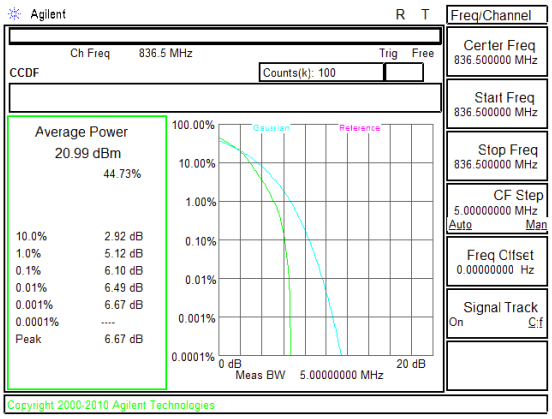
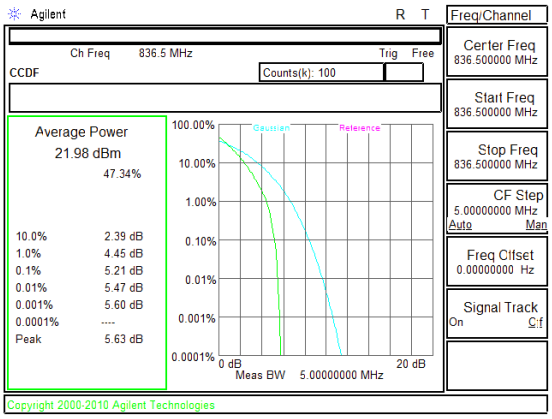
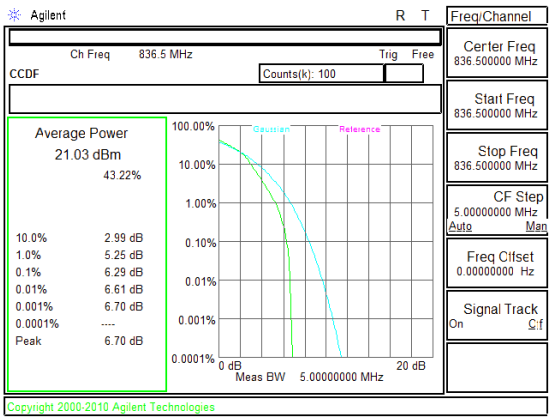
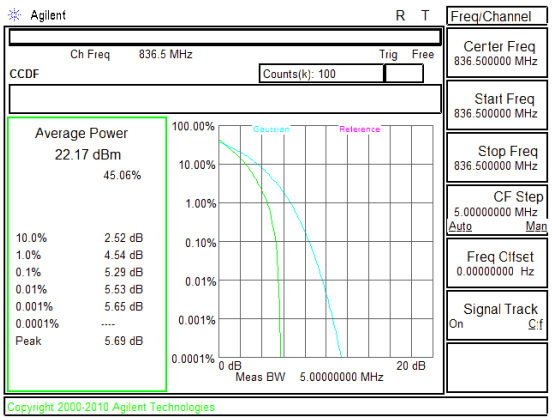
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz 16QAM Mid channel	 Band LTE5 5MHz QPSK Mid channel

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

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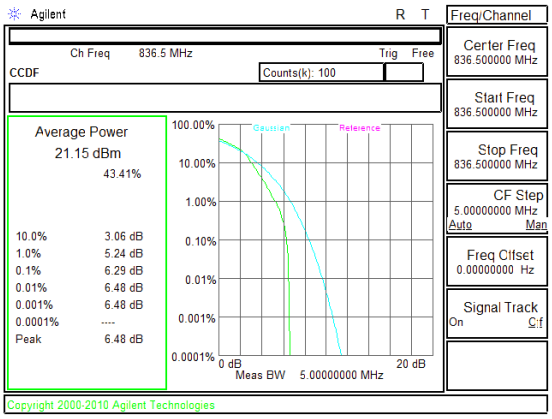
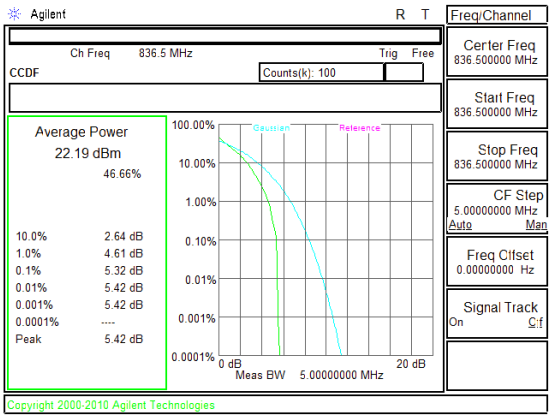
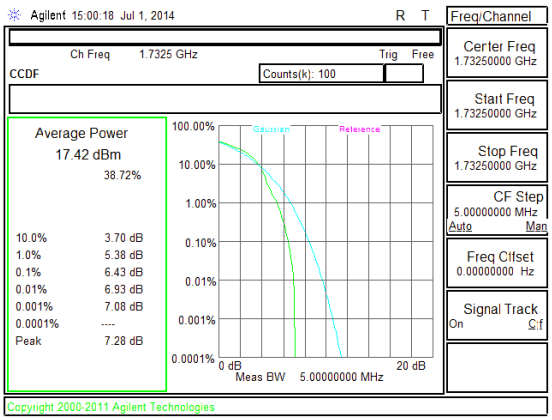
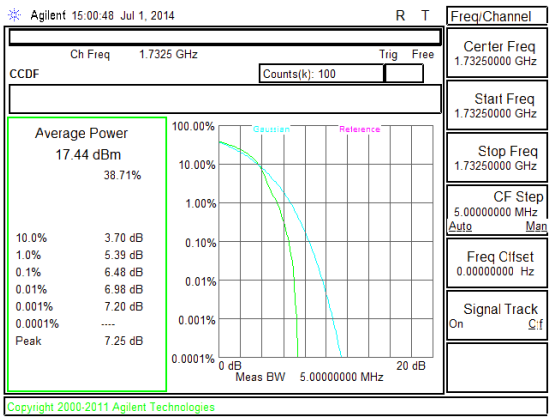
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz 16QAM Mid channel	 Band LTE5 1.4MHz QPSK Mid channel
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz 16QAM Mid channel	 Band LTE4 20MHz QPSK Mid channel

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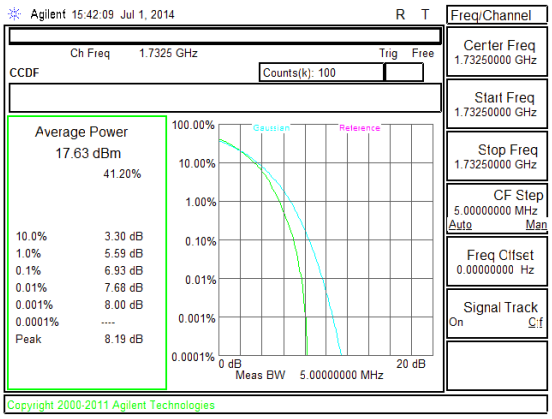
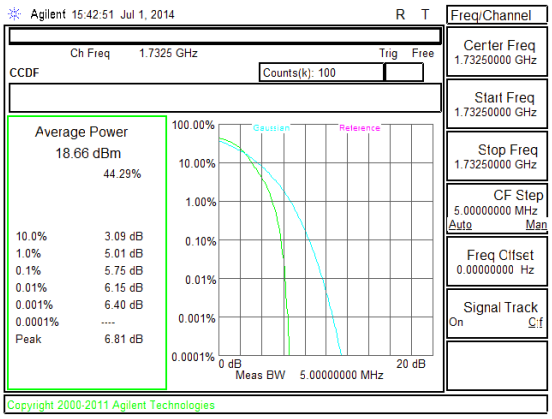
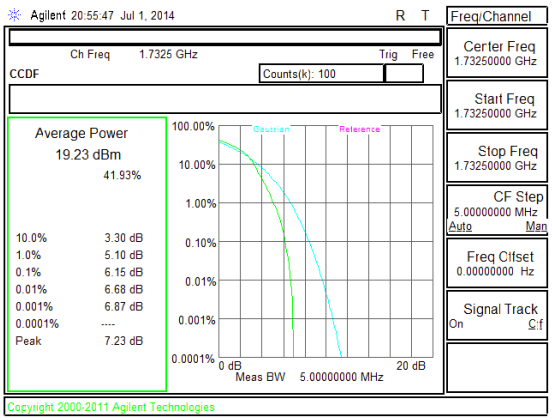
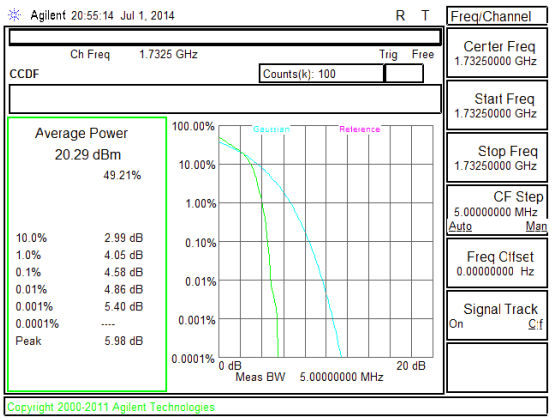
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz 16QAM Mid channel	 Band LTE4 15MHz QPSK Mid channel

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

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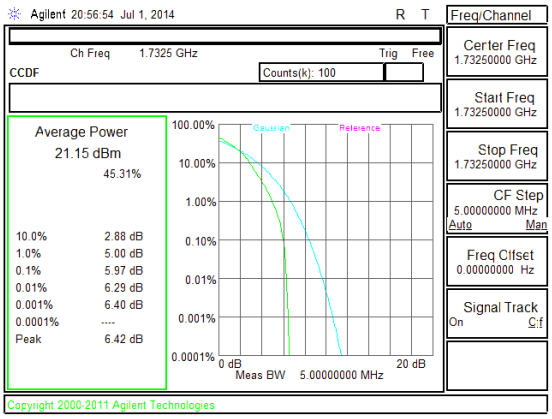
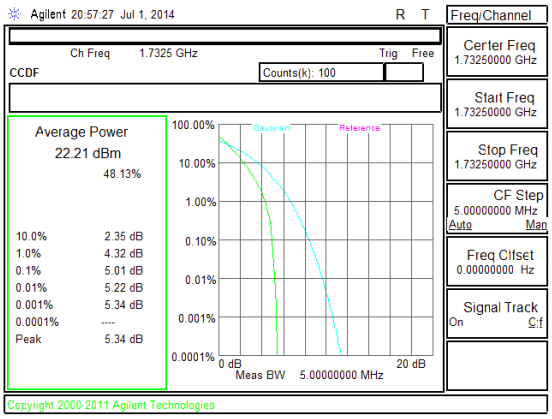
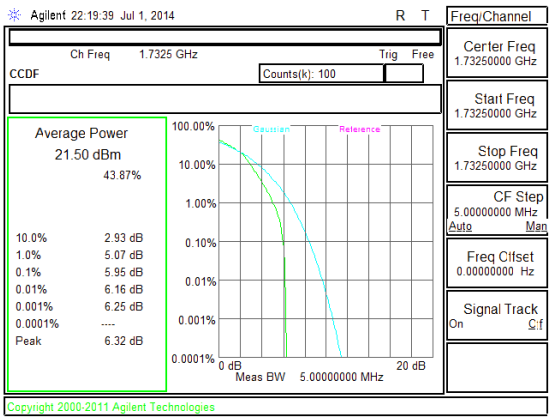
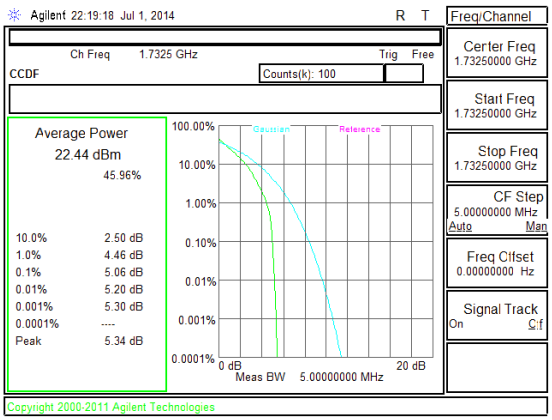
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz 16QAM Mid channel	 Band LTE4 5MHz QPSK Mid channel

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

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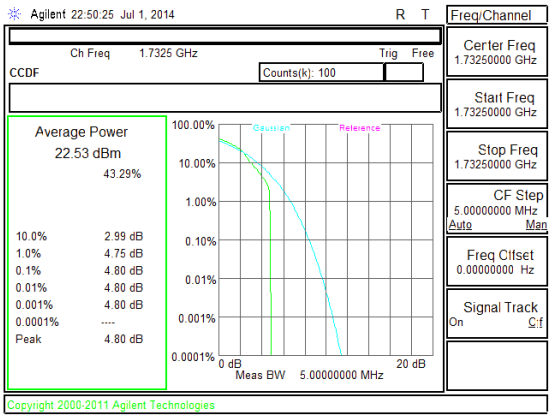
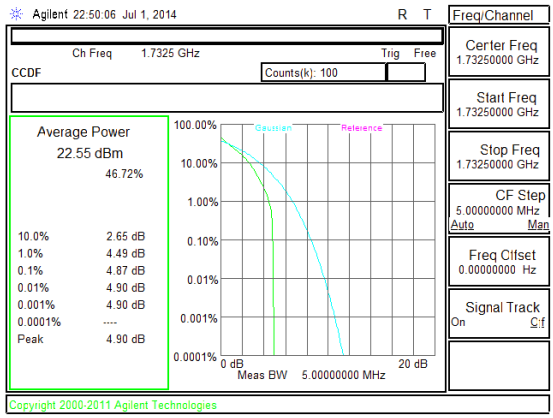
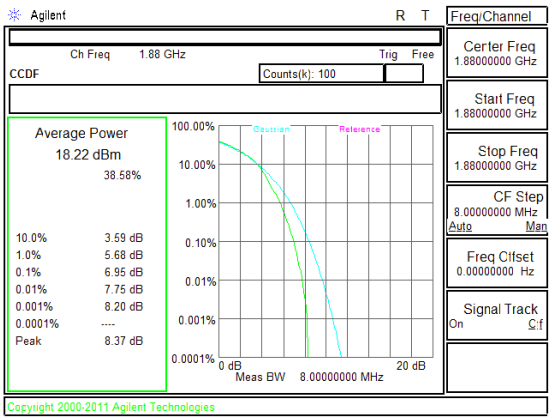
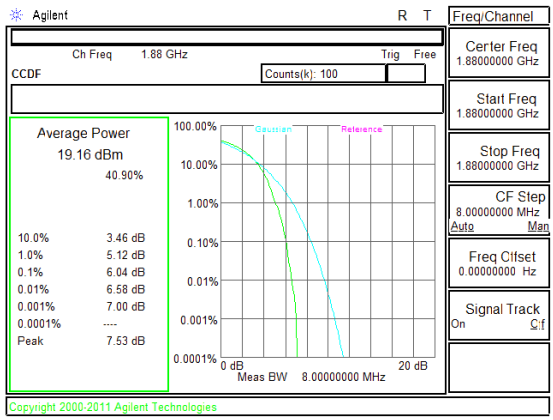
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz 16QAM Mid channel	 Band LTE4 1.4MHz QPSK Mid channel

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

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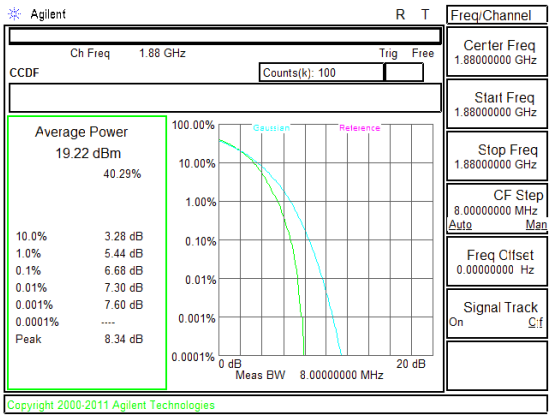
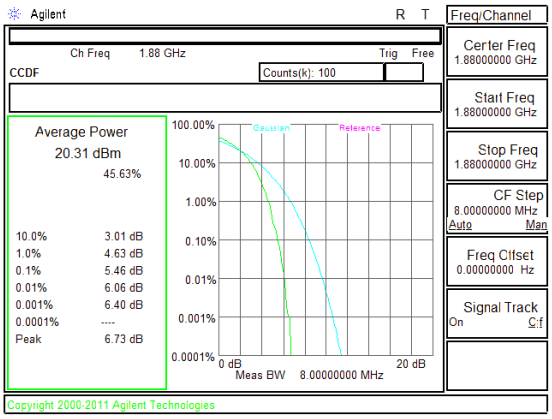
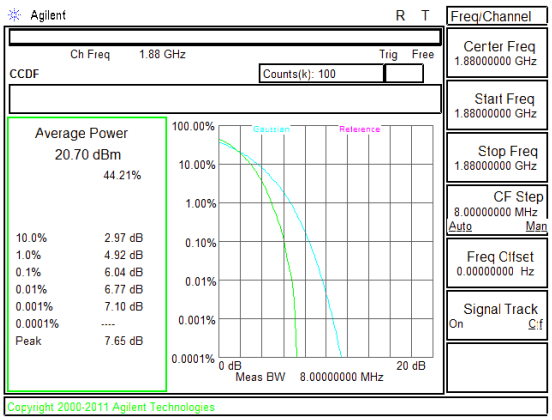
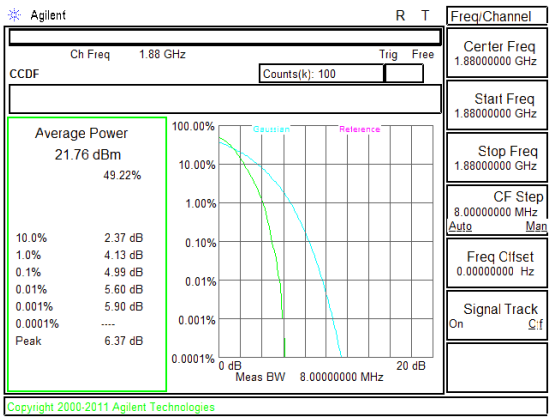
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz 16QAM Mid channel	 Band LTE2 15MHz QPSK Mid channel
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz 16QAM Mid channel	 Band LTE2 10MHz QPSK Mid channel

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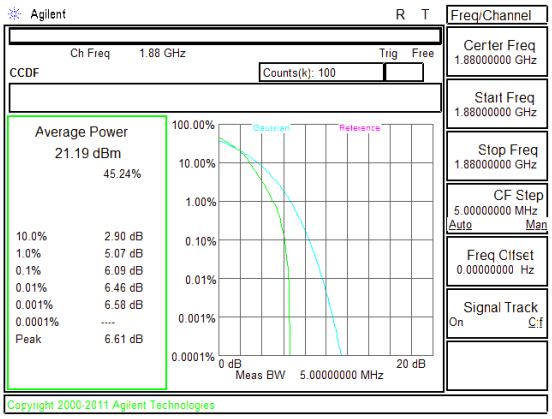
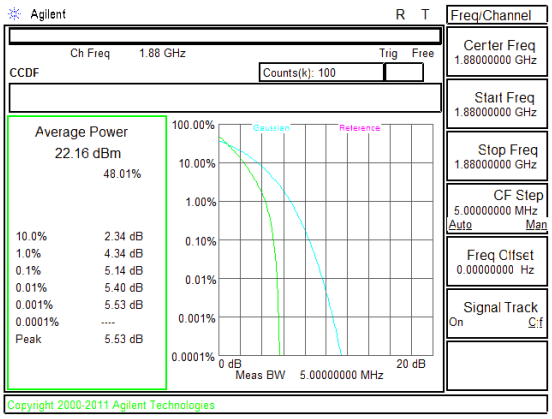
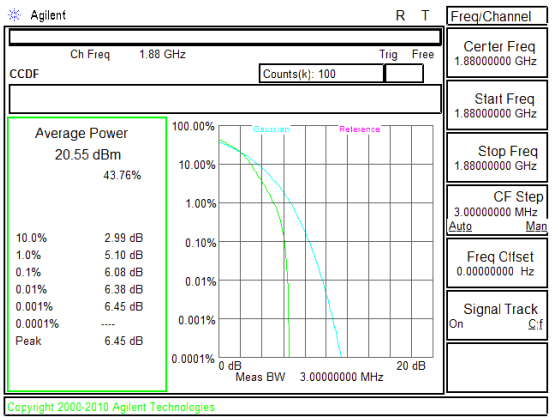
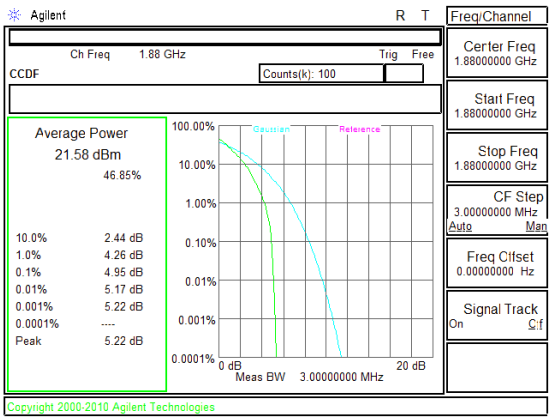
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz 16QAM Mid channel	 Band LTE2 5MHz QPSK Mid channel
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz 16QAM Mid channel	 Band LTE2 3MHz QPSK Mid channel

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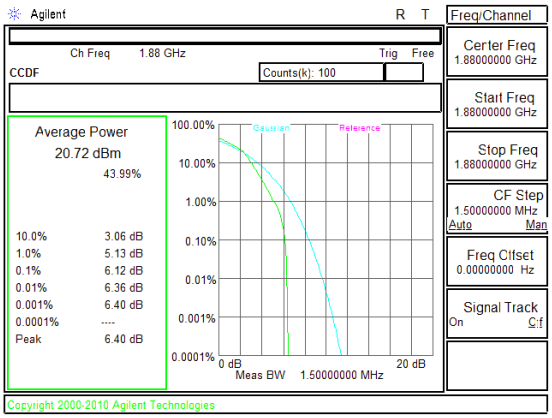
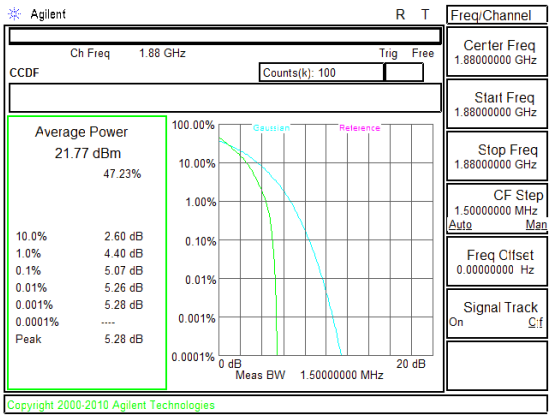
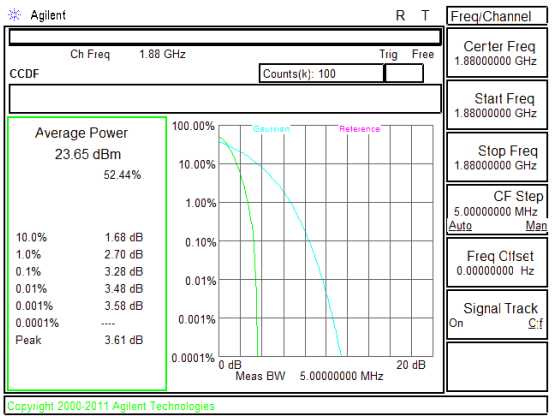
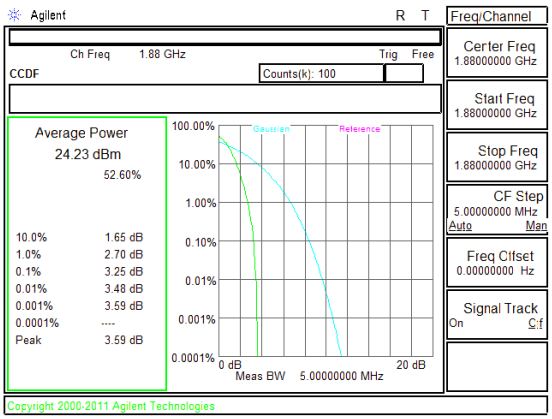
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz 16QAM Mid channel	 Band LTE2 1.4MHz QPSK Mid channel

WCDMA B2	 HSDPA	 Rel 99

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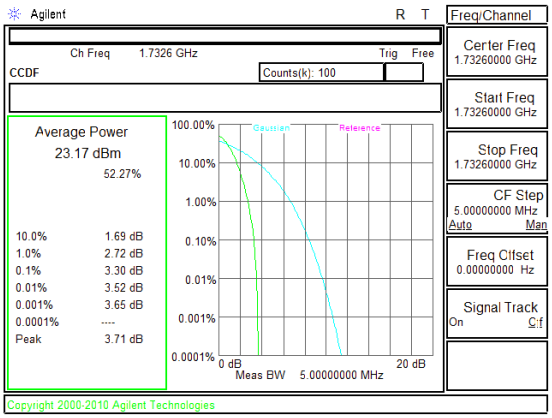
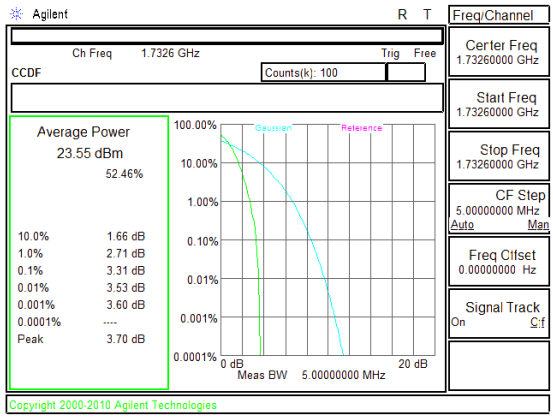
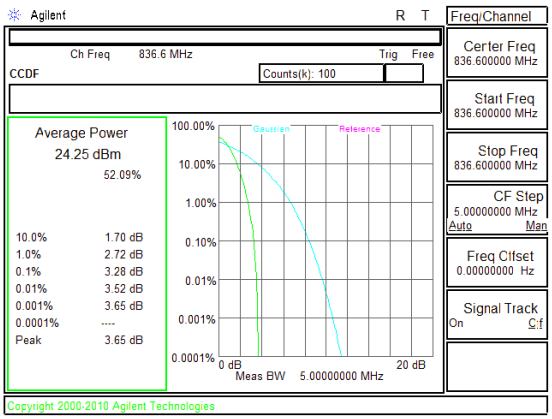
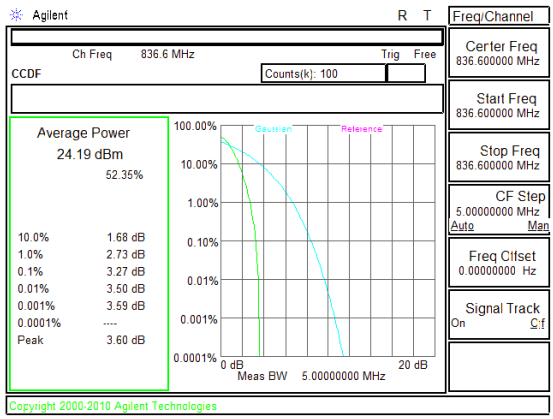
WCDMA B4	 HSDPA	 Rel 99
WCDMA B5	 HSDPA	 Rel 99

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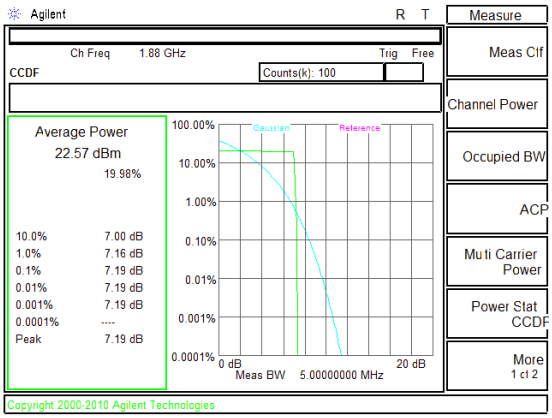
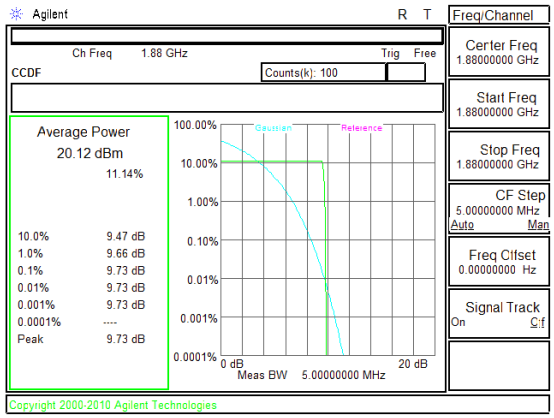
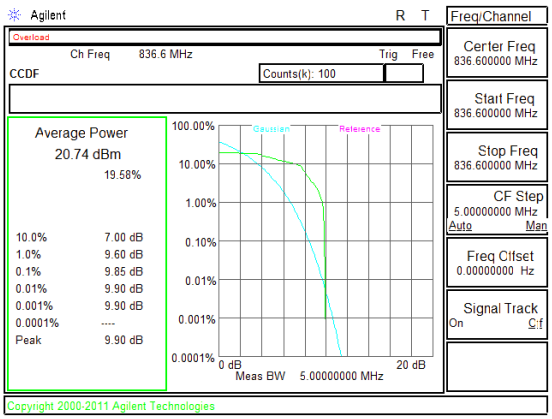
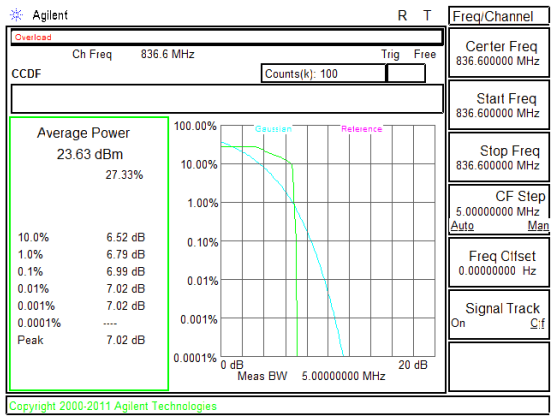
GSM 1900	 EGPRS	 GPRS
GSM 850	 EGPRS	 GPRS

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10. LIMITS AND CONDUCTED RESULTS

10.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049
IC: RSS-132, 4.5; RSS-133, 6.5

LIMITS

For reporting purposes only

TEST PROCEDURE

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

(KDB 971168 D01 Power Meas License Digital Systems v02r01 - 06/07/2013)

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10.1.1. OCCUPIED BANDWIDTH RESULTS

Band	Mode	Channel	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
GSM850	GPRS	128	824.2	244.20	328.59
		190	836.6	243.24	315.90
		251	848.8	243.28	327.52
	EGPRS	128	824.2	245.85	309.30
		190	836.6	242.53	314.28
		251	848.8	249.09	315.17
GSM1900	GPRS	512	1850.2	242.76	323.1
		661	1880	243.92	320.42
		810	1909.8	242.54	314.8
	EGPRS	512	1850.2	243.42	312.84
		661	1880	246.21	316.99
		810	1909.8	242.39	312.99

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Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
Band 5	REL99	4132	826.4	4.17	4.64
		4183	836.6	4.16	4.61
		4233	846.6	4.16	4.62
	HSDPA	4132	826.4	4.16	4.63
		4183	836.6	4.15	4.62
		4233	846.6	4.15	4.62
Band 4	REL99	1312	1712.4	4.17	4.62
		1413	1732.6	4.16	4.63
		1513	1752.6	4.16	4.63
	HSDPA	1312	1712.4	4.16	4.63
		1413	1732.6	4.17	4.63
		1513	1752.6	4.16	4.61
Band 2	REL99	9262	1852.4	4.15	4.61
		9400	1880	4.15	4.64
		9538	1907.6	4.16	4.63
	HSDPA	9262	1852.4	4.17	4.62
		9400	1880	4.16	4.63
		9538	1907.6	4.17	4.63

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10.1.2. LTE OCCUPIED BANDWIDTH RESULTS

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE17	10	QPSK	50/0	709	8.95	9.79
			50/0	710	8.95	9.74
			50/0	711	8.94	9.73
		16QAM	50/0	709	8.93	9.76
			50/0	710	8.96	9.68
			50/0	711	8.93	9.72

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE17	5	QPSK	25/0	706.5	4.47	4.89
			25/0	710	4.47	4.96
			25/0	713.5	4.45	4.89
		16QAM	25/0	706.5	4.48	4.96
			25/0	710	4.47	4.89
			25/0	713.5	4.47	4.9

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE13	10	QPSK	50/0	782	8.94	9.72
			50/0	782	8.94	9.72
			50/0	782	8.94	9.72
		16QAM	50/0	782	8.93	9.55
			50/0	782	8.93	9.55
			50/0	782	8.93	9.55

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE13	5	QPSK	25/0	779.5	4.47	4.89
			25/0	782	4.48	4.91
			25/0	784.5	4.47	4.93
		16QAM	25/0	779.5	4.48	4.94
			25/0	782	4.47	4.92
			25/0	784.5	4.48	4.93

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE7	20	QPSK	100/0	2510	17.81	18.52
			100/0	2535	17.82	18.73
			100/0	2560	17.83	19.05
		16QAM	100/0	2510	17.81	19.1
			100/0	2535	17.7	18.76
			100/0	2560	17.83	19.04

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE7	15	QPSK	75/0	2507.5	13.38	14.25
			75/0	2535	13.4	14.49
			75/0	2562.5	13.37	14.27
		16QAM	75/0	2507.5	13.37	14.46
			75/0	2535	13.39	14.45
			75/0	2562.5	13.4	14.26

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE7	10	QPSK	50/0	2505	8.96	9.65
			50/0	2535	8.95	9.61
			50/0	2565	8.93	9.66
		16QAM	50/0	2505	8.96	9.58
			50/0	2535	8.93	8.9
			50/0	2565	8.95	9.63

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE7	5	QPSK	25/0	2502.5	4.46	4.91
			25/0	2535	4.46	4.83
			25/0	2567.5	4.45	4.88
		16QAM	25/0	2502.5	4.46	4.86
			25/0	2535	4.47	4.84
			25/0	2567.5	4.48	4.94

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	10	QPSK	50/0	829	8.95	9.68
			50/0	836.5	8.95	9.97
			50/0	844	8.94	9.73
		16QAM	50/0	829	8.93	9.72
			50/0	836.5	8.93	9.74
			50/0	844	8.96	9.72

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	5	QPSK	25/0	826.5	4.47	4.94
			25/0	836.5	4.46	4.86
			25/0	846.5	4.47	4.91
		16QAM	25/0	826.5	4.47	4.89
			25/0	836.5	4.48	4.93
			25/0	846.5	4.47	4.94

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	3	QPSK	15/0	825.5	2.68	2.89
			15/0	836.5	2.68	2.92
			15/0	847.5	2.69	2.93
		16QAM	15/0	825.5	2.68	2.94
			15/0	836.5	2.68	2.94
			15/0	847.5	2.68	2.92

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	1.4	QPSK	6/0	824.7	1.08	1.25
			6/0	836.5	1.09	1.27
			6/0	848.3	1.08	1.27
		16QAM	6/0	824.7	1.08	1.25
			6/0	836.5	1.08	1.25
			6/0	848.3	1.08	1.27

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	20	QPSK	100/0	1720	17.79	19.09
			100/0	1732.5	17.82	19.22
			100/0	1745	17.81	19.09
		16QAM	100/0	1720	17.78	19.07
			100/0	1732.5	17.78	19.02
			100/0	1745	17.85	19.2

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	15	QPSK	75/0	1717.5	13.38	14.6
			75/0	1732.5	13.49	14.67
			75/0	1747.5	13.4	14.61
		16QAM	75/0	1717.5	13.4	14.57
			75/0	1732.5	13.43	14.52
			75/0	1747.5	13.42	14.52

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	10	QPSK	50/0	1715	8.95	9.63
			50/0	1732.5	8.93	9.56
			50/0	1750	8.93	9.55
		16QAM	50/0	1715	8.94	9.72
			50/0	1732.5	8.94	9.56
			50/0	1750	8.92	9.56

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	5	QPSK	25/0	1712.5	4.46	4.87
			25/0	1732.5	4.47	4.85
			25/0	1752.5	4.46	4.86
		16QAM	25/0	1712.5	4.47	4.85
			25/0	1732.5	4.46	4.85
			25/0	1752.5	4.47	4.94

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	3	QPSK	15/0	1711.5	2.68	2.91
			15/0	1732.5	2.69	2.94
			15/0	1753.5	2.69	2.93
		16QAM	15/0	1711.5	2.69	2.93
			15/0	1732.5	2.69	2.92
			15/0	1753.5	2.69	2.92

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	1.4	QPSK	6/0	1710.7	1.08	1.24
			6/0	1732.5	1.08	1.26
			6/0	1754.3	1.08	1.23
		16QAM	6/0	1710.7	1.08	1.23
			6/0	1732.5	1.08	1.23
			6/0	1754.3	1.08	1.23

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	20	QPSK	100/0	1860	17.79	19.07
			100/0	1880	17.84	19.01
			100/0	1900	17.83	19.25
		16QAM	100/0	1860	17.8	19.14
			100/0	1880	17.80	19.06
			100/0	1900	17.78	19.02

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	15	QPSK	75/0	1857.5	13.38	14.38
			75/0	1880	13.39	14.36
			75/0	1902.5	13.38	14.42
		16QAM	75/0	1857.5	13.4	14.43
			75/0	1880	13.39	14.45
			75/0	1902.5	13.37	14.39

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	10	QPSK	50/0	1855	8.96	9.76
			50/0	1880	8.95	9.58
			50/0	1905	9.96	9.77
		16QAM	50/0	1855	8.96	9.74
			50/0	1880	8.94	9.62
			50/0	1905	8.94	9.76

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	5	QPSK	25/0	1852.5	4.52	5.06
			25/0	1880	4.48	4.93
			25/0	1907.5	4.52	5.04
		16QAM	25/0	1852.5	4.55	5.06
			25/0	1880	4.47	4.91
			25/0	1907.5	4.52	5.04

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	3	QPSK	15/0	1851.5	2.69	2.96
			15/0	1880	2.69	2.93
			15/0	1908.5	2.69	2.94
		16QAM	15/0	1851.5	2.69	2.95
			15/0	1880	2.68	2.95
			15/0	1908.5	2.69	2.96

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	1.4	QPSK	6/0	1850.7	1.08	1.26
			6/0	1880	1.08	1.28
			6/0	1909.3	1.08	1.26
		16QAM	6/0	1850.7	1.09	1.27
			6/0	1880	1.08	1.29
			6/0	1909.3	1.08	1.26

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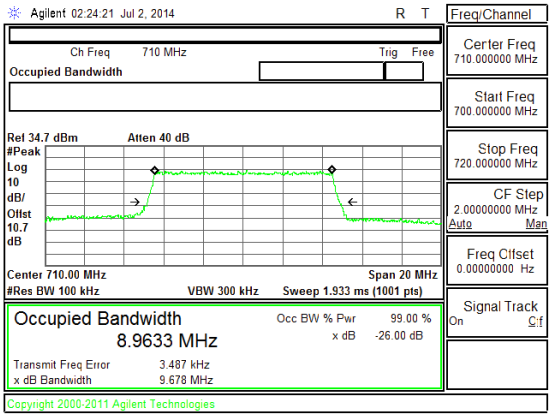
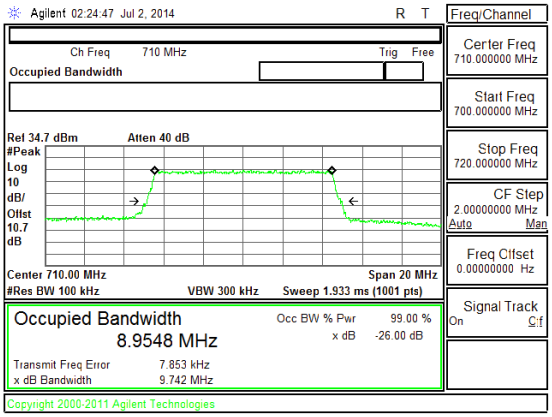
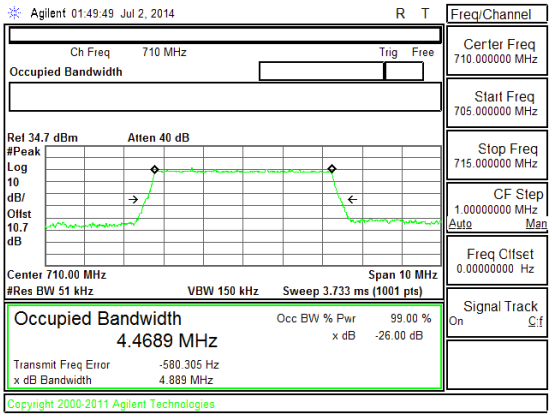
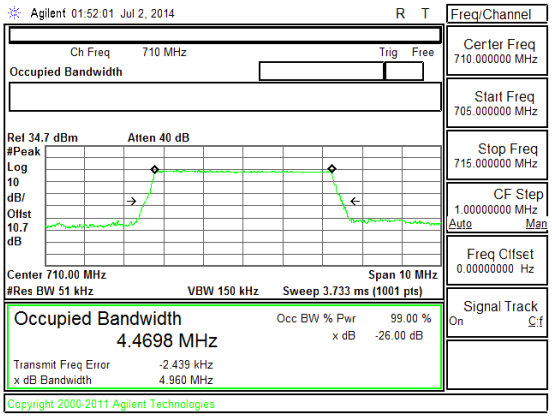
10.1.3. OCCUPIED BANDWIDTH PLOTS

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

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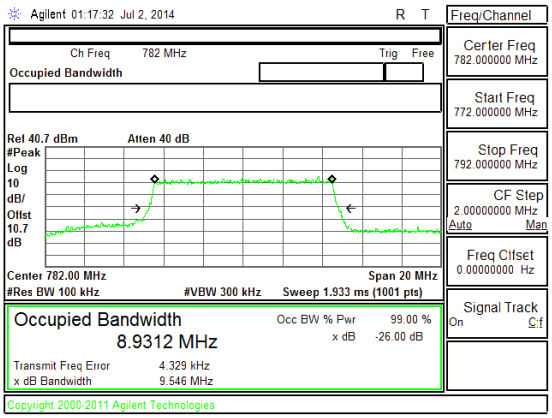
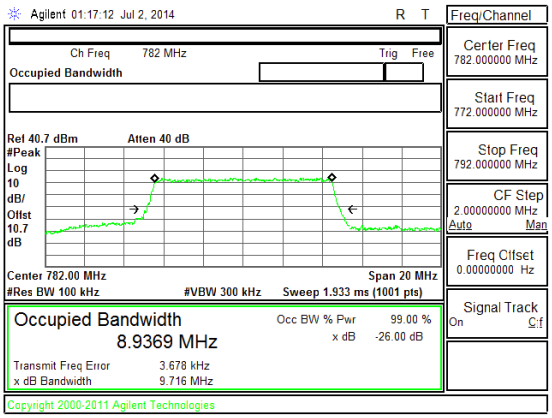
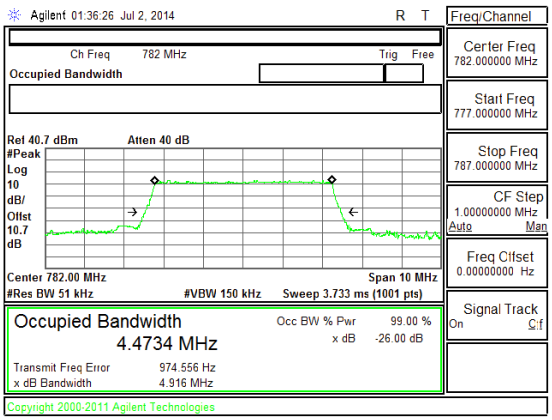
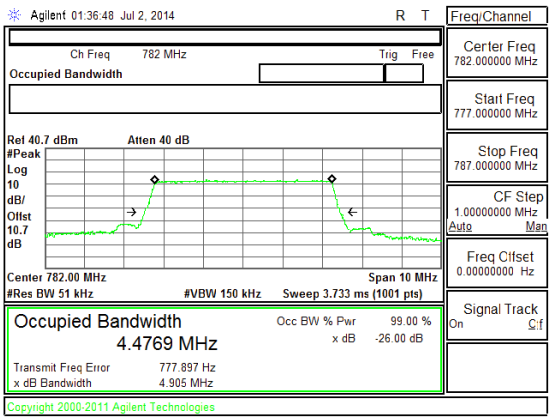
Band LTE13 10MHz 16QAM	 Band LTE13 10MHz OBW 16QAM High Channel FRB.gif	 Band LTE13 10MHz OBW QPSK High Channel FRB.gif
Band LTE13 5MHz 16QAM	 Band LTE13 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE13 5MHz OBW QPSK Mid Channel FRB.gif

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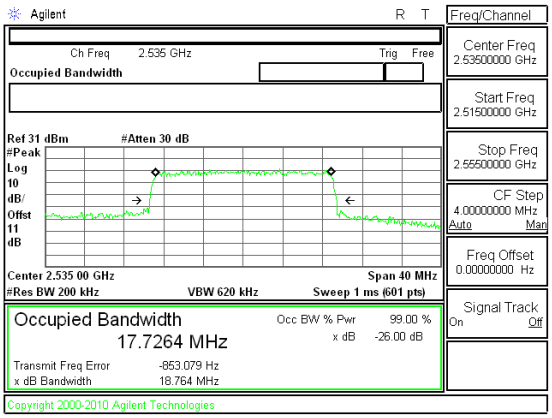
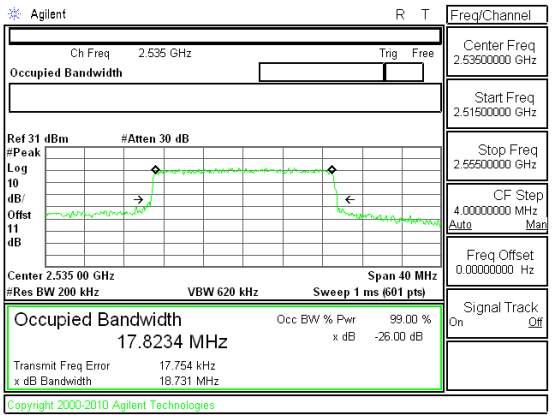
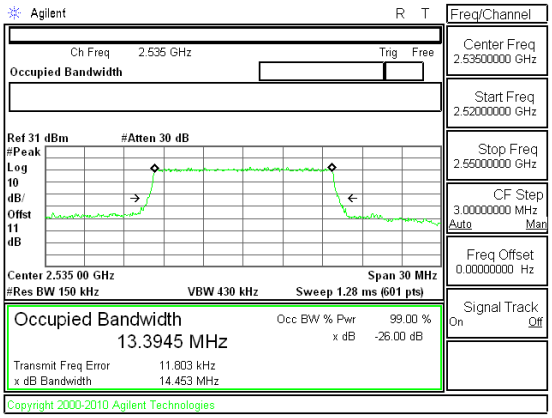
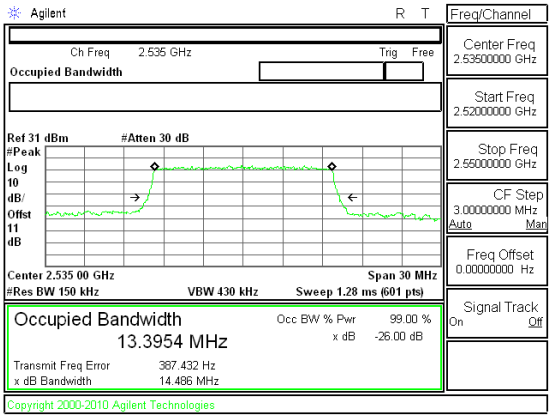
Band LTE7 20MHz 16QAM	 Band LTE7 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 15MHz OBW QPSK Mid Channel FRB.gif

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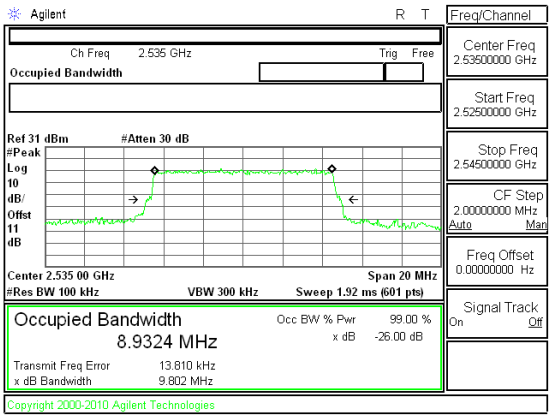
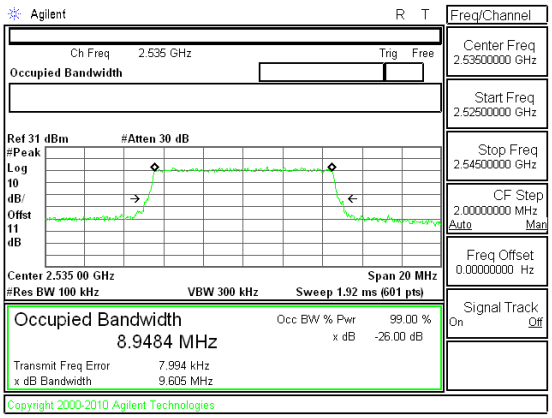
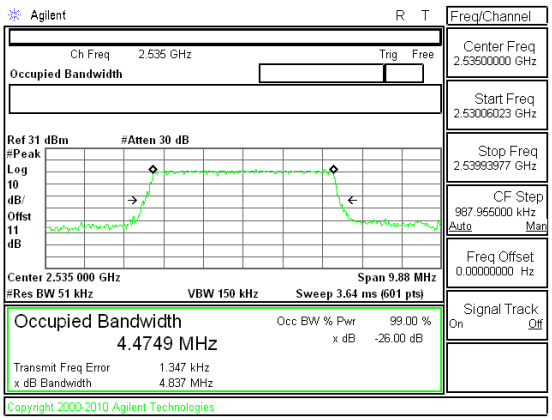
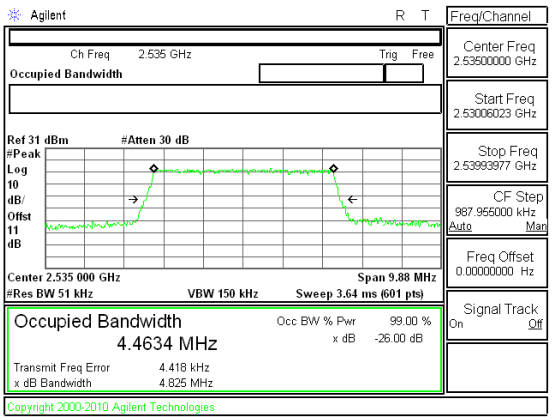
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 5MHz OBW QPSK Mid Channel FRB.gif

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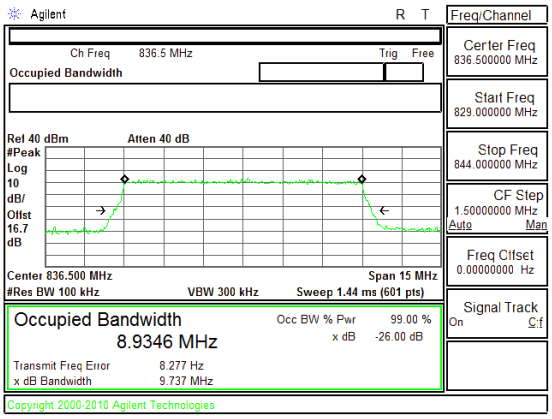
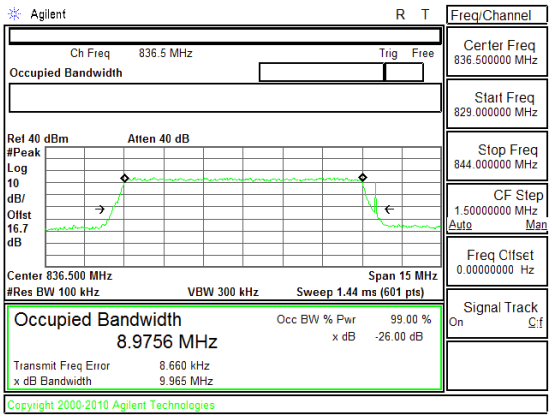
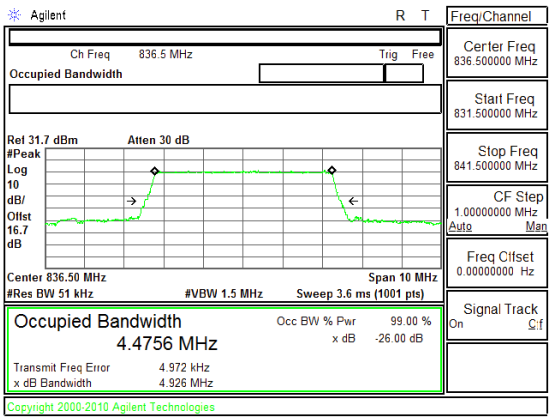
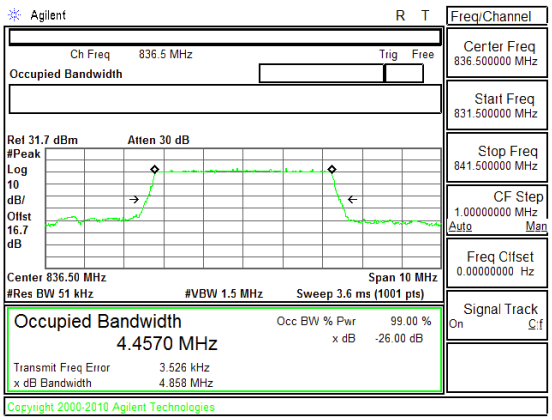
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 5MHz OBW QPSK Mid Channel FRB.gif

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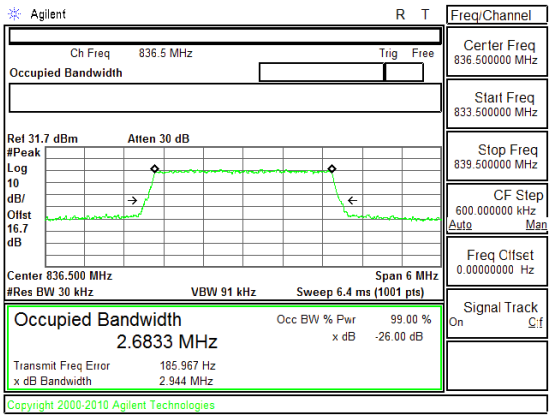
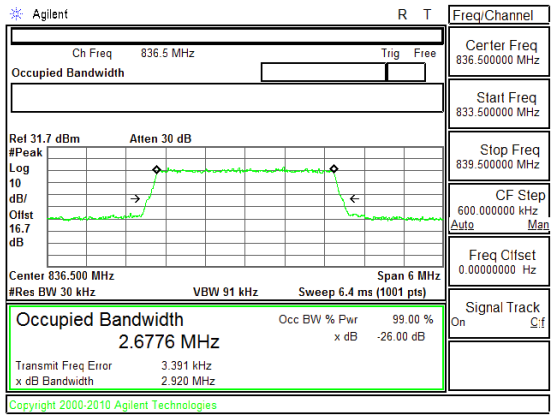
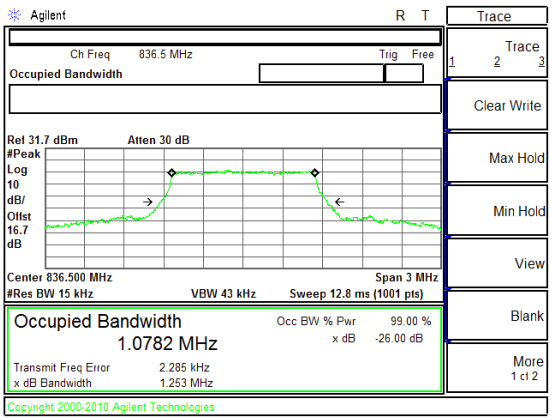
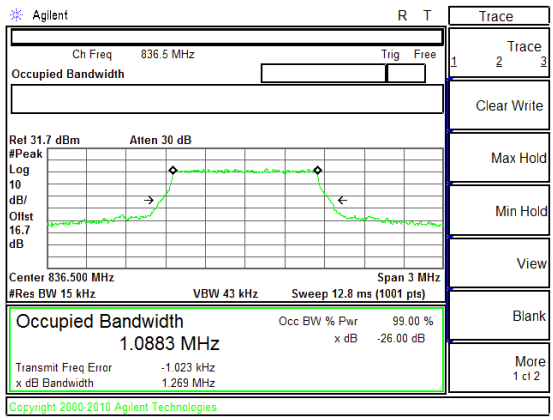
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif

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

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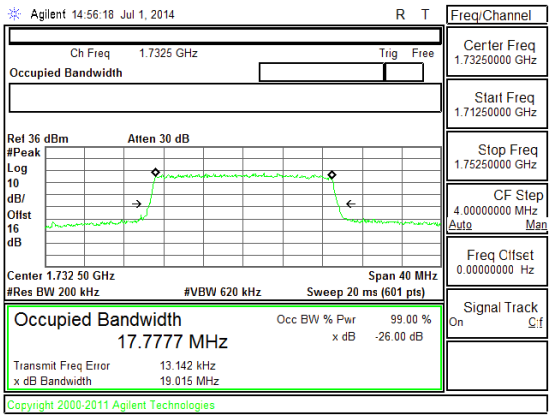
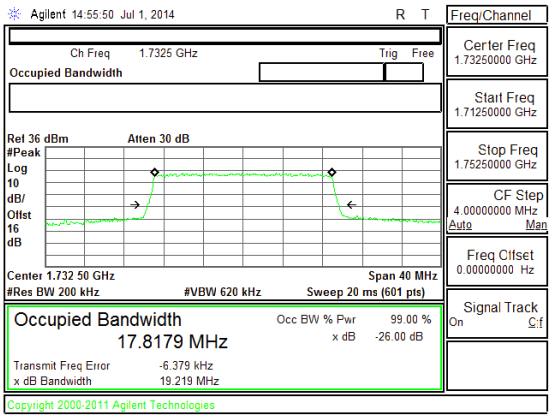
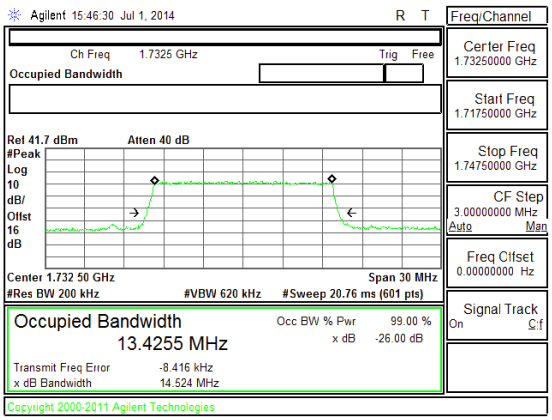
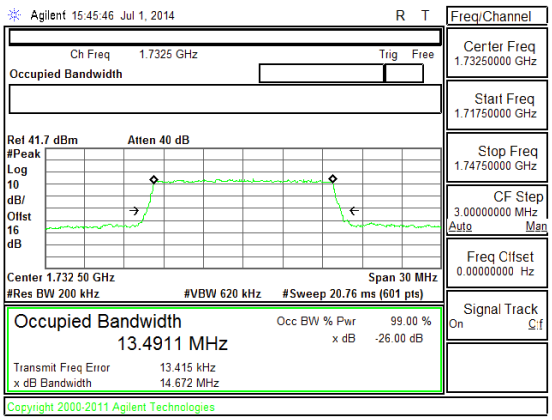
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 15MHz OBW QPSK Mid Channel FRB.gif

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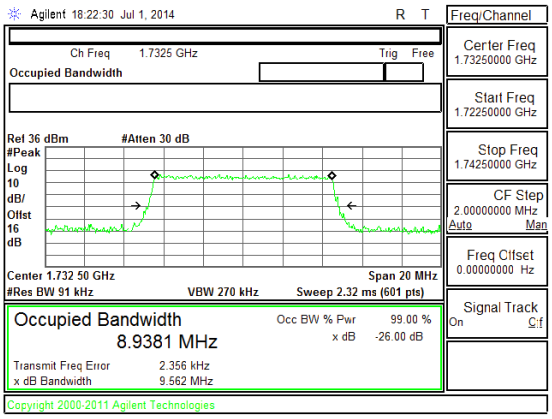
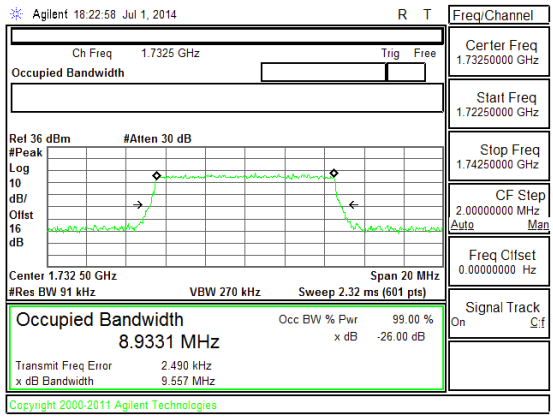
Band	LTE4	10MHz	16QAM

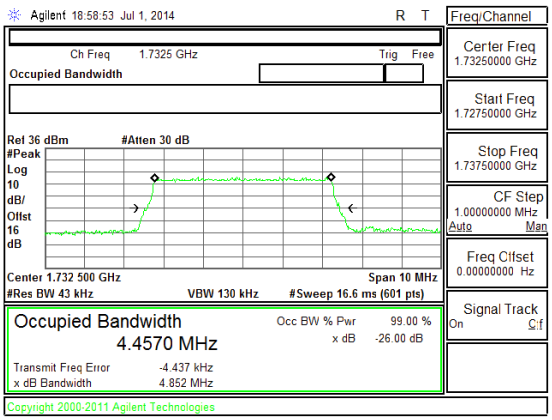


Band LTE4 10MHz OBW 16QAM Mid Channel FRB.gif

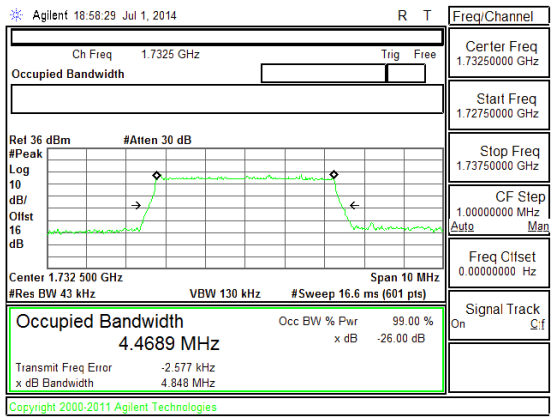


Band LTE4 10MHz OBW QPSK Mid Channel FRB.gif

Band	LTE4	5MHz	16QAM



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



Band LTE4 5MHz OBW QPSK Mid Channel FRB.gif

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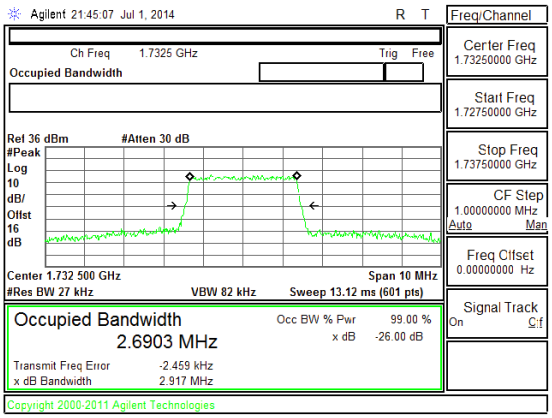
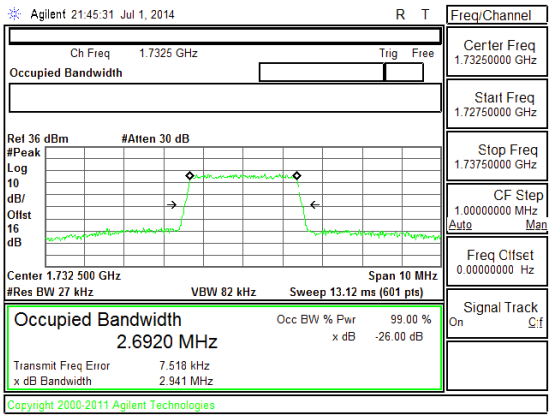
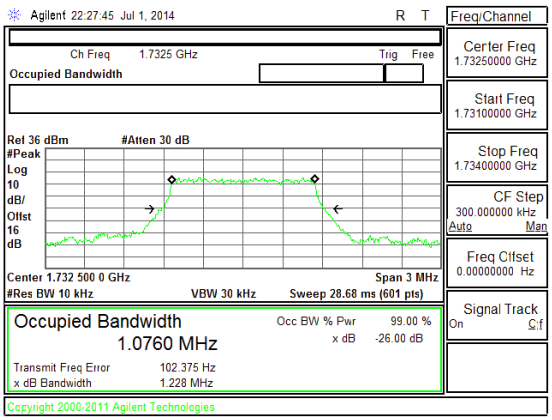
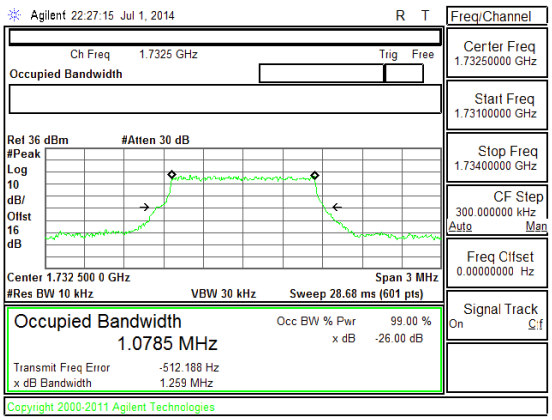
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 1.4MHz OBW QPSK Mid Channel FRB.gif

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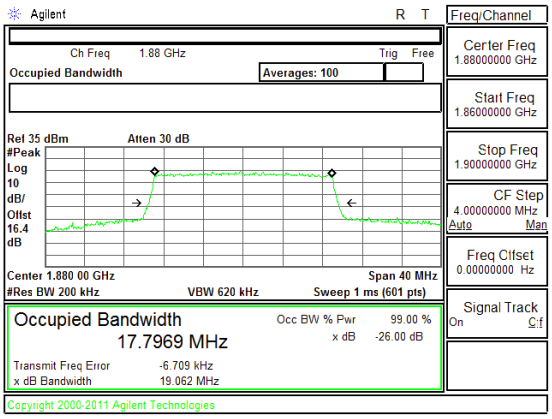
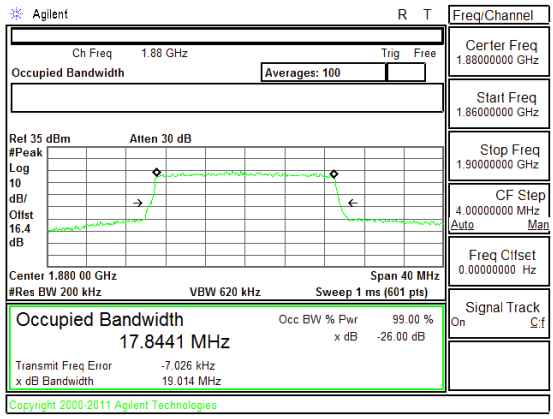
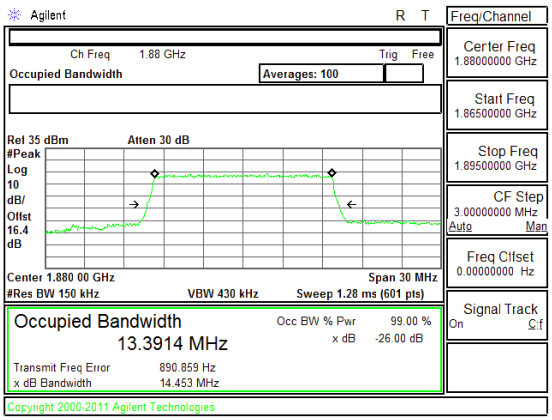
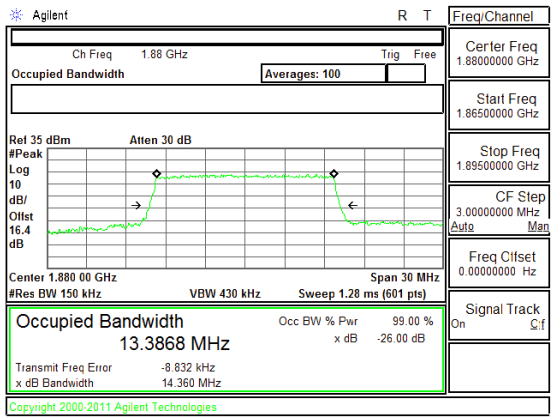
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 20MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 15MHz OBW QPSK Mid Channel FRB.gif

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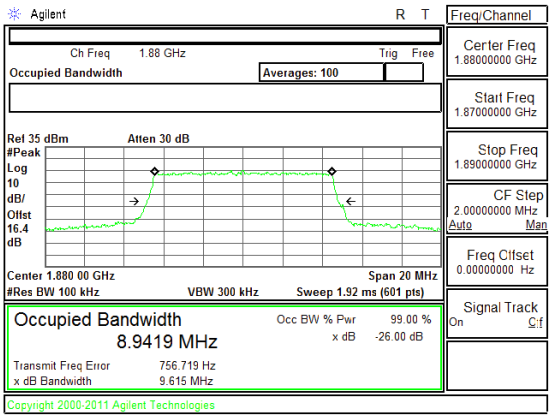
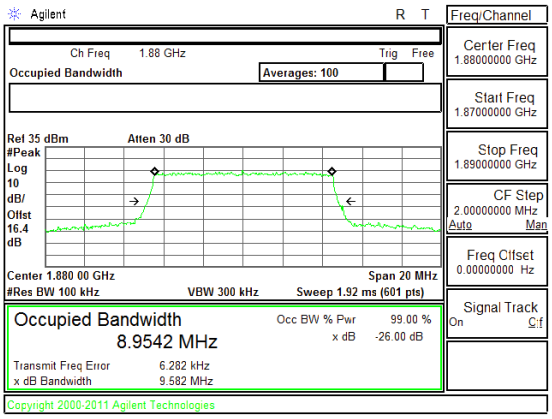
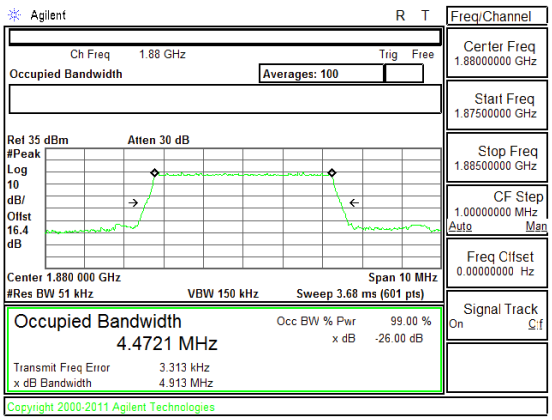
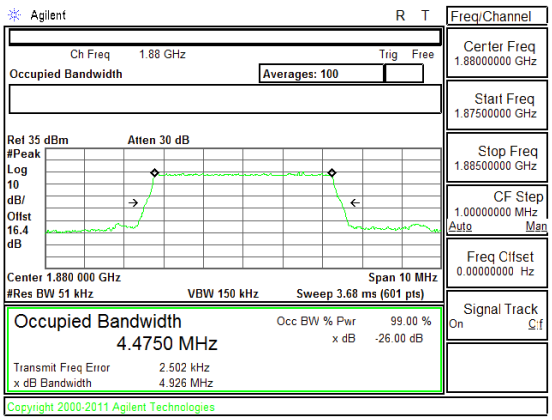
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 5MHz OBW QPSK Mid Channel FRB.gif

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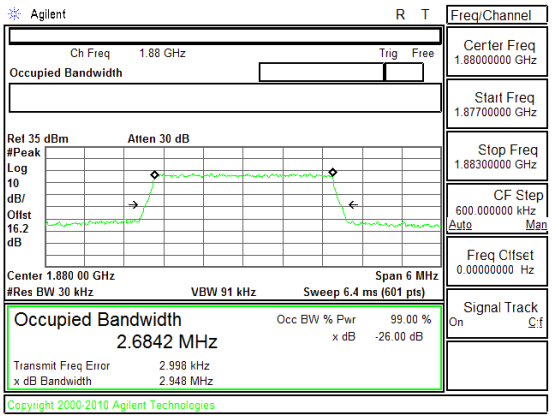
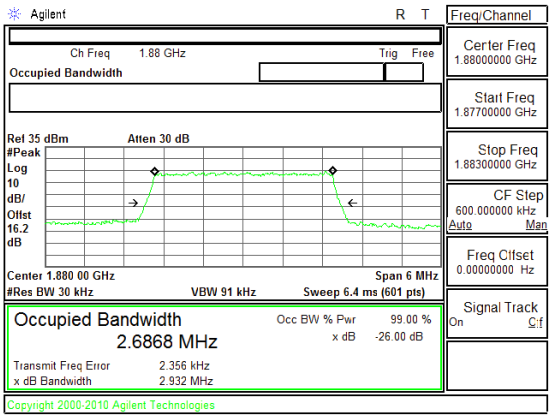
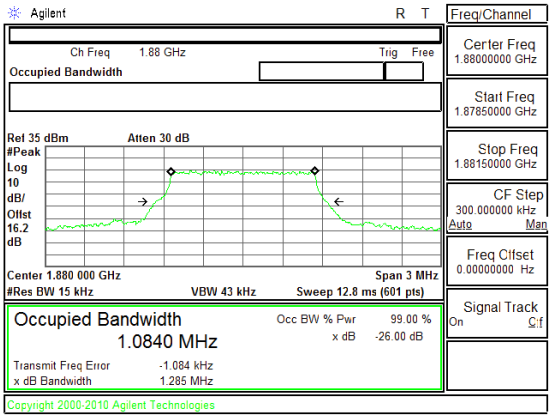
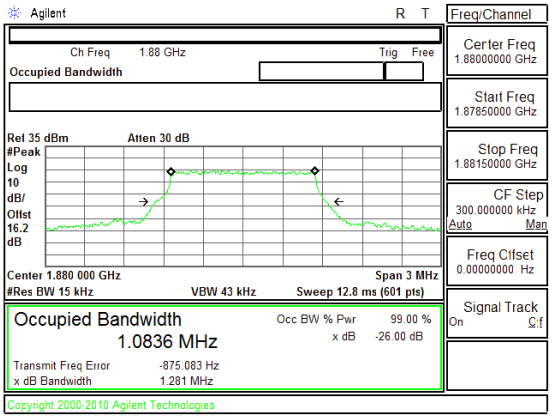
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE2 1.4MHz OBW QPSK Mid Channel FRB.gif

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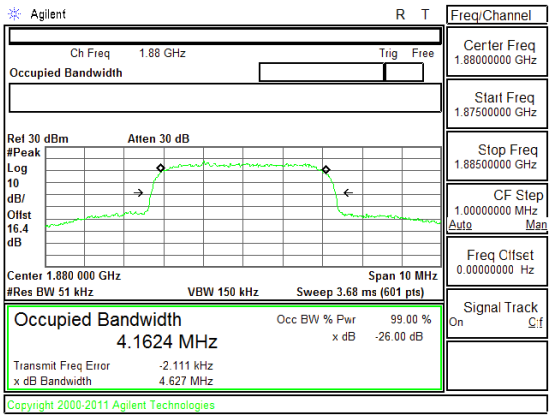
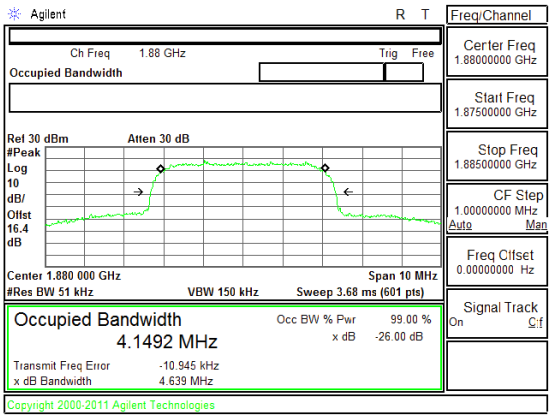
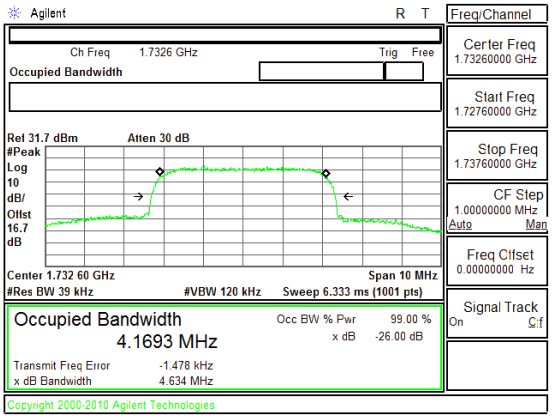
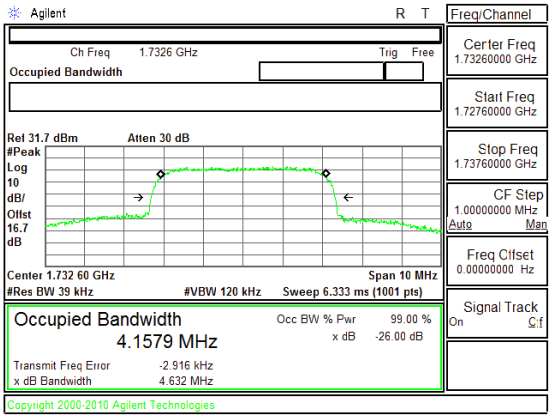
Band Band 2 HSDPA	 Band WCDMA B2 HSDPA OBW	 Band WCDMA B2 REL99 OBW
Band Band 4 HSDPA	 Band WCDMA B4 HSDPA OBW	 Band WCDMA B4 REL99 OBW

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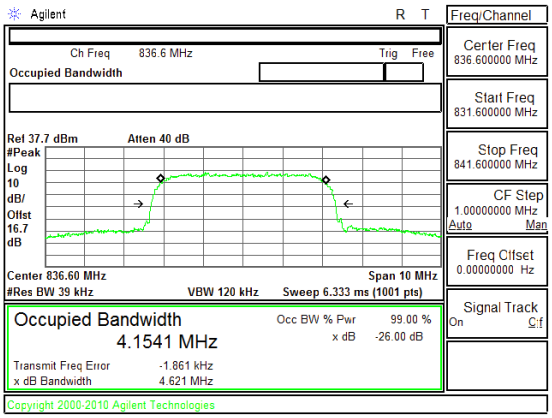
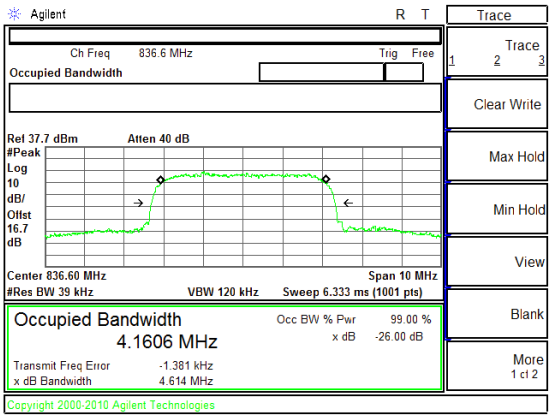
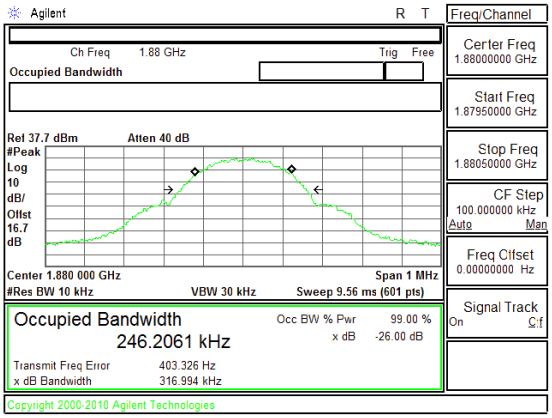
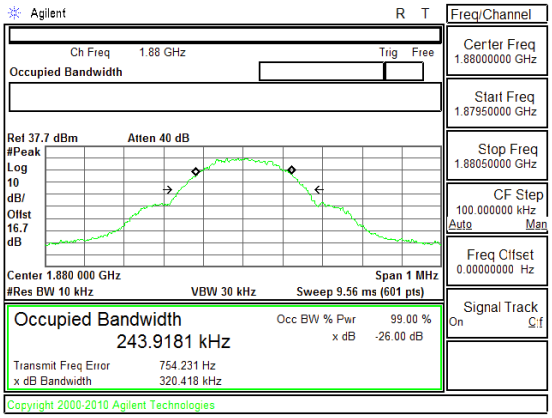
Band Band 5 HSDPA	 Band WCDMA B5 HSDPA OBW	 Band WCDMA B5 REL99 OBW
Band GSM1900 EGPRS	 Band GSM1900 EGPRS OBW Mid channel	 Band GSM1900 GPRS OBW Mid channel

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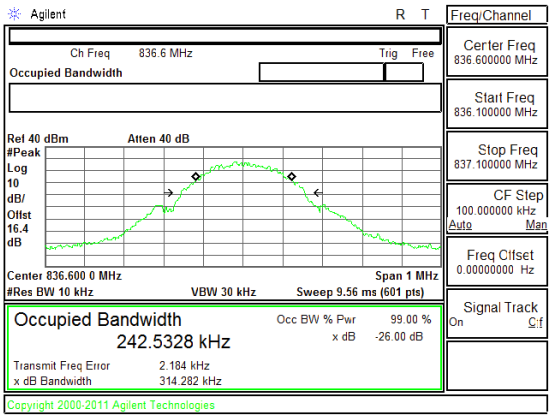
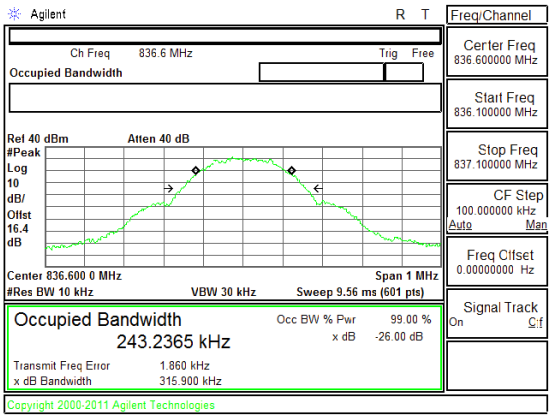
Band GSM850 EGPRS	 Band GSM850 EGPRS OBW Mid channel	 Band GSM850 GPRS OBW Mid channel

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10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27. 53

LIMITS

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

Part 27: (m)(4) 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.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r01
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.

RESULTS

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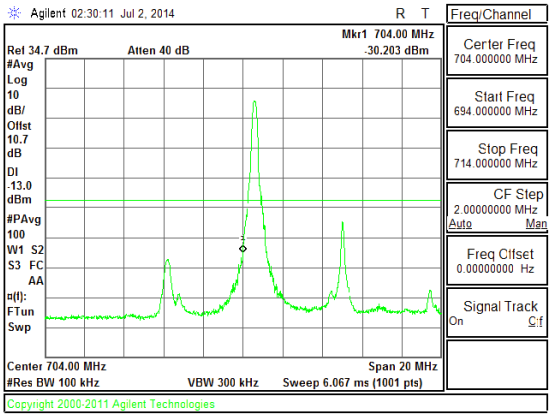
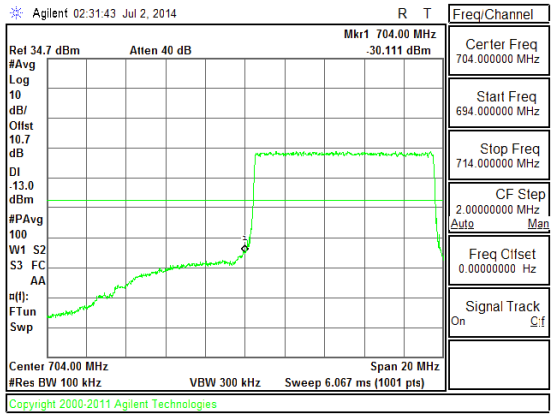
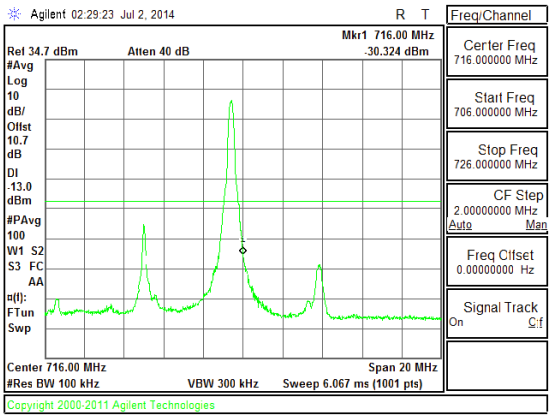
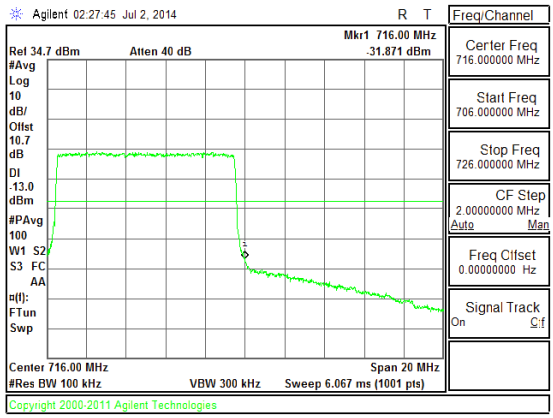
10.2.1. BAND EDGE PLOTS

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

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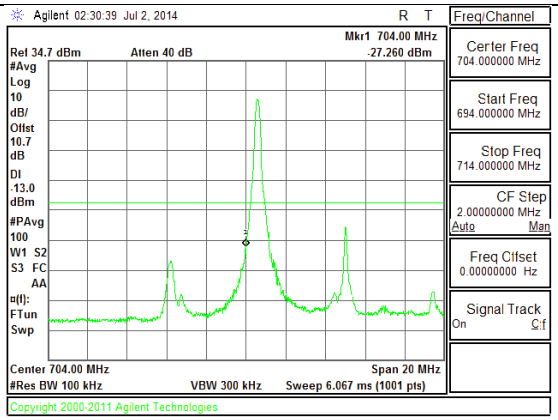
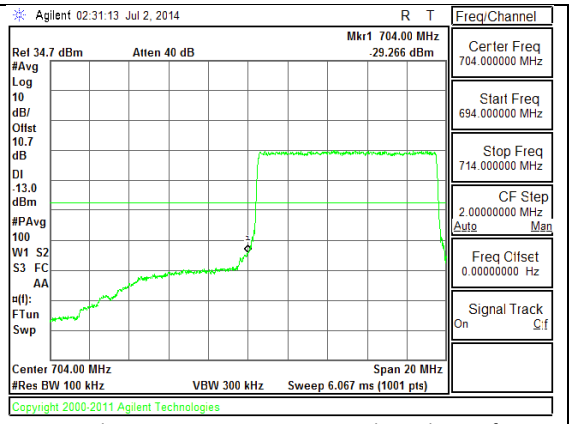
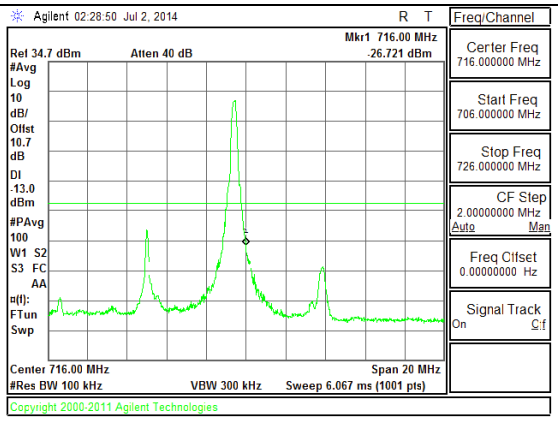
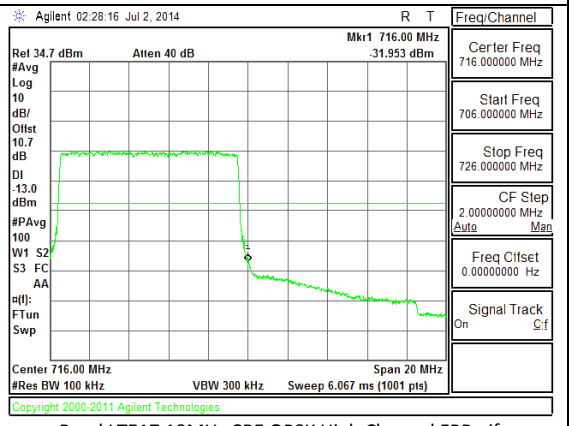
Band LTE17 10MHz QPSK	 Band LTE17 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE17 10MHz CBE QPSK Low Channel FRB.gif
Band LTE17 10MHz QPSK	 Band LTE17 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE17 10MHz CBE QPSK High Channel FRB.gif

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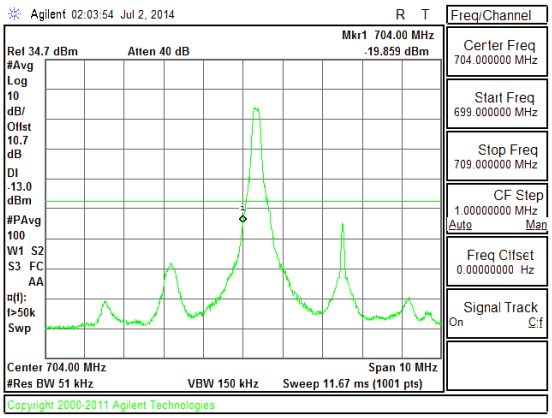
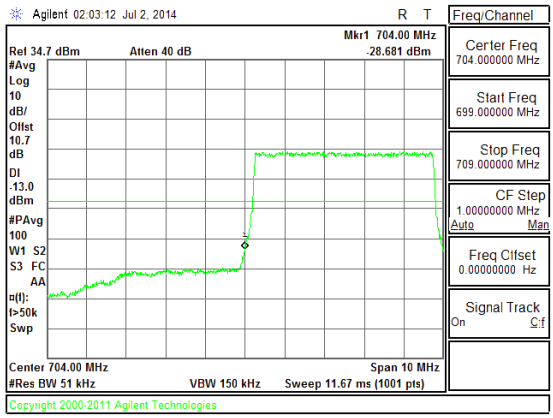
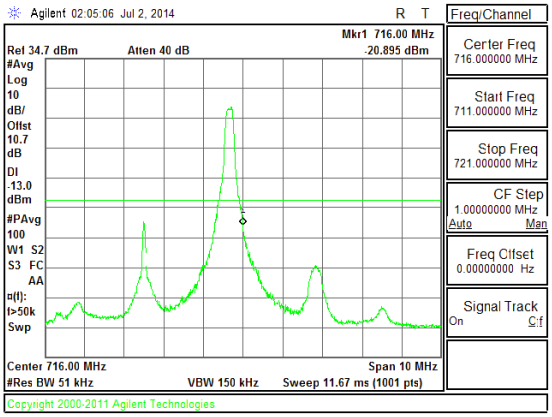
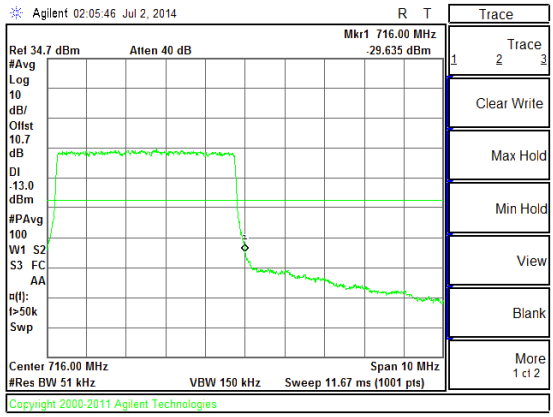
Band LTE17 5MHz 16QAM	 Band LTE17 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE17 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE17 5MHz 16QAM	 Band LTE17 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE17 5MHz CBE 16QAM High Channel FRB.gif

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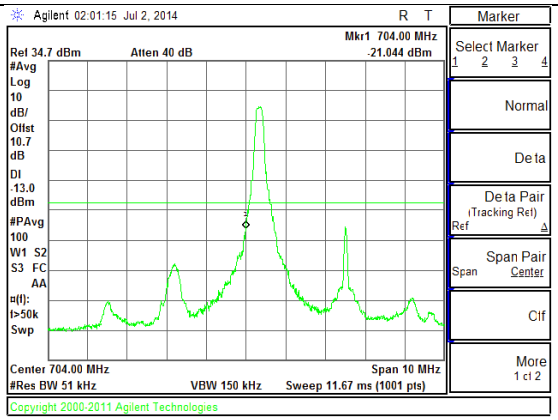
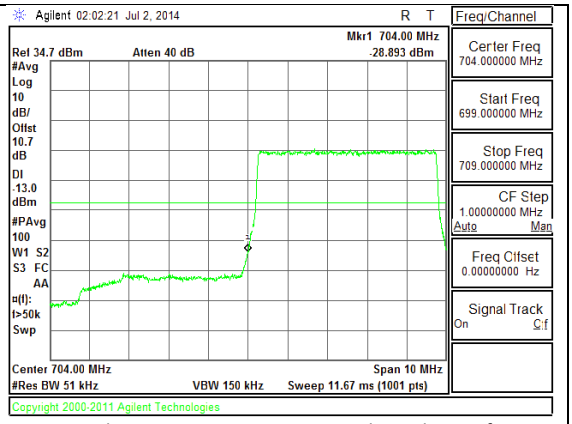
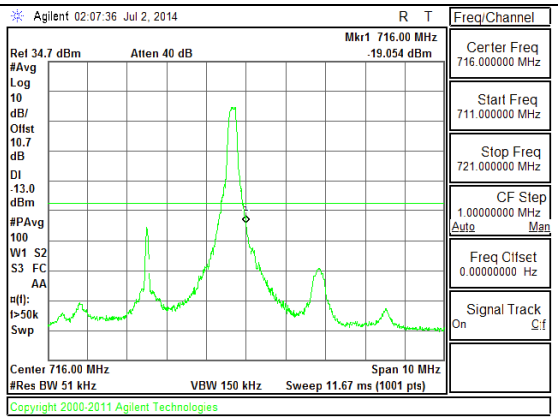
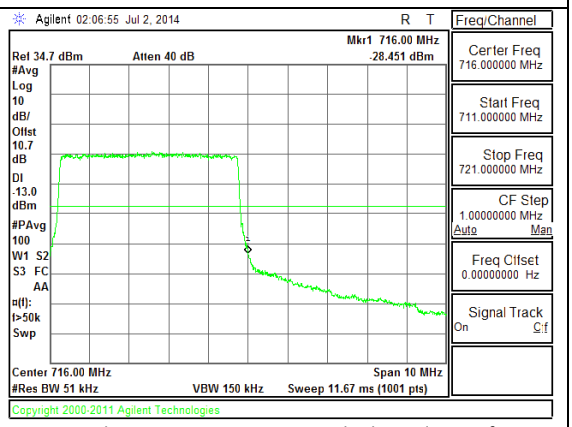
Band LTE17 5MHz QPSK	 Band LTE17 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE17 5MHz CBE QPSK Low Channel FRB.gif
Band LTE17 5MHz QPSK	 Band LTE17 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE17 5MHz CBE QPSK High Channel FRB.gif

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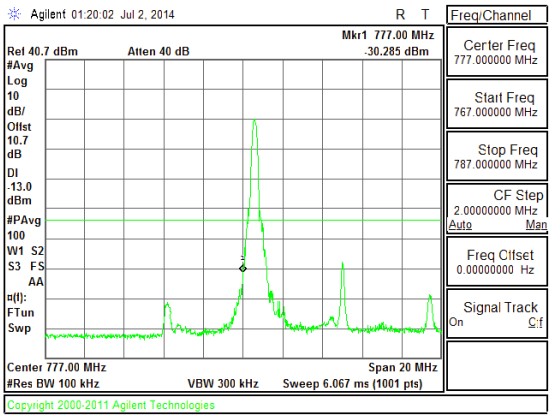
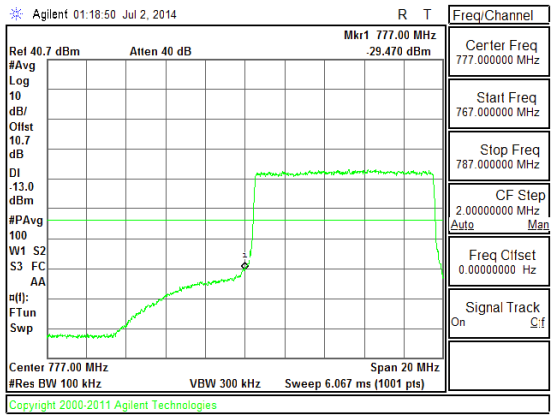
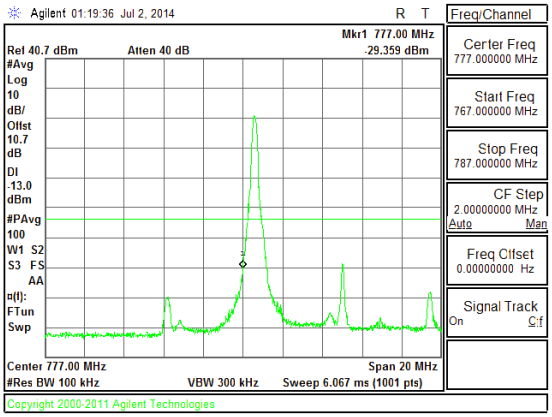
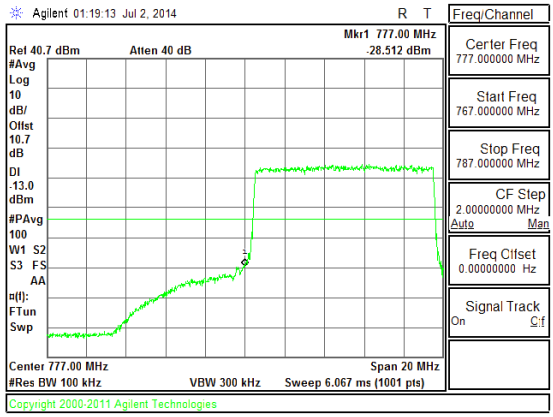
Band LTE13 10MHz 16QAM	 Band LTE13 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE13 10MHz CBE 16QAM High Channel FRB.gif
Band LTE13 10MHz QPSK	 Band LTE13 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE13 10MHz CBE QPSK High Channel FRB.gif

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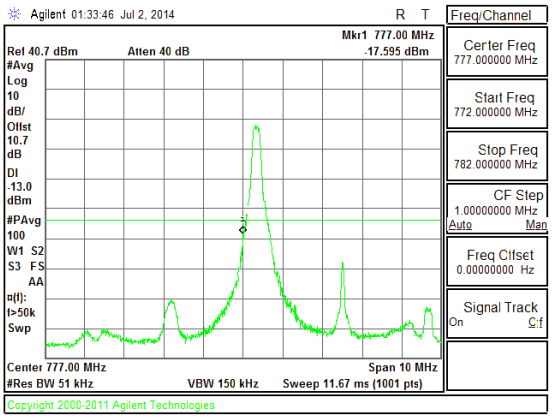
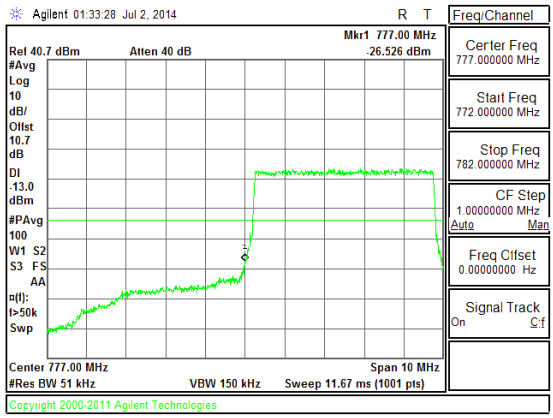
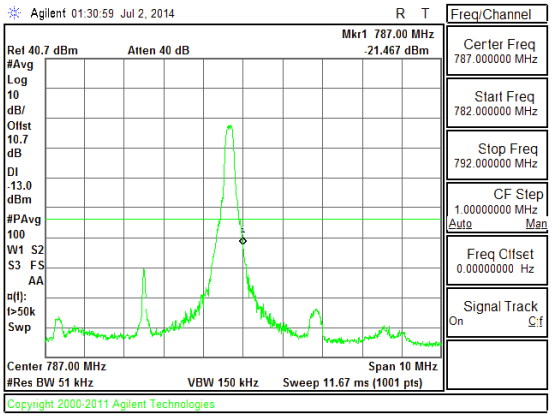
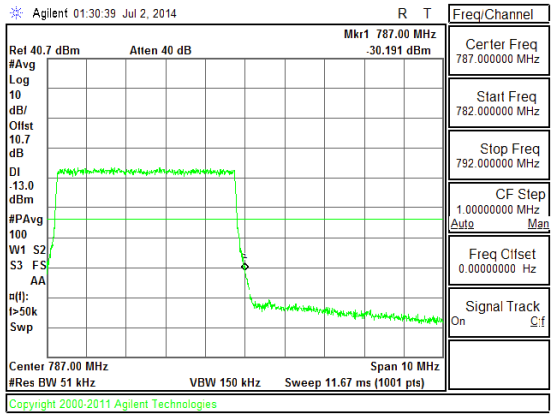
Band LTE13 5MHz 16QAM	 Band LTE13 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE13 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE13 5MHz 16QAM	 Band LTE13 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE13 5MHz CBE 16QAM High Channel FRB.gif

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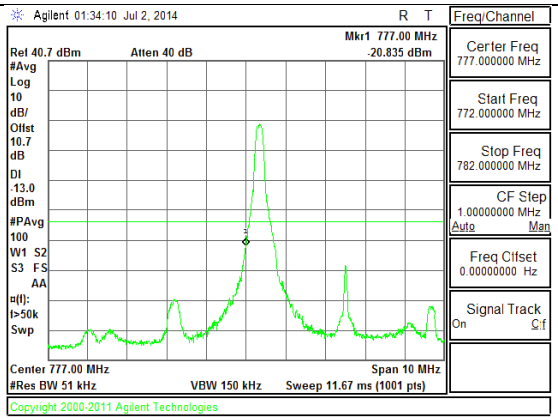
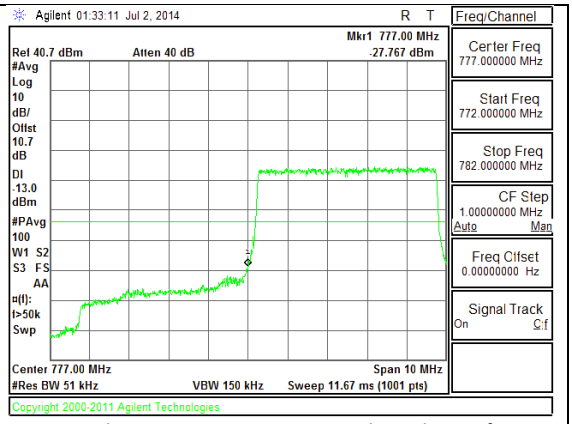
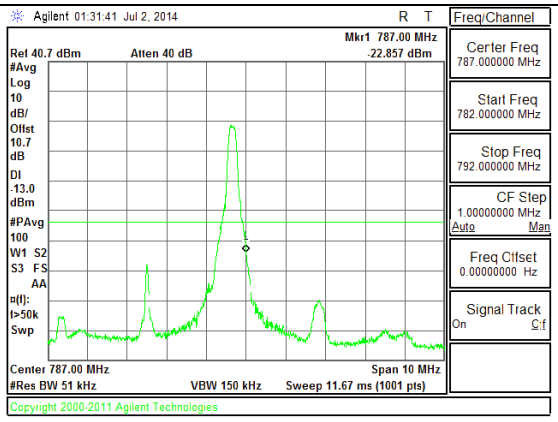
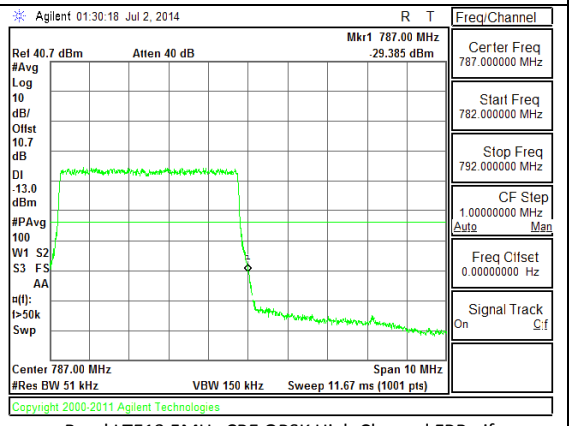
Band LTE13 5MHz QPSK	 Band LTE13 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE13 5MHz CBE QPSK Low Channel FRB.gif
Band LTE13 5MHz QPSK	 Band LTE13 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE13 5MHz CBE QPSK High Channel FRB.gif

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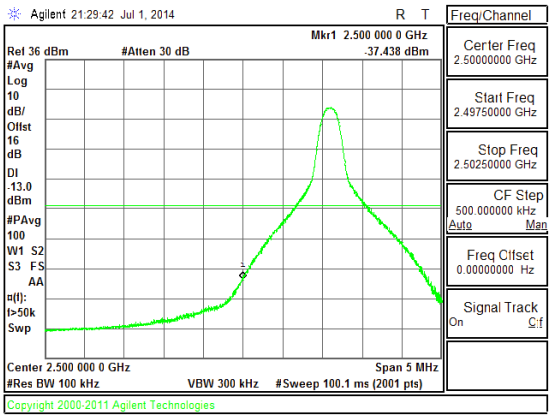
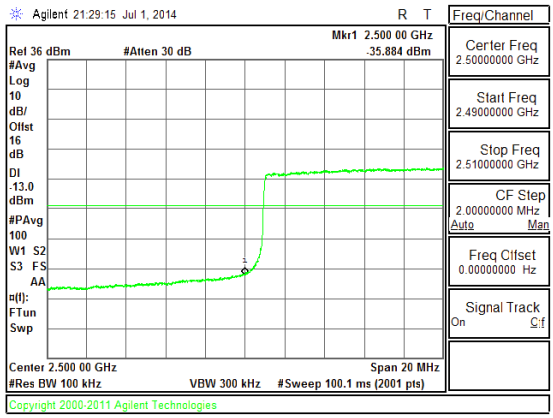
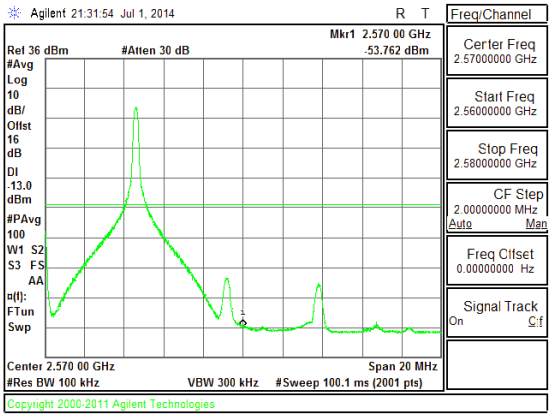
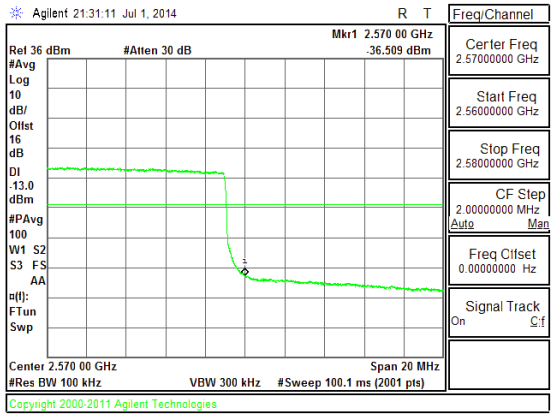
Band LTE7 20MHz 16QAM	 Band LTE7 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 20MHz 16QAM	 Band LTE7 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 20MHz CBE 16QAM High Channel FRB.gif

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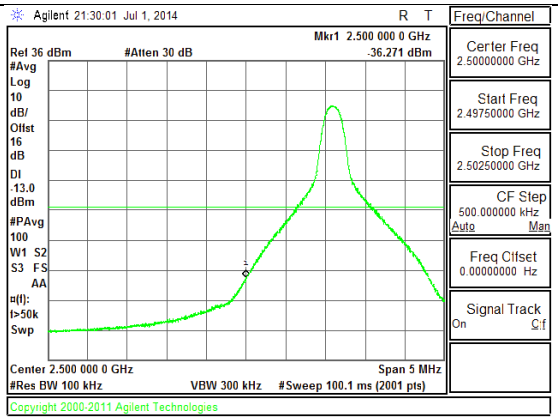
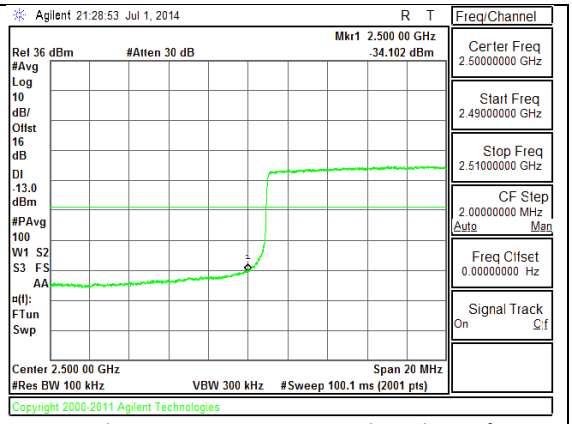
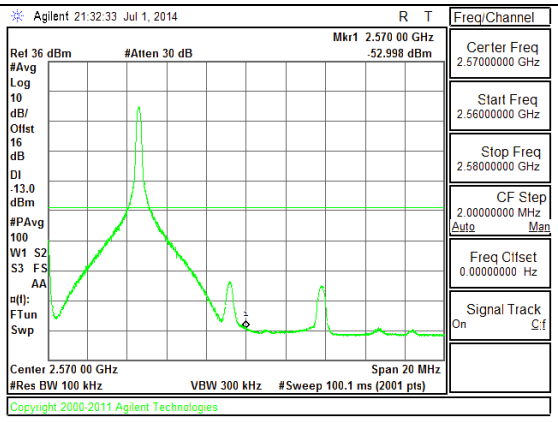
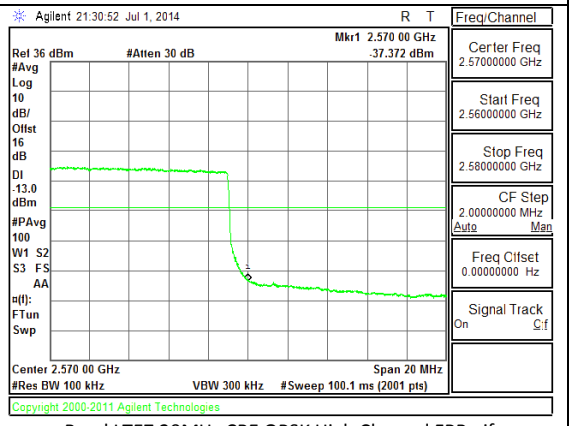
Band LTE7 20MHz QPSK	 Band LTE7 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 20MHz CBE QPSK Low Channel FRB.gif
Band LTE7 20MHz QPSK	 Band LTE7 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 20MHz CBE QPSK High Channel FRB.gif

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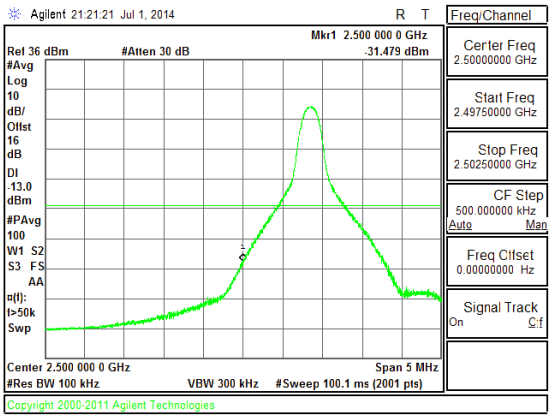
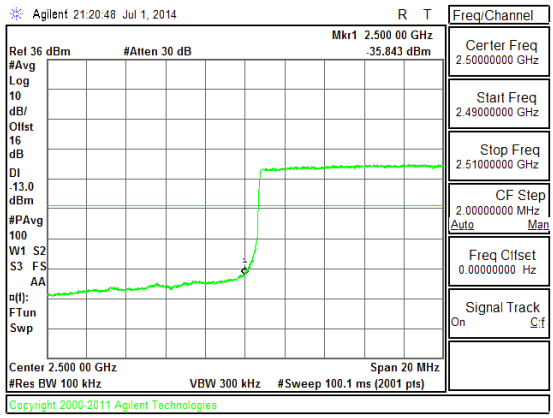
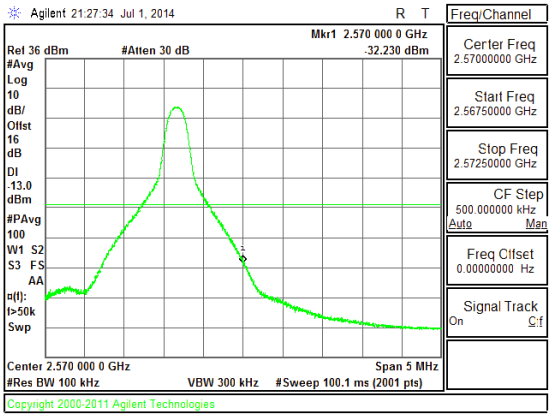
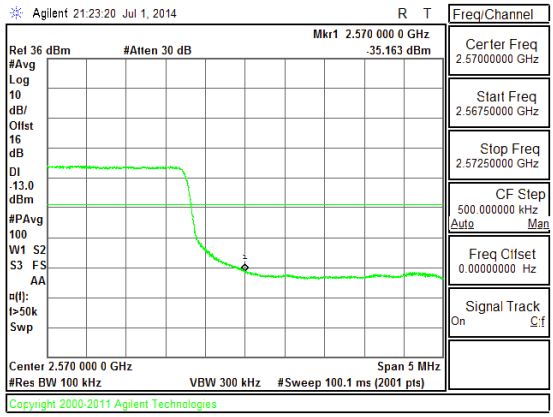
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 15MHz CBE 16QAM High Channel FRB.gif

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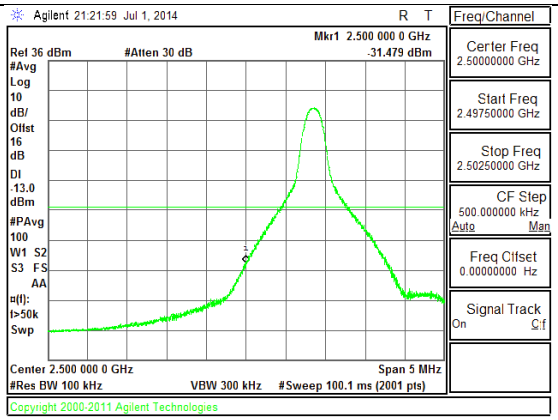
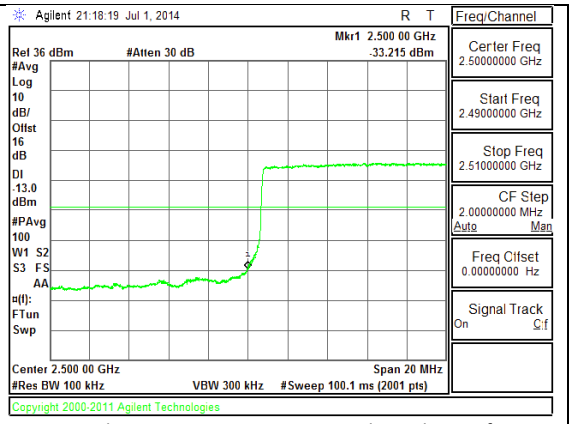
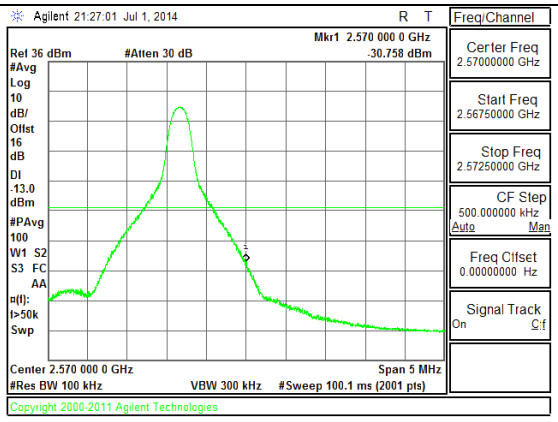
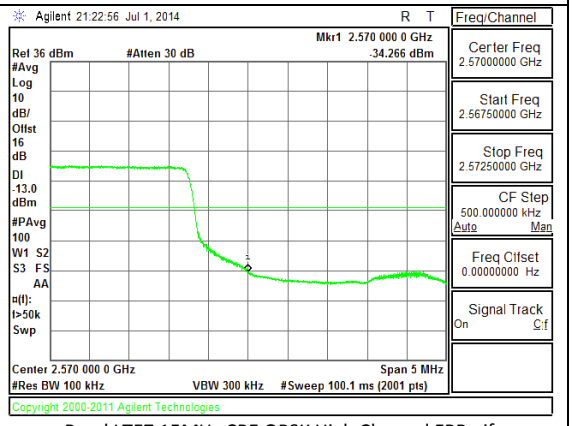
Band LTE7 15MHz QPSK	 Band LTE7 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 15MHz CBE QPSK Low Channel FRB.gif
Band LTE7 15MHz QPSK	 Band LTE7 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 15MHz CBE QPSK High Channel FRB.gif

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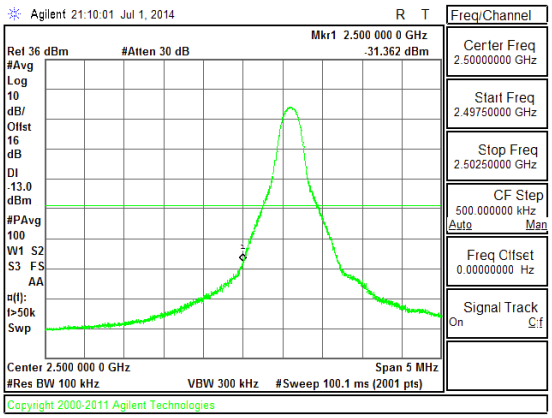
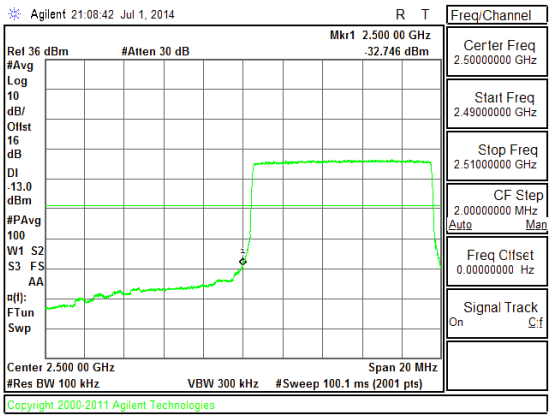
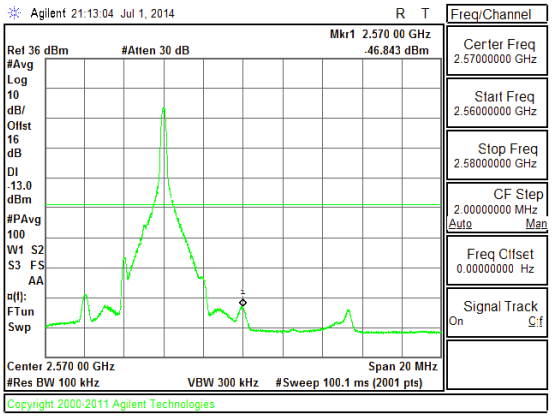
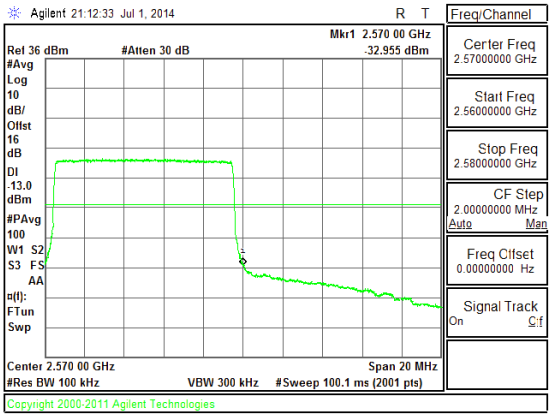
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 10MHz CBE 16QAM High Channel FRB.gif

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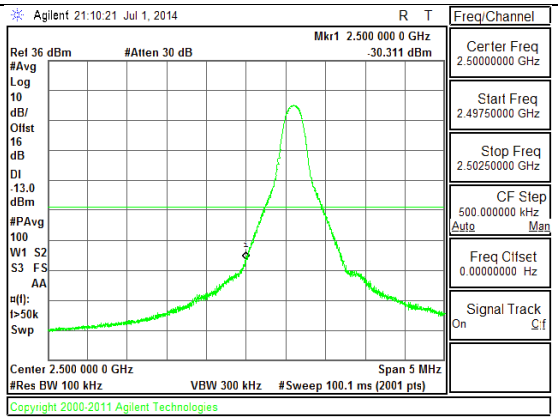
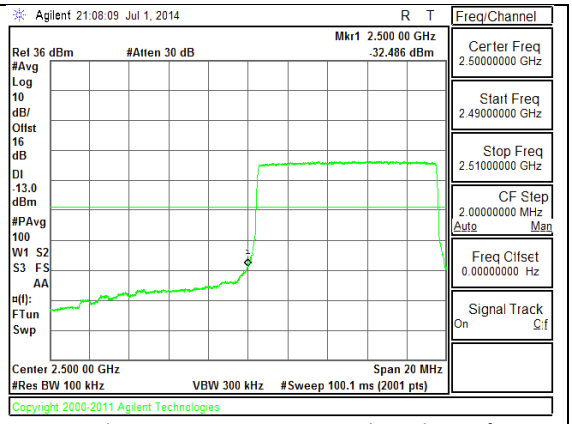
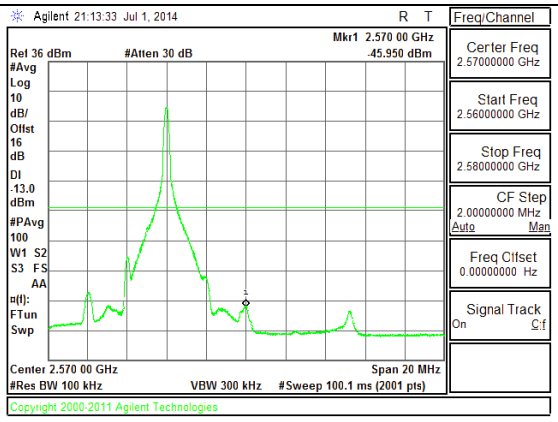
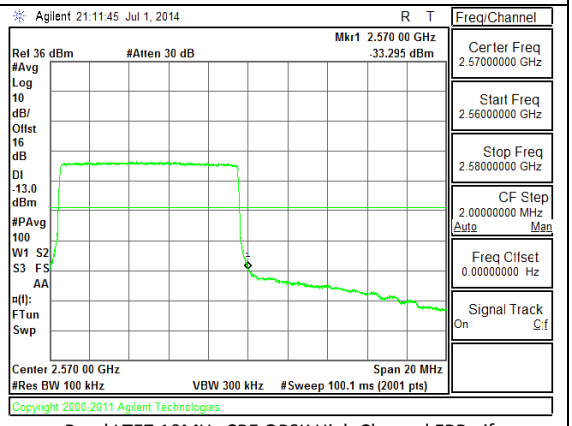
Band LTE7 10MHz QPSK	 Band LTE7 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 10MHz CBE QPSK Low Channel FRB.gif
Band LTE7 10MHz QPSK	 Band LTE7 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 10MHz CBE QPSK High Channel FRB.gif

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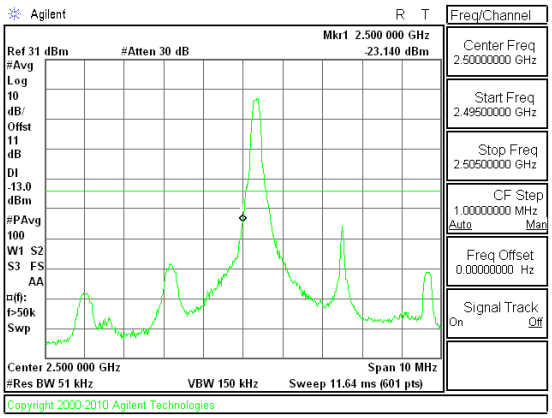
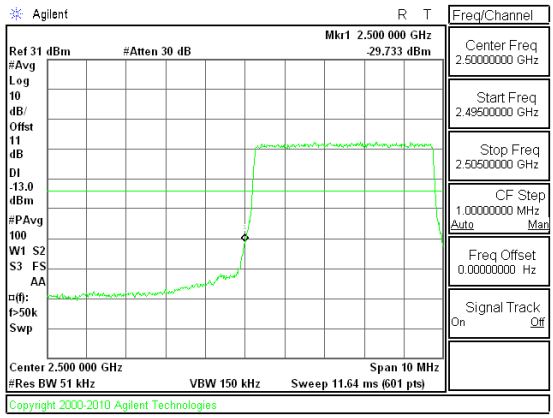
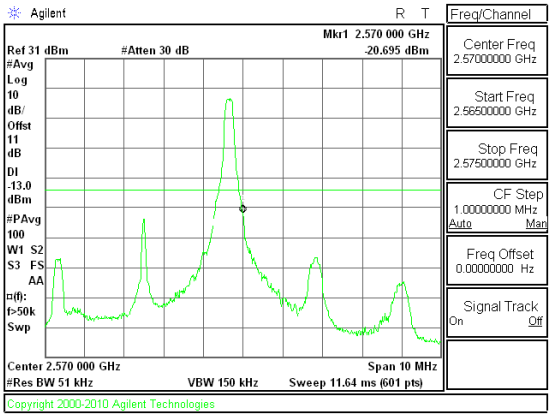
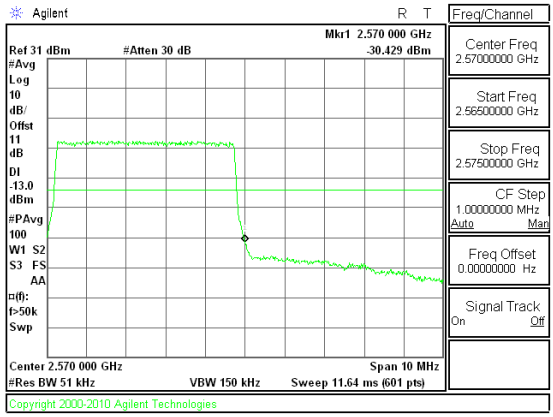
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 5MHz CBE 16QAM High Channel FRB.gif

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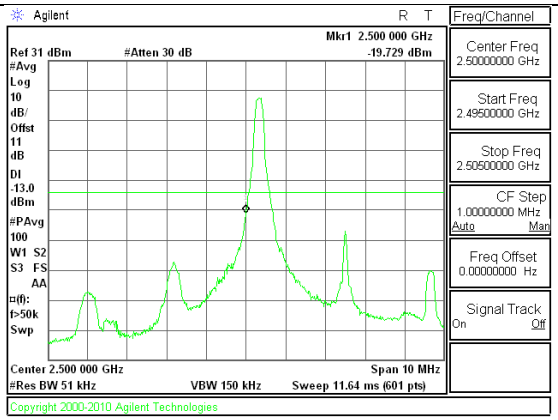
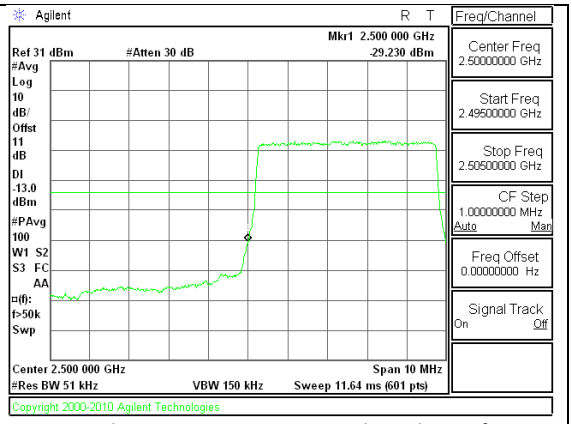
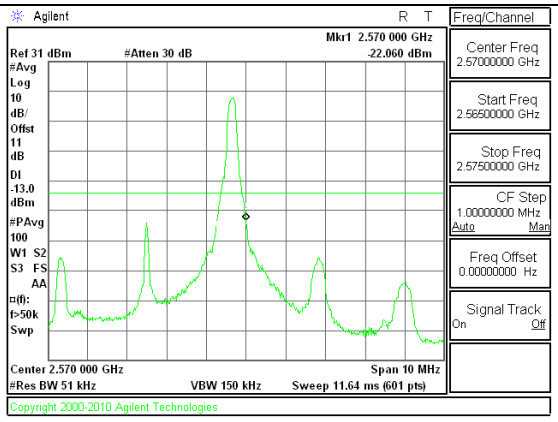
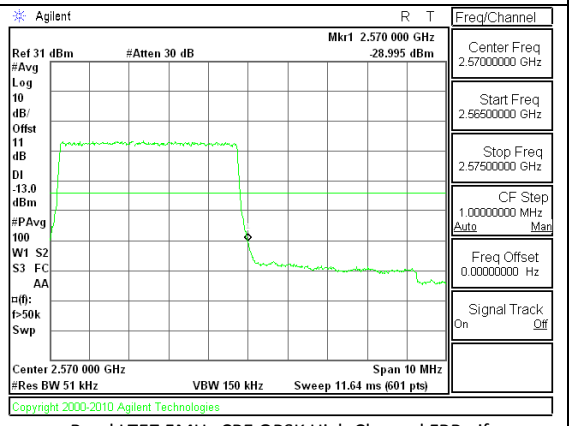
Band LTE7 5MHz QPSK	 Band LTE7 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 5MHz CBE QPSK Low Channel FRB.gif
Band LTE7 5MHz QPSK	 Band LTE7 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 5MHz CBE QPSK High Channel FRB.gif

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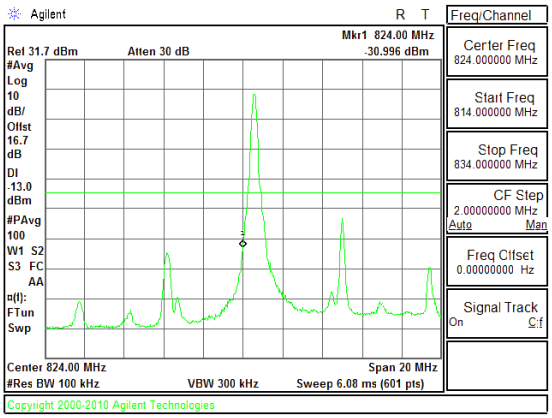
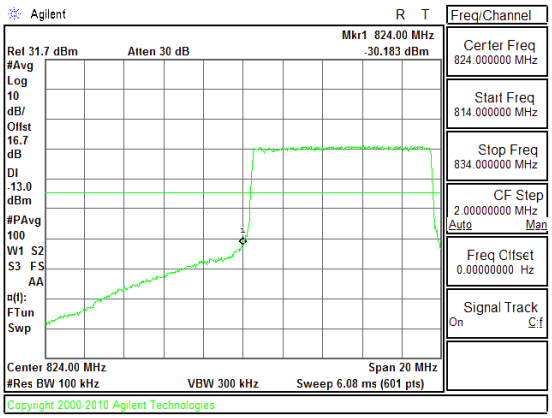
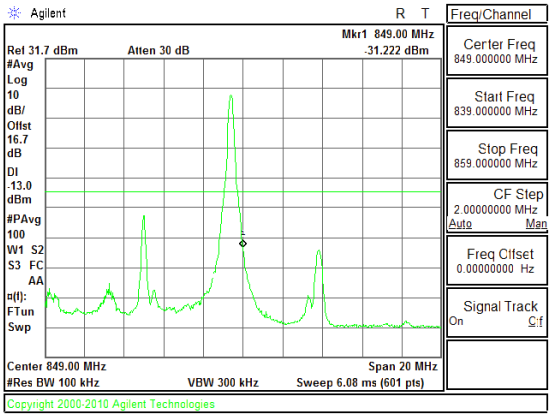
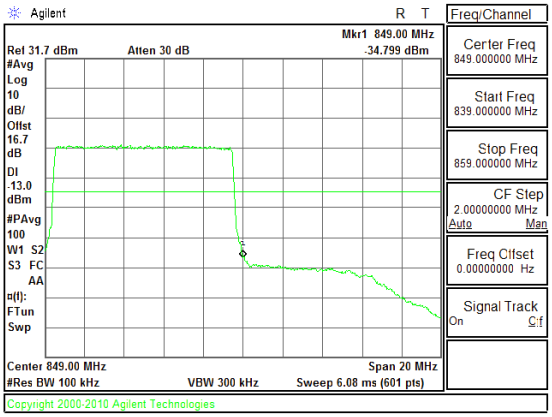
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 10MHz CBE 16QAM High Channel FRB.gif

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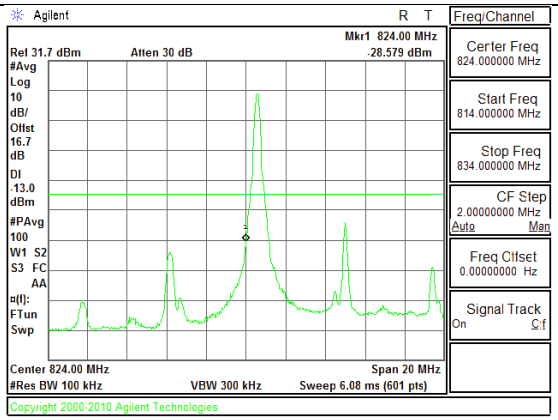
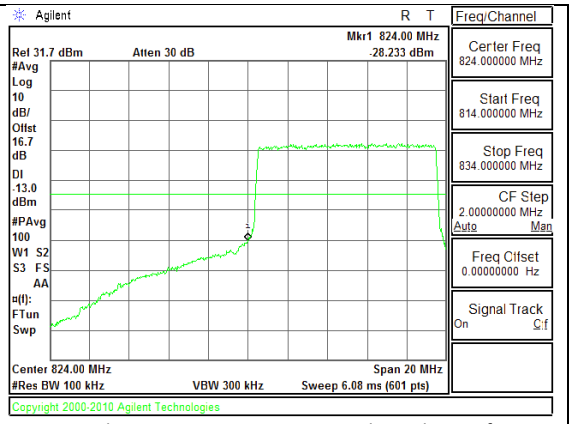
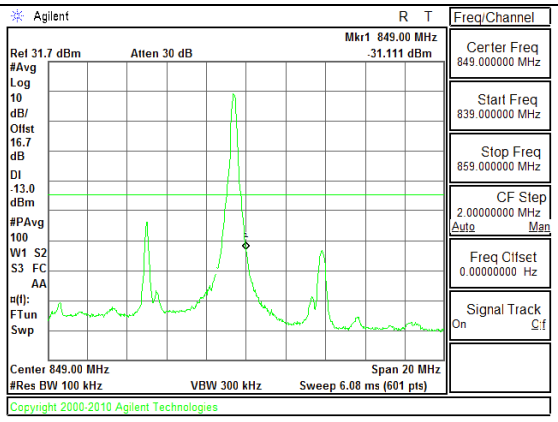
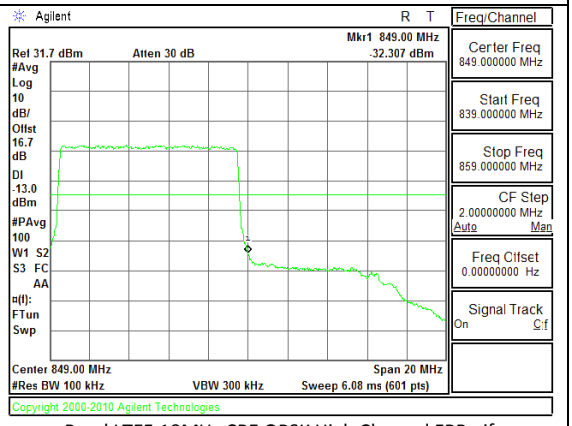
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK Low Channel FRB.gif
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK High Channel FRB.gif

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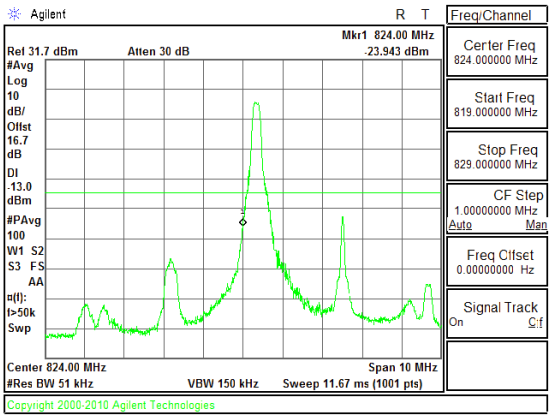
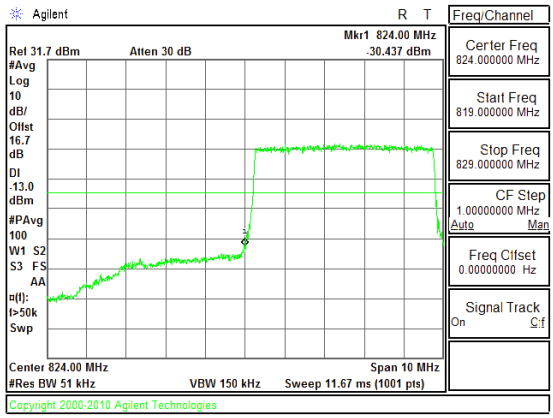
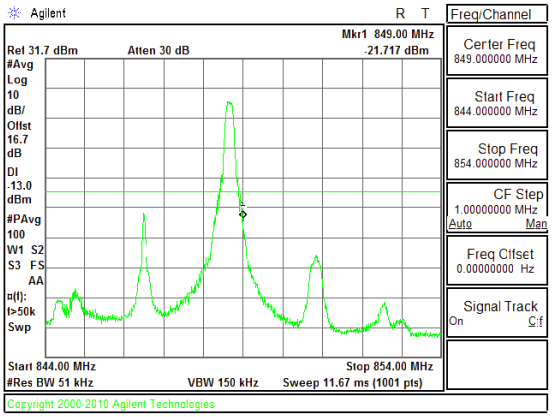
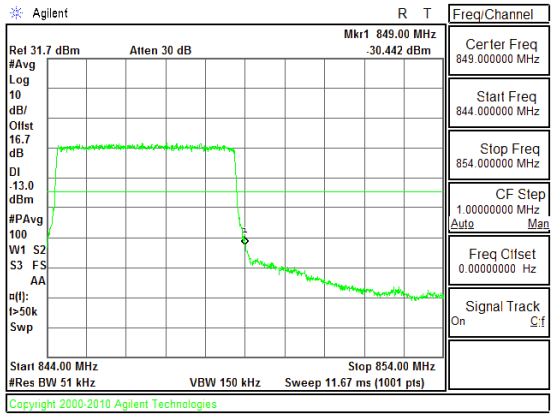
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM High Channel FRB.gif

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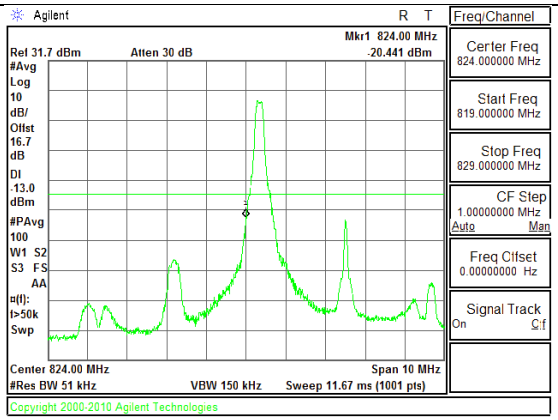
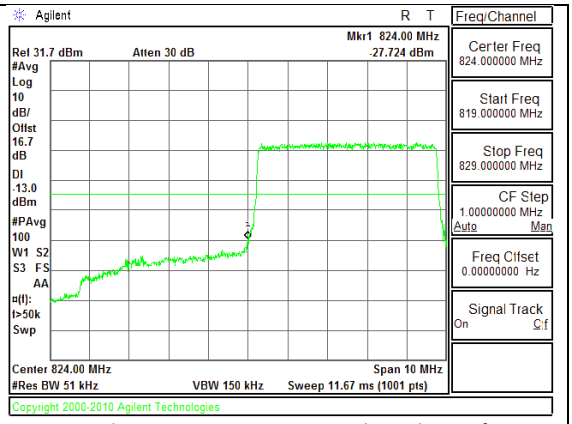
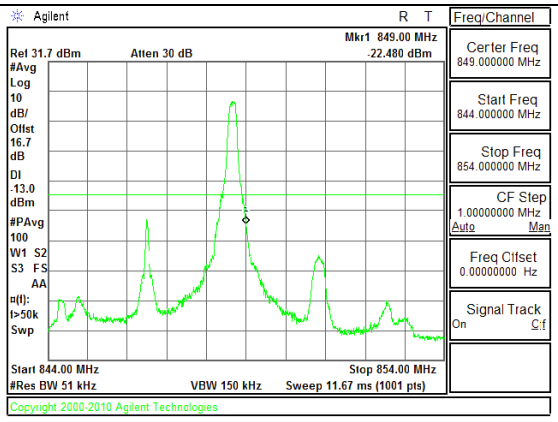
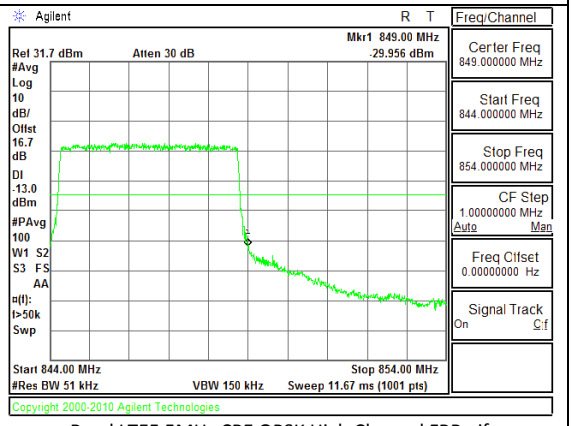
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK Low Channel FRB.gif
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK High Channel FRB.gif

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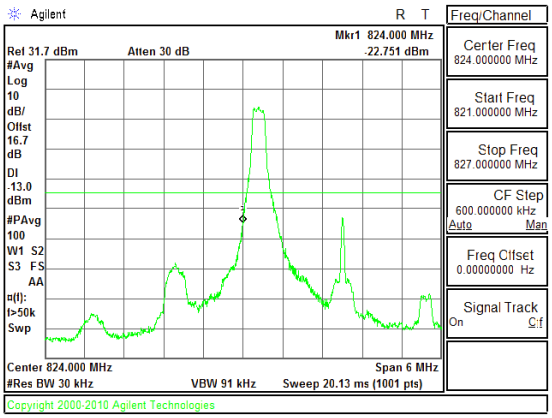
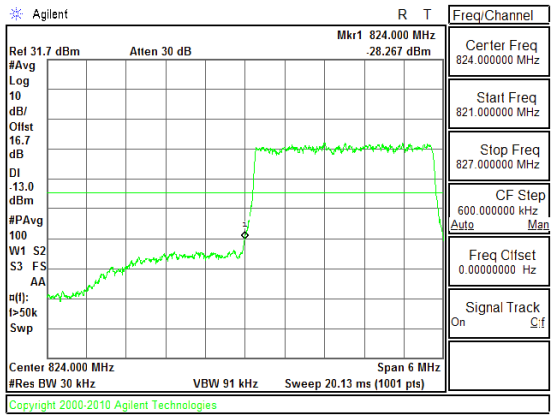
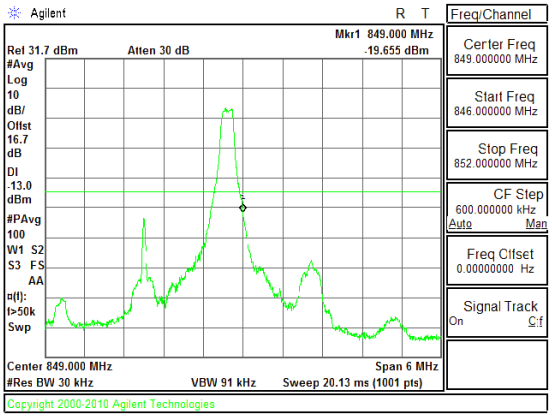
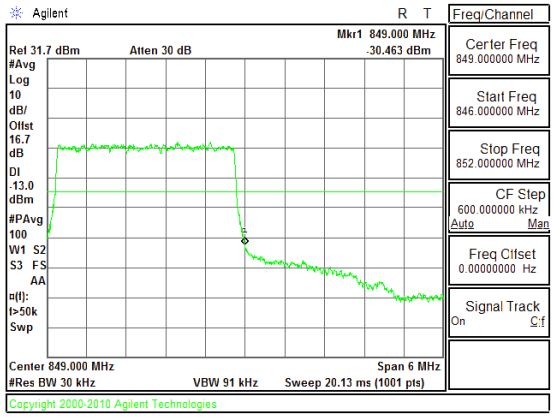
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM High Channel FRB.gif

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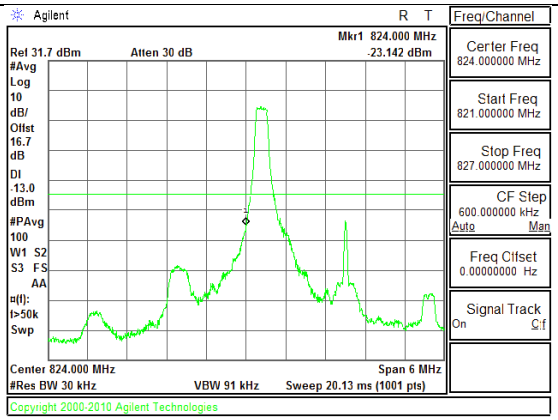
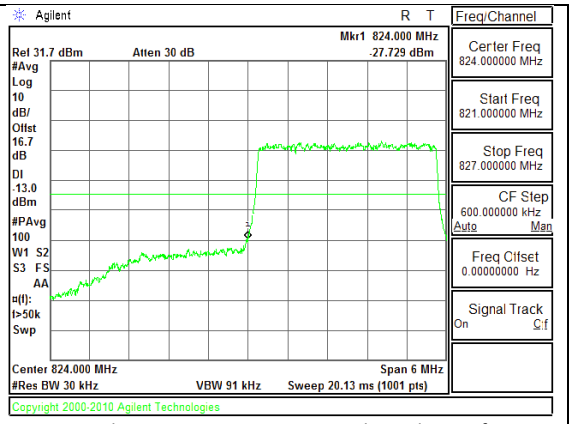
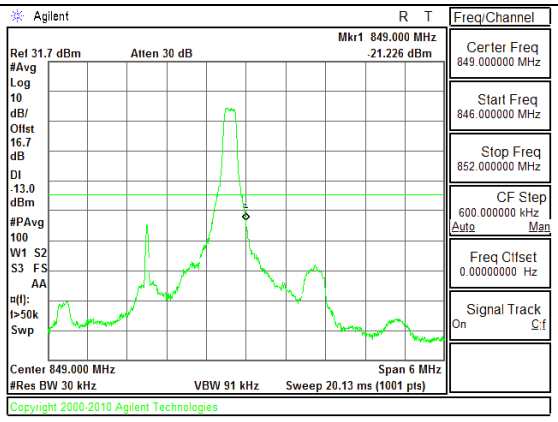
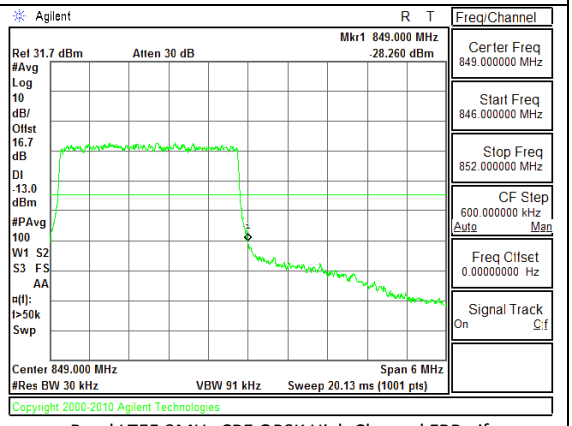
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK Low Channel FRB.gif
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK High Channel FRB.gif

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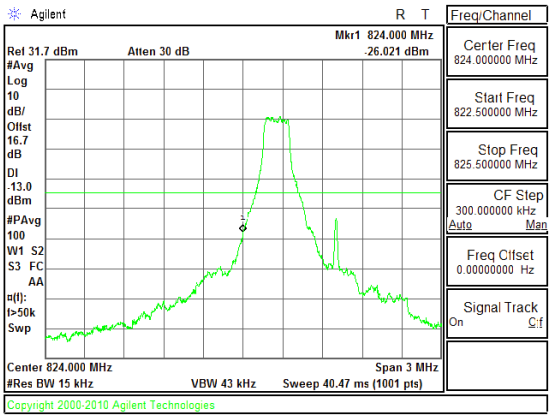
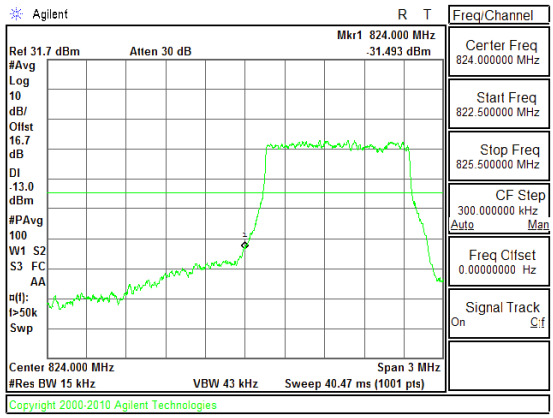
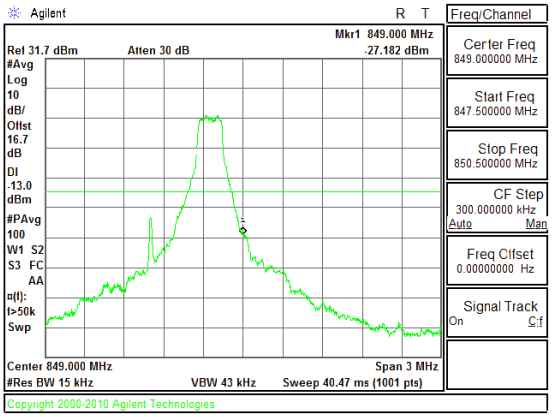
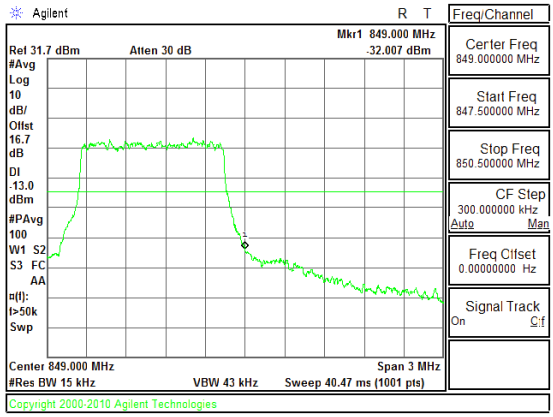
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM High Channel FRB.gif

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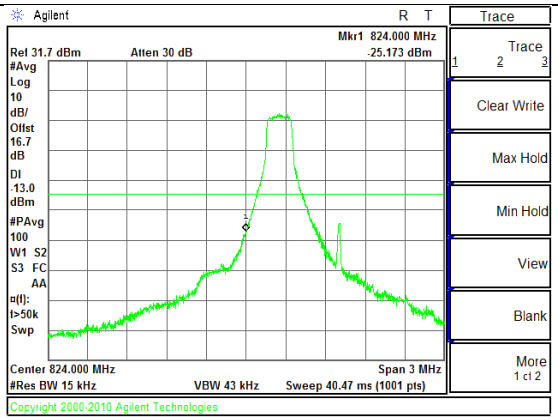
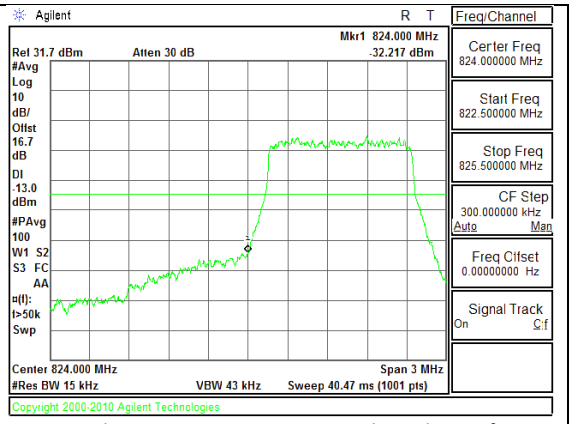
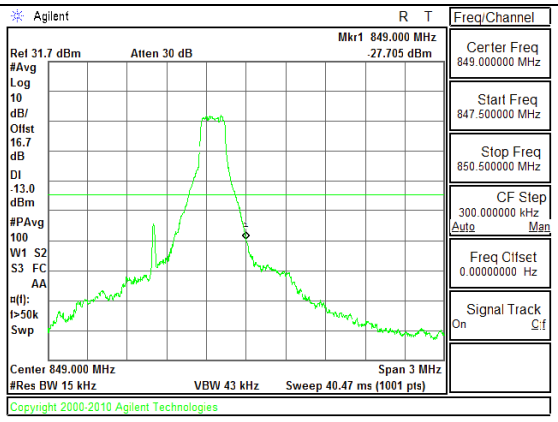
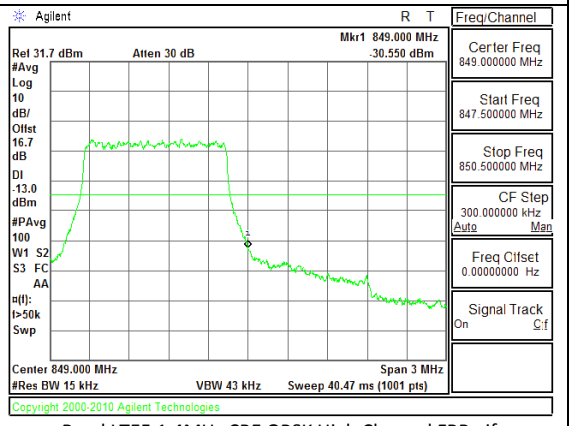
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK High Channel FRB.gif

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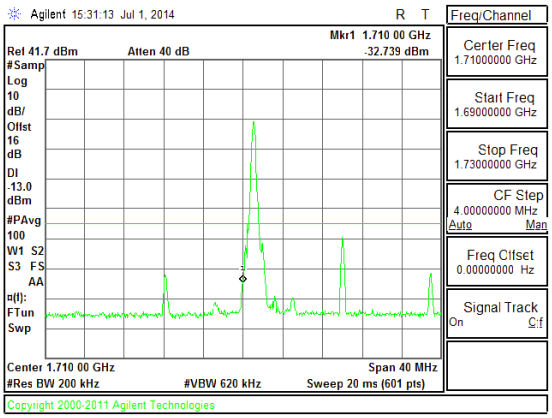
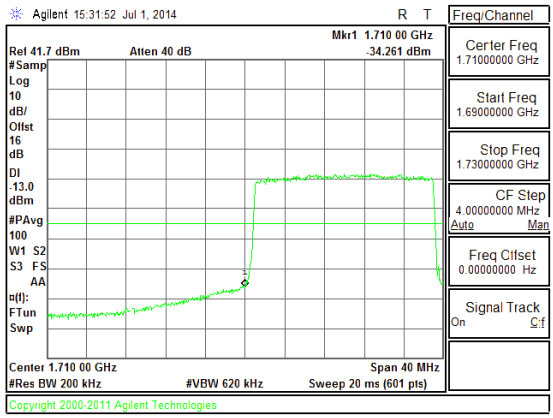
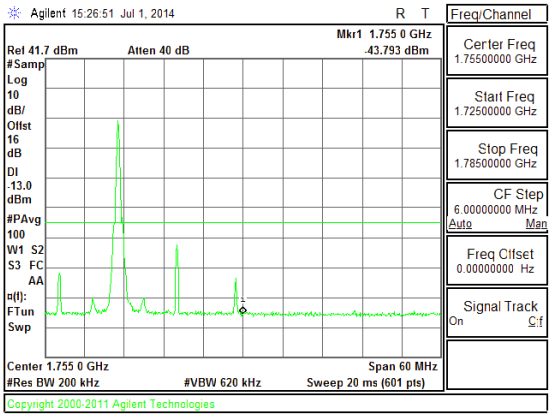
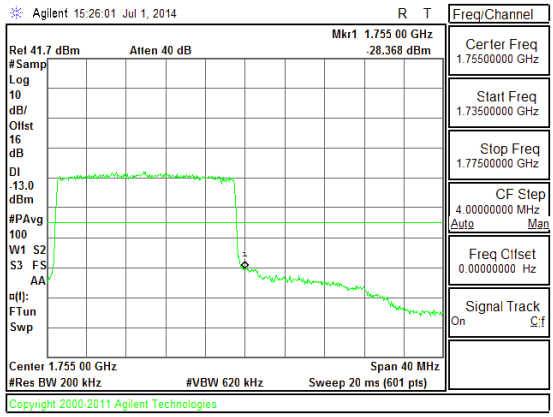
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 20MHz CBE 16QAM High Channel FRB.gif

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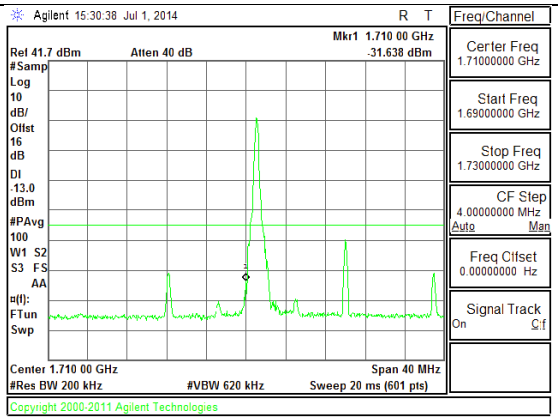
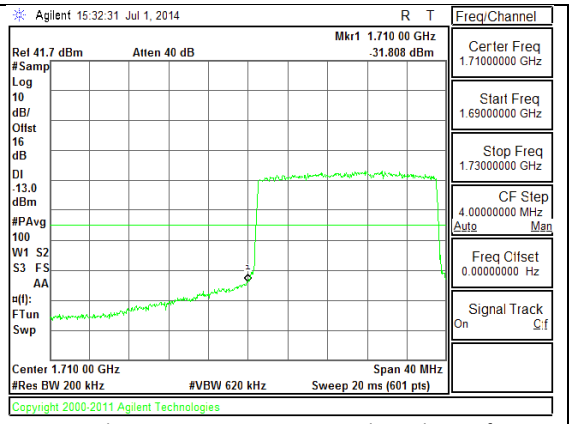
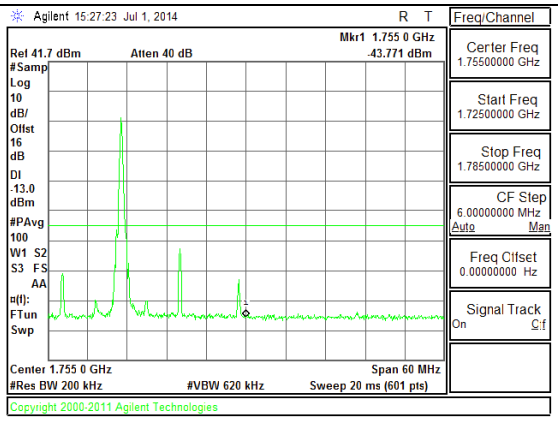
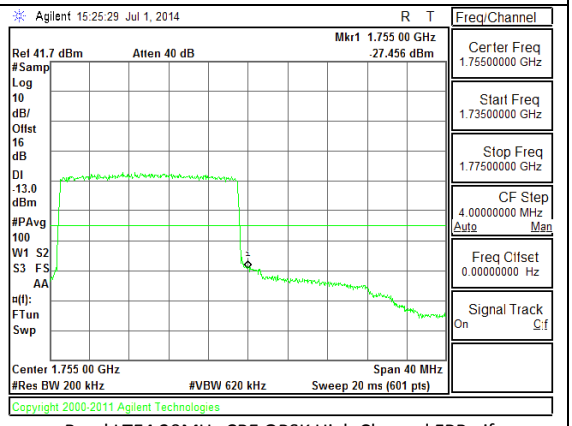
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK Low Channel FRB.gif
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK High Channel FRB.gif

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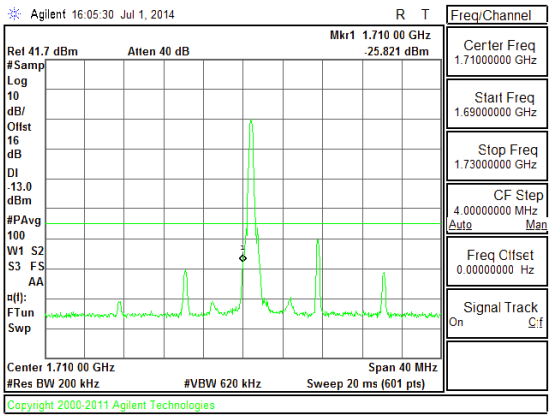
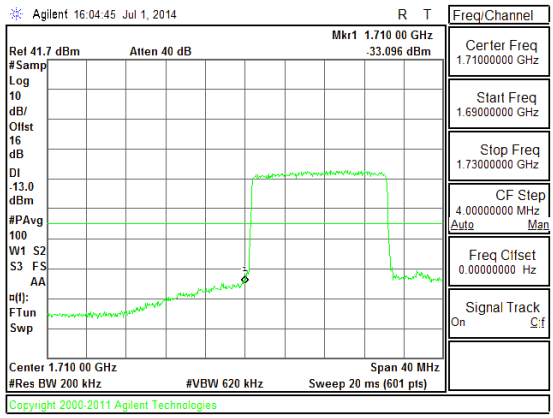
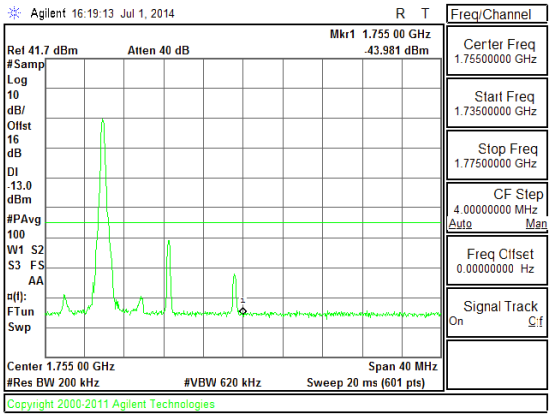
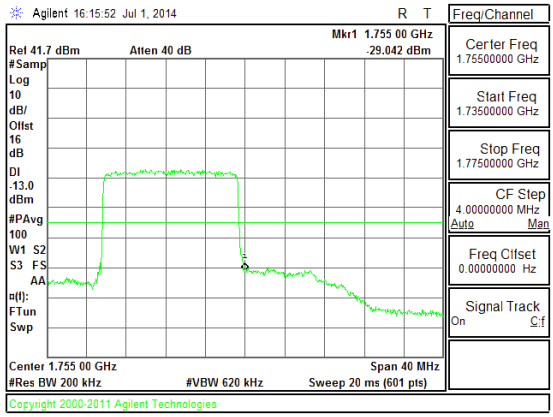
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM High Channel FRB.gif

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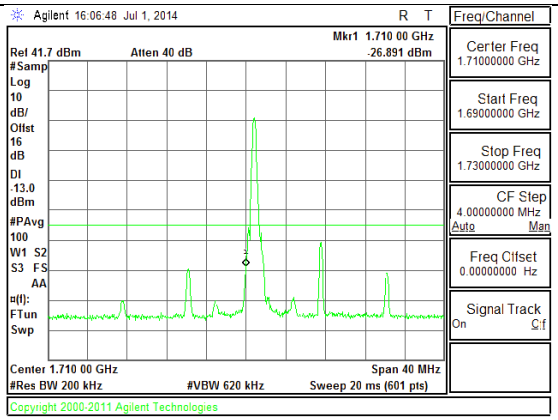
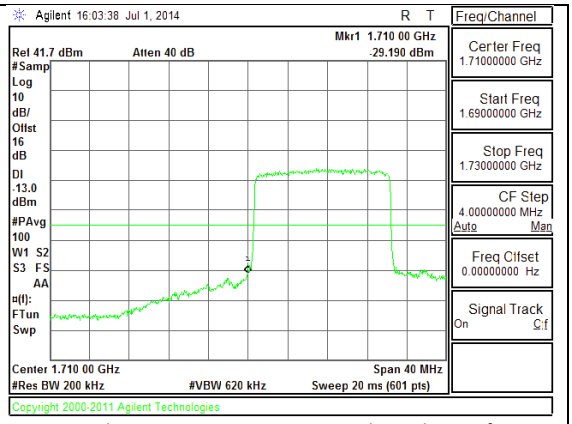
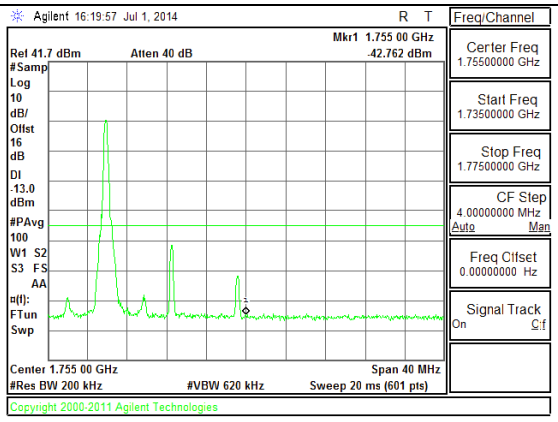
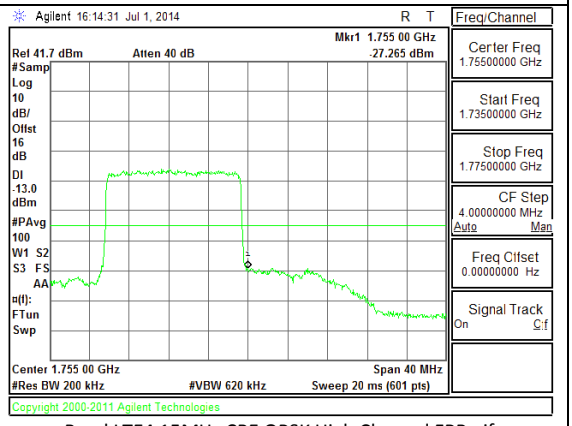
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK Low Channel FRB.gif
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK High Channel FRB.gif

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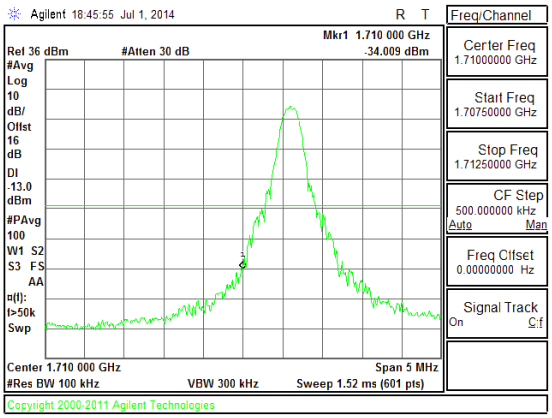
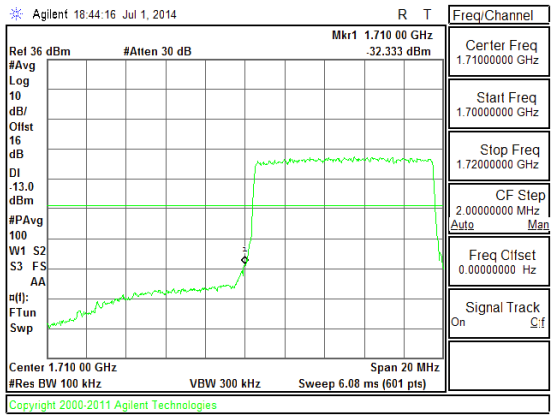
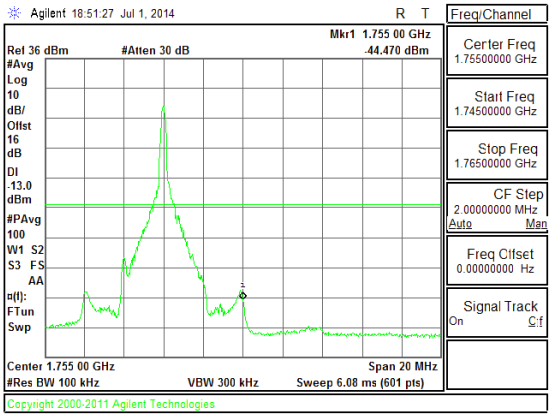
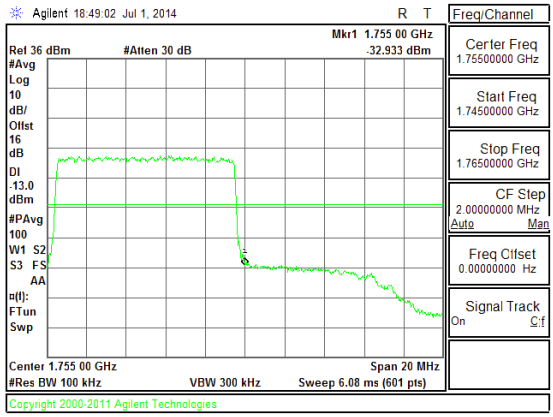
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 10MHz CBE 16QAM High Channel FRB.gif

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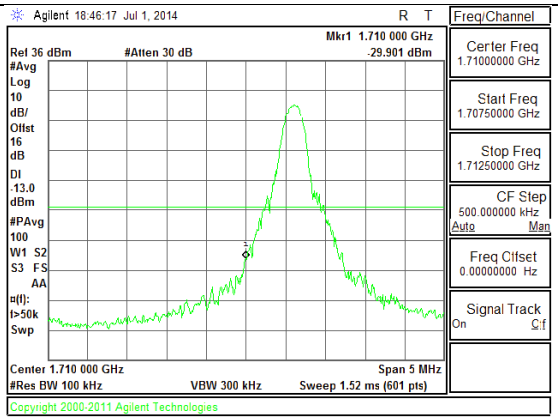
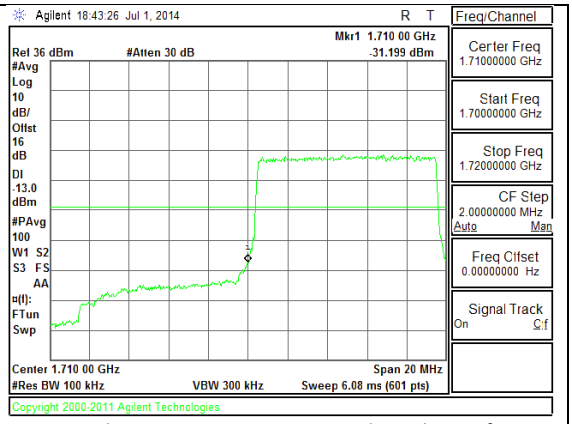
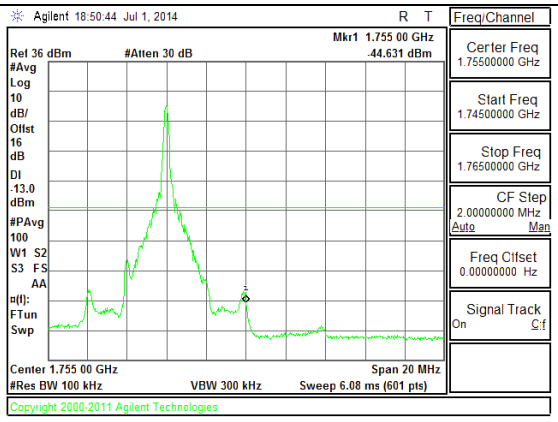
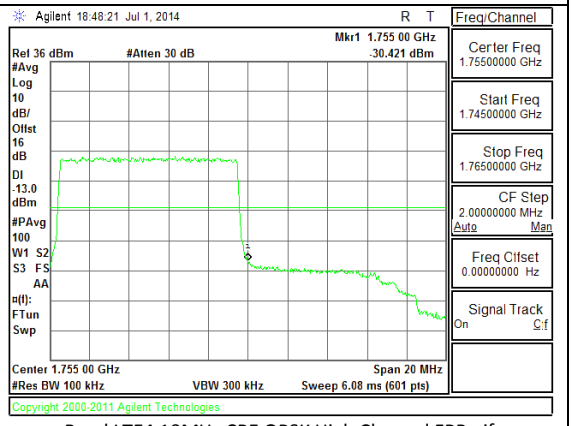
Band LTE4 10MHz QPSK	 Band LTE4 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 10MHz CBE QPSK Low Channel FRB.gif
Band LTE4 10MHz QPSK	 Band LTE4 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 10MHz CBE QPSK High Channel FRB.gif

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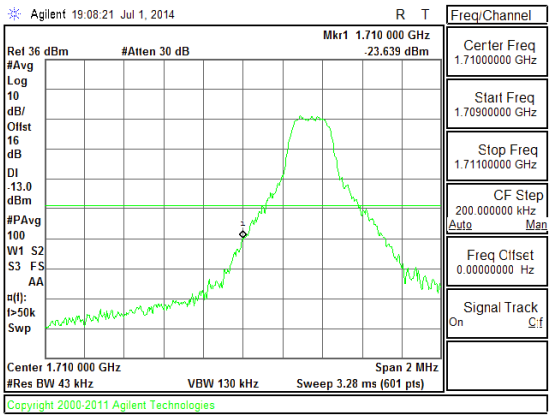
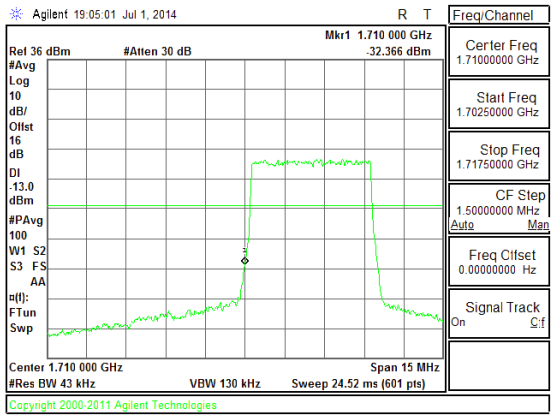
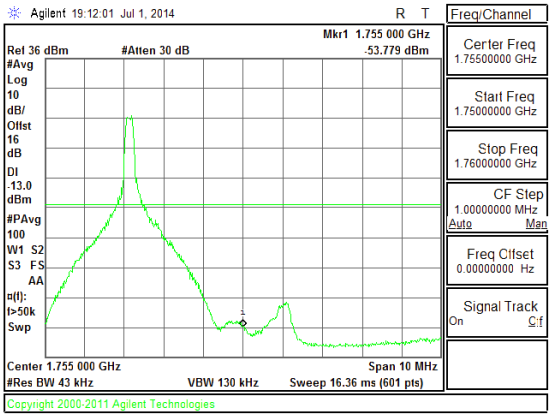
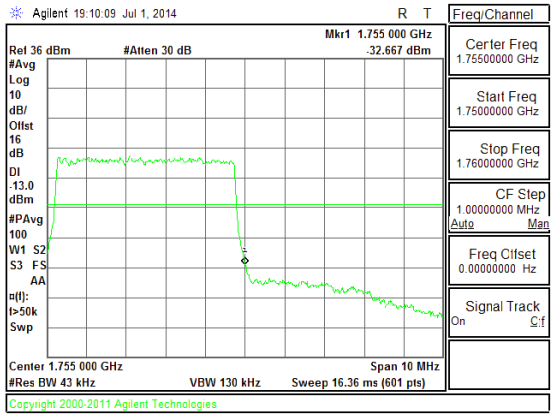
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM High Channel FRB.gif

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