FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART F
FCC CFR47 PART 27 SUBPART H
FCC CFR47 PART 27 SUBPART L
FCC CFR47 PART 27 SUBPART M
FCC CFR47 PART 90 SUBPART S

C2PC CERTIFICATION TEST REPORT

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

MODEL NUMBER: LG-H791, LGH791, H791, LG-H791F, LGH791F, H791F

FCC ID: ZNFH791

REPORT NUMBER: 15I21552-E1V1

ISSUE DATE: AUGUST 31, 2015

Prepared for
LG ELECTRONICS MOBILECOMM U.S.A., INC
1000 SYLVAN AVENUE
ENGLEWOOD CLIFFS,
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Prepared by
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NVLAP LAB CODE 200065-0

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-	08/31/15	Initial Issue	C.S.OOI

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS MOBILECOMM U.S.A., INC
EUT DESCRIPTION:	GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n/ac & NFC
MODEL:	LG-H791, LGH791, H791, LG-H791F, LGH791F, H791F
SERIAL NUMBER:	00a442e9d0acbc8a (Conducted), 009cea0340864b55 (Radiated)
DATE TESTED:	AUGUST 25 - 31, 2015

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

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

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

Approved & Released For
UL Verification Services Inc. By:

CHOON SIAN OOI
CONSUMER TECHNOLOGY DIVISION
PROJECT LEAD
UL VERIFICATION SERVICES INC

Tested By:

CHARLES VERGONIO
CONSUMER TECHNOLOGY DIVISION
LAB ENGINEER
UL VERIFICATION SERVICES INC

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 22, FCC CFR Part 24, FCC CFR 47 Part 27, and FCC CFR 47 Part 90.

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street
☐ Chamber A(IC: 2324B-1)	☐ Chamber D(IC: 2324B-4)
☒ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 2324B-5)
☒ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 2324B-6)
	☐ Chamber G(IC: 2324B-7)
	☐ Chamber H(IC: 2324B-8)

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

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4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

EIRP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna) + Substitution Antenna Factor (dBi)

ERP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna)

(Path loss = Signal generator output – PSA reading with substitution antenna)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

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

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

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

5.2. MAXIMUM OUTPUT POWER

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

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GMSK	33.1	2041.74		
	824~849	GPRS	33.1	2041.74	29.95	988.55
	824~849	EGPRS	27.2	524.81	25.52	356.45
GSM1900	1850~1910	GMSK	29.7	933.25		
	1850~1910	GPRS	29.7	933.25	31.04	1270.57
	1850~1910	EGPRS	25.6	363.08	26.44	440.55
Band 5	824~849	REL99	24.6	288.40	19.90	97.72
	824~849	HSDPA	24.6	288.40	19.4	87.10
	824~849	HSUPA	24.2	263.03		
Band 4	1710~1755	REL99	23.9	245.47	22.81	190.99
	1710~1755	HSDPA	23.8	239.88	22.04	159.96
	1710~1755	HSUPA	23.3	213.80		
Band 2	1850~1910	REL99	23.9	245.47	25.17	328.85
	1850~1910	HSDPA	23.8	239.88	24.88	307.61
	1850~1910	HSUPA	23.1	204.17		

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5.1. MAXIMUM OUTPUT POWER (LTE)

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

LTE Band 2

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	20MHz	QPSK	23.4	218.78	24.47	279.90
			16QAM	22.4	173.78	23.87	243.78
		15MHz	QPSK	23.4	218.78	24.27	267.30
			16QAM	22.3	169.82	23.86	243.22
		10MHz	QPSK	23.4	218.78	24.54	284.45
			16QAM	22.1	162.18	23.90	245.47
		5MHz	QPSK	23.3	213.80	24.69	294.44
			16QAM	22.3	169.82	23.75	237.14
		3MHz	QPSK	23.3	213.80	24.74	297.85
			16QAM	22.1	162.18	23.54	225.94
		1.4MHz	QPSK	23.3	213.80	24.69	294.44
			16QAM	22.0	158.49	23.71	234.96

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LTE Band 4

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	20MHz	QPSK	23.4	218.78	25.98	396.28
			16QAM	22.1	162.18	25.38	345.14
		15MHz	QPSK	23.3	213.80	25.94	392.64
			16QAM	22.2	165.96	25.46	351.56
		10MHz	QPSK	23.4	218.78	26.05	402.72
			16QAM	22.2	165.96	25.44	349.95
		5MHz	QPSK	23.4	218.78	26.05	402.72
			16QAM	22.5	177.83	25.41	347.54
		3MHz	QPSK	23.2	208.93	26.07	404.58
			16QAM	22.3	169.82	25.43	349.14
		1.4MHz	QPSK	23.3	213.80	26.10	407.38
			16QAM	22.3	169.82	25.45	350.75

LTE Band 5

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	10MHz	QPSK	24.2	263.03	21.59	144.21
			16QAM	23.2	208.93	21.28	134.28
		5MHz	QPSK	24.2	263.03	21.08	128.23
			16QAM	23.2	208.93	20.75	118.85
		3MHz	QPSK	24.2	263.03	21.69	147.57
			16QAM	23.2	208.93	21.37	137.09
		1.4MHz	QPSK	24.2	263.03	22.17	164.82
			16QAM	23.2	208.93	21.76	149.97

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LTE Band 7

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	Peak(dBm)	Peak(mW)
LTE7	2500~2570	20MHz	QPSK	23.7	234.42	20.86	121.90
			16QAM	22.4	173.78	19.90	97.72
		15MHz	QPSK	23.7	234.42	20.91	123.31
			16QAM	22.3	169.82	20.12	102.80
		10MHz	QPSK	23.7	234.42	20.71	117.76
			16QAM	22.1	162.18	19.90	97.72
		5MHz	QPSK	23.7	234.42	20.68	116.95
			16QAM	22.2	165.96	19.95	98.86

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LTE Band 17

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	10MHz	QPSK	24.2	263.03	17.21	52.60
			16QAM	23.0	199.53	16.43	43.95
		5MHz	QPSK	24.2	263.03	17.11	51.40
			16QAM	23.0	199.53	16.35	43.15

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LTE Band 26 PART 90

FCC Part 90							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE26	814~824	10MHz	QPSK	24.2	263.03	21.08	128.23
			16QAM	22.7	186.21	20.78	119.67
		5MHz	QPSK	24.2	263.03	22.31	170.22
			16QAM	23.1	204.17	21.63	145.55
		3MHz	QPSK	24.2	263.03	21.93	155.96
			16QAM	23.1	204.17	21.73	148.94
		1.4MHz	QPSK	24.2	263.03	21.73	148.94
			16QAM	22.9	194.98	21.43	139.00

LTE Band 26 PART 22

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE26	824~849	15MHz	QPSK	24.1	257.04	21.20	131.83
			16QAM	23.0	1.00	20.90	123.03
		10MHz	QPSK	24.2	199.53	21.08	128.23
			16QAM	22.7	263.03	20.78	119.67
		5MHz	QPSK	24.2	186.21	22.31	170.22
			16QAM	23.1	263.03	21.63	145.55
		3MHz	QPSK	24.2	204.17	21.93	155.96
			16QAM	23.1	263.03	21.73	148.94
		1.4MHz	QPSK	24.2	204.17	21.73	148.94
			16QAM	22.9	263.03	21.43	139.00

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LTE Band 41

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	Peak(dBm)	Peak(mW)
LTE41	2496~2690	20MHz	QPSK	23.2	208.93	21.0	125.89
			16QAM	21.8	151.36	20.47	111.43
		15MHz	QPSK	23.1	204.17	21.45	139.64
			16QAM	21.7	147.91	20.59	114.55
		10MHz	QPSK	23.2	208.93	21.02	126.47
			16QAM	21.9	154.88	20.47	111.43
		5MHz	QPSK	23.2	208.93	20.40	109.65
			16QAM	22.1	162.18	20.02	100.46

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5.2. DESCRIPTION OF AVAILABLE ANTENNAS

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

Frequency (MHz)	Peak Gain (dBi)
GSM850, 824~849MHz	-4.8
GSM1900, 1850~1910MHz	-0.9
Band 5, 824~849MHz	-4.8
Band 4, 1710~1755MHz	-1.1
Band 2, 1850~1910MHz	-0.9
Band 7, 2500~2570MHz	-2.6
Band 17, 704~716MHz	-4.1
Band 26, 814~849MHz	-4.8
Band 41, 2496~2690MHz	-2.6

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5.3. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	LG	MCS-N04WS	SA560000030	DoC
Earphone	LG	-	-	

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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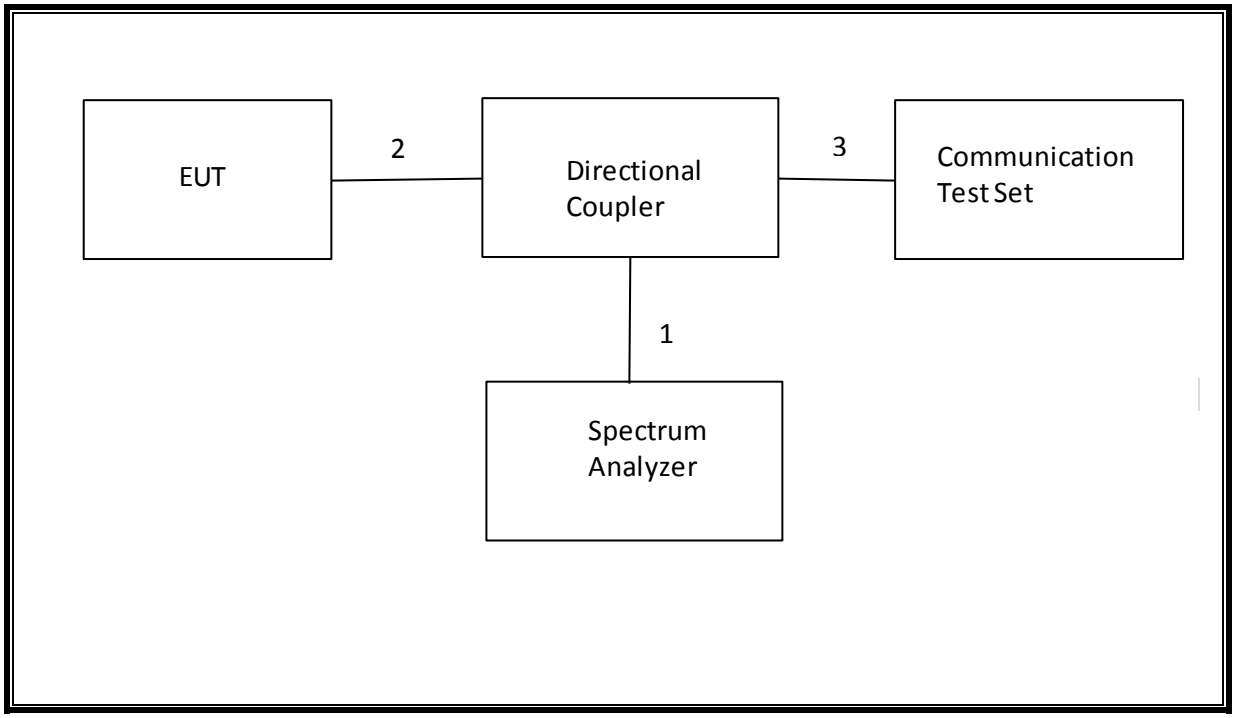
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



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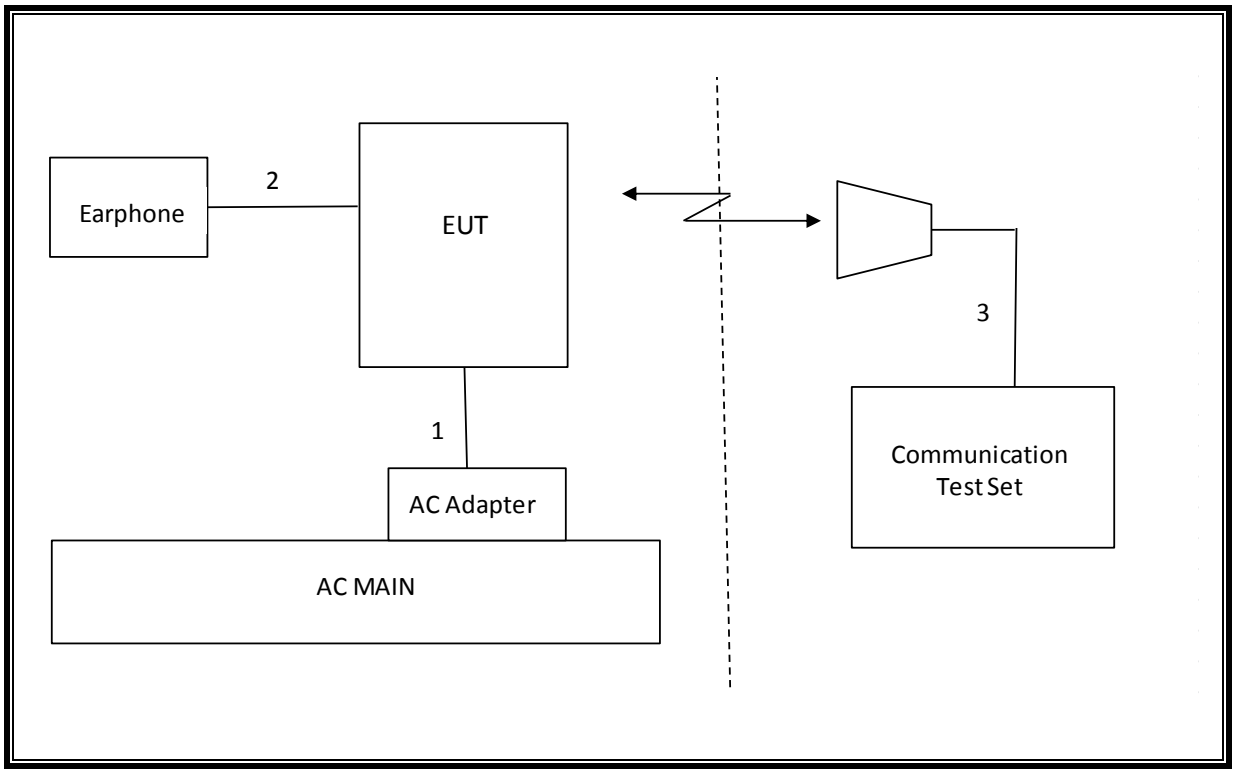
SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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6. TEST AND MEASUREMENT EQUIPMENT

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

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7. Summary Table

C2PC Reason:

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Note
2.1049	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	17.93 MHz
22.917(a) 24.238(a) 27.53(g) 90.691	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emission	-13dBm		Pass	-16.04 dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-28.82 dBm
2.1046	N/A	Conducted output power	N/A		Pass	33.1dBm
27.53(m) 90.691	RSS-199(4.5)	Emission Mask	Refer to page 171		Pass	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		N/A	N/A
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38.5 dBm	Radiated	Pass	29.95dBm
27.50(c)(10)	N/A		34.77 dBm		Pass	17.21 dBm
90.635	N/A		50dBm		Pass	22.31 dBm
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	31.04 dBm
27.50(d)(4)	RSS-139(6.4)		30dBm		Pass	26.10 dBm
22.917(a) 24.238(a) 27.53(g)	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Radiated Spurious Emission	-13dBm		Pass	-22.3 dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-37.5 dBm

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8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

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

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

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

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

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

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

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 30 dBm for GPRS1800/1900

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

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

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

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

Channel Type > Off

P0> 4 dB

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

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

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

Bit Stream > 2E9-1PSR Bit Pattern

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

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

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8.1.1. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	29.7
			661	1880.0	29.6
			810	1909.8	29.6
GPRS (GMSK)	CS1	1	512	1850.2	29.7
			661	1880.0	29.6
			810	1909.8	29.6
		2	512	1850.2	27.7
			661	1880.0	27.5
			810	1909.8	27.6
		3	512	1850.2	25.7
			661	1880.0	25.5
			810	1909.8	25.5
		4	512	1850.2	24.7
			661	1880.0	24.6
			810	1909.8	24.7
EGPRS (8PSK)	MCS5	1	512	1850.2	25.6
			661	1880.0	25.5
			810	1909.8	25.6
		2	512	1850.2	24.7
			661	1880.0	24.6
			810	1909.8	24.7
		3	512	1850.2	23.6
			661	1880.0	23.6
			810	1909.8	23.6
		4	512	1850.2	22.6
			661	1880.0	22.6
			810	1909.8	22.6

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Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	128	824.2	33.0
			190	836.6	33.0
			251	848.8	33.1
GPRS (GMSK)	CS1	1	128	824.2	33.0
			190	836.6	33.0
			251	848.8	33.1
		2	128	824.2	31.1
			190	836.6	31.0
			251	848.8	31.1
		3	128	824.2	29.2
			190	836.6	29.1
			251	848.8	29.1
		4	128	824.2	28.2
			190	836.6	28.0
			251	848.8	28.0
EGPRS (8PSK)	MCS5	1	128	824.2	27.2
			190	836.6	27.1
			251	848.8	27.2
		2	128	824.2	26.1
			190	836.6	26
			251	848.8	26
		3	128	824.2	25.1
			190	836.6	25
			251	848.8	25.1
		4	128	824.2	24.1
			190	836.6	24.0
			251	848.8	24.0

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8.2. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

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

8.2.1. UMTS REL 99 OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Rel 99 (RMC, 12.2 kbps)	4132	826.4	0	24.6
		4183	836.6	0	24.6
		4233	846.6	0	24.6

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	0	23.9
		1413	1732.6	0	23.9
		1513	1752.6	0	23.9

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	0	23.9
		9400	1880.0	0	23.9
		9538	1907.6	0	23.9

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8.3. UMTS HSDPA

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

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

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8.3.1. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	24.6
		4183	836.6	0	24.6
		4233	846.6	0	24.5
	Subtest 2	4132	826.4	0	24.6
		4183	836.6	0	24.6
		4233	846.6	0	24.4
	Subtest 3	4132	826.4	0.5	24.0
		4183	836.6	0.5	24.1
		4233	846.6	0.5	23.9
	Subtest 4	4132	826.4	0.5	24.0
		4183	836.6	0.5	24.1
		4233	846.6	0.5	24.0

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	23.8
		1413	1732.6	0	23.8
		1513	1752.6	0	23.8
	Subtest 2	1312	1712.4	0	23.9
		1413	1732.6	0	23.8
		1513	1752.6	0	23.8
	Subtest 3	1312	1712.4	0.5	23.2
		1413	1732.6	0.5	23.2
		1513	1752.6	0.5	23.2
	Subtest 4	1312	1712.4	0.5	23.3
		1413	1732.6	0.5	23.2
		1513	1752.6	0.5	23.2

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Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.6
		9400	1880.0	0	23.8
		9538	1907.6	0	23.6
	Subtest 2	9262	1852.4	0	23.6
		9400	1880.0	0	23.9
		9538	1907.6	0	23.5
	Subtest 3	9262	1852.4	0.5	23.1
		9400	1880.0	0.5	23.4
		9538	1907.6	0.5	23.0
	Subtest 4	9262	1852.4	0.5	23.1
		9400	1880.0	0.5	23.3
		9538	1907.6	0.5	23.0

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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

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	24.1
		4183	836.6	0	24.0
		4233	846.6	0	24.2
	Subtest 2	4132	826.4	2	22.7
		4183	836.6	2	22.6
		4233	846.6	2	22.6
	Subtest 3	4132	826.4	1	23.6
		4183	836.6	1	23.5
		4233	846.6	1	23.3
	Subtest 4	4132	826.4	2	22.7
		4183	836.6	2	22.6
		4233	846.6	2	22.6
	Subtest 5	4132	826.4	0	24.4
		4183	836.6	0	24.5
		4233	846.6	0	24.0

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	23.3
		1413	1732.6	0	23.3
		1513	1752.6	0	23.3
	Subtest 2	1312	1712.4	2	21.9
		1413	1732.6	2	21.9
		1513	1752.6	2	21.9
	Subtest 3	1312	1712.4	1	22.7
		1413	1732.6	1	22.7
		1513	1752.6	1	22.7
	Subtest 4	1312	1712.4	2	21.9
		1413	1732.6	2	21.9
		1513	1752.6	2	21.9
	Subtest 5	1312	1712.4	0	23.5
		1413	1732.6	0	23.6
		1513	1752.6	0	23.5

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Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.0
		9400	1880.0	0	23.0
		9538	1907.6	0	23.1
	Subtest 2	9262	1852.4	2	21.5
		9400	1880.0	2	21.6
		9538	1907.6	2	21.5
	Subtest 3	9262	1852.4	1	22.4
		9400	1880.0	1	22.6
		9538	1907.6	1	22.1
	Subtest 4	9262	1852.4	2	21.9
		9400	1880.0	2	21.9
		9538	1907.6	2	21.9
	Subtest 5	9262	1852.4	0	23.5
		9400	1880.0	0	23.2
		9538	1907.6	0	23.2

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

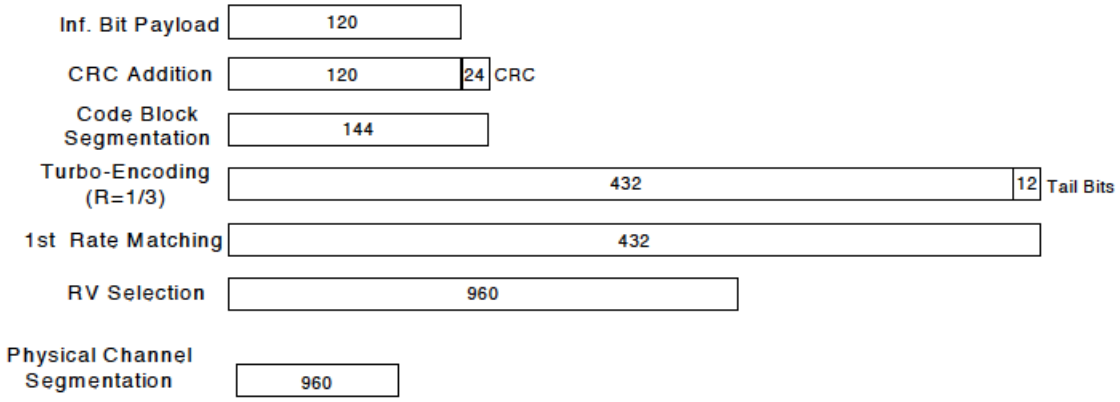

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

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

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	βhs	4/15	24/15	30/15	30/15
	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.

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8.3.5. UMTS DC-HSDPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	24.6
		4183	836.6	0	24.6
		4233	846.6	0	24.5
	Subtest 2	4132	826.4	0	24.6
		4183	836.6	0	24.6
		4233	846.6	0	24.5
	Subtest 3	4132	826.4	0.5	24.0
		4183	836.6	0.5	24.1
		4233	846.6	0.5	24.0
	Subtest 4	4132	826.4	0.5	24.0
		4183	836.6	0.5	24.1
		4233	846.6	0.5	24.0

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	23.8
		1413	1732.6	0	23.8
		1513	1752.6	0	23.8
	Subtest 2	1312	1712.4	0	23.7
		1413	1732.6	0	23.8
		1513	1752.6	0	23.7
	Subtest 3	1312	1712.4	0.5	23.3
		1413	1732.6	0.5	23.2
		1513	1752.6	0.5	23.2
	Subtest 4	1312	1712.4	0.5	23.2
		1413	1732.6	0.5	23.2
		1513	1752.6	0.5	23.2

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Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.9
		9400	1880.0	0	23.9
		9538	1907.6	0	23.9
	Subtest 2	9262	1852.4	0	23.9
		9400	1880.0	0	23.8
		9538	1907.6	0	23.8
	Subtest 3	9262	1852.4	0.5	23.3
		9400	1880.0	0.5	23.3
		9538	1907.6	0.5	23.3
	Subtest 4	9262	1852.4	0.5	23.3
		9400	1880.0	0.5	23.3
		9538	1907.6	0.5	23.3

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8.1. LTE OUTPUT VERIFICATION

8.1.1. LTE OUTPUT RESULT

LTE Band 2

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18700	18900	19100
						1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	23.4	23.4	23.4
			1	49	0	23.2	23.3	23.3
			1	99	0	23.3	23.3	22.9
			50	0	1	22.3	22.3	22.2
			50	24	1	22.0	22.3	22.3
			50	50	1	22.1	22.3	22.2
			100	0	1	22.1	22.2	22.4
		16QAM	1	0	1	22.4	22.0	21.9
			1	49	1	22.1	22.4	22.0
			1	99	1	22.4	22.3	21.9
			50	0	2	21.3	21.2	21.2
			50	24	2	21.0	21.2	21.2
			50	50	2	21.1	21.2	21.3
			100	0	2	21.2	21.2	21.4

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18675	18900	19125
						1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	23.2	23.4	23.3
			1	37	0	23.4	23.3	23.3
			1	74	0	23.0	23.4	22.9
			36	0	1	22.4	22.3	22.2
			36	20	1	22.3	22.3	22.2
			36	39	1	21.9	22.3	22.1
			75	0	1	22.1	22.2	22.3
		16QAM	1	0	1	22.3	22.3	22.2
			1	37	1	22.3	22.3	21.9
			1	74	1	22.4	22.3	21.8
			36	0	2	21.4	21.3	21.1
			36	20	2	21.2	21.2	21.2
			36	39	2	20.9	21.2	21.2
			75	0	2	21.0	21.1	21.3

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18650	18900	19150
						1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	22.9	23.4	23.4
			1	25	0	23.2	23.4	23.0
			1	49	0	23.1	23.3	22.9
			25	0	1	21.9	22.1	22.2
			25	12	1	21.7	22.2	22.2
			25	25	1	21.9	22.1	21.9
			50	0	1	21.8	22.2	22.1
		16QAM	1	0	1	21.9	21.9	22.1
			1	25	1	21.7	21.9	22.1
			1	49	1	22.2	21.9	21.8
			25	0	2	20.8	21.1	21.2
			25	12	2	20.7	21.2	21.3
			25	25	2	20.9	21.1	21.0
			50	0	2	20.7	21.1	21.2

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	23.1	23.3	22.9
			1	12	0	23.4	23.3	22.7
			1	24	0	23.2	23.3	23.0
			12	0	1	21.9	22.2	22.0
			12	7	1	21.9	22.2	21.9
			12	13	1	21.8	22.1	21.8
			25	0	1	21.8	22.1	21.9
		16QAM	1	0	1	22.2	21.9	22.3
			1	12	1	22.0	22.0	22.0
			1	24	1	22.2	21.9	22.0
			12	0	2	20.9	21.0	21.0
			12	7	2	20.9	21.1	20.9
			12	13	2	20.8	21.1	20.9
			25	0	2	20.8	21.2	20.9

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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	23.0	23.3	22.8
			1	8	0	23.2	23.3	22.9
			1	14	0	23.1	23.3	23.0
			8	0	1	21.9	22.1	21.8
			8	4	1	21.9	22.2	21.9
			8	7	1	21.9	22.2	21.8
			15	0	1	21.8	22.1	21.8
		16QAM	1	0	1	22.1	21.8	21.9
			1	8	1	22.1	22.1	22.0
			1	14	1	22.0	21.8	21.8
			8	0	2	20.9	21.1	20.8
			8	4	2	20.9	21.2	20.9
			8	7	2	20.8	21.2	20.9
			15	0	2	20.9	21.1	20.8

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	23.1	23.3	22.9
			1	3	0	23.3	23.2	22.9
			1	5	0	23.1	23.4	22.9
			3	0	0	23.1	23.3	22.7
			3	1	0	23.0	23.3	22.7
			3	3	0	23.1	23.3	22.6
			6	0	1	21.8	22.1	21.8
		16QAM	1	0	1	21.9	22.0	21.7
			1	3	1	21.9	22.0	21.8
			1	5	1	21.9	22.0	21.6
			3	0	1	21.6	21.8	21.8
			3	1	1	21.6	21.8	21.8
			3	3	1	21.6	21.8	21.8
			6	0	2	20.8	21.2	20.8

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LTE Band 4

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20050	20175	20300
						1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0		23.3	
			1	49	0		23.4	
			1	99	0		23.2	
			50	0	1		22.2	
			50	24	1		22.1	
			50	50	1		22.1	
			100	0	1		22.1	
		16QAM	1	0	1		22.1	
			1	49	1		22.0	
			1	99	1		21.9	
			50	0	2		21.1	
			50	24	2		21.1	
			50	50	2		21.1	
			100	0	2		21.1	

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	23.3	23.3	23.3
			1	37	0	23.2	23.3	22.5
			1	74	0	23.2	23.3	22.4
			36	0	1	22.2	22.1	22.2
			36	20	1	22.1	22.1	21.7
			36	39	1	22.1	22.2	21.4
			75	0	1	22.1	22.1	21.7
		16QAM	1	0	1	22.2	22.0	22.1
			1	37	1	22.1	21.8	21.6
			1	74	1	22.2	21.9	21.3
			36	0	2	21.1	21.0	21.1
			36	20	2	21.0	21.0	20.7
			36	39	2	21.1	21.1	20.5
			75	0	2	21.1	21.1	20.7

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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	23.4	23.3	22.7
			1	25	0	23.2	23.2	22.4
			1	49	0	23.1	23.2	22.1
			25	0	1	22.0	22.0	21.6
			25	12	1	22.0	22.0	21.5
			25	25	1	22.0	22.0	21.3
			50	0	1	22.0	22.0	21.4
		16QAM	1	0	1	22.2	21.8	21.8
			1	25	1	21.9	21.7	21.5
			1	49	1	22.1	21.8	21.2
			25	0	2	20.9	20.9	20.6
			25	12	2	21.0	21.1	20.5
			25	25	2	20.9	21.0	20.4
			50	0	2	20.8	21.1	20.4

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	23.4	23.1	22.3
			1	12	0	23.4	23.1	22.2
			1	24	0	23.4	23.2	22.1
			12	0	1	22.2	22.1	21.4
			12	7	1	22.1	22.0	21.3
			12	13	1	22.1	22.1	21.3
			25	0	1	22.0	21.9	21.3
		16QAM	1	0	1	22.5	21.8	21.6
			1	12	1	22.3	22.0	21.5
			1	24	1	22.2	21.9	21.4
			12	0	2	21.1	20.9	20.4
			12	7	2	21.1	20.9	20.4
			12	13	2	21.1	21.0	20.3
			25	0	2	21.0	21.0	20.3

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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	23.2	23.1	22.3
			1	8	0	23.2	23.3	22.3
			1	14	0	23.3	23.2	22.2
			8	0	1	22.1	22.0	21.3
			8	4	1	22.2	22.1	21.3
			8	7	1	22.1	21.8	21.2
			15	0	1	22.1	21.9	21.2
		16QAM	1	0	1	22.2	21.7	21.4
			1	8	1	22.3	21.7	21.4
			1	14	1	22.1	21.7	21.3
			8	0	2	21.1	20.9	20.3
			8	4	2	21.1	20.8	20.2
			8	7	2	21.1	20.8	20.2
			15	0	2	21.2	20.9	20.2

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	23.3	23.2	22.2
			1	3	0	23.3	23.3	22.3
			1	5	0	23.3	23.2	22.2
			3	0	0	23.3	23.2	22.1
			3	1	0	23.3	23.1	22.1
			3	3	0	23.2	23.1	22.1
			6	0	1	22.1	21.8	21.1
		16QAM	1	0	1	22.2	22.0	21.4
			1	3	1	22.3	22.0	21.4
			1	5	1	22.1	21.9	21.3
			3	0	1	21.9	21.7	21.1
			3	1	1	21.8	21.8	21.2
			3	3	1	21.8	21.7	21.1
			6	0	2	21.1	20.9	20.2

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LTE Band 7

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20850	21100	21350
						2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	23.6	23.7	23.5
			1	49	0	23.4	23.6	23.4
			1	99	0	23.2	23.7	23.3
			50	0	1	22.4	22.5	22.4
			50	24	1	22.3	22.5	22.4
			50	50	1	22.4	22.6	22.3
			100	0	1	22.4	22.5	22.4
		16QAM	1	0	1	22.4	22.1	22.0
			1	49	1	22.3	22.1	21.9
			1	99	1	22.4	22.1	21.9
			50	0	2	21.4	21.4	21.4
			50	24	2	21.3	21.5	21.4
			50	50	2	21.3	21.5	21.3
			100	0	2	21.5	21.5	21.4

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	23.3	23.6	23.5
			1	37	0	23.3	23.6	23.6
			1	74	0	23.4	23.7	23.5
			36	0	1	22.2	22.4	22.3
			36	20	1	22.2	22.4	22.3
			36	39	1	22.3	22.4	22.2
			75	0	1	22.3	22.5	22.3
		16QAM	1	0	1	22.3	21.8	22.0
			1	37	1	22.3	21.9	21.9
			1	74	1	22.1	21.9	22.2
			36	0	2	21.3	21.4	21.4
			36	20	2	21.3	21.4	21.4
			36	39	2	21.2	21.4	21.2
			75	0	2	21.3	21.4	21.3

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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	23.3	23.7	23.7
			1	25	0	23.4	23.5	23.4
			1	49	0	23.3	23.5	23.5
			25	0	1	22.1	22.4	22.3
			25	12	1	22.2	22.3	22.4
			25	25	1	22.3	22.4	22.2
			50	0	1	22.3	22.3	22.2
		16QAM	1	0	1	21.9	21.9	22.1
			1	25	1	21.9	21.7	22.0
			1	49	1	22.2	21.8	21.9
			25	0	2	21.2	21.3	21.3
			25	12	2	21.3	21.2	21.3
			25	25	2	21.2	21.3	21.3
			50	0	2	21.1	21.2	21.2

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	23.4	23.3	23.7
			1	12	0	23.7	23.4	23.6
			1	24	0	23.4	23.4	23.5
			12	0	1	22.1	22.3	22.2
			12	7	1	22.0	22.3	22.2
			12	13	1	22.1	22.3	22.2
			25	0	1	22.0	22.2	22.2
		16QAM	1	0	1	22.1	21.9	22.2
			1	12	1	22.1	21.9	22.1
			1	24	1	22.2	22.0	22.0
			12	0	2	21.0	21.3	21.2
			12	7	2	21.1	21.2	21.2
			12	13	2	21.2	21.2	21.1
			25	0	2	21.0	21.3	21.1

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LTE Band 17

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm) 23790 710 MHz
LTE Band 17	10	QPSK	1	0	0	24.2
			1	25	0	24.0
			1	49	0	24.1
			25	0	1	22.9
			25	12	1	22.9
			25	25	1	22.8
			50	0	1	22.8
		16QAM	1	0	1	23.0
			1	25	1	23.0
			1	49	1	23.0
			25	0	2	21.9
			25	12	2	21.9
			25	25	2	21.8
			50	0	2	21.7

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm) 23790 710 MHz
LTE Band 17	5	QPSK	1	0	0	24.0
			1	12	0	24.2
			1	24	0	24.0
			12	0	1	22.8
			12	7	1	22.8
			12	13	1	22.8
			25	0	1	22.8
		16QAM	1	0	1	22.9
			1	12	1	22.9
			1	24	1	23.0
			12	0	2	21.8
			12	7	2	21.8
			12	13	2	21.7
			25	0	2	21.7

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LTE Band 26

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26765	26865	26965
						821.5 MHz	831.5 MHz	841.5 MHz
LTE Band 26	15	QPSK	1	0	0		24.1	
			1	37	0		24.1	
			1	74	0		24.1	
			36	0	1		22.8	
			36	20	1		22.8	
			36	39	1		22.8	
			75	0	1		22.8	
		16QAM	1	0	1		22.9	
			1	37	1		23.0	
			1	74	1		22.9	
			36	0	2		21.8	
			36	20	2		21.8	
			36	39	2		21.8	
			75	0	2		21.8	

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26740	26865	26990
						819 MHz	831.5 MHz	844 MHz
LTE Band 26	10	QPSK	1	0	0	24.0	23.9	24.0
			1	25	0	23.9	24.2	23.9
			1	49	0	23.9	24.1	24.0
			25	0	1	22.6	22.8	22.6
			25	12	1	22.7	22.8	22.7
			25	25	1	22.5	22.7	22.8
			50	0	1	22.6	22.7	22.6
		16QAM	1	0	1	22.7	22.5	22.7
			1	25	1	22.7	22.6	22.5
			1	49	1	22.7	22.5	22.7
			25	0	2	21.6	21.7	21.7
			25	12	2	21.7	21.7	21.6
			25	25	2	21.5	21.6	21.8
			50	0	2	21.5	21.6	21.6

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26715	26865	27015
						816.5 MHz	831.5 MHz	846.5 MHz
LTE Band 26	5	QPSK	1	0	0	24.1	24.0	24.1
			1	12	0	24.0	24.1	24.2
			1	24	0	24.0	24.1	24.0
			12	0	1	22.5	22.8	22.7
			12	7	1	22.7	22.7	22.6
			12	13	1	22.6	22.7	22.6
			25	0	1	22.6	22.6	22.6
		16QAM	1	0	1	22.7	22.9	23.1
			1	12	1	22.6	23.0	22.9
			1	24	1	22.5	22.9	22.9
			12	0	2	21.4	21.8	21.5
			12	7	2	21.5	21.8	21.6
			12	13	2	21.4	21.7	21.6
			25	0	2	21.5	21.7	21.5

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26705	26865	27025
						815.5 MHz	831.5 MHz	847.5 MHz
LTE Band 26	3	QPSK	1	0	0	24.0	24.1	23.9
			1	8	0	24.2	24.2	24.0
			1	14	0	23.9	24.2	24.0
			8	0	1	22.6	22.8	22.6
			8	4	1	22.5	22.7	22.6
			8	7	1	22.6	22.7	22.6
			15	0	1	22.5	22.7	22.6
		16QAM	1	0	1	22.4	22.8	23.0
			1	8	1	22.5	22.9	23.1
			1	14	1	22.3	22.7	22.7
			8	0	2	21.5	21.7	21.6
			8	4	2	21.5	21.7	21.6
			8	7	2	21.5	21.7	21.5
			15	0	2	21.4	21.7	21.6

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						26697	26865	27033
						814.7 MHz	831.5 MHz	848.3 MHz
LTE Band 26	1.4	QPSK	1	0	0	24.2	24.2	23.9
			1	3	0	24.1	24.2	24.0
			1	5	0	24.2	24.1	23.9
			3	0	0	24.0	24.0	23.9
			3	1	0	23.9	24.1	23.9
			3	3	0	23.9	23.9	23.7
			6	0	1	22.5	22.6	22.4
		16QAM	1	0	1	22.7	22.8	22.3
			1	3	1	22.8	22.9	22.4
			1	5	1	22.7	22.8	22.3
			3	0	1	22.5	22.5	22.5
			3	1	1	22.4	22.5	22.6
			3	3	1	22.4	22.5	22.5
			6	0	2	21.5	21.6	21.5

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LTE Band 41

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39750	40620	41490
						2506 MHz	2593 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	23.0	23.1	23.2
			1	49	0	23.1	23.0	23.1
			1	99	0	23.0	23.0	23.1
			50	0	1	21.8	21.9	21.9
			50	24	1	21.8	22.0	21.9
			50	50	1	21.7	21.9	21.9
			100	0	1	21.7	21.9	21.9
		16QAM	1	0	1	21.6	22.1	21.6
			1	49	1	21.7	21.8	21.6
			1	99	1	21.9	22.0	21.4
			50	0	2	20.8	21.0	20.8
			50	24	2	20.8	21.0	20.7
			50	50	2	20.7	20.9	20.7
			100	0	2	20.7	20.9	20.9

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39725	40620	41515
						2503.5 MHz	2593 MHz	2682.5 MHz
LTE Band 41	15	QPSK	1	0	0	23.0	23.0	23.1
			1	37	0	23.0	23.1	22.9
			1	74	0	23.1	22.9	22.8
			36	0	1	21.8	22.0	21.9
			36	20	1	21.9	22.0	21.8
			36	39	1	21.8	22.0	21.8
			75	0	1	21.7	22.0	21.8
		16QAM	1	0	1	21.7	21.6	21.5
			1	37	1	21.7	21.5	21.5
			1	74	1	21.7	21.6	21.4
			36	0	2	20.8	21.1	20.8
			36	20	2	20.8	21.0	20.7
			36	39	2	20.8	21.0	20.7
			75	0	2	20.7	20.9	20.8

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39700	40620	41540
						2501 MHz	2593 MHz	2685 MHz
LTE Band 41	10	QPSK	1	0	0	22.9	23.2	23.0
			1	25	0	22.9	23.0	22.9
			1	49	0	22.9	23.2	22.9
			25	0	1	21.7	21.9	21.7
			25	12	1	21.8	22.0	21.8
			25	25	1	21.9	22.0	21.8
			50	0	1	21.7	21.9	21.7
		16QAM	1	0	1	21.6	21.7	21.5
			1	25	1	21.5	21.6	21.4
			1	49	1	21.6	21.7	21.3
			25	0	2	20.7	20.9	20.7
			25	12	2	20.7	20.9	20.7
			25	25	2	20.8	20.9	20.8
			50	0	2	20.6	21.0	20.7

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						39675	40620	41565
						2498.5 MHz	2593 MHz	2687.5 MHz
LTE Band 41	5	QPSK	1	0	0	22.9	23.2	23.1
			1	12	0	23.0	23.1	23.0
			1	24	0	23.0	23.2	23.1
			12	0	1	21.7	21.9	21.7
			12	7	1	21.9	21.9	21.9
			12	13	1	21.7	21.9	21.7
			25	0	1	21.7	21.8	21.7
		16QAM	1	0	1	21.8	22.0	21.5
			1	12	1	21.8	21.8	21.8
			1	24	1	21.8	22.0	21.4
			12	0	2	20.7	20.9	20.6
			12	7	2	20.8	21.0	20.8
			12	13	2	20.7	20.9	20.6
			25	0	2	20.6	20.9	20.7

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9. PEAK TO AVERAGE RATIO

Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

Test Spec

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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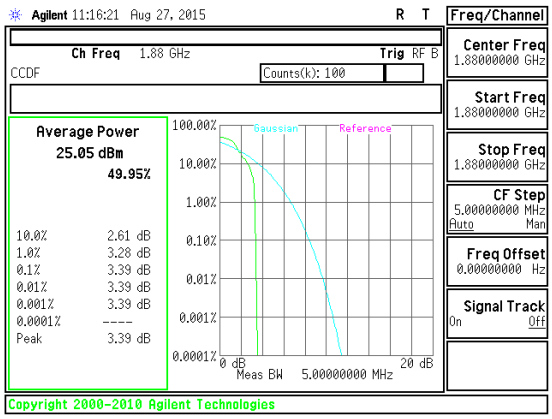
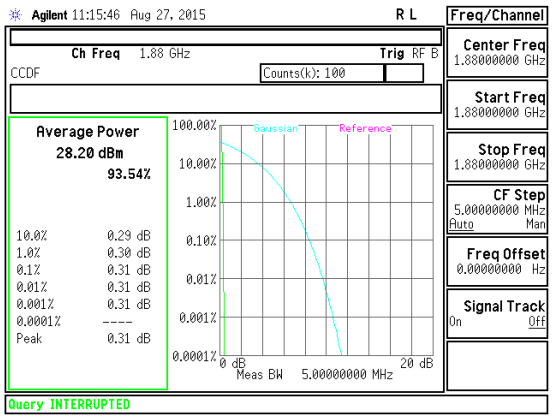
9.1. CONDUCTED PEAK TO AVERAGE RESULT

GSM

Band GSM1900	 Band GSM1900 EGPRS Mid channel	 Band GSM1900 GPRS Mid channel

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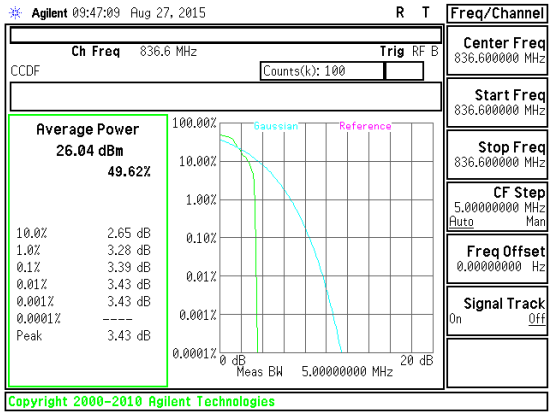
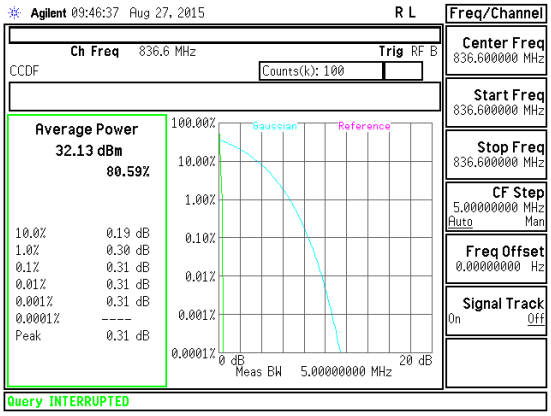
Band GSM850	 Band GSM850 EGPRS Mid channel	 Band GSM850 GPRS Mid channel

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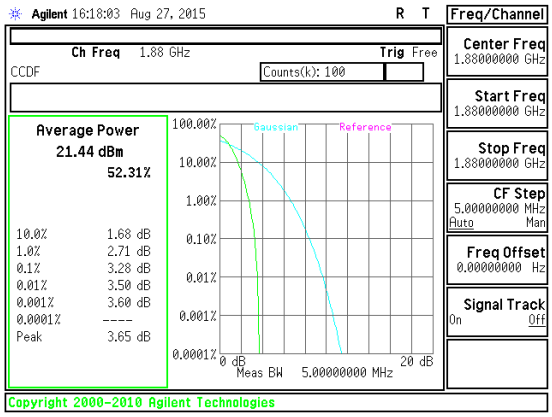
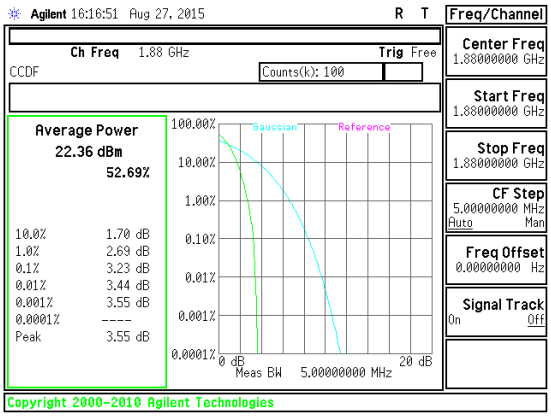
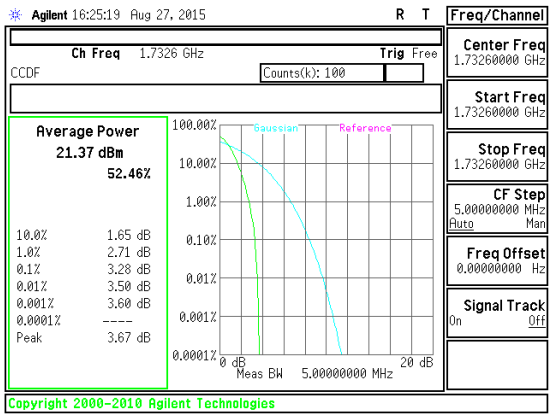
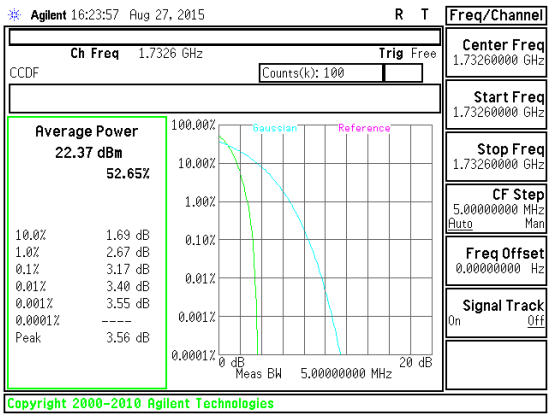
WCDMA

Band		
Band 2	 Band WCDMA B2 HSDPA	 Band WCDMA B2 REL99

Band		
Band 4	 Band WCDMA B4 HSDPA	 Band WCDMA B4 REL99

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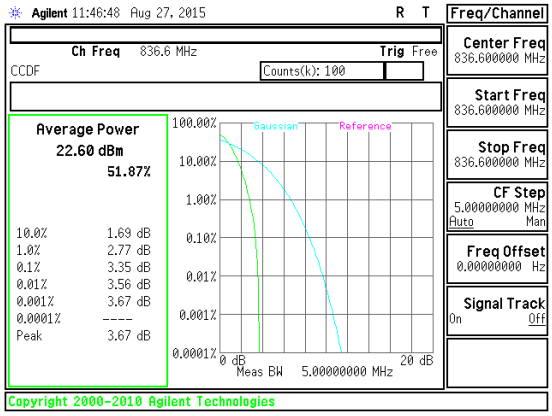
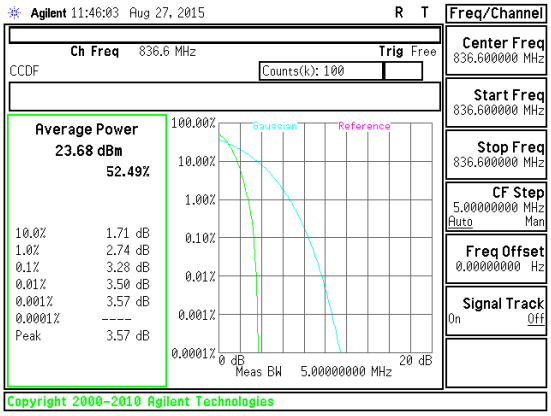
Band Band 5	 Band WCDMA B5 HSDPA	 Band WCDMA B5 REL99

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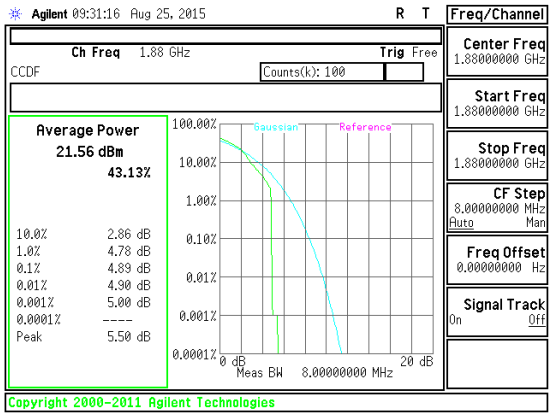
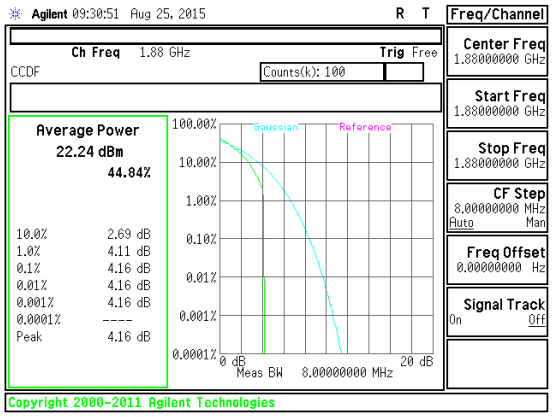
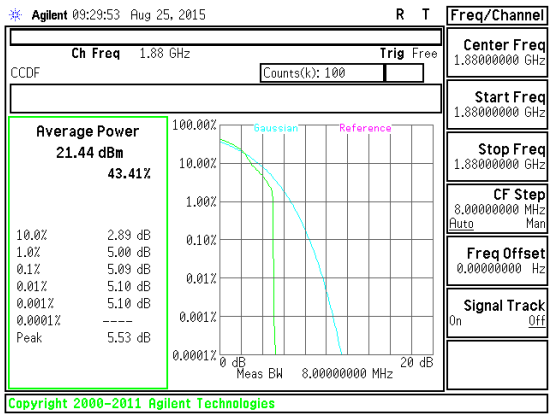
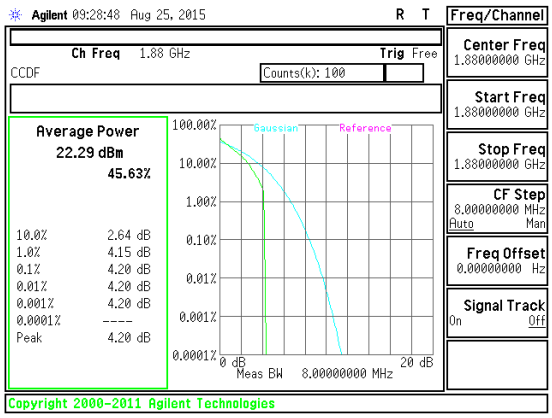
LTE Band 2

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

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

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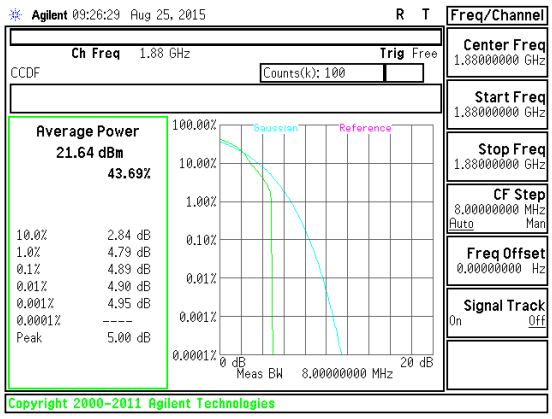
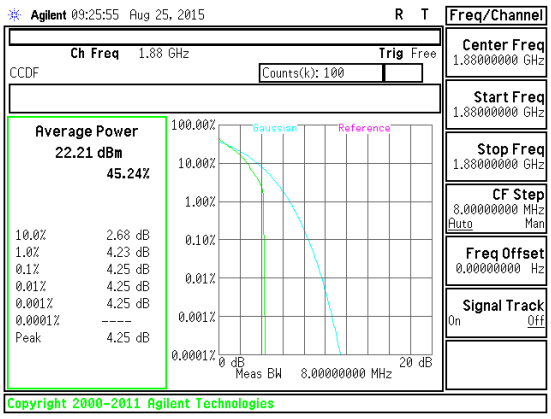
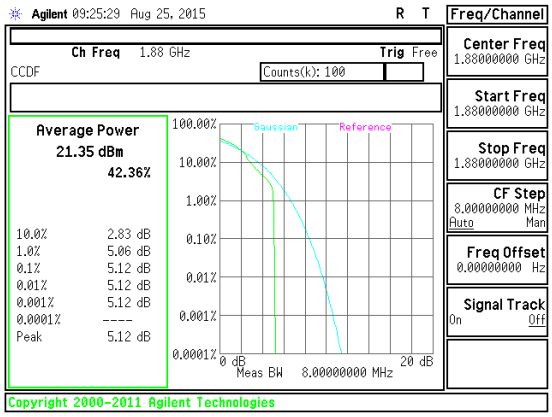
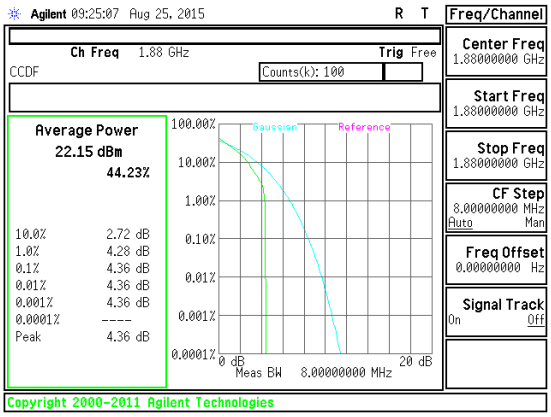
Band LTE2 10MHz	 Band LTE2 10MHz 16QAM Mid channel	 Band LTE2 10MHz QPSK Mid channel

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

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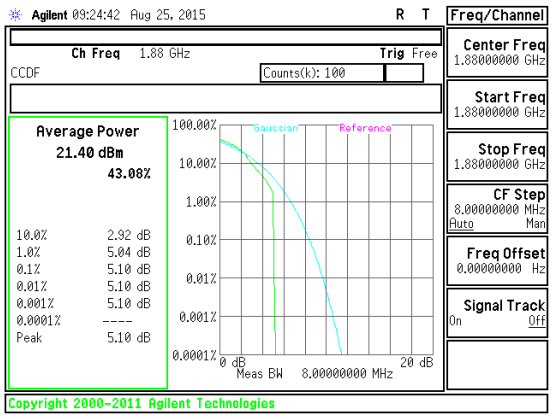
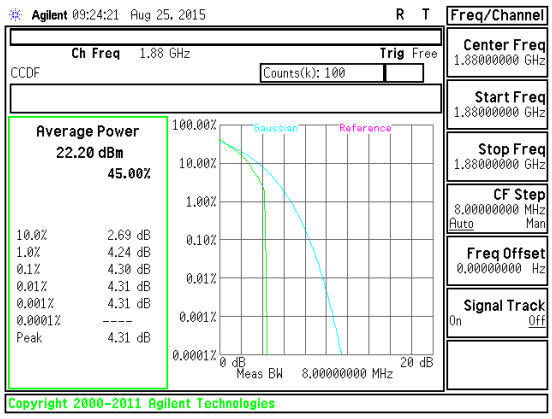
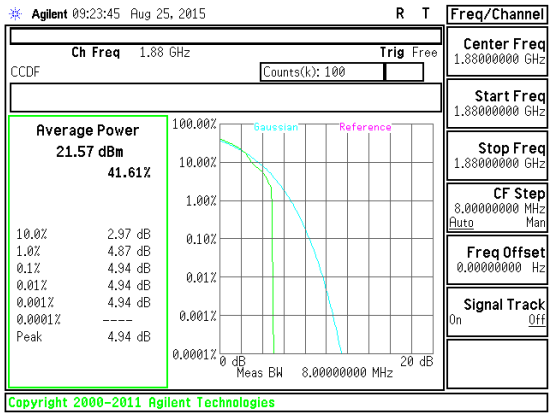
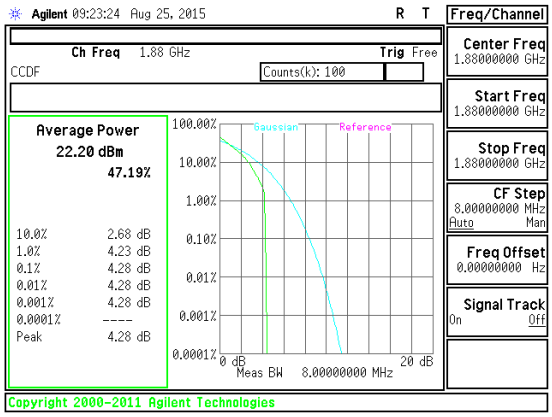
Band LTE2 3MHz	 Band LTE2 3MHz 16QAM Mid channel	 Band LTE2 3MHz QPSK Mid channel

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

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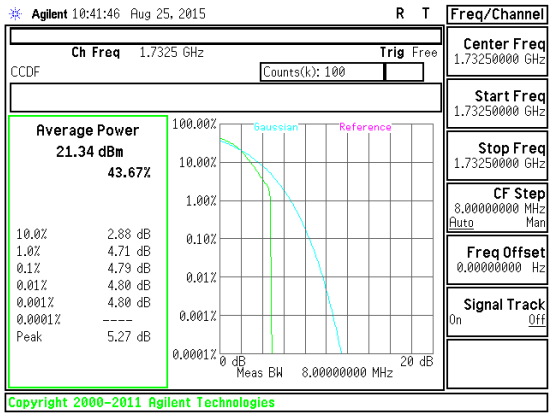
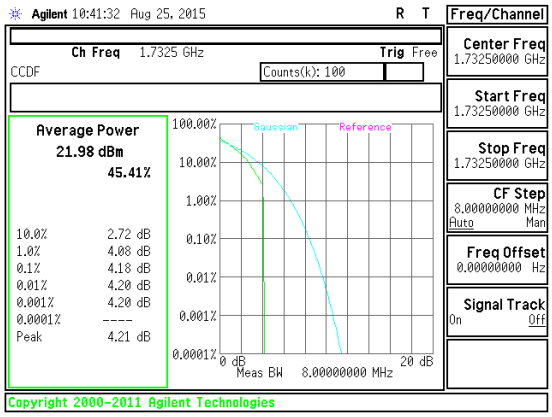
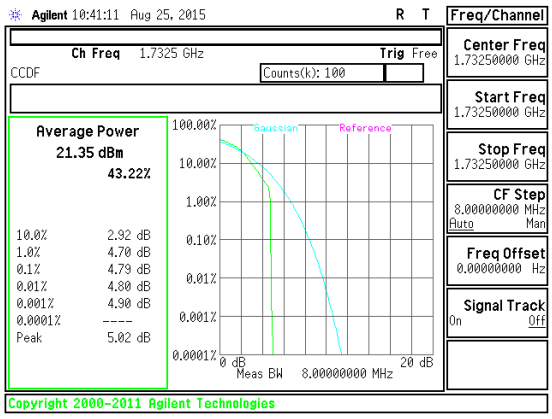
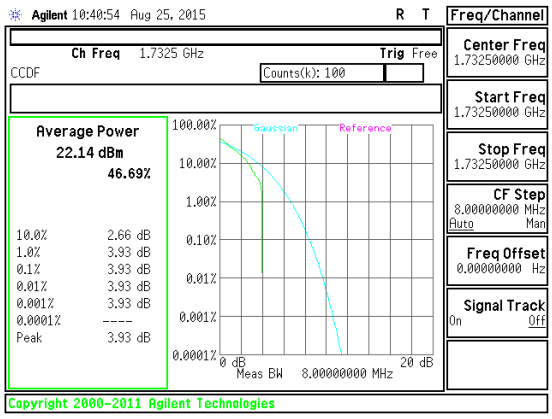
LTE Band 4

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

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

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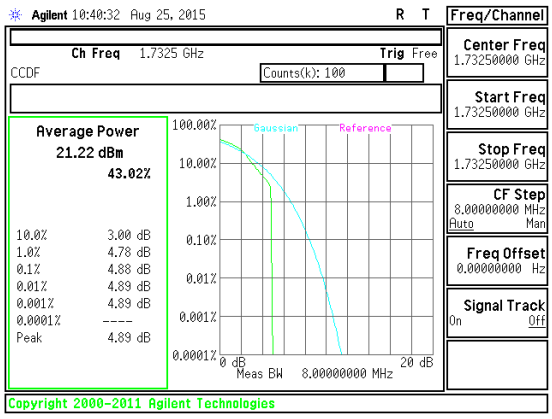
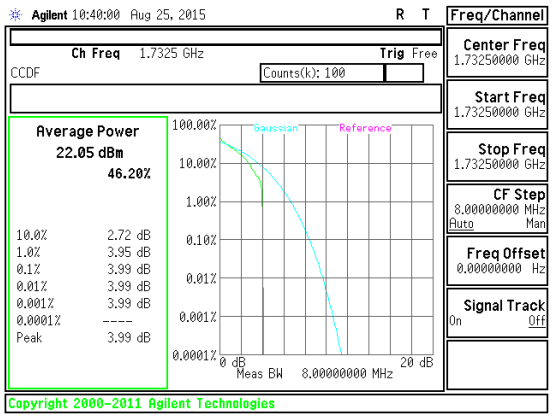
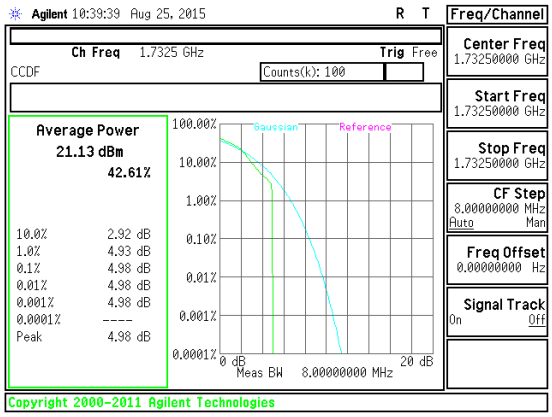
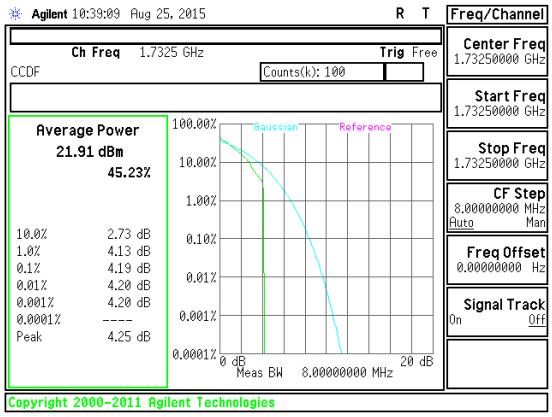
Band LTE4 10MHz	 Band LTE4 10MHz 16QAM Mid channel	 Band LTE4 10MHz QPSK Mid channel

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

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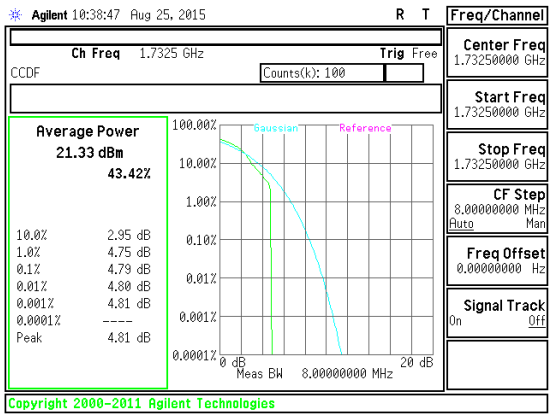
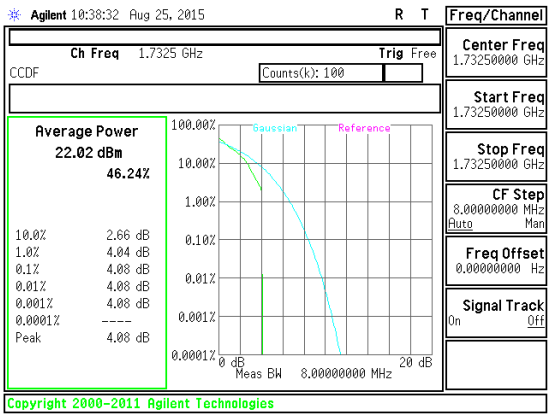
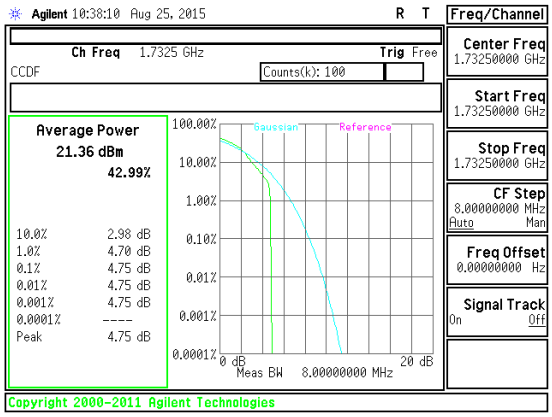
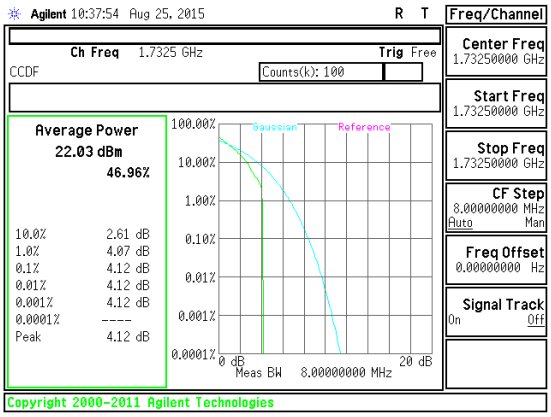
Band LTE4 3MHz	 Band LTE4 3MHz 16QAM Mid channel	 Band LTE4 3MHz QPSK Mid channel

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

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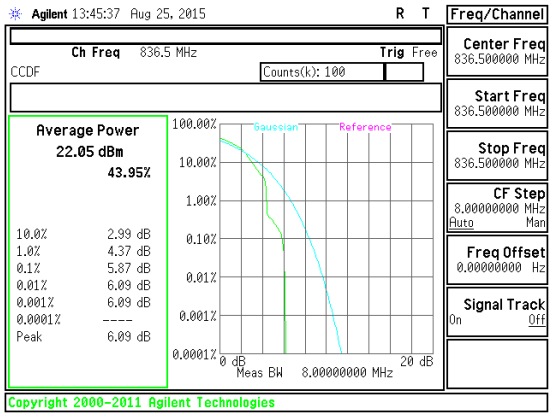
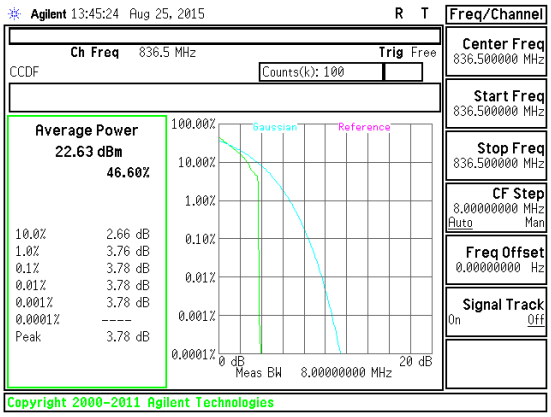
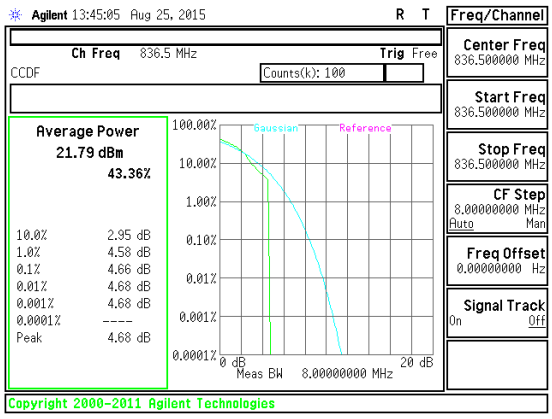
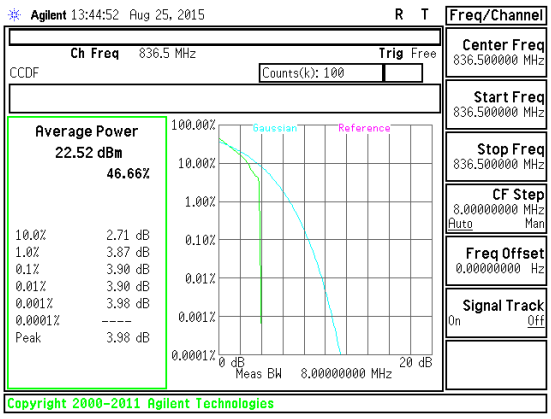
LTE Band 5

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

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

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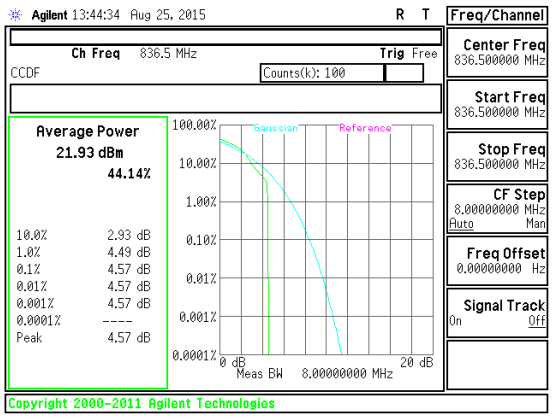
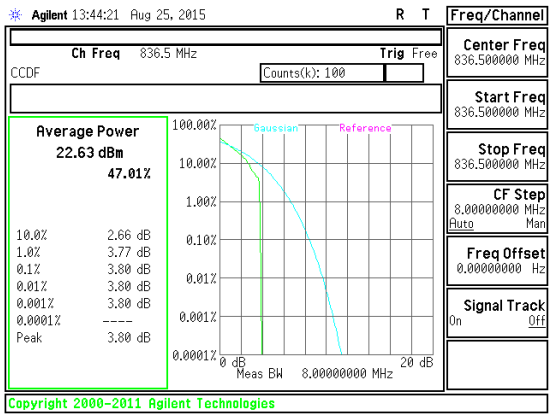
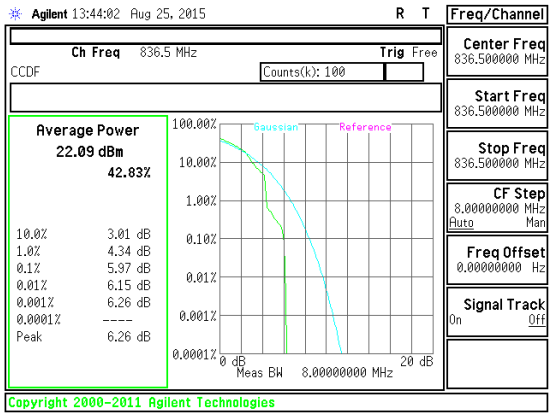
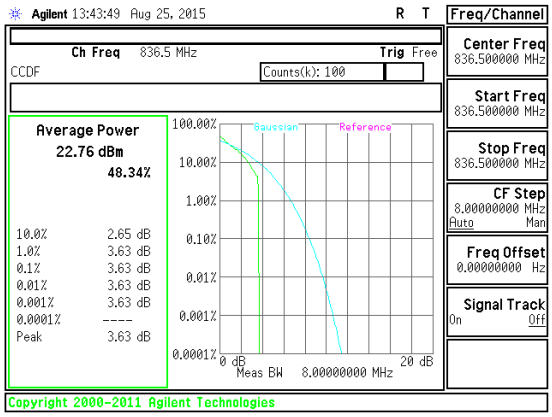
Band LTE5 3MHz	 Band LTE5 3MHz 16QAM Mid channel	 Band LTE5 3MHz QPSK Mid channel

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

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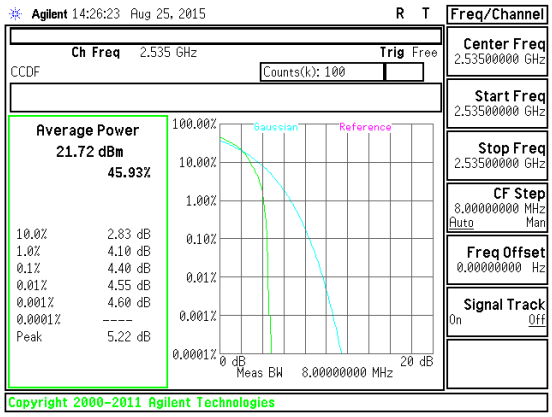
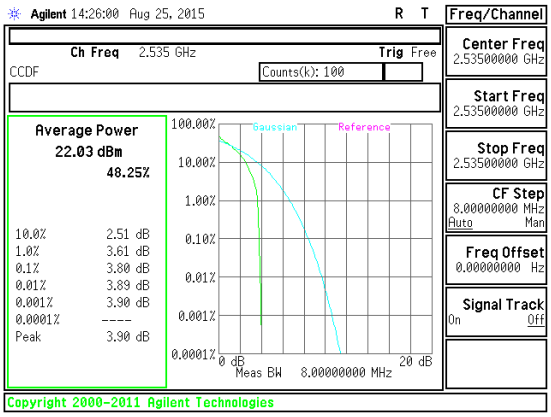
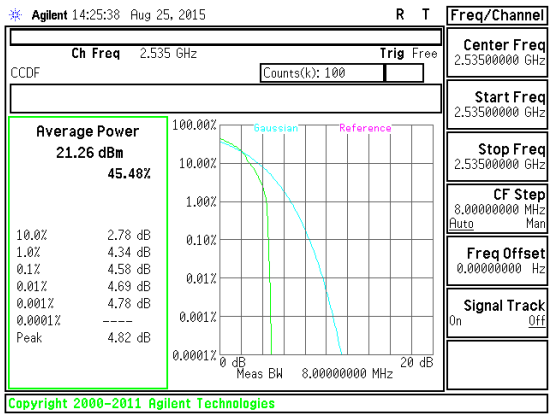
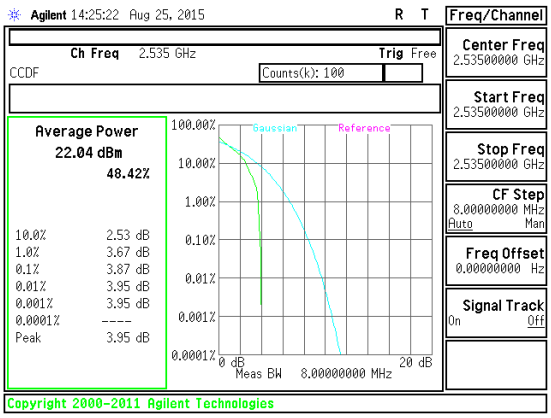
LTE Band 7

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

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

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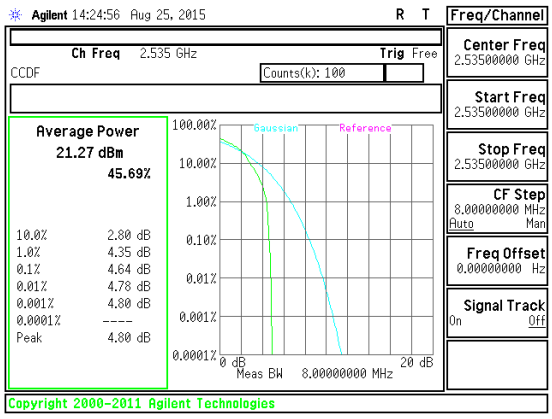
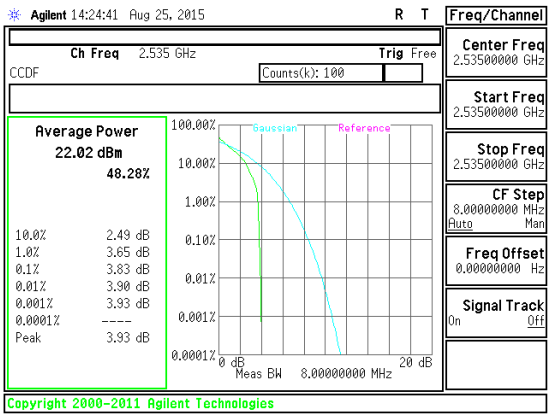
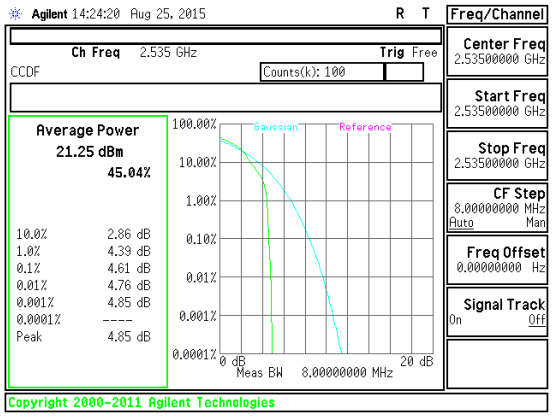
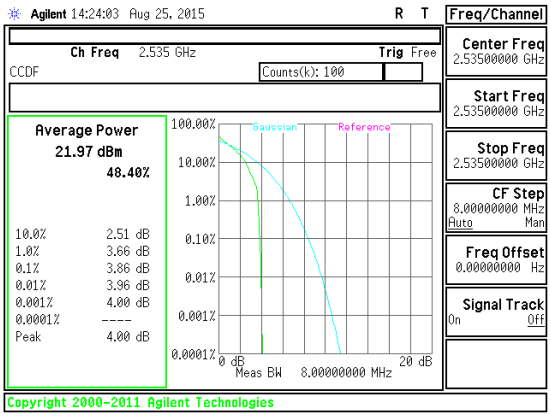
Band LTE7 10MHz	 Band LTE7 10MHz 16QAM Mid channel	 Band LTE7 10MHz QPSK Mid channel

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

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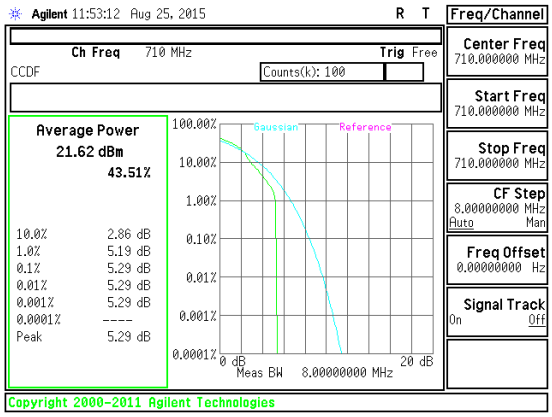
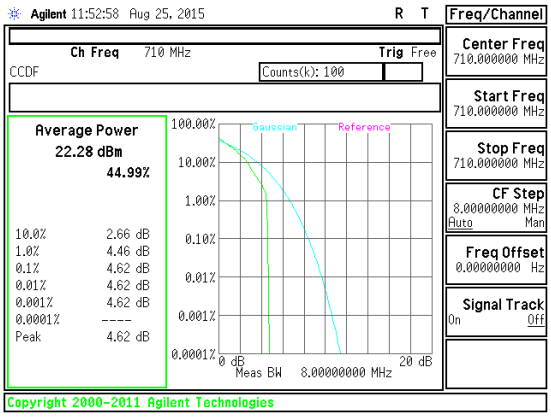
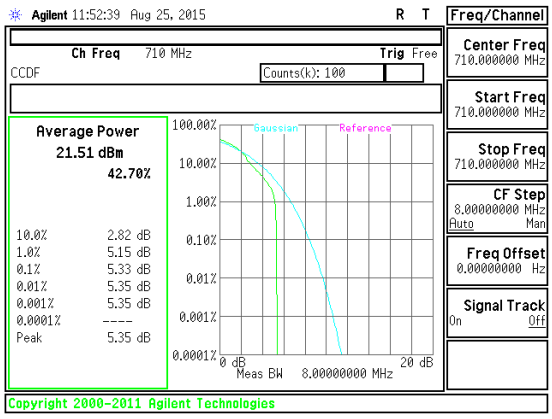
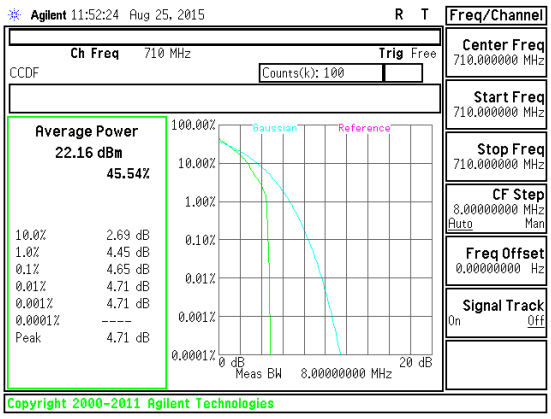
LTE Band 17

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

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

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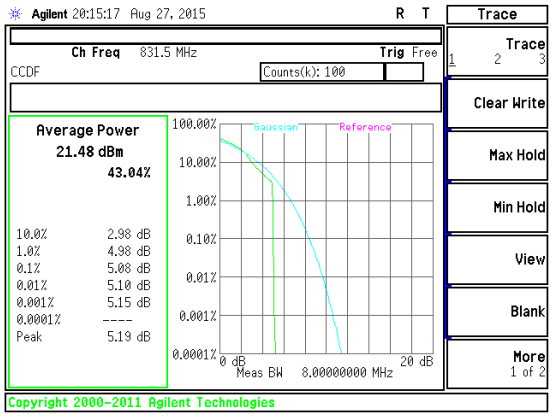
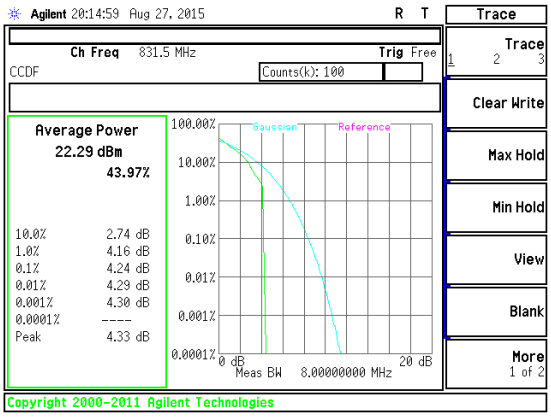
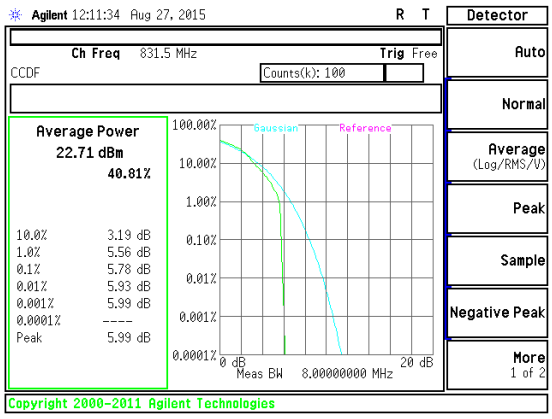
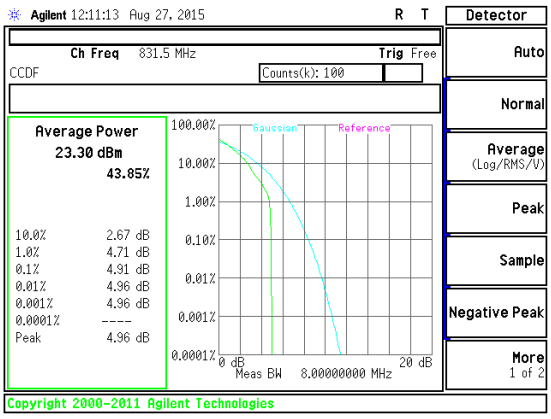
LTE Band 26

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

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

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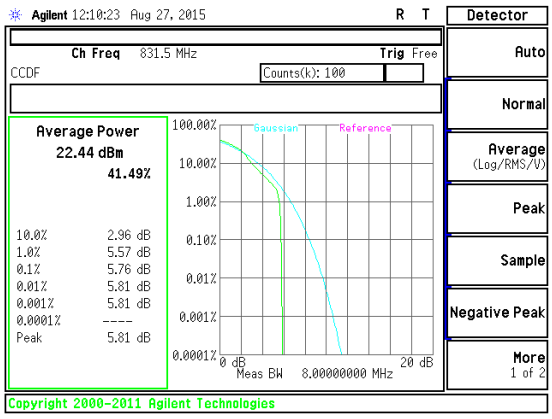
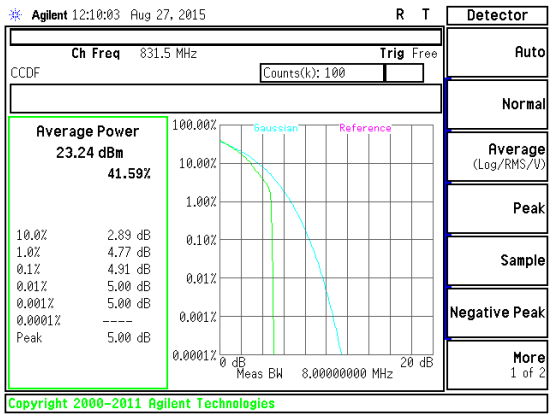
Band

LTE26

5MHz



Band LTE26 5MHz 16QAM Mid channel

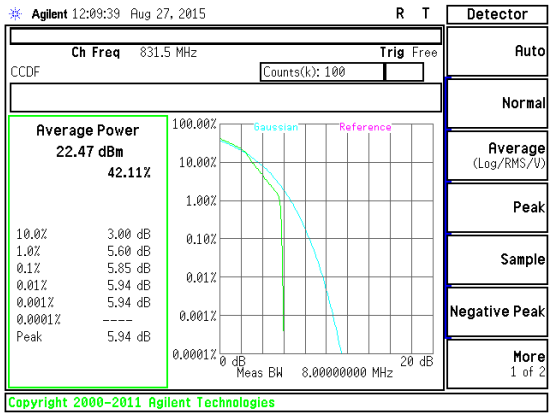


Band LTE26 5MHz QPSK Mid channel

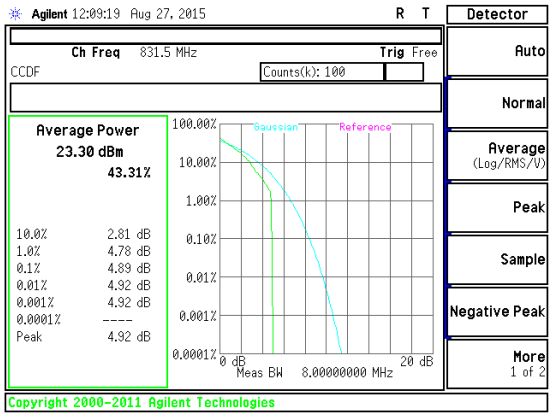
Band

LTE26

3MHz



Band LTE26 3MHz 16QAM Mid channel



Band LTE26 3MHz QPSK Mid channel

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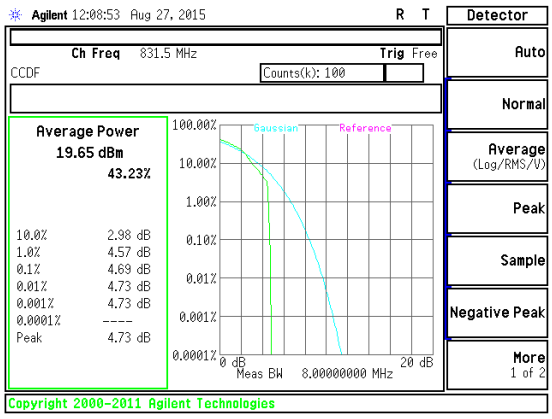
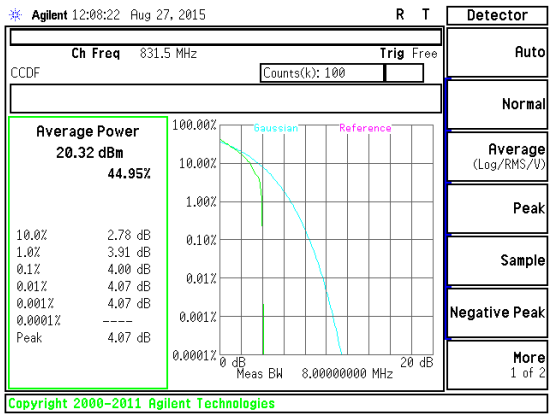
Band LTE26 1.4MHz	 Band LTE26 1.4MHz 16QAM Mid channel	 Band LTE26 1.4MHz QPSK Mid channel

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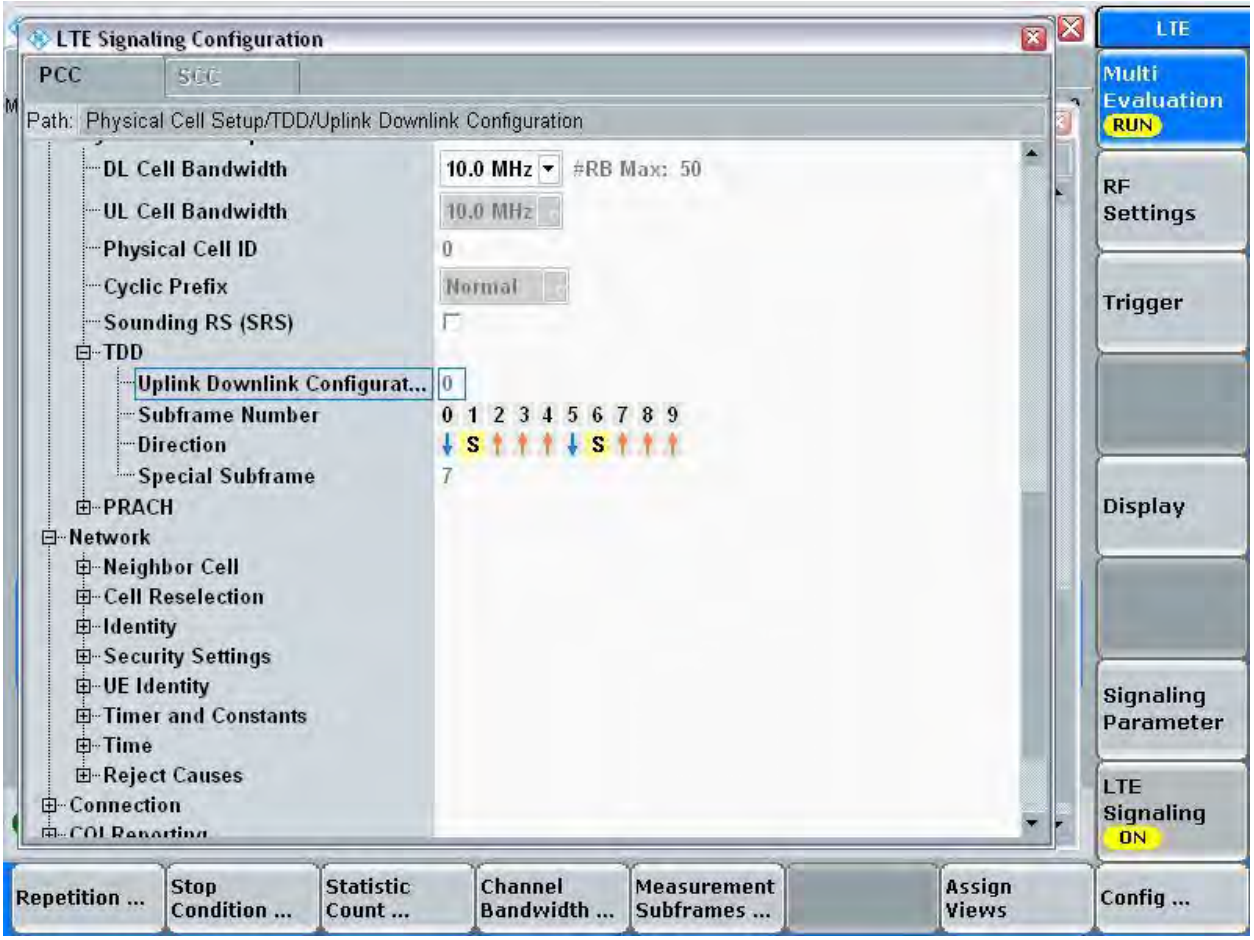
LTE Band 41

Sub frame setting:



So average reading need apply 4.44dB duty cycle factor (20log (6/10)).

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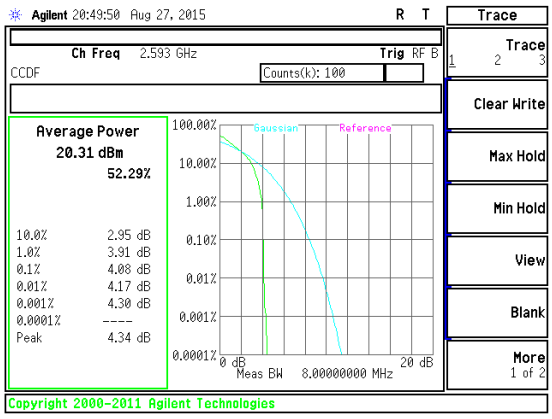
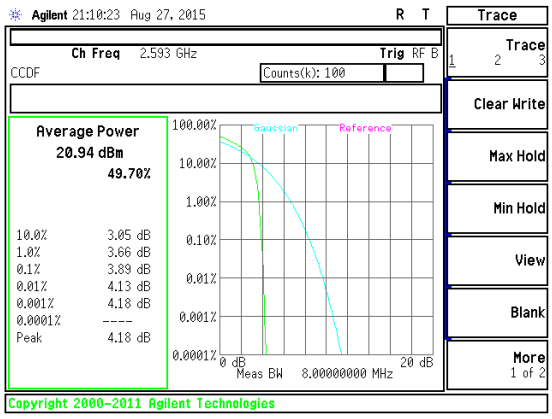
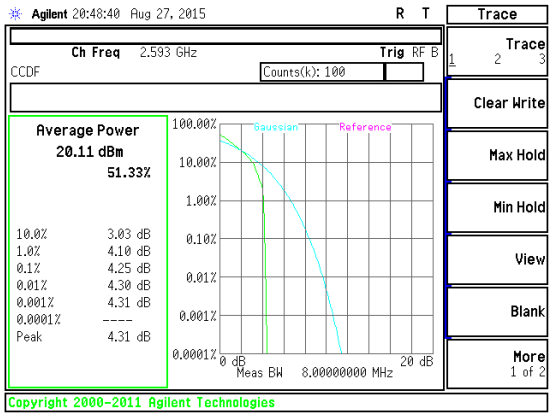
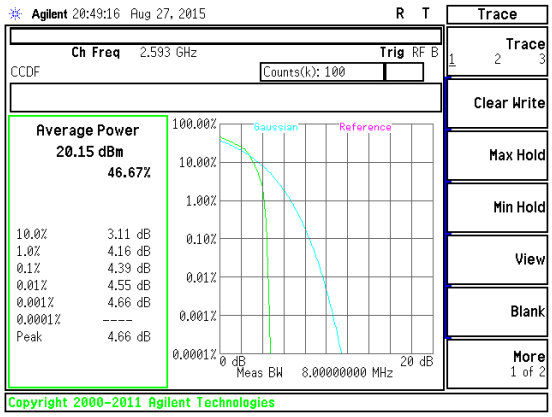
Band LTE41 20MHz		
	Band LTE41 20MHz 16QAM Mid channel	Band LTE41 20MHz QPSK Mid channel

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

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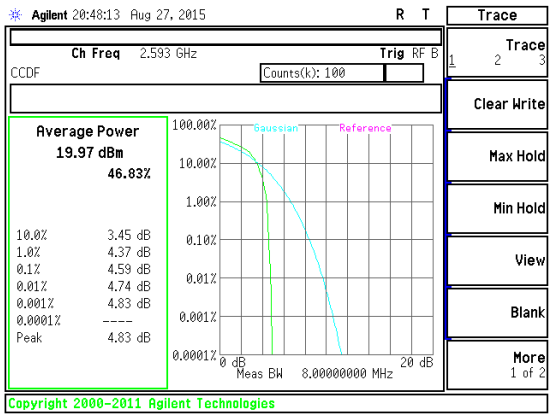
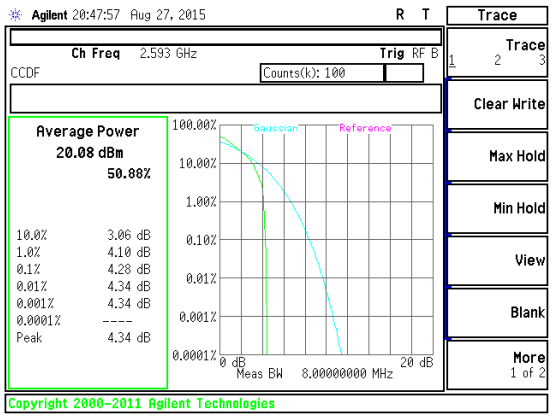
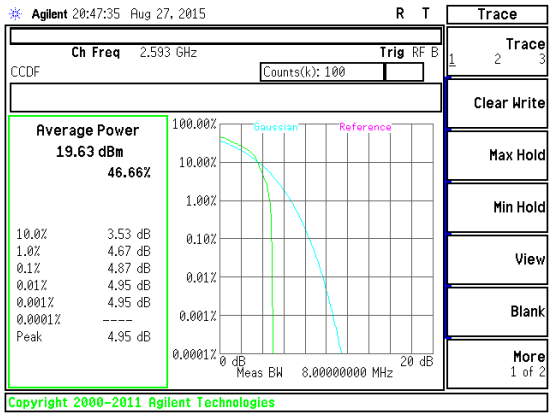
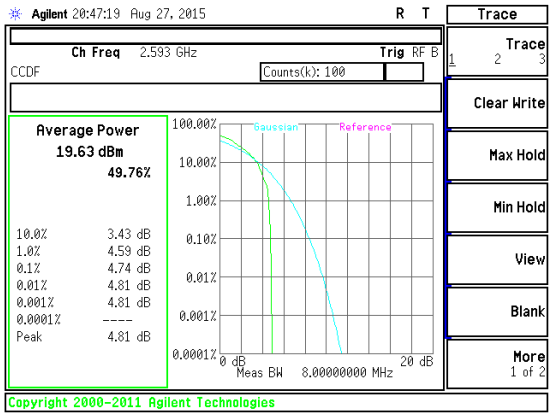
Band LTE41 10MHz	 Band LTE41 10MHz 16QAM Mid channel	 Band LTE41 10MHz QPSK Mid channel

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

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10. LIMITS AND CONDUCTED RESULTS

10.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

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

LIMITS

For reporting purposes only

TEST PROCEDURE

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

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

MODES TESTED

GSM, WCDMA, and LTE

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10.1.1. OCCUPIED BANDWIDTH RESULTS

GSM

Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM 850	GPRS	128	824.2	244.9	318.8
		190	836.6	247.9	325.1
		251	848.8	245	315.5
	EGPRS	128	824.2	250.8	304.2
		190	836.6	244.3	316.9
		251	848.8	241.5	297.5
GSM 1900	GPRS	512	1850.2	243.2	312.9
		661	1880	241.6	308.4
		810	1909.8	249.8	316
	EGPRS	512	1850.2	241.7	300.7
		661	1880	242.6	304.5
		810	1909.8	247.1	312.5

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WCDMA

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
Band 5	REL99	4132	826.4	4.131	4.69
		4183	836.6	4.143	4.689
		4233	846.6	4.122	4.724
	HSDPA	4132	826.4	4.146	4.693
		4183	836.6	4.165	4.717
		4233	846.6	4.146	4.72
Band 4	REL99	9262	1712.4	4.142	4.71
		9400	1732.6	4.131	4.672
		9538	1752.6	4.138	4.722
	HSDPA	9262	1712.4	4.167	4.669
		9400	1732.6	4.164	4.685
		9538	1752.6	4.166	4.685
Band 2	REL99	9262	1852.4	4.13	4.688
		9400	1880	4.149	4.726
		9538	1907.6	4.133	4.699
	HSDPA	9262	1852.4	4.168	4.7
		9400	1880	4.139	4.683
		9538	1907.6	4.154	4.713

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10.1.2. LTE OCCUPIED BANDWIDTH RESULTS

LTE Band 2

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	20	16QAM	100/0	1860	17.869	19.228
			100/0	1880	17.893	19.107
			100/0	1900	17.895	19.370
		QPSK	100/0	1860	17.860	19.241
			100/0	1880	17.887	19.301
			100/0	1900	17.922	19.223
	15	16QAM	75/0	1857.5	13.402	14.499
			75/0	1880	13.409	14.441
			75/0	1902.5	13.420	14.611
		QPSK	75/0	1857.5	14.440	14.469
			75/0	1880	13.429	14.557
			75/0	1902.5	13.424	14.358
	10	16QAM	50/0	1855	8.935	9.599
			50/0	1880	8.955	9.729
			50/0	1905	8.946	9.691
		QPSK	50/0	1855	8.959	9.703
			50/0	1880	8.948	9.73
			50/0	1905	8.948	9.616
	5	16QAM	25/0	1852.5	4.492	4.871
			25/0	1880	4.495	4.886
			25/0	1907.5	4.514	4.966
		QPSK	25/0	1852.5	4.508	4.94
			25/0	1880	4.486	4.929
			25/0	1907.5	4.494	4.879

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	3	16QAM	15/0	1851.5	2.683	2.967
			15/0	1880	2.686	2.974
			15/0	1908.5	2.690	2.976
		QPSK	15/0	1851.5	2.688	2.953
			15/0	1880	2.677	2.988
			15/0	1908.5	2.687	2.982
	1.4	16QAM	6/0	1850.7	1.081	1.220
			6/0	1880	1.079	1.218
			6/0	1909.3	1.084	1.227
		QPSK	6/0	1850.7	1.082	1.213
			6/0	1880	1.084	1.235
			6/0	1909.3	1.078	1.227

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LTE Band 4

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	20	16QAM	100/0	1720	17.899	19.342
			100/0	1732.5	17.899	19.028
			100/0	1745	17.861	19.155
		QPSK	100/0	1720	17.869	19.286
			100/0	1732.5	17.892	19.016
			100/0	1745	17.903	19.175
	15	16QAM	75/0	1717.5	13.372	14.531
			75/0	1732.5	13.404	14.496
			75/0	1747.5	13.418	14.450
		QPSK	75/0	1717.5	13.419	14.509
			75/0	1732.5	13.414	14.407
			75/0	1747.5	13.421	14.513
	10	16QAM	50/0	1715	8.944	9.732
			50/0	1732.5	8.939	9.713
			50/0	1750	8.948	9.750
		QPSK	50/0	1715	8.944	9.653
			50/0	1732.5	8.945	9.644
			50/0	1750	8.938	9.640
	5	16QAM	25/0	1712.5	4.502	4.911
			25/0	1732.5	4.500	4.960
			25/0	1752.5	4.495	4.935
		QPSK	25/0	1712.5	4.491	4.946
			25/0	1732.5	4.496	4.922
			25/0	1752.5	4.492	4.906

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	3	16QAM	15/0	1711.5	2.690	2.981
			15/0	1732.5	2.685	2.997
			15/0	1753.5	2.685	2.978
		QPSK	15/0	1711.5	2.687	2.964
			15/0	1732.5	2.678	2.965
			15/0	1753.5	2.680	2.946
	1.4	16QAM	6/0	1710.7	1.079	1.227
			6/0	1732.5	1.085	1.228
			6/0	1754.3	1.087	1.235
		QPSK	6/0	1710.7	1.084	1.222
			6/0	1732.5	1.078	1.216
			6/0	1754.3	1.084	1.233

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LTE Band 5

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	10	16QAM	50/0	829	8.967	9.634
			50/0	836.5	8.966	9.694
			50/0	844	8.95	9.565
		QPSK	50/0	829	8.957	9.728
			50/0	836.5	8.95	9.729
			50/0	844	8.968	9.777
	5	16QAM	25/0	826.5	4.489	4.854
			25/0	836.5	4.486	4.952
			25/0	846.5	4.486	4.924
		QPSK	25/0	826.5	4.483	4.91
			25/0	836.5	4.498	4.937
			25/0	846.5	4.5	4.909
	3	16QAM	15/0	825.5	2.677	2.966
			15/0	836.5	2.69	2.949
			15/0	847.5	2.687	2.965
		QPSK	15/0	825.5	2.678	2.928
			15/0	836.5	2.683	2.947
			15/0	847.5	2.68	2.955
	1.4	16QAM	6/0	824.7	1.081	1.227
			6/0	836.5	1.082	1.213
			6/0	848.3	1.088	1.225
		QPSK	6/0	824.7	1.08	1.225
			6/0	836.5	1.078	1.212
			6/0	848.3	1.082	1.222

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LTE Band 7

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE7	20	16QAM	100/0	2510	17.873	19.249
			100/0	2535	17.909	19.428
			100/0	2560	17.926	19.539
		QPSK	100/0	2510	17.904	19.274
			100/0	2535	17.930	19.390
			100/0	2560	17.909	19.394
	15	16QAM	75/0	2507.5	13.433	14.466
			75/0	2535	13.441	14.491
			75/0	2562.5	13.420	14.619
		QPSK	75/0	2507.5	13.441	14.602
			75/0	2535	13.412	14.641
			75/0	2562.5	13.476	14.489
	10	16QAM	50/0	2505	8.942	9.74
			50/0	2535	8.944	9.657
			50/0	2565	8.967	9.696
		QPSK	50/0	2505	8.942	9.698
			50/0	2535	8.949	9.692
			50/0	2565	8.954	9.645
	5	16QAM	25/0	2502.5	4.495	4.955
			25/0	2535	4.488	4.874
			25/0	2567.5	4.496	4.928
		QPSK	25/0	2502.5	4.489	4.918
			25/0	2535	4.485	4.898
			25/0	2567.5	4.51	4.942

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LTE Band 17

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE17	10	16QAM	50/0	709	8.95	9.657
			50/0	710	8.957	9.642
			50/0	711	8.931	9.701
		QPSK	50/0	709	8.957	9.602
			50/0	710	8.953	9.74
			50/0	711	8.94	9.654
	5	16QAM	25/0	706.5	4.501	4.894
			25/0	710	4.495	4.887
			25/0	713.5	4.506	4.938
		QPSK	25/0	706.5	4.488	4.946
			25/0	710	4.489	4.918
			25/0	713.5	4.489	4.986

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LTE Band 26

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	15	16QAM	75/0	831.5	13.782	15.315
			75/0	836.5	13.785	15.268
			75/0	841.5	13.869	15.726
		QPSK	75/0	831.5	13.762	15.351
			75/0	836.5	13.782	15.972
			75/0	841.5	13.888	15.902
	10	16QAM	50/0	819	8.947	9.748
			50/0	831.5	8.931	9.731
			50/0	844	8.991	9.795
		QPSK	50/0	819	8.955	9.800
			50/0	831.5	8.941	9.758
			50/0	844	8.964	9.851
	5	16QAM	25/0	816.5	4.495	4.956
			25/0	831.5	4.482	4.907
			25/0	846.5	4.472	4.934
		QPSK	25/0	816.5	4.494	4.937
			25/0	831.5	4.485	4.955
			25/0	846.5	4.489	4.910
	3	16QAM	15/0	815.5	2.692	2.991
			15/0	831.5	2.701	3.017
			15/0	847.5	2.686	2.984
		QPSK	15/0	815.5	2.694	2.965
			15/0	831.5	2.690	2.973
			15/0	847.5	2.691	2.981
	1.4	16QAM	6/0	814.7	1.087	1.238
			6/0	831.5	1.085	1.230
			6/0	848.3	1.092	1.231
		QPSK	6/0	814.7	1.083	1.221
			6/0	831.5	1.094	1.237
			6/0	848.3	1.087	1.234

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LTE Band 41

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE41	20	16QAM	100/0	2506	17.916	20.138
			100/0	2593	17.881	19.289
			100/0	2680	17.839	19.141
		QPSK	100/0	2506	17.915	19.508
			100/0	2593	17.858	19.401
			100/0	2680	17.895	19.471
	15	16QAM	75/0	2503.5	13.393	14.467
			75/0	2593	13.388	14.473
			75/0	2682.5	13.416	14.564
		QPSK	75/0	2503.5	13.431	14.586
			75/0	2593	13.430	14.473
			75/0	2682.5	13.433	14.583
	10	16QAM	50/0	2501	8.936	9.578
			50/0	2593	8.946	9.710
			50/0	2685	8.946	9.587
		QPSK	50/0	2501	8.956	9.759
			50/0	2593	8.944	9.636
			50/0	2685	8.959	9.696
	5	16QAM	25/0	2498.5	4.491	4.834
			25/0	2593	4.486	4.883
			25/0	2687.5	4.487	4.812
		QPSK	25/0	2498.5	4.496	4.957
			25/0	2593	4.494	4.924
			25/0	2687.5	4.489	4.862

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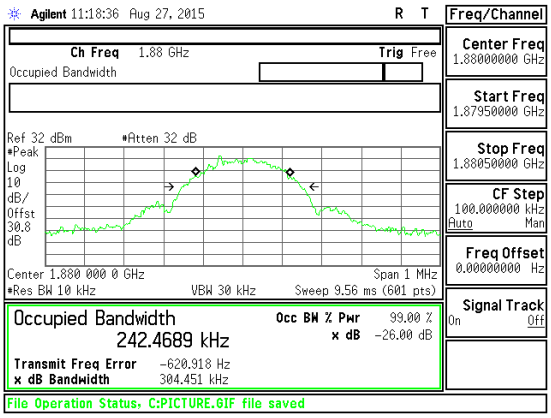
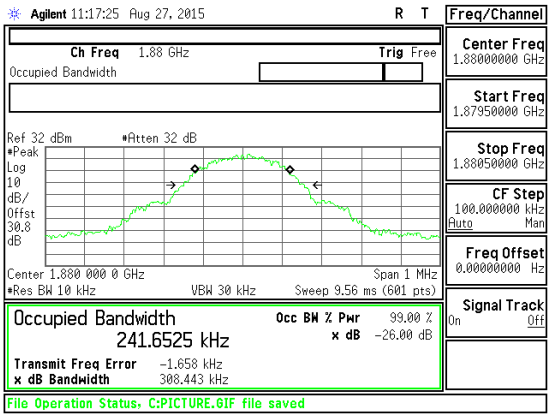
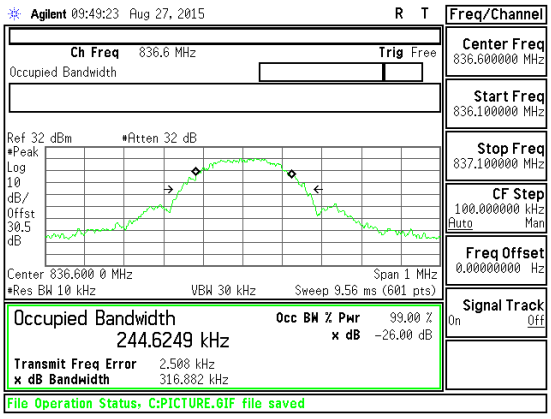
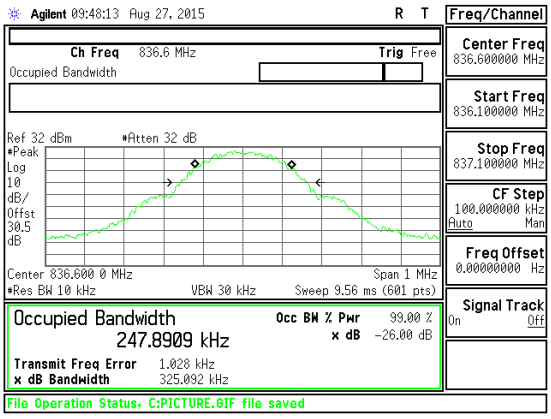
10.1.3. OCCUPIED BANDWIDTH PLOTS

GSM

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

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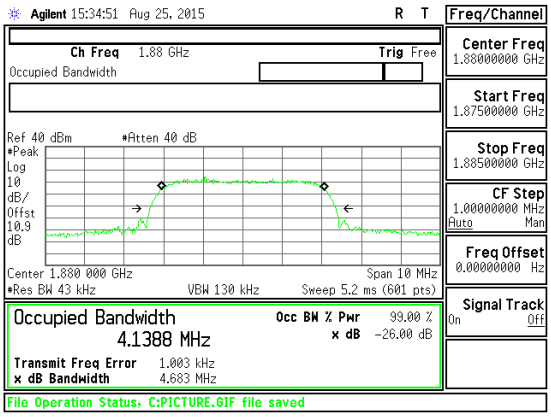
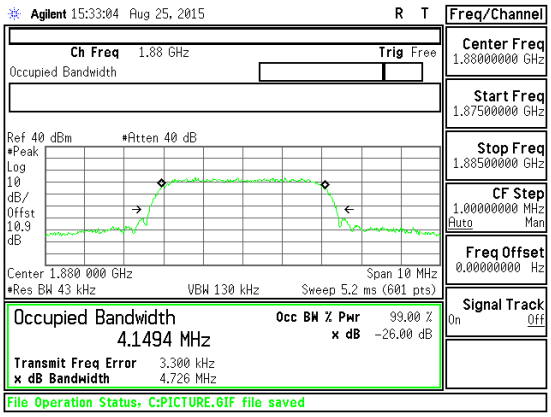
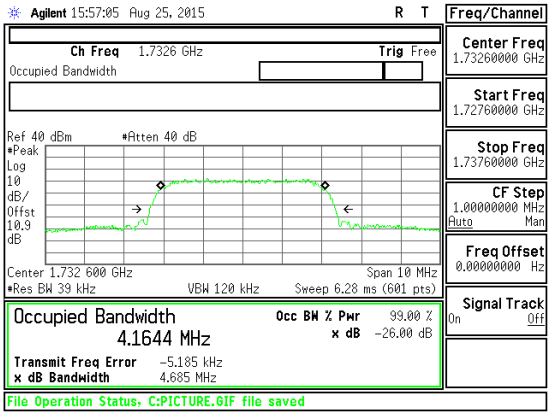
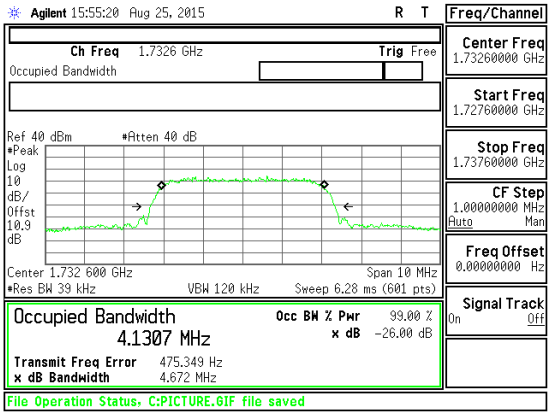
WCDMA

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

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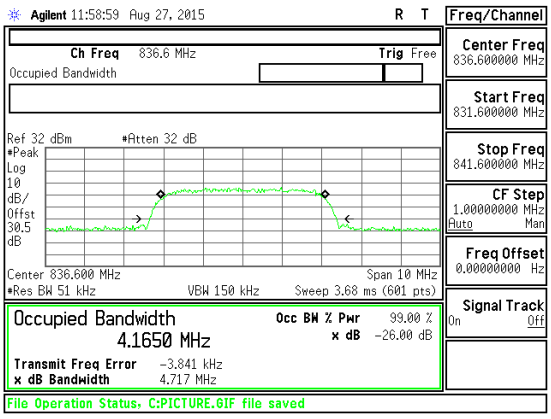
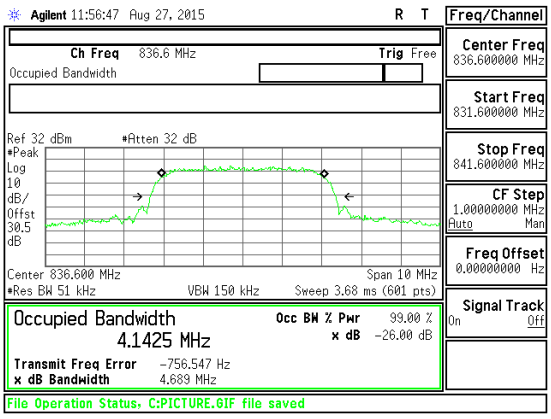
Band Band 5	 Band WCDMA B5 HSDPA OBW	 Band WCDMA B5 REL99 OBW

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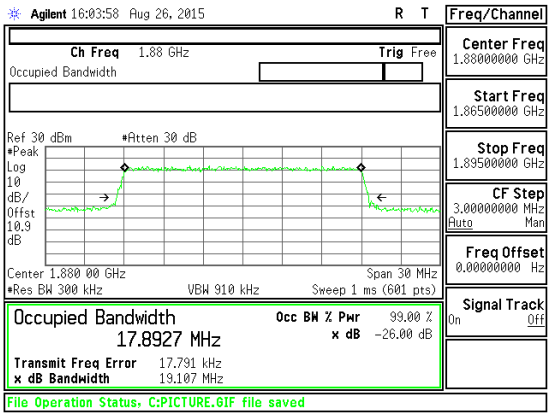
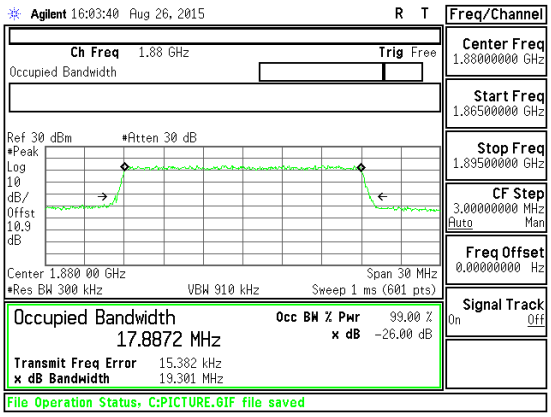
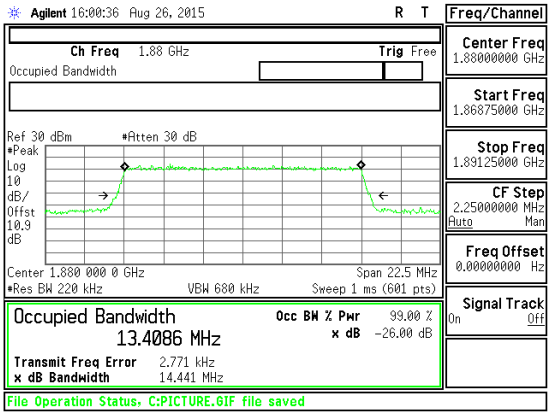
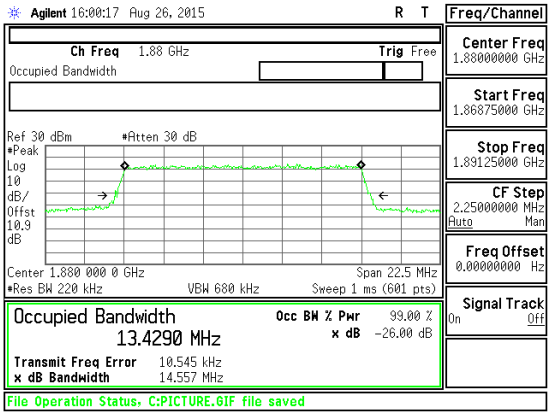
LTE Band 2

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

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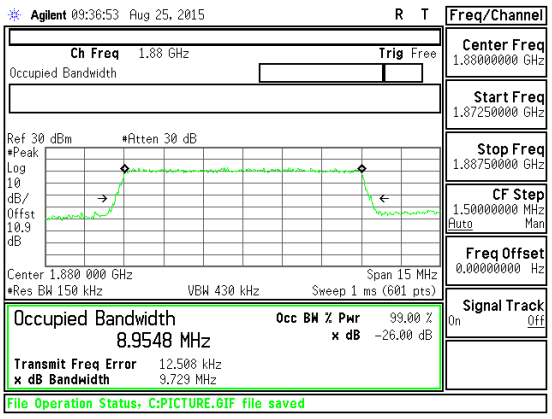
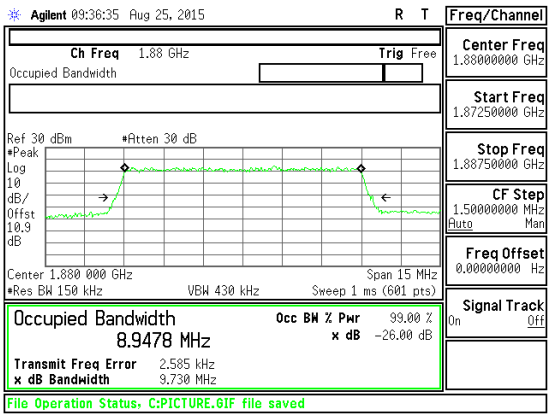
Band LTE2 10MHz

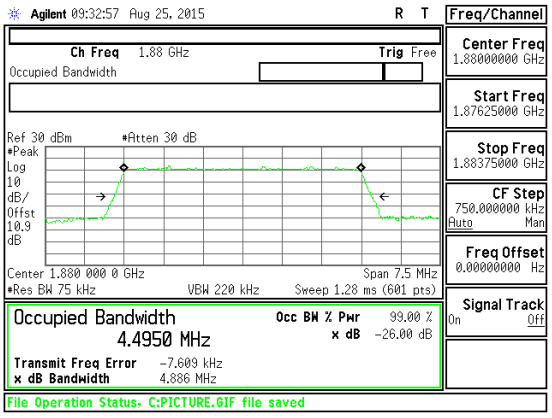


Band LTE2 10MHz OBW 16QAM Mid Channel FRB.gif

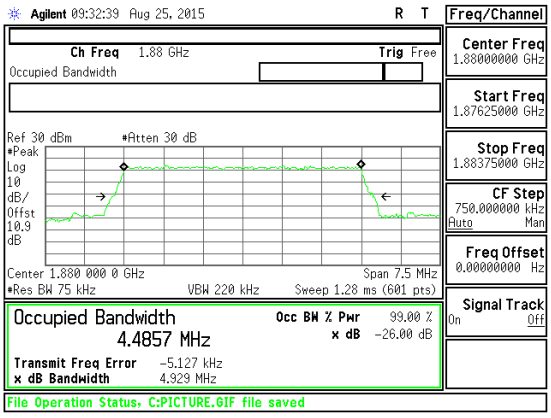


Band LTE2 10MHz OBW QPSK Mid Channel FRB.gif

Band LTE2 5MHz



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



Band LTE2 5MHz OBW QPSK Mid Channel FRB.gif

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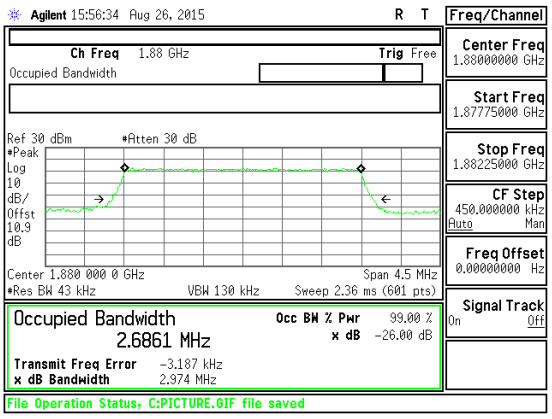
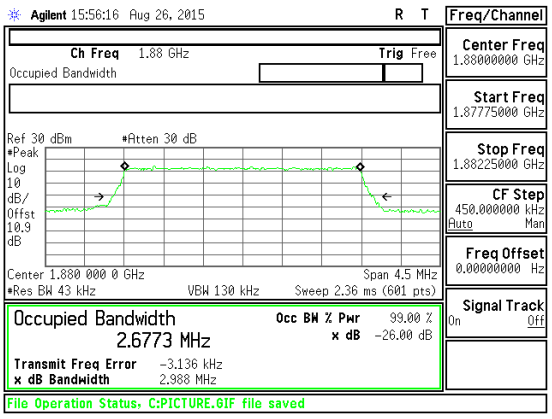
Band LTE2 3MHz

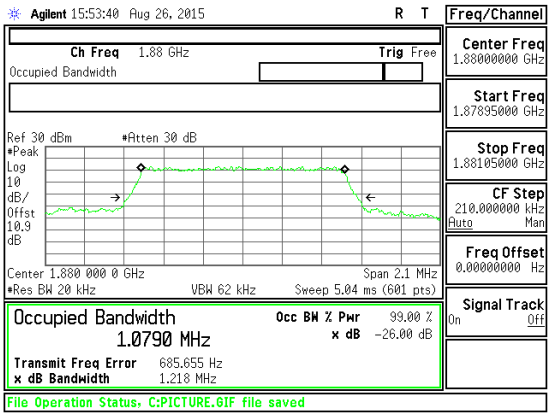


Band LTE2 3MHz OBW 16QAM Mid Channel FRB.gif

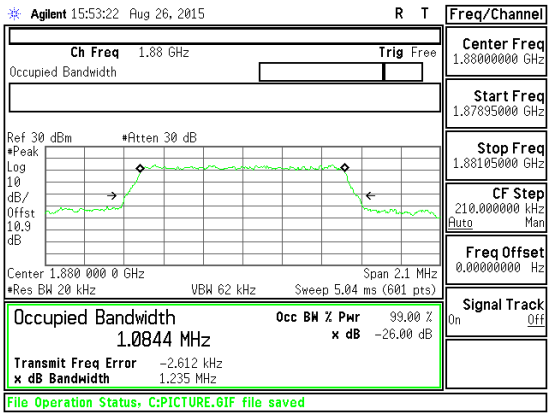


Band LTE2 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE2 1.4MHz



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



Band LTE2 1.4MHz OBW QPSK Mid Channel FRB.gif

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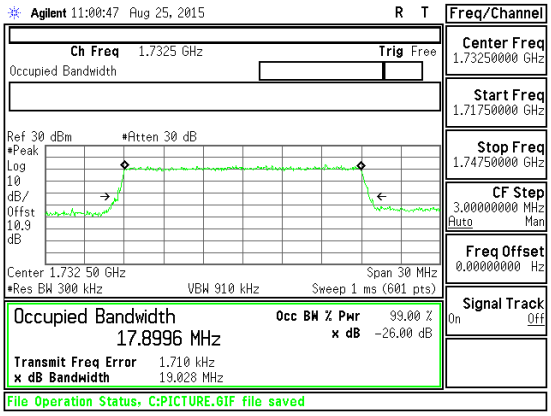
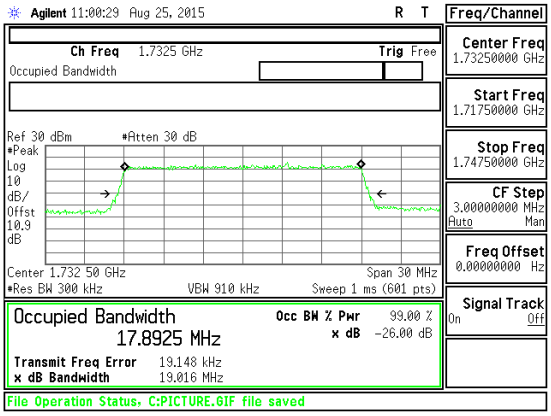
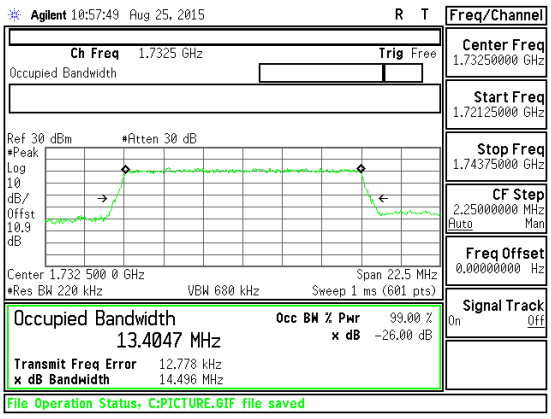
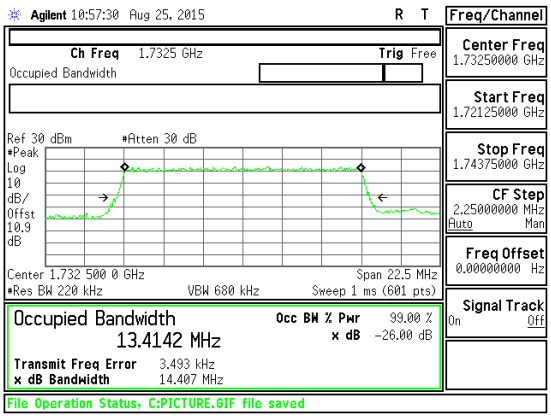
LTE Band 4

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

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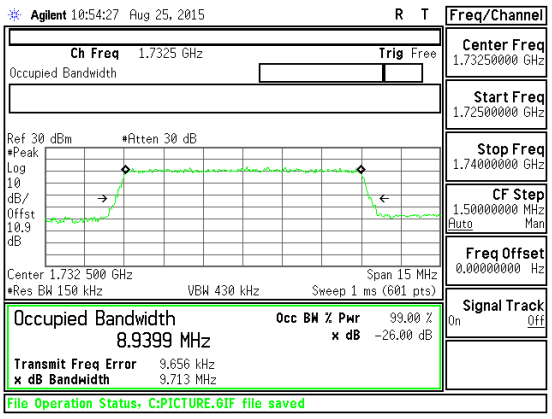
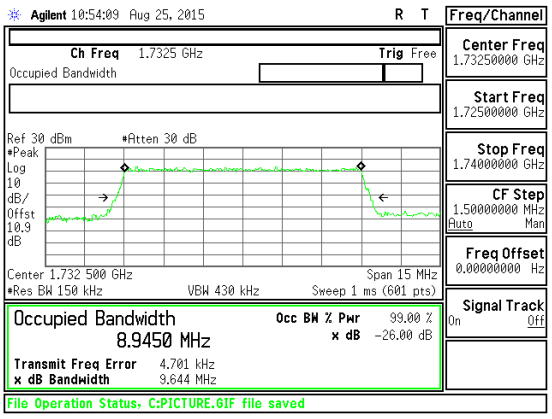
Band LTE4 10MHz

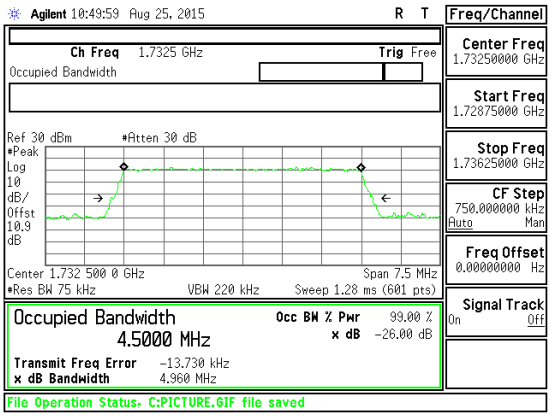


Band LTE4 10MHz OBW 16QAM Mid Channel FRB.gif

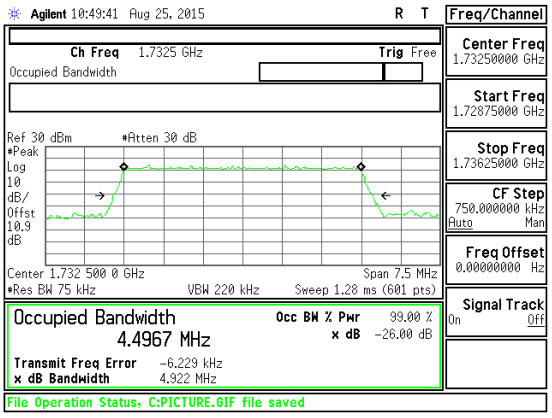


Band LTE4 10MHz OBW QPSK Mid Channel FRB.gif

Band LTE4 5MHz



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



Band LTE4 5MHz OBW QPSK Mid Channel FRB.gif

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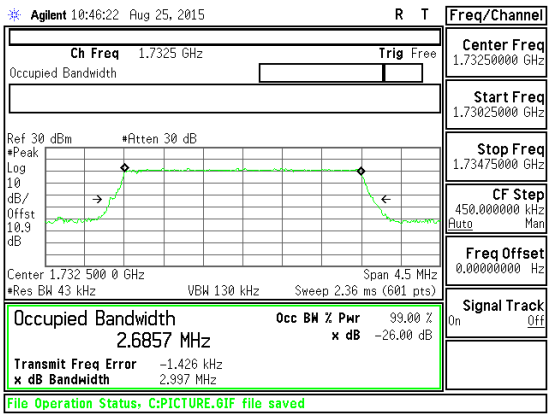
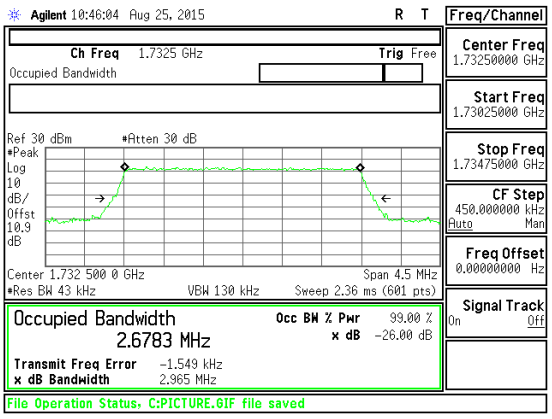
Band LTE4 3MHz

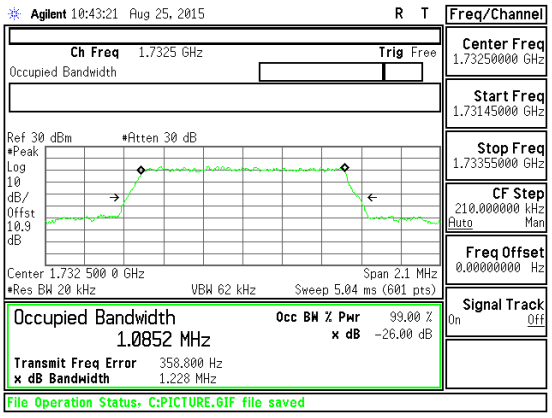


Band LTE4 3MHz OBW 16QAM Mid Channel FRB.gif

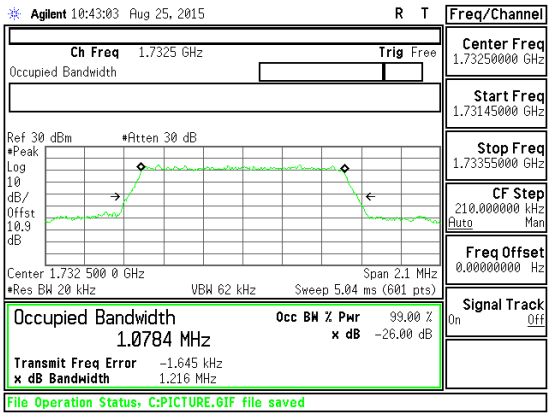


Band LTE4 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE4 1.4MHz



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



Band LTE4 1.4MHz OBW QPSK Mid Channel FRB.gif

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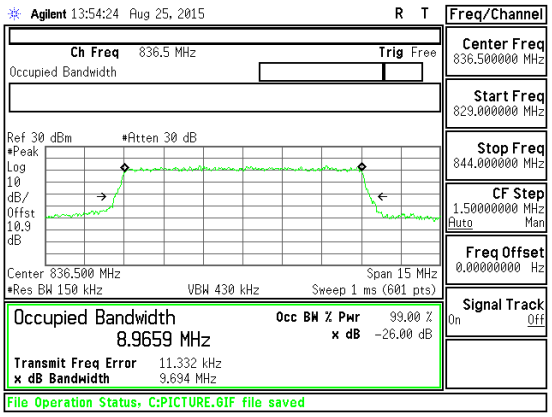
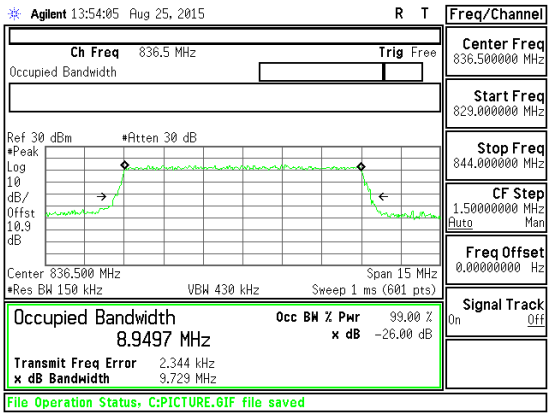
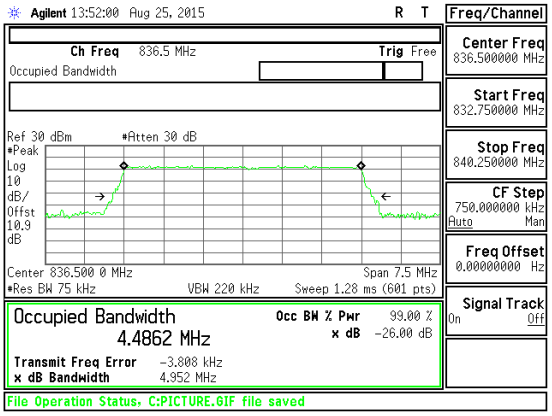
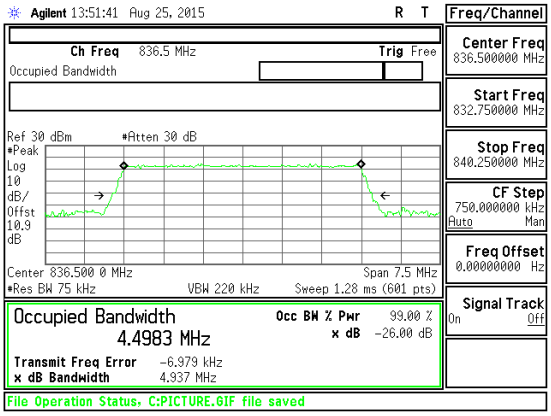
LTE Band 5

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

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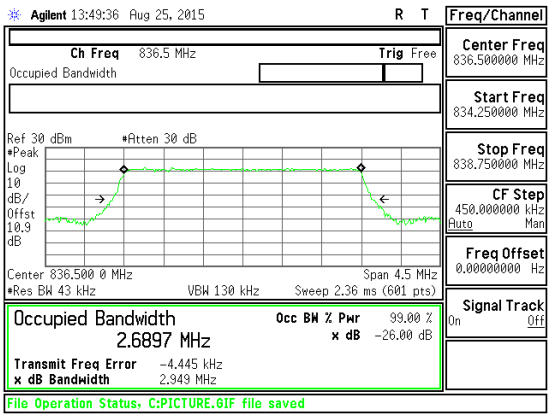
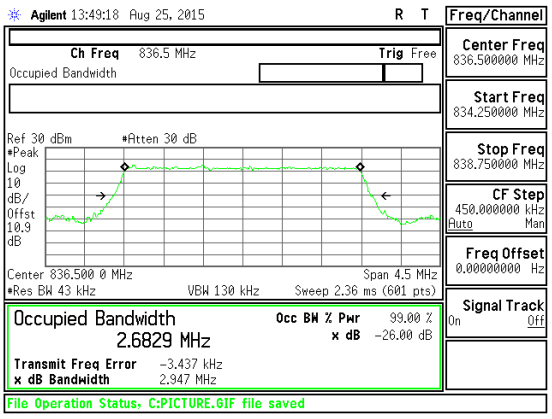
Band LTE5 3MHz

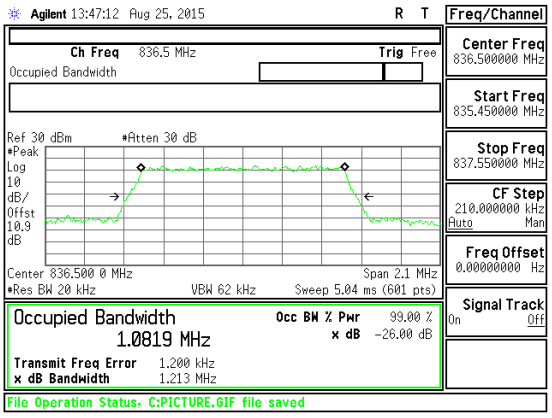


Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif

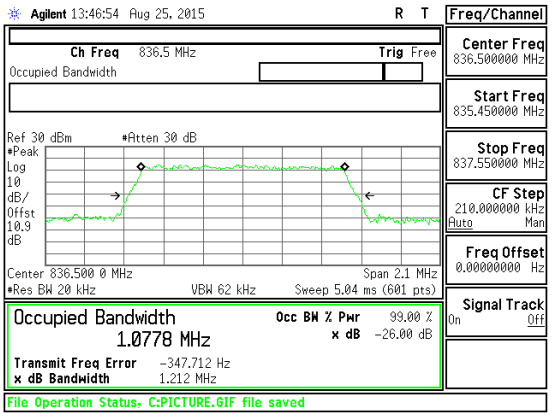


Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE5 1.4MHz



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



Band LTE5 1.4MHz OBW QPSK Mid Channel FRB.gif

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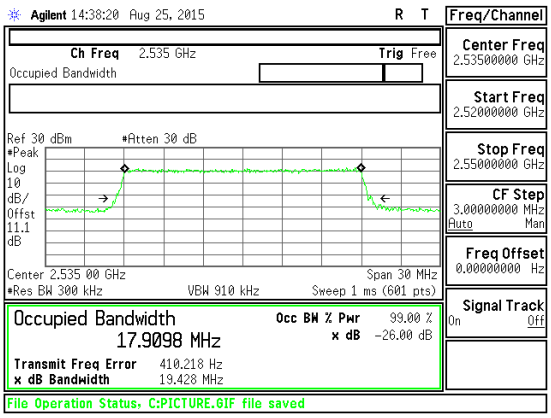
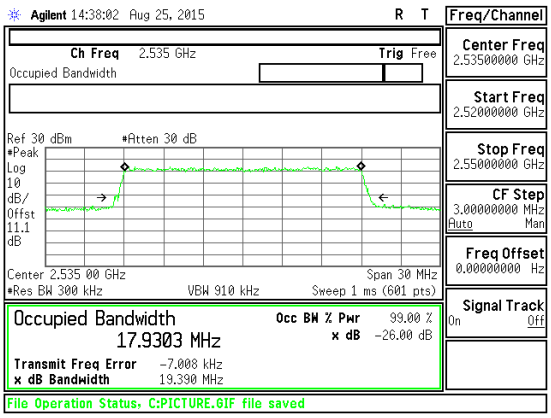
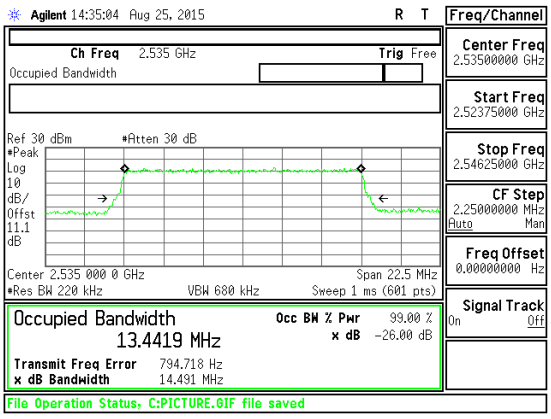
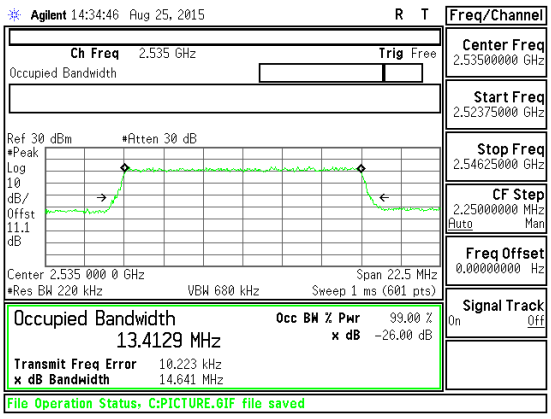
LTE Band 7

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

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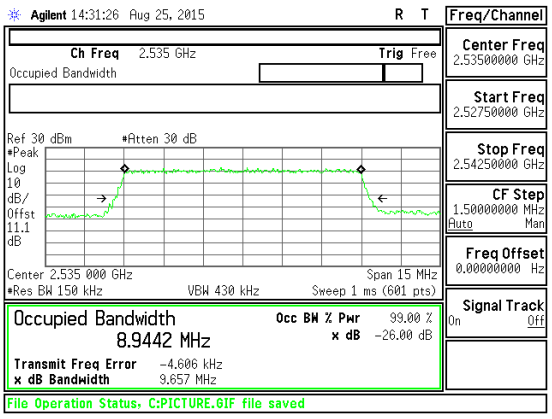
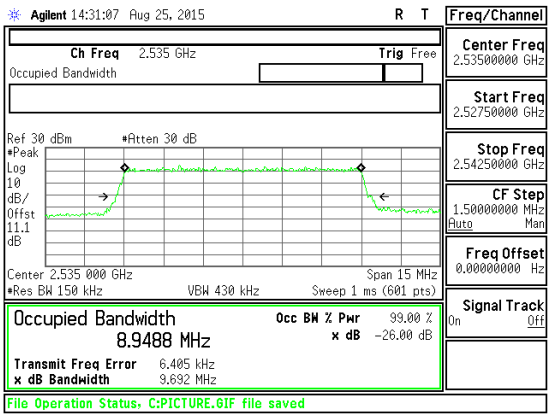
Band LTE7 10MHz

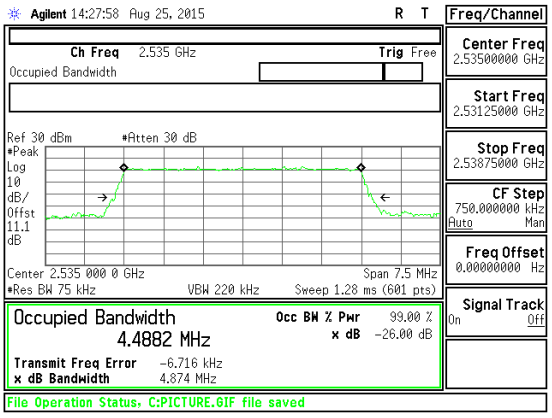


Band LTE7 10MHz OBW 16QAM Mid Channel FRB.gif

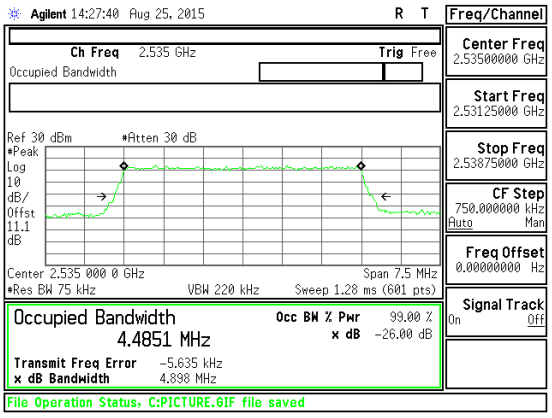


Band LTE7 10MHz OBW QPSK Mid Channel FRB.gif

Band LTE7 5MHz



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



Band LTE7 5MHz OBW QPSK Mid Channel FRB.gif

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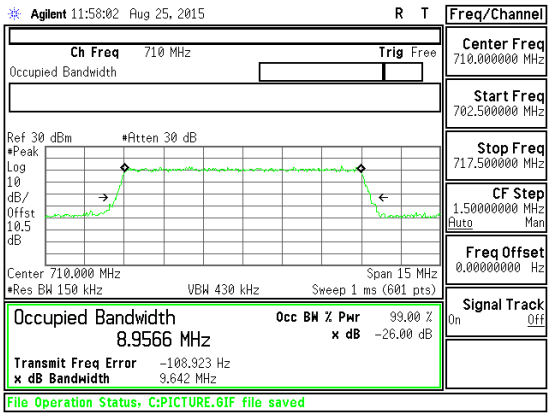
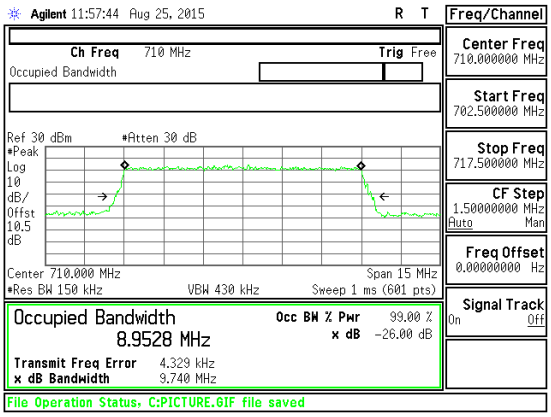
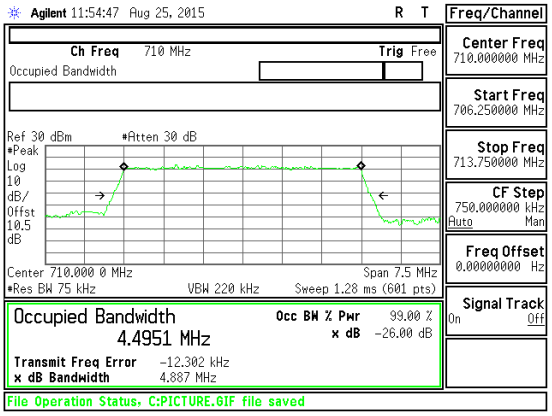
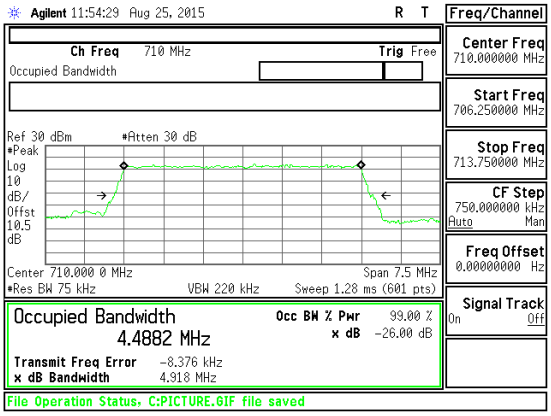
LTE Band 17

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

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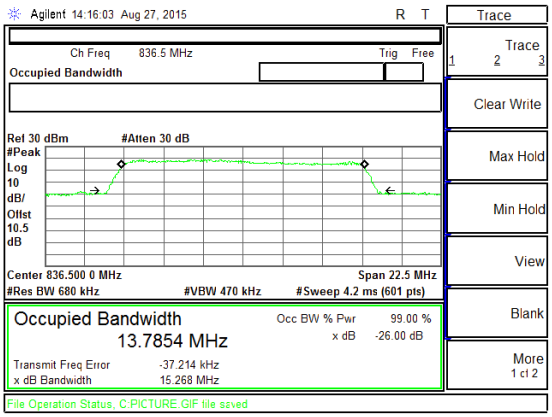
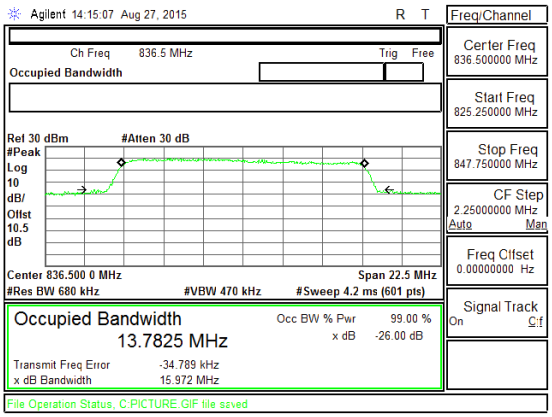
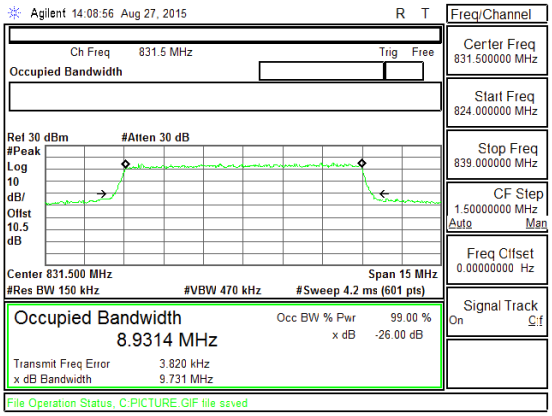
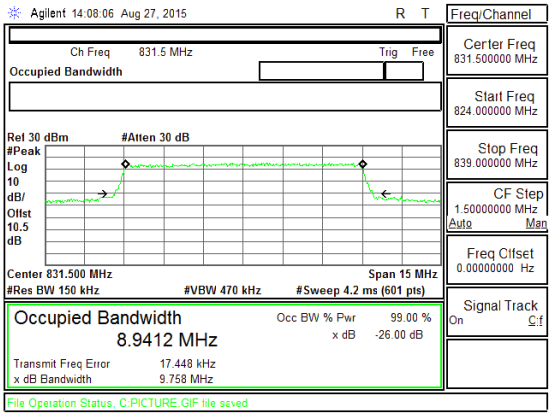
LTE Band 26

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

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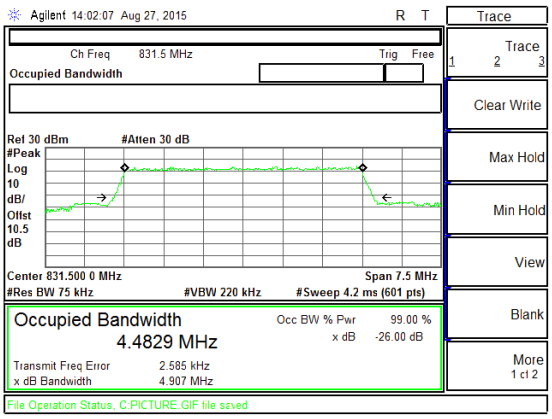
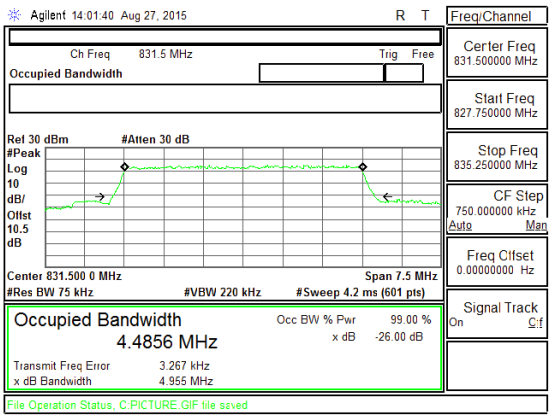
Band LTE26 5MHz

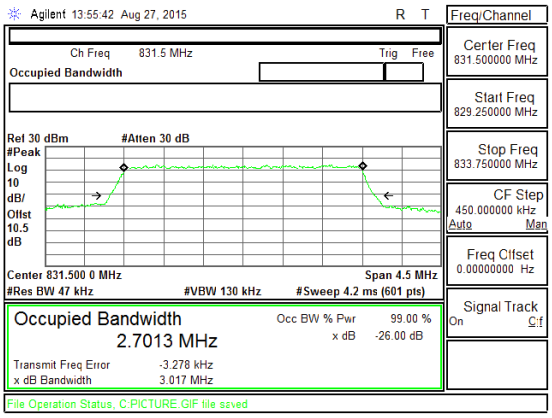


Band LTE26 5MHz OBW 16QAM Mid Channel FRB.gif

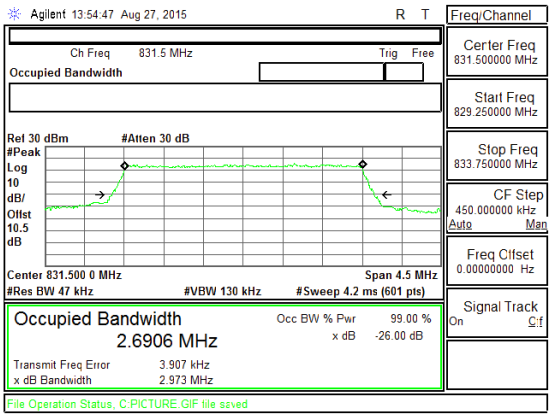


Band LTE26 5MHz OBW QPSK Mid Channel FRB.gif

Band LTE26 3MHz



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



Band LTE26 3MHz OBW QPSK Mid Channel FRB.gif

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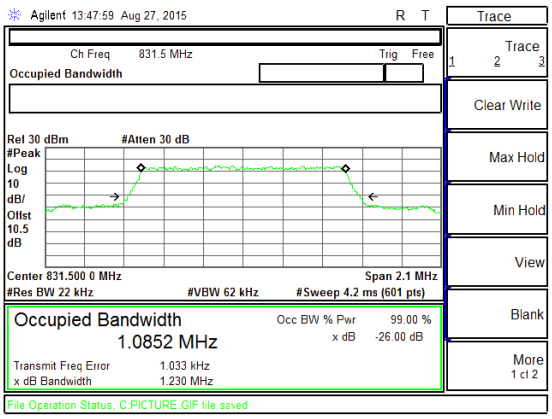
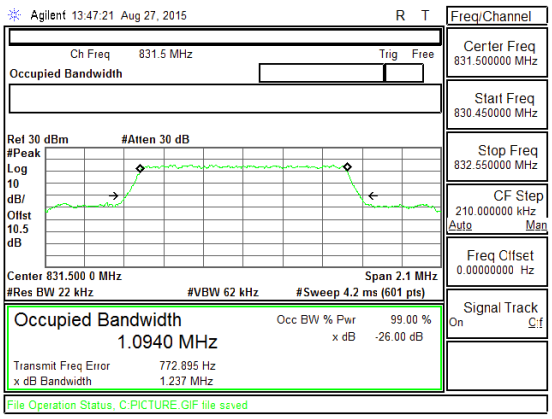
Band LTE26 1.4MHz	 Band LTE26 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE26 1.4MHz OBW QPSK Mid Channel FRB.gif

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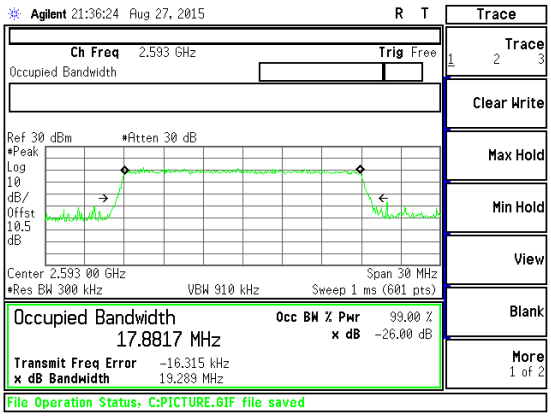
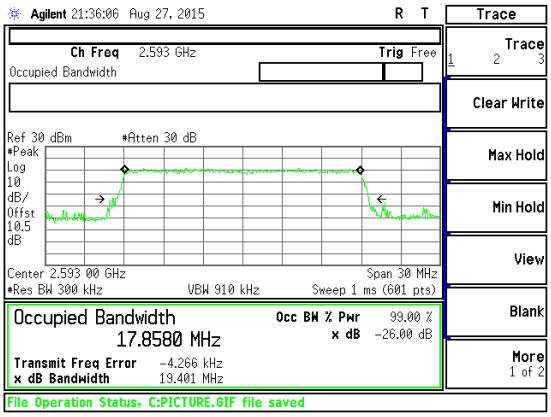
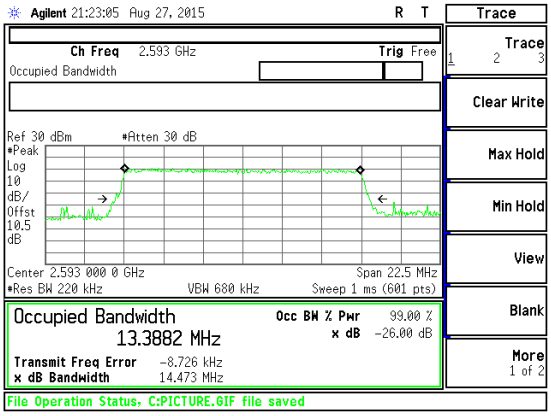
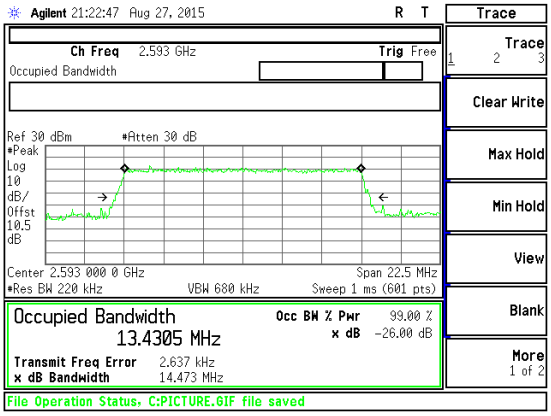
LTE Band 41

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

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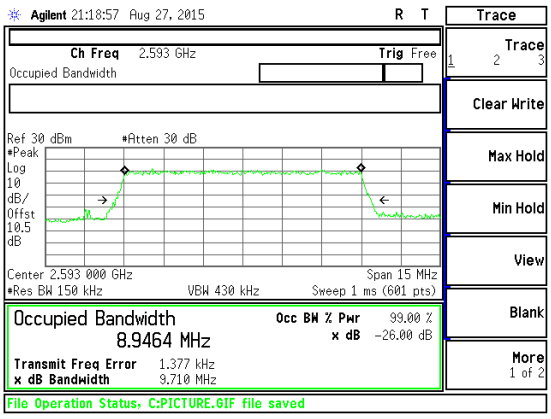
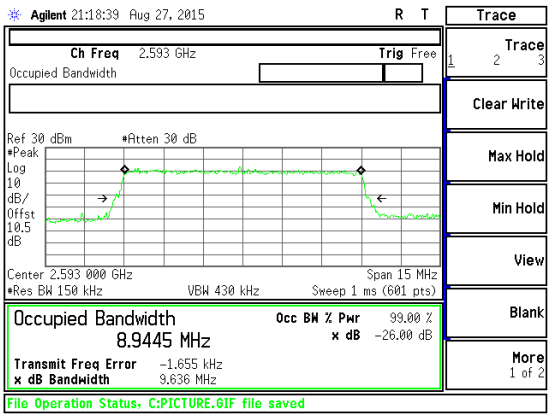
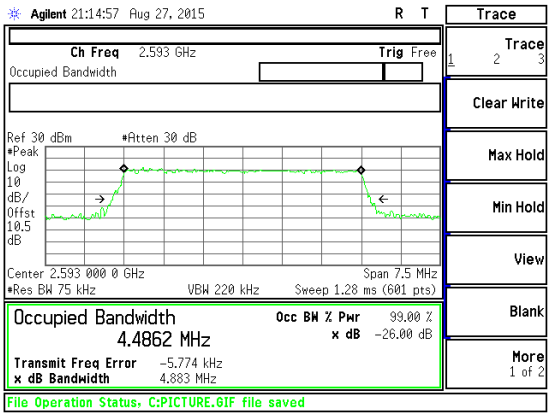
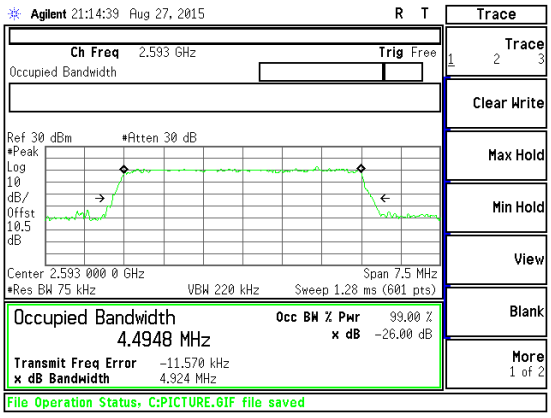
Band LTE41 10MHz	 Band LTE41 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE41 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE41 5MHz	 Band LTE41 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE41 5MHz OBW QPSK Mid Channel FRB.gif

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10.2. BAND EDGE EMISSIONS

RULE PART(S)

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

LIMITS

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

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

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02
The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

MODES TESTED

GSM, WCDMA, and LTE

RESULTS

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

LTE 41 Reading need apply 4.44dB duty cycle factor (20log (6/10)).

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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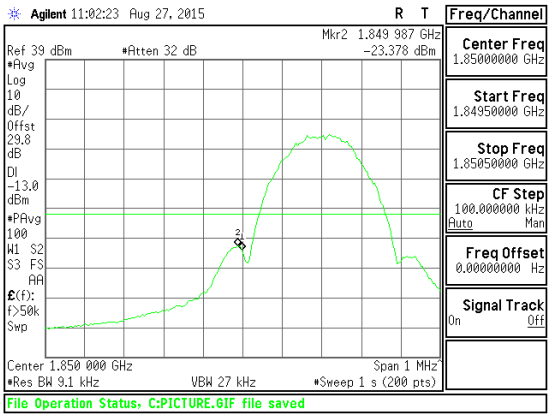
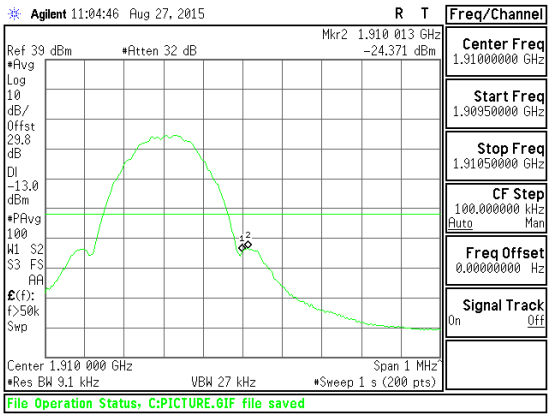
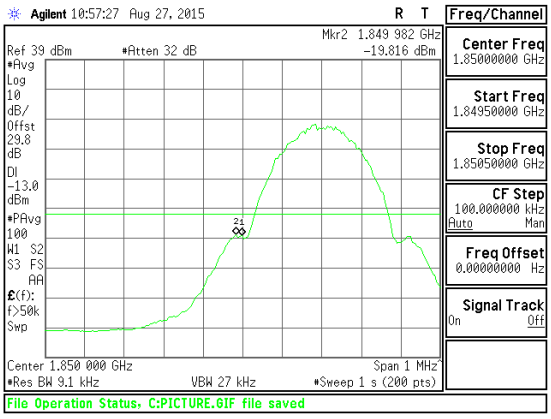
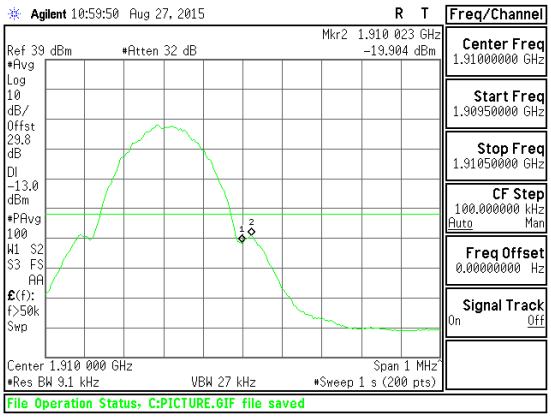
10.2.1. BAND EDGE PLOTS

GSM

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

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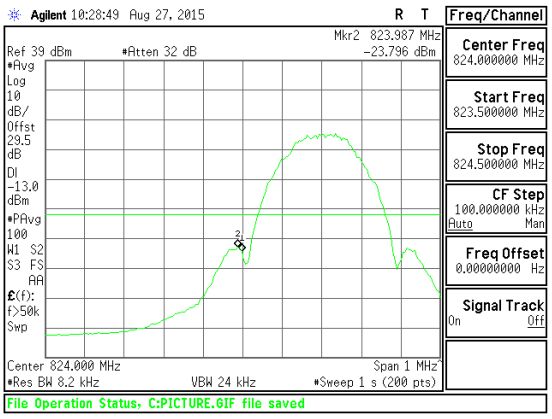
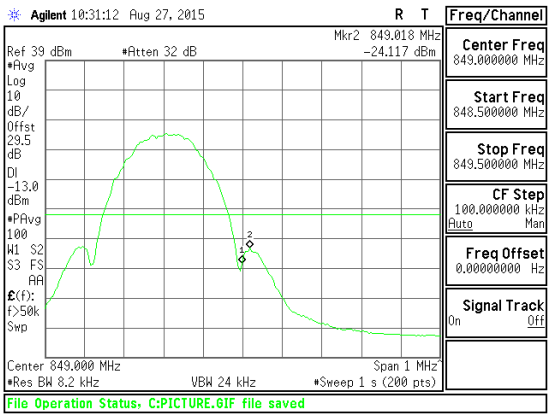
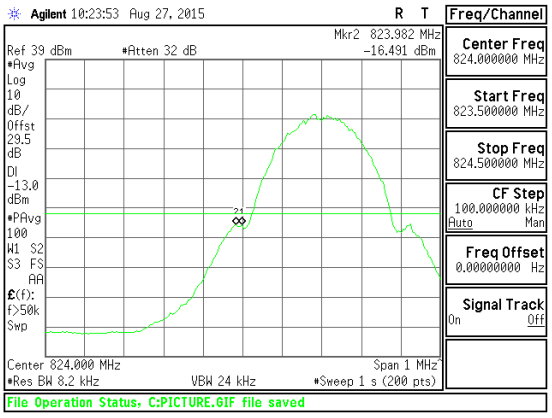
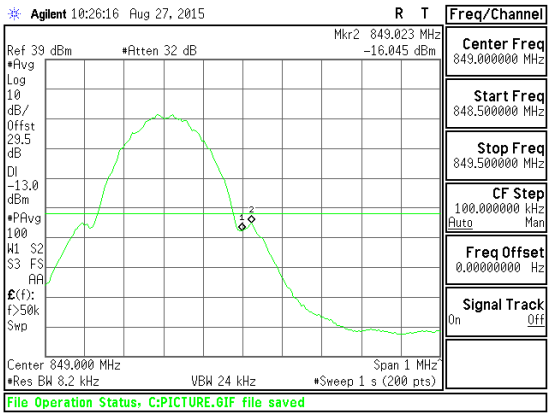
Band GSM 850 EGPRS	 Band GSM850 EGPRS CBE Low channel	 Band GSM850 EGPRS CBE High channel
Band GSM 850 GPRS	 Band GSM850 GPRS CBE Low channel	 Band GSM850 GPRS CBE High channel

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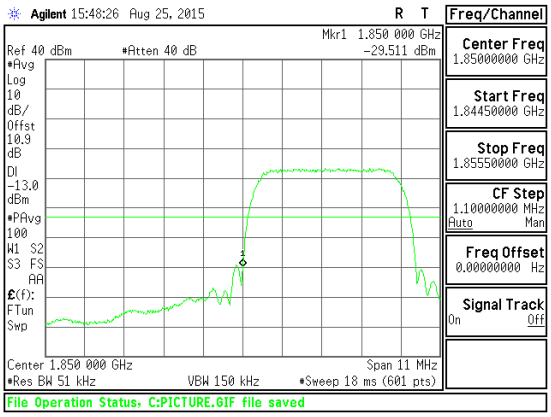
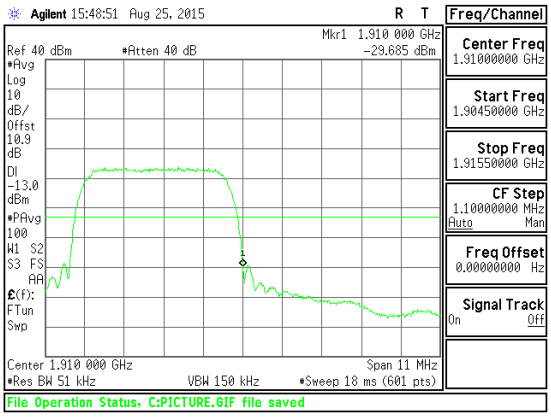
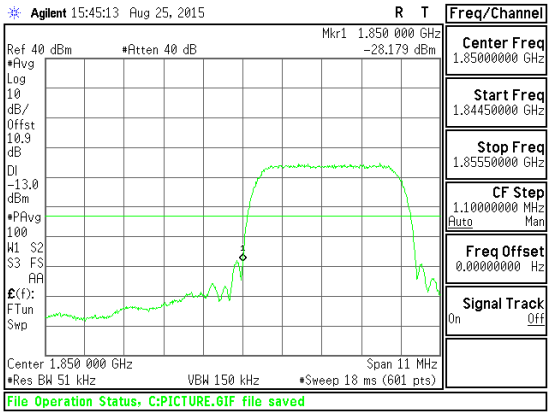
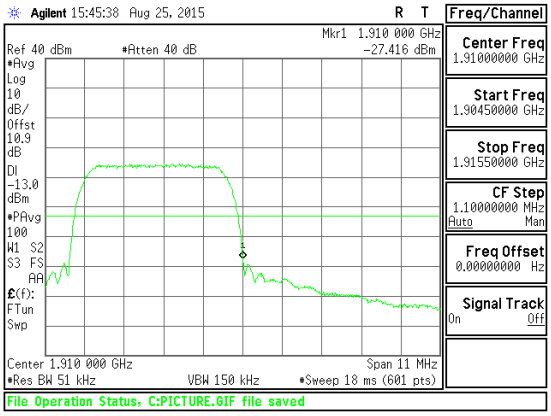
WCDMA

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

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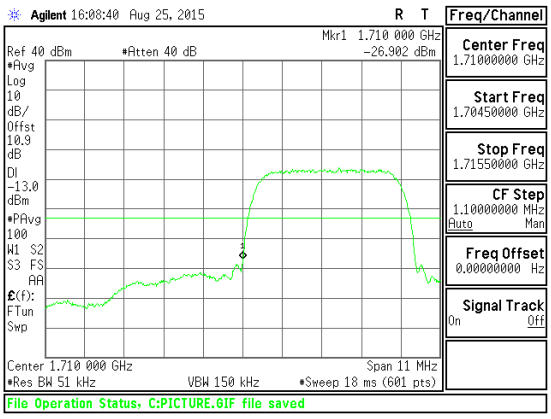
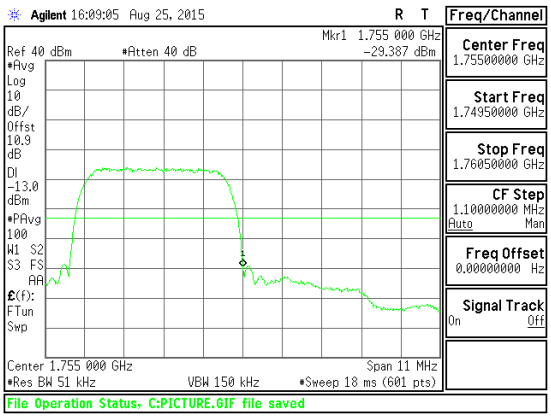
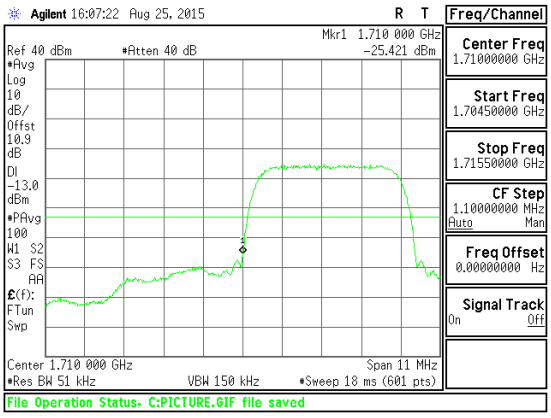
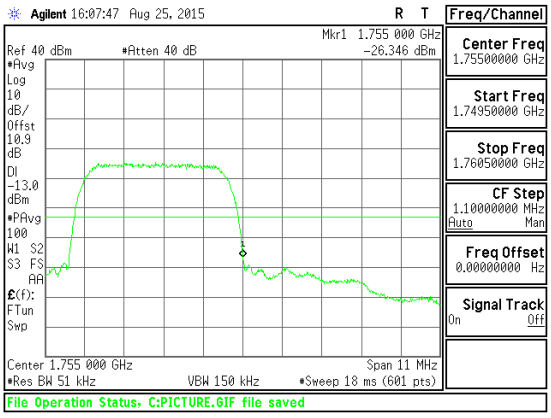
Band Band 4 HSDPA	 Band WCDMA B4 HSDPA CBE	 Band WCDMA B4 HSDPA CBE
Band Band 4 REL99	 Band WCDMA B4 REL99 CBE	 Band WCDMA B4 REL99 CBE

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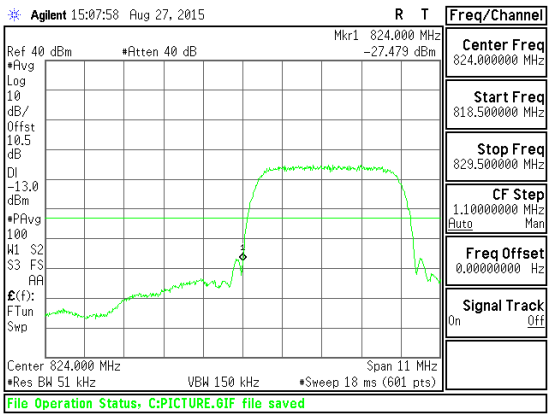
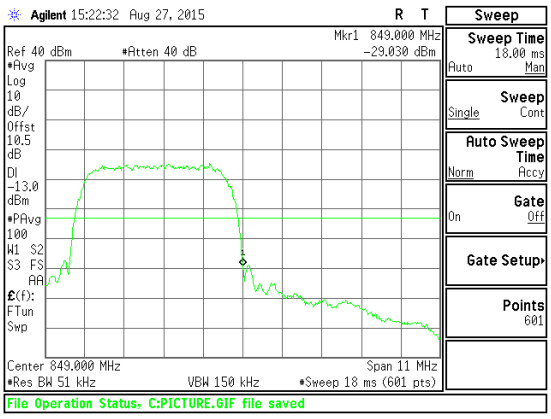
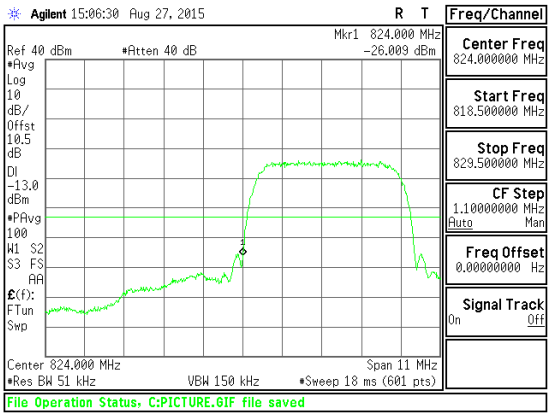
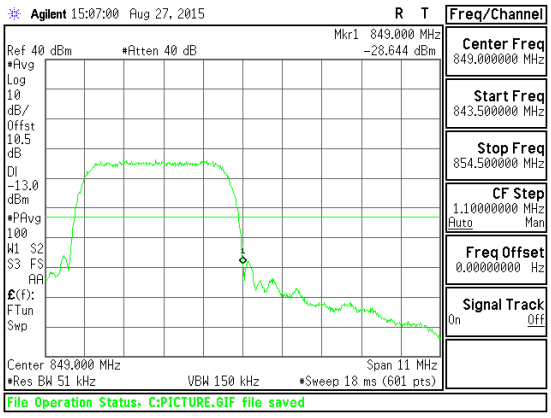
Band		
Band 5 HSDPA	 Band WCDMA B5 HSDPA CBE	 Band WCDMA B5 HSDPA CBE
Band 5 REL99	 Band WCDMA B5 REL99 CBE	 Band WCDMA B5 REL99 CBE

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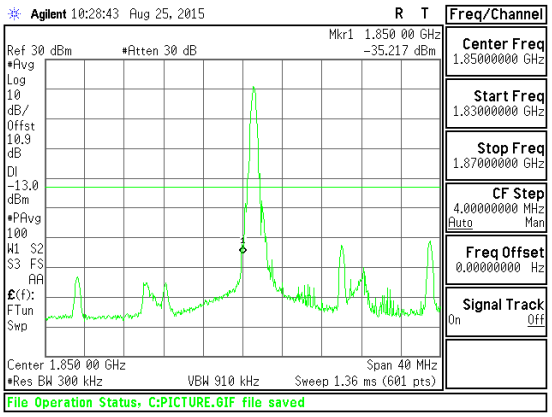
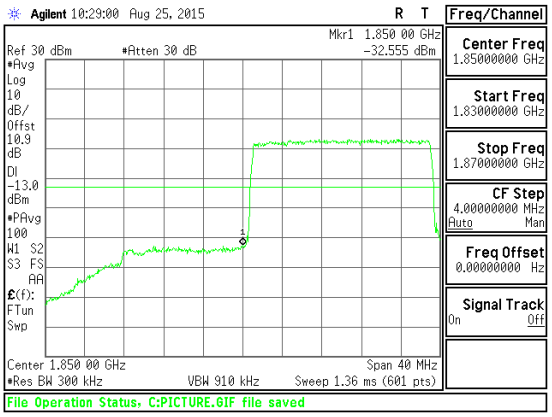
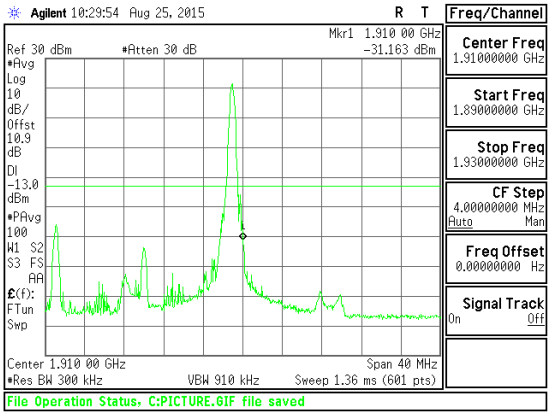
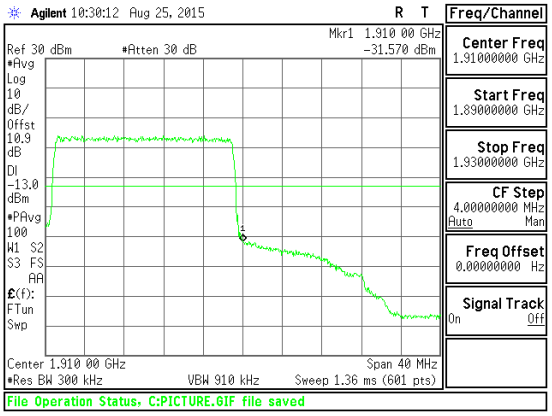
LTE Band 2

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

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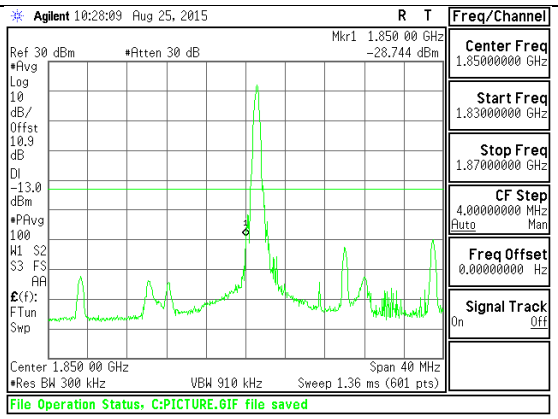
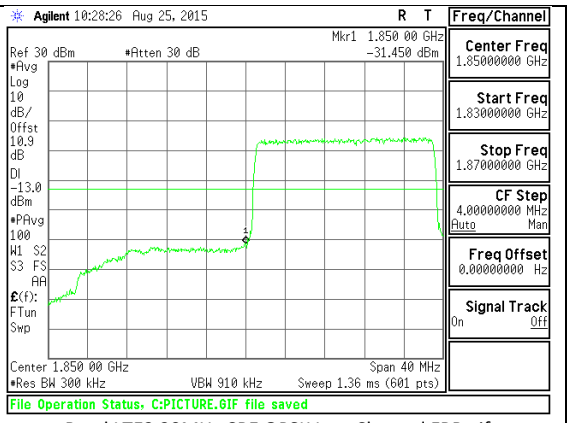
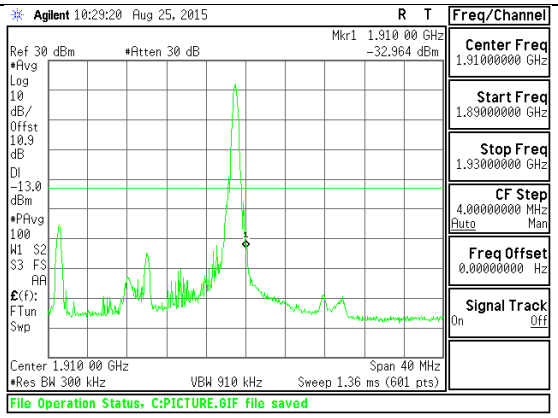
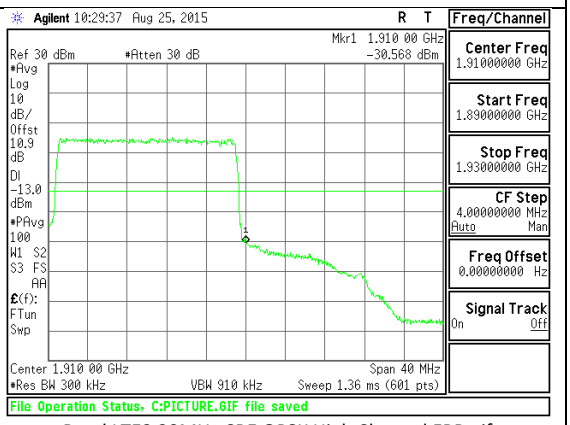
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK Low Channel FRB.gif
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK High Channel FRB.gif

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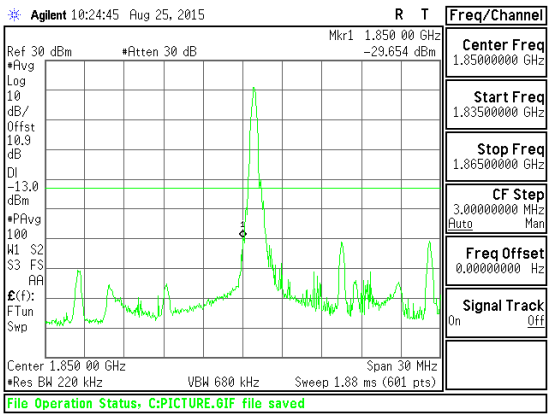
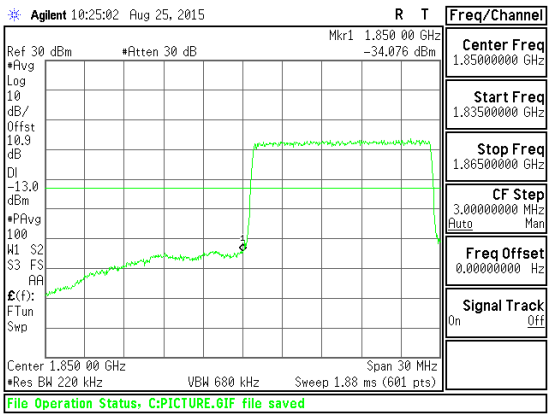
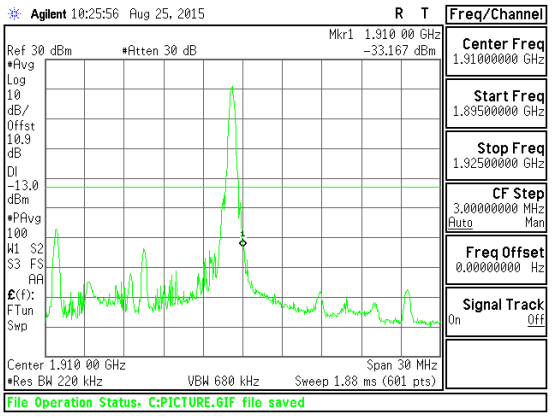
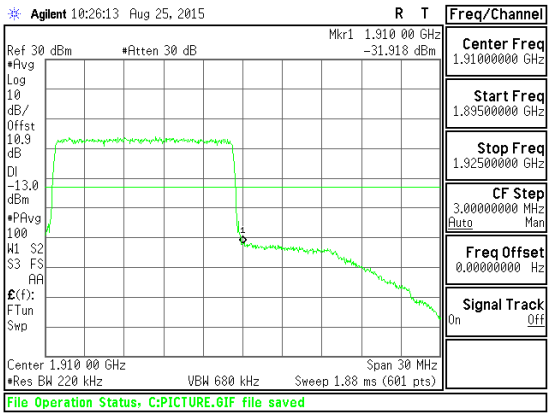
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM High Channel FRB.gif

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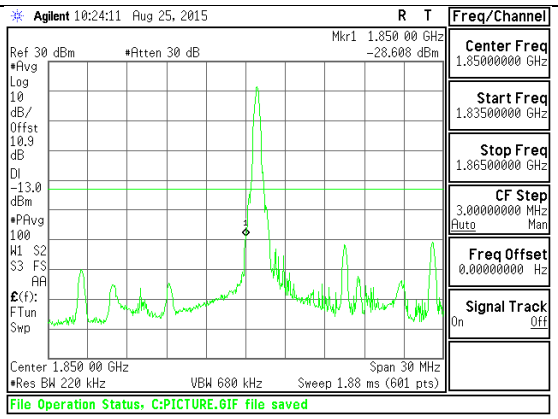
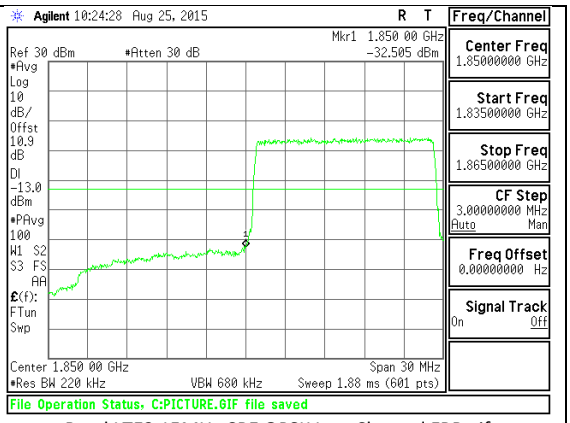
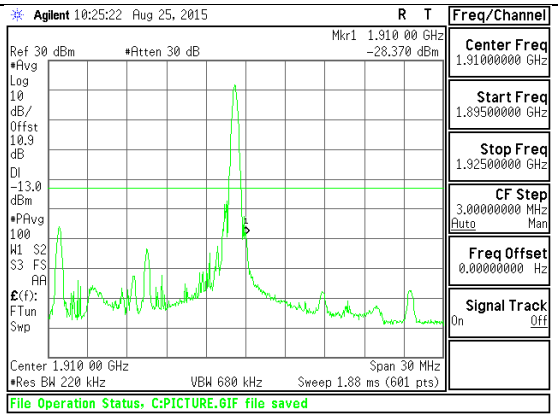
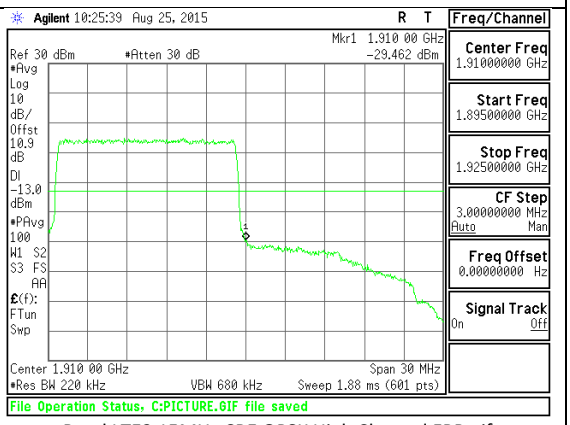
Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK Low Channel FRB.gif
Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK High Channel FRB.gif

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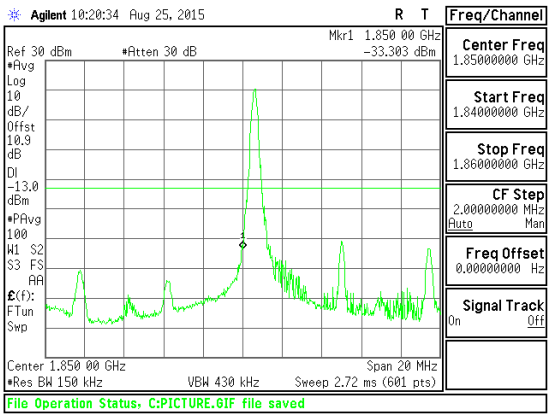
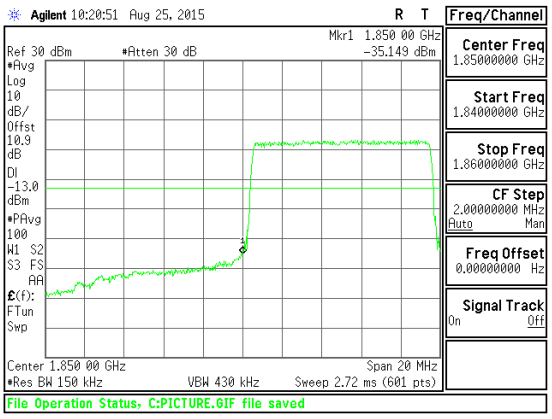
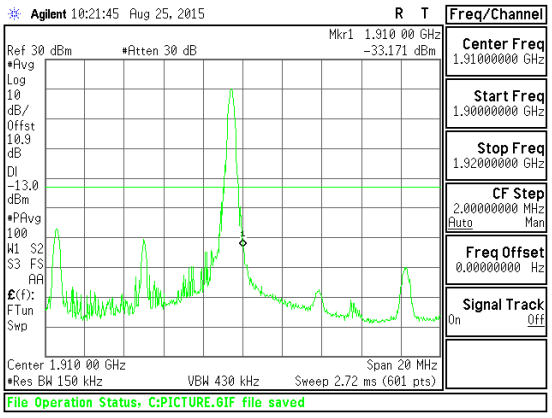
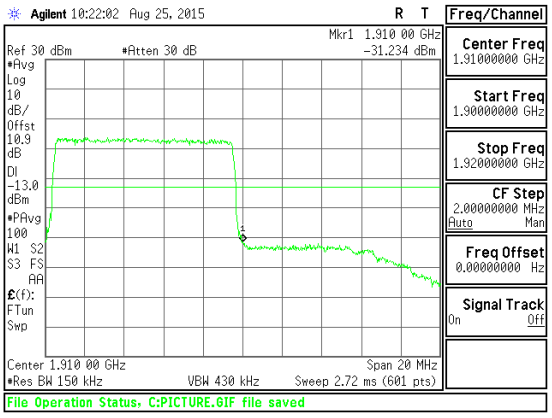
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM High Channel FRB.gif

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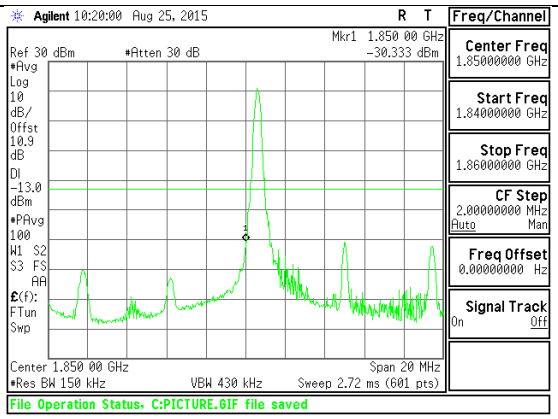
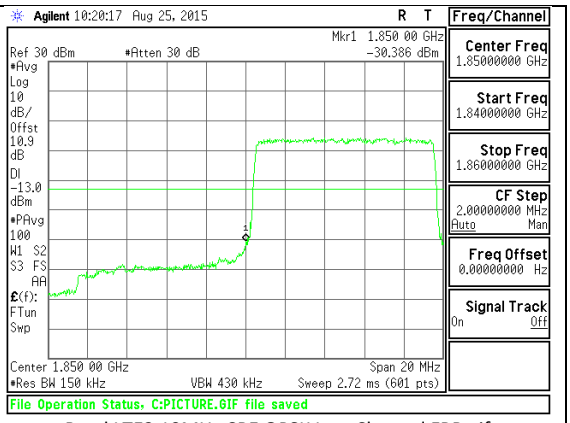
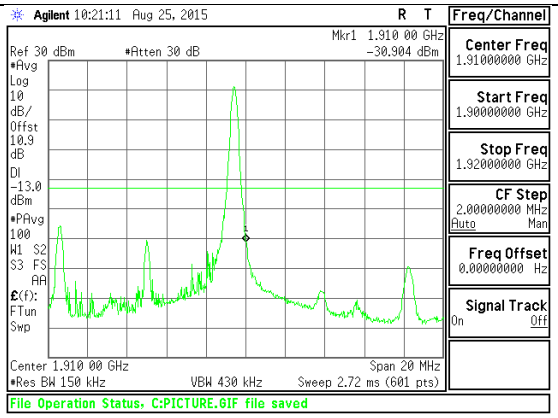
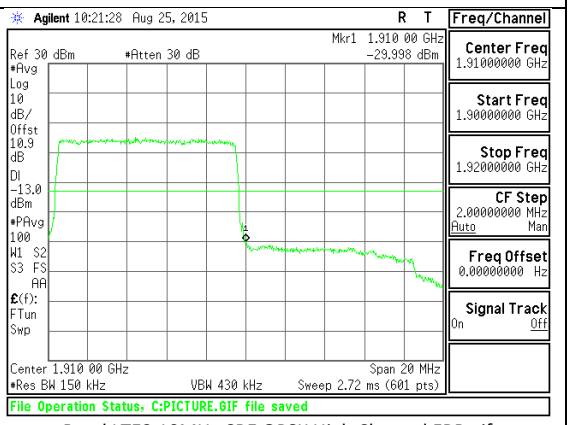
Band LTE2 10MHz QPSK	 Band LTE2 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 10MHz CBE QPSK Low Channel FRB.gif
Band LTE2 10MHz QPSK	 Band LTE2 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 10MHz CBE QPSK High Channel FRB.gif

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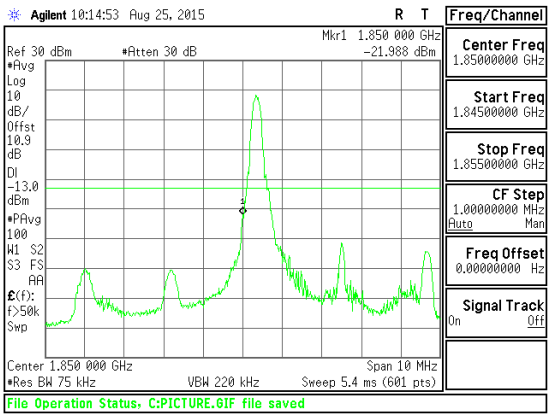
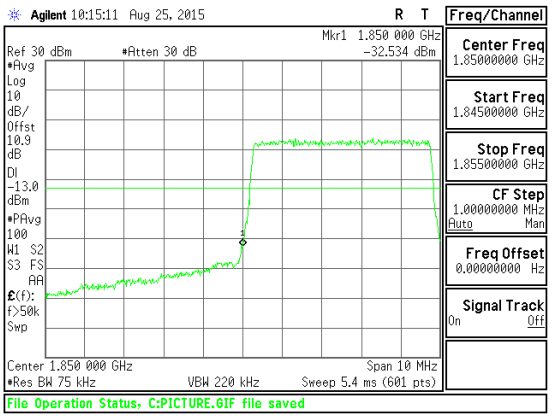
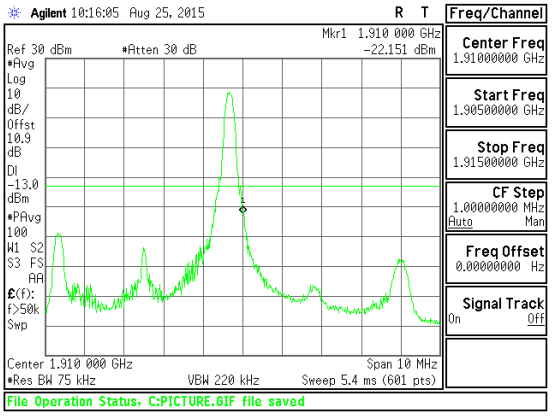
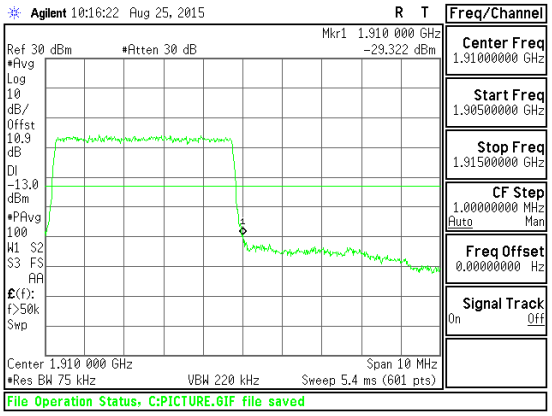
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM High Channel FRB.gif

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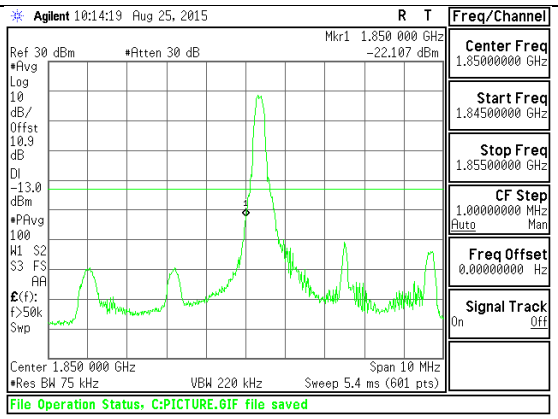
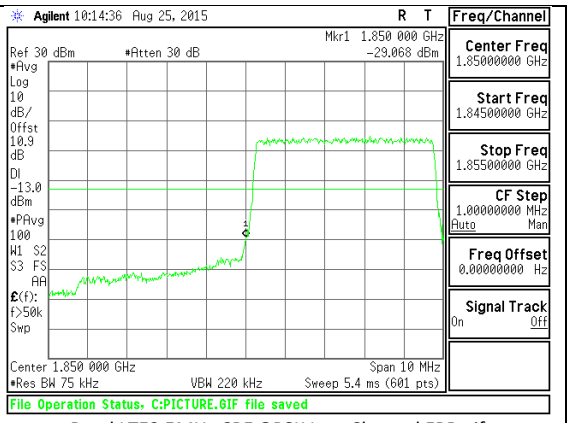
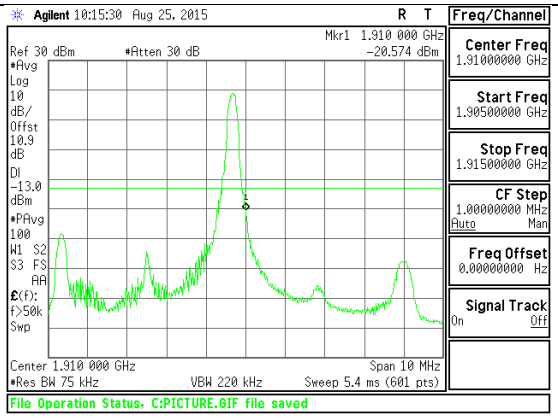
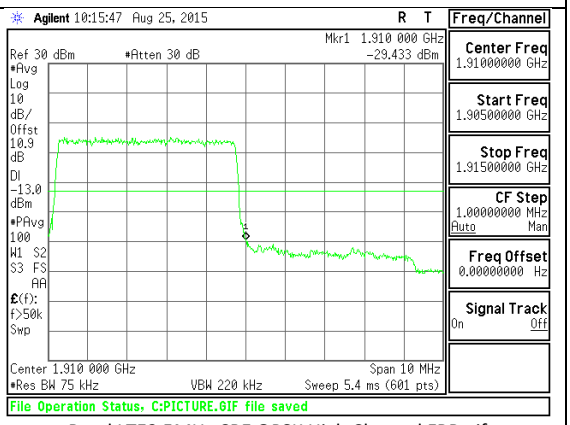
Band LTE2 5MHz QPSK	 Band LTE2 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 5MHz CBE QPSK Low Channel FRB.gif
Band LTE2 5MHz QPSK	 Band LTE2 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 5MHz CBE QPSK High Channel FRB.gif

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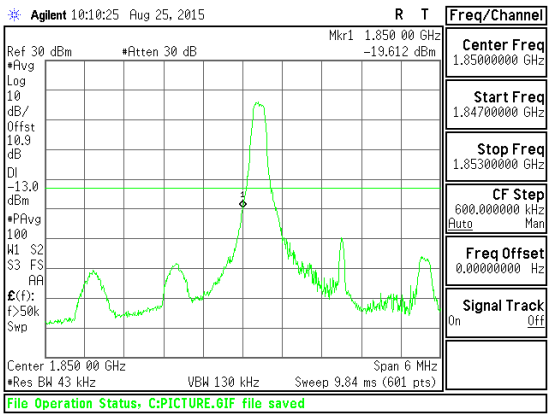
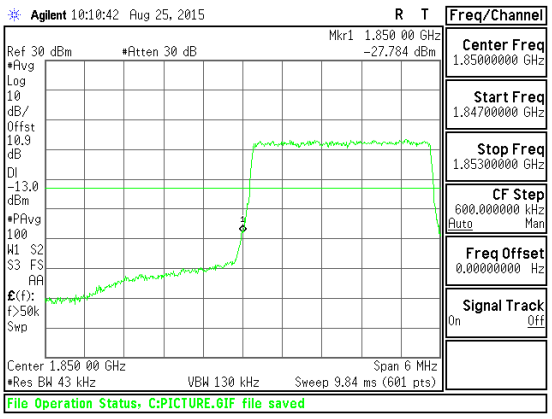
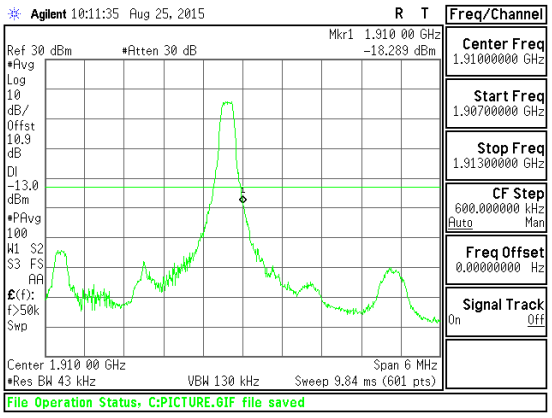
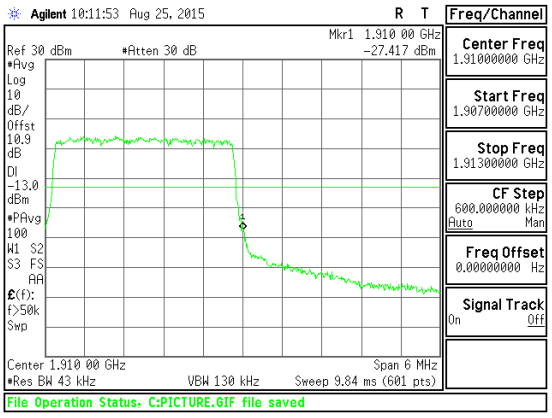
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM High Channel FRB.gif

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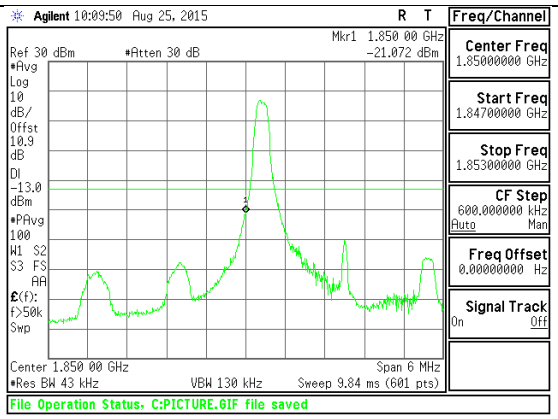
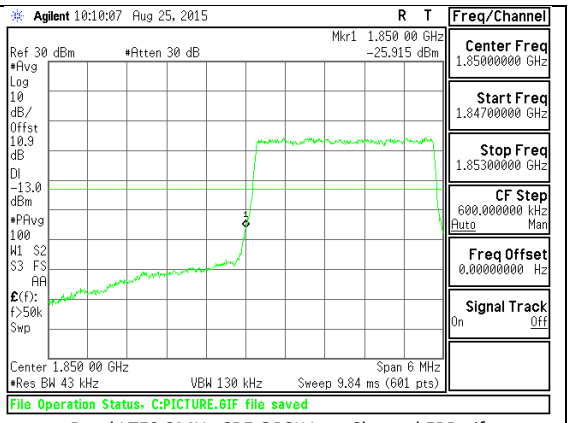
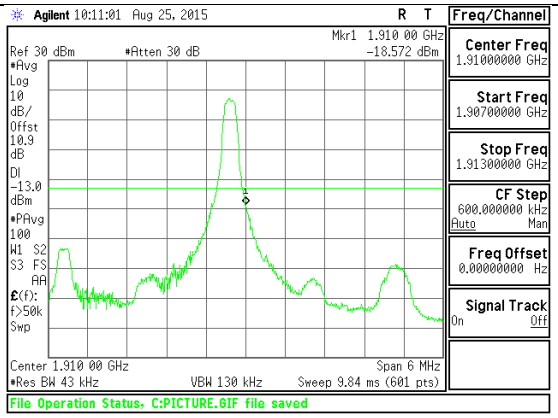
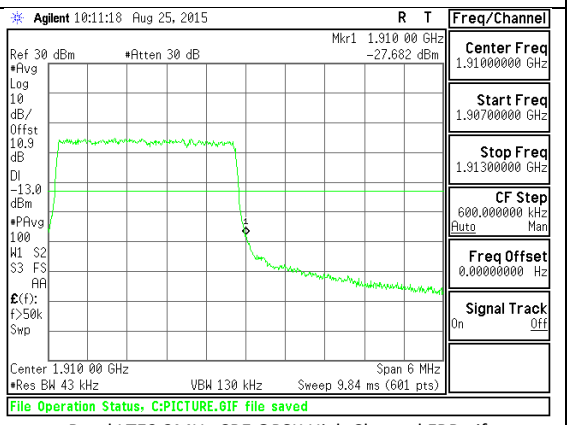
Band LTE2 3MHz QPSK	 Band LTE2 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 3MHz CBE QPSK Low Channel FRB.gif
Band LTE2 3MHz QPSK	 Band LTE2 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 3MHz CBE QPSK High Channel FRB.gif

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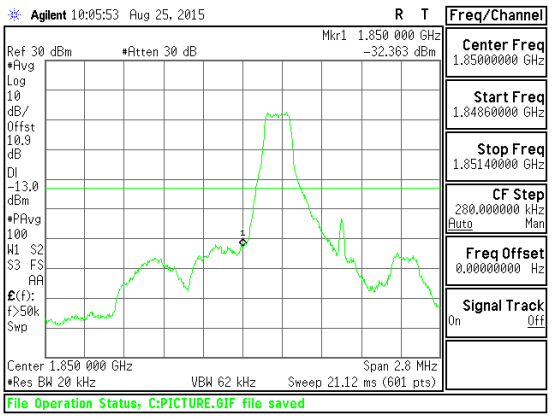
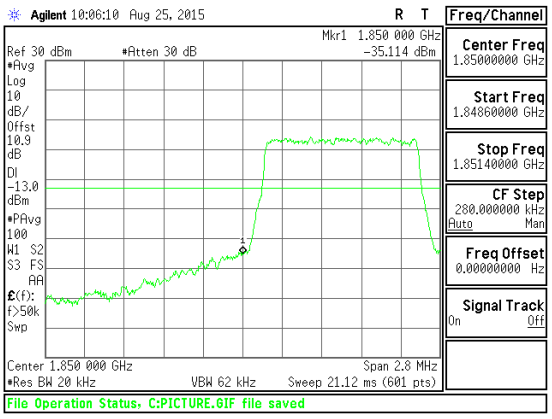
Band LTE2 1.4MHz 16QAM

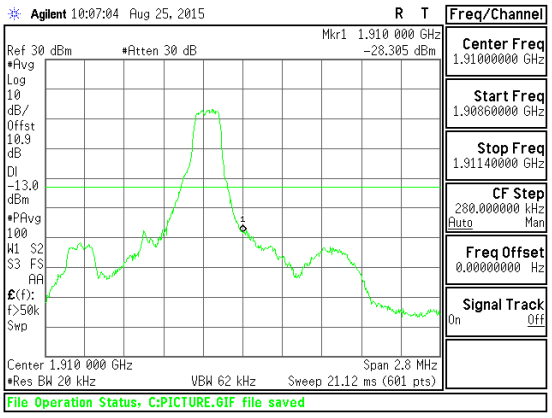


Band LTE2 1.4MHz CBE 16QAM Low Channel 1RB.gif

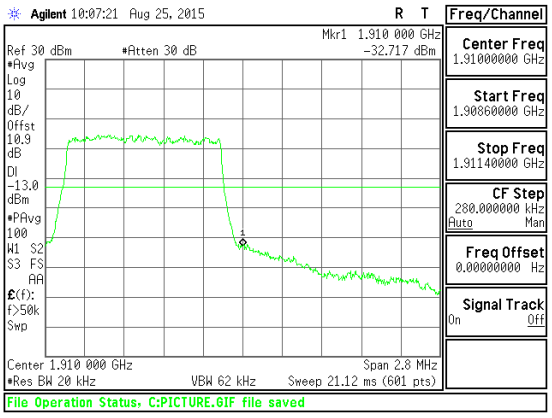


Band LTE2 1.4MHz CBE 16QAM Low Channel FRB.gif

Band LTE2 1.4MHz 16QAM



Band LTE2 1.4MHz CBE 16QAM High Channel 1RB.gif



Band LTE2 1.4MHz CBE 16QAM High Channel FRB.gif

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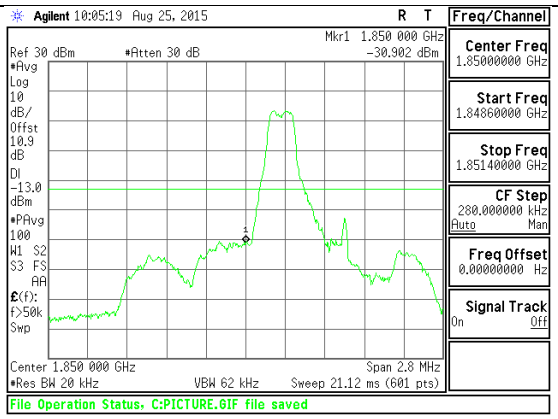
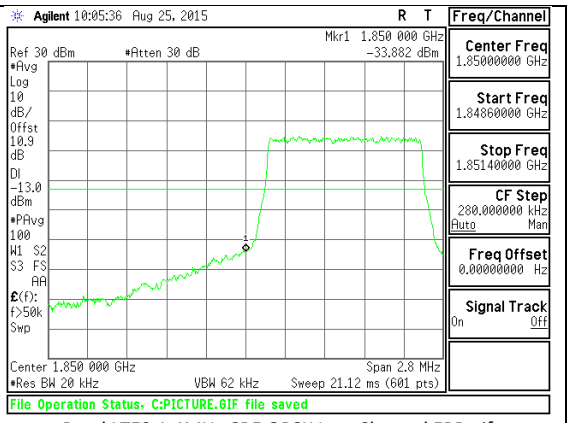
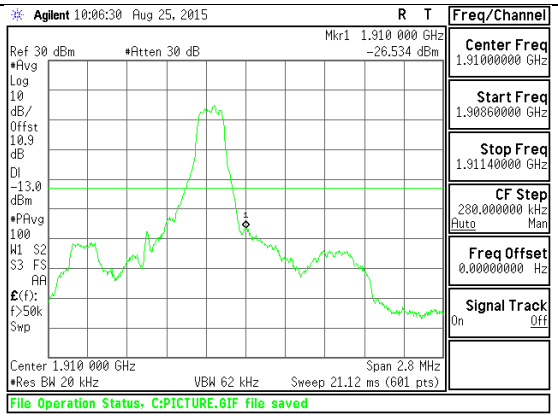
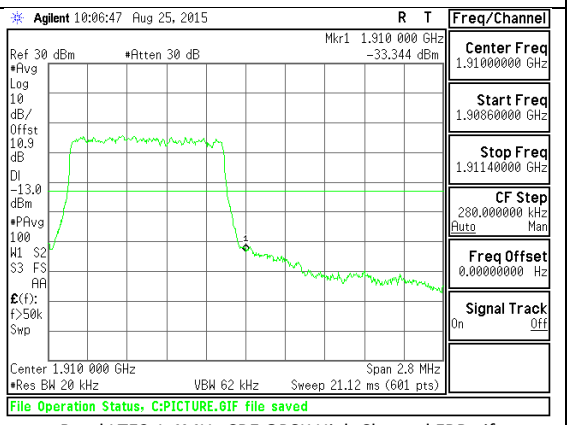
Band LTE2 1.4MHz QPSK	 Band LTE2 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE2 1.4MHz QPSK	 Band LTE2 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 1.4MHz CBE QPSK High Channel FRB.gif

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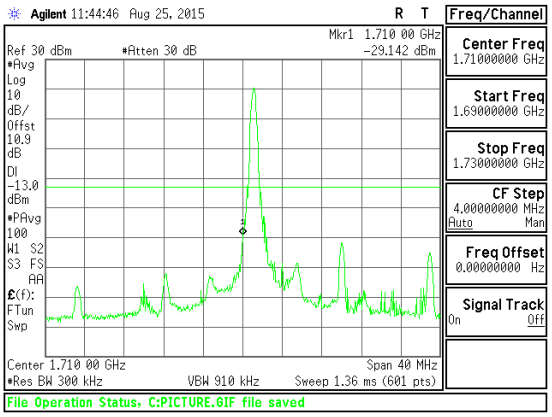
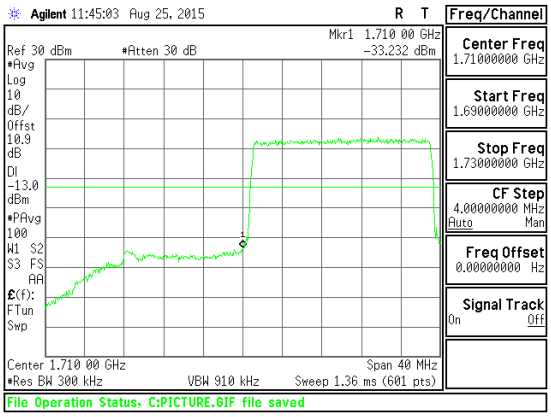
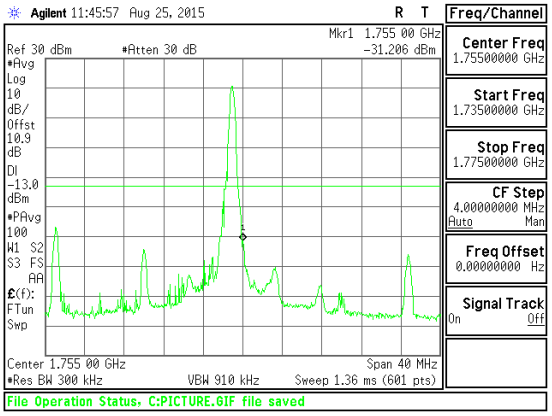
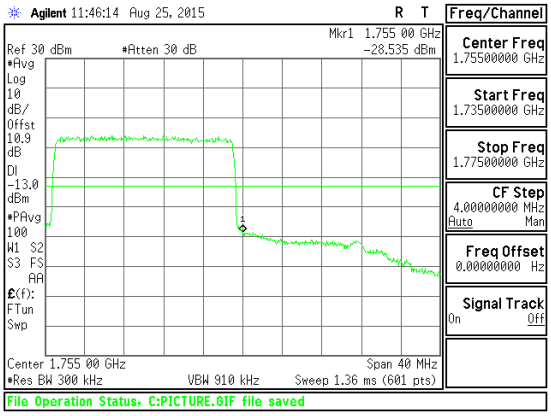
LTE Band 4

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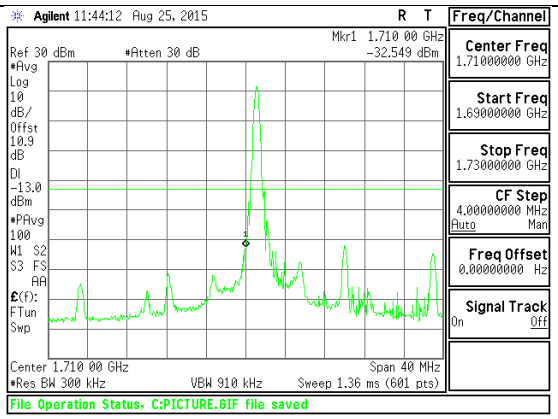
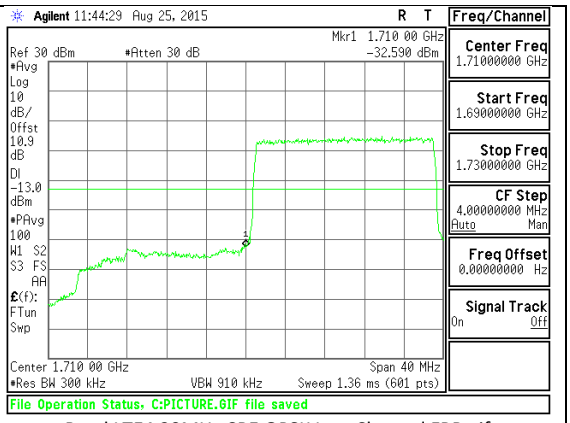
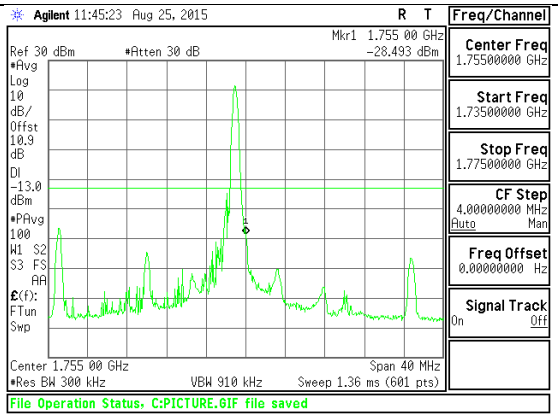
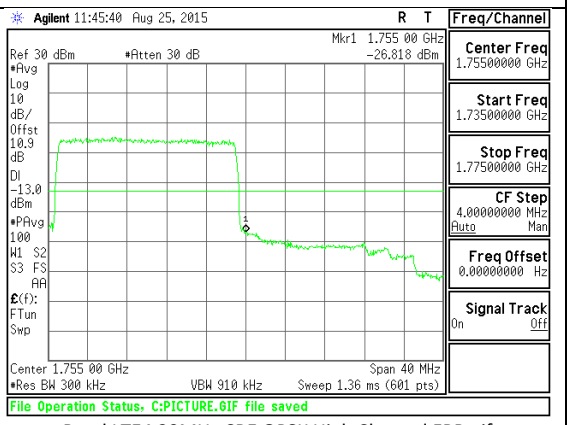
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK Low Channel FRB.gif
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK High Channel FRB.gif

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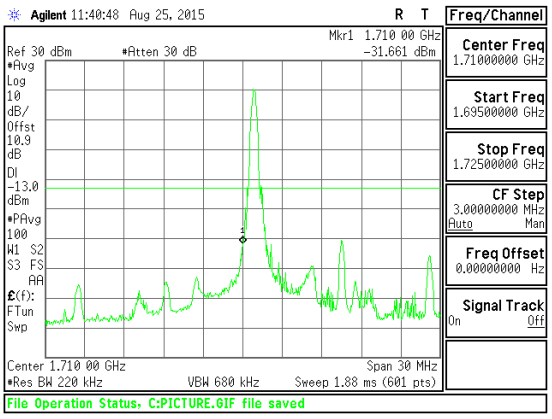
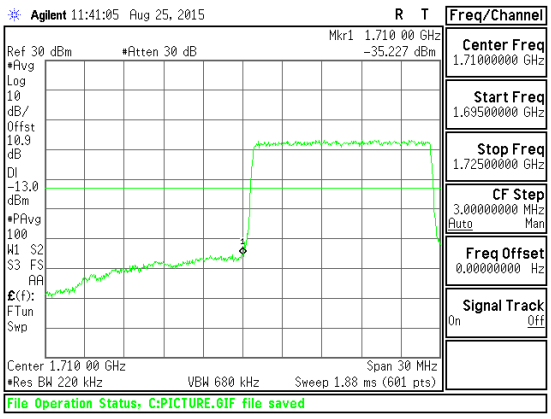
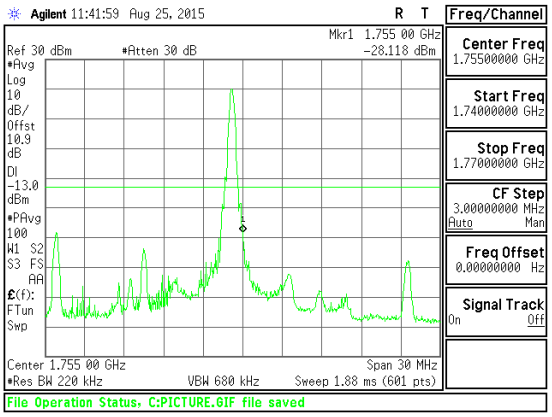
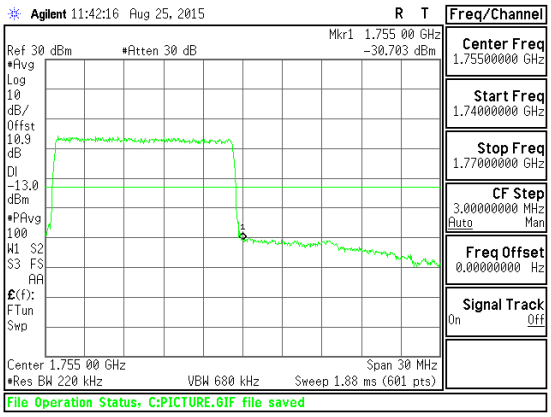
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM High Channel FRB.gif

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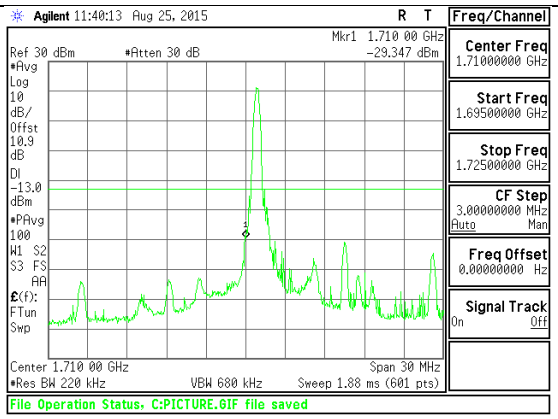
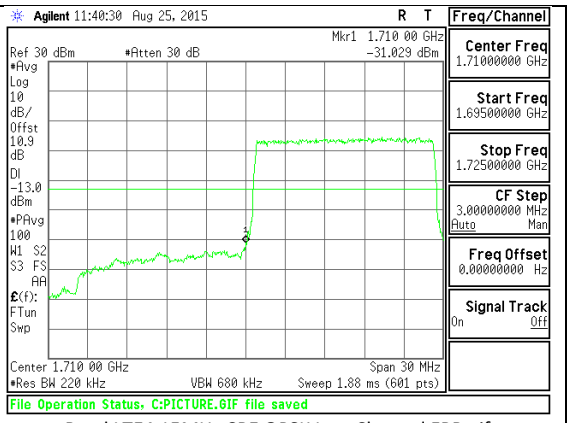
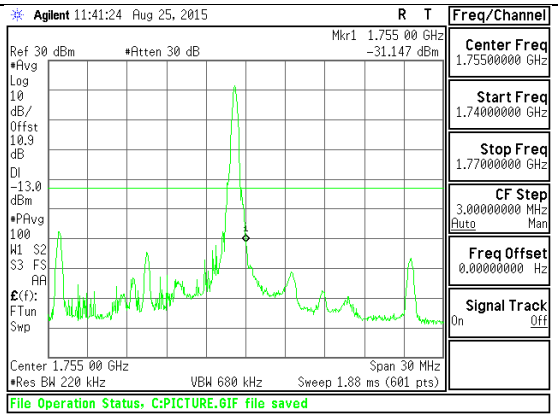
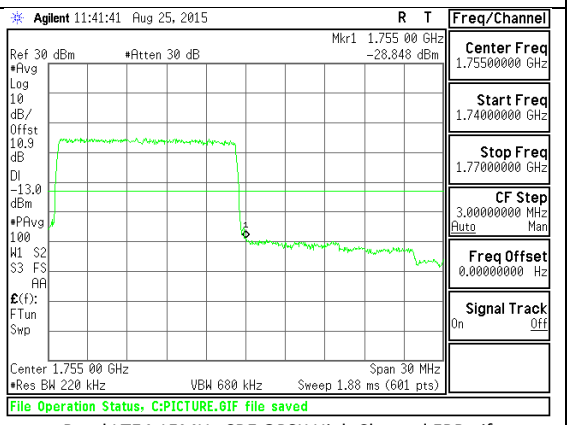
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK Low Channel FRB.gif
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK High Channel FRB.gif

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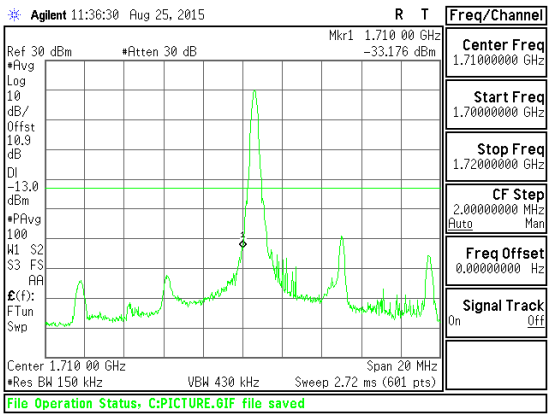
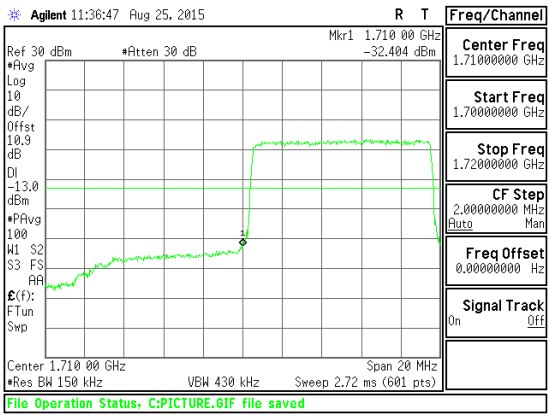
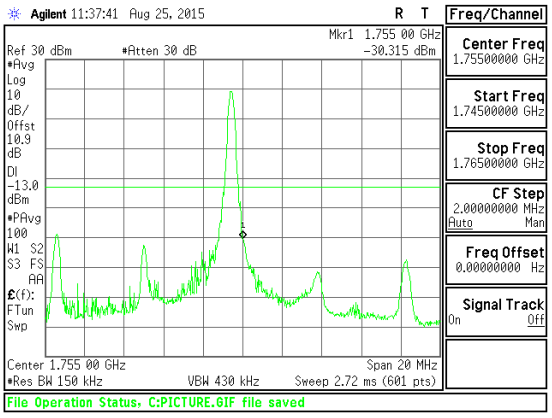
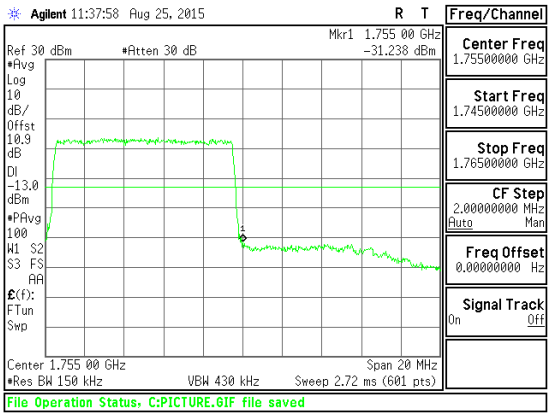
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 10MHz CBE 16QAM High Channel FRB.gif

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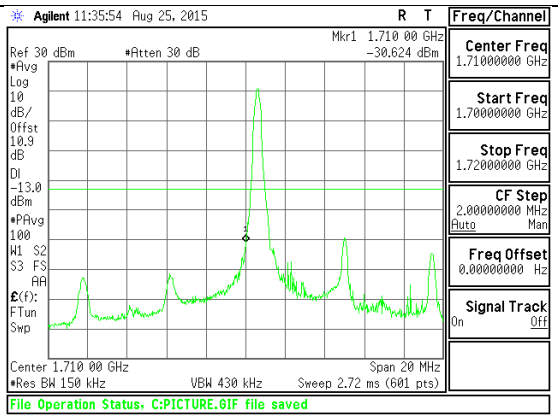
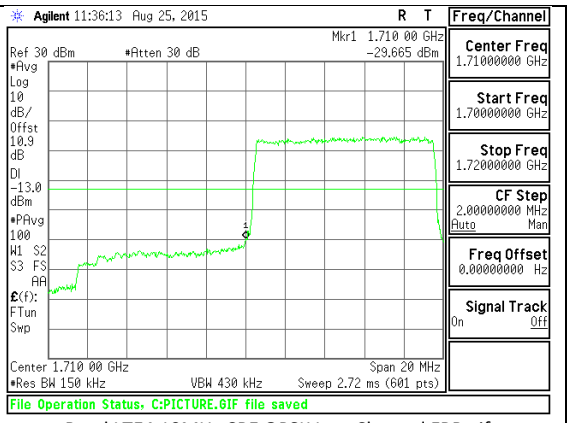
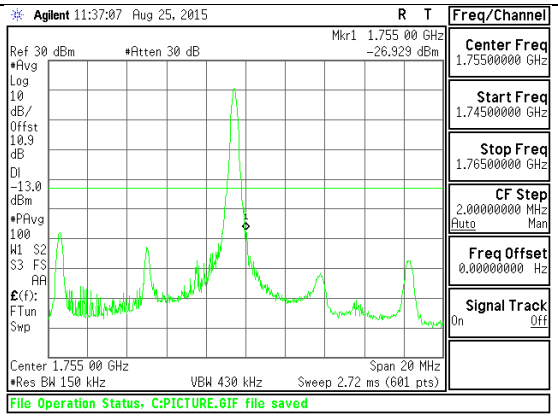
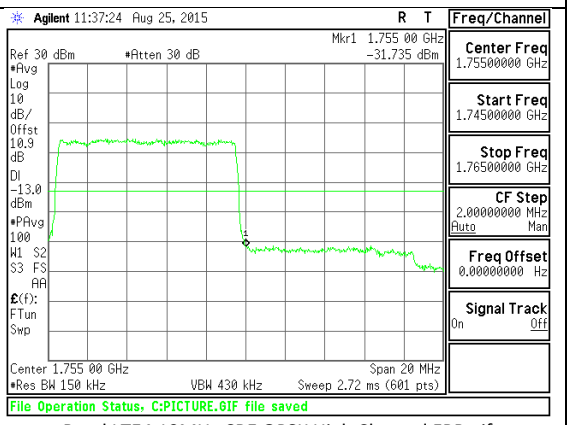
Band LTE4 10MHz QPSK	 Band LTE4 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 10MHz CBE QPSK Low Channel FRB.gif
Band LTE4 10MHz QPSK	 Band LTE4 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 10MHz CBE QPSK High Channel FRB.gif

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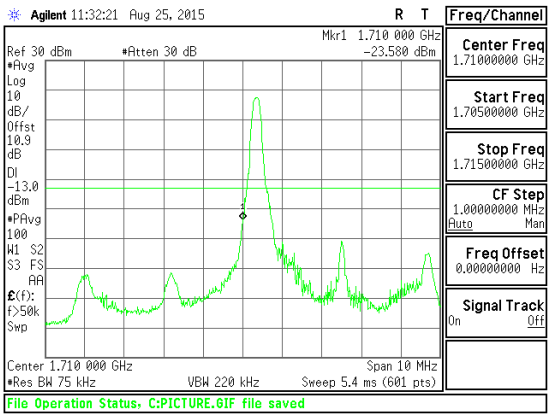
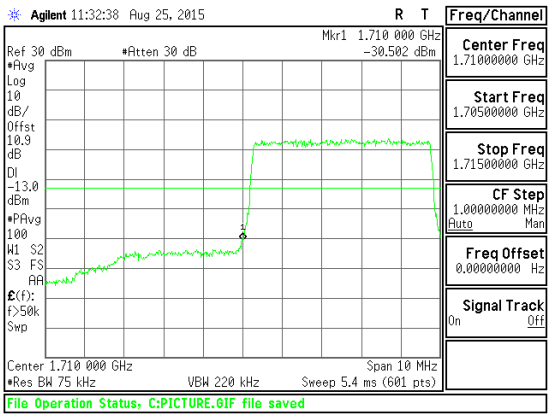
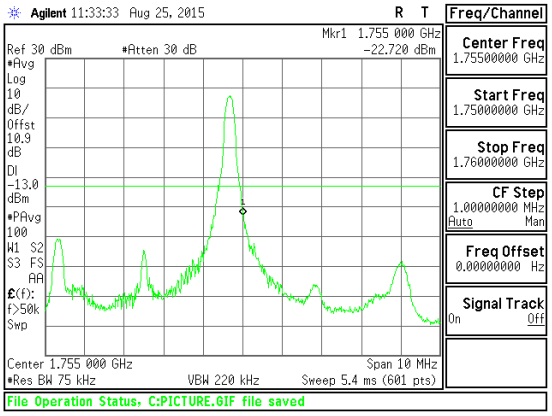
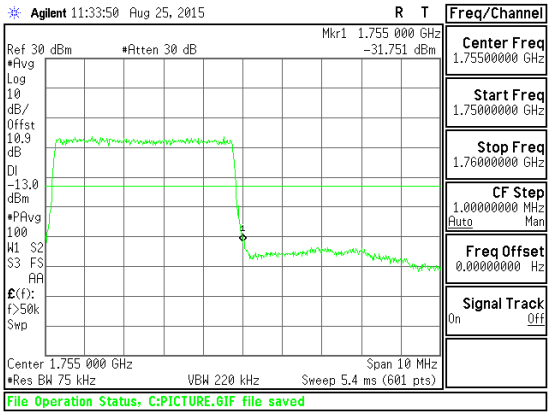
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM High Channel FRB.gif

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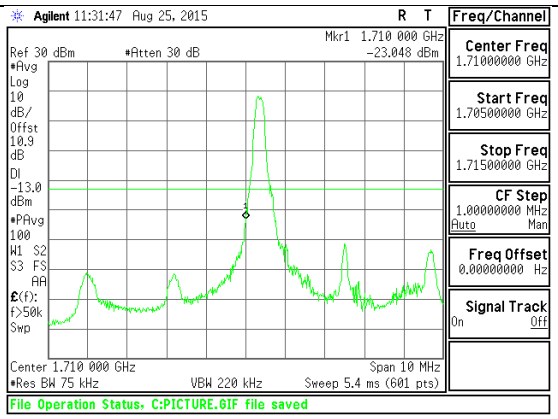
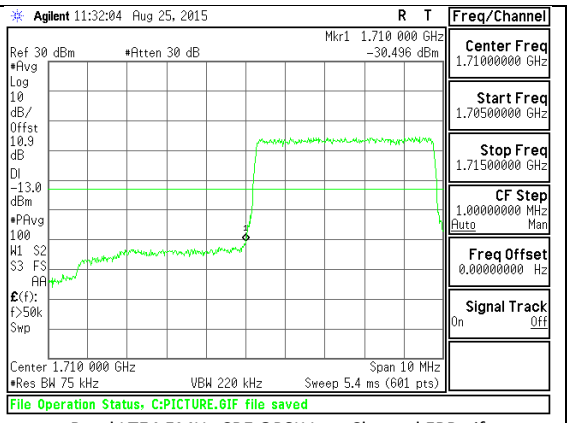
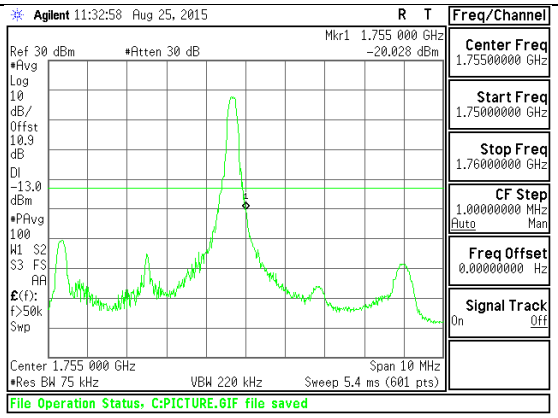
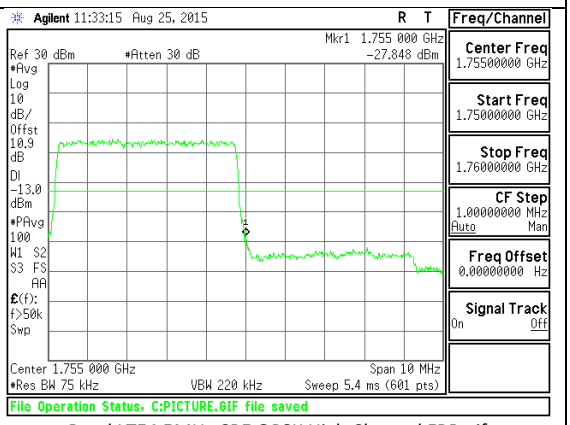
Band LTE4 5MHz QPSK	 Band LTE4 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 5MHz CBE QPSK Low Channel FRB.gif
Band LTE4 5MHz QPSK	 Band LTE4 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 5MHz CBE QPSK High Channel FRB.gif

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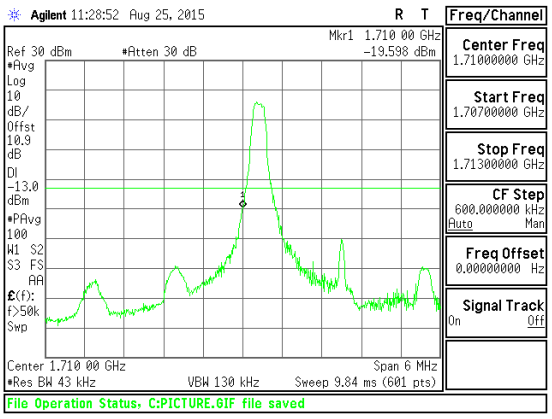
Band LTE4 3MHz 16QAM



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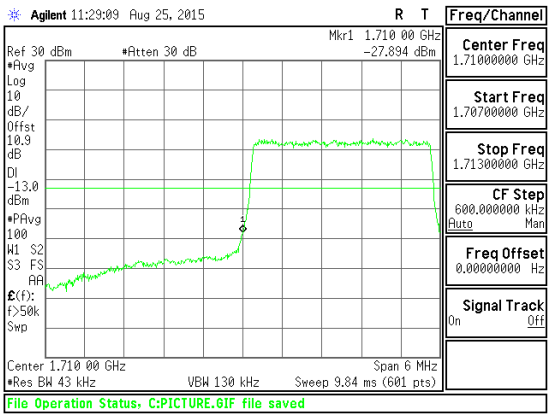
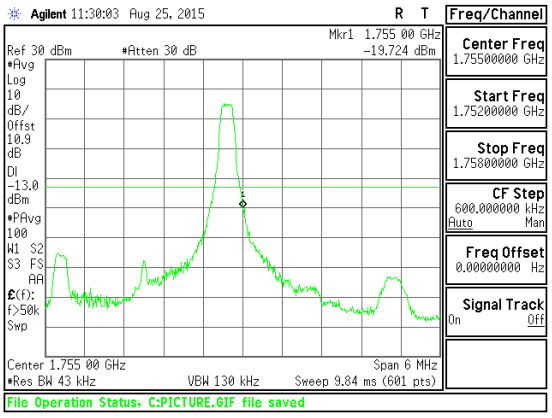
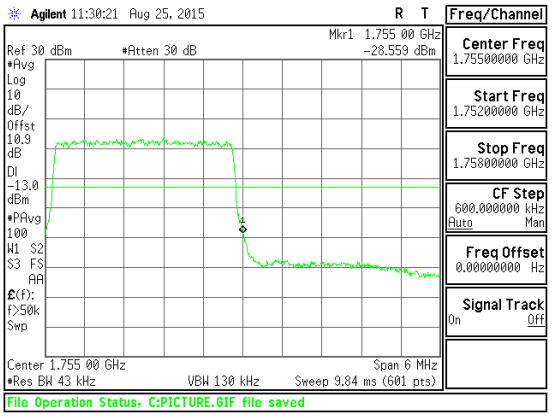


Band LTE4 3MHz CBE 16QAM Low Channel FRB.gif

Band LTE4 3MHz 16QAM



Band LTE4 3MHz CBE 16QAM High Channel 1RB.gif



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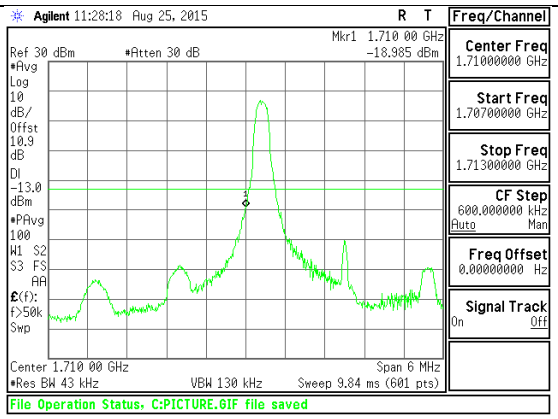
Band LTE4 3MHz QPSK



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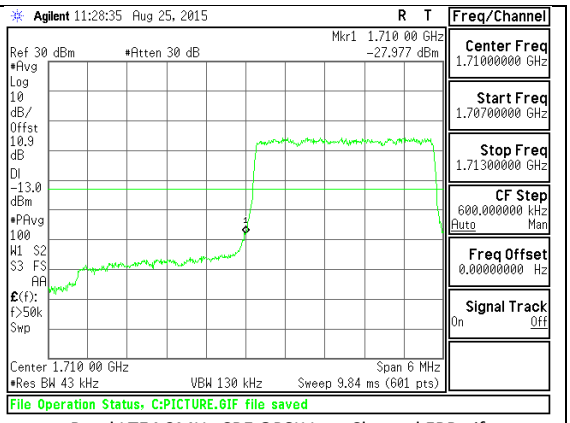
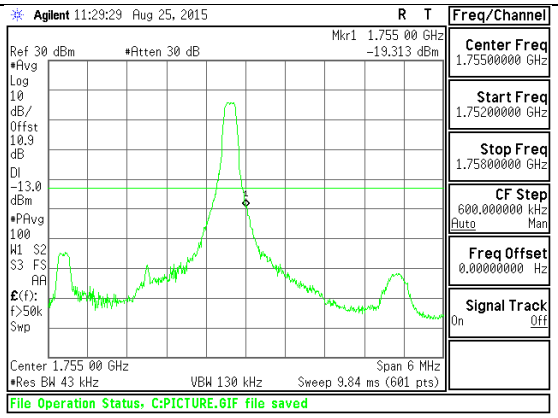


Band LTE4 3MHz CBE QPSK Low Channel FRB.gif

Band LTE4 3MHz QPSK



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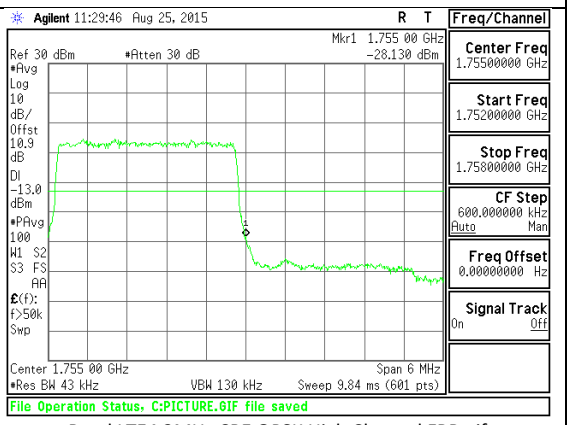

Band LTE4 3MHz CBE QPSK High Channel FRB.gif

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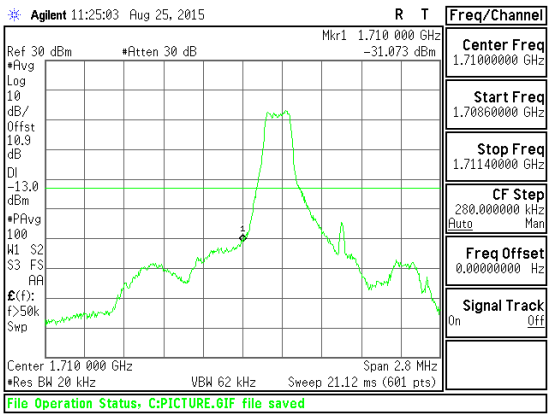
Band LTE4 1.4MHz 16QAM



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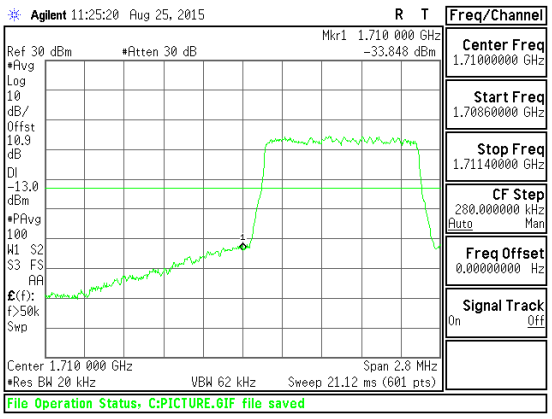
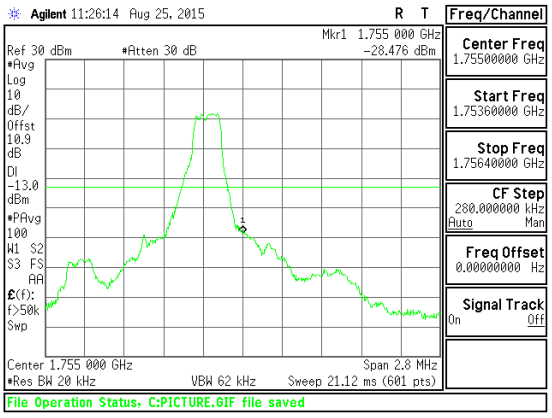


Band LTE4 1.4MHz CBE 16QAM Low Channel FRB.gif

Band LTE4 1.4MHz 16QAM



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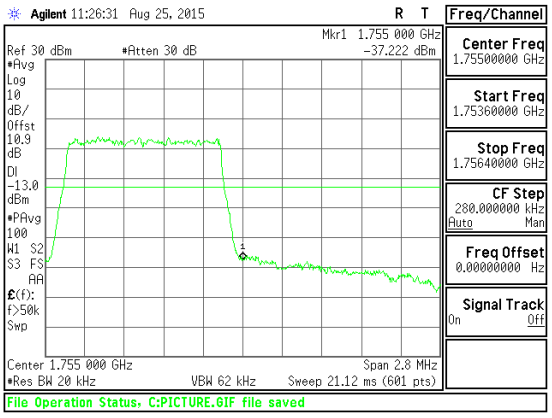

Band LTE4 1.4MHz CBE 16QAM High Channel FRB.gif

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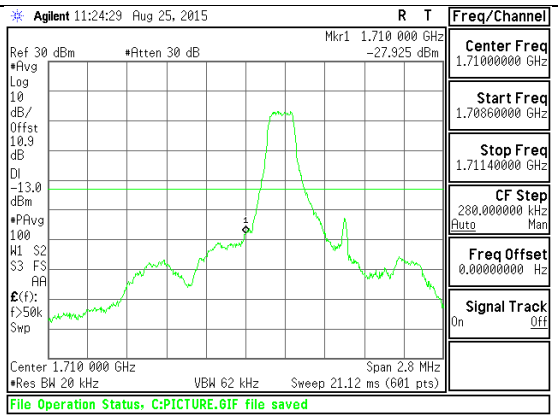
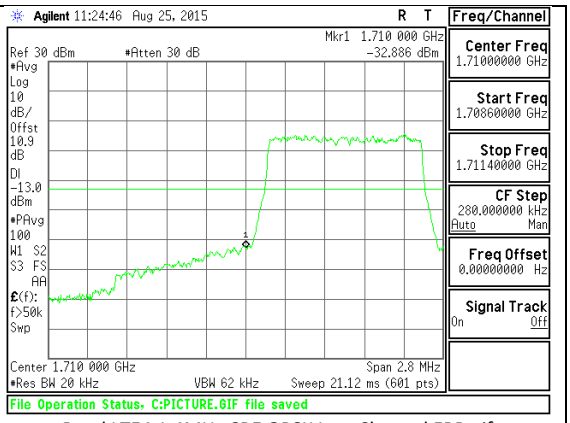
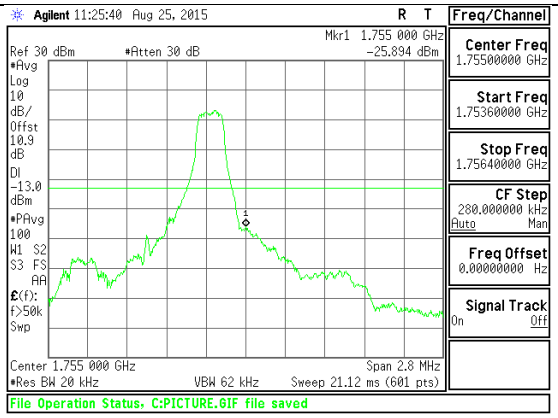
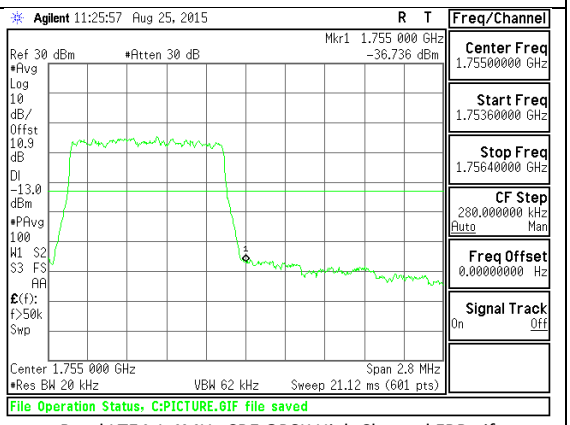
Band LTE4 1.4MHz QPSK	 Band LTE4 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE4 1.4MHz QPSK	 Band LTE4 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 1.4MHz CBE QPSK High Channel FRB.gif

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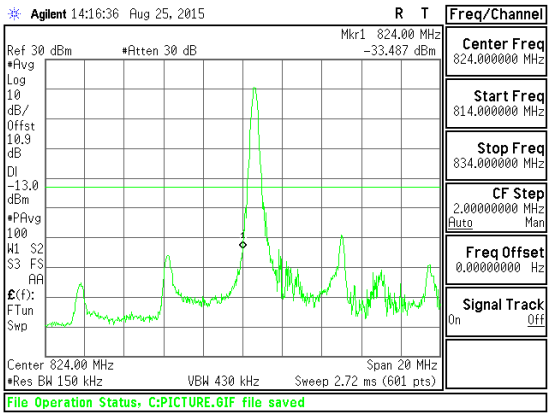
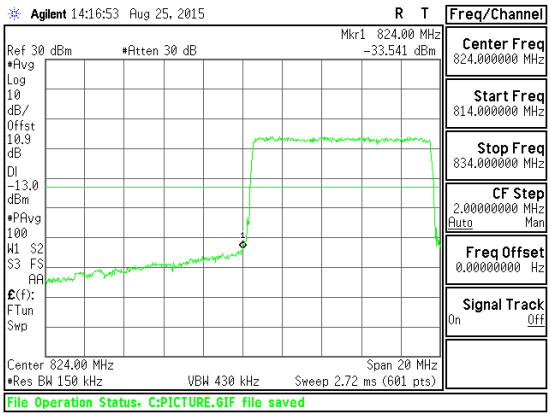
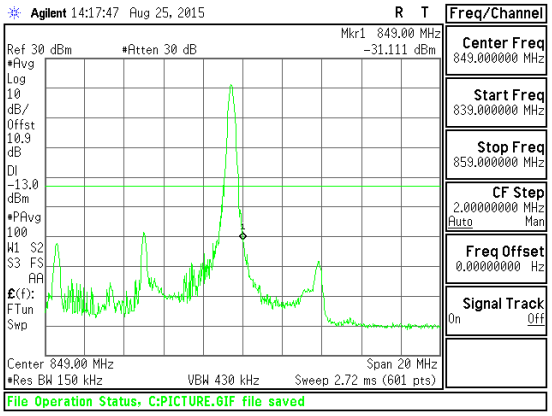
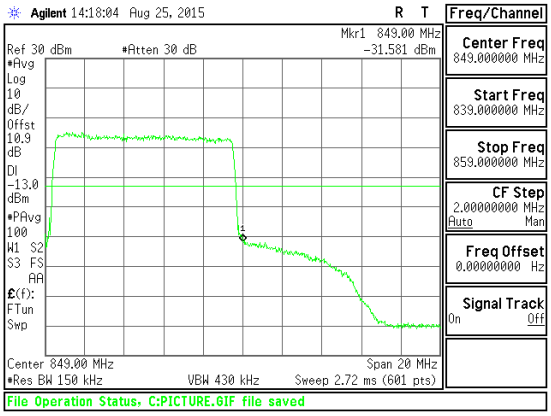
LTE Band 5

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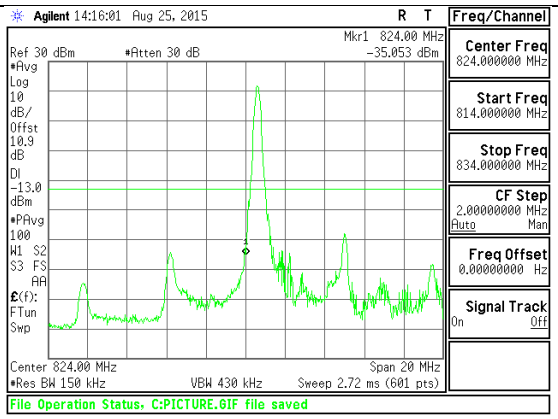
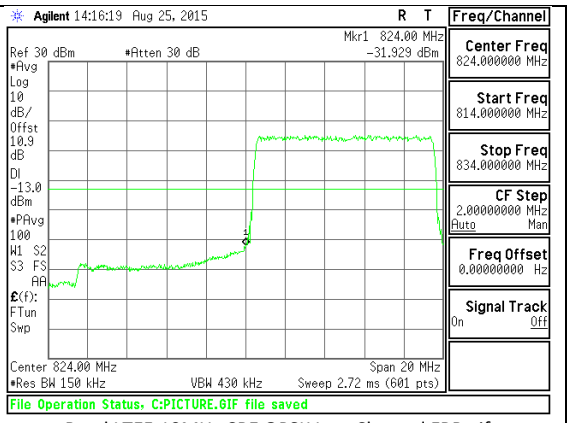
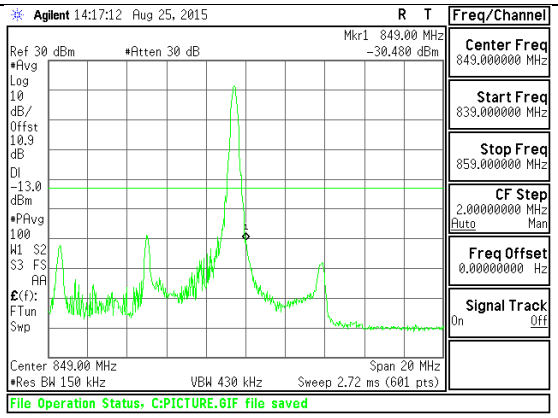
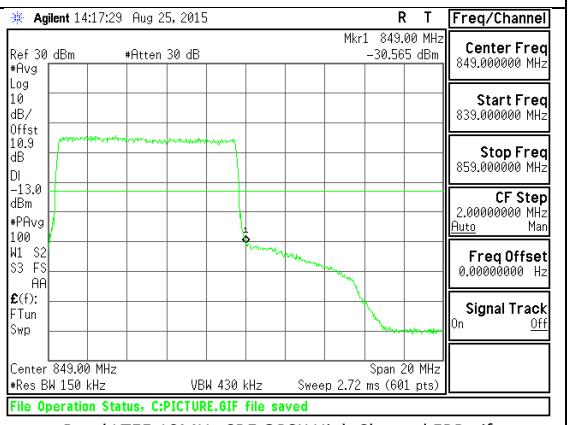
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK Low Channel FRB.gif
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK High Channel FRB.gif

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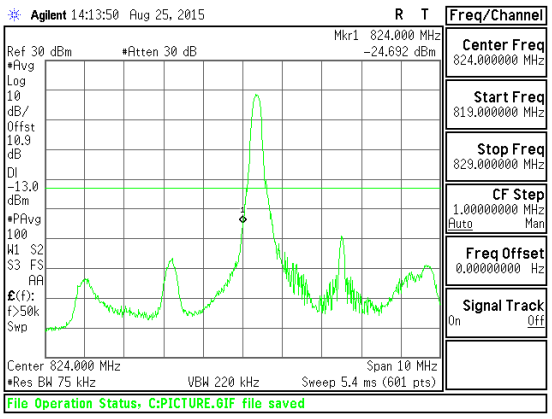
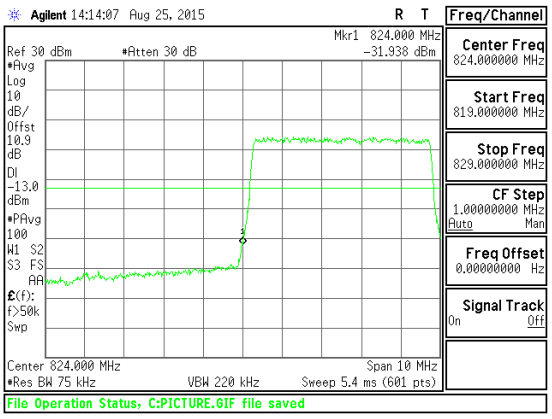
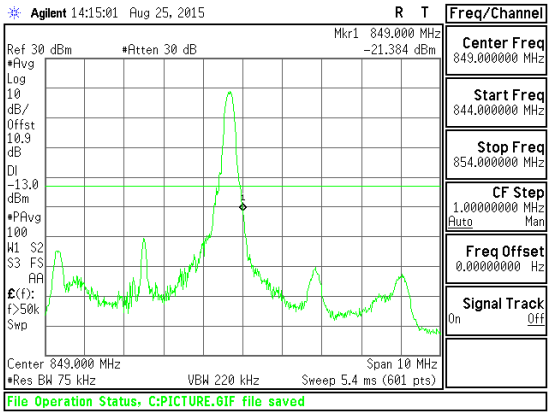
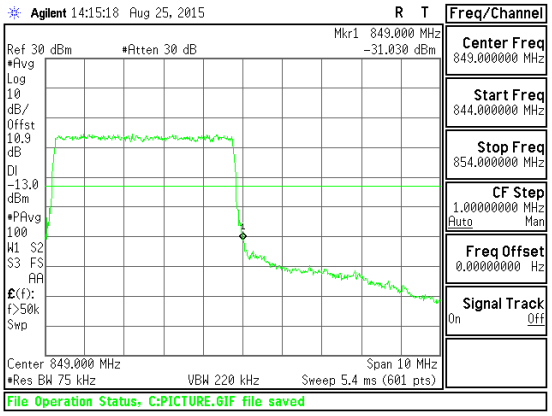
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM High Channel FRB.gif

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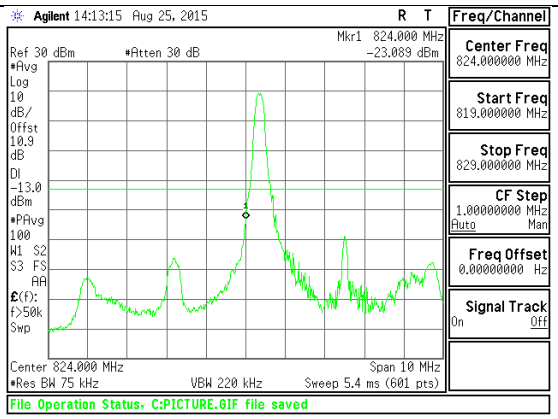
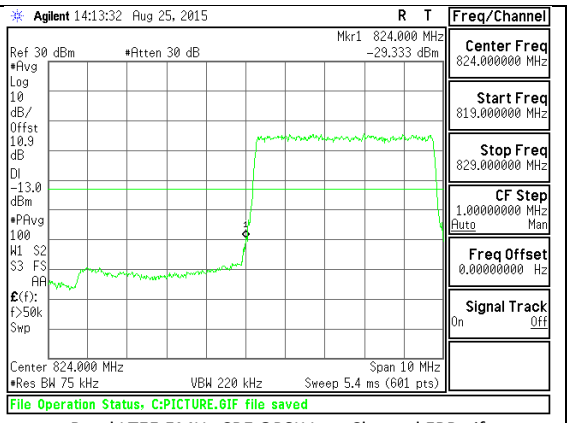
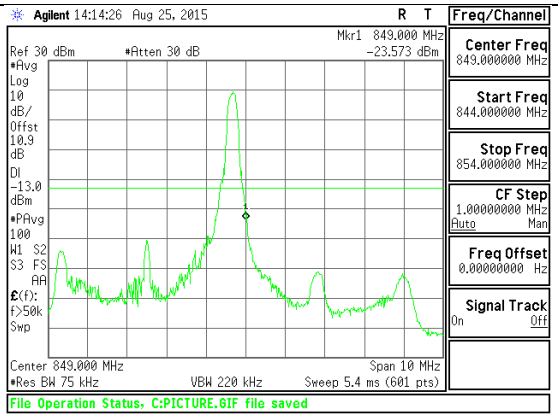
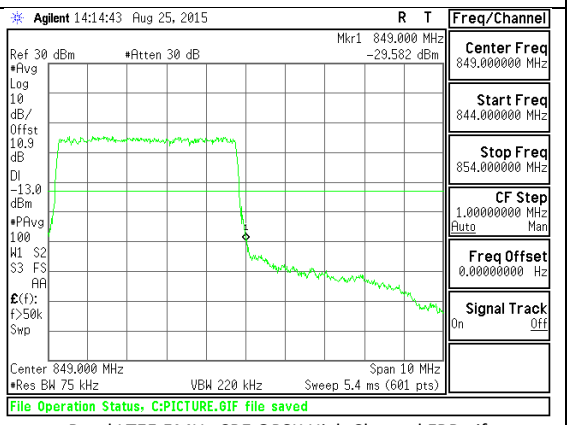
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK Low Channel FRB.gif
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK High Channel FRB.gif

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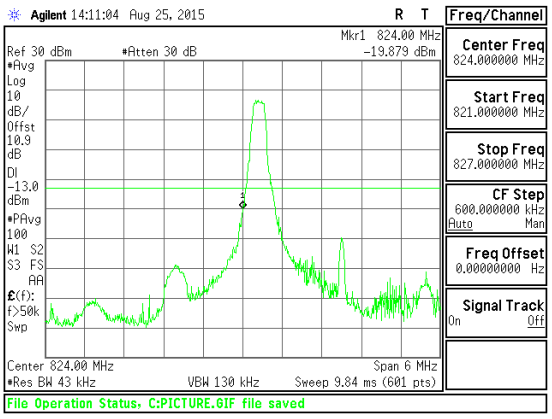
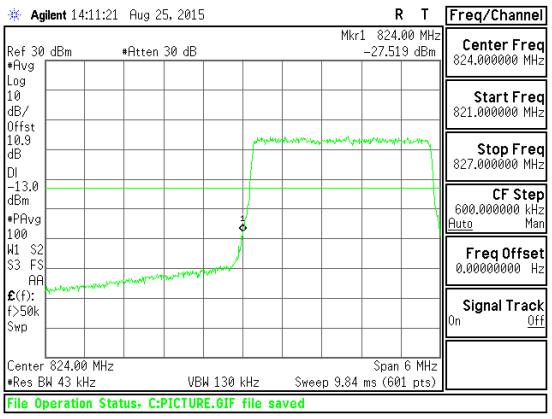
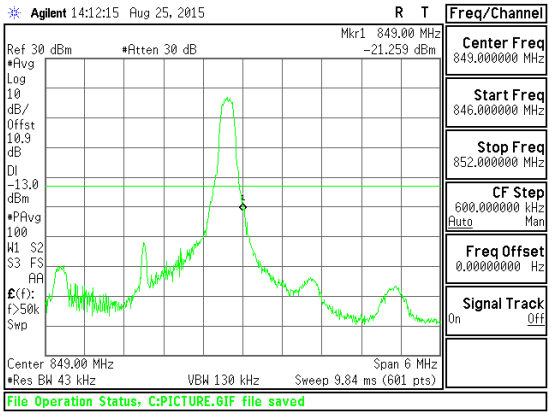
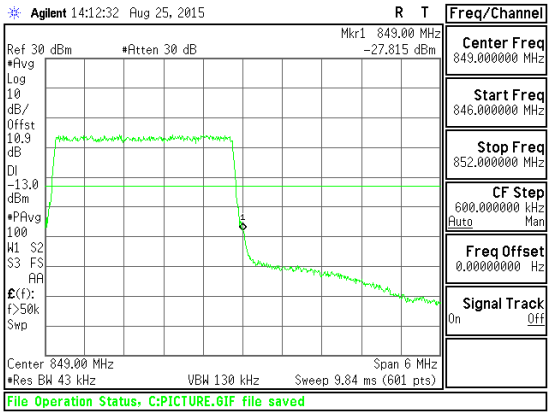
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM High Channel FRB.gif

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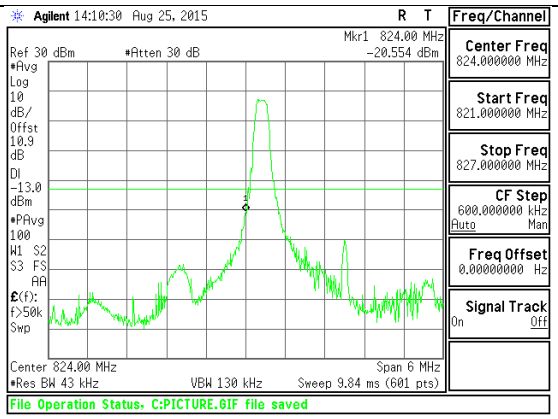
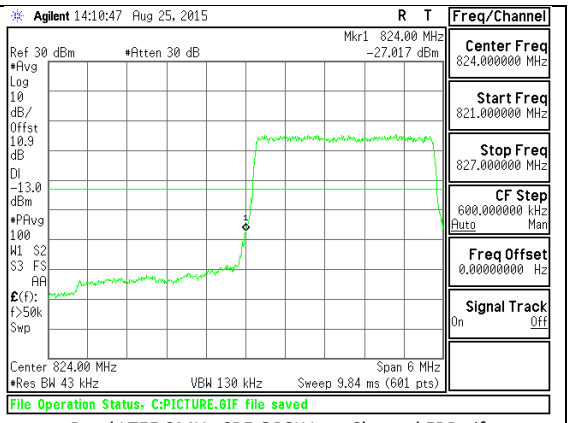
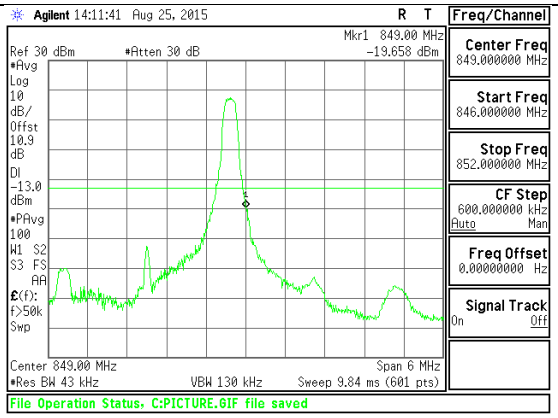
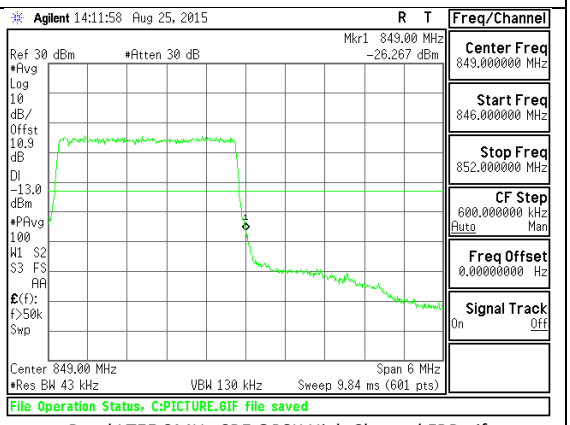
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK Low Channel FRB.gif
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK High Channel FRB.gif

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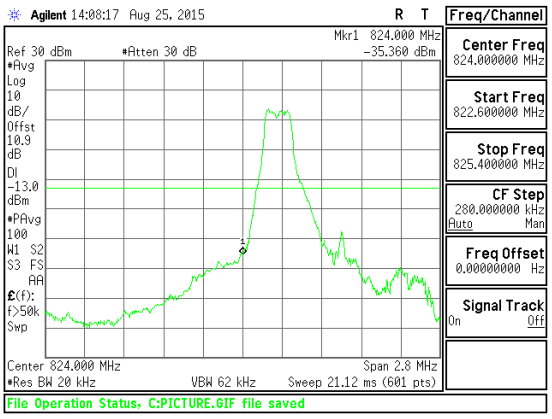
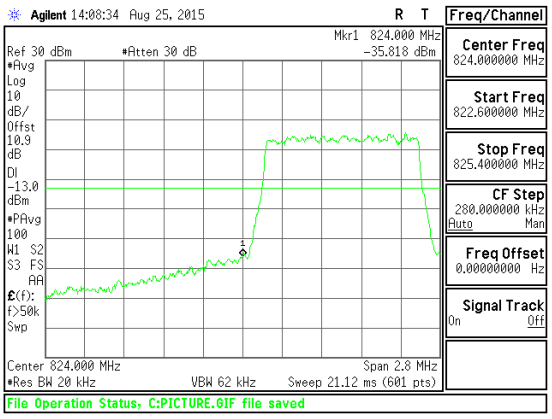
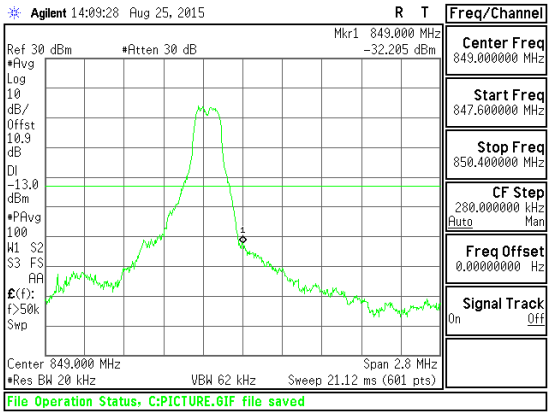
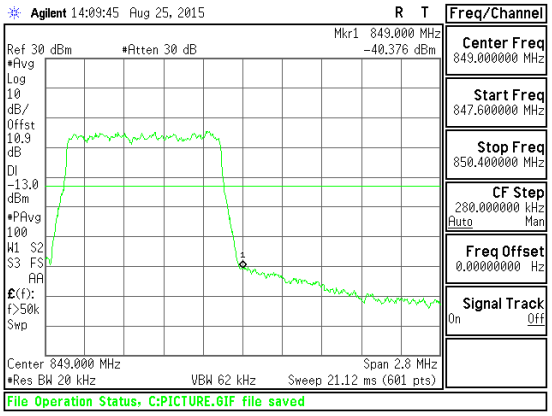
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM High Channel FRB.gif

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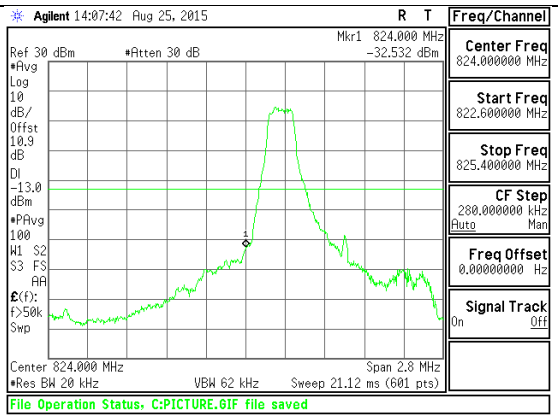
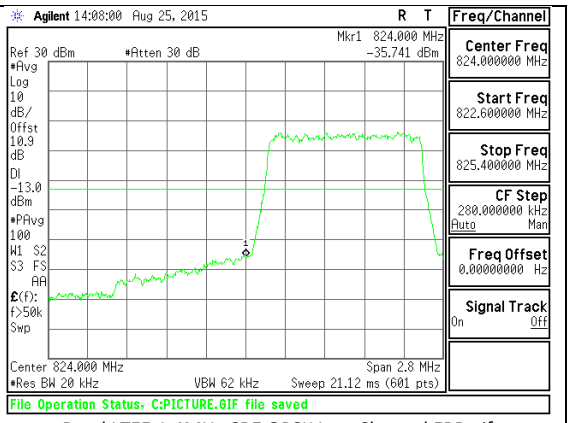
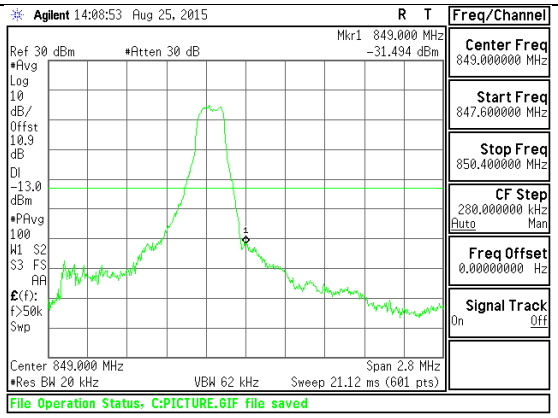
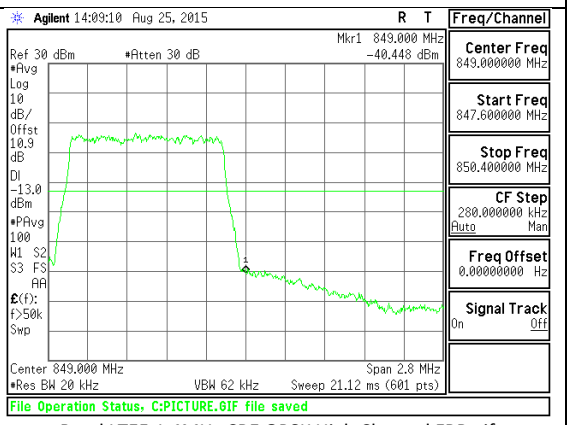
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK High Channel FRB.gif

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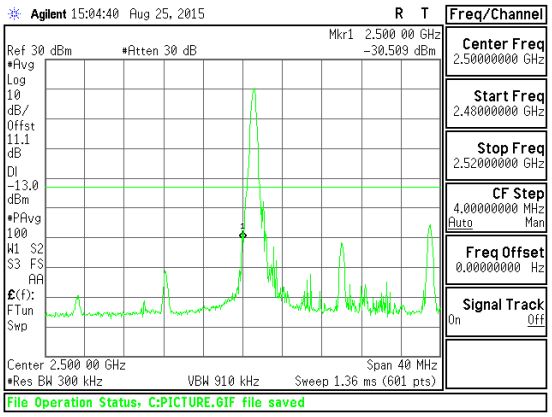
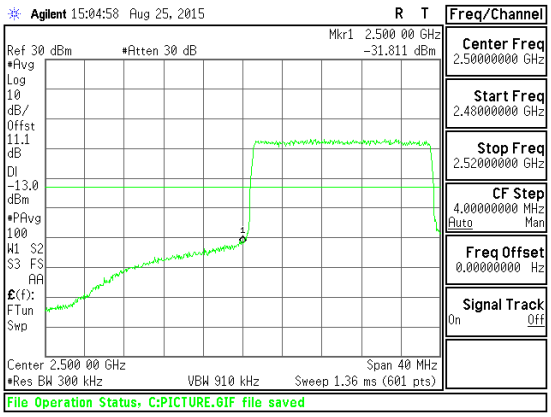
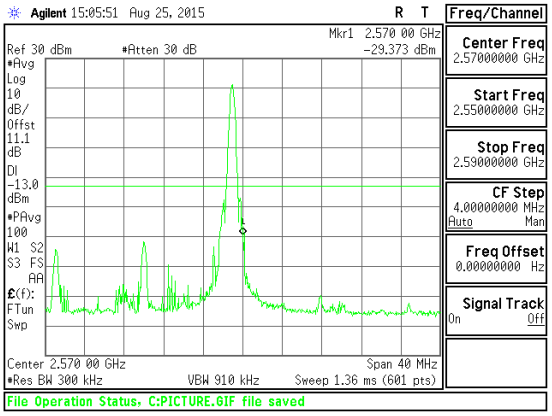
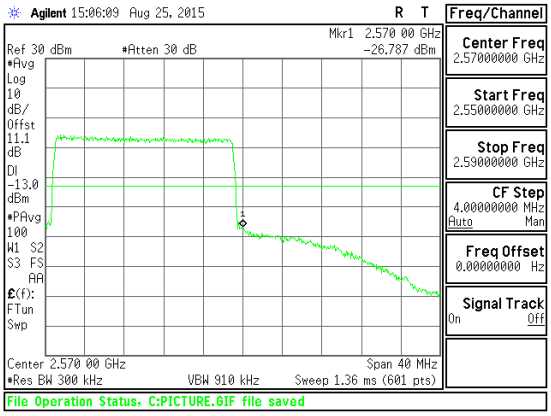
LTE Band 7

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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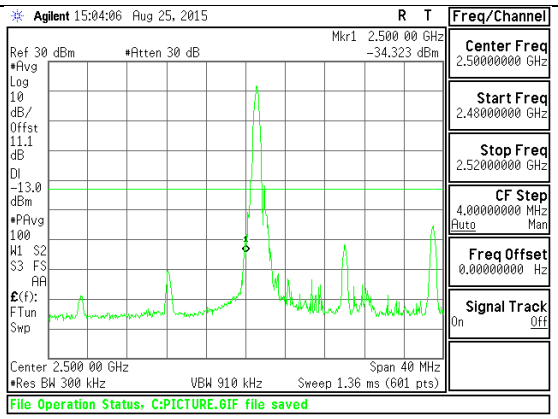
Band LTE7 20MHz QPSK



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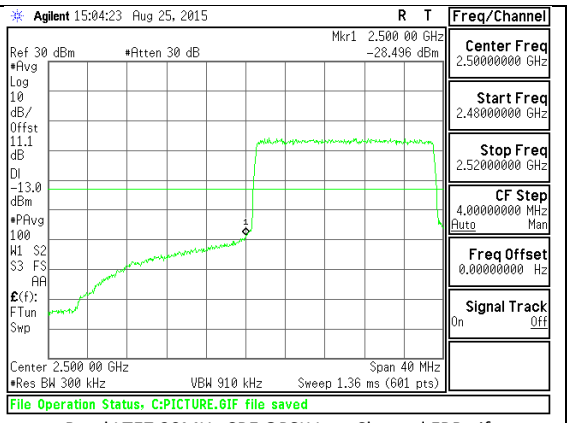
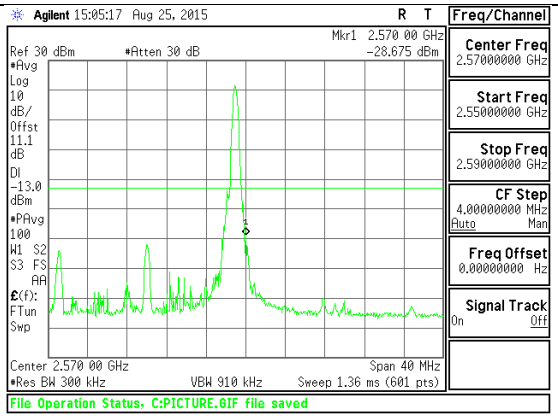
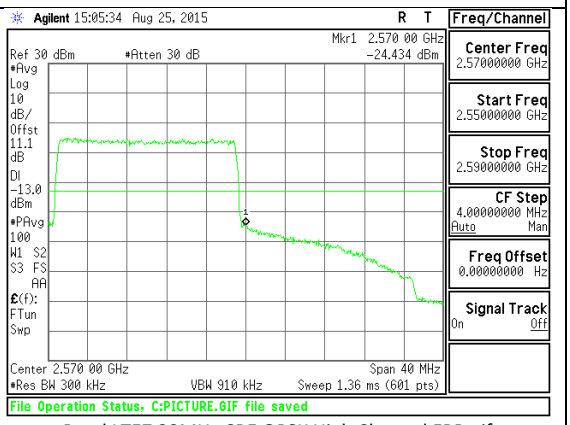


Band LTE7 20MHz CBE QPSK Low Channel FRB.gif

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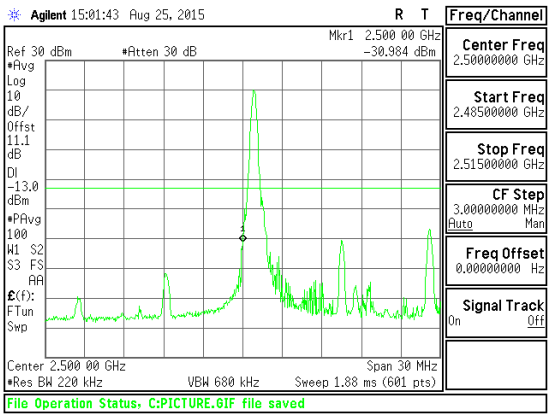
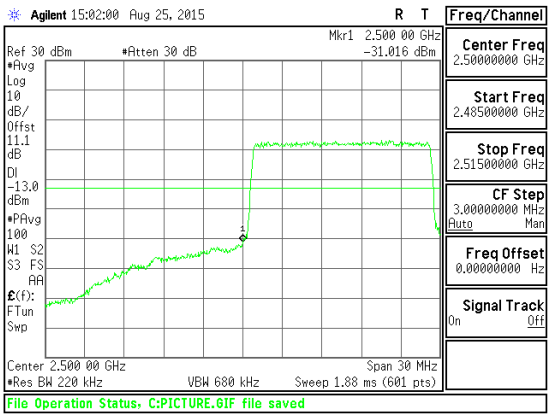
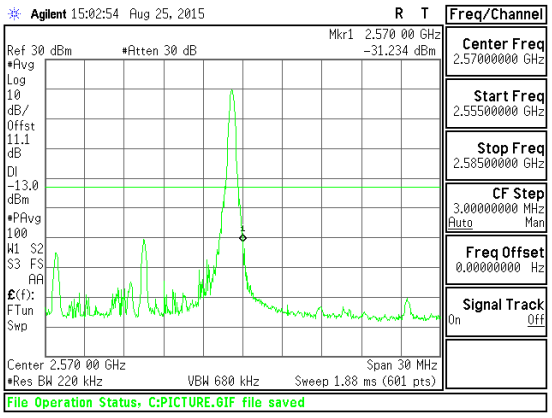
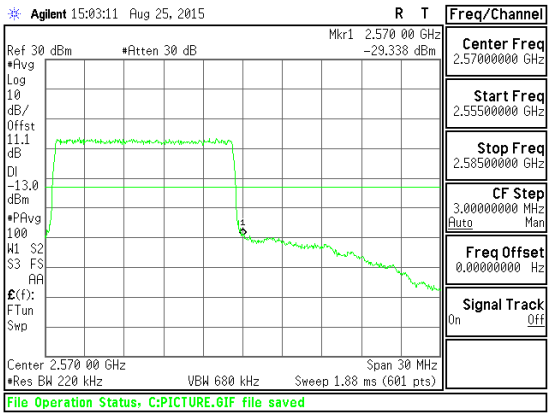
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 15MHz CBE 16QAM High Channel FRB.gif

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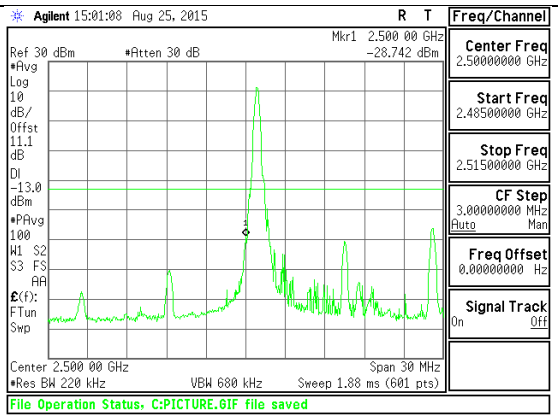
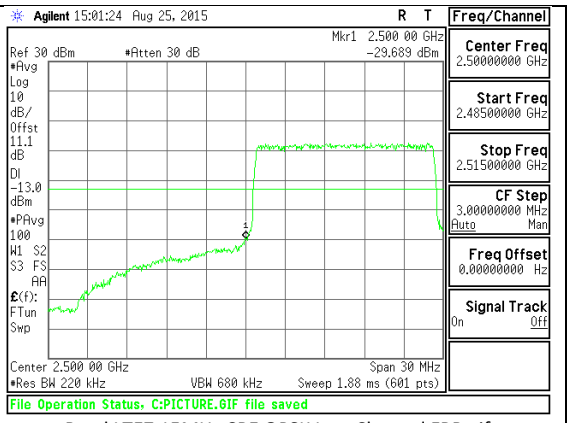
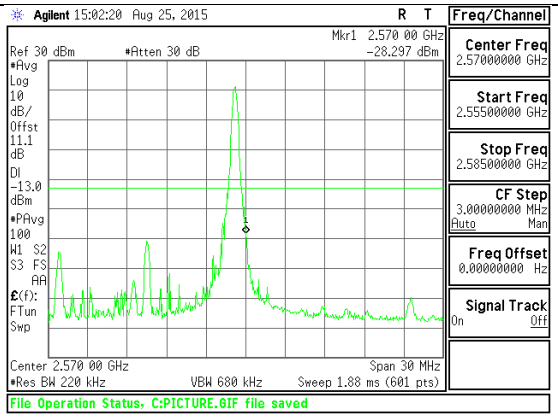
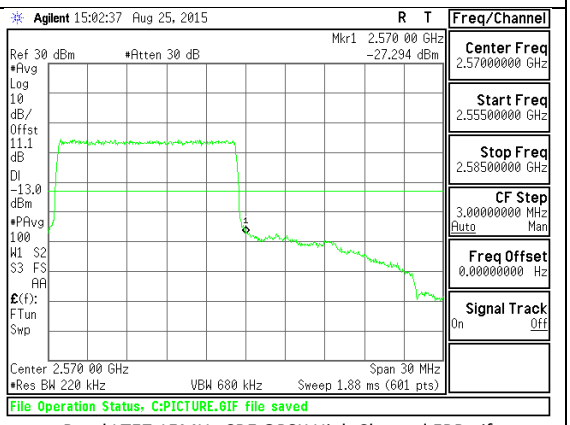
Band LTE7 15MHz QPSK	 Band LTE7 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 15MHz CBE QPSK Low Channel FRB.gif
Band LTE7 15MHz QPSK	 Band LTE7 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 15MHz CBE QPSK High Channel FRB.gif

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