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

CERTIFICATION TEST REPORT

FOR

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

MODEL NUMBER: LG-H740, LGH740, H740

FCC ID: ZNFH740

REPORT NUMBER: 15I21238-E1 REVISION A

ISSUE DATE: AUGUST 11, 2015

Prepared for
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION:	GSM/WCDMA/LTE PHABLET + BLUETOOTH, DTS/UNII a/b/g/n & NFC
MODEL:	LG-H740, LGH740, H740
SERIAL NUMBER:	1ZW88 (CONDUCTED), 1ZW86 (RADIATED)
DATE TESTED:	JULY 6-27, 2015

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

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

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

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2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

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

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

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

4.3. MEASUREMENT UNCERTAINTY

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

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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

This EUT is a GSM/WCDMA/LTE PHABLET + BLUETOOTH, DTS/UNII a/b/g/n & NFC.

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5.2. MAXIMUM OUTPUT POWER

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

FCC Part 22/2 4/27						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GMSK	33.2	2089.30		
	824~849	GPRS	33.2	2089.30	28.17	656.15
	824~849	EGPRS	27.7	588.84	24.26	266.69
GSM1900	1850~1910	GMSK	29.7	933.25		
	1850~1910	GPRS	29.7	933.25	30.21	1049.54
	1850~1910	EGPRS	25.4	346.74	26.78	476.43
Band 5	824~849	REL99	24	251.19	20.04	100.93
	824~849	HSDPA	24	251.19	19.60	91.20
	824~849	HSUPA	24	251.19		
Band 2	1850~1910	REL99	24	251.19	26.63	460.26
	1850~1910	HSDPA	23.8	239.88	26.67	464.52
	1850~1910	HSUPA	24.1	257.04		

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5.3. MAXIMUM OUTPUT POWER (LTE)

LTE Band 2

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

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	20MHz	QPSK	24.59	287.74	27.73	592.93
			16QAM	23.72	235.50	26.75	473.15
		15MHz	QPSK	24.69	294.44	27.85	609.54
			16QAM	23.71	234.96	26.88	487.53
		10MHz	QPSK	24.76	299.23	27.83	606.74
			16QAM	23.54	225.94	26.83	481.95
		5MHz	QPSK	24.71	295.80	27.9	616.60
			16QAM	23.44	220.80	26.99	500.03
		3MHz	QPSK	24.75	298.54	27.9	616.60
			16QAM	23.72	235.50	26.98	498.88
		1.4MHz	QPSK	24.77	299.92	27.89	615.18
			16QAM	23.78	238.78	26.97	497.74

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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	24.59	287.74	26.99	500.03
			16QAM	23.36	216.77	26.10	407.38
		15MHz	QPSK	24.69	294.44	27.01	502.34
			16QAM	23.70	234.42	26.12	409.26
		10MHz	QPSK	24.66	292.42	26.92	492.04
			16QAM	23.65	231.74	26.50	446.68
		5MHz	QPSK	24.79	301.30	27.01	502.34
			16QAM	23.68	233.35	26.11	408.32
		3MHz	QPSK	24.64	291.07	27.01	502.34
			16QAM	23.53	225.42	26.16	413.05
		1.4MHz	QPSK	24.70	295.12	26.95	495.45
			16QAM	23.65	231.74	26.06	403.65

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	24.50	281.84	20.55	113.50
			16QAM	23.51	224.39	19.46	88.31
		5MHz	QPSK	24.70	295.12	20.41	109.90
			16QAM	23.48	222.84	19.38	86.70
		3MHz	QPSK	24.69	294.44	20.37	108.89
			16QAM	23.59	228.56	19.34	85.90
		1.4MHz	QPSK	24.69	294.44	20.39	109.40
			16QAM	23.61	229.61	19.42	87.50

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LTE Band 12

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE12	699~716	10MHz	QPSK	24.70	295.12	21.25	133.35
			16QAM	23.77	238.23	20.27	106.41
		5MHz	QPSK	24.70	295.12	21.15	130.32
			16QAM	23.56	226.99	20.19	104.47
		3MHz	QPSK	24.70	295.12	21.24	133.05
			16QAM	23.55	226.46	20.25	105.93
		1.4MHz	QPSK	24.62	289.73	21.25	133.35
			16QAM	23.45	221.31	20.22	105.20

LTE Band 17

Measured Results

LTE Band 17 is covered by LTE Band 12 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 30

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE30	2305~2315	10MHz	QPSK	22.70	186.21	21	125.89
			16QAM	21.65	146.22	20.15	103.51
		5MHz	QPSK	22.70	186.21	20.70	117.49
			16QAM	21.51	141.58	20.05	101.16

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5.4. DESCRIPTION OF AVAILABLE ANTENNAS

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

Frequency (MHz)	Peak Gain (dBi)
GSM850, 824~849MHz	-11.2
GSM1900, 1850~1910MHz	-5.0
Band 5, 824~849MHz	-11.2
Band 2, 1850~1910MHz	-5.0
LTE2, 1850~1910MHz	-5.0
LTE4, 1710~1755MHz	-4.6
LTE5, 824~849MHz	-11.2
LTE12, 699~716MHz	-3.6
LTE 17, 704~716MHz	-3.6
LTE 30, 2305~2315MHz	-3.5

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5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-N04WS	SA560000030	N/A
Earphone	LG	-	-	N/A

I/O CABLES (CONDUCTED SETUP)

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

I/O CABLES (RADIATED SETUP)

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

TEST SETUP

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

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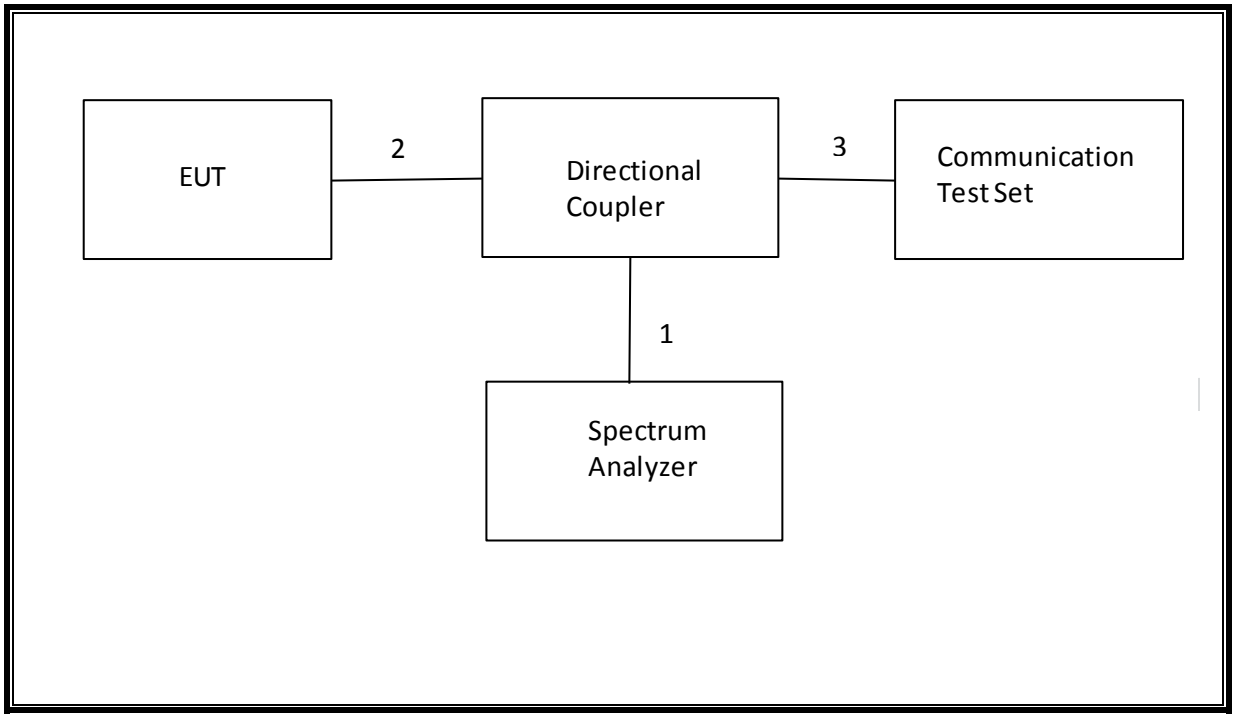
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



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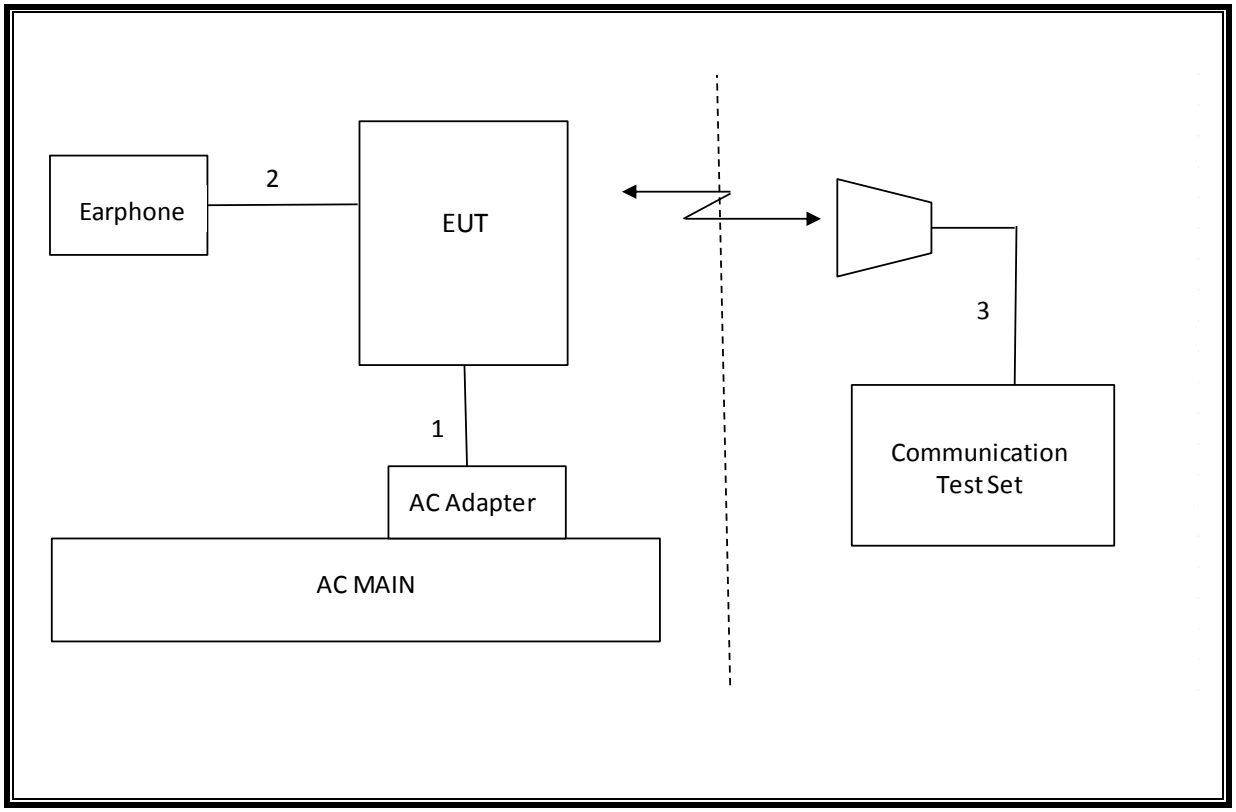
SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	123	10/28/15
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	T243	12/08/15
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn, 18 GHz	EMCO	3115	C00784	10/25/15
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	T80	11/01/15
Communications Test Set	R&S	CMW500	T232	01/14/16
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Vector signal generator, 6 GHz	Agilent / HP	E4438C	T201	06/16/16
Antenna, Tuned Dipole 400~1000	ETS	6502	158071	10/14/15
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/15

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

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7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Note
2.1049	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	17.87 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	-19.68dBm
27.50(a)			-40dBm		Pass	-45.67 dBm
2.1046	N/A	Conducted output power	N/A		Pass	33.2 dBm
27.53(m) 90.691	RSS-199(4.5)	Emission Mask			Pass	
22.355 24.235 27.54 90.213	RSS-132(4.3) RSS-133(6.3) RSS-139(6.3) RSS-199(4.3)	Frequency Stability	2.5PPM		Pass	0.004 PPM
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38 dBm	Radiated	Pass	28.17 dBm
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	27.9dBm
27.50(d)(4)	RSS-139(6.4)		30dBm		Pass	27.01dBm
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	-35.1dBm
27.50(a)			-40dBm		Pass	-43.8 dBm

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8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

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

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

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

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

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

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

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 30 dBm for GPRS1800/1900

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

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

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

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

Channel Type > Off

P0> 4 dB

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

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

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

Bit Stream > 2E9-1PSR Bit Pattern

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

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

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8.1.1. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	128	824.2	33.2
			190	836.6	33.1
			251	848.8	33.2
GPRS (GMSK)	CS1	1	128	824.2	33.1
			190	836.6	33.2
			251	848.8	33.2
		2	128	824.2	32.2
			190	836.6	32.2
			251	848.8	32.2
EGPRS (8PSK)	MCS5	1	128	824.2	27.6
			190	836.6	27.7
			251	848.8	27.7
		2	128	824.2	26.3
			190	836.6	26.4
			251	848.8	26.5

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	29.3
			661	1880.0	29.7
			810	1909.8	29.5
GPRS (GMSK)	CS1	1	512	1850.2	29.4
			661	1880.0	29.7
			810	1909.8	29.5
		2	512	1850.2	27.6
			661	1880.0	27.7
			810	1909.8	27.7
EGPRS (8PSK)	MCS5	1	512	1850.2	25.4
			661	1880.0	25.4
			810	1909.8	25.4
		2	512	1850.2	24.3
			661	1880.0	24.3
			810	1909.8	24.3

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8.2. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

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

8.2.1. UMTS REL 99 OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Rel 99 (RMC, 12.2 kbps)	4132	826.4	0	23.8
		4183	836.6	0	23.9
		4233	846.6	0	24.0

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9721	1854.2	0	23.9
		9400	1880.0	0	24.0
		9537	1906.6	0	24.0

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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	23.8
		4183	836.6	0	24.0
		4233	846.6	0	23.9
	Subtest 2	4132	826.4	0	23.6
		4183	836.6	0	23.9
		4233	846.6	0	23.8
	Subtest 3	4132	826.4	0.5	23.3
		4183	836.6	0.5	23.2
		4233	846.6	0.5	23.3
	Subtest 4	4132	826.4	0.5	23.3
		4183	836.6	0.5	23.2
		4233	846.6	0.5	23.2

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	23.6
		9538	1907.6	0	23.7
	Subtest 2	9262	1852.4	0	23.7
		9400	1880.0	0	23.8
		9538	1907.6	0	23.5
	Subtest 3	9262	1852.4	0.5	23.6
		9400	1880.0	0.5	23.3
		9538	1907.6	0.5	23.6
	Subtest 4	9262	1852.4	0.5	23.4
		9400	1880.0	0.5	23.4
		9538	1907.6	0.5	23.6

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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	23.9
		4183	836.6	0	23.8
		4233	846.6	0	24.0
	Subtest 2	4132	826.4	2	22.2
		4183	836.6	2	21.8
		4233	846.6	2	21.6
	Subtest 3	4132	826.4	1	22.6
		4183	836.6	1	22.6
		4233	846.6	1	22.6
	Subtest 4	4132	826.4	2	22.2
		4183	836.6	2	22.1
		4233	846.6	2	22.1
	Subtest 5	4132	826.4	0	23.8
		4183	836.6	0	23.8
		4233	846.6	0	23.8

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9721	1854.2	0	24.0
		9400	1880.0	0	23.9
		9537	1906.6	0	24.1
	Subtest 2	9721	1854.2	2	21.8
		9400	1880.0	2	21.9
		9537	1906.6	2	21.9
	Subtest 3	9721	1854.2	1	22.2
		9400	1880.0	1	22.4
		9537	1906.6	1	22.3
	Subtest 4	9721	1854.2	2	22.2
		9400	1880.0	2	22.2
		9537	1906.6	2	22.2
	Subtest 5	9721	1854.2	0	23.6
		9400	1880.0	0	23.6
		9537	1906.6	0	23.6

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8.4. LTE OUTPUT VERIFICATION

8.4.1. 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	24.45	24.62	24.68
			1	49	0	24.63	24.36	24.70
			1	99	0	24.59	24.45	24.16
			50	0	1	23.42	23.33	23.57
			50	24	1	23.61	23.47	23.39
			50	50	1	23.62	23.59	23.30
			100	0	1	23.49	23.56	23.42
		16QAM	1	0	1	23.00	23.63	23.51
			1	49	1	23.55	23.69	23.72
			1	99	1	23.13	23.25	22.99
			50	0	2	22.51	22.63	22.71
			50	24	2	22.70	22.51	22.51
			50	50	2	22.61	22.67	22.37
			100	0	2	22.49	22.59	22.47
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	24.61	24.70	24.68
			1	37	0	24.44	24.49	24.62
			1	74	0	24.69	24.62	24.35
			36	0	1	23.46	23.50	23.46
			36	20	1	23.55	23.37	23.43
			36	39	1	23.72	23.65	23.38
			75	0	1	23.50	23.58	23.38
		16QAM	1	0	1	23.71	23.37	23.57
			1	37	1	23.58	23.22	23.13
			1	74	1	23.55	23.47	23.36
			36	0	2	22.45	22.71	22.53
			36	20	2	22.44	22.46	22.58
			36	39	2	22.60	22.65	22.51
			75	0	2	22.46	22.58	22.44

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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	24.51	24.72	24.37
			1	25	0	24.72	24.55	24.54
			1	49	0	24.63	24.76	24.31
			25	0	1	23.51	23.45	23.44
			25	12	1	23.43	23.34	23.46
			25	25	1	23.47	23.53	23.33
			50	0	1	23.50	23.44	23.42
		16QAM	1	0	1	23.38	23.28	23.21
			1	25	1	23.49	23.47	23.65
			1	49	1	23.54	23.53	23.05
			25	0	2	22.55	22.54	22.63
			25	12	2	22.55	22.43	22.74
			25	25	2	22.62	22.73	22.45
			50	0	2	22.46	22.52	22.43

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	24.38	24.60	24.40
			1	12	0	24.71	24.68	24.62
			1	24	0	24.36	24.55	24.37
			12	0	1	23.33	23.37	23.47
			12	7	1	23.52	23.29	23.45
			12	13	1	23.35	23.42	23.36
			25	0	1	23.40	23.35	23.38
		16QAM	1	0	1	23.05	22.81	22.91
			1	12	1	23.44	23.05	23.31
			1	24	1	22.92	23.28	22.95
			12	0	2	22.33	22.16	22.37
			12	7	2	22.62	22.09	22.31
			12	13	2	22.23	22.31	22.24
			25	0	2	22.52	22.30	22.34

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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	24.53	24.61	24.40
			1	8	0	24.75	24.49	24.44
			1	14	0	24.64	24.39	24.36
			8	0	1	23.52	23.48	23.51
			8	4	1	23.60	23.29	23.50
			8	7	1	23.46	23.46	23.39
			15	0	1	23.44	23.24	23.37
		16QAM	1	0	1	23.72	23.14	23.14
			1	8	1	23.52	23.41	23.24
			1	14	1	23.44	23.27	23.07
			8	0	2	22.46	22.28	22.13
			8	4	2	22.58	22.22	22.26
			8	7	2	22.53	22.28	22.20
			15	0	2	22.49	22.25	22.22

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	24.52	24.29	24.44
			1	3	0	24.67	24.35	24.53
			1	5	0	24.52	24.44	24.49
			3	0	0	24.63	24.45	24.69
			3	1	0	24.77	24.50	24.79
			3	3	0	24.63	24.38	24.51
			6	0	1	23.42	23.22	23.44
		16QAM	1	0	1	23.68	23.19	23.29
			1	3	1	23.36	23.31	23.38
			1	5	1	23.30	23.25	23.28
			3	0	1	23.78	22.98	23.37
			3	1	1	23.72	23.03	23.41
			3	3	1	23.57	23.00	23.52
			6	0	2	22.42	22.01	22.38

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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		24.59	
			1	49	0		24.35	
			1	99	0		24.41	
			50	0	1		23.59	
			50	24	1		23.42	
			50	50	1		23.31	
			100	0	1		23.37	
		16QAM	1	0	1		23.36	
			1	49	1		23.36	
			1	99	1		23.03	
			50	0	2		22.59	
			50	24	2		22.50	
			50	50	2		22.31	
			100	0	2		22.43	

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	24.38	24.46	24.51
			1	37	0	24.65	24.45	24.69
			1	74	0	24.55	24.48	24.32
			36	0	1	23.52	23.52	23.64
			36	20	1	23.65	23.38	23.67
			36	39	1	23.72	23.23	23.44
			75	0	1	23.67	23.41	23.49
		16QAM	1	0	1	23.12	23.70	23.30
			1	37	1	23.50	23.69	23.57
			1	74	1	23.28	23.14	23.00
			36	0	2	22.49	22.55	22.70
			36	20	2	22.70	22.35	22.65
			36	39	2	22.70	22.14	22.51
			75	0	2	22.58	22.41	22.57

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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	24.48	24.66	24.50
			1	25	0	24.59	24.65	24.63
			1	49	0	24.54	24.51	24.28
			25	0	1	23.54	23.58	23.66
			25	12	1	23.52	23.35	23.55
			25	25	1	23.59	23.27	23.49
			50	0	1	23.61	23.46	23.50
		16QAM	1	0	1	23.27	23.55	23.41
			1	25	1	23.57	23.40	23.65
			1	49	1	23.52	23.49	23.26
			25	0	2	22.56	22.45	22.66
			25	12	2	22.53	22.49	22.70
			25	25	2	22.62	22.36	22.68
			50	0	2	22.67	22.43	22.50

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	24.70	24.61	24.66
			1	12	0	24.70	24.69	24.79
			1	24	0	24.45	24.29	24.41
			12	0	1	23.66	23.51	23.53
			12	7	1	23.52	23.31	23.56
			12	13	1	23.42	23.25	23.37
			25	0	1	23.54	23.31	23.53
		16QAM	1	0	1	23.05	23.08	23.17
			1	12	1	23.10	23.31	23.68
			1	24	1	22.93	22.79	23.07
			12	0	2	22.43	22.28	22.45
			12	7	2	22.46	22.25	22.63
			12	13	2	22.29	22.40	22.32
			25	0	2	22.57	22.39	22.59

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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	24.56	24.56	24.31
			1	8	0	24.64	24.59	24.17
			1	14	0	24.42	24.27	24.45
			8	0	1	23.58	23.40	23.19
			8	4	1	23.69	23.38	23.17
			8	7	1	23.59	23.29	23.28
			15	0	1	23.63	23.41	23.11
		16QAM	1	0	1	23.28	23.53	23.23
			1	8	1	23.42	23.84	23.20
			1	14	1	23.28	23.51	23.01
			8	0	2	22.56	22.54	22.06
			8	4	2	22.52	22.23	21.98
			8	7	2	22.48	22.43	22.15
			15	0	2	22.35	22.42	22.01

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	24.30	24.61	24.58
			1	3	0	24.63	24.53	24.60
			1	5	0	24.62	24.50	24.34
			3	0	0	24.58	24.55	24.70
			3	1	0	24.62	24.62	24.70
			3	3	0	24.68	24.55	24.48
			6	0	1	23.62	23.41	23.43
		16QAM	1	0	1	23.34	23.65	23.32
			1	3	1	23.48	23.22	23.50
			1	5	1	23.15	23.03	23.04
			3	0	1	23.42	23.37	23.11
			3	1	1	23.40	23.15	23.07
			3	3	1	23.26	23.43	23.01
			6	0	2	22.26	22.30	22.48

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LTE Band 5

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20450	20525	20600
						829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0		24.35	
			1	25	0		24.36	
			1	49	0		24.50	
			25	0	1		23.49	
			25	12	1		23.26	
			25	25	1		23.35	
			50	0	1		23.47	
		16QAM	1	0	1		23.33	
			1	25	1		23.51	
			1	49	1		23.14	
			25	0	2		22.62	
			25	12	2		22.50	
			25	25	2		22.56	
			50	0	2		22.45	

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20425	20525	20625
						826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	24.69	24.70	24.65
			1	12	0	24.46	24.65	24.70
			1	24	0	24.45	24.38	24.69
			12	0	1	23.47	23.41	23.43
			12	7	1	23.46	23.25	23.40
			12	13	1	23.46	23.33	23.40
			25	0	1	23.43	23.42	23.49
		16QAM	1	0	1	23.02	23.23	23.00
			1	12	1	23.48	22.86	23.31
			1	24	1	22.90	23.09	22.96
			12	0	2	22.38	22.09	22.32
			12	7	2	22.19	22.13	22.28
			12	13	2	22.38	22.03	22.29
			25	0	2	22.38	22.25	22.36

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	24.69	24.64	24.50
			1	8	0	24.67	24.47	24.61
			1	14	0	24.40	24.25	24.36
			8	0	1	23.52	23.25	23.55
			8	4	1	23.39	23.23	23.62
			8	7	1	23.39	23.18	23.54
			15	0	1	23.41	23.28	23.52
		16QAM	1	0	1	23.59	23.07	23.13
			1	8	1	23.56	23.59	23.22
			1	14	1	23.59	23.29	23.21
			8	0	2	22.52	22.13	22.24
			8	4	2	22.55	22.06	22.34
			8	7	2	22.64	22.10	22.07
			15	0	2	22.48	22.06	22.27

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20407	20525	20643
						824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 5	1.4	QPSK	1	0	0	24.57	24.41	24.57
			1	3	0	24.50	24.40	24.69
			1	5	0	24.36	24.37	24.53
			3	0	0	24.41	24.41	24.61
			3	1	0	24.66	24.27	24.58
			3	3	0	24.55	24.28	24.57
			6	0	1	23.58	23.29	23.67
		16QAM	1	0	1	23.61	23.03	23.42
			1	3	1	23.31	23.10	23.55
			1	5	1	23.17	23.10	23.38
			3	0	1	23.40	23.02	23.38
			3	1	1	23.55	22.90	23.37
			3	3	1	23.32	22.94	23.37
			6	0	2	22.42	21.83	22.39

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LTE Band 12

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23060	23095	23130
						704 MHz	707.5 MHz	711 MHz
LTE Band 12	10	QPSK	1	0	0	24.66	24.51	24.36
			1	25	0	24.70	24.41	24.46
			1	49	0	24.15	24.52	24.38
			25	0	1	23.28	23.34	23.23
			25	12	1	23.53	23.22	23.35
			25	25	1	23.25	23.24	23.19
			50	0	1	23.25	23.35	23.29
		16QAM	1	0	1	23.34	23.70	23.08
			1	25	1	23.59	23.57	23.61
			1	49	1	23.06	23.77	23.35
			25	0	2	22.28	22.44	22.34
			25	12	2	22.47	22.34	22.56
			25	25	2	22.31	22.31	22.42
			50	0	2	22.25	22.30	22.31

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23035	23095	23155
						701.5 MHz	707.5 MHz	713.5 MHz
LTE Band 12	5	QPSK	1	0	0	24.60	24.20	24.59
			1	12	0	24.70	24.57	24.44
			1	24	0	24.54	24.36	24.56
			12	0	1	23.37	23.23	23.31
			12	7	1	23.39	23.12	23.21
			12	13	1	23.38	23.21	23.19
			25	0	1	23.43	23.15	23.21
		16QAM	1	0	1	22.87	22.86	22.93
			1	12	1	23.22	23.34	23.56
			1	24	1	22.89	22.80	23.10
			12	0	2	22.27	22.28	22.25
			12	7	2	22.18	22.27	22.25
			12	13	2	22.28	22.13	22.02
			25	0	2	22.29	22.11	22.18

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Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23025	23095	23165
						700.5 MHz	707.5 MHz	714.5 MHz
LTE Band 12	3	QPSK	1	0	0	24.62	24.18	24.20
			1	8	0	24.70	24.36	24.51
			1	14	0	24.31	24.39	24.47
			8	0	1	23.48	23.12	23.04
			8	4	1	23.49	23.20	23.25
			8	7	1	23.33	23.13	23.36
			15	0	1	23.32	23.18	23.17
		16QAM	1	0	1	23.19	23.47	22.77
			1	8	1	23.43	23.55	23.30
			1	14	1	22.97	23.29	23.12
			8	0	2	22.37	22.14	22.01
			8	4	2	22.24	22.13	21.98
			8	7	2	22.14	22.09	22.14
			15	0	2	22.22	22.16	22.22

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						23017	23095	23173
						699.7 MHz	707.5 MHz	715.3 MHz
LTE Band 12	1.4	QPSK	1	0	0	24.54	24.23	24.40
			1	3	0	24.51	24.12	24.51
			1	5	0	24.44	24.05	24.42
			3	0	0	24.50	24.31	24.46
			3	1	0	24.62	24.08	24.57
			3	3	0	24.57	24.15	24.50
			6	0	1	23.42	23.17	23.30
		16QAM	1	0	1	23.20	23.40	22.94
			1	3	1	23.31	22.86	23.45
			1	5	1	23.17	22.96	23.12
			3	0	1	23.34	23.00	23.41
			3	1	1	23.29	23.26	23.34
			3	3	1	23.31	23.02	23.38
			6	0	2	22.13	22.12	22.25

LTE Band 17

Measured Results

LTE Band 17 is covered by LTE Band 12 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

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LTE Band 30

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
							27710	
							2310 MHz	
LTE Band 30	10	QPSK	1	0	0		22.70	
			1	25	0		22.51	
			1	49	0		22.69	
			25	0	1		21.61	
			25	12	1		21.57	
			25	25	1		21.59	
			50	0	1		21.62	
		16QAM	1	0	1		21.60	
			1	25	1		21.65	
			1	49	1		21.60	
			25	0	2		20.70	
			25	12	2		20.60	
			25	25	2		20.51	
			50	0	2		20.53	

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						27685	27710	27735
						2307.5 MHz	2310 MHz	2312.5 MHz
LTE Band 30	5	QPSK	1	0	0	22.61	22.45	22.21
			1	12	0	22.70	22.61	22.70
			1	24	0	22.25	22.65	22.68
			12	0	1	21.70	21.52	21.54
			12	7	1	21.58	21.52	21.65
			12	13	1	21.44	21.49	21.70
			25	0	1	21.57	21.46	21.59
		16QAM	1	0	1	21.44	21.18	21.06
			1	12	1	21.51	20.99	21.45
			1	24	1	20.88	20.93	21.31
			12	0	2	20.60	20.22	20.48
			12	7	2	20.50	20.24	20.41
			12	13	2	20.47	20.17	20.50
			25	0	2	20.44	20.39	20.45

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9. PEAK TO AVERAGE RATIO

Test Procedure

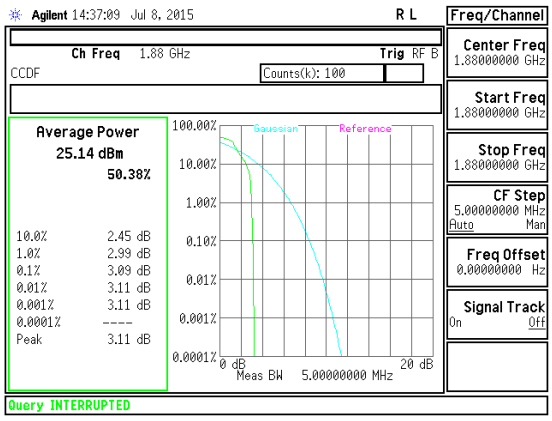
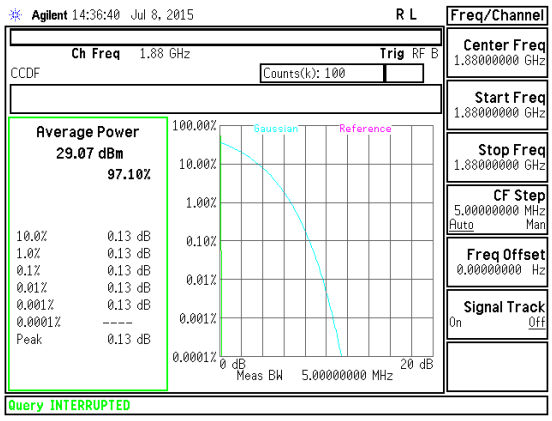
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

Test Spec

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

9.1. CONDUCTED PEAK TO AVERAGE RESULT

GSM

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

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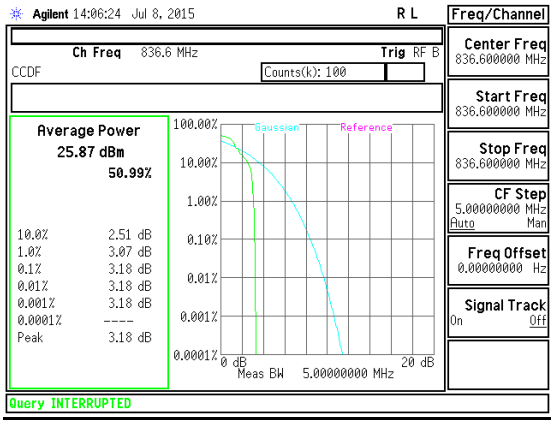
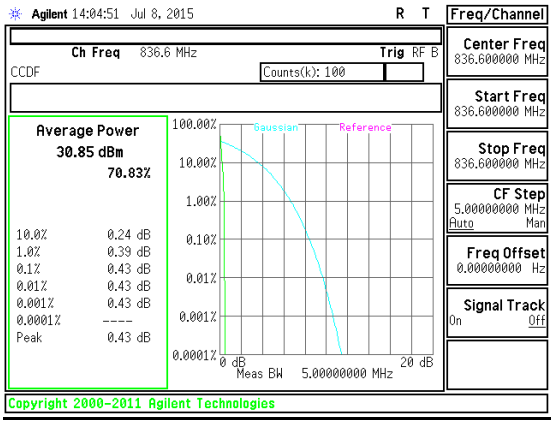
Band GSM850 EGPRS	 Band GSM850 EGPRS Mid channel	 Band GSM850 GPRS Mid channel

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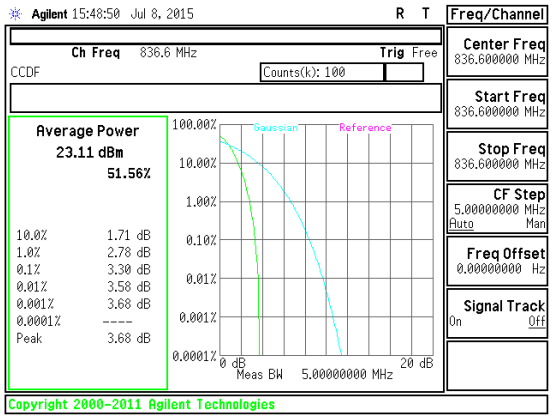
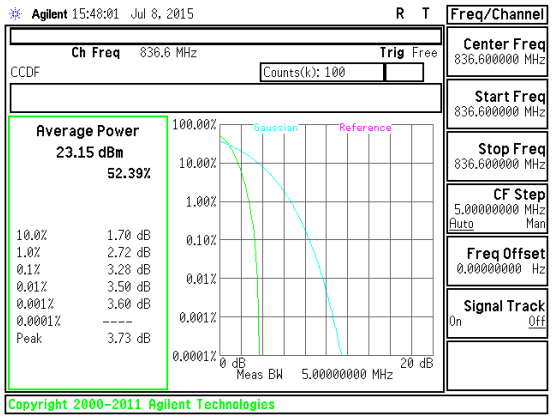
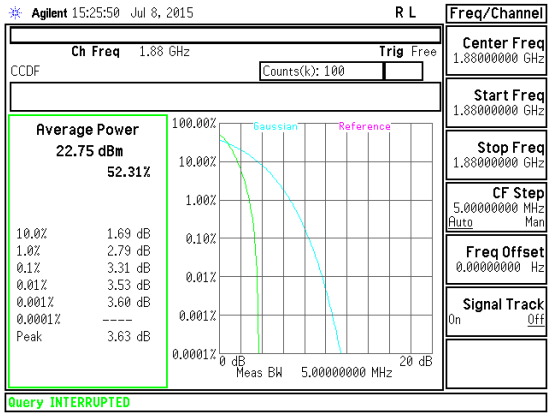
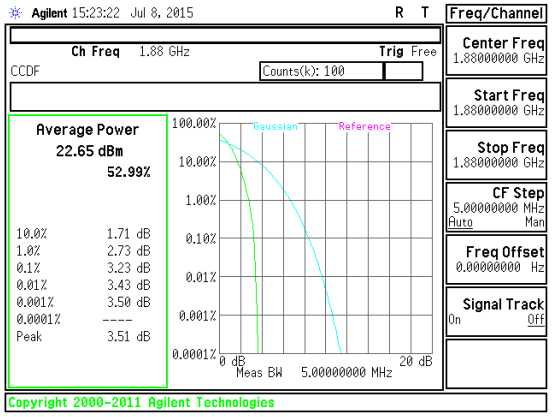
WCDMA

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

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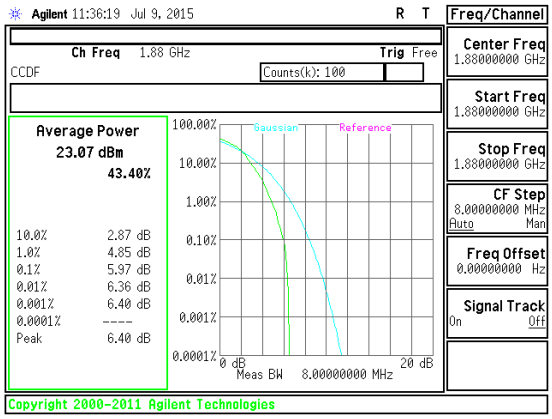
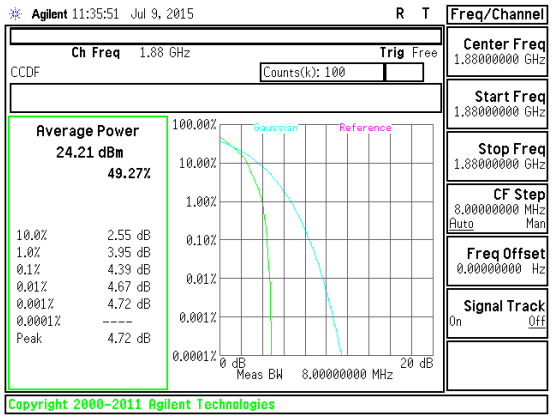
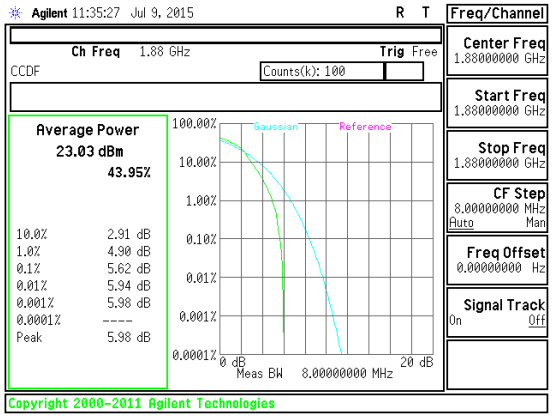
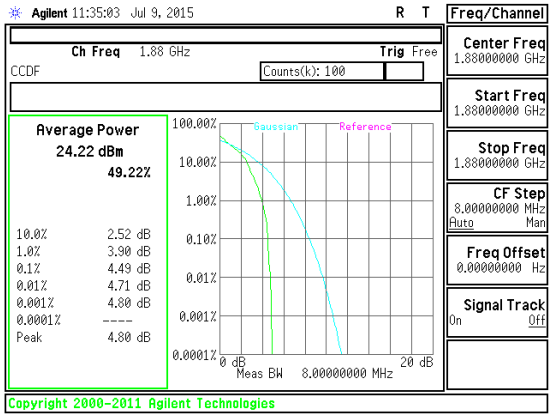
LTE Band 2

Band LTE2 20MHz 16QAM	 Band LTE2 20MHz 16QAM Mid channel	 Band LTE2 20MHz QPSK Mid channel
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz 16QAM Mid channel	 Band LTE2 15MHz QPSK Mid channel

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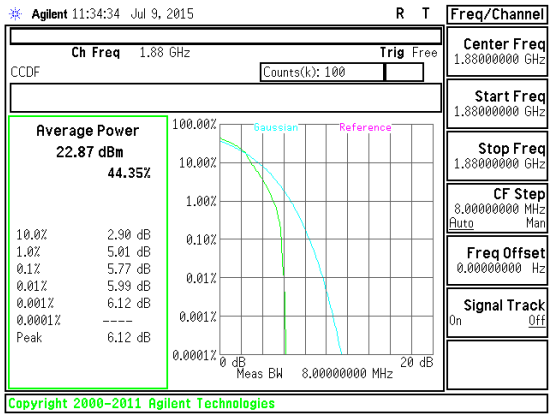
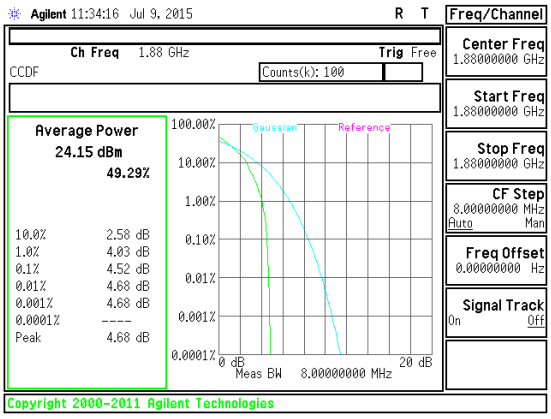
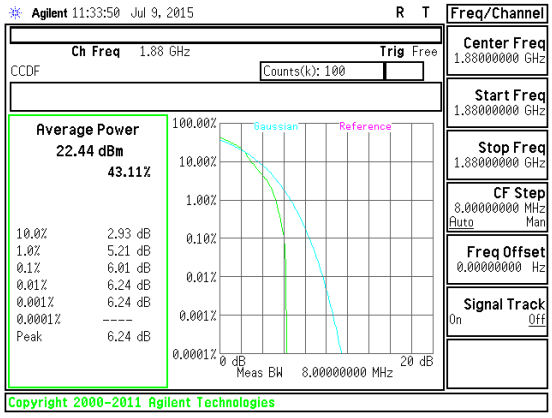
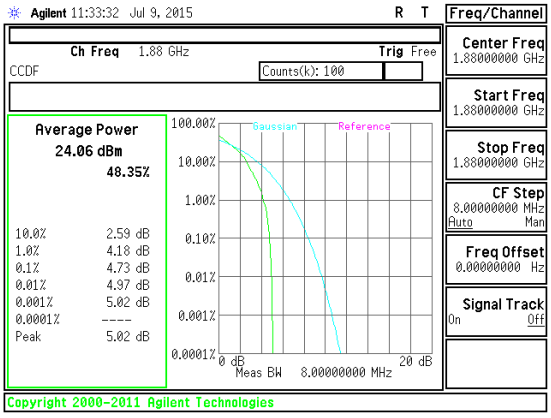
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz 16QAM Mid channel	 Band LTE2 10MHz QPSK Mid channel
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz 16QAM Mid channel	 Band LTE2 5MHz QPSK Mid channel

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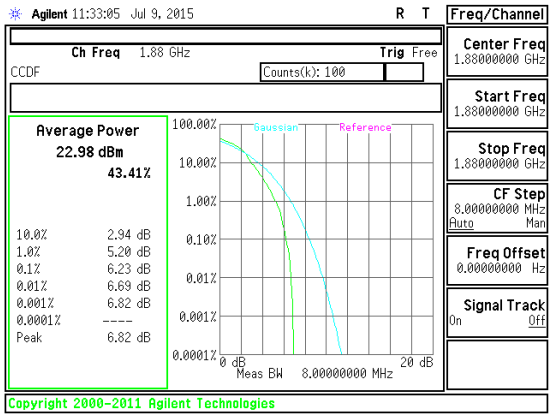
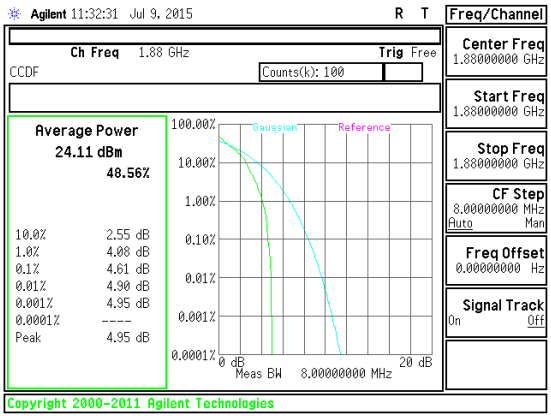
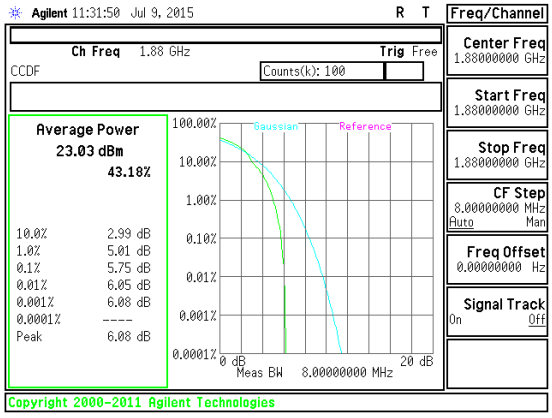
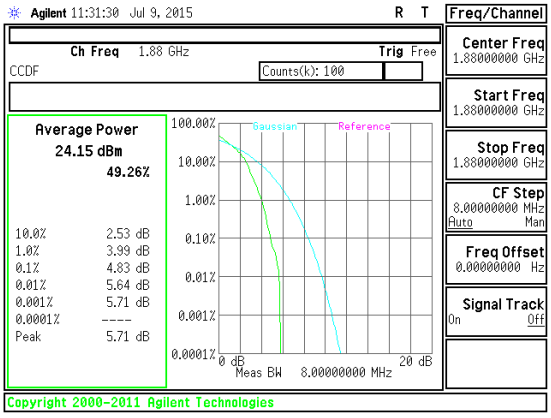
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz 16QAM Mid channel	 Band LTE2 3MHz QPSK Mid channel
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz 16QAM Mid channel	 Band LTE2 1.4MHz QPSK Mid channel

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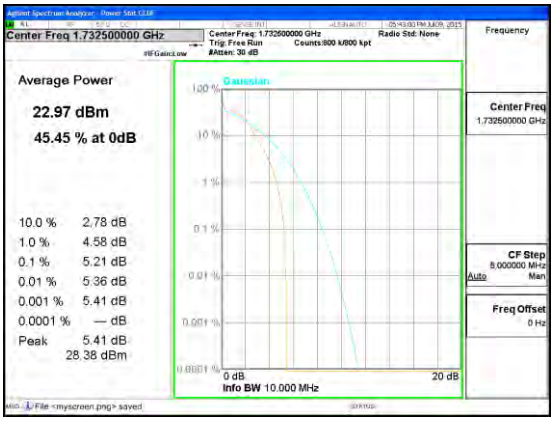
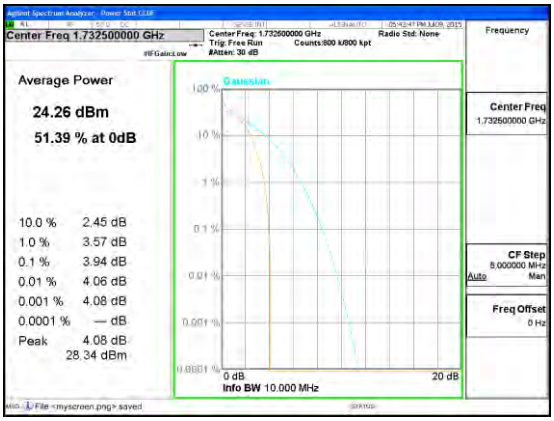
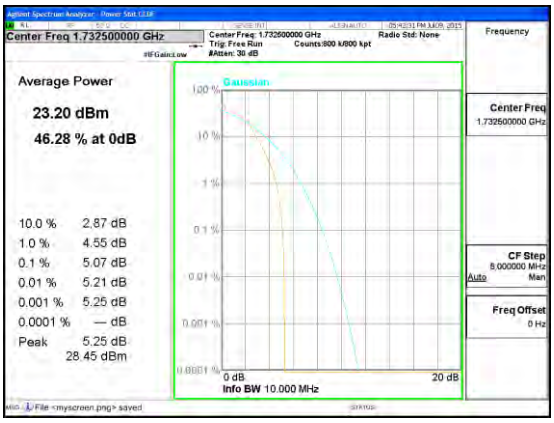
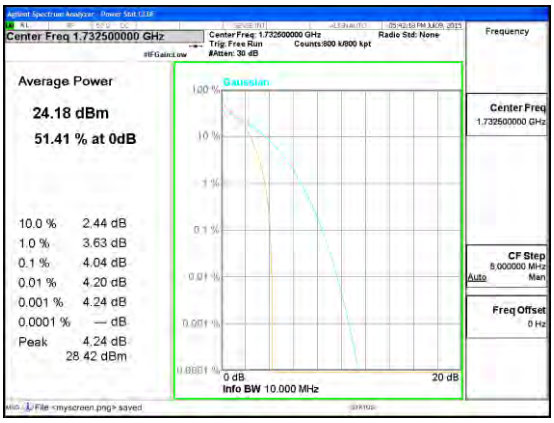
LTE Band 4

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

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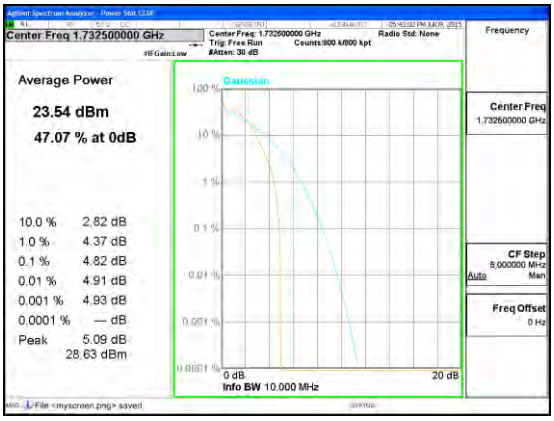
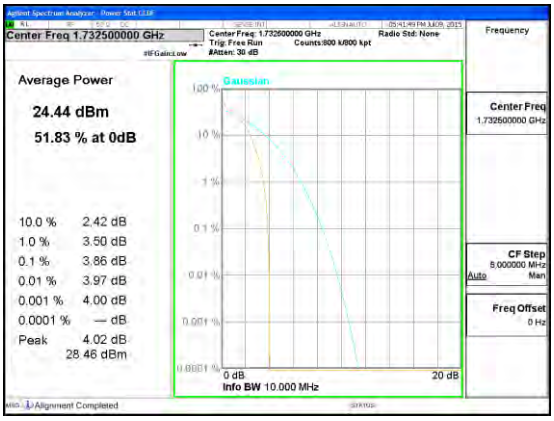
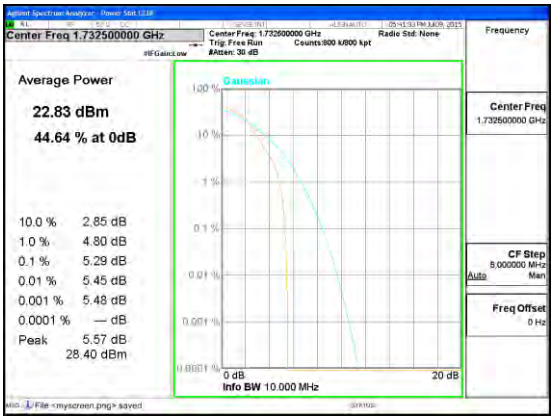
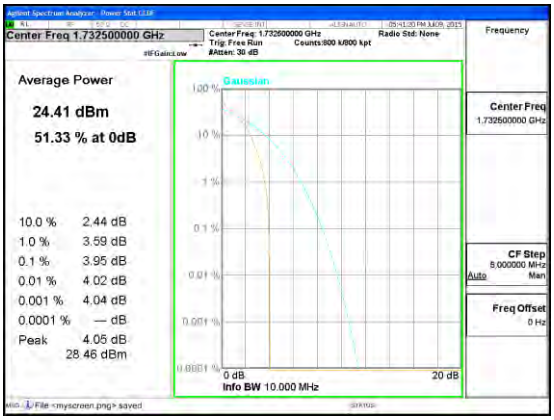
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz 16QAM Mid channel	 Band LTE4 10MHz QPSK Mid channel
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz 16QAM Mid channel	 Band LTE4 5MHz QPSK Mid channel

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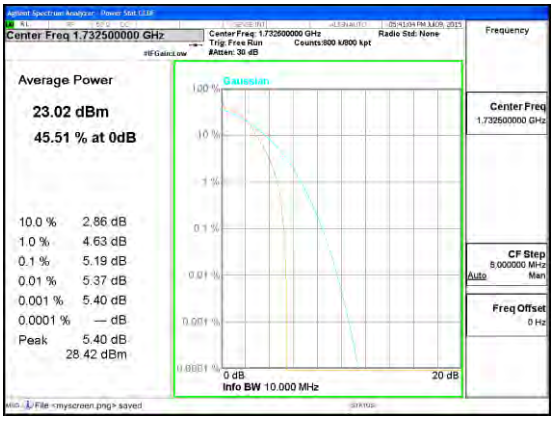
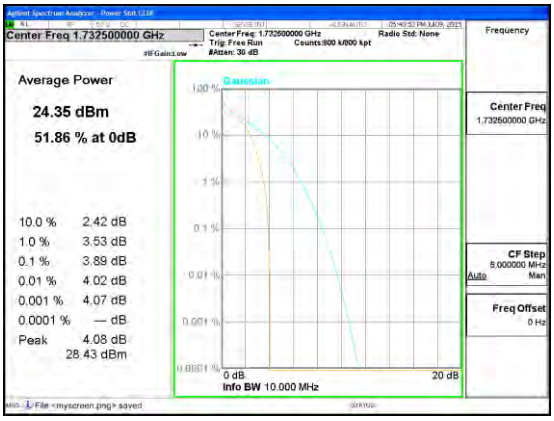
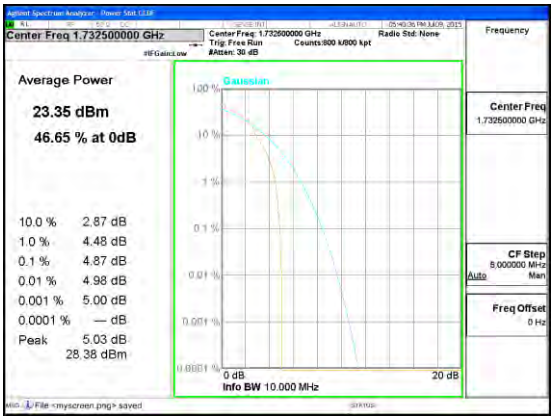
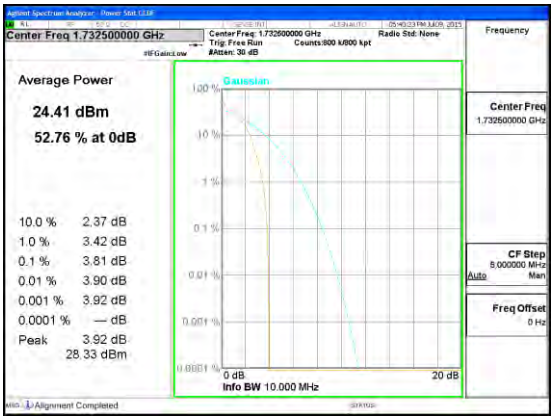
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz 16QAM Mid channel	 Band LTE4 3MHz QPSK Mid channel
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz 16QAM Mid channel	 Band LTE4 1.4MHz QPSK Mid channel

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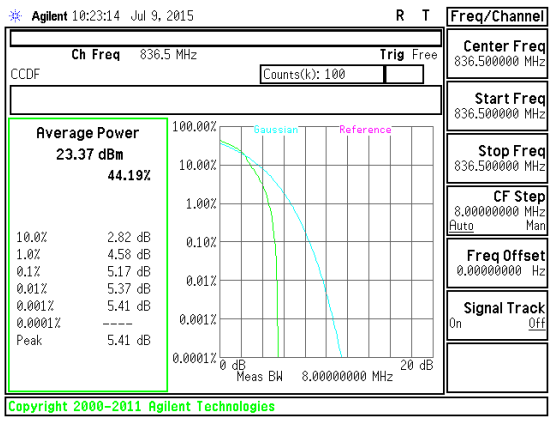
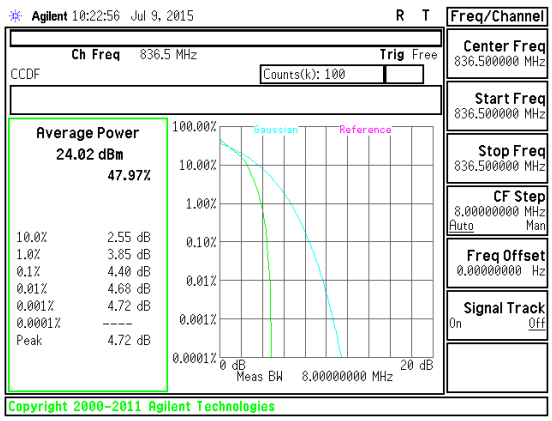
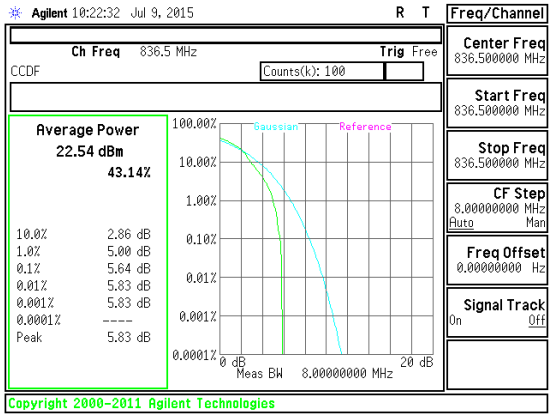
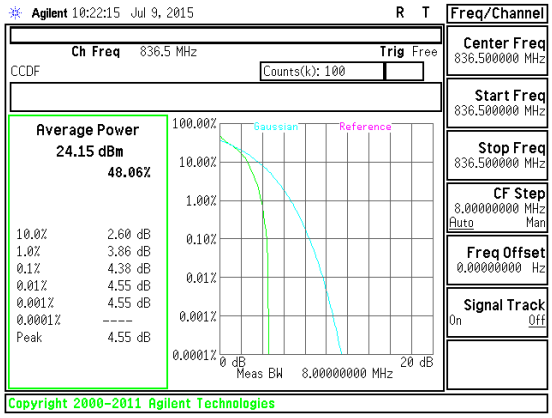
LTE Band 5

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

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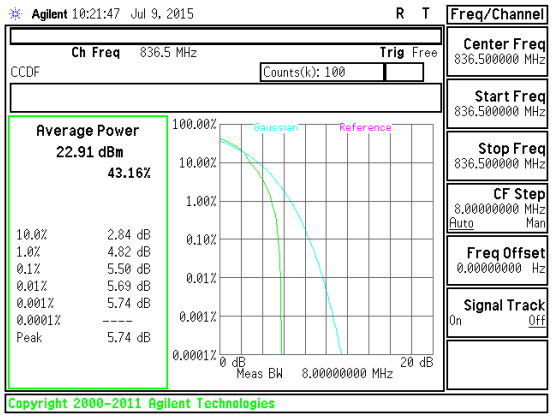
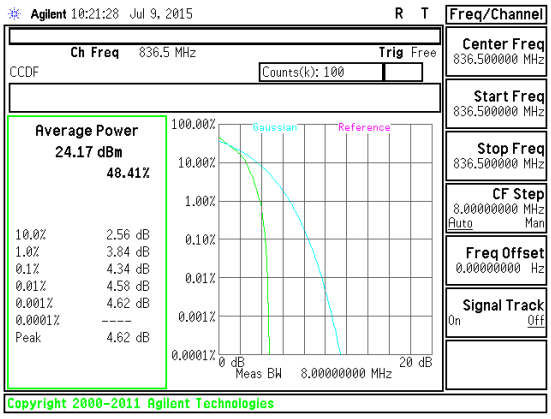
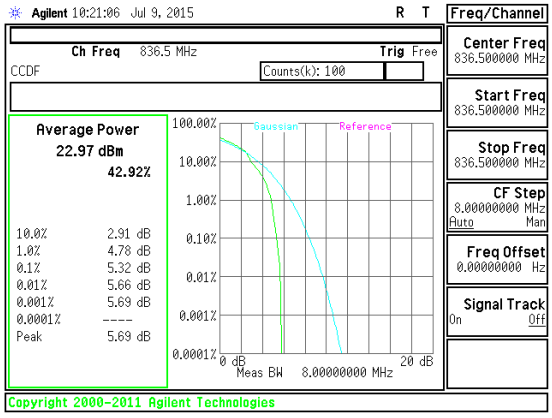
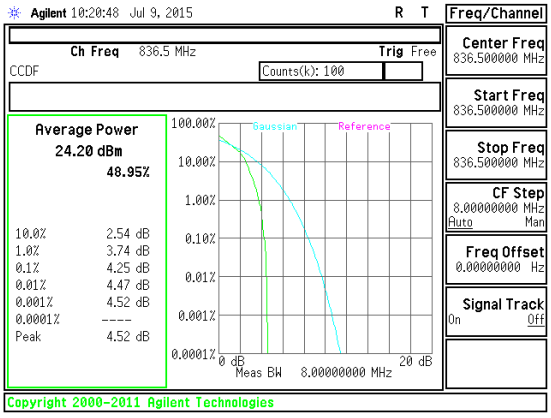
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz 16QAM Mid channel	 Band LTE5 3MHz QPSK Mid channel
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz 16QAM Mid channel	 Band LTE5 1.4MHz QPSK Mid channel

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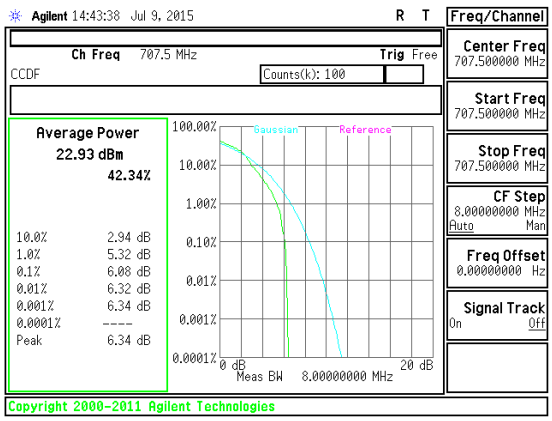
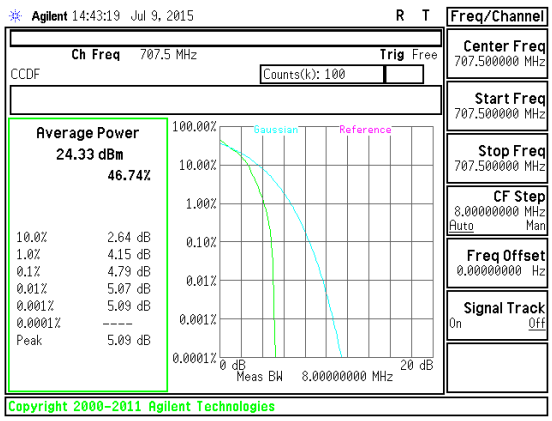
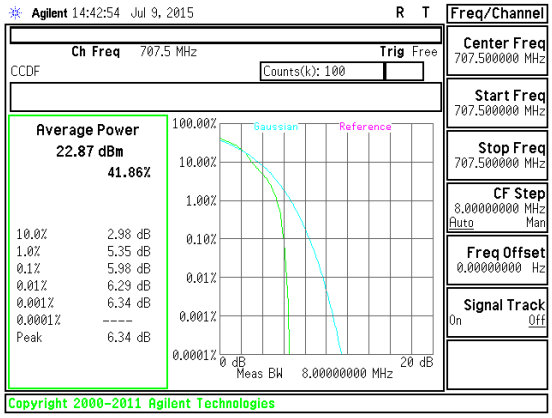
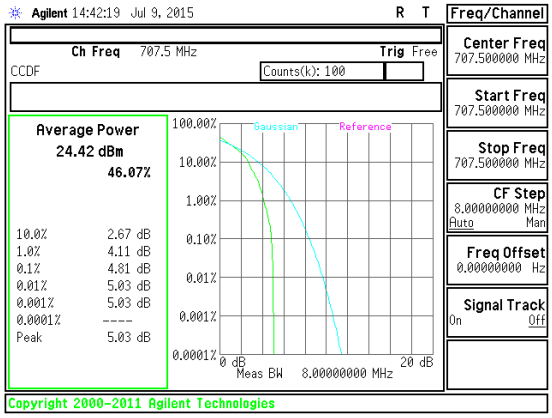
LTE Band 12

Band LTE12 10MHz 16QAM	 Band LTE12 10MHz 16QAM Mid channel	 Band LTE12 10MHz QPSK Mid channel
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz 16QAM Mid channel	 Band LTE12 5MHz QPSK Mid channel

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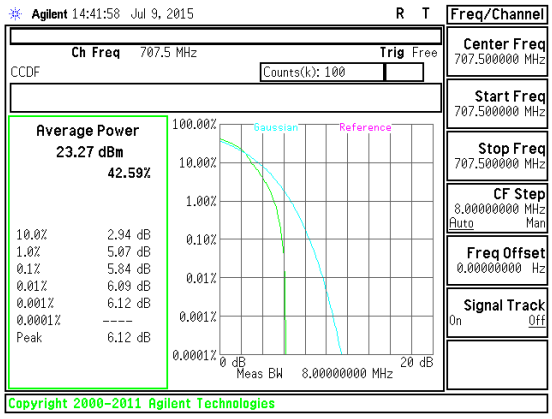
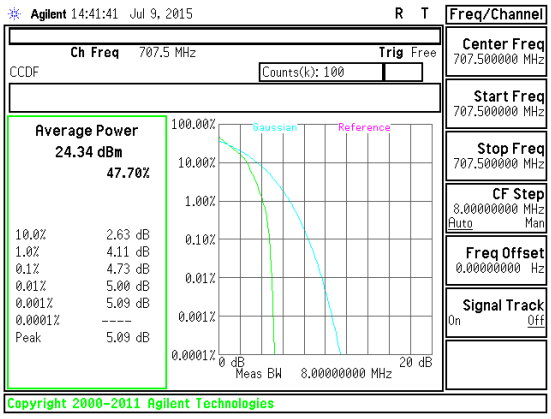
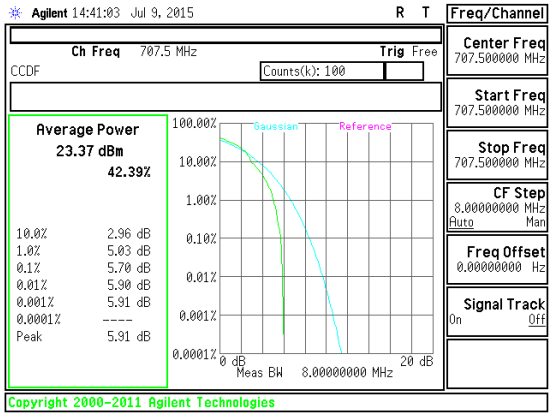
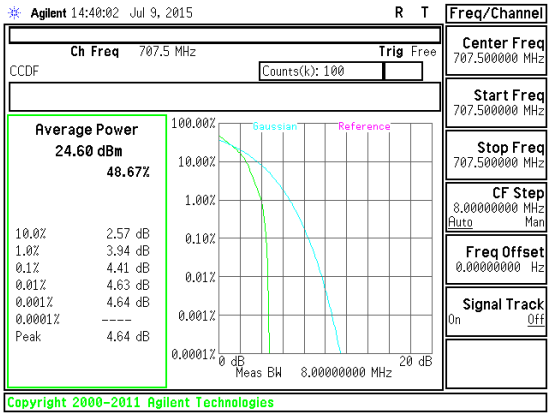
Band LTE12 3MHz 16QAM	 Band LTE12 3MHz 16QAM Mid channel	 Band LTE12 3MHz QPSK Mid channel
Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz 16QAM Mid channel	 Band LTE12 1.4MHz QPSK Mid channel

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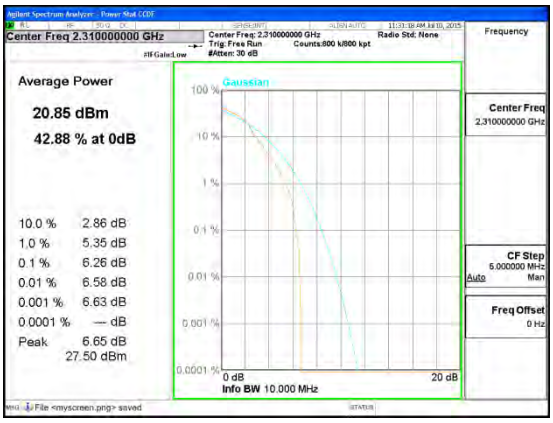
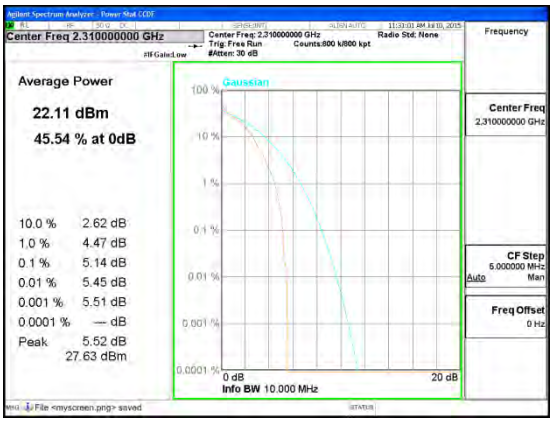
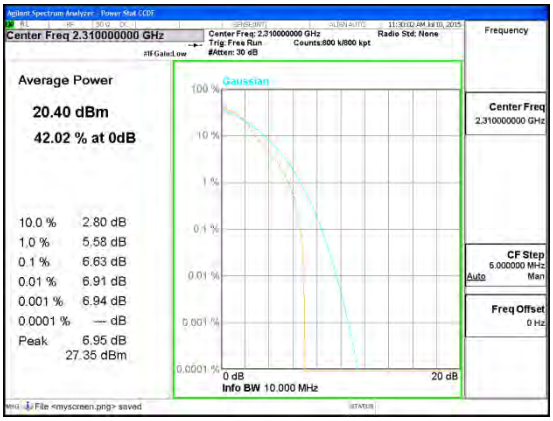
LTE Band 30

Band LTE30 10MHz	 Band LTE30 10MHz 16QAM Mid channel	 LTE Band 30 10MHz QPSK Mid channel
Band LTE30 5MHz	 Band LTE1305MHz 16QAM Mid channel	 Band LTE30 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

RESULTS

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9.1.1 OCCUPIED BANDWIDTH RESULTS

GSM

Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM 850	GPRS	128	824.2	238.6	324.8
		190	836.6	243.5	317.3
		251	848.8	241.6	308.9
	EGPRS	128	824.2	260.3	325.2
		190	836.6	252.2	320.9
		251	848.8	241.6	318.3
GSM 1900	GPRS	512	1850.2	248.3	308.9
		661	1880	248.5	320.8
		810	1909.8	249.8	320.2
	EGPRS	512	1850.2	239.2	305.5
		661	1880	249.9	315.9
		810	1909.8	244.8	313.4

WCDMA

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
Band 5	REL99	4132	826.4	4.11	4.682
		4183	836.6	4.149	4.689
		4233	846.6	4.2	4.804
	HSDPA	4132	826.4	4.137	4.675
		4183	836.6	4.142	4.683
		4233	846.6	4.24	4.789
Band 2	REL99	9262	1852.4	4.104	4.693
		9400	1880	4.103	4.654
		9538	1907.6	4.131	4.701
	HSDPA	9262	1852.4	4.11	4.65
		9400	1880	4.104	4.639
		9538	1907.6	4.146	4.727

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LTE Band 2

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	20	QPSK	100/0	1860	17.82	1.891
			100/0	1880	17.81	1.905
			100/0	1900	17.81	1.911
		16QAM	100/0	1860	17.8	1.905
			100/0	1880	17.82	1.898
			100/0	1900	17.8	1.904
LTE2	15	QPSK	75/0	1857.5	17.82	1.891
			75/0	1880	17.81	1.905
			75/0	1902.5	17.81	1.911
		16QAM	75/0	1857.5	13.39	1.451
			75/0	1880	13.39	1.455
			75/0	1902.5	13.39	1.459
LTE2	10	QPSK	50/0	1855	13.35	1.443
			50/0	1880	13.38	1.442
			50/0	1905	13.4	1.434
		16QAM	50/0	1855	8.937	9.635
			50/0	1880	8.914	9.696
			50/0	1905	8.925	9.654
LTE2	5	QPSK	25/0	1852.5	4.494	4.955
			25/0	1880	4.487	4.959
			25/0	1907.5	4.496	5.009
		16QAM	25/0	1852.5	4.491	4.934
			25/0	1880	4.484	4.946
			25/0	1907.5	4.488	4.924

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	3	QPSK	15/0	1851.5	2.677	2.966
			15/0	1880	2.681	2.962
			15/0	1908.5	2.69	2.951
		16QAM	15/0	1851.5	2.684	2.945
			15/0	1880	2.687	2.965
			15/0	1908.5	2.683	2.972
LTE2	1.4	QPSK	6/0	1850.7	1.084	1.278
			6/0	1880	1.079	1.258
			6/0	1909.3	1.078	1.276
		16QAM	6/0	1850.7	1.085	1.269
			6/0	1880	1.09	1.291
			6/0	1909.3	1.088	1.258

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LTE Band 4

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	20	QPSK	100/0	1720	17.844	19.141
			100/0	1732.5	17.862	19.274
			100/0	1745	17.864	19.37
		16QAM	100/0	1720	17.854	19.188
			100/0	1732.5	17.871	19.331
			100/0	1745	17.834	19.245
LTE4	15	QPSK	75/0	1717.5	13.402	14.482
			75/0	1732.5	13.413	14.604
			75/0	1747.5	13.411	14.548
		16QAM	75/0	1717.5	13.386	14.511
			75/0	1732.5	13.393	14.598
			75/0	1747.5	13.389	14.532
LTE4	10	QPSK	50/0	1715	8.953	9.839
			50/0	1732.5	8.976	9.784
			50/0	1750	8.954	9.794
		16QAM	50/0	1715	8.942	9.844
			50/0	1732.5	8.943	9.744
			50/0	1750	8.978	9.817
LTE4	5	QPSK	25/0	1712.5	4.503	4.981
			25/0	1732.5	4.49	4.958
			25/0	1752.5	4.482	4.932
		16QAM	25/0	1712.5	4.495	4.998
			25/0	1732.5	4.487	4.963
			25/0	1752.5	4.478	4.93

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Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	3	QPSK	15/0	1711.5	2.697	2.978
			15/0	1732.5	2.703	2.99
			15/0	1753.5	2.697	2.975
		16QAM	15/0	1711.5	2.695	2.975
			15/0	1732.5	2.695	2.996
			15/0	1753.5	2.701	2.975
LTE4	1.4	QPSK	6/0	1710.7	1.09	1.281
			6/0	1732.5	1.083	1.272
			6/0	1754.3	1.09	1.275
		16QAM	6/0	1710.7	1.088	1.278
			6/0	1732.5	1.09	1.287
			6/0	1754.3	1.095	1.31

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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	8.961	9.688
			50/0	836.5	8.934	9.716
			50/0	844	8.931	9.726
		QPSK	50/0	829	8.941	9.689
			50/0	836.5	8.958	9.726
			50/0	844	8.944	9.699
	5	16QAM	25/0	826.5	4.49	4.956
			25/0	836.5	4.485	4.934
			25/0	846.5	4.493	4.908
		QPSK	25/0	826.5	4.473	4.951
			25/0	836.5	4.482	4.913
			25/0	846.5	4.49	4.856
	3	16QAM	15/0	825.5	2.69	2.953
			15/0	836.5	2.677	2.983
			15/0	847.5	2.678	2.964
		QPSK	15/0	825.5	2.678	2.964
			15/0	836.5	2.678	2.941
			15/0	847.5	2.686	2.962
	1.4	16QAM	6/0	824.7	1.085	1.283
			6/0	836.5	1.085	1.273
			6/0	848.3	1.087	1.262
		QPSK	6/0	824.7	1.084	1.29
			6/0	836.5	1.085	1.272
			6/0	848.3	1.08	1.267

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LTE Band 12

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE12	10	QPSK	50/0	704	8.94	9.659
			50/0	707.5	8.927	9.604
			50/0	711	8.922	9.549
		16QAM	50/0	704	8.94	9.683
			50/0	707.5	8.952	9.724
			50/0	711	8.914	9.716
LTE12	5	QPSK	25/0	701.5	4.505	4.975
			25/0	707.5	4.474	4.874
			25/0	713.5	4.491	4.929
		16QAM	25/0	701.5	4.488	4.987
			25/0	707.5	4.483	4.918
			25/0	713.5	4.49	4.926
LTE12	3	QPSK	15/0	700.5	2.685	2.953
			15/0	707.5	2.679	2.918
			15/0	714.5	2.691	2.981
		16QAM	15/0	700.5	2.686	2.95
			15/0	707.5	2.678	2.955
			15/0	714.5	2.678	2.964
LTE12	1.4	QPSK	6/0	699.7	1.084	1.283
			6/0	707.5	1.079	1.261
			6/0	715.3	1.083	1.279
		16QAM	6/0	699.7	1.081	1.275
			6/0	707.5	1.083	1.27
			6/0	715.3	1.088	1.253

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LTE Band 30

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE30	10	16QAM	50/0	2310	8.959	9.823
		QPSK	50/0	2310	8.976	9.757
	5	16QAM	25/0	2307.5	4.496	4.962
			25/0	2310	4.493	4.987
			25/0	2312.5	4.489	4.975
		QPSK	25/0	2307.5	4.503	4.979
			25/0	2310	4.498	4.977
			25/0	2312.5	4.502	4.981

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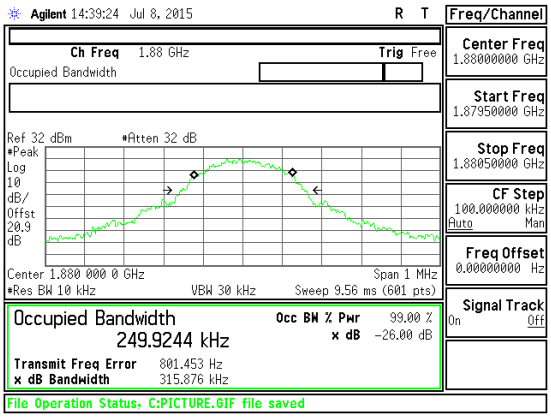
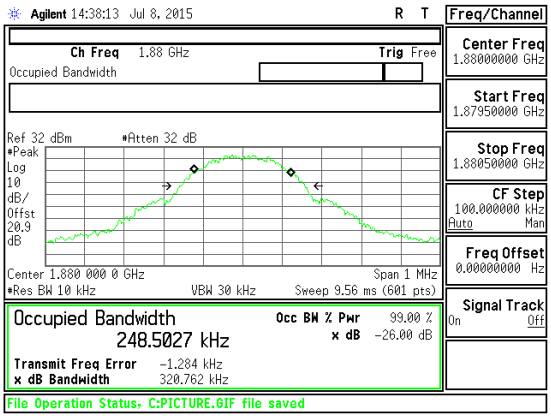
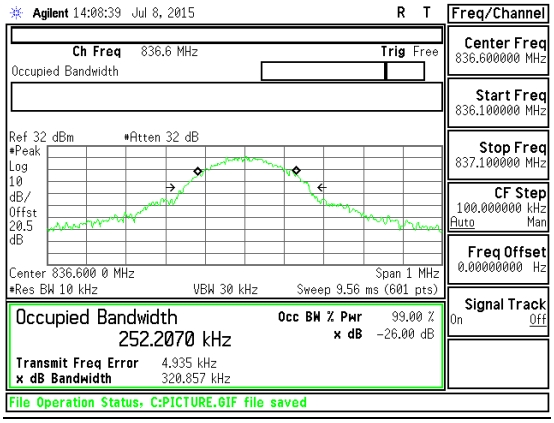
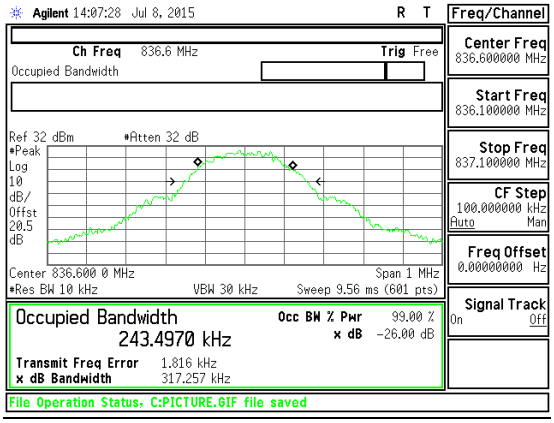
10.1.2. OCCUPIED BANDWIDTH PLOTS

GSM

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

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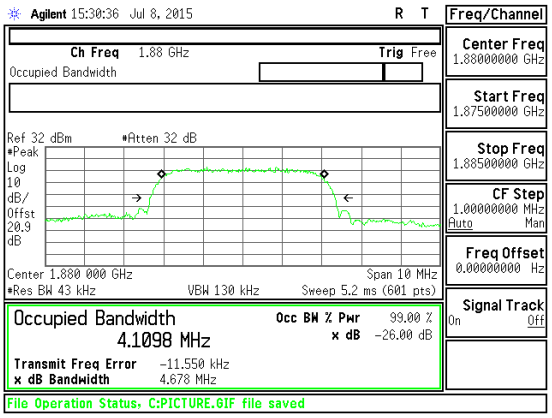
WCDMA

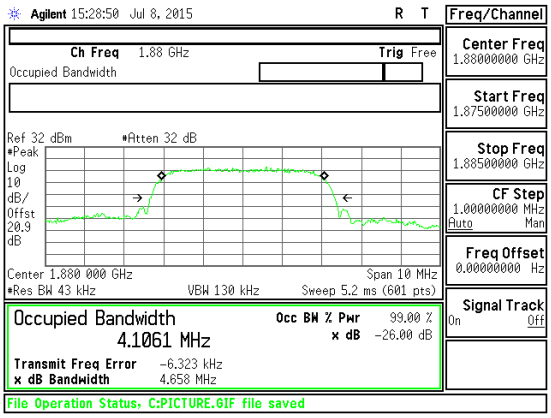
Band

Band 2

HSDPA



Band WCDMA B2 HSDPA OBW

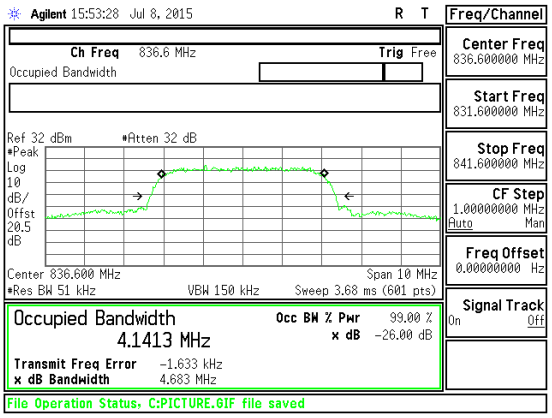


Band WCDMA B2 REL99 OBW

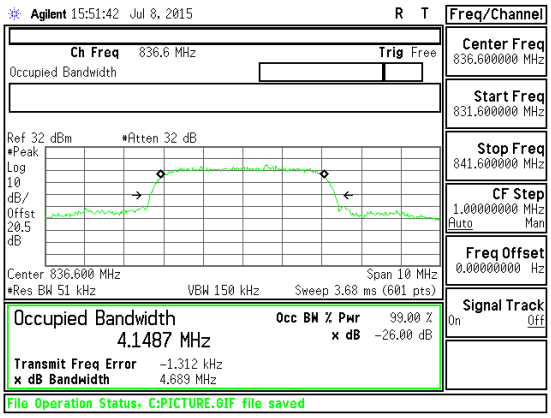
Band

Band 5

HSDPA



Band WCDMA B5 HSDPA OBW



Band WCDMA B5 REL99 OBW

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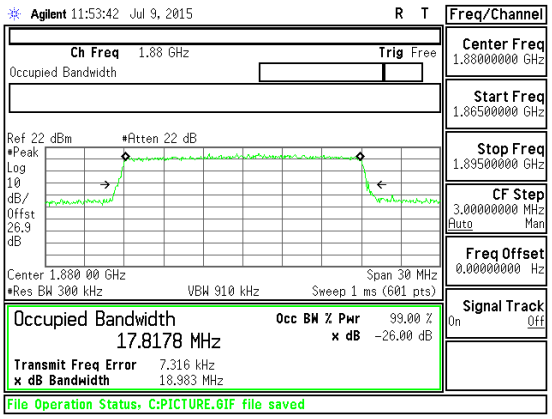
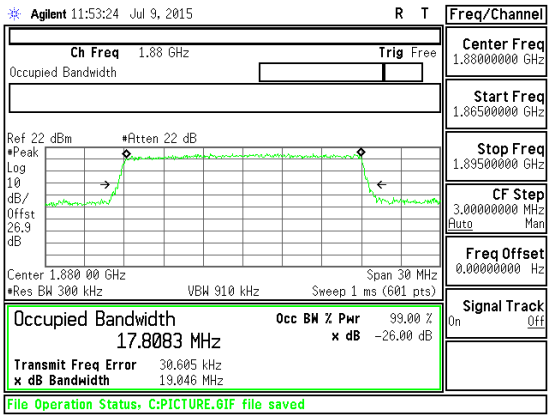
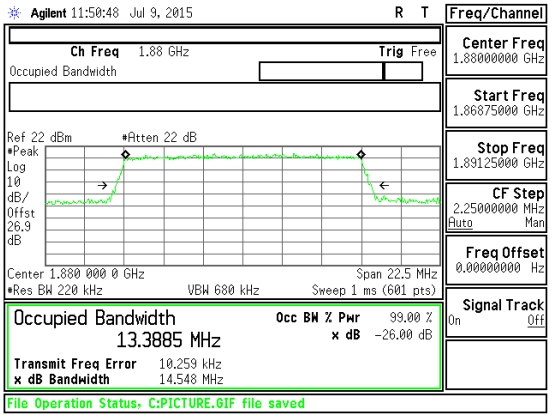
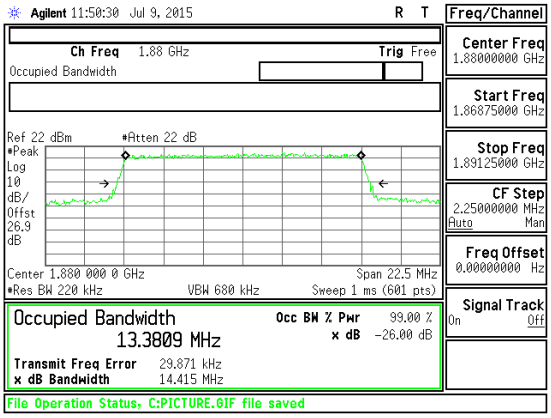
LTE Band 2

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

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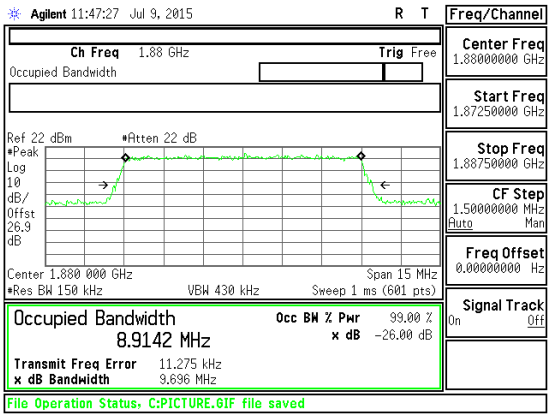
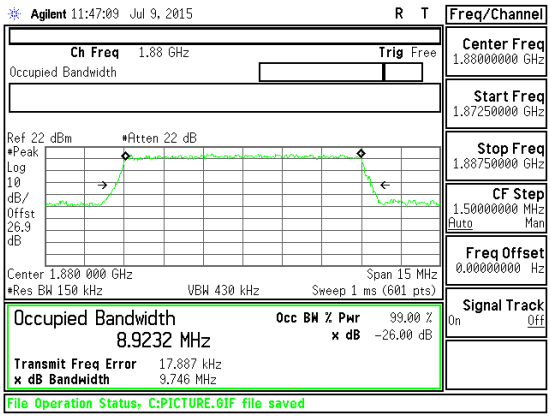
Band LTE2 10MHz 16QAM

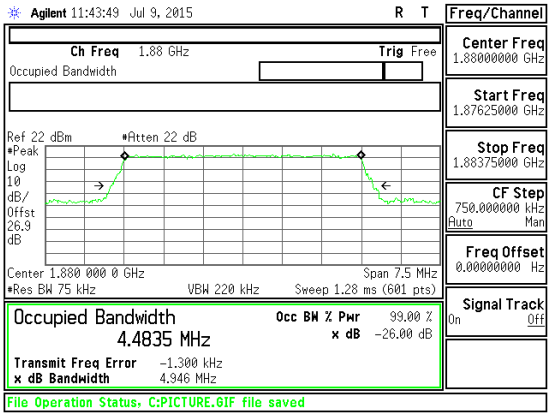


Band LTE2 10MHz OBW 16QAM Mid Channel FRB.gif

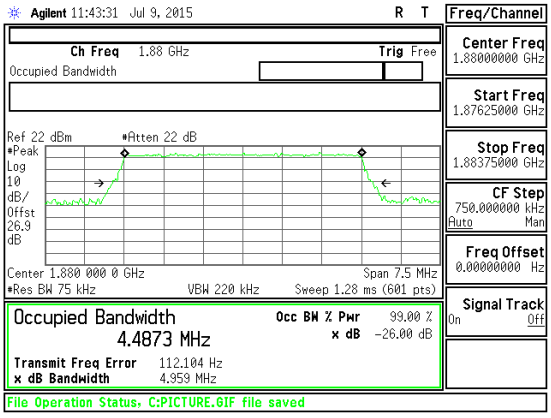


Band LTE2 10MHz OBW QPSK Mid Channel FRB.gif

Band LTE2 5MHz 16QAM



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



Band LTE2 5MHz OBW QPSK Mid Channel FRB.gif

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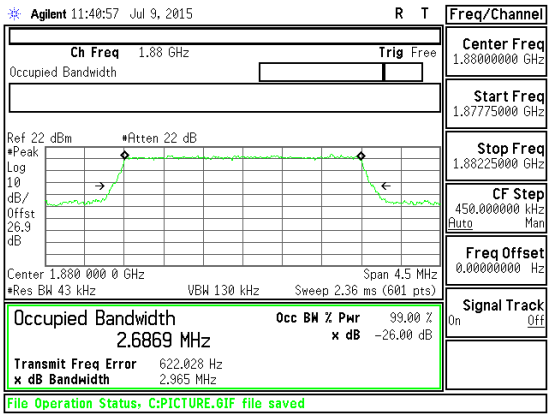
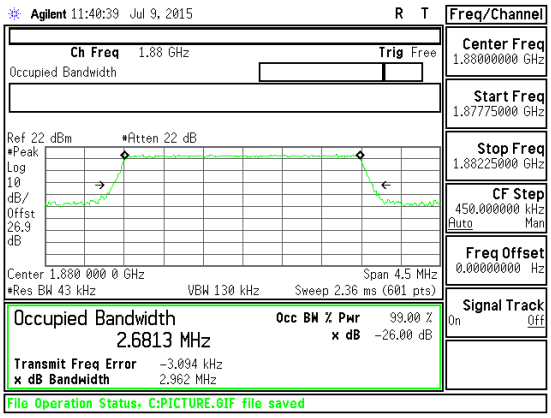
Band LTE2 3MHz 16QAM

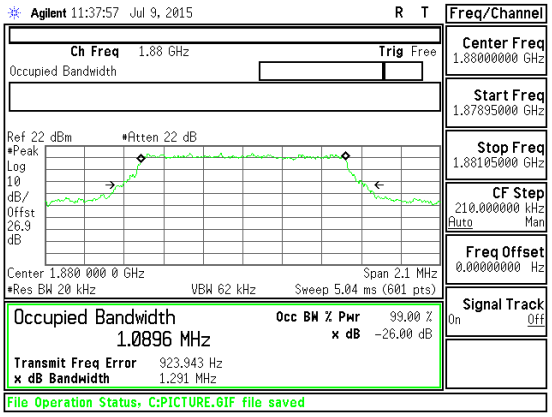


Band LTE2 3MHz OBW 16QAM Mid Channel FRB.gif

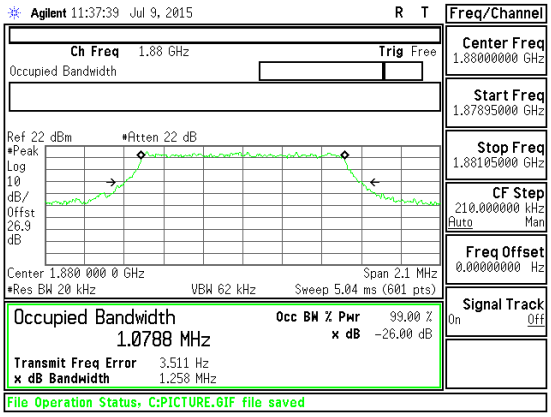


Band LTE2 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE2 1.4MHz 16QAM



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



Band LTE2 1.4MHz OBW QPSK Mid Channel FRB.gif

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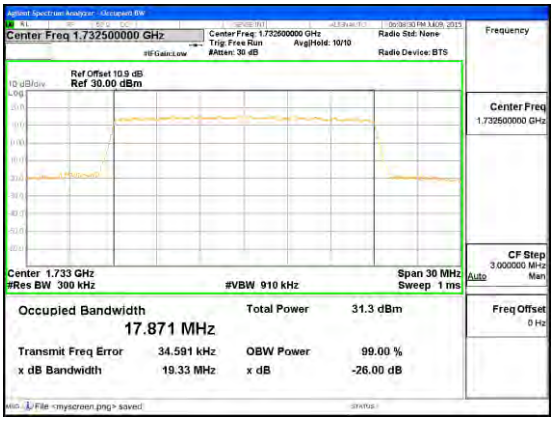
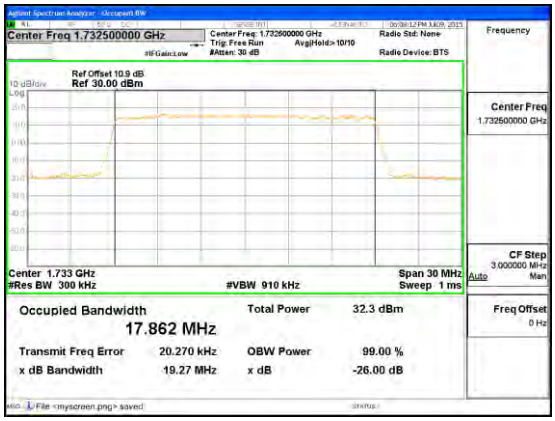
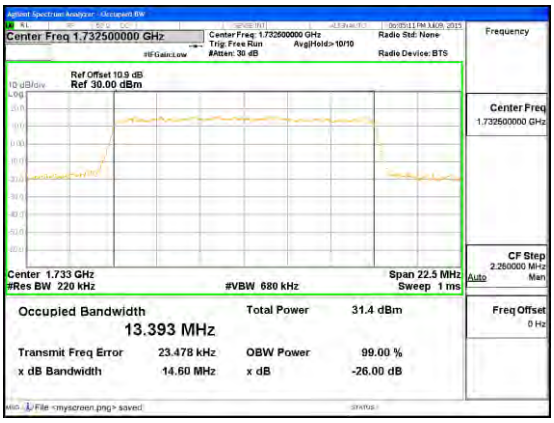
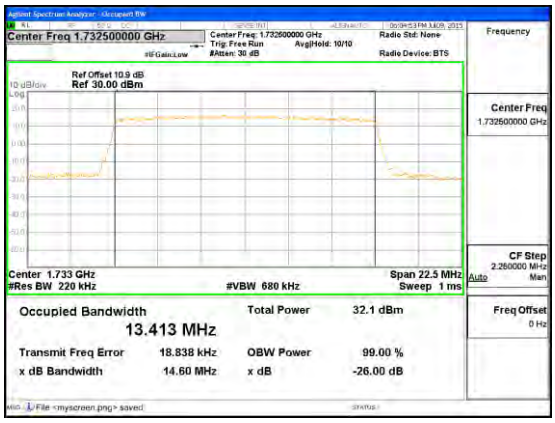
LTE Band 4

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

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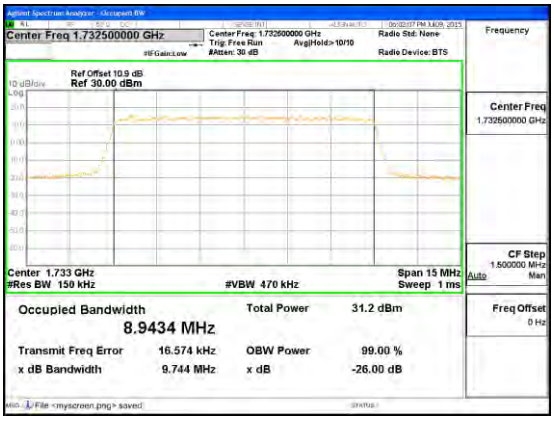
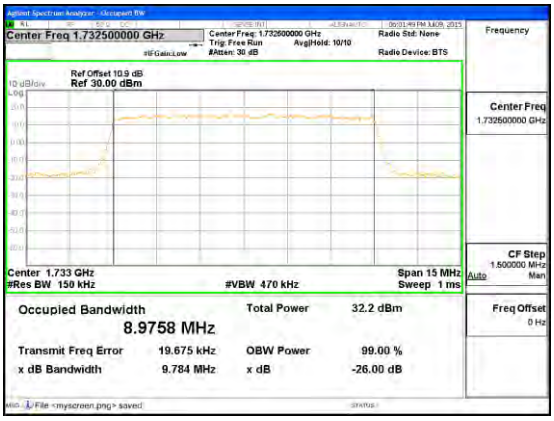
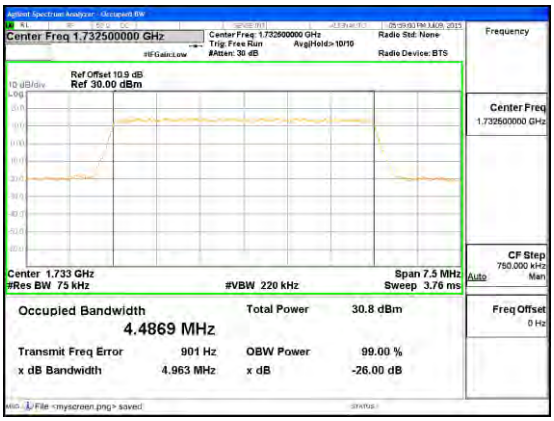
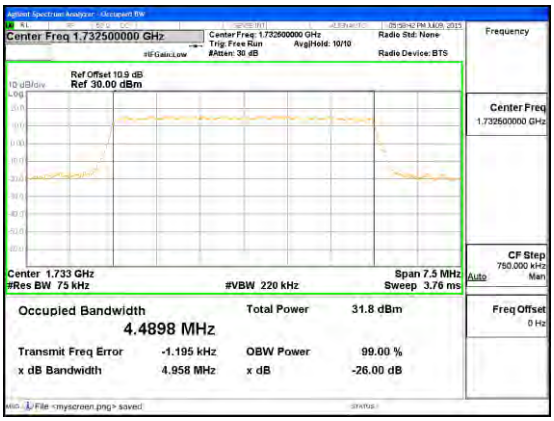
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 5MHz OBW QPSK Mid Channel FRB.gif

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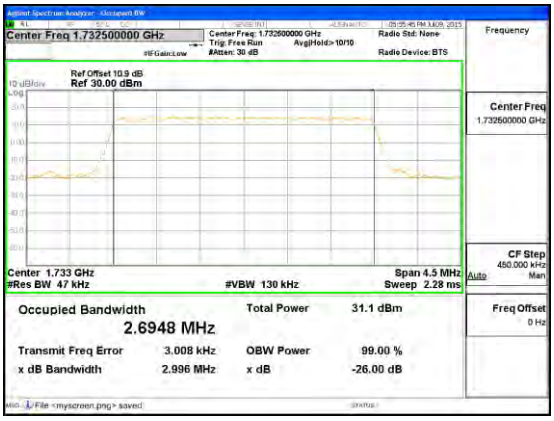
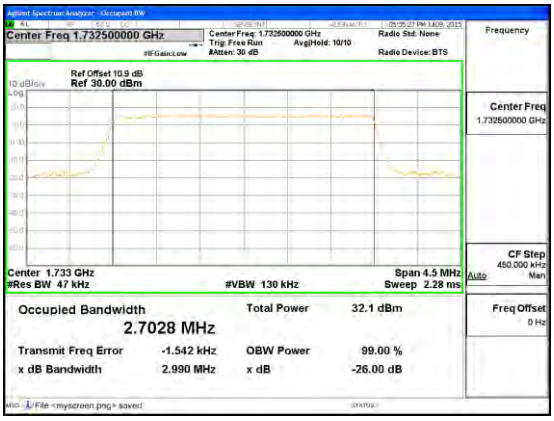
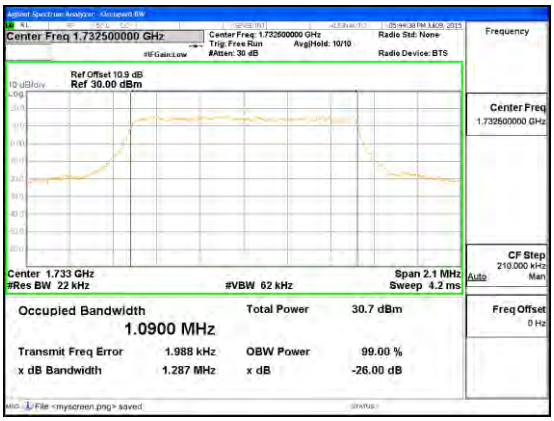
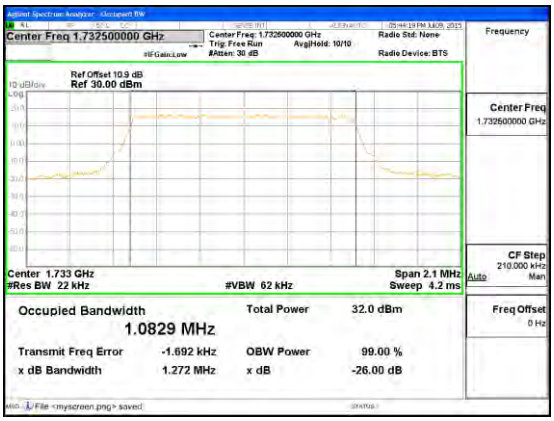
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 3MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 1.4MHz OBW QPSK Mid Channel FRB.gif

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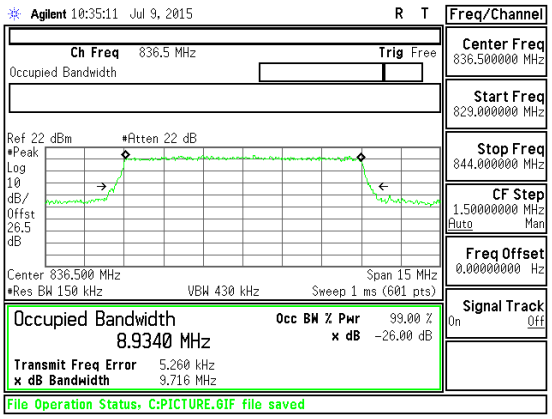
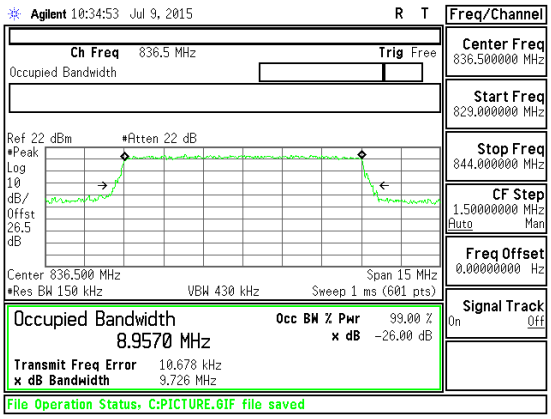
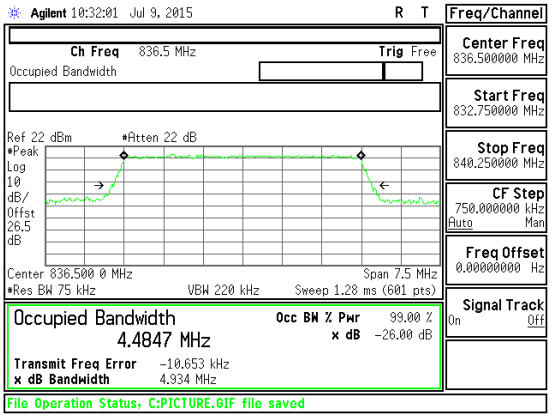
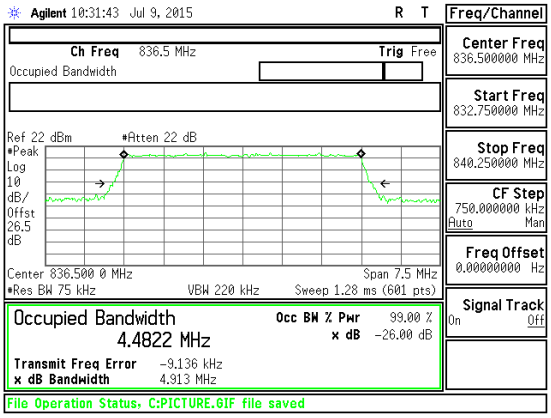
LTE Band 5

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

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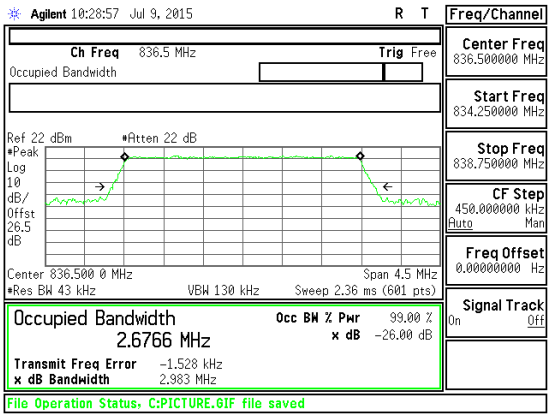
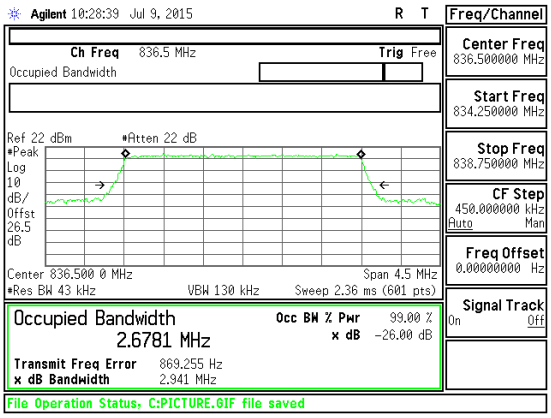
Band LTE5 3MHz 16QAM

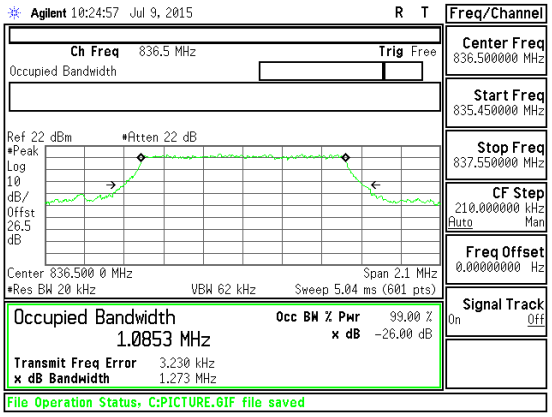


Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif

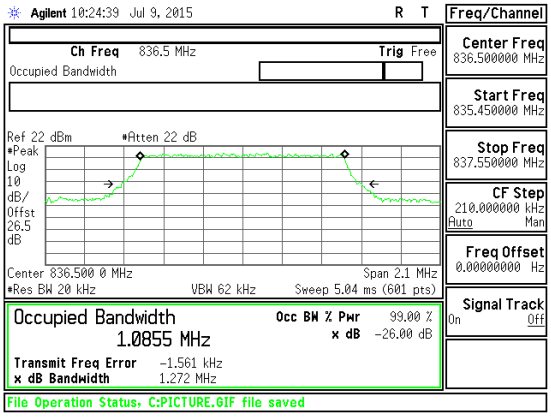


Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE5 1.4MHz 16QAM



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



Band LTE5 1.4MHz OBW QPSK Mid Channel FRB.gif

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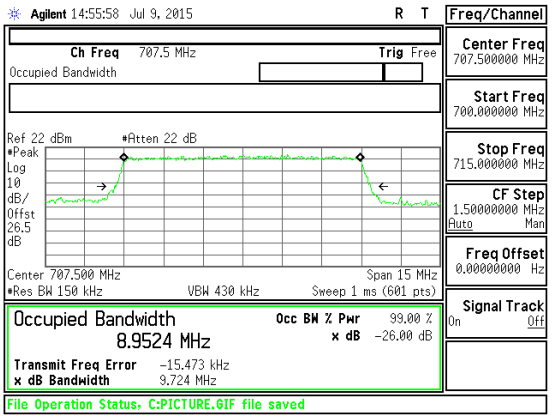
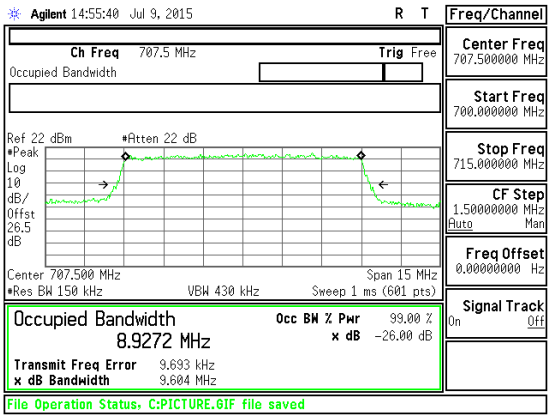
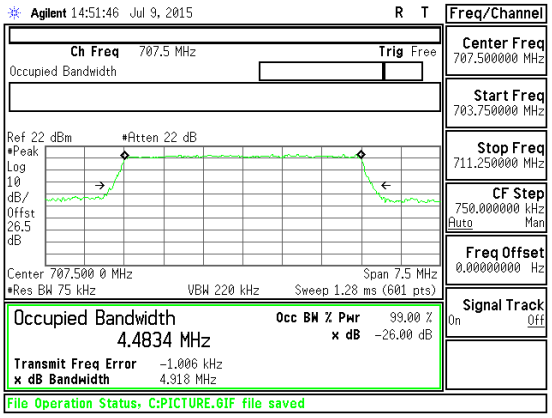
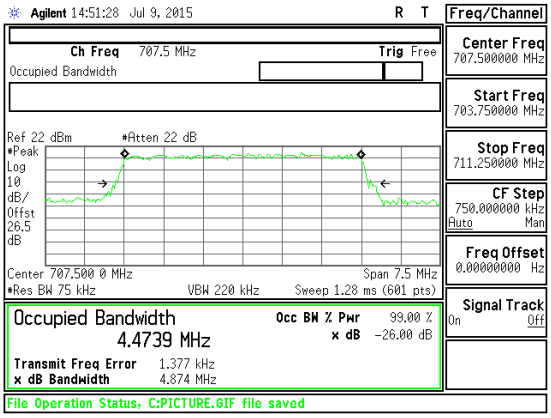
LTE Band 12

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

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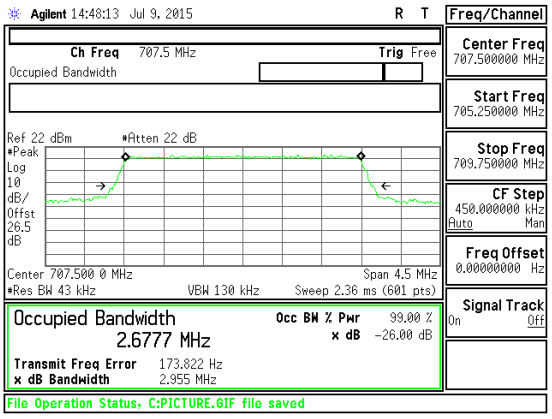
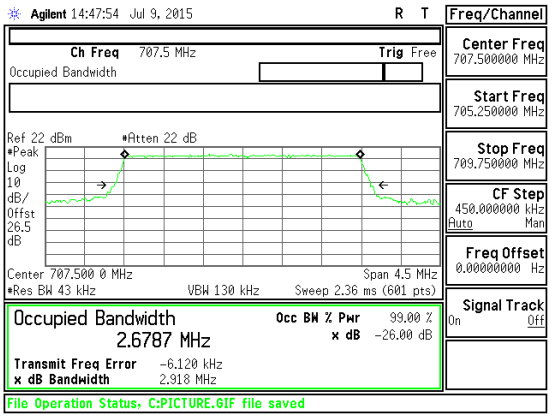
Band LTE12 3MHz 16QAM

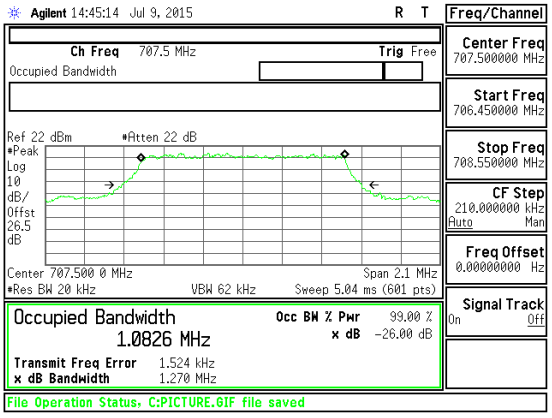


Band LTE12 3MHz OBW 16QAM Mid Channel FRB.gif

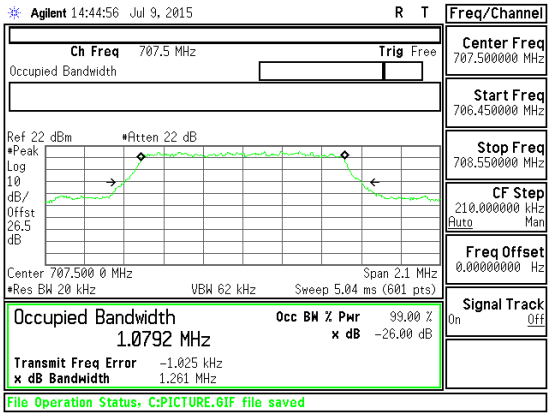


Band LTE12 3MHz OBW QPSK Mid Channel FRB.gif

Band LTE12 1.4MHz 16QAM



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



Band LTE12 1.4MHz OBW QPSK Mid Channel FRB.gif

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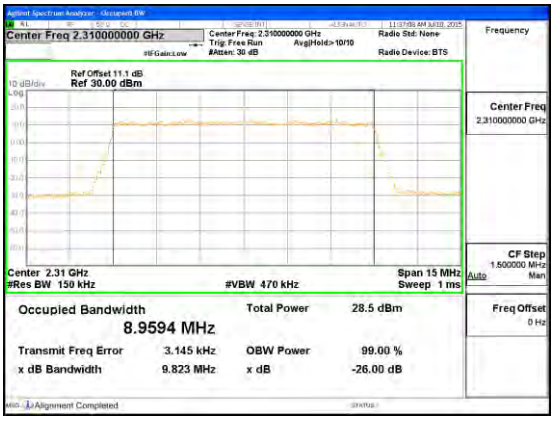
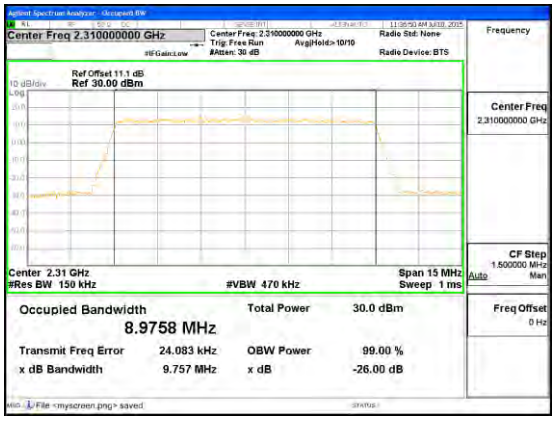
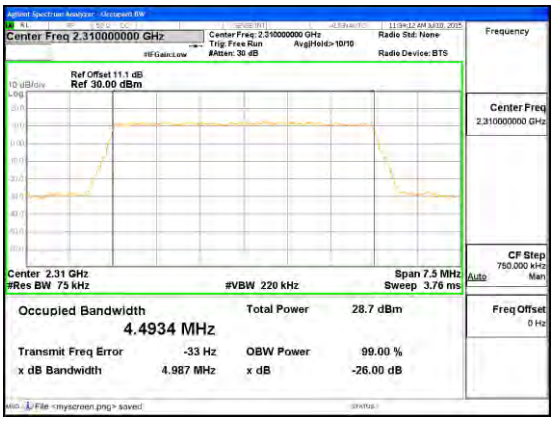
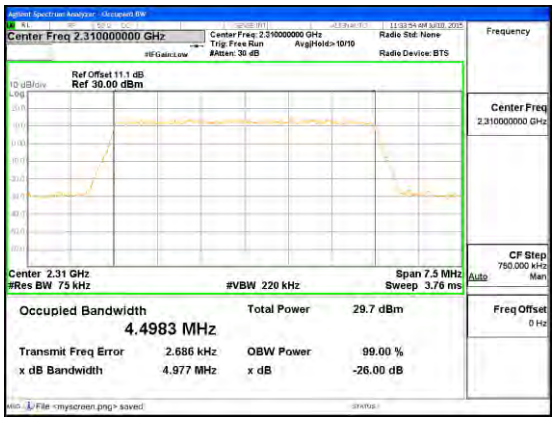
LTE Band 30

Band LTE30 10MHz	 Band LTE30 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE30 10MHz OBW QPSK Mid Channel FRB.gif
Band LTE30 5MHz	 Band LTE30 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE30 5MHz OBW QPSK Mid Channel FRB.gif

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9.2. 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.

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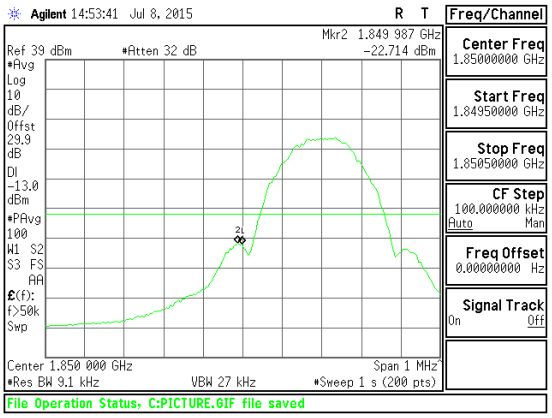
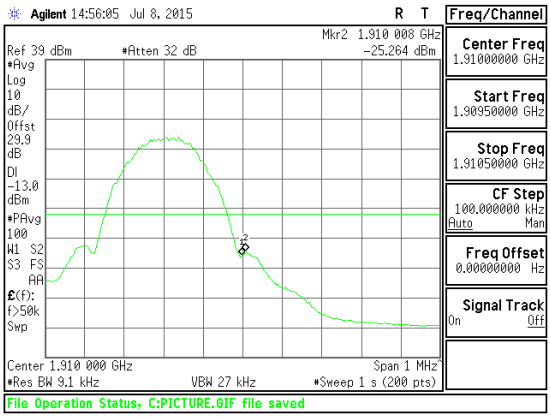
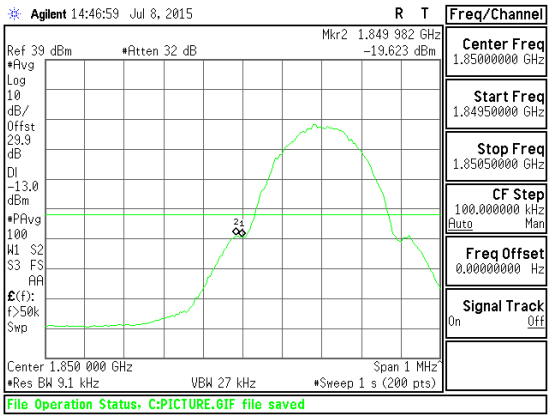
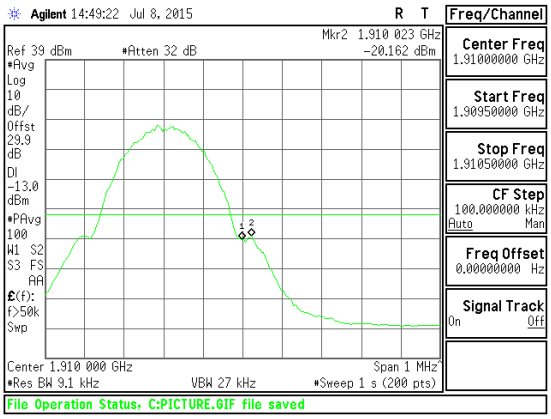
9.2.1. BAND EDGE PLOTS

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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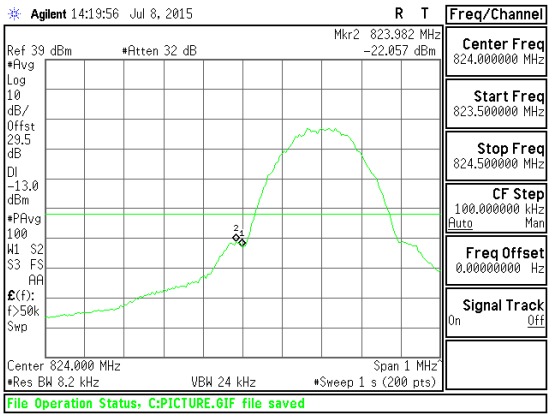
Band GSM 850 EGPRS



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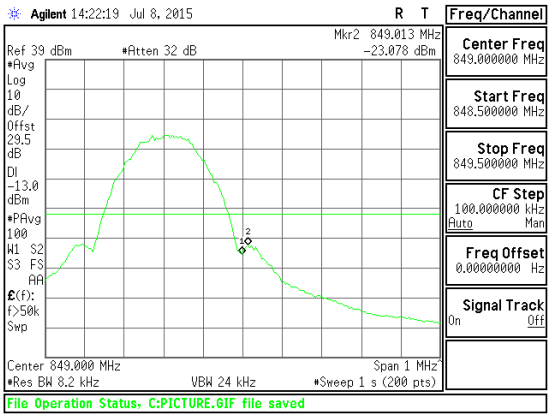
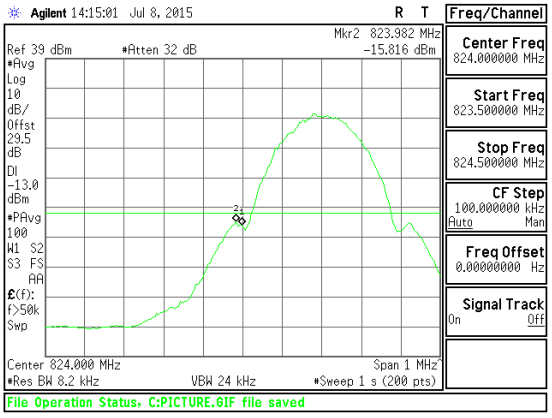


Band GSM850 EGPRS CBE High channel

Band GSM 850 GPRS



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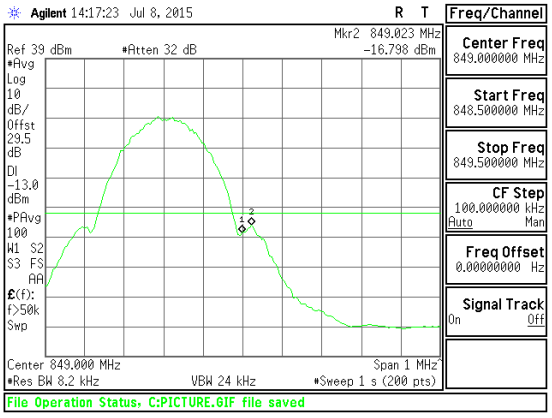

Band GSM850 GPRS CBE High channel

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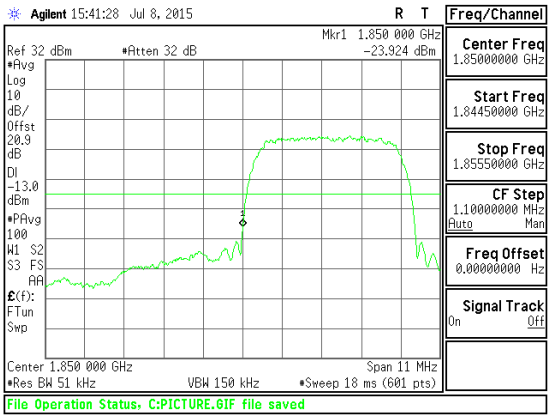
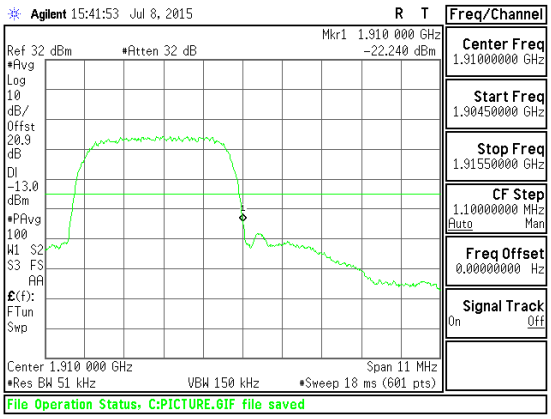
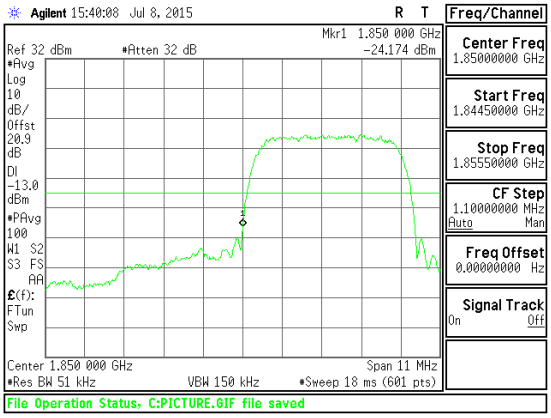
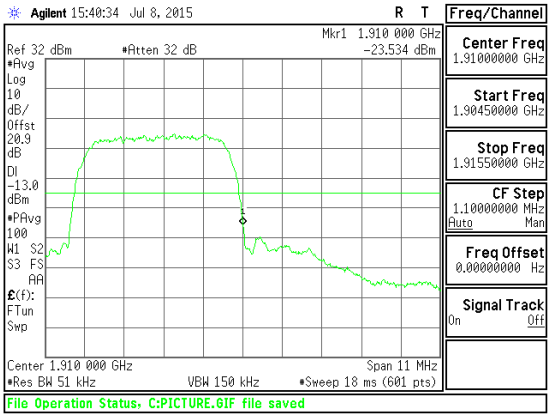
WCDMA

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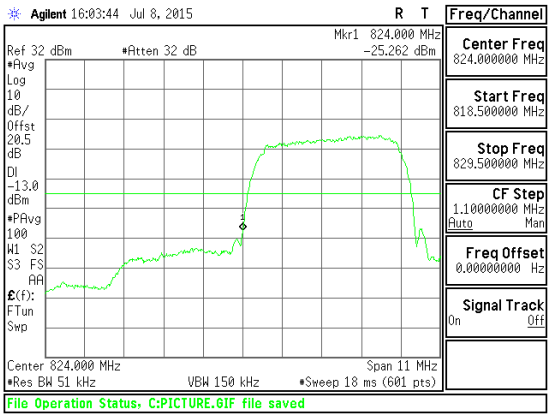
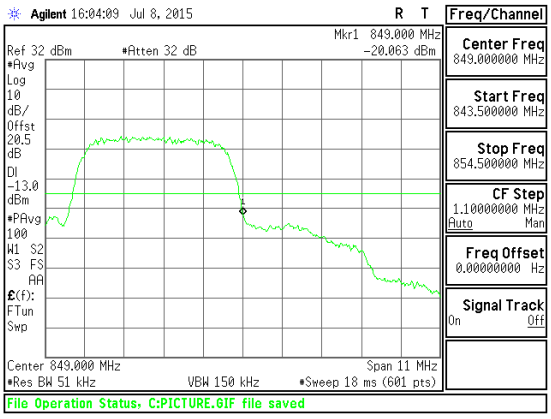
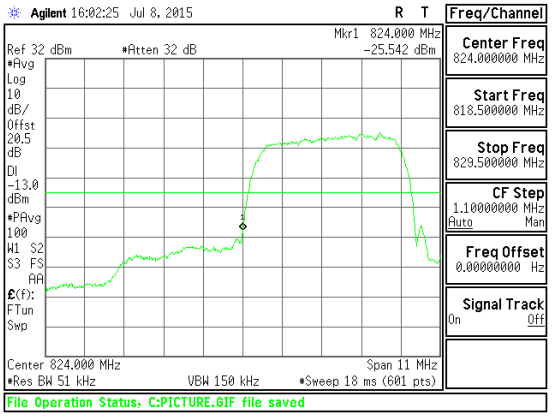
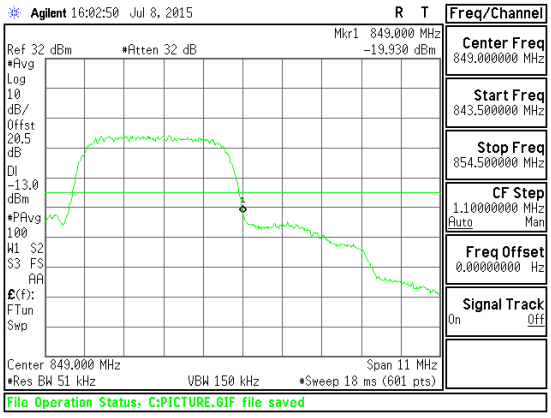
Band Band 5 HSDPA	 Band WCDMA B5 HSDPA CBE	 Band WCDMA B5 HSDPA CBE
Band Band 5 REL99	 Band WCDMA B5 REL99 CBE	 Band WCDMA B5 REL99 CBE

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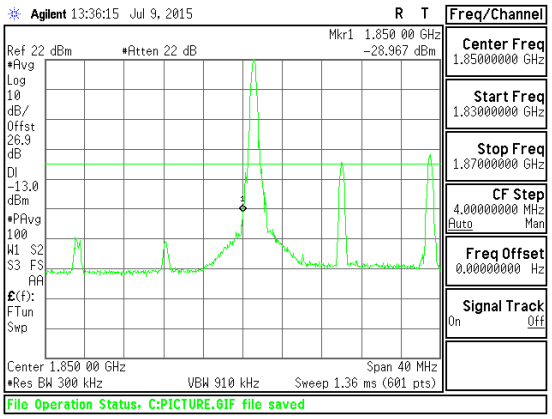
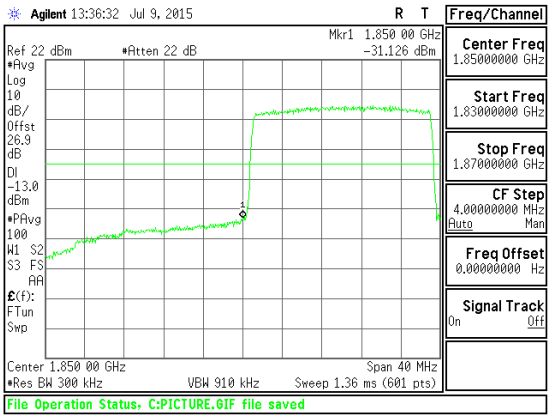
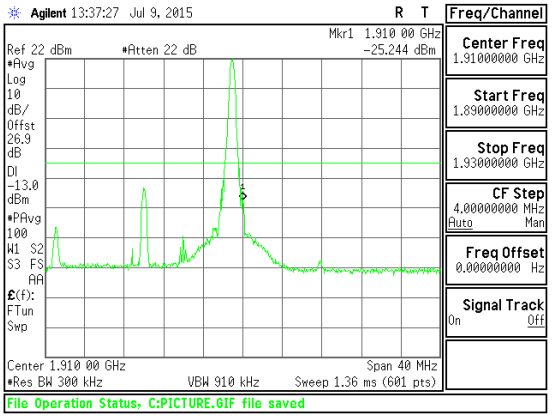
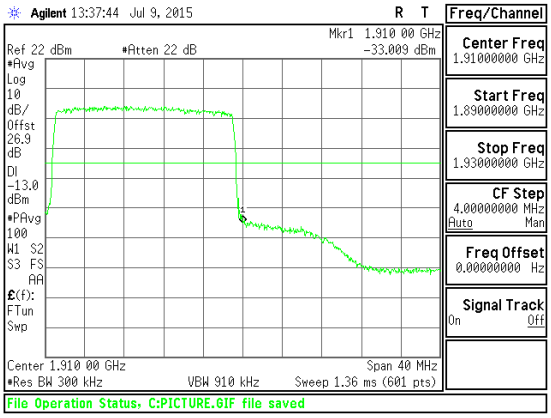
LTE Band 2

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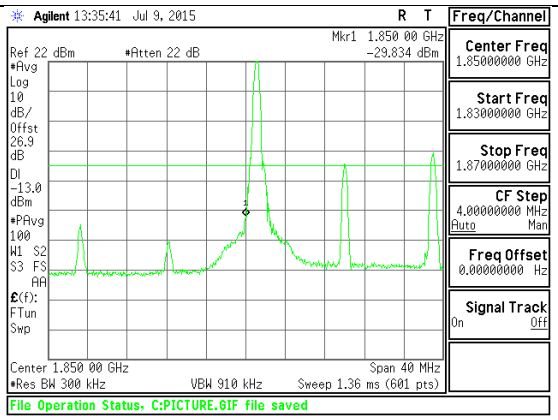
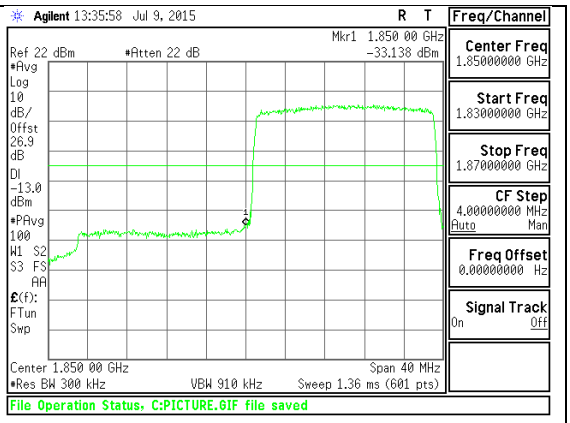
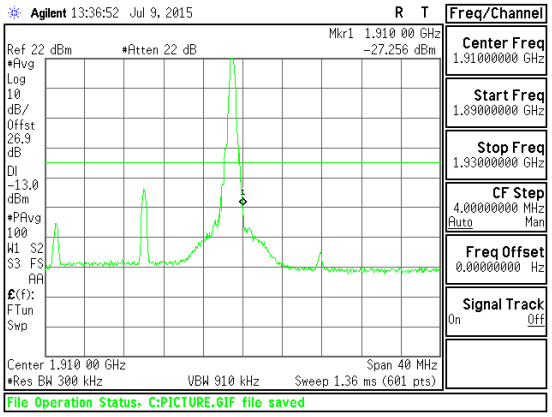
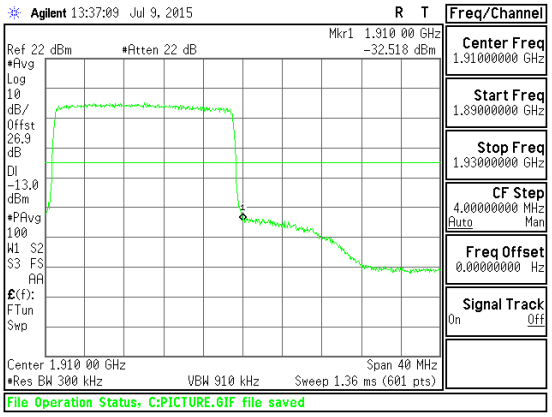
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK Low Channel FRB.gif
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK High Channel FRB.gif

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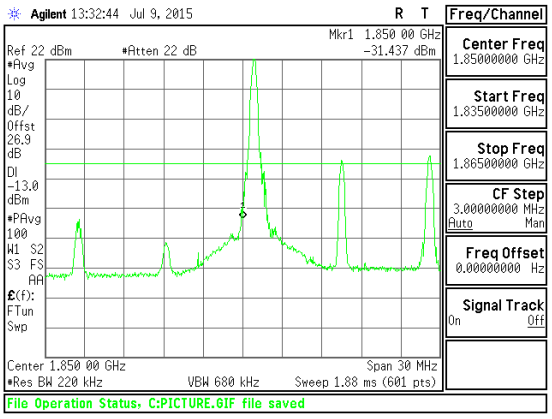
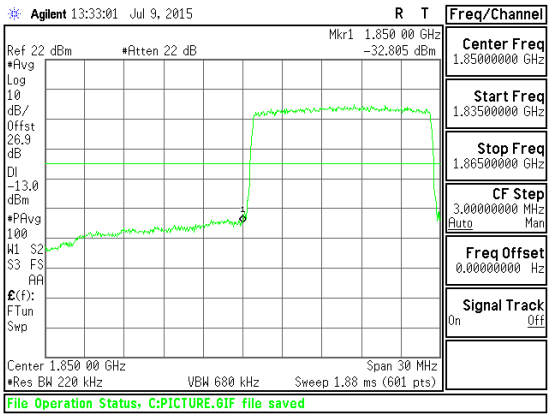
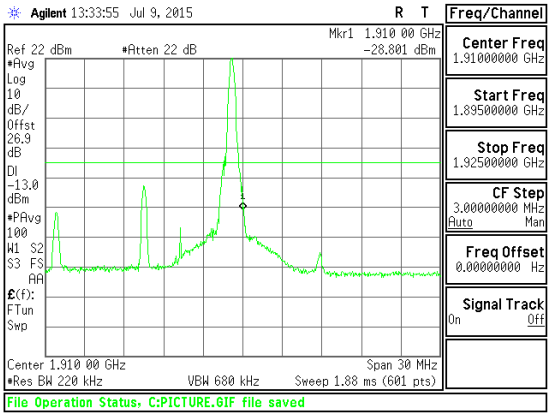
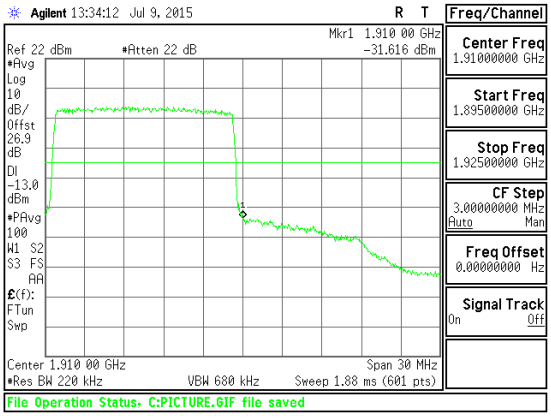
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM High Channel FRB.gif

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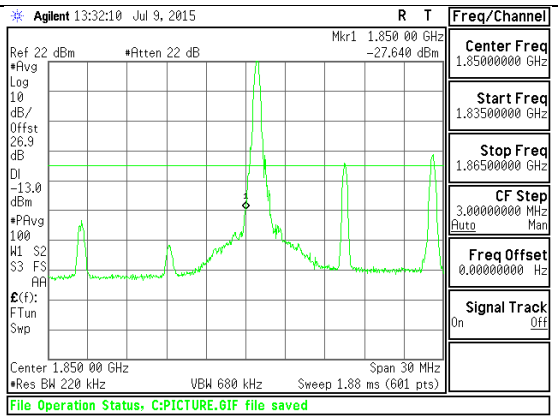
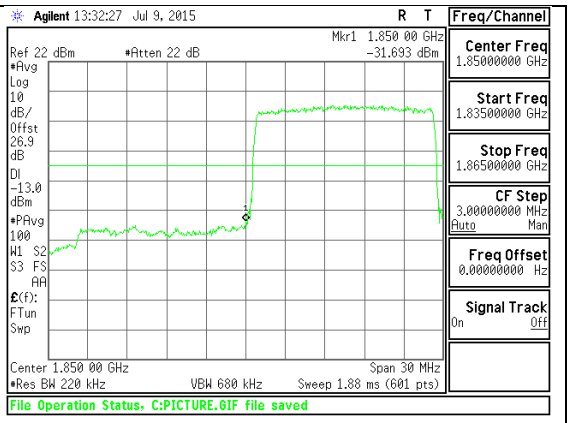
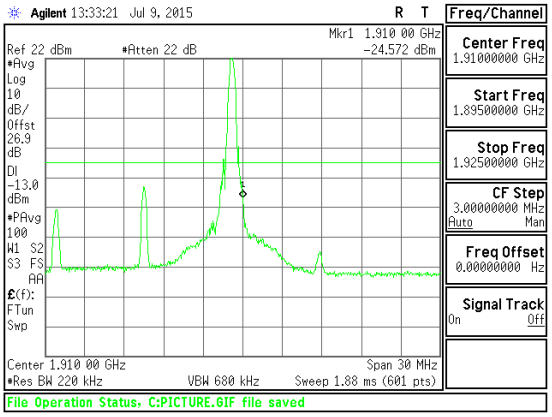
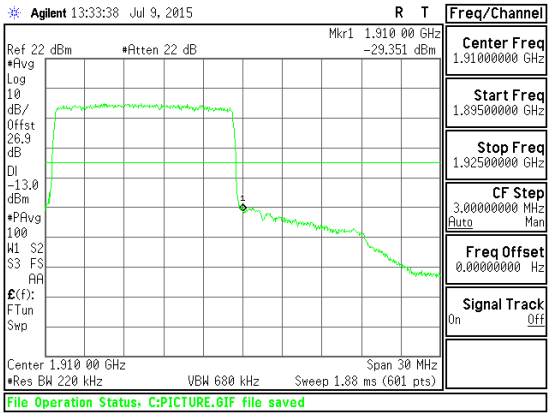
Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK Low Channel FRB.gif
Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK High Channel FRB.gif

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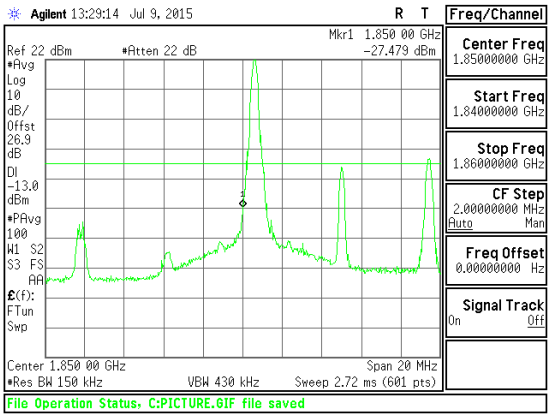
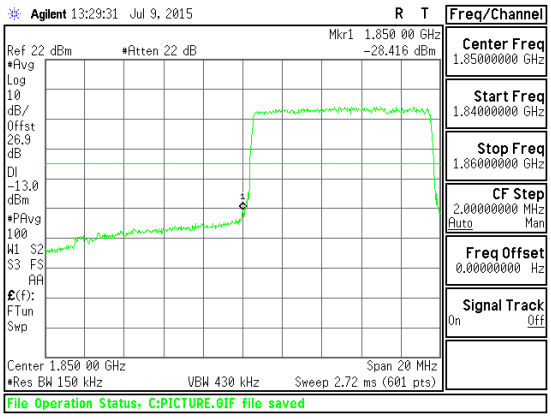
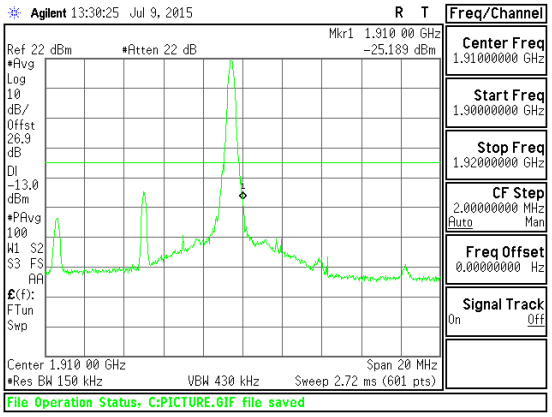
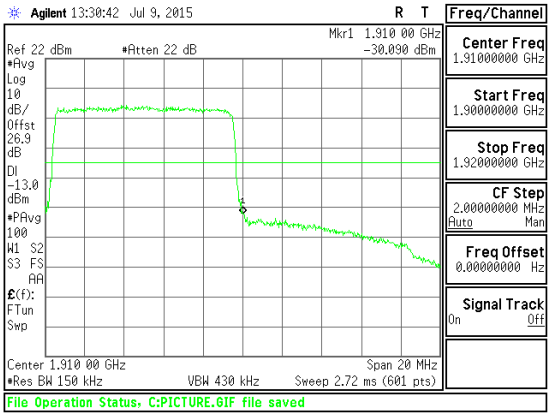
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM High Channel FRB.gif

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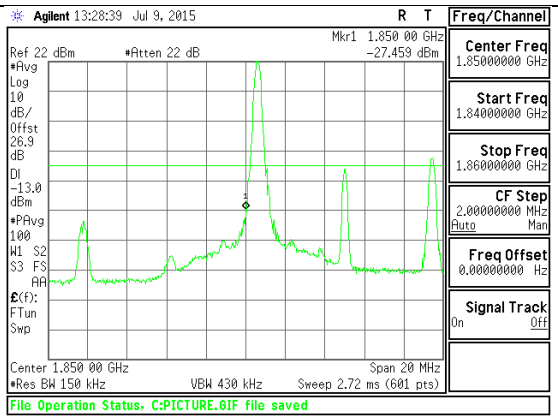
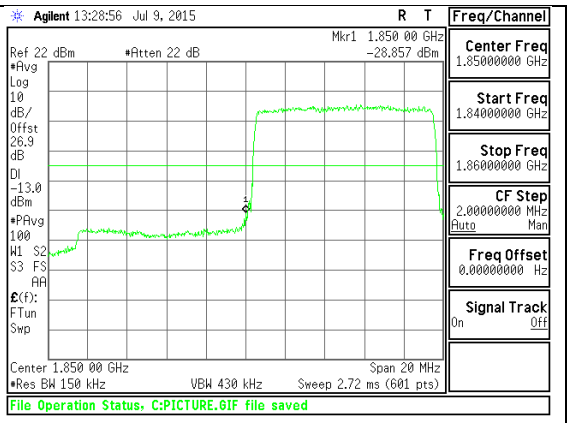
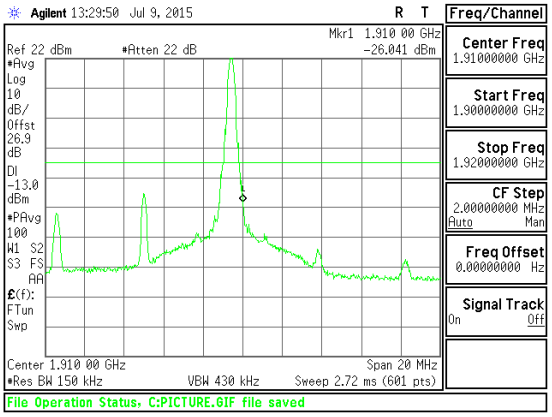
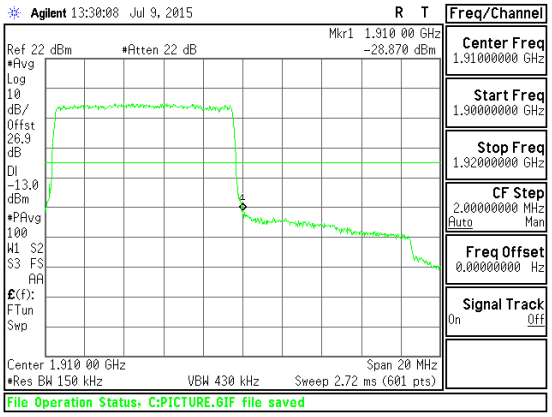
Band LTE2 10MHz QPSK	 Band LTE2 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 10MHz CBE QPSK Low Channel FRB.gif
Band LTE2 10MHz QPSK	 Band LTE2 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 10MHz CBE QPSK High Channel FRB.gif

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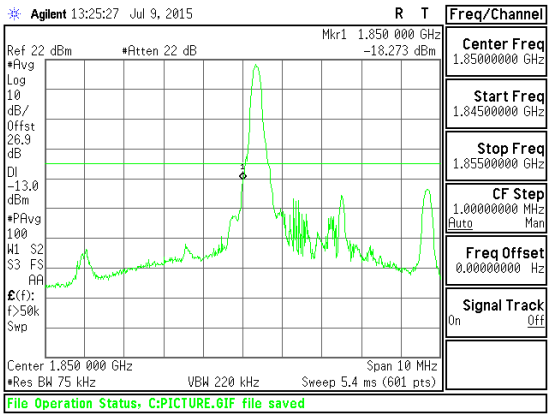
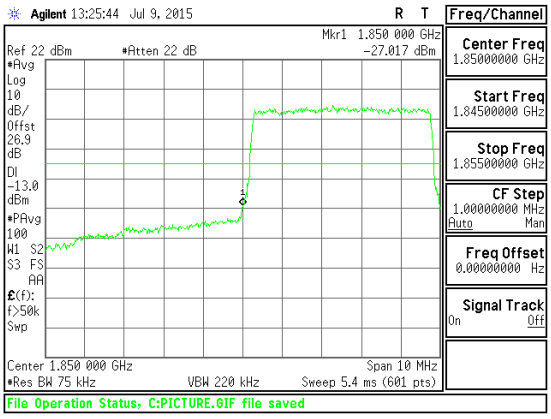
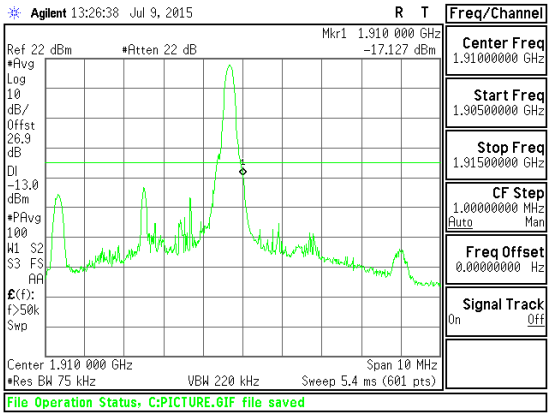
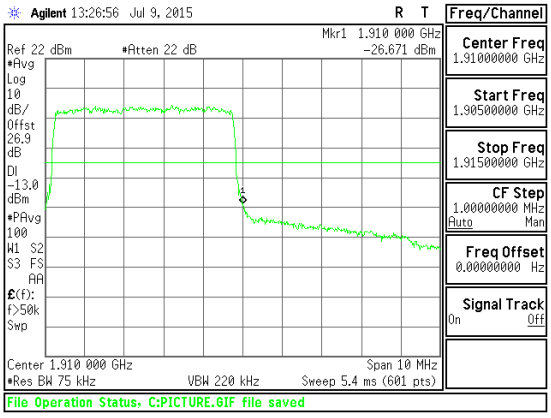
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM High Channel FRB.gif

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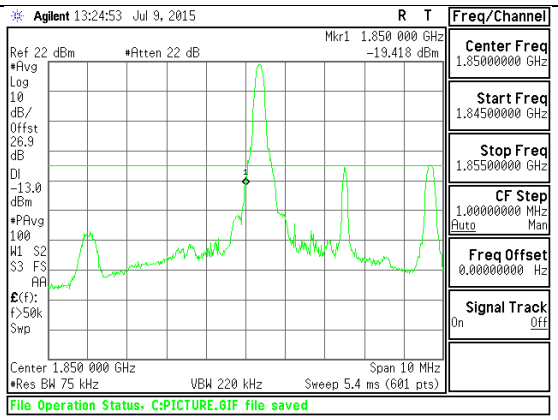
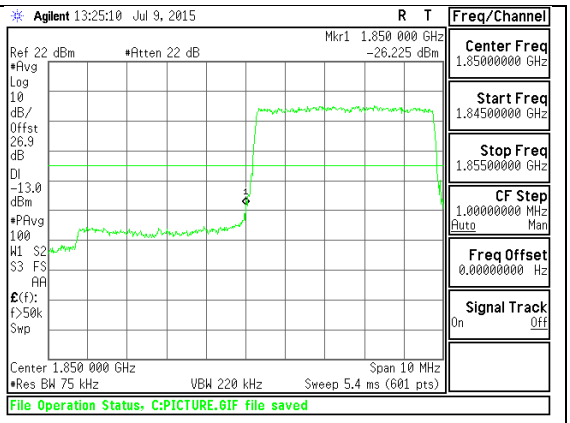
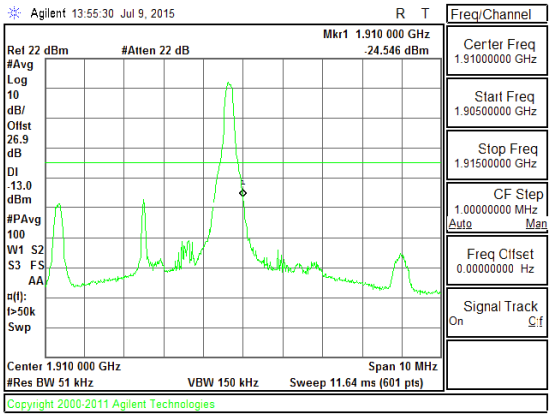
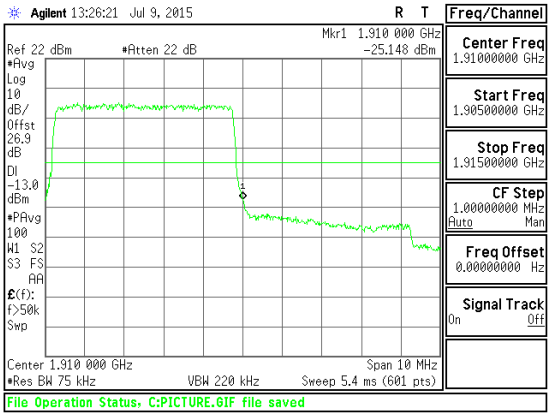
Band LTE2 5MHz QPSK	 Band LTE2 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 5MHz CBE QPSK Low Channel FRB.gif
Band LTE2 5MHz QPSK	 Band LTE2 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 5MHz CBE QPSK High Channel FRB.gif

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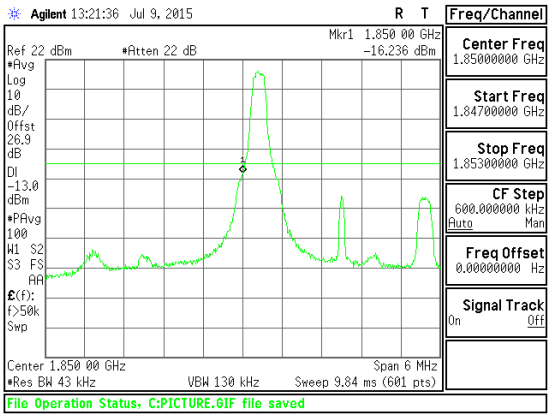
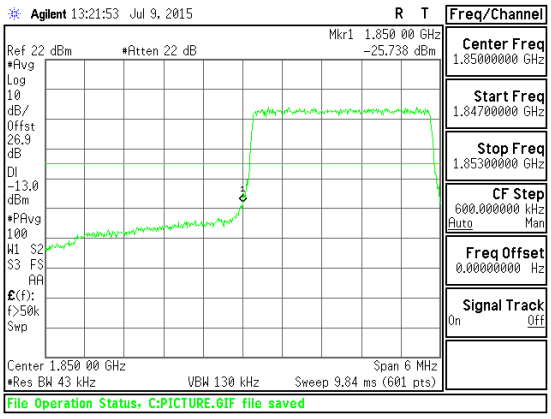
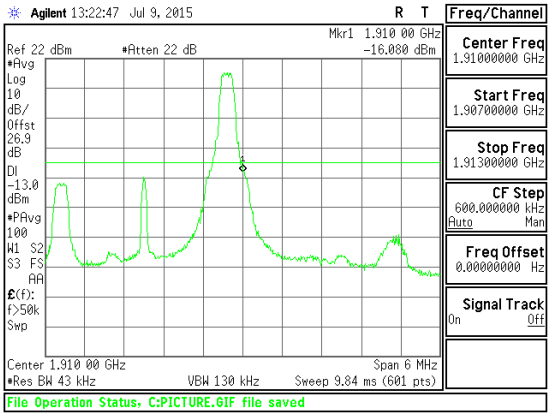
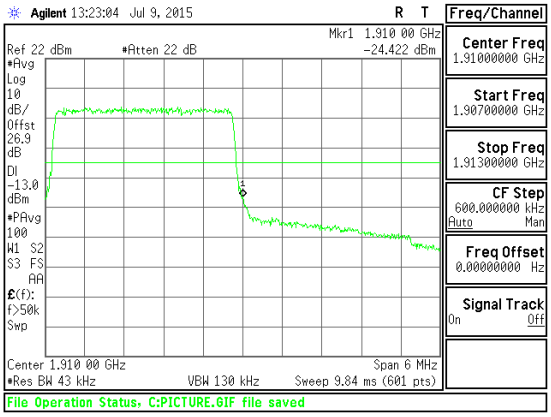
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM High Channel FRB.gif

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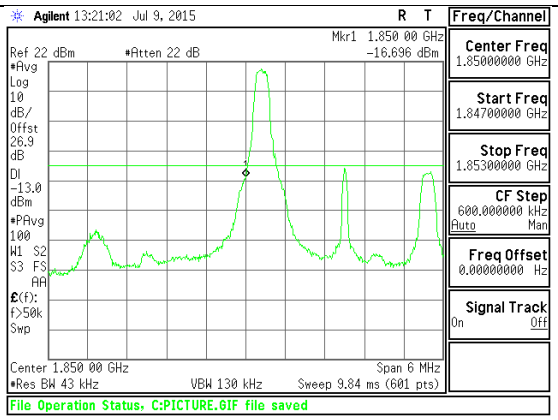
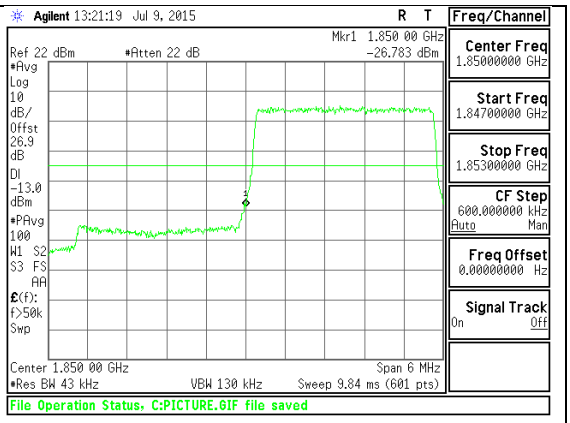
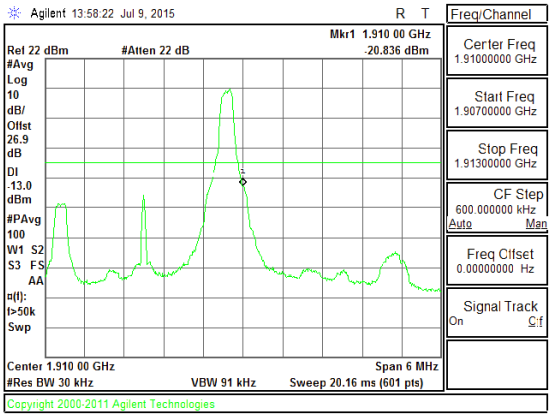
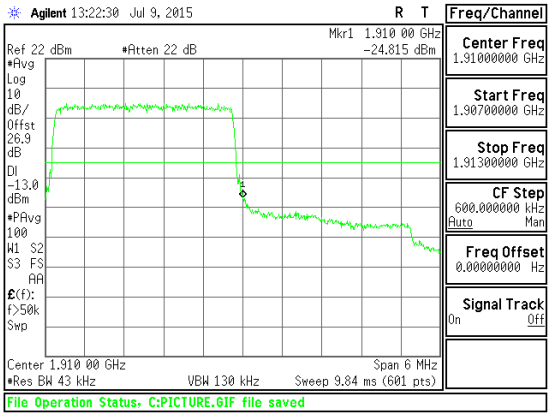
Band LTE2 3MHz QPSK	 Band LTE2 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 3MHz CBE QPSK Low Channel FRB.gif
Band LTE2 3MHz QPSK	 Band LTE2 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 3MHz CBE QPSK High Channel FRB.gif

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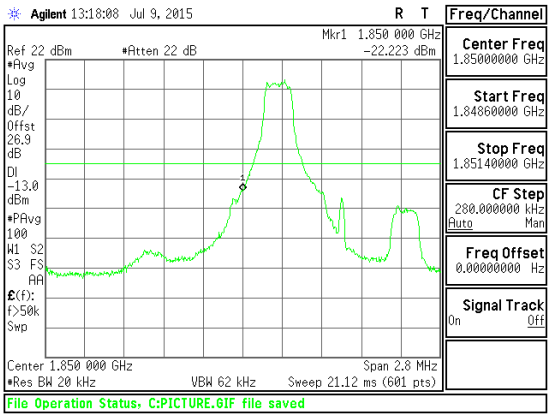
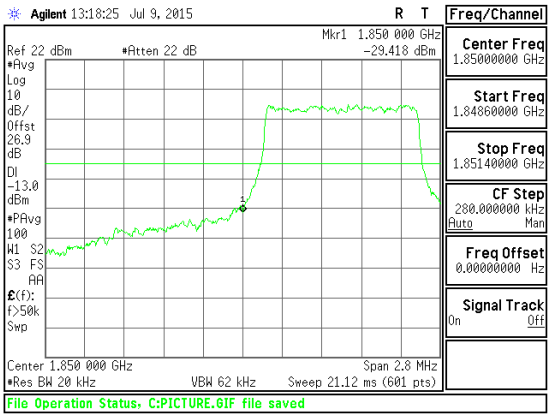
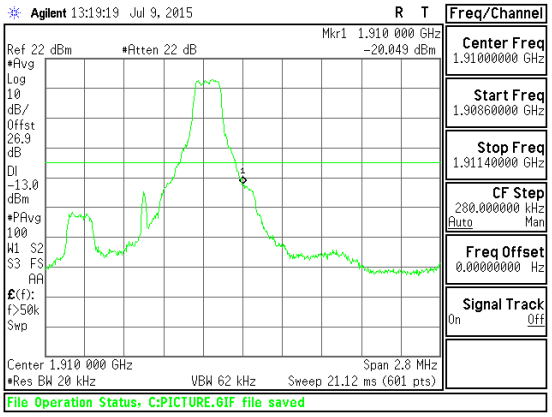
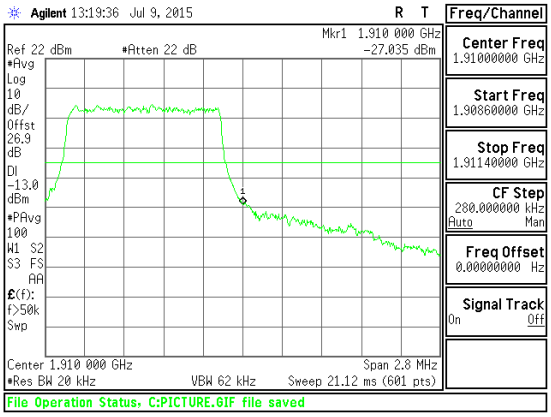
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 1.4MHz CBE 16QAM High Channel FRB.gif

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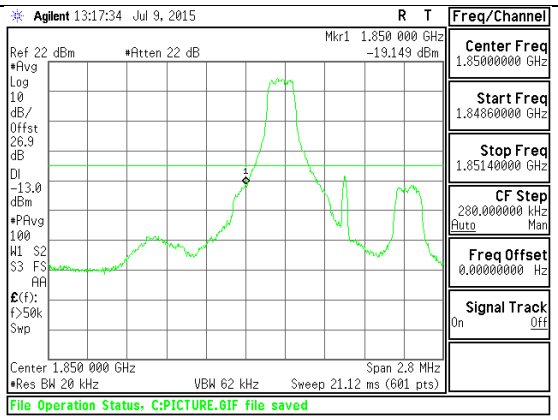
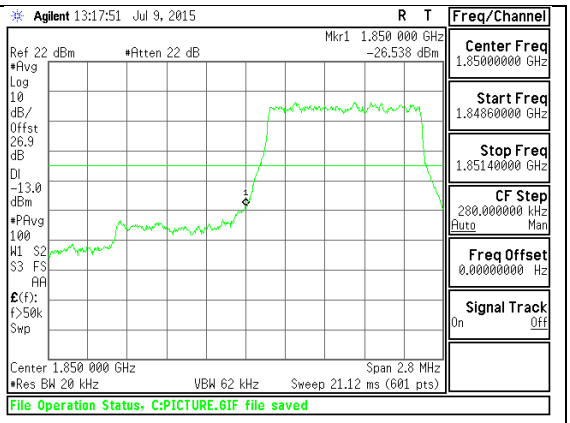
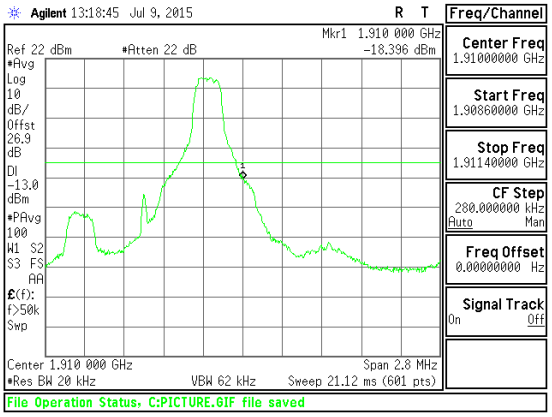
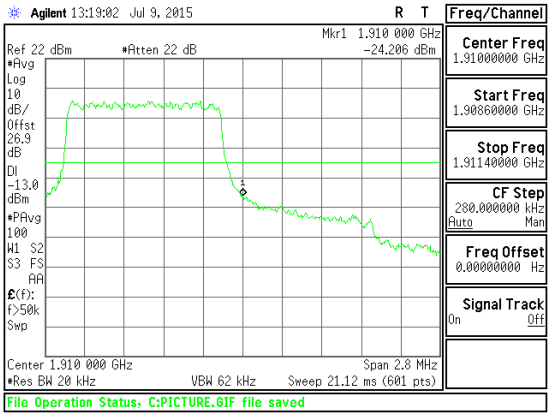
Band LTE2 1.4MHz QPSK	 Band LTE2 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE2 1.4MHz QPSK	 Band LTE2 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 1.4MHz CBE QPSK High Channel FRB.gif

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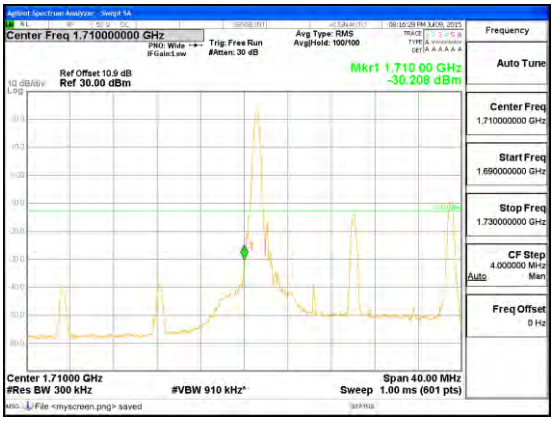
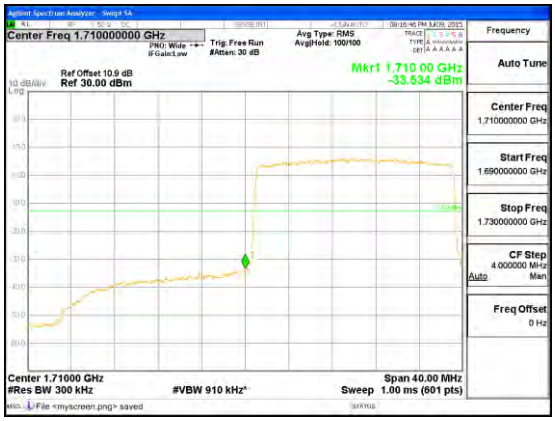
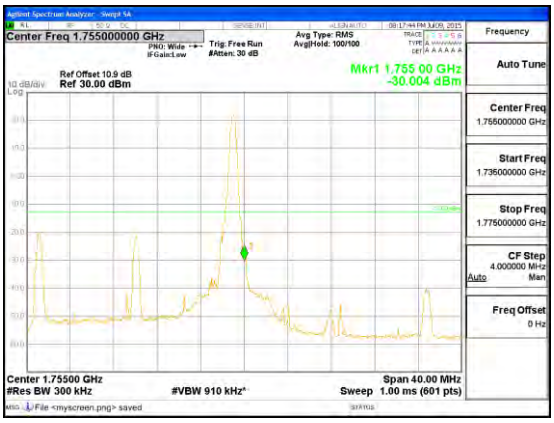
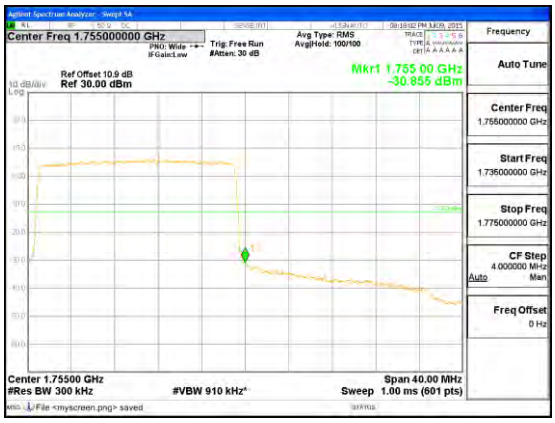
LTE Band 4

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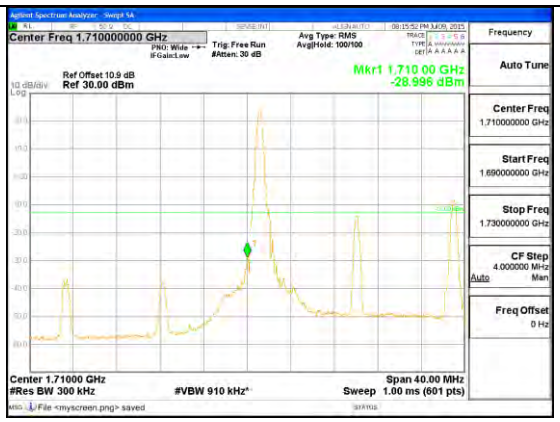
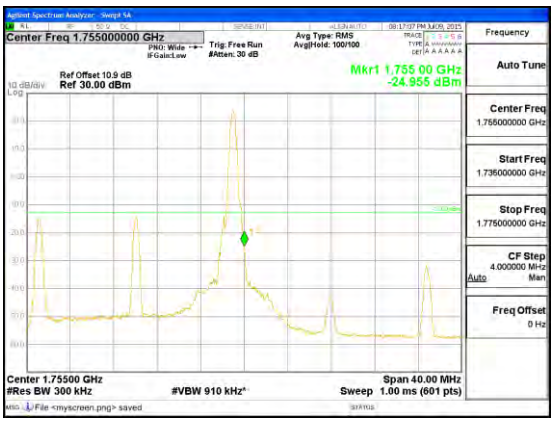
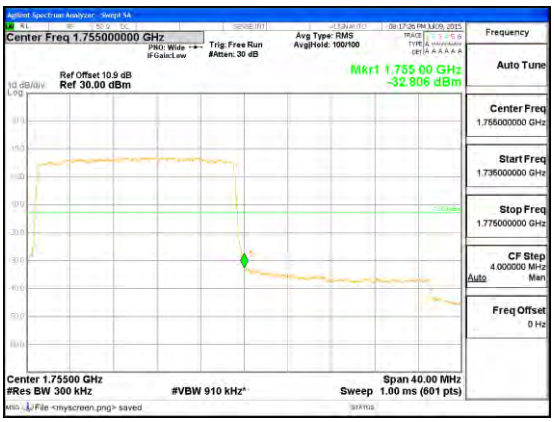
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK Low Channel FRB.gif
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK High Channel FRB.gif

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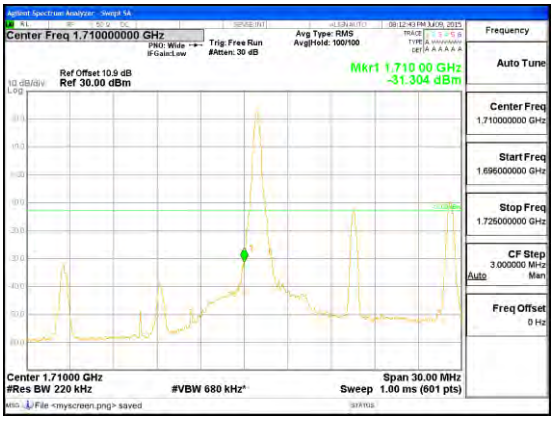
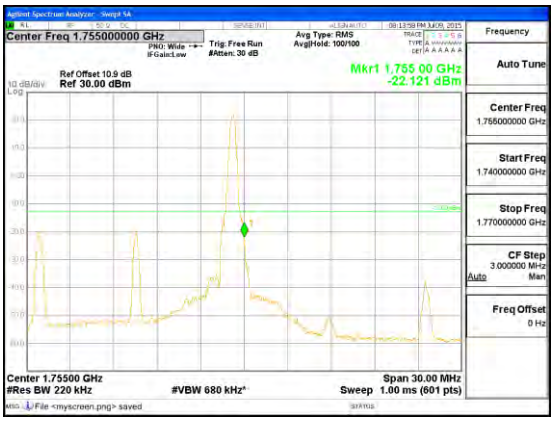
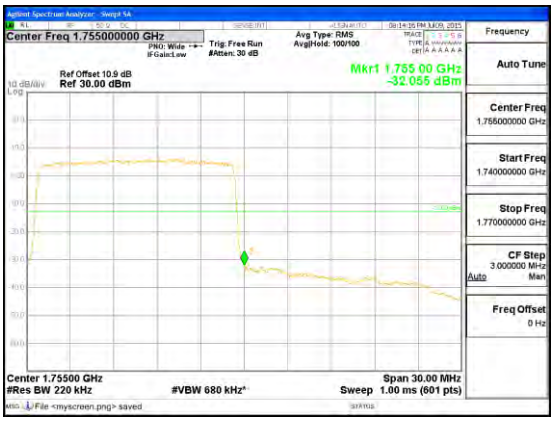
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM High Channel FRB.gif

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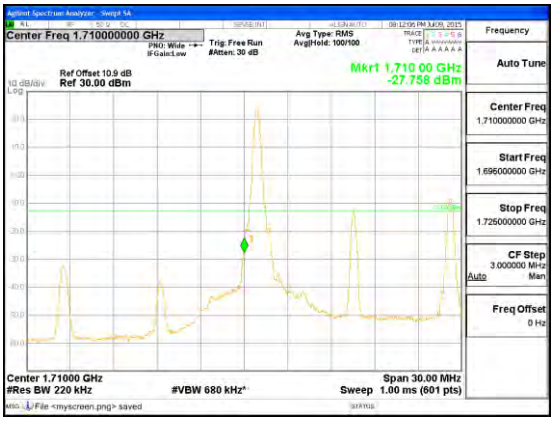
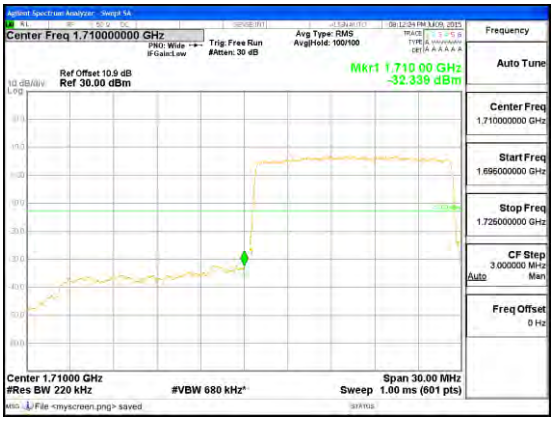
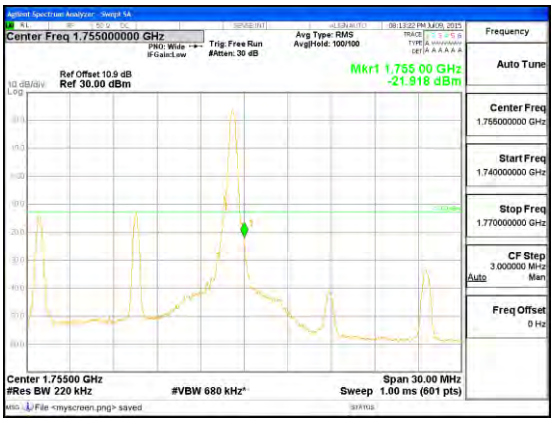
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK Low Channel FRB.gif
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK High Channel FRB.gif

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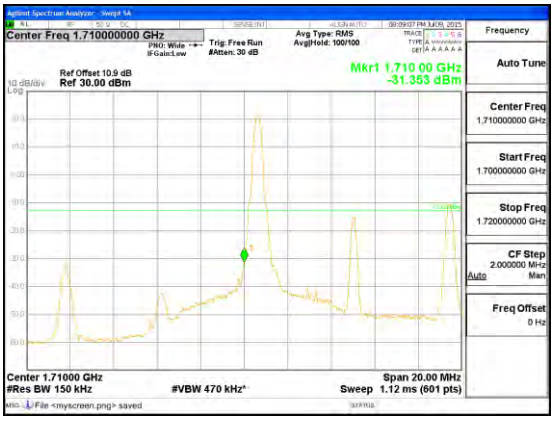
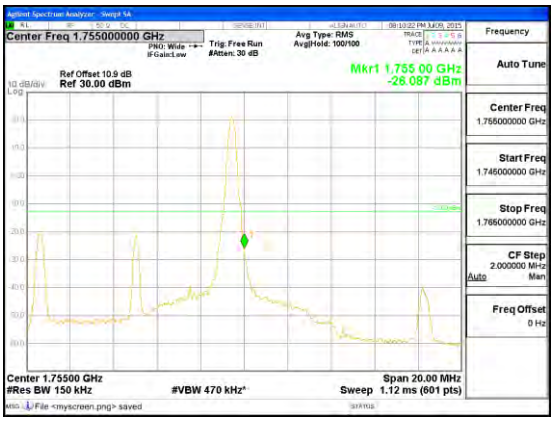
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 10MHz CBE 16QAM High Channel FRB.gif

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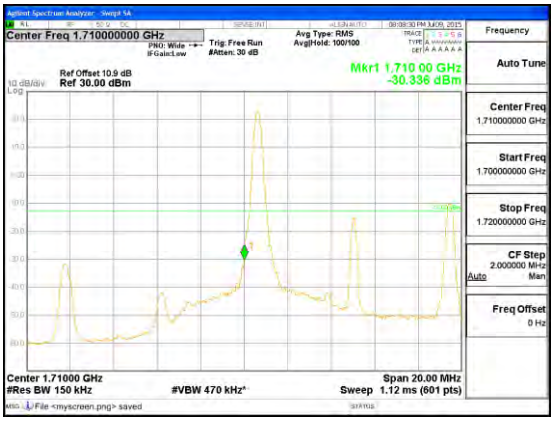
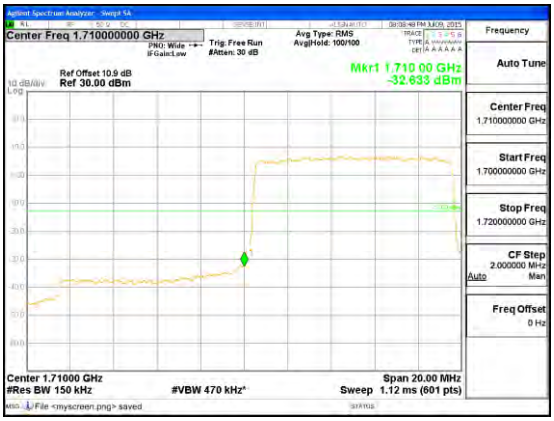
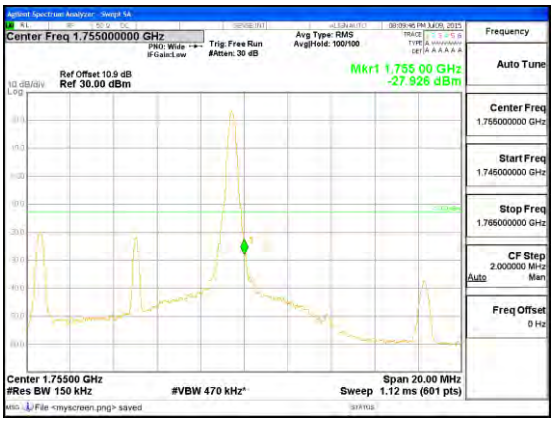
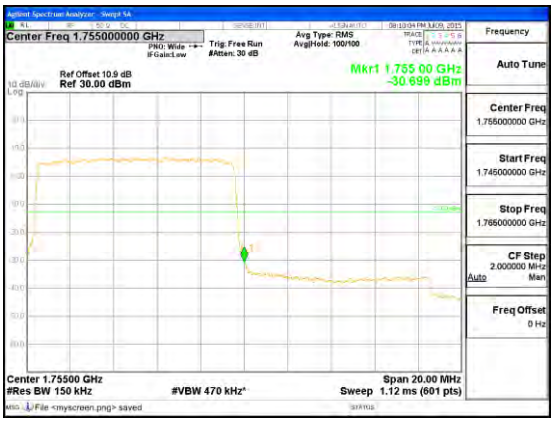
Band LTE4 10MHz QPSK	 Band LTE4 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 10MHz CBE QPSK Low Channel FRB.gif
Band LTE4 10MHz QPSK	 Band LTE4 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 10MHz CBE QPSK High Channel FRB.gif

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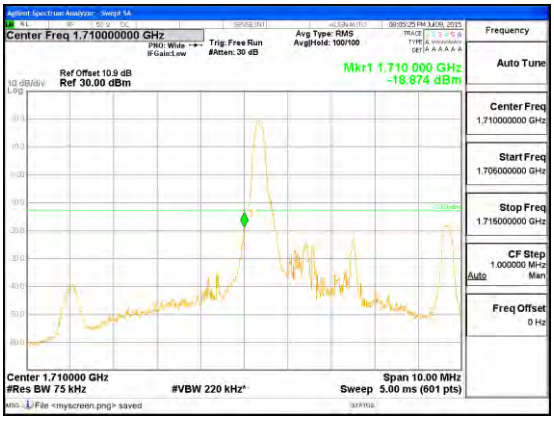
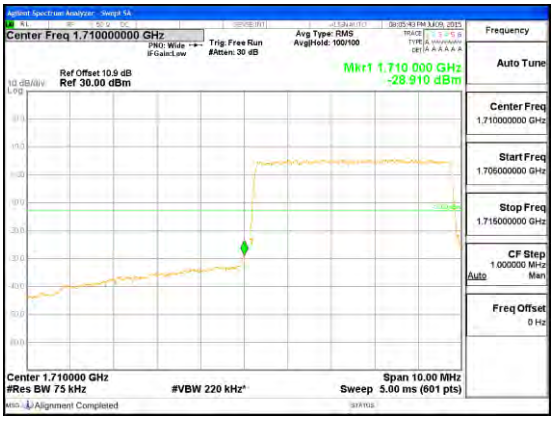
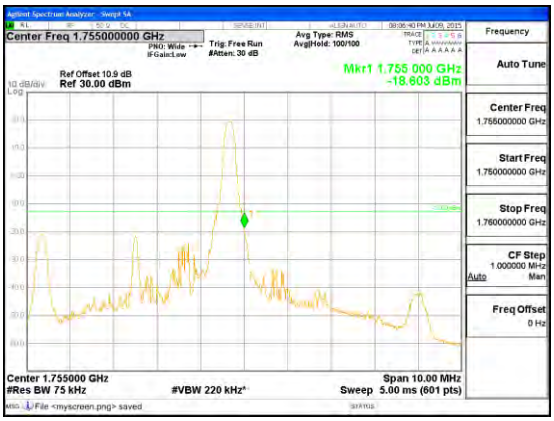
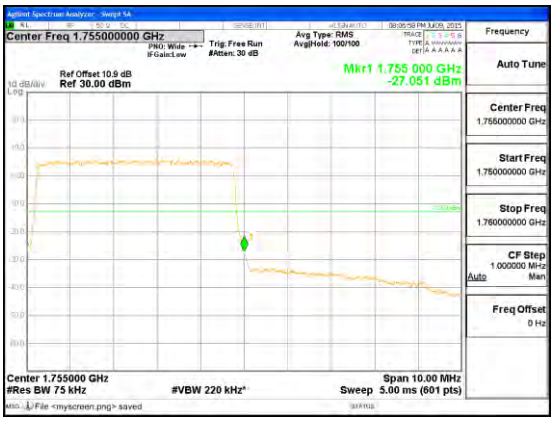
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM High Channel FRB.gif

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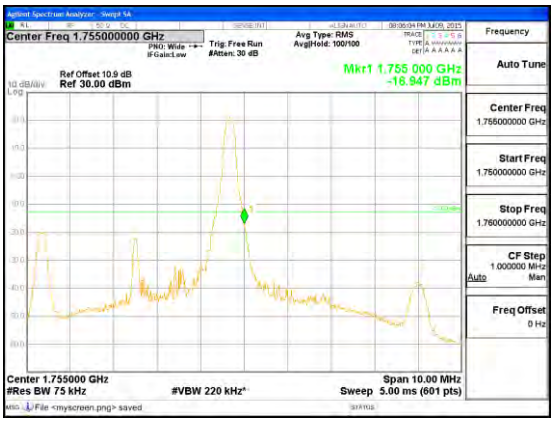
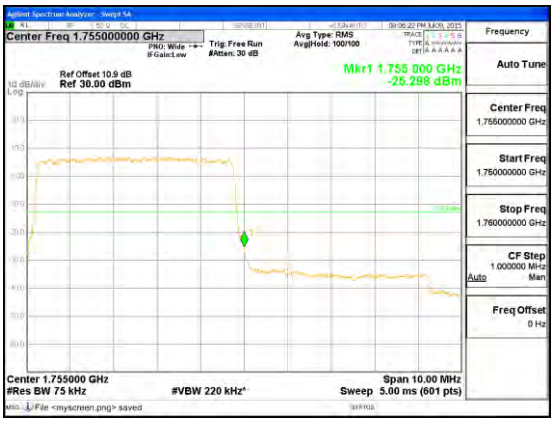
Band LTE4 5MHz QPSK	 Band LTE4 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 5MHz CBE QPSK Low Channel FRB.gif
Band LTE4 5MHz QPSK	 Band LTE4 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 5MHz CBE QPSK High Channel FRB.gif

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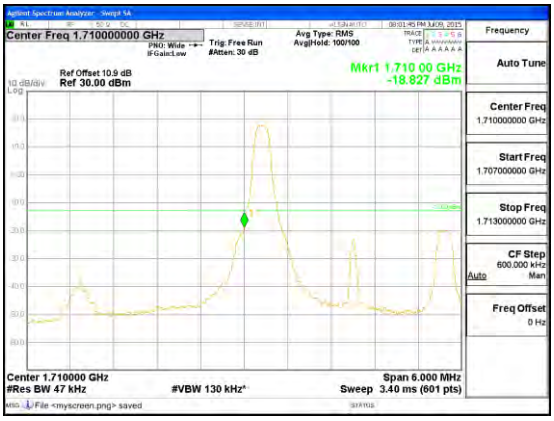
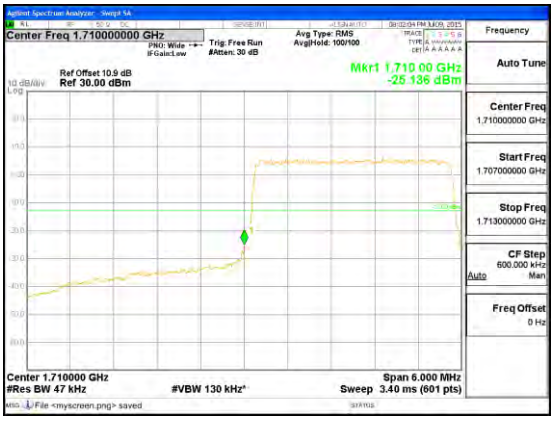
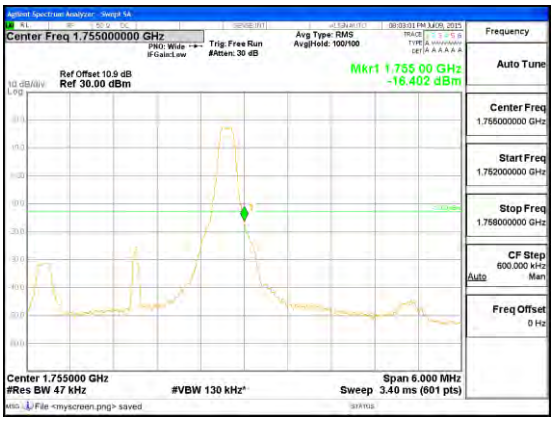
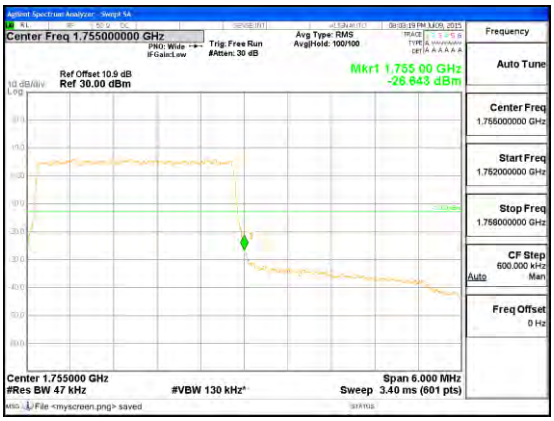
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 3MHz CBE 16QAM High Channel FRB.gif

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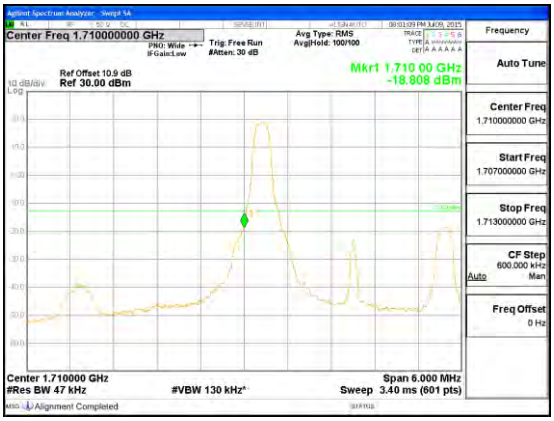
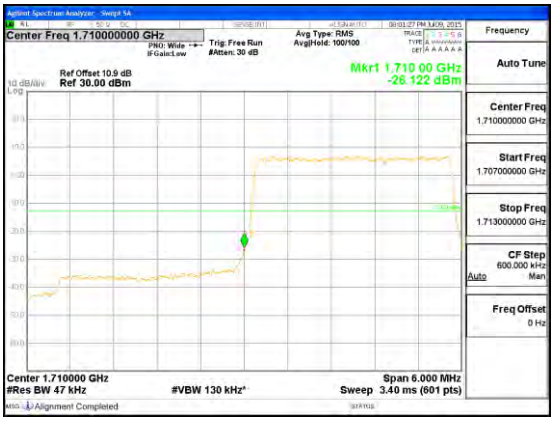
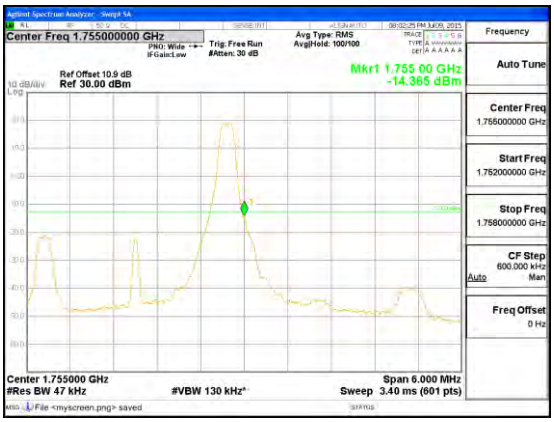
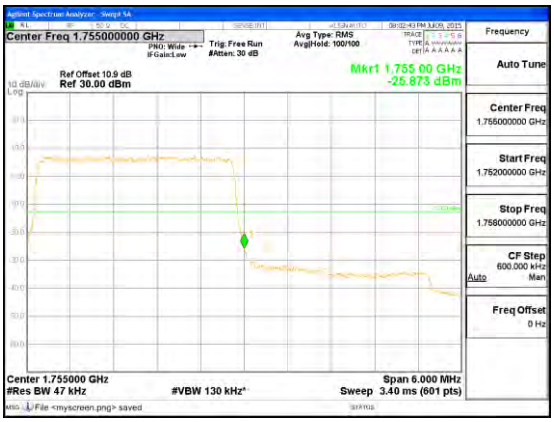
Band LTE4 3MHz QPSK	 Band LTE4 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 3MHz CBE QPSK Low Channel FRB.gif
Band LTE4 3MHz QPSK	 Band LTE4 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 3MHz CBE QPSK High Channel FRB.gif

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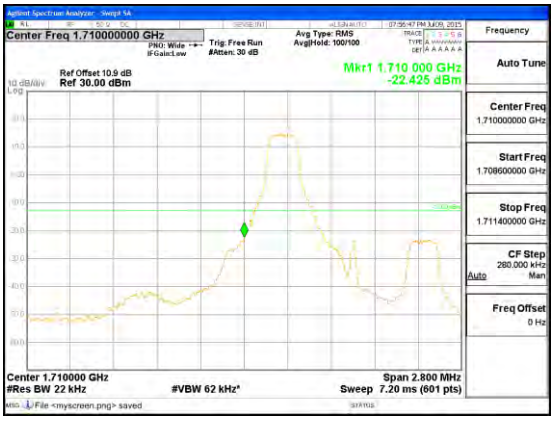
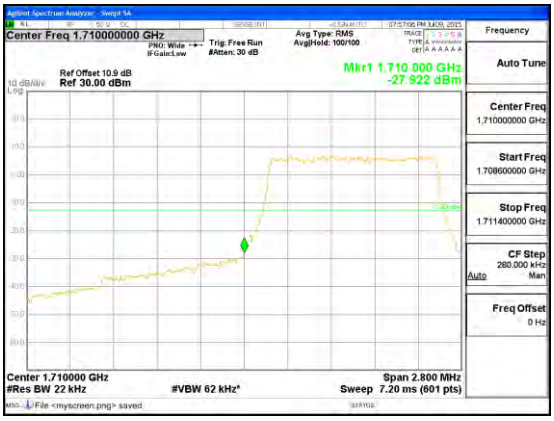
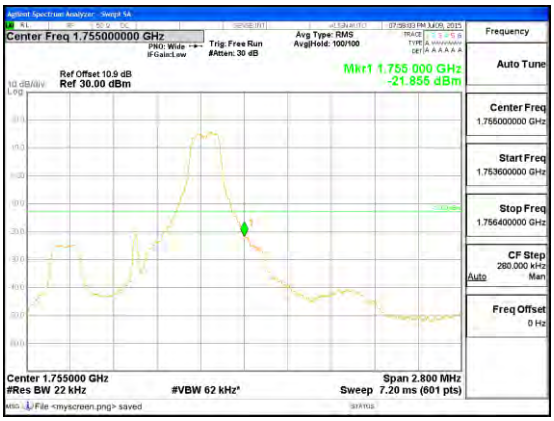
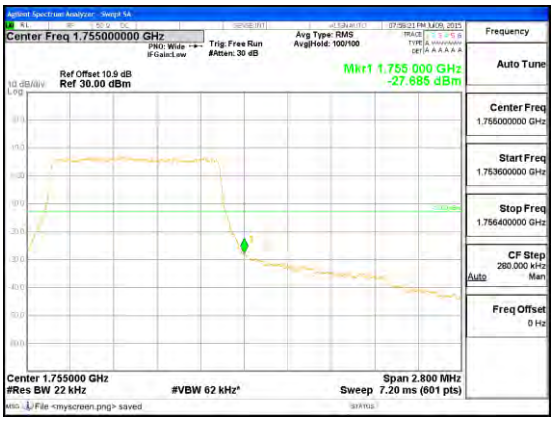
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 1.4MHz CBE 16QAM High Channel FRB.gif

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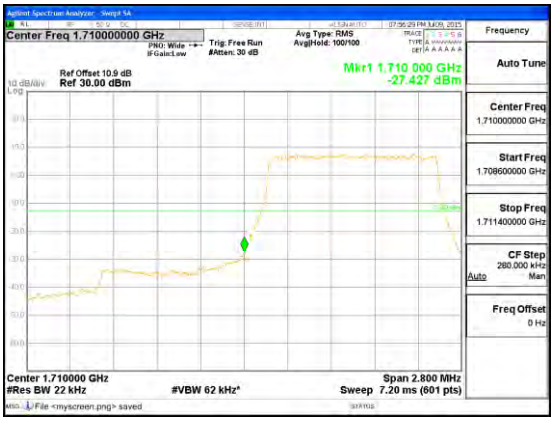
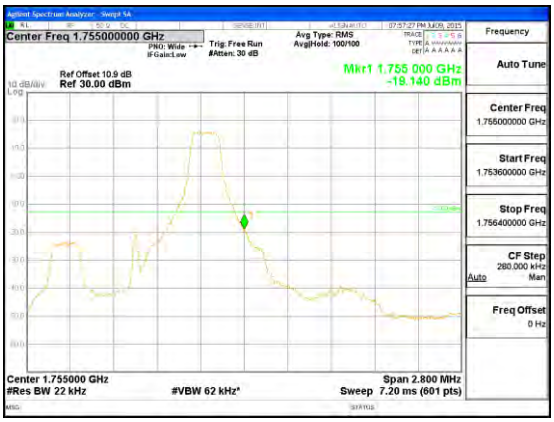
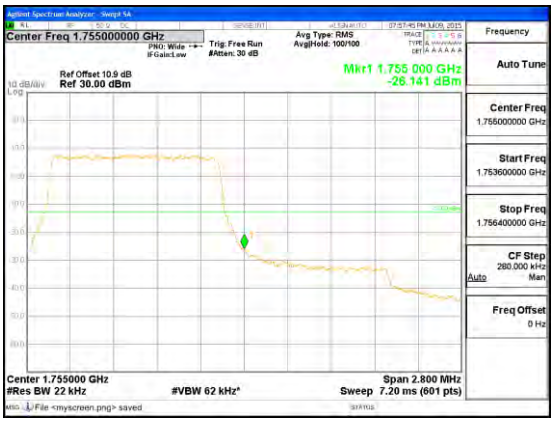
Band LTE4 1.4MHz QPSK	 Band LTE4 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE4 1.4MHz QPSK	 Band LTE4 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 1.4MHz CBE QPSK High Channel FRB.gif

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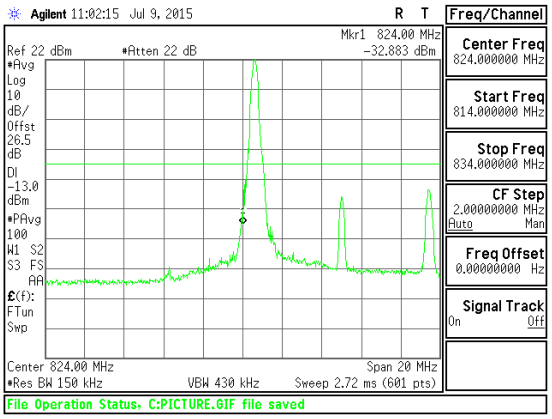
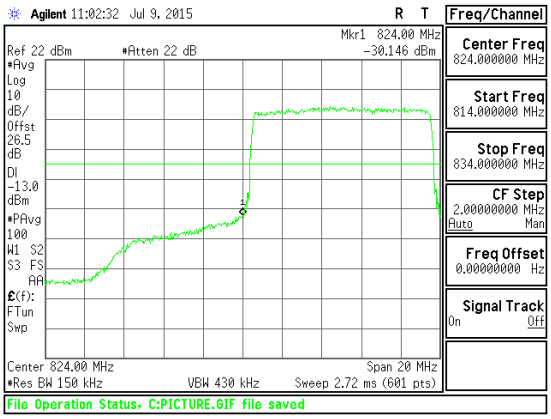
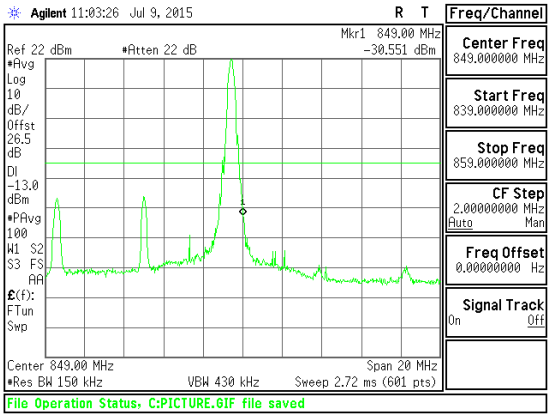
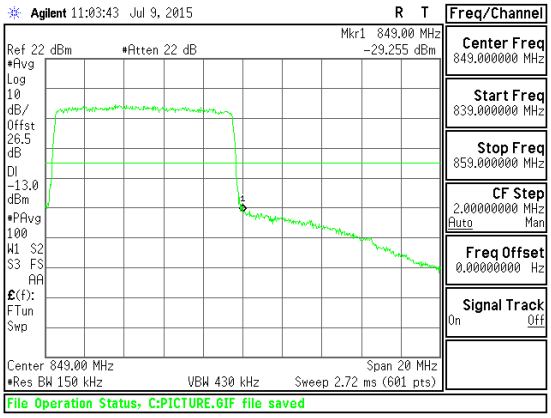
LTE Band 5

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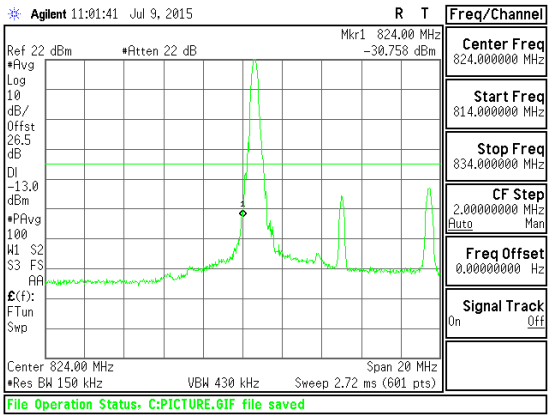
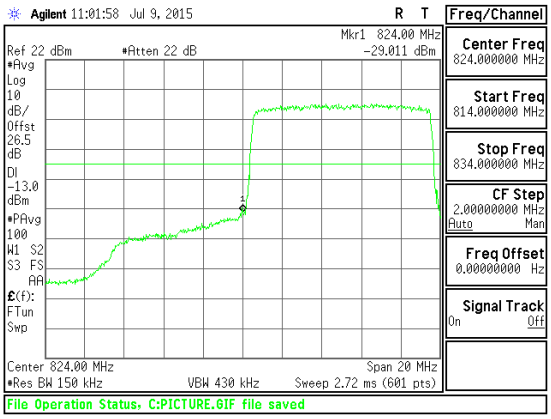
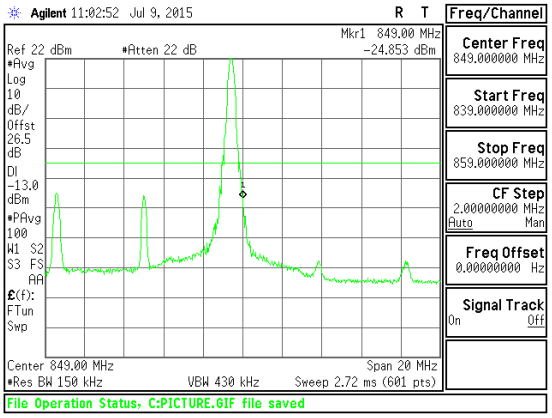
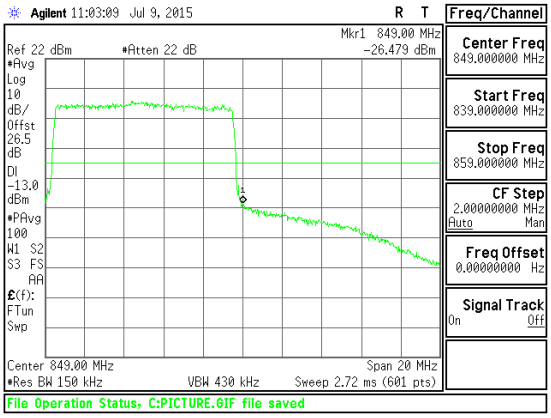
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK Low Channel FRB.gif
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK High Channel FRB.gif

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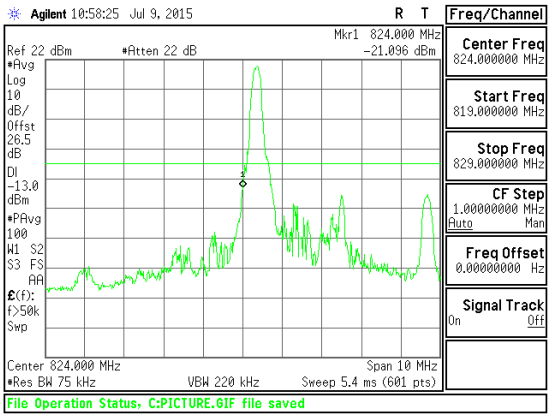
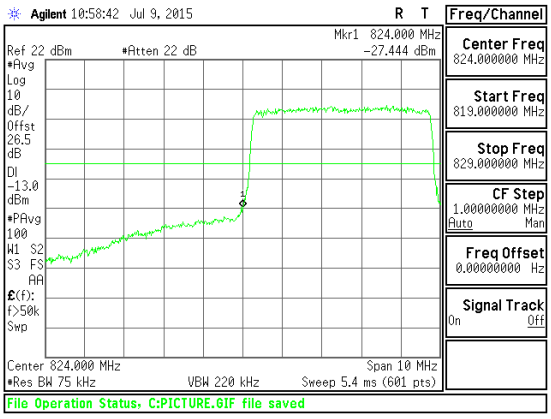
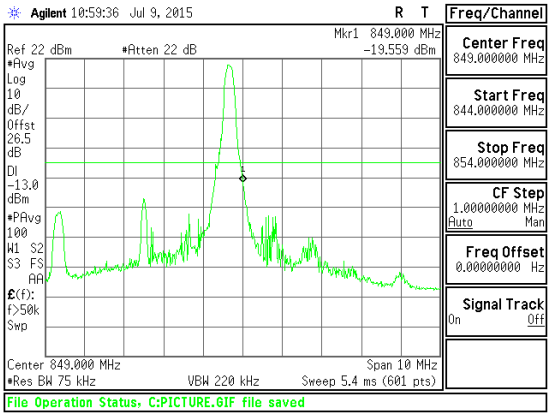
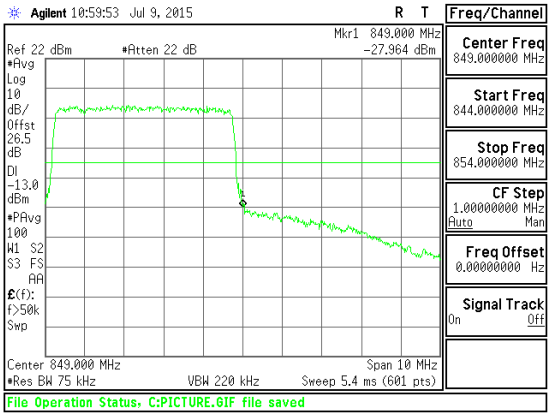
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM High Channel FRB.gif

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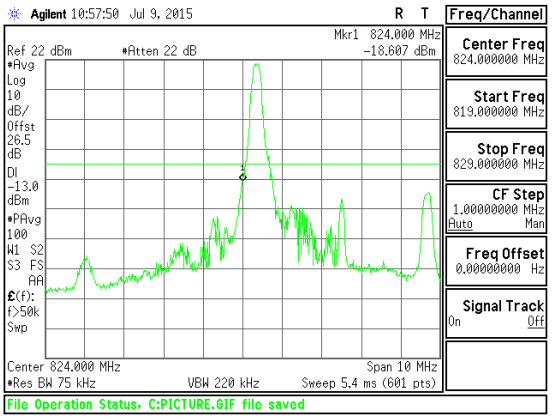
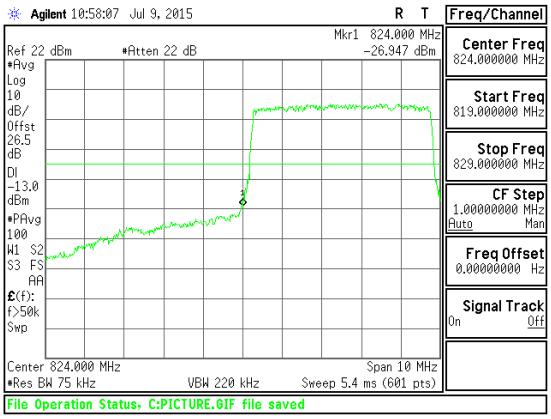
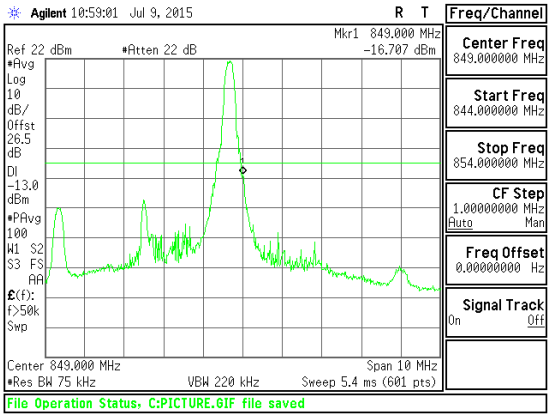
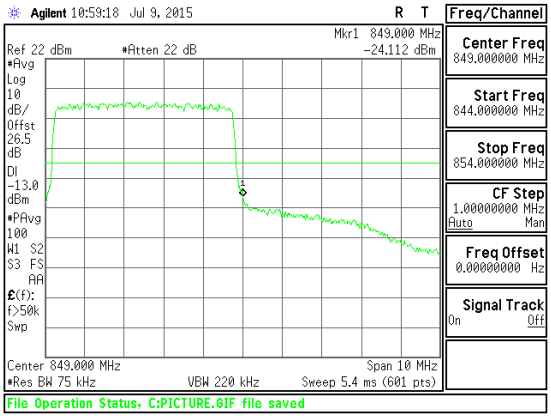
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK Low Channel FRB.gif
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK High Channel FRB.gif

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

FORM NO: CCSUP4701H

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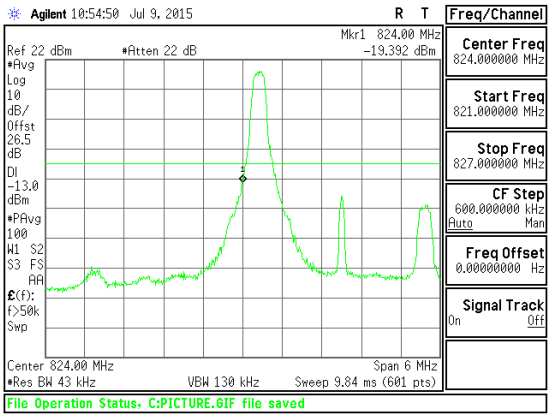
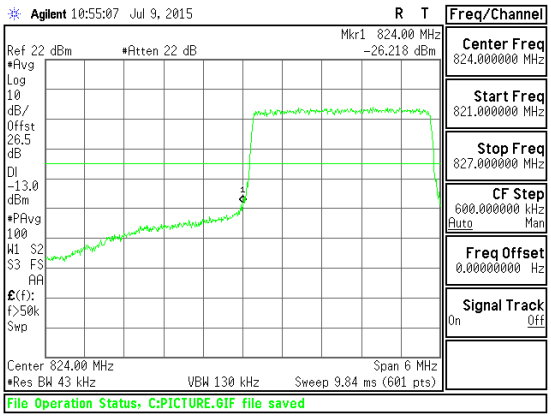
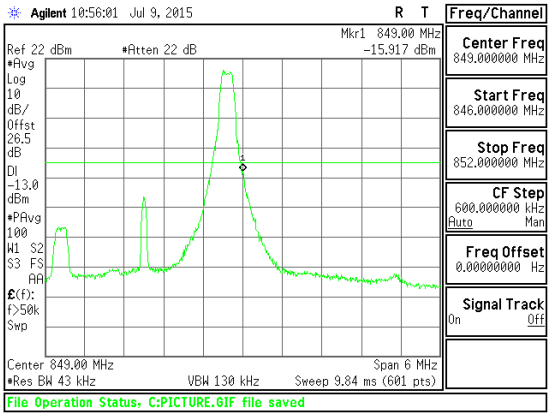
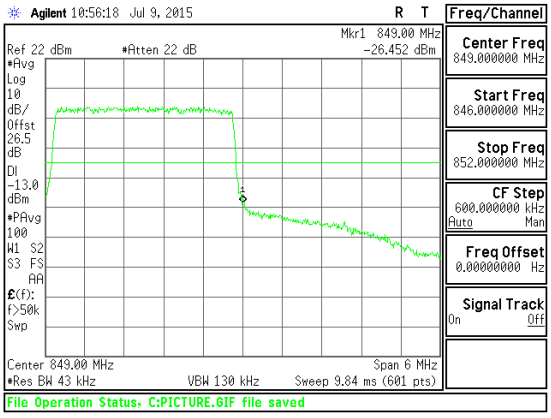
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM High Channel FRB.gif

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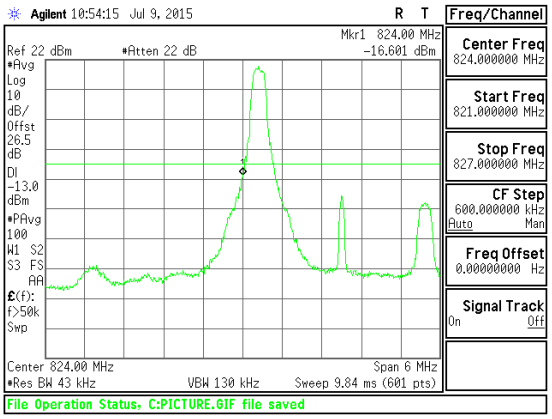
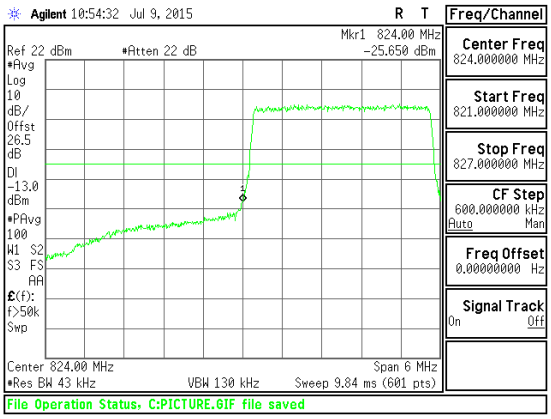
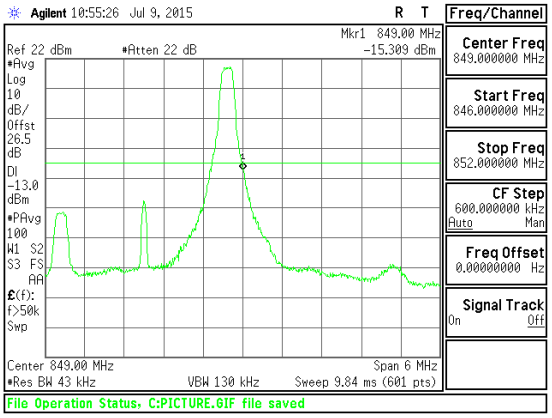
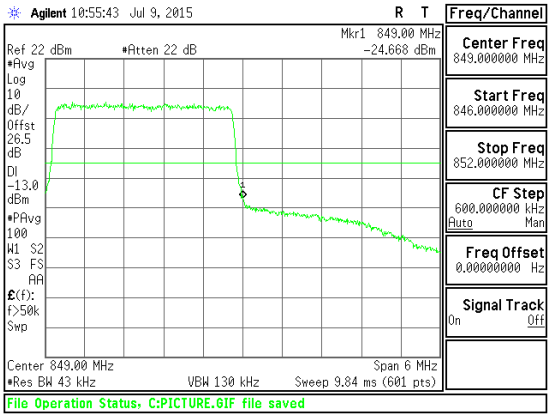
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK Low Channel FRB.gif
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK High Channel FRB.gif

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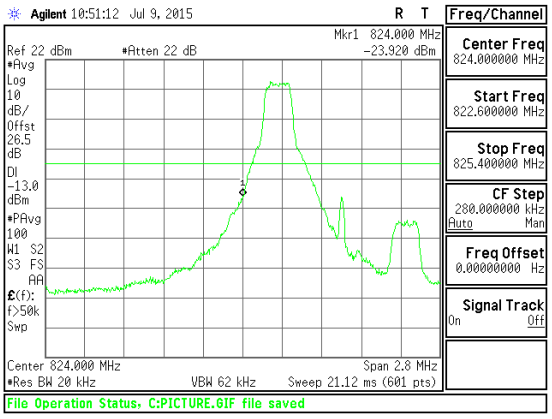
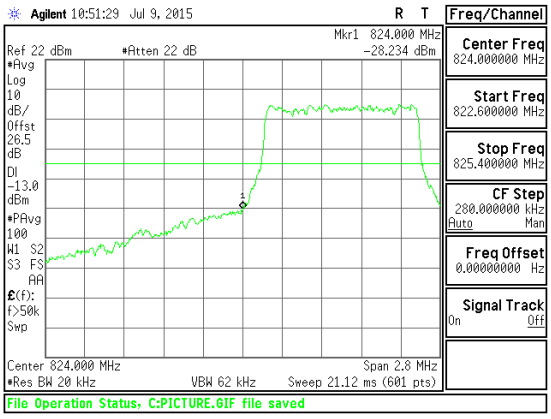
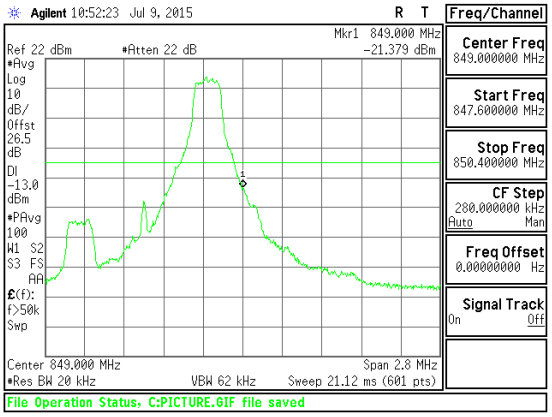
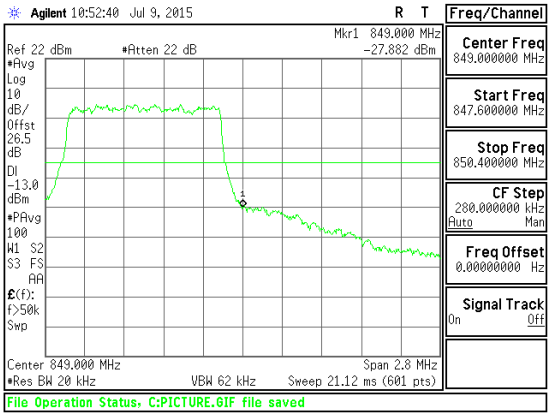
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM High Channel FRB.gif

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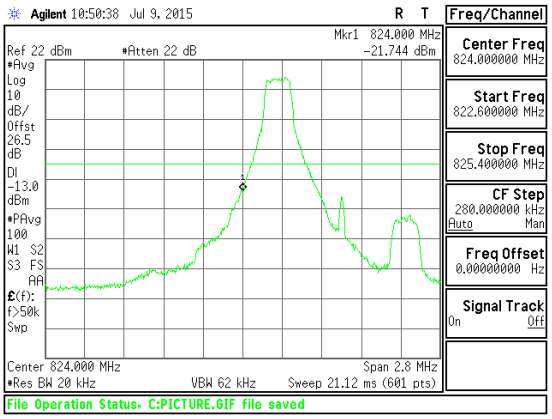
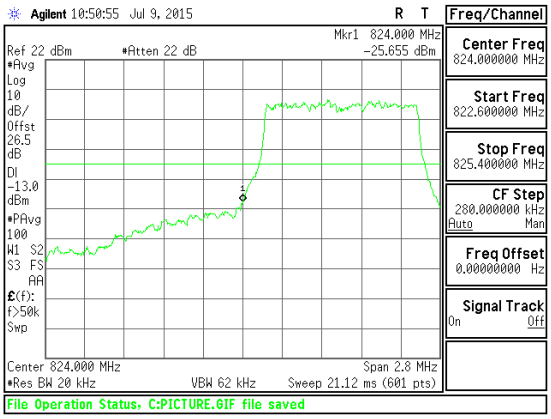
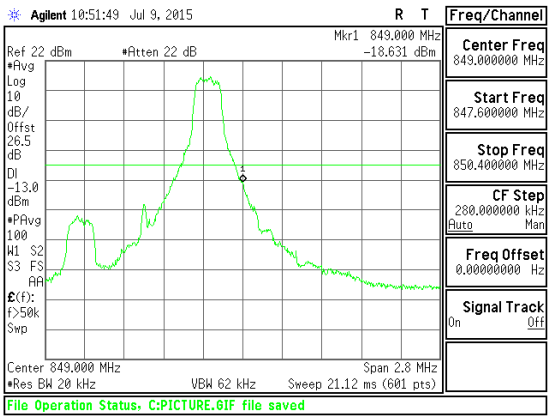
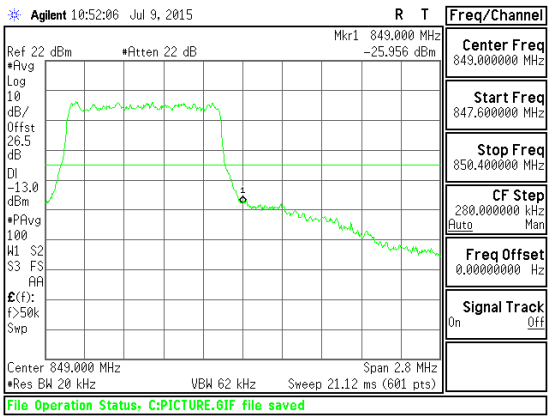
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK High Channel FRB.gif

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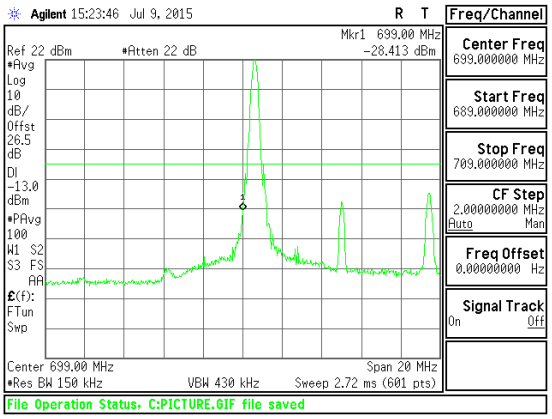
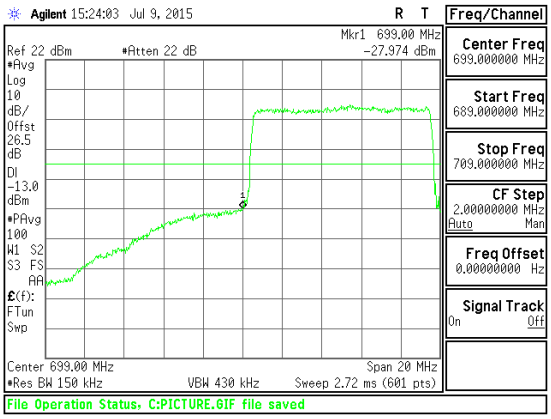
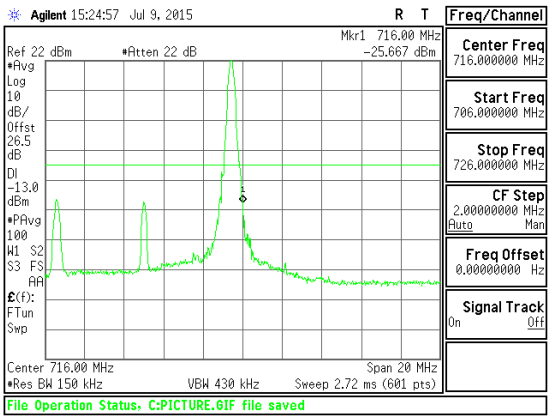
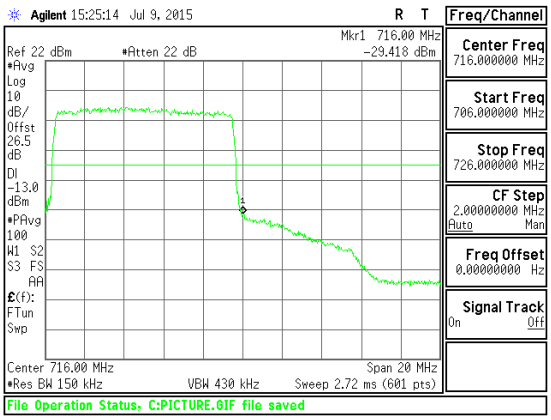
LTE Band 12

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

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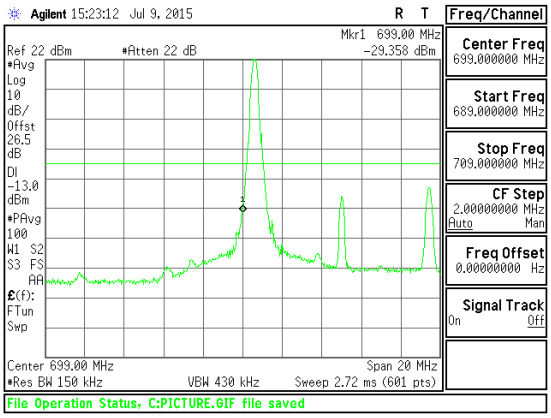
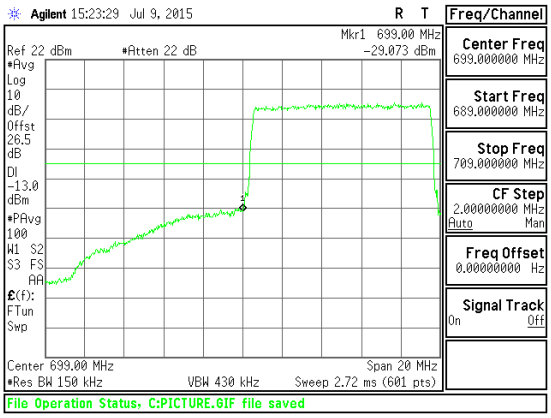
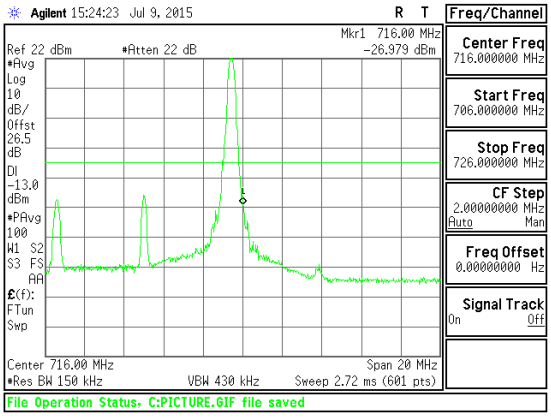
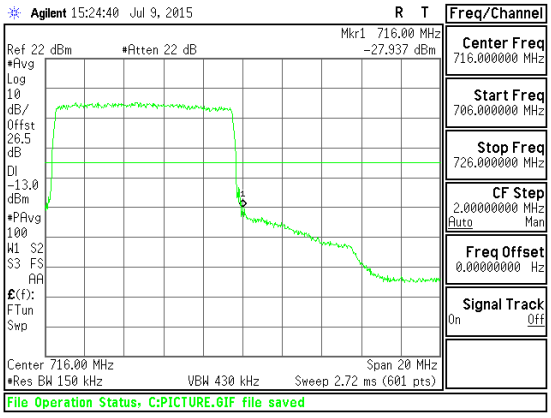
Band LTE12 10MHz QPSK	 Band LTE12 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE12 10MHz CBE QPSK Low Channel FRB.gif
Band LTE12 10MHz QPSK	 Band LTE12 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE12 10MHz CBE QPSK High Channel FRB.gif

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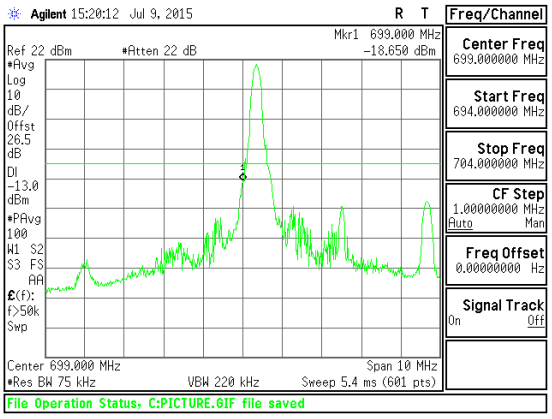
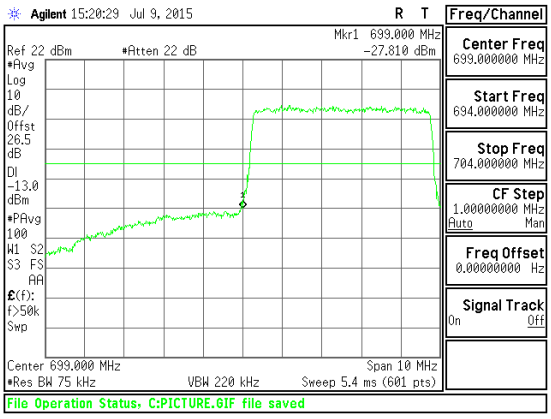
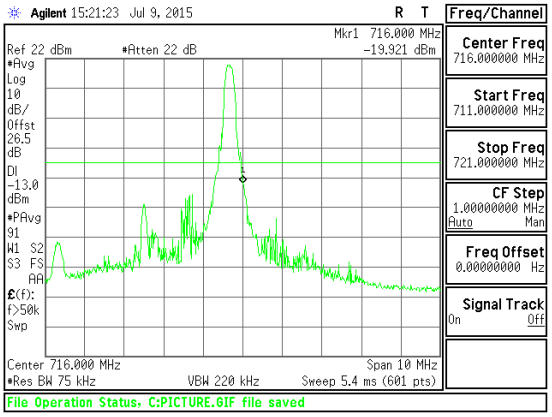
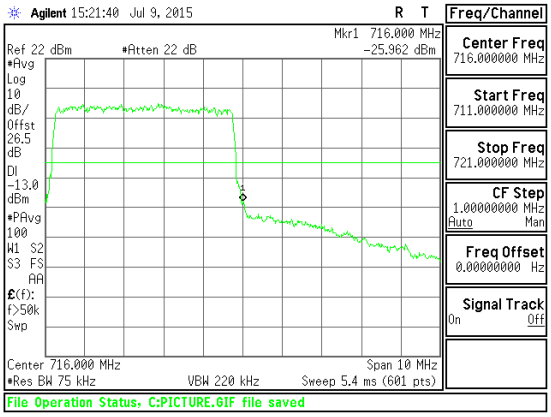
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE12 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE12 5MHz CBE 16QAM High Channel FRB.gif

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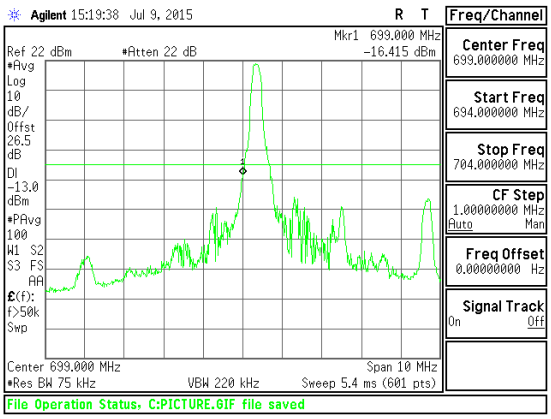
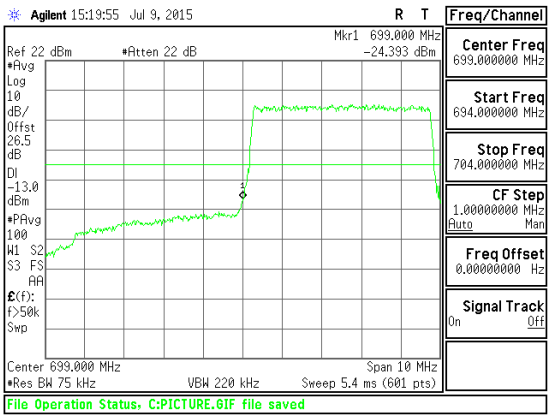
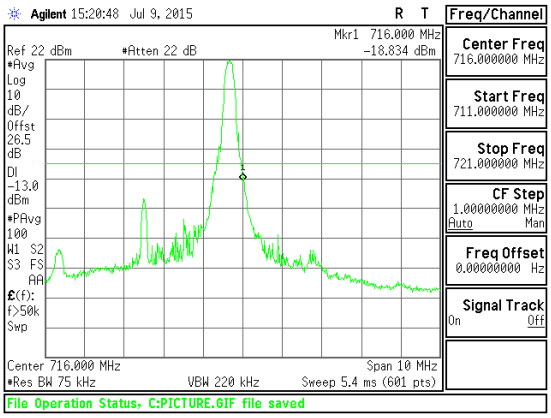
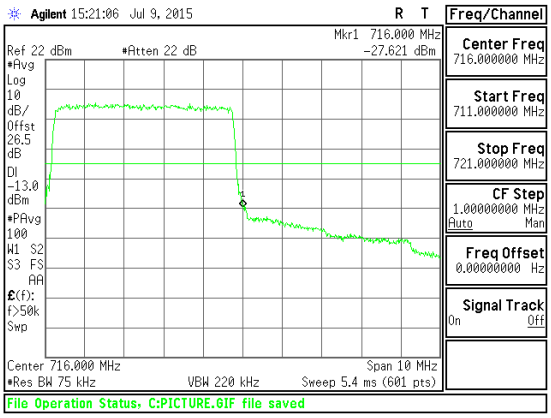
Band LTE12 5MHz QPSK	 Band LTE12 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE12 5MHz CBE QPSK Low Channel FRB.gif
Band LTE12 5MHz QPSK	 Band LTE12 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE12 5MHz CBE QPSK High Channel FRB.gif

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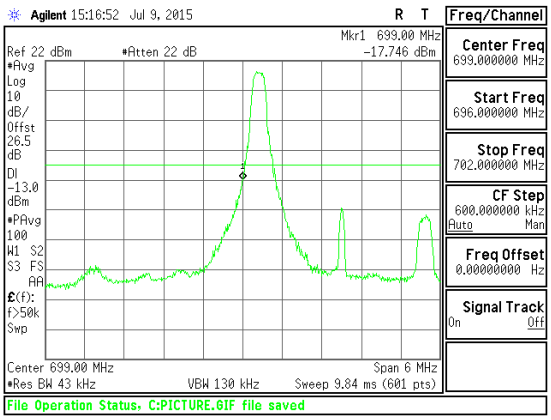
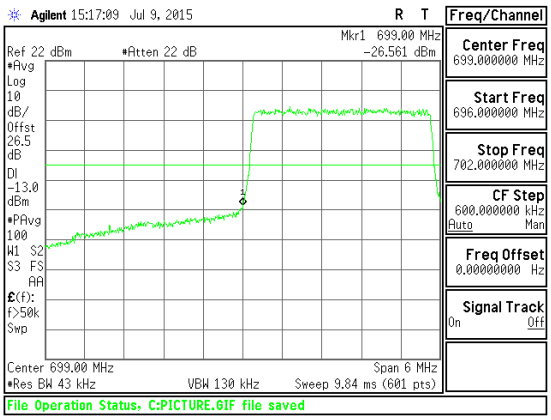
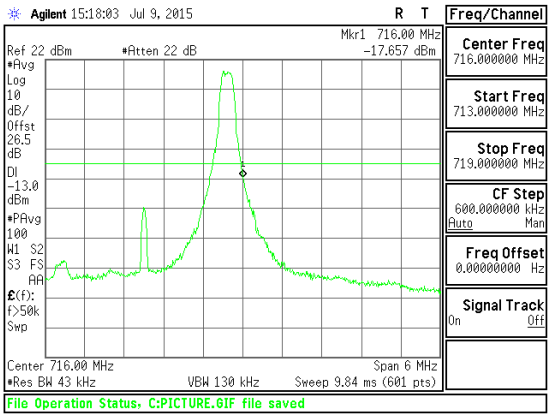
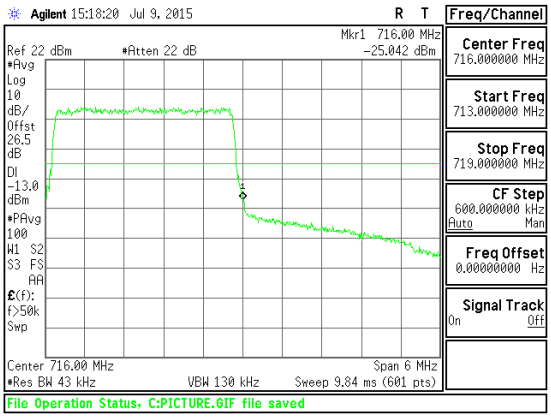
Band LTE12 3MHz 16QAM	 Band LTE12 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE12 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE12 3MHz 16QAM	 Band LTE12 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE12 3MHz CBE 16QAM High Channel FRB.gif

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

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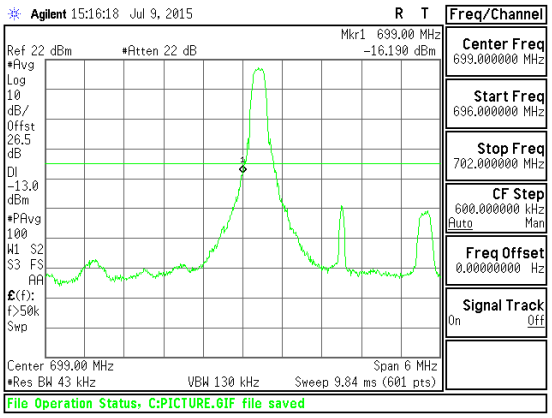
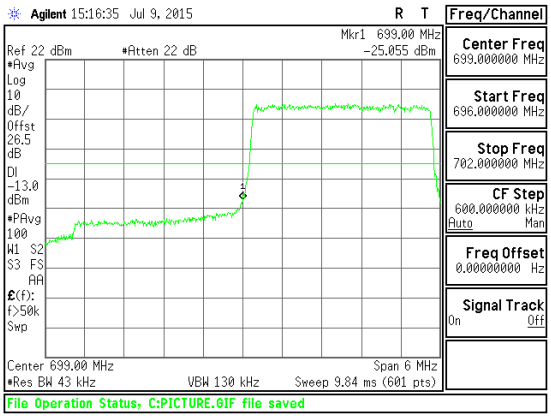
Band LTE12 3MHz QPSK

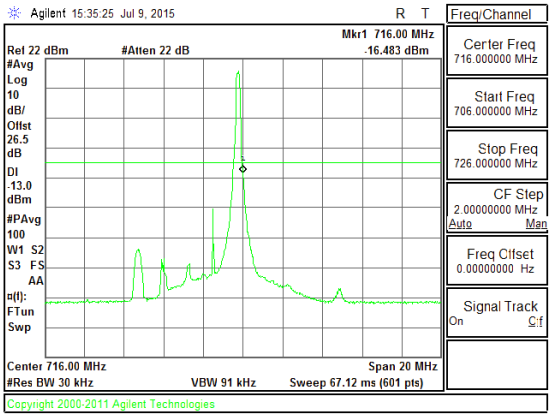


Band LTE12 3MHz CBE QPSK Low Channel 1RB.gif

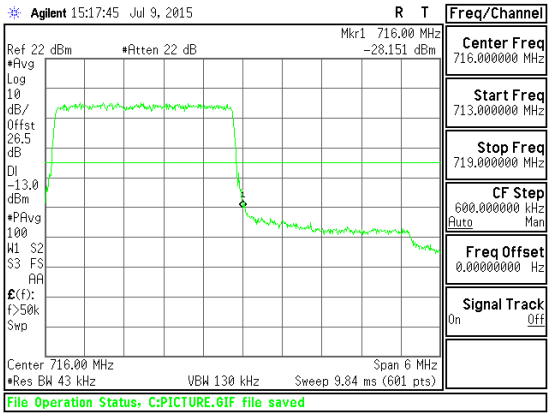


Band LTE12 3MHz CBE QPSK Low Channel FRB.gif

Band LTE12 3MHz QPSK



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



Band LTE12 3MHz CBE QPSK High Channel FRB.gif

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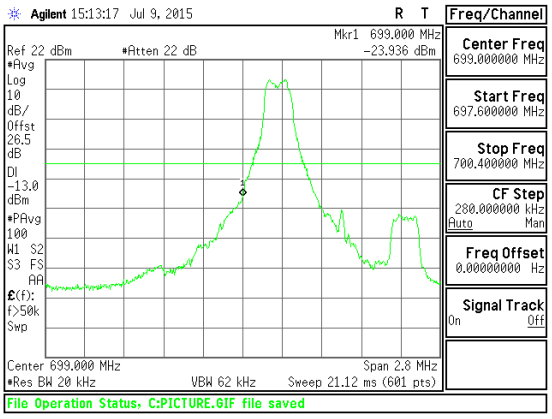
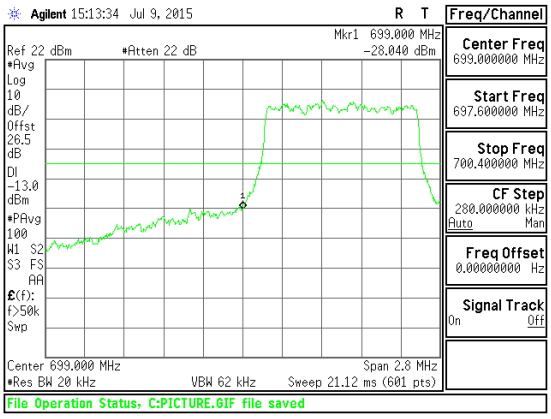
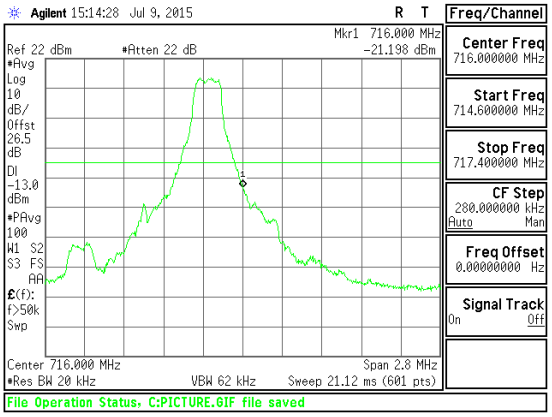
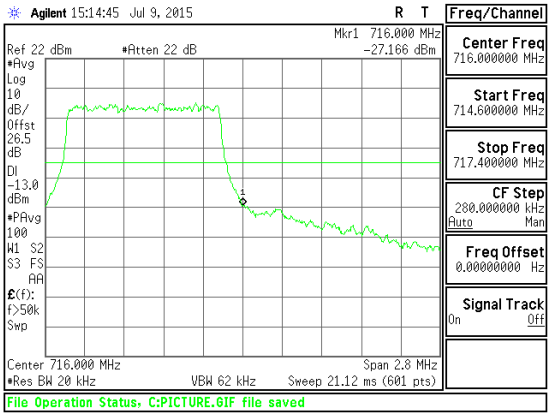
Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE12 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE12 1.4MHz CBE 16QAM High Channel FRB.gif

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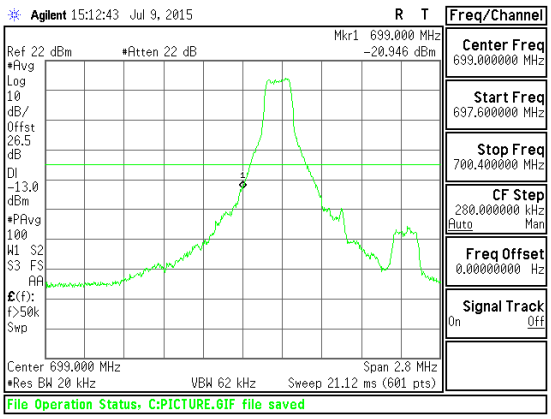
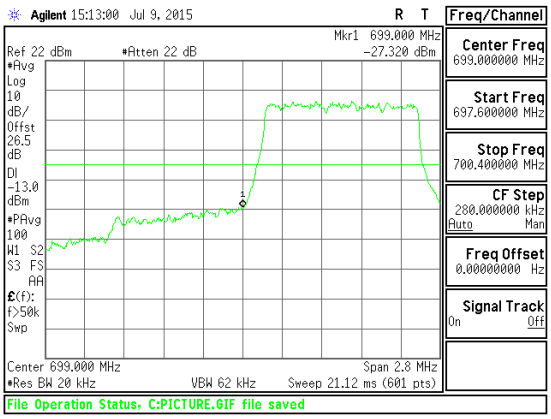
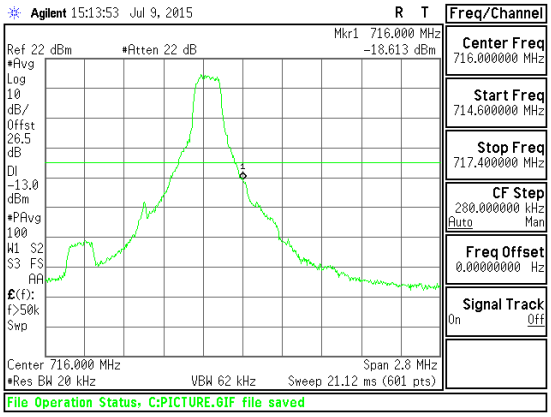
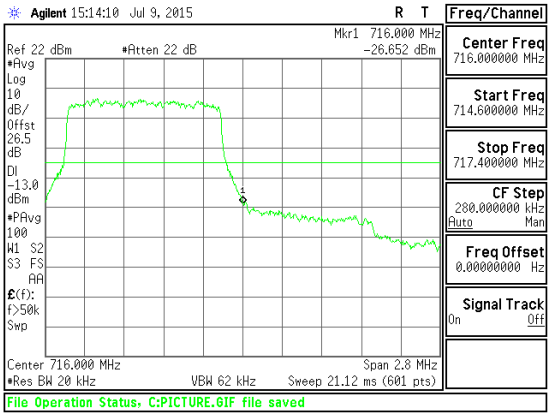
Band LTE12 1.4MHz QPSK	 Band LTE12 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE12 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE12 1.4MHz QPSK	 Band LTE12 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE12 1.4MHz CBE QPSK High Channel FRB.gif

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