



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

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Tablet with Bluetooth and DTS/UNII a/b/g/n

MODEL NUMBER: SM-T239M

FCC ID: A3LSMT239M

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Prepared for

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1. ATTESTATION OF TEST RESULTS

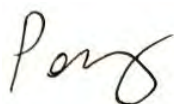
COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM/WCDMA/LTE Tablet with Bluetooth and DTS/UNII a/b/g/n
MODEL: SM-T239M
SERIAL NUMBER: R32G101E1FD (Conducted); R32G1025LTJ (Radiated)
DATE TESTED: JANUARY 26 – MARCH 2, 2015

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

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

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

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2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

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

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\text{EIRP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss(between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$$

$$\text{ERP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss(between the SG and substitution antenna)}$$

$$(\text{Path loss} = \text{Signal generator output} - \text{PSA reading with substitution antenna})$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 26000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT is a GSM/WCDMA/LTE Tablet with Bluetooth and DTS/UNII a/b/g/n.

5.2. MAXIMUM OUTPUT POWER

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

FCC Part 22/24/27						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GPRS	32.3	1698.2	27.70	588.8
	824~849	EGPRS	27.5	562.3	23.11	204.6
GSM1900	1850~1910	GPRS	30.5	1122.0	30.16	1037.5
	1850~1910	EGPRS	26.3	426.6	26.42	438.5
Band 5	824~849	REL99	22.5	177.8	17.13	51.64
	824~849	HSDPA	22.3	169.8	17.04	50.6
Band 4	1710~1755	REL99	22.4	173.8	23.48	222.8
	1710~1755	HSDPA	22.4	173.8	22.52	178.6
Band 2	1850~1910	REL99	23.4	218.8	22.90	195.0
	1850~1910	HSDPA	23.3	213.8	22.61	182.4

5.3. MAXIMUM OUTPUT POWER (LTE)

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	10MHz	QPSK	23.3	213.80	18.36	68.5
	704~716	10MHz	16QAM	22.6	181.97	17.75	59.6

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	5MHz	QPSK	23.3	213.80	18.35	68.40
	704~716	5MHz	16QAM	22.7	186.21	17.38	54.7

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	24.0	251.19	17.37	54.6
	824~849	10MHz	16QAM	23.0	199.53	16.60	45.7

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	5MHz	QPSK	24.0	251.19	17.45	55.6
	824~849	5MHz	16QAM	23.0	199.53	16.47	44.4

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	3MHz	QPSK	24.0	251.19	17.50	56.2
	824~849	3MHz	16QAM	23.0	199.53	16.70	46.8

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	1.4MHz	QPSK	24.0	251.19	17.42	55.2
	824~849	1.4MHz	16QAM	23.0	199.53	16.72	47.0

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	20MHz	QPSK	23.4	218.78	24.25	266.1
			16QAM	22.5	177.83	23.25	211.3
		15MHz	QPSK	23.1	204.17	24.27	267.3
			16QAM	22.5	177.83	23.21	209.4
		10MHz	QPSK	23.2	208.93	24.15	260.0
			16QAM	22.5	177.83	23.25	211.3
		5MHz	QPSK	23.2	208.93	24.25	266.1
			16QAM	22.5	177.83	23.36	216.8
		3MHz	QPSK	23.2	208.93	24.22	264.2
			16QAM	22.5	177.83	23.36	216.8
		1.4MHz	QPSK	23.3	213.80	24.24	265.5
			16QAM	22.5	177.83	23.48	222.8

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation mW	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	20MHz	QPSK	23.3	213.80	23.62	230.1
			16QAM	22.5	177.83	22.89	194.5
		15MHz	QPSK	23.2	208.93	23.95	248.3
			16QAM	22.5	177.83	23.22	209.9
		10MHz	QPSK	23.2	208.93	23.91	246.0
			16QAM	22.5	177.83	23.09	203.7
		5MHz	QPSK	23.1	204.17	23.96	248.9
			16QAM	22.5	177.83	22.15	164.1
		3MHz	QPSK	23.1	204.17	23.25	211.3
			16QAM	22.5	177.83	22.55	179.9
		1.4MHz	QPSK	23.2	208.93	23.33	215.3
			16QAM	22.5	177.83	22.64	183.7

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)
Band 5, 824~849MHz	-1.3
Band 4, 1710~1755MHz	-0.3
Band 2, 1850~1910MHz	4.7
LTE17, 704~716MHz	-2.6

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SAMSUNG	ETA0U83EWE	N/A	N/A
Headset	SAMSUNG	N/A	N/A	N/A

I/O CABLES (CONDUCTED SETUP)

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

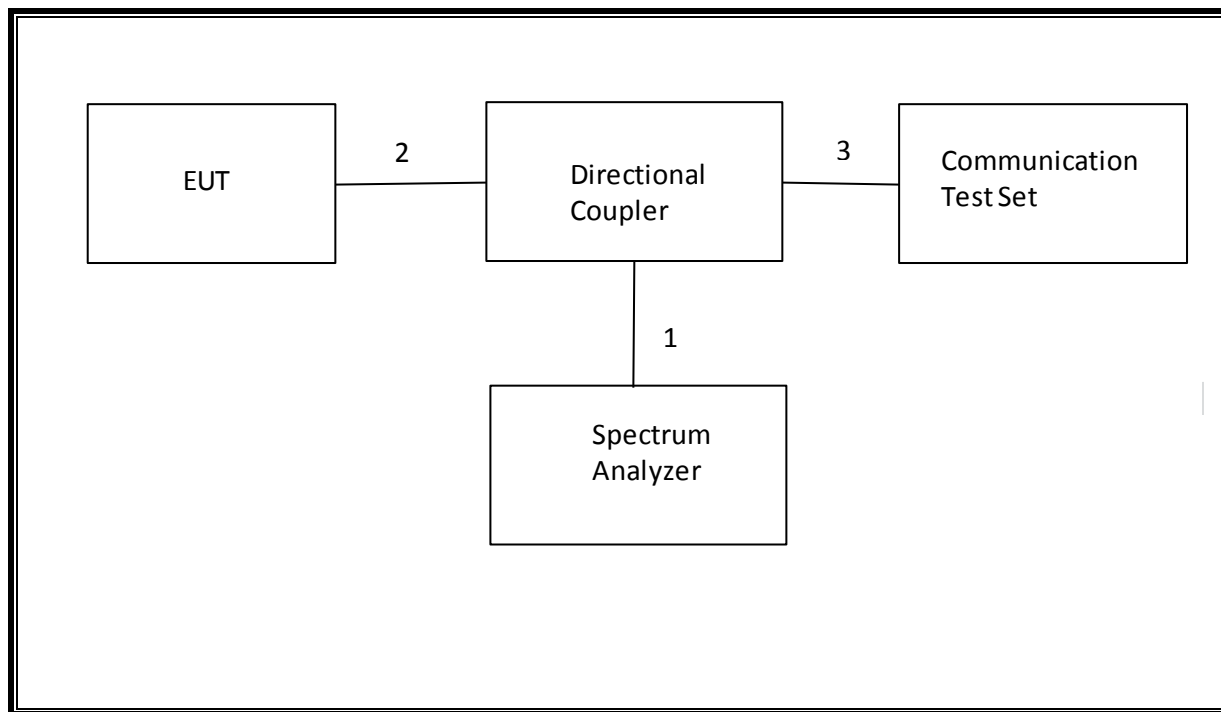
I/O CABLES (RADIATED SETUP)

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

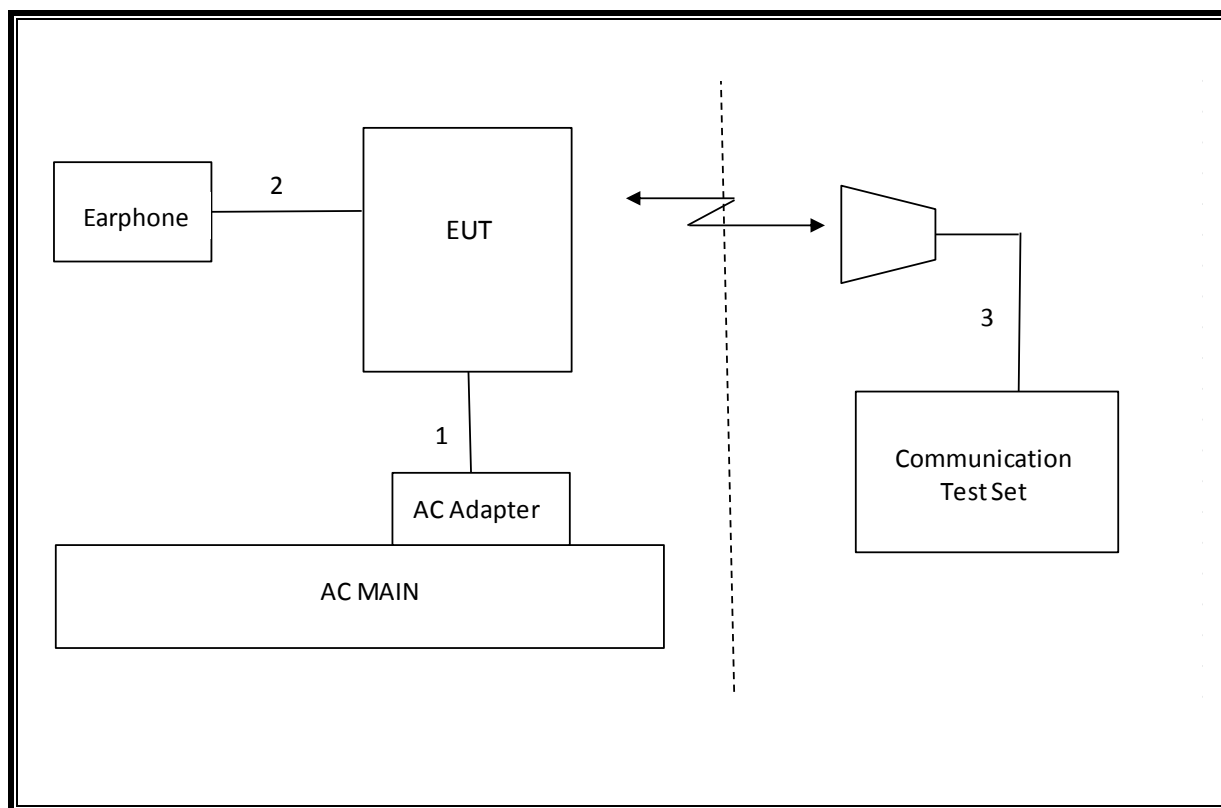
TEST SETUP

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

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01179	02/26/16
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	08/14/15
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn, 18 GHz	EMCO	3115	C00784	10/25/15
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/16
Communications Test Set	R&S	CMW500	T159	07/02/15
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Vector signal generator, 6 GHz	Agilent / HP	E4438C	None	07/06/15
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	C00993	02/14/16
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/15
Multimeter	Fluke	26111	74320701	4/15/2015

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

7. Summary Table

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Note
2.1049	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	17.96MHz
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	-14.03dBm
2.1046	N/A	Conducted output power	N/A		Pass	32.3 dBm
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	0.042PPM
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38 dBm	Radiated	Pass	27.7 dBm
27.50(c)(10)	N/A		34.77 dBm		Pass	18.36dBm
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	30.16dBm
27.50(d)(4)	RSS-139(6.4)		30dBm		Pass	24.27dBm
22.917(a) 24.238(a) 27.53(g)	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Radiated Spurious Emission	-13dBm		Pass	-38.5dBm

8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900
Press Connection control to choose the different menus
Press RESET > choose all to reset all settings
Connection Press Signal Off to turn off the signal and change settings
Network Support > GSM+GPRS or GSM+EGPRS
Main Service > Packet Data
Service selection > Test Mode A – Auto Slot Config. off
MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting
 > Slot configuration > Uplink/Gamma
 > 33 dBm for GPRS 850/900
 > 30 dBm for GPRS1800/1900
BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel
Frequency Offset > + 0 Hz
Mode > BCCH and TCH
BCCH Level > -85 dBm (May need to adjust if link is not stable)
BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]
Channel Type > Off
P0> 4 dB
Slot Config > Unchanged (if already set under MS Signal)
TCH > choose desired test channel
Hopping > Off
Main Timeslot > 3 (Default)
Network Coding Scheme > CS4 (GPRS) and MCS5 ~ MCS9 (EGPRS)
 Bit Stream > 2E9-1PSR Bit Pattern
AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input
Connection Press Signal On to turn on the signal and change settings

8.1.1. GSM OUTPUT POWER RESULT

Band	Mode	Ch.	f(MHz)	1 time slot	2 time slot	3 time slot	4 time slot
				AVG (dBm)	AVG (dBm)	AVG (dBm)	AVG (dBm)
GSM850	GMSK	128	824.2	32.3			
		190	836.6	32.2			
		251	848.8	32.3			
	GPRS	128	824.2	32.3	30.8	28.6	26.4
		190	836.6	32.2	30.8	28.6	26.4
		251	848.8	32.3	30.9	28.7	26.5
	EGPRS	128	824.2	27.2	25.6	23.4	21.1
		190	836.6	27.0	25.2	23.0	20.8
		251	848.8	27.5	26.0	23.7	21.5
GSM1900	GMSK	512	1850.2	30.4			
		661	1880	30.4			
		810	1909.8	30.5			
	GPRS	512	1850.2	30.4	28.9	27.0	24.9
		661	1880	30.4	28.9	26.9	24.8
		810	1909.8	30.5	29.0	27.0	24.8
	EGPRS	512	1850.2	26.2	24.7	22.3	20.1
		661	1880	26.2	24.4	22.2	20.0
		810	1909.8	26.3	24.5	22.3	20.2

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
	β_c	Not Applicable
	β_d	Not Applicable
	β_{ec}	Not Applicable
	β_c/β_d	8/15
	β_{hs}	Not Applicable
	β_{ed}	Not Applicable

8.2.1. UMTS REL 99 OUTPUT POWER RESULT

Band	Mode	Ch.	f(MHz)	Conducted Power (dBm)
				Avg (dBm)
Band 5	REL99	4132	826.4	22.5
		4183	836.6	22.4
		4233	846.6	22.4
Band 4	REL99	1312	1712.4	22.4
		1413	1732.6	22.4
		1513	1752.6	22.3
Band 2	REL99	9262	1852.4	23.2
		9400	1880	23.1
		9538	1907.6	23.4

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			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	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			
	$A_{hs} = \beta_{hs}/\beta_c$	30/15			

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	22.3
		4183	836.6	0	22.3
		4233	846.6	0	22.3
	Subtest 2	4132	826.4	0	22.1
		4183	836.6	0	22.2
		4233	846.6	0	22.2
	Subtest 3	4132	826.4	0.5	21.7
		4183	836.6	0.5	22.0
		4233	846.6	0.5	21.9
	Subtest 4	4132	826.4	0.5	21.8
		4183	836.6	0.5	22.0
		4233	846.6	0.5	21.8

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	22.4
		1413	1732.6	0	22.4
		1513	1752.6	0	22.3
	Subtest 2	1312	1712.4	0	22.1
		1413	1732.6	0	22.1
		1513	1752.6	0	21.9
	Subtest 3	1312	1712.4	0.5	21.6
		1413	1732.6	0.5	21.6
		1513	1752.6	0.5	21.4
	Subtest 4	1312	1712.4	0.5	21.6
		1413	1732.6	0.5	21.6
		1513	1752.6	0.5	21.4

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.1
		9400	1880.0	0	23.0
		9538	1907.6	0	23.3
	Subtest 2	9262	1852.4	0	23.0
		9400	1880.0	0	22.8
		9538	1907.6	0	22.7
	Subtest 3	9262	1852.4	0.5	22.6
		9400	1880.0	0.5	22.4
		9538	1907.6	0.5	22.4
	Subtest 4	9262	1852.4	0.5	22.6
		9400	1880.0	0.5	22.4
		9538	1907.6	0.5	22.4

UMTS HSUPA

TEST PROCEDURE

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

	Mode	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	P-CPICH (dB)	-10				
	P-CCPCH (dB)	-12				
	SCH (dB)	-12				
	PICH(dB)	-15				
	DPCH (dB)	-9				
	HS-SCCH_1 (dB)	-8				
	HS-PDSCH (dB)	-3				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	Bc	11/15	6/15	15/15	2/15	15/15
	Bd	15/15	15/15	9/15	15/15	15/15
	Bec	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	15/15
	Bhs	22/15	12/15	30/15	4/15	30/15
HSDPA Specific Settings	β_{ed} (note1)	1309/225	94/75	47/15 47/15	56/75	134/15
	MPR	0	2	1	2	0
	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				
HSUPA Specific Settings	$A_{hs} = \beta_{hs}/\beta_c$	30/15				
	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: β_{ed} cannot be set directly, it is set by Absolute Grant Value.

8.3.2. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	22.4
		4183	836.6	0	22.3
		4233	846.6	0	21.7
	Subtest 2	4132	826.4	2	21.0
		4183	836.6	2	21.0
		4233	846.6	2	21.0
	Subtest 3	4132	826.4	1	21.7
		4183	836.6	1	21.6
		4233	846.6	1	21.6
	Subtest 4	4132	826.4	2	21.0
		4183	836.6	2	21.0
		4233	846.6	2	21.0
	Subtest 5	4132	826.4	0	22.5
		4183	836.6	0	22.4
		4233	846.6	0	22.4

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band IV	Subtest 1	1312	1712.4	0	22.4
		1413	1732.6	0	22.4
		1513	1752.6	0	22.3
	Subtest 2	1312	1712.4	2	21.0
		1413	1732.6	2	21.0
		1513	1752.6	2	21.0
	Subtest 3	1312	1712.4	1	21.9
		1413	1732.6	1	21.8
		1513	1752.6	1	21.7
	Subtest 4	1312	1712.4	2	21.0
		1413	1732.6	2	21.0
		1513	1752.6	2	21.0
	Subtest 5	1312	1712.4	0	22.4
		1413	1732.6	0	22.4
		1513	1752.6	0	22.3

Band	Mode	UL Ch No.	Freq.	MPR	Avg Pwr
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			(MHz)		(dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	23.1
		9400	1880.0	0	22.9
		9538	1907.6	0	23.2
	Subtest 2	9262	1852.4	2	21.5
		9400	1880.0	2	21.5
		9538	1907.6	2	21.5
	Subtest 3	9262	1852.4	1	22.4
		9400	1880.0	1	22.3
		9538	1907.6	1	22.5
	Subtest 4	9262	1852.4	2	21.5
		9400	1880.0	2	21.5
		9538	1907.6	2	21.5
	Subtest 5	9262	1852.4	0	23.2
		9400	1880.0	0	23.1
		9538	1907.6	0	23.4

8.4. LTE OUTPUT VERIFICATION

8.4.1. LTE OUTPUT RESULT

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	10	QPSK	1	0	0	23.3
			1	25	0	23.3
			1	49	0	23.3
			25	0	1	22.3
			25	12	1	22.3
			25	25	1	22.3
			50	0	1	22.4
		16QAM	1	0	1	22.6
			1	25	1	22.6
			1	49	1	22.5
			25	0	2	21.6
			25	12	2	21.6
			25	25	2	21.5
			50	0	2	21.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)
						23790
						710 MHz
LTE Band 17	5	QPSK	1	0	0	23.3
			1	12	0	23.3
			1	24	0	23.3
			12	0	1	22.4
			12	7	1	22.4
			12	13	1	22.3
			25	0	1	22.3
		16QAM	1	0	1	22.6
			1	12	1	22.7
			1	24	1	22.7
			12	0	2	21.7
			12	7	2	21.6
			12	13	2	21.6
			25	0	2	21.6

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18700	18900	19100
						1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	23.1	23.3	23.3
			1	49	0	23.2	23.2	23.2
			1	99	0	23.2	23.3	23.3
			50	0	1	22.3	22.4	22.4
			50	24	1	22.3	22.4	22.4
			50	50	1	22.3	22.3	22.4
			100	0	1	22.3	22.4	22.4
		16QAM	1	0	1	22.5	22.5	22.5
			1	49	1	22.5	22.5	22.5
			1	99	1	22.5	22.5	22.5
			50	0	2	21.4	21.4	21.4
			50	24	2	21.4	21.4	21.4
			50	50	2	21.4	21.4	21.4
			100	0	2	21.4	21.3	21.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18675	18900	19125
						1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	23.0	23.2	23.1
			1	37	0	23.0	23.1	23.0
			1	74	0	23.0	23.1	23.1
			36	0	1	22.3	22.4	22.4
			36	20	1	22.3	22.3	22.4
			36	39	1	22.3	22.4	22.4
			75	0	1	22.3	22.4	22.4
		16QAM	1	0	1	22.4	22.5	22.5
			1	37	1	22.5	22.5	22.5
			1	74	1	22.5	22.5	22.5
			36	0	2	21.2	21.4	21.3
			36	20	2	21.3	21.4	21.3
			36	39	2	21.3	21.4	21.3
			75	0	2	21.3	21.4	21.4

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18650	18900	19150
						1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	22.9	23.1	23.1
			1	25	0	23.0	23.1	23.1
			1	49	0	23.1	23.1	23.2
			25	0	1	22.2	22.3	22.4
			25	12	1	22.2	22.3	22.4
			25	25	1	22.3	22.3	22.5
			50	0	1	22.2	22.3	22.4
		16QAM	1	0	1	22.4	22.5	22.5
			1	25	1	22.5	22.5	22.5
			1	49	1	22.5	22.5	22.5
			25	0	2	21.2	21.3	21.5
			25	12	2	21.3	21.3	21.5
			25	25	2	21.3	21.3	21.5
			50	0	2	21.2	21.3	21.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18625	18900	19175
						1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	23.0	23.1	23.0
			1	12	0	23.1	23.1	23.0
			1	24	0	23.1	23.1	23.1
			12	0	1	22.2	22.3	22.4
			12	7	1	22.2	22.3	22.4
			12	13	1	22.2	22.3	22.4
			25	0	1	22.2	22.3	22.4
		16QAM	1	0	1	22.5	22.5	22.5
			1	12	1	22.5	22.5	22.5
			1	24	1	22.5	22.5	22.5
			12	0	2	21.3	21.3	21.4
			12	7	2	21.3	21.3	21.4
			12	13	2	21.3	21.3	21.4
			25	0	2	21.1	21.2	21.5

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18615	18900	19185
						1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	23.0	23.1	23.0
			1	8	0	23.1	23.1	23.0
			1	14	0	23.1	23.1	23.1
			8	0	1	22.2	22.3	22.4
			8	4	1	22.2	22.3	22.4
			8	7	1	22.2	22.3	22.4
			15	0	1	22.2	22.3	22.4
		16QAM	1	0	1	22.5	22.5	22.5
			1	8	1	22.5	22.5	22.5
			1	14	1	22.5	22.5	22.5
			8	0	2	21.3	21.3	21.4
			8	4	2	21.3	21.3	21.4
			8	7	2	21.3	21.3	21.4
			15	0	2	21.1	21.2	21.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						18607	18900	19193
						1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	22.9	23.0	23.1
			1	3	0	22.9	23.1	23.1
			1	5	0	22.9	23.1	23.1
			3	0	0	23.0	23.2	23.3
			3	1	0	23.0	23.2	23.3
			3	3	0	23.0	23.2	23.3
			6	0	1	22.3	22.5	22.5
		16QAM	1	0	1	22.5	22.5	22.5
			1	3	1	22.5	22.5	22.5
			1	5	1	22.5	22.5	22.5
			3	0	1	22.3	22.5	22.5
			3	1	1	22.3	22.5	22.5
			3	3	1	22.3	22.5	22.5
			6	0	2	21.4	21.2	21.5

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20050	20175	20300
						1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0	23.4	23.3	23.2
			1	49	0	23.3	23.1	23.1
			1	99	0	23.1	23.3	23.0
			50	0	1	21.7	21.5	21.6
			50	24	1	21.7	21.5	21.5
			50	50	1	21.6	21.5	21.5
			100	0	1	21.7	21.5	21.5
		16QAM	1	0	1	22.5	22.5	22.5
			1	49	1	22.5	22.5	22.5
			1	99	1	22.5	22.5	22.5
			50	0	2	20.9	20.7	20.8
			50	24	2	20.9	20.7	20.7
			50	50	2	20.7	20.8	20.6
			100	0	2	20.9	20.7	20.8
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20025	20175	20325
						1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	23.1	23.0	23.0
			1	37	0	23.0	22.9	22.7
			1	74	0	22.9	23.0	22.7
			36	0	1	21.5	21.5	21.5
			36	20	1	21.6	21.5	21.5
			36	39	1	21.5	21.5	21.5
			75	0	1	21.6	21.5	21.5
		16QAM	1	0	1	22.4	22.5	22.5
			1	37	1	22.3	22.5	22.5
			1	74	1	22.2	22.5	22.5
			36	0	2	20.8	20.6	20.5
			36	20	2	20.8	20.6	21.5
			36	39	2	20.8	20.6	21.5
			75	0	2	20.8	20.6	20.5

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20000	20175	20350
						1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	23.2	23.1	23.0
			1	25	0	23.2	23.0	22.8
			1	49	0	23.2	23.1	22.8
			25	0	1	21.6	21.5	21.5
			25	12	1	21.6	21.5	21.5
			25	25	1	21.6	21.5	21.5
			50	0	1	21.6	21.5	21.5
		16QAM	1	0	1	22.5	22.5	22.3
			1	25	1	22.5	22.5	22.2
			1	49	1	22.5	22.5	22.2
			25	0	2	20.9	20.6	20.7
			25	12	2	20.9	20.7	20.7
			25	25	2	20.9	20.7	20.7
			50	0	2	20.8	20.6	20.6
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19975	20175	20375
						1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	23.3	23.2	23.0
			1	12	0	23.2	23.2	23.0
			1	24	0	23.3	23.2	23.0
			12	0	1	21.7	21.5	21.5
			12	7	1	21.7	21.6	21.5
			12	13	1	21.7	21.6	21.5
			25	0	1	21.7	21.5	21.5
		16QAM	1	0	1	22.5	22.5	22.5
			1	12	1	22.5	22.5	22.5
			1	24	1	22.5	22.5	22.5
			12	0	2	21.0	20.9	20.7
			12	7	2	21.0	20.9	20.8
			12	13	2	21.0	20.9	20.8
			25	0	2	21.1	20.7	20.6

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19965	20175	20385
						1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	23.2	23.1	22.9
			1	8	0	23.2	23.1	22.9
			1	14	0	23.3	23.1	22.9
			8	0	1	21.8	21.6	21.5
			8	4	1	21.8	21.6	21.5
			8	7	1	21.8	21.7	21.5
			15	0	1	21.7	21.5	21.5
		16QAM	1	0	1	22.5	22.5	22.3
			1	8	1	22.5	22.5	22.3
			1	14	1	22.5	22.5	22.3
			8	0	2	21.2	20.7	21.0
			8	4	2	21.1	20.7	21.0
			8	7	2	21.1	20.7	21.0
			15	0	2	21.0	20.8	20.6
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						19957	20175	20393
						1710.7 MHz	1732.5 MHz	1754.3 MHz
LTE Band 4	1.4	QPSK	1	0	0	23.3	23.1	23.0
			1	3	0	23.2	23.1	23.0
			1	5	0	23.2	23.0	22.9
			3	0	0	23.3	23.2	23.1
			3	1	0	23.3	23.2	23.1
			3	3	0	23.3	23.2	23.1
			6	0	1	21.9	21.7	21.5
		16QAM	1	0	1	22.5	22.5	22.3
			1	3	1	22.5	22.5	22.3
			1	5	1	22.5	22.5	22.3
			3	0	1	22.5	22.3	22.4
			3	1	1	22.5	22.3	22.4
			3	3	1	22.5	22.4	22.4
			6	0	2	21.2	20.7	21.0

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20450	20525	20600
						829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0	23.9	24.0	24.0
			1	25	0	24.0	24.0	23.9
			1	49	0	24.0	24.0	23.9
			25	0	1	22.9	23.0	23.0
			25	12	1	23.0	23.0	23.0
			25	25	1	23.0	23.0	23.0
			50	0	1	23.0	23.0	23.0
		16QAM	1	0	1	23.0	23.0	23.0
			1	25	1	23.0	23.0	23.0
			1	49	1	23.0	23.0	23.0
			25	0	2	22.0	22.0	22.0
			25	12	2	22.0	22.0	22.0
			25	25	2	22.0	22.0	22.0
			50	0	2	22.0	22.0	22.0
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20425	20525	20625
						826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	23.8	24.0	24.0
			1	12	0	23.9	24.0	24.0
			1	24	0	24.0	24.0	24.0
			12	0	1	22.9	23.0	23.0
			12	7	1	22.9	23.0	23.0
			12	13	1	23.0	23.0	23.0
			25	0	1	22.9	23.0	23.0
		16QAM	1	0	1	23.0	23.0	23.0
			1	12	1	23.0	23.0	23.0
			1	24	1	23.0	23.0	23.0
			12	0	2	22.0	22.0	22.0
			12	7	2	22.0	22.0	22.0
			12	13	2	22.0	22.0	22.0
			25	0	2	22.0	22.0	22.0

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	23.8	24.0	23.9
			1	8	0	23.8	24.0	23.9
			1	14	0	23.9	24.0	23.9
			8	0	1	23.0	23.0	23.0
			8	4	1	23.0	23.0	23.0
			8	7	1	23.0	23.0	23.0
			15	0	1	22.9	23.0	23.0
		16QAM	1	0	1	23.0	23.0	23.0
			1	8	1	23.0	23.0	23.0
			1	14	1	23.0	23.0	23.0
			8	0	2	22.0	22.0	22.0
			8	4	2	22.0	22.0	22.0
			8	7	2	22.0	22.0	22.0
			15	0	2	22.0	22.0	22.0
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20407	20525	20643
						824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 5	1.4	QPSK	1	0	0	23.9	23.9	23.9
			1	3	0	23.9	24.0	23.9
			1	5	0	23.9	24.0	23.9
			3	0	0	23.8	24.0	24.0
			3	1	0	23.9	24.0	24.0
			3	3	0	23.9	24.0	24.0
			6	0	1	23.0	23.0	23.0
		16QAM	1	0	1	23.0	23.0	23.0
			1	3	1	23.0	23.0	23.0
			1	5	1	23.0	23.0	23.0
			3	0	1	23.0	23.0	23.0
			3	1	1	23.0	23.0	23.0
			3	3	1	23.0	23.0	23.0
			6	0	2	22.0	22.0	22.0

9. PEAK TO AVERAGE RATIO

Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

Connect EUT to peak and average power meter and take the delta of peak to average reading.

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

PAR Measurement					
Cell Bandwidth	Channel (Mhz)	Mode	Peak (dBm)	Average (dBm)	Delta
WCDMA B5	835.5	REL99	25.97	22.8	3.17
		HSDPA	26.28	22.71	3.57

PAR Measurement					
Cell Bandwidth	Channel (Mhz)	Mode	Peak (dBm)	Average (dBm)	Delta
WCDMA B2	1880	REL99	26.82	22.96	3.86
		HSDPA	26.54	22.99	3.55

PAR Measurement					
Cell Bandwidth	Channel (Mhz)	Mode	Peak (dBm)	Average (dBm)	Delta
WCDMA B4	1732.6	REL99	26.31	22.93	3.38
		HSDPA	26.67	22.79	3.88

<i>PAR Measurement</i>					
Cell Bandwidth	Channel (Mhz)	Mode	Peak (dBm)	Average (dBm)	Delta
GSM850	836.6	GPRS	27	24.81	2.19
		EGPRS	26.18	24.01	2.17

<i>PAR Measurement</i>					
Cell Bandwidth	Channel (Mhz)	Mode	Peak (dBm)	Average (dBm)	Delta
GSM1900	1880	GPRS	31.41	29.01	2.4
		EGPRS	30.35	28.93	2.42

<i>PAR Measurement</i>					
Cell Bandwidth	Channel (Mhz)	Mode	Peak (dBm)	Average (dBm)	Delta
LTE5 1.4M	836.5	QPSK	28.19	22.76	5.43
		16QAM	28.1	21.08	7.02
LTE5 3M	836.5	QPSK	28.13	21.85	6.28
		16QAM	28.16	20.9	7.26
LTE5 5M	836.5	QPSK	28.54	21.89	6.65
		16QAM	28.18	20.88	7.3
LTE5 10M	836.5	QPSK	28.53	21.82	6.71
		16QAM	29.03	20.85	8.18

PAR Measurement						
Cell Bandwidth	Channel (Mhz)	Mode	Peak (dBm)	Average (dBm)		Delta
LTE2 1.4M	1880	QPSK	28.1	23.26		4.84
		16QAM	27.63	21.04		6.59
LTE2 3M	1880	QPSK	28.25	23.29		4.96
		16QAM	27.89	20.9		6.99
LTE2 5M	1880	QPSK	28.02	21.68		6.34
		16QAM	27.86	20.84		7.02
LTE2 10M	1880	QPSK	28.52	21.6		6.92
		16QAM	28.49	20.79		7.7
LTE2 15M	1880	QPSK	26.26	19.37		6.89
		16QAM	28.11	19.11		9.0
LTE2 20M	1880	QPSK	26.02	19.17		6.85
		16QAM	27.15	18.37		8.78

PAR Measurement						
Cell Bandwidth	Channel (Mhz)	Mode	Peak (dBm)	Average (dBm)		Delta
LTE4 1.4M	1732.5	QPSK	29.67	23.42		6.25
		16QAM	29.66	21.94		7.72
LTE4 3M	1732.5	QPSK	29.76	22.5		7.26
		16QAM	29.88	21.74		8.14
LTE4 5M	1732.5	QPSK	29.96	22.44		7.52
		16QAM	29.87	21.7		8.17
LTE4 10M	1732.5	QPSK	29.91	22.41		7.5
		16QAM	30.03	21.64		8.39
LTE4 15M	1732.5	QPSK	29.78	22.37		7.41
		16QAM	29.13	21.76		7.37
LTE4 20M	1732.5	QPSK	26.95	19.97		6.98
		16QAM	28.18	19.21		8.97

PAR Measurement						
Cell Bandwidth	Channel (Mhz)	Mode	Peak (dBm)	Average (dBm)		Delta
LTE17 5M	710	QPSK	28.72	22.98		5.74
		16QAM	27.99	19.52		8.47
LTE17 10M	710	QPSK	28.32	20.41		7.91
		16QAM	28.03	19.54		8.49

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

10.1.1. OCCUPIED BANDWIDTH RESULTS

Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB BW (kHz)
GSM850	GPRS	128	824.2	238.7	312.5
		190	836.6	244.0	312.2
		251	848.8	241.1	317.9
	EGPRS	128	824.2	237.2	294.1
		190	836.6	245.3	317.1
		251	848.8	233.7	307.4
GSM1900	GPRS	512	1850.2	242.3	310.7
		661	1880	248.7	314
		810	1909.8	243.8	314
	EGPRS	512	1850.2	237.1	304.5
		661	1880	244.1	316
		810	1909.8	245.1	303.2
Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
Band 5	REL99	4132	826.4	4.132	4.714
		4183	836.6	4.137	4.703
		4233	846.6	4.118	4.692
	HSDPA	4132	826.4	4.140	4.701
		4183	836.6	4.132	4.673
		4233	846.6	4.128	4.701
Band 4	REL99	1312	1712.4	4.133	4.707
		1413	1732.6	4.131	4.678
		1513	1752.6	4.146	4.735
	HSDPA	1312	1712.4	4.157	4.685
		1413	1732.6	4.141	4.698
		1513	1752.6	4.135	4.685

Band 2	REL99	9262	1852.4	4.147	4.723
		9400	1880	4.129	4.719
		9538	1907.6	4.124	4.729
	HSDPA	9262	1852.4	4.153	4.698
		9400	1880	4.155	4.687
		9538	1907.6	4.141	4.700

10.1.2. LTE OCCUPIED BANDWIDTH RESULTS

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE17	10	QPSK	50/0	709	8.98	10.28
			50/0	710	9.02	10.32
			50/0	711	9.04	10.39
		16QAM	50/0	709	8.98	10.44
			50/0	710	8.98	10.47
			50/0	711	9.00	10.38

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE17	5	QPSK	25/0	706.5	4.52	5.23
			25/0	710	4.52	5.31
			25/0	713.5	4.53	5.24
		16QAM	25/0	706.5	4.51	5.13
			25/0	710	4.52	5.31
			25/0	713.5	4.53	5.30

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE2	20	QPSK	100/0	1860	17.94	20.84
			100/0	1880	17.88	21.09
			100/0	1900	17.88	20.76
		16QAM	100/0	1860	17.86	20.50
			100/0	1880	17.90	21.09
			100/0	1900	17.89	20.63

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE2	15	QPSK	75/0	1857.5	13.44	15.77
			75/0	1880	13.44	15.62
			75/0	1902.5	13.43	15.49
		16QAM	75/0	1857.5	13.45	15.84
			75/0	1880	13.45	15.52
			75/0	1902.5	13.41	15.80

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE2	10	QPSK	50/0	1855	8.99	10.21
			50/0	1880	9.00	10.39
			50/0	1905	8.96	10.05
		16QAM	50/0	1855	8.97	10.46
			50/0	1880	9.01	10.55
			50/0	1905	8.96	10.38

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE2	5	QPSK	25/0	1852.5	4.51	5.17
			25/0	1880	4.50	5.18
			25/0	1907.5	4.52	5.17
		16QAM	25/0	1852.5	4.51	5.16
			25/0	1880	4.52	5.26
			25/0	1907.5	4.52	5.24

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE2	3	QPSK	15/0	1851.5	2.70	3.39
			15/0	1880	2.69	3.29
			15/0	1908.5	2.69	3.23
		16QAM	15/0	1851.5	2.71	3.25
			15/0	1880	2.70	3.32
			15/0	1908.5	2.71	3.50

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE2	1.4	QPSK	6/0	1850.7	1.10	1.50
			6/0	1880	1.10	1.56
			6/0	1909.3	1.10	1.51
		16QAM	6/0	1850.7	1.11	1.51
			6/0	1880	1.10	1.51
			6/0	1909.3	1.10	1.53

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE4	20	QPSK	100/0	1720	17.95	21.28
			100/0	1732.5	17.93	20.93
			100/0	1745	17.90	20.74
		16QAM	100/0	1720	17.89	20.70
			100/0	1732.5	17.89	20.84
			100/0	1745	17.96	21.17

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE4	15	QPSK	75/0	1717.5	13.44	15.82
			75/0	1732.5	13.45	15.90
			75/0	1747.5	13.46	16.00
		16QAM	75/0	1717.5	13.46	15.95
			75/0	1732.5	13.46	15.57
			75/0	1747.5	13.44	15.70

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE4	10	QPSK	50/0	1715	8.99	10.48
			50/0	1732.5	8.99	10.44
			50/0	1750	8.98	10.37
		16QAM	50/0	1715	8.97	10.30
			50/0	1732.5	9.00	10.22
			50/0	1750	8.98	10.52

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE4	5	QPSK	25/0	1712.5	4.52	5.34
			25/0	1731.5	4.52	5.19
			25/0	1752.5	4.51	5.14
		16QAM	25/0	1712.5	4.52	5.22
			25/0	1731.5	4.53	5.28
			25/0	1752.5	4.51	5.20

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE4	3	QPSK	15/0	1711.7	2.68	3.06
			15/0	1732.5	2.69	3.04
			15/0	1753.5	2.70	3.01
		16QAM	15/0	1711.7	2.69	3.06
			15/0	1732.5	2.69	3.07
			15/0	1753.5	2.68	2.98

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE4	1.4	QPSK	6/0	1710.7	1.09	1.30
			6/0	1732.5	1.09	1.37
			6/0	1754.3	1.08	1.34
		16QAM	6/0	1710.7	1.09	1.36
			6/0	1732.5	1.09	1.36
			6/0	1754.3	1.09	1.35

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE5	10	QPSK	50/0	829	8.95	10.19
			50/0	836.5	8.99	10.33
			50/0	844	9.00	10.23
		16QAM	50/0	829	8.99	10.26
			50/0	836.5	8.99	10.48
			50/0	844	8.98	10.63

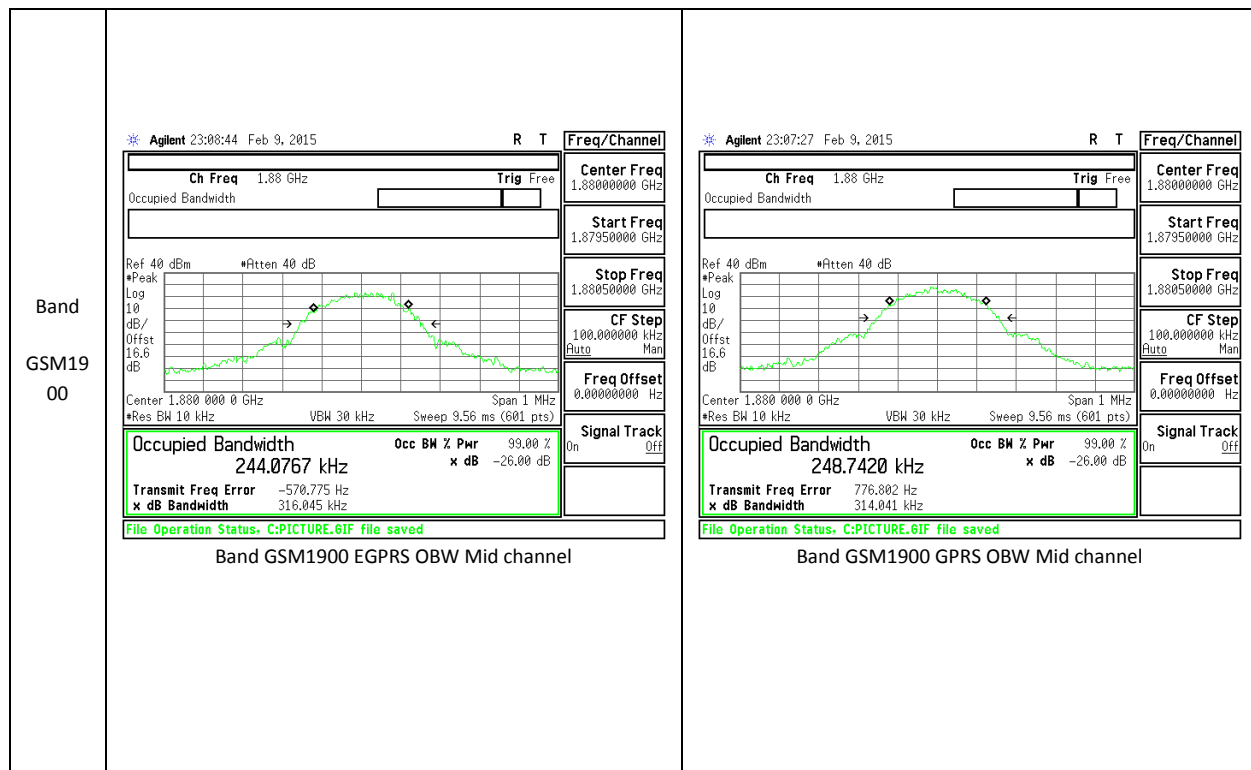
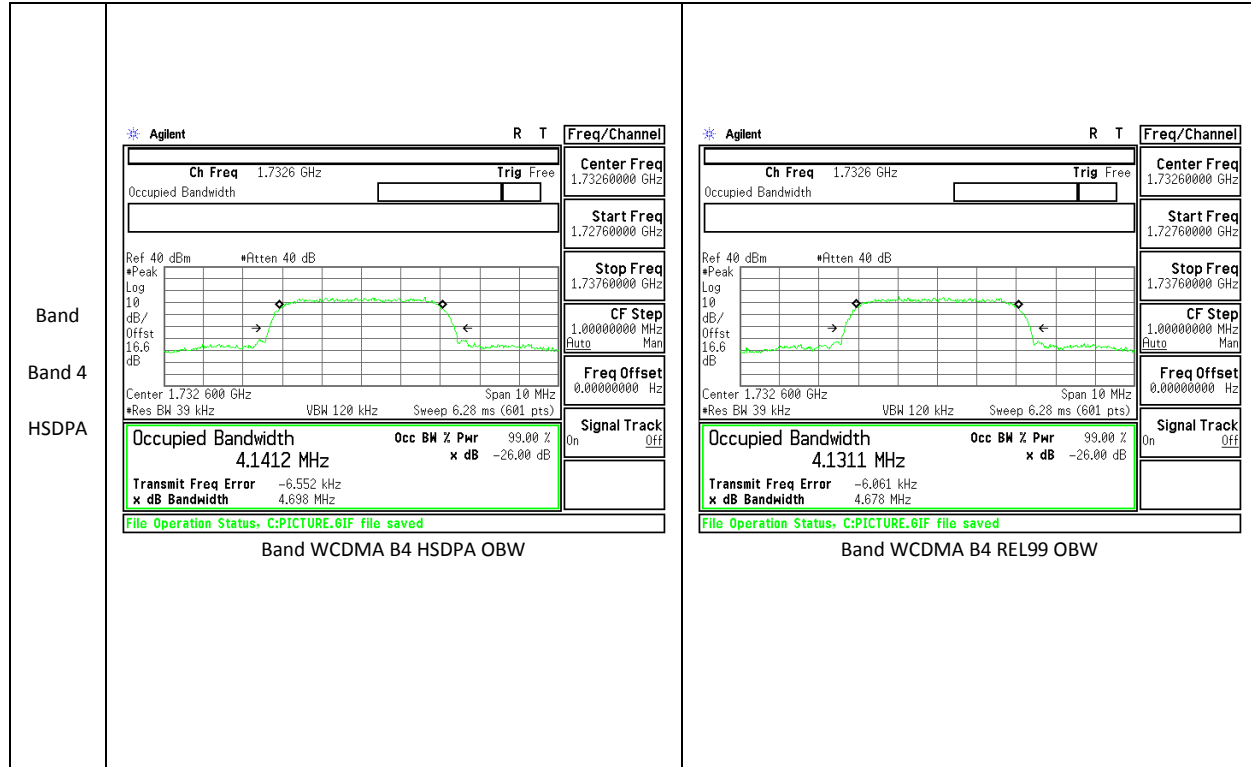
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LTE5	5	QPSK	25/0	826.5	4.51	5.24
			25/0	836.5	4.51	5.24
			25/0	846.5	4.53	5.32
		16QAM	25/0	826.5	4.52	5.15
			25/0	836.5	4.52	5.20
			25/0	846.5	4.52	5.20

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE5	3	QPSK	15/0	825.5	2.70	3.42
			15/0	836.5	2.70	3.35
			15/0	847.5	2.70	3.31
		16QAM	15/0	825.5	2.69	3.33
			15/0	836.5	2.71	3.37
			15/0	847.5	2.7	3.21

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE5	1.4	QPSK	6/0	824.7	1.10	1.52
			6/0	836.5	1.09	1.45
			6/0	848.3	1.09	1.51
		16QAM	6/0	824.7	1.09	1.50
			6/0	836.5	1.10	1.54
			6/0	848.3	1.10	1.48

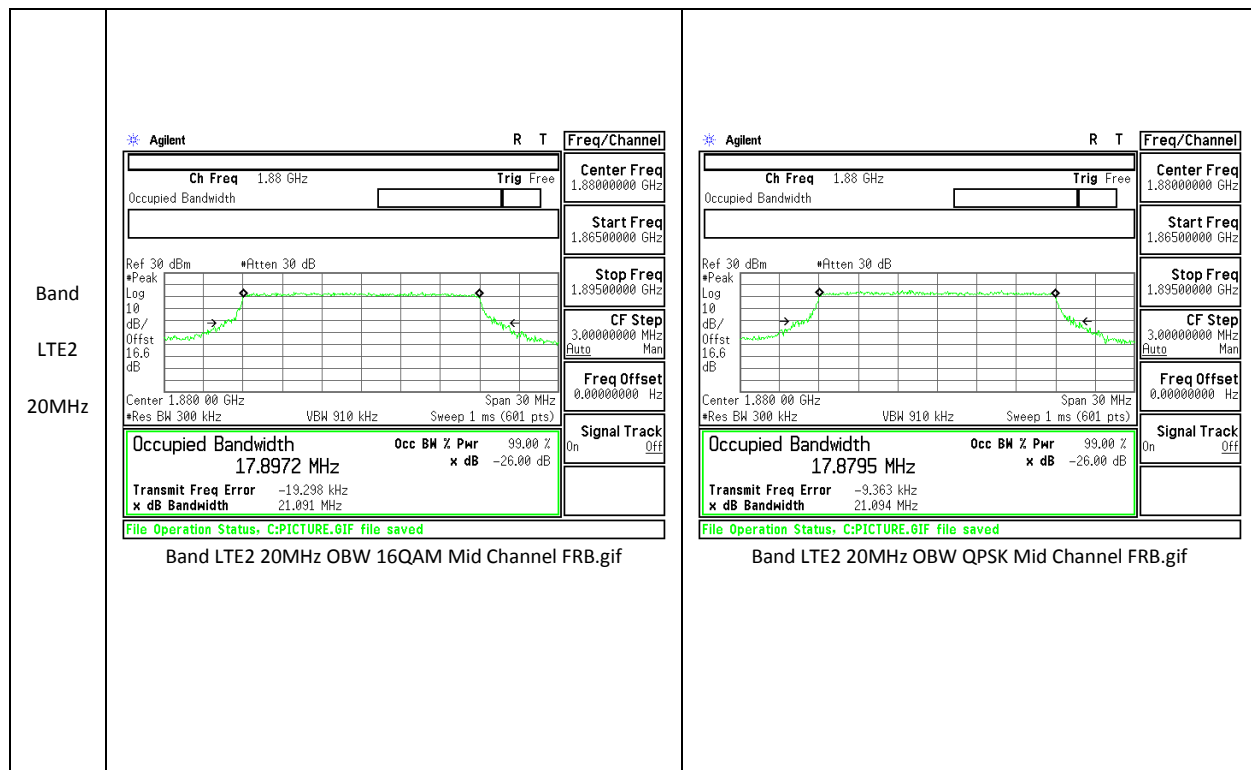
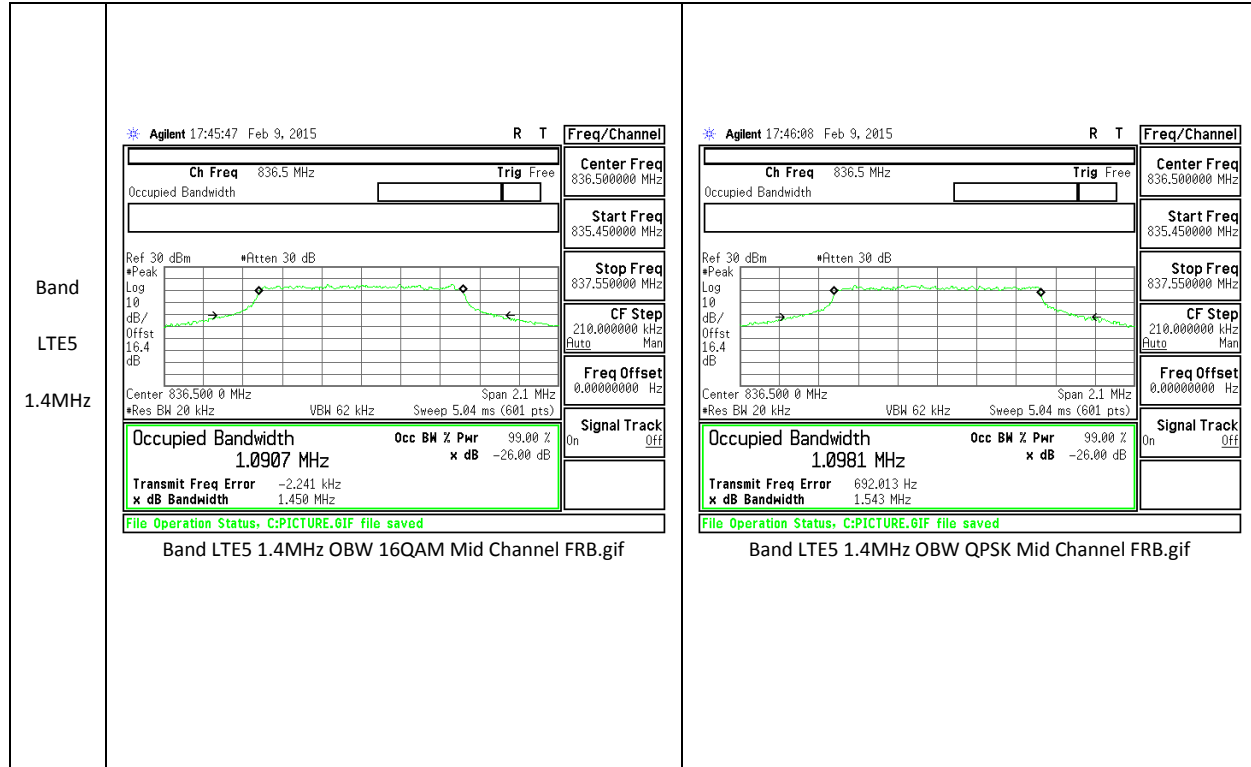
10.1.1. OCCUPIED BANDWIDTH PLOTS

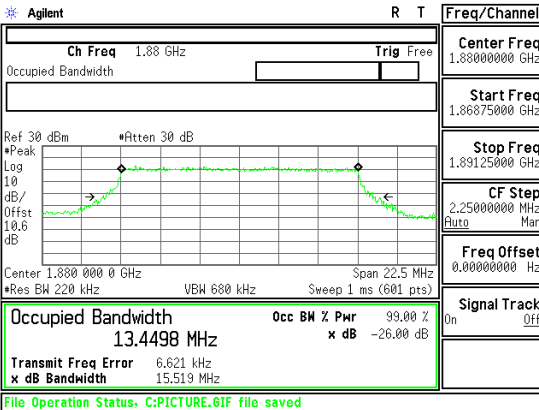
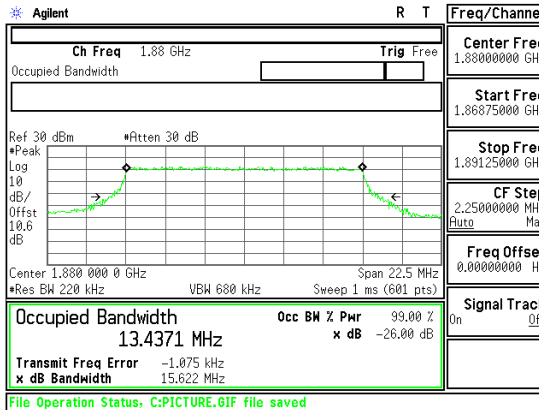
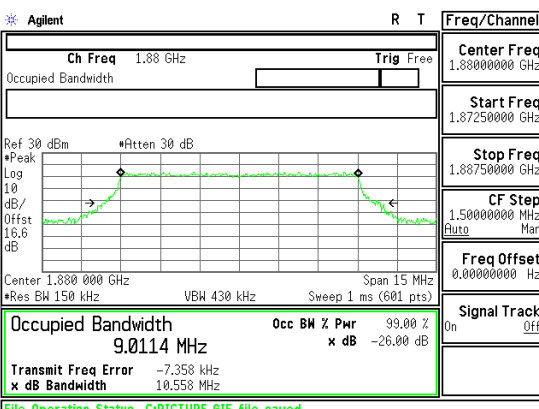
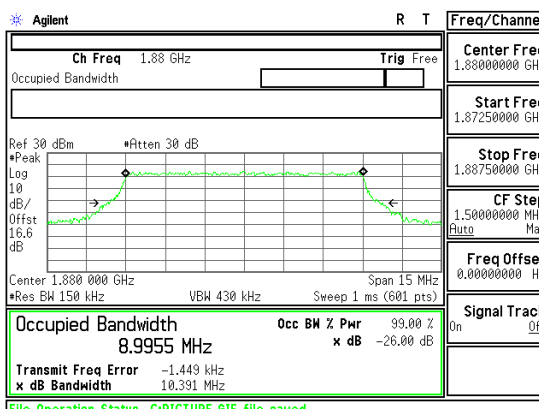
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Band Band 2 HSDPA	Agilent 21:35:54 Feb 9, 2015 R T Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.87500000 GHz Stop Freq 1.88500000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Ref 40 dBm #Atten 40 dB #Peak Log 10 dB/Offst 16.6 dB Center 1.880 000 GHz Span 10 MHz *Res BW 43 kHz VBW 130 kHz Sweep 5.2 ms (601 pts) Occupied Bandwidth 4.1547 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -8.200 kHz x dB Bandwidth 4.687 MHz File Operation Status, C:PICTURE.GIF file saved Band WCDMA B2 HSDPA OBW	Agilent 21:31:14 Feb 9, 2015 R T Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.87500000 GHz Stop Freq 1.88500000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Ref 40 dBm #Atten 40 dB #Peak Log 10 dB/Offst 16.6 dB Center 1.880 000 GHz Span 10 MHz *Res BW 43 kHz VBW 130 kHz Sweep 5.2 ms (601 pts) Occupied Bandwidth 4.1289 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -10.832 kHz x dB Bandwidth 4.719 MHz File Operation Status, C:PICTURE.GIF file saved Band WCDMA B2 REL99 OBW

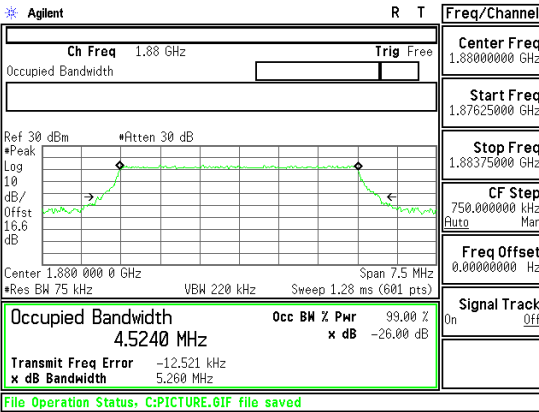
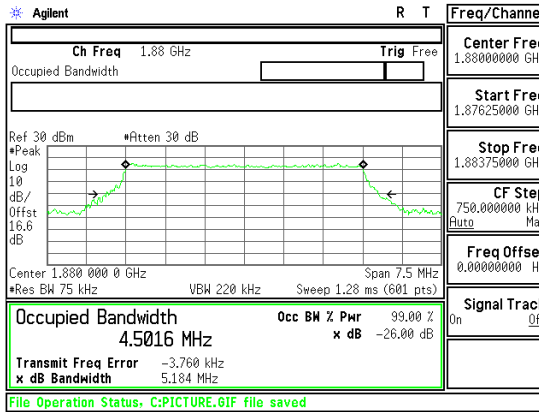
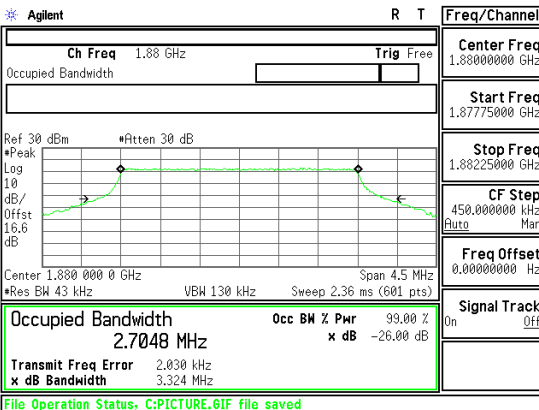
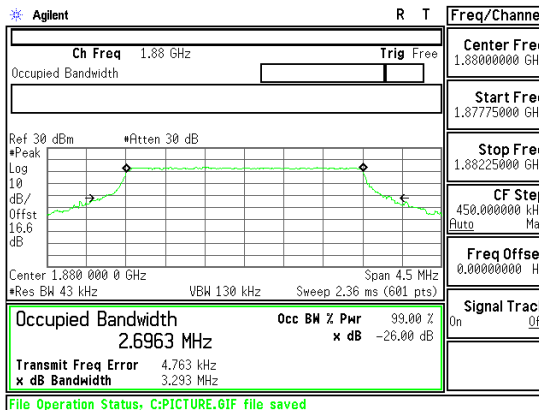


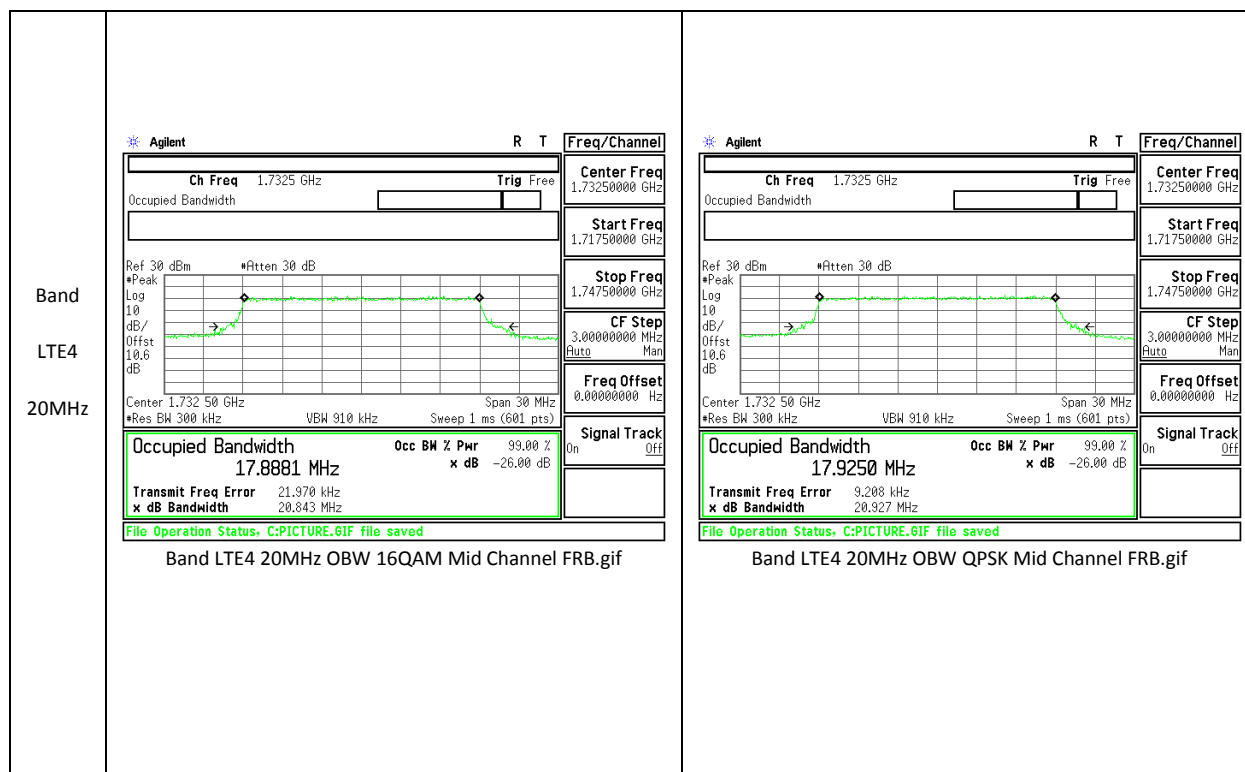
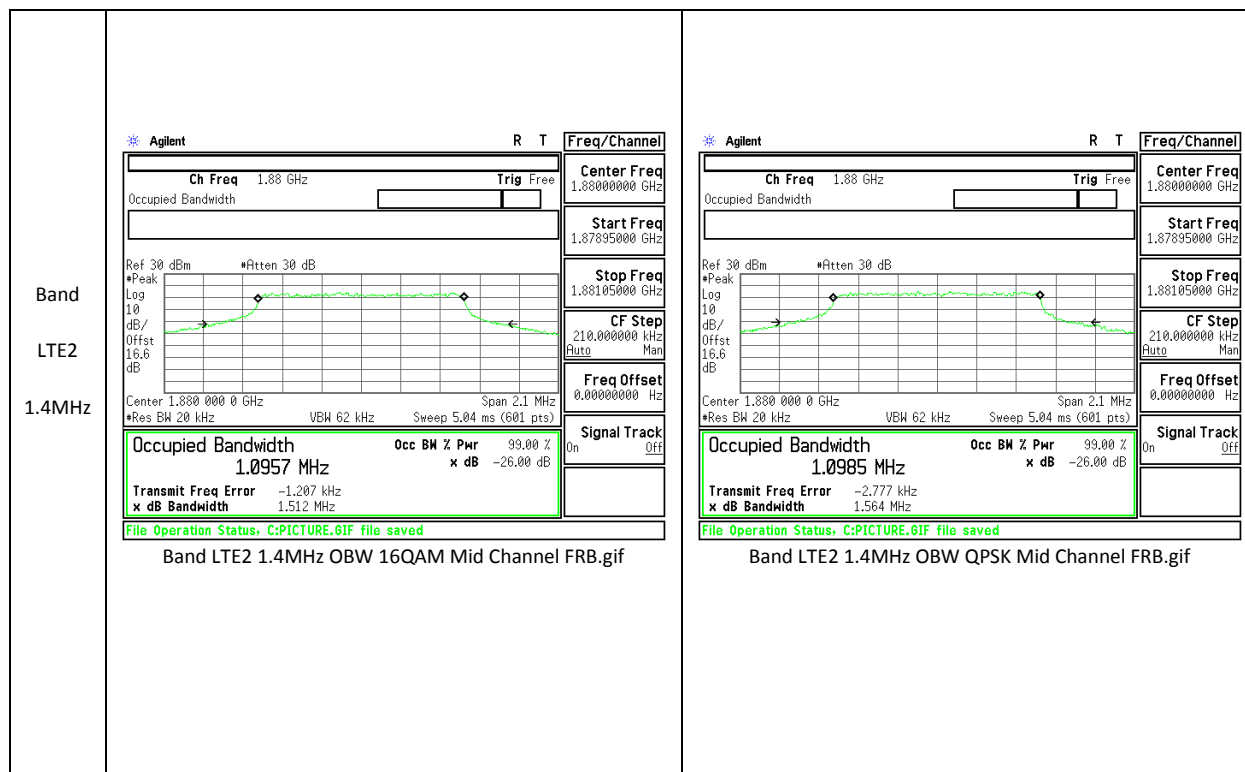
Band GSM850	Agilent 22:54:26 Feb 9, 2015 R T Ch Freq 836.6 MHz Trig Free Center Freq 836.600000 MHz Start Freq 836.100000 MHz Stop Freq 837.100000 MHz CF Step 100.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Ref 40 dBm *Atten 40 dB Peak Log 10 dB/Offst 16.4 dB Center 836.600 0 MHz Span 1 MHz *Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts) Occupied Bandwidth 245.2535 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 2.051 kHz x dB Bandwidth 317.107 kHz File Operation Status, C:PICTURE.GIF file saved Band GSM850 EGPRS OBW Mid channel	Agilent 22:53:09 Feb 9, 2015 R T Ch Freq 836.6 MHz Trig Free Center Freq 836.600000 MHz Start Freq 836.100000 MHz Stop Freq 837.100000 MHz CF Step 100.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Ref 40 dBm *Atten 40 dB Peak Log 10 dB/Offst 16.4 dB Center 836.600 0 MHz Span 1 MHz *Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts) Occupied Bandwidth 244.0297 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -2.005 kHz x dB Bandwidth 312.150 kHz File Operation Status, C:PICTURE.GIF file saved Band GSM850 GPRS OBW Mid channel
Band LTE5 10MHz	Agilent 17:57:13 Feb 9, 2015 R T Ch Freq 836.5 MHz Trig Free Center Freq 836.500000 MHz Start Freq 829.000000 MHz Stop Freq 844.000000 MHz CF Step 1.50000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm *Atten 30 dB Peak Log 10 dB/Offst 16.4 dB Center 836.500 MHz Span 15 MHz *Res BW 150 kHz VBW 430 kHz Sweep 1 ms (601 pts) Occupied Bandwidth 8.9957 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -13.724 kHz x dB Bandwidth 10.403 MHz File Operation Status, C:PICTURE.GIF file saved Band LTE5 10MHz OBW 16QAM Mid Channel FRB.gif	Agilent 17:56:52 Feb 9, 2015 R T Ch Freq 836.5 MHz Trig Free Center Freq 836.500000 MHz Start Freq 829.000000 MHz Stop Freq 844.000000 MHz CF Step 1.50000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm *Atten 30 dB Peak Log 10 dB/Offst 16.4 dB Center 836.500 MHz Span 15 MHz *Res BW 150 kHz VBW 430 kHz Sweep 1 ms (601 pts) Occupied Bandwidth 8.9930 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 770.360 Hz x dB Bandwidth 10.330 MHz File Operation Status, C:PICTURE.GIF file saved Band LTE5 10MHz OBW QPSK Mid Channel FRB.gif

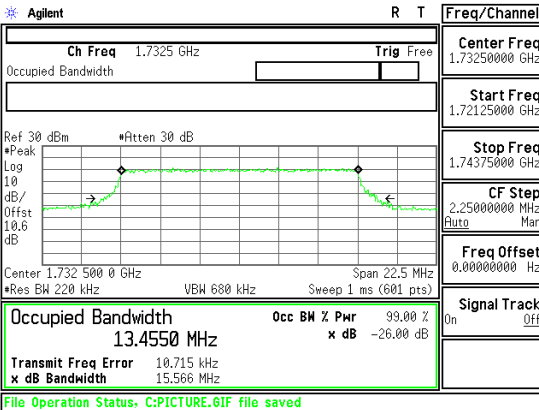
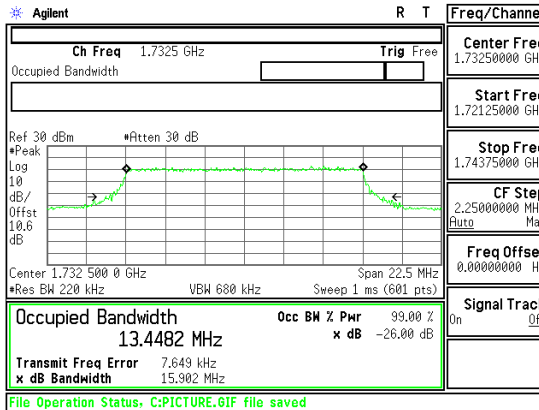
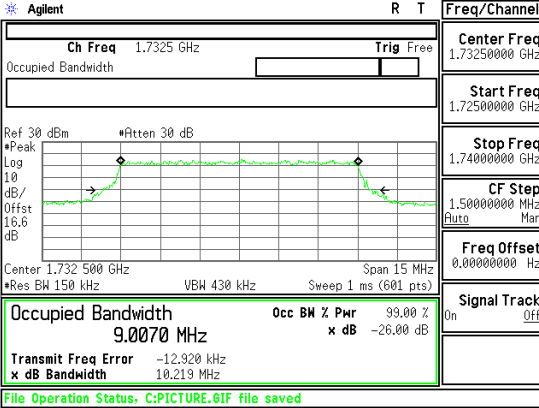
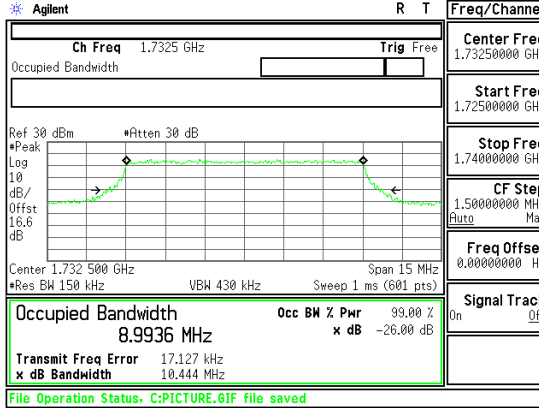
Band LTE5 5MHz	Agilent 17:50:46 Feb 9, 2015 R T Ch Freq 836.5 MHz Trig Free Center Freq 836.500000 MHz Start Freq 832.750000 MHz Stop Freq 840.250000 MHz CF Step 750.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm Peak Log 10 dB/Offst 16.4 dB Center 836.500 0 MHz Res BW 75 kHz VBW 220 kHz Sweep 1.28 ms (601 pts) Span 7.5 MHz Occupied Bandwidth 4.5165 MHz Transmit Freq Error -6.283 kHz x dB Bandwidth 5.197 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB File Operation Status, C:PICTURE.GIF file saved Band LTE5 5MHz OBW 16QAM Mid Channel FRB.gif	Agilent 17:51:07 Feb 9, 2015 R T Ch Freq 836.5 MHz Trig Free Center Freq 836.500000 MHz Start Freq 832.750000 MHz Stop Freq 840.250000 MHz CF Step 750.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm Peak Log 10 dB/Offst 16.4 dB Center 836.500 0 MHz Res BW 75 kHz VBW 220 kHz Sweep 1.28 ms (601 pts) Span 7.5 MHz Occupied Bandwidth 4.5127 MHz Transmit Freq Error -10.739 kHz x dB Bandwidth 5.235 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB File Operation Status, C:PICTURE.GIF file saved Band LTE5 5MHz OBW QPSK Mid Channel FRB.gif
Band LTE5 3MHz	Agilent 17:48:10 Feb 9, 2015 R T Ch Freq 836.5 MHz Trig Free Center Freq 836.500000 MHz Start Freq 834.250000 MHz Stop Freq 838.750000 MHz CF Step 450.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm Peak Log 10 dB/Offst 16.4 dB Center 836.500 0 MHz Res BW 43 kHz VBW 130 kHz Sweep 2.36 ms (601 pts) Span 4.5 MHz Occupied Bandwidth 2.7136 MHz Transmit Freq Error -5.957 kHz x dB Bandwidth 3.369 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB File Operation Status, C:PICTURE.GIF file saved Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif	Agilent 17:48:31 Feb 9, 2015 R T Ch Freq 836.5 MHz Trig Free Center Freq 836.500000 MHz Start Freq 834.250000 MHz Stop Freq 838.750000 MHz CF Step 450.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm Peak Log 10 dB/Offst 16.4 dB Center 836.500 0 MHz Res BW 43 kHz VBW 130 kHz Sweep 2.36 ms (601 pts) Span 4.5 MHz Occupied Bandwidth 2.6950 MHz Transmit Freq Error -5.324 kHz x dB Bandwidth 3.350 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB File Operation Status, C:PICTURE.GIF file saved Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif

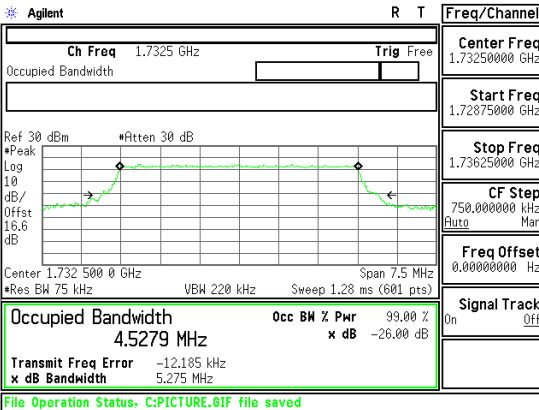
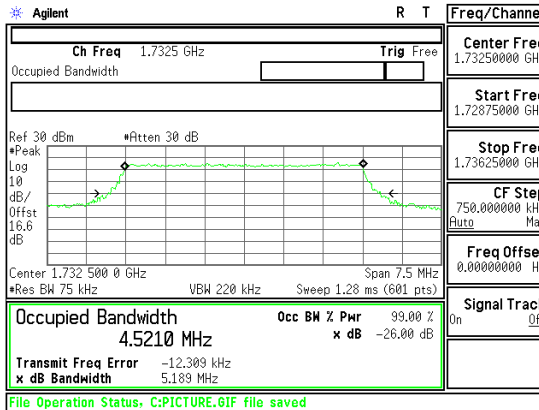
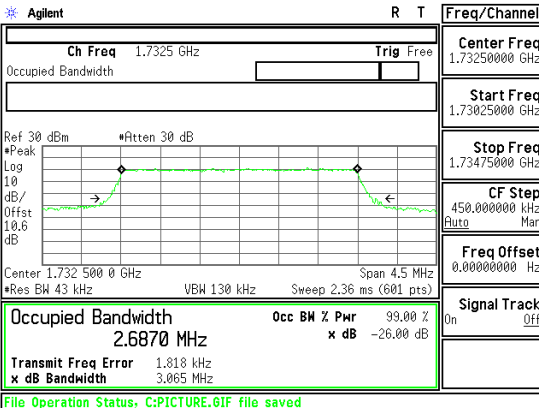
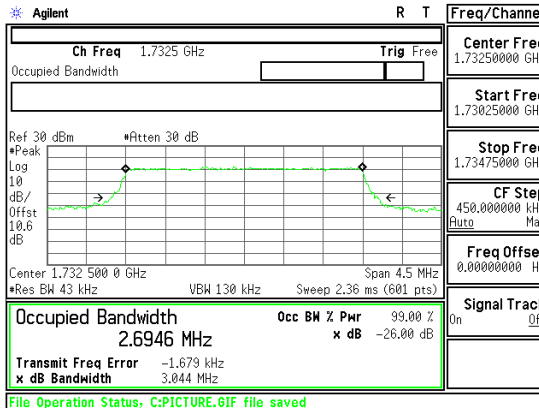


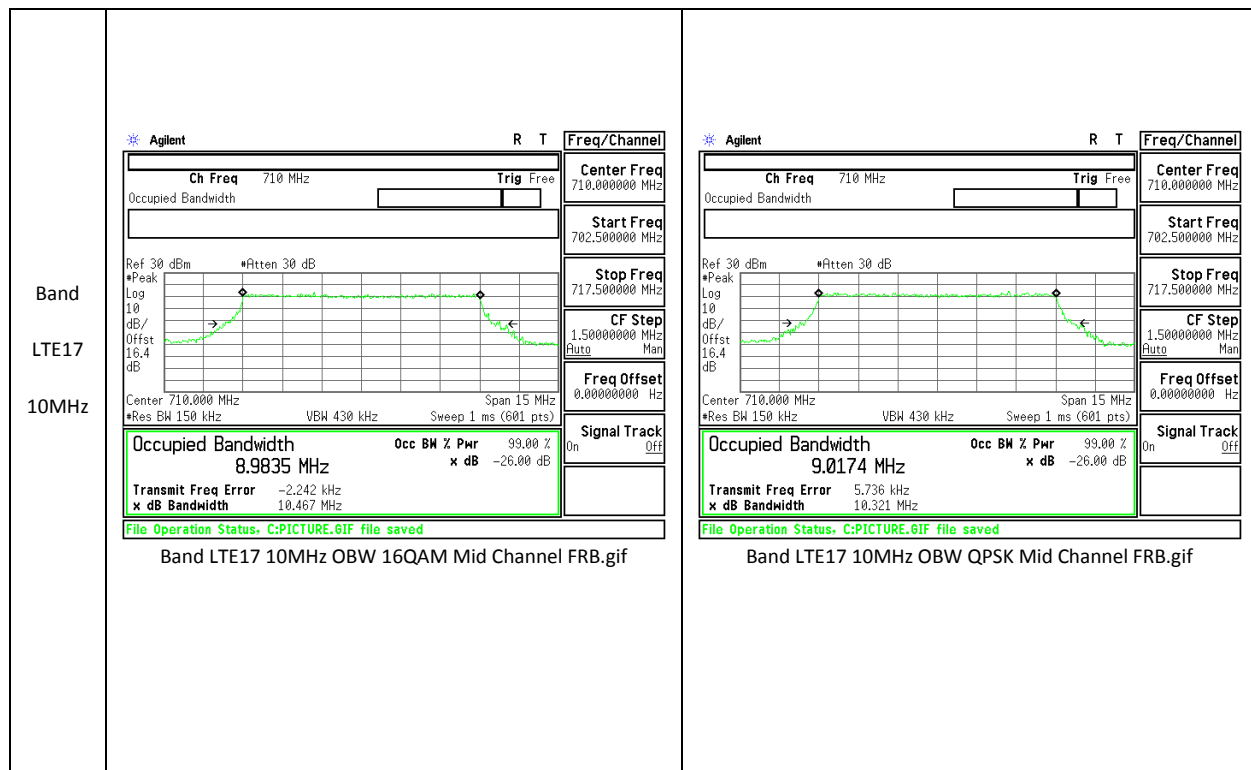
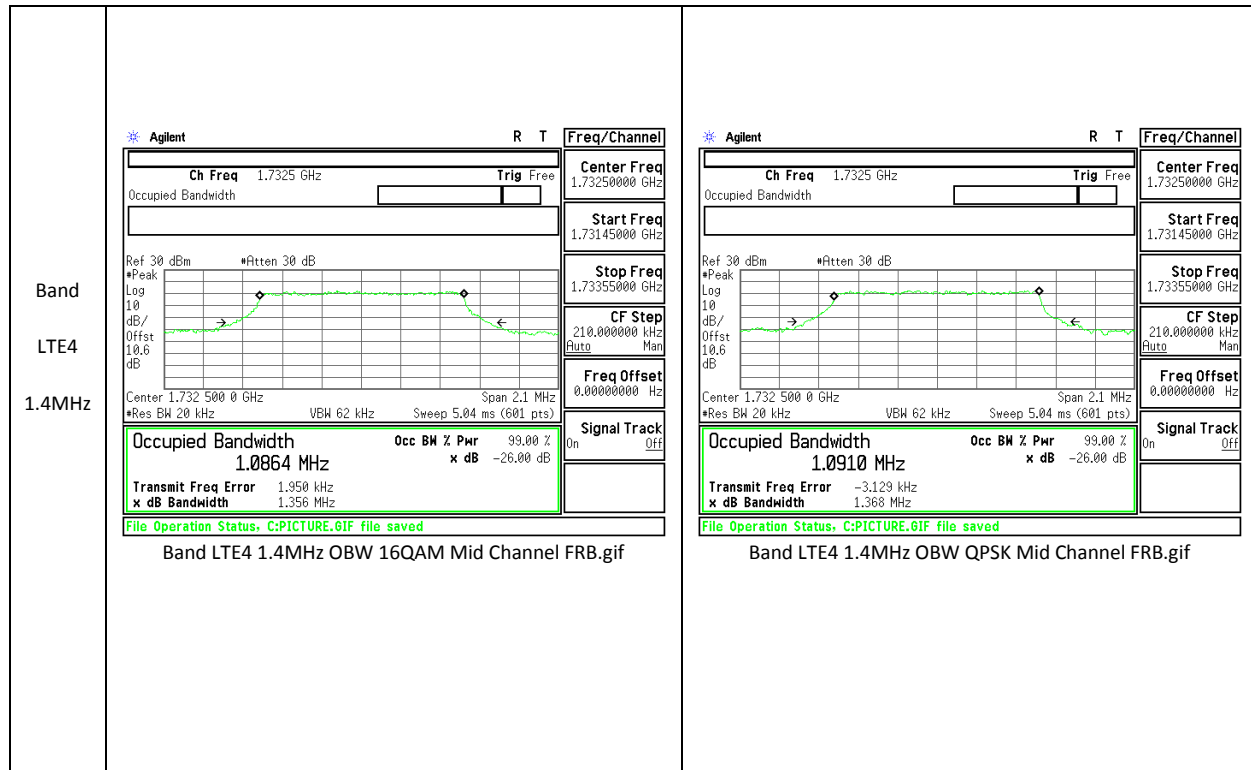
Band LTE2 15MHz	 Agilent R T Freq/Channel Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.86875000 GHz Stop Freq 1.89125000 GHz CF Step 2.25000000 MHz Freq Offset 0.00000000 Hz Signal Track On Occupied Bandwidth 13.4498 MHz Transmit Freq Error 6.621 kHz Transmit Bandwidth 15.519 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE2 15MHz OBW 16QAM Mid Channel FRB.gif	 Agilent R T Freq/Channel Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.86875000 GHz Stop Freq 1.89125000 GHz CF Step 2.25000000 MHz Freq Offset 0.00000000 Hz Signal Track On Occupied Bandwidth 13.4371 MHz Transmit Freq Error -1.075 kHz Transmit Bandwidth 15.622 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE2 15MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 10MHz	 Agilent R T Freq/Channel Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.87250000 GHz Stop Freq 1.88750000 GHz CF Step 1.50000000 MHz Freq Offset 0.00000000 Hz Signal Track On Occupied Bandwidth 9.0114 MHz Transmit Freq Error -7.358 kHz Transmit Bandwidth 10.558 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE2 10MHz OBW 16QAM Mid Channel FRB.gif	 Agilent R T Freq/Channel Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.87250000 GHz Stop Freq 1.88750000 GHz CF Step 1.50000000 MHz Freq Offset 0.00000000 Hz Signal Track On Occupied Bandwidth 8.9955 MHz Transmit Freq Error -1.449 kHz Transmit Bandwidth 10.391 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE2 10MHz OBW QPSK Mid Channel FRB.gif

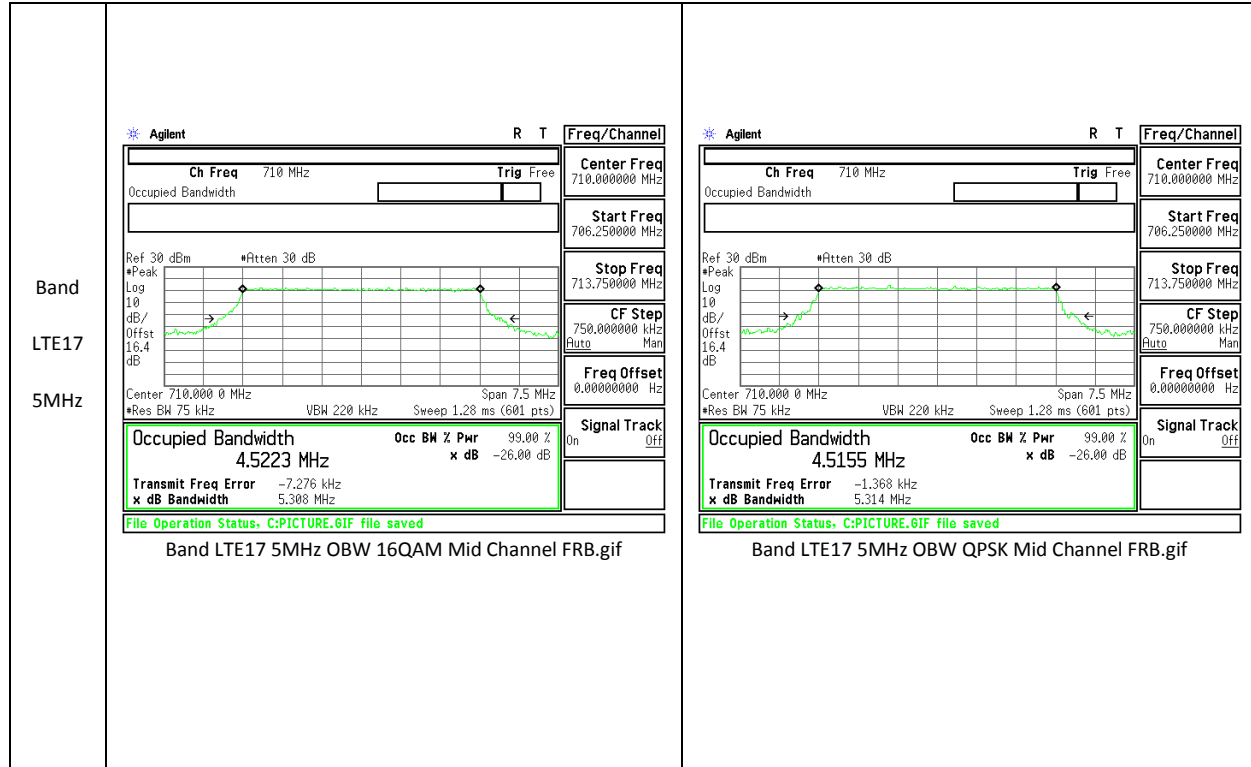
Band LTE2 5MHz	 Agilent R T Freq/Channel Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.87625000 GHz Stop Freq 1.88375000 GHz CF Step 750.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Occupied Bandwidth 4.5240 MHz Transmit Freq Error -12.521 kHz x dB Bandwidth 5.260 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE2 5MHz OBW 16QAM Mid Channel FRB.gif	 Agilent R T Freq/Channel Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.87625000 GHz Stop Freq 1.88375000 GHz CF Step 750.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Occupied Bandwidth 4.5016 MHz Transmit Freq Error -3.760 kHz x dB Bandwidth 5.184 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE2 5MHz OBW QPSK Mid Channel FRB.gif
Band LTE2 3MHz	 Agilent R T Freq/Channel Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.87775000 GHz Stop Freq 1.88225000 GHz CF Step 450.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Occupied Bandwidth 2.7048 MHz Transmit Freq Error 2.030 kHz x dB Bandwidth 3.324 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE2 3MHz OBW 16QAM Mid Channel FRB.gif	 Agilent R T Freq/Channel Ch Freq 1.88 GHz Trig Free Center Freq 1.88000000 GHz Start Freq 1.87775000 GHz Stop Freq 1.88225000 GHz CF Step 450.000000 kHz Freq Offset 0.00000000 Hz Signal Track On Occupied Bandwidth 2.6963 MHz Transmit Freq Error 4.763 kHz x dB Bandwidth 3.293 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE2 3MHz OBW QPSK Mid Channel FRB.gif



Band LTE4 15MHz	 Agilent R T Freq/Channel Ch Freq 1.7325 GHz Trig Free Center Freq 1.73250000 GHz Start Freq 1.72125000 GHz Stop Freq 1.74375000 GHz CF Step 2.25000000 MHz Huto Man Freq Offset 0.00000000 Hz Signal Track On Off Occupied Bandwidth 13.4550 MHz Transmit Freq Error 10.715 kHz x dB Bandwidth 15.566 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE4 15MHz OBW 16QAM Mid Channel FRB.gif	 Agilent R T Freq/Channel Ch Freq 1.7325 GHz Trig Free Center Freq 1.73250000 GHz Start Freq 1.72125000 GHz Stop Freq 1.74375000 GHz CF Step 2.25000000 MHz Huto Man Freq Offset 0.00000000 Hz Signal Track On Off Occupied Bandwidth 13.4482 MHz Transmit Freq Error 7.649 kHz x dB Bandwidth 15.902 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE4 15MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 10MHz	 Agilent R T Freq/Channel Ch Freq 1.7325 GHz Trig Free Center Freq 1.73250000 GHz Start Freq 1.72500000 GHz Stop Freq 1.74000000 GHz CF Step 1.50000000 MHz Huto Man Freq Offset 0.00000000 Hz Signal Track On Off Occupied Bandwidth 9.0070 MHz Transmit Freq Error -12.920 kHz x dB Bandwidth 10.219 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE4 10MHz OBW 16QAM Mid Channel FRB.gif	 Agilent R T Freq/Channel Ch Freq 1.7325 GHz Trig Free Center Freq 1.73250000 GHz Start Freq 1.72500000 GHz Stop Freq 1.74000000 GHz CF Step 1.50000000 MHz Huto Man Freq Offset 0.00000000 Hz Signal Track On Off Occupied Bandwidth 8.9936 MHz Transmit Freq Error 17.127 kHz x dB Bandwidth 10.444 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE4 10MHz OBW QPSK Mid Channel FRB.gif

Band LTE4 5MHz	 Band LTE4 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 5MHz OBW QPSK Mid Channel FRB.gif
Band LTE4 3MHz	 Band LTE4 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE4 3MHz OBW QPSK Mid Channel FRB.gif





10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27.53

LIMITS

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

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

Part 90:

(a)(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log(f/6.1)$ decibels or $50 + 10 \log(P)$ 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 $43 + 10 \log(P)$ 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

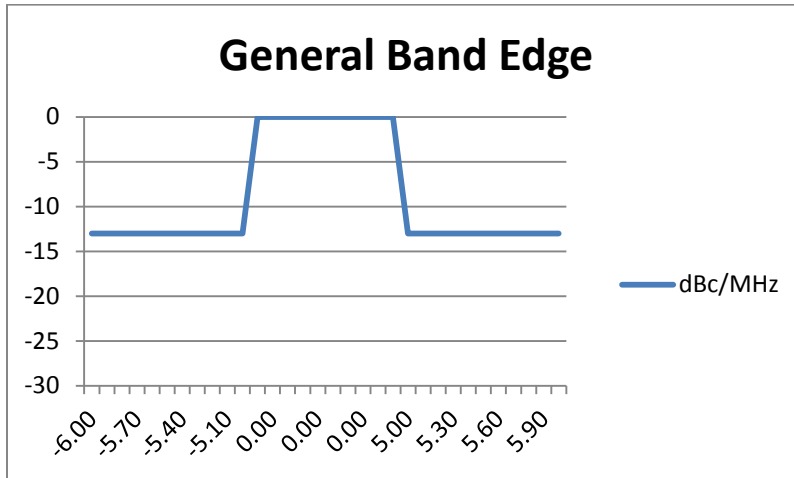
The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

SOP

For each band edge measurement:

- Set the spectrum analyzer span to include the block edge frequency (824, 849, 1850, 1910 and 1915 MHz)
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm.
- Set resolution bandwidth to at least 1% of emission bandwidth.
- For Part 27.53 (LTE 41)
- (m)(4) For mobile station, the attenuation factor shall be not less than $43 + 10 \log(P)$ dB at the channel edge and $(55 + 10 \log(P))$ dB at 5.5 MHz from the channel edges.
- (m)(6) Compliance with these rules is based on the user of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 1 percent of the emission bandwidth may be employed.

Edge Masks



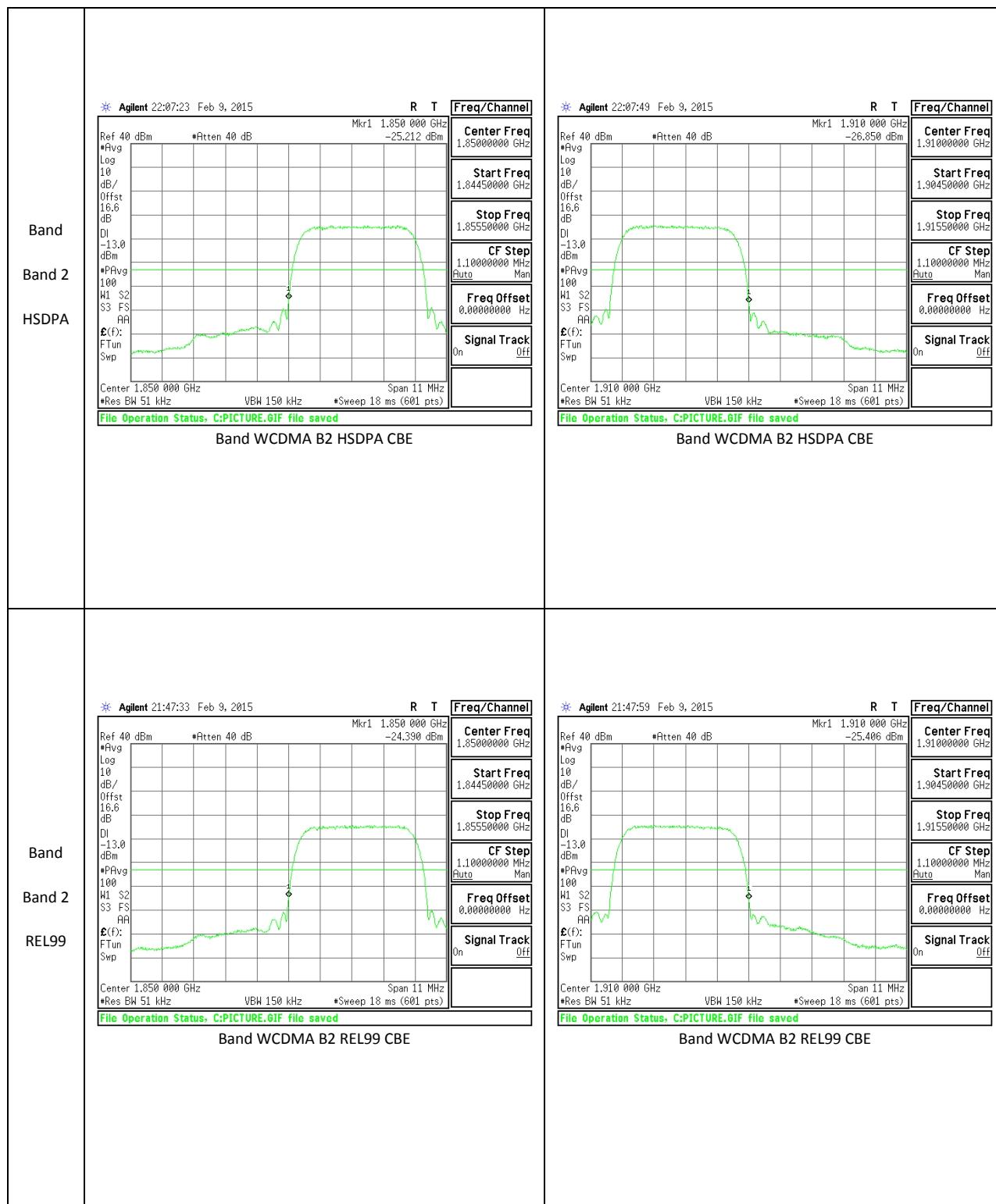
RULE PART(S) for Emission Mask

- FCC: §90.210, and §90.691
- (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 $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ 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 $43 + 10 \log_{10}(P)$ 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.}

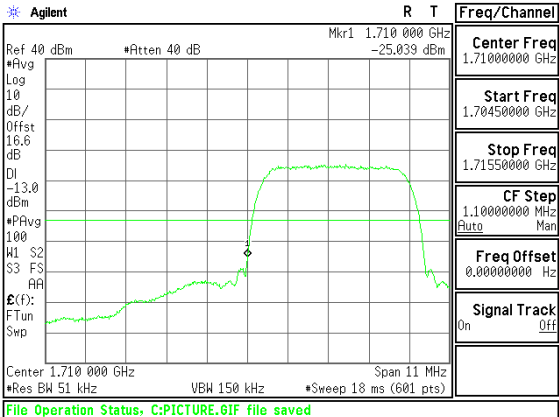
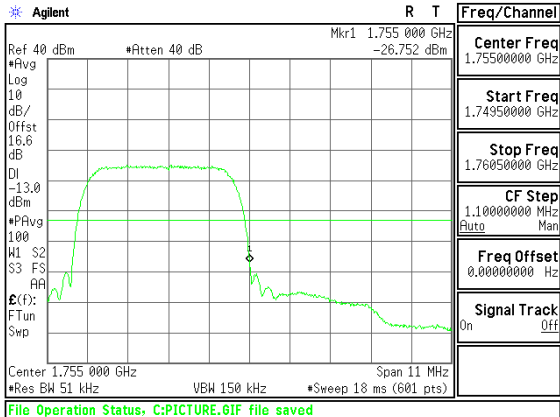
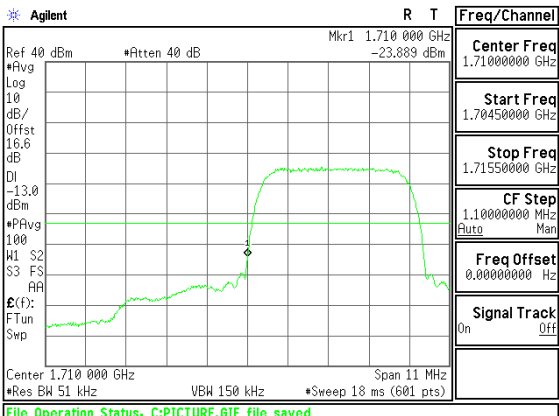
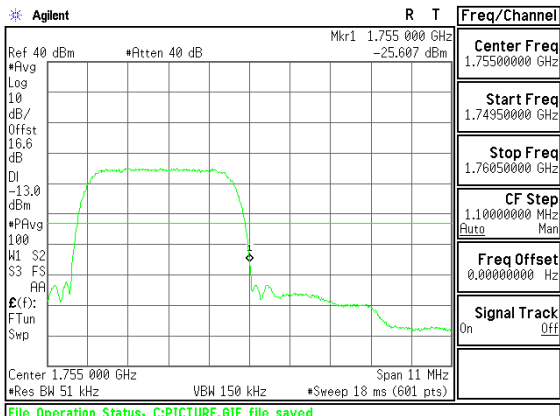
MODES TESTED

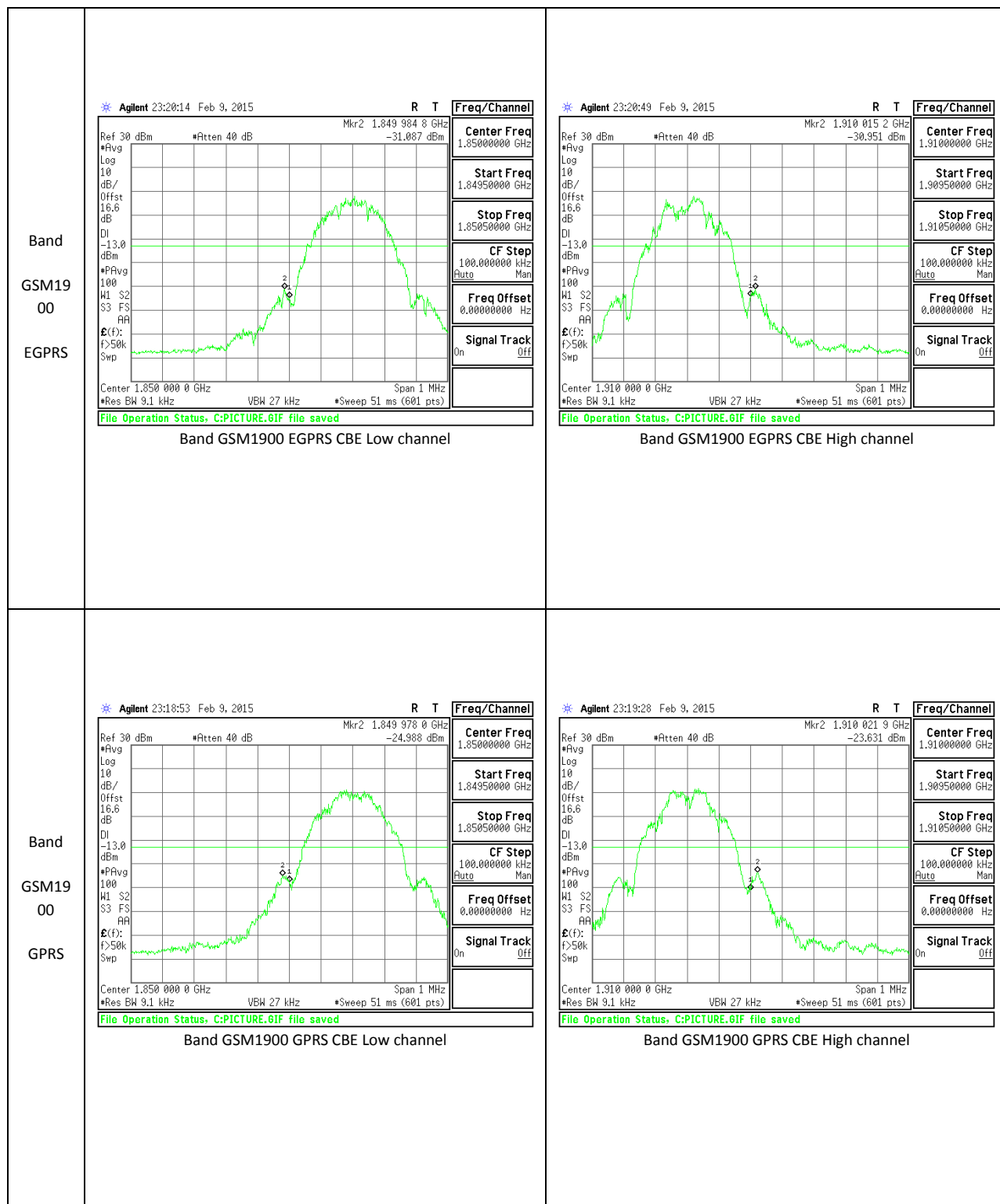
RESULTS

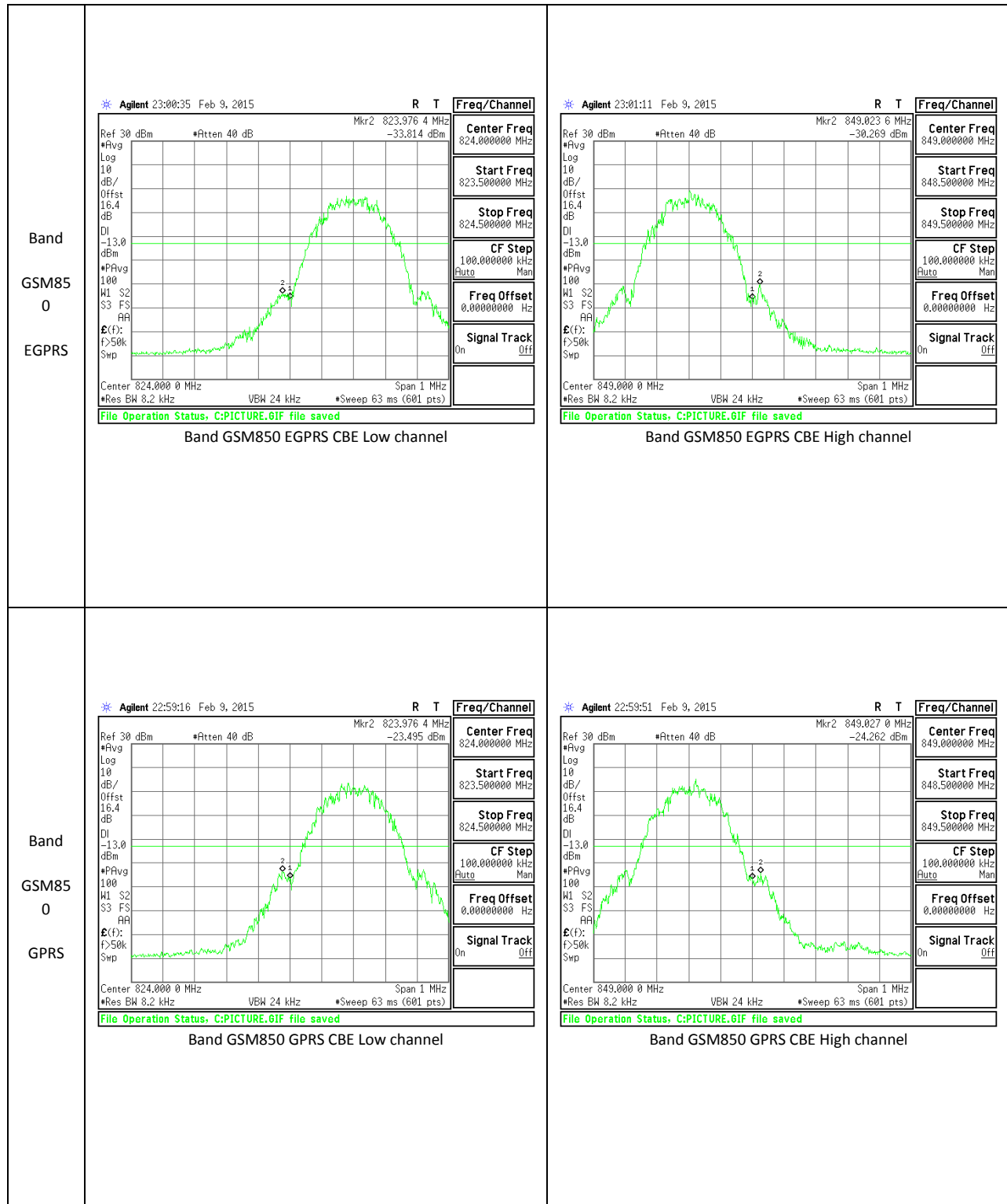
10.2.1. BAND EDGE PLOTS

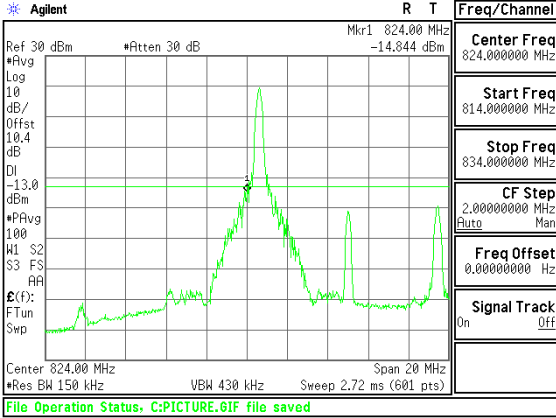
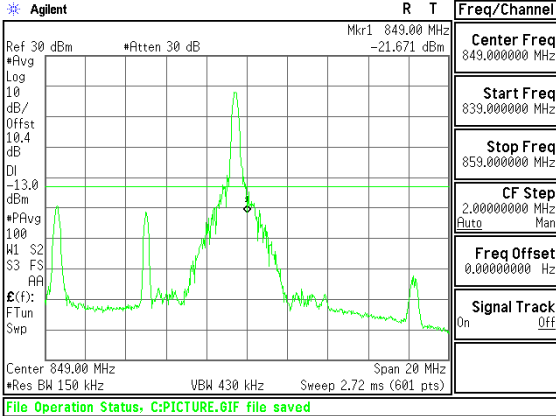
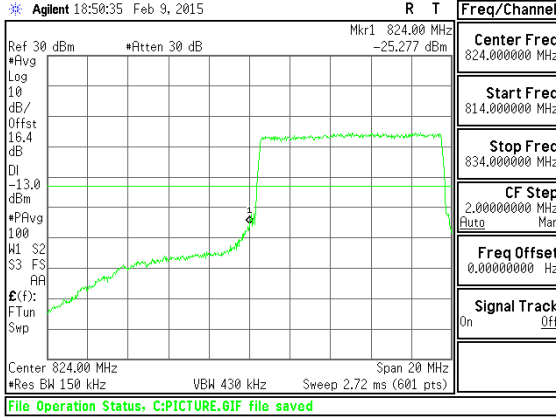
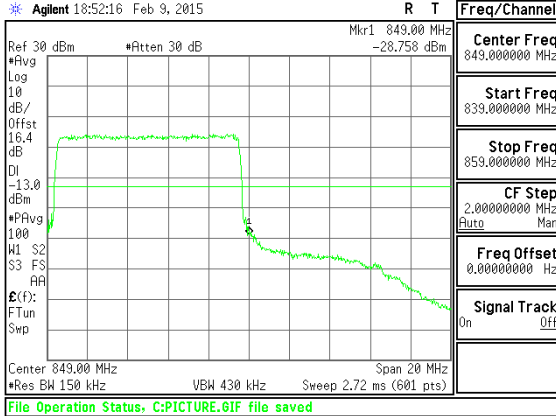


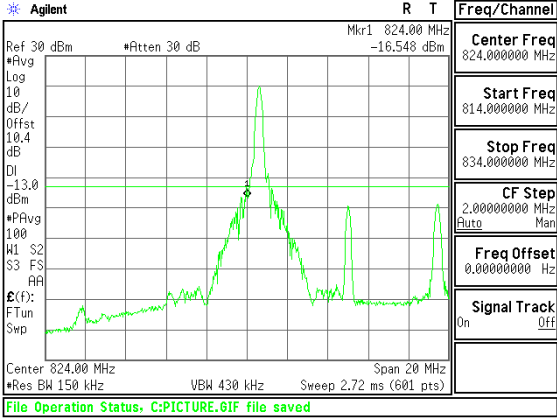
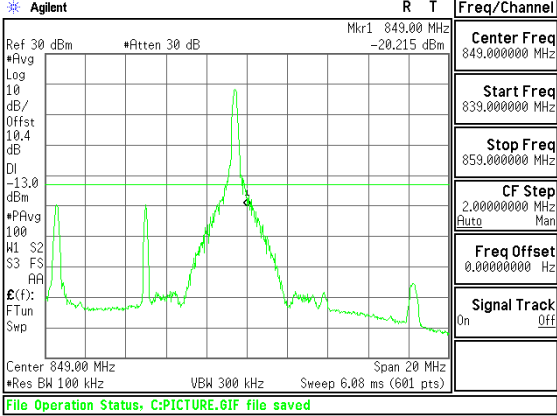
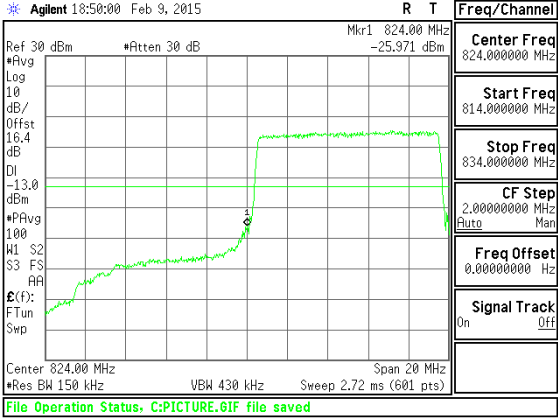
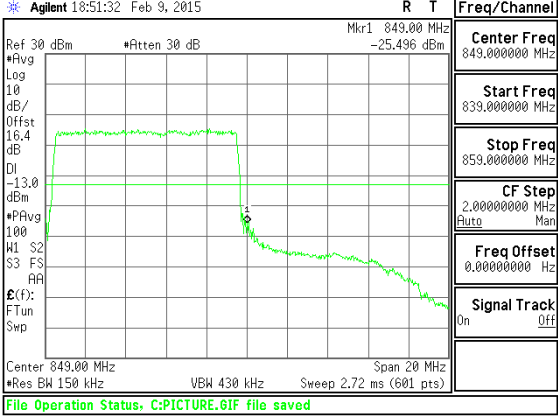
Band Band 5 HSDPA	Agilent 22:39:39 Feb 9, 2015 R T Freq/Channel Center Freq 824.000000 MHz Start Freq 818.500000 MHz Stop Freq 829.500000 MHz CF Step 1.10000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 40 dBm *Atten 40 dB Mkr1 824.000 MHz -27.835 dBm #Avg Log 10 dB/Offst 16.6 dB DI -13.0 dBm #PAvg 100 W1 S2 S3 FS RA File Operation Status: C:PICTURE.01F file saved Band WCDMA B5 HSDPA CBE	Agilent 22:40:05 Feb 9, 2015 R T Freq/Channel Center Freq 849.000000 MHz Start Freq 843.500000 MHz Stop Freq 854.500000 MHz CF Step 1.10000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 40 dBm *Atten 40 dB Mkr1 849.000 MHz -28.335 dBm #Avg Log 10 dB/Offst 16.6 dB DI -13.0 dBm #PAvg 100 W1 S2 S3 FS RA File Operation Status: C:PICTURE.01F file saved Band WCDMA B5 HSDPA CBE
Band Band 5 REL99	Agilent 22:38:07 Feb 9, 2015 R T Freq/Channel Center Freq 824.000000 MHz Start Freq 818.500000 MHz Stop Freq 829.500000 MHz CF Step 1.10000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 40 dBm *Atten 40 dB Mkr1 824.000 MHz -27.683 dBm #Avg Log 10 dB/Offst 16.6 dB DI -13.0 dBm #PAvg 100 W1 S2 S3 FS RA File Operation Status: C:PICTURE.01F file saved Band WCDMA B5 REL99 CBE	Agilent 22:38:33 Feb 9, 2015 R T Freq/Channel Center Freq 849.000000 MHz Start Freq 843.500000 MHz Stop Freq 854.500000 MHz CF Step 1.10000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 40 dBm *Atten 40 dB Mkr1 849.000 MHz -27.778 dBm #Avg Log 10 dB/Offst 16.6 dB DI -13.0 dBm #PAvg 100 W1 S2 S3 FS RA File Operation Status: C:PICTURE.01F file saved Band WCDMA B5 REL99 CBE

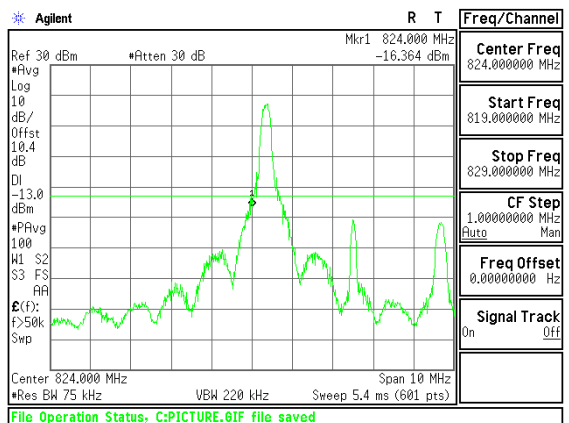
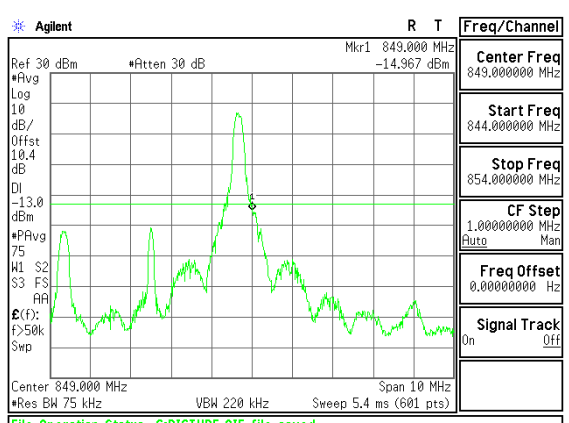
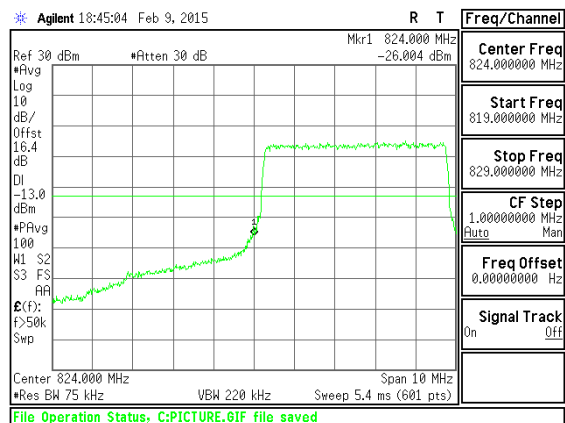
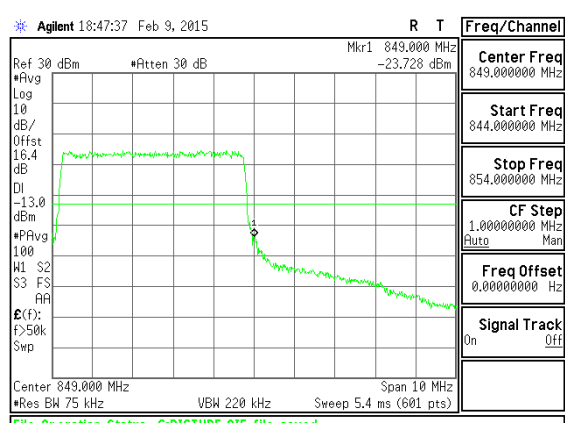
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	 Band WCDMA B4 REL99 CBE	 Band WCDMA B4 REL99 CBE

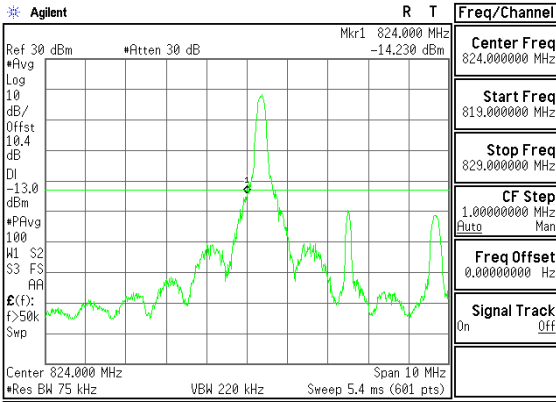
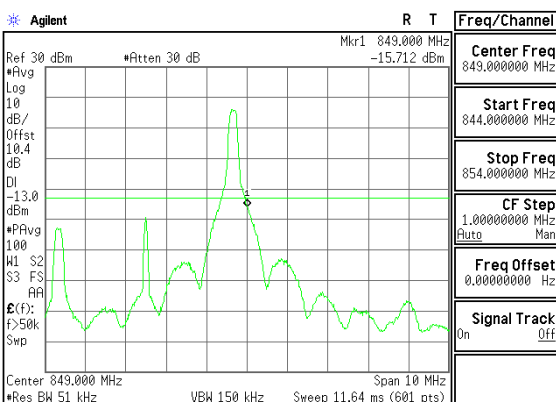
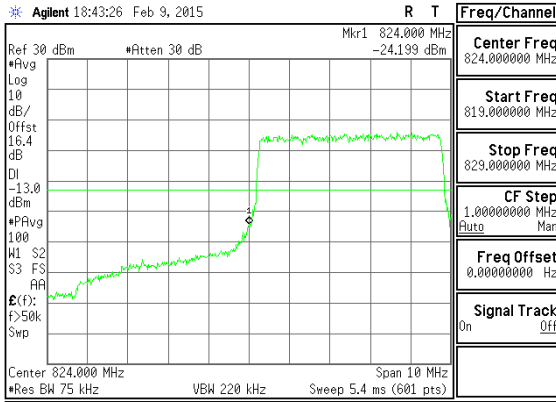
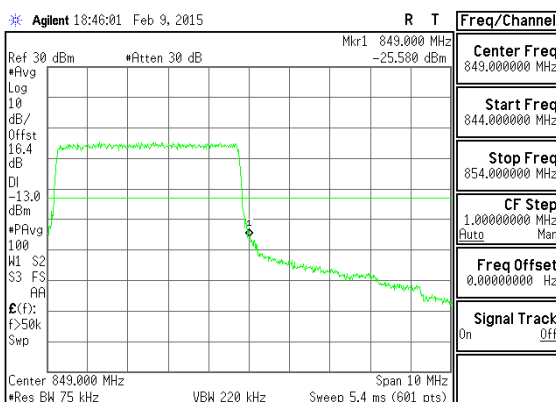


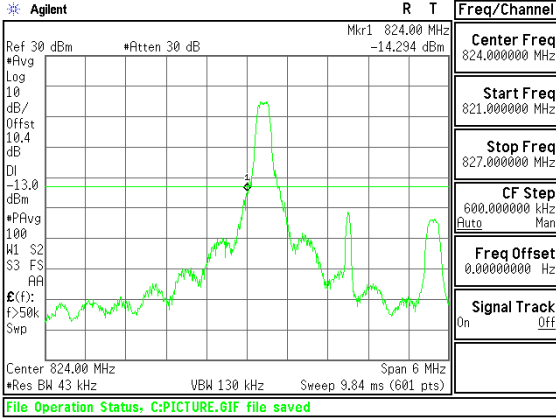
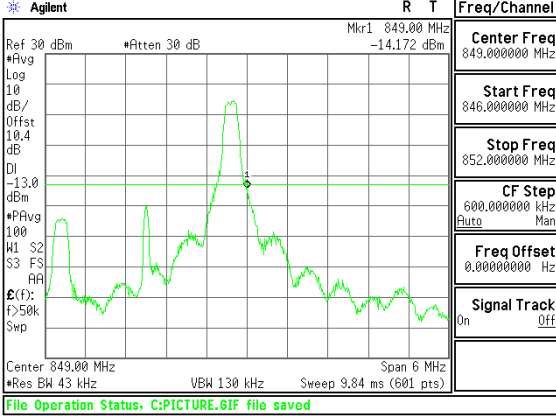
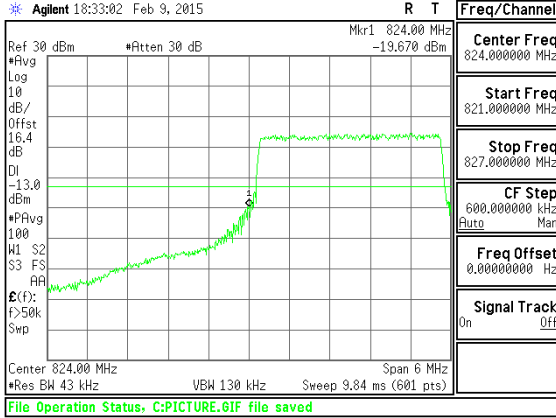
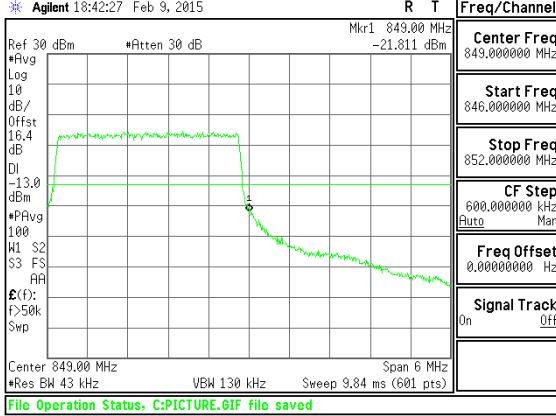


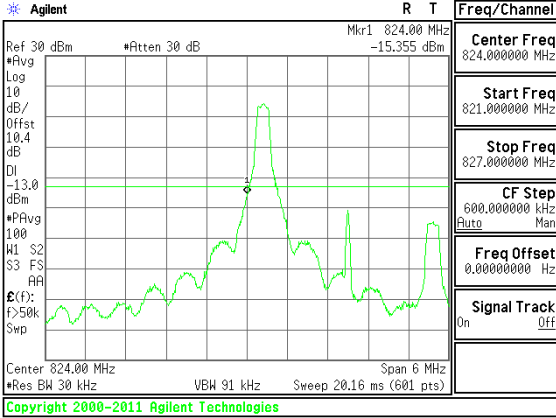
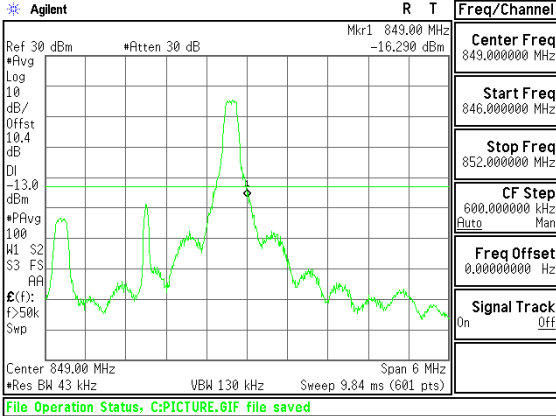
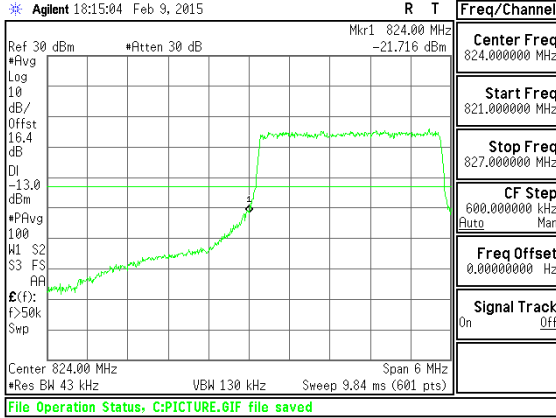
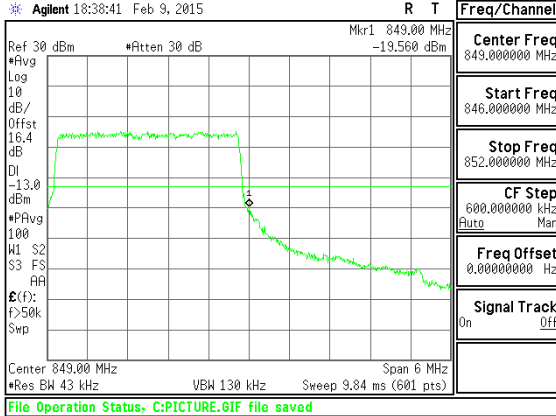
Band LTE5 10MHz 16QAM	 Agilent R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 824.00 MHz -14.844 dBm Center Freq 824.000000 MHz Start Freq 814.000000 MHz Stop Freq 834.000000 MHz CF Step 2.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 824.00 MHz Span 20 MHz #Res BW 150 kHz VBW 430 kHz Sweep 2.72 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 10MHz CBE 16QAM Low Channel 1RB.gif
Band LTE5 10MHz 16QAM	 Agilent R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 849.00 MHz -21.671 dBm Center Freq 849.000000 MHz Start Freq 839.000000 MHz Stop Freq 859.000000 MHz CF Step 2.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 849.00 MHz Span 20 MHz #Res BW 150 kHz VBW 430 kHz Sweep 2.72 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 10MHz CBE 16QAM High Channel 1RB.gif
 Agilent 18:50:35 Feb 9, 2015 R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 824.00 MHz -25.277 dBm Center Freq 824.000000 MHz Start Freq 814.000000 MHz Stop Freq 834.000000 MHz CF Step 2.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 824.00 MHz Span 20 MHz #Res BW 150 kHz VBW 430 kHz Sweep 2.72 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 10MHz CBE 16QAM Low Channel FRB.gif	 Agilent 18:52:16 Feb 9, 2015 R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 849.00 MHz -28.758 dBm Center Freq 849.000000 MHz Start Freq 839.000000 MHz Stop Freq 859.000000 MHz CF Step 2.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 849.00 MHz Span 20 MHz #Res BW 150 kHz VBW 430 kHz Sweep 2.72 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 10MHz CBE 16QAM High Channel FRB.gif

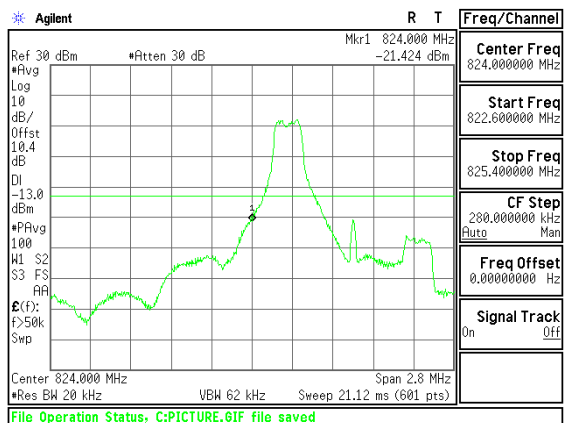
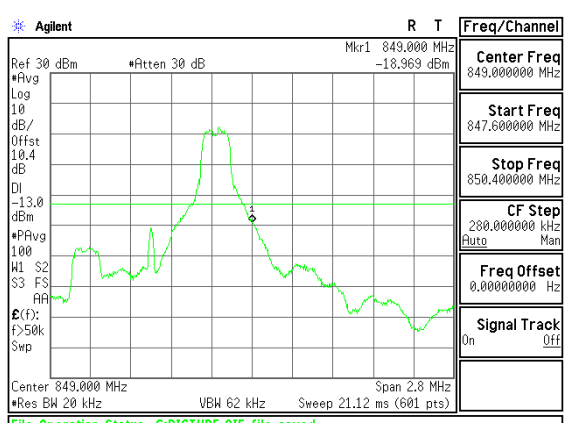
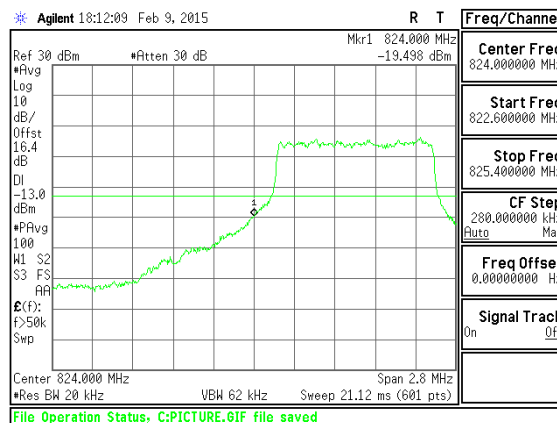
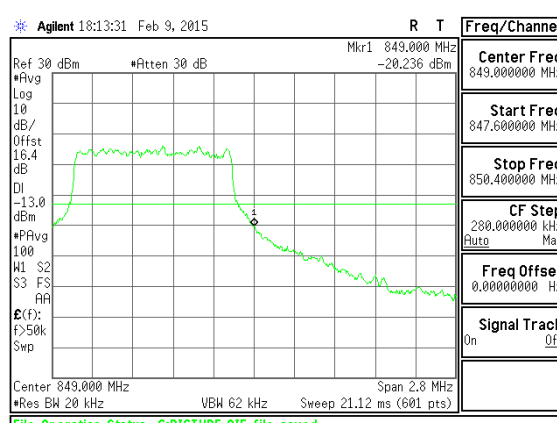
Band LTE5 10MHz QPSK	 Agilent R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 824.00 MHz -16.548 dBm Center Freq 824.000000 MHz Start Freq 814.000000 MHz Stop Freq 834.000000 MHz CF Step 2.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Off Center 824.00 MHz Span 20 MHz #Res BW 150 kHz VBW 430 kHz Sweep 2.72 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 10MHz CBE QPSK Low Channel 1RB.gif
Band LTE5 10MHz QPSK	 Agilent R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 849.00 MHz -20.215 dBm Center Freq 849.000000 MHz Start Freq 839.000000 MHz Stop Freq 859.000000 MHz CF Step 2.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Off Center 849.00 MHz Span 20 MHz #Res BW 100 kHz VBW 300 kHz Sweep 6.08 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 10MHz CBE QPSK High Channel 1RB.gif
	 Agilent 18:50:00 Feb 9, 2015 R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 824.00 MHz -25.971 dBm Center Freq 824.000000 MHz Start Freq 814.000000 MHz Stop Freq 834.000000 MHz CF Step 2.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Off Center 824.00 MHz Span 20 MHz #Res BW 150 kHz VBW 430 kHz Sweep 2.72 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 10MHz CBE QPSK Low Channel FRB.gif
	 Agilent 18:51:32 Feb 9, 2015 R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 849.00 MHz -25.496 dBm Center Freq 849.000000 MHz Start Freq 839.000000 MHz Stop Freq 859.000000 MHz CF Step 2.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Off Center 849.00 MHz Span 20 MHz #Res BW 150 kHz VBW 430 kHz Sweep 2.72 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 10MHz CBE QPSK High Channel FRB.gif

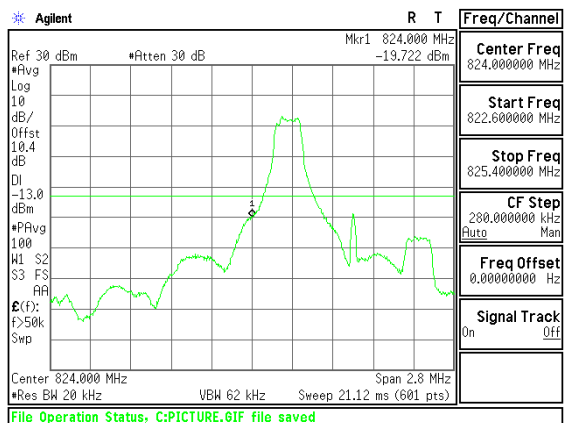
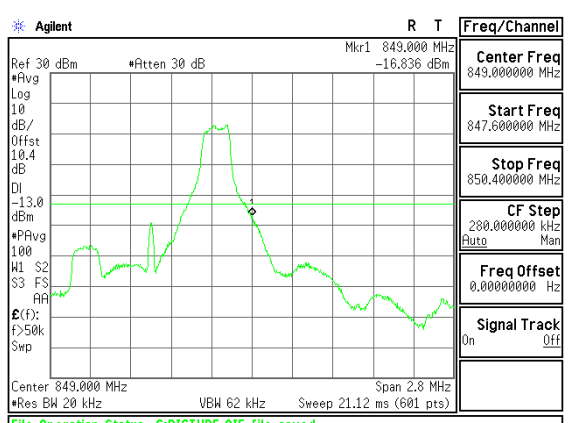
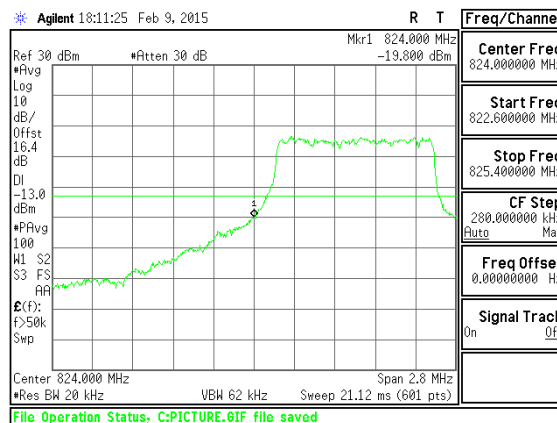
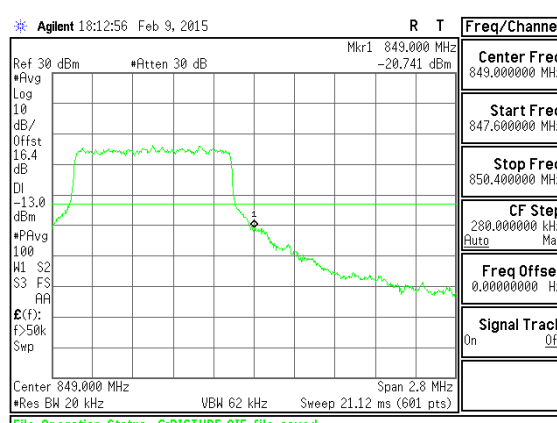
Band LTE5 5MHz 16QAM	 File Operation Status: C:\PICTURE.GIF file saved Band LTE5 5MHz CBE 16QAM Low Channel 1RB.gif
Band LTE5 5MHz 16QAM	 File Operation Status: C:\PICTURE.GIF file saved Band LTE5 5MHz CBE 16QAM High Channel 1RB.gif
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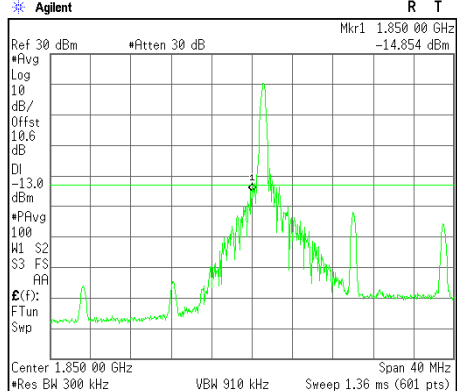
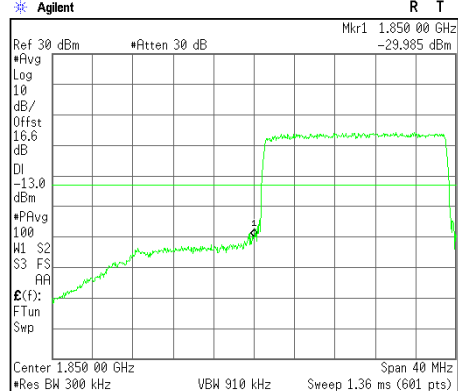
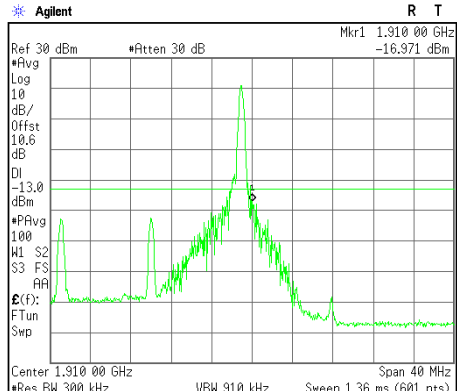
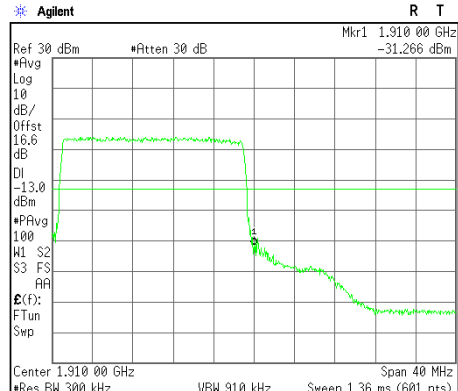
Band LTE5 5MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE5 5MHz CBE QPSK Low Channel 1RB.gif
Band LTE5 5MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE5 5MHz CBE QPSK High Channel 1RB.gif
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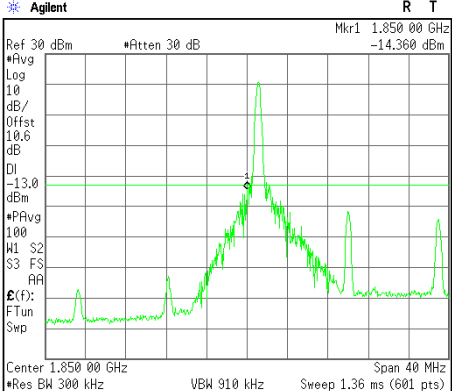
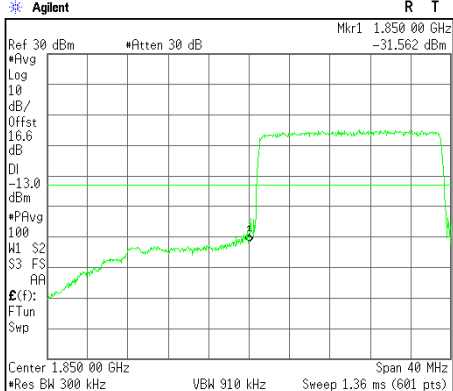
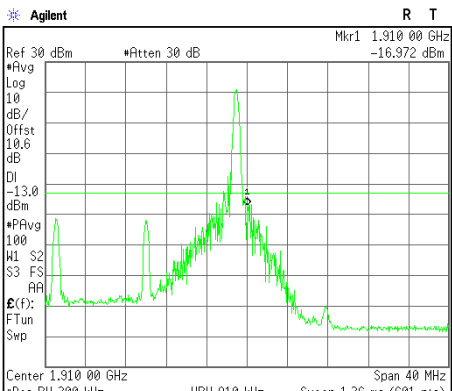
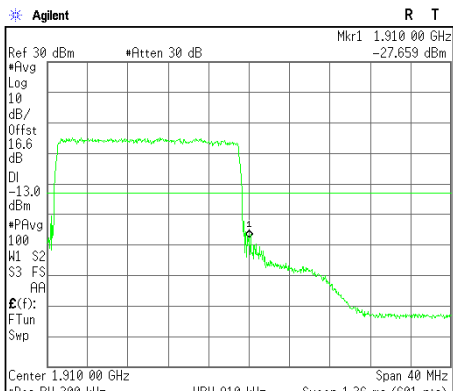
Band LTE5 3MHz 16QAM	 Agilent R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 824.00 MHz -14.294 dBm Center Freq 824.000000 MHz Start Freq 821.000000 MHz Stop Freq 827.000000 MHz CF Step 600.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 824.00 MHz Span 6 MHz #Res BW 43 kHz VBW 130 kHz Sweep 9.84 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 3MHz CBE 16QAM Low Channel 1RB.gif
Band LTE5 3MHz 16QAM	 Agilent R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 849.00 MHz -14.172 dBm Center Freq 849.000000 MHz Start Freq 846.000000 MHz Stop Freq 852.000000 MHz CF Step 600.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 849.00 MHz Span 6 MHz #Res BW 43 kHz VBW 130 kHz Sweep 9.84 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 3MHz CBE 16QAM High Channel 1RB.gif
	 Agilent 18:33:02 Feb 9, 2015 R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 824.00 MHz -19.670 dBm Center Freq 824.000000 MHz Start Freq 821.000000 MHz Stop Freq 827.000000 MHz CF Step 600.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 824.00 MHz Span 6 MHz #Res BW 43 kHz VBW 130 kHz Sweep 9.84 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 3MHz CBE 16QAM Low Channel FRB.gif
	 Agilent 18:42:27 Feb 9, 2015 R T Freq/Channel Ref 30 dBm #Atten 30 dB Mkr1 849.00 MHz -21.811 dBm Center Freq 849.000000 MHz Start Freq 846.000000 MHz Stop Freq 852.000000 MHz CF Step 600.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 849.00 MHz Span 6 MHz #Res BW 43 kHz VBW 130 kHz Sweep 9.84 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE5 3MHz CBE 16QAM High Channel FRB.gif

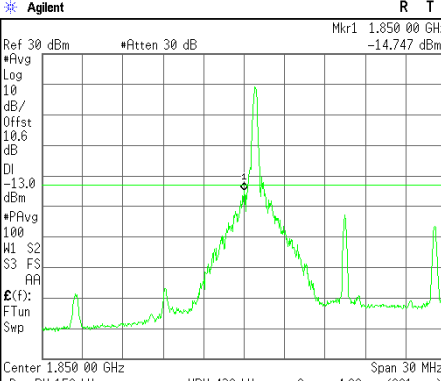
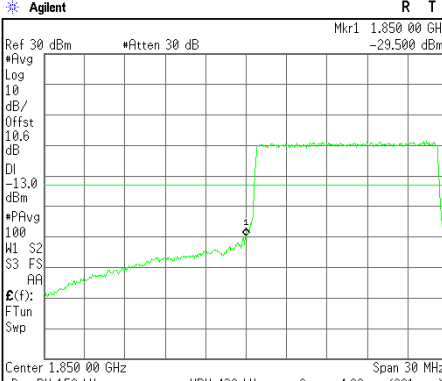
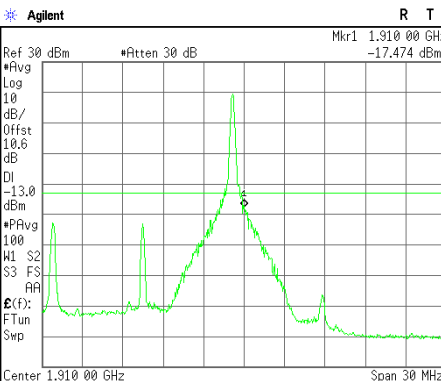
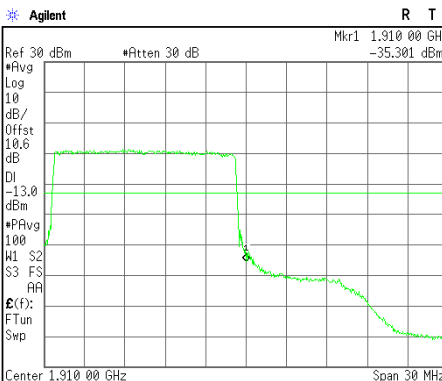
Band LTE5 3MHz QPSK	 Copyright 2000-2011 Agilent Technologies Band LTE5 3MHz CBE QPSK Low Channel 1RB.gif
Band LTE5 3MHz QPSK	 File Operation Status, C:PICTURE.GIF file saved Band LTE5 3MHz CBE QPSK High Channel 1RB.gif
 File Operation Status, C:PICTURE.GIF file saved Band LTE5 3MHz CBE QPSK Low Channel FRB.gif	 File Operation Status, C:PICTURE.GIF file saved Band LTE5 3MHz CBE QPSK High Channel FRB.gif

Band LTE5 1.4MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE5 1.4MHz CBE 16QAM Low Channel 1RB.gif
Band LTE5 1.4MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE5 1.4MHz CBE 16QAM High Channel 1RB.gif
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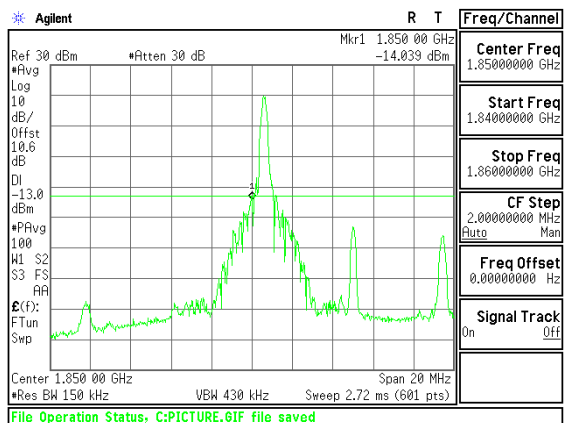
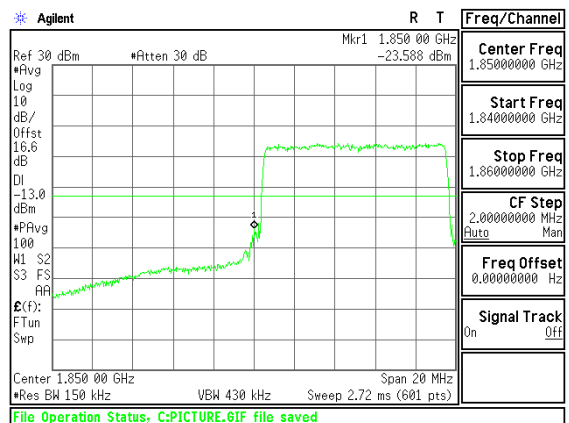
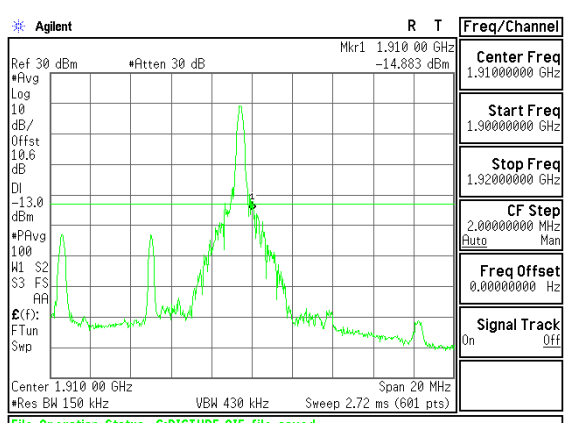
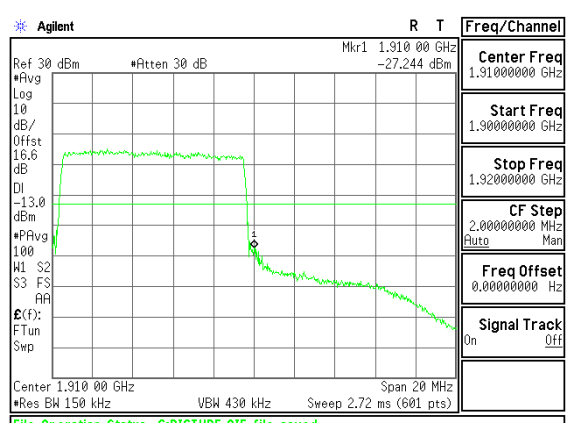
Band LTE5 1.4MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE5 1.4MHz CBE QPSK Low Channel 1RB.gif
Band LTE5 1.4MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE5 1.4MHz CBE QPSK High Channel 1RB.gif
 File Operation Status: C:PICTURE.GIF file saved Band LTE5 1.4MHz CBE QPSK Low Channel FRB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE5 1.4MHz CBE QPSK High Channel FRB.gif

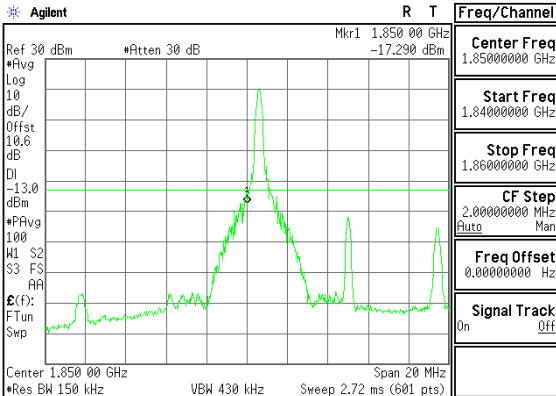
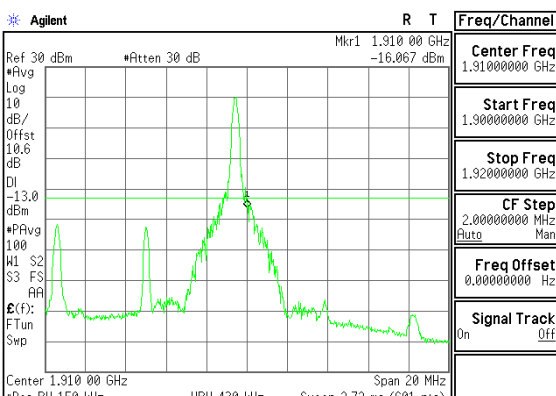
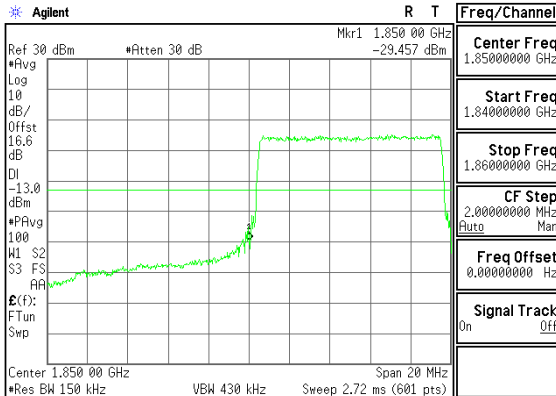
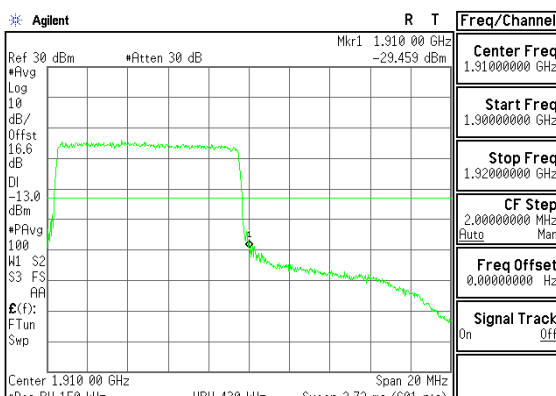
Band LTE2 20MHz 16QAM	 Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.850 00 GHz -14.854 dBm Center Freq 1.85000000 GHz Start Freq 1.83000000 GHz Stop Freq 1.87000000 GHz CF Step 4.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On File Operation Status: C:PICTURE.GIF file saved Band LTE2 20MHz CBE 16QAM Low Channel 1RB.gif	 Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.850 00 GHz -29.985 dBm Center Freq 1.85000000 GHz Start Freq 1.83000000 GHz Stop Freq 1.87000000 GHz CF Step 4.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On File Operation Status: C:PICTURE.GIF file saved Band LTE2 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 20MHz 16QAM	 Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.910 00 GHz -16.971 dBm Center Freq 1.91000000 GHz Start Freq 1.89000000 GHz Stop Freq 1.93000000 GHz CF Step 4.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On File Operation Status: C:PICTURE.GIF file saved Band LTE2 20MHz CBE 16QAM High Channel 1RB.gif	 Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.910 00 GHz -31.266 dBm Center Freq 1.91000000 GHz Start Freq 1.89000000 GHz Stop Freq 1.93000000 GHz CF Step 4.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On File Operation Status: C:PICTURE.GIF file saved Band LTE2 20MHz CBE 16QAM High Channel FRB.gif

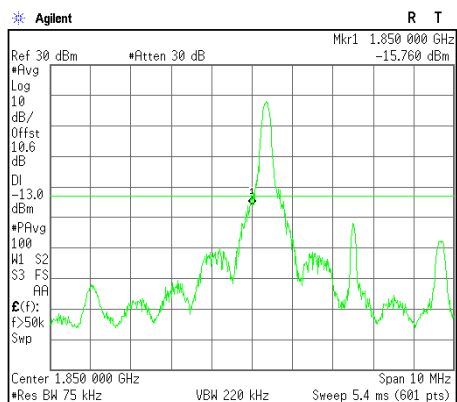
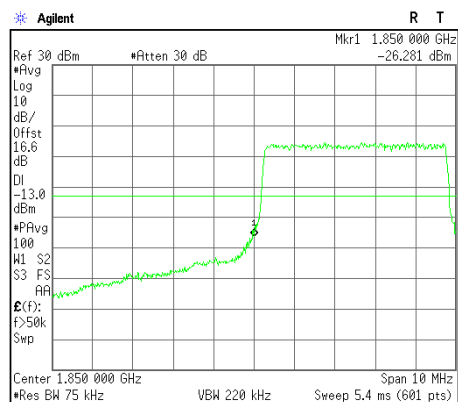
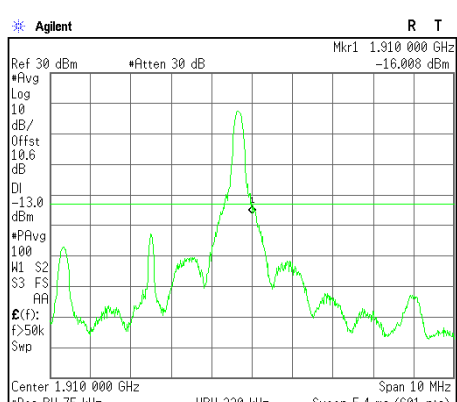
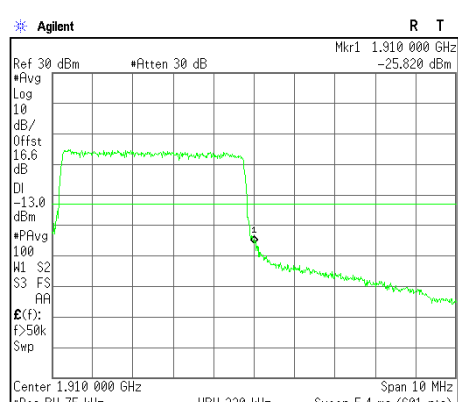
Band LTE2 20MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 20MHz CBE QPSK Low Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 20MHz CBE QPSK Low Channel FRB.gif
Band LTE2 20MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 20MHz CBE QPSK High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 20MHz CBE QPSK High Channel FRB.gif

Band LTE2 15MHz 16QAM	 Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.850 00 GHz -14.747 dBm Center Freq 1.85000000 GHz Start Freq 1.83500000 GHz Stop Freq 1.86500000 GHz CF Step 3.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Center 1.850 00 GHz Span 30 MHz *Res BW 150 kHz VBW 430 kHz Sweep 4.08 ms (601 pts) Copyright 2000-2011 Agilent Technologies Band LTE2 15MHz CBE 16QAM Low Channel 1RB.gif	 Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.850 00 GHz -29.500 dBm Center Freq 1.85000000 GHz Start Freq 1.83500000 GHz Stop Freq 1.86500000 GHz CF Step 3.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Center 1.850 00 GHz Span 30 MHz *Res BW 150 kHz VBW 430 kHz Sweep 4.08 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE2 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 15MHz 16QAM	 Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.910 00 GHz -17.474 dBm Center Freq 1.91000000 GHz Start Freq 1.89500000 GHz Stop Freq 1.92500000 GHz CF Step 3.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Center 1.910 00 GHz Span 30 MHz *Res BW 150 kHz VBW 430 kHz Sweep 4.08 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE2 15MHz CBE 16QAM High Channel 1RB.gif	 Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.910 00 GHz -35.301 dBm Center Freq 1.91000000 GHz Start Freq 1.89500000 GHz Stop Freq 1.92500000 GHz CF Step 3.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Center 1.910 00 GHz Span 30 MHz *Res BW 150 kHz VBW 430 kHz Sweep 4.08 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE2 15MHz CBE 16QAM High Channel FRB.gif

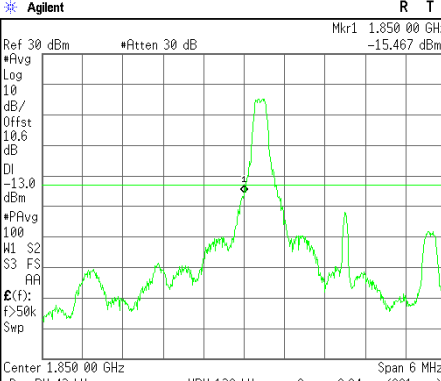
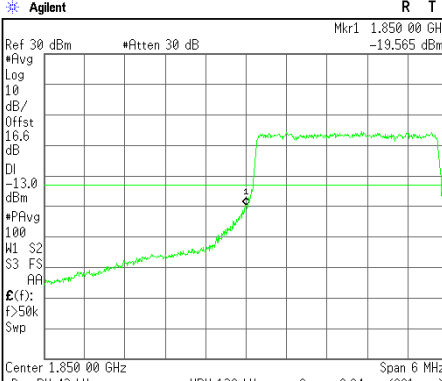
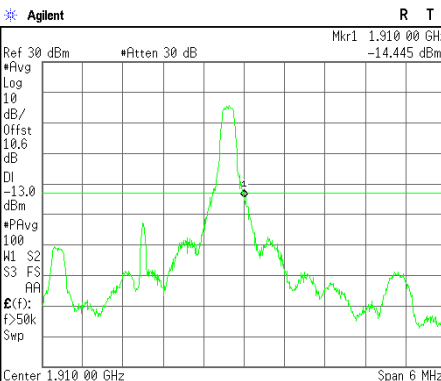
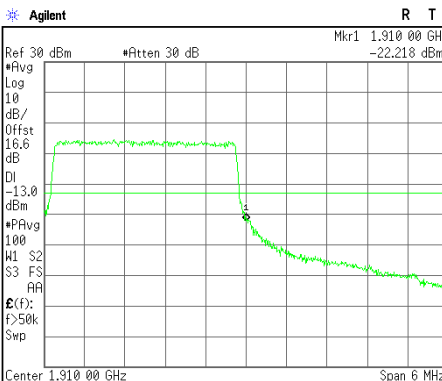
Band LTE2 15MHz QPSK	Agilent R T Freq/Channel Center Freq 1.8500000 GHz Start Freq 1.83500000 GHz Stop Freq 1.86500000 GHz CF Step 3.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm *Atten 30 dB Mkr1 1.850 00 GHz -16.631 dBm Span 30 MHz Center 1.850 00 GHz Res BW 150 kHz VBW 430 kHz Sweep 4.08 ms (601 pts) Copyright 2000-2011 Agilent Technologies Band LTE2 15MHz CBE QPSK Low Channel 1RB.gif	Agilent R T Freq/Channel Center Freq 1.85000000 GHz Start Freq 1.83500000 GHz Stop Freq 1.86500000 GHz CF Step 3.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm *Atten 30 dB Mkr1 1.850 00 GHz -28.980 dBm Span 30 MHz Center 1.850 00 GHz Res BW 150 kHz VBW 430 kHz Sweep 4.08 ms (601 pts) File Operation Status: C:\PICTURE.GIF file saved Band LTE2 15MHz CBE QPSK Low Channel FRB.gif
Band LTE2 15MHz QPSK	Agilent R T Freq/Channel Center Freq 1.91000000 GHz Start Freq 1.89500000 GHz Stop Freq 1.92500000 GHz CF Step 3.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm *Atten 30 dB Mkr1 1.910 00 GHz -18.375 dBm Span 30 MHz Center 1.910 00 GHz Res BW 150 kHz VBW 430 kHz Sweep 4.08 ms (601 pts) Copyright 2000-2011 Agilent Technologies Band LTE2 15MHz CBE QPSK High Channel 1RB.gif	Agilent R T Freq/Channel Center Freq 1.91000000 GHz Start Freq 1.89500000 GHz Stop Freq 1.92500000 GHz CF Step 3.00000000 MHz Freq Offset 0.00000000 Hz Signal Track On Ref 30 dBm *Atten 30 dB Mkr1 1.910 00 GHz -33.416 dBm Span 30 MHz Center 1.910 00 GHz Res BW 150 kHz VBW 430 kHz Sweep 4.08 ms (601 pts) File Operation Status: C:\PICTURE.GIF file saved Band LTE2 15MHz CBE QPSK High Channel FRB.gif

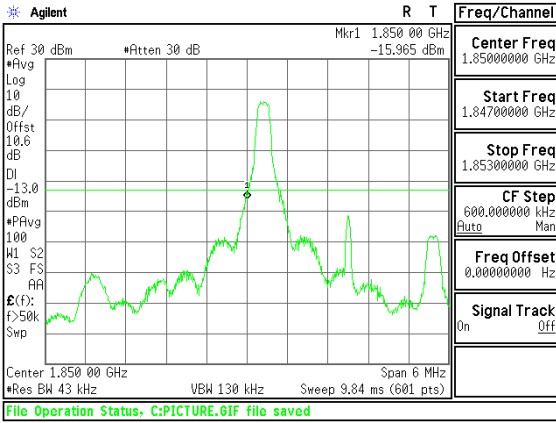
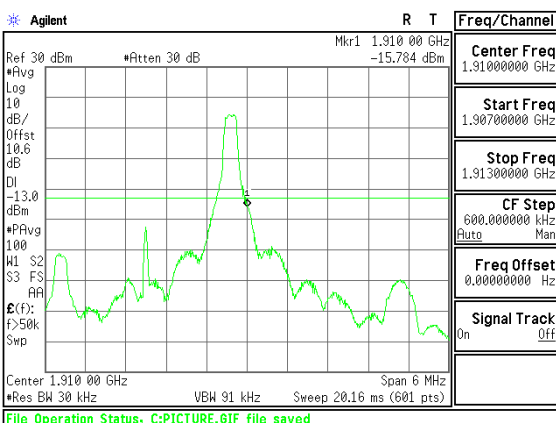
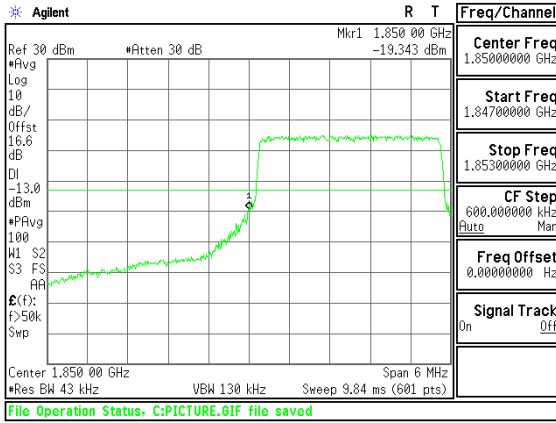
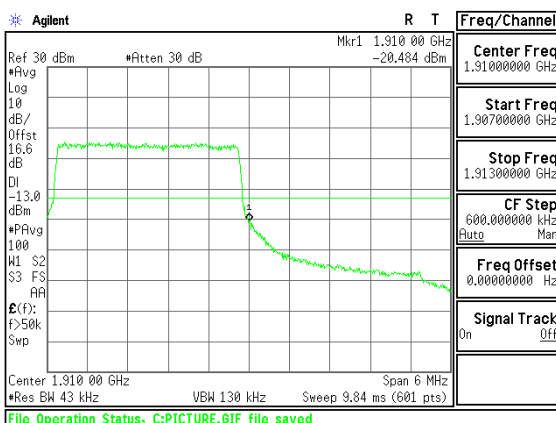
Band LTE2 10MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 10MHz CBE 16QAM Low Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 10MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 10MHz CBE 16QAM High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 10MHz CBE 16QAM High Channel FRB.gif

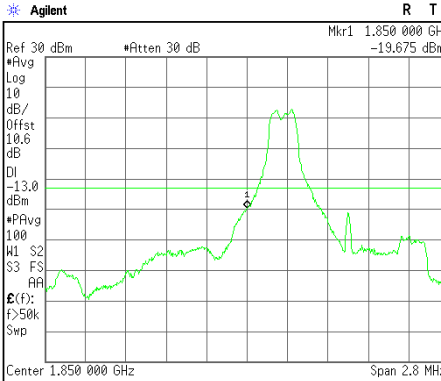
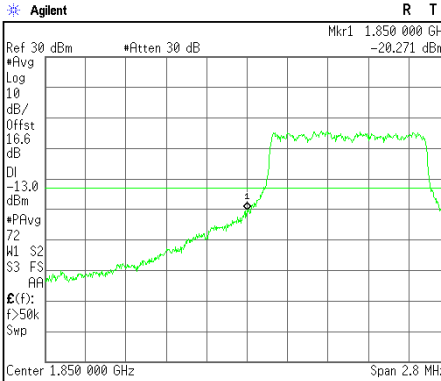
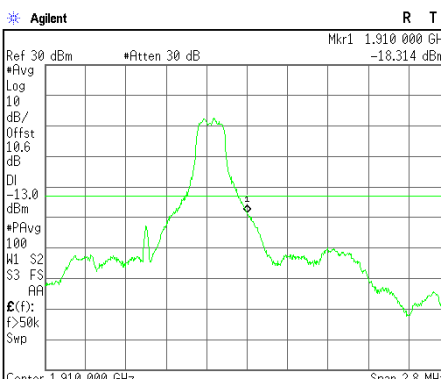
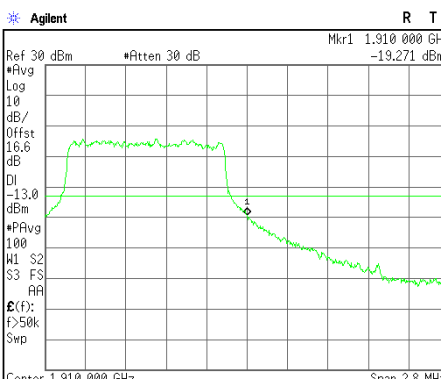
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Band LTE2 10MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 10MHz CBE QPSK High Channel 1RB.gif
 File Operation Status: C:PICTURE.GIF file saved Band LTE2 10MHz CBE QPSK Low Channel FRB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 10MHz CBE QPSK High Channel FRB.gif

Band LTE2 5MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 5MHz CBE 16QAM Low Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 5MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 5MHz CBE 16QAM High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 5MHz CBE 16QAM High Channel FRB.gif

Band LTE2 5MHz QPSK	Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.850 000 GHz -14.630 dBm Copyright 2000-2011 Agilent Technologies Band LTE2 5MHz CBE QPSK Low Channel 1RB.gif	Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.850 000 GHz -25.924 dBm File Operation Status: C:PICTURE.GIF file saved Band LTE2 5MHz CBE QPSK Low Channel FRB.gif
	Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.910 000 GHz -14.411 dBm File Operation Status: C:PICTURE.GIF file saved Band LTE2 5MHz CBE QPSK High Channel 1RB.gif	Agilent Ref 30 dBm *Atten 30 dB Mkr1 1.910 000 GHz -22.540 dBm File Operation Status: C:PICTURE.GIF file saved Band LTE2 5MHz CBE QPSK High Channel FRB.gif

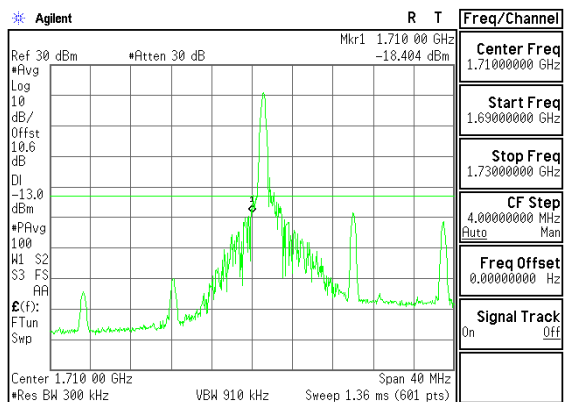
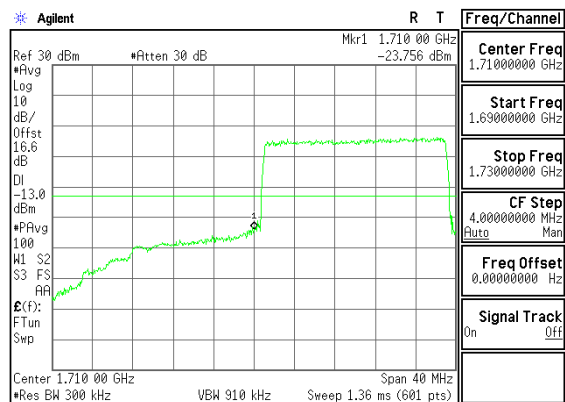
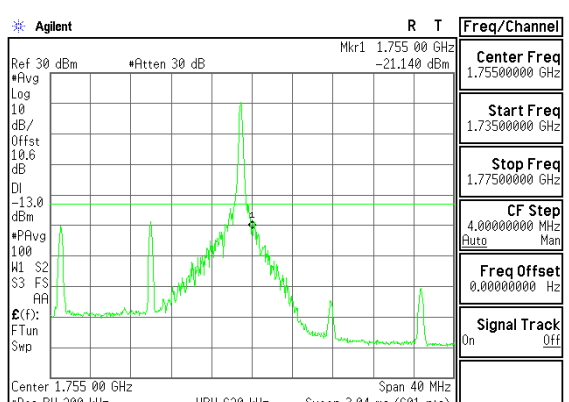
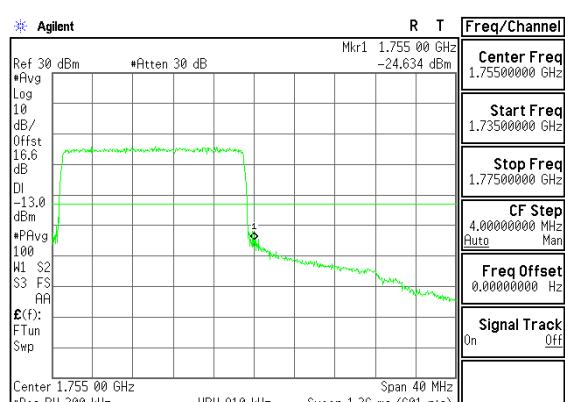
Band LTE2 3MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 3MHz CBE 16QAM Low Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE2 3MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 3MHz CBE 16QAM High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 3MHz CBE 16QAM High Channel FRB.gif

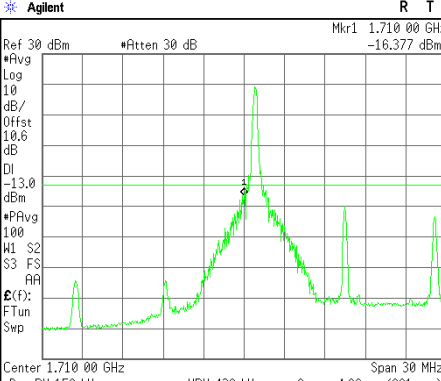
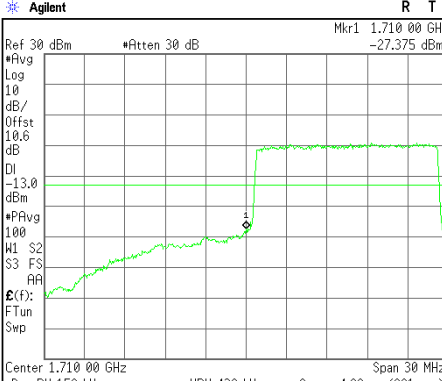
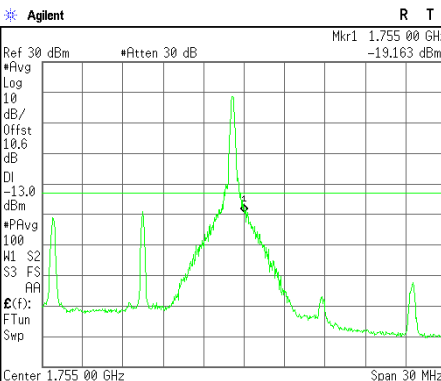
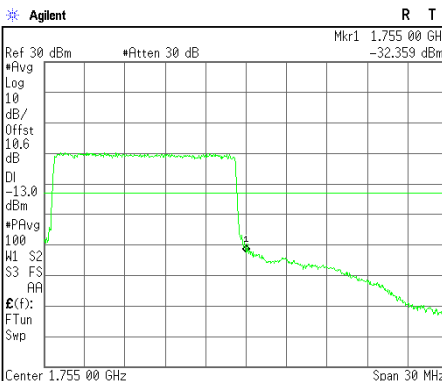
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Band LTE2 3MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE2 3MHz CBE QPSK High Channel 1RB.gif
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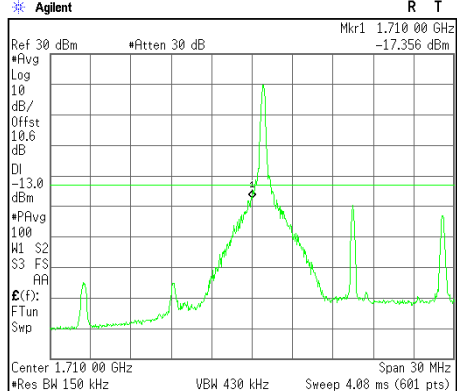
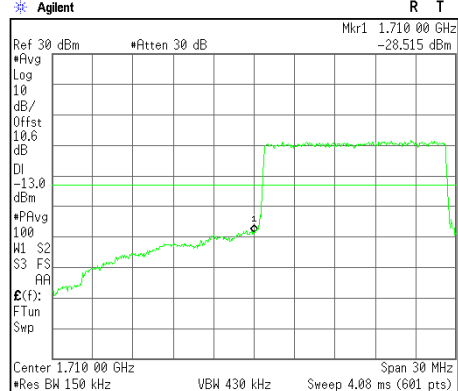
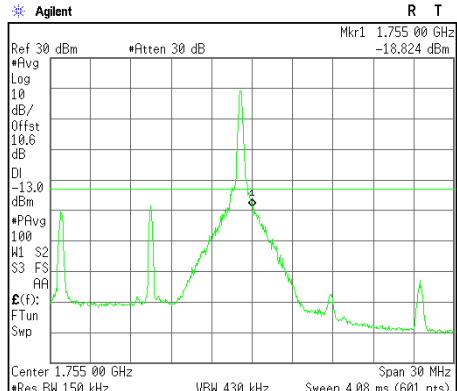
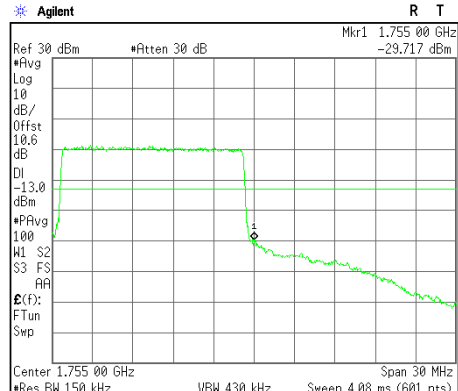
Band	LTE2	1.4MHz	16QAM		Freq/Channel Center Freq 1.8500000 GHz Start Freq 1.8480000 GHz Stop Freq 1.8514000 GHz CF Step 280.000000 kHz Auto Man Freq Offset 0.0000000 Hz Signal Track On Off
				File Operation Status: C:PICTURE.GIF file saved Band LTE2 1.4MHz CBE 16QAM Low Channel 1RB.gif	
Band	LTE2	1.4MHz	16QAM		Freq/Channel Center Freq 1.8500000 GHz Start Freq 1.8480000 GHz Stop Freq 1.8514000 GHz CF Step 280.000000 kHz Auto Man Freq Offset 0.0000000 Hz Signal Track On Off
				File Operation Status: C:PICTURE.GIF file saved Band LTE2 1.4MHz CBE 16QAM Low Channel FRB.gif	
Band	LTE2	1.4MHz	16QAM		Freq/Channel Center Freq 1.9100000 GHz Start Freq 1.9080000 GHz Stop Freq 1.9114000 GHz CF Step 280.000000 kHz Auto Man Freq Offset 0.0000000 Hz Signal Track On Off
				File Operation Status: C:PICTURE.GIF file saved Band LTE2 1.4MHz CBE 16QAM High Channel 1RB.gif	
Band	LTE2	1.4MHz	16QAM		Freq/Channel Center Freq 1.9100000 GHz Start Freq 1.9080000 GHz Stop Freq 1.9114000 GHz CF Step 280.000000 kHz Auto Man Freq Offset 0.0000000 Hz Signal Track On Off
				File Operation Status: C:PICTURE.GIF file saved Band LTE2 1.4MHz CBE 16QAM High Channel FRB.gif	

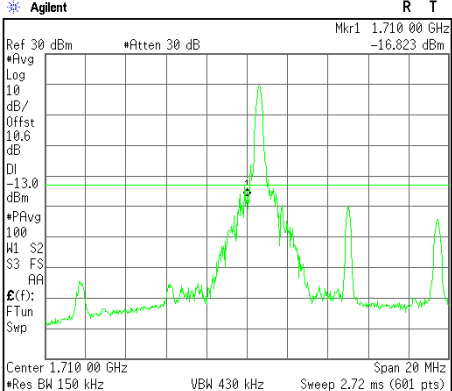
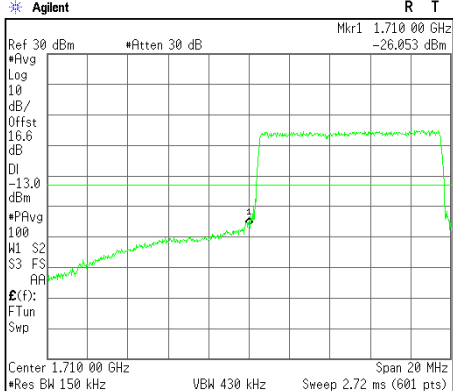
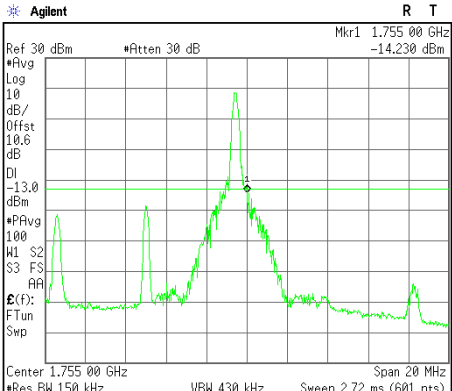
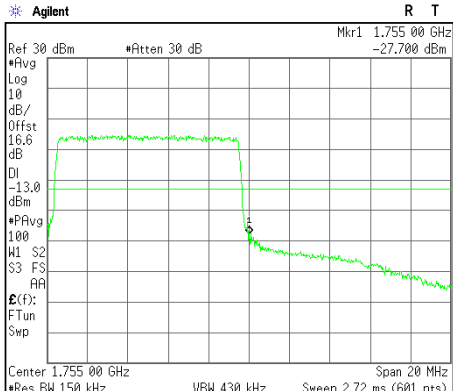
Band LTE2 1.4MHz QPSK	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 1.850 000 GHz -18.347 dBm Center Freq 1.85000000 GHz Start Freq 1.84860000 GHz Stop Freq 1.85140000 GHz CF Step 280.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 1.850 000 GHz Span 2.8 MHz Res BW 20 kHz VBW 62 kHz Sweep 21.12 ms (601 pts) Copyright 2000-2011 Agilent Technologies Band LTE2 1.4MHz CBE QPSK Low Channel 1RB.gif
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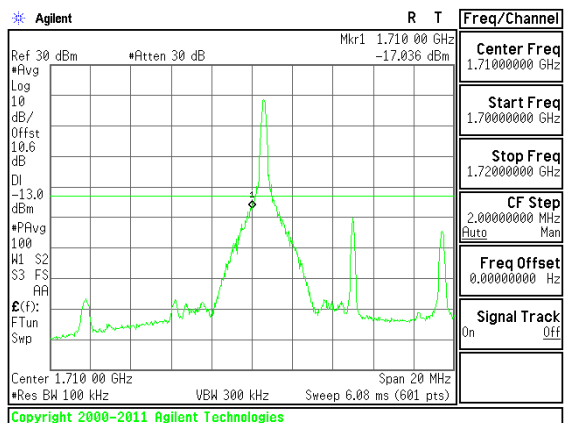
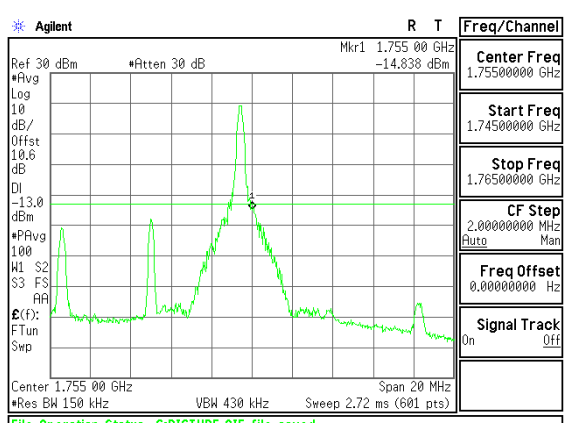
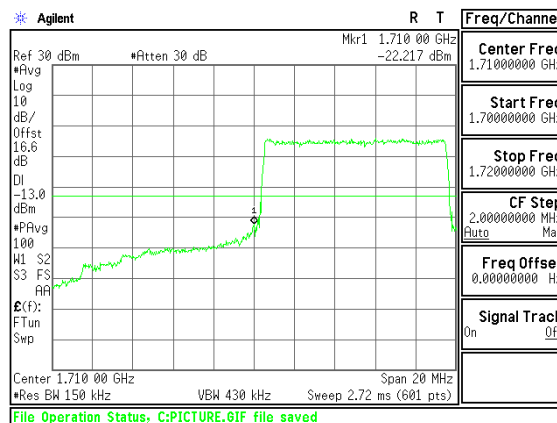
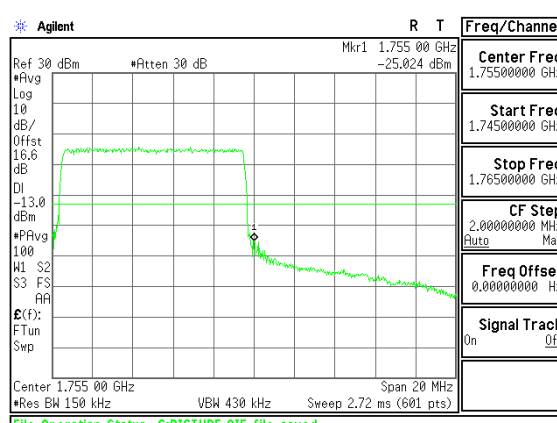
Band LTE4 20MHz 16QAM	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 1.710 00 GHz -18.767 dBm Center Freq 1.71000000 GHz Start Freq 1.69000000 GHz Stop Freq 1.73000000 GHz CF Step 4.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off File Operation Status: C:PICTURE.GIF file saved Band LTE4 20MHz CBE 16QAM Low Channel 1RB.gif	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 1.710 00 GHz -25.730 dBm Center Freq 1.71000000 GHz Start Freq 1.69000000 GHz Stop Freq 1.73000000 GHz CF Step 4.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off File Operation Status: C:PICTURE.GIF file saved Band LTE4 20MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 20MHz 16QAM	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 1.755 00 GHz -18.934 dBm Center Freq 1.75500000 GHz Start Freq 1.73500000 GHz Stop Freq 1.77500000 GHz CF Step 4.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off File Operation Status: C:PICTURE.GIF file saved Band LTE4 20MHz CBE 16QAM High Channel 1RB.gif	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 1.755 00 GHz -24.863 dBm Center Freq 1.75500000 GHz Start Freq 1.73500000 GHz Stop Freq 1.77500000 GHz CF Step 4.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off File Operation Status: C:PICTURE.GIF file saved Band LTE4 20MHz CBE 16QAM High Channel FRB.gif

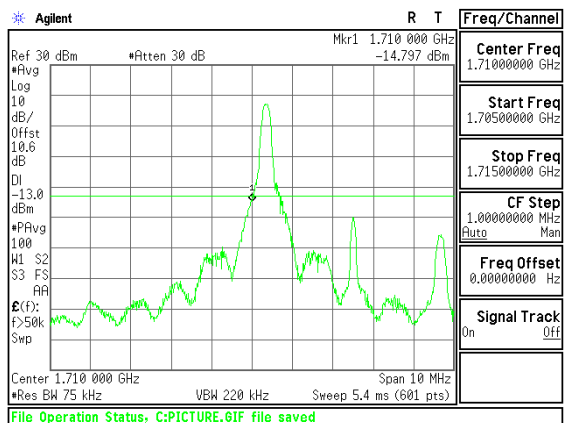
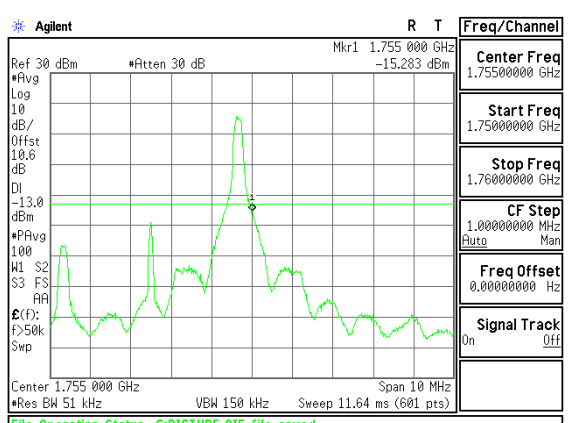
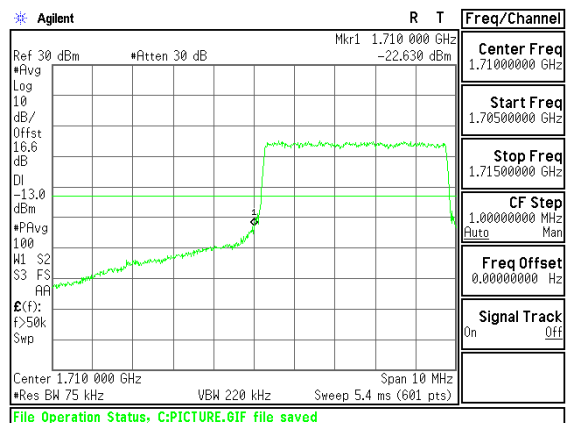
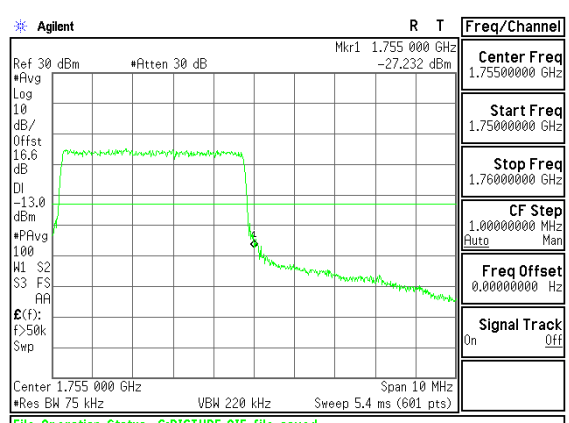
Band LTE4 20MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 20MHz CBE QPSK Low Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 20MHz CBE QPSK Low Channel FRB.gif
Band LTE4 20MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 20MHz CBE QPSK High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 20MHz CBE QPSK High Channel FRB.gif

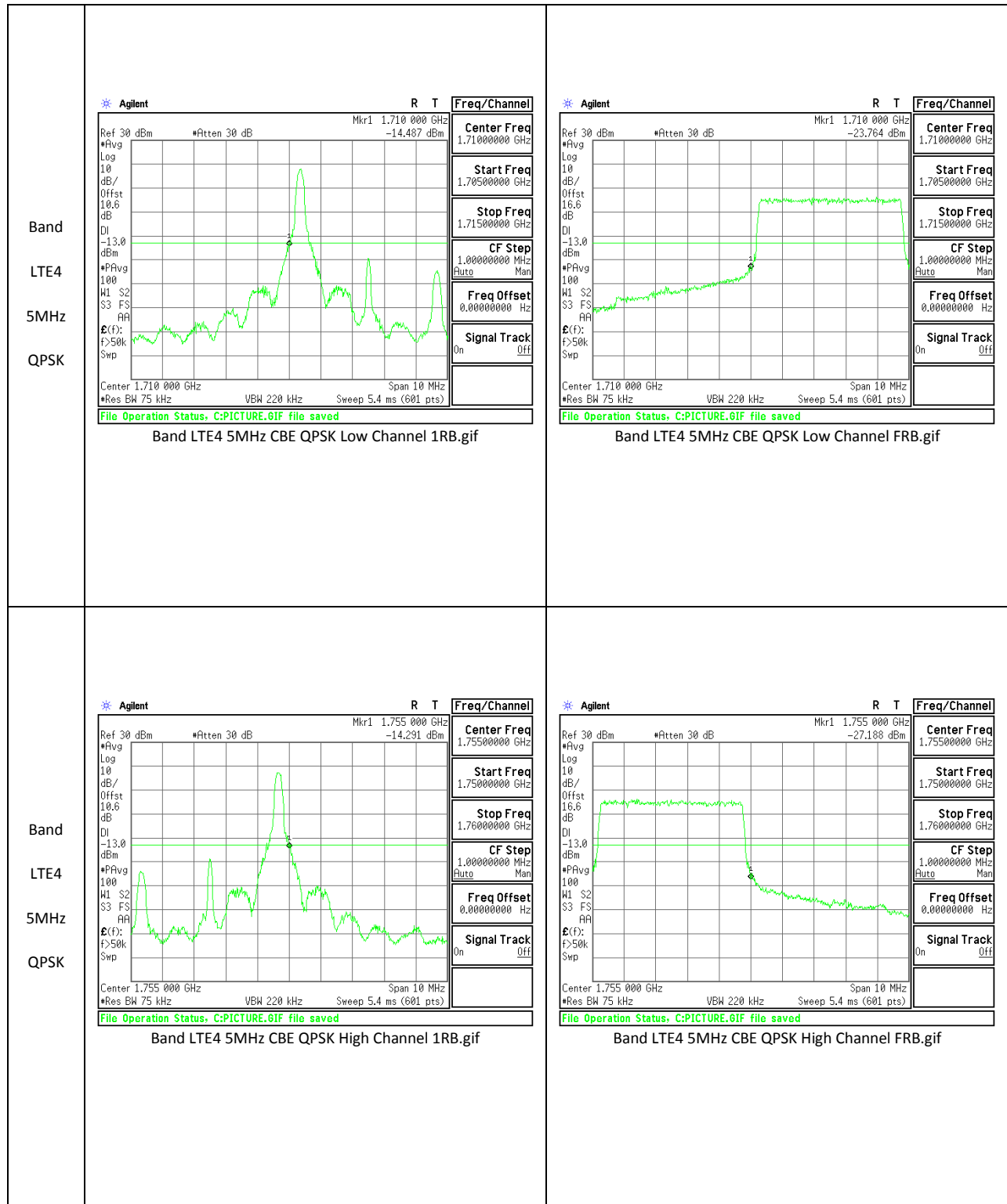
Band LTE4 15MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 15MHz CBE 16QAM Low Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 15MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 15MHz CBE 16QAM High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 15MHz CBE 16QAM High Channel FRB.gif

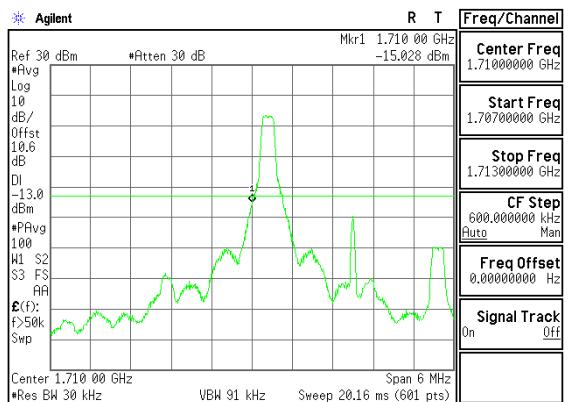
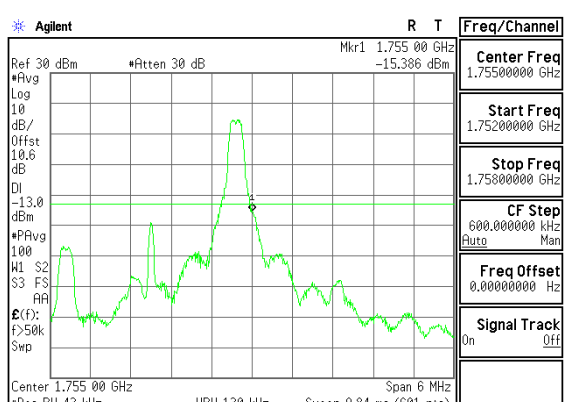
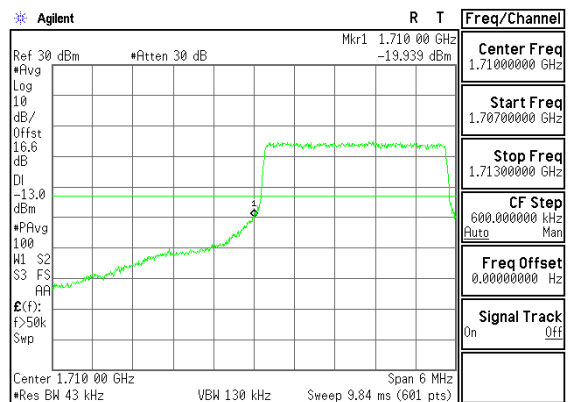
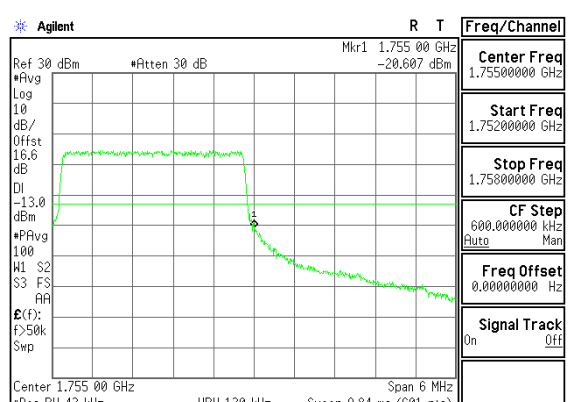
Band LTE4 15MHz QPSK	 Copyright 2000-2011 Agilent Technologies Band LTE4 15MHz CBE QPSK Low Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 15MHz CBE QPSK Low Channel FRB.gif
Band LTE4 15MHz QPSK	 Copyright 2000-2011 Agilent Technologies Band LTE4 15MHz CBE QPSK High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 15MHz CBE QPSK High Channel FRB.gif

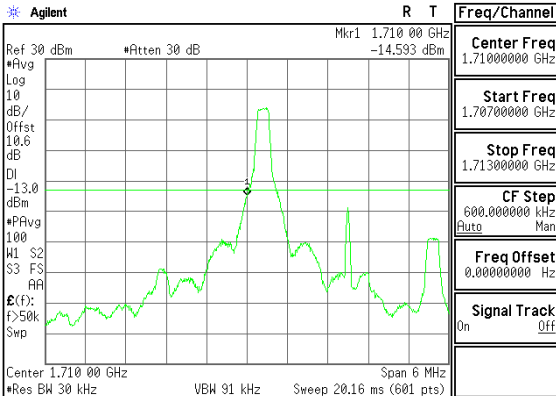
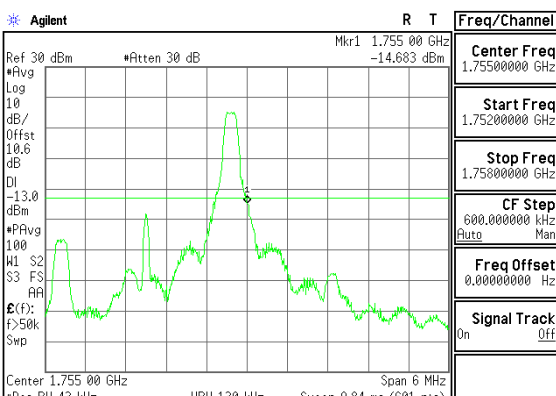
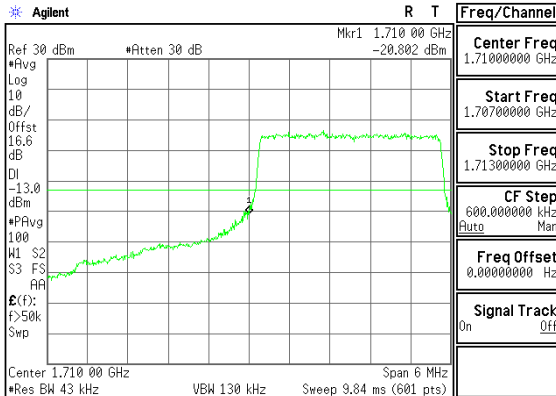
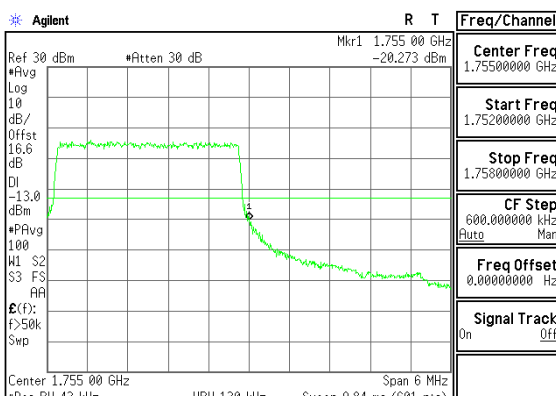
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Band LTE4 10MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 10MHz CBE 16QAM High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 10MHz CBE 16QAM High Channel FRB.gif

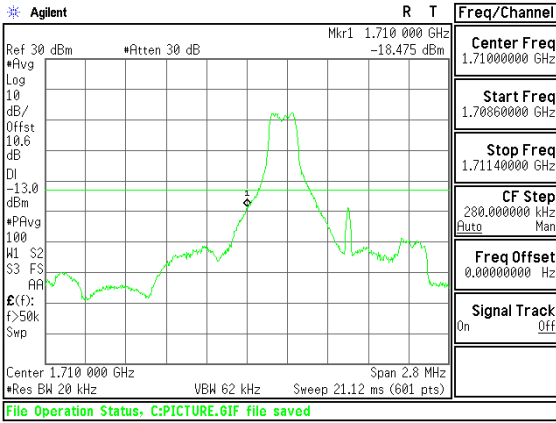
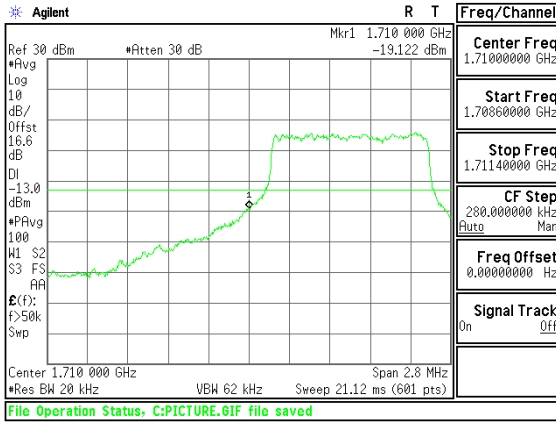
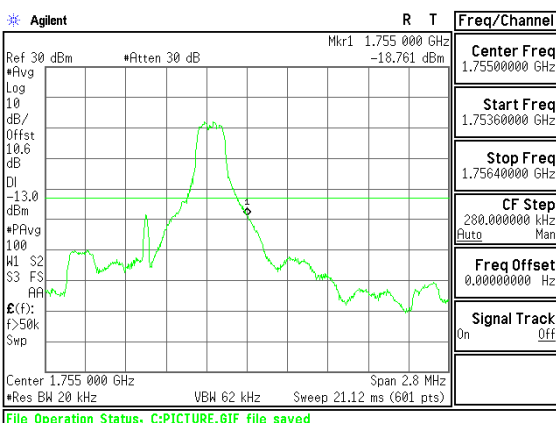
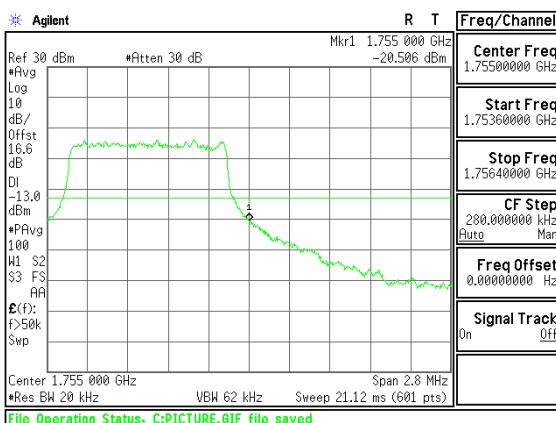
Band LTE4 10MHz QPSK	 Copyright 2000-2011 Agilent Technologies Band LTE4 10MHz CBE QPSK Low Channel 1RB.gif
Band LTE4 10MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 10MHz CBE QPSK High Channel 1RB.gif
 File Operation Status: C:PICTURE.GIF file saved Band LTE4 10MHz CBE QPSK Low Channel FRB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 10MHz CBE QPSK High Channel FRB.gif

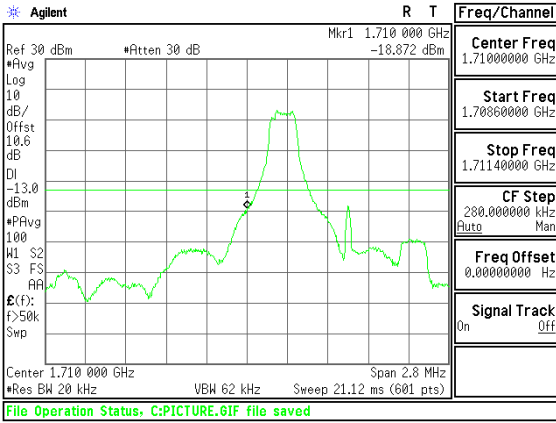
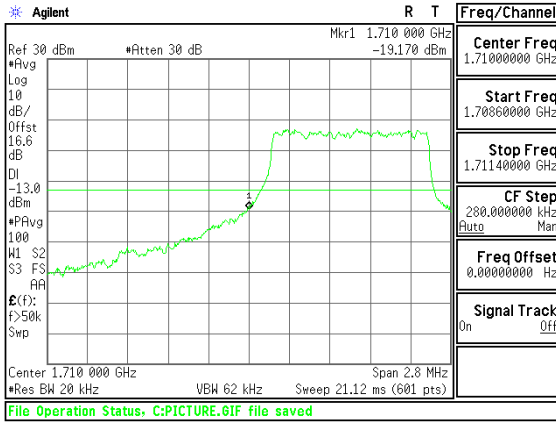
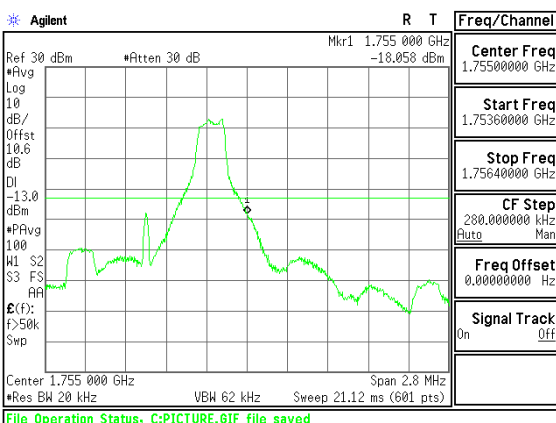
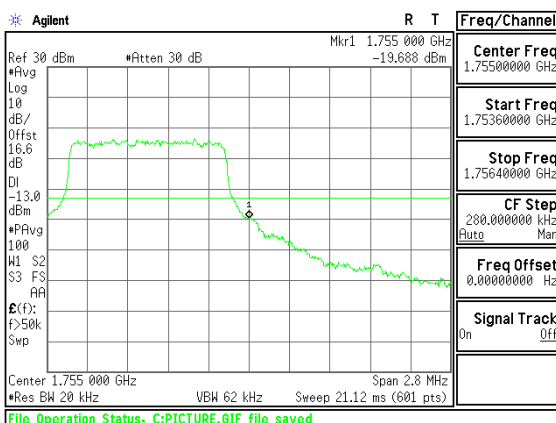
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Band LTE4 5MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 5MHz CBE 16QAM High Channel 1RB.gif
 File Operation Status: C:PICTURE.GIF file saved Band LTE4 5MHz CBE 16QAM Low Channel FRB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 5MHz CBE 16QAM High Channel FRB.gif



Band LTE4 3MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 3MHz CBE 16QAM Low Channel 1RB.gif
Band LTE4 3MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 3MHz CBE 16QAM High Channel 1RB.gif
 File Operation Status: C:PICTURE.GIF file saved Band LTE4 3MHz CBE 16QAM Low Channel FRB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 3MHz CBE 16QAM High Channel FRB.gif

Band LTE4 3MHz QPSK	 Copyright 2000-2011 Agilent Technologies Band LTE4 3MHz CBE QPSK Low Channel 1RB.gif
Band LTE4 3MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 3MHz CBE QPSK High Channel 1RB.gif
 File Operation Status: C:PICTURE.GIF file saved Band LTE4 3MHz CBE QPSK Low Channel FRB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 3MHz CBE QPSK High Channel FRB.gif

Band LTE4 1.4MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 1.4MHz CBE 16QAM Low Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE4 1.4MHz 16QAM	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 1.4MHz CBE 16QAM High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 1.4MHz CBE 16QAM High Channel FRB.gif

Band LTE4 1.4MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 1.4MHz CBE QPSK Low Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE4 1.4MHz QPSK	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 1.4MHz CBE QPSK High Channel 1RB.gif	 File Operation Status: C:PICTURE.GIF file saved Band LTE4 1.4MHz CBE QPSK High Channel FRB.gif

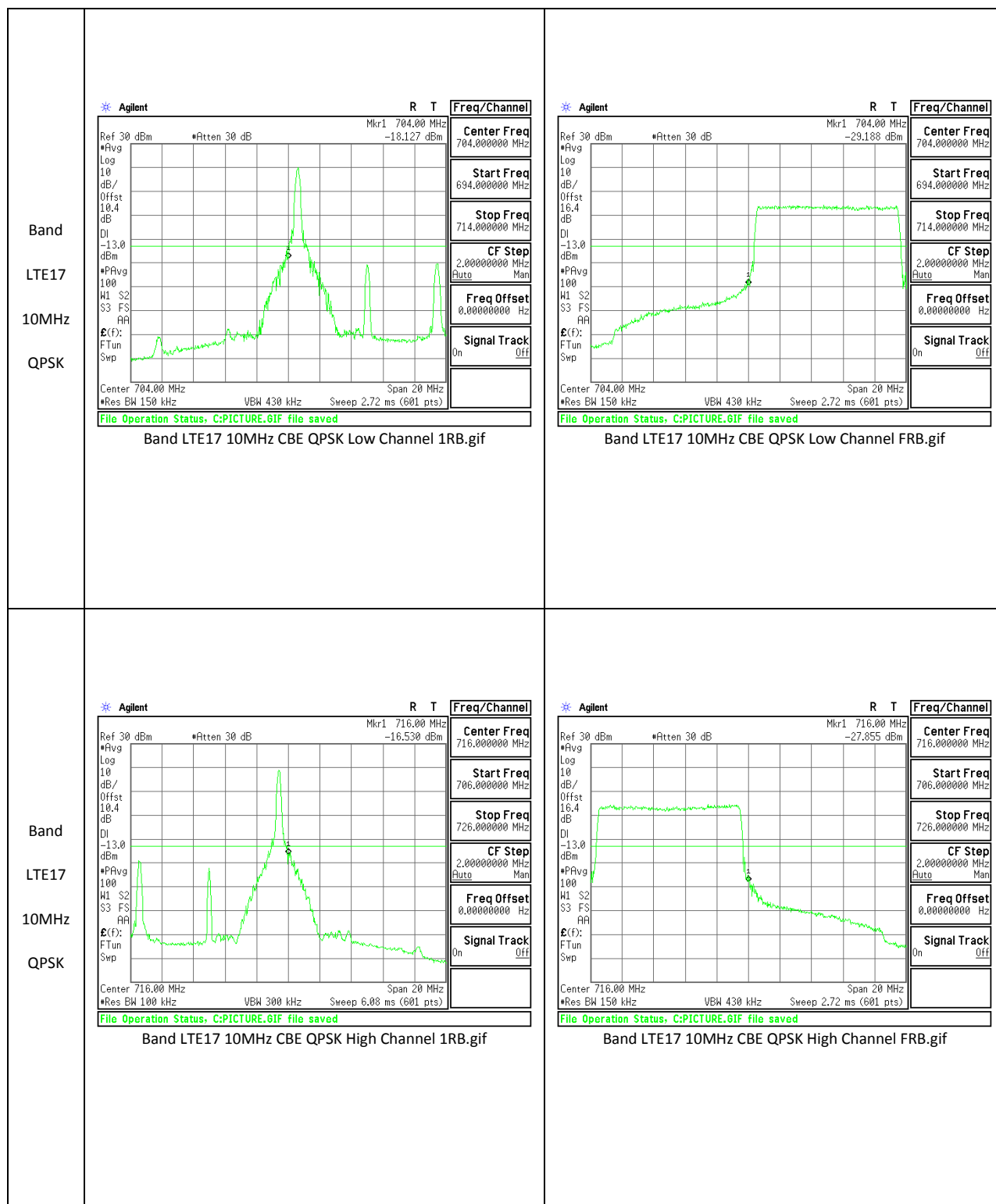
The figure displays four Agilent spectrum analyzer screenshots arranged in a 2x2 grid, showing the frequency response of an LTE17 10MHz CBE 16QAM signal. Each plot includes a green trace on a grid, with various parameters and settings displayed on the left and right sides.

Top-Left Plot (Low Channel 1RB.gif): The center frequency is 704.00 MHz. The peak is at approximately 704.00 MHz. The signal is labeled "Band LTE17 10MHz CBE 16QAM Low Channel 1RB.gif".

Top-Right Plot (Low Channel FRB.gif): The center frequency is 704.00 MHz. The peak is at approximately 704.00 MHz. The signal is labeled "Band LTE17 10MHz CBE 16QAM Low Channel FRB.gif".

Bottom-Left Plot (High Channel 1RB.gif): The center frequency is 716.00 MHz. The peak is at approximately 716.00 MHz. The signal is labeled "Band LTE17 10MHz CBE 16QAM High Channel 1RB.gif".

Bottom-Right Plot (High Channel FRB.gif): The center frequency is 716.00 MHz. The peak is at approximately 716.00 MHz. The signal is labeled "Band LTE17 10MHz CBE 16QAM High Channel FRB.gif".



Band LTE17 5MHz 16QAM	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 704.000 MHz -15.415 dBm Center Freq 704.000000 MHz Start Freq 699.000000 MHz Stop Freq 709.000000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 704.000 MHz Res BW 75 kHz VBW 220 kHz Sweep 5.4 ms (601 pts) Span 10 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE17 5MHz CBE 16QAM Low Channel 1RB.gif	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 704.000 MHz -24.129 dBm Center Freq 704.000000 MHz Start Freq 699.000000 MHz Stop Freq 709.000000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 704.000 MHz Res BW 75 kHz VBW 220 kHz Sweep 5.4 ms (601 pts) Span 10 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE17 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE17 5MHz 16QAM	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 716.000 MHz -14.324 dBm Center Freq 716.000000 MHz Start Freq 711.000000 MHz Stop Freq 721.000000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 716.000 MHz Res BW 75 kHz VBW 220 kHz Sweep 5.4 ms (601 pts) Span 10 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE17 5MHz CBE 16QAM High Channel 1RB.gif	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 716.000 MHz -26.069 dBm Center Freq 716.000000 MHz Start Freq 711.000000 MHz Stop Freq 721.000000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 716.000 MHz Res BW 75 kHz VBW 220 kHz Sweep 5.4 ms (601 pts) Span 10 MHz File Operation Status: C:PICTURE.GIF file saved Band LTE17 5MHz CBE 16QAM High Channel FRB.gif

Band LTE17 5MHz QPSK	Agilent R T Freq/Channel Ref 30 dBm Atten 30 dB Mkr1 704.000 MHz -16.061 dBm Center Freq 704.000000 MHz Start Freq 699.000000 MHz Stop Freq 709.000000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Center 704.000 MHz Span 10 MHz Res BW 75 kHz VBW 220 kHz Sweep 5.4 ms (601 pts) File Operation Status: C:PICTURE.GIF file saved Band LTE17 5MHz CBE QPSK Low Channel 1RB.gif
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10.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53

LIMITS

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

SOP

For each out of band emissions measurement:

- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

MODES TESTED

RESULTS

10.3.1. OUT OF BAND EMISSIONS RESULT

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE17	10	QPSK	709	-32.50	-13	-19.50
			710	-33.92	-13	-20.92
			711	-36.44	-13	-23.44
		16QAM	709	-35.91	-13	-22.91
			710	-38.02	-13	-25.02
			711	-34.35	-13	-21.35

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE17	5	QPSK	706.5	-38.35	-13	-25.35
			710	-37.48	-13	-24.48
			713.5	-39.10	-13	-26.10
		16QAM	706.5	-29.90	-13	-16.90
			710	-35.26	-13	-22.26
			713.5	-34.62	-13	-21.62

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	10	QPSK	829	-27.67	-13	-14.67
			836.5	-27.57	-13	-14.57
			844	-26.83	-13	-13.83
		16QAM	829	-27.82	-13	-14.82
			836.5	-27.08	-13	-14.08
			844	-27.18	-13	-14.18

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	5	QPSK	826.5	-27.61	-13	-14.61
			836.5	-27.88	-13	-14.88
			846.5	-27.67	-13	-14.67
		16QAM	826.5	-26.61	-13	-13.61
			836.5	-27.82	-13	-14.82
			846.5	-26.38	-13	-13.38

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	3	QPSK	825.5	-27.73	-13	-14.73
			836.5	-27.65	-13	-14.65
			847.5	-28.01	-13	-15.01
		16QAM	825.5	-27.45	-13	-14.45
			836.5	-27.49	-13	-14.49
			847.5	-27.67	-13	-14.67

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	1.4	QPSK	824.7	-27.62	-13	-14.62
			836.5	-27.67	-13	-14.67
			848.3	-28.30	-13	-15.30
		16QAM	824.7	-28.06	-13	-15.06
			836.5	-27.60	-13	-14.60
			848.3	-28.05	-13	-15.05

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	20	QPSK	1860	-26.63	-13	-13.63
			1880	-26.09	-13	-13.09
			1900	-26.07	-13	-13.07
		16QAM	1860	-27.58	-13	-14.58
			1880	-27.06	-13	-14.06
			1900	-27.29	-13	-14.29

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	15	QPSK	1857.5	-29.92	-13	-16.92
			1880	-28.74	-13	-15.74
			1902.5	-35.61	-13	-22.61
		16QAM	1857.5	-30.67	-13	-17.67
			1880	-30.02	-13	-17.02
			1902.5	-38.34	-13	-25.34

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	10	QPSK	1855	-27.32	-13	-14.32
			1880	-27.43	-13	-14.43
			1905	-26.53	-13	-13.53
		16QAM	1855	-27.63	-13	-14.63
			1880	-28.05	-13	-15.05
			1905	-27.17	-13	-14.17

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	5	QPSK	1852.5	-27.31	-13	-14.31
			1880	-27.49	-13	-14.49
			1907.5	-27.50	-13	-14.50
		16QAM	1852.5	-27.59	-13	-14.59
			1880	-27.50	-13	-14.50
			1907.5	-26.27	-13	-13.27

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	3	QPSK	1851.5	-27.54	-13	-14.54
			1880	-26.93	-13	-13.93
			1908.5	-26.24	-13	-13.24
		16QAM	1851.5	-27.18	-13	-14.18
			1880	-26.94	-13	-13.94
			1908.5	-27.26	-13	-14.26

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	1.4	QPSK	1850.7	-27.57	-13	-14.57
			1880	-26.38	-13	-13.38
			1909.3	-27.70	-13	-14.70
		16QAM	1850.7	-27.27	-13	-14.27
			1880	-27.01	-13	-14.01
			1909.3	-27.16	-13	-14.16

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	20	QPSK	1720	-27.36	-13	-14.36
			1732.5	-27.15	-13	-14.15
			1745	-27.50	-13	-14.50
		16QAM	1720	-27.42	-13	-14.42
			1732.5	-27.45	-13	-14.45
			1745	-27.18	-13	-14.18

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	15	QPSK	1717.5	-30.15	-13	-17.15
			1732.5	-29.14	-13	-16.14
			1747.5	-35.98	-13	-22.98
		16QAM	1717.5	-29.61	-13	-16.61
			1732.5	-36.76	-13	-23.76
			1747.5	-36.38	-13	-23.38

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	10	QPSK	1715	-26.15	-13	-13.15
			1732.5	-27.73	-13	-14.73
			1750	-28.22	-13	-15.22
		16QAM	1715	-26.93	-13	-13.93
			1732.5	-27.58	-13	-14.58
			1750	-27.88	-13	-14.88

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	5	QPSK	1712.5	-27.55	-13	-14.55
			1732.5	-27.68	-13	-14.68
			1752.5	-27.97	-13	-14.97
		16QAM	1712.5	-27.93	-13	-14.93
			1732.5	-27.89	-13	-14.89
			1752.5	-27.50	-13	-14.50

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	3	QPSK	1711.5	-27.32	-13	-14.32
			1732.5	-27.37	-13	-14.37
			1753.5	-27.74	-13	-14.74
		16QAM	1711.5	-27.58	-13	-14.58
			1732.5	-28.02	-13	-15.02
			1753.5	-27.16	-13	-14.16

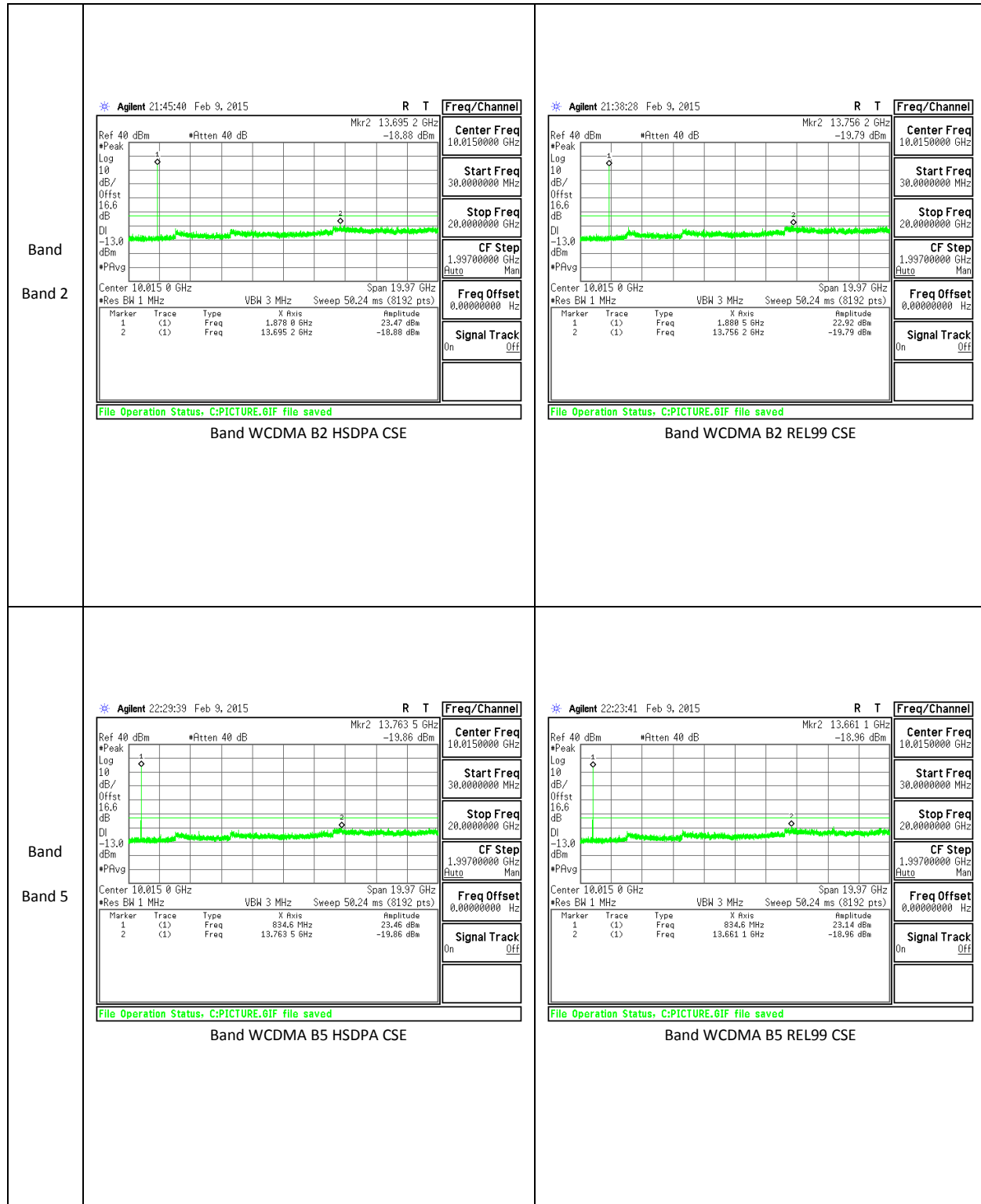
Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	1.4	QPSK	1710.7	-28.14	-13	-15.14
			1732.5	-26.50	-13	-13.50
			1754.3	-27.76	-13	-14.76
		16QAM	1710.7	-26.79	-13	-13.79
			1732.5	-27.87	-13	-14.87
			1754.3	-25.86	-13	-12.86

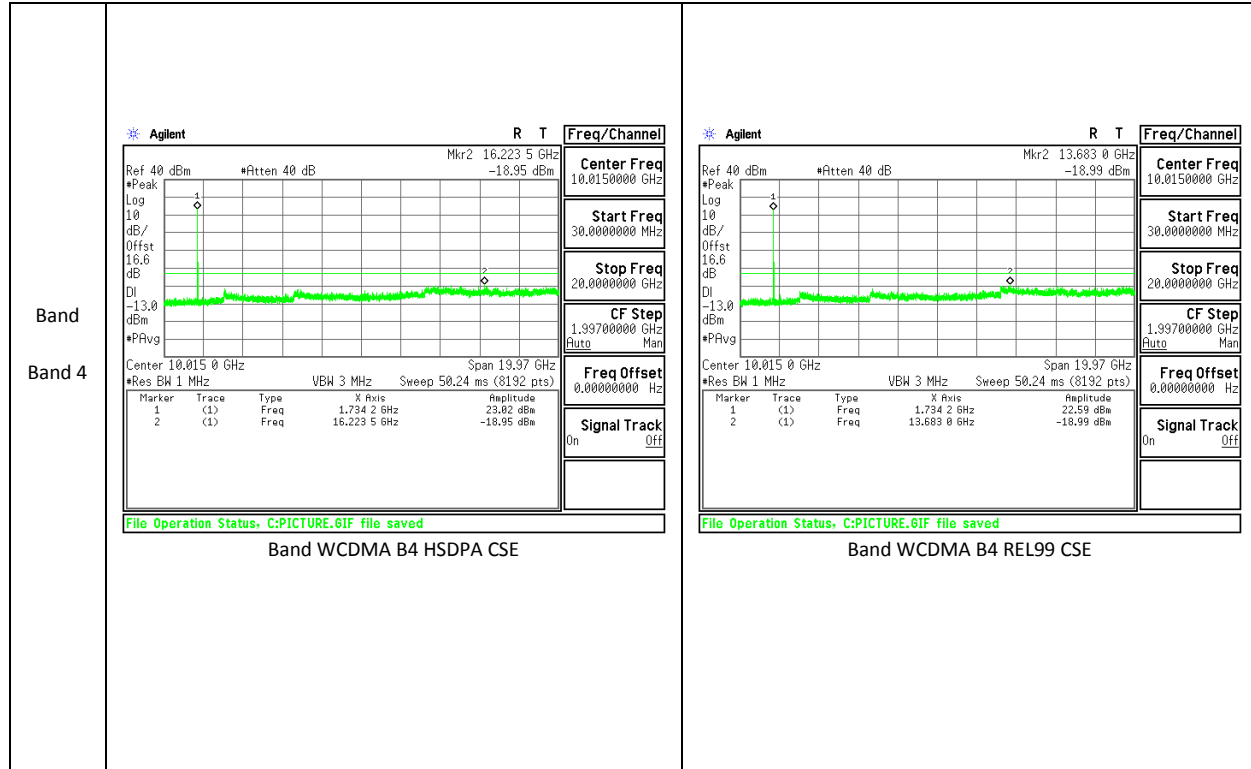
Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
GSM850	GPRS	824.2	-20.03	-13	-7.03
		836.6	-20.15	-13	-7.15
		848.8	-19.95	-13	-6.95
	EGPRS	824.2	-19.93	-13	-6.93
		836.6	-19.66	-13	-6.66
		848.8	-20.03	-13	-7.03
GSM1900	GPRS	1850.2	-20.12	-13	-7.12
		1880	-19.60	-13	-6.60
		1909.8	-18.59	-13	-5.59
	EGPRS	1850.2	-20.15	-13	-7.15
		1880	-19.35	-13	-6.35
		1909.8	-20.05	-13	-7.05

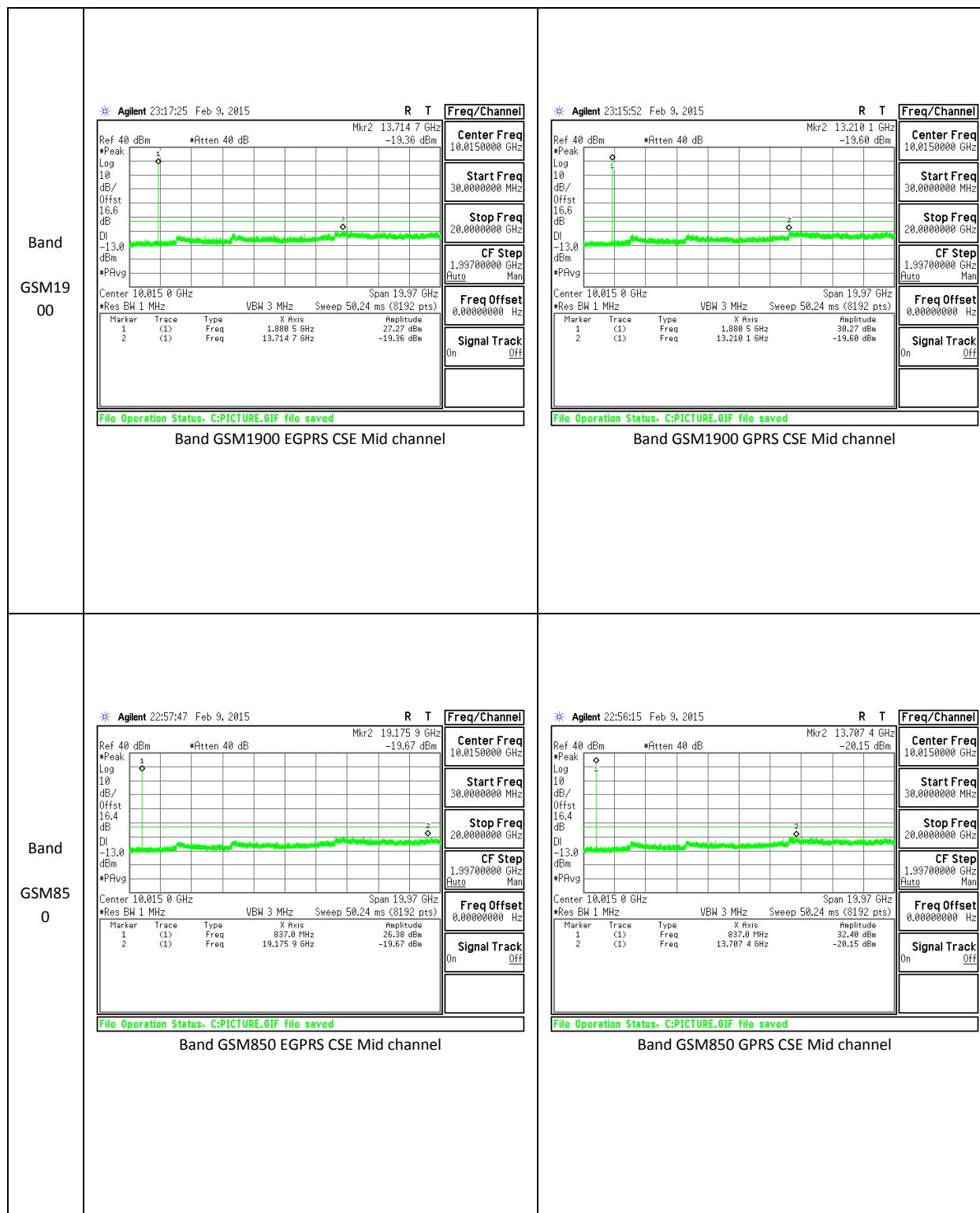
Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
Band 5	REL99	826.4	-19.59	-13	-6.59
		836.6	-18.96	-13	-5.96
		846.6	-19.69	-13	6.69
	HSDPA	826.4	-17.48	-13	-4.48
		836.6	-19.86	-13	-6.86
		846.6	-18.66	-13	-5.66
Band 2	REL99	1852.4	-19.23	-13	-6.23
		1880	-19.79	-13	-6.79
		1907.6	-19.11	-13	-6.11
	HSDPA	1852.4	-19.07	-13	-6.07
		1880	-18.88	-13	-5.88
		1907.6	-19.98	-13	-6.98

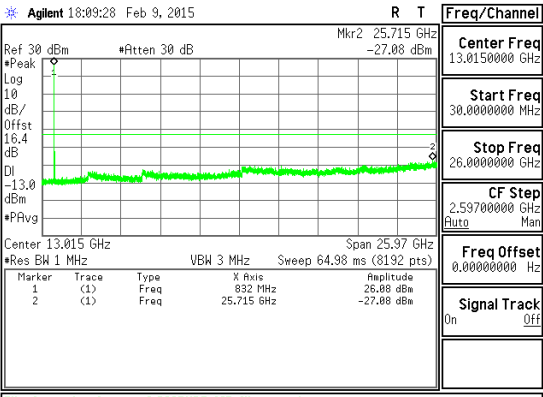
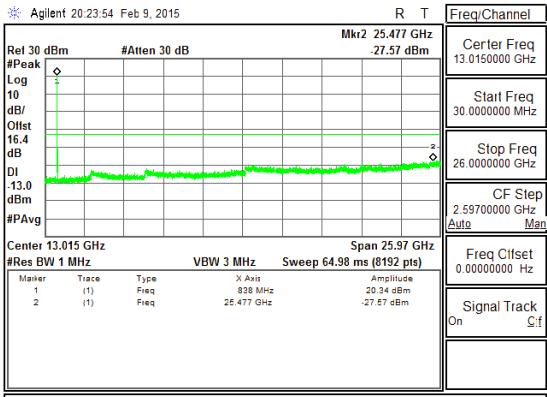
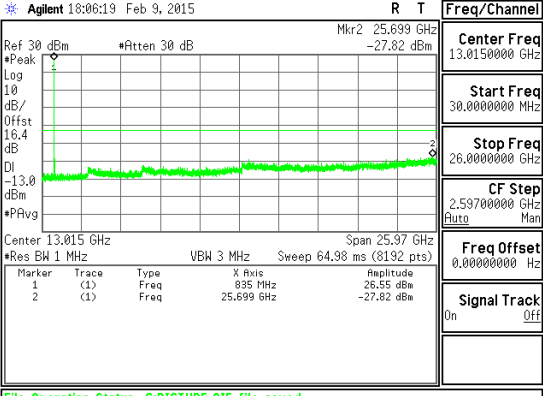
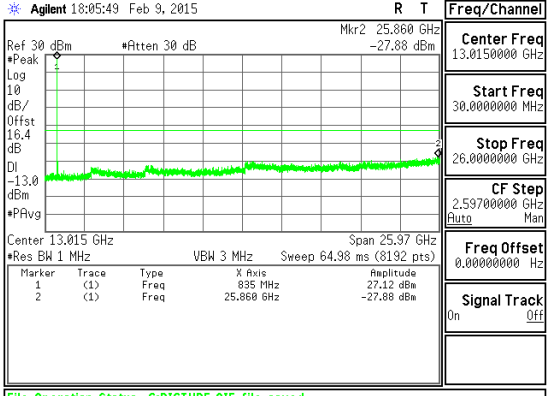
Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
Band 4	REL99	1712.4	-19.72	-13	-6.72
		1732.6	-18.99	-13	-5.99
		1752.6	-19.70	-13	-6.70
	HSDPA	1712.4	-20.14	-13	-7.14
		1732.6	-18.95	-13	-5.95
		1752.6	-18.90	-13	-5.90

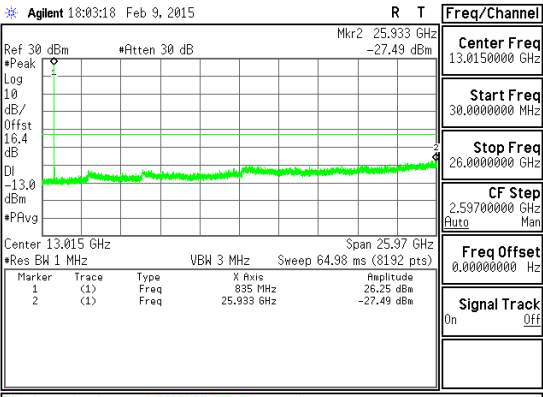
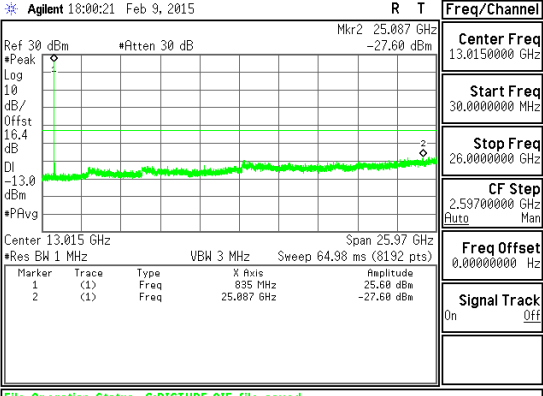
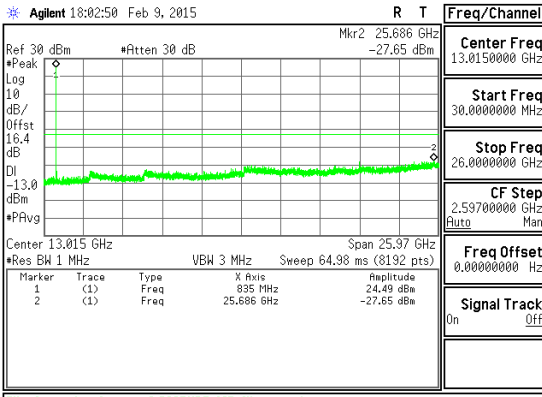
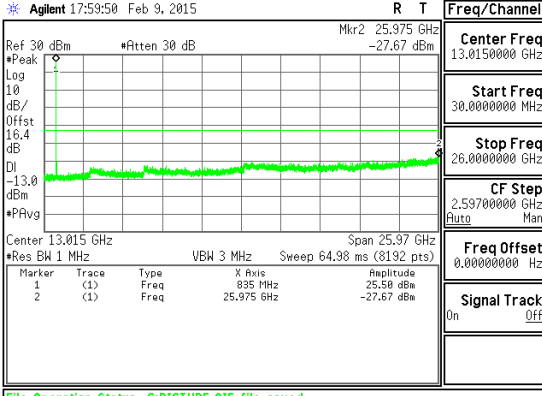
10.3.2. OUT OF BAND EMISSIONS PLOTS

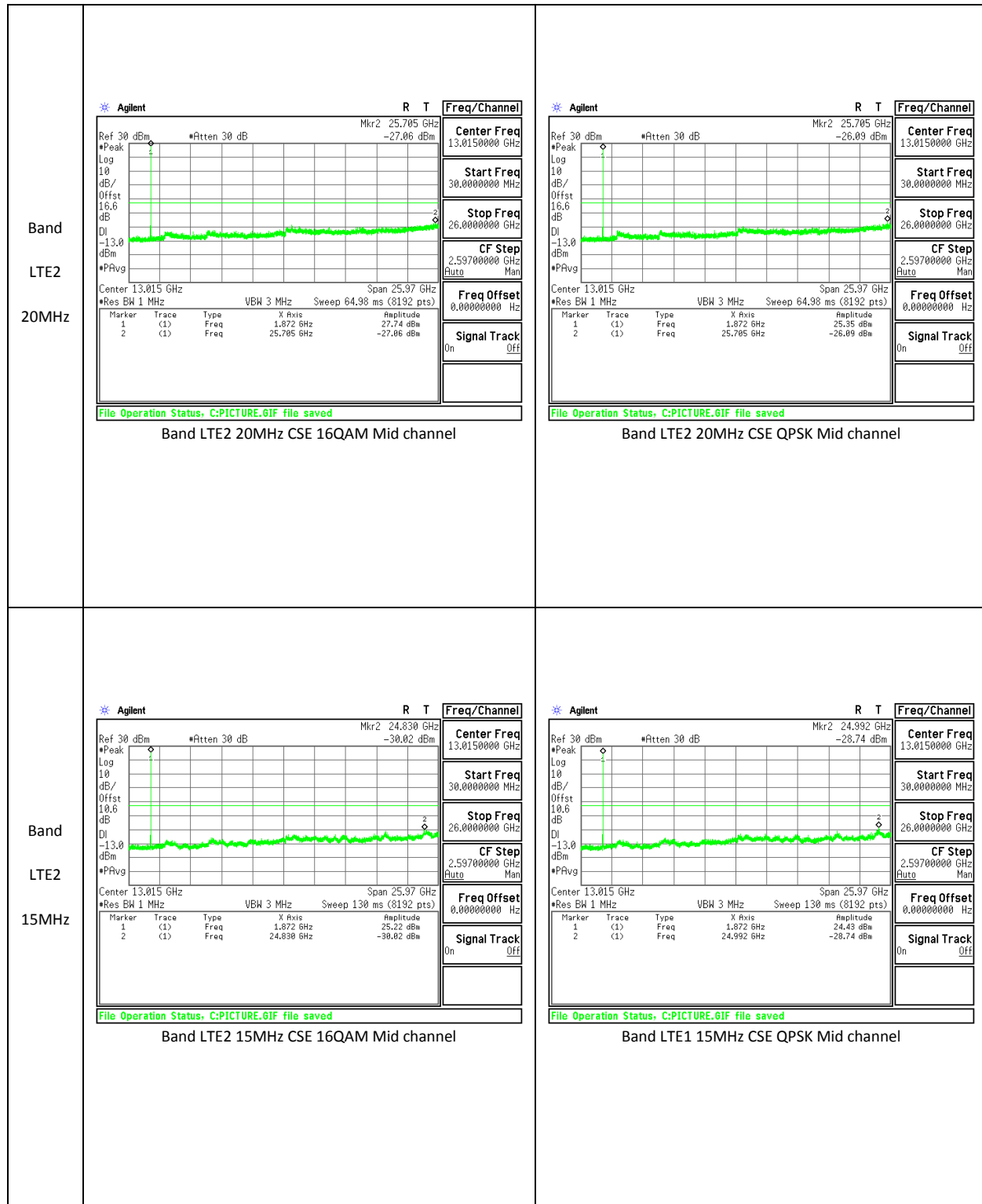


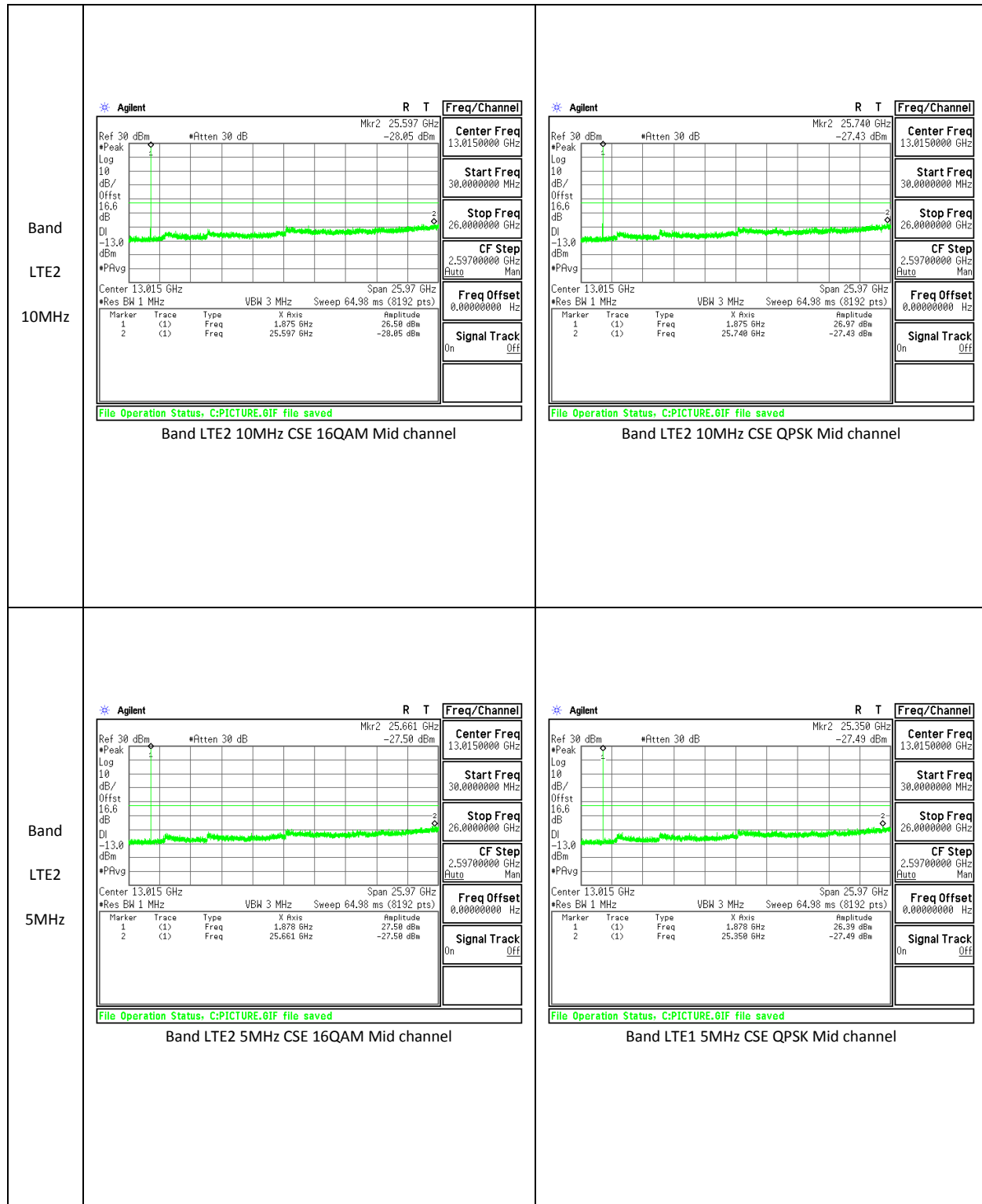


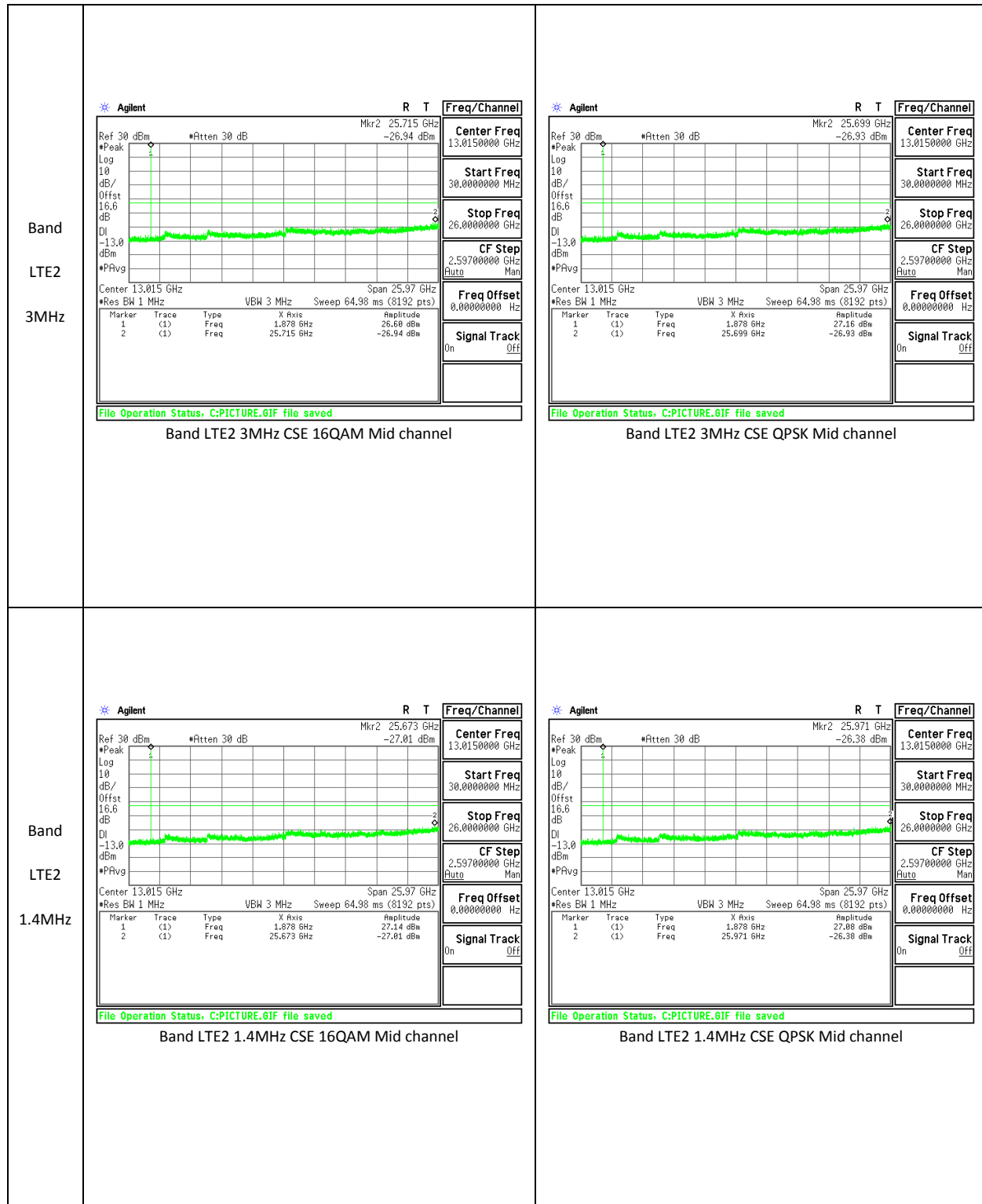


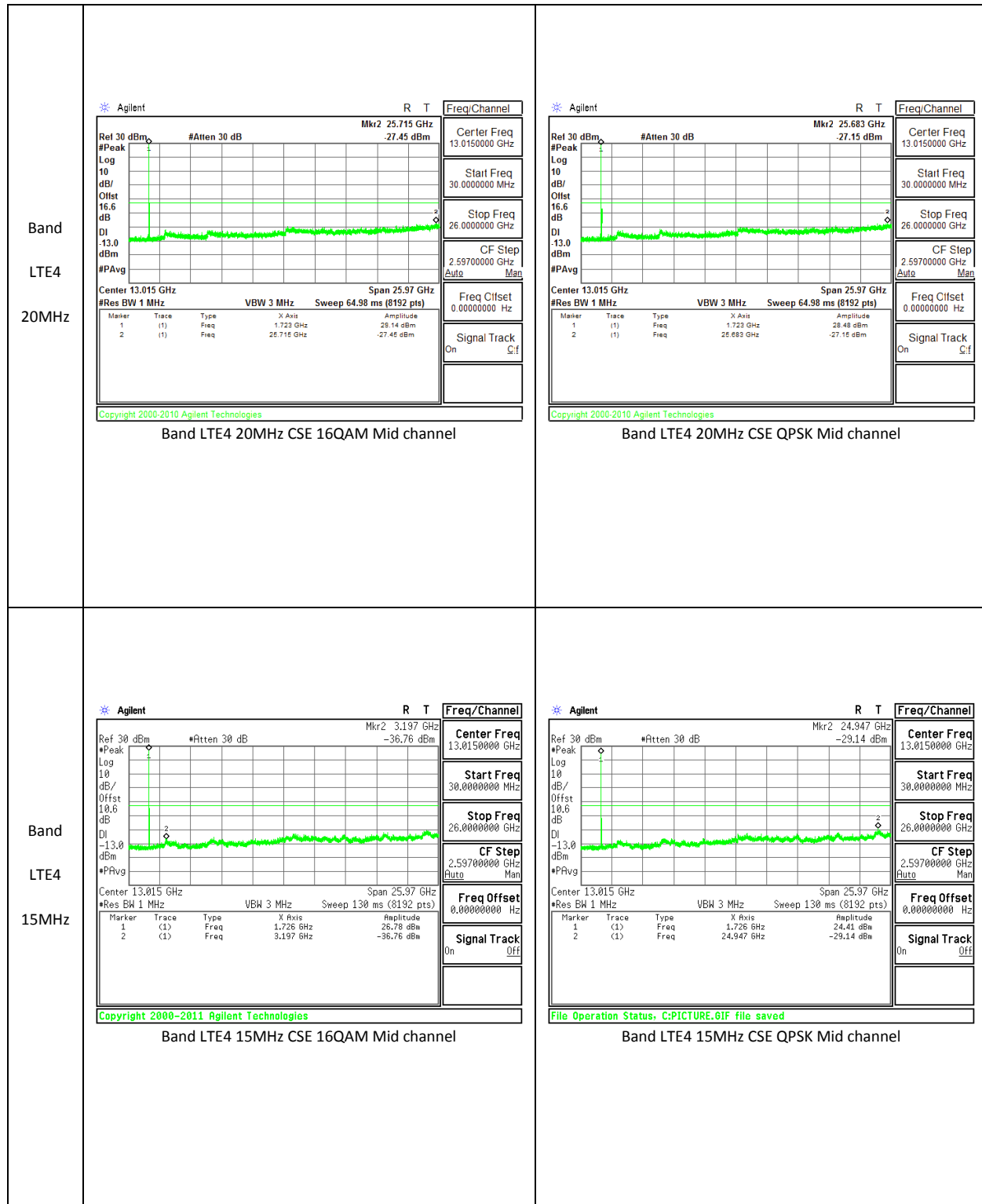
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Band LTE5 5MHz	 Agilent 18:06:19 Feb 9, 2015 Center Freq 13.0150000 GHz Start Freq 30.0000000 MHz Stop Freq 26.0000000 GHz CF Step 2.59700000 GHz Freq Offset 0.00000000 Hz Signal Track On File Operation Status, C:PICTURE.GIF file saved Band LTE5 5MHz CSE 16QAM Mid channel	 Agilent 18:05:49 Feb 9, 2015 Center Freq 13.0150000 GHz Start Freq 30.0000000 MHz Stop Freq 26.0000000 GHz CF Step 2.59700000 GHz Freq Offset 0.00000000 Hz Signal Track On File Operation Status, C:PICTURE.GIF file saved Band LTE5 5MHz CSE QPSK Mid channel

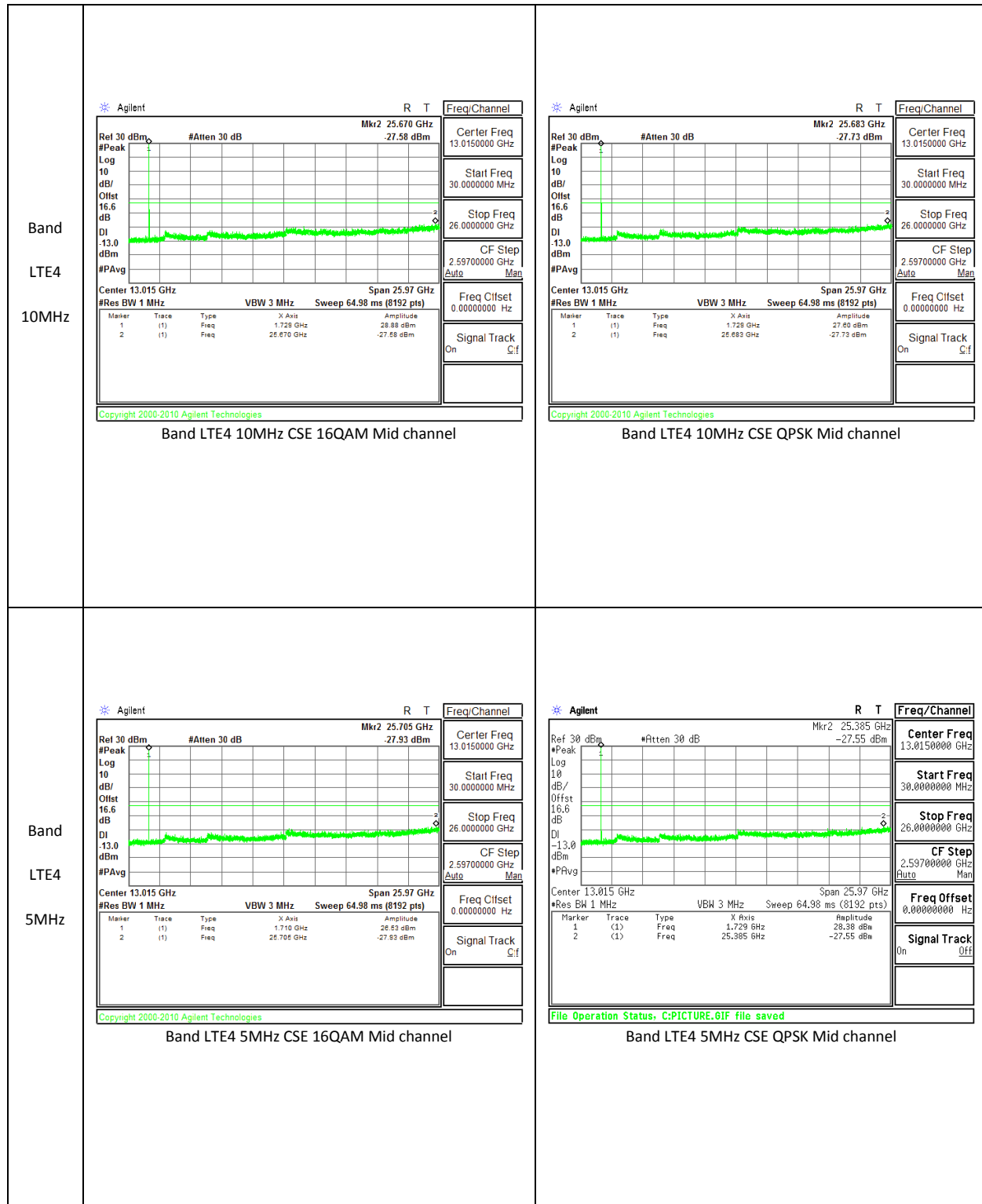
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Band LTE5 1.4MHz	 File Operation Status, C:PICTURE.GIF file saved Band LTE5 1.4MHz CSE 16QAM Mid channel
Band LTE5 3MHz	 File Operation Status, C:PICTURE.GIF file saved Band LTE5 3MHz CSE QPSK Mid channel
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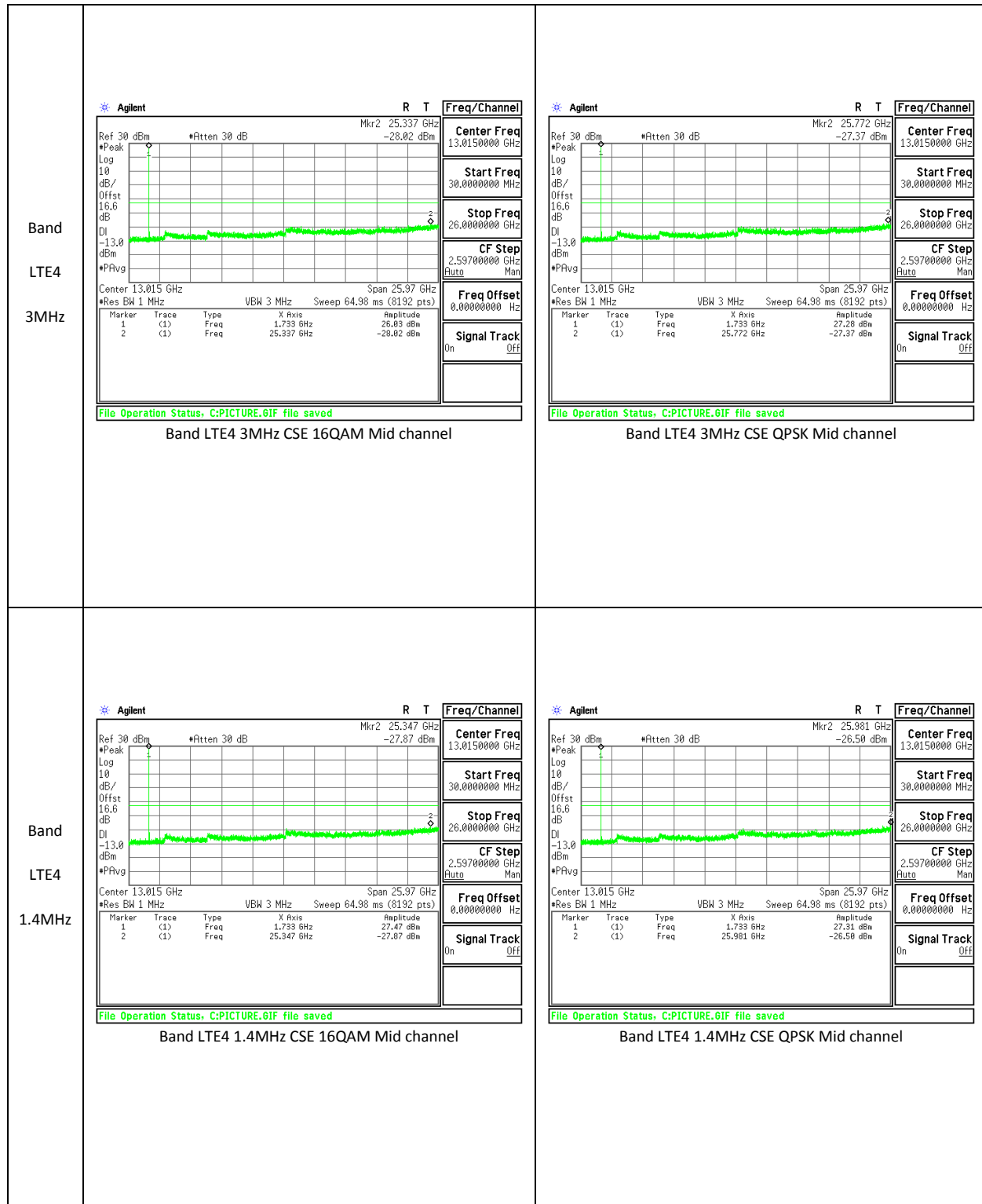


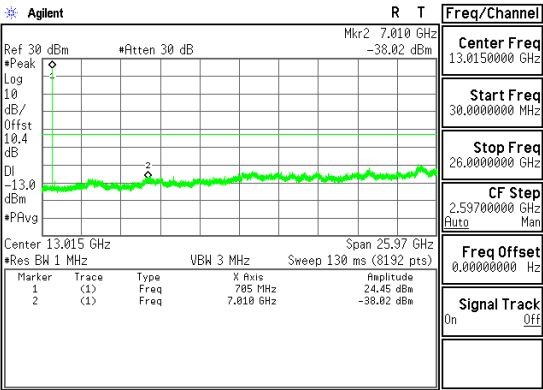
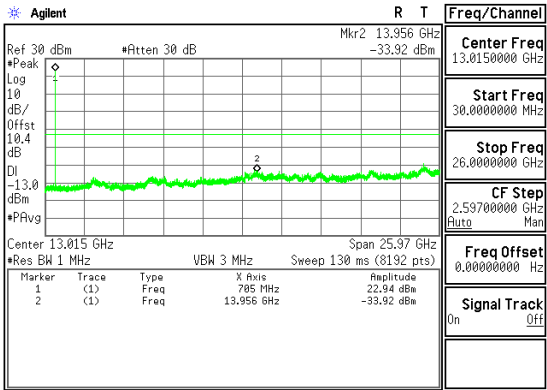
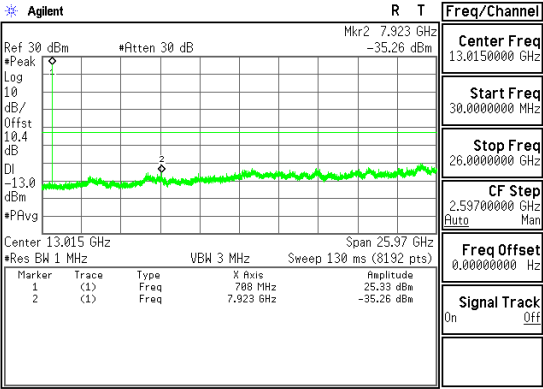
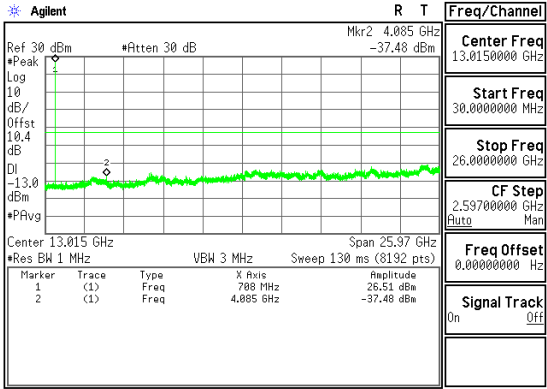










Band LTE17 10MHz	 Copyright 2000-2011 Agilent Technologies Band LTE17 10MHz CSE 16QAM Mid channel	 Copyright 2000-2011 Agilent Technologies Band LTE17 10MHz CSE QPSK Mid channel
Band LTE17 5MHz	 Copyright 2000-2011 Agilent Technologies Band LTE17 5MHz CSE 16QAM Mid channel	 Copyright 2000-2011 Agilent Technologies Band LTE17 5MHz CSE QPSK Mid channel

10.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54 and §90.213

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

§27.54 - The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

RESULTS

See the following pages.

10.4.1. FREQUENCY STABILITY RESULTS

GPRS 1900, Channel 661 Freq: 1880MHz– MID CHANNEL

Reference Frequency: PCS Mid Channel Limit: to stay +/- 2.5 ppm =			1880 4700.000	MHz @ 20°C Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1879.999973	-0.007	2.5
3.80	40	1879.999965	-0.003	2.5
3.80	30	1879.999968	-0.004	2.5
3.80	20	1879.999960	0	2.5
3.80	10	1880.000028	-0.036	2.5
3.80	0	1880.000031	-0.038	2.5
3.80	-10	1880.000023	-0.034	2.5
3.80	-20	1880.000031	-0.038	2.5
3.80	-30	1879.999962	-0.001	2.5

Reference Frequency: PCS Mid Channel			1880	MHz @ 20°C
Limit: to stay +/- 2.5 ppm =			4700.000	Hz
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	20	1879.999969	0	2.5
4.30	20	1880.000004	-0.043	2.5
End of Voltage3.2	20	1879.999953	0.004	2.5

GPRS 850 CELL BAND, – MID CHANNEL190, Frequency 836.6MHz

Reference Frequency: PCS Mid Channel 836.6 MHz @ 20°C Limit: to stay +/- 2.5 ppm = 2091.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	836.599975	-0.004	2.5
3.80	40	836.599971	0.001	2.5
3.80	30	836.599979	-0.009	2.5
3.80	20	836.599972	0	2.5
3.80	10	836.599972	-0.001	2.5
3.80	0	836.599974	-0.003	2.5
3.80	-10	836.599963	0.011	2.5
3.80	-20	836.599967	0.005	2.5
3.80	-30	836.599971	0.001	2.5

Reference Frequency: PCS Mid Channel 836.6 MHz @ 20°C Limit: to stay +/- 2.5 ppm = 2091.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	20	836.599963	0	2.5
4.30	20	836.6000406	-0.082	2.5
End of Voltage 3.2	20	836.5999588	0.016	2.5

LTE4 QPSK 5MHz BW, Freq: 1732.5 MHz– MID CHANNEL

Reference Frequency: PCS Mid Channel 1732.5 MHz @ 20°C Limit: to stay +/- 2.5 ppm = 4331.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1732.499976	0.004	2.5
3.80	40	1732.500018	-0.021	2.5
3.80	30	1732.500015	-0.018	2.5
3.80	20	1732.499983	0	2.5
3.80	10	1732.500000	-0.010	2.5
3.80	0	1732.499984	-0.001	2.5
3.80	-10	1732.500018	-0.020	2.5
3.80	-20	1732.499979	0.002	2.5
3.80	-30	1732.500000	-0.010	2.5

Reference Frequency: PCS Mid Channel 1732.5 MHz @ 20°C Limit: to stay +/- 2.5 ppm = 4331.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	20	1732.499962	0	2.5
4.30	20	1732.500047	-0.037	2.5
End of Voltage 3.2	20	1732.499954	0.017	2.5

LTE17 QPSK 5MHz BW, Freq: 710 MHz– MID CHANNEL

Reference Frequency: PCS Mid Channel 710 MHz @ 20°C Limit: to stay +/- 2.5 ppm = 1775.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	709.999987	-0.002	2.5
3.80	40	709.999990	-0.005	2.5
3.80	30	709.999994	-0.011	2.5
3.80	20	709.999986	0	2.5
3.80	10	709.999987	-0.002	2.5
3.80	0	709.999990	-0.005	2.5
3.80	-10	709.999991	-0.007	2.5
3.80	-20	709.999991	-0.006	2.5
3.80	-30	709.999984	0.003	2.5

Reference Frequency: PCS Mid Channel 710 MHz @ 20°C Limit: to stay +/- 2.5 ppm = 1775.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	20	710.000039	0	2.5
4.30	20	709.9999568	0.042	2.5
End of Voltage 3.2	20	710.0000442	-0.082	2.5

11. RADIATED TEST RESULTS

11.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

27.50(c) - (10) Portable stations (hand-held devices) are limited to 3 watts ERP; (LTE B17)

27.50(d) - (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.(Band 4)

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

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17; PSA setting reference to 971168 D01 v02r02

For peak power measurement with a PSA:

a) Set the RBW $\geq$ OBW; b) Set VBW $\geq 3 \times$ RBW; c) Set span $\geq 2 \times$ RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points $\geq$ span/RBW; g) Trace mode = max hold;

For average power measurement with a PSA:

a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW $\geq 3 \times$ RBW; d) Set number of points in sweep $\geq 2 \times$ span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98 ; h) Use trigger to capture bursts If burst duty cycle < 98 ; i) Trace average at least 100 traces in power averaging (*i.e.*, RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function.

TEST RESULTS

11.1.1. ERP/EIRP Results

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	22.68	185.4
		9400	1880	22.36	172.2
		9538	1907.6	22.90	195.0
	HSDPA	9262	1852.4	22.37	172.6
		9400	1880	22.35	171.8
		9538	1907.6	22.61	182.4

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 4	REL99	1312	1712.4	23.0	199.5
		1413	1732.6	23.05	201.8
		1513	1752.6	23.48	222.8
	HSDPA	1312	1712.4	22.45	175.8
		1413	1732.6	22.52	178.6
		1513	1752.6	22.37	172.6

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 5	REL99	4132	826.4	17.13	51.64
		4183	836.6	16.82	48.08
		4233	846.6	16.92	48.88
	HSDPA	4132	826.4	17.04	50.58
		4183	836.6	16.75	47.32
		4233	846.6	16.78	47.64

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GPRS	512	1850.2	29.57	905.7
		661	1880	29.56	903.6
		810	1909.8	30.16	1037.5
	EGPRS	512	1850.2	26.20	416.9
		661	1880	25.94	392.6
		810	1909.8	26.42	438.5

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM850	GPRS	128	824.2	27.70	588.84
		190	836.6	27.70	588.84
		251	848.8	27.64	580.76
	EGPRS	128	824.2	22.65	184.08
		190	836.6	23.01	199.98
		251	848.8	23.11	204.64

11.1.2. LTE ERP/EIRP Results

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	10	QPSK	1/0	709	18.15	65.3
			1/0	710	17.98	62.8
			1/0	711	18.36	68.5
		16QAM	1/0	709	17.58	57.3
			1/0	710	17.35	54.3
			1/0	711	17.75	59.6

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	5	QPSK	1/0	706.5	18.14	65.2
			1/0	710	17.79	60.1
			1/0	713.5	18.35	68.4
		16QAM	1/0	706.5	17.30	53.7
			1/0	710	16.64	46.1
			1/0	713.5	17.38	54.7

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	10	QPSK	1/0	829	17.06	50.81
			1/0	836.5	17.37	54.57
			1/0	844	17.34	54.20
		16QAM	1/0	829	16.30	42.66
			1/0	836.5	16.60	45.71
			1/0	844	16.56	45.29

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	5	QPSK	1/0	826.5	17.26	53.21
			1/0	836.5	17.45	55.59
			1/0	846.5	17.43	55.34
		16QAM	1/0	826.5	16.19	41.59
			1/0	836.5	16.33	42.95
			1/0	846.5	16.47	44.36

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	3	QPSK	1/0	825.5	17.20	52.48
			1/0	836.5	17.37	54.57
			1/0	847.5	17.50	56.23
		16QAM	1/0	825.5	16.35	43.15
			1/0	836.5	16.45	44.16
			1/0	847.5	16.70	46.77

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	1.4	QPSK	1/0	824.7	17.42	55.21
			1/0	836.5	17.40	54.95
			1/0	848.3	17.42	55.21
		16QAM	1/0	824.7	16.63	46.03
			1/0	836.5	16.72	46.99
			1/0	848.3	16.58	45.50