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

CERTIFICATION TEST REPORT

FOR

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

FCC ID: PY7TM-0053

REPORT NUMBER: 14U17921- E1

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Prepared for

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONY MOBILE COMMUNICATIONS, INC.

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

SERIAL NUMBER: CB5A20E0RY (Radiated), CB5A208FAY (Conducted)

DATE TESTED: June 24 – Aug 31, 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 22H, 24E, 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
	☐ Chamber G
	☐ Chamber H

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

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

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4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 27000 MHz	4.94 dB

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

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

5.2. MAXIMUM OUTPUT POWER

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

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

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5.3. MAXIMUM OUTPUT POWER (LTE)

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

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
			Peak	Avg (dBm)	Avg(mW)	Avg (dBm)	Avg(mW)
LTE7	2500~2570	20MHz	QPSK	23.82	240.99	26.82	480.84
	2500~2570	20MHz	16QAM	23.00	199.53	25.60	363.08

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

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

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

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

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

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

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

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5.4. DESCRIPTION OF AVAILABLE ANTENNAS

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

Frequency (MHz)	Peak Gain (dBi)
GSM/Band 5, 824~849MHz	-0.5
GSM/Band 2, 1850~1910MHz	0.0
LTE5, 824~849MHz	-0.5
LTE7, 2500~2570MHz	1.7

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5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

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

I/O CABLES (CONDUCTED SETUP)

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

I/O CABLES (RADIATED SETUP)

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

TEST SETUP

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

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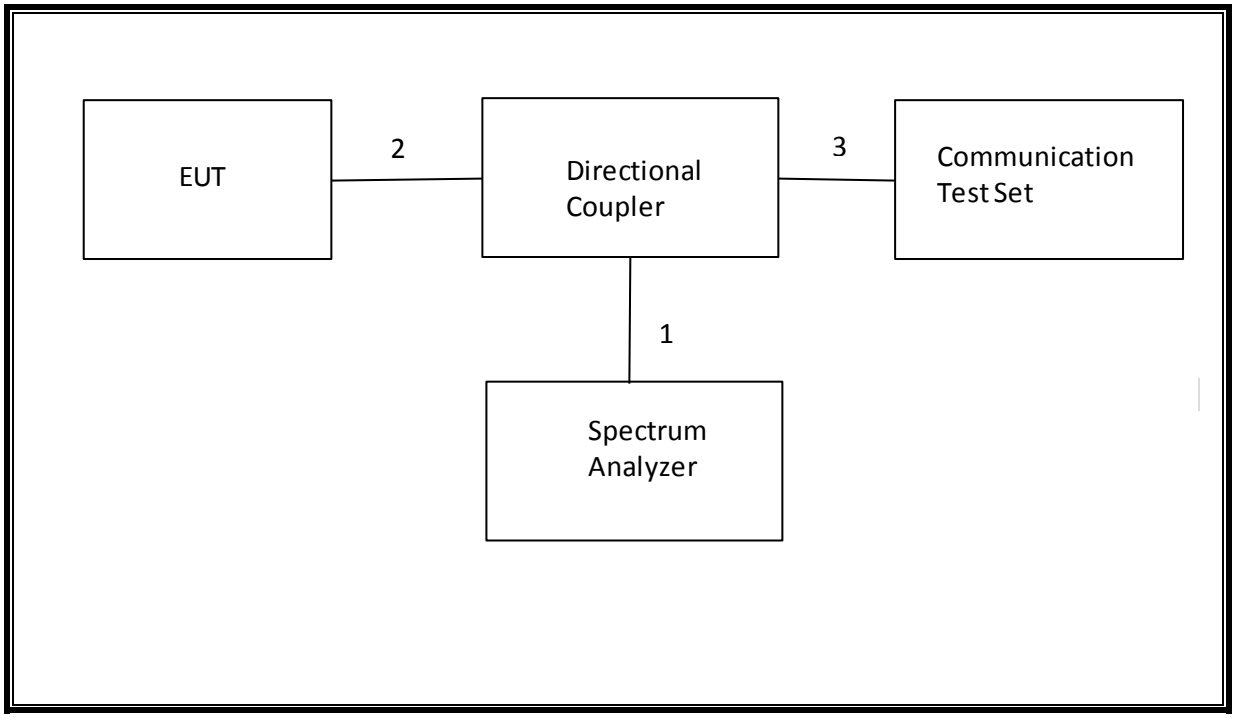
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



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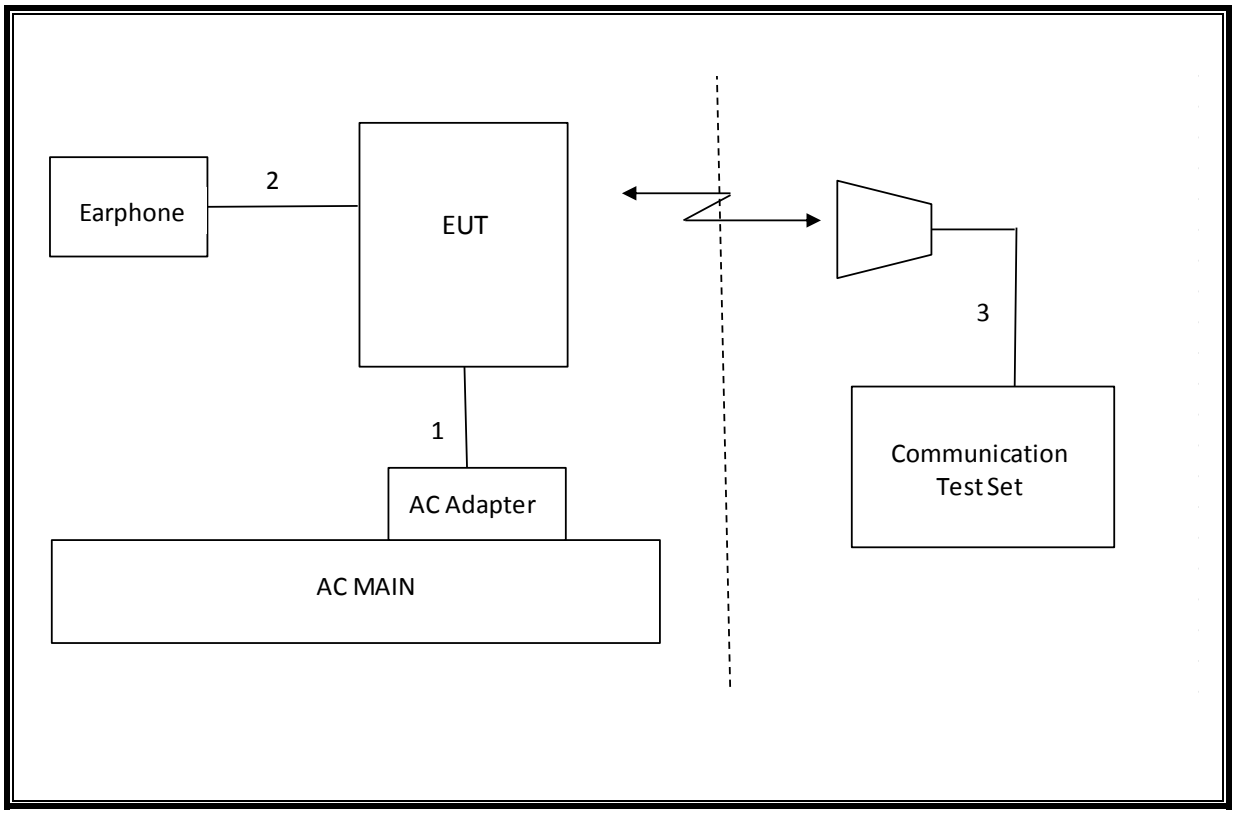
SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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6. TEST AND MEASUREMENT EQUIPMENT

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

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

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7. Summary Table

The FCC ID: PY7TM-0053 shares the same enclosure and circuit board as FCC ID: PY7TM-0050. The WWAN circuitry and layout, including antenna, are almost identical between the two units. The WWAN antenna and surrounding circuitry is the same between these two units. The main difference between the two models is that WWAN circuitry in FCC ID: PY7TM-0050 is removed few bands for FCC ID: PY7TM-0053.

After confirming through preliminary radiated emissions that the performance of the FCC ID: PY7TM-0053 remains representative of FCC ID: PY7TM-0050, test data for FCC ID: PY7TM-0050 is being submitted for this application to cover WWAN features.

Radiated emissions were fully re-evaluated against FCC Part 15B requirements for digital devices and results indicated no significant differences between the two versions due to the depopulation of the WWAN circuitry.

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst case
2.1049	N/A	Occupied Band width (99%)	N/A	Conducted	Pass	17.83MHz
22.917(a) 24.238(a) 27.53(g) 90.691	RSS-132(4.5.1) RSS-133(6.5.1) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emission	-13dBm		Pass	-16.283dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-25.66dBm
2.1046	N/A	Conducted output power	N/A		Pass	33.5dBm
27.53(m) 90.691	RSS-199(4.5)	Emission Mask	N/A		N/A	N/A
22.355 24.235 27.54 90.213	RSS-132(4.3) RSS-133(6.3) RSS-139(6.3) RSS-199(4.3)	Frequency Stability	2.5PPM		Pass	0.02579PPM
22.913(a)(2)	RSS-132(4.4)	Effective Radiated Power	38 dBm	Radiated	Pass	31.925dBm
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power	33dBm		Pass	31.152dBm
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	-40.8dBm
27.53(m)	RSS-199(4.5)		-25dBm		Pass	-51.3dBm

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8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

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

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

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

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

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

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

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 30 dBm for GPRS1800/1900

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

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

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

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

Channel Type > Off

P0> 4 dB

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

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

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

Bit Stream > 2E9-1PSR Bit Pattern

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

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

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8.1.1. GSM OUTPUT POWER RESULT

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

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

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8.2. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

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

8.2.1. UMTS REL 99 OUTPUT POWER RESULT

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

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

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8.3. UMTS HSDPA

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

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

8.3.1. UMTS HSDPA OUTPUT POWER RESULT

HSDPA

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

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HSDPA

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

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8.3.2. UMTS HSUPA

TEST PROCEDURE

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

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

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

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8.3.3. UMTS HSUPA OUTPUT POWER RESULT

HSUPA

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

HSUPA

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

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8.3.4. DC-HSDPA

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

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

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

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

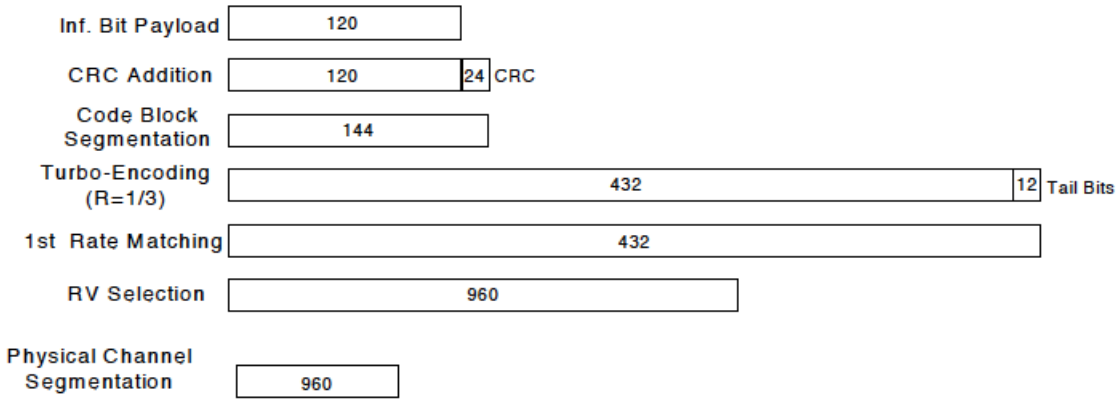

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

	Mode	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs = βhs/ βc	30/15			

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

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8.3.1. UMTS DC-HSDPA OUTPUT POWER RESULT

DC-HSDPA

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

DC-HSDPA

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

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8.4. LTE OUTPUT VERIFICATION

8.4.1. LTE OUTPUT RESULT

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20450	20525	20600
						829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0	23.36	**23.50**	**23.53**
			1	25	0	23.40	23.48	23.37
			1	49	0	**23.44**	23.47	23.47
			25	0	1	22.54	22.53	**22.58**
			25	12	1	22.49	22.54	22.57
			25	25	1	**22.56**	**22.60**	22.56
			50	0	1	22.52	22.51	**22.57**
		16QAM	1	0	1	22.31	22.66	22.42
			1	25	1	22.35	22.66	22.25
			1	49	1	22.34	22.66	22.35
			25	0	2	21.55	21.58	21.75
			25	12	2	21.62	21.54	21.75
			25	25	2	21.59	21.68	21.75
			50	0	2	21.62	21.55	21.68

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20425	20525	20625
						826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	23.36	23.63	23.67
			1	12	0	23.40	23.54	23.65
			1	24	0	23.43	23.61	23.67
			12	0	1	22.42	22.54	22.59
			12	7	1	22.50	22.49	22.53
			12	13	1	22.50	22.50	22.53
			25	0	1	22.53	22.47	22.53
		16QAM	1	0	1	22.23	22.54	22.96
			1	12	1	22.29	22.48	22.91
			1	24	1	22.36	22.52	22.93
			12	0	2	21.51	21.59	21.64
			12	7	2	21.59	21.58	21.65
			12	13	2	21.64	21.58	21.68
			25	0	2	21.71	21.51	21.60

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

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Avg Pwr (dBm)		
						20407	20525	20643
						824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 5	1.4	QPSK	1	0	0	23.42	23.53	23.55
			1	3	0	23.34	23.48	23.48
			1	5	0	23.46	23.55	23.58
			3	0	0	23.47	23.52	23.57
			3	1	0	23.45	23.48	23.58
			3	3	0	23.40	23.50	23.55
			6	0	1	22.52	22.53	22.62
		16QAM	1	0	1	22.56	22.74	22.68
			1	3	1	22.51	22.69	22.60
			1	5	1	22.55	22.68	22.67
			3	0	1	22.41	22.48	22.52
			3	1	1	22.40	22.47	22.52
			3	3	1	22.38	22.46	22.50
			6	0	2	21.56	21.43	21.69

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

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

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

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

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9. PEAK TO AVERAGE RATIO

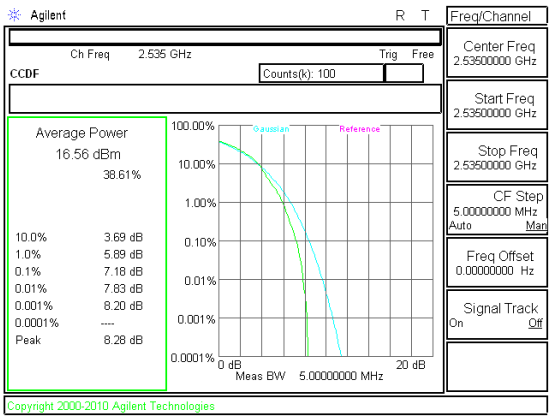
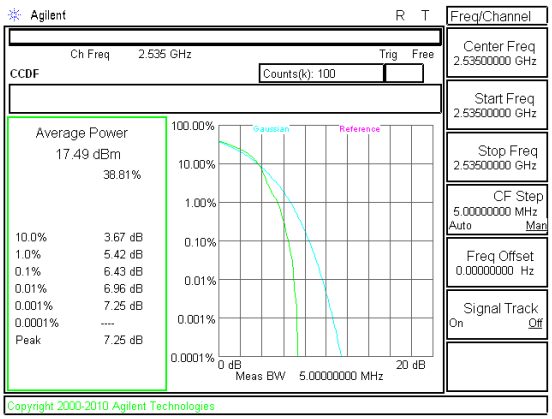
Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

Test Spec

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

9.1. CONDUCTED PEAK TO AVERAGE RESULT

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

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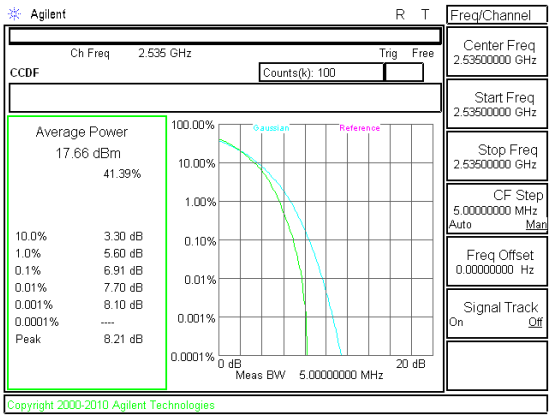
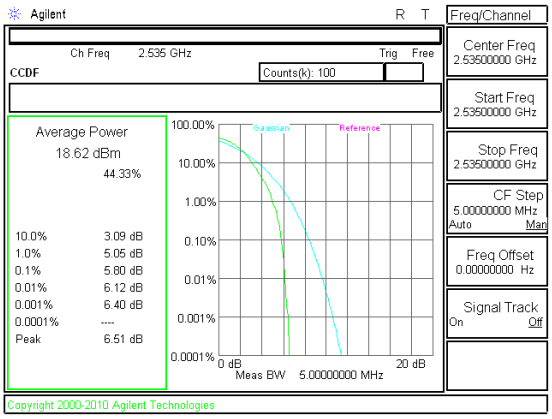
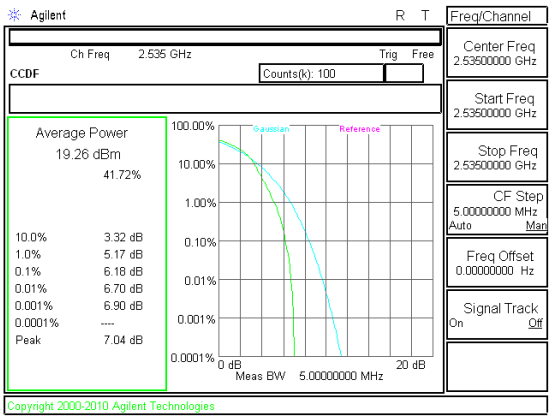
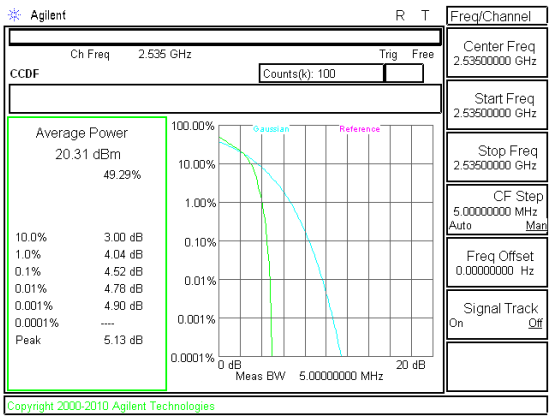
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz 16QAM Mid channel	 Band LTE7 15MHz QPSK Mid channel

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

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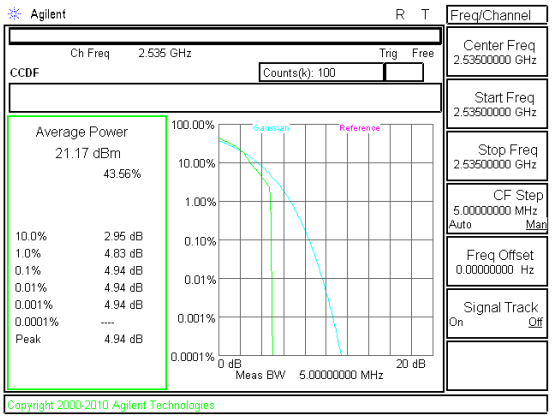
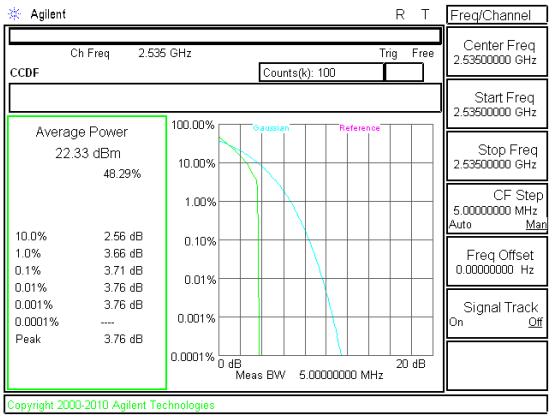
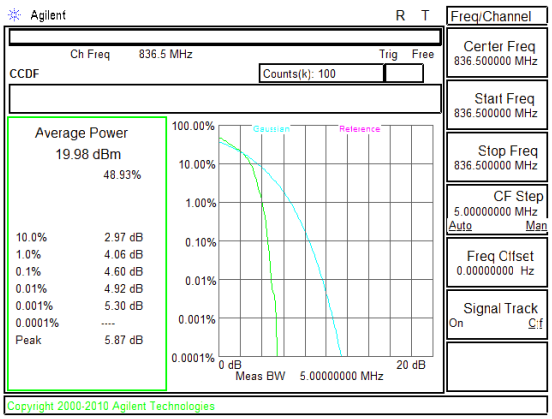
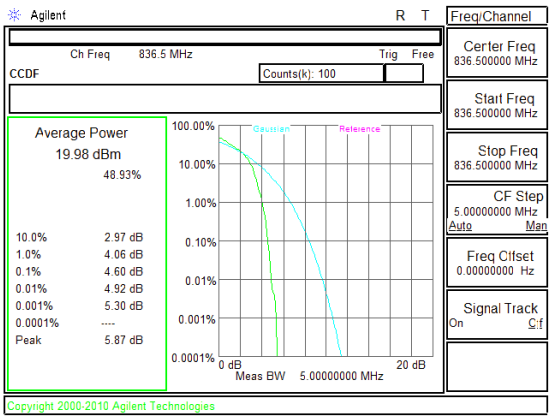
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz 16QAM Mid channel	 Band LTE7 5MHz QPSK Mid channel

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

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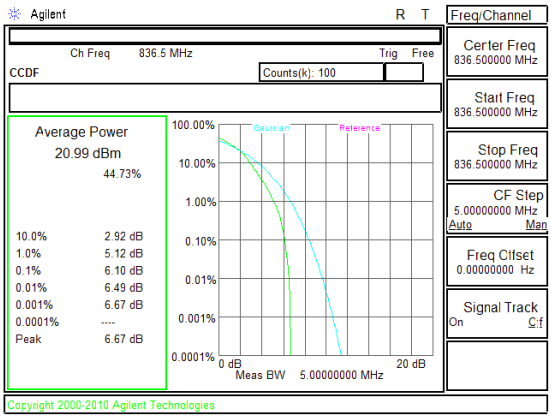
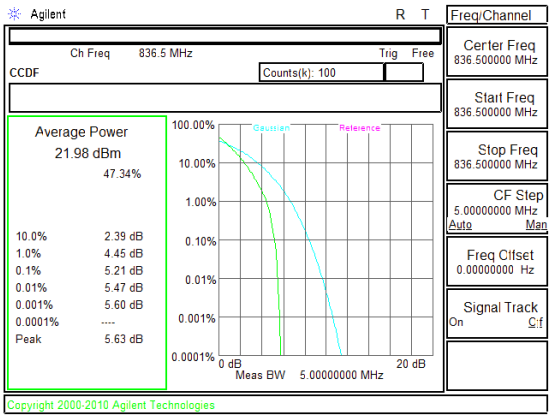
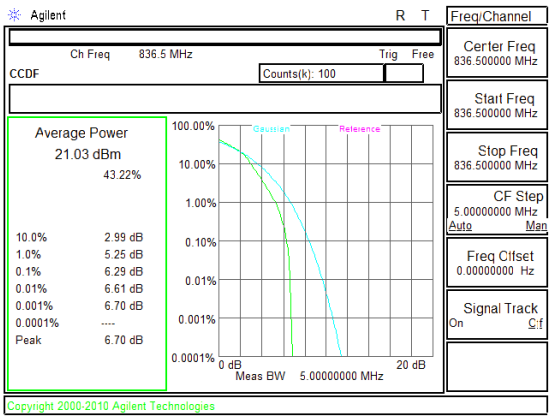
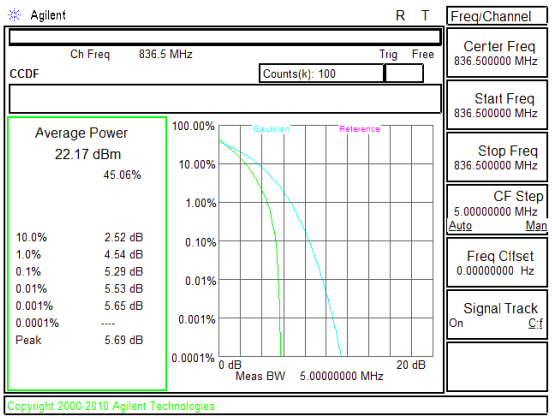
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz 16QAM Mid channel	 Band LTE5 5MHz QPSK Mid channel

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

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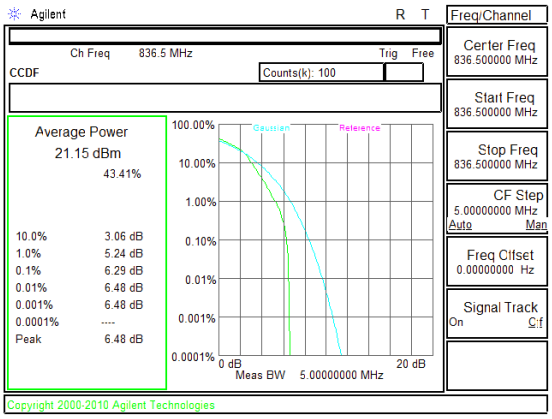
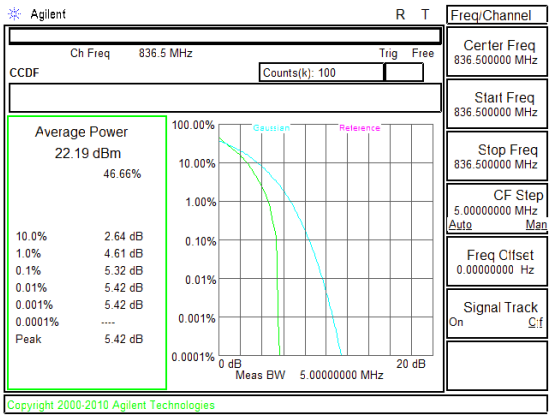
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz 16QAM Mid channel	 Band LTE5 1.4MHz QPSK Mid channel

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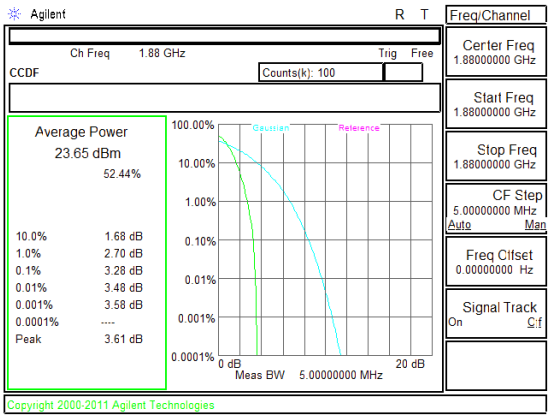
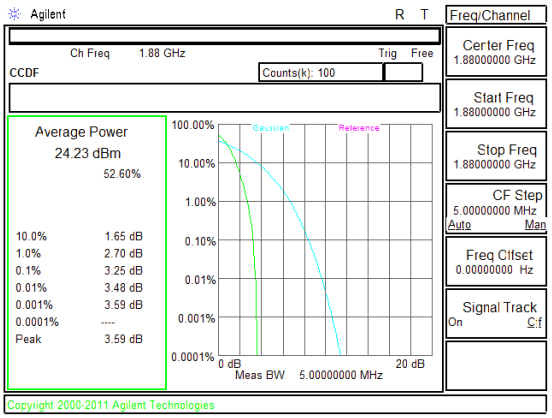
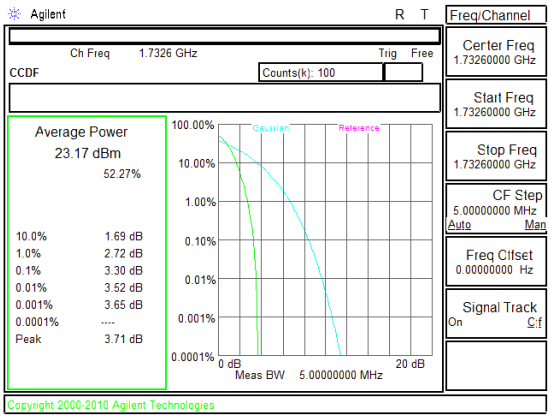
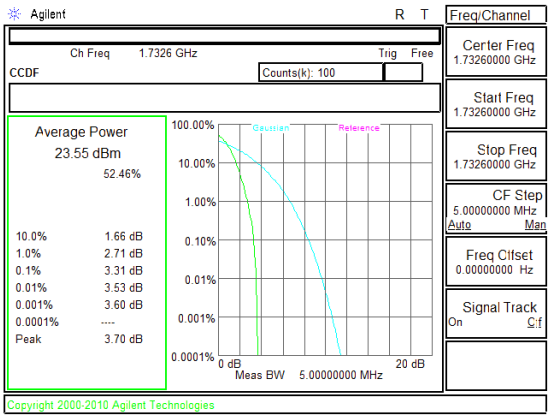
WCDM A B2	 HSDPA	 Rel 99
WCDM A B4	 HSDPA	 Rel 99

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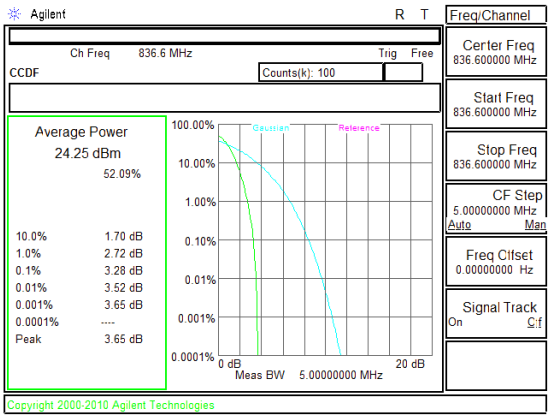
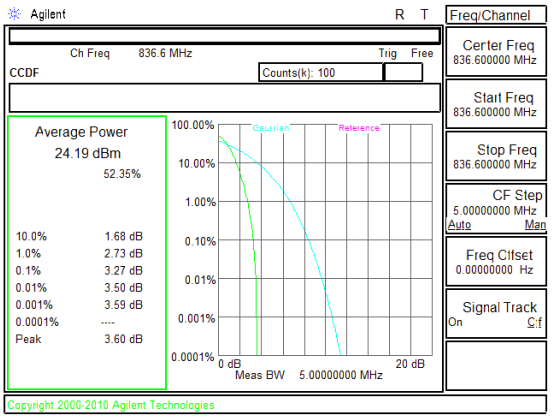
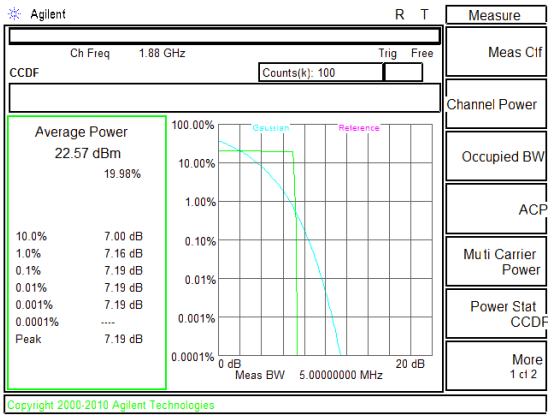
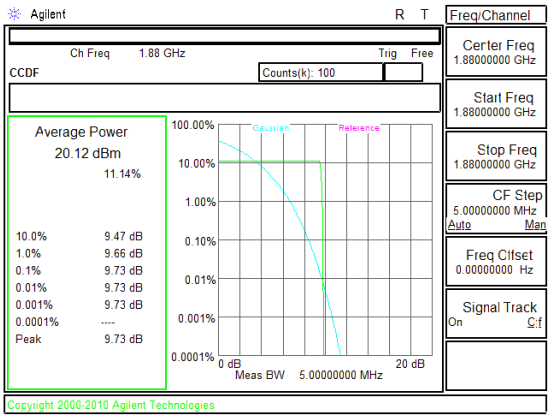
WCDMA B5	 HSDPA	 Rel 99
GSM 1900	 EGPRS	 GPRS

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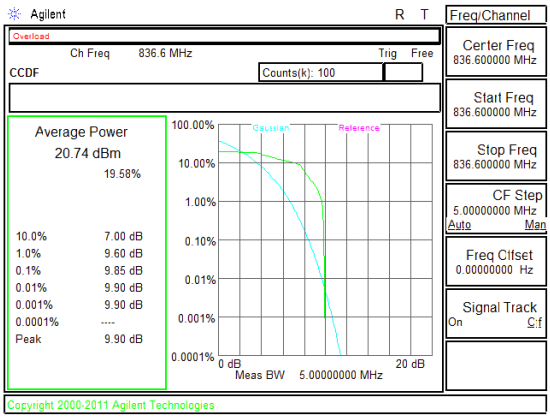
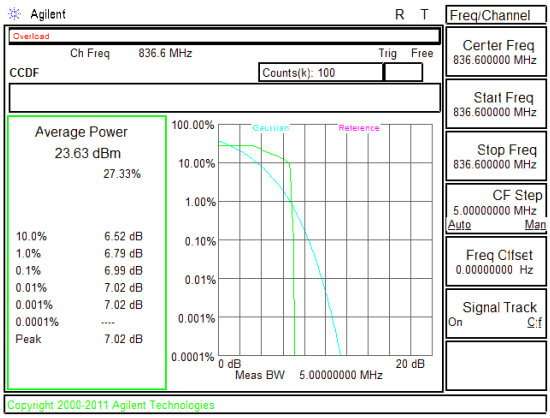
GSM 850	 EGPRS	 GPRS

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10. LIMITS AND CONDUCTED RESULTS

10.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

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

LIMITS

For reporting purposes only

TEST PROCEDURE

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

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

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10.1.1. OCCUPIED BANDWIDTH RESULTS

Band	Mode	Channel	f (MHz)	99% BW (KHz)	-26dB BW (KHz)
GSM850	GPRS	128	824.2	244.20	328.59
		190	836.6	243.24	315.90
		251	848.8	243.28	327.52
	EGPRS	128	824.2	245.85	309.30
		190	836.6	242.53	314.28
		251	848.8	249.09	315.17
GSM1900	GPRS	512	1850.2	242.76	323.10
		661	1880	243.92	320.42
		810	1909.8	242.54	314.80
	EGPRS	512	1850.2	243.42	312.84
		661	1880	246.21	316.99
		810	1909.8	242.39	312.99

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

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10.1.2. LTE OCCUPIED BANDWIDTH RESULTS

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE7	20	QPSK	100/0	2510	17.81	18.52
			100/0	2535	17.82	18.73
			100/0	2560	17.83	19.05
		16QAM	100/0	2510	17.81	19.10
			100/0	2535	17.70	18.76
			100/0	2560	17.83	19.04

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE7	15	QPSK	75/0	2507.5	13.38	14.25
			75/0	2535	13.40	14.49
			75/0	2562.5	13.37	14.27
		16QAM	75/0	2507.5	13.37	14.46
			75/0	2535	13.39	14.45
			75/0	2562.5	13.40	14.26

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE7	10	QPSK	50/0	2505	8.96	9.65
			50/0	2535	8.95	9.61
			50/0	2565	8.93	9.66
		16QAM	50/0	2505	8.96	9.58
			50/0	2535	8.93	8.90
			50/0	2565	8.95	9.63

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

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

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

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

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

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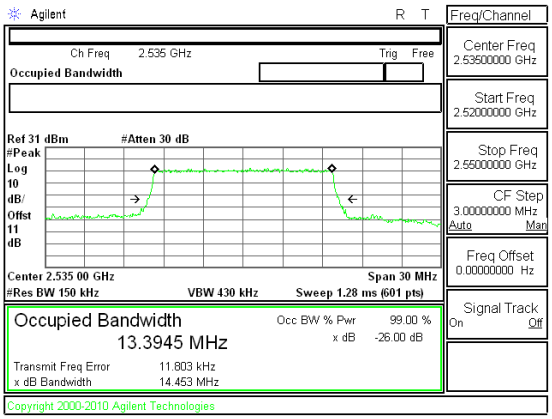
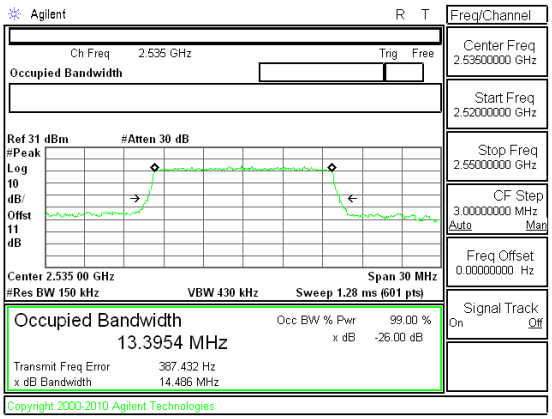
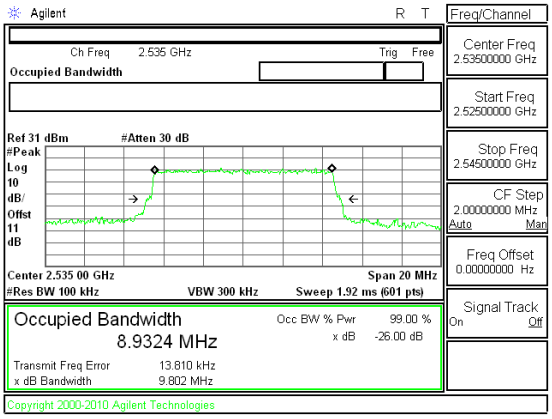
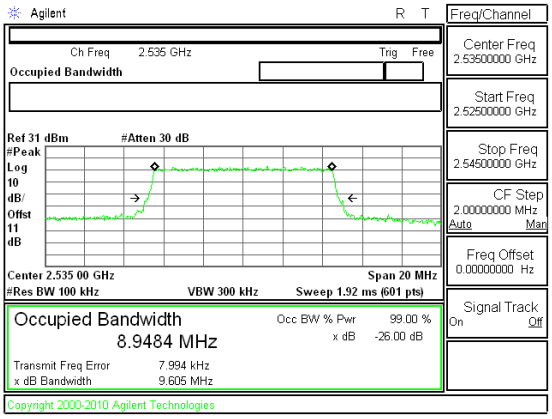
10.1.3. OCCUPIED BANDWIDTH PLOTS

Band LTE7 15MHz 16QAM	 Band LTE7 15MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 15MHz OBW QPSK Mid Channel FRB.gif
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 10MHz OBW QPSK Mid Channel FRB.gif

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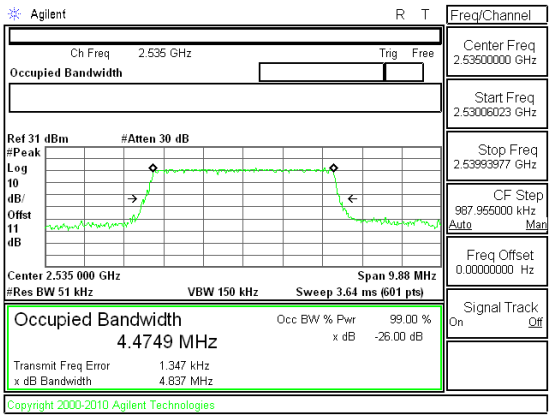
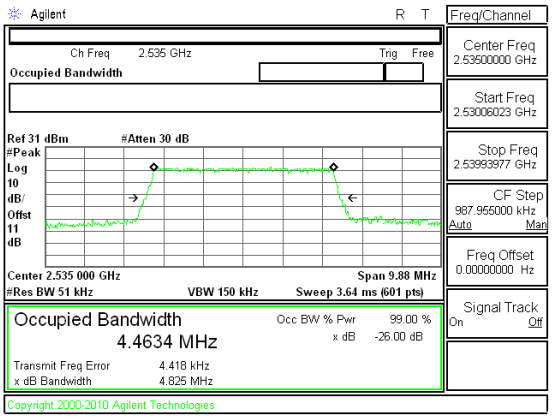
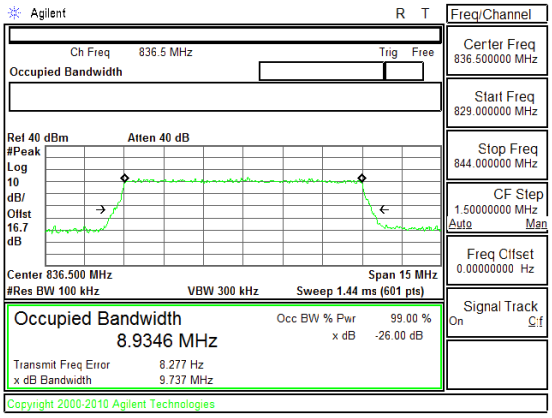
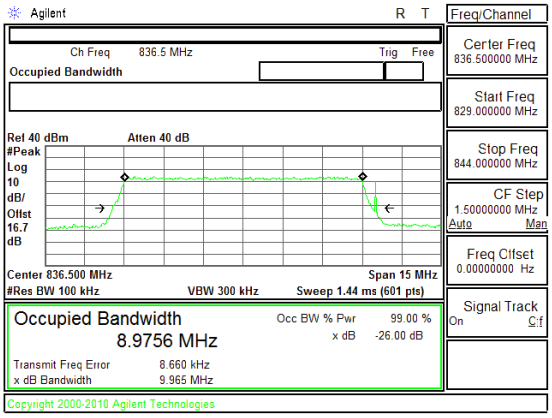
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE7 5MHz OBW QPSK Mid Channel FRB.gif
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 10MHz OBW QPSK Mid Channel FRB.gif

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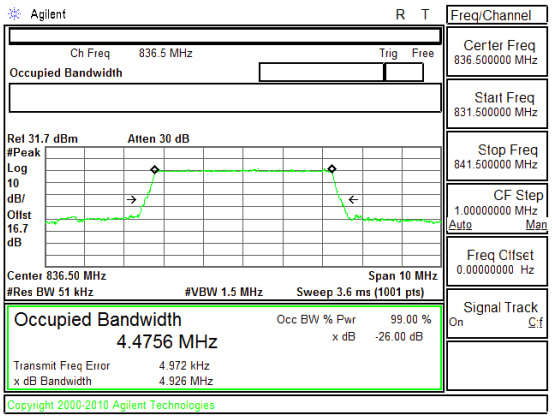
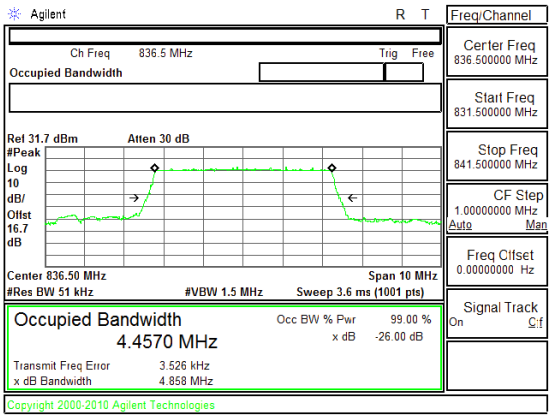
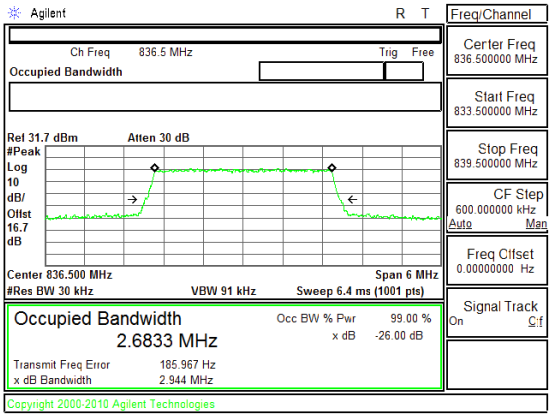
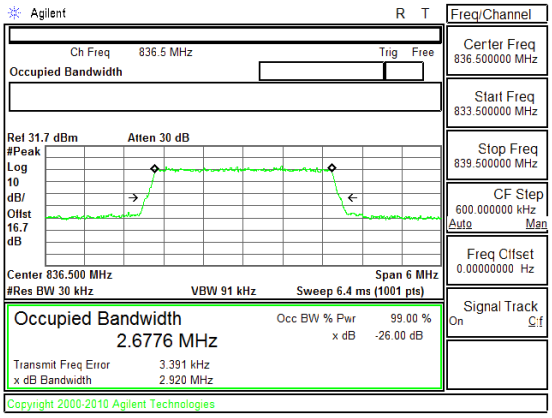
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 5MHz OBW QPSK Mid Channel FRB.gif
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 3MHz OBW QPSK Mid Channel FRB.gif

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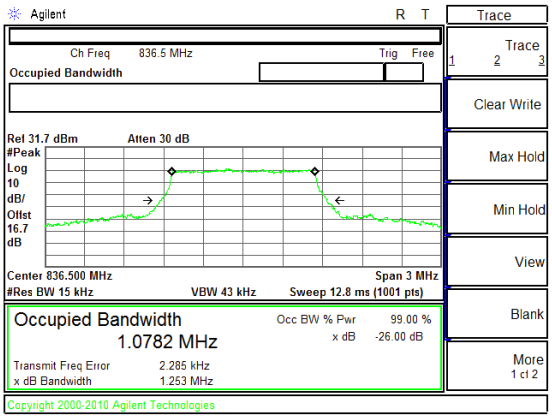
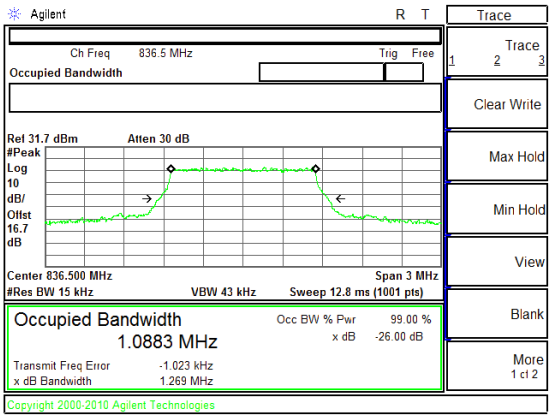
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz OBW 16QAM Mid Channel FRB.gif	 Band LTE5 1.4MHz OBW QPSK Mid Channel FRB.gif

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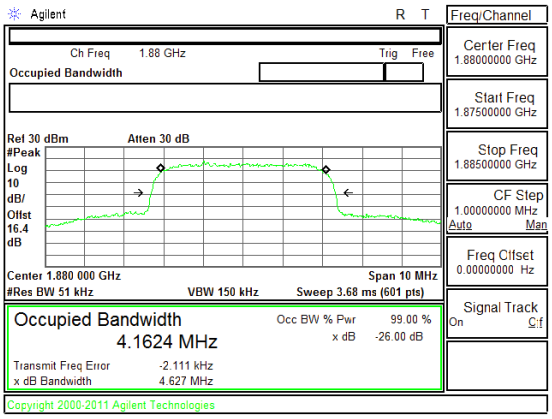
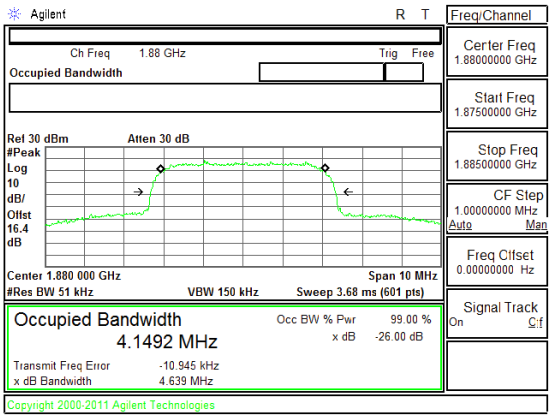
Band

Band 2

HSDPA



Band WCDMA B2 HSDPA OBW

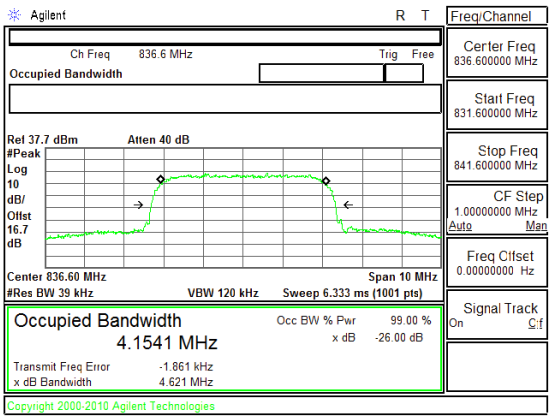


Band WCDMA B2 REL99 OBW

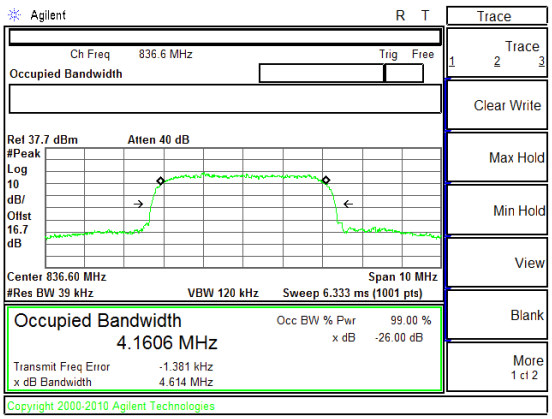
Band

Band 5

HSDPA



Band WCDMA B5 HSDPA OBW



Band WCDMA B5 REL99 OBW

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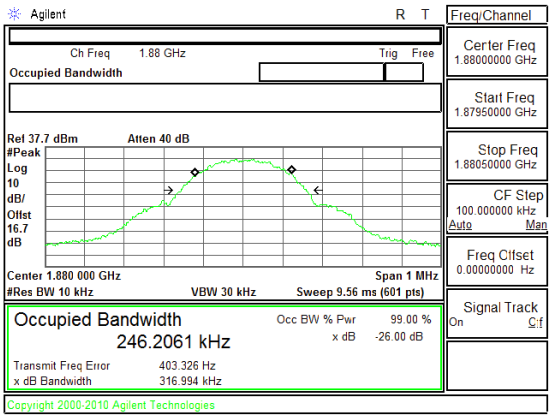
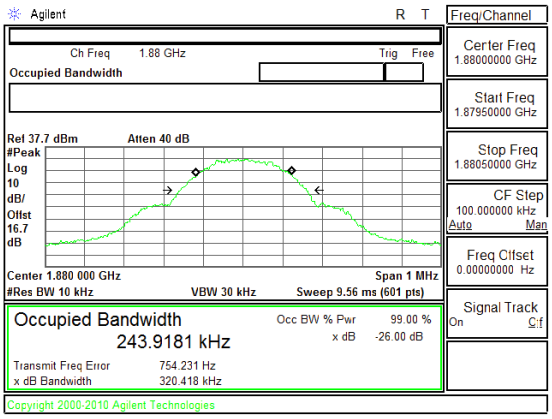
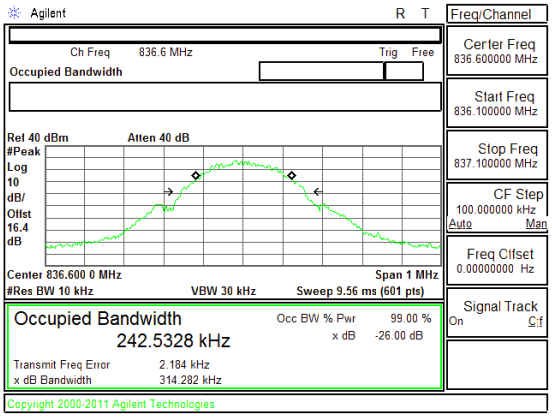
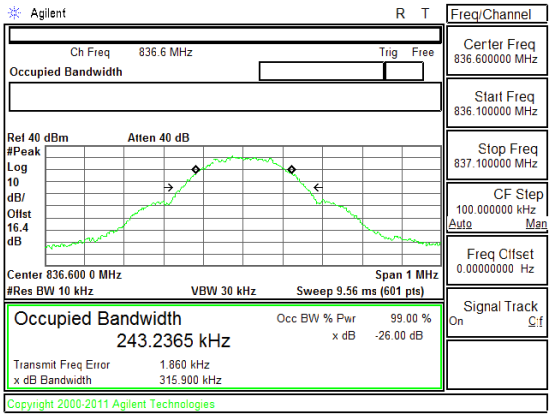
Band GSM1900 EGPRS	 Band GSM1900 EGPRS OBW Mid channel	 Band GSM1900 GPRS OBW Mid channel
Band GSM850 EGPRS	 Band GSM850 EGPRS OBW Mid channel	 Band GSM850 GPRS OBW Mid channel

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10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27. 53

LIMITS

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

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r01
The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

RESULTS

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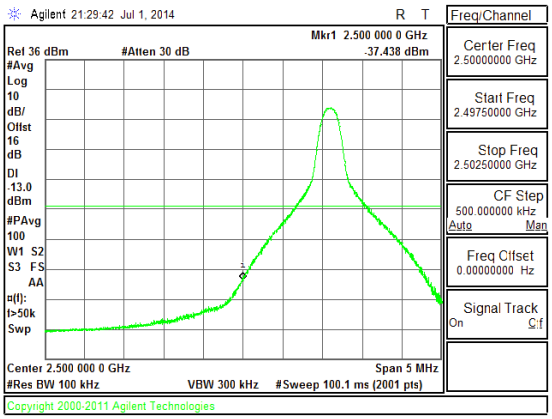
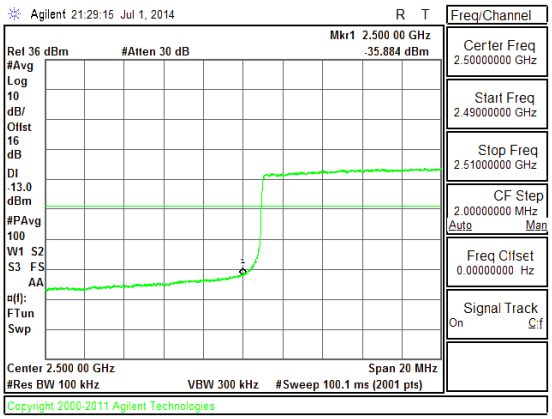
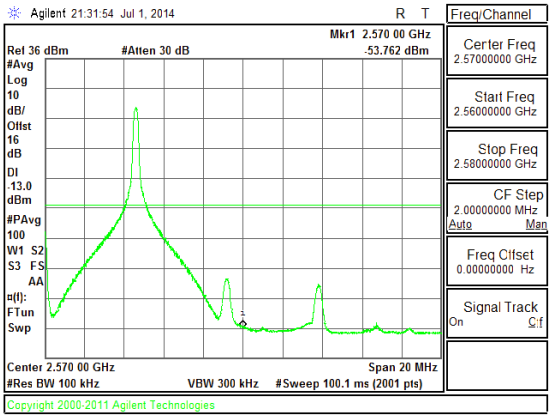
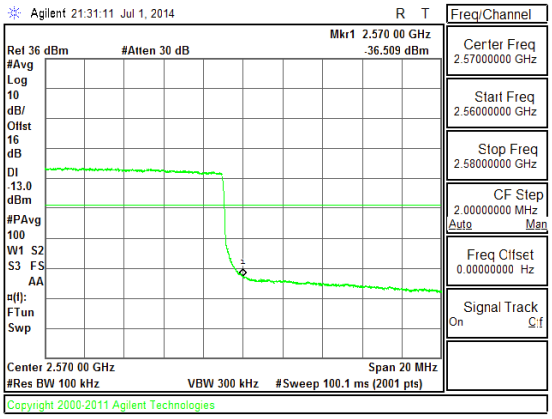
10.2.1. BAND EDGE PLOTS

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

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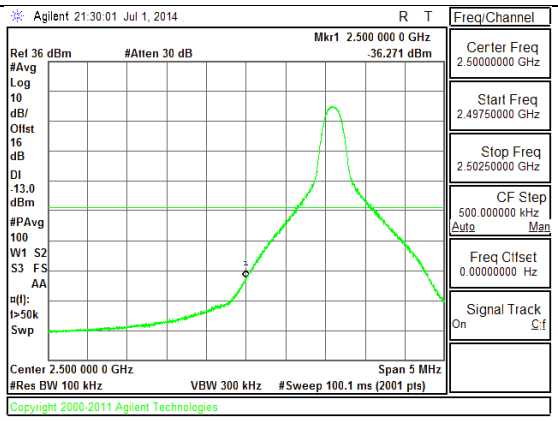
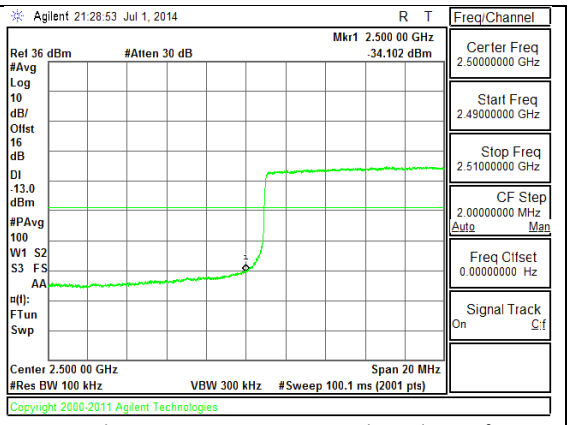
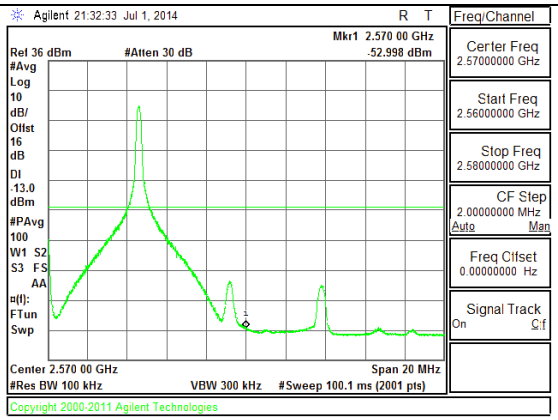
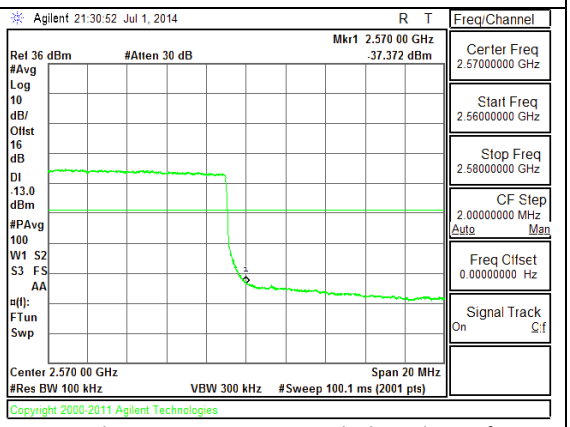
Band LTE7 20MHz QPSK	 Band LTE7 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 20MHz CBE QPSK Low Channel FRB.gif
Band LTE7 20MHz QPSK	 Band LTE7 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 20MHz CBE QPSK High Channel FRB.gif

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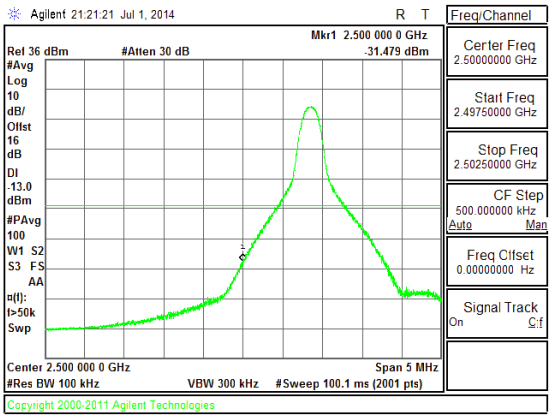
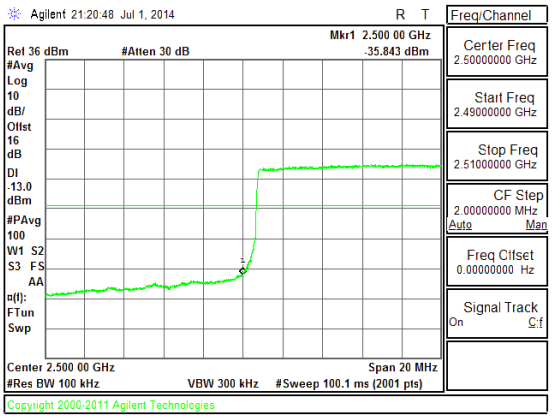
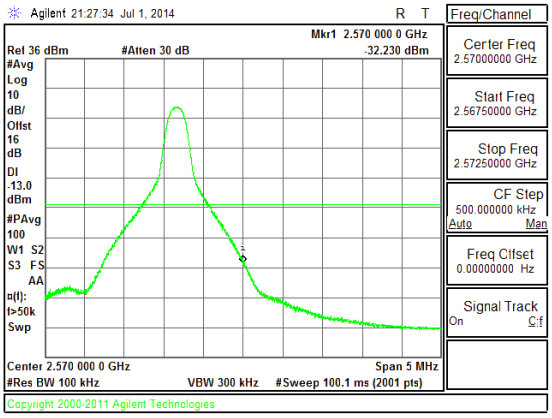
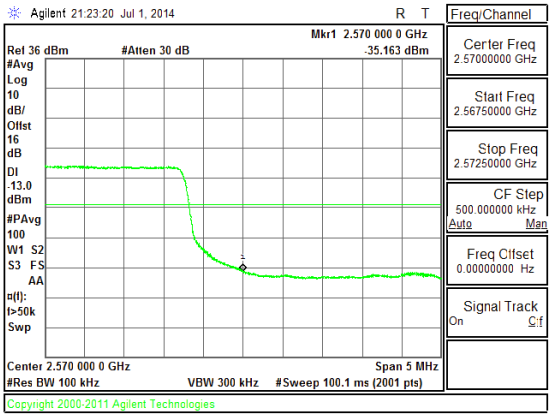
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 15MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 15MHz CBE 16QAM High Channel FRB.gif

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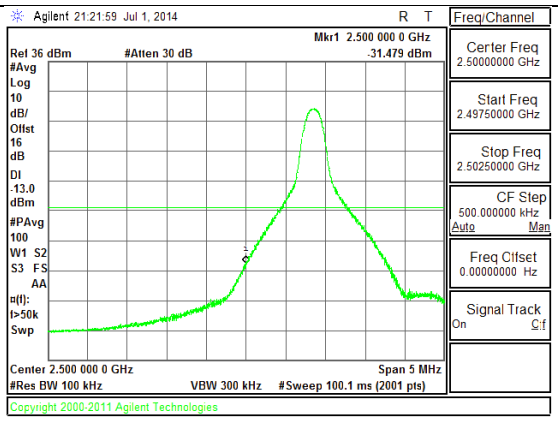
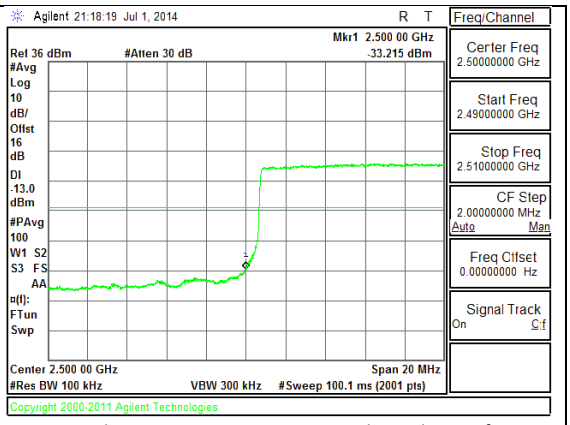
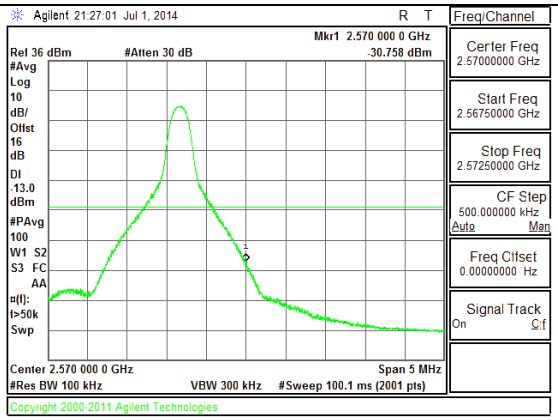
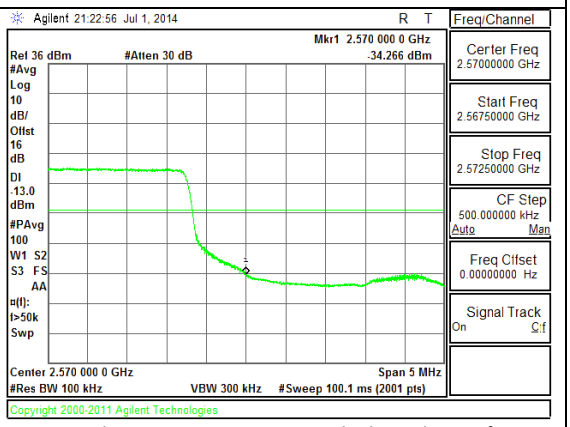
Band LTE7 15MHz QPSK	 Band LTE7 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 15MHz CBE QPSK Low Channel FRB.gif
Band LTE7 15MHz QPSK	 Band LTE7 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 15MHz CBE QPSK High Channel FRB.gif

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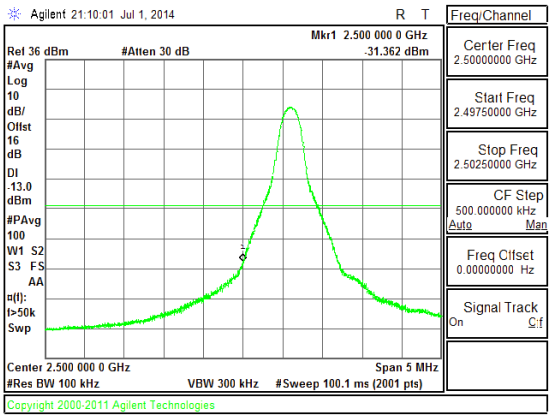
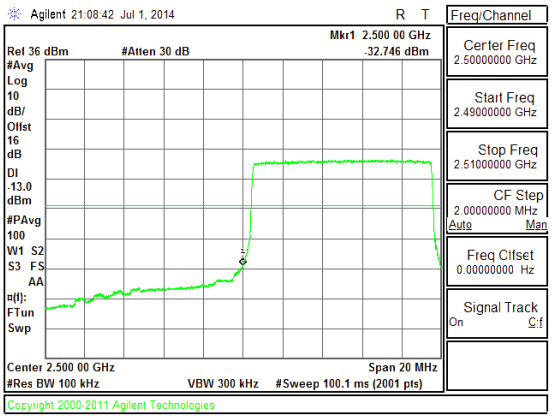
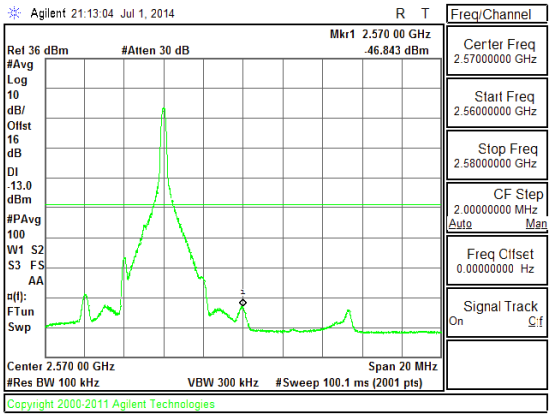
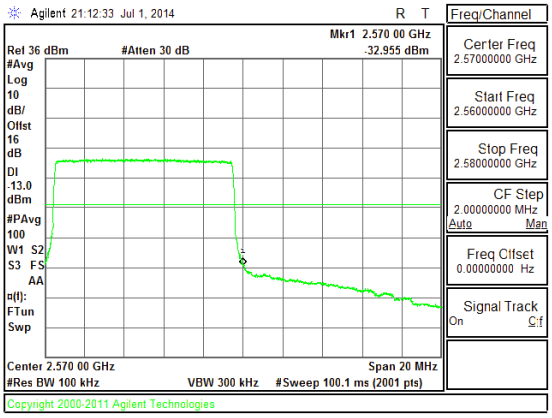
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 10MHz CBE 16QAM High Channel FRB.gif

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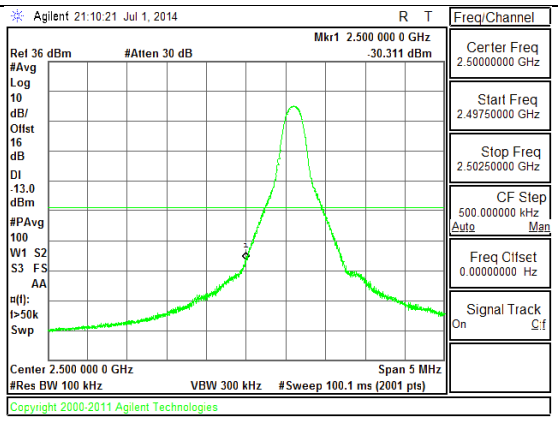
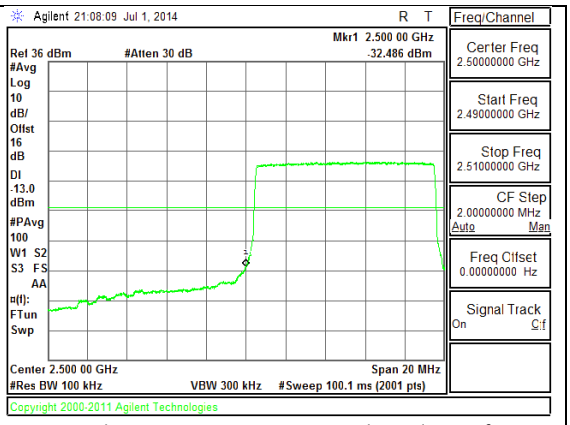
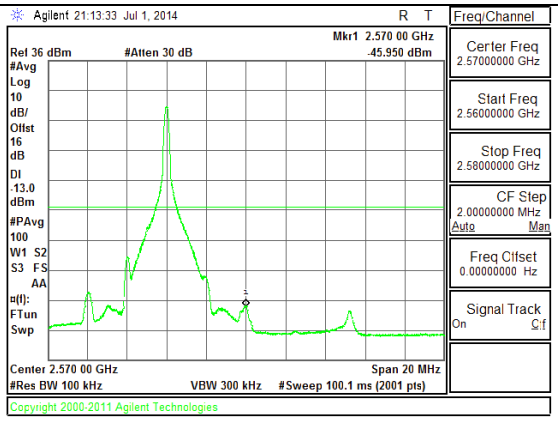
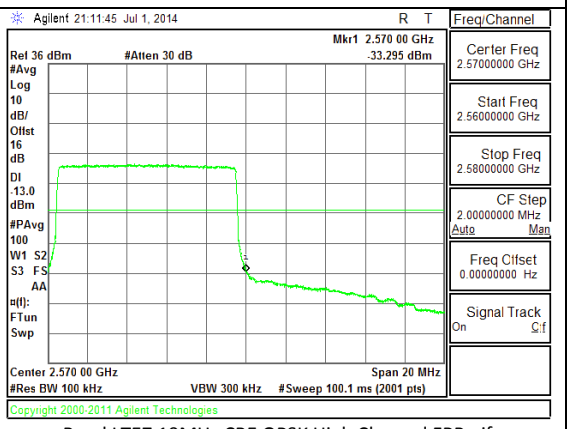
Band LTE7 10MHz QPSK	 Band LTE7 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 10MHz CBE QPSK Low Channel FRB.gif
Band LTE7 10MHz QPSK	 Band LTE7 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 10MHz CBE QPSK High Channel FRB.gif

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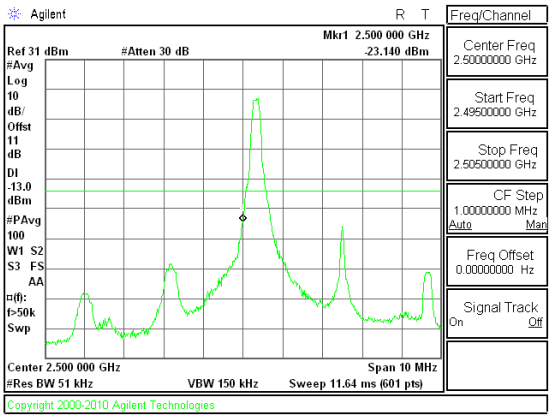
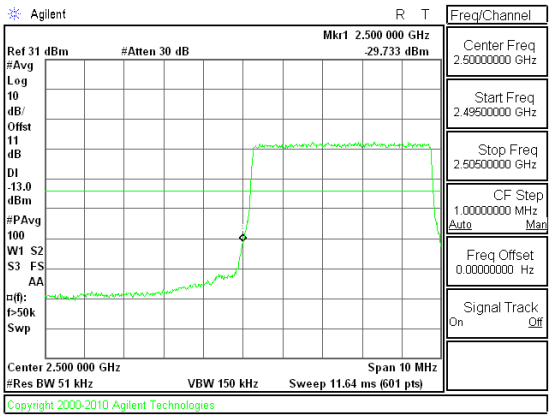
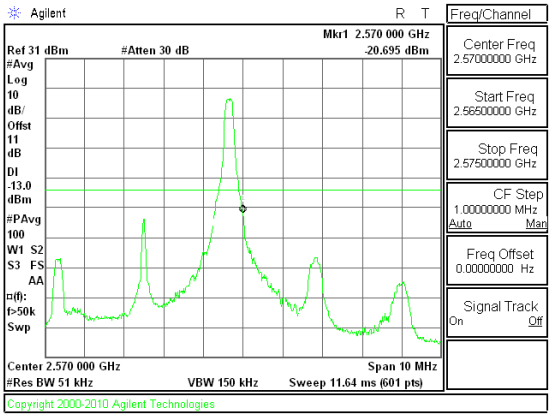
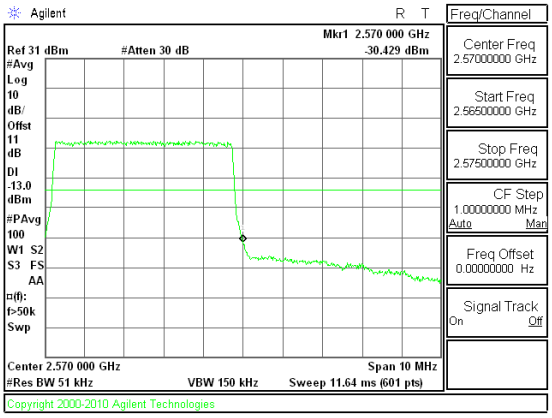
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE7 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE7 5MHz CBE 16QAM High Channel FRB.gif

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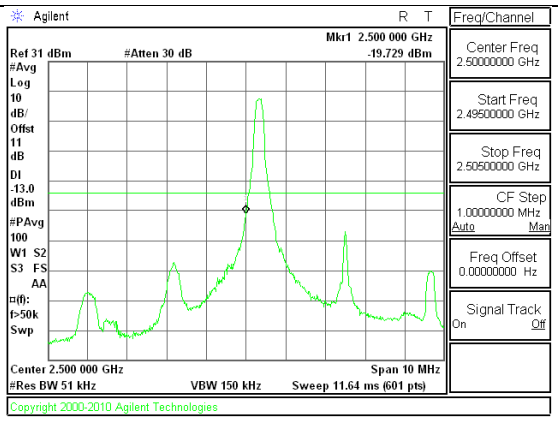
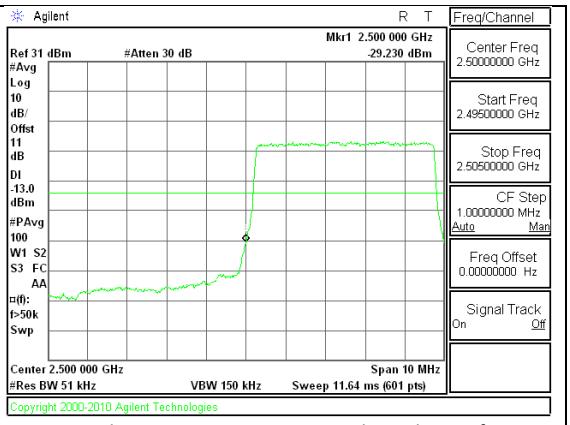
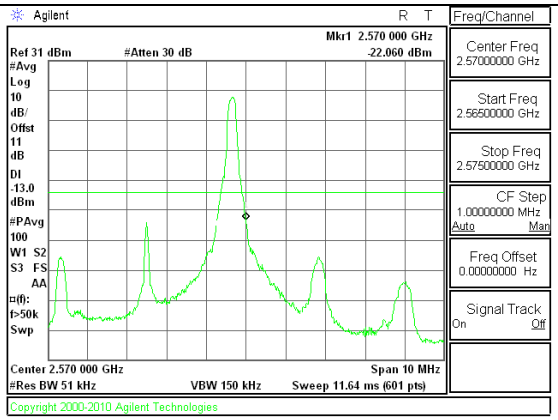
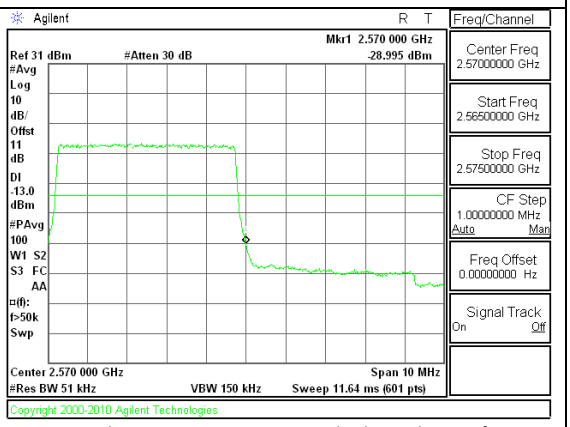
Band LTE7 5MHz QPSK	 Band LTE7 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE7 5MHz CBE QPSK Low Channel FRB.gif
Band LTE7 5MHz QPSK	 Band LTE7 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 5MHz CBE QPSK High Channel FRB.gif

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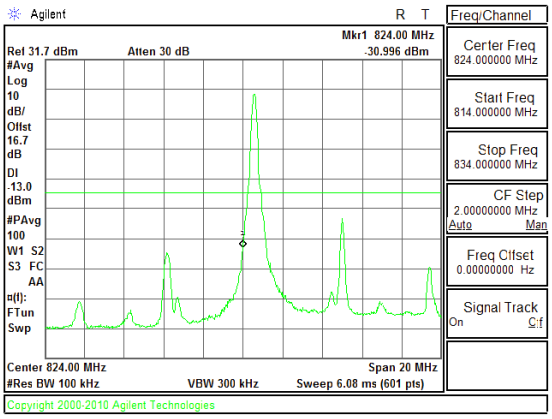
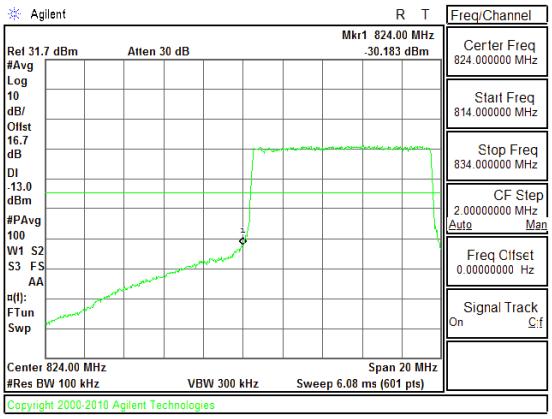
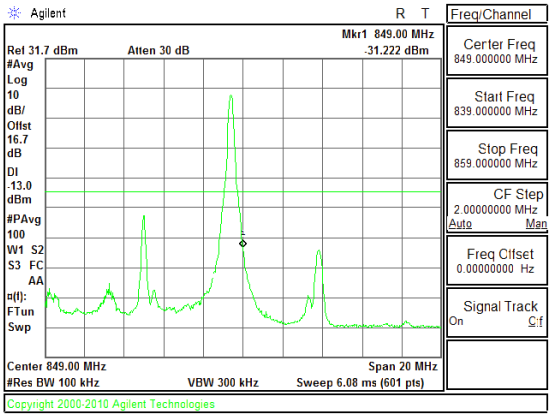
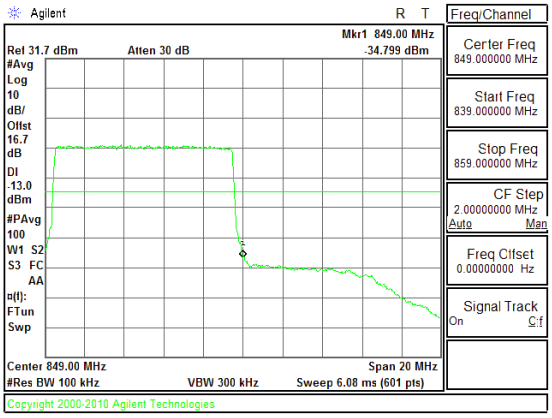
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 10MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 10MHz CBE 16QAM High Channel FRB.gif

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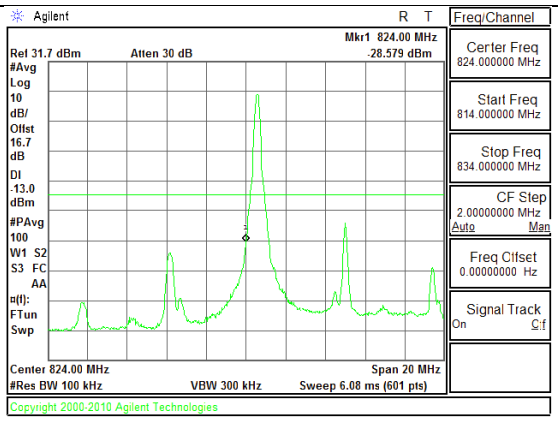
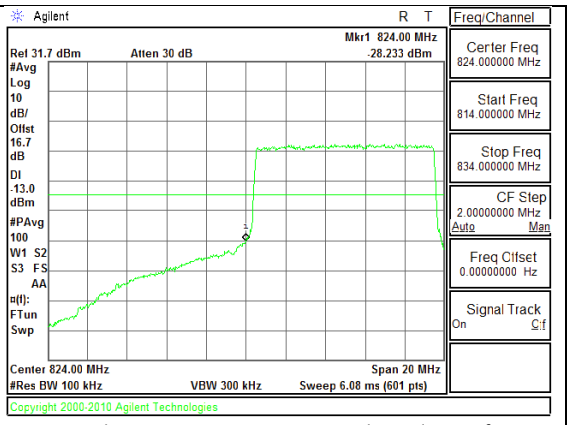
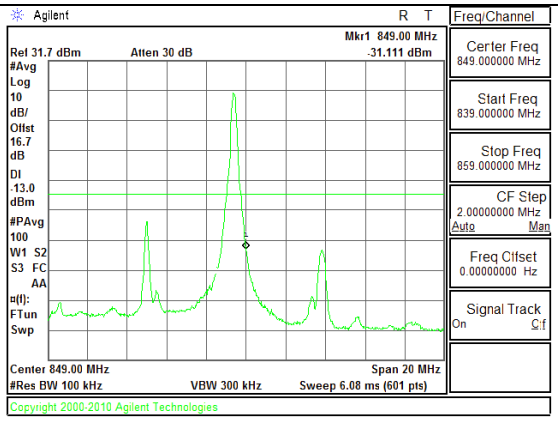
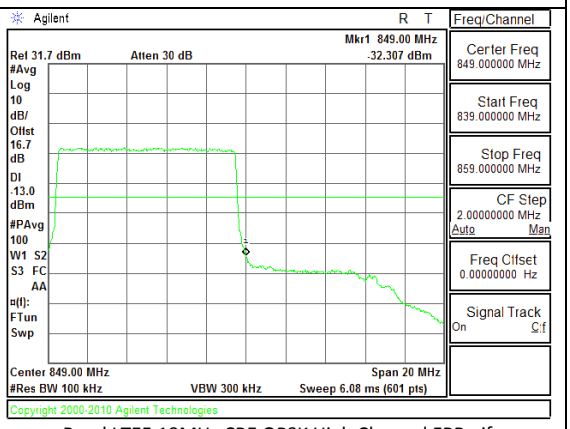
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK Low Channel FRB.gif
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK High Channel FRB.gif

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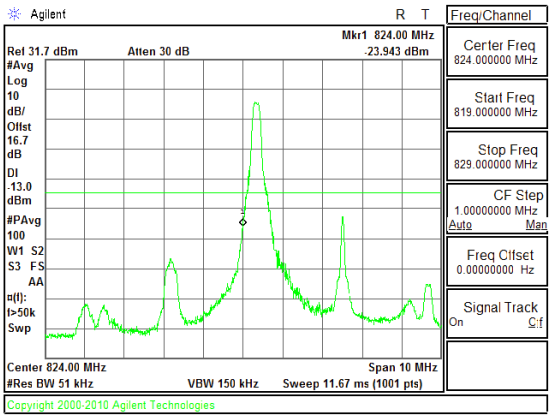
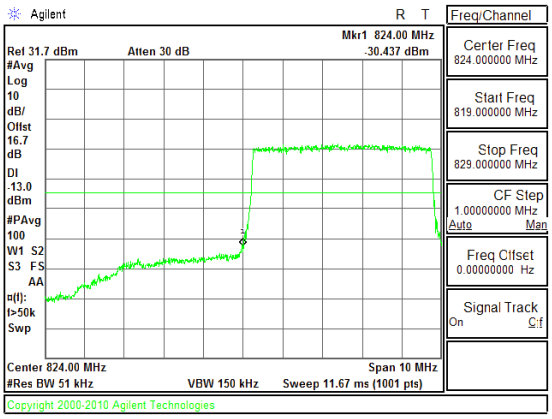
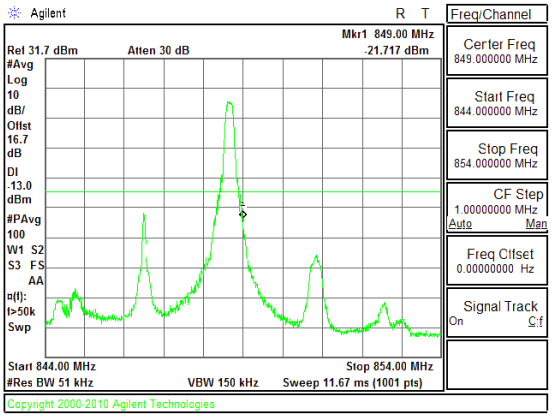
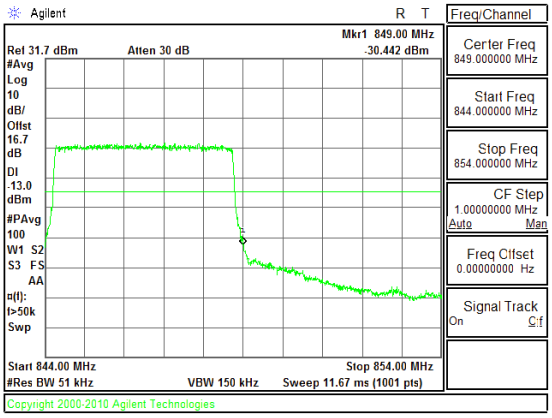
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM High Channel FRB.gif

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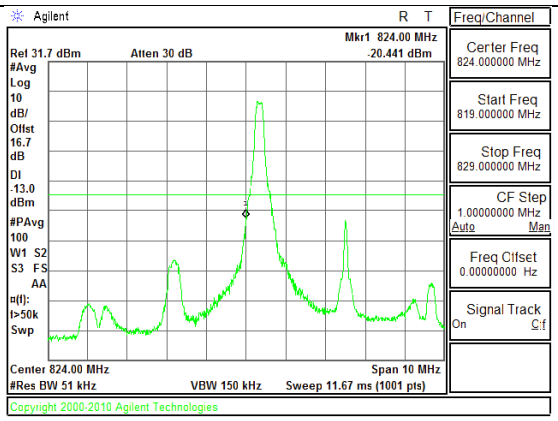
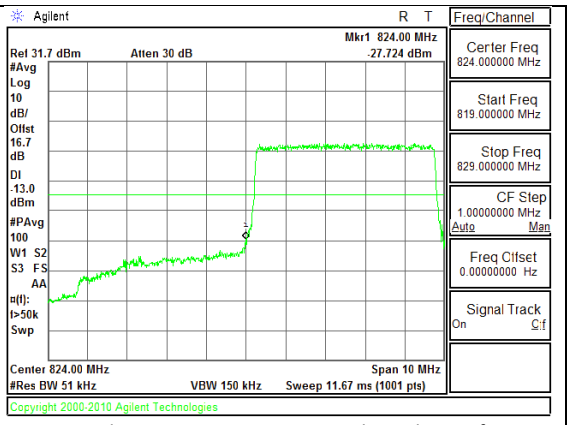
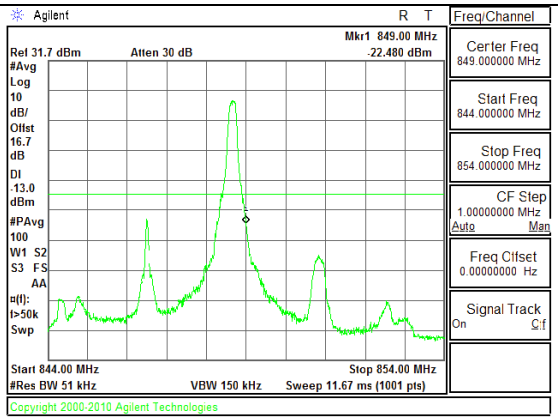
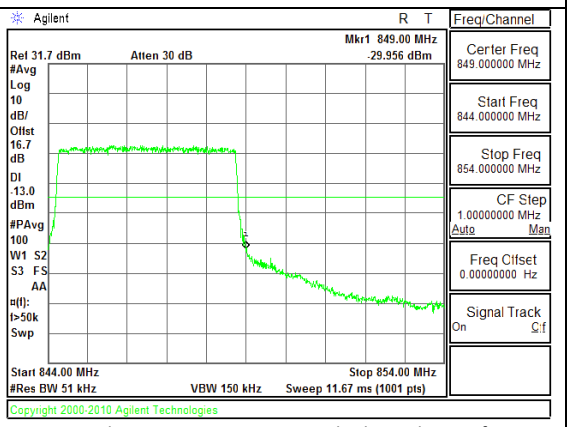
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK Low Channel FRB.gif
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK High Channel FRB.gif

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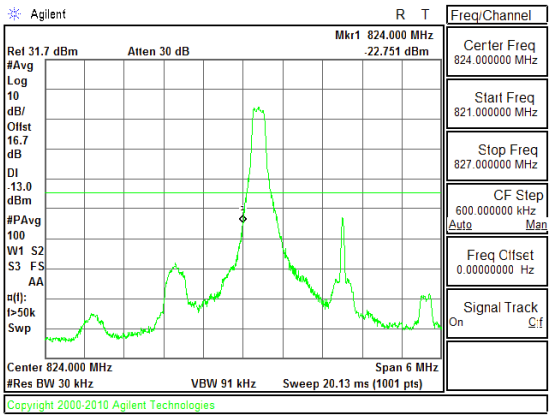
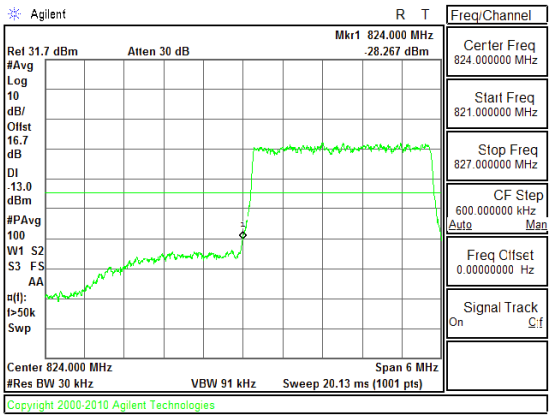
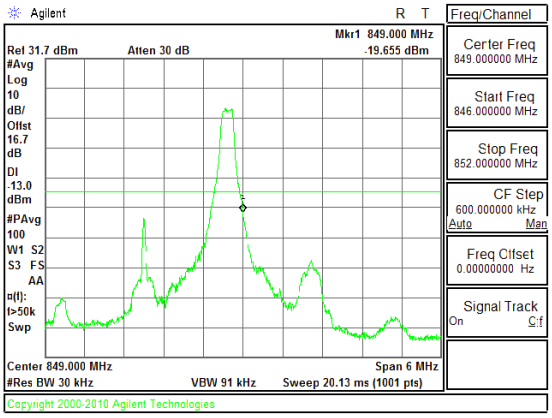
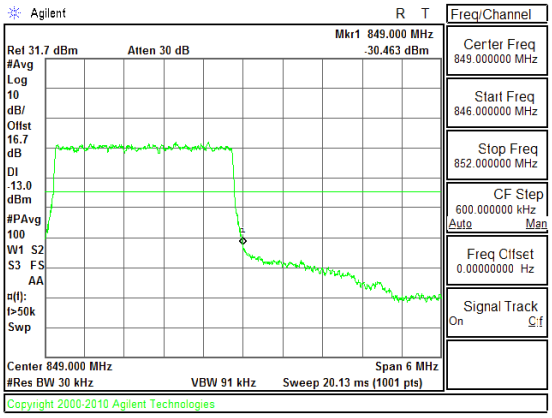
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM High Channel FRB.gif

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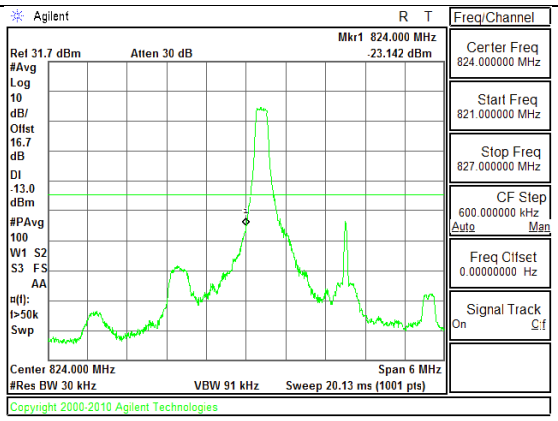
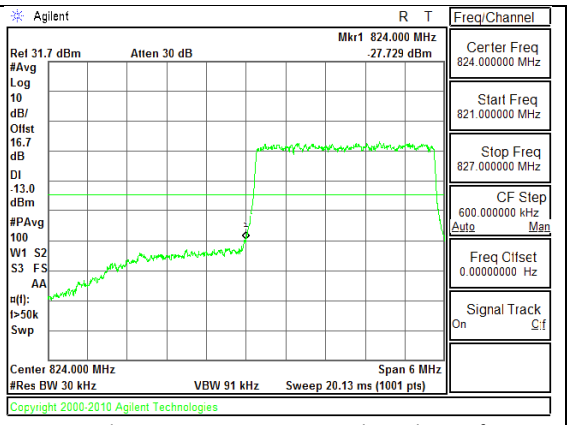
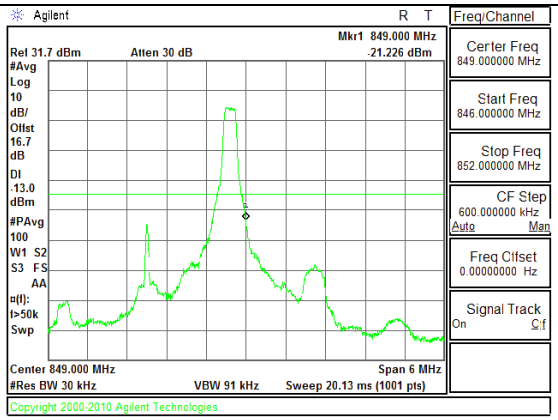
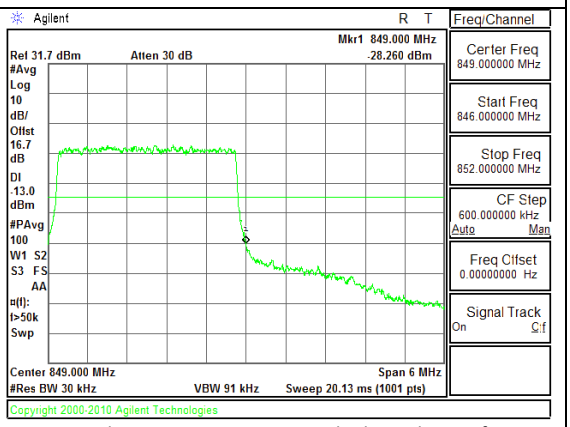
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK Low Channel FRB.gif
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK High Channel FRB.gif

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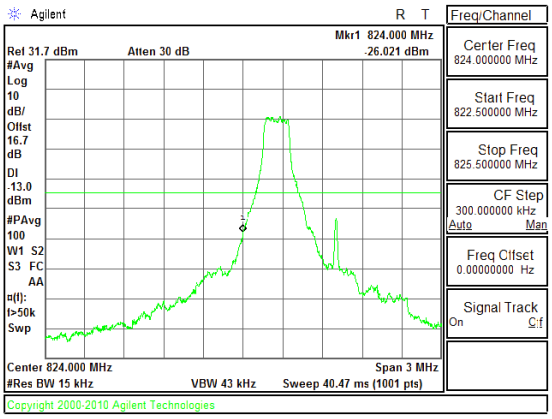
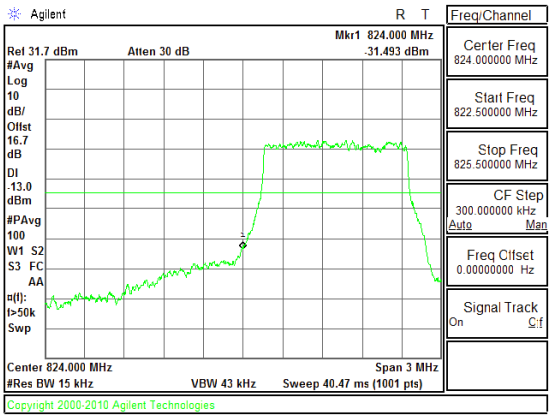
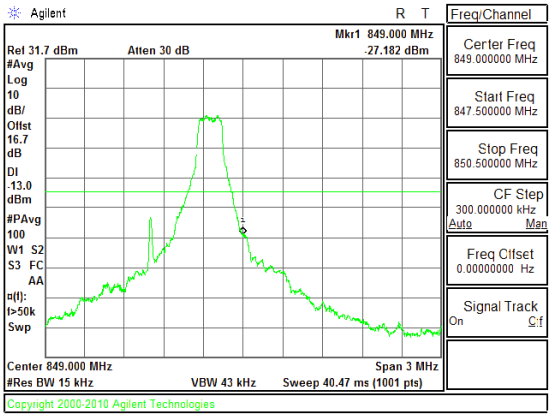
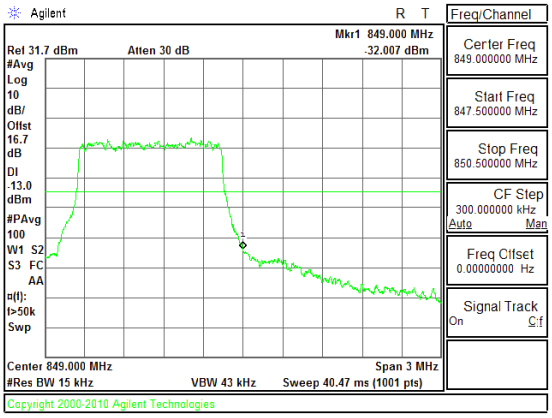
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM Low Channel FRB.gif
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM High Channel FRB.gif

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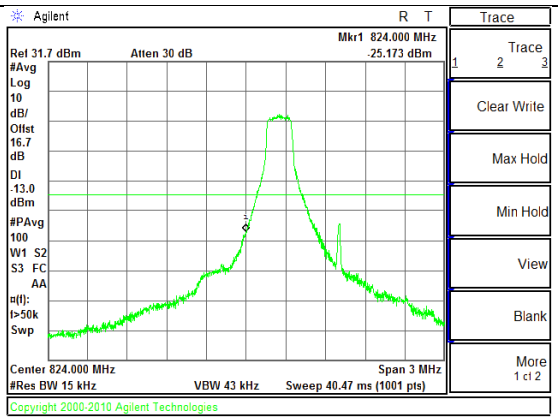
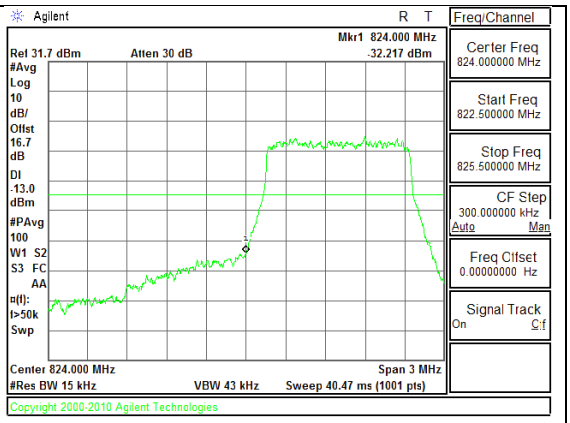
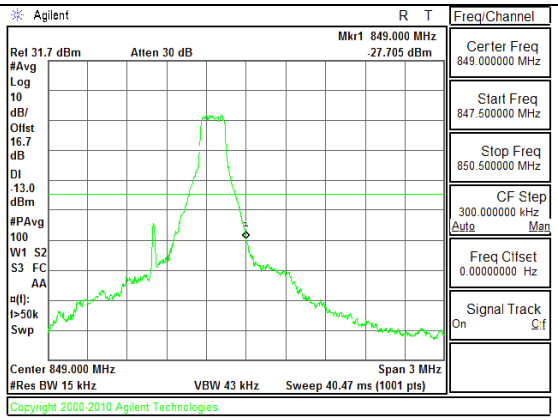
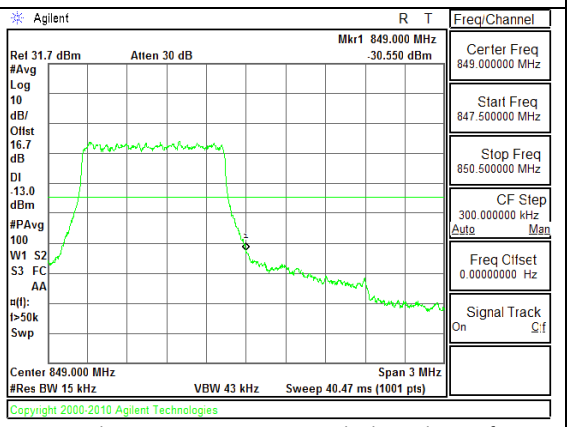
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK Low Channel FRB.gif
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK High Channel FRB.gif

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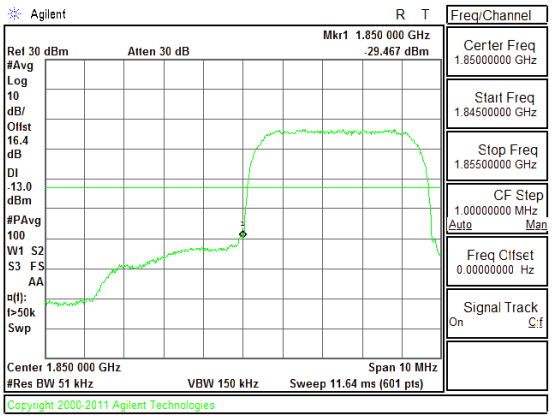
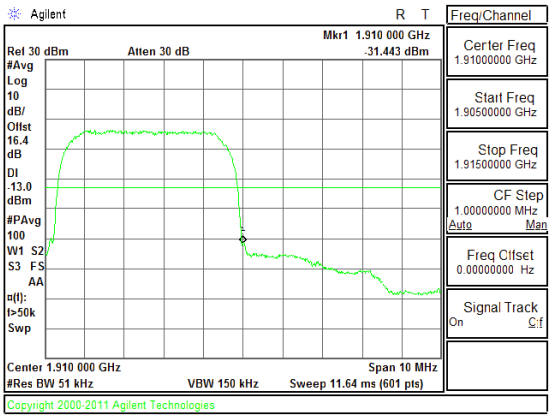
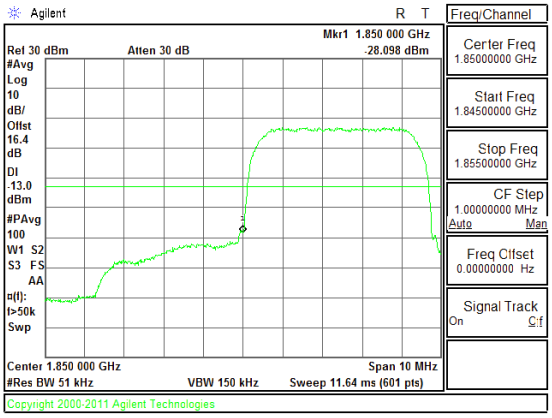
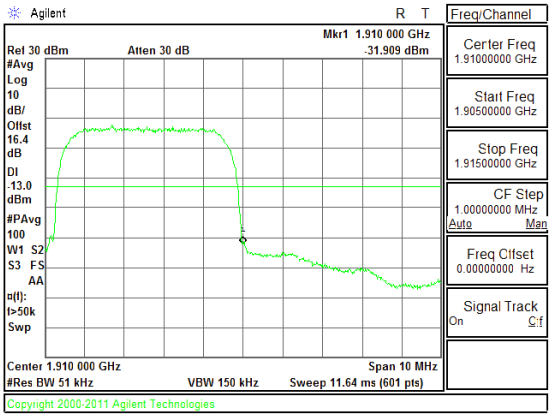
Band Band 2 HSDPA	 Band WCDMA B2 HSDPA CBE	 Band WCDMA B2 HSDPA CBE
Band Band 2 REL99	 Band WCDMA B2 REL99 CBE	 Band WCDMA B2 REL99 CBE

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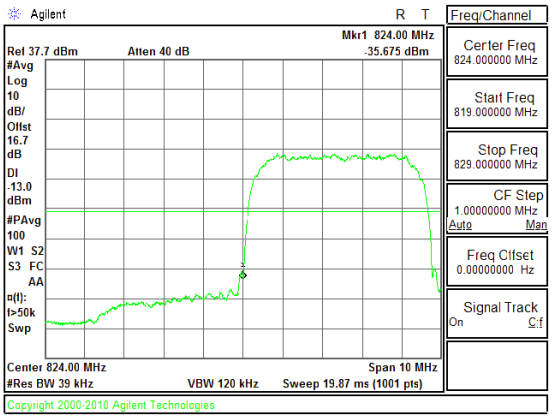
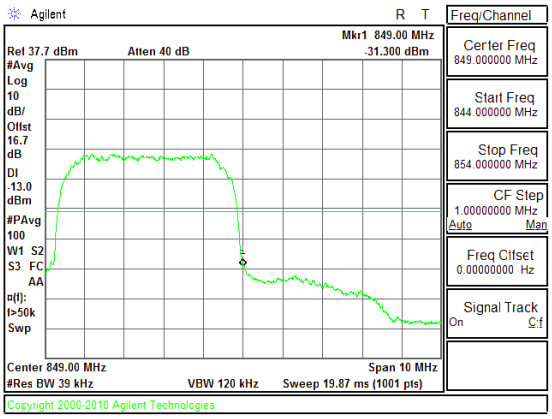
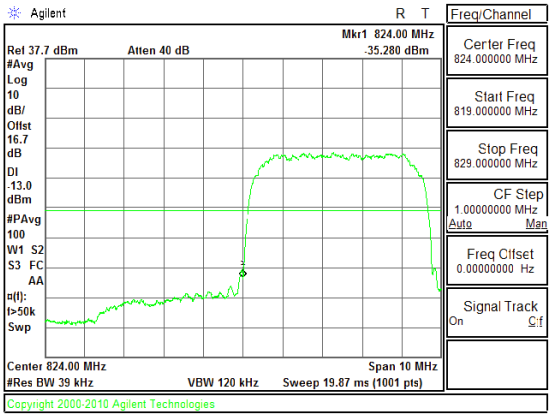
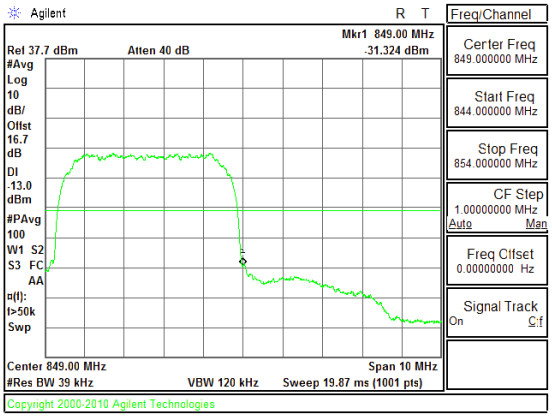
Band Band 5 HSDPA	 Band WCDMA B5 HSDPA CBE	 Band WCDMA B5 HSDPA CBE
Band Band 5 REL99	 Band WCDMA B5 REL99 CBE	 Band WCDMA B5 REL99 CBE

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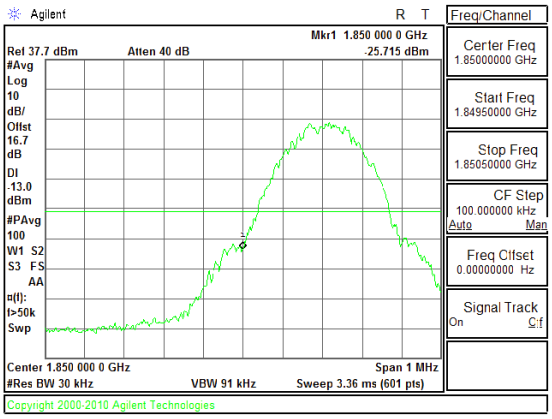
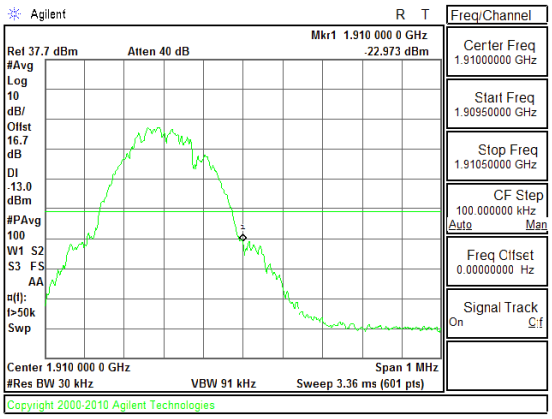
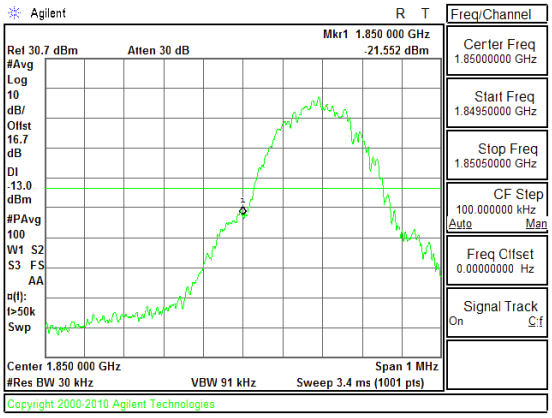
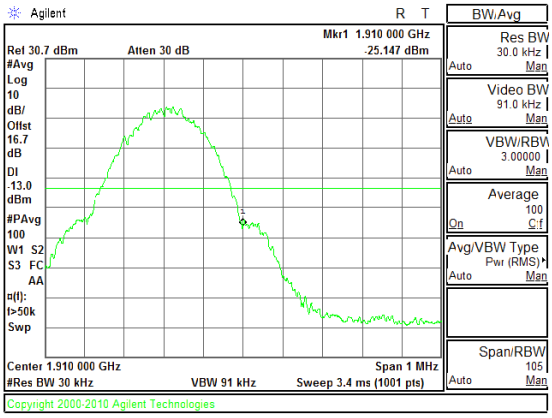
Band GSM1900 EGPRS	 Band GSM1900 EGPRS CBE Low channel	 Band GSM1900 EGPRS CBE High channel
Band GSM1900 GPRS	 Band GSM1900 GPRS CBE Low channel	 Band GSM1900 GPRS CBE High channel

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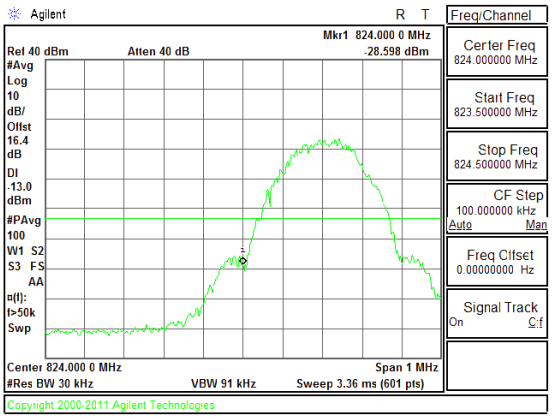
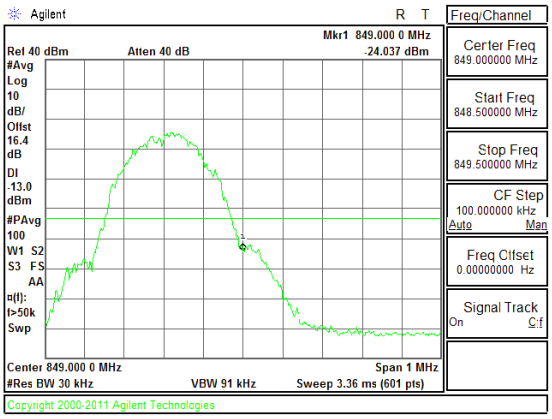
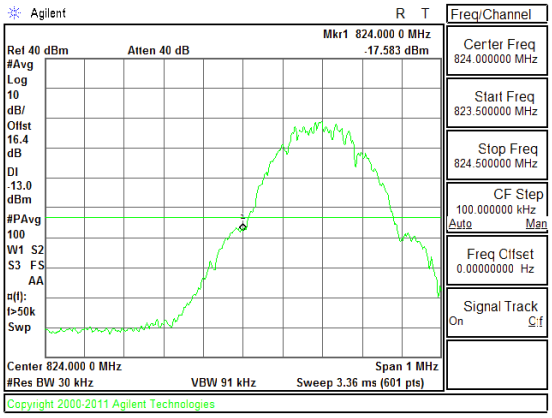
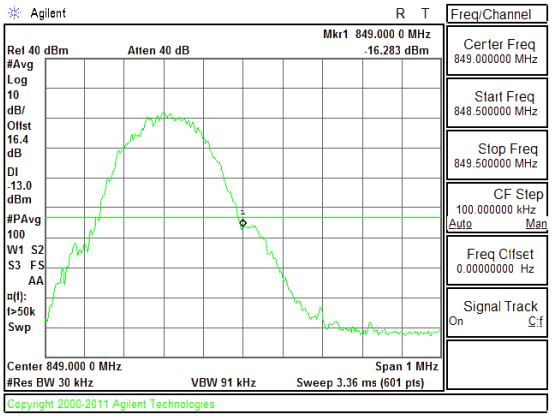
Band GSM850 EGPRS	 Band GSM850 EGPRS CBE Low channel	 Band GSM850 EGPRS CBE High channel
Band GSM850 GPRS	 Band GSM850 GPRS CBE Low channel	 Band GSM850 GPRS CBE High channel

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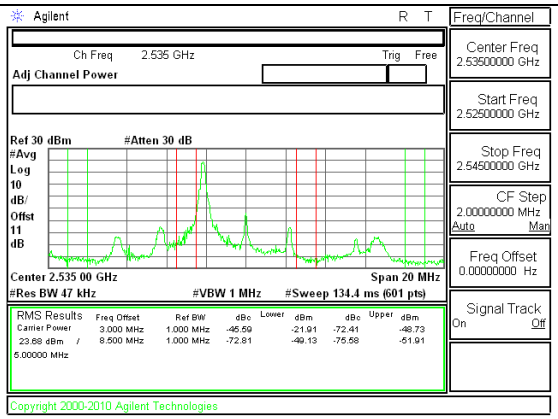
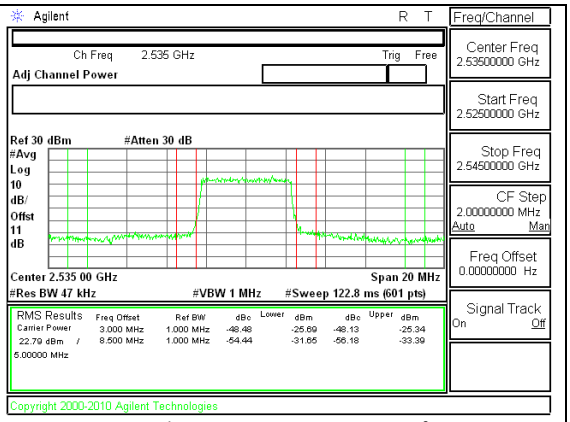
10.2.2. EMISSION MASK PLOTS

Band LTE7 5MHz QPSK

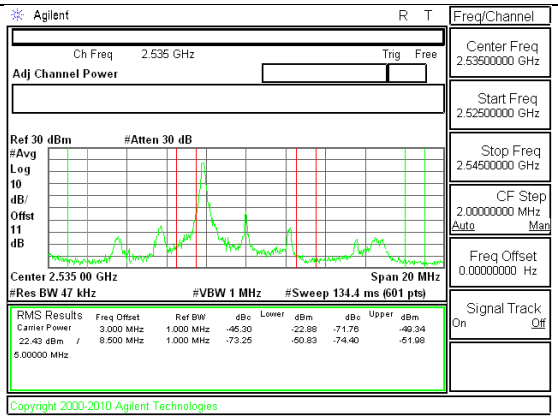


Band LTE7 5MHz CBE QPSK 1RB.gif

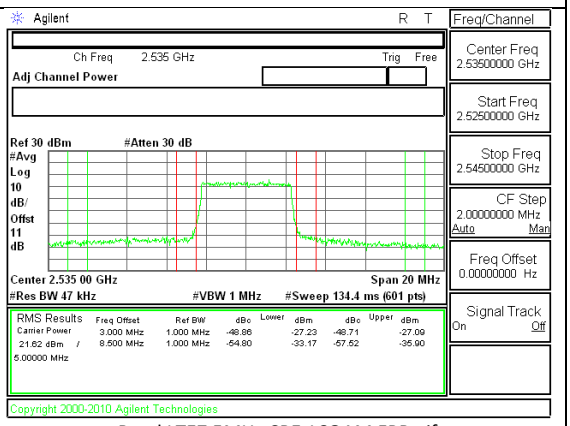


Band LTE7 5MHz CBE QPSK FRB.gif

Band LTE7 5MHz 16QAM



Band LTE7 5MHz CBE 16QAM 1RB.gif



Band LTE7 5MHz CBE 16QAM FRB.gif

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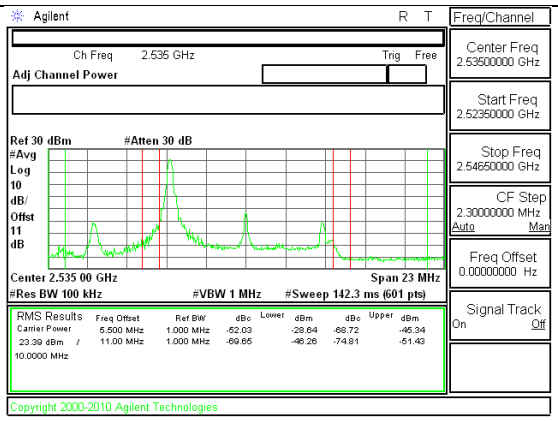
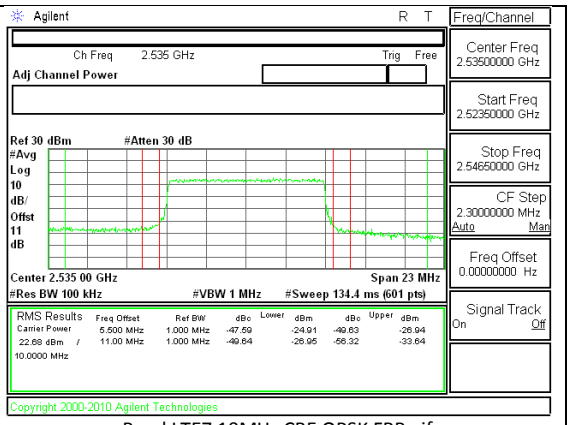
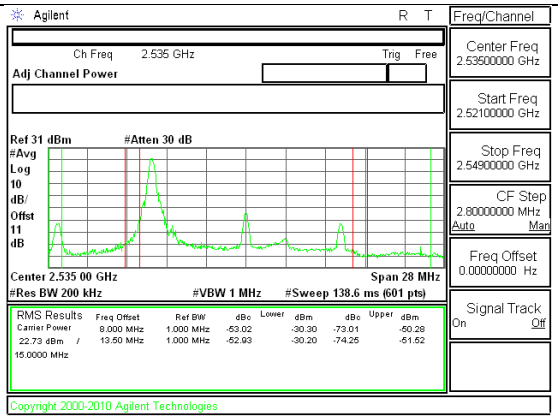
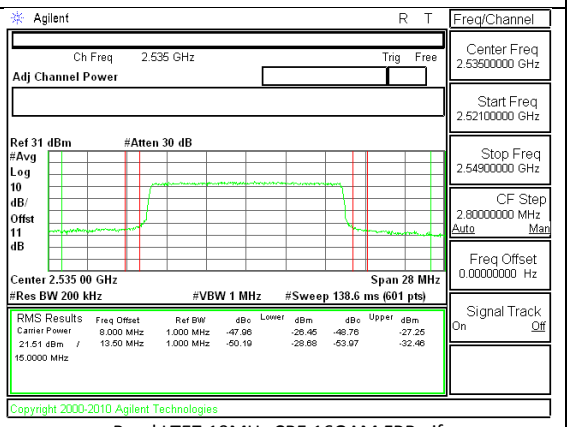
Band LTE7 10MHz QPSK	 Band LTE7 10MHz CBE QPSK 1RB.gif	 Band LTE7 10MHz CBE QPSK FRB.gif
Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CBE 16QAM 1RB.gif	 Band LTE7 10MHz CBE 16QAM FRB.gif

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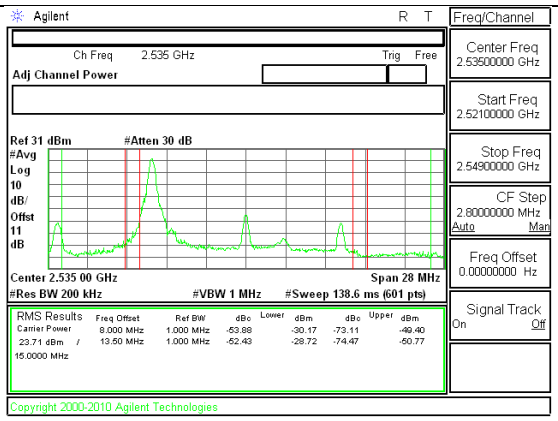
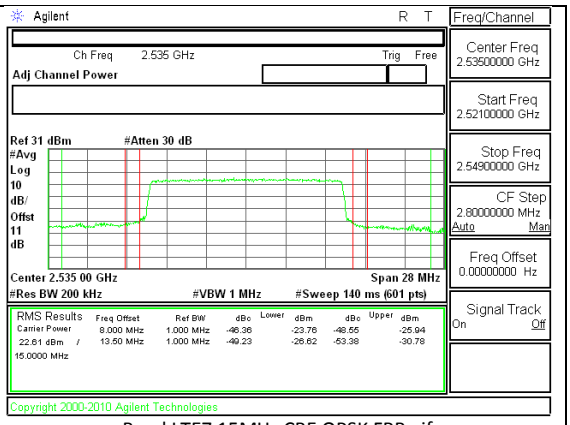
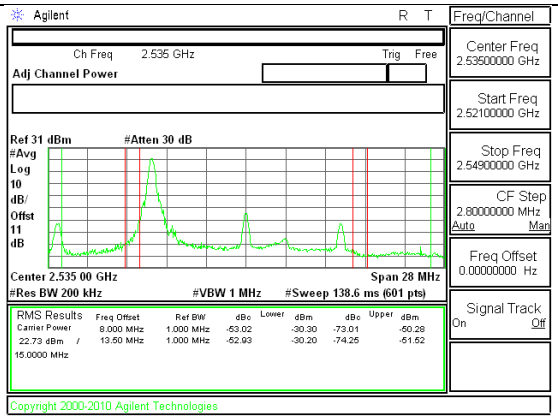
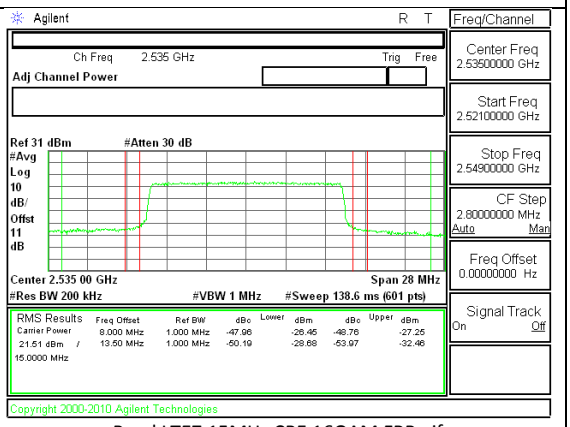
Band LTE7 15MHz QPSK	 Band LTE7 15MHz CBE QPSK 1RB.gif	 Band LTE7 15MHz CBE QPSK FRB.gif
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CBE 16QAM 1RB.gif	 Band LTE7 15MHz CBE 16QAM FRB.gif

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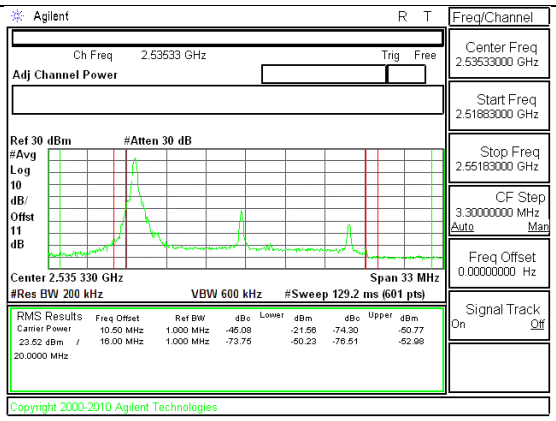
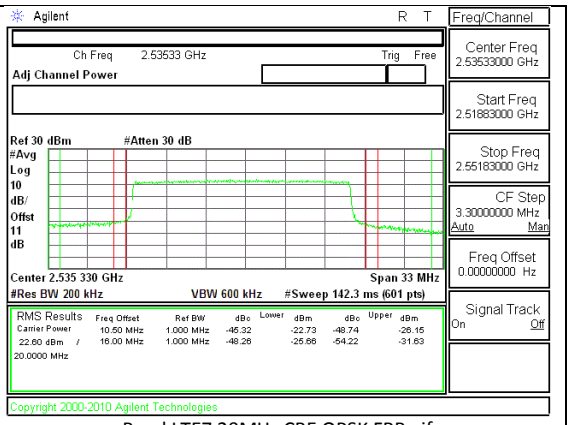
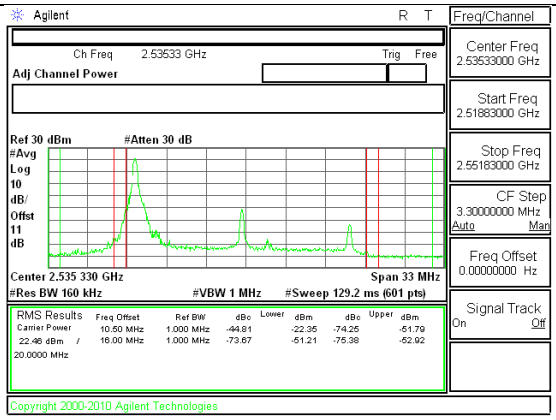
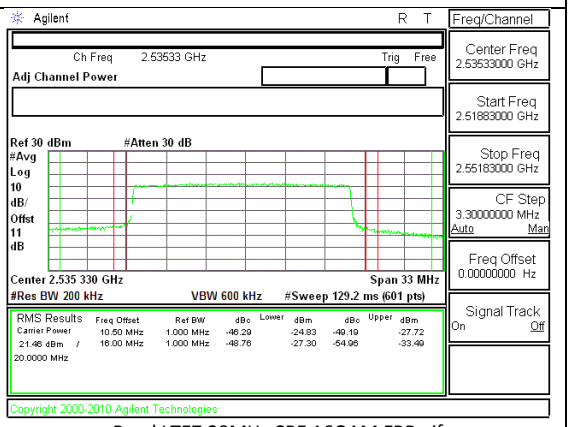
Band LTE7 20MHz QPSK	 Band LTE7 20MHz CBE QPSK 1RB.gif	 Band LTE7 20MHz CBE QPSK FRB.gif
Band LTE7 20MHz 16QAM	 Band LTE7 20MHz CBE 16QAM 1RB.gif	 Band LTE7 20MHz CBE 16QAM FRB.gif

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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.

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

The 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.

RESULTS

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10.3.1. OUT OF BAND EMISSIONS RESULT

Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
GSM850	GPRS	824.2	-16.76	-13	-3.76
		836.6	-16.54	-13	-3.54
		848.8	-20.56	-13	-7.56
	EGPRS	824.2	-17.90	-13	-4.90
		836.6	-16.82	-13	-3.82
		848.8	-16.23	-13	-3.23
GSM1900	GPRS	1850.2	-20.05	-13	-7.05
		1880	-18.93	-13	-5.93
		1909.8	-20.88	-13	-7.88
	EGPRS	1850.2	-19.17	-13	-6.17
		1880	-20.40	-13	-7.40
		1909.8	-19.50	-13	-6.50
Band 5	REL99	826.4	-19.00	-13	-6.00
		836.6	-20.34	-13	-7.34
		846.6	-20.44	-13	-7.44
	HSDPA	826.4	-19.04	-13	-6.04
		836.6	-20.01	-13	-7.01
		846.6	-18.75	-13	-5.75
Band 2	REL99	1852.4	-26.21	-13	-13.21
		1880	-26.94	-13	-13.94
		1907.6	-27.13	-13	-14.13
	HSDPA	1852.4	-27.32	-13	-14.32
		1880	-26.77	-13	-13.77
		1907.6	-25.44	-13	-12.44

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Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	20	QPSK	2510	-29.16	-25	-4.16
			2535	-28.74	-25	-3.74
			2560	-29.02	-25	-4.02
		16QAM	2510	-29.00	-25	-4.00
			2535	-29.10	-25	-4.10
			2560	-28.92	-25	-3.92

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	15	QPSK	2507.5	-30.68	-25	-5.68
			2535	-27.58	-25	-2.58
			2562.5	-28.97	-25	-3.97
		16QAM	2507.5	-30.24	-25	-5.24
			2535	-30.99	-25	-5.99
			2562.5	-28.49	-25	-3.49

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	10	QPSK	2505	-28.09	-25	-3.09
			2535	-27.01	-25	-2.01
			2565	-26.98	-25	-1.98
		16QAM	2505	-29.35	-25	-4.35
			2535	-27.06	-25	-2.06
			2565	-27.11	-25	-2.11

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	5	QPSK	2502.5	-36.07	-25	-11.07
			2535	-36.47	-25	-11.47
			2567.5	-36.84	-25	-11.84
		16QAM	2502.5	-35.91	-25	-10.91
			2535	-36.31	-25	-11.31
			2567.5	-34.75	-25	-9.75

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Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	10	QPSK	829	-30.05	-13	-17.05
			836.5	-28.92	-13	-15.92
			844	-30.06	-13	-17.06
		16QAM	829	-29.02	-13	-16.02
			836.5	-29.35	-13	-16.35
			844	-29.67	-13	-16.67

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	5	QPSK	826.5	-28.25	-13	-15.25
			836.5	-30.37	-13	-17.37
			846.5	-30.59	-13	-17.59
		16QAM	826.5	-29.75	-13	-16.75
			836.5	-29.28	-13	-16.28
			846.5	-29.05	-13	-16.05

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	3	QPSK	825.5	-28.42	-13	-15.42
			836.5	-28.78	-13	-15.78
			847.5	-31.60	-13	-18.6
		16QAM	825.5	-29.96	-13	-16.96
			836.5	-30.99	-13	-17.99
			847.5	-30.13	-13	-17.13

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	1.4	QPSK	824.7	-30.93	-13	-17.93
			836.5	-31.15	-13	-18.15
			848.3	-30.48	-13	-17.48
		16QAM	824.7	-29.87	-13	-16.87
			836.5	-30.27	-13	-17.27
			848.3	-30.07	-13	-17.07

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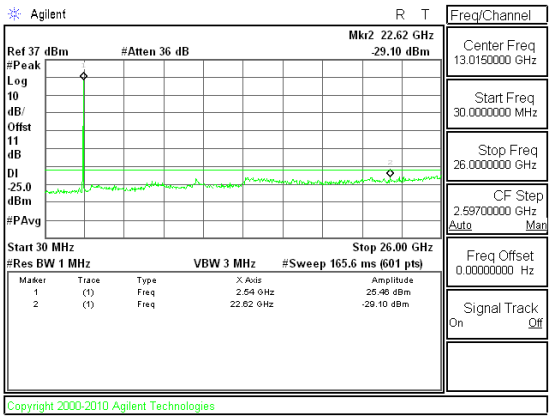
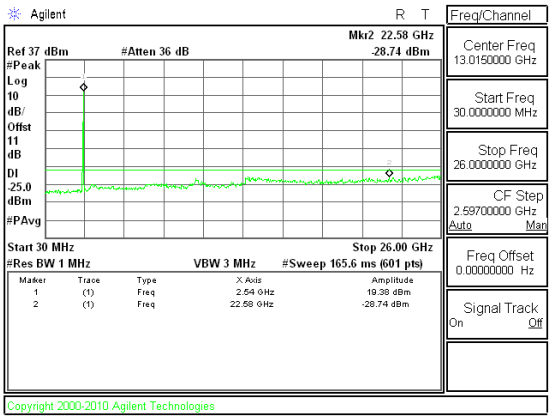
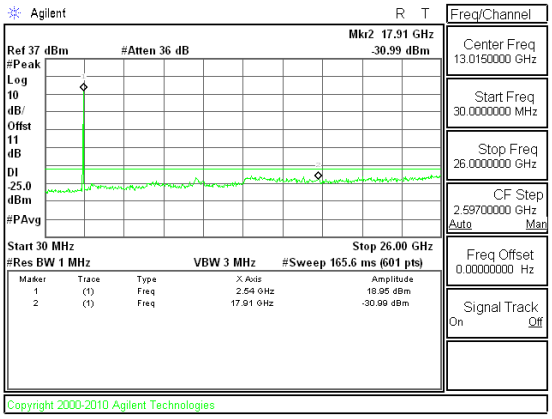
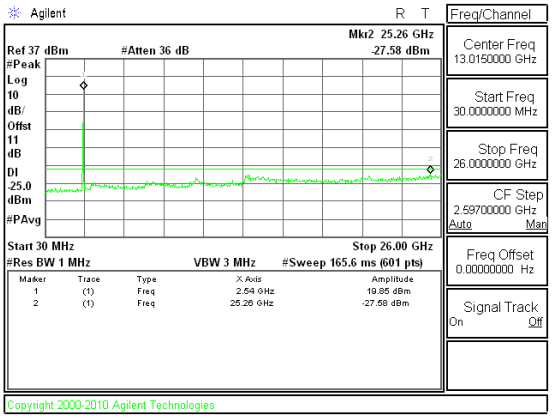
10.3.2. OUT OF BAND EMISSIONS PLOTS

Band LTE7 20MHz 16QAM	 Band LTE7 20MHz CSE 16QAM Mid channel	 Band LTE7 20MHz CSE QPSK Mid channel
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CSE 16QAM Mid channel	 Band LTE7 15MHz CSE QPSK Mid channel

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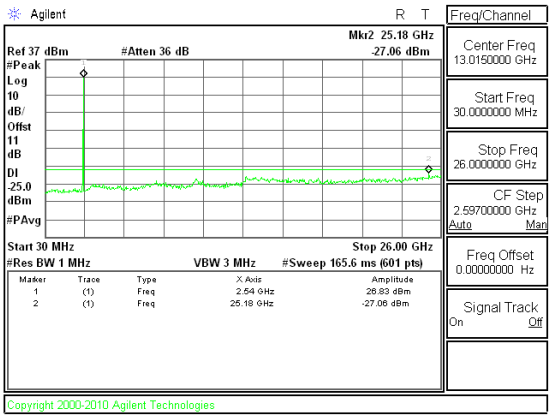
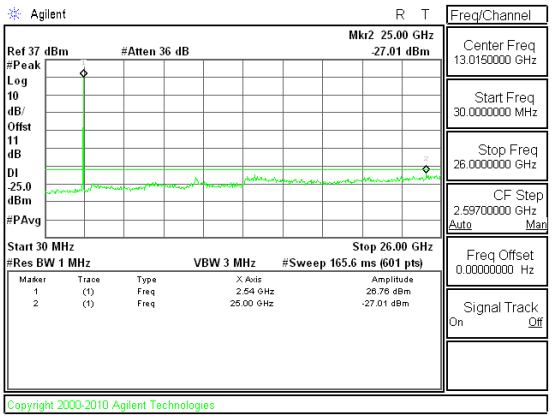
Band LTE7 10MHz 16QAM

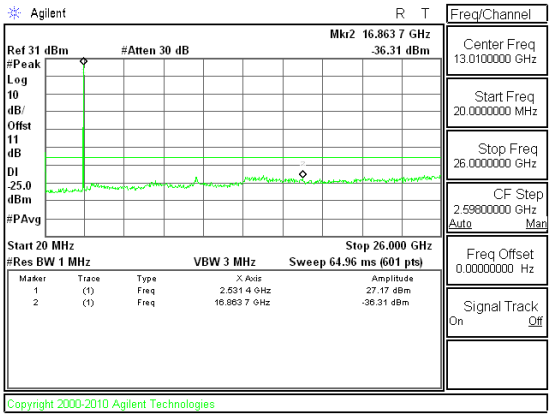


Band LTE7 10MHz CSE 16QAM Mid channel

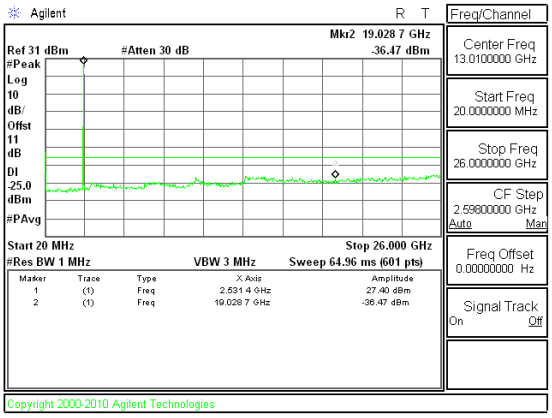


Band LTE7 10MHz CSE QPSK Mid channel

Band LTE7 5MHz 16QAM



Band LTE7 5MHz CSE 16QAM Mid channel



Band LTE7 5MHz CSE QPSK Mid channel

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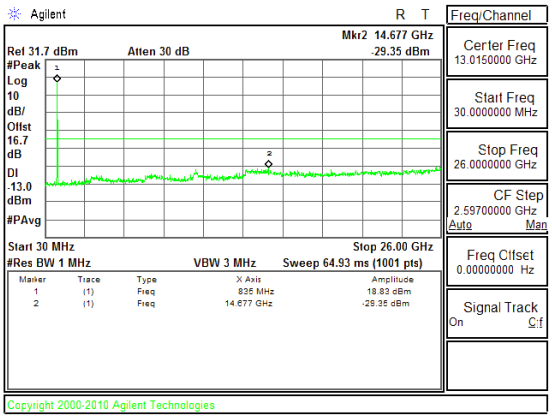
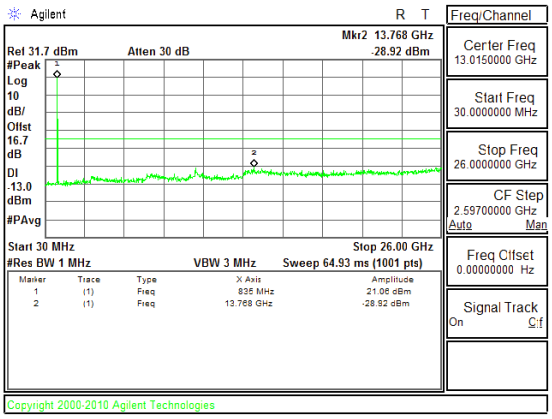
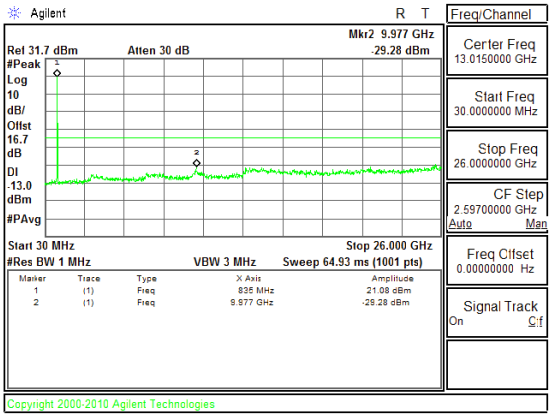
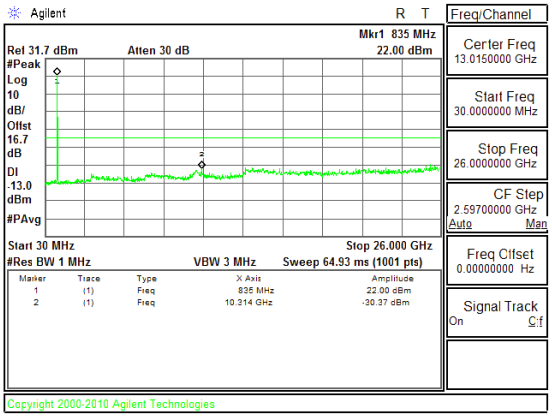
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz CSE 16QAM Mid channel	 Band LTE5 10MHz CSE QPSK Mid channel
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CSE 16QAM Mid channel	 Band LTE5 5MHz CSE QPSK Mid channel

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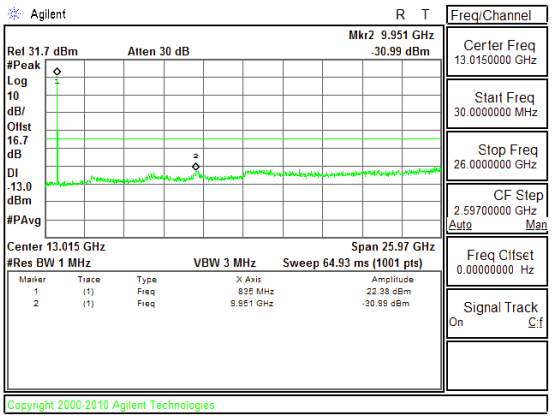
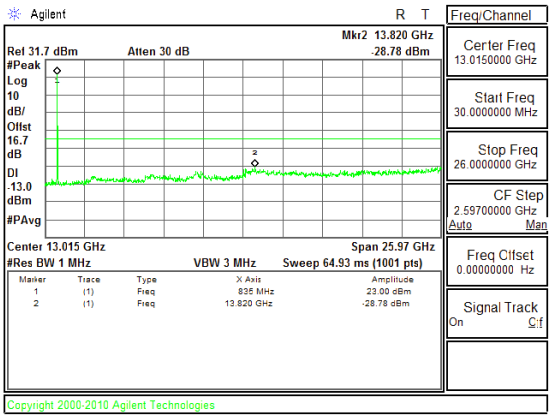
Band LTE5 3MHz 16QAM

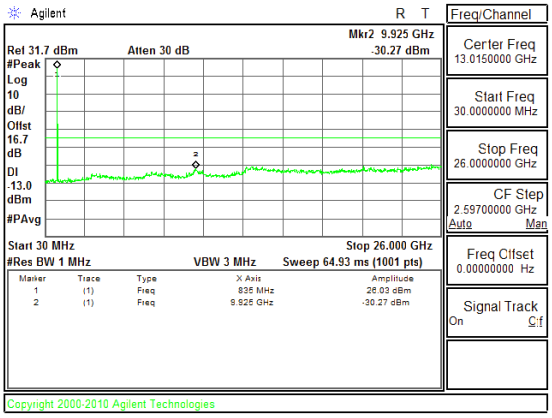


Band LTE5 3MHz CSE 16QAM Mid channel

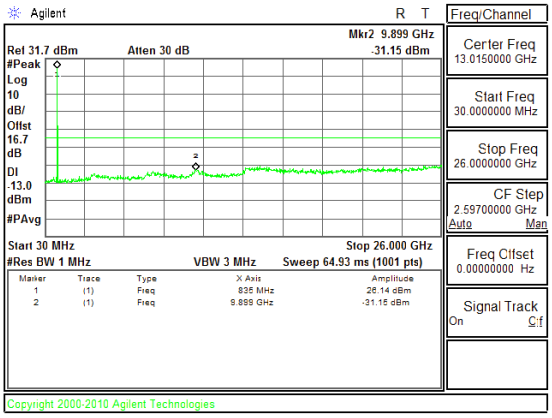


Band LTE5 3MHz CSE QPSK Mid channel

Band LTE5 1.4MHz 16QAM



Band LTE5 1.4MHz CSE 16QAM Mid channel



Band LTE5 1.4MHz CSE QPSK Mid channel

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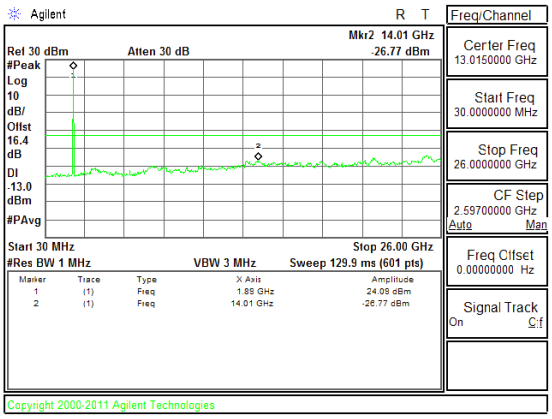
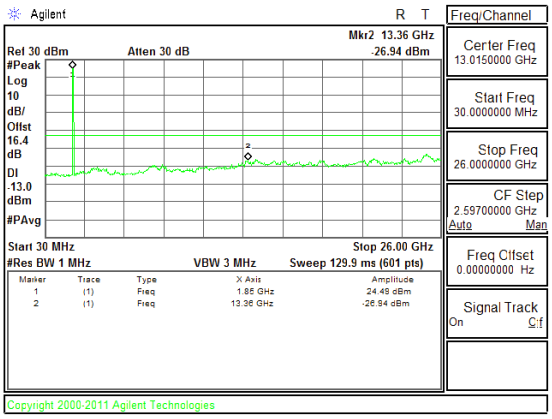
Band

Band 2

HSDPA



Band WCDMA B2 HSDPA CSE

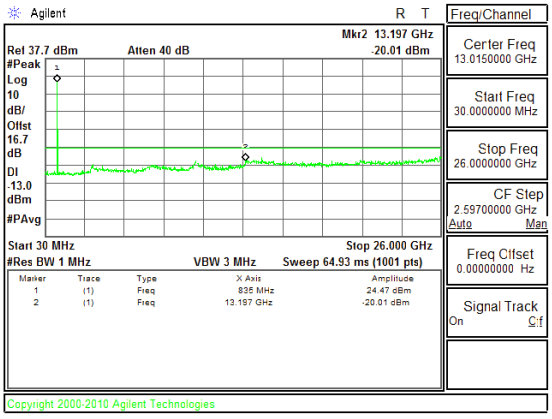


Band WCDMA B2 REL99 CSE

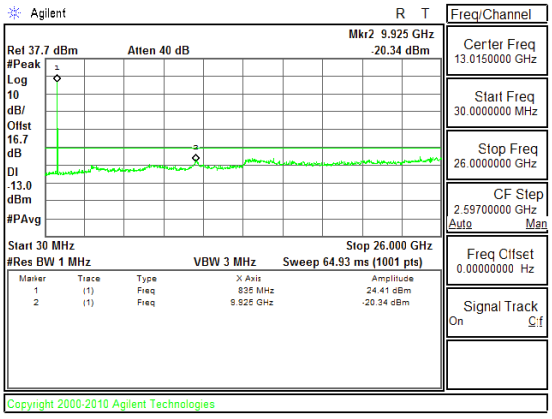
Band

Band 5

HSDPA



Band WCDMA B5 HSDPA CSE



Band WCDMA B5 REL99 CSE

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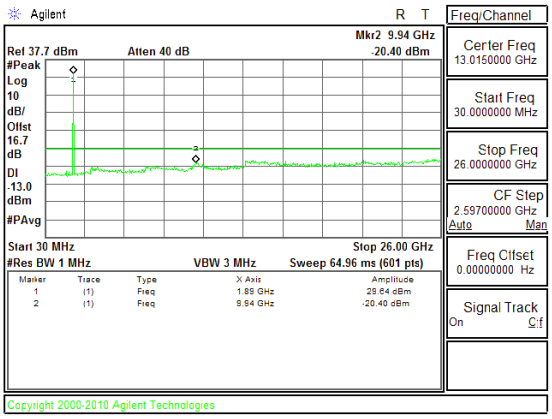
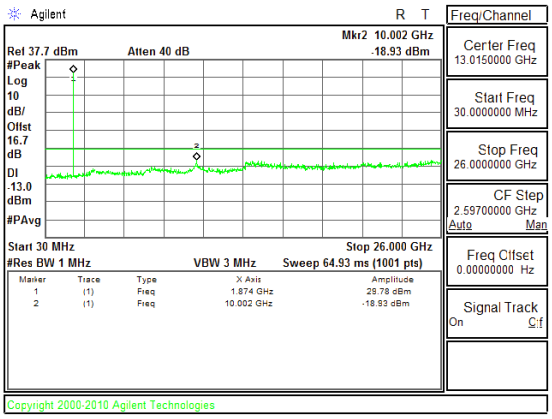
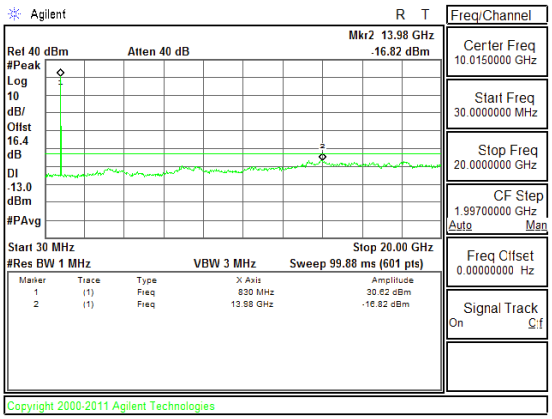
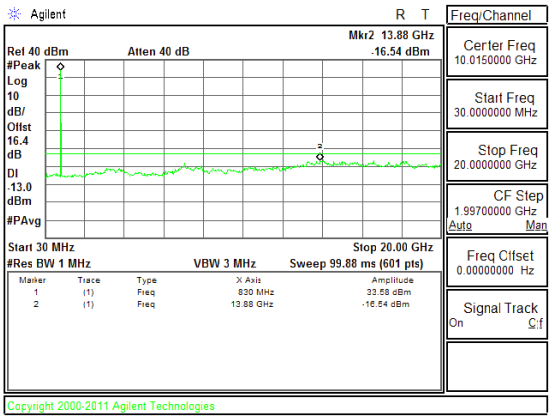
Band GSM1900 EGPRS	 Band GSM1900 EGPRS CSE Mid channel	 Band GSM1900 GPRS CSE Mid channel
Band GSM850 EGPRS	 Band GSM850 EGPRS CSE Mid channel	 Band GSM850 GPRS CSE Mid channel

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10.4. FREQUENCY STABILITY

RULE PART(S)

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

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 v02r01

RESULTS

See the following pages.

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10.4.1. FREQUENCY STABILITY RESULTS

BAND II, Channel 9400 Freq: 1880MHz– MID CHANNEL

Reference Frequency: PC S Mid Channel 1880MHz @ 20°C Limit: to stay +- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1880.000007	0.000	2.5
3.80	40	1880.000006	0.001	2.5
3.80	30	1880.000007	0.000	2.5
3.80	***20***	***1880.000007***	***0***	***2.5***
3.80	10	1880.000007	0.000	2.5
3.80	0	1880.000008	0.000	2.5
3.80	-10	1880.000006	0.001	2.5
3.80	-20	1880.000006	0.000	2.5
3.80	-30	1880.000007	0.000	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 Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1880.000006***	***0***	***2.5***
4.18	20	1880.000006	*0.000*	2.5
3.42	20	1880.000007	*-0.001*	2.5

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BAND V, Channel 4183, Freq: 836.6MHz – MID CHANNEL

Reference Frequency: Cell Mid Channel 836.6 MHz @ 20ºC Limit: +- 2.5 ppm = 2091.500 Hz				
Power Supply (Vdc)	**Environment Temperature (*C)**	**Frequency Deviation Measureed with Time Elapse**		
		(MHz)	**Delta (ppm)**	**Limit (ppm)**
3.80	50	836.600004	-0.001	2.5
3.80	40	836.600002	0.001	2.5
3.80	30	836.599996	0.008	2.5
3.80	***20***	***836.600003***	***0***	***2.5***
3.80	10	836.600002	0.001	2.5
3.80	0	836.600004	-0.001	2.5
3.80	-10	836.599997	0.007	2.5
3.80	-20	836.600005	-0.002	2.5
3.80	-30	836.600004	-0.001	2.5

Reference Frequency: Mid Channel 836.6 MHz @ 20ºC Limit: +- 2.5 ppm = 2091.500 Hz				
Power Supply (Vdc)	**Environment Temperature (*C)**	**Frequency Deviation Measureed with Time Elapse**		
			Delta (ppm)	**Limit (ppm)**
3.80	***20***	***836.599998***	***0.00000***	***2.5***
4.18	20	836.600003	*-0.00574*	2.5
3.42	20	836.599997	*0.00096*	2.5

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LTE BAND 7, Channel 21100, Freq: 2535.0MHz – MID CHANNEL

Reference Frequency: Cell Mid Channel 2535.0 MHz @ 20ºC Limit: +- 2.5 ppm = 6337.500 Hz				
Power Supply (Vdc)	Environment Temperature (*C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	2535.000015	-0.009	2.5
3.80	40	2534.999986	0.002	2.5
3.80	30	2535.000013	-0.008	2.5
3.80	***20***	***2534.999992***	***0***	***2.5***
3.80	10	2535.000014	-0.009	2.5
3.80	0	2535.000014	-0.009	2.5
3.80	-10	2535.000017	-0.010	2.5
3.80	-20	2535.000013	-0.008	2.5
3.80	-30	2535.000016	-0.009	2.5

Reference Frequency: Mid Channel 836.6 MHz @ 20ºC Limit: +- 2.5 ppm = 2091.500 Hz				
Power Supply (Vdc)	Environment Temperature (*C)	Frequency Deviation Measureed with Time Elapse		
			Delta (ppm)	Limit (ppm)
3.80	***20***	***2535.000013***	***0.00000***	***2.5***
4.18	20	2534.999992	*0.02579*	2.5
3.42	20	2534.999992	*0.02568*	2.5

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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(b) - (10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP. (LTE B13)

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)

27.50(h) - (2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.(LTE B41 & 7)

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 v02r01

For peak power measurement with a PSA:

a) Set the RBW ≥ OBW; b) Set VBW ≥ 3 × RBW; c) Set span ≥ 2 x RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points ≥ 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 ≥ 3 x RBW; d) Set number of points in sweep ≥ 2 × 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

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11.1.1. ERP/EIRP Results

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	26.273	423.94
		9400	1880	25.651	367.37
		9538	1907.6	26.152	412.29
	HSDPA	9262	1852.4	25.677	369.57
		9400	1880	25.081	322.18
		9538	1907.6	25.302	339.00

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 5	REL99	4132	826.4	22.464	176.36
		4183	836.6	23.251	211.40
		4233	846.6	22.832	191.96
	HSDPA	4132	826.4	23.031	200.96
		4183	836.6	23.564	227.20
		4233	846.6	23.199	208.88

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GPRS	512	1850.2	30.635	1157.44
		661	1880	31.152	1303.77
		810	1909.8	30.665	1165.47
	EGPRS	512	1850.2	27.66	583.45
		661	1880	28.237	666.35
		810	1909.8	27.707	589.79

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM850	GPRS	128	824.2	30.859	1218.71
		190	836.6	31.925	1557.76
		251	848.8	31.534	1423.64
	EGPRS	128	824.2	26.612	458.35
		190	836.6	27.134	516.89
		251	848.8	27.118	514.99

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11.1.2. LTE ERP/EIRP Results

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE7	20	QPSK	1/0	2510	25.82	381.94
			1/0	2535	26.82	480.84
			1/0	2560	26.36	432.51
		16QAM	1/0	2510	24.87	306.90
			1/0	2535	25.6	363.08
			1/0	2560	25.22	332.66

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE7	15	QPSK	1/0	2507.5	25.86	385.48
			1/0	2535	26.98	498.88
			1/0	2562.5	26.5	446.68
		16QAM	1/0	2507.5	24.89	308.32
			1/0	2535	25.66	368.13
			1/0	2562.5	25.49	354.00

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE7	10	QPSK	1/0	2505	26.28	424.62
			1/0	2535	27.08	510.50
			1/0	2565	26.85	484.17
		16QAM	1/0	2505	25.13	325.84
			1/0	2535	26.13	410.20
			1/0	2565	25.76	376.70

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE7	5	QPSK	1/0	2502.5	25.77	377.57
			1/0	2535	26.72	469.89
			1/0	2567.5	26.52	448.75
		16QAM	1/0	2502.5	25.09	322.85
			1/0	2535	25.85	384.59
			1/0	2567.5	25.76	376.70

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	10	QPSK	1/0	829	21.392	137.78
			1/0	836.5	22.756	188.63
			1/0	844	21.995	158.31
		16QAM	1/0	829	20.952	124.51
			1/0	836.5	21.486	140.80
			1/0	844	21.195	131.67

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	5	QPSK	1/0	826.5	21.732	149.00
			1/0	836.5	22.546	179.72
			1/0	846.5	22.085	161.62
		16QAM	1/0	826.5	20.442	110.71
			1/0	836.5	21.406	138.23
			1/0	846.5	21.095	128.68

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	3	QPSK	1/0	825.5	21.552	142.96
			1/0	836.5	22.286	169.28
			1/0	847.5	21.855	153.29
		16QAM	1/0	825.5	20.722	118.09
			1/0	836.5	21.646	146.08
			1/0	847.5	21.025	126.62

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	1.4	QPSK	1/0	824.7	22.632	183.32
			1/0	836.5	23.306	214.09
			1/0	848.3	22.695	185.99
		16QAM	1/0	824.7	21.752	149.69
			1/0	836.5	22.526	178.90
			1/0	848.3	21.715	148.42

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11.1.3. ERP/EIRP DATA

Band

LTE7

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: K. Ros
Configuration: EUT only, X-pos
Mode: LTE 7 20MHz 16QAM FUND

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T72 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2510.00	7.46	V	0.9	9.4	15.96	33.0	-17.0	
2510.00	16.37	H	0.9	9.4	24.87	33.0	-8.1	
Mid Ch								
2535.00	7.67	V	0.9	9.4	16.17	33.0	-16.8	
2535.00	17.10	H	0.9	9.4	25.60	33.0	-7.4	
High Ch								
2560.00	7.38	V	0.9	9.4	15.88	33.0	-17.1	
2560.00	16.72	H	0.9	9.4	25.22	33.0	-7.8	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

LTE7

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: K. Ros
Configuration: EUT only, X-pos
Mode: LTE 7 20MHz QPSK FUND

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T72 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2510.00	7.76	V	0.9	9.4	16.26	33.0	-16.7	
2510.00	17.32	H	0.9	9.4	25.82	33.0	-7.2	
Mid Ch								
2535.00	8.25	V	0.9	9.4	16.75	33.0	-16.3	
2535.00	18.32	H	0.9	9.4	26.82	33.0	-6.2	
High Ch								
2560.00	7.88	V	0.9	9.4	16.38	33.0	-16.6	
2560.00	17.86	H	0.9	9.4	26.36	33.0	-6.6	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

LTE7

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: K. Ros
Configuration: EUT only, X-pos
Mode: LTE 7 15MHz 16QAM FUND

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T72 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2507.50	6.86	V	0.9	9.4	15.36	33.0	-17.6	
2507.50	16.39	H	0.9	9.4	24.89	33.0	-8.1	
Mid Ch								
2535.00	7.16	V	0.9	9.4	15.66	33.0	-17.3	
2535.00	17.16	H	0.9	9.4	25.66	33.0	-7.3	
High Ch								
2562.50	7.08	V	0.9	9.4	15.58	33.0	-17.4	
2562.50	16.99	H	0.9	9.4	25.49	33.0	-7.5	

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Note: For Band 4 EIRP limit is 30dBm

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Band

LTE7

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: K. Ros
Configuration: EUT only, X-pos
Mode: LTE 7 15MHz QPSK FUND

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T72 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2507.50	7.56	V	0.9	9.4	16.06	33.0	-16.9	
2507.50	17.36	H	0.9	9.4	25.86	33.0	-7.1	
Mid Ch								
2535.00	8.23	V	0.9	9.4	16.73	33.0	-16.3	
2535.00	18.48	H	0.9	9.4	26.98	33.0	-6.0	
High Ch								
2562.50	7.78	V	0.9	9.4	16.28	33.0	-16.7	
2562.50	18.00	H	0.9	9.4	26.50	33.0	-6.5	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

LTE7

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, X-pos
Mode: LTE 7 10MHz 16QAM FUND

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T72 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2505.00	13.36	V	0.9	9.4	21.86	33.0	-11.1	
2505.00	16.63	H	0.9	9.4	25.13	33.0	-7.9	
Mid Ch								
2535.00	13.76	V	0.9	9.4	22.26	33.0	-10.7	
2535.00	17.63	H	0.9	9.4	26.13	33.0	-6.9	
High Ch								
2565.00	13.58	V	0.9	9.4	22.08	33.0	-10.9	
2565.00	17.26	H	0.9	9.4	25.76	33.0	-7.2	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

LTE7

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, X-pos
Mode: LTE 7 10MHz QPSK FUND

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T72 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2505.00	14.46	V	0.9	9.4	22.96	33.0	-10.0	
2505.00	17.78	H	0.9	9.4	26.28	33.0	-6.7	
Mid Ch								
2535.00	14.77	V	0.9	9.4	23.27	33.0	-9.7	
2535.00	18.58	H	0.9	9.4	27.08	33.0	-5.9	
High Ch								
2565.00	14.58	V	0.9	9.4	23.08	33.0	-9.9	
2565.00	18.35	H	0.9	9.4	26.85	33.0	-6.2	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

LTE7

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, X-pos
Mode: LTE 7 5MHz 16QAM FUND

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T72 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2502.50	14.46	V	0.9	9.4	22.96	33.0	-10.0	
2502.50	16.59	H	0.9	9.4	25.09	33.0	-7.9	
Mid Ch								
2535.00	14.68	V	0.9	9.4	23.18	33.0	-9.8	
2535.00	17.35	H	0.9	9.4	25.85	33.0	-7.2	
High Ch								
2567.50	14.78	V	0.9	9.4	23.28	33.0	-9.7	
2567.50	17.26	H	0.9	9.4	25.76	33.0	-7.2	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

LTE7

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, X-pos
Mode: LTE 7 5MHz QPSK FUND

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T72 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2502.50	14.86	V	0.9	9.4	23.36	33.0	-9.6	
2502.50	17.27	H	0.9	9.4	25.77	33.0	-7.2	
Mid Ch								
2535.00	15.29	V	0.9	9.4	23.79	33.0	-9.2	
2535.00	18.22	H	0.9	9.4	26.72	33.0	-6.3	
High Ch								
2567.50	15.18	V	0.9	9.4	23.68	33.0	-9.3	
2567.50	18.02	H	0.9	9.4	26.52	33.0	-6.5	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

LTE5

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, x-pos
Mode: LTE5 10MHz 16QAM

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
829.00	17.30	V	0.9	0.0	16.40	38.5	-22.0	
829.00	21.85	H	0.9	0.0	20.95	38.5	-17.5	
Mid Ch								
836.50	17.57	V	0.9	0.0	16.68	38.5	-21.8	
836.50	22.39	H	0.9	0.0	21.49	38.5	-17.0	
High Ch								
844.00	16.43	V	0.9	0.0	15.53	38.5	-22.9	
844.00	22.09	H	0.9	0.0	21.20	38.5	-17.3	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

LTE5

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, x-pos
Mode: LTE5 10MHz QPSK

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
829.00	17.40	V	0.9	0.0	16.50	38.5	-21.9	
829.00	22.29	H	0.9	0.0	21.39	38.5	-17.1	
Mid Ch								
836.50	18.57	V	0.9	0.0	17.68	38.5	-20.8	
836.50	23.66	H	0.9	0.0	22.76	38.5	-15.7	
High Ch								
844.00	16.93	V	0.9	0.0	16.03	38.5	-22.4	
844.00	22.89	H	0.9	0.0	22.00	38.5	-16.5	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

LTE5

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, x-pos
Mode: LTE5 5MHz 16QAM

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.50	16.40	V	0.9	0.0	15.50	38.5	-22.9	
826.50	21.34	H	0.9	0.0	20.44	38.5	-18.0	
Mid Ch								
836.50	17.12	V	0.9	0.0	16.23	38.5	-22.2	
836.50	22.31	H	0.9	0.0	21.41	38.5	-17.0	
High Ch								
846.50	15.93	V	0.9	0.0	15.03	38.5	-23.4	
846.50	21.99	H	0.9	0.0	21.10	38.5	-17.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

LTE5

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, x-pos
Mode: LTE5 5MHz QPSK

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.50	17.60	V	0.9	0.0	16.70	38.5	-21.7	
826.50	22.63	H	0.9	0.0	21.73	38.5	-16.7	
Mid Ch								
836.50	18.19	V	0.9	0.0	17.30	38.5	-21.2	
836.50	23.45	H	0.9	0.0	22.55	38.5	-15.9	
High Ch								
846.50	16.83	V	0.9	0.0	15.93	38.5	-22.5	
846.50	22.98	H	0.9	0.0	22.09	38.5	-16.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

LTE5

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, x-pos
Mode: LTE5 3MHz 16QAM

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
825.50	16.40	V	0.9	0.0	15.50	38.5	-22.9	
825.50	21.62	H	0.9	0.0	20.72	38.5	-17.7	
Mid Ch								
836.50	17.03	V	0.9	0.0	16.14	38.5	-22.3	
836.50	22.55	H	0.9	0.0	21.65	38.5	-16.8	
High Ch								
847.50	15.53	V	0.9	0.0	14.63	38.5	-23.8	
847.50	21.92	H	0.9	0.0	21.03	38.5	-17.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

LTE5

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Ros
Configuration: EUT only, x-pos
Mode: LTE5 3MHz QPSK

Test Equipment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
825.50	17.60	V	0.9	0.0	16.70	38.5	-21.7	
825.50	22.45	H	0.9	0.0	21.55	38.5	-16.9	
Mid Ch								
836.50	18.11	V	0.9	0.0	17.22	38.5	-21.2	
836.50	23.19	H	0.9	0.0	22.29	38.5	-16.2	
High Ch								
847.50	16.83	V	0.9	0.0	15.93	38.5	-22.5	
847.50	22.75	H	0.9	0.0	21.86	38.5	-16.6	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

LTE5

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: T. Oeur, K. Huynh
Configuration: EUT
Mode: LTE5 1.4 16QAM

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	17.09	V		0.0	17.09	38.5	-21.4	
824.70	21.75	H		0.0	21.75	38.5	-16.7	
Mid Ch								
836.50	16.90	V		0.0	16.91	38.5	-21.5	
836.50	22.53	H		0.0	22.53	38.5	-15.9	
High Ch								
848.30	14.72	V		0.0	14.72	38.5	-23.7	
848.30	21.71	H		0.0	21.72	38.5	-16.7	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

LTE5

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: T. Oeur, K. Huynh
Configuration: EUT
Mode: LTE5 1.4 QPSK

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	18.03	V		0.0	18.03	38.5	-20.4	
824.70	22.63	H		0.0	22.63	38.5	-15.8	
Mid Ch								
836.50	17.82	V		0.0	17.83	38.5	-20.6	
836.50	23.31	H		0.0	23.31	38.5	-15.1	
High Ch								
848.30	15.61	V		0.0	15.61	38.5	-22.8	
848.30	22.69	H		0.0	22.70	38.5	-15.8	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

Band 2

HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: T. Oeur, K.Huynh
Configuration: EUT
Mode: HSDPA B2

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	17.79	V	0.9	7.9	24.79	33.0	-8.2	
1852.40	18.68	H	0.9	7.9	25.68	33.0	-7.3	
Mid Ch								
1880.00	17.73	V	0.9	7.9	24.73	33.0	-8.3	
1880.00	18.08	H	0.9	7.9	25.08	33.0	-7.9	
High Ch								
1907.60	15.60	V	0.9	7.9	22.60	33.0	-10.4	
1907.60	18.30	H	0.9	7.9	25.30	33.0	-7.7	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

Band 2

REL99

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: T. Oeur, K.Huynh
Configuration: EUT
Mode: REL99 B2

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	18.45	V	0.9	7.9	25.45	33.0	-7.5	
1852.40	19.27	H	0.9	7.9	26.27	33.0	-6.7	
Mid Ch								
1880.00	18.02	V	0.9	7.9	25.02	33.0	-8.0	
1880.00	18.65	H	0.9	7.9	25.65	33.0	-7.3	
High Ch								
1907.60	16.44	V	0.9	7.9	23.44	33.0	-9.6	
1907.60	19.15	H	0.9	7.9	26.15	33.0	-6.8	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

Band 5

HSDPA

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: T. Oeur, K. Huynh
Configuration: EUT
Mode: HSDPA B5

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.40	18.55	V	0.5	0.0	18.05	38.5	-20.4	
826.40	23.53	H	0.5	0.0	23.03	38.5	-15.4	
Mid Ch								
836.60	18.52	V	0.5	0.0	18.02	38.5	-20.4	
836.60	24.06	H	0.5	0.0	23.56	38.5	-14.9	
High Ch								
846.60	16.51	V	0.5	0.0	16.07	38.5	-22.4	
846.60	23.70	H	0.5	0.0	23.20	38.5	-15.3	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

Band 5

REL99

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Sony
Project #: 14U17933
Date: 08/13/14
Test Engineer: T. Oeur, K. Huynh
Configuration: EUT
Mode: REL 99 B5

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.40	17.88	V	0.5	0.0	17.39	38.5	-21.1	
826.40	22.96	H	0.5	0.0	22.46	38.5	-16.0	
Mid Ch								
836.60	17.91	V	0.5	0.0	17.41	38.5	-21.0	
836.60	23.75	H	0.5	0.0	23.25	38.5	-15.2	
High Ch								
846.60	16.80	V	0.5	0.0	16.30	38.5	-22.2	
846.60	23.33	H	0.5	0.0	22.83	38.5	-15.6	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

GSM1900

EGPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Huynh, T. Oeur
Configuration: EUT
Mode: EGPRS1900

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	19.05	V	0.9	7.9	26.05	33.0	-7.0	
1850.20	20.66	H	0.9	7.9	27.66	33.0	-5.3	
Mid Ch								
1880.00	19.23	V	0.9	7.9	26.23	33.0	-6.8	
1880.00	21.24	H	0.9	7.9	28.24	33.0	-4.8	
High Ch								
1909.80	19.63	V	0.9	7.9	26.63	33.0	-6.4	
1909.80	20.71	H	0.9	7.9	27.71	33.0	-5.3	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

GSM1900

GPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber B

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Huynh, T. Oeur
Configuration: EUT
Mode: GPRS1900

Test Equipment:
Receiving: Horn T345, and Chamber B SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1850.20	22.52	V	0.9	7.9	29.52	33.0	-3.5	
1850.20	23.64	H	0.9	7.9	30.64	33.0	-2.4	
Mid Ch								
1880.00	22.26	V	0.9	7.9	29.26	33.0	-3.7	
1880.00	24.15	H	0.9	7.9	31.15	33.0	-1.8	
High Ch								
1909.80	22.24	V	0.9	7.9	29.24	33.0	-3.8	
1909.80	23.67	H	0.9	7.9	30.67	33.0	-2.3	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

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Band

GSM850

EGPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: T. Oeur, K. Huynh
Configuration: EUT
Mode: EGPRS 850

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	20.17	V	0.9	0.0	19.27	38.5	-19.2	
824.20	27.51	H	0.9	0.0	26.61	38.5	-11.8	
Mid Ch								
836.60	20.89	V	0.9	0.0	19.99	38.5	-18.5	
836.60	28.03	H	0.9	0.0	27.13	38.5	-11.3	
High Ch								
848.80	21.03	V	0.9	0.0	20.13	38.5	-18.3	
848.80	28.02	H	0.9	0.0	27.12	38.5	-11.3	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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Band

GSM850

GPRS

High Frequency Substitution Measurement
UL Verification Services, Inc. Chamber C

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: T. Oeur, K. Huynh
Configuration: EUT
Mode: GPRS 850

Test Equipment:
Receiving: Sunol T185, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	25.74	V	0.9	0.0	24.84	38.5	-13.6	
824.20	31.76	H	0.9	0.0	30.86	38.5	-7.6	
Mid Ch								
836.60	25.97	V	0.9	0.0	25.07	38.5	-13.4	
836.60	32.82	H	0.9	0.0	31.93	38.5	-6.5	
High Ch								
848.80	26.31	V	0.9	0.0	25.42	38.5	-13.0	
848.80	32.43	H	0.9	0.0	31.53	38.5	-6.9	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

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11.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53

LIMIT

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

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

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use 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 one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

RESULTS

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11.2.1. SPURIOUS RADIATION DATA

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: G. Chan, L. Lee
Configuration: X-Pos EUT w/ AC charger
Mode: LTE7 20MHz QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 27

Band: LTE7 20MHz 16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2510.0MHz									
5.020	-28.4	V	3.0	34.8	1.0	-62.2	-25.0	-37.2	
7.530	-24.0	V	3.0	34.9	1.0	-58.0	-25.0	-33.0	
10.040	-22.4	V	3.0	35.3	1.0	-56.8	-25.0	-31.8	
5.020	-28.0	H	3.0	34.8	1.0	-61.7	-25.0	-36.7	
7.530	-23.0	H	3.0	34.9	1.0	-56.9	-25.0	-31.9	
10.040	-21.0	H	3.0	35.3	1.0	-55.3	-25.0	-30.3	
Mid Ch, 2535.0MHz									
5.070	-25.8	V	3.0	34.7	1.0	-59.6	-25.0	-34.6	
7.605	-23.7	V	3.0	34.9	1.0	-57.6	-25.0	-32.6	
10.140	-22.1	V	3.0	35.3	1.0	-56.4	-25.0	-31.4	
5.070	-19.2	H	3.0	34.7	1.0	-52.9	-25.0	-27.9	
7.605	-22.8	H	3.0	34.9	1.0	-56.7	-25.0	-31.7	
10.140	-21.5	H	3.0	35.3	1.0	-55.8	-25.0	-30.8	
High Ch, 2560.0MHz									
5.120	-20.6	V	3.0	34.7	1.0	-54.3	-25.0	-29.3	
7.680	-23.0	V	3.0	35.0	1.0	-57.0	-25.0	-32.0	
10.240	-21.9	V	3.0	35.2	1.0	-56.2	-25.0	-31.2	
5.120	-24.1	H	3.0	34.7	1.0	-57.8	-25.0	-32.8	
7.680	-22.2	H	3.0	35.0	1.0	-56.1	-25.0	-31.1	
10.240	-21.2	H	3.0	35.2	1.0	-55.5	-25.0	-30.5	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: G. Chan, L. Lee
Configuration: X-Pos EUT w/ AC charger
Mode: LTE7 20MHz 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 27

Band

LTE7

20MHz

QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2510.0MHz									
5.020	-28.6	V	3.0	34.8	1.0	-62.4	-25.0	-37.4	
7.530	-24.0	V	3.0	34.9	1.0	-57.9	-25.0	-32.9	
10.040	-22.4	V	3.0	35.3	1.0	-56.7	-25.0	-31.7	
5.020	-27.6	H	3.0	34.8	1.0	-61.3	-25.0	-36.3	
7.530	-23.0	H	3.0	34.9	1.0	-56.9	-25.0	-31.9	
10.040	-21.7	H	3.0	35.3	1.0	-56.0	-25.0	-31.0	
Mid Ch, 2535.0MHz									
5.070	-26.3	V	3.0	34.7	1.0	-60.0	-25.0	-35.0	
7.605	-23.6	V	3.0	34.9	1.0	-57.6	-25.0	-32.6	
10.140	-22.1	V	3.0	35.3	1.0	-56.4	-25.0	-31.4	
5.070	-20.4	H	3.0	34.7	1.0	-54.2	-25.0	-29.2	
7.605	-22.8	H	3.0	34.9	1.0	-56.7	-25.0	-31.7	
10.140	-21.4	H	3.0	35.3	1.0	-55.7	-25.0	-30.7	
High Ch, 2560.0MHz									
5.120	-21.1	V	3.0	34.7	1.0	-54.8	-25.0	-29.8	
7.680	-23.0	V	3.0	35.0	1.0	-57.0	-25.0	-32.0	
10.240	-21.8	V	3.0	35.2	1.0	-56.1	-25.0	-31.1	
5.120	-25.3	H	3.0	34.7	1.0	-59.0	-25.0	-34.0	
7.680	-22.1	H	3.0	35.0	1.0	-56.1	-25.0	-31.1	
10.240	-21.2	H	3.0	35.2	1.0	-55.5	-25.0	-30.5	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: G. Chan, L. Lee
Configuration: X-Pos EUT w/ AC charger
Mode: LTE7 15MHz 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 27

Band

LTE7

15MHz

16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2507.5MHz									
5.015	-21.9	V	3.0	34.8	1.0	-55.7	-25.0	-30.7	
7.523	-21.4	V	3.0	34.9	1.0	-55.4	-25.0	-30.4	
10.030	-22.4	V	3.0	35.3	1.0	-56.7	-25.0	-31.7	
5.015	-25.4	H	3.0	34.8	1.0	-59.2	-25.0	-34.2	
7.523	-22.1	H	3.0	34.9	1.0	-56.0	-25.0	-31.0	
10.030	-21.6	H	3.0	35.3	1.0	-55.9	-25.0	-30.9	
Mid Ch, 2535.0MHz									
5.070	-22.1	V	3.0	34.7	1.0	-55.8	-25.0	-30.8	
7.605	-22.9	V	3.0	34.9	1.0	-56.9	-25.0	-31.9	
10.140	-22.3	V	3.0	35.3	1.0	-56.6	-25.0	-31.6	
5.070	-28.3	H	3.0	34.7	1.0	-62.0	-25.0	-37.0	
7.605	-22.7	H	3.0	34.9	1.0	-56.7	-25.0	-31.7	
10.140	-21.4	H	3.0	35.3	1.0	-55.7	-25.0	-30.7	
High Ch, 2562.5MHz									
5.125	-21.1	V	3.0	34.7	1.0	-54.9	-25.0	-29.9	
7.688	-20.0	V	3.0	35.0	1.0	-54.0	-25.0	-29.0	
10.250	-21.8	V	3.0	35.2	1.0	-56.1	-25.0	-31.1	
5.125	-26.4	H	3.0	34.7	1.0	-60.1	-25.0	-35.1	
7.688	-20.7	H	3.0	35.0	1.0	-54.6	-25.0	-29.6	
10.250	-21.3	H	3.0	35.2	1.0	-55.6	-25.0	-30.6	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: G. Chan, L. Lee
Configuration: X-Pos EUT w/ AC charger
Mode: LTE7 15MHz QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 27

Band

LTE7

15MHz

QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2507.5MHz									
5.015	-21.2	V	3.0	34.8	1.0	-54.9	-25.0	-29.9	
7.523	-20.9	V	3.0	34.9	1.0	-54.9	-25.0	-29.9	
10.030	-22.4	V	3.0	35.3	1.0	-56.8	-25.0	-31.8	
5.015	-24.0	H	3.0	34.8	1.0	-57.7	-25.0	-32.7	
7.523	-22.8	H	3.0	34.9	1.0	-56.7	-25.0	-31.7	
10.030	-21.6	H	3.0	35.3	1.0	-55.9	-25.0	-30.9	
Mid Ch, 2535.0MHz									
5.070	-21.3	V	3.0	34.7	1.0	-55.0	-25.0	-30.0	
7.605	-22.5	V	3.0	34.9	1.0	-56.5	-25.0	-31.5	
10.140	-22.2	V	3.0	35.3	1.0	-56.5	-25.0	-31.5	
5.070	-28.7	H	3.0	34.7	1.0	-62.5	-25.0	-37.5	
7.605	-22.5	H	3.0	34.9	1.0	-56.4	-25.0	-31.4	
10.140	-21.5	H	3.0	35.3	1.0	-55.7	-25.0	-30.7	
High Ch, 2562.5MHz									
5.125	-20.3	V	3.0	34.7	1.0	-54.0	-25.0	-29.0	
7.688	-20.3	V	3.0	35.0	1.0	-54.3	-25.0	-29.3	
10.250	-21.8	V	3.0	35.2	1.0	-56.0	-25.0	-31.0	
5.125	-25.9	H	3.0	34.7	1.0	-59.6	-25.0	-34.6	
7.688	-20.1	H	3.0	35.0	1.0	-54.1	-25.0	-29.1	
10.250	-21.2	H	3.0	35.2	1.0	-55.4	-25.0	-30.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: G. Chan, L. Lee
Configuration: X-Pos EUT w/ AC charger
Mode: LTE7 10MHz 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 27

Band
LTE7
10MHz
16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2505.0MHz									
5.010	-21.5	V	3.0	34.8	1.0	-55.3	-25.0	-30.3	
7.515	-22.7	V	3.0	34.9	1.0	-56.6	-25.0	-31.6	
10.020	-23.3	V	3.0	35.4	1.0	-57.7	-25.0	-32.7	
5.010	-28.5	H	3.0	34.8	1.0	-62.3	-25.0	-37.3	
7.515	-24.1	H	3.0	34.9	1.0	-58.1	-25.0	-33.1	
10.020	-22.5	H	3.0	35.4	1.0	-56.9	-25.0	-31.9	
Mid Ch, 2535.0MHz									
5.070	-22.5	V	3.0	34.7	1.0	-56.3	-25.0	-31.3	
7.605	-22.9	V	3.0	34.9	1.0	-56.9	-25.0	-31.9	
10.140	-22.1	V	3.0	35.3	1.0	-56.4	-25.0	-31.4	
5.070	-23.2	H	3.0	34.7	1.0	-56.9	-25.0	-31.9	
7.605	-22.7	H	3.0	34.9	1.0	-56.7	-25.0	-31.7	
10.140	-21.6	H	3.0	35.3	1.0	-55.9	-25.0	-30.9	
High Ch, 2565.0MHz									
5.130	-22.5	V	3.0	34.7	1.0	-56.2	-25.0	-31.2	
7.695	-22.9	V	3.0	35.0	1.0	-56.8	-25.0	-31.8	
10.260	-21.7	V	3.0	35.2	1.0	-55.9	-25.0	-30.9	
5.130	-21.4	H	3.0	34.7	1.0	-55.2	-25.0	-30.2	
7.695	-17.8	H	3.0	35.0	1.0	-51.8	-25.0	-26.8	
10.260	-21.2	H	3.0	35.2	1.0	-55.4	-25.0	-30.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: G. Chan, L. Lee
Configuration: X-Pos EUT w/ AC charger
Mode: LTE7 10MHz QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 27

Band

LTE7

10MHz

QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2505.0MHz									
5.010	-21.0	V	3.0	34.8	1.0	-54.8	-25.0	-29.8	
7.515	-21.0	V	3.0	34.9	1.0	-54.9	-25.0	-29.9	
10.020	-23.3	V	3.0	35.4	1.0	-57.7	-25.0	-32.7	
5.010	-29.0	H	3.0	34.8	1.0	-62.8	-25.0	-37.8	
7.515	-24.2	H	3.0	34.9	1.0	-58.2	-25.0	-33.2	
10.020	-22.6	H	3.0	35.4	1.0	-56.9	-25.0	-31.9	
Mid Ch, 2535.0MHz									
5.070	-22.2	V	3.0	34.7	1.0	-55.9	-25.0	-30.9	
7.605	-22.9	V	3.0	34.9	1.0	-56.9	-25.0	-31.9	
10.140	-22.2	V	3.0	35.3	1.0	-56.5	-25.0	-31.5	
5.070	-22.6	H	3.0	34.7	1.0	-56.3	-25.0	-31.3	
7.605	-22.8	H	3.0	34.9	1.0	-56.8	-25.0	-31.8	
10.140	-21.5	H	3.0	35.3	1.0	-55.8	-25.0	-30.8	
High Ch, 2565.0MHz									
5.130	-21.4	V	3.0	34.7	1.0	-55.2	-25.0	-30.2	
7.695	-23.1	V	3.0	35.0	1.0	-57.1	-25.0	-32.1	
10.260	-21.6	V	3.0	35.2	1.0	-55.9	-25.0	-30.9	
5.130	-21.7	H	3.0	34.7	1.0	-55.4	-25.0	-30.4	
7.695	-21.5	H	3.0	35.0	1.0	-55.4	-25.0	-30.4	
10.260	-21.2	H	3.0	35.2	1.0	-55.4	-25.0	-30.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: G. Chan, L. Lee
Configuration: X-Pos EUT w/ AC charger
Mode: LTE7 5MHz 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 27

Band

LTE7

5MHz

16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2502.5MHz									
5.005	-23.0	V	3.0	34.8	1.0	-56.7	-25.0	-31.7	
7.508	-20.1	V	3.0	34.9	1.0	-54.0	-25.0	-29.0	
10.010	-22.5	V	3.0	35.4	1.0	-56.9	-25.0	-31.9	
5.005	-26.4	H	3.0	34.8	1.0	-60.2	-25.0	-35.2	
7.508	-20.4	H	3.0	34.9	1.0	-54.3	-25.0	-29.3	
10.010	-21.6	H	3.0	35.4	1.0	-56.0	-25.0	-31.0	
Mid Ch, 2535.0MHz									
5.070	-22.2	V	3.0	34.7	1.0	-55.9	-25.0	-30.9	
7.605	-21.6	V	3.0	34.9	1.0	-55.5	-25.0	-30.5	
10.140	-22.3	V	3.0	35.3	1.0	-56.6	-25.0	-31.6	
5.070	-18.4	H	3.0	34.7	1.0	-52.2	-25.0	-27.2	
7.605	-19.8	H	3.0	34.9	1.0	-53.8	-25.0	-28.8	
10.140	-21.5	H	3.0	35.3	1.0	-55.8	-25.0	-30.8	
High Ch, 2567.5MHz									
5.135	-24.2	V	3.0	34.7	1.0	-57.9	-25.0	-32.9	
7.703	-23.0	V	3.0	35.0	1.0	-56.9	-25.0	-31.9	
10.270	-21.8	V	3.0	35.2	1.0	-56.0	-25.0	-31.0	
5.135	-21.2	H	3.0	34.7	1.0	-54.9	-25.0	-29.9	
7.703	-20.9	H	3.0	35.0	1.0	-54.9	-25.0	-29.9	
10.270	-21.1	H	3.0	35.2	1.0	-55.3	-25.0	-30.3	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: G. Chan, L. Lee
Configuration: X-Pos EUT w/ AC charger
Mode: LTE7 5MHz QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 27

Band

LTE7

5MHz

QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2502.5MHz									
5.005	-22.4	V	3.0	34.8	1.0	-56.2	-25.0	-31.2	
7.508	-19.5	V	3.0	34.9	1.0	-53.4	-25.0	-28.4	
10.010	-22.5	V	3.0	35.4	1.0	-56.9	-25.0	-31.9	
5.005	-25.7	H	3.0	34.8	1.0	-59.4	-25.0	-34.4	
7.508	-19.7	H	3.0	34.9	1.0	-53.6	-25.0	-28.6	
10.010	-21.7	H	3.0	35.4	1.0	-56.0	-25.0	-31.0	
Mid Ch, 2535.0MHz									
5.070	-20.8	V	3.0	34.7	1.0	-54.6	-25.0	-29.6	
7.605	-21.0	V	3.0	34.9	1.0	-55.0	-25.0	-30.0	
10.140	-22.4	V	3.0	35.3	1.0	-56.7	-25.0	-31.7	
5.070	-17.6	H	3.0	34.7	1.0	-51.3	-25.0	-26.3	
7.605	-18.2	H	3.0	34.9	1.0	-52.2	-25.0	-27.2	
10.140	-21.5	H	3.0	35.3	1.0	-55.8	-25.0	-30.8	
High Ch, 2567.5MHz									
5.135	-23.5	V	3.0	34.7	1.0	-57.2	-25.0	-32.2	
7.703	-22.7	V	3.0	35.0	1.0	-56.6	-25.0	-31.6	
10.270	-21.7	V	3.0	35.2	1.0	-55.9	-25.0	-30.9	
5.135	-20.7	H	3.0	34.7	1.0	-54.4	-25.0	-29.4	
7.703	-20.3	H	3.0	35.0	1.0	-54.2	-25.0	-29.2	
10.270	-21.0	H	3.0	35.2	1.0	-55.3	-25.0	-30.3	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Band

LTE5

10MHz

16QAM

UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: M. Zarin, E. Lee
Configuration: EUT with AC charge
Mode: LTE5 10MHz 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	FCC Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (829MHz)									
1.658	-30.4	V	3.0	35.5	1.0	-64.9	-13.0	-51.9	
2.487	-27.7	V	3.0	35.4	1.0	-62.1	-13.0	-49.1	
3.316	-32.1	V	3.0	35.5	1.0	-66.6	-13.0	-53.6	
1.658	-28.2	H	3.0	35.5	1.0	-62.7	-13.0	-49.7	
2.487	-25.9	H	3.0	35.4	1.0	-60.3	-13.0	-47.3	
3.316	-31.9	H	3.0	35.5	1.0	-66.4	-13.0	-53.4	
Mid Channel (836.5MHz)									
1.673	-29.5	V	3.0	35.5	1.0	-64.1	-13.0	-51.1	
2.510	-30.9	V	3.0	35.4	1.0	-65.4	-13.0	-52.4	
3.346	-31.8	V	3.0	35.5	1.0	-66.4	-13.0	-53.4	
1.673	-31.7	H	3.0	35.5	1.0	-66.3	-13.0	-53.3	
2.510	-32.5	H	3.0	35.4	1.0	-66.9	-13.0	-53.9	
3.346	-29.8	H	3.0	35.5	1.0	-64.3	-13.0	-51.3	
High Channel (844MHz)									
1.688	-37.3	V	3.0	35.5	1.0	-71.9	-13.0	-58.9	
2.532	-31.1	V	3.0	35.4	1.0	-65.6	-13.0	-52.6	
3.376	-33.9	V	3.0	35.5	1.0	-68.4	-13.0	-55.4	
1.688	-38.8	H	3.0	35.5	1.0	-73.3	-13.0	-60.3	
2.532	-34.9	H	3.0	35.4	1.0	-69.3	-13.0	-56.3	
3.376	-32.1	H	3.0	35.5	1.0	-66.6	-13.0	-53.6	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Band

LTE5

10MHz

QPSK

UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: M. Zarin, E. Lee
Configuration: EUT with AC charge
Mode: LTE5 10MHz QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	FCC Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (829MHz)									
1.658	-30.0	V	3.0	35.5	1.0	-64.6	-13.0	-51.6	
2.487	-27.3	V	3.0	35.4	1.0	-61.7	-13.0	-48.7	
3.316	-31.9	V	3.0	35.5	1.0	-66.4	-13.0	-53.4	
1.658	-28.1	H	3.0	35.5	1.0	-62.7	-13.0	-49.7	
2.487	-24.3	H	3.0	35.4	1.0	-58.7	-13.0	-45.7	
3.316	-32.1	H	3.0	35.5	1.0	-66.6	-13.0	-53.6	
Mid Channel (836.5MHz)									
1.673	-28.7	V	3.0	35.5	1.0	-63.2	-13.0	-50.2	
2.510	-29.4	V	3.0	35.4	1.0	-63.8	-13.0	-50.8	
3.346	-31.7	V	3.0	35.5	1.0	-66.2	-13.0	-53.2	
1.673	-28.6	H	3.0	35.5	1.0	-63.1	-13.0	-50.1	
2.510	-31.5	H	3.0	35.4	1.0	-65.9	-13.0	-52.9	
3.346	-29.7	H	3.0	35.5	1.0	-64.2	-13.0	-51.2	
High Channel (844MHz)									
1.688	-36.9	V	3.0	35.5	1.0	-71.4	-13.0	-58.4	
2.532	-30.4	V	3.0	35.4	1.0	-64.8	-13.0	-51.8	
3.376	-34.0	V	3.0	35.5	1.0	-68.5	-13.0	-55.5	
1.688	-37.3	H	3.0	35.5	1.0	-71.8	-13.0	-58.8	
2.532	-33.1	H	3.0	35.4	1.0	-67.5	-13.0	-54.5	
3.376	-33.9	H	3.0	35.5	1.0	-68.4	-13.0	-55.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Band

LTE5

5MHz

16QAM

UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: M. Zarin, E. Lee
Configuration: EUT with AC charge
Mode: LTE5 5MHz HARM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	FCC Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (826.5MHz)									
1.653	-35.4	V	3.0	35.5	1.0	-70.0	-13.0	-57.0	
2.479	-29.8	V	3.0	35.4	1.0	-64.2	-13.0	-51.2	
3.306	-27.7	V	3.0	35.5	1.0	-62.2	-13.0	-49.2	
1.653	-35.5	H	3.0	35.5	1.0	-70.1	-13.0	-57.1	
2.479	-31.2	H	3.0	35.4	1.0	-65.6	-13.0	-52.6	
3.306	-27.7	H	3.0	35.5	1.0	-62.2	-13.0	-49.2	
Mid Channel (836.5MHz)									
1.673	-27.7	V	3.0	35.5	1.0	-62.3	-13.0	-49.3	
2.509	-27.3	V	3.0	35.4	1.0	-61.7	-13.0	-48.7	
3.346	-27.3	V	3.0	35.5	1.0	-61.8	-13.0	-48.8	
1.673	-34.7	H	3.0	35.5	1.0	-69.2	-13.0	-56.2	
2.509	-26.7	H	3.0	35.4	1.0	-61.1	-13.0	-48.1	
3.346	-27.5	H	3.0	35.5	1.0	-62.0	-13.0	-49.0	
High Channel (846.5MHz)									
1.693	-26.3	V	3.0	35.5	1.0	-60.8	-13.0	-47.8	
2.539	-26.2	V	3.0	35.4	1.0	-60.7	-13.0	-47.7	
3.386	-27.1	V	3.0	35.5	1.0	-61.6	-13.0	-48.6	
1.693	-33.2	H	3.0	35.5	1.0	-67.7	-13.0	-54.7	
2.539	-30.0	H	3.0	35.4	1.0	-64.4	-13.0	-51.4	
3.386	-27.2	H	3.0	35.5	1.0	-61.7	-13.0	-48.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Band

LTE5

5MHz

QPSK

UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: M. Zarin, E. Lee
Configuration: EUT with AC charge
Mode: LTE5 5MHz QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	FCC Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (826.5MHz)									
1.653	-35.7	V	3.0	35.5	1.0	-70.3	-13.0	-57.3	
2.479	-29.6	V	3.0	35.4	1.0	-64.0	-13.0	-51.0	
3.306	-27.6	V	3.0	35.5	1.0	-62.2	-13.0	-49.2	
1.653	-35.9	H	3.0	35.5	1.0	-70.5	-13.0	-57.5	
2.479	-30.9	H	3.0	35.4	1.0	-65.3	-13.0	-52.3	
3.306	-27.9	H	3.0	35.5	1.0	-62.4	-13.0	-49.4	
Mid Channel (836.5MHz)									
1.673	-30.2	V	3.0	35.5	1.0	-64.7	-13.0	-51.7	
2.509	-25.2	V	3.0	35.4	1.0	-59.6	-13.0	-46.6	
3.346	-27.3	V	3.0	35.5	1.0	-61.8	-13.0	-48.8	
1.673	-33.8	H	3.0	35.5	1.0	-68.3	-13.0	-55.3	
2.509	-25.2	H	3.0	35.4	1.0	-59.6	-13.0	-46.6	
3.346	-26.7	H	3.0	35.5	1.0	-61.2	-13.0	-48.2	
High Channel (846.5MHz)									
1.693	-26.1	V	3.0	35.5	1.0	-60.6	-13.0	-47.6	
2.539	-23.7	V	3.0	35.4	1.0	-58.1	-13.0	-45.1	
3.386	-27.2	V	3.0	35.5	1.0	-61.7	-13.0	-48.7	
1.693	-33.1	H	3.0	35.5	1.0	-67.6	-13.0	-54.6	
2.539	-28.5	H	3.0	35.4	1.0	-63.0	-13.0	-50.0	
3.386	-27.6	H	3.0	35.5	1.0	-62.1	-13.0	-49.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Band

LTE5

3MHz

16QAM

UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: M. Zarin, E. Lee
Configuration: EUT with AC charge
Mode: LTE5 3MHz 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	FCC Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (825.5MHz)									
1.651	-24.9	V	3.0	35.5	1.0	-59.4	-13.0	-46.4	
2.477	-29.7	V	3.0	35.4	1.0	-64.1	-13.0	-51.1	
3.302	-27.3	V	3.0	35.5	1.0	-61.8	-13.0	-48.8	
1.651	-33.4	H	3.0	35.5	1.0	-67.9	-13.0	-54.9	
2.477	-21.9	H	3.0	35.4	1.0	-56.3	-13.0	-43.3	
3.302	-27.6	H	3.0	35.5	1.0	-62.1	-13.0	-49.1	
Mid Channel (836.5MHz)									
1.673	-25.1	V	3.0	35.5	1.0	-59.7	-13.0	-46.7	
2.510	-21.5	V	3.0	35.4	1.0	-55.9	-13.0	-42.9	
3.346	-27.5	V	3.0	35.5	1.0	-62.0	-13.0	-49.0	
1.673	-31.2	H	3.0	35.5	1.0	-65.8	-13.0	-52.8	
2.510	-27.8	H	3.0	35.4	1.0	-62.3	-13.0	-49.3	
3.346	-27.7	H	3.0	35.5	1.0	-62.2	-13.0	-49.2	
High Channel (847.5MHz)									
1.695	-24.1	V	3.0	35.5	1.0	-58.6	-13.0	-45.6	
2.453	-23.4	V	3.0	35.4	1.0	-57.8	-13.0	-44.8	
3.390	-27.5	V	3.0	35.5	1.0	-62.0	-13.0	-49.0	
1.695	-33.3	H	3.0	35.5	1.0	-67.8	-13.0	-54.8	
2.453	-26.4	H	3.0	35.4	1.0	-60.8	-13.0	-47.8	
3.390	-27.6	H	3.0	35.5	1.0	-62.1	-13.0	-49.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Band

LTE5

3MHz

QPSK

UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: M. Zarin, E. Lee
Configuration: EUT with AC charge
Mode: LTE5 3MHz QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	FCC Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (825.5MHz)									
1.651	-24.4	V	3.0	35.5	1.0	-58.9	-13.0	-45.9	
2.477	-29.8	V	3.0	35.4	1.0	-64.2	-13.0	-51.2	
3.302	-27.5	V	3.0	35.5	1.0	-62.0	-13.0	-49.0	
1.651	-32.3	H	3.0	35.5	1.0	-66.8	-13.0	-53.8	
2.477	-21.5	H	3.0	35.4	1.0	-55.9	-13.0	-42.9	
3.302	-27.7	H	3.0	35.5	1.0	-62.2	-13.0	-49.2	
Mid Channel (836.5MHz)									
1.673	-32.0	V	3.0	35.5	1.0	-66.5	-13.0	-53.5	
2.510	-25.4	V	3.0	35.4	1.0	-59.8	-13.0	-46.8	
3.346	-27.2	V	3.0	35.5	1.0	-61.7	-13.0	-48.7	
1.673	-30.7	H	3.0	35.5	1.0	-65.2	-13.0	-52.2	
2.510	-26.7	H	3.0	35.4	1.0	-61.2	-13.0	-48.2	
3.346	-27.6	H	3.0	35.5	1.0	-62.1	-13.0	-49.1	
High Channel (847.5MHz)									
1.695	-26.5	V	3.0	35.5	1.0	-61.0	-13.0	-48.0	
2.453	-29.9	V	3.0	35.4	1.0	-64.4	-13.0	-51.4	
3.390	-27.5	V	3.0	35.5	1.0	-62.0	-13.0	-49.0	
1.695	-32.8	H	3.0	35.5	1.0	-67.3	-13.0	-54.3	
2.453	-26.5	H	3.0	35.4	1.0	-60.9	-13.0	-47.9	
3.390	-27.3	H	3.0	35.5	1.0	-61.8	-13.0	-48.8	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company:	Sony
Project #:	14U17933
Date:	08/14/14
Test Engineer:	M. Zarin, E. Lee
Configuration:	EUT with AC charge
Mode:	LTE5 1.4MHz 16QAM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	FCC Part 22

Band

LTE5

1.4MHz

16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (824.7MHz)									
1.649	-24.8	V	3.0	35.5	1.0	-59.3	-13.0	-46.3	
2.474	-23.9	V	3.0	35.4	1.0	-58.4	-13.0	-45.4	
3.299	-27.3	V	3.0	35.5	1.0	-61.8	-13.0	-48.8	
1.649	-32.5	H	3.0	35.5	1.0	-67.1	-13.0	-54.1	
2.474	-30.0	H	3.0	35.4	1.0	-64.5	-13.0	-51.5	
3.299	-27.5	H	3.0	35.5	1.0	-62.0	-13.0	-49.0	
Mid Channel (836.5MHz)									
1.673	-30.0	V	3.0	35.5	1.0	-64.6	-13.0	-51.6	
2.510	-26.8	V	3.0	35.4	1.0	-61.2	-13.0	-48.2	
3.346	-27.4	V	3.0	35.5	1.0	-61.9	-13.0	-48.9	
1.673	-34.8	H	3.0	35.5	1.0	-69.3	-13.0	-56.3	
2.510	-29.6	H	3.0	35.4	1.0	-64.0	-13.0	-51.0	
3.346	-27.5	H	3.0	35.5	1.0	-62.0	-13.0	-49.0	
High Channel (848.3MHz)									
1.697	-30.2	V	3.0	35.5	1.0	-64.7	-13.0	-51.7	
2.545	-27.3	V	3.0	35.4	1.0	-61.7	-13.0	-48.7	
3.393	-27.3	V	3.0	35.5	1.0	-61.8	-13.0	-48.8	
1.697	-33.3	H	3.0	35.5	1.0	-67.8	-13.0	-54.8	
2.545	-30.3	H	3.0	35.4	1.0	-64.7	-13.0	-51.7	
3.393	-27.6	H	3.0	35.5	1.0	-62.1	-13.0	-49.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Band

LTE5

1.4MHz

QPSK

UL Verification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: M. Zarin, E. Lee
Configuration: EUT with AC charge
Mode: LTE5 1.4MHz QPSK

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T145 8449B	Filter 1	FCC Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (824.7MHz)									
1.649	-26.1	V	3.0	35.5	1.0	-60.6	-13.0	-47.6	
2.474	-26.3	V	3.0	35.4	1.0	-60.7	-13.0	-47.7	
3.299	-27.3	V	3.0	35.5	1.0	-61.8	-13.0	-48.8	
1.649	-32.0	H	3.0	35.5	1.0	-66.5	-13.0	-53.5	
2.474	-30.8	H	3.0	35.4	1.0	-65.2	-13.0	-52.2	
3.299	-27.5	H	3.0	35.5	1.0	-62.1	-13.0	-49.1	
Mid Channel (836.5MHz)									
1.673	-29.2	V	3.0	35.5	1.0	-63.8	-13.0	-50.8	
2.510	-26.0	V	3.0	35.4	1.0	-60.4	-13.0	-47.4	
3.346	-27.5	V	3.0	35.5	1.0	-62.0	-13.0	-49.0	
1.673	-33.2	H	3.0	35.5	1.0	-67.7	-13.0	-54.7	
2.510	-26.6	H	3.0	35.4	1.0	-61.0	-13.0	-48.0	
3.346	-27.7	H	3.0	35.5	1.0	-62.3	-13.0	-49.3	
High Channel (848.3MHz)									
1.697	-29.6	V	3.0	35.5	1.0	-64.1	-13.0	-51.1	
2.545	-29.0	V	3.0	35.4	1.0	-63.4	-13.0	-50.4	
3.393	-27.5	V	3.0	35.5	1.0	-62.0	-13.0	-49.0	
1.697	-32.1	H	3.0	35.5	1.0	-66.7	-13.0	-53.7	
2.545	-28.8	H	3.0	35.4	1.0	-63.2	-13.0	-50.2	
3.393	-27.5	H	3.0	35.5	1.0	-62.0	-13.0	-49.0	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Huynh, T. Oeur
Configuration: X Position, EUT and AC Adapter
Mode: HSDPA B2

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T343 8449B	Filter 1	Part 24

Band

Band 2

HSDPA

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.704	-17.5	V	3.0	35.4	1.0	-51.9	-13.0	-38.9	
5.557	-15.3	V	3.0	34.7	1.0	-49.1	-13.0	-36.1	
7.409	-13.0	V	3.0	34.9	1.0	-46.9	-13.0	-33.9	
3.704	-16.8	H	3.0	35.4	1.0	-51.2	-13.0	-38.2	
5.557	-14.4	H	3.0	34.7	1.0	-48.2	-13.0	-35.2	
7.409	-13.1	H	3.0	34.9	1.0	-47.0	-13.0	-34.0	
Mid Ch, 1880.0MHz									
3.760	-17.3	V	3.0	35.3	1.0	-51.6	-13.0	-38.6	
5.640	-15.3	V	3.0	34.7	1.0	-49.1	-13.0	-36.1	
7.520	-14.0	V	3.0	34.9	1.0	-47.9	-13.0	-34.9	
3.760	-17.0	H	3.0	35.3	1.0	-51.3	-13.0	-38.3	
5.640	-14.6	H	3.0	34.7	1.0	-48.4	-13.0	-35.4	
7.520	-12.6	H	3.0	34.9	1.0	-46.5	-13.0	-33.5	
High Ch, 1907.6 MHz									
3.815	-16.1	V	3.0	35.3	1.0	-50.4	-13.0	-37.4	
5.723	-14.9	V	3.0	34.7	1.0	-48.7	-13.0	-35.7	
7.630	-12.6	V	3.0	34.9	1.0	-46.5	-13.0	-33.5	
3.815	-16.6	H	3.0	35.3	1.0	-50.9	-13.0	-37.9	
5.723	-14.0	H	3.0	34.7	1.0	-47.7	-13.0	-34.7	
7.630	-12.0	H	3.0	34.9	1.0	-46.0	-13.0	-33.0	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Huynh, T. Oeur
Configuration: X Position, EUT and AC Adapter
Mode: REL99 B2

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T343 8449B	Filter 1	Part 24

Band

Band 2

REL99

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.704	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
5.557	-15.3	V	3.0	34.7	1.0	-49.0	-13.0	-36.0	
7.409	-13.5	V	3.0	34.9	1.0	-47.5	-13.0	-34.5	
3.704	-17.3	H	3.0	35.4	1.0	-51.7	-13.0	-38.7	
5.557	-13.7	H	3.0	34.7	1.0	-47.5	-13.0	-34.5	
7.409	-12.2	H	3.0	34.9	1.0	-46.2	-13.0	-33.2	
Mid Ch, 1880.0MHz									
3.760	-16.6	V	3.0	35.3	1.0	-51.0	-13.0	-38.0	
5.640	-15.2	V	3.0	34.7	1.0	-48.9	-13.0	-35.9	
7.520	-13.9	V	3.0	34.9	1.0	-47.9	-13.0	-34.9	
3.760	-17.6	H	3.0	35.3	1.0	-51.9	-13.0	-38.9	
5.640	-14.6	H	3.0	34.7	1.0	-48.3	-13.0	-35.3	
7.520	-12.1	H	3.0	34.9	1.0	-46.1	-13.0	-33.1	
High Ch, 1907.6 MHz									
3.815	-16.4	V	3.0	35.3	1.0	-50.7	-13.0	-37.7	
5.723	-14.3	V	3.0	34.7	1.0	-48.0	-13.0	-35.0	
7.630	-13.4	V	3.0	34.9	1.0	-47.4	-13.0	-34.4	
3.815	-16.9	H	3.0	35.3	1.0	-51.2	-13.0	-38.2	
5.723	-14.4	H	3.0	34.7	1.0	-48.2	-13.0	-35.2	
7.630	-12.2	H	3.0	34.9	1.0	-46.2	-13.0	-33.2	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Band

Band 5

HSDPA

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/15/14
Test Engineer: O. Stoelting
Configuration: X Position, EUT w/ AC Adaptor and HS
Mode: WCDMA_HSDPA_B5_HARM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4 MHz									
1.653	-22.8	V	3.0	37.4	1.0	-59.2	-13.0	-46.2	
2.479	-20.3	V	3.0	36.4	1.0	-55.6	-13.0	-42.6	
3.306	-23.0	V	3.0	35.8	1.0	-57.8	-13.0	-44.8	
1.653	-28.5	H	3.0	37.4	1.0	-64.9	-13.0	-51.9	
2.479	-23.5	H	3.0	36.4	1.0	-58.9	-13.0	-45.9	
3.306	-23.0	H	3.0	35.8	1.0	-57.7	-13.0	-44.7	
Mid Ch, 836.6MHz									
1.673	-29.1	V	3.0	37.3	1.0	-65.4	-13.0	-52.4	
2.510	-19.3	V	3.0	36.4	1.0	-54.6	-13.0	-41.6	
3.346	-21.3	V	3.0	35.8	1.0	-56.1	-13.0	-43.1	
1.673	-28.7	H	3.0	37.3	1.0	-65.0	-13.0	-52.0	
2.510	-21.7	H	3.0	36.4	1.0	-57.1	-13.0	-44.1	
3.346	-22.9	H	3.0	35.8	1.0	-57.7	-13.0	-44.7	
High Ch, 846.6MHz									
1.693	-28.0	V	3.0	37.3	1.0	-64.3	-13.0	-51.3	
2.540	-20.5	V	3.0	36.3	1.0	-55.8	-13.0	-42.8	
3.386	-22.8	V	3.0	35.7	1.0	-57.5	-13.0	-44.5	
1.693	-27.6	H	3.0	37.3	1.0	-63.9	-13.0	-50.9	
2.540	-19.5	H	3.0	36.3	1.0	-54.9	-13.0	-41.9	
3.386	-22.8	H	3.0	35.7	1.0	-57.5	-13.0	-44.5	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/15/14
Test Engineer: O. Stoelting
Configuration: X Position, EUT w/ AC Adaptor and HS
Mode: WCDMA_REL 99_B5_HARM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 22

Band

Band 5

REL99

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4MHz									
1.653	-27.9	V	3.0	37.4	1.0	-64.3	-13.0	-51.3	
2.479	-21.7	V	3.0	36.4	1.0	-57.1	-13.0	-44.1	
3.306	-23.2	V	3.0	35.8	1.0	-58.0	-13.0	-45.0	
1.653	-25.9	H	3.0	37.4	1.0	-62.3	-13.0	-49.3	
2.479	-22.8	H	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3.306	-22.7	H	3.0	35.8	1.0	-57.5	-13.0	-44.5	
Mid Ch, 836.6MHz									
1.673	-29.4	V	3.0	37.3	1.0	-65.7	-13.0	-52.7	
2.510	-17.9	V	3.0	36.4	1.0	-53.3	-13.0	-40.3	
3.346	-23.6	V	3.0	35.8	1.0	-58.4	-13.0	-45.4	
1.673	-29.7	H	3.0	37.3	1.0	-66.0	-13.0	-53.0	
2.510	-19.2	H	3.0	36.4	1.0	-54.6	-13.0	-41.6	
3.346	-23.0	H	3.0	35.8	1.0	-57.8	-13.0	-44.8	
High Ch, 846.6MHz									
1.693	-29.4	V	3.0	37.3	1.0	-65.7	-13.0	-52.7	
2.540	-19.5	V	3.0	36.3	1.0	-54.8	-13.0	-41.8	
3.386	-23.3	V	3.0	35.7	1.0	-58.0	-13.0	-45.0	
1.693	-26.4	H	3.0	37.3	1.0	-62.7	-13.0	-49.7	
2.540	-19.4	H	3.0	36.3	1.0	-54.8	-13.0	-41.8	
3.386	-23.0	H	3.0	35.7	1.0	-57.7	-13.0	-44.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Huynh, T. Oeur
Configuration: X Position, EUT and AC Adapter
Mode: EGPRS1900

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T343 8449B	Filter 1	Part 24

Band

GSM1900

EGPRS

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3.700	-17.3	V	3.0	35.4	1.0	-51.7	-13.0	-38.7	
5.551	-11.3	V	3.0	34.7	1.0	-45.0	-13.0	-32.0	
7.401	-13.3	V	3.0	34.9	1.0	-47.2	-13.0	-34.2	
3.700	-14.7	H	3.0	35.4	1.0	-49.1	-13.0	-36.1	
5.551	-14.1	H	3.0	34.7	1.0	-47.9	-13.0	-34.9	
7.401	-12.5	H	3.0	34.9	1.0	-46.4	-13.0	-33.4	
Mid Ch, 1880.0MHz									
3.760	-16.9	V	3.0	35.3	1.0	-51.3	-13.0	-38.3	
5.640	-8.6	V	3.0	34.7	1.0	-42.3	-13.0	-29.3	
7.520	-13.2	V	3.0	34.9	1.0	-47.2	-13.0	-34.2	
3.760	-12.7	H	3.0	35.3	1.0	-47.1	-13.0	-34.1	
5.640	-14.2	H	3.0	34.7	1.0	-47.9	-13.0	-34.9	
7.520	-11.8	H	3.0	34.9	1.0	-45.7	-13.0	-32.7	
High Ch, 1909.8 MHz									
3.820	-17.6	V	3.0	35.3	1.0	-51.9	-13.0	-38.9	
5.729	-11.9	V	3.0	34.7	1.0	-45.6	-13.0	-32.6	
7.639	-13.6	V	3.0	35.0	1.0	-47.5	-13.0	-34.5	
3.820	-13.3	H	3.0	35.3	1.0	-47.6	-13.0	-34.6	
5.729	-13.0	H	3.0	34.7	1.0	-46.7	-13.0	-33.7	
7.639	-12.5	H	3.0	35.0	1.0	-46.5	-13.0	-33.5	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/14/14
Test Engineer: K. Huynh, T. Oeur
Configuration: X Position, EUT and AC Adapter
Mode: GPRS1900

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T343 8449B	Filter 1	Part 24

Band

GSM1900

GPRS

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3.700	-17.4	V	3.0	35.4	1.0	-51.8	-13.0	-38.8	
5.551	-11.4	V	3.0	34.7	1.0	-45.1	-13.0	-32.1	
7.401	-13.2	V	3.0	34.9	1.0	-47.1	-13.0	-34.1	
3.700	-14.2	H	3.0	35.4	1.0	-48.6	-13.0	-35.6	
5.551	-13.8	H	3.0	34.7	1.0	-47.5	-13.0	-34.5	
7.401	-12.5	H	3.0	34.9	1.0	-46.4	-13.0	-33.4	
Mid Ch, 1880.0MHz									
3.760	-17.3	V	3.0	35.3	1.0	-51.6	-13.0	-38.6	
5.640	-9.0	V	3.0	34.7	1.0	-42.8	-13.0	-29.8	
7.520	-13.1	V	3.0	34.9	1.0	-47.0	-13.0	-34.0	
3.760	-13.0	H	3.0	35.3	1.0	-47.3	-13.0	-34.3	
5.640	-13.2	H	3.0	34.7	1.0	-47.0	-13.0	-34.0	
7.520	-12.1	H	3.0	34.9	1.0	-46.1	-13.0	-33.1	
High Ch, 1909.8 MHz									
3.820	-16.8	V	3.0	35.3	1.0	-51.1	-13.0	-38.1	
5.729	-9.1	V	3.0	34.7	1.0	-42.8	-13.0	-29.8	
7.639	-13.3	V	3.0	35.0	1.0	-47.2	-13.0	-34.2	
3.820	-13.8	H	3.0	35.3	1.0	-48.1	-13.0	-35.1	
5.729	-12.5	H	3.0	34.7	1.0	-46.2	-13.0	-33.2	
7.639	-12.0	H	3.0	35.0	1.0	-45.9	-13.0	-32.9	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/15/14
Test Engineer: O. Stoelting
Configuration: X Position, EUT w/ AC Adaptor and HS
Mode: EGPRS850 HARM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 22

Band

GSM850

EGPRS

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1.648	-28.4	V	3.0	37.4	1.0	-64.7	-13.0	-51.7	
2.473	-22.3	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
3.297	-22.8	V	3.0	35.8	1.0	-57.6	-13.0	-44.6	
1.648	-29.5	H	3.0	37.4	1.0	-65.8	-13.0	-52.8	
2.473	-20.7	H	3.0	36.4	1.0	-56.1	-13.0	-43.1	
3.297	-22.7	H	3.0	35.8	1.0	-57.5	-13.0	-44.5	
Mid Ch, 836.6MHz									
1.673	-24.8	V	3.0	37.3	1.0	-61.1	-13.0	-48.1	
2.510	-27.1	V	3.0	36.4	1.0	-62.4	-13.0	-49.4	
3.346	-17.6	V	3.0	35.8	1.0	-52.3	-13.0	-39.3	
1.673	-28.0	H	3.0	37.3	1.0	-64.4	-13.0	-51.4	
2.510	-22.0	H	3.0	36.4	1.0	-57.3	-13.0	-44.3	
3.346	-22.8	H	3.0	35.8	1.0	-57.6	-13.0	-44.6	
High Ch, 848.8MHz									
1.698	-28.4	V	3.0	37.3	1.0	-64.7	-13.0	-51.7	
2.547	-24.3	V	3.0	36.3	1.0	-59.7	-13.0	-46.7	
3.395	-22.7	V	3.0	35.7	1.0	-57.4	-13.0	-44.4	
1.698	-28.0	H	3.0	37.3	1.0	-64.3	-13.0	-51.3	
2.547	-25.9	H	3.0	36.3	1.0	-61.2	-13.0	-48.2	
3.395	-22.3	H	3.0	35.7	1.0	-57.0	-13.0	-44.0	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Sony
Project #: 14U17933
Date: 08/15/14
Test Engineer: O. Stoelting
Configuration: X Position, EUT w/ AC Adaptor and HS
Mode: GPRS850 HARM

Chamber	Pre-amplifer	Filter	Limit
3m Chamber	T34 8449B	Filter 1	Part 22

Band

GSM850

GPRS

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1.648	-32.3	V	3.0	37.4	1.0	-68.7	-13.0	-55.7	
2.473	-10.3	V	3.0	36.4	1.0	-45.6	-13.0	-32.6	
3.297	-27.2	V	3.0	35.8	1.0	-62.0	-13.0	-49.0	
1.648	-31.2	H	3.0	37.4	1.0	-67.5	-13.0	-54.5	
2.473	-8.4	H	3.0	36.4	1.0	-43.8	-13.0	-30.8	
3.297	-27.4	H	3.0	35.8	1.0	-62.2	-13.0	-49.2	
Mid Ch, 836.6MHz									
1.673	-30.4	V	3.0	37.3	1.0	-66.8	-13.0	-53.8	
2.510	-7.8	V	3.0	36.4	1.0	-43.1	-13.0	-30.1	
3.346	-26.9	V	3.0	35.8	1.0	-61.7	-13.0	-48.7	
1.673	-29.1	H	3.0	37.3	1.0	-65.4	-13.0	-52.4	
2.510	-5.4	H	3.0	36.4	1.0	-40.8	-13.0	-27.8	
3.346	-27.1	H	3.0	35.8	1.0	-61.8	-13.0	-48.8	
High Ch, 848.8MHz									
1.698	-30.6	V	3.0	37.3	1.0	-66.9	-13.0	-53.9	
2.547	-13.3	V	3.0	36.3	1.0	-48.6	-13.0	-35.6	
3.395	-27.0	V	3.0	35.7	1.0	-61.7	-13.0	-48.7	
1.698	-26.9	H	3.0	37.3	1.0	-63.2	-13.0	-50.2	
2.547	-11.6	H	3.0	36.3	1.0	-46.9	-13.0	-33.9	
3.395	-27.4	H	3.0	35.7	1.0	-62.1	-13.0	-49.1	

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Note: No other emissions were detected above the system noise floor.

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