CERTIFICATION TEST REPORT

Report Number. : 11785223-E1V2

Applicant	:	SONY MOBILE COMMUNICATIONS INC. 4-12-3 HIGASHI-SHINAGAWA, SHINAGAWA -KU,TOKYO, 140-0002, JAPAN
FCC ID	:	PY7-65365K
EUT Description	:	GSM/WCDMA/LTE Phone with BT,DTS/UNII a/b/g/n/ac, GPS & NFC
Test Standard(s)	:	FCC CFR47 PART 22 SUBPART H FCC CFR47 PART 24 SUBPART E FCC CFR47 PART 27 SUBPART F, H, L, and M

Date Of Issue:

July 31, 2017

Prepared by:

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	07/14/17	Initial Issue	D. Coronia
V2	07/31/17	Updated Section 11.8 and remove IC standard reference	D. Coronia

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	SONY MOBILE COMMUNICATIONS, INC. 4-12-3 HIGASHI-SHINAGAWA, SHINAGAWA –KU, TOKYO, 140-0002, JAPAN
EUT DESCRIPTION:	GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac, GPS & NFC
SERIAL NUMBER:	BH9000D281, BH9000KW81 (radiated) BH90009382, BH90009282 (conducted)
DATE TESTED:	June 26 – July 6, 2017

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

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

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

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-D, FCC CFR 47 Part 2, FCC KDB 971168 D01 v02r02, Part 22, Part 24, Part 27.

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street
☐ Chamber A(IC: 2324B-1)	☐ Chamber D(IC: 22541-1)
☐ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 22541-2)
☒ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 22541-3)
	☐ Chamber G(IC: 22541-4)
	☐ Chamber H(IC: 22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.
UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.
Chambers A through C are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Occupied Channel Bandwidth	±1.1 %
RF output power, conducted	±0.35 dB
Power Spectral Density, conducted	±0.39 dB
Unwanted Emissions, conducted	±2.9 dB
All emissions, radiated	±5.36 dB
Temperature	±0.9 °C
Humidity	±2.26% RH
Supply Voltages	±0.45 %
Time	±0.2 %

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

This EUT is a GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac, GPS & NFC.

6. MAXIMUM OUTPUT POWER

6.1. MAXIMUM OUTPUT POWER (GSM/EGPRS)

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

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted (Average)		ERP/EIRP (Average)	
			AVG(dBm)	AVG(mW)	dBm	mW
850	824~849	GPRS	33.7	2344.23	26.40	436.52
	824~849	EGPRS	27.2	524.81	19.90	97.72
1900	1850~1910	GPRS	26.8	478.63	23.60	229.09
	1850~1910	EGPRS	26.1	407.38	22.90	194.98

6.2. MAXIMUM OUTPUT POWER (WCDMA)

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

FCC Part 22						
Band	Frequency Range(MHz)	Modulation	Conducted (Average)		ERP/EIRP (Average)	
			AVG(dBm)	AVG(mW)	dBm	mW
Band 5	824~849	REL99	24.7	295.12	17.4	54.95
	824~849	HSDPA	23.9	245.47	16.0	39.81
	824~849	HSUPA	23.8	239.88	15.9	38.90

6.3. MAXIMUM OUTPUT POWER (LTE)

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

LTE Band 4

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted (Average)		EIRP (Average)	
				AVG(dBm)	AVG(mW)	dBm	mW
LTE4	1710~1755	1.4MHz	QPSK	20.2	104.71	17.70	58.88
			16QAM	20.0	100.00	17.50	56.23
		3MHz	QPSK	20.3	107.40	17.80	60.26
			16QAM	20.2	103.75	17.70	58.88
		5MHz	QPSK	20.4	109.14	17.90	61.66
			16QAM	20.3	106.41	17.80	60.26
		10MHz	QPSK	20.3	107.40	17.80	60.26
			16QAM	20.2	104.23	17.70	58.88
		15MHz	QPSK	20.5	112.20	18.00	63.10
			16QAM	20.5	112.20	18.00	63.10
		20MHz	QPSK	20.3	108.14	17.80	60.26
			16QAM	20.3	108.14	17.80	60.26

LTE Band 5

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted (Average)		ERP (Average)	
				AVG(dBm)	AVG(mW)	dBm	mW
LTE5	824~849	1.4MHz	QPSK	24.6	289.73	17.30	53.70
			16QAM	24.0	251.19	16.70	46.77
		3MHz	QPSK	24.3	267.30	17.00	50.12
			16QAM	23.6	231.21	16.30	42.66
		5MHz	QPSK	24.3	269.15	17.00	50.12
			16QAM	23.7	236.59	16.40	43.65
		10MHz	QPSK	24.2	261.82	16.90	48.98
			16QAM	23.6	227.51	16.30	42.66

LTE Band 7

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted (Average)		EIRP (Average)	
				AVG(dBm)	AVG(mW)	dBm	mW
LTE7	2500~2570	5MHz	QPSK	24.9	305.49	14.90	30.90
			16QAM	24.0	251.19	14.00	25.12
		10MHz	QPSK	25.0	316.23	15.00	31.62
			16QAM	24.0	251.19	14.00	25.12
		15MHz	QPSK	24.9	305.49	14.90	30.90
			16QAM	24.0	251.19	14.00	25.12
		20MHz	QPSK	24.9	309.74	14.90	30.90
			16QAM	24.0	251.19	14.00	25.12

LTE Band 12

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted (Average)		ERP (Average)	
				AVG(dBm)	AVG(mW)	dBm	mW
LTE12	699~716	1.4MHz	QPSK	25.0	316.23	14.00	25.12
			16QAM	24.0	251.19	13.00	19.95
		3MHz	QPSK	25.0	316.23	14.00	25.12
			16QAM	24.0	251.19	13.00	19.95
		5MHz	QPSK	25.0	316.23	14.00	25.12
			16QAM	24.0	251.19	13.00	19.95
		10MHz	QPSK	25.0	316.23	14.00	25.12
			16QAM	24.0	248.89	13.00	19.95

LTE Band 13

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted (Average)		ERP (Average)	
				AVG(dBm)	AVG(mW)	dBm	mW
LTE13	777~787	5MHz	QPSK	23.9	246.60	19.10	81.28
			16QAM	23.0	199.07	18.20	66.07
		10MHz	QPSK	23.9	245.47	19.10	81.28
			16QAM	22.8	189.67	18.00	63.10

LTE Band 41

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted (Average)		EIRP (Average)	
				AVG(dBm)	AVG(mW)	dBm	mW
LTE41	2496~2690	5MHz	QPSK	25.0	316.23	15.00	31.62
			16QAM	24.0	249.46	14.00	25.12
		10MHz	QPSK	25.0	314.77	15.00	31.62
			16QAM	23.9	245.47	13.90	24.55
		15MHz	QPSK	25.0	316.23	15.00	31.62
			16QAM	24.0	251.19	14.00	25.12
		20MHz	QPSK	23.8	239.88	13.80	23.99
			16QAM	23.5	223.87	13.50	22.39

7. DESCRIPTION OF AVAILABLE ANTENNAS

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

Frequency (MHz)	Peak Gain (dBi)
GSM850, 824~849MHz	-7.3
GSM1900, 1850~1910MHz	-3.2
WCDMA Band 5, 824~849	-7.3
LTE Band 7, 2500~2570MHz	-10
LTE Band 12, 699~716MHz	-11
LTE Band 13, 777~787MHz	-4.8
LTE Band 5, 824~849MHz	-7.3
LTE Band 41, 2496~2690MHz	-10
LTE Band 4, 1710~1755MHz	-2.5

8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	SONY	1300-7137.1	4016W40310044	NA
Earphone	SONY	N/A	N/A	N/A

I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	**Port**	**# of Identical ports**	**Connector Type**	**Serial 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

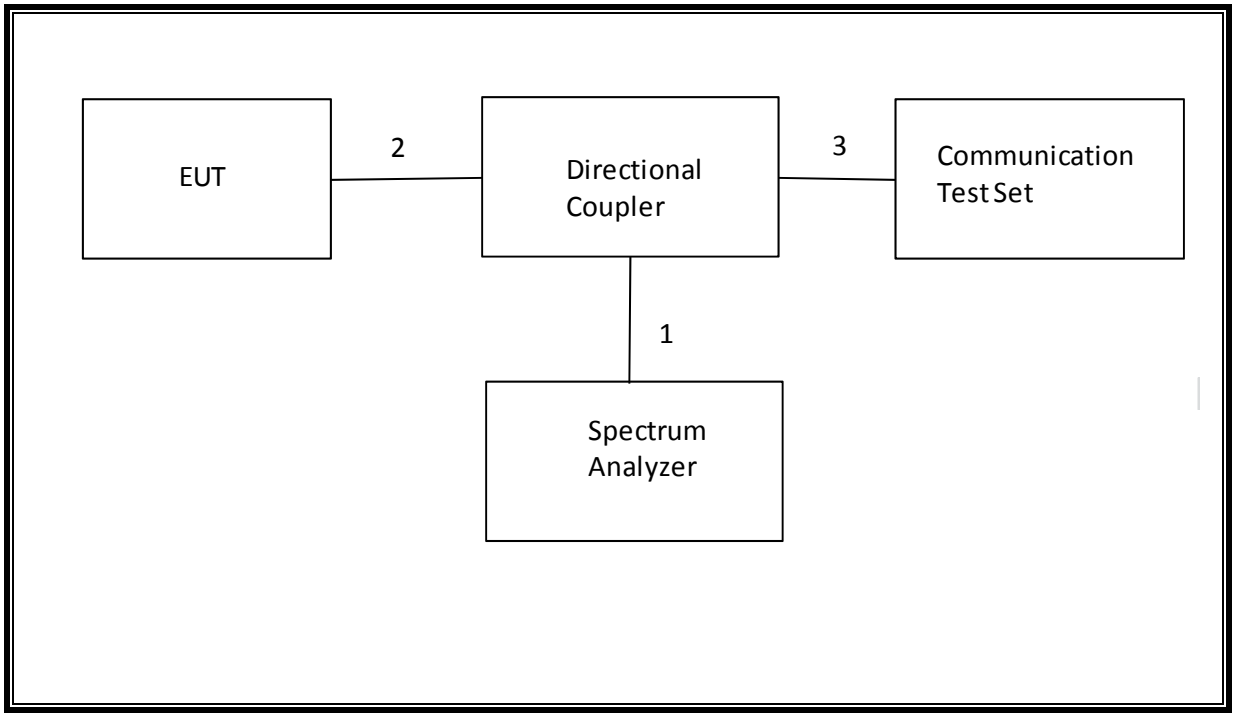
I/O CABLES (RADIATED SETUP)

I/O Cable List						
Cable No	**Port**	**# of Identical ports**	**Connector Type**	**Serial Type**	**Cable Length (m)**	**Remarks**
1	USB	1	AC Adapter	Un-shielded	1.2m	No
2	Jack	1	Headset	Shielded	1m	No
3	RF In/out	1	Communication Test Set	Un-shielded	2m	Yes

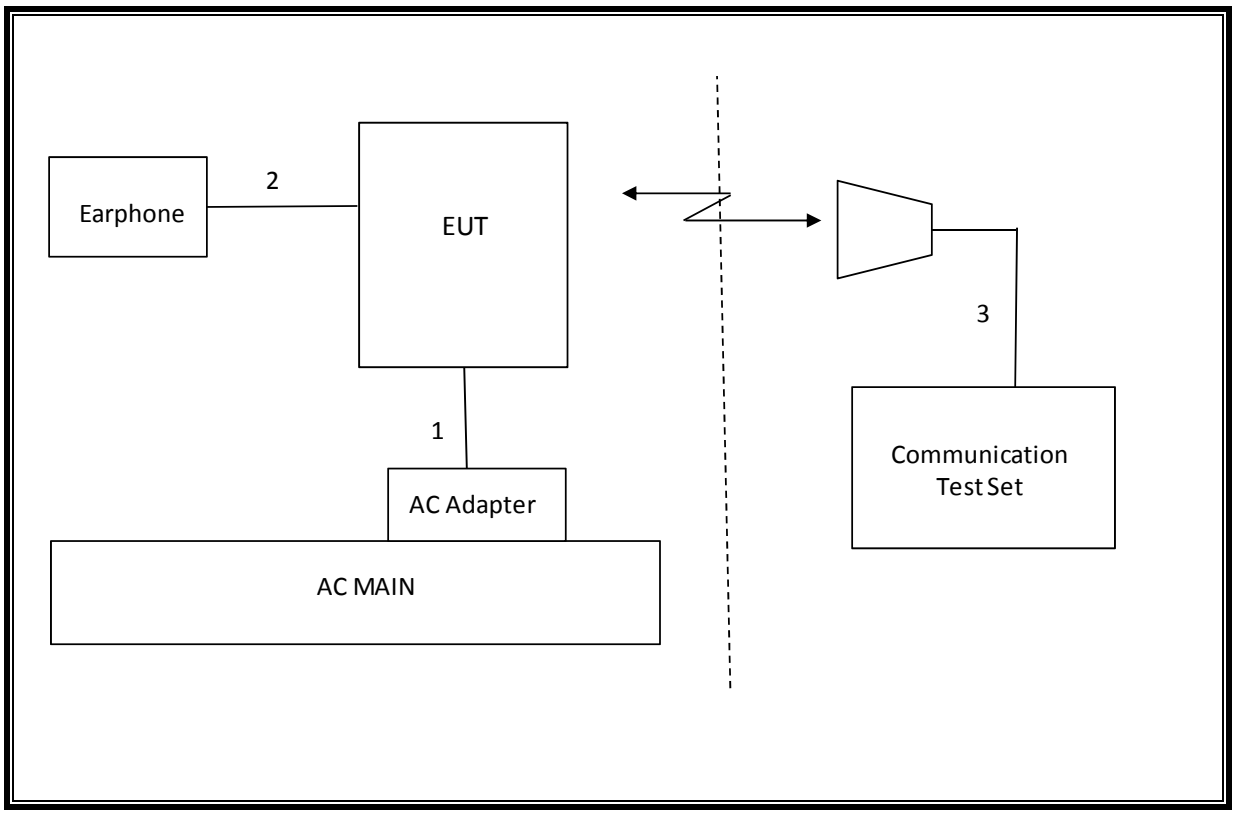
TEST SETUP

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

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



9. 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**	**T Number**	**Cal Date**	**Cal Due**
Amplifier, 1 to 18 GHz	Miteq	AFS43-00101800-25-S-42	493	02/15/17	02/15/18
Amplifier, 1 to 8 GHz	Miteq	AMF-4D-01000800-30-29P	1156	02/15/17	02/15/18
Amplifier, 10KHz to 1GHz, 32dB	Keysight	8447D	10	02/15/17	02/15/18
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	408	11/10/16	11/10/17
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	907	01/23/17	01/23/18
Highpass Filter, 2.7 GHz	Micro-Circuits	H2G518G6	T772	7/5/16	07/5/18
Highpass Filter, 1 GHz	Micro-Tronics	HPM18129	T889	2/21/17	02/21/18
Highpass Filter, 4GHz	Micro-Tronics	HPM13351	T1241	7/19/16	07/19/17
Amplifier, 1-18GHz	Miteq	AFS42-00101800-25-S-42	931	08/26/16	08/26/17
Amplifier, 10KHz to 1GHz, 32dB	Keysight	8447D	15	08/26/16	08/26/17
Antenna, Broadband Hybrid 30MHz to 2000MHz	Sunol Sciences	JB3	408	11/10/16	11/10/17
Antenna, Horn 1-18GHz	ETS Lindgren	3117	712	01/30/17	01/30/18
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	905	01/11/17	01/11/18
DC power supply, 8 V @ 3 A or 15 V @ 2 A	Agilent / HP	E3610A	None	CNR	None
Antenna, Tuned Dipole 400~1000 MHz	ETS	3121C DB4	T273	6/08/17	6/08/18
Directional Coupler	Mini-Circuits	ZUDC10-183+	T1136	6/18/17	6/18/18

Test Equipment List			
Description	**Manufacturer**	**Model**	**T Number**
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
CLT Software	UL	UL RF	Ver 1.0, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 3.7, Nov 12, 2015

10. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
2.1049	Occupied Bandwidth (99%)	N/A	Conducted	Pass
22.917(a) 24.238(a) 27.53(g)	Band Edge / Conducted Spurious Emission	-13dBm		Pass
27.53(m)		-25dBm		
2.1046	Conducted output power	N/A		Pass
27.53(m)	Emission Mask	Please refer to limit under section 14		Pass
22.355	Frequency Stability	2.5PPM		Pass
24.235 27.54		Please refer to limit under section 16		Pass
22.913(a)(2)	Effective Radiated Power	38dBm	Radiated	Pass
27.50©(10)		34.77dBm		Pass
24.232(c)	Equivalent Isotropic Radiated Power	36.98dBm		Pass
27.50(h)(2)		40.6dBm		
		33dBm		Pass
27.50(d)(4)		30dBm		Pass
22.917(a) 24.238(a) 27.53(g)	Radiated Spurious Emission	-13dBm		Pass
27.53(m)		-25dBm		Pass

11. RF POWER OUTPUT VERIFICATION

TEST PROCEDURE

ANSI C63.26:2015/ TIA / EIA 603-D Clause 2.2.17
KDB 971168 Section 5.6

ERP/EIRP = PMeas + GT – LC

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.2

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

MODES TESTED

- **GSM 850**
- **GSM 1900**
- **WCDMA Band 5**
- **LTE Band 7**
- **LTE Band 12**
- **LTE Band 13**
- **LTE Band 4**
- **LTE Band 5**
- **LTE Band 41**

11.1. GSM/GPRS/EDGE

Using CMW500 Communication Test Set

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** **> 27 dBm for EGPRS 850/900** **> 30 dBm for GPRS1800/1900** **> 26 dBm for EGPRS1800/1900**
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 >**	**CS 4 (GPRS) and MCS5-9 (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**	

11.2. GSM OUTPUT POWER RESULT

Tested By	Tony Soares
Date	6/27/2017

GSM 850

Antenna gain (dBi)	-7.30

Mode	Ch.	f (MHz)	Modulation	Conducted Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
GPRS	128	824.2	1 Time slot	33.5	26.2	38.5	-12.3
	190	836.6		33.5	26.2	38.5	-12.3
	251	848.8		33.7	26.4	38.5	-12.1
	128	824.2	2 Time slot	31.9	24.6	38.5	-13.9
	190	836.6		31.8	24.5	38.5	-14
	251	848.8		31.7	24.4	38.5	-14.1
	128	824.2	3 Time slot	29.8	22.5	38.5	-16.0
	190	836.6		29.9	22.6	38.5	-15.9
	251	848.8		29.9	22.6	38.5	-15.9
	128	824.2	4 Time slot	28.6	21.3	38.5	-17.2
	190	836.6		28.8	21.5	38.5	-17
	251	848.8		28.9	21.6	38.5	-16.9
EGPRS	128	824.2	1 Time slot	27.0	19.7	38.5	-18.8
	190	836.6		27.2	19.9	38.5	-18.6
	251	848.8		27.2	19.9	38.5	-18.6
	128	824.2	2 Time slot	25.5	18.2	38.5	-20.3
	190	836.6		25.7	18.4	38.5	-20.1
	251	848.8		25.8	18.5	38.5	-20
	128	824.2	3 Time slot	24.0	16.7	38.5	-21.8
	190	836.6		24.1	16.8	38.5	-21.7
	251	848.8		24.2	16.9	38.5	-21.6
	128	824.2	4 Time slot	23.5	16.2	38.5	-22.3
	190	836.6		23.4	16.1	38.5	-22.4
	251	848.8		23.4	16.1	38.5	-22.4

GSM 1900

Antenna gain (dBi)	-3.20

Mode	Ch.	f (MHz)	Modulation	Conducted Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
GPRS	512	1850.2	1 Time slot	26.5	23.3	33.0	-9.7
	661	1880		26.4	23.2	33.0	-9.8
	810	1909.8		26.8	23.6	33.0	-9.4
	512	1850.2	2 Time slot	25.6	22.4	33.0	-10.6
	661	1880		25.5	22.3	33.0	-10.7
	810	1909.8		25.7	22.5	33.0	-10.5
	512	1850.2	3 Time slot	24.3	21.1	33.0	-11.9
	661	1880		24.2	21.0	33.0	-12.0
	810	1909.8		24.3	21.1	33.0	-11.9
	512	1850.2	4 Time slot	22.8	19.6	33.0	-13.4
	661	1880		22.8	19.6	33.0	-13.4
	810	1909.8		23.0	19.8	33.0	-13.2
EGPRS	512	1850.2	1 Time slot	26.1	22.9	33.0	-10.1
	661	1880		26	22.8	33.0	-10.2
	810	1909.8		26.1	22.9	33.0	-10.1
	512	1850.2	2 Time slot	24.6	21.4	33.0	-11.6
	661	1880		24.4	21.2	33.0	-11.8
	810	1909.8		24.6	21.4	33.0	-11.6
	512	1850.2	3 Time slot	22.2	19	33.0	-14
	661	1880		22.2	19.0	33.0	-14.0
	810	1909.8		22.3	19.1	33.0	-13.9
	512	1850.2	4 Time slot	21	17.8	33.0	-15.2
	661	1880		21	17.8	33.0	-15.2
	810	1909.8		21.0	17.8	33.0	-15.2

11.3. UMTS REL 99

TEST PROCEDURE

Release 99 Setup Procedures used to establish the test signals

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

The following summary of these settings are illustrated below:

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

RESULTS

Tested By	Lance Freischer
Date	6/30/2017

11.4. UMTS REL 99 OUTPUT POWER RESULT

Antenna gain Band 5 (dBi)	-7.30

Part 22: 850MHz Band (5)

Band	UL Channel	DL Channel	Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
UMTS Rel. 99 850MHz	4132	4357	826.4	24.4	17.1	38.5	-21.4
	4183	4408	836.6	24.6	17.3	38.5	-21.3
	4233	4458	846.6	24.7	17.4	38.5	-21.1

11.5. UMTS HSDPA

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121.

Summary of settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	11/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	11/15	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			

RESULTS

Tested By	Lance Fleishcer
Date	6/30/2017

11.6. UMTS HSDPA OUTPUT POWER RESULT

Antenna gain Band 5 (dBi)	-7.90

Part 22: 850MHz Band (5)

Band	Subtest	UL Channel	DL Channel	Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
UMTS HSDPA 850MHz	1	4132	4357	826.4	23.4	15.5	38.5	-15.1
		4183	4408	836.6	23.5	15.6	38.5	-15.0
		4233	4458	846.6	23.8	15.9	38.5	-14.7
	2	4132	4357	826.4	23.5	15.6	38.5	-15.0
		4183	4408	836.6	23.6	15.7	38.5	-14.9
		4233	4458	846.6	23.9	16.0	38.5	-14.6
	3	4132	4357	826.4	22.8	14.9	38.5	-15.7
		4183	4408	836.6	23.1	15.2	38.5	-15.4
		4233	4458	846.6	22.8	14.9	38.5	-15.7
	4	4132	4357	826.4	23.0	15.1	38.5	-15.5
		4183	4408	836.6	23.1	15.2	38.5	-15.4
		4233	4458	846.6	23.3	15.4	38.5	-15.2

11.7. UMTS HSUPA

The following 5 Sub-tests were completed according to Release 6 procedures in Table C.11.1.3 of 3GPP TS 34.121-1 v13

Summary of settings are illustrated below:

	Mode	HSPA				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	βed	1309/225	94/75	47/15	56/75	47/15
	CM (dB)	1	3	2	3	1
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	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	E-DPDCCH	6	8	8	5	0
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E-TFCIs	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
	Reference E-TFCI PO	27	27	27	27	27
	Maximum Channelization Codes	2xSF2				SF4

RESULT

Tested By	Lance Fleischer
Date	6/30/2017

11.8. UMTS HSUPA OUTPUT POWER RESULT

Antenna gain Band 5 (dBi)	-7.90

Part 22: 850MHz Band (5)

Band	Subtest	UL Channel	DL Channel	Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
UMTS HSUPA 850MHz	1	4132	4357	826.4	23.3	15.4	38.5	-15.2
		4183	4408	836.6	23.6	15.7	38.5	-14.9
		4233	4458	846.6	23.8	15.9	38.5	-14.7
	2	4132	4357	826.4	21.2	13.3	38.5	-17.3
		4183	4408	836.6	21.4	13.5	38.5	-17.1
		4233	4458	846.6	21.8	13.9	38.5	-16.7
	3	4132	4357	826.4	22.4	14.5	38.5	-16.1
		4183	4408	836.6	22.5	14.6	38.5	-16.0
		4233	4458	846.6	22.8	14.9	38.5	-15.7
	4	4132	4357	826.4	21.2	13.3	38.5	-17.3
		4183	4408	836.6	21.4	13.5	38.5	-17.1
		4233	4458	846.6	21.8	13.9	38.5	-16.7
	5	4132	4357	826.4	23.3	15.4	38.5	-15.2
		4183	4408	836.6	23.6	15.7	38.5	-14.9
		4233	4458	846.6	23.8	15.9	38.5	-14.7

11.9. LTE OUTPUT POWER RESULT

Note(s):

LTE Band 17 Measured Results

LTE Band 17 (Frequency range: 704-716) is covered by LTE Band 12 (Frequency range: 699-716MHz) no testing is necessary due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth and same modulations.

LTE Band 38 Measured Results

LTE Band 38 (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 (Frequency range: 2496-2690 MHz) and no testing is necessary due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth and same modulations.

64QAM Measured Results

Measured QPSK,16QAM & 64QAM Mode Output power and found that QPSK and 16QAM results was the worst case. All testing were performed using QPSK and 16QAM mode to represent the worst case mode.

Tested By	Lance Fleischer
Date	6/30/2017

LTE Band 4

Antenna gain (dBi)		-2.50							
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	131979	1710.7	QPSK	1	0	20.2	17.7	33.0	-15.4
				1	3	20.2	17.7	33.0	-15.3
				1	5	20.2	17.7	33.0	-15.3
				3	0	20.2	17.7	33.0	-15.3
				3	1	20.2	17.7	33.0	-15.3
				3	3	20.3	17.8	33.0	-15.2
				6	0	20.2	17.7	33.0	-15.3
			16QAM	1	0	19.7	17.2	33.0	-15.8
				1	3	19.8	17.3	33.0	-15.7
				1	5	19.7	17.2	33.0	-15.8
				3	0	19.9	17.4	33.0	-15.6
				3	1	19.9	17.4	33.0	-15.6
				3	3	19.9	17.4	33.0	-15.6
				6	0	19.9	17.4	33.0	-15.6
	132322	1732.5	QPSK	1	0	20.1	17.6	33.0	-15.4
				1	3	20.2	17.7	33.0	-15.3
				1	5	20.1	17.6	33.0	-15.4
				3	0	20.2	17.7	33.0	-15.3
				3	1	20.2	17.7	33.0	-15.3
				3	3	20.2	17.7	33.0	-15.3
				6	0	20.1	17.6	33.0	-15.4
			16QAM	1	0	20.0	17.5	33.0	-15.5
				1	3	20.0	17.5	33.0	-15.5
				1	5	20.0	17.5	33.0	-15.5
				3	0	19.8	17.3	33.0	-15.7
				3	1	19.9	17.4	33.0	-15.7
				3	3	19.8	17.3	33.0	-15.7
				6	0	19.6	17.1	33.0	-16.0
	132665	1754.3	QPSK	1	0	19.9	17.4	33.0	-15.6
				1	3	20.0	17.5	33.0	-15.5
				1	5	19.9	17.4	33.0	-15.6
				3	0	19.9	17.4	33.0	-15.6
				3	1	19.9	17.4	33.0	-15.6
				3	3	19.9	17.4	33.0	-15.6
				6	0	19.9	17.4	33.0	-15.6
			16QAM	1	0	19.5	17.0	33.0	-16.0
				1	3	19.6	17.1	33.0	-15.9
				1	5	19.5	17.0	33.0	-16.0
				3	0	19.5	17.0	33.0	-16.0
				3	1	19.5	17.0	33.0	-16.0
				3	3	19.5	17.0	33.0	-16.0
				6	0	19.5	17.0	33.0	-16.0

Antenna gain (dBi)	-2.50

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3.0	131987	1711.5	QPSK	1	0	20.2	17.7	33.0	-15.3
				1	8	20.3	17.8	33.0	-15.2
				1	14	20.2	17.7	33.0	-15.3
				8	0	20.3	17.8	33.0	-15.2
				8	4	20.3	17.8	33.0	-15.2
				8	7	20.3	17.8	33.0	-15.2
				15	0	20.3	17.8	33.0	-15.2
			16QAM	1	0	19.9	17.4	33.0	-15.6
				1	8	19.9	17.4	33.0	-15.6
				1	14	19.8	17.3	33.0	-15.7
				8	0	19.8	17.3	33.0	-15.7
				8	4	19.9	17.4	33.0	-15.6
				8	7	19.9	17.4	33.0	-15.6
				15	0	19.8	17.3	33.0	-15.7
	132322	1732.5	QPSK	1	0	20.2	17.7	33.0	-15.3
				1	8	20.3	17.8	33.0	-15.2
				1	14	20.2	17.7	33.0	-15.3
				8	0	20.2	17.7	33.0	-15.3
				8	4	20.2	17.7	33.0	-15.3
				8	7	20.2	17.7	33.0	-15.3
				15	0	20.2	17.7	33.0	-15.3
			16QAM	1	0	20.1	17.6	33.0	-15.4
				1	8	20.2	17.7	33.0	-15.4
				1	14	20.1	17.6	33.0	-15.5
				8	0	19.8	17.3	33.0	-15.7
				8	4	19.8	17.3	33.0	-15.7
				8	7	19.8	17.3	33.0	-15.7
				15	0	19.7	17.2	33.0	-15.8
	132657	1753.5	QPSK	1	0	20.0	17.5	33.0	-15.5
				1	8	20.0	17.5	33.0	-15.5
				1	14	19.9	17.4	33.0	-15.6
				8	0	20.1	17.6	33.0	-15.4
				8	4	20.1	17.6	33.0	-15.4
				8	7	20.0	17.5	33.0	-15.5
				15	0	20.0	17.5	33.0	-15.5
			16QAM	1	0	19.5	17.0	33.0	-16.0
				1	8	19.5	17.0	33.0	-16.0
				1	14	19.3	16.8	33.0	-16.2
				8	0	19.7	17.2	33.0	-15.8
				8	4	19.7	17.2	33.0	-15.8
				8	7	19.6	17.1	33.0	-15.9
				15	0	19.5	17.0	33.0	-16.0

Antenna gain (dBi)	-2.50

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5.0	131997	1712.5	QPSK	1	0	20.4	17.9	33.0	-15.1
				1	12	20.3	17.8	33.0	-15.2
				1	24	20.2	17.7	33.0	-15.3
				12	0	20.3	17.8	33.0	-15.2
				12	7	20.3	17.8	33.0	-15.2
				12	13	20.3	17.8	33.0	-15.2
				25	0	20.3	17.8	33.0	-15.2
			16QAM	1	0	20.0	17.5	33.0	-15.5
				1	12	19.9	17.4	33.0	-15.6
				1	24	19.8	17.3	33.0	-15.7
				12	0	19.9	17.4	33.0	-15.6
				12	7	19.9	17.4	33.0	-15.6
				12	13	19.8	17.3	33.0	-15.7
				25	0	19.8	17.3	33.0	-15.7
	132322	1732.5	QPSK	1	0	20.3	17.8	33.0	-15.2
				1	12	20.2	17.7	33.0	-15.3
				1	24	20.2	17.7	33.0	-15.3
				12	0	20.2	17.7	33.0	-15.3
				12	7	20.3	17.8	33.0	-15.2
				12	13	20.2	17.7	33.0	-15.3
				25	0	20.2	17.7	33.0	-15.3
			16QAM	1	0	20.3	17.8	33.0	-15.2
				1	12	20.2	17.7	33.0	-15.3
				1	24	20.2	17.7	33.0	-15.3
				12	0	19.9	17.4	33.0	-15.6
				12	7	19.9	17.4	33.0	-15.6
				12	13	19.9	17.4	33.0	-15.6
				25	0	19.8	17.3	33.0	-15.7
	132647	1752.5	QPSK	1	0	20.1	17.6	33.0	-15.4
				1	12	20.1	17.6	33.0	-15.4
				1	24	20.0	17.5	33.0	-15.5
				12	0	20.1	17.6	33.0	-15.4
				12	7	20.1	17.6	33.0	-15.4
				12	13	20.1	17.6	33.0	-15.4
				25	0	20.1	17.6	33.0	-15.4
			16QAM	1	0	19.7	17.2	33.0	-15.8
				1	12	19.7	17.2	33.0	-15.8
				1	24	19.6	17.1	33.0	-15.9
				12	0	19.7	17.2	33.0	-15.8
				12	7	19.7	17.2	33.0	-15.8
				12	13	19.7	17.2	33.0	-15.8
				25	0	19.6	17.1	33.0	-15.9

Antenna gain (dBi)	-2.50

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10.0	132022	1715.0	QPSK	1	0	20.2	17.7	33.0	-15.3
				1	25	20.0	17.5	33.0	-15.5
				1	49	20.0	17.5	33.0	-15.5
				25	0	20.2	17.7	33.0	-15.3
				25	12	20.1	17.6	33.0	-15.4
				25	25	20.1	17.6	33.0	-15.4
				50	0	20.1	17.6	33.0	-15.4
			16QAM	1	0	19.8	17.3	33.0	-15.7
				1	25	19.5	17.0	33.0	-16.0
				1	49	19.5	17.0	33.0	-16.0
				25	0	19.9	17.4	33.0	-15.6
				25	12	19.7	17.2	33.0	-15.8
				25	25	19.7	17.2	33.0	-15.8
				50	0	19.6	17.1	33.0	-15.9
	132322	1732.5	QPSK	1	0	20.3	17.8	33.0	-15.2
				1	25	20.2	17.7	33.0	-15.3
				1	49	20.2	17.7	33.0	-15.3
				25	0	20.3	17.8	33.0	-15.2
				25	12	20.2	17.7	33.0	-15.3
				25	25	20.2	17.7	33.0	-15.3
				50	0	20.3	17.8	33.0	-15.3
			16QAM	1	0	20.2	17.7	33.0	-15.3
				1	25	20.0	17.5	33.0	-15.5
				1	49	20.0	17.5	33.0	-15.5
				25	0	19.8	17.3	33.0	-15.7
				25	12	19.8	17.3	33.0	-15.7
				25	25	19.8	17.3	33.0	-15.7
				50	0	19.8	17.3	33.0	-15.7
	132622	1750.0	QPSK	1	0	20.2	17.7	33.0	-15.3
				1	25	19.9	17.4	33.0	-15.6
				1	49	19.9	17.4	33.0	-15.6
				25	0	20.1	17.6	33.0	-15.5
				25	12	20.0	17.5	33.0	-15.5
				25	25	20.1	17.6	33.0	-15.4
				50	0	20.0	17.5	33.0	-15.5
			16QAM	1	0	19.6	17.1	33.0	-15.9
				1	25	19.4	16.9	33.0	-16.1
				1	49	19.4	16.9	33.0	-16.1
				25	0	19.6	17.1	33.0	-15.9
				25	12	19.5	17.0	33.0	-16.0
				25	25	19.6	17.1	33.0	-15.9
				50	0	19.6	17.1	33.0	-15.9

Antenna gain (dBi)	-2.50

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15.0	132047	1717.5	QPSK	1	0	20.5	18.0	33.0	-15.0
				1	37	20.2	17.7	33.0	-15.3
				1	74	20.2	17.7	33.0	-15.3
				36	0	20.5	18.0	33.0	-15.0
				36	20	20.3	17.8	33.0	-15.2
				36	39	20.3	17.8	33.0	-15.2
				75	0	20.4	17.9	33.0	-15.1
			16QAM	1	0	20.5	18.0	33.0	-15.0
				1	37	20.1	17.6	33.0	-15.4
				1	74	20.1	17.6	33.0	-15.4
				36	0	19.9	17.4	33.0	-15.6
				36	20	19.8	17.3	33.0	-15.7
				36	39	19.8	17.3	33.0	-15.7
				75	0	19.9	17.4	33.0	-15.6
	132322	1732.5	QPSK	1	0	20.4	17.9	33.0	-15.2
				1	37	20.2	17.7	33.0	-15.3
				1	74	20.2	17.7	33.0	-15.3
				36	0	20.3	17.8	33.0	-15.2
				36	20	20.3	17.8	33.0	-15.2
				36	39	20.2	17.7	33.0	-15.3
				75	0	20.3	17.8	33.0	-15.2
			16QAM	1	0	20.2	17.7	33.0	-15.3
				1	37	20.1	17.6	33.0	-15.4
				1	74	20.0	17.5	33.0	-15.5
				36	0	19.9	17.4	33.0	-15.6
				36	20	19.9	17.4	33.0	-15.7
				36	39	19.8	17.3	33.0	-15.7
				75	0	19.8	17.3	33.0	-15.7
	132572	1747.5	QPSK	1	0	20.2	17.7	33.0	-15.3
				1	37	20.0	17.5	33.0	-15.5
				1	74	19.9	17.4	33.0	-15.6
				36	0	20.2	17.7	33.0	-15.3
				36	20	20.1	17.6	33.0	-15.4
				36	39	20.0	17.5	33.0	-15.5
				75	0	20.2	17.7	33.0	-15.3
			16QAM	1	0	19.6	17.1	33.0	-15.9
				1	37	19.4	16.9	33.0	-16.1
				1	74	19.4	16.9	33.0	-16.1
				36	0	19.8	17.3	33.0	-15.8
				36	20	19.6	17.1	33.0	-15.9
				36	39	19.6	17.1	33.0	-16.0
				75	0	19.7	17.2	33.0	-15.8

Antenna gain (dBi)	-2.50

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20.0	132072	1720.0	QPSK	1	0		-2.5	33.0	-35.5
				1	49		-2.5	33.0	-35.5
				1	99		-2.5	33.0	-35.5
				50	0		-2.5	33.0	-35.5
				50	24		-2.5	33.0	-35.5
				50	50		-2.5	33.0	-35.5
				100	0		-2.5	33.0	-35.5
			16QAM	1	0		-2.5	33.0	-35.5
				1	49		-2.5	33.0	-35.5
				1	99		-2.5	33.0	-35.5
				50	0		-2.5	33.0	-35.5
				50	24		-2.5	33.0	-35.5
				50	50		-2.5	33.0	-35.5
				100	0		-2.5	33.0	-35.5
	132322	1732.5	QPSK	1	0	20.3	17.8	33.0	-15.2
				1	49	20.2	17.7	33.0	-15.3
				1	99	20.1	17.6	33.0	-15.4
				50	0	20.3	17.8	33.0	-15.2
				50	24	20.3	17.8	33.0	-15.2
				50	50	20.2	17.7	33.0	-15.3
				100	0	20.3	17.8	33.0	-15.2
			16QAM	1	0	20.3	17.8	33.0	-15.2
				1	49	20.2	17.7	33.0	-15.3
				1	99	20.1	17.6	33.0	-15.4
				50	0	19.9	17.4	33.0	-15.6
				50	24	19.8	17.3	33.0	-15.7
				50	50	19.7	17.2	33.0	-15.8
				100	0	19.8	17.3	33.0	-15.7
	132572	1745.0	QPSK	1	0		-2.5	33.0	-35.5
				1	49		-2.5	33.0	-35.5
				1	99		-2.5	33.0	-35.5
				50	0		-2.5	33.0	-35.5
				50	24		-2.5	33.0	-35.5
				50	50		-2.5	33.0	-35.5
				100	0		-2.5	33.0	-35.5
			16QAM	1	0		-2.5	33.0	-35.5
				1	49		-2.5	33.0	-35.5
				1	99		-2.5	33.0	-35.5
				50	0		-2.5	33.0	-35.5
				50	24		-2.5	33.0	-35.5
				50	50		-2.5	33.0	-35.5
				100	0		-2.5	33.0	-35.5

LTE Band 5

Antenna gain (dBi)	-7.30

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	26697	824.7	QPSK	1	0	24.6	17.3	38.5	-21.2
				1	3	24.6	17.3	38.5	-21.1
				1	5	24.5	17.2	38.5	-21.2
				3	0	24.6	17.3	38.5	-21.2
				3	1	24.6	17.3	38.5	-21.2
				3	3	24.6	17.3	38.5	-21.2
				6	0	23.6	16.3	38.5	-22.1
			16QAM	1	0	24.0	16.7	38.5	-21.8
				1	3	24.0	16.7	38.5	-21.8
				1	5	24.0	16.7	38.5	-21.8
				3	0	23.8	16.5	38.5	-21.9
				3	1	23.9	16.6	38.5	-21.9
				3	3	23.9	16.6	38.5	-21.9
				6	0	22.5	15.2	38.5	-23.2
	26865	836.5	QPSK	1	0	24.3	17.0	38.5	-21.5
				1	3	24.3	17.0	38.5	-21.4
				1	5	24.3	17.0	38.5	-21.5
				3	0	24.3	17.0	38.5	-21.5
				3	1	24.3	17.0	38.5	-21.4
				3	3	24.3	17.0	38.5	-21.5
				6	0	23.3	16.0	38.5	-22.5
			16QAM	1	0	23.4	16.1	38.5	-22.3
				1	3	23.5	16.2	38.5	-22.3
				1	5	23.4	16.1	38.5	-22.4
				3	0	23.3	16.0	38.5	-22.4
				3	1	23.4	16.1	38.5	-22.4
				3	3	23.4	16.1	38.5	-22.4
				6	0	22.4	15.1	38.5	-23.3
	27033	848.3	QPSK	1	0	23.7	16.4	38.5	-22.1
				1	3	23.7	16.4	38.5	-22.1
				1	5	23.7	16.4	38.5	-22.1
				3	0	23.7	16.4	38.5	-22.1
				3	1	23.7	16.4	38.5	-22.1
				3	3	23.7	16.4	38.5	-22.1
				6	0	22.7	15.4	38.5	-23.1
			16QAM	1	0	22.7	15.4	38.5	-23.1
				1	3	22.8	15.5	38.5	-23.0
				1	5	22.7	15.4	38.5	-23.1
				3	0	22.9	15.6	38.5	-22.9
				3	1	22.9	15.6	38.5	-22.9
				3	3	22.9	15.6	38.5	-22.9
				6	0	21.9	14.6	38.5	-23.9

Antenna gain (dBi)	-7.30

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3.0	26705	825.5	QPSK	1	0	24.2	16.9	38.5	-21.6
				1	8	24.3	17.0	38.5	-21.5
				1	14	24.2	16.9	38.5	-21.7
				8	0	23.2	15.9	38.5	-22.6
				8	4	23.2	15.9	38.5	-22.6
				8	7	23.2	15.9	38.5	-22.6
				15	0	23.2	15.9	38.5	-22.6
			16QAM	1	0	23.3	16.0	38.5	-22.5
				1	8	23.3	16.0	38.5	-22.5
				1	14	23.2	15.9	38.5	-22.6
				8	0	22.2	14.9	38.5	-23.6
				8	4	22.3	15.0	38.5	-23.6
				8	7	22.2	14.9	38.5	-23.6
				15	0	22.1	14.8	38.5	-23.7
	26865	836.5	QPSK	1	0	24.2	16.9	38.5	-21.6
				1	8	24.3	17.0	38.5	-21.5
				1	14	24.2	16.9	38.5	-21.7
				8	0	23.2	15.9	38.5	-22.6
				8	4	23.2	15.9	38.5	-22.6
				8	7	23.2	15.9	38.5	-22.6
				15	0	23.2	15.9	38.5	-22.7
			16QAM	1	0	23.6	16.3	38.5	-22.3
				1	8	23.6	16.3	38.5	-22.2
				1	14	23.5	16.2	38.5	-22.3
				8	0	22.3	15.0	38.5	-23.5
				8	4	22.3	15.0	38.5	-23.5
				8	7	22.2	14.9	38.5	-23.6
				15	0	22.2	14.9	38.5	-23.6
	27025	847.5	QPSK	1	0	23.8	16.5	38.5	-22.0
				1	8	23.8	16.5	38.5	-22.0
				1	14	23.7	16.4	38.5	-22.1
				8	0	22.8	15.5	38.5	-23.0
				8	4	22.8	15.5	38.5	-23.0
				8	7	22.8	15.5	38.5	-23.0
				15	0	22.8	15.5	38.5	-23.0
			16QAM	1	0	22.7	15.4	38.5	-23.1
				1	8	22.8	15.5	38.5	-23.0
				1	14	22.7	15.4	38.5	-23.1
				8	0	22.0	14.7	38.5	-23.8
				8	4	21.9	14.6	38.5	-23.9
				8	7	21.9	14.6	38.5	-23.9
				15	0	21.9	14.6	38.5	-23.9

Antenna gain (dBi)	-7.30

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5.0	26715	826.5	QPSK	1	0	24.3	17.0	38.5	-21.5
				1	12	24.2	16.9	38.5	-21.6
				1	24	24.2	16.9	38.5	-21.6
				12	0	23.2	15.9	38.5	-22.6
				12	7	23.2	15.9	38.5	-22.6
				12	13	23.2	15.9	38.5	-22.6
				25	0	23.2	15.9	38.5	-22.6
			16QAM	1	0	23.4	16.1	38.5	-22.4
				1	12	23.3	16.0	38.5	-22.5
				1	24	23.3	16.0	38.5	-22.5
				12	0	22.3	15.0	38.5	-23.5
				12	7	22.3	15.0	38.5	-23.5
				12	13	22.2	14.9	38.5	-23.6
				25	0	22.1	14.8	38.5	-23.7
	26865	836.5	QPSK	1	0	24.2	16.9	38.5	-21.6
				1	12	24.2	16.9	38.5	-21.7
				1	24	24.1	16.8	38.5	-21.7
				12	0	23.2	15.9	38.5	-22.6
				12	7	23.2	15.9	38.5	-22.6
				12	13	23.1	15.8	38.5	-22.7
				25	0	23.2	15.9	38.5	-22.6
			16QAM	1	0	23.7	16.4	38.5	-22.1
				1	12	23.7	16.4	38.5	-22.1
				1	24	23.6	16.3	38.5	-22.2
				12	0	22.3	15.0	38.5	-23.5
				12	7	22.3	15.0	38.5	-23.5
				12	13	22.3	15.0	38.5	-23.5
				25	0	22.2	14.9	38.5	-23.6
	27015	846.5	QPSK	1	0	24.0	16.7	38.5	-21.9
				1	12	23.9	16.6	38.5	-21.9
				1	24	23.8	16.5	38.5	-22.0
				12	0	22.8	15.5	38.5	-23.0
				12	7	22.8	15.5	38.5	-23.0
				12	13	22.8	15.5	38.5	-23.0
				25	0	22.8	15.5	38.5	-23.0
			16QAM	1	0	23.0	15.7	38.5	-22.8
				1	12	22.9	15.6	38.5	-22.9
				1	24	22.9	15.6	38.5	-22.9
				12	0	21.9	14.6	38.5	-23.9
				12	7	21.9	14.6	38.5	-23.9
				12	13	21.9	14.6	38.5	-23.9
				25	0	21.8	14.5	38.5	-24.0

Antenna gain (dBi)	-7.30

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10.0	26865	836.5	QPSK	1	0	24.2	16.9	38.5	-21.6
				1	25	24.2	16.9	38.5	-21.6
				1	49	24.1	16.8	38.5	-21.7
				25	0	23.2	15.9	38.5	-22.6
				25	12	23.2	15.9	38.5	-22.6
				25	25	23.1	15.8	38.5	-22.7
				50	0	23.2	15.9	38.5	-22.6
			16QAM	1	0	23.6	16.3	38.5	-22.3
				1	25	23.6	16.3	38.5	-22.2
				1	49	23.4	16.1	38.5	-22.4
				25	0	22.3	15.0	38.5	-23.6
				25	12	22.2	14.9	38.5	-23.6
				25	25	22.2	14.9	38.5	-23.7
				50	0	22.2	14.9	38.5	-23.6

LTE Band 7

Antenna gain (dBi)	-10.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5.0	20775	2052.5	QPSK	1	0	24.7	14.7	33.0	-18.3
				1	12	24.6	14.6	33.0	-18.4
				1	24	24.5	14.5	33.0	-18.5
				12	0	23.9	13.9	33.0	-19.2
				12	7	23.9	13.9	33.0	-19.1
				12	13	23.8	13.8	33.0	-19.2
				25	0	23.7	13.7	33.0	-19.3
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	12	24.0	14.0	33.0	-19.0
				1	24	23.8	13.8	33.0	-19.2
				12	0	23.0	13.0	33.0	-20.0
				12	7	23.0	13.0	33.0	-20.0
				12	13	23.0	13.0	33.0	-20.0
				25	0	22.9	12.9	33.0	-20.1
	21100	2535.0	QPSK	1	0	24.8	14.8	33.0	-18.2
				1	12	24.9	14.9	33.0	-18.1
				1	24	24.8	14.8	33.0	-18.2
				12	0	23.8	13.8	33.0	-19.2
				12	7	23.9	13.9	33.0	-19.1
				12	13	23.9	13.9	33.0	-19.1
				25	0	23.9	13.9	33.0	-19.1
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	2	23.7	13.7	33.0	-19.3
				1	5	24.0	14.0	33.0	-19.0
				3	0	23.0	13.0	33.0	-20.0
				3	1	23.0	13.0	33.0	-20.0
				3	2	23.0	13.0	33.0	-20.0
				6	0	23.0	13.0	33.0	-20.0
	21425	2567.5	QPSK	1	0	24.9	14.9	33.0	-18.1
				1	12	24.6	14.6	33.0	-18.4
				1	24	24.3	14.3	33.0	-18.7
				12	0	24.0	14.0	33.0	-19.1
				12	7	23.8	13.8	33.0	-19.2
				12	13	23.7	13.7	33.0	-19.3
				25	0	23.8	13.8	33.0	-19.2
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	12	23.5	13.5	33.0	-19.5
				1	24	23.6	13.6	33.0	-19.4
				12	0	23.0	13.0	33.0	-20.0
				12	7	23.0	13.0	33.0	-20.0
				12	13	22.9	12.9	33.0	-20.1
				25	0	23.0	13.0	33.0	-20.0

Antenna gain (dBi)	-10.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10.0	20880	2505.0	QPSK	1	0	24.7	14.7	33.0	-18.3
				1	25	24.4	14.4	33.0	-18.6
				1	49	23.8	13.8	33.0	-19.2
				25	0	23.6	13.6	33.0	-19.4
				25	12	23.6	13.6	33.0	-19.4
				25	25	23.3	13.3	33.0	-19.8
				50	0	23.4	13.4	33.0	-19.6
			16QAM	1	0	23.9	13.9	33.0	-19.1
				1	25	23.8	13.8	33.0	-19.2
				1	49	23.0	13.0	33.0	-20.0
				25	0	23.0	13.0	33.0	-20.0
				25	12	23.0	13.0	33.0	-20.0
				25	25	22.7	12.7	33.0	-20.3
				50	0	22.7	12.7	33.0	-20.3
	21100	2535.0	QPSK	1	0	24.9	14.9	33.0	-18.1
				1	25	24.9	14.9	33.0	-18.1
				1	49	24.9	14.9	33.0	-18.1
				25	0	23.9	13.9	33.0	-19.1
				25	12	23.9	13.9	33.0	-19.1
				25	25	23.9	13.9	33.0	-19.1
				50	0	23.9	13.9	33.0	-19.1
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	25	24.0	14.0	33.0	-19.0
				1	49	24.0	14.0	33.0	-19.0
				25	0	22.9	12.9	33.0	-20.1
				25	12	23.0	13.0	33.0	-20.0
				25	25	22.9	12.9	33.0	-20.1
				50	0	23.0	13.0	33.0	-20.1
	21400	2565.0	QPSK	1	0	25.0	15.0	33.0	-18.0
				1	25	24.9	14.9	33.0	-18.1
				1	49	24.3	14.3	33.0	-18.7
				25	0	24.0	14.0	33.0	-19.0
				25	12	24.0	14.0	33.0	-19.0
				25	25	23.8	13.8	33.0	-19.2
				50	0	23.9	13.9	33.0	-19.1
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	25	23.9	13.9	33.0	-19.1
				1	49	23.3	13.3	33.0	-19.7
				25	0	23.0	13.0	33.0	-20.0
				25	12	23.0	13.0	33.0	-20.0
				25	25	23.0	13.0	33.0	-20.0
				50	0	23.0	13.0	33.0	-20.0

Antenna gain (dBi)	-10.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15.0	20825	2507.5	QPSK	1	0	24.8	14.8	33.0	-18.2
				1	37	24.2	14.2	33.0	-18.8
				1	74	23.6	13.6	33.0	-19.4
				36	0	23.6	13.6	33.0	-19.5
				36	20	23.3	13.3	33.0	-19.7
				36	39	22.9	12.9	33.0	-20.1
				75	0	23.2	13.2	33.0	-19.8
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	37	24.0	14.0	33.0	-19.0
				1	74	23.1	13.1	33.0	-19.9
				36	0	22.8	12.8	33.0	-20.2
				36	20	22.6	12.6	33.0	-20.4
				36	39	22.2	12.2	33.0	-20.8
				75	0	22.5	12.5	33.0	-20.6
	21100	2535.0	QPSK	1	0	24.8	14.8	33.0	-18.2
				1	37	24.8	14.8	33.0	-18.2
				1	74	24.8	14.8	33.0	-18.2
				36	0	23.8	13.8	33.0	-19.2
				36	20	24.0	14.0	33.0	-19.0
				36	39	23.9	13.9	33.0	-19.1
				75	0	23.9	13.9	33.0	-19.1
			16QAM	1	0	23.8	13.8	33.0	-19.2
				1	37	23.8	13.8	33.0	-19.3
				1	74	23.7	13.7	33.0	-19.3
				36	0	22.8	12.8	33.0	-20.2
				36	20	23.0	13.0	33.0	-20.1
				36	39	22.9	12.9	33.0	-20.1
				75	0	22.9	12.9	33.0	-20.1
	21375	2562.5	QPSK	1	0	24.9	14.9	33.0	-18.2
				1	37	24.8	14.8	33.0	-18.2
				1	74	24.8	14.8	33.0	-18.2
				36	0	23.8	13.8	33.0	-19.2
				36	20	23.9	13.9	33.0	-19.1
				36	39	24.0	14.0	33.0	-19.1
				75	0	23.9	13.9	33.0	-19.1
			16QAM	1	0	23.8	13.8	33.0	-19.2
				1	37	23.8	13.8	33.0	-19.2
				1	74	23.7	13.7	33.0	-19.3
				36	0	22.8	12.8	33.0	-20.2
				36	20	23.0	13.0	33.0	-20.1
				36	39	22.9	12.9	33.0	-20.1
				75	0	22.9	12.9	33.0	-20.1

Antenna gain (dBi)	-10.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20.0	20850	2510.0	QPSK	1	0	24.7	14.7	33.0	-18.3
				1	49	24.0	14.0	33.0	-19.0
				1	99	24.0	14.0	33.0	-19.0
				50	0	23.5	13.5	33.0	-19.5
				50	24	22.8	12.8	33.0	-20.2
				50	50	22.6	12.6	33.0	-20.4
				100	0	23.4	13.4	33.0	-19.6
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	49	23.2	13.2	33.0	-19.8
				1	99	23.6	13.6	33.0	-19.4
				50	0	22.7	12.7	33.0	-20.3
				50	24	22.2	12.2	33.0	-20.8
				50	50	22.0	12.0	33.0	-21.0
				100	0	22.5	12.5	33.0	-20.5
	21100	2535.0	QPSK	1	0	24.9	14.9	33.0	-18.1
				1	49	24.8	14.8	33.0	-18.2
				1	99	24.7	14.7	33.0	-18.3
				50	0	23.9	13.9	33.0	-19.1
				50	24	23.9	13.9	33.0	-19.1
				50	50	23.9	13.9	33.0	-19.1
				100	0	23.8	13.8	33.0	-19.2
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	49	24.0	14.0	33.0	-19.0
				1	99	24.0	14.0	33.0	-19.0
				50	0	22.9	12.9	33.0	-20.1
				50	24	23.0	13.0	33.0	-20.0
				50	50	22.9	12.9	33.0	-20.1
				100	0	23.0	13.0	33.0	-20.0
	21350	2560.0	QPSK	1	0	24.9	14.9	33.0	-18.1
				1	49	24.9	14.9	33.0	-18.1
				1	99	24.8	14.8	33.0	-18.2
				50	0	23.9	13.9	33.0	-19.1
				50	24	24.0	14.0	33.0	-19.0
				50	50	23.9	13.9	33.0	-19.1
				100	0	23.8	13.8	33.0	-19.2
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	49	24.0	14.0	33.0	-19.0
				1	99	23.8	13.8	33.0	-19.2
				50	0	22.9	12.9	33.0	-20.1
				50	24	23.0	13.0	33.0	-20.0
				50	50	23.0	13.0	33.0	-20.1
				100	0	23.0	13.0	33.0	-20.0

LTE Band 12

Antenna gain (dBi)	-11.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	23017	699.7	QPSK	1	0	24.8	13.8	34.7	-20.9
				1	3	24.8	13.8	34.7	-20.9
				1	5	24.8	13.8	34.7	-20.9
				3	0	24.8	13.8	34.7	-20.9
				3	1	24.8	13.8	34.7	-20.9
				3	3	24.8	13.8	34.7	-20.9
				6	0	23.8	12.8	34.7	-21.9
			16QAM	1	0	23.8	12.8	34.7	-21.9
				1	3	23.9	12.9	34.7	-21.8
				1	5	23.8	12.8	34.7	-21.9
				3	0	23.9	12.9	34.7	-21.8
				3	1	24.0	13.0	34.7	-21.7
				3	3	24.0	13.0	34.7	-21.7
				6	0	23.0	12.0	34.7	-22.7
	23095	707.5	QPSK	1	0	25.0	14.0	34.7	-20.7
				1	3	25.0	14.0	34.7	-20.7
				1	5	25.0	14.0	34.7	-20.7
				3	0	25.0	14.0	34.7	-20.7
				3	1	25.0	14.0	34.7	-20.7
				3	3	25.0	14.0	34.7	-20.7
				6	0	24.0	13.0	34.7	-21.7
			16QAM	1	0	24.0	13.0	34.7	-21.7
				1	3	24.0	13.0	34.7	-21.7
				1	5	24.0	13.0	34.7	-21.7
				3	0	24.0	13.0	34.7	-21.7
				3	1	24.0	13.0	34.7	-21.7
				3	3	24.0	13.0	34.7	-21.7
				6	0	22.9	11.9	34.7	-22.8
	23173	715.3	QPSK	1	0	24.9	13.9	34.7	-20.8
				1	3	24.9	13.9	34.7	-20.8
				1	5	24.7	13.7	34.7	-21.0
				3	0	24.9	13.9	34.7	-20.8
				3	1	24.9	13.9	34.7	-20.8
				3	3	24.8	13.8	34.7	-20.9
				6	0	24.0	13.0	34.7	-21.7
			16QAM	1	0	24.0	13.0	34.7	-21.7
				1	3	24.0	13.0	34.7	-21.7
				1	5	23.8	12.8	34.7	-21.9
				3	0	24.0	13.0	34.7	-21.7
				3	1	24.0	13.0	34.7	-21.7
				3	3	24.0	13.0	34.7	-21.7
				6	0	23.0	12.0	34.7	-22.7

Antenna gain (dBi)	-11.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3.0	23025	700.5	QPSK	1	0	24.8	13.8	34.7	-20.9
				1	8	24.9	13.9	34.7	-20.8
				1	14	24.8	13.8	34.7	-20.9
				8	0	23.9	12.9	34.7	-21.8
				8	4	23.9	12.9	34.7	-21.8
				8	7	23.9	12.9	34.7	-21.8
				15	0	23.9	12.9	34.7	-21.8
			16QAM	1	0	23.9	12.9	34.7	-21.8
				1	8	24.0	13.0	34.7	-21.7
				1	14	23.8	12.8	34.7	-21.9
				8	0	22.9	11.9	34.7	-22.8
				8	4	23.0	12.0	34.7	-22.7
				8	7	22.9	11.9	34.7	-22.8
				15	0	22.8	11.8	34.7	-22.9
	23095	707.5	QPSK	1	0	25.0	14.0	34.7	-20.7
				1	8	25.0	14.0	34.7	-20.7
				1	14	25.0	14.0	34.7	-20.7
				8	0	24.0	13.0	34.7	-21.7
				8	4	24.0	13.0	34.7	-21.7
				8	7	24.0	13.0	34.7	-21.7
				15	0	24.0	13.0	34.7	-21.7
			16QAM	1	0	23.9	12.9	34.7	-21.8
				1	8	24.0	13.0	34.7	-21.7
				1	14	24.0	13.0	34.7	-21.7
				8	0	23.0	12.0	34.7	-22.7
				8	4	23.0	12.0	34.7	-22.7
				8	7	23.0	12.0	34.7	-22.7
				15	0	23.0	12.0	34.7	-22.7
	23165	714.5	QPSK	1	0	25.0	14.0	34.7	-20.7
				1	8	25.0	14.0	34.7	-20.7
				1	14	24.8	13.8	34.7	-20.9
				8	0	24.0	13.0	34.7	-21.7
				8	4	24.0	13.0	34.7	-21.7
				8	7	24.0	13.0	34.7	-21.7
				15	0	24.0	13.0	34.7	-21.7
			16QAM	1	0	23.9	12.9	34.7	-21.8
				1	8	24.0	13.0	34.7	-21.7
				1	14	23.7	12.7	34.7	-22.0
				8	0	23.0	12.0	34.7	-22.7
				8	4	23.0	12.0	34.7	-22.7
				8	7	23.0	12.0	34.7	-22.7
				15	0	23.0	12.0	34.7	-22.7

Antenna gain (dBi)	-11.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5.0	23035	701.5	QPSK	1	0	25.0	14.0	34.7	-20.7
				1	12	24.9	13.9	34.7	-20.8
				1	24	24.9	13.9	34.7	-20.8
				12	0	23.9	12.9	34.7	-21.8
				12	7	23.9	12.9	34.7	-21.8
				12	13	23.9	12.9	34.7	-21.8
				25	0	23.9	12.9	34.7	-21.8
			16QAM	1	0	24.0	13.0	34.7	-21.7
				1	12	23.9	12.9	34.7	-21.8
				1	24	23.9	12.9	34.7	-21.8
				12	0	23.0	12.0	34.7	-22.7
				12	7	23.0	12.0	34.7	-22.7
				12	13	22.9	11.9	34.7	-22.8
				25	0	22.8	11.8	34.7	-22.9
	23095	707.5	QPSK	1	0	25.0	14.0	34.7	-20.7
				1	12	25.0	14.0	34.7	-20.7
				1	24	25.0	14.0	34.7	-20.7
				12	0	24.0	13.0	34.7	-21.7
				12	7	24.0	13.0	34.7	-21.7
				12	13	24.0	13.0	34.7	-21.7
				25	0	24.0	13.0	34.7	-21.7
			16QAM	1	0	24.0	13.0	34.7	-21.7
				1	12	24.0	13.0	34.7	-21.7
				1	24	24.0	13.0	34.7	-21.7
				12	0	23.0	12.0	34.7	-22.7
				12	7	23.0	12.0	34.7	-22.7
				12	13	23.0	12.0	34.7	-22.7
				25	0	23.0	12.0	34.7	-22.7
	23155	713.5	QPSK	1	0	25.0	14.0	34.7	-20.7
				1	12	25.0	14.0	34.7	-20.7
				1	24	24.9	13.9	34.7	-20.8
				12	0	23.9	12.9	34.7	-21.8
				12	7	23.9	12.9	34.7	-21.8
				12	13	24.0	13.0	34.7	-21.7
				25	0	24.0	13.0	34.7	-21.7
			16QAM	1	0	24.0	13.0	34.7	-21.7
				1	12	24.0	13.0	34.7	-21.7
				1	24	24.0	13.0	34.7	-21.7
				12	0	23.0	12.0	34.7	-22.7
				12	7	23.0	12.0	34.7	-22.7
				12	13	23.0	12.0	34.7	-22.7
				25	0	23.0	12.0	34.7	-22.7

Antenna gain (dBi)	-11.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10.0	23095	707.5	QPSK	1	0	24.9	13.9	34.7	-20.8
				1	25	25.0	14.0	34.7	-20.7
				1	49	25.0	14.0	34.7	-20.7
				25	0	24.0	13.0	34.7	-21.7
				25	12	24.0	13.0	34.7	-21.7
				25	25	24.0	13.0	34.7	-21.7
				50	0	24.0	13.0	34.7	-21.7
			16QAM	1	0	23.9	12.9	34.7	-21.8
				1	25	24.0	13.0	34.7	-21.7
				1	49	24.0	13.0	34.7	-21.7
				25	0	23.0	12.0	34.7	-22.7
				25	12	23.0	12.0	34.7	-22.7
				25	25	23.0	12.0	34.7	-22.7
				50	0	23.0	12.0	34.7	-22.7

LTE Band 13

Antenna gain (dBi)	-4.80

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5.0	23230	782.0	QPSK	1	0	23.9	19.1	34.7	-15.6
				1	12	23.8	19.0	34.7	-15.7
				1	24	23.9	19.1	34.7	-15.6
				12	0	22.8	18.0	34.7	-16.7
				12	7	22.8	18.0	34.7	-16.7
				12	13	22.8	18.0	34.7	-16.7
				25	0	22.8	18.0	34.7	-16.7
			16QAM	1	0	23.0	18.2	34.7	-16.5
				1	12	22.9	18.1	34.7	-16.6
				1	24	23.0	18.2	34.7	-16.5
				12	0	21.9	17.1	34.7	-17.6
				12	7	21.9	17.1	34.7	-17.6
				12	13	21.9	17.1	34.7	-17.6
				25	0	21.8	17.0	34.7	-17.7

Antenna gain (dBi)	-4.80

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10.0	23230	782.0	QPSK	1	0	23.9	19.1	34.7	-15.6
				1	25	23.7	18.9	34.7	-15.8
				1	49	23.7	18.9	34.7	-15.8
				25	0	22.9	18.1	34.7	-16.6
				25	12	22.8	18.0	34.7	-16.7
				25	25	22.8	18.0	34.7	-16.7
				50	0	22.8	18.0	34.7	-16.7
			16QAM	1	0	22.8	18.0	34.7	-16.7
				1	25	22.7	17.9	34.7	-16.8
				1	49	22.6	17.8	34.7	-16.9
				25	0	21.9	17.1	34.7	-17.6
				25	12	21.8	17.0	34.7	-17.7
				25	25	21.9	17.1	34.7	-17.6
				50	0	21.8	17.0	34.7	-17.7

LTE Band 41

Antenna gain (dBi)	-10.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5.0	39675	2498.5	QPSK	1	0	24.7	14.7	33.0	-18.4
				1	12	24.6	14.6	33.0	-18.4
				1	24	24.6	14.6	33.0	-18.4
				12	0	23.6	13.6	33.0	-19.4
				12	7	23.6	13.6	33.0	-19.4
				12	13	23.6	13.6	33.0	-19.4
				25	0	23.5	13.5	33.0	-19.5
			16QAM	1	0	23.5	13.5	33.0	-19.5
				1	12	23.5	13.5	33.0	-19.5
				1	24	23.4	13.4	33.0	-19.6
				12	0	22.6	12.6	33.0	-20.4
				12	7	22.6	12.6	33.0	-20.4
				12	13	22.6	12.6	33.0	-20.4
				25	0	22.6	12.6	33.0	-20.5
	40620	2593.0	QPSK	1	0	25.0	15.0	33.0	-18.0
				1	12	25.0	15.0	33.0	-18.0
				1	24	25.0	15.0	33.0	-18.0
				12	0	24.0	14.0	33.0	-19.0
				12	7	24.0	14.0	33.0	-19.0
				12	13	24.0	14.0	33.0	-19.0
				25	0	24.0	14.0	33.0	-19.0
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	2	23.9	13.9	33.0	-19.1
				1	5	23.9	13.9	33.0	-19.1
				3	0	23.0	13.0	33.0	-20.0
				3	1	23.0	13.0	33.0	-20.0
				3	2	23.0	13.0	33.0	-20.0
				6	0	23.0	13.0	33.0	-20.0
	41565	2687.5	QPSK	1	0	24.7	14.7	33.0	-18.3
				1	12	24.8	14.8	33.0	-18.2
				1	24	24.7	14.7	33.0	-18.3
				12	0	23.7	13.7	33.0	-19.3
				12	7	23.7	13.7	33.0	-19.3
				12	13	23.7	13.7	33.0	-19.3
				25	0	23.5	13.5	33.0	-19.5
			16QAM	1	0	23.9	13.9	33.0	-19.1
				1	12	23.9	13.9	33.0	-19.1
				1	24	23.8	13.8	33.0	-19.2
				12	0	22.7	12.7	33.0	-20.3
				12	7	22.8	12.8	33.0	-20.3
				12	13	22.8	12.8	33.0	-20.2
				25	0	22.6	12.6	33.0	-20.4

Antenna gain (dBi)	-10.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10.0	39700	2501.0	QPSK	1	0	25.0	15.0	33.0	-18.0
				1	25	25.0	15.0	33.0	-18.0
				1	49	24.9	14.9	33.0	-18.1
				25	0	24.0	14.0	33.0	-19.0
				25	12	24.0	14.0	33.0	-19.0
				25	25	24.0	14.0	33.0	-19.0
				50	0	24.0	14.0	33.0	-19.0
			16QAM	1	0	23.9	13.9	33.0	-19.1
				1	25	23.9	13.9	33.0	-19.1
				1	49	23.9	13.9	33.0	-19.1
				25	0	23.0	13.0	33.0	-20.0
				25	12	23.0	13.0	33.0	-20.0
				25	25	23.0	13.0	33.0	-20.0
				50	0	23.0	13.0	33.0	-20.0
	40620	2593.0	QPSK	1	0	24.9	14.9	33.0	-18.1
				1	25	25.0	15.0	33.0	-18.0
				1	49	24.9	14.9	33.0	-18.1
				25	0	24.0	14.0	33.0	-19.0
				25	12	24.0	14.0	33.0	-19.0
				25	25	24.0	14.0	33.0	-19.0
				50	0	24.0	14.0	33.0	-19.0
			16QAM	1	0	23.9	13.9	33.0	-19.1
				1	25	23.9	13.9	33.0	-19.1
				1	49	23.9	13.9	33.0	-19.1
				25	0	23.0	13.0	33.0	-20.0
				25	12	23.0	13.0	33.0	-20.0
				25	25	23.0	13.0	33.0	-20.0
				50	0	23.0	13.0	33.0	-20.0
	41540	2685.0	QPSK	1	0	24.6	14.6	33.0	-18.4
				1	25	24.7	14.7	33.0	-18.3
				1	49	24.5	14.5	33.0	-18.5
				25	0	23.7	13.7	33.0	-19.3
				25	12	23.7	13.7	33.0	-19.3
				25	25	23.6	13.6	33.0	-19.4
				50	0	23.6	13.6	33.0	-19.4
			16QAM	1	0	23.5	13.5	33.0	-19.5
				1	25	23.6	13.6	33.0	-19.4
				1	49	23.5	13.5	33.0	-19.5
				25	0	22.6	12.6	33.0	-20.4
				25	12	22.7	12.7	33.0	-20.3
				25	25	22.6	12.6	33.0	-20.4
				50	0	22.6	12.6	33.0	-20.4

Antenna gain (dBi)	-10.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15.0	39725	2503.5	QPSK	1	0	25.0	15.0	33.0	-18.0
				1	37	24.9	14.9	33.0	-18.1
				1	74	24.9	14.9	33.0	-18.1
				36	0	24.0	14.0	33.0	-19.0
				36	20	24.0	14.0	33.0	-19.0
				36	39	24.0	14.0	33.0	-19.0
				75	0	24.0	14.0	33.0	-19.0
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	37	24.0	14.0	33.0	-19.1
				1	74	23.8	13.8	33.0	-19.2
				36	0	23.0	13.0	33.0	-20.0
				36	20	23.0	13.0	33.0	-20.0
				36	39	23.0	13.0	33.0	-20.0
				75	0	23.0	13.0	33.0	-20.0
	40620	2593.0	QPSK	1	0	25.0	15.0	33.0	-18.0
				1	37	24.9	14.9	33.0	-18.1
				1	74	24.9	14.9	33.0	-18.1
				36	0	24.0	14.0	33.0	-19.0
				36	20	24.0	14.0	33.0	-19.0
				36	39	24.0	14.0	33.0	-19.0
				75	0	24.0	14.0	33.0	-19.0
			16QAM	1	0	24.0	14.0	33.0	-19.0
				1	37	24.0	14.0	33.0	-19.1
				1	74	23.8	13.8	33.0	-19.2
				36	0	23.0	13.0	33.0	-20.0
				36	20	23.0	13.0	33.0	-20.0
				36	39	23.0	13.0	33.0	-20.0
				75	0	23.0	13.0	33.0	-20.0
	41515	2682.5	QPSK	1	0	24.9	14.9	33.0	-18.1
				1	37	24.2	14.2	33.0	-18.8
				1	74	24.7	14.7	33.0	-18.3
				36	0	23.4	13.4	33.0	-19.6
				36	20	23.4	13.4	33.0	-19.6
				36	39	23.5	13.5	33.0	-19.5
				75	0	23.3	13.3	33.0	-19.7
			16QAM	1	0	23.8	13.8	33.0	-19.2
				1	37	23.7	13.7	33.0	-19.3
				1	74	23.7	13.7	33.0	-19.3
				36	0	22.6	12.6	33.0	-20.4
				36	20	22.5	12.5	33.0	-20.5
				36	39	22.6	12.6	33.0	-20.4
				75	0	22.4	12.4	33.0	-20.6

Antenna gain (dBi)	-10.00

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20.0	39750	2506.0	QPSK	1	0	23.6	24.8	33.0	-8.2
				1	49	23.4	24.5	33.0	-8.5
				1	99	23.3	24.4	33.0	-8.6
				50	0	23.5	23.7	33.0	-9.3
				50	24	23.4	23.5	33.0	-9.5
				50	50	23.3	23.4	33.0	-9.6
				100	0	23.4	23.5	33.0	-9.5
			16QAM	1	0	23.0	23.7	33.0	-9.3
				1	49	22.8	23.4	33.0	-9.6
				1	99	22.7	23.4	33.0	-9.6
				50	0	21.9	22.6	33.0	-10.4
				50	24	21.9	22.5	33.0	-10.5
				50	50	21.8	22.4	33.0	-10.6
				100	0	21.9	22.5	33.0	-10.5
	40620	2593.0	QPSK	1	0	23.7	25.0	33.0	-8.0
				1	49	23.5	24.9	33.0	-8.1
				1	99	23.4	24.8	33.0	-8.2
				50	0	23.7	24.0	33.0	-9.0
				50	24	23.6	24.0	33.0	-9.0
				50	50	23.5	24.0	33.0	-9.0
				100	0	23.6	24.0	33.0	-9.0
			16QAM	1	0	23.1	24.0	33.0	-9.0
				1	49	22.9	23.9	33.0	-9.2
				1	99	22.8	23.7	33.0	-9.3
				50	0	22.2	23.0	33.0	-10.0
				50	24	22.1	23.0	33.0	-10.0
				50	50	22.0	23.0	33.0	-10.0
				100	0	22.1	23.0	33.0	-10.0
	41490	2680.0	QPSK	1	0	23.8	24.7	33.0	-8.3
				1	49	23.6	24.8	33.0	-8.3
				1	99	23.4	24.6	33.0	-8.4
				50	0	23.7	23.5	33.0	-9.5
				50	24	23.6	23.6	33.0	-9.4
				50	50	23.4	23.5	33.0	-9.5
				100	0	23.3	23.1	33.0	-9.9
			16QAM	1	0	23.5	23.7	33.0	-9.3
				1	49	23.2	23.9	33.0	-9.2
				1	99	22.9	23.8	33.0	-9.2
				50	0	22.2	22.7	33.0	-10.3
				50	24	22.2	22.7	33.0	-10.3
				50	50	22.0	22.6	33.0	-10.4
				100	0	22.1	22.5	33.0	-10.5

12. PEAK TO AVERAGE RATIO

TEST PROCEDURE

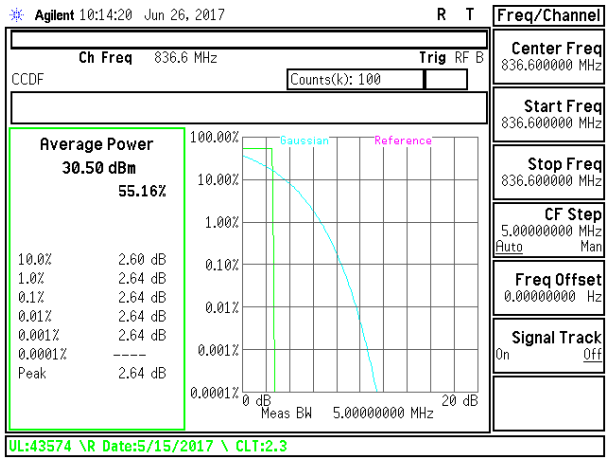
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

TEST SPEC

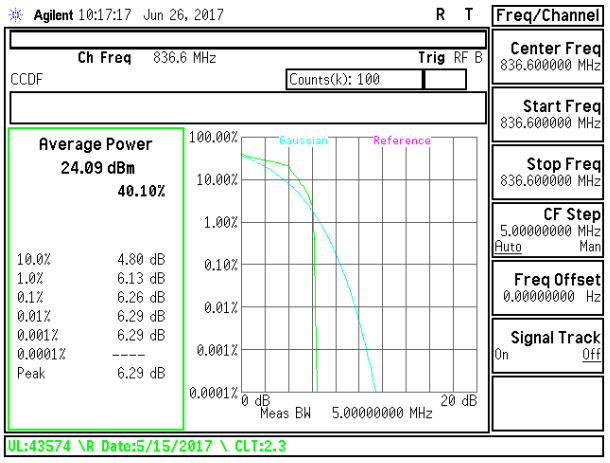
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

12.1. CONDUCTED PEAK TO AVERAGE RESULT

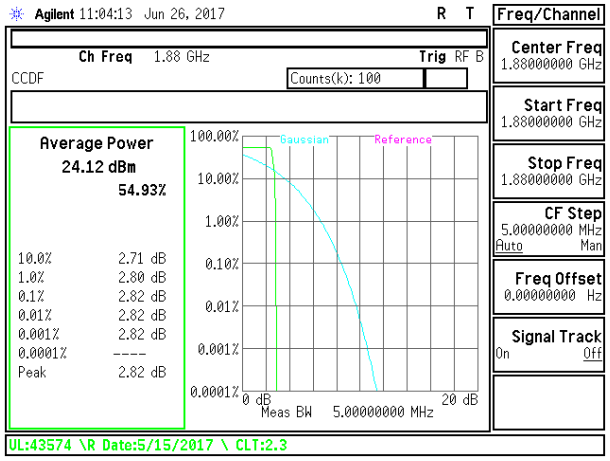
GSM



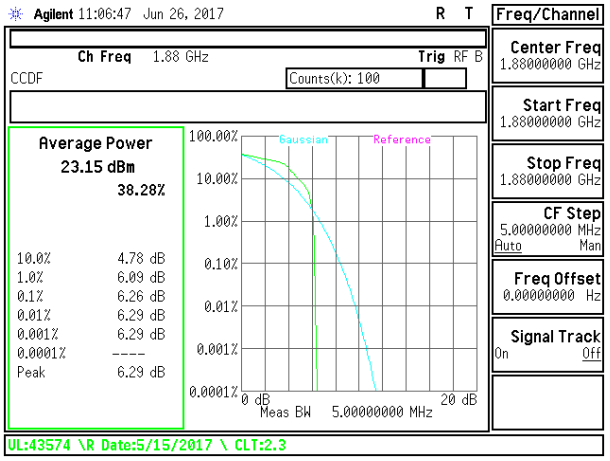
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel

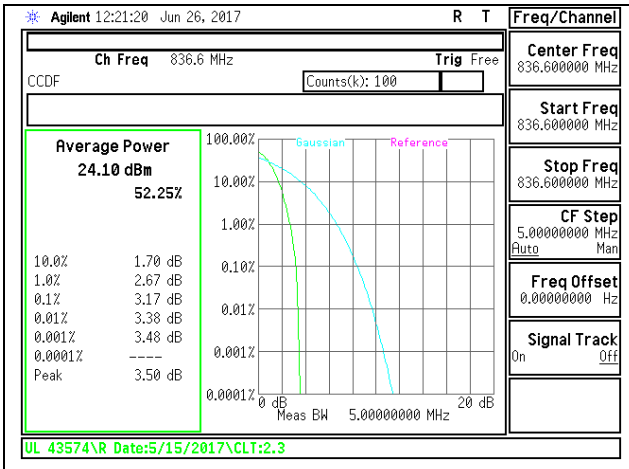


GSM1900 GPRS Middle Channel

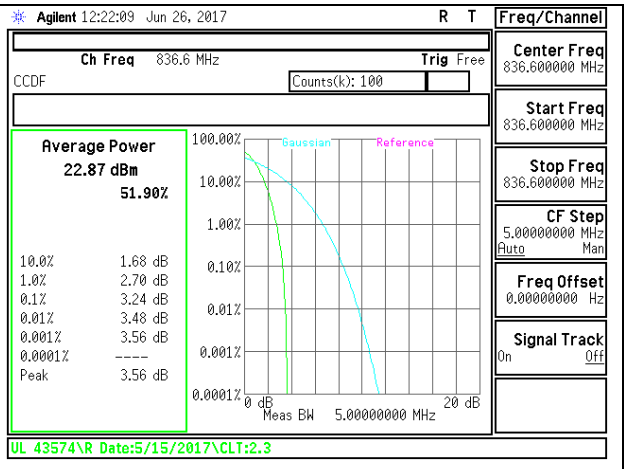


GSM1900 EGPRS Middle Channel

WCDMA

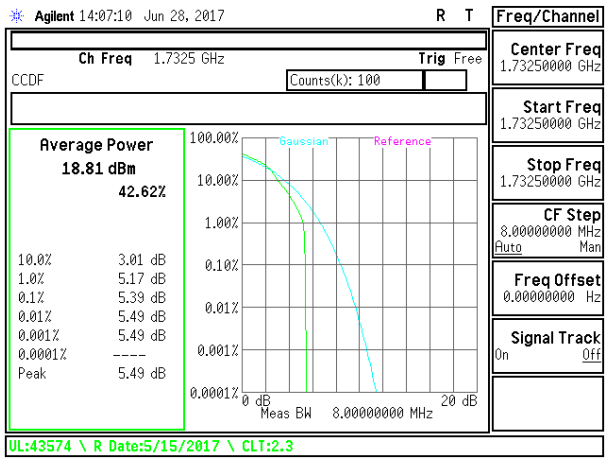


B5 REL99

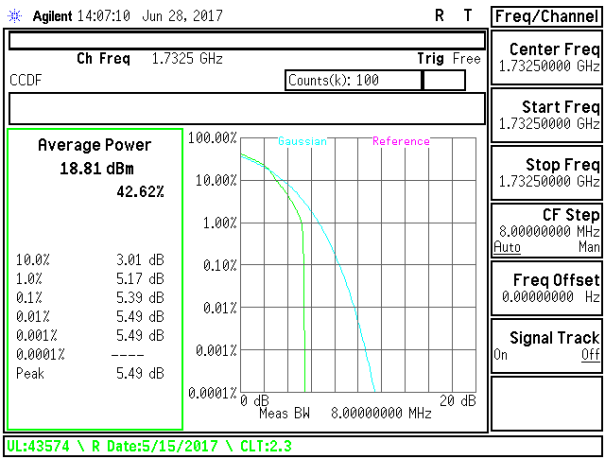


B5 HSDPA

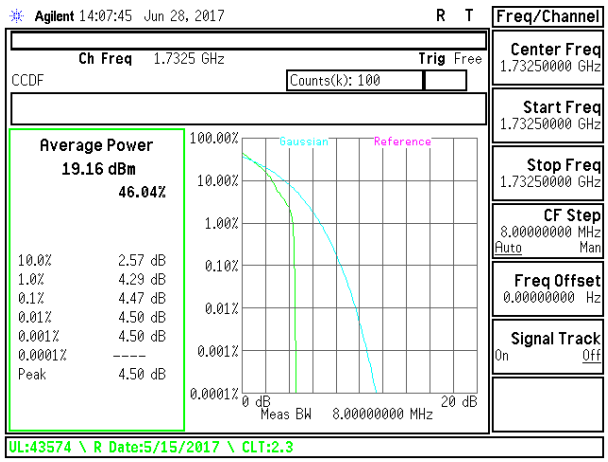
LTE Band 4



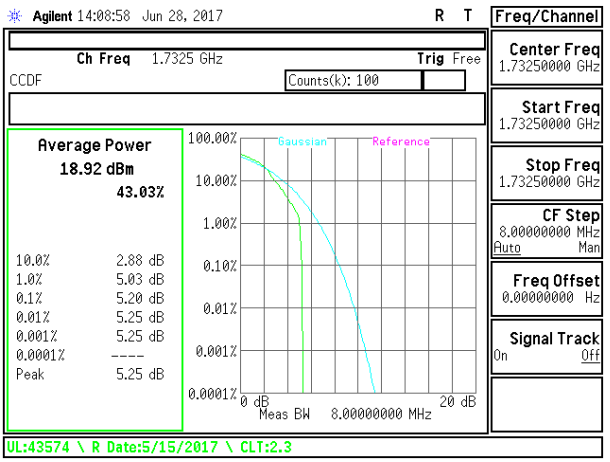
LTE B4 1.4MHz QPSK Middle Channel



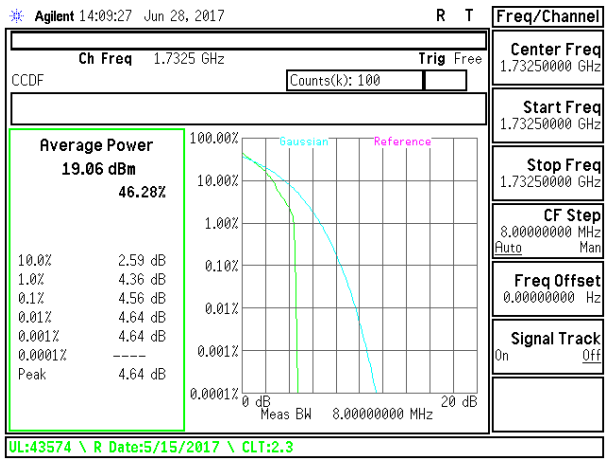
LTE B4 1.4MHz 16QAM Middle Channel

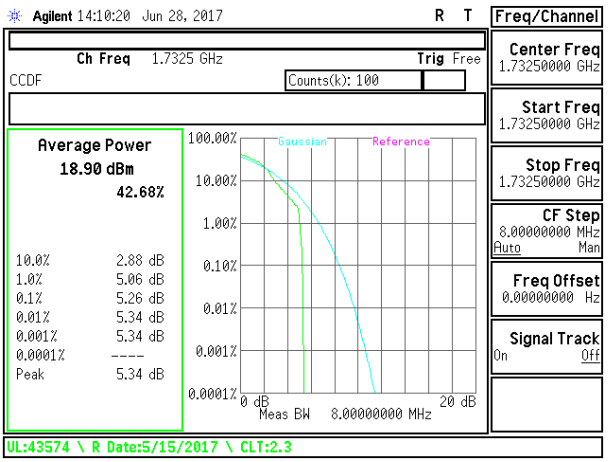


LTE B4 3MHz QPSK Middle Channel

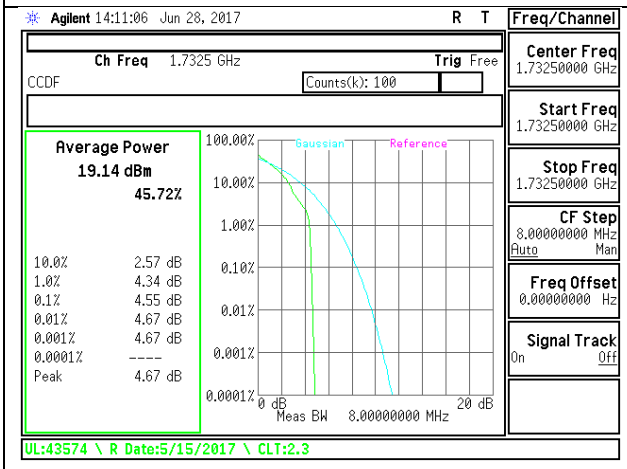


LTE B4 3MHz 16QAM Middle Channel

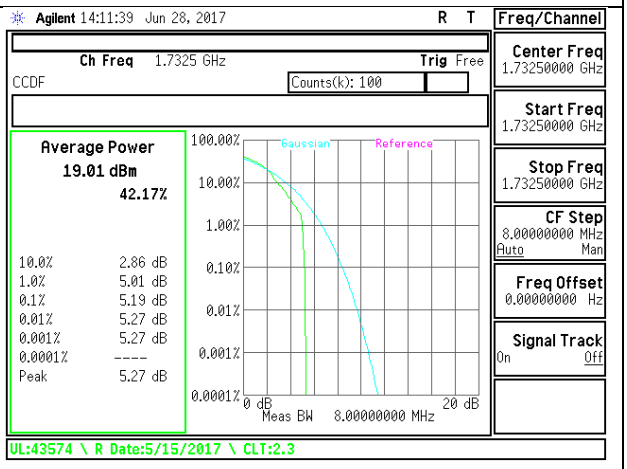




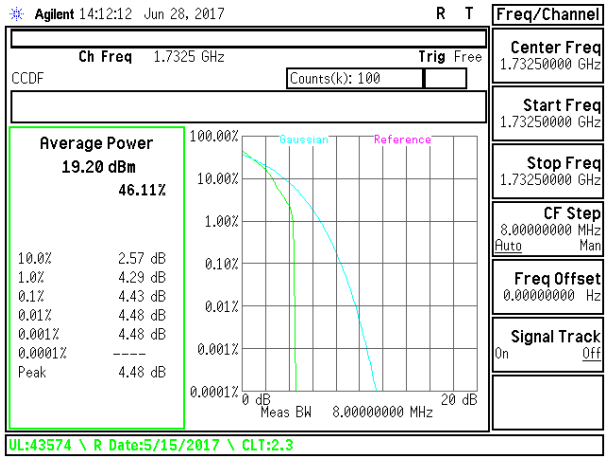
LTE B4 5MHz QPSK Middle Channel



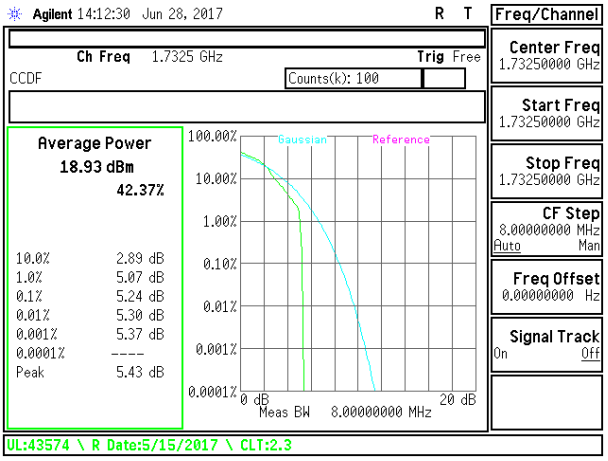
LTE B4 5MHz 16QAM Middle Channel



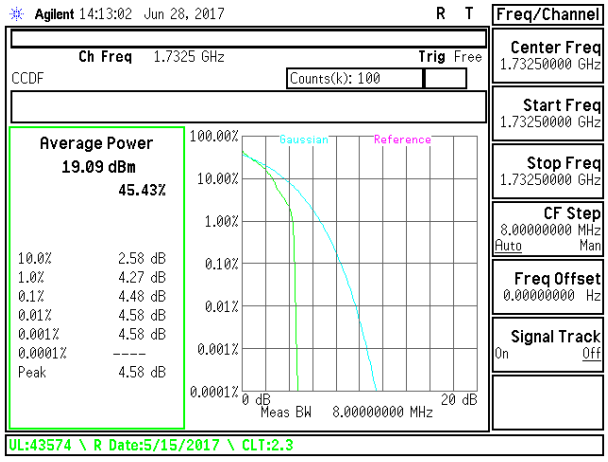
LTE B4 10MHz QPSK Middle Channel



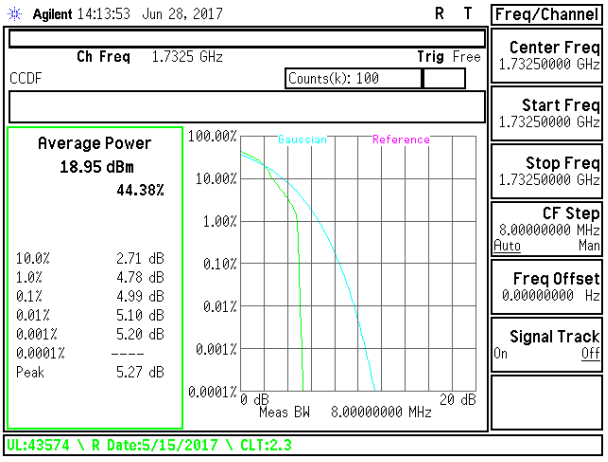
LTE B4 10MHz 16QAM Middle Channel



LTE B4 15MHz QPSK Middle Channel



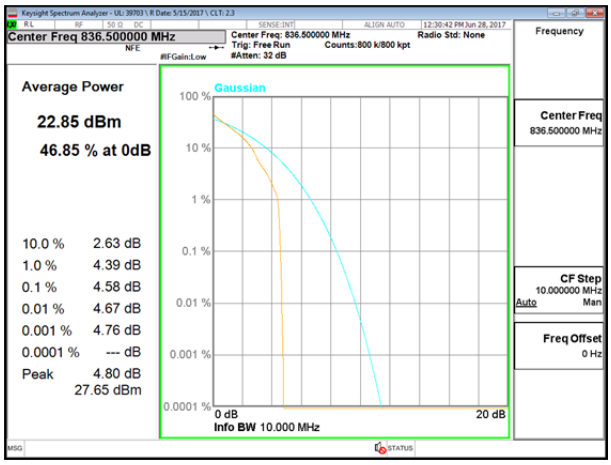
LTE B4 15MHz 16QAM Middle Channel



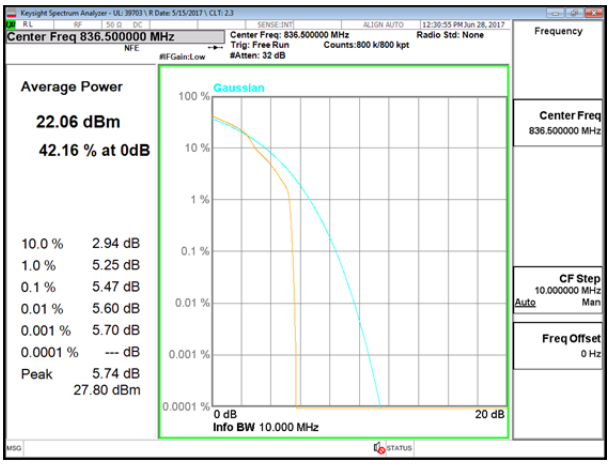
LTE B4 20MHz QPSK Middle Channel

LTE B4 20MHz 16QAM Middle Channel

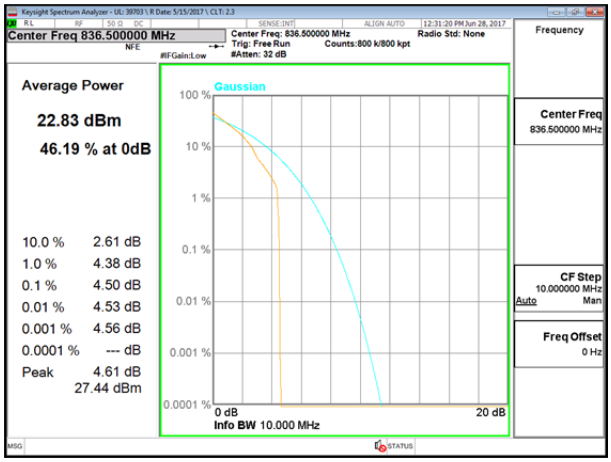
LTE Band 5



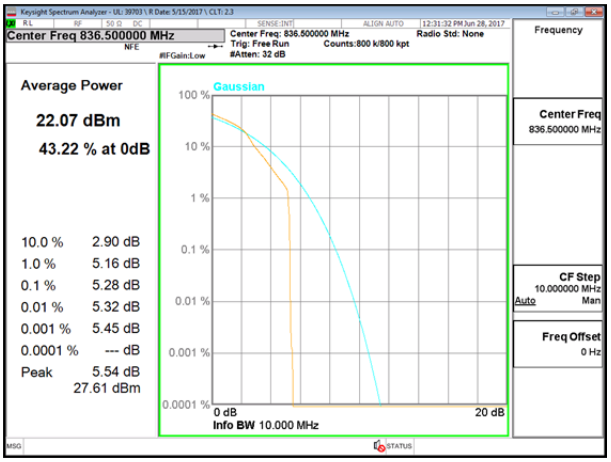
LTE B5 1.4MHz QPSK Middle Channel



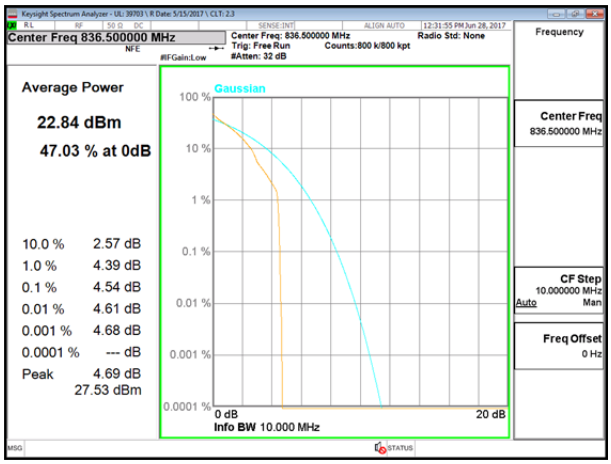
LTE B5 1.4MHz 16QAM Middle Channel

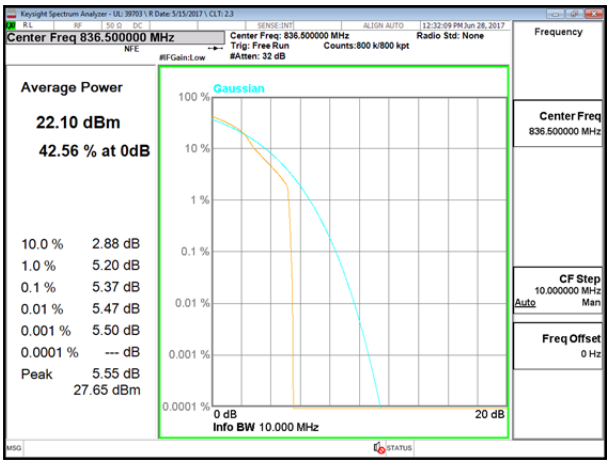


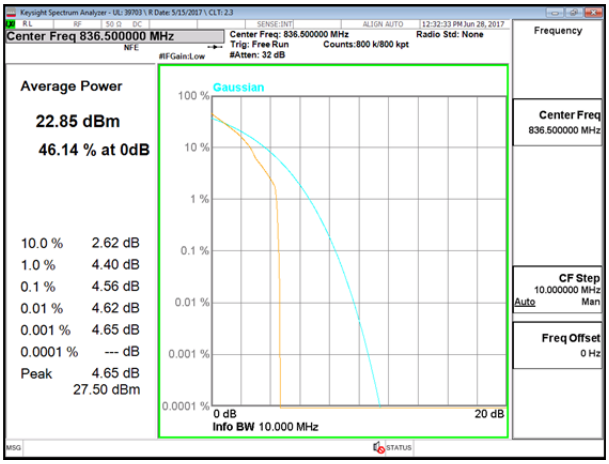
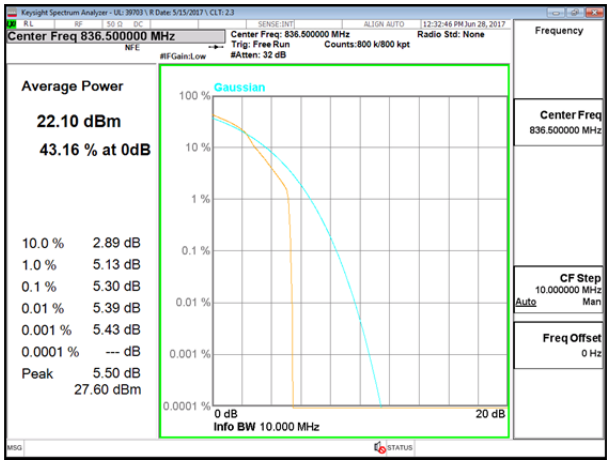
LTE B5 3MHz QPSK Middle Channel



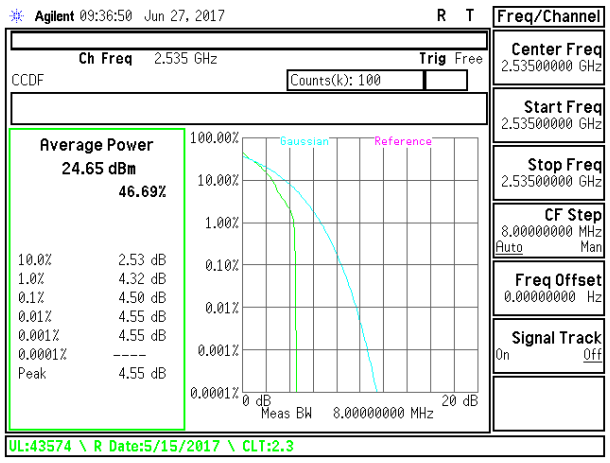
LTE B5 3MHz 16QAM Middle Channel



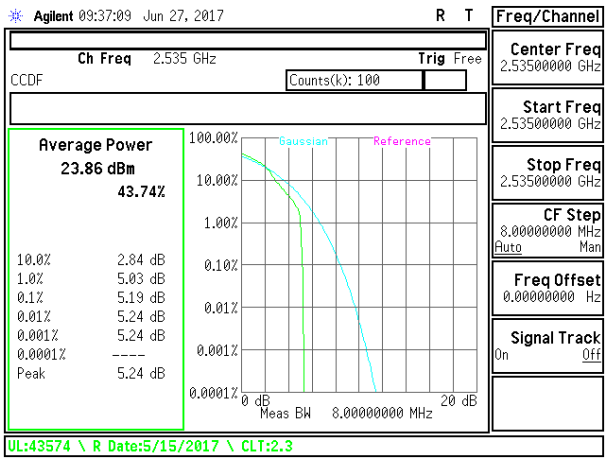


LTE B5 5MHz QPSK Middle Channel	LTE B5 5MHz 16QAM Middle Channel
	
LTE B5 10MHz QPSK Middle Channel	LTE B5 10MHz 16QAM Middle Channel

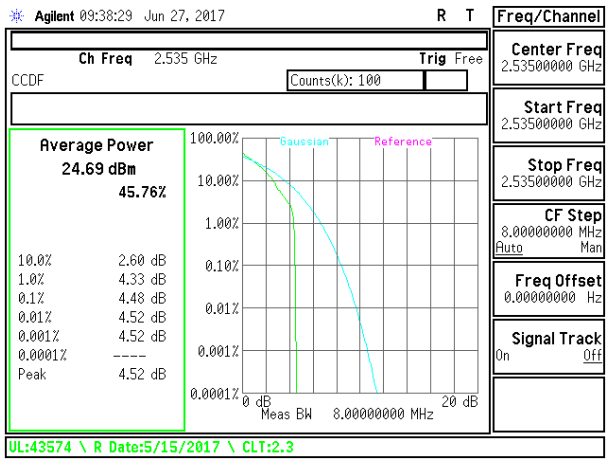
LTE Band 7



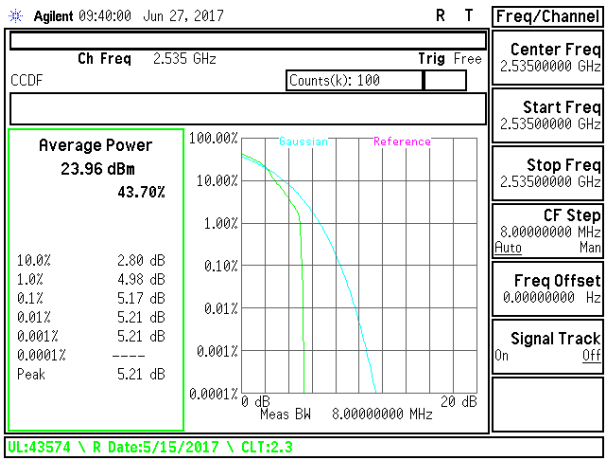
LTE B7 5MHz QPSK Middle Channel



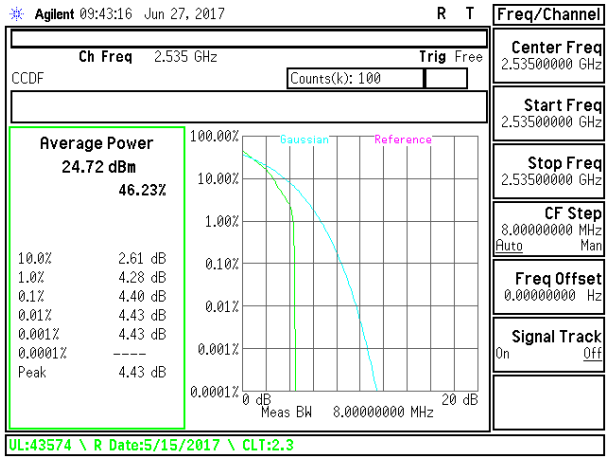
LTE B7 5MHz 16QAM Middle Channel



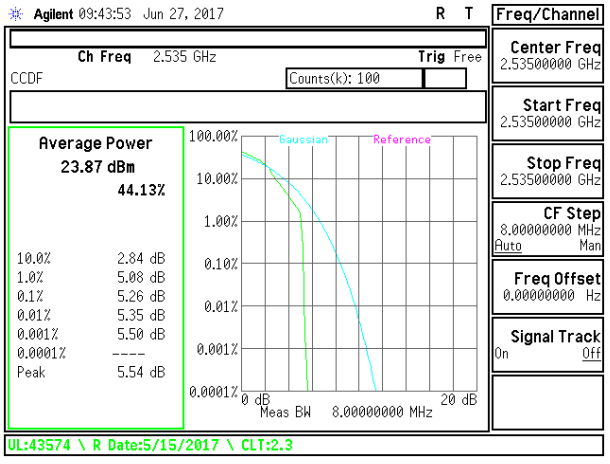
LTE B7 10MHz QPSK Middle Channel



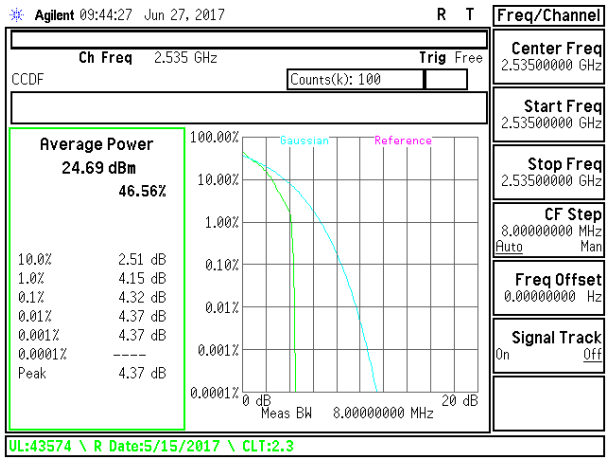
LTE B7 10MHz 16QAM Middle Channel



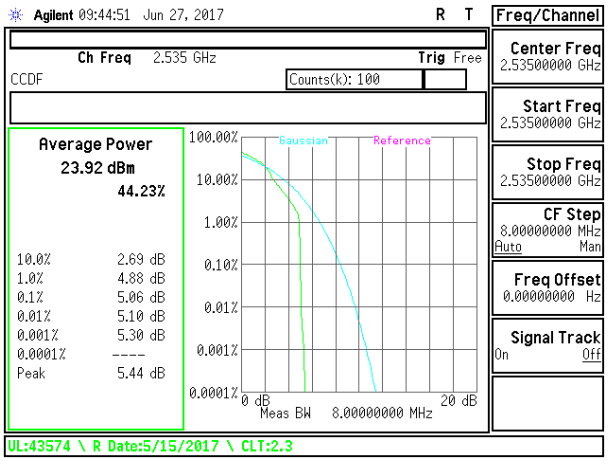
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel

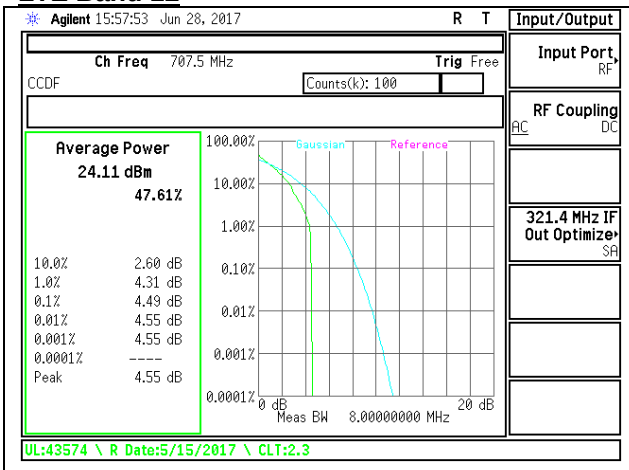


LTE B7 20MHz QPSK Middle Channel

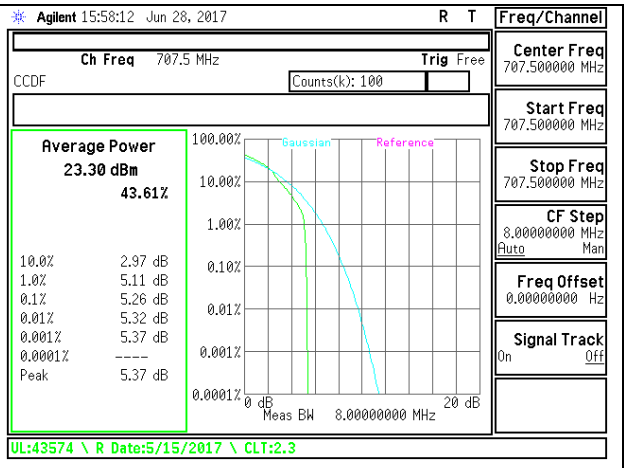


LTE B7 20MHz 16QAM Middle Channel

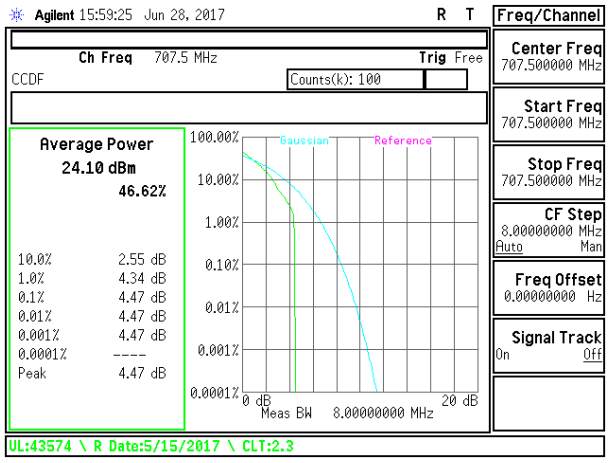
LTE Band 12



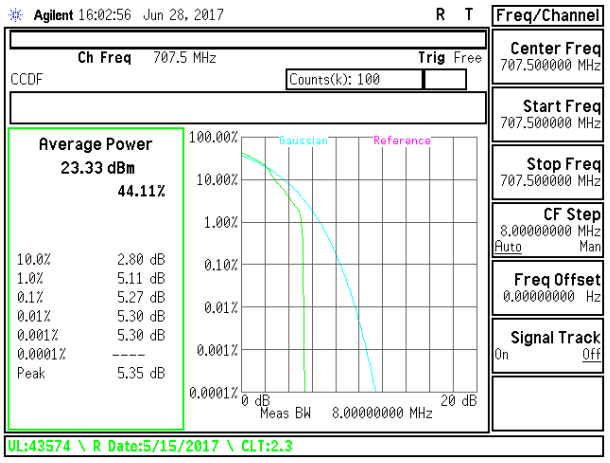
LTE B12 1.4MHz QPSK Middle Channel



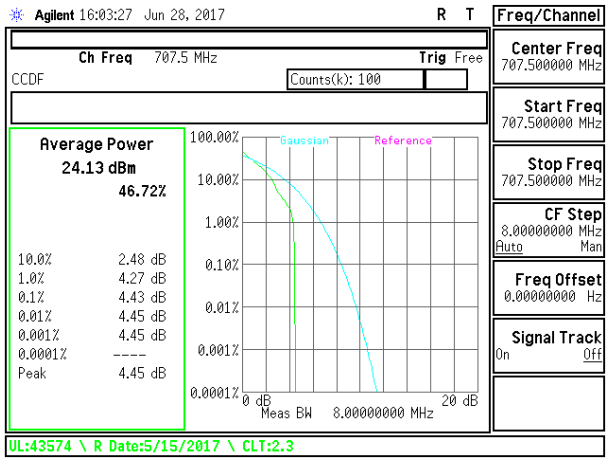
LTE B12 1.4MHz 16QAM Middle Channel



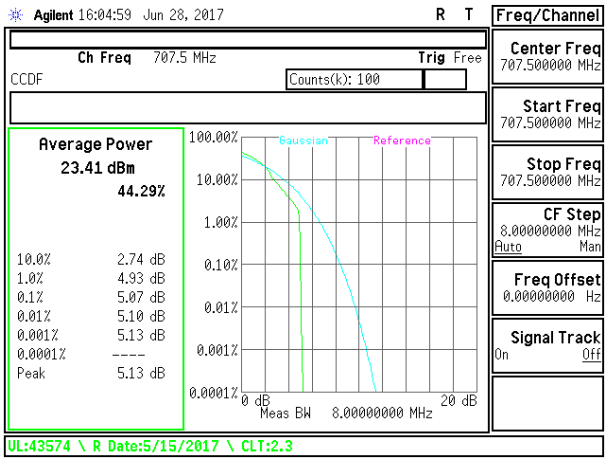
LTE B12 3MHz QPSK Middle Channel



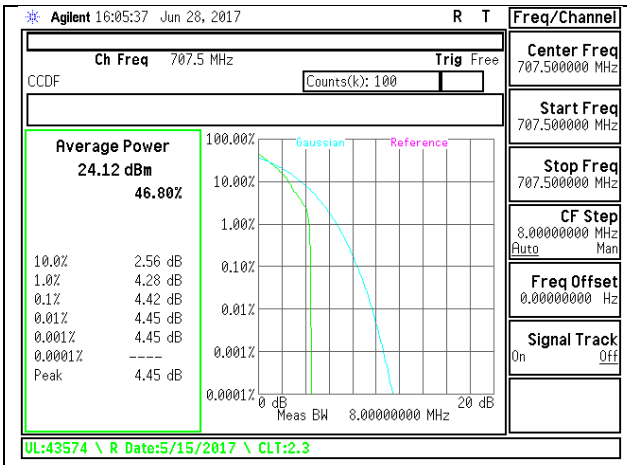
LTE B12 3MHz 16QAM Middle Channel



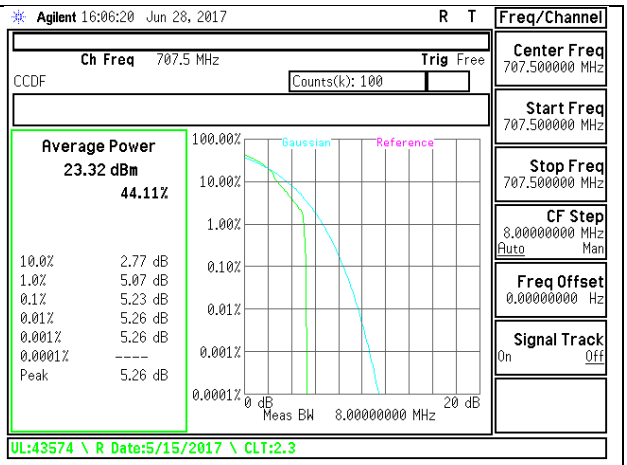
LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel

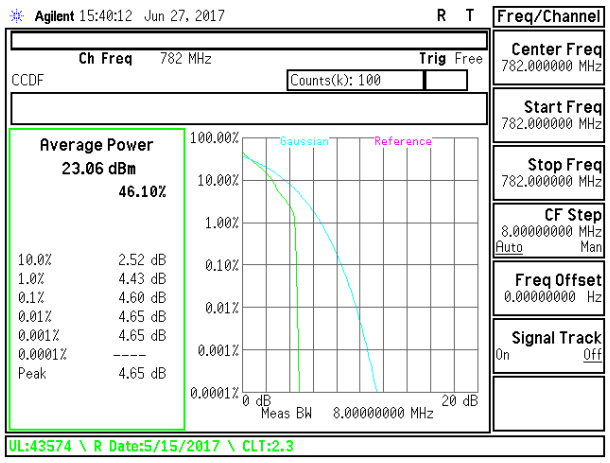


LTE B12 10MHz QPSK Middle Channel

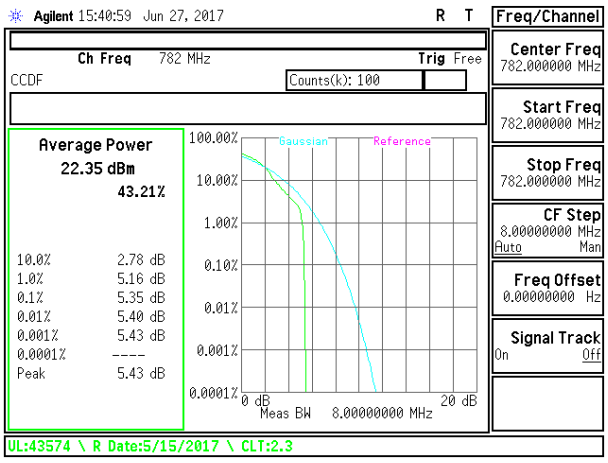


LTE B12 10MHz 16QAM Middle Channel

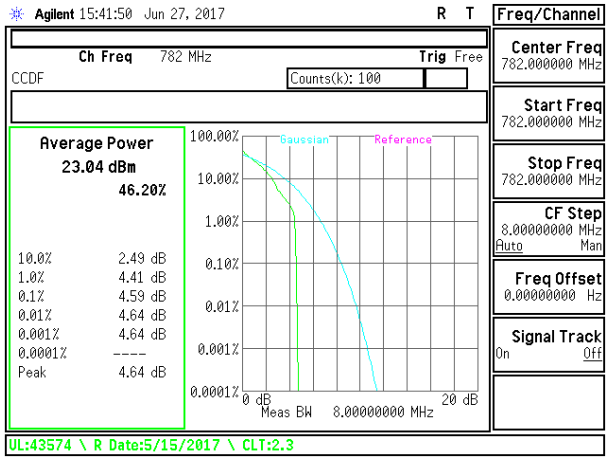
LTE Band 13



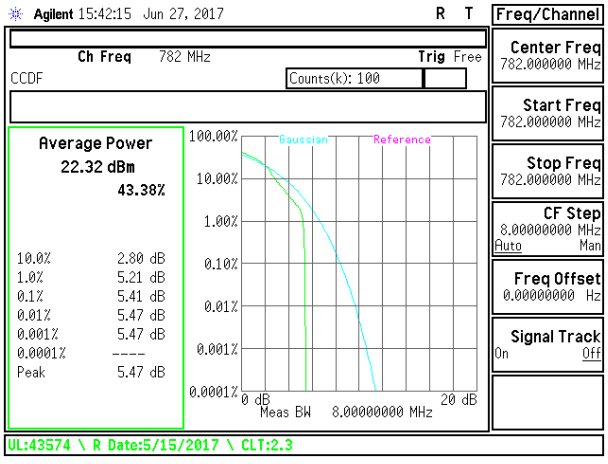
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel

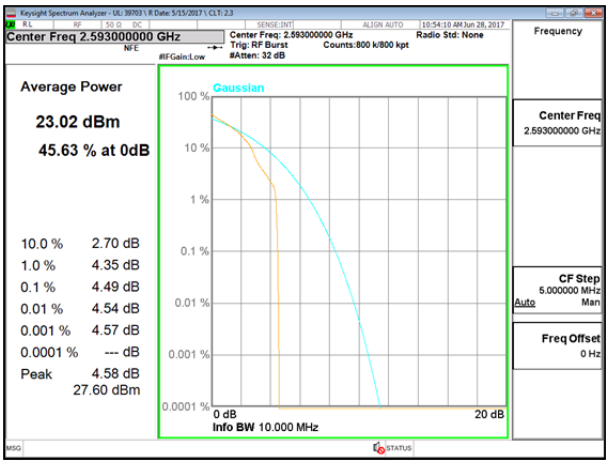


LTE B13 10MHz QPSK Middle Channel

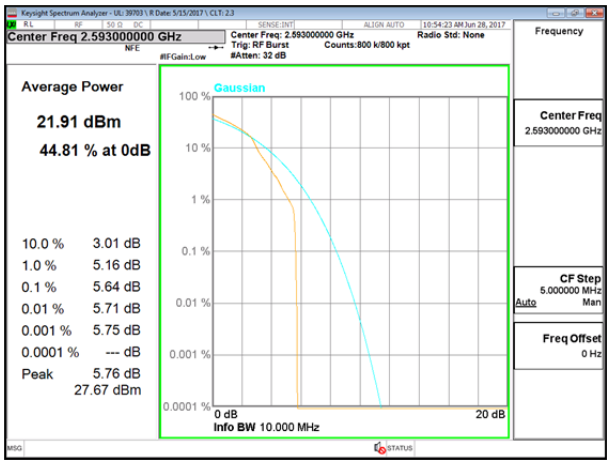


LTE B13 10MHz 16QAM Middle Channel

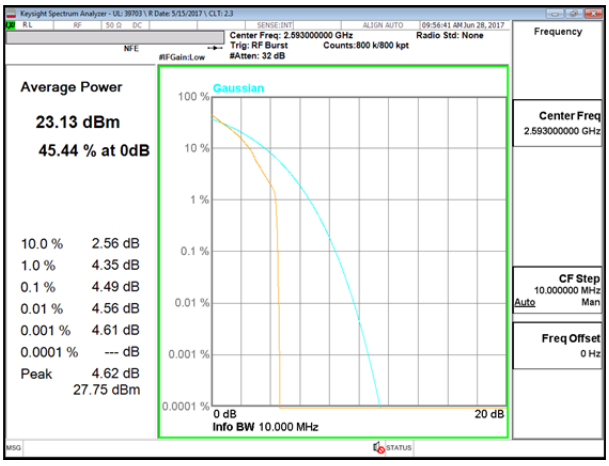
LTE Band 41



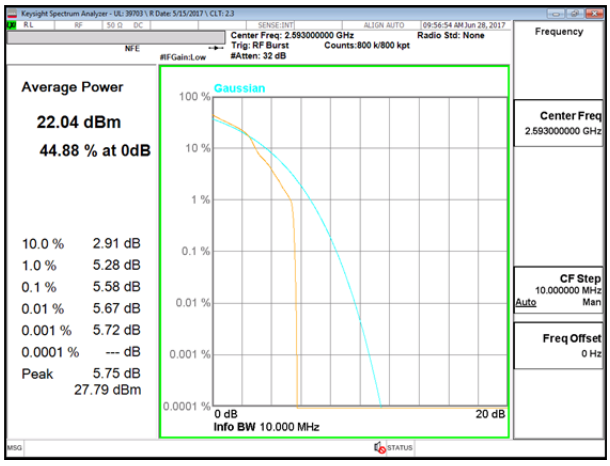
LTE B41 5MHz QPSK Middle Channel



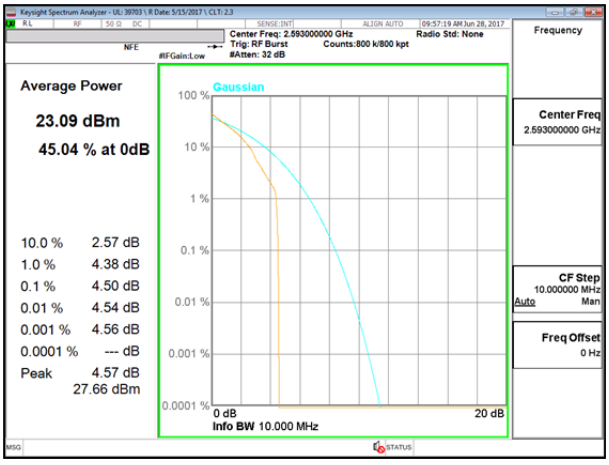
LTE B41 5MHz 16QAM Middle Channel



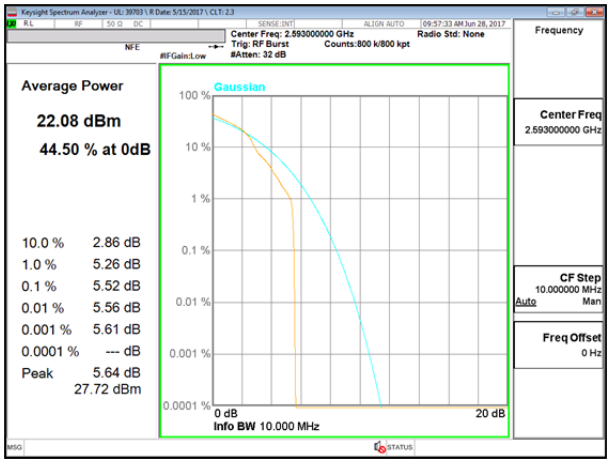
LTE B41 10MHz QPSK Middle Channel



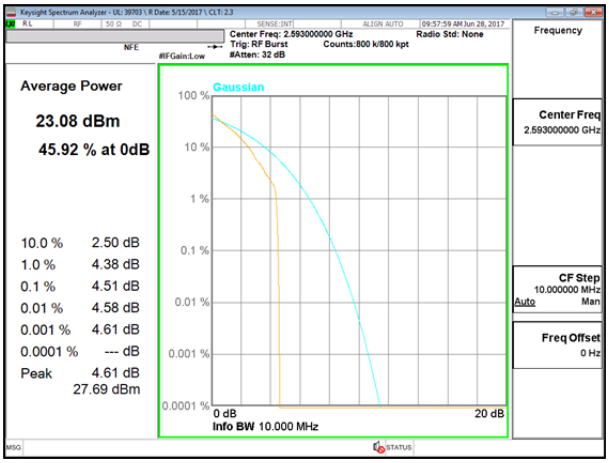
LTE B41 10MHz 16QAM Middle Channel



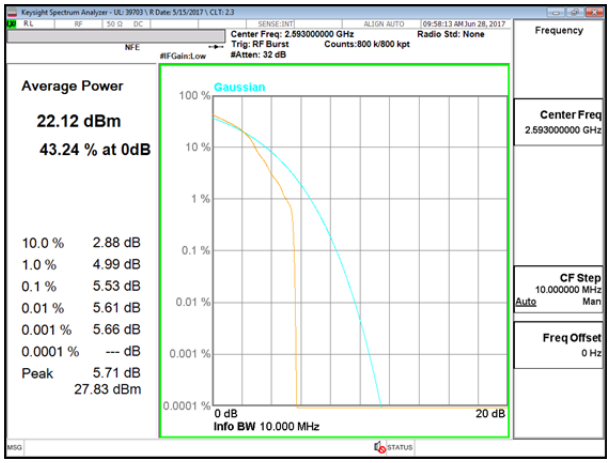
LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



LTE B41 20MHz QPSK Middle Channel



LTE B41 20MHz 16QAM Middle Channel

13. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

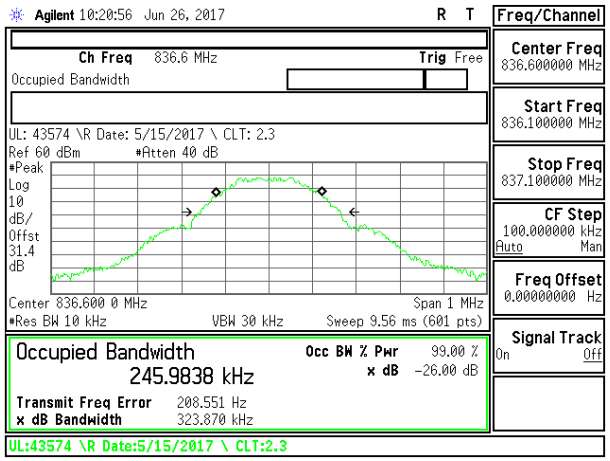
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

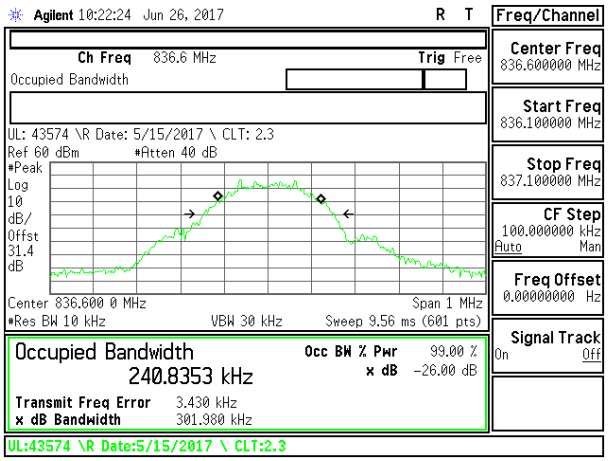
13.1. OCCUPIED BANDWIDTH RESULTS AND PLOTS

GSM

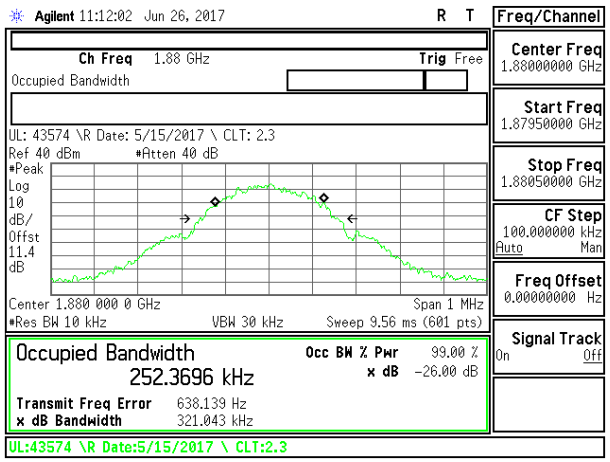
Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM 850	GPRS	128	824.2	244.70	301.40
		190	836.6	246.00	323.70
		251	848.8	247.80	316.70
	EGPRS	128	824.2	246.40	316.20
		190	836.6	240.84	301.98
		251	848.8	242.50	294.70
GSM 1900	GPRS	512	1850.2	245.60	309.20
		661	1880	252.37	321.04
		810	1909.8	243.20	307.60
	EGPRS	512	1850.2	234.20	304.80
		661	1880	244.02	310.10
		810	1909.8	240.80	315.60



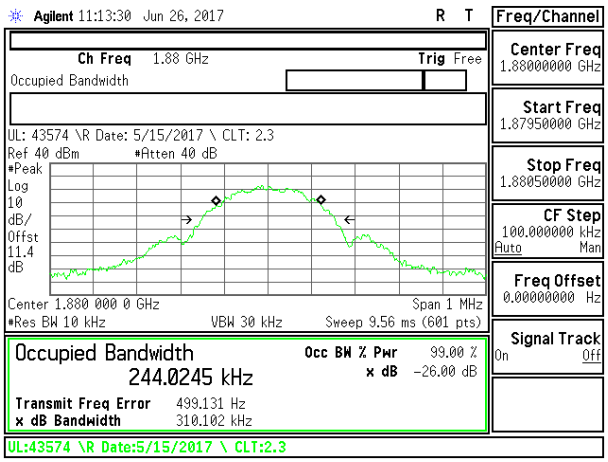
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel



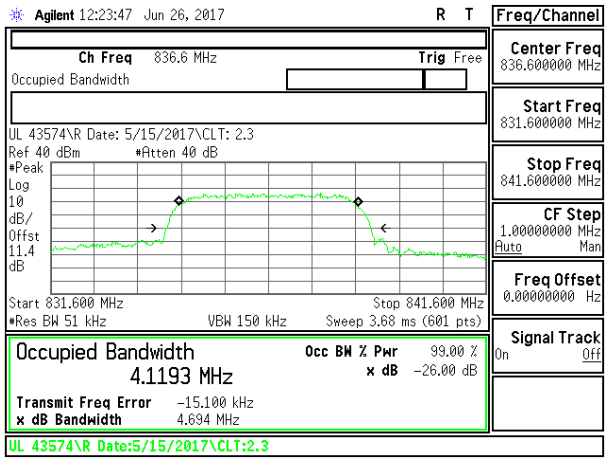
GSM1900 GPRS Middle Channel



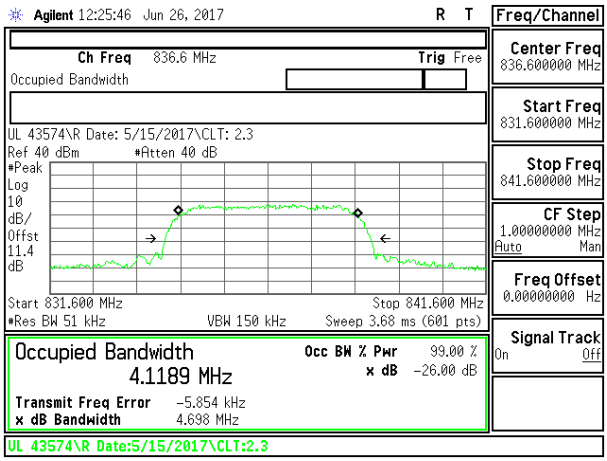
GSM1900 EGPRS Middle Channel

WCDMA

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
Band 5	REL99	4132	826.4	4.13	4.71
		4183	836.6	4.12	4.69
		4233	846.6	4.12	4.71
	HSDPA	4132	826.4	4.13	4.69
		4183	836.6	4.12	4.70
		4233	846.6	4.13	4.70



B5 REL99 Middle Channel

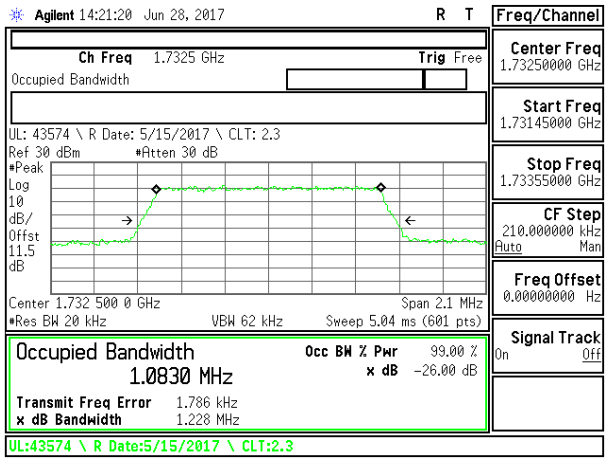


B5 HSDPA Middle Channel

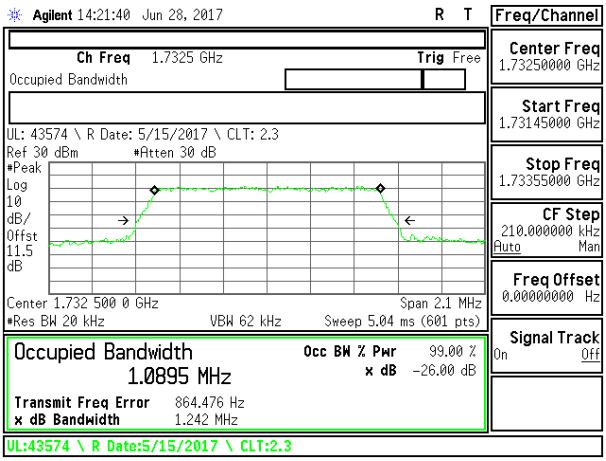
LTE Band 4

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	1.4	QPSK	6/0	1710.7	1.08	1.23
			6/0	1732.5	1.08	1.23
			6/0	1754.3	1.09	1.23
		16QAM	6/0	1710.7	1.08	1.23
			6/0	1732.5	1.09	1.24
			6/0	1754.3	1.08	1.22
	3	QPSK	15/0	1711.5	2.68	2.96
			15/0	1732.5	2.69	2.97
			15/0	1753.5	2.68	2.97
		16QAM	15/0	1711.5	2.69	2.94
			15/0	1732.5	2.69	2.98
			15/0	1753.5	2.68	2.97
	5	QPSK	25/0	1712.5	4.52	4.92
			25/0	1732.5	4.49	4.93
			25/0	1752.5	4.49	4.90
		16QAM	25/0	1712.5	4.49	4.89
			25/0	1732.5	4.49	4.93
			25/0	1752.5	4.49	4.94
	10	QPSK	50/0	1715	8.95	9.72
			50/0	1732.5	8.99	9.58
			50/0	1750	8.92	9.60
		16QAM	50/0	1715	8.95	9.76
			50/0	1732.5	8.96	9.68
			50/0	1750	8.97	9.59

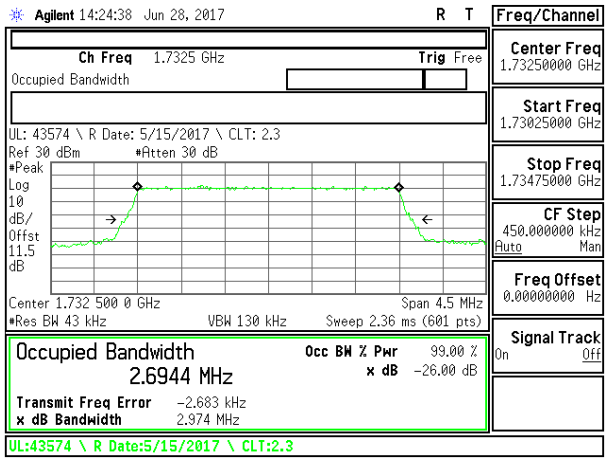
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	15	QPSK	75/0	1717.5	13.38	14.46
			75/0	1732.5	13.39	14.47
			75/0	1747.5	13.4	14.46
		16QAM	75/0	1717.5	13.38	14.42
			75/0	1732.5	13.38	14.52
			75/0	1747.5	13.4	14.55
	20	QPSK	100/0	1720	17.78	19.16
			100/0	1732.5	17.81	19.15
			100/0	1745	17.86	19.14
		16QAM	100/0	1720	17.83	19.16
			100/0	1732.5	17.85	19.20
			100/0	1745	17.87	19.23



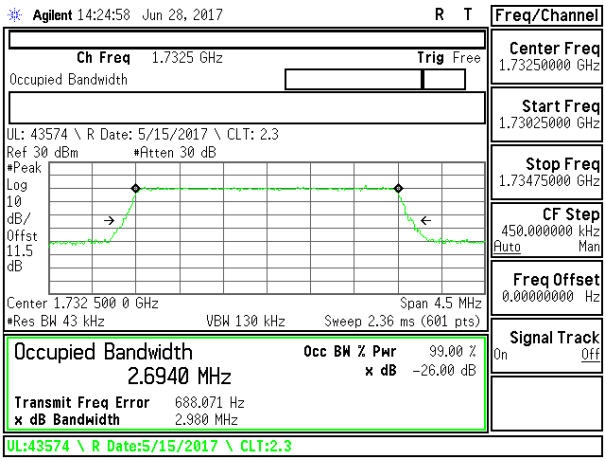
LTE B4 1.4MHz QPSK Middle Channel



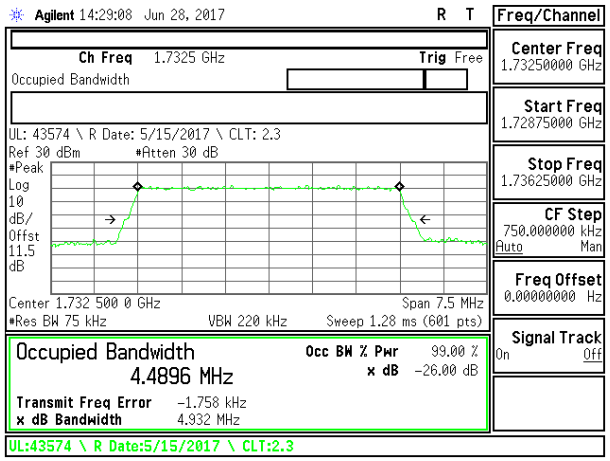
LTE B4 1.4MHz 16QAM Middle Channel



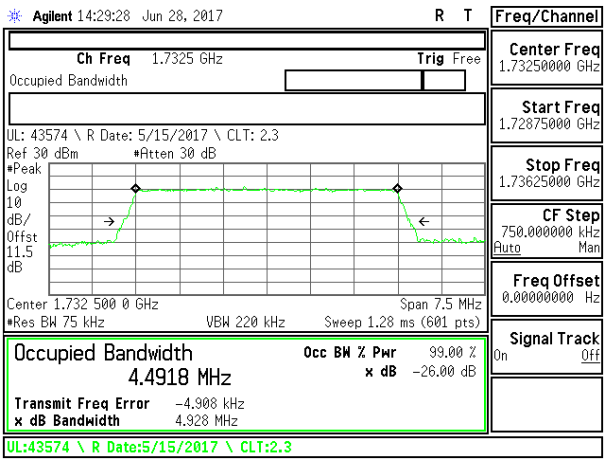
LTE B4 3MHz QPSK Middle Channel



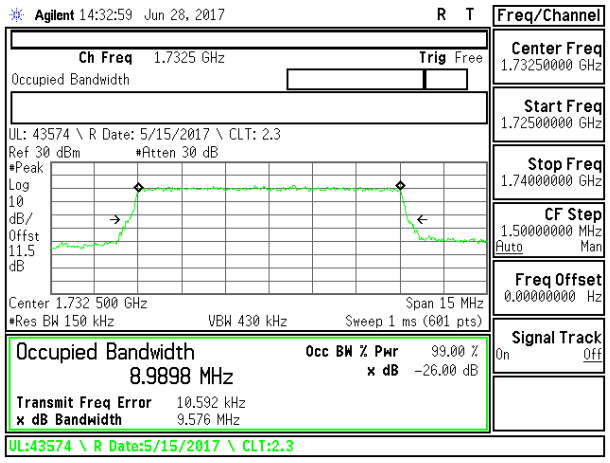
LTE B4 3MHz 16QAM Middle Channel



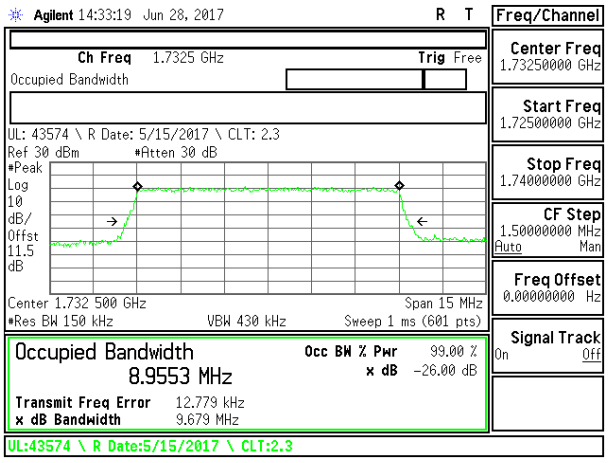
LTE B4 5MHz QPSK Middle Channel



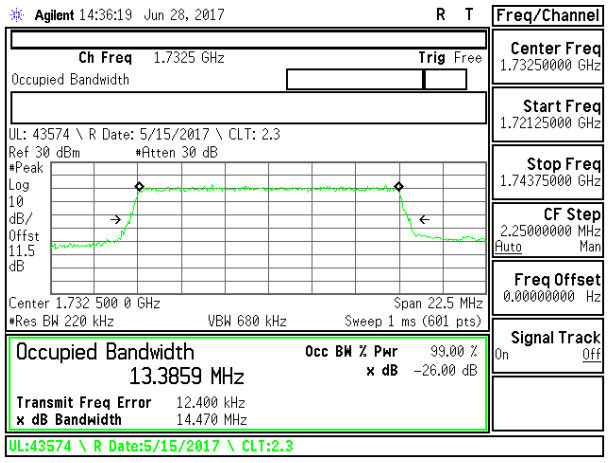
LTE B4 5MHz 16QAM Middle Channel



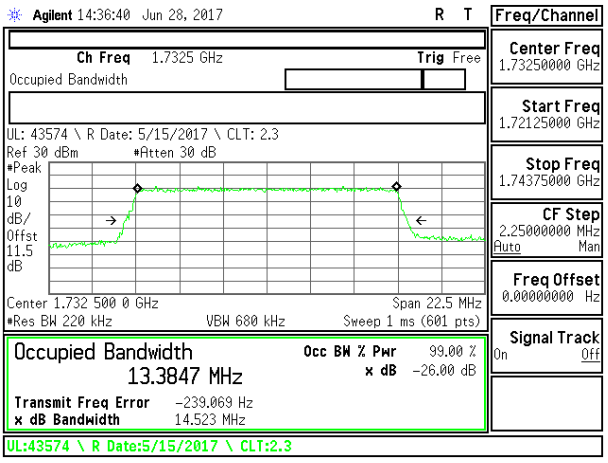
LTE B4 10MHz QPSK Middle Channel



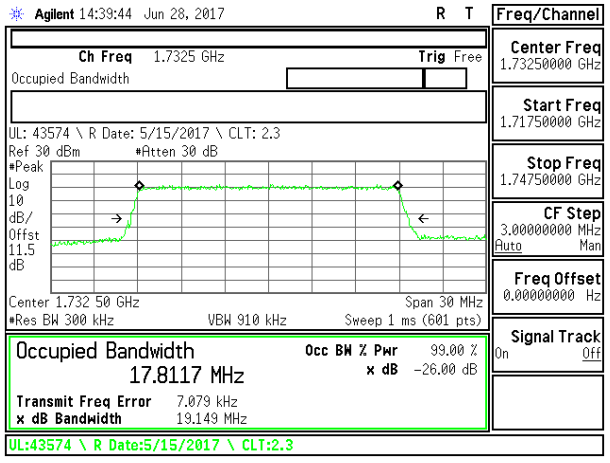
LTE B4 10MHz 16QAM Middle Channel



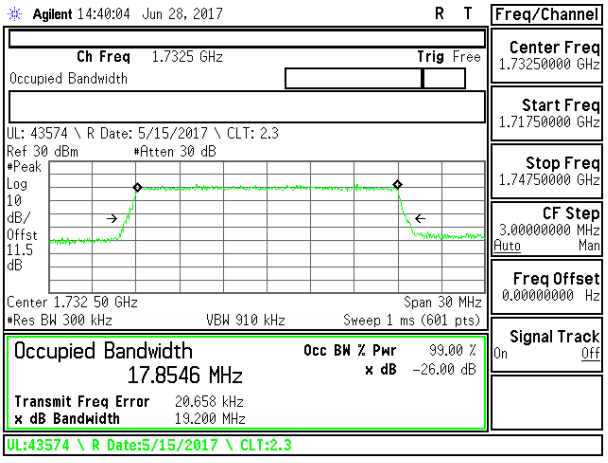
LTE B4 15MHz QPSK Middle Channel



LTE B4 15MHz 16QAM Middle Channel



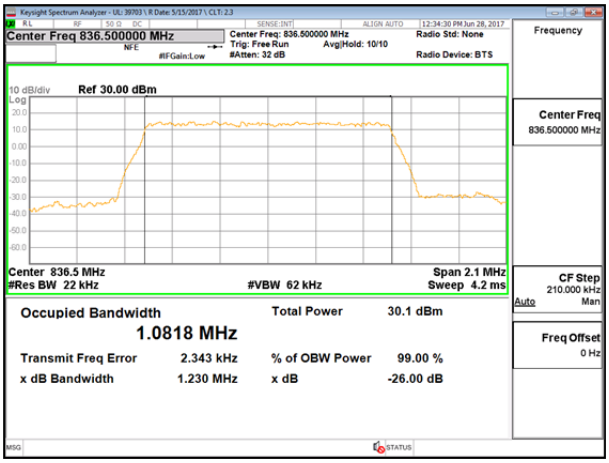
LTE B4 20MHz QPSK Middle Channel



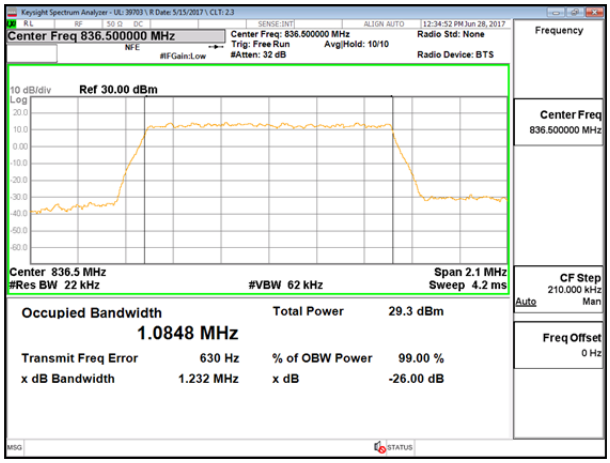
LTE B4 20MHz 16QAM Middle Channel

LTE Band 5

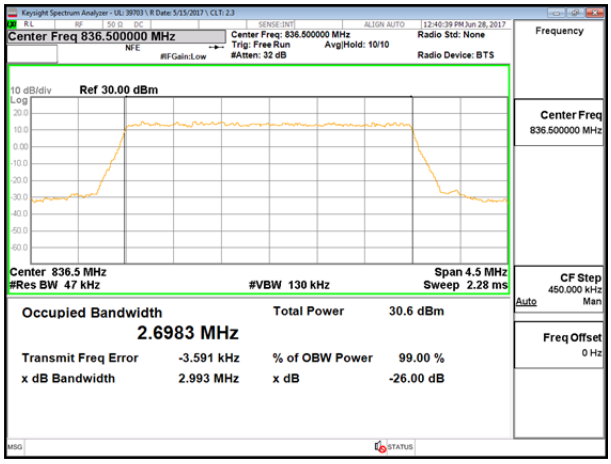
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	1.4	QPSK	6/0	824.7	1.09	1.24
			6/0	836.5	1.08	1.23
			6/0	848.3	1.09	1.23
		16QAM	6/0	824.7	1.08	1.23
			6/0	836.5	1.08	1.23
			6/0	848.3	1.09	1.24
	3	QPSK	25/0	825.5	2.70	3.01
			25/0	836.5	2.70	2.99
			25/0	847.5	2.70	2.99
		16QAM	25/0	825.5	2.70	3.00
			25/0	836.5	2.70	3.00
			25/0	847.5	2.69	3.01
	5	QPSK	25/0	826.5	4.50	4.92
			25/0	836.5	4.52	4.97
			25/0	846.5	4.49	4.93
		16QAM	25/0	826.5	4.48	4.91
			25/0	836.5	4.50	4.97
			25/0	846.5	4.49	4.92
	10	QPSK	50/0	829	8.97	9.80
			50/0	836.5	8.97	9.84
			50/0	844	8.97	9.74
		16QAM	50/0	829	8.97	9.71
			50/0	836.5	8.93	9.81
			50/0	844	8.99	9.77



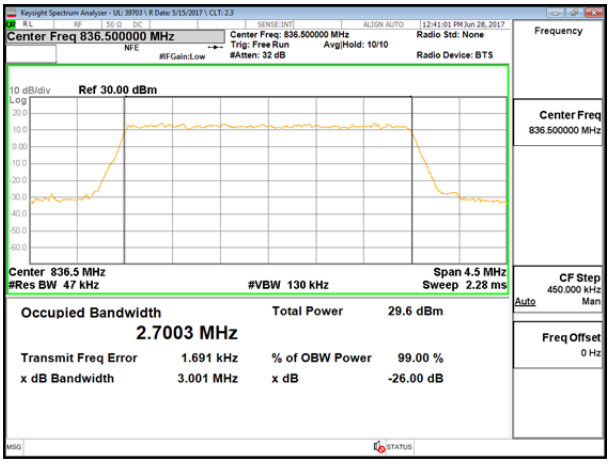
LTE B5 1.4MHz QPSK Middle Channel



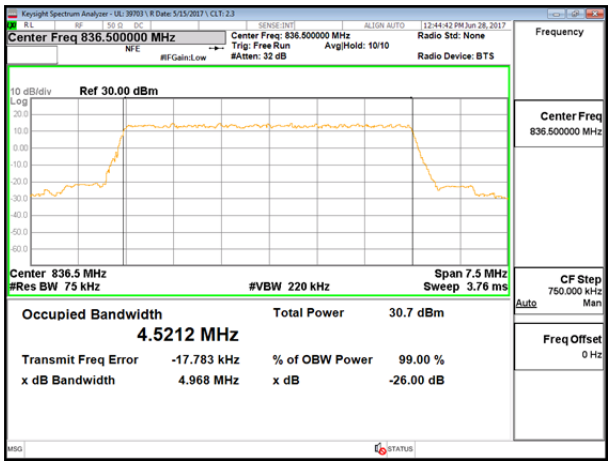
LTE B5 1.4MHz 16QAM Middle Channel



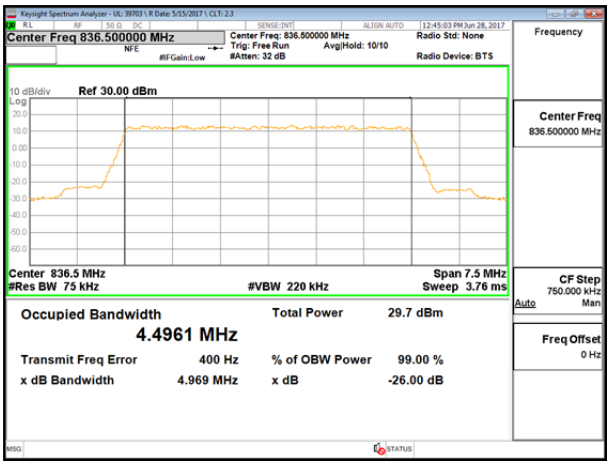
LTE B5 3MHz QPSK Middle Channel



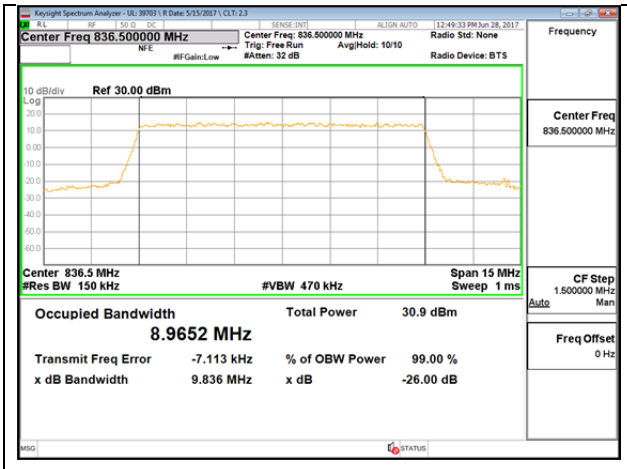
LTE B5 3MHz 16QAM Middle Channel



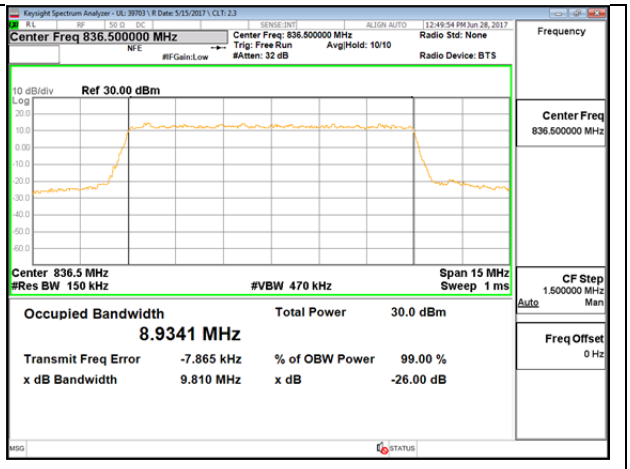
LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel



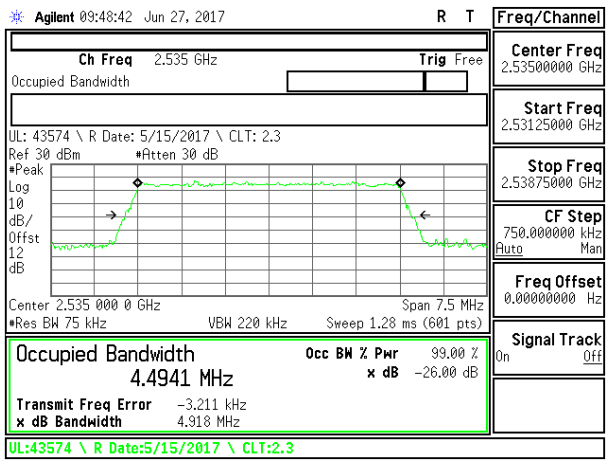
LTE B5 10MHz QPSK Middle Channel



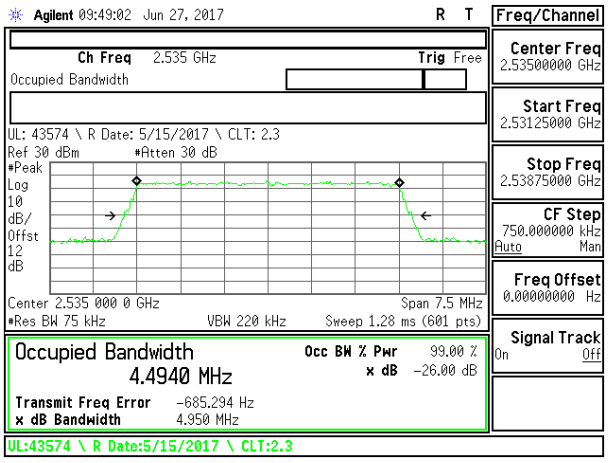
LTE B5 10MHz 16QAM Middle Channel

LTE Band 7

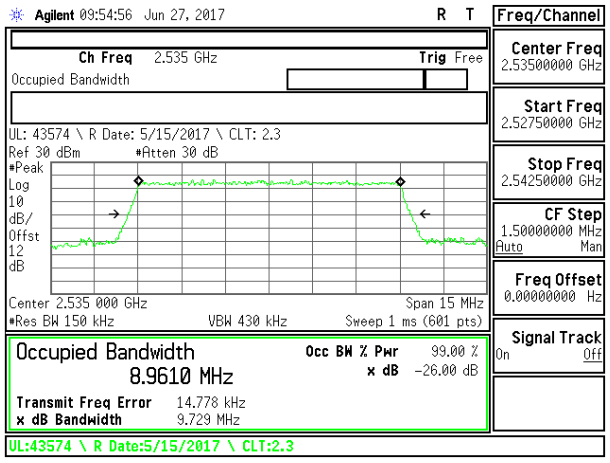
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE7	5	QPSK	50/0	2502.5	4.50	4.96
			50/0	2535	4.49	4.92
			50/0	2567.5	4.50	4.93
		16QAM	25/0	2502.5	4.49	4.92
			25/0	2535	4.49	4.95
			25/0	2567.5	4.49	4.93
	10	QPSK	1/0	2505	8.92	9.7
			50/0	2535	8.96	9.73
			1/0	2565	8.95	9.62
		16QAM	50/0	2505	8.95	9.64
			50/0	2535	8.95	9.73
			50/0	2565	8.98	9.66
	15	QPSK	1/0	2507.5	13.38	14.46
			75/0	2535	13.41	14.41
			1/0	2562.5	13.4	14.46
		16QAM	1/0	2507.5	13.38	14.42
			75/0	2535	13.38	14.42
			75/0	2562.5	13.4	14.55
	20	QPSK	1/0	2510	17.78	19.16
			100/0	2535	17.82	19.27
			1/0	2560	17.86	19.14
		16QAM	100/0	2510	17.83	19.16
			100/0	2535	17.84	19.18
			100/0	2560	17.87	19.23



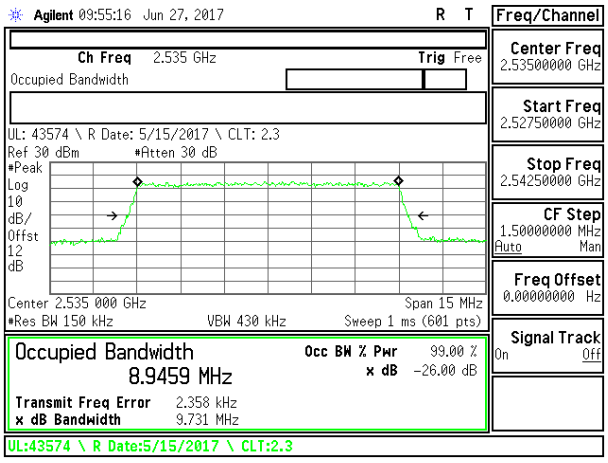
LTE B7 5MHz QPSK Middle Channel



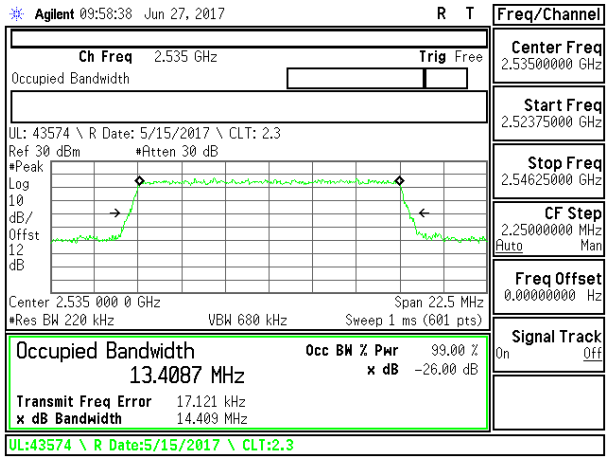
LTE B7 5MHz 16QAM Middle Channel



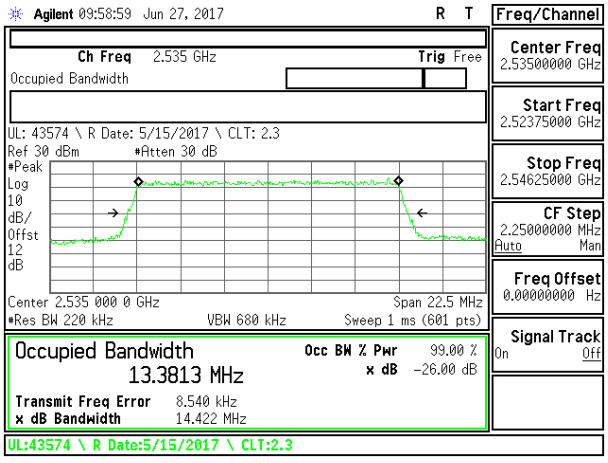
LTE B7 10MHz QPSK Middle Channel



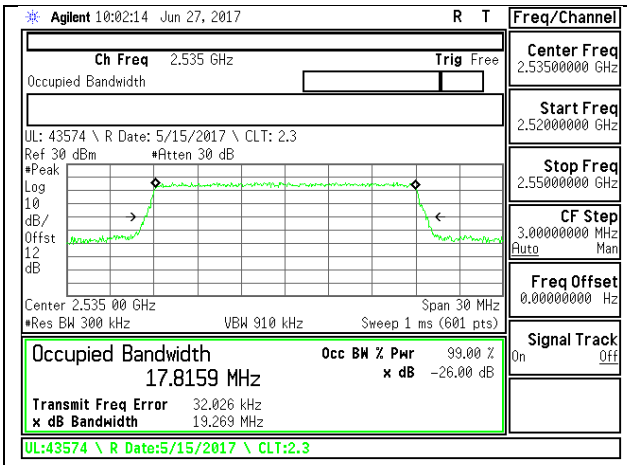
LTE B7 10MHz 16QAM Middle Channel



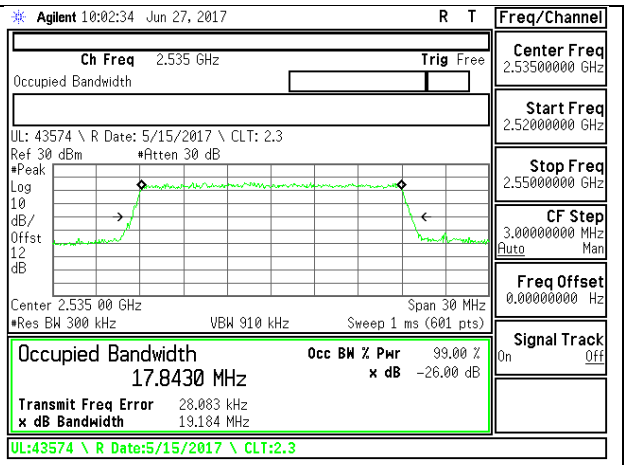
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel



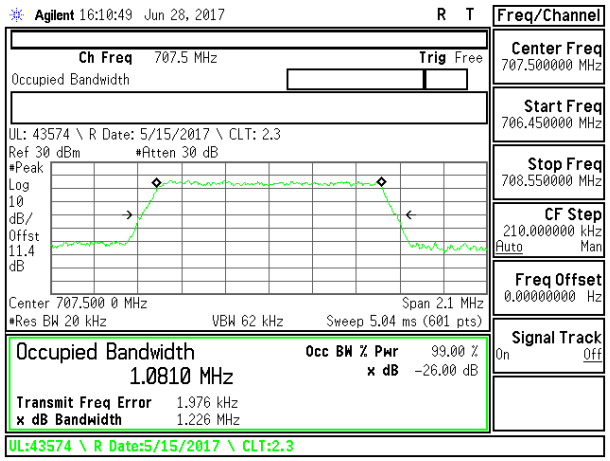
LTE B7 20MHz QPSK Middle Channel



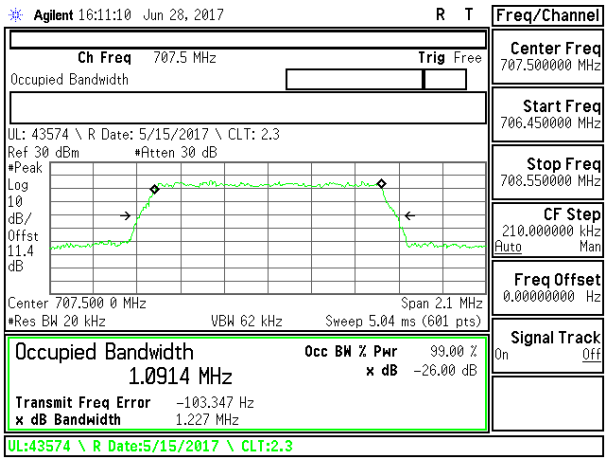
LTE B7 20MHz 16QAM Middle Channel

LTE Band 12

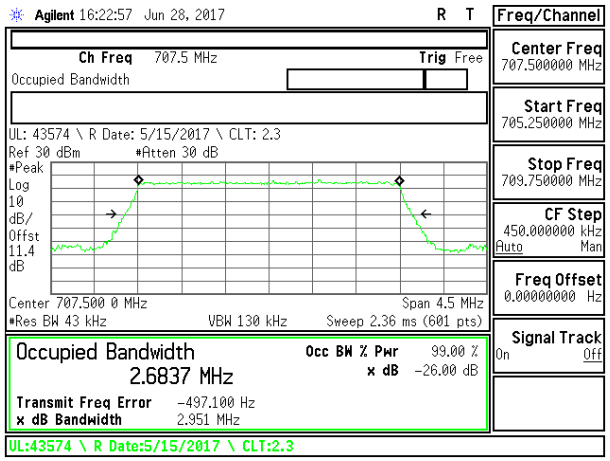
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE12	1.4	QPSK	6/0	699.7	1.09	1.21
			6/0	707.5	1.09	1.23
			6/0	715.3	1.08	1.23
		16QAM	6/0	699.7	1.09	1.21
			6/0	707.5	1.09	1.23
			6/0	715.3	1.09	1.22
	3	QPSK	15/0	700.5	2.69	2.96
			15/0	707.5	2.68	2.95
			15/0	714.5	2.68	3.00
		16QAM	15/0	700.5	2.68	2.98
			15/0	707.5	2.68	2.97
			15/0	714.5	2.69	2.96
	5	QPSK	25/0	701.5	4.49	4.85
			25/0	707.5	4.51	4.93
			25/0	713.5	4.49	4.95
		16QAM	25/0	701.5	4.50	4.87
			25/0	707.5	4.50	4.93
			25/0	713.5	4.49	4.91
	10	QPSK	50/0	704	8.95	9.71
			50/0	707.5	8.97	9.79
			50/0	711	8.93	9.77
		16QAM	50/0	704	8.95	9.64
			50/0	707.5	8.99	9.56
			50/0	711	8.96	9.70



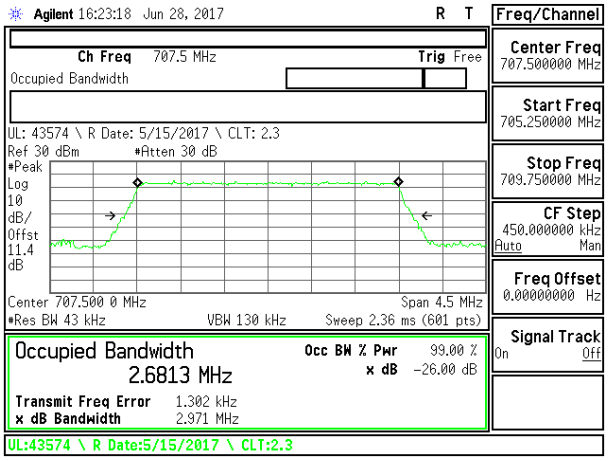
LTE B12 1.4MHz QPSK Middle Channel



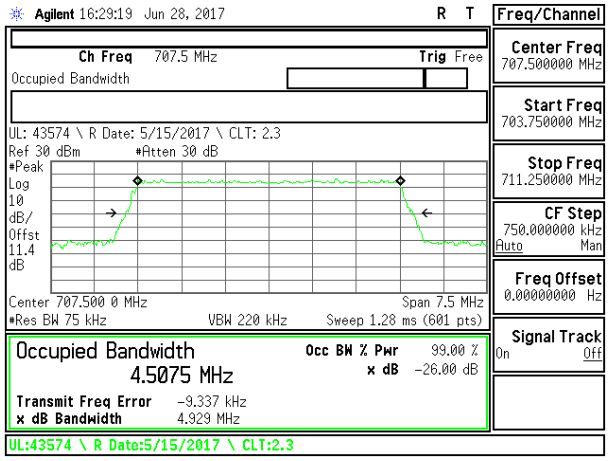
LTE B12 1.4MHz 16QAM Middle Channel



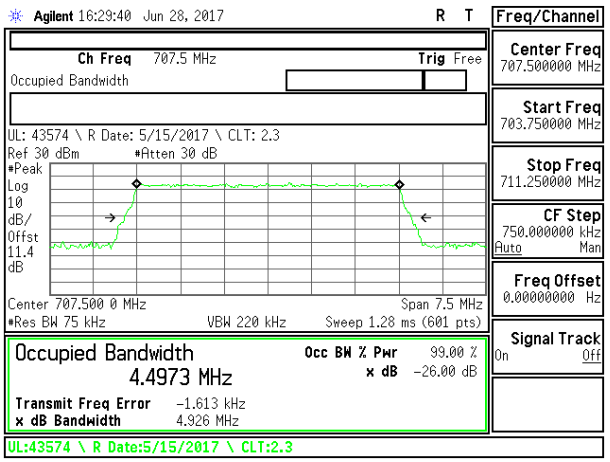
LTE B12 3MHz QPSK Middle Channel



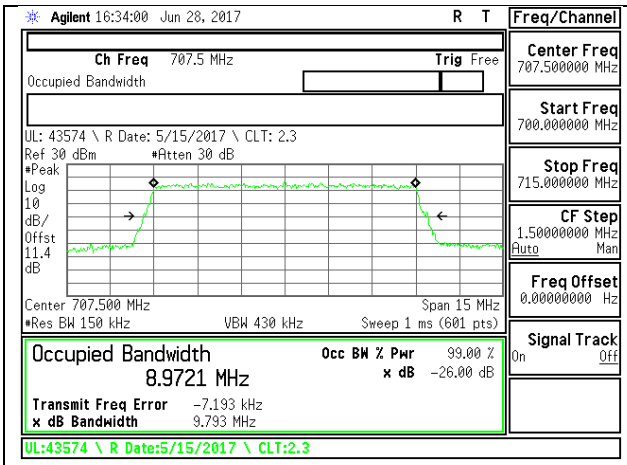
LTE B12 3MHz 16QAM Middle Channel



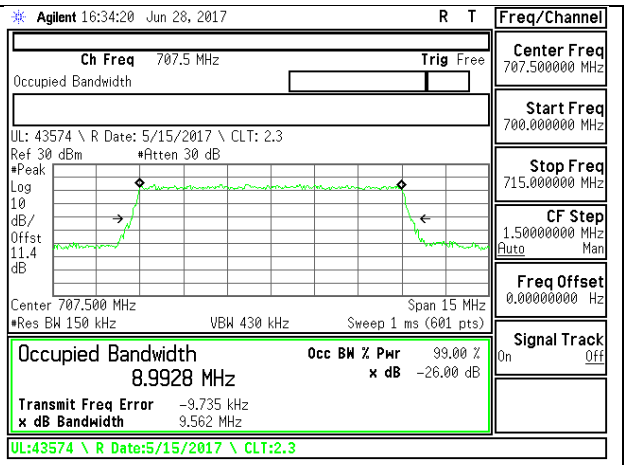
LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel



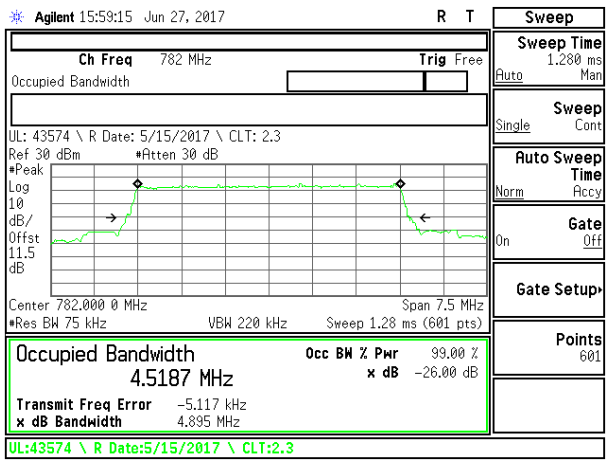
LTE B12 10MHz QPSK Middle Channel



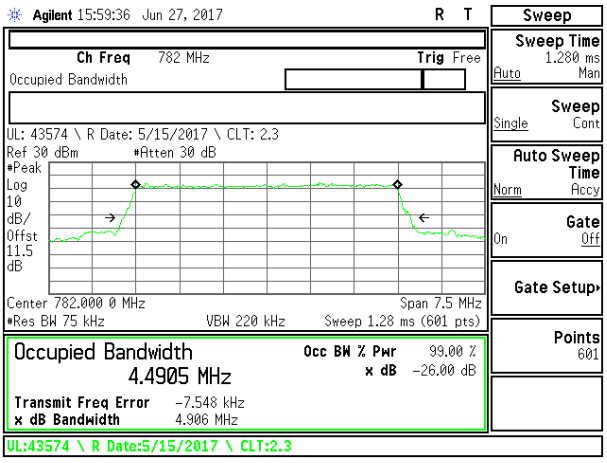
LTE B12 10MHz 16QAM Middle Channel

LTE Band 13

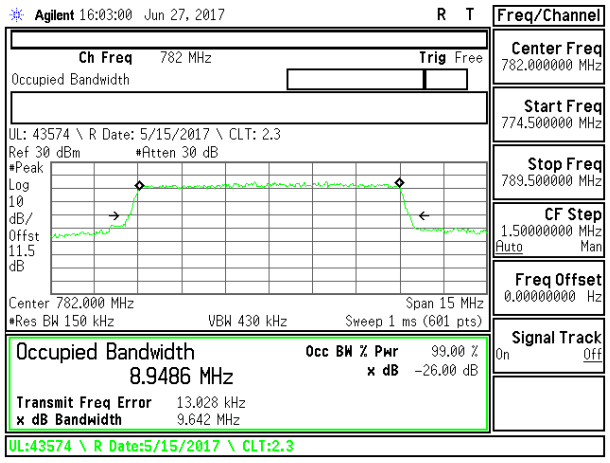
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE13	5	QPSK	25/0	779.5	4.48	4.93
			25/0	782	4.52	4.90
			25/0	784.5	4.51	4.96
		16QAM	25/0	779.5	4.49	4.94
			25/0	782	4.49	4.91
			25/0	784.5	4.50	4.94
	10	QPSK	50/0			
			50/0	782	8.95	9.64
			50/0			
		16QAM	50/0			
			50/0	782	8.95	9.68
			50/0			



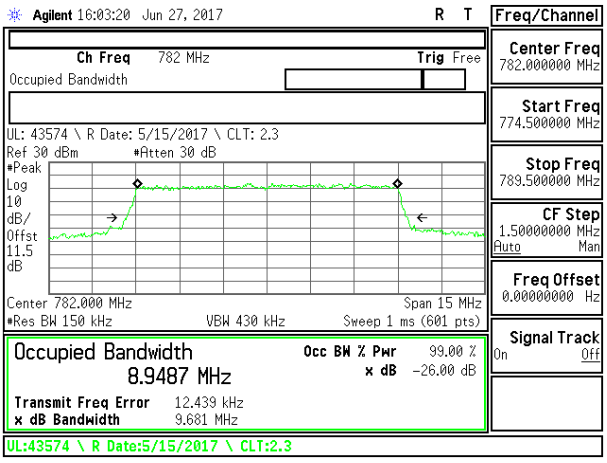
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



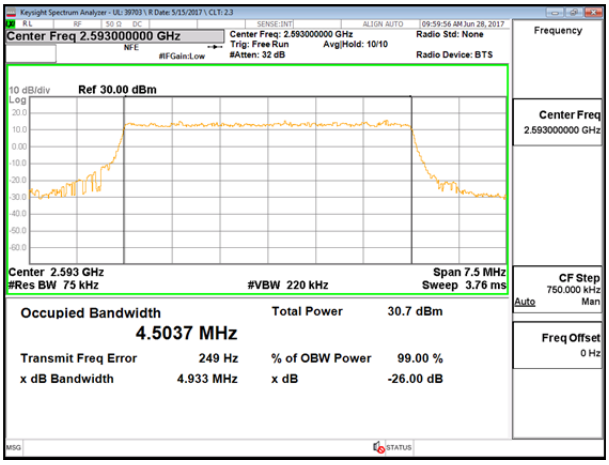
LTE B13 10MHz QPSK Middle Channel



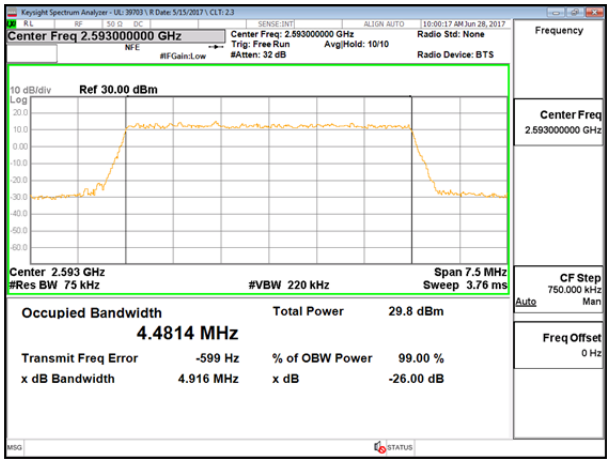
LTE B13 10MHz 16QAM Middle Channel

LTE Band 41

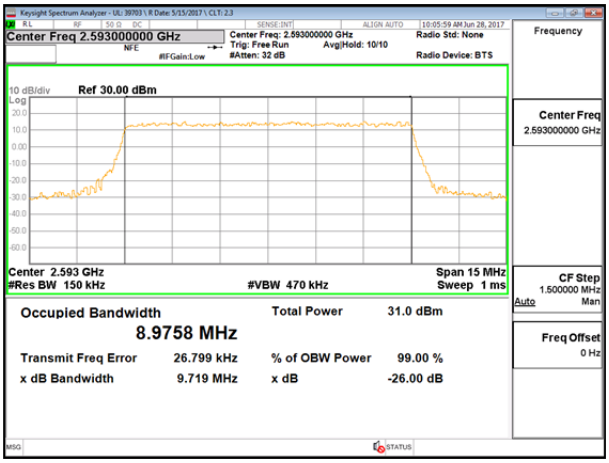
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE41	5	QPSK	25/0	2498.5	4.4905	4.931
			25/0	2593	4.5037	4.933
			25/0	2687.5	4.4985	5.086
		16QAM	25/0	2498.5	4.4921	4.913
			25/0	2593	4.4814	4.916
			25/0	2687.5	4.4957	4.975
	10	QPSK	50/0	2501	8.9442	9.811
			50/0	2593	8.9758	9.719
			50/0	2685	8.9919	9.816
		16QAM	50/0	2501	8.9871	9.697
			50/0	2593	8.9624	9.740
			50/0	2685	8.9825	9.735
	15	QPSK	75/0	2503.5	13.430	14.56
			75/0	2593	13.444	14.54
			75/0	2682.5	13.418	14.59
		16QAM	75/0	2503.5	13.446	14.55
			75/0	2593	13.427	14.52
			75/0	2682.5	13.417	14.49
	20	QPSK	100/0	2506	17.875	19.25
			100/0	2593	17.896	19.34
			100/0	2680	17.857	19.12
		16QAM	100/0	2506	17.893	19.32
			100/0	2593	17.910	19.33
			100/0	2680	17.843	19.18



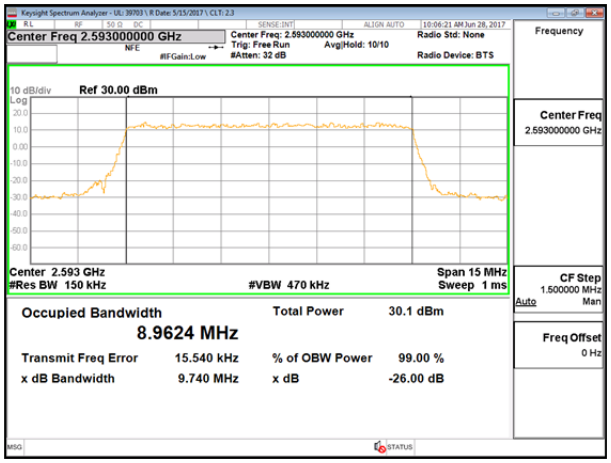
LTE B41 5MHz QPSK Middle Channel



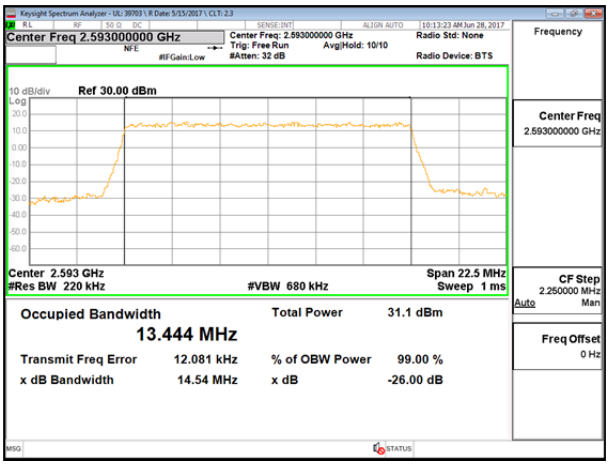
LTE B41 5MHz 16QAM Middle Channel



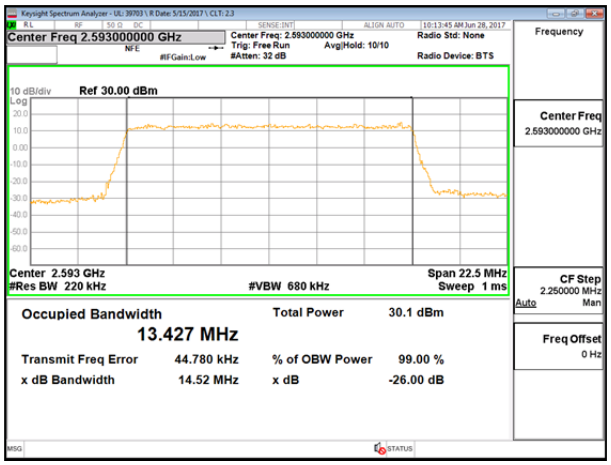
LTE B41 10MHz QPSK Middle Channel



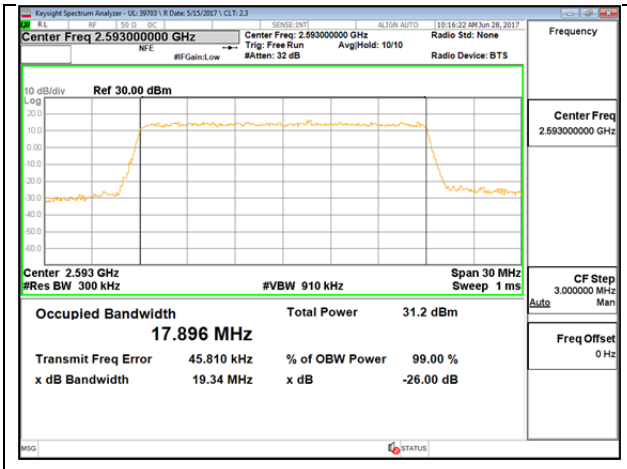
LTE B41 10MHz 16QAM Middle Channel



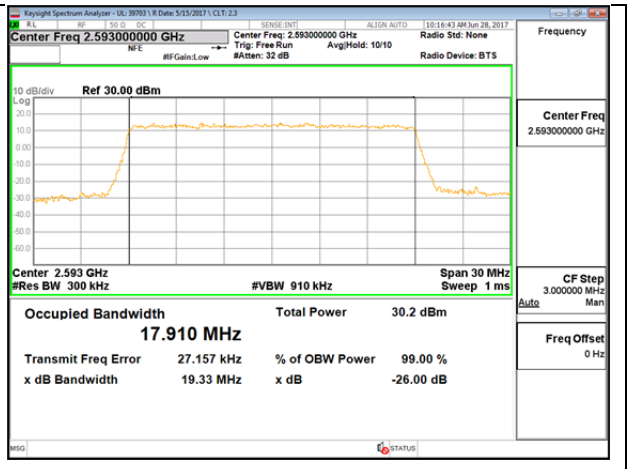
LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



LTE B41 20MHz QPSK Middle Channel



LTE B41 20MHz 16QAM Middle Channel

14. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27. 53

FCC LIMITS

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

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

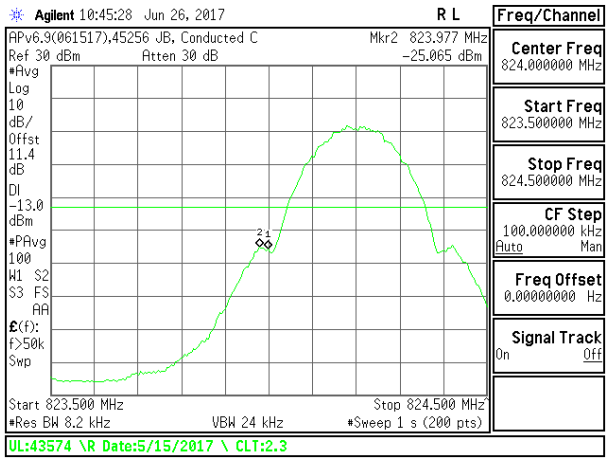
TEST PROCEDURE

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

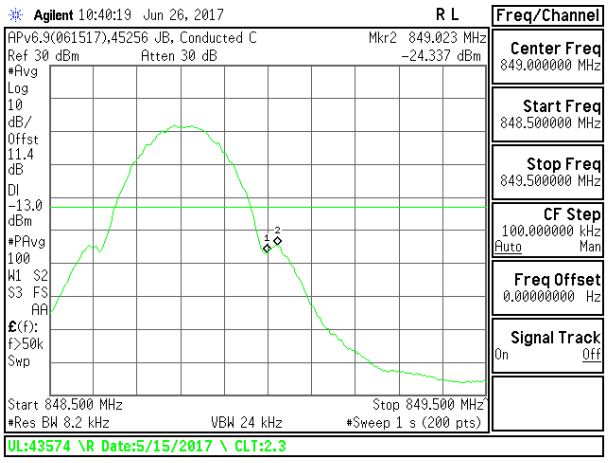
- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

14.1. BAND EDGE PLOTS

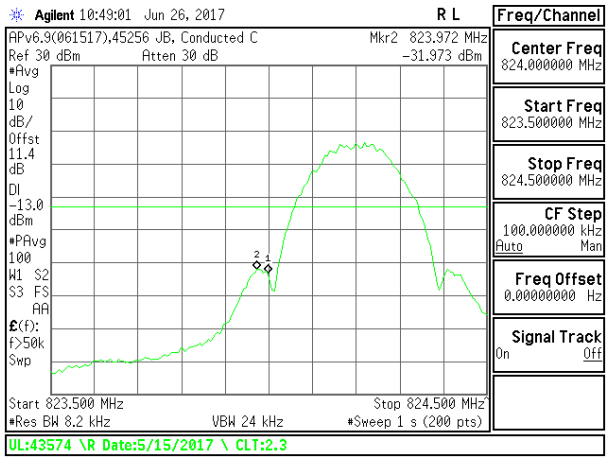
GSM



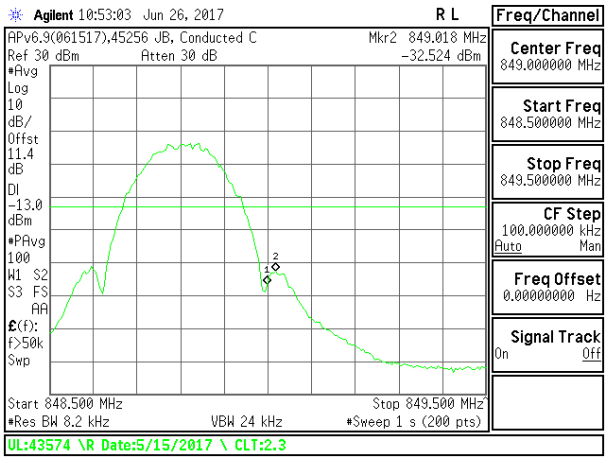
GSM850 GPRS Low Channel



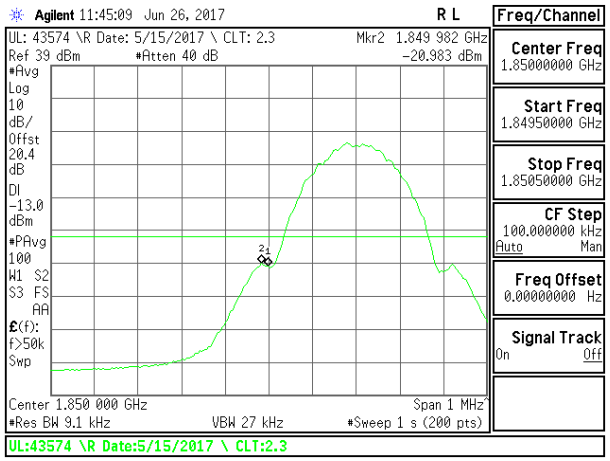
GSM850 GPRS High Channel



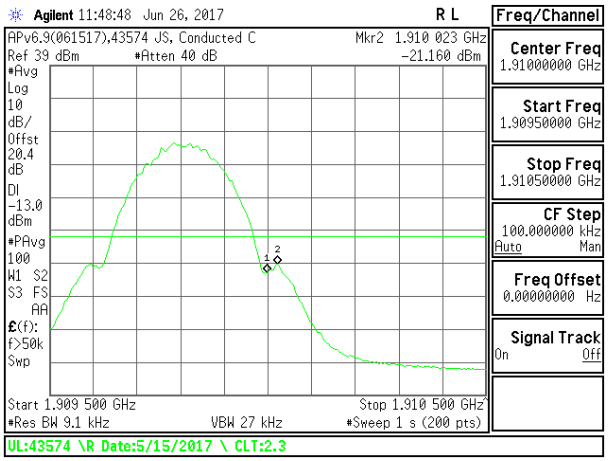
GSM850 EGPRS Low Channel



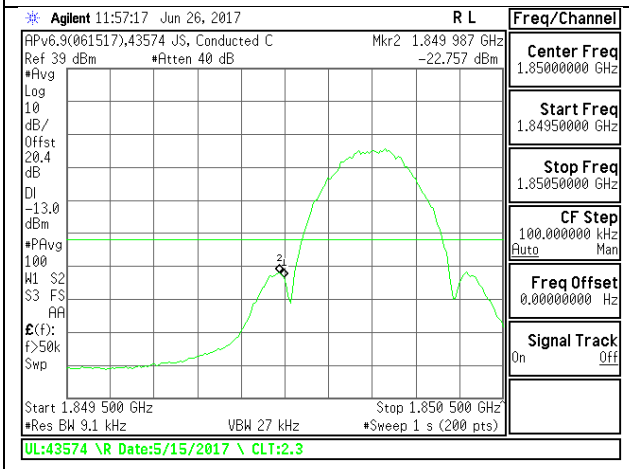
GSM850 EGPRS High Channel



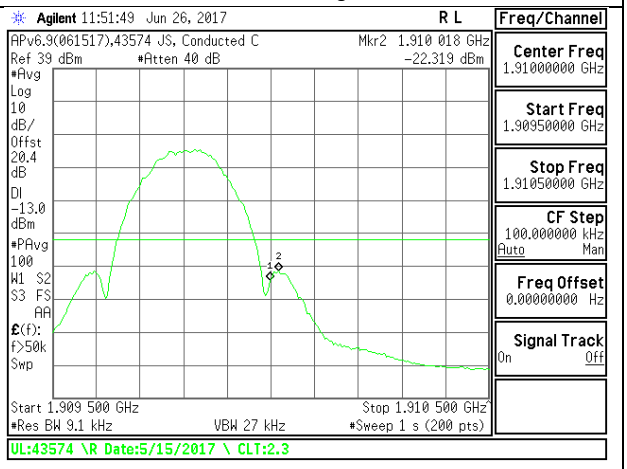
GSM1900 GPRS Low Channel



GSM1900 GPRS High Channel

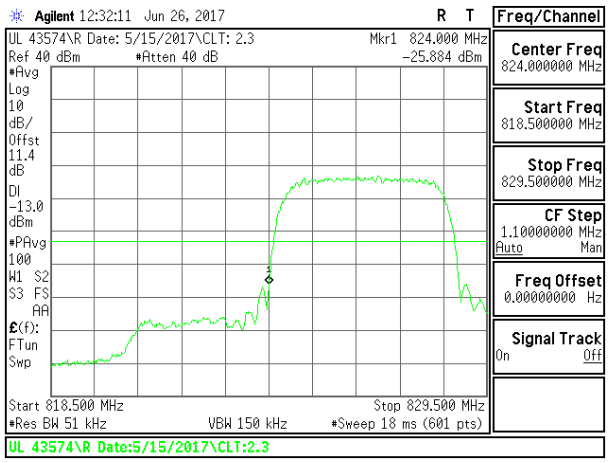


GSM1900 EGPRS Low Channel

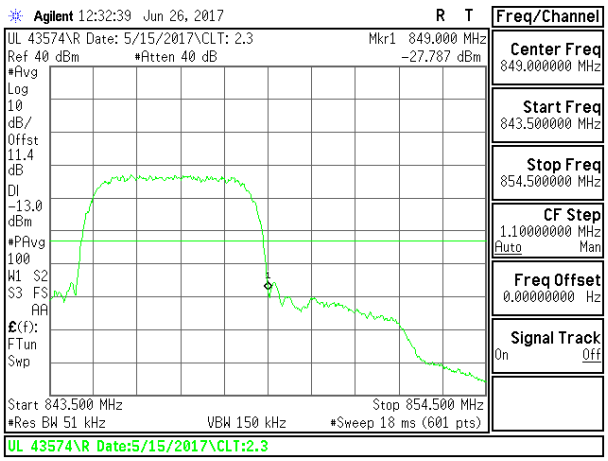


GSM1900 EGPRS High Channel

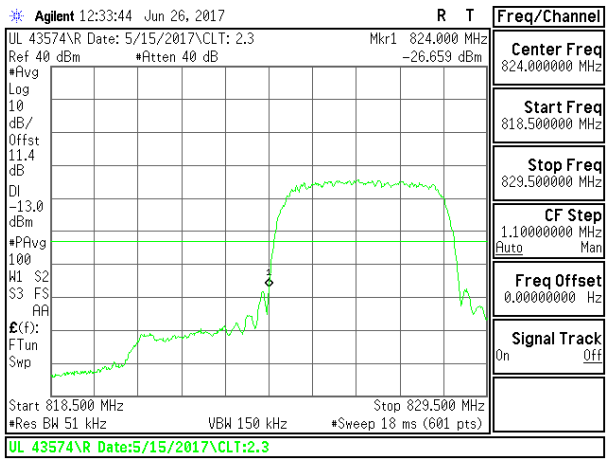
WCDMA



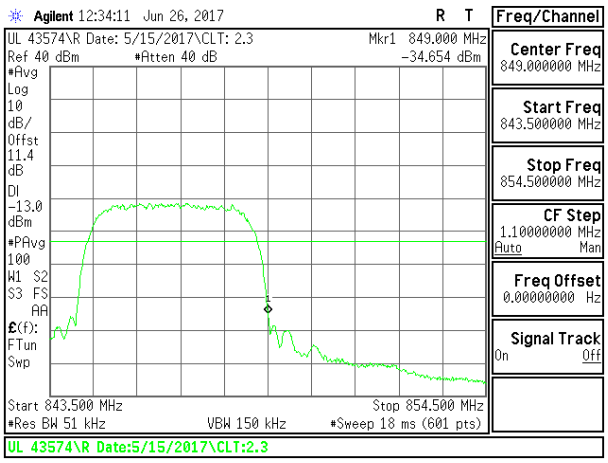
B5 REL99 Low Channel



B5 REL99 High Channel

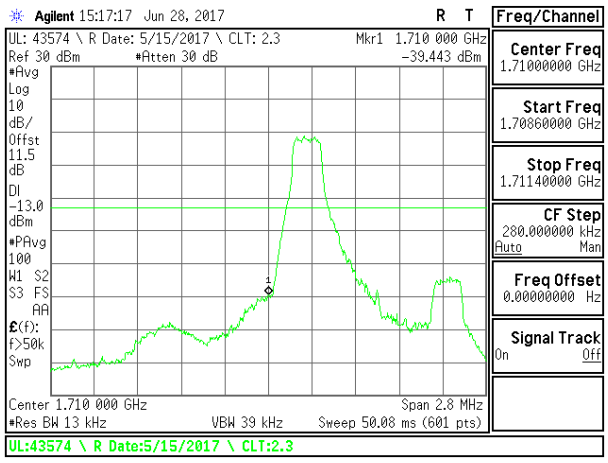


B5 HSDPA Low Channel

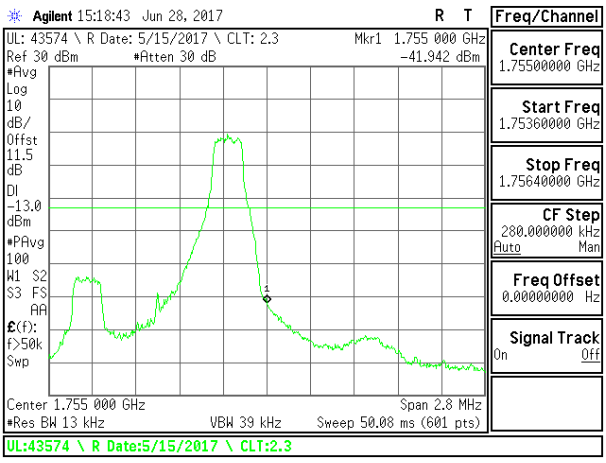


B5 HSDPA High Channel

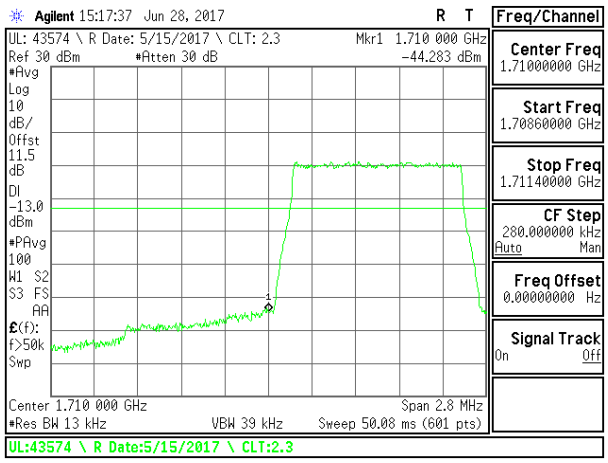
LTE Band 4



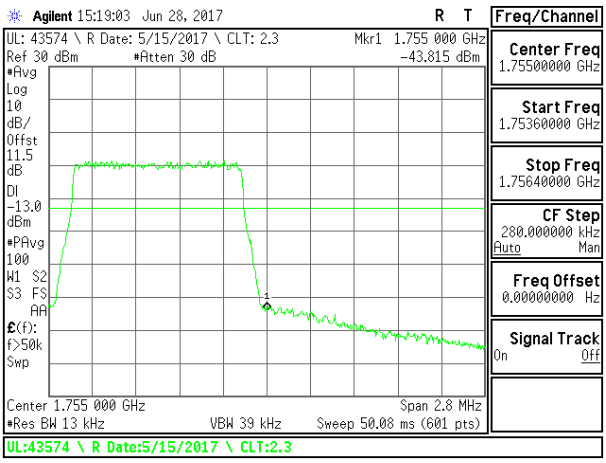
LTE B4 1.4MHz QPSK Low Channel 1RB



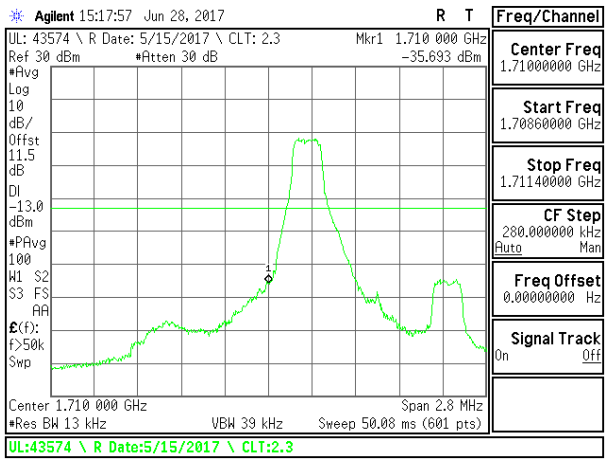
LTE B4 1.4MHz QPSK High Channel 1RB

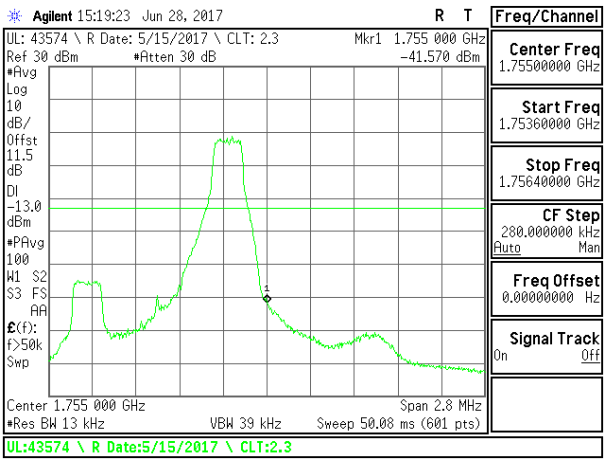


LTE B4 1.4MHz QPSK Low Channel FRB

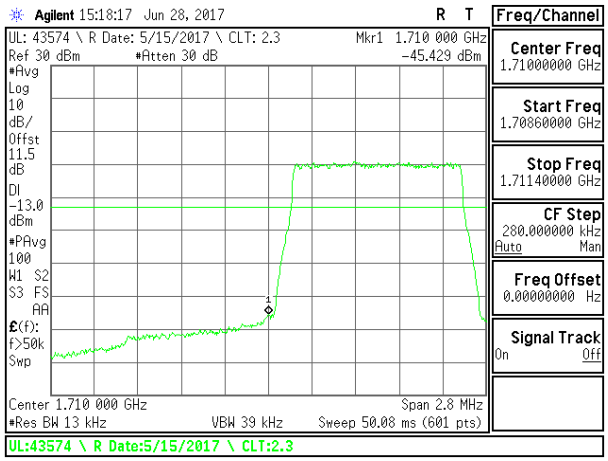


LTE B4 1.4MHz QPSK High Channel FRB





LTE B4 1.4MHz 16QAM Low Channel 1RB



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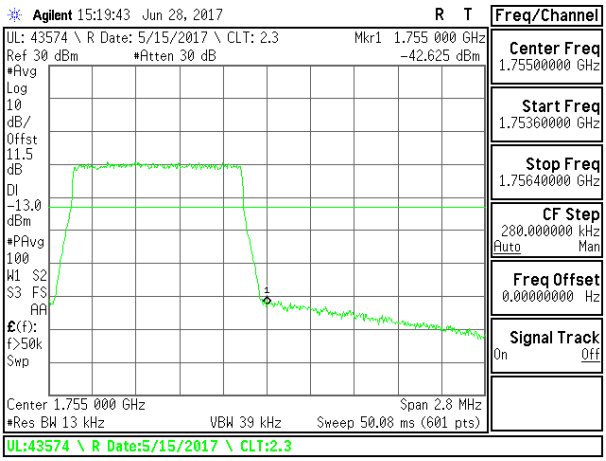
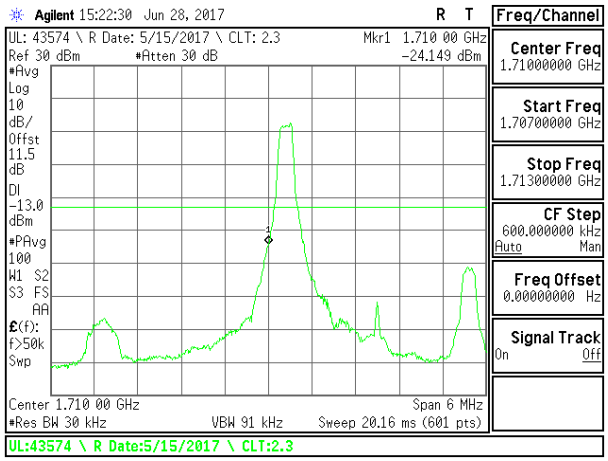
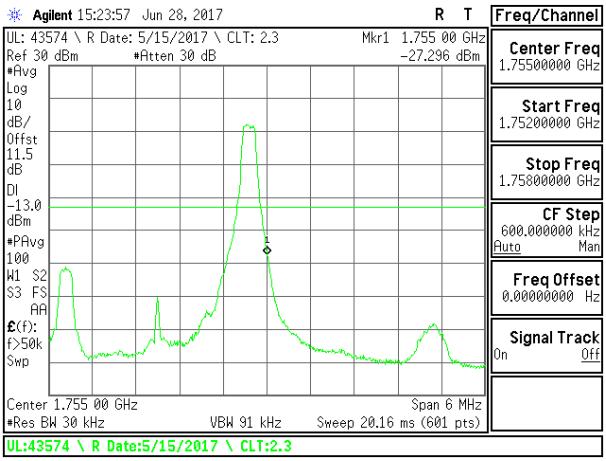


LTE B4 1.4MHz 16QAM Low Channel FRB

LTE B4 1.4MHz 16QAM High Channel FRB



LTE B4 3MHz QPSK Low Channel 1RB



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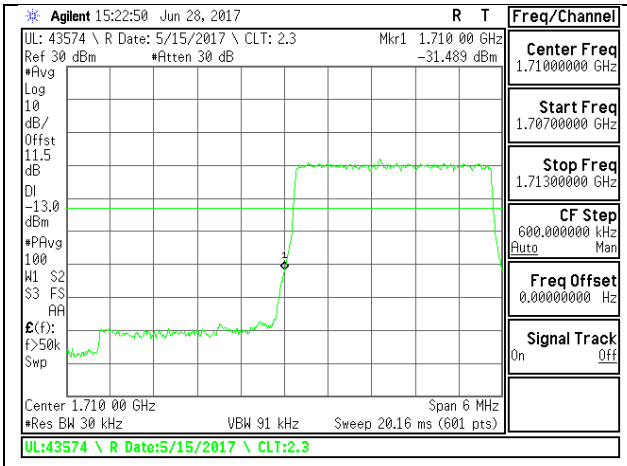
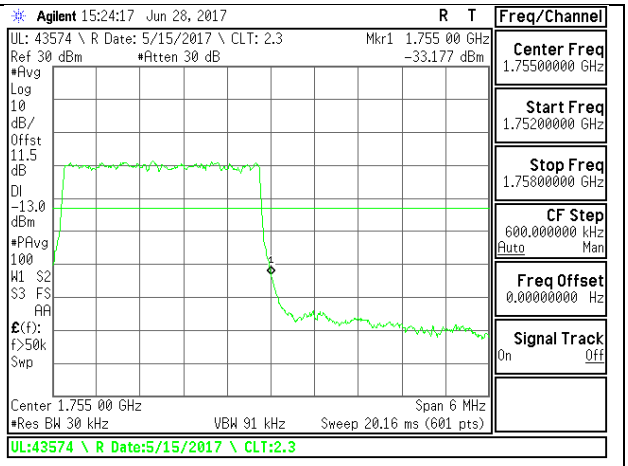
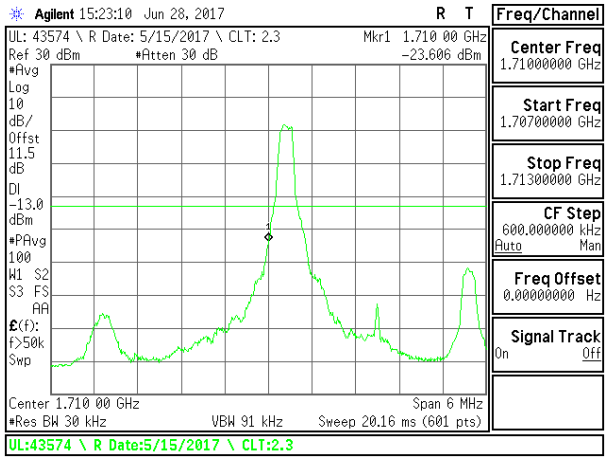


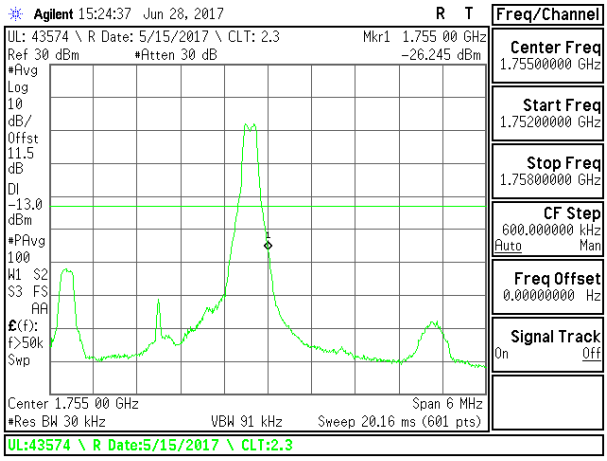
LTE B4 3MHz QPSK Low Channel FRB



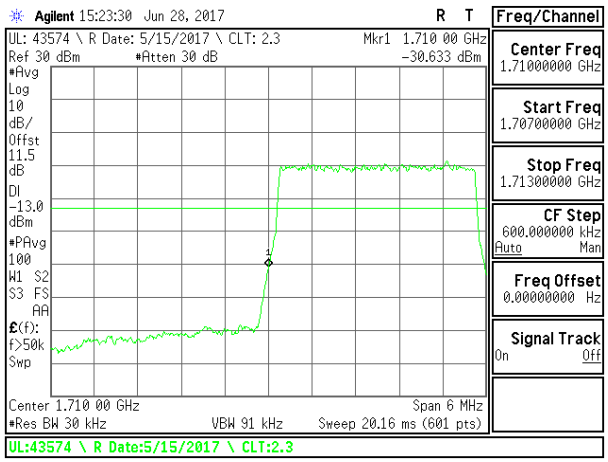
LTE B4 3MHz QPSK High Channel FRB



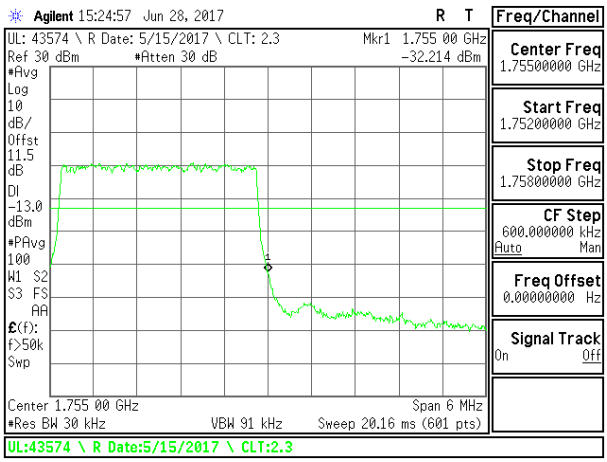
LTE B4 3MHz 16QAM Low Channel 1RB



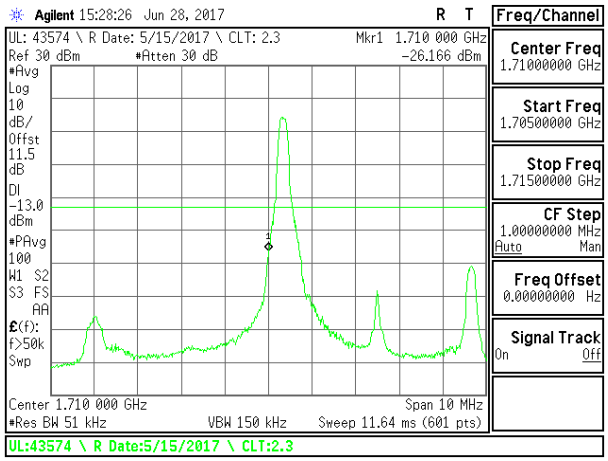
LTE B4 3MHz 16QAM High Channel 1RB



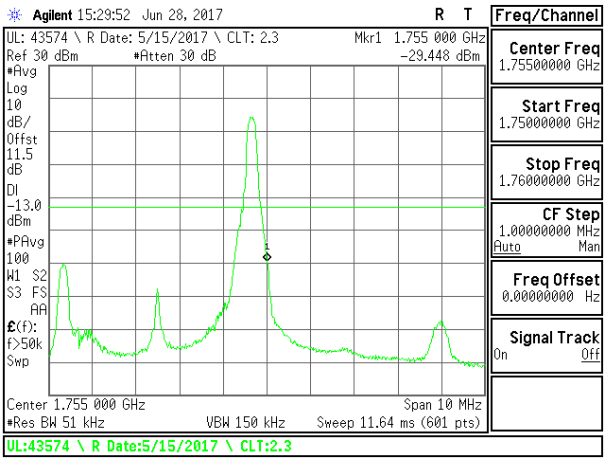
LTE B4 3MHz 16QAM Low Channel FRB



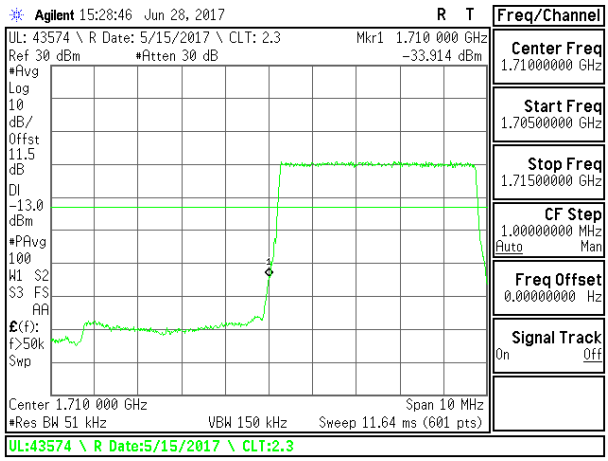
LTE B4 3MHz 16QAM High Channel FRB



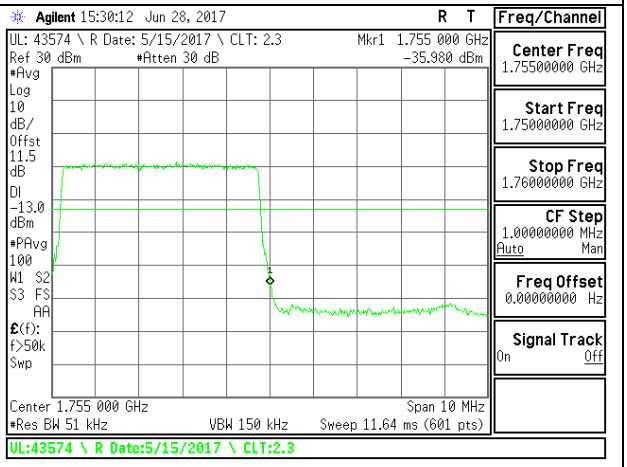
LTE B4 5MHz QPSK Low Channel 1RB



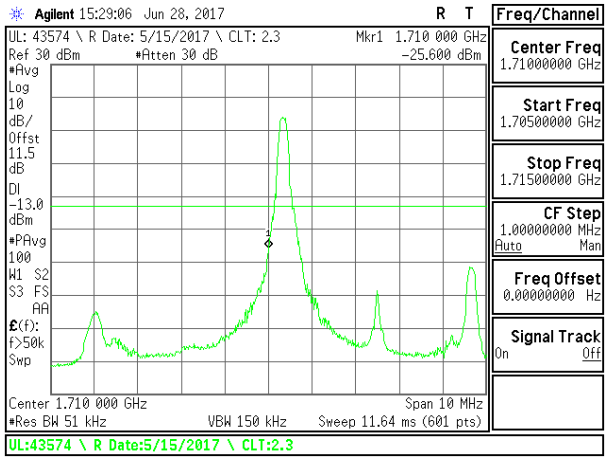
LTE B4 5MHz QPSK High Channel 1RB



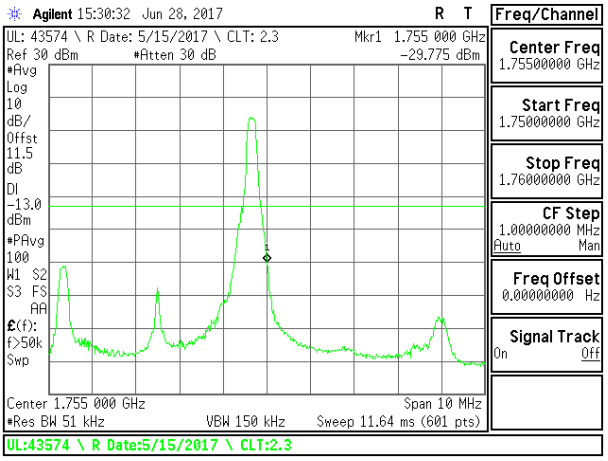
LTE B4 5MHz QPSK Low Channel FRB



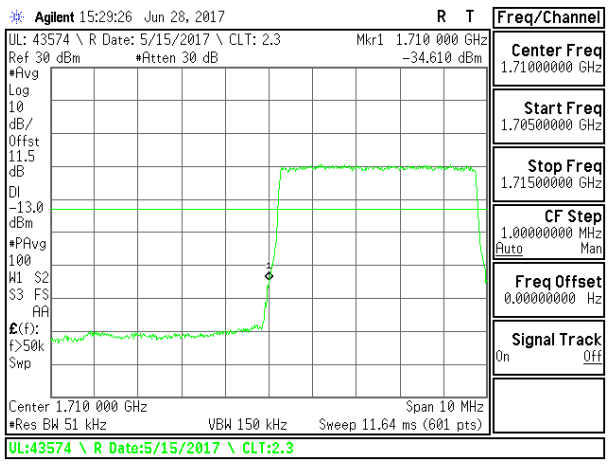
LTE B4 5MHz QPSK High Channel FRB



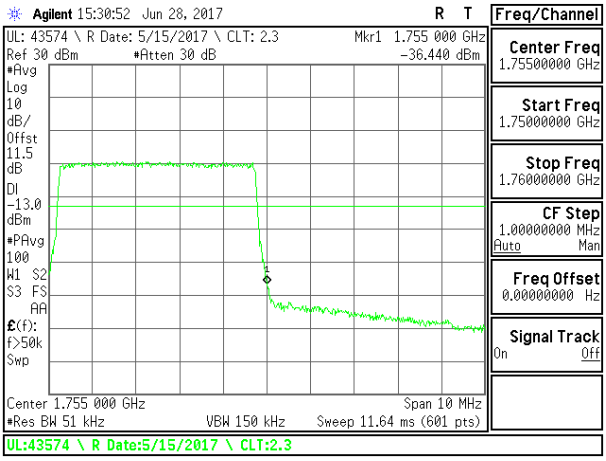
LTE B4 5MHz 16QAM Low Channel 1RB



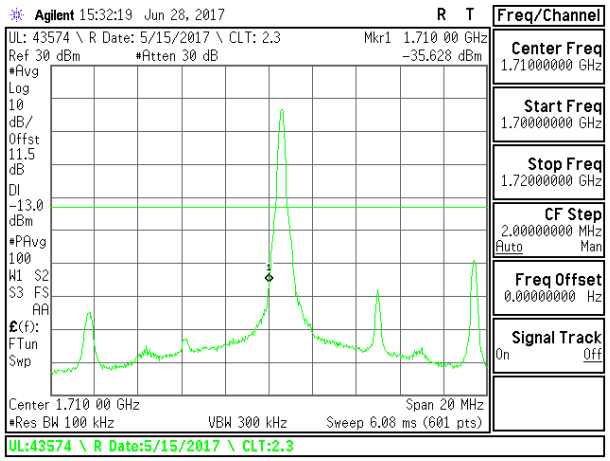
LTE B4 5MHz 16QAM High Channel 1RB



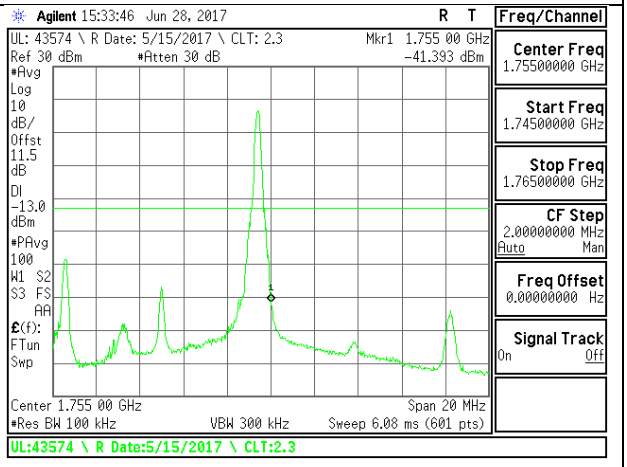
LTE B4 5MHz 16QAM Low Channel FRB



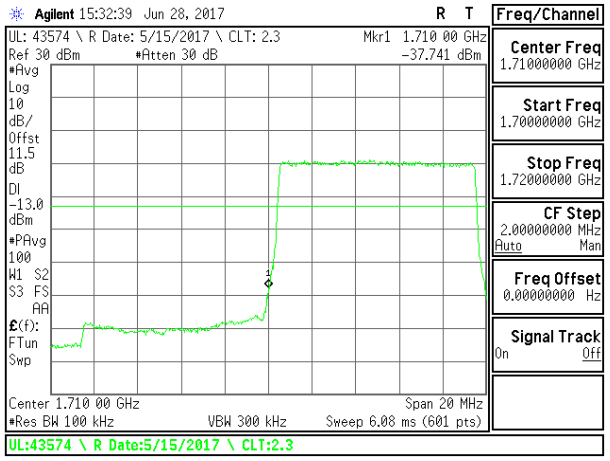
LTE B4 5MHz 16QAM High Channel FRB



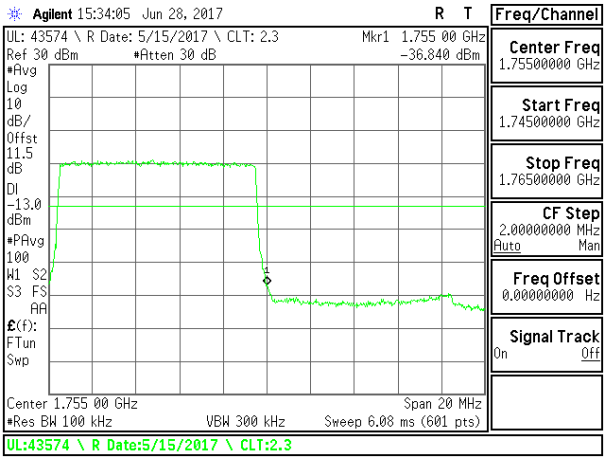
LTE B4 10MHz QPSK Low Channel 1RB



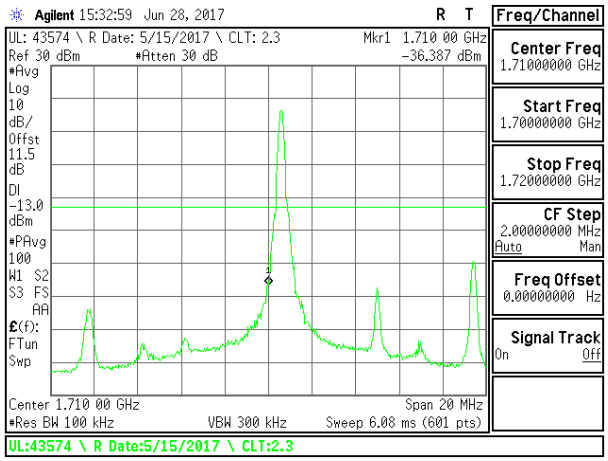
LTE B4 10MHz QPSK High Channel 1RB



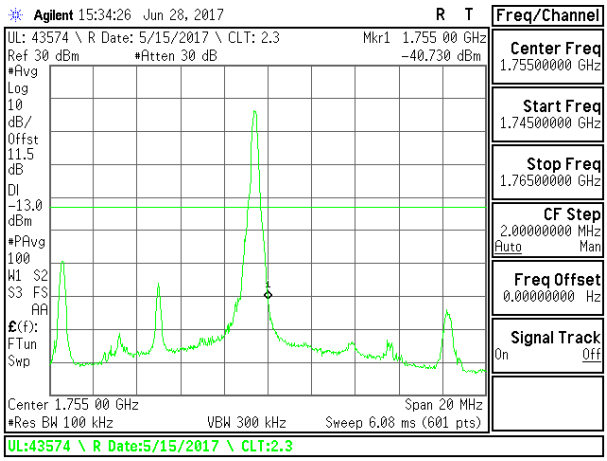
LTE B4 10MHz QPSK Low Channel FRB



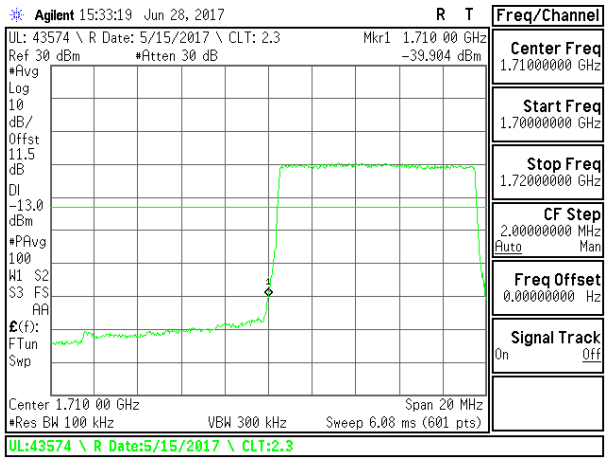
LTE B4 10MHz QPSK High Channel FRB



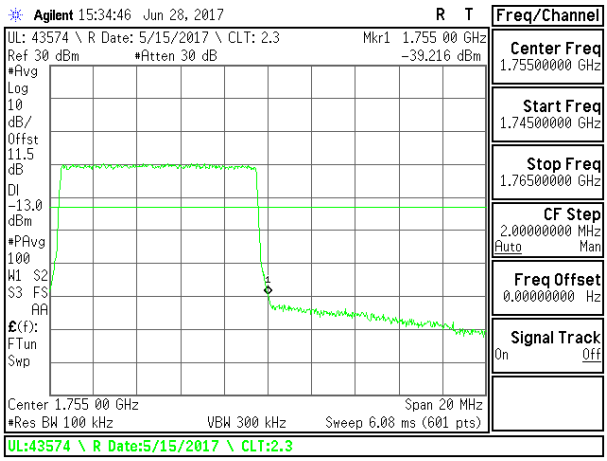
LTE B4 10MHz 16QAM Low Channel 1RB



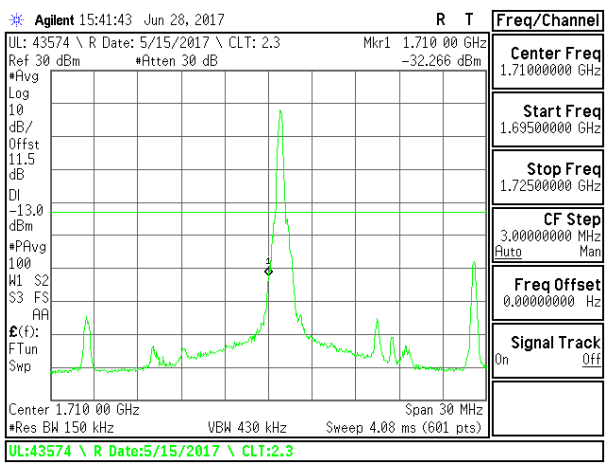
LTE B4 10MHz 16QAM High Channel 1RB



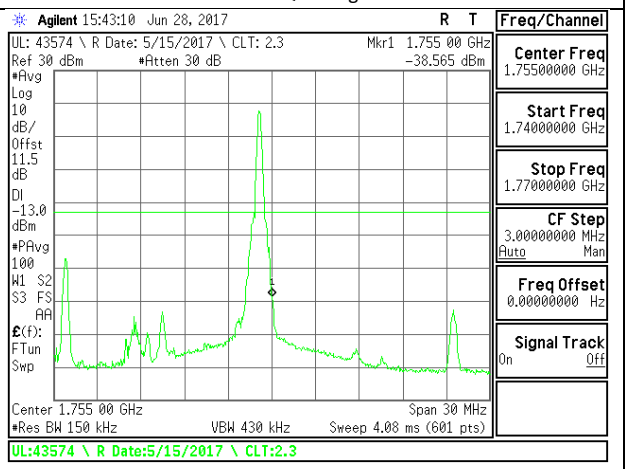
LTE B4 10MHz 16QAM Low Channel FRB



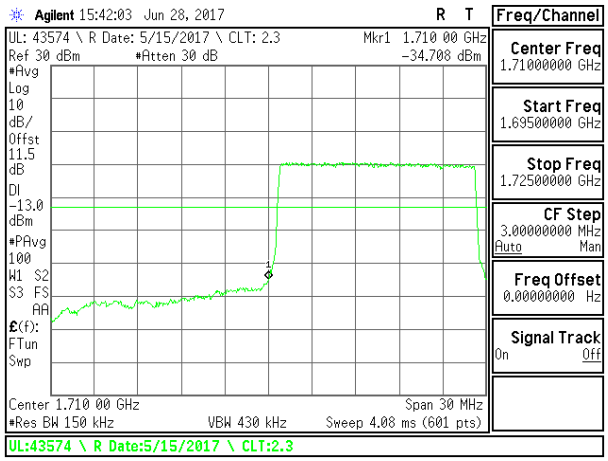
LTE B4 10MHz 16QAM High Channel FRB



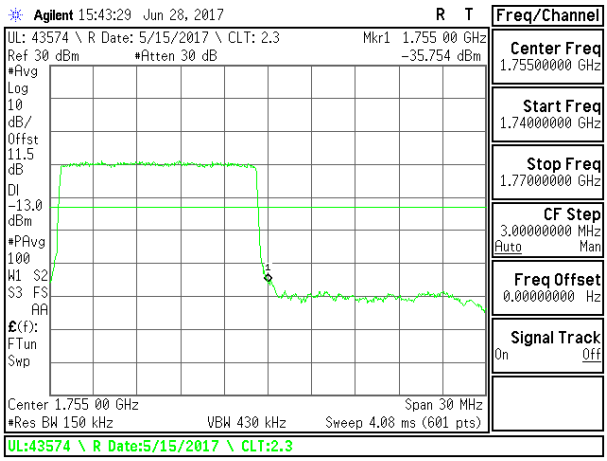
LTE B4 15MHz QPSK Low Channel 1RB



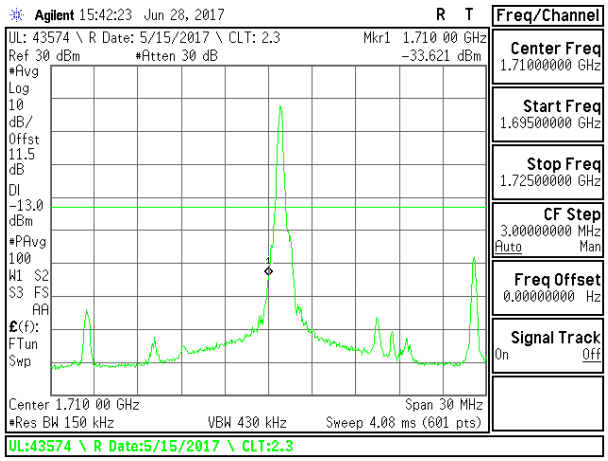
LTE B4 15MHz QPSK High Channel 1RB



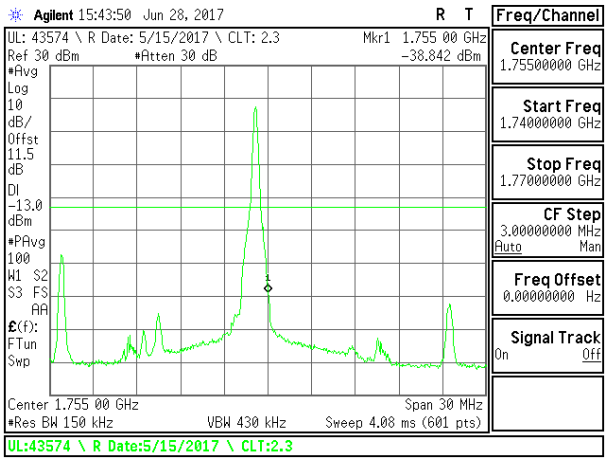
LTE B4 15MHz QPSK Low Channel FRB



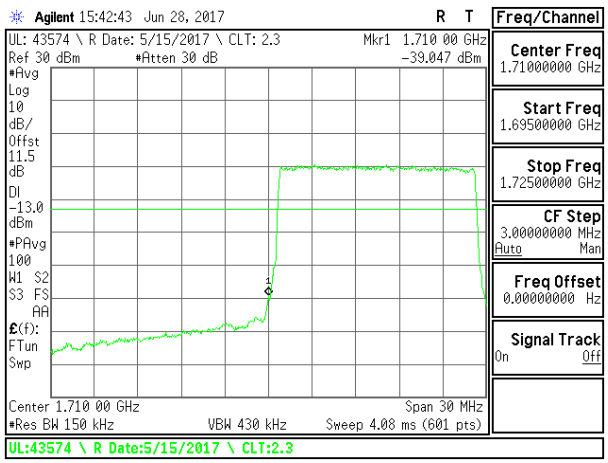
LTE B4 15MHz QPSK High Channel FRB



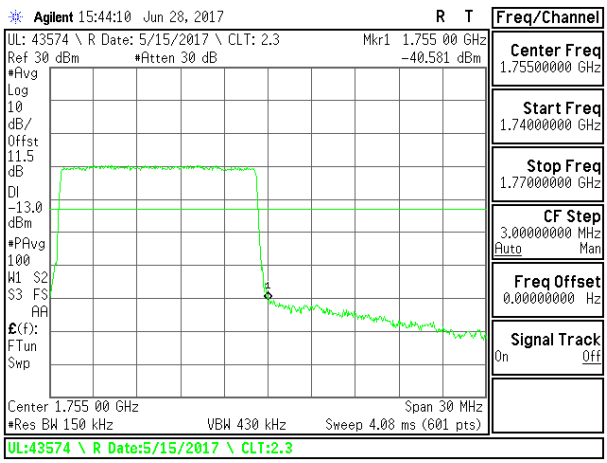
LTE B4 15MHz 16QAM Low Channel 1RB



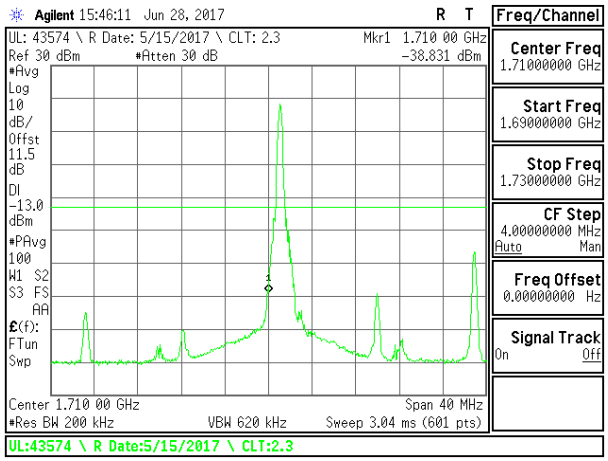
LTE B4 15MHz 16QAM High Channel 1RB



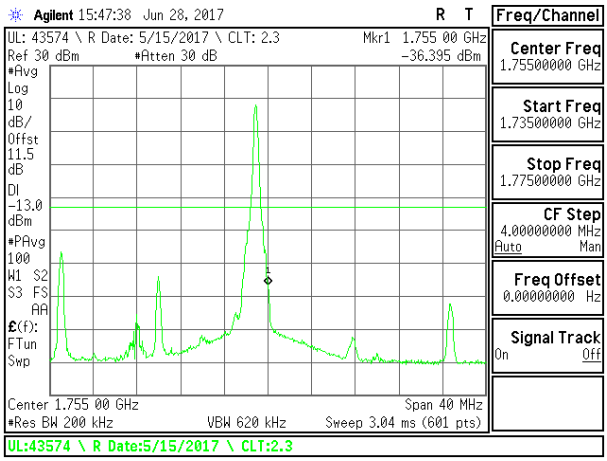
LTE B4 15MHz 16QAM Low Channel FRB



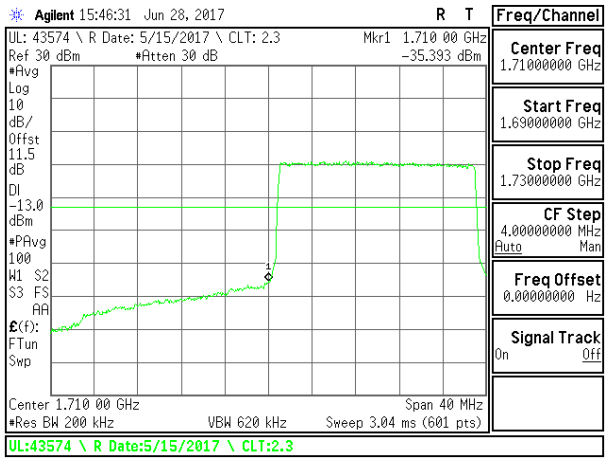
LTE B4 15MHz 16QAM High Channel FRB



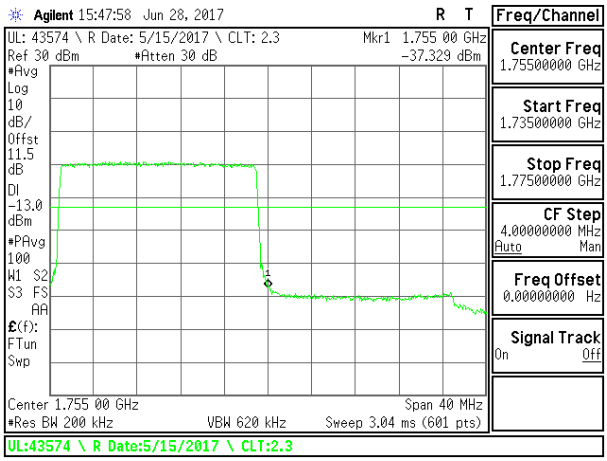
LTE B4 20MHz QPSK Low Channel 1RB



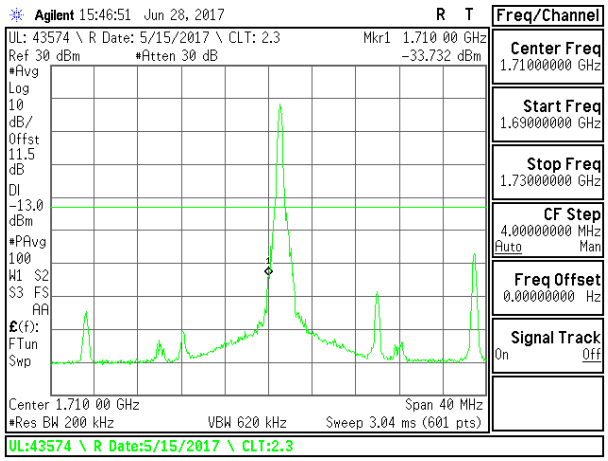
LTE B4 20MHz QPSK High Channel 1RB



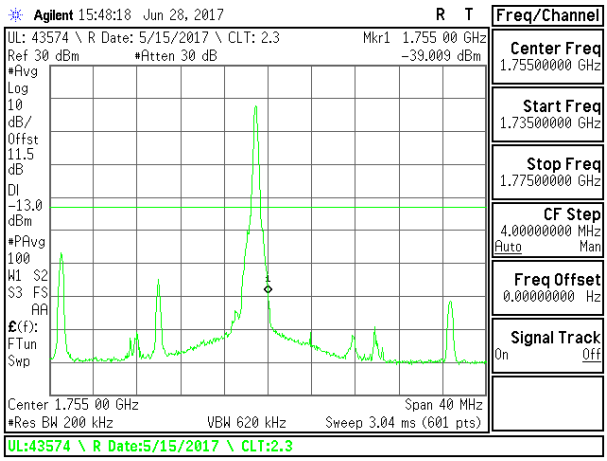
LTE B4 20MHz QPSK Low Channel FRB



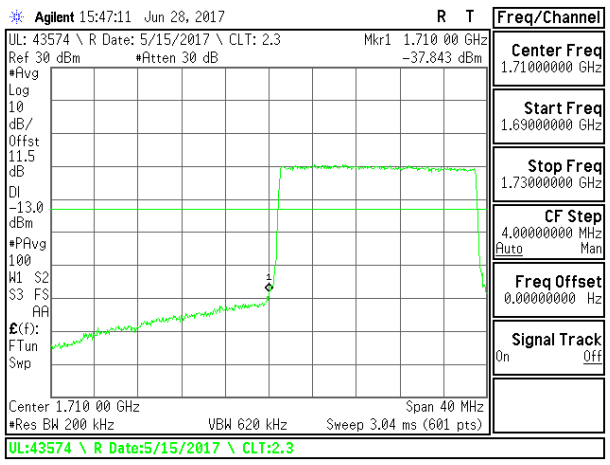
LTE B4 20MHz QPSK High Channel FRB



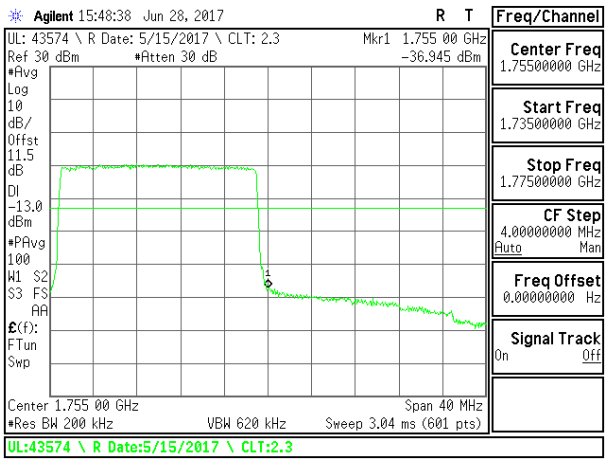
LTE B4 20MHz 16QAM Low Channel 1RB



LTE B4 20MHz 16QAM High Channel 1RB

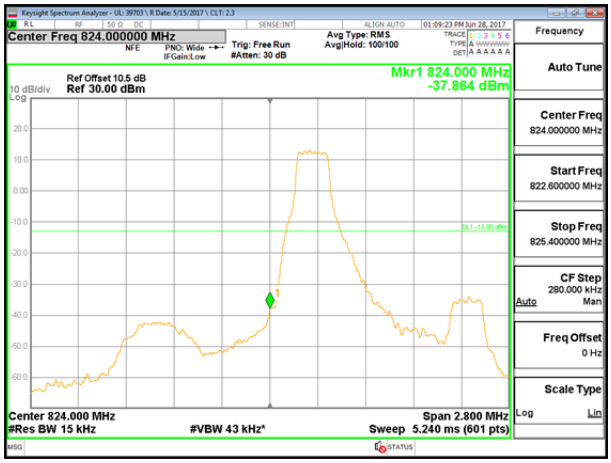


LTE B4 20MHz 16QAM Low Channel FRB

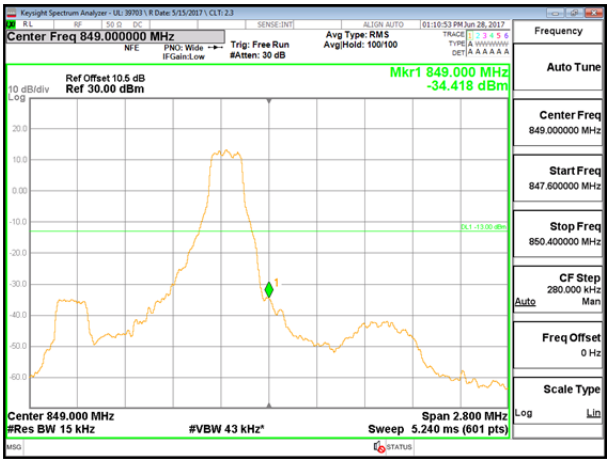


LTE B4 20MHz 16QAM High Channel FRB

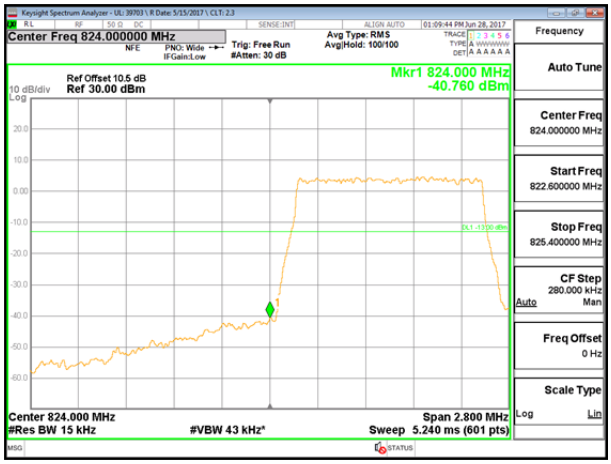
LTE Band 5

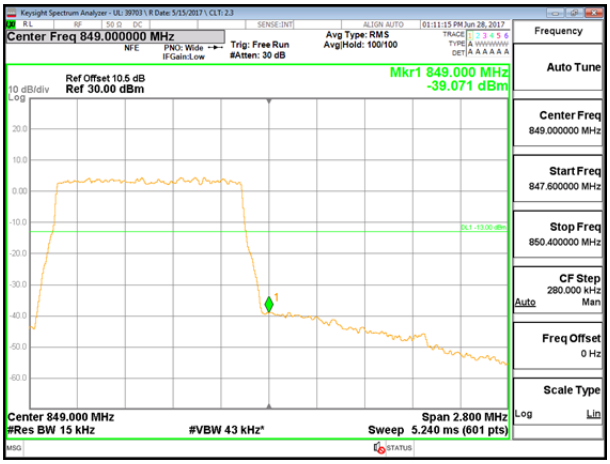


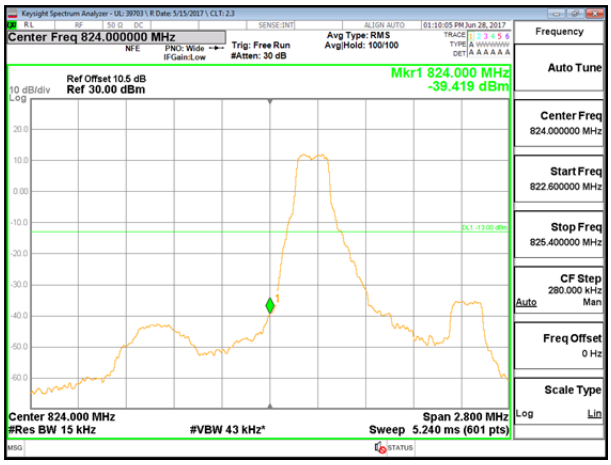
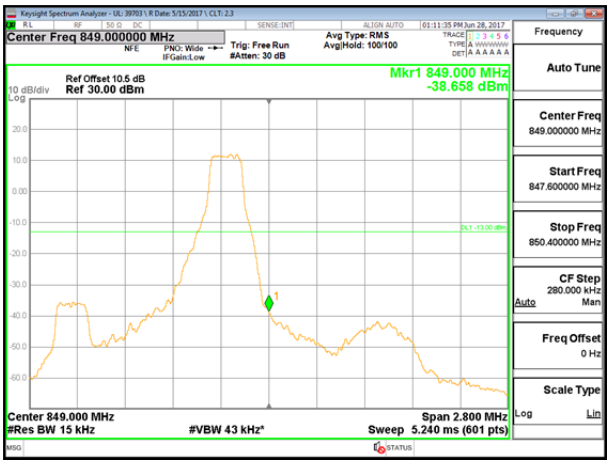
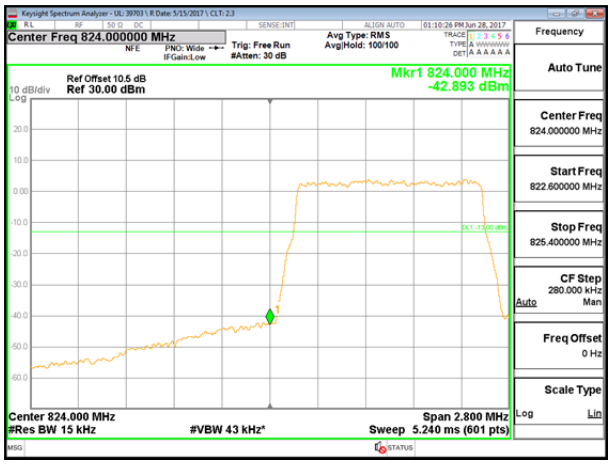
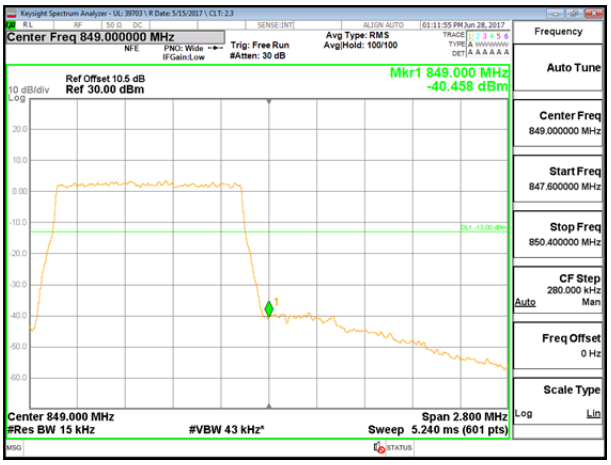
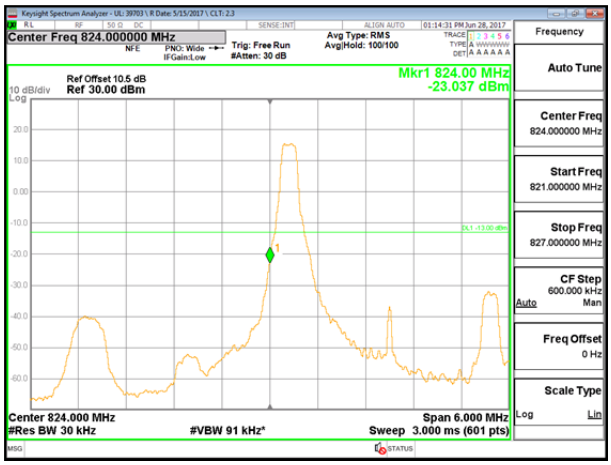
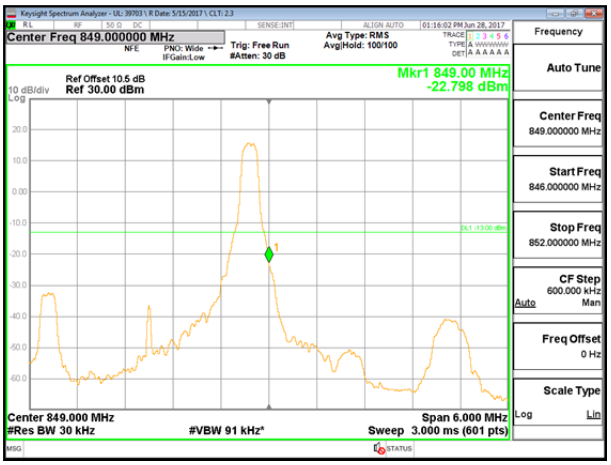
LTE B5 1.4MHz QPSK Low Channel 1RB

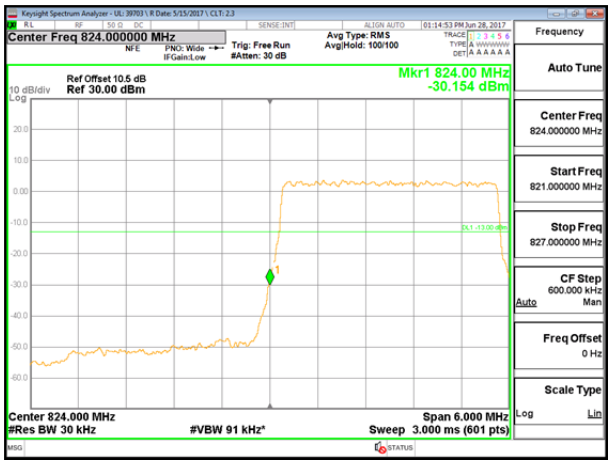
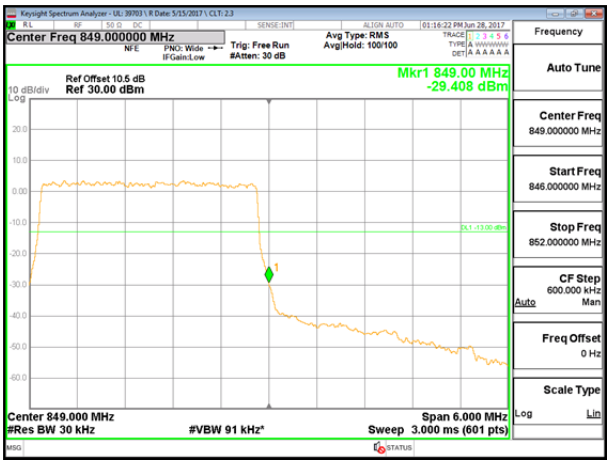


LTE B5 1.4MHz QPSK High Channel 1RB





LTE B5 1.4MHz QPSK Low Channel FRB	LTE B5 1.4MHz QPSK High Channel FRB
	
LTE B5 1.4MHz 16QAM Low Channel 1RB	LTE B5 1.4MHz 16QAM High Channel 1RB
	
LTE B5 1.4MHz 16QAM Low Channel FRB	LTE B5 1.4MHz 16QAM High Channel FRB
	

LTE 25 3MHz QPSK Low Channel 1RB	LTE B5 3MHz QPSK High Channel 1RB
	
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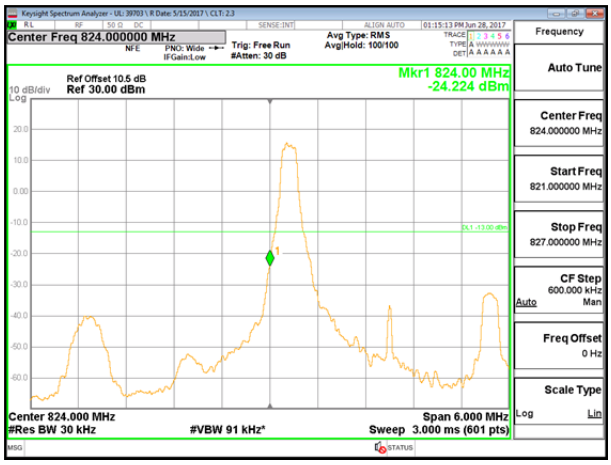	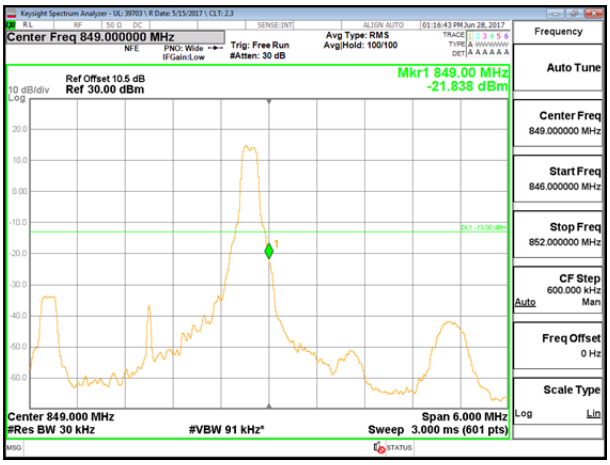
LTE B5 3MHz 16QAM Low Channel 1RB	LTE B5 3MHz 16QAM High Channel 1RB