CERTIFICATION TEST REPORT

Report Number. : 11626381T-E1V4

Applicant : SONY MOBILE COMMUNICATIONS INC.
4-12-3 HIGASHI-SHINAGAWA,
SHINAGAWA -KU,TOKYO, 140-0002, JAPAN

FCC ID : PY7-08618T

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
FCC CFR47 PART 90 SUBPART S

Date Of Issue:

May 01, 2017

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	04/11/17	Initial Issue	C. Vergonio
V2	04/28/17	Updated Section 11.9 Output power results to include 64QAM mode. Updated Section 17.1.1 LTE41 and LTE26 test frequencies table.	C. Vergonio
V3	05/1/17	Udpated Section 6.3 LTE Band 26 part 90 table. Updated Typo in Page 94.	C. Vergonio
V4	05/2/17	Updated Section 11.3, 11.5 7 11.7 table settings.	C. Vergonio

TABLE OF CONTENTS

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 & NFC

SERIAL NUMBER: CB512DS6QU, CB512DRH8U, CB512DJPAM, CB512DJPA9

DATE TESTED: March 15-April 11,2017

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 22H, 24E, 27H, 27F, 27L, 27M, 90S	PASS

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

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

Approved & Released For
UL Verification Services Inc. By:

CHARLES VERGONIO
CONSUMER TECHNOLOGY DIVISION
WiSE PROJECT LEAD
UL VERIFICATION SERVICES INC

Prepared By:

KIYA KEDIDA
CONSUMER TECHNOLOGY DIVISION
WiSE ENGINEER
UL VERIFICATION SERVICES INC

2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street
☐ Chamber A(IC: 2324B-1)	☐ Chamber D(IC: 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-8, respectively and 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 + BLUETOOTH, 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 radiated ERP / EIRP output powers as follows:

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GSM	32.4	1737.80		
	824~849	GPRS	32.4	1737.80	26.49	445.66
	824~849	EGPRS	26.6	457.09	21.80	151.36
GSM1900	1850~1910	GSM	29.7	933.25		
	1850~1910	GPRS	29.4	870.96	29.46	883.08
	1850~1910	EGPRS	25.6	363.08	27.36	544.50

6.2. MAXIMUM OUTPUT POWER (WCDMA)

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

FCC Part 22/24/27						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
Band 2	1850~1910	REL99	23.2	208.93	26.26	422.67
	1850~1910	HSDPA	22.5	177.83	24.83	304.09
	1850~1910	HSUPA	22.3	169.82		
Band 4	1710~1755	REL99	22.9	194.98	22.7	186.21
	1710~1755	HSDPA	22.1	162.18	22.64	183.65
	1710~1755	HSUPA	21.9	154.88		
Band 5	824~849	REL99	24.6	288.40	16.64	46.13
	824~849	HSDPA	23.6	229.09	17.75	59.57
	824~849	HSUPA	23.7	234.42		

6.3. MAXIMUM OUTPUT POWER (LTE)

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

LTE Band 2

FCC Part 24							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE2	1850~1910	1.4MHz	QPSK	23.5	223.87	25.91	389.94
			16QAM	22.9	194.98	24.97	314.05
		3MHz	QPSK	23.4	218.78	26.1	407.38
			16QAM	22.8	190.55	25.36	343.56
		5MHz	QPSK	23.6	229.09	26.02	399.94
			16QAM	22.9	194.98	25.27	336.51
		10MHz	QPSK	23.7	234.42	26.02	399.94
			16QAM	23.0	199.53	25.25	334.97
		15MHz	QPSK	23.6	229.09	25.51	355.63
			16QAM	23.0	199.53	24.68	293.76
		20MHz	QPSK	23.8	239.88	24.73	297.17
			16QAM	23.0	199.53	24.15	260.02

LTE Band 4

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE4	1710~1755	1.4MHz	QPSK	23.3	213.80	23.51	224.39
			16QAM	22.5	177.83	22.61	182.39
		3MHz	QPSK	23.3	213.80	23.26	211.84
			16QAM	22.5	177.83	22.53	179.06
		5MHz	QPSK	23.1	204.17	23.14	206.06
			16QAM	22.5	177.83	22.36	172.19
		10MHz	QPSK	23.2	208.93	23.51	224.39
			16QAM	22.5	177.83	22.82	191.43
		15MHz	QPSK	23.5	223.87	23.5	223.87
			16QAM	22.5	177.83	22.72	187.07
		20MHz	QPSK	23.3	213.80	22.76	188.80
			16QAM	22.5	177.83	22.03	159.59

LTE Band 5

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	1.4MHz	QPSK	24.7	295.12	19.22	83.56
			16QAM	23.9	245.47	18.4	69.18
		3MHz	QPSK	24.8	302.00	18.34	68.23
			16QAM	24.0	251.19	17.72	59.16
		5MHz	QPSK	24.7	295.12	18.43	69.66
			16QAM	23.8	239.88	17.65	58.21
		10MHz	QPSK	24.5	281.84	18.29	67.45
			16QAM	23.5	223.87	17.47	55.85

LTE Band 7

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	PEAK(dBm)	PEAK(mW)
LTE7	2500~2570	5MHz	QPSK	21.1	128.82	27.06	508.16
			16QAM	20.5	112.20	26.54	450.82
		10MHz	QPSK	20.8	120.23	27.39	548.28
			16QAM	20.1	102.33	26.76	474.24
		15MHz	QPSK	20.9	123.03	27.77	598.41
			16QAM	20.4	109.65	26.91	490.91
		20MHz	QPSK	21.2	131.83	27.78	599.79
			16QAM	20.5	112.20	27.1	512.86

LTE Band 12

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE12	699~716	1.4MHz	QPSK	24.7	295.12	15.99	39.72
			16QAM	24.0	251.19	15.11	32.43
		3MHz	QPSK	24.8	302.00	16.41	43.75
			16QAM	24.0	251.19	15.71	37.24
		5MHz	QPSK	24.7	295.12	16.39	43.55
			16QAM	24.0	251.19	15.72	37.33
		10MHz	QPSK	24.7	295.12	16.38	43.45
			16QAM	23.7	234.42	15.52	35.65

LTE Band 13

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE13	777~787	5MHz	QPSK	23.8	239.88	16.41	43.75
			16QAM	23.0	199.53	15.77	37.76
		10MHz	QPSK	23.8	239.88	16.16	41.30
			16QAM	22.8	190.55	15.35	34.28

LTE Band 17

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	5MHz	QPSK	24.64	291.07	18.42	69.50
			16QAM	23.74	236.59	17.80	60.26
		10MHz	QPSK	24.61	289.07	18.44	69.82
			16QAM	23.70	234.42	17.56	57.02

LTE Band 26 PART 90

FCC Part 90							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE26	824~849	1.4MHz	QPSK	24.8	302.00	19.29	84.92
			16QAM	23.8	239.88	18.51	70.96
		3MHz	QPSK	24.8	302.00	19.09	81.10
			16QAM	23.7	234.42	18.12	64.86
		5MHz	QPSK	24.7	295.12	18.49	70.63
			16QAM	24.0	251.19	17.62	57.81
		10MHz	QPSK	24.8	302.00	19.83	96.16
			16QAM	24.0	251.19	18.92	77.98

LTE Band 26 PART 22

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE26	824~849	1.4MHz	QPSK	24.8	302.00	19.29	84.92
			16QAM	23.8	239.88	18.51	70.96
		3MHz	QPSK	24.8	302.00	19.09	81.10
			16QAM	23.7	234.42	18.12	64.86
		5MHz	QPSK	24.7	295.12	18.49	70.63
			16QAM	24.0	251.19	17.62	57.81
		10MHz	QPSK	24.8	302.00	19.83	96.16
			16QAM	24.0	251.19	18.92	77.98
		15MHz	QPSK	24.8	302.00	19.17	82.60
			16QAM	23.7	234.42	18.35	68.39

LTE Band 41

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	PEAK(dBm)	PEAK(mW)
LTE41	2496~2690	5MHz	QPSK	21.6	144.54	25.35	342.77
			16QAM	20.5	112.20	25.37	344.35
		10MHz	QPSK	21.7	147.91	24.48	280.54
			16QAM	20.5	112.20	25.07	321.37
		15MHz	QPSK	21.7	147.91	24.67	293.09
			16QAM	20.6	114.82	24.47	279.90
		20MHz	QPSK	21.9	154.88	26.11	408.32
			16QAM	20.8	120.23	26.17	414.00

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	-6.6
GSM1900, 1850~1910MHz	0.0
WCDMA Band 2, 1850~1910	0.0
WCDMA Band 4, 1710~1755	-1.1
WCDMA Band 5, 824~849	-6.6
LTE Band 2, 1850~1910MHz	0.0
LTE Band 4, 1710~1755MHz	-1.1
LTE Band 5, 824~849MHz	-6.6
LTE Band 7, 2500~2570MHz	0.0
LTE Band 12, 699~716MHz	-5.8
LTE Band 13, 777~787MHz	-7.8
LTE Band 17, 704~716MHz	-5.8
LTE Band 26, 824~849MHz	-6.6
LTE Band 41, 2496~2690MHz	-0.6

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

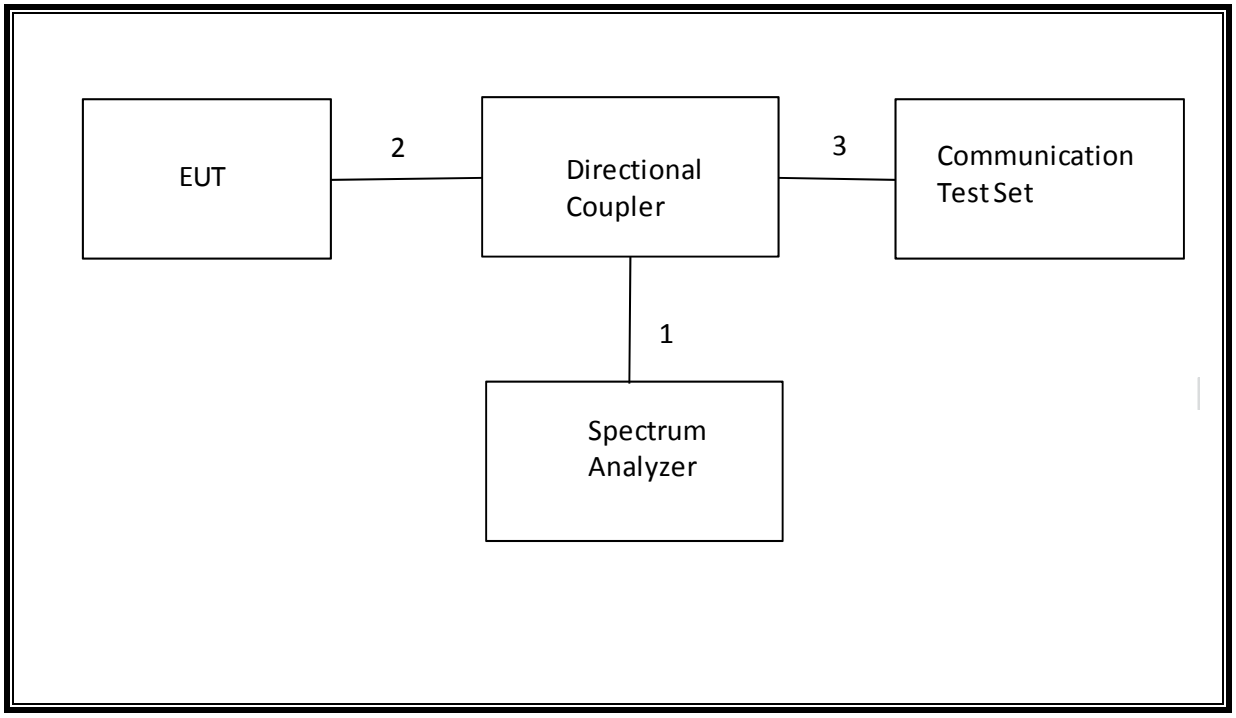
I/O CABLES (RADIATED SETUP)

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

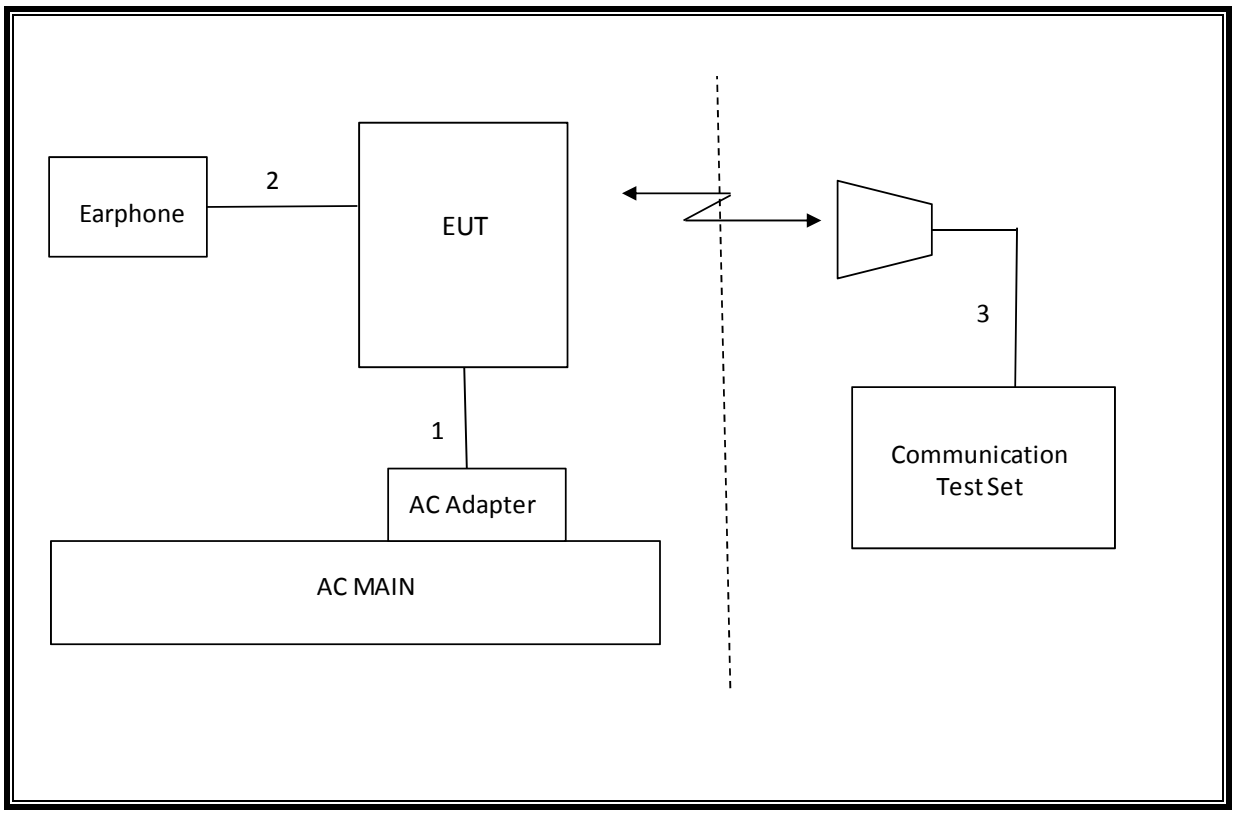
TEST SETUP

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	477	06/22/16	06/22/17
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	907	01/23/17	01/23/18
Amplifier, 10KHz to 1GHz, 32dB	Keysight	8447D	10	02/15/17	02/15/18
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	477	06/22/16	06/22/17
Highpass Filter, 2.7 GHz	Micro-Circuits	H2G518G6	T772	7/5/16	7/5/18
Highpass Filter, 1 GHz	Micro-Tronics	HPM18129	T889	2/21/17	2/21/18
Highpass Filter, 4GHz	Micro-Tronics	HPM13351	T1241	7/19/16	7/19/17
Amplifier, 1-18GHz	Miteq	AFS42-00101800-25-S-42	931	08/26/16	08/26/17
Amplifier, 1 to 8GHz	Miteq	AMF-4D-01000800-30-29P	1170	04/28/16	04/28/17
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	5/16/16	5/16/17
Directional Coupler	Mini-Circuits	ZUDC10-183+	T1136	5/25/16	5/25/17

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) 90.691	Band Edge / Conducted Spurious Emission	-13dBm		Pass
27.53(m)		-25dBm		
2.1046	Conducted output power	N/A		Pass
27.53(m) 90.691	Emission Mask	Please refer to limit under section 14		Pass
22.355 90.213	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
90.635		50dBm		Pass
	Equivalent Isotropic Radiated Power	36.98dBm		Pass
		40.6dBm		
24.232(c) 27.50(h)(2)		33dBm		Pass
27.50(d)(4)		30dBm		Pass
22.917(a) 24.238(a) 27.53(g) 90.691	Radiated Spurious Emission	-13dBm		Pass
27.53(m)		-25dBm		Pass

11. RF POWER OUTPUT VERIFICATION

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	3/28/2017

GSM 850

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM (Voice)	CS4	1	128	824.4	32.4	23.3
			190	836.6	32.4	23.3
			251	848.8	32.4	23.4
GPRS (GMSK)	CS4	1	128	824.4	32.4	23.3
			190	836.6	32.4	23.3
			251	848.8	32.4	23.4
		2	128	824.4	30.7	24.7
			190	836.6	30.8	24.7
			251	848.8	30.8	24.8
		3	128	824.4	29.0	24.7
			190	836.6	29.0	24.8
			251	848.8	29.0	24.8
		4	128	824.4	27.9	24.9
			190	836.6	28.0	24.9
			251	848.8	28.0	25.0
EGPRS (8PSK)	MCS9	1	128	824.4	26.6	17.5
			190	836.6	26.6	17.5
			251	848.8	26.6	17.5
		2	128	824.4	25.0	18.9
			190	836.6	25.0	19.0
			251	848.8	25.1	19.1
		3	128	824.4	23.2	18.9
			190	836.6	23.3	19.0
			251	848.8	23.4	19.1
		4	128	824.4	22.2	19.2
			190	836.6	22.3	19.3
			251	848.8	22.3	19.3

GSM 1900

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM (Voice)	CS4	1	512	1850.2	29.7	20.7
			661	1880.0	29.6	20.6
			810	1909.8	29.6	20.6
GPRS (GMSK)	CS4	1	512	1850.2	29.4	20.4
			661	1880.0	29.2	20.1
			810	1909.8	29.2	20.2
		2	512	1850.2	28.4	22.4
			661	1880.0	28.3	22.2
			810	1909.8	28.3	22.2
		3	512	1850.2	27.0	22.7
			661	1880.0	26.8	22.5
			810	1909.8	26.8	22.5
		4	512	1850.2	25.9	22.9
			661	1880.0	25.8	22.8
			810	1909.8	25.9	22.8
EGPRS (8PSK)	MCS9	1	512	1850.2	25.6	16.5
			661	1880.0	25.4	16.3
			810	1909.8	25.4	16.4
		2	512	1850.2	23.7	17.7
			661	1880.0	23.6	17.6
			810	1909.8	23.7	17.7
		3	512	1850.2	21.6	17.3
			661	1880.0	21.4	17.1
			810	1909.8	21.4	17.1
		4	512	1850.2	20.8	17.7
			661	1880.0	20.7	17.7
			810	1909.8	20.8	17.8

11.3. UMTS REL 99

TEST PROCEDURE

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

11.4. UMTS REL 99 OUTPUT POWER RESULT

Tested By	Tony Soares
Date	3/28/2017

Mode		UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
Band 2	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	0	23.2
		9400	1880.0	0	23.0
		9538	1907.6	0	23.1
Band 4	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	0	22.7
		1413	1732.6	0	22.9
		1513	1752.6	0	22.8
Band 5	Rel 99 (RMC, 12.2 kbps)	4132	826.4	0	24.1
		4183	836.6	0	24.3
		4233	846.6	0	24.6

11.5. UMTS HSDPA

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

11.6. UMTS HSDPA OUTPUT POWER RESULT

Tested By	Tony Soares
Date	3/28/2017

Mode		UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
Band 2 HSDPA	Subtest 1	9262	1852.4	0	22.5
		9400	1880.0	0	22.3
		9538	1907.6	0	22.5
	Subtest 2	9262	1852.4	0	22.5
		9400	1880.0	0	22.3
		9538	1907.6	0	22.4
	Subtest 3	9262	1852.4	0.5	22.0
		9400	1880.0	0.5	21.8
		9538	1907.6	0.5	22.0
	Subtest 4	9262	1852.4	0.5	22.0
		9400	1880.0	0.5	21.8
		9538	1907.6	0.5	21.9
Band 4 HSDPA	Subtest 1	1312	1712.4	0	22.0
		1413	1732.6	0	22.1
		1513	1752.6	0	21.9
	Subtest 2	1312	1712.4	0	22.0
		1413	1732.6	0	22.1
		1513	1752.6	0	21.9
	Subtest 3	1312	1712.4	0.5	21.5
		1413	1732.6	0.5	21.5
		1513	1752.6	0.5	21.4
	Subtest 4	1312	1712.4	0.5	21.5
		1413	1732.6	0.5	21.6
		1513	1752.6	0.5	21.5
Band 5 HSDPA	Subtest 1	4132	826.4	0	23.1
		4183	836.6	0	23.3
		4233	846.6	0	23.6
	Subtest 2	4132	826.4	0	23.2
		4183	836.6	0	23.3
		4233	846.6	0	23.6
	Subtest 3	4132	826.4	0.5	22.7
		4183	836.6	0.5	22.8
		4233	846.6	0.5	23.0
	Subtest 4	4132	826.4	0.5	22.6
		4183	836.6	0.5	22.8
		4233	846.6	0.5	23.0

11.7. UMTS HSUPA

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121.

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

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

RESULT

11.8. UMTS HSUPA OUTPUT POWER RESULT

Tested By	Tony Soares
Date	3/28/2017

Mode		UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
BAND 2 HSUPA	Subtest 1	9262	1852.4	0	22.3
		9400	1880.0	0	22.1
		9538	1907.6	0	22.2
	Subtest 2	9262	1852.4	2	20.3
		9400	1880.0	2	20.2
		9538	1907.6	2	20.2
	Subtest 3	9262	1852.4	1	21.3
		9400	1880.0	1	21.1
		9538	1907.6	1	21.3
	Subtest 4	9262	1852.4	2	20.4
		9400	1880.0	2	20.0
		9538	1907.6	2	20.3
	Subtest 5	9262	1852.4	0	22.3
		9400	1880.0	0	22.1
		9538	1907.6	0	22.3
BAND 4 HSUPA	Subtest 1	1312	1712.4	0	21.8
		1413	1732.6	0	21.9
		1513	1752.6	0	21.8
	Subtest 2	1312	1712.4	2	19.8
		1413	1732.6	2	19.9
		1513	1752.6	2	19.8
	Subtest 3	1312	1712.4	1	20.8
		1413	1732.6	1	20.8
		1513	1752.6	1	20.8
	Subtest 4	1312	1712.4	2	19.8
		1413	1732.6	2	19.9
		1513	1752.6	2	19.8
	Subtest 5	1312	1712.4	0	21.8
		1413	1732.6	0	21.9
		1513	1752.6	0	21.8

BAND 5 HSUPA	Subtest 1	4132	826.4	0	23.1
		4183	836.6	0	23.3
		4233	846.6	0	23.7
	Subtest 2	4132	826.4	2	21.1
		4183	836.6	2	21.3
		4233	846.6	2	21.7
	Subtest 3	4132	826.4	1	22.1
		4183	836.6	1	22.3
		4233	846.6	1	22.6
	Subtest 4	4132	826.4	2	21.0
		4183	836.6	2	21.3
		4233	846.6	2	21.6
	Subtest 5	4132	826.4	0	23.1
		4183	836.6	0	23.3
		4233	846.6	0	23.5

11.9. LTE OUTPUT POWER RESULT

Note(s):

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.

LTE Band 5 Measured Results

LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

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	Tony Soares/Coltyce Sanders
Date	3/22/2017-3/24/2017

LTE Band 2

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1860 MHz	1880 MHz	1900 MHz
LTE Band 2	20	QPSK	1	0	0	23.7	23.8	23.7
			1	49	0	23.3	23.4	23.5
			1	99	0	23.5	23.5	23.4
			50	0	1	22.4	22.6	22.6
			50	24	1	22.3	22.5	22.5
			50	50	1	22.3	22.4	22.4
			100	0	1	22.3	22.5	22.5
		16QAM	1	0	1	23.0	23.0	23.0
			1	49	1	22.7	22.8	23.0
			1	99	1	22.8	22.9	23.0
			50	0	2	21.5	21.5	21.6
			50	24	2	21.4	21.5	21.6
			50	50	2	21.3	21.4	21.5
			100	0	2	21.4	21.5	21.6
		64QAM	1	0	2	21.1	21.2	21.1
			1	49	2	20.8	20.8	20.9
			1	99	2	21.0	21.0	20.9
			50	0	3	20.1	20.2	20.2
			50	24	3	20.1	20.1	20.2
			50	50	3	20.0	20.1	20.1
			100	0	3	20.0	20.1	20.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1857.5 MHz	1880 MHz	1902.5 MHz
LTE Band 2	15	QPSK	1	0	0	23.6	23.6	23.6
			1	37	0	23.4	23.4	23.4
			1	74	0	23.4	23.3	23.4
			36	0	1	22.5	22.5	22.6
			36	20	1	22.5	22.5	22.5
			36	39	1	22.4	22.4	22.4
			75	0	1	22.4	22.4	22.5
		16QAM	1	0	1	22.6	22.6	23.0
			1	37	1	22.3	22.3	22.8
			1	74	1	22.3	22.3	22.8
			36	0	2	21.5	21.5	21.6
			36	20	2	21.5	21.5	21.5
			36	39	2	21.4	21.4	21.5
			75	0	2	21.4	21.4	21.5
		64QAM	1	0	2	20.7	21.2	21.2
			1	37	2	20.5	21.0	21.0
			1	74	2	20.6	21.1	21.0
			36	0	3	19.8	20.3	20.3
			36	20	3	19.8	20.2	20.3
			36	39	3	19.7	20.2	20.2
			75	0	3	19.7	20.2	20.3

LTE Band 2 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1855 MHz	1880 MHz	1905 MHz
LTE Band 2	10	QPSK	1	0	0	23.7	23.7	23.5
			1	25	0	23.4	23.4	23.4
			1	49	0	23.6	23.6	23.4
			25	0	1	22.5	22.5	22.5
			25	12	1	22.5	22.5	22.5
			25	25	1	22.4	22.4	22.4
			50	0	1	22.5	22.5	22.5
		16QAM	1	0	1	23.0	22.8	22.5
			1	25	1	22.8	22.4	22.3
			1	49	1	23.0	22.6	22.3
			25	0	2	21.5	21.6	21.5
			25	12	2	21.5	21.6	21.5
			25	25	2	21.5	21.5	21.5
			50	0	2	21.5	21.5	21.5
		64QAM	1	0	2	21.3	21.2	21.1
			1	25	2	21.0	20.9	21.0
			1	49	2	21.2	21.0	20.9
			25	0	3	20.2	20.3	20.2
			25	12	3	20.2	20.3	20.2
			25	25	3	20.1	20.2	20.2
			50	0	3	20.2	20.2	20.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1852.5 MHz	1880 MHz	1907.5 MHz
LTE Band 2	5	QPSK	1	0	0	23.4	23.5	23.6
			1	12	0	23.3	23.4	23.5
			1	24	0	23.3	23.4	23.5
			12	0	1	22.3	22.5	22.5
			12	7	1	22.4	22.4	22.5
			12	13	1	22.3	22.4	22.5
			25	0	1	22.4	22.4	22.5
		16QAM	1	0	1	22.9	22.6	22.8
			1	12	1	22.8	22.5	22.7
			1	24	1	22.8	22.6	22.7
			12	0	2	21.5	21.5	21.7
			12	7	2	21.5	21.5	21.6
			12	13	2	21.5	21.5	21.6
			25	0	2	21.4	21.4	21.5
		64QAM	1	0	2	20.9	21.1	21.2
			1	12	2	20.8	21.1	21.2
			1	24	2	20.8	21.1	21.1
			12	0	3	20.1	20.2	20.3
			12	7	3	20.1	20.3	20.4
			12	13	3	20.0	20.2	20.3
			25	0	3	20.0	20.2	20.3

LTE Band 2 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1851.5 MHz	1880 MHz	1908.5 MHz
LTE Band 2	3	QPSK	1	0	0	23.3	23.3	23.4
			1	8	0	23.2	23.3	23.4
			1	14	0	23.1	23.3	23.4
			8	0	1	22.2	22.3	22.4
			8	4	1	22.2	22.3	22.4
			8	7	1	22.2	22.3	22.4
			15	0	1	22.2	22.3	22.4
		16QAM	1	0	1	22.1	22.6	22.4
			1	8	1	22.2	22.8	22.5
			1	14	1	22.1	22.6	22.4
			8	0	2	21.3	21.2	21.6
			8	4	2	21.3	21.2	21.6
			8	7	2	21.3	21.2	21.6
			15	0	2	21.2	21.3	21.3
		64QAM	1	0	2	20.8	21.1	21.0
			1	8	2	20.8	21.0	21.0
			1	14	2	20.8	21.0	20.9
			8	0	3	20.1	20.2	20.3
			8	4	3	20.1	20.2	20.3
			8	7	3	20.1	20.2	20.3
			15	0	3	20.0	20.2	20.3
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1850.7 MHz	1880 MHz	1909.3 MHz
LTE Band 2	1.4	QPSK	1	0	0	23.3	23.3	23.4
			1	3	0	23.3	23.4	23.5
			1	5	0	23.2	23.3	23.4
			3	0	0	23.3	23.4	23.4
			3	1	0	23.3	23.4	23.5
			3	3	0	23.3	23.4	23.5
			6	0	1	22.2	22.3	22.4
		16QAM	1	0	1	22.3	22.4	22.8
			1	3	1	22.3	22.5	22.9
			1	5	1	22.3	22.4	22.8
			3	0	1	22.5	22.4	22.6
			3	1	1	22.5	22.5	22.7
			3	3	1	22.5	22.4	22.7
			6	0	2	21.5	21.5	21.4
		64QAM	1	0	2	20.8	21.0	20.9
			1	3	2	20.9	21.1	20.9
			1	5	2	20.8	21.0	20.9
			3	0	2	21.1	21.2	21.3
			3	1	2	21.1	21.3	21.4
			3	3	2	21.1	21.2	21.3
			6	0	3	20.0	20.2	20.3

LTE Band 4

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1720 MHz	1732.5 MHz	1745 MHz
LTE Band 4	20	QPSK	1	0	0		23.3	
			1	49	0		23.0	
			1	99	0		23.0	
			50	0	1		22.2	
			50	24	1		22.1	
			50	50	1		22.0	
			100	0	1		22.1	
		16QAM	1	0	1		22.5	
			1	49	1		22.5	
			1	99	1		22.5	
			50	0	2		21.2	
			50	24	2		21.1	
			50	50	2		21.0	
			100	0	2		21.1	
		64QAM	1	0	2		20.5	
			1	49	2		20.3	
			1	99	2		20.3	
			50	0	3		19.7	
			50	24	3		19.6	
			50	50	3		19.5	
			100	0	3		19.6	

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	23.4	23.4	23.5
			1	37	0	23.2	23.2	23.2
			1	74	0	23.2	23.2	23.2
			36	0	1	22.4	22.4	22.4
			36	20	1	22.3	22.3	22.3
			36	39	1	22.3	22.2	22.2
			75	0	1	22.3	22.3	22.3
		16QAM	1	0	1	22.5	22.5	22.4
			1	37	1	22.5	22.5	22.2
			1	74	1	22.5	22.5	22.2
			36	0	2	21.4	21.3	21.4
			36	20	2	21.3	21.3	21.3
			36	39	2	21.3	21.2	21.3
			75	0	2	21.3	21.3	21.3
		64QAM	1	0	2	20.7	20.6	20.6
			1	37	2	20.5	20.4	20.4
			1	74	2	20.5	20.4	20.4
			36	0	3	19.7	19.6	19.7
			36	20	3	19.7	19.6	19.7
			36	39	3	19.6	19.6	19.6
			75	0	3	19.6	19.6	19.6

LTE Band 4 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	23.2	23.1	23.2
			1	25	0	23.0	23.0	23.1
			1	49	0	23.0	23.0	23.0
			25	0	1	22.2	22.1	22.1
			25	12	1	22.2	22.1	22.1
			25	25	1	22.1	22.1	22.1
			50	0	1	22.1	22.1	22.1
		16QAM	1	0	1	22.1	22.5	22.2
			1	25	1	22.0	22.4	22.1
			1	49	1	22.0	22.4	22.0
			25	0	2	21.2	21.2	21.2
			25	12	2	21.2	21.1	21.2
			25	25	2	21.1	21.1	21.1
			50	0	2	21.1	21.1	21.1
		64QAM	1	0	2	20.6	20.3	20.4
			1	25	2	20.5	20.2	20.3
			1	49	2	20.5	20.2	20.3
			25	0	3	19.7	19.6	19.6
			25	12	3	19.6	19.6	19.6
			25	25	3	19.6	19.6	19.6
			50	0	3	19.6	19.6	19.6
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	23.1	23.1	23.1
			1	12	0	23.0	23.0	23.0
			1	24	0	22.9	23.1	23.1
			12	0	1	22.0	22.1	22.1
			12	7	1	22.0	22.1	22.1
			12	13	1	22.0	22.1	22.1
			25	0	1	22.0	22.1	22.1
		16QAM	1	0	1	22.3	22.5	22.3
			1	12	1	22.2	22.5	22.2
			1	24	1	22.2	22.5	22.2
			12	0	2	21.1	21.3	21.2
			12	7	2	21.1	21.2	21.2
			12	13	2	21.1	21.2	21.1
			25	0	2	21.0	21.1	21.0
		64QAM	1	0	2	20.4	20.5	20.5
			1	12	2	20.3	20.4	20.4
			1	24	2	20.3	20.4	20.4
			12	0	3	19.5	19.6	19.6
			12	7	3	19.6	19.6	19.6
			12	13	3	19.5	19.6	19.6
			25	0	3	19.5	19.6	19.6

LTE Band 4 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	23.3	23.2	23.2
			1	8	0	23.3	23.3	23.3
			1	14	0	23.2	23.1	23.1
			8	0	1	22.2	22.2	22.2
			8	4	1	22.2	22.2	22.2
			8	7	1	22.2	22.2	22.2
			15	0	1	22.2	22.2	22.2
		16QAM	1	0	1	22.5	22.3	22.2
			1	8	1	22.5	22.3	22.2
			1	14	1	22.5	22.2	22.1
			8	0	2	21.1	21.4	21.3
			8	4	2	21.1	21.4	21.3
			8	7	2	21.1	21.4	21.3
			15	0	2	21.2	21.2	21.2
		64QAM	1	0	2	20.4	20.2	20.3
			1	8	2	20.4	20.2	20.3
			1	14	2	20.3	20.2	20.3
			8	0	3	19.6	19.6	19.6
			8	4	3	19.6	19.6	19.6
			8	7	3	19.6	19.5	19.6
			15	0	3	19.5	19.5	19.6
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						1710.7 MHz	1732.5 MHz	1754.3 MHz
LTE Band 4	1.4	QPSK	1	0	0	23.1	23.1	23.1
			1	3	0	23.1	23.2	23.2
			1	5	0	23.0	23.1	23.1
			3	0	0	23.1	23.1	23.2
			3	1	0	23.2	23.2	23.2
			3	3	0	23.2	23.2	23.3
			6	0	1	22.1	22.1	22.1
		16QAM	1	0	1	22.2	22.5	22.2
			1	3	1	22.2	22.5	22.2
			1	5	1	22.2	22.5	22.2
			3	0	1	22.2	22.4	22.3
			3	1	1	22.2	22.4	22.4
			3	3	1	22.2	22.4	22.4
			6	0	2	21.2	21.1	21.3
		64QAM	1	0	2	20.3	20.1	20.3
			1	3	2	20.4	20.2	20.4
			1	5	2	20.3	20.1	20.3
			3	0	2	20.5	20.5	20.6
			3	1	2	20.6	20.6	20.6
			3	3	2	20.5	20.5	20.6
			6	0	3	19.5	19.5	19.5

LTE Band 7

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	21.0	21.2	21.1
			1	49	0	20.9	20.8	21.0
			1	99	0	20.6	20.6	21.2
			50	0	1	19.9	20.0	20.1
			50	24	1	19.8	19.8	20.1
			50	50	1	19.7	19.7	20.2
			100	0	1	19.8	19.8	20.1
		16QAM	1	0	1	20.5	20.5	20.4
			1	49	1	20.3	20.2	20.4
			1	99	1	20.1	19.9	20.5
			50	0	2	18.9	19.0	19.1
			50	24	2	18.9	18.9	19.1
			50	50	2	18.8	18.7	19.1
			100	0	2	18.9	18.9	19.1
		64QAM	1	0	2	18.4	18.5	18.2
			1	49	2	18.3	18.0	18.2
			1	99	2	18.1	17.8	18.3
			50	0	3	17.2	17.1	17.0
			50	24	3	17.2	16.9	17.1
			50	50	3	17.1	16.8	17.1
			100	0	3	17.1	16.9	17.0
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						2507.5 MHz	2535 MHz	2562.5 MHz
LTE Band 7	15	QPSK	1	0	0	20.9	20.9	19.5
			1	37	0	20.6	20.6	20.6
			1	74	0	20.3	20.3	20.3
			36	0	1	19.7	19.7	19.7
			36	20	1	19.6	19.6	19.6
			36	39	1	19.5	19.5	19.5
			75	0	1	19.6	19.6	19.6
		16QAM	1	0	1	20.4	20.4	20.4
			1	37	1	20.1	20.1	20.1
			1	74	1	19.8	19.8	19.8
			36	0	2	18.7	18.8	18.8
			36	20	2	18.6	18.6	18.7
			36	39	2	18.5	18.5	18.6
			75	0	2	18.6	18.6	18.6
		64QAM	1	0	2	18.5	18.3	18.3
			1	37	2	18.4	18.0	18.2
			1	74	2	18.3	17.8	18.4
			36	0	3	17.2	17.0	17.0
			36	20	3	17.2	16.9	17.0
			36	39	3	17.1	16.8	17.0
			75	0	3	17.2	16.9	17.0

LTE Band 7 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						2505 MHz	2535 MHz	2565 MHz
LTE Band 7	10	QPSK	1	0	0	20.6	20.6	20.7
			1	25	0	20.4	20.4	20.7
			1	49	0	20.3	20.3	20.8
			25	0	1	19.6	19.6	19.8
			25	12	1	19.5	19.5	19.8
			25	25	1	19.4	19.4	19.8
			50	0	1	19.5	19.5	19.8
		16QAM	1	0	1	19.6	19.6	20.1
			1	25	1	19.4	19.4	20.1
			1	49	1	19.2	19.2	20.1
			25	0	2	18.6	18.6	18.8
			25	12	2	18.5	18.5	18.9
			25	25	2	18.4	18.4	18.8
			50	0	2	18.5	18.5	18.8
		64QAM	1	0	2	18.3	18.2	18.1
			1	25	2	18.3	18.0	18.1
			1	49	2	18.3	17.9	18.1
			25	0	3	17.0	17.0	17.0
			25	12	3	17.1	16.9	17.1
			25	25	3	17.0	16.8	17.1
			50	0	3	17.0	16.9	17.1
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						2502.5 MHz	2535 MHz	2567.5 MHz
LTE Band 7	5	QPSK	1	0	0	21.1	20.5	20.8
			1	12	0	21.1	20.4	20.8
			1	24	0	21.1	20.4	20.8
			12	0	1	20.1	19.6	19.8
			12	7	1	20.2	19.5	19.9
			12	13	1	20.1	19.5	19.9
			25	0	1	20.1	19.5	19.9
		16QAM	1	0	1	20.5	19.7	20.0
			1	12	1	20.5	19.6	20.0
			1	24	1	20.5	19.5	20.0
			12	0	2	19.3	18.6	18.9
			12	7	2	19.3	18.6	19.0
			12	13	2	19.3	18.5	18.9
			25	0	2	19.2	18.4	18.9
		64QAM	1	0	2	18.5	18.2	18.3
			1	12	2	18.5	18.1	18.4
			1	24	2	18.5	18.0	18.3
			12	0	3	17.6	16.9	17.2
			12	7	3	17.7	16.9	17.2
			12	13	3	17.6	16.9	17.2
			25	0	3	17.6	16.9	17.1

LTE Band 12

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						704 MHz	707.5 MHz	711 MHz
LTE Band 12	10	QPSK	1	0	0	24.7	24.7	24.7
			1	25	0	24.6	24.6	24.6
			1	49	0	24.5	24.5	24.5
			25	0	1	23.7	23.8	23.7
			25	12	1	23.7	23.7	23.7
			25	25	1	23.6	23.7	23.6
			50	0	1	23.7	23.7	23.7
		16QAM	1	0	1	23.8	23.7	24.0
			1	25	1	23.6	23.6	24.0
			1	49	1	23.5	23.5	23.8
			25	0	2	22.8	22.8	22.8
			25	12	2	22.8	22.8	22.7
			25	25	2	22.7	22.7	22.7
			50	0	2	22.7	22.7	22.7
		64QAM	1	0	2	22.8	22.8	22.8
			1	25	2	22.7	22.7	22.7
			1	49	2	22.6	22.6	22.6
			25	0	3	21.6	21.6	21.6
			25	12	3	21.6	21.6	21.6
			25	25	3	21.5	21.5	21.5
			50	0	3	21.5	21.5	21.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						701.5 MHz	707.5 MHz	713.5 MHz
LTE Band 12	5	QPSK	1	0	0	24.7	24.7	24.7
			1	12	0	24.7	24.7	24.6
			1	24	0	24.6	24.6	24.5
			12	0	1	23.7	23.8	23.7
			12	7	1	23.7	23.8	23.7
			12	13	1	23.6	23.7	23.6
			25	0	1	23.6	23.7	23.7
		16QAM	1	0	1	23.8	23.9	24.0
			1	12	1	23.7	23.9	23.9
			1	24	1	23.7	23.8	23.9
			12	0	2	22.7	22.8	22.8
			12	7	2	22.7	22.8	22.8
			12	13	2	22.7	22.8	22.8
			25	0	2	22.6	22.8	22.7
		64QAM	1	0	2	22.7	22.8	22.7
			1	12	2	22.6	22.7	22.6
			1	24	2	22.5	22.7	22.5
			12	0	3	21.5	21.6	21.5
			12	7	3	21.5	21.6	21.5
			12	13	3	21.4	21.5	21.4
			25	0	3	21.4	21.5	21.4

LTE Band 12 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						700.5 MHz	707.5 MHz	714.5 MHz
LTE Band 12	3	QPSK	1	0	0	24.7	24.7	24.7
			1	8	0	24.8	24.8	24.8
			1	14	0	24.6	24.6	24.5
			8	0	1	23.7	23.8	23.8
			8	4	1	23.7	23.8	23.8
			8	7	1	23.7	23.7	23.8
			15	0	1	23.7	23.7	23.8
		16QAM	1	0	1	23.6	23.6	24.0
			1	8	1	23.7	23.7	23.9
			1	14	1	23.5	23.5	24.0
			8	0	2	22.9	22.9	22.7
			8	4	2	22.8	22.8	22.7
			8	7	2	22.8	22.8	22.7
			15	0	2	22.8	22.8	22.8
		64QAM	1	0	2	22.7	22.6	22.7
			1	8	2	22.7	22.5	22.6
			1	14	2	22.6	22.5	22.6
			8	0	3	21.5	21.6	21.5
			8	4	3	21.5	21.5	21.5
			8	7	3	21.5	21.5	21.5
			15	0	3	21.4	21.5	21.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						699.7 MHz	707.5 MHz	715.3 MHz
LTE Band 12	1.4	QPSK	1	0	0	24.6	24.6	24.6
			1	3	0	24.6	24.6	24.7
			1	5	0	24.6	24.6	24.4
			3	0	0	24.7	24.7	24.7
			3	1	0	24.7	24.7	24.7
			3	3	0	24.7	24.7	24.6
			6	0	1	23.7	23.7	23.7
		16QAM	1	0	1	23.7	23.7	24.0
			1	3	1	23.8	23.8	24.0
			1	5	1	23.7	23.7	23.9
			3	0	1	23.7	23.7	23.8
			3	1	1	23.8	23.8	23.9
			3	3	1	23.7	23.8	23.8
			6	0	2	22.8	22.8	22.5
		64QAM	1	0	2	22.6	22.5	22.6
			1	3	2	22.7	22.5	22.7
			1	5	2	22.6	22.4	22.6
			3	0	2	22.4	22.5	22.5
			3	1	2	22.5	22.5	22.5
			3	3	2	22.4	22.5	22.4
			6	0	3	21.4	21.5	21.4

LTE Band 13

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)
						782 MHz
LTE Band 13	10	QPSK	1	0	0	23.8
			1	25	0	23.7
			1	49	0	23.6
			25	0	1	22.8
			25	12	1	22.8
			25	25	1	22.7
			50	0	1	22.7
		16QAM	1	0	1	22.8
			1	25	1	22.7
			1	49	1	22.5
			25	0	2	21.8
			25	12	2	21.8
			25	25	2	21.7
			50	0	2	21.8
		64QAM	1	0	2	21.4
			1	25	2	21.3
			1	49	2	21.2
			25	0	3	20.4
			25	12	3	20.4
			25	25	3	20.4
			50	0	3	20.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)
						782 MHz
LTE Band 13	5	QPSK	1	0	0	23.8
			1	12	0	23.7
			1	24	0	23.6
			12	0	1	22.7
			12	7	1	22.7
			12	13	1	22.7
			25	0	1	22.7
		16QAM	1	0	1	23.0
			1	12	1	22.9
			1	24	1	22.9
			12	0	2	21.8
			12	7	2	21.8
			12	13	2	21.8
			25	0	2	21.7
		64QAM	1	0	2	21.4
			1	12	2	21.4
			1	24	2	21.3
			12	0	3	20.5
			12	7	3	20.5
			12	13	3	20.4
			25	0	3	20.4

Tested By	Kiya Kedida
Date	4/11/2017

LTE Band 17

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)
						710
LTE Band 17	10	QPSK	1	0	0	24.6
			1	25	0	24.5
			1	49	0	24.4
			25	0	1	23.6
			25	12	1	23.6
			25	25	1	23.6
			50	0	1	23.6
		16QAM	1	0	1	23.7
			1	25	1	23.6
			1	49	1	23.5
			25	0	2	22.8
			25	12	2	22.7
			25	25	2	22.7
			50	0	2	22.7
		64QAM	1	0	2	22.8
			1	25	2	22.7
			1	49	2	22.6
			25	0	3	21.6
			25	12	3	21.6
			25	25	3	21.5
			50	0	3	21.5

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)
						710
LTE Band 17	5	QPSK	1	0	0	24.6
			1	12	0	24.6
			1	24	0	24.6
			12	0	1	23.6
			12	7	1	23.6
			12	13	1	23.6
			25	0	1	23.6
		16QAM	1	0	1	23.7
			1	12	1	23.7
			1	24	1	23.7
			12	0	2	22.7
			12	7	2	22.7
			12	13	2	22.7
			25	0	2	22.6
		64QAM	1	0	2	22.8
			1	12	2	22.7
			1	24	2	22.7
			12	0	3	21.6
			12	7	3	21.6
			12	13	3	21.5
			25	0	3	21.5

LTE Band 26

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						821.5 MHz	831.5 MHz	841.5 MHz
LTE Band 26	15	QPSK	1	0	0		24.8	
			1	37	0		24.7	
			1	74	0		24.6	
			36	0	1		23.9	
			36	20	1		23.8	
			36	39	1		23.7	
			75	0	1		23.7	
		16QAM	1	0	1		23.7	
			1	37	1		23.7	
			1	74	1		23.6	
			36	0	2		22.9	
			36	20	2		22.8	
			36	39	2		22.7	
			75	0	2		22.8	
		64QAM	1	0	2		22.6	
			1	37	2		22.6	
			1	74	2		22.5	
			36	0	3		21.5	
			36	20	3		21.5	
			36	39	3		21.4	
			75	0	3		21.4	

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						819 MHz	831.5 MHz	844 MHz
LTE Band 26	10	QPSK	1	0	0	24.5	24.8	24.7
			1	25	0	24.4	24.7	24.5
			1	49	0	24.3	24.6	24.1
			25	0	1	23.5	23.8	23.6
			25	12	1	23.5	23.8	23.6
			25	25	1	23.5	23.7	23.3
			50	0	1	23.5	23.7	23.6
		16QAM	1	0	1	23.5	23.8	24.0
			1	25	1	23.4	23.6	23.9
			1	49	1	23.3	23.6	23.5
			25	0	2	22.6	22.9	22.7
			25	12	2	22.6	22.8	22.6
			25	25	2	22.6	22.8	22.3
			50	0	2	22.5	22.8	22.6
		64QAM	1	0	2	22.8	22.6	22.5
			1	25	2	22.5	22.5	22.4
			1	49	2	22.6	22.4	22.1
			25	0	3	21.4	21.4	21.3
			25	12	3	21.4	21.4	21.3
			25	25	3	21.4	21.3	21.1
			50	0	3	21.4	21.4	21.2

LTE Band 26 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						816.5 MHz	831.5 MHz	846.5 MHz
LTE Band 26	5	QPSK	1	0	0	24.7	24.7	24.6
			1	12	0	24.6	24.7	24.2
			1	24	0	24.5	24.6	24.1
			12	0	1	23.7	23.8	23.3
			12	7	1	23.7	23.8	23.2
			12	13	1	23.6	23.8	23.2
			25	0	1	23.6	23.7	23.2
		16QAM	1	0	1	23.8	24.0	24.0
			1	12	1	23.7	23.8	23.7
			1	24	1	23.6	23.9	23.7
			12	0	2	22.8	22.9	22.5
			12	7	2	22.7	22.9	22.4
			12	13	2	22.7	22.8	22.3
			25	0	2	22.6	22.8	22.3
		64QAM	1	0	2	22.7	22.7	22.6
			1	12	2	22.6	22.6	22.1
			1	24	2	22.5	22.6	22.1
			12	0	3	21.5	21.5	21.1
			12	7	3	21.4	21.4	21.0
			12	13	3	21.3	21.4	21.0
			25	0	3	21.4	21.4	21.1
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						815.5 MHz	831.5 MHz	847.5 MHz
LTE Band 26	3	QPSK	1	0	0	24.8	24.7	24.2
			1	8	0	24.8	24.8	24.2
			1	14	0	24.6	24.7	24.1
			8	0	1	23.8	23.8	23.2
			8	4	1	23.8	23.8	23.2
			8	7	1	23.8	23.8	23.2
			15	0	1	23.7	23.8	23.2
		16QAM	1	0	1	23.8	23.7	23.6
			1	8	1	24.0	23.7	23.7
			1	14	1	23.6	23.6	23.5
			8	0	2	23.0	22.9	22.1
			8	4	2	23.0	22.9	22.1
			8	7	2	23.0	22.9	22.1
			15	0	2	22.7	22.8	22.2
		64QAM	1	0	2	22.8	22.5	22.1
			1	8	2	22.7	22.5	22.1
			1	14	2	22.6	22.4	22.1
			8	0	3	21.6	21.4	21.0
			8	4	3	21.5	21.4	21.0
			8	7	3	21.4	21.4	21.0
			15	0	3	21.5	21.3	21.0

LTE Band 26 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)		
						814.7 MHz	831.5 MHz	848.3 MHz
LTE Band 26	1.4	QPSK	1	0	0	24.7	24.7	24.0
			1	3	0	24.7	24.7	24.2
			1	5	0	24.7	24.6	24.0
			3	0	0	24.7	24.7	24.1
			3	1	0	24.7	24.8	24.2
			3	3	0	24.7	24.7	24.1
			6	0	1	23.7	23.7	23.1
		16QAM	1	0	1	23.7	23.8	23.4
			1	3	1	23.9	23.8	23.5
			1	5	1	23.7	23.8	23.4
			3	0	1	23.8	23.8	23.2
			3	1	1	23.9	23.8	23.4
			3	3	1	23.9	23.8	23.4
			6	0	2	22.9	22.8	22.0
		64QAM	1	0	2	22.5	22.5	22.0
			1	3	2	22.5	22.6	22.1
			1	5	2	22.4	22.5	22.1
			3	0	2	22.3	22.4	22.0
			3	1	2	22.4	22.5	22.0
			3	3	2	22.4	22.4	22.0
			6	0	3	21.6	21.3	21.0

Tested By	Coltyce Sanders/AJ Newcomer
Date	4/3/2017 -4/6/2017

LTE Band 41

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	21.9	21.9	21.9	21.8	21.8
			1	49	0	21.6	21.7	21.6	21.5	21.5
			1	99	0	21.5	21.6	21.5	21.4	21.4
			50	0	1	20.7	20.8	20.7	20.7	20.7
			50	24	1	20.6	20.7	20.6	20.6	20.6
			50	50	1	20.5	20.6	20.5	20.5	20.5
			100	0	1	20.6	20.7	20.6	20.6	20.6
		16QAM	1	0	1	20.6	20.8	20.6	20.5	20.5
			1	49	1	20.3	20.6	20.3	20.2	20.2
			1	99	1	20.2	20.4	20.2	20.0	20.0
			50	0	2	19.7	19.8	19.7	19.7	19.7
			50	24	2	19.6	19.8	19.6	19.6	19.6
			50	50	2	19.5	19.8	19.5	19.5	19.5
			100	0	2	19.6	19.8	19.6	19.6	19.6
		64QAM	1	0	2	19.5	19.3	19.4	19.8	19.2
			1	49	2	19.5	19.1	19.2	19.5	19.1
			1	99	2	19.3	19.0	19.0	19.4	19.1
			50	0	3	18.3	18.4	18.6	18.4	18.3
			50	24	3	18.2	18.3	18.3	18.4	18.2
			50	50	3	18.1	18.2	18.3	18.4	18.2
			100	0	3	18.1	18.2	18.2	18.4	18.1
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	15	QPSK	1	0	0	21.7	21.7	21.7	21.7	21.7
			1	37	0	21.5	21.4	21.5	21.5	21.5
			1	74	0	21.4	21.4	21.4	21.5	21.5
			36	0	1	20.6	20.7	20.6	20.6	20.6
			36	20	1	20.6	20.7	20.6	20.6	20.6
			36	39	1	20.5	20.6	20.5	20.6	20.5
			75	0	1	20.5	20.6	20.6	20.6	20.5
		16QAM	1	0	1	20.5	20.6	20.5	20.4	20.5
			1	37	1	20.2	20.4	20.3	20.3	20.3
			1	74	1	20.2	20.3	20.2	20.2	20.2
			36	0	2	19.6	19.7	19.6	19.6	19.6
			36	20	2	19.6	19.7	19.6	19.6	19.6
			36	39	2	19.5	19.6	19.5	19.5	19.5
			75	0	2	19.6	19.6	19.6	19.6	19.5
		64QAM	1	0	2	20.0	19.4	19.3	20.1	19.2
			1	37	2	19.9	19.2	19.2	20.0	19.3
			1	74	2	19.8	19.0	19.4	19.8	19.0
			36	0	3	18.2	18.5	18.5	18.4	18.3
			36	20	3	18.2	18.4	18.3	18.5	18.2
			36	39	3	18.3	18.2	18.2	18.4	18.2
			75	0	3	18.2	18.3	18.2	18.3	18.2

LTE Band 41 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	10	QPSK	1	0	0	21.7	21.6	21.7	21.7	21.7
			1	25	0	21.6	21.5	21.6	21.6	21.6
			1	49	0	21.5	21.5	21.5	21.6	21.6
			25	0	1	20.7	20.6	20.7	20.7	20.7
			25	12	1	20.7	20.6	20.6	20.7	20.7
			25	25	1	20.6	20.5	20.6	20.7	20.6
			50	0	1	20.6	20.6	20.7	20.7	20.6
		16QAM	1	0	1	20.4	20.5	20.4	20.4	20.5
			1	25	1	20.2	20.5	20.2	20.4	20.4
			1	49	1	20.3	20.4	20.3	20.4	20.3
			25	0	2	19.7	19.6	19.7	19.7	19.7
			25	12	2	19.6	19.6	19.6	19.7	19.6
			25	25	2	19.6	19.5	19.6	19.7	19.6
			50	0	2	19.6	19.6	19.6	19.7	19.6
		64QAM	1	0	2	19.1	20.0	19.2	19.2	19.7
			1	25	2	19.0	19.8	19.2	19.2	19.8
			1	49	2	19.0	19.7	19.2	19.2	19.7
			25	0	3	18.2	18.3	18.2	18.4	18.2
			25	12	3	18.2	18.3	18.2	18.4	18.2
			25	25	3	18.1	18.3	18.2	18.4	18.2
			50	0	3	18.2	18.2	18.3	18.4	18.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Meas. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	5	QPSK	1	0	0	21.3	21.6	21.6	21.6	21.6
			1	12	0	21.2	21.6	21.6	21.5	21.5
			1	24	0	21.2	21.5	21.6	21.4	21.4
			12	0	1	20.2	20.6	20.6	20.6	20.6
			12	7	1	20.2	20.6	20.6	20.6	20.6
			12	13	1	20.2	20.5	20.6	20.6	20.6
			25	0	1	20.2	20.5	20.6	20.6	20.6
		16QAM	1	0	1	20.0	20.3	20.5	20.3	20.3
			1	12	1	20.0	20.3	20.4	20.3	20.3
			1	24	1	19.9	20.3	20.4	20.2	20.2
			12	0	2	19.2	19.2	19.7	19.6	19.6
			12	7	2	19.2	19.2	19.7	19.6	19.6
			12	13	2	19.2	19.2	19.6	19.6	19.6
			25	0	2	19.2	19.2	19.6	19.6	19.6
		64QAM	1	0	2	19.4	19.7	19.5	19.5	19.6
			1	12	2	19.3	19.9	19.4	18.6	19.5
			1	24	2	19.3	19.5	19.4	19.5	19.5
			12	0	3	18.3	18.2	18.2	18.5	18.3
			12	7	3	18.3	18.3	18.3	18.4	18.3
			12	13	3	18.2	18.2	18.3	18.5	18.3
			25	0	3	18.1	18.3	18.3	18.4	18.2

12. PEAK TO AVERAGE RATIO

TEST PROCEDURE

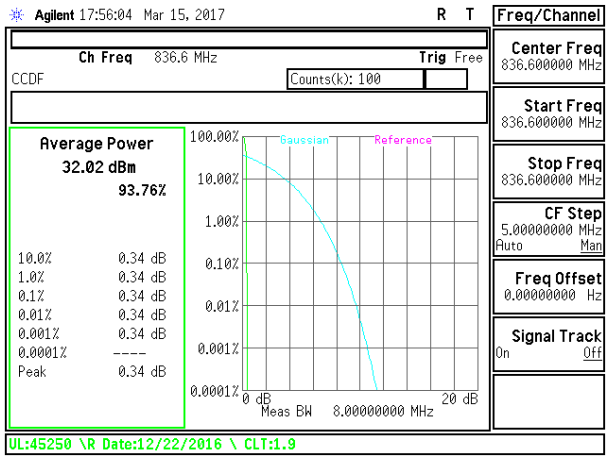
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

TEST SPEC

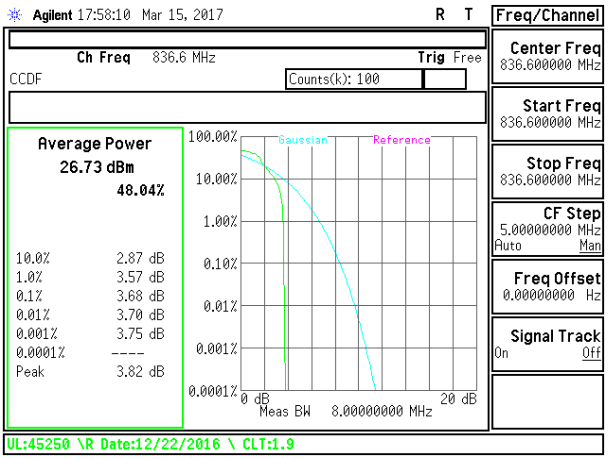
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

12.1. CONDUCTED PEAK TO AVERAGE RESULT

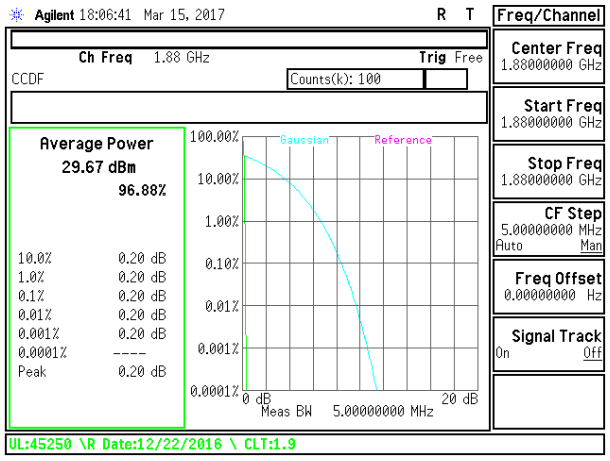
GSM



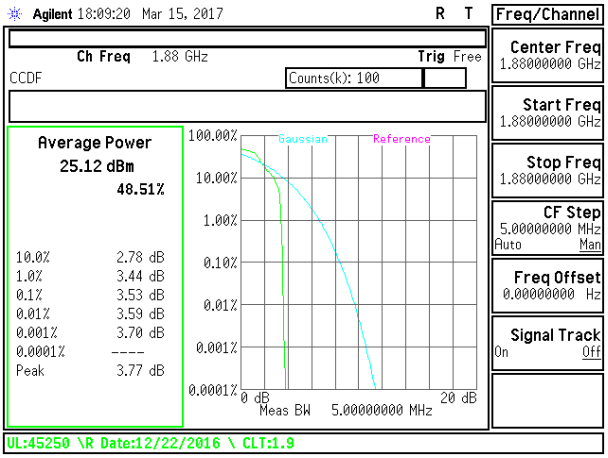
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel

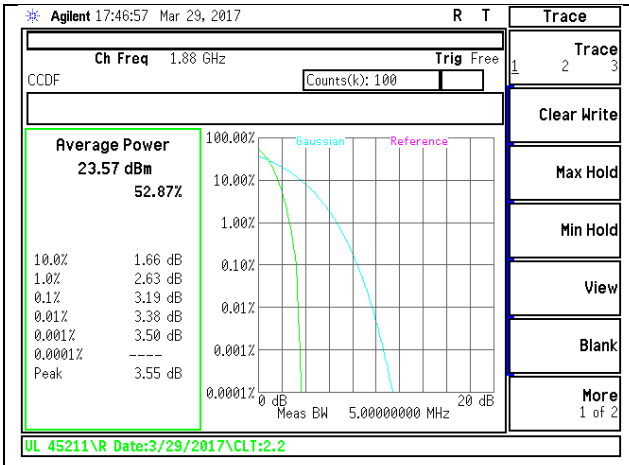


GSM1900 GPRS Middle Channel

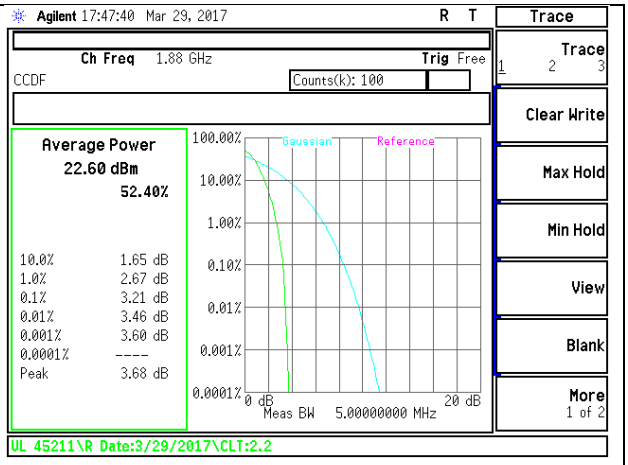


GSM1900 EGPRS Middle Channel

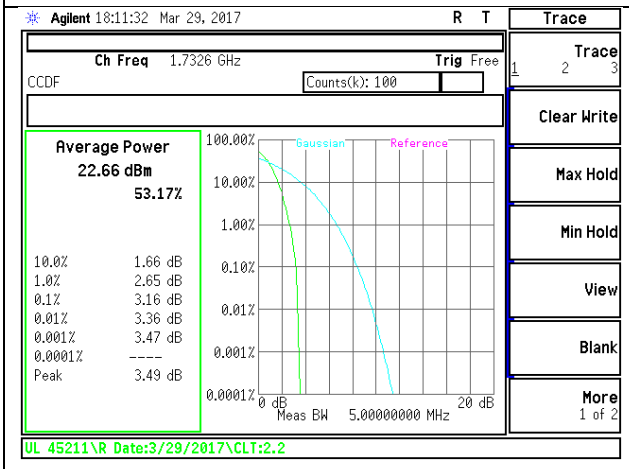
WCDMA



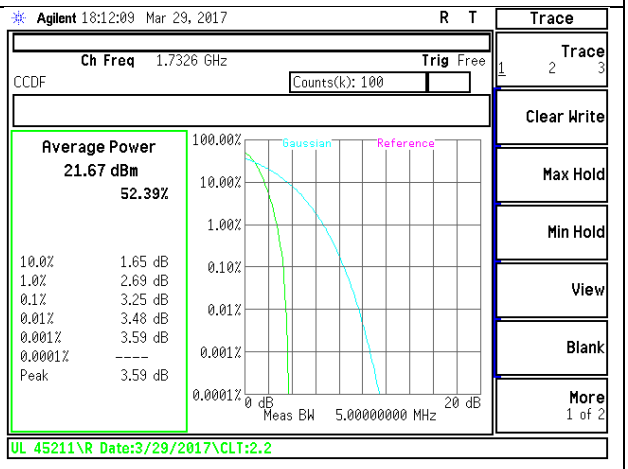
B2 REL99



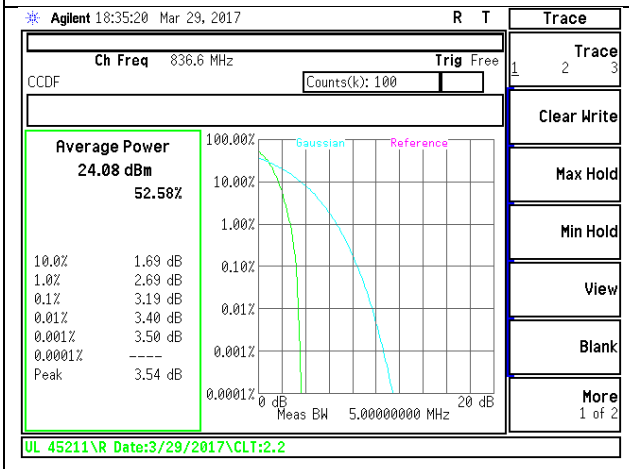
B2 HSDPA



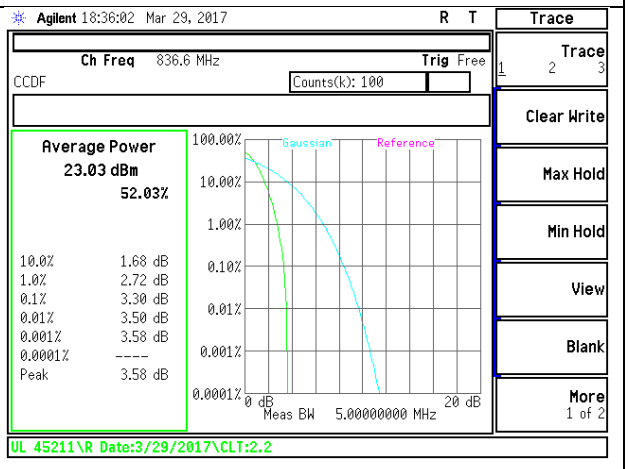
B4 REL99



B4 HSDPA

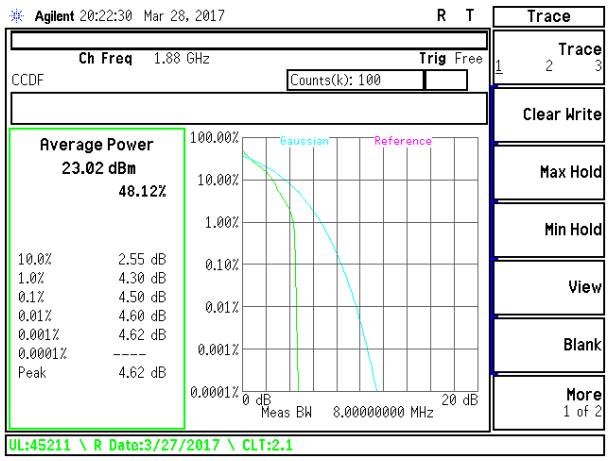


B5 REL99

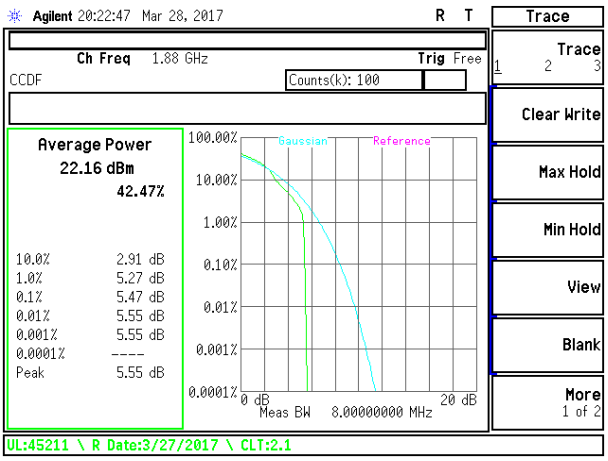


B5 HSDPA

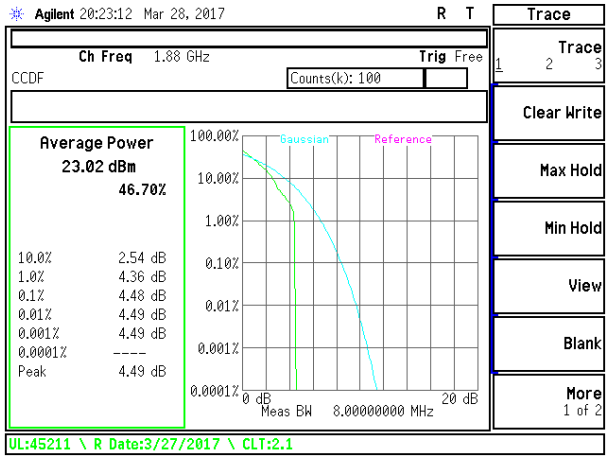
LTE Band 2



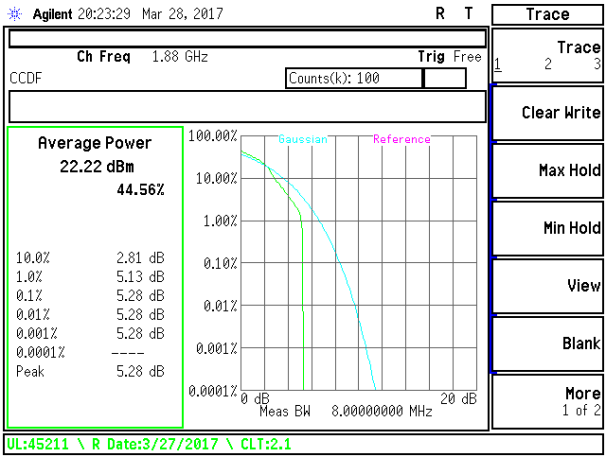
LTE B2 1.4MHz QPSK Middle Channel



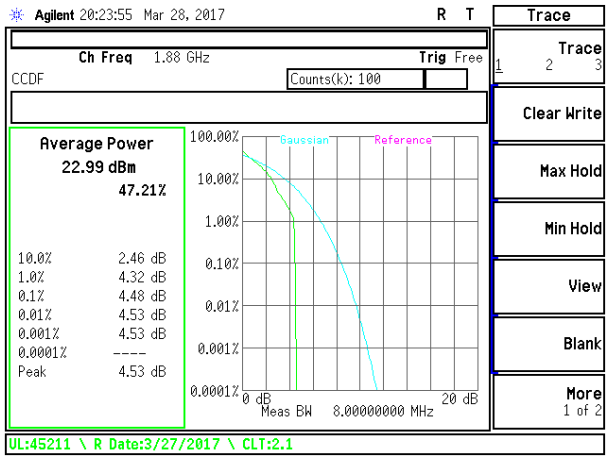
LTE B2 1.4MHz 16QAM Middle Channel



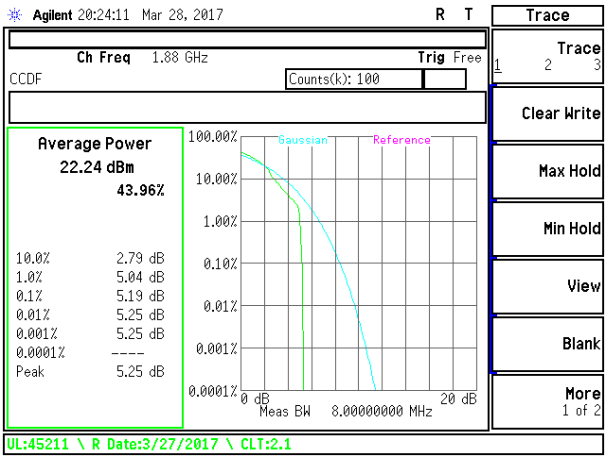
LTE B2 3MHz QPSK Middle Channel



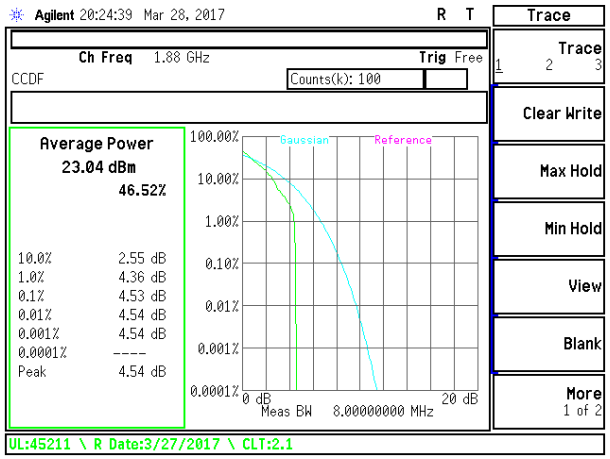
LTE B2 3MHz 16QAM Middle Channel



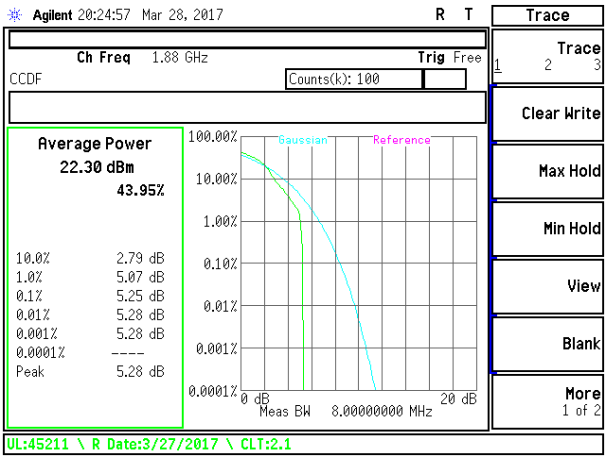
LTE B2 5MHz QPSK Middle Channel



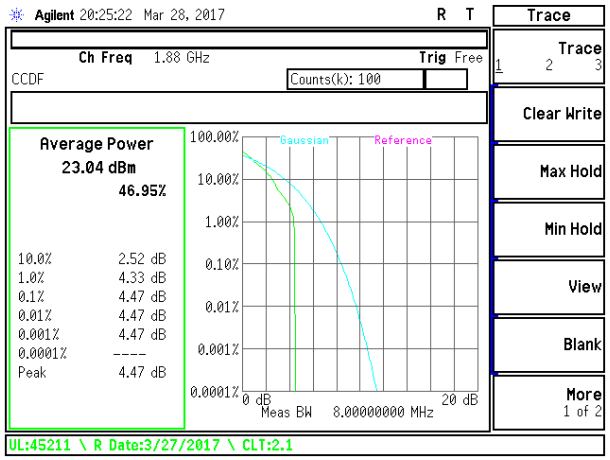
LTE B2 5MHz 16QAM Middle Channel



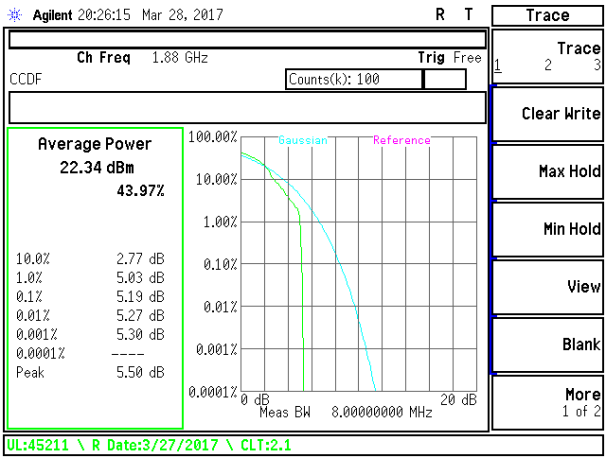
LTE B2 10MHz QPSK Middle Channel



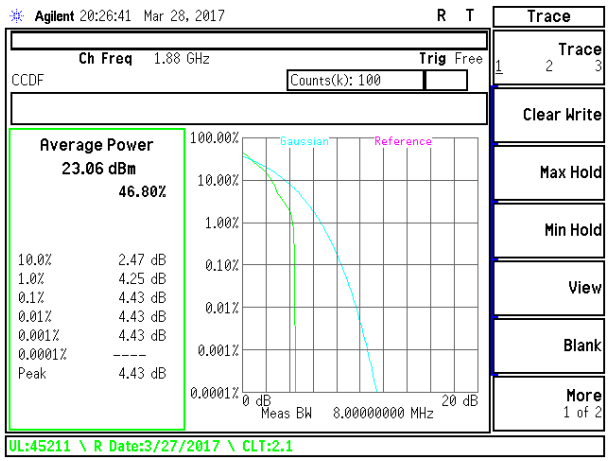
LTE B2 10MHz 16QAM Middle Channel



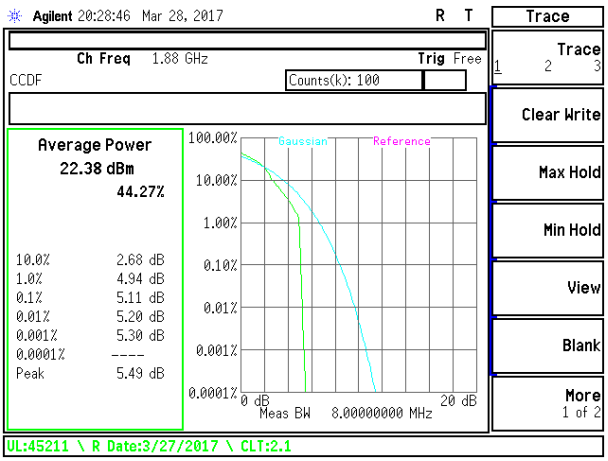
LTE B2 15MHz QPSK Middle Channel



LTE B2 15MHz 16QAM Middle Channel

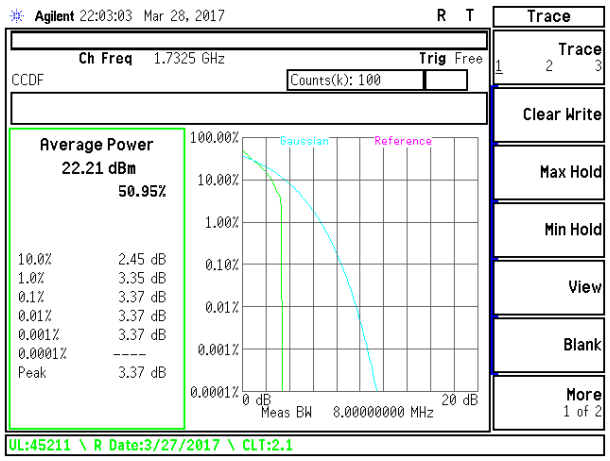


LTE B2 20MHz QPSK Middle Channel

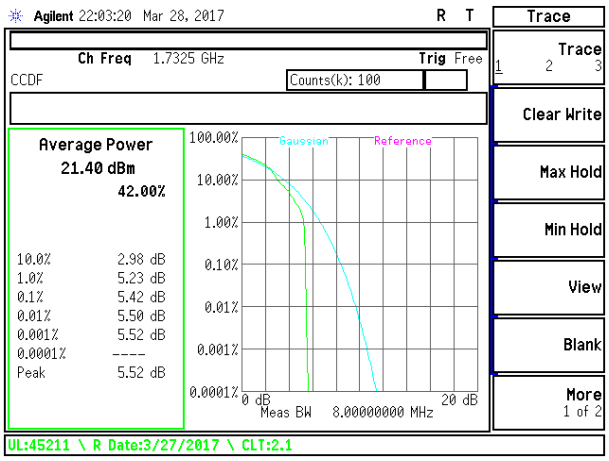


LTE B2 20MHz 16QAM Middle Channel

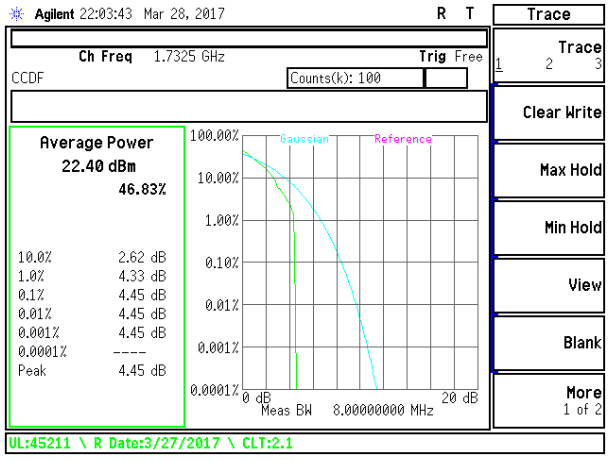
LTE Band 4



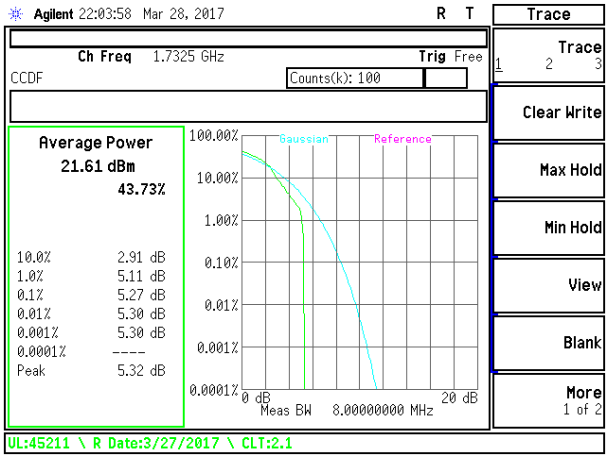
LTE B4 1.4MHz QPSK Middle Channel



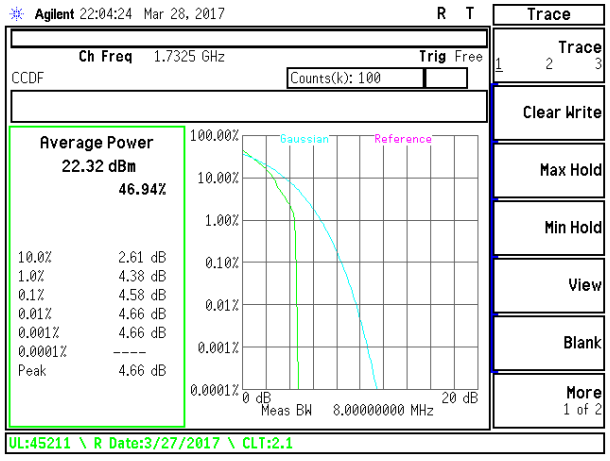
LTE B4 1.4MHz 16QAM Middle Channel



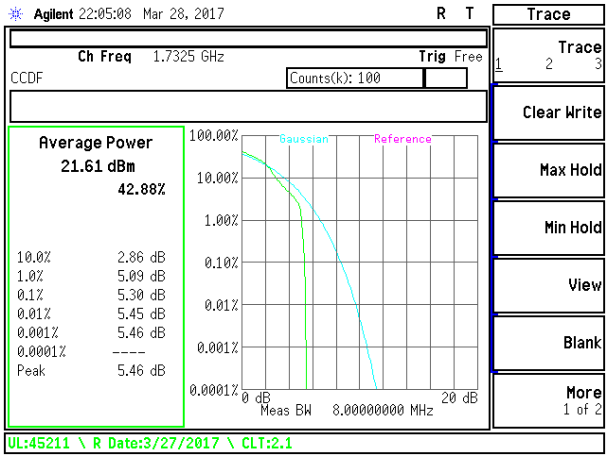
LTE B4 3MHz QPSK Middle Channel



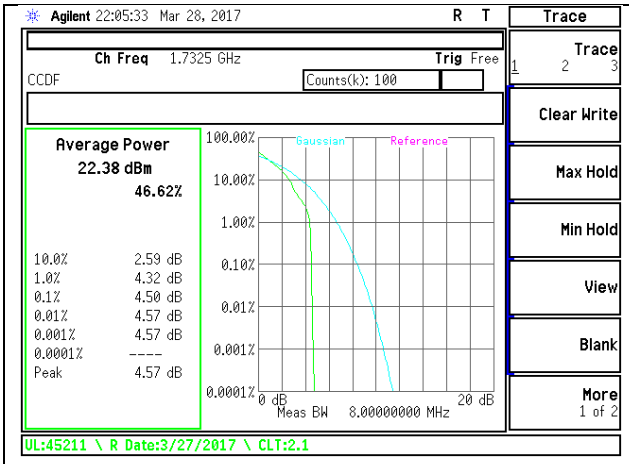
LTE B4 3MHz 16QAM Middle Channel



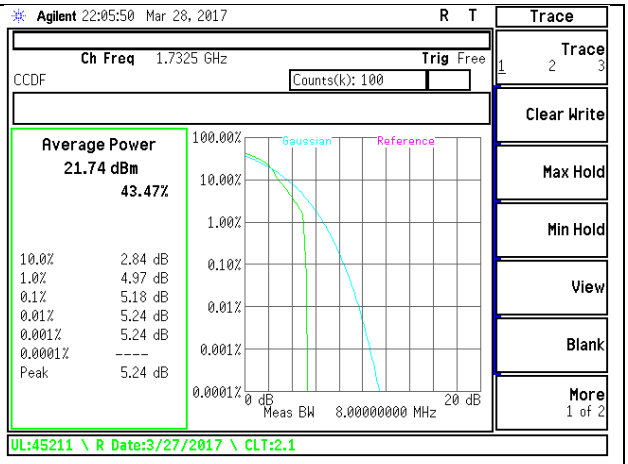
LTE B4 5MHz QPSK Middle Channel



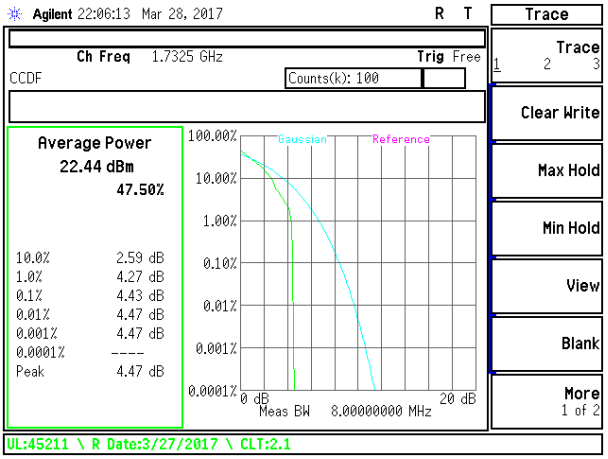
LTE B4 5MHz 16QAM Middle Channel



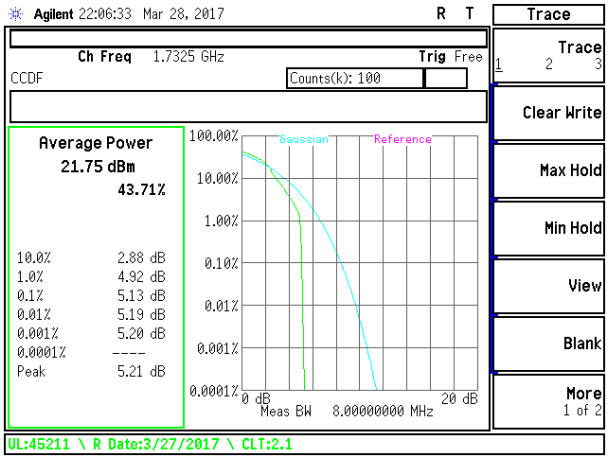
LTE B4 10MHz QPSK Middle Channel



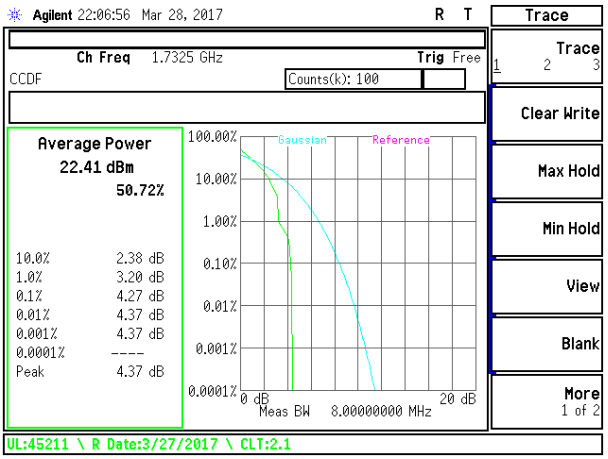
LTE B4 10MHz 16QAM Middle Channel



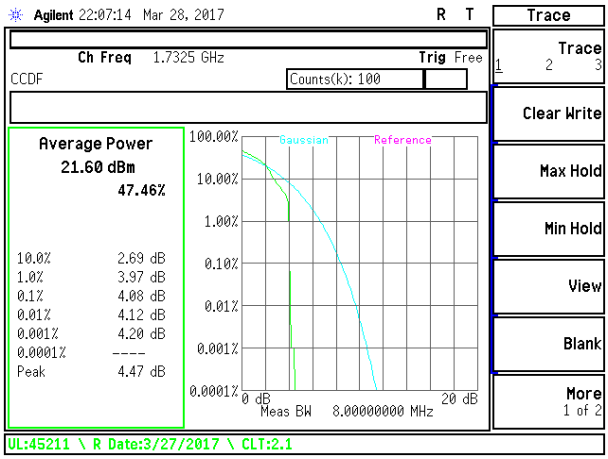
LTE B4 15MHz QPSK Middle Channel



LTE B4 15MHz 16QAM Middle Channel

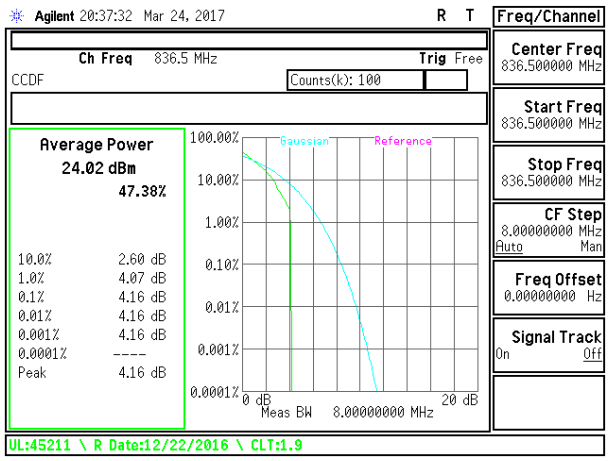


LTE B4 20MHz QPSK Middle Channel

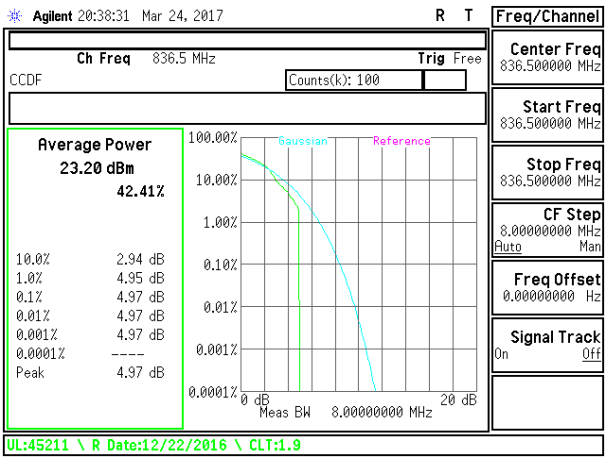


LTE B4 20MHz 16QAM Middle Channel

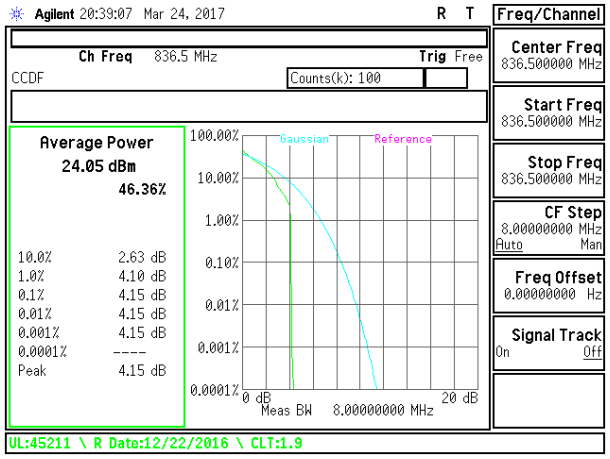
LTE Band 5



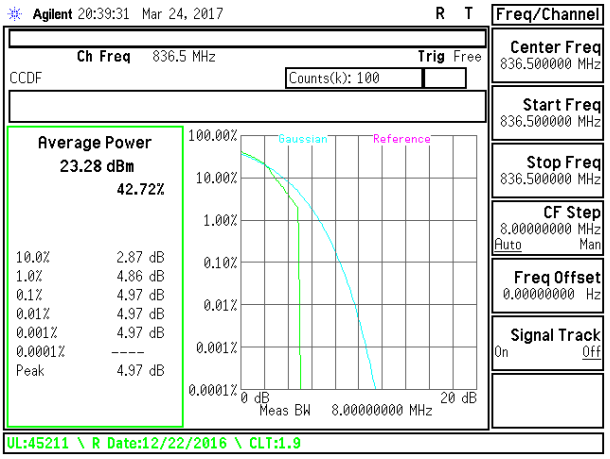
LTE B5 1.4MHz QPSK Middle Channel



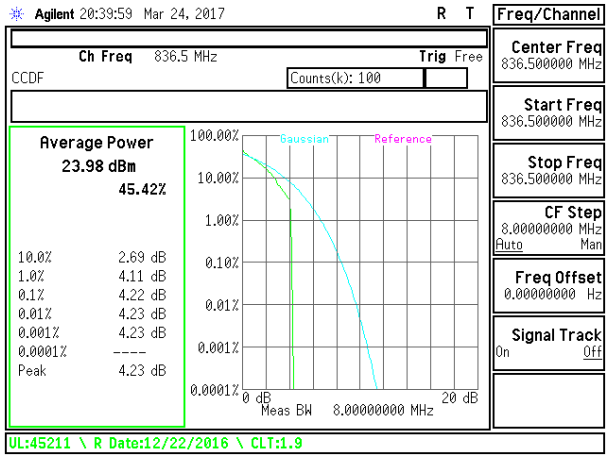
LTE B5 1.4MHz 16QAM Middle Channel



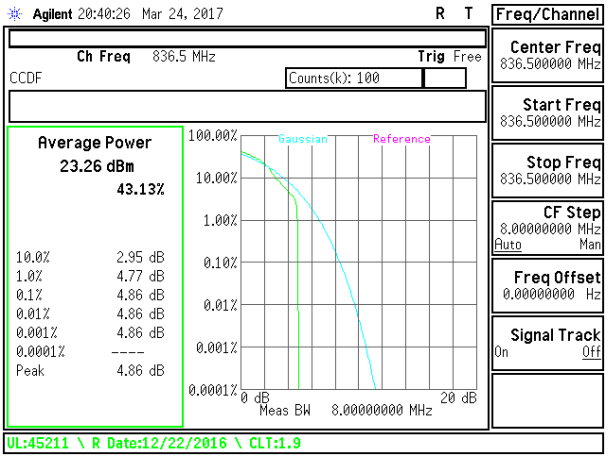
LTE B5 3MHz QPSK Middle Channel



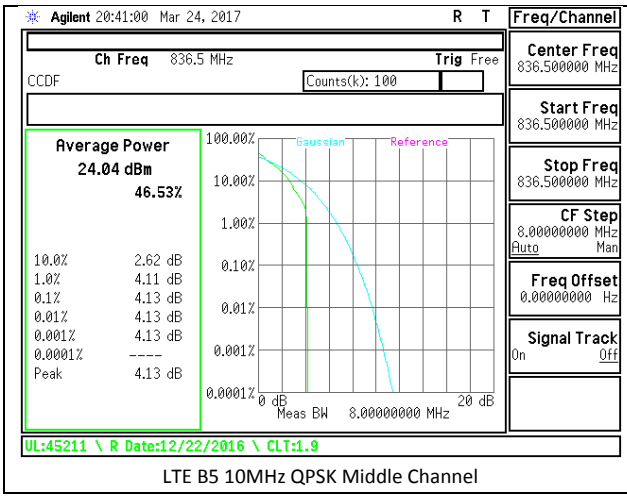
LTE B5 3MHz 16QAM Middle Channel



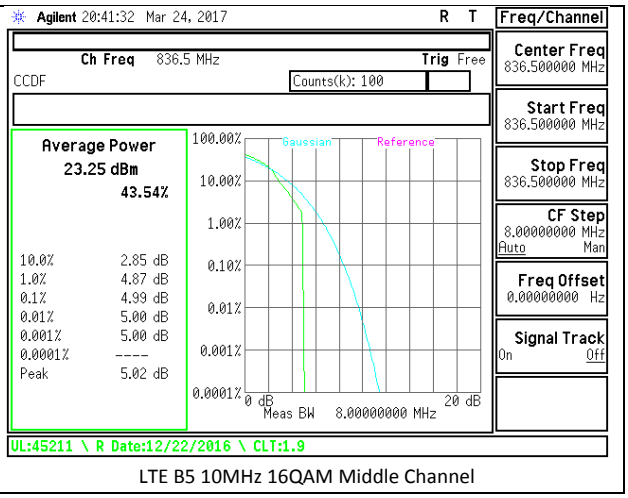
LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel

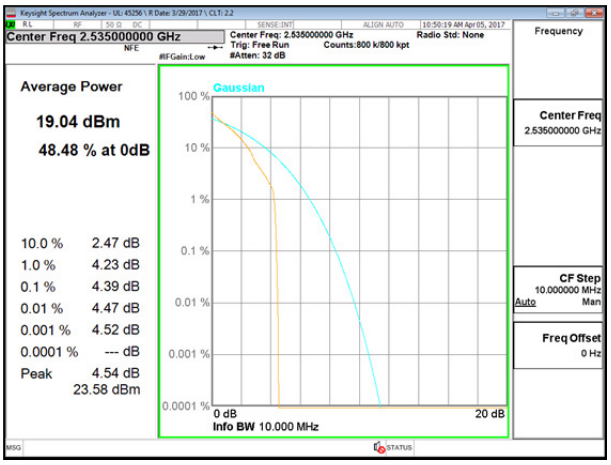


LTE B5 10MHz QPSK Middle Channel

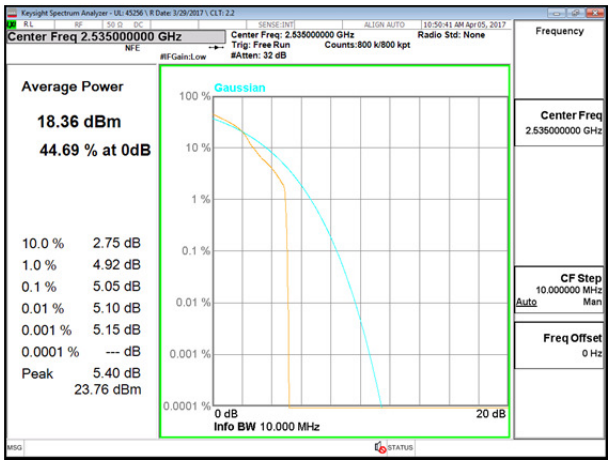


LTE B5 10MHz 16QAM Middle Channel

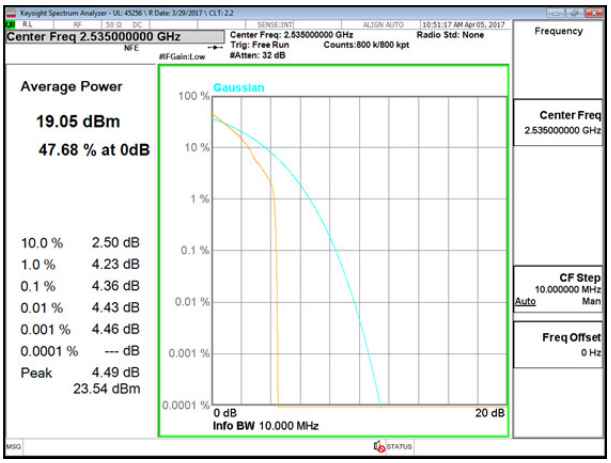
LTE Band 7



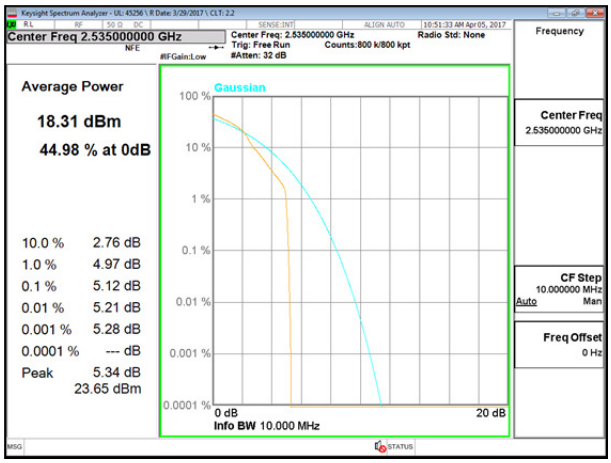
LTE B7 5MHz QPSK Middle Channel



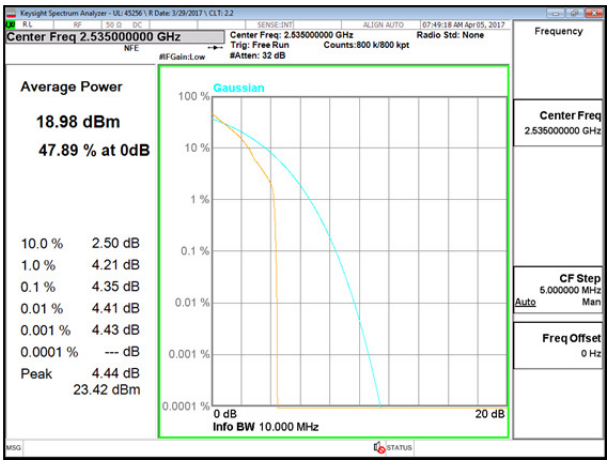
LTE B7 5MHz 16QAM Middle Channel



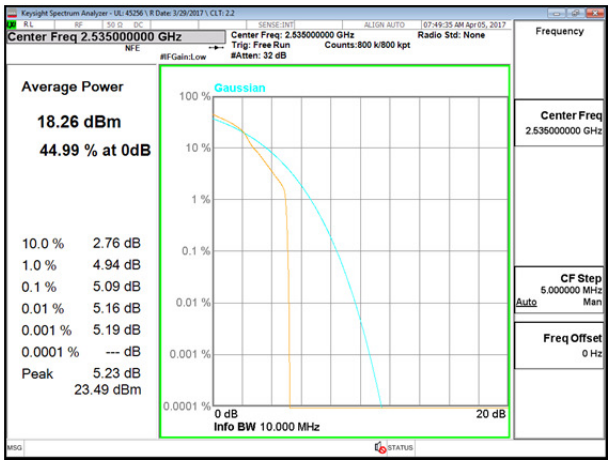
LTE B7 10MHz QPSK Middle Channel



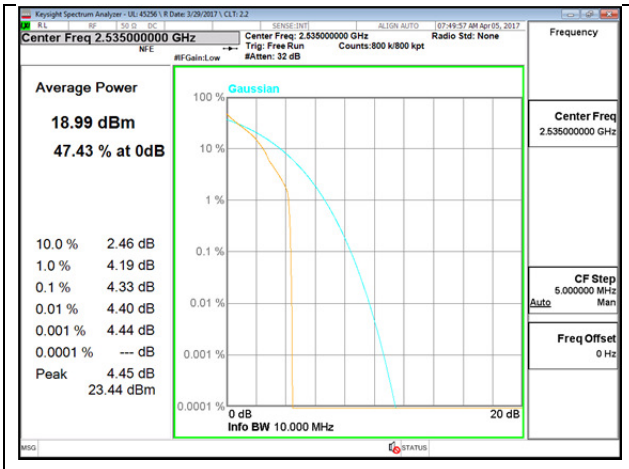
LTE B7 10MHz 16QAM Middle Channel



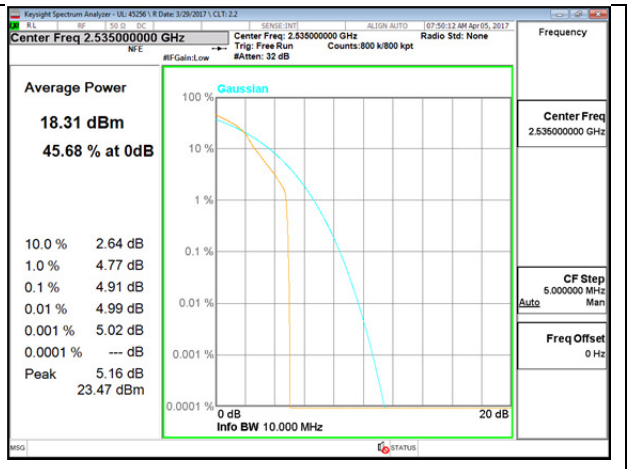
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel

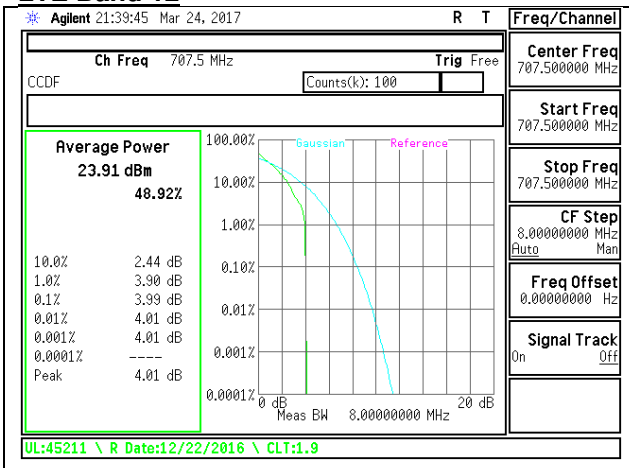


LTE B7 20MHz QPSK Middle Channel

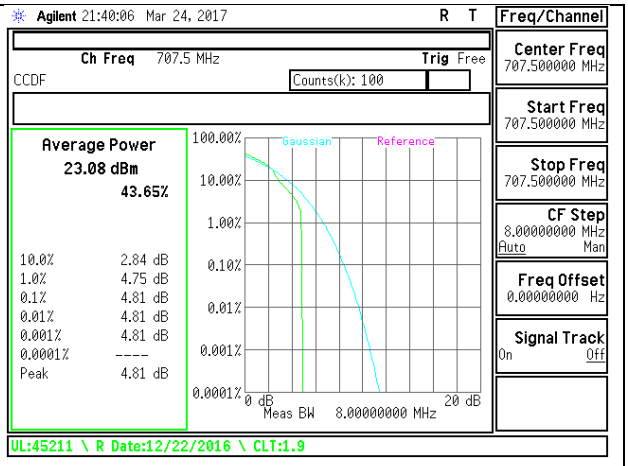


LTE B7 20MHz 16QAM Middle Channel

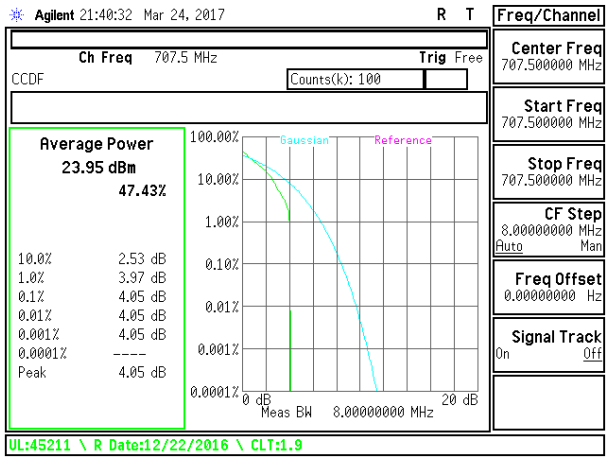
LTE Band 12



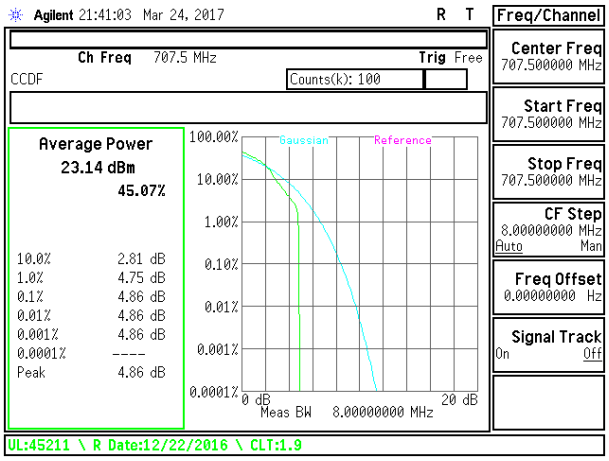
LTE B12 1.4MHz QPSK Middle Channel



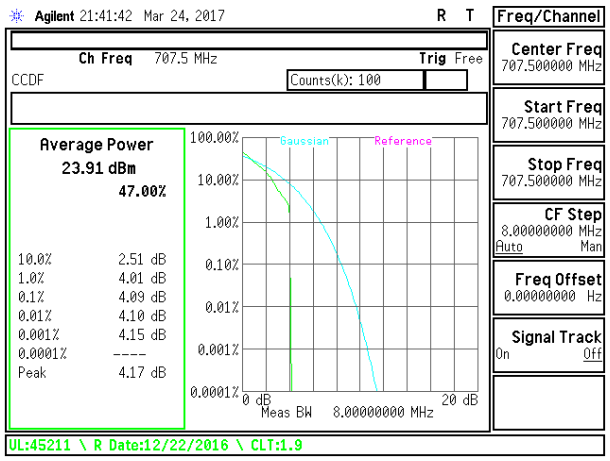
LTE B12 1.4MHz 16QAM Middle Channel



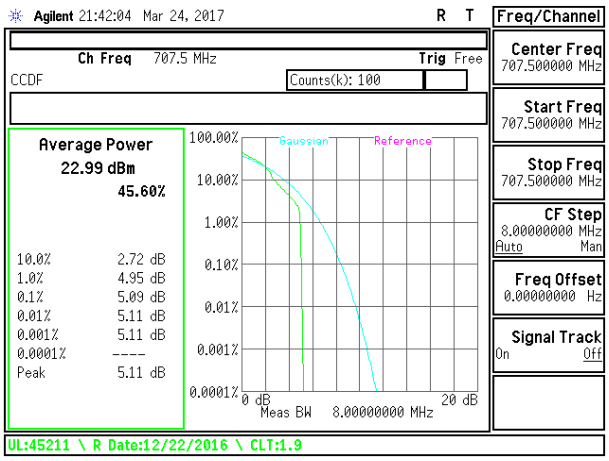
LTE B12 3MHz QPSK Middle Channel



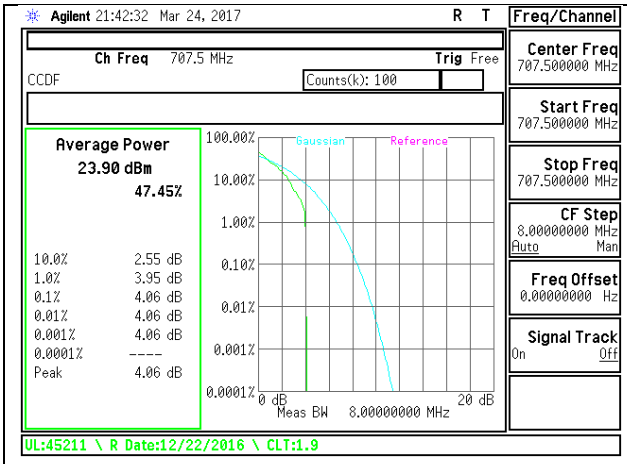
LTE B12 3MHz 16QAM Middle Channel



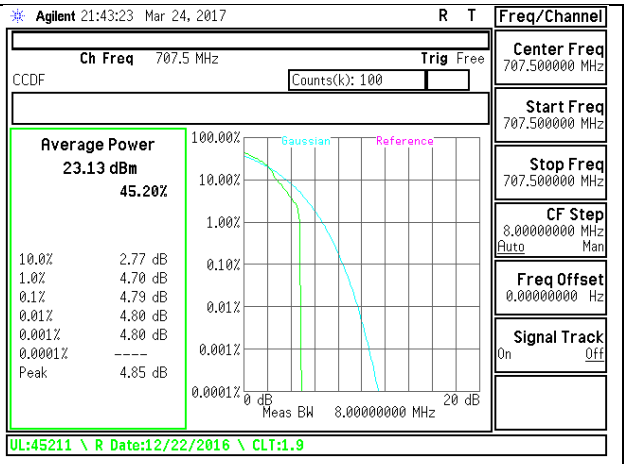
LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel

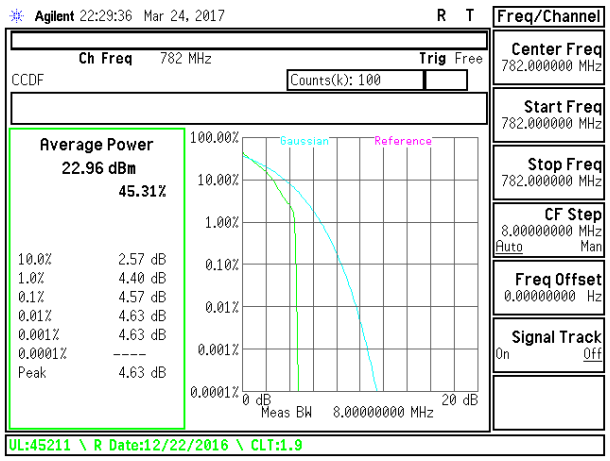


LTE B12 10MHz QPSK Middle Channel

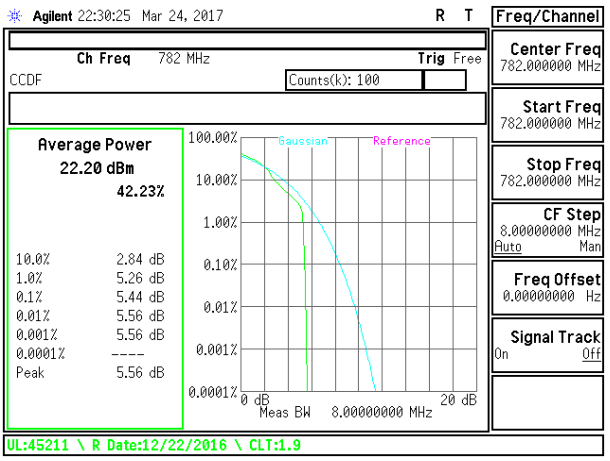


LTE B12 10MHz 16QAM Middle Channel

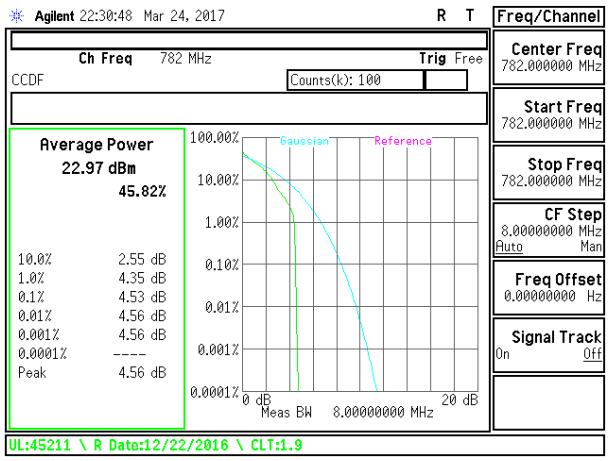
LTE Band 13



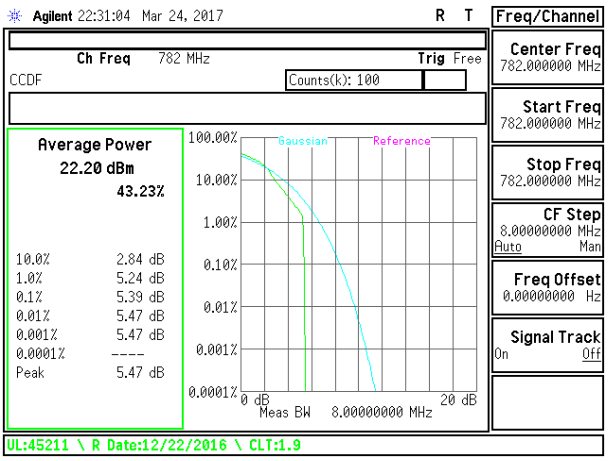
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel

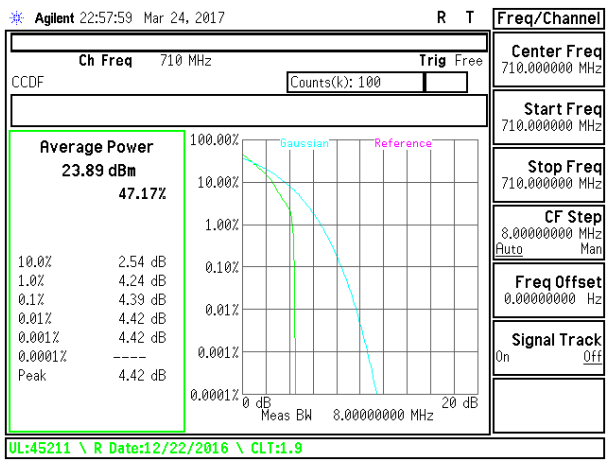


LTE B13 10MHz QPSK Middle Channel

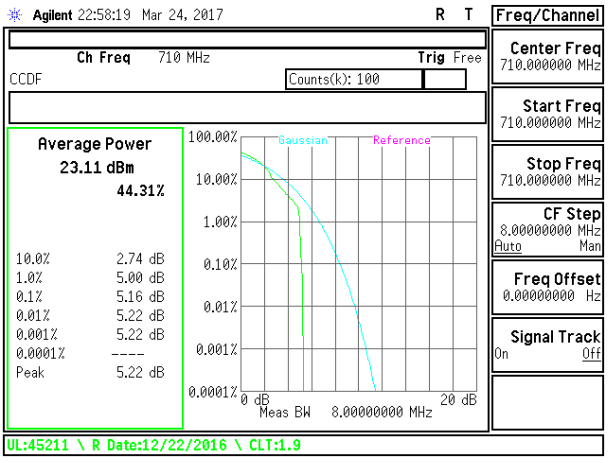


LTE B13 10MHz 16QAM Middle Channel

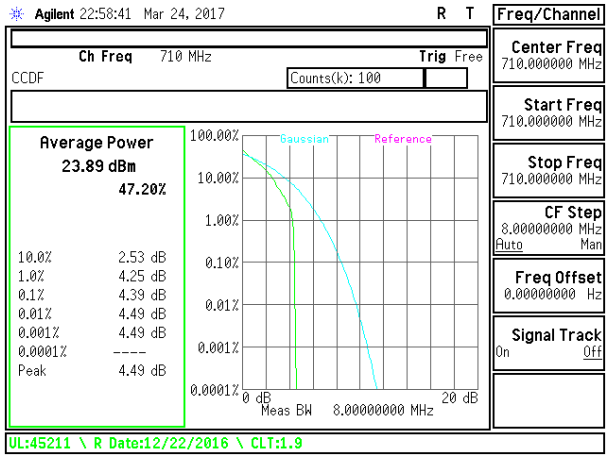
LTE Band 17



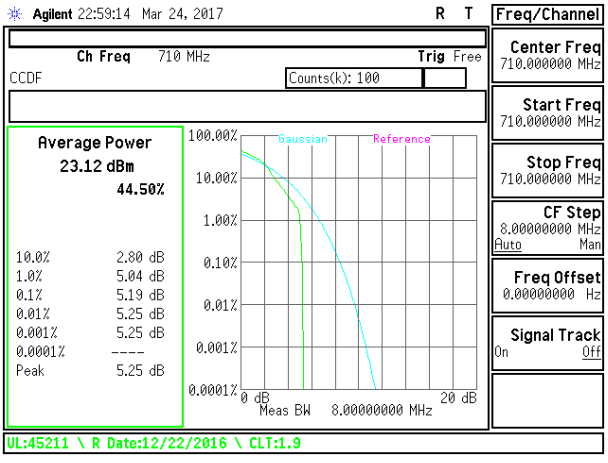
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel

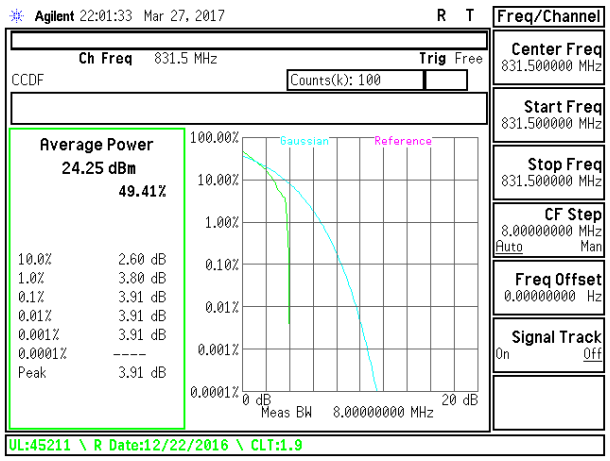


LTE B17 10MHz QPSK Middle Channel

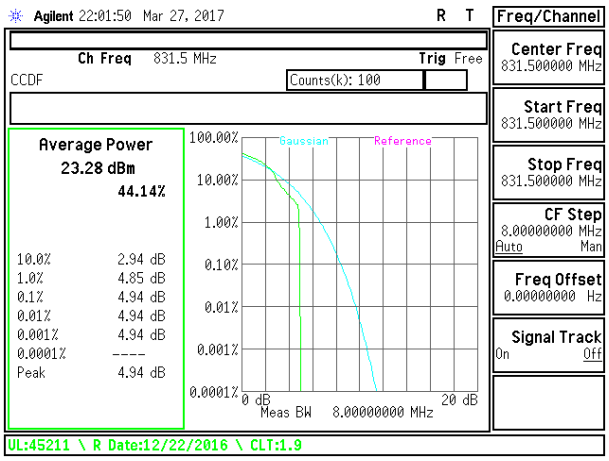


LTE B17 10MHz 16QAM Middle Channel

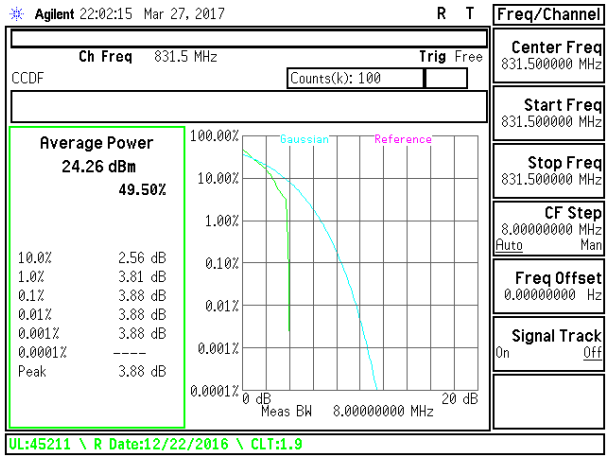
LTE Band 26



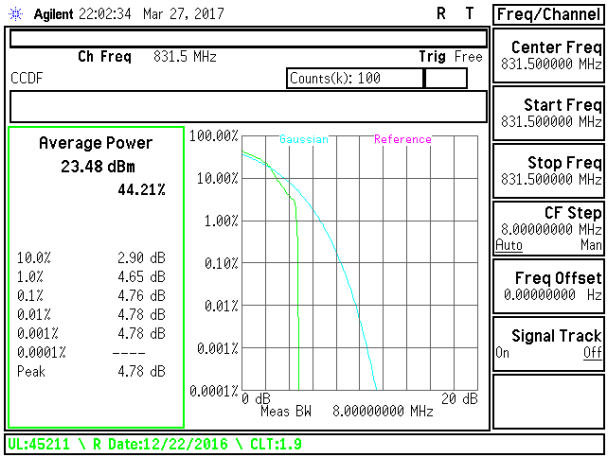
LTE B26 1.4MHz QPSK Middle Channel



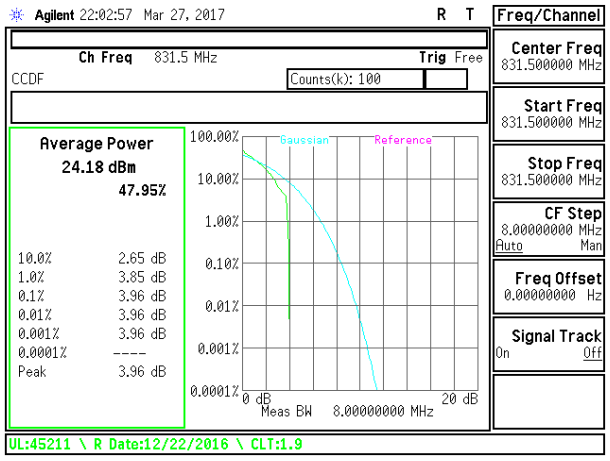
LTE B26 1.4MHz 16QAM Middle Channel



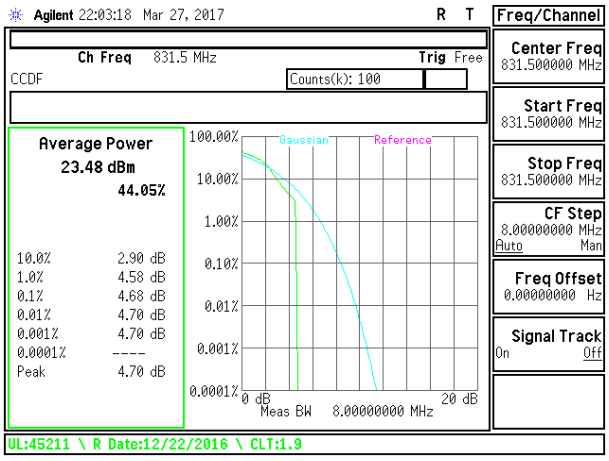
LTE B26 3MHz QPSK Middle Channel



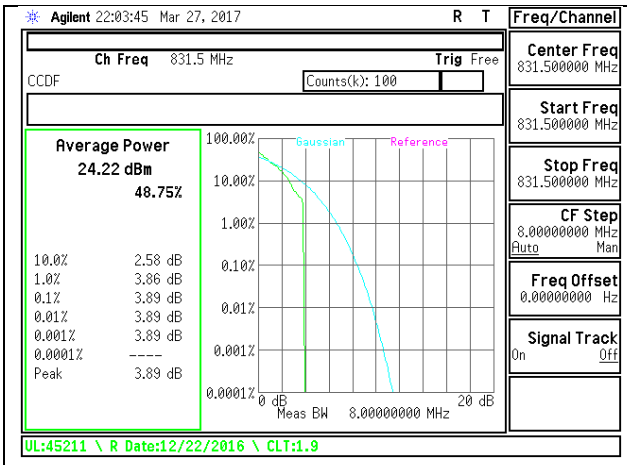
LTE B26 3MHz 16QAM Middle Channel



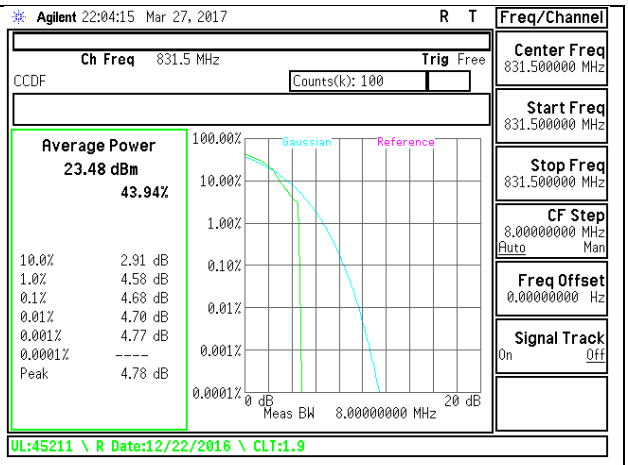
LTE B26 5MHz QPSK Middle Channel



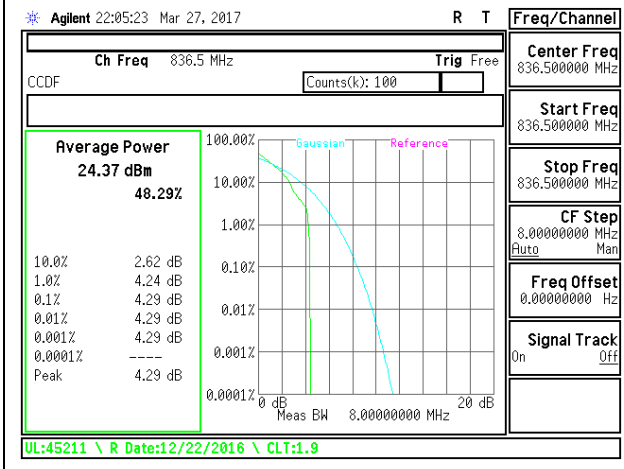
LTE B26 5MHz 16QAM Middle Channel



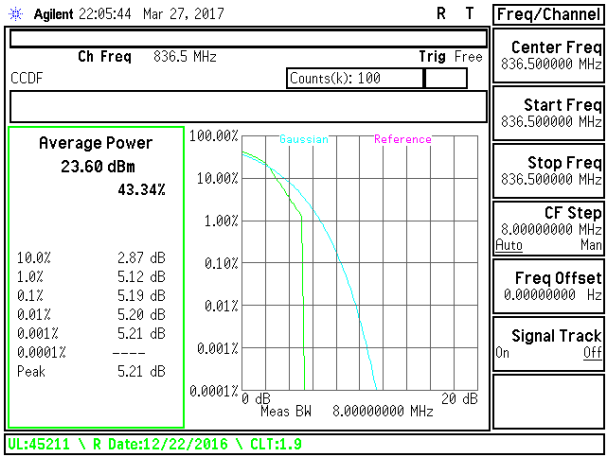
LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

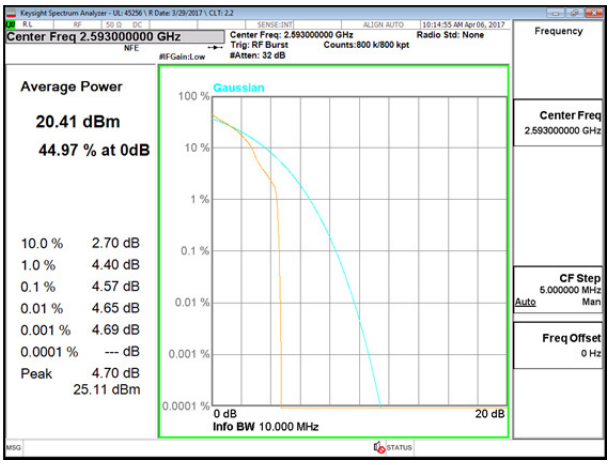


LTE B26 15MHz QPSK Middle Channel

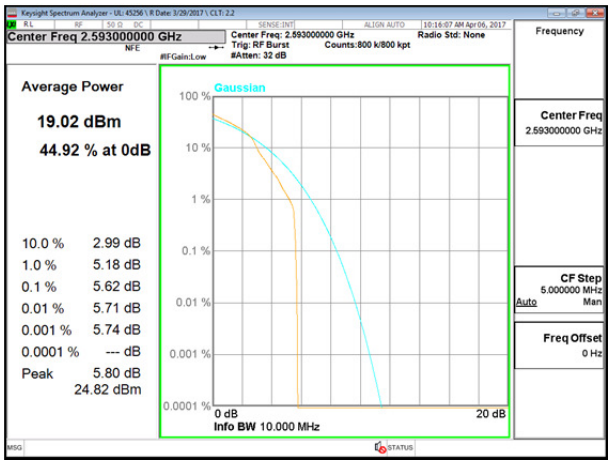


LTE B26 15MHz 16QAM Middle Channel

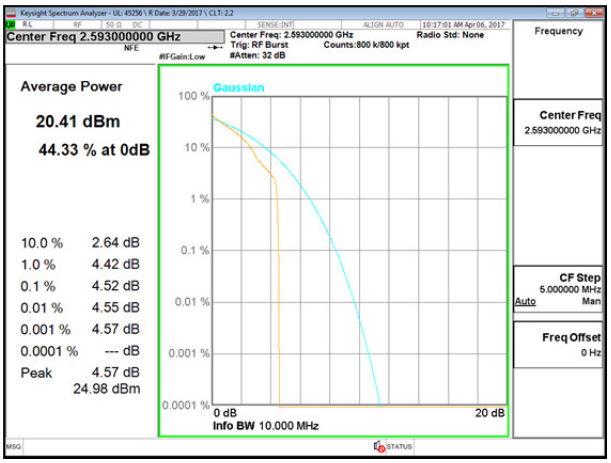
LTE Band 41



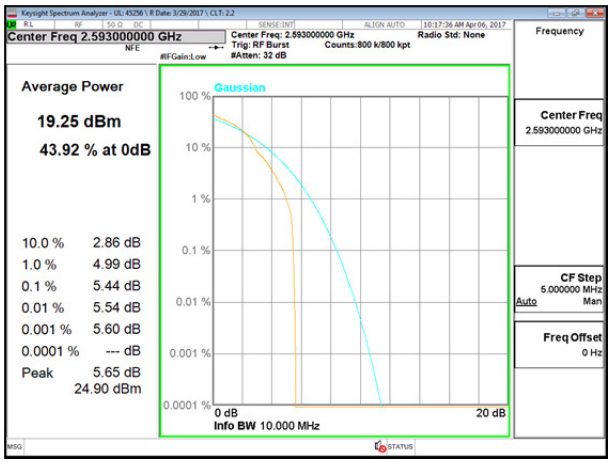
LTE B41 5MHz QPSK Middle Channel



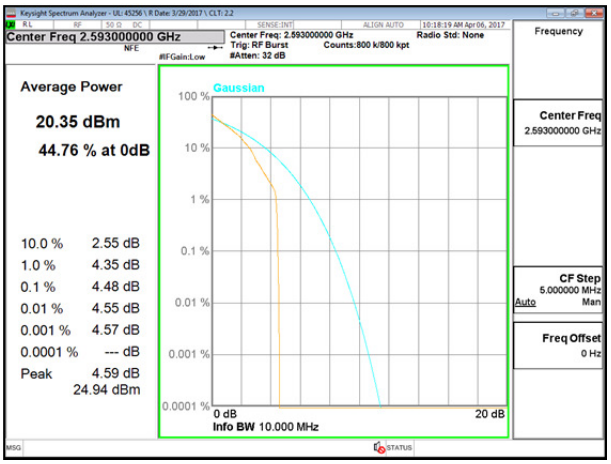
LTE B41 5MHz 16QAM Middle Channel



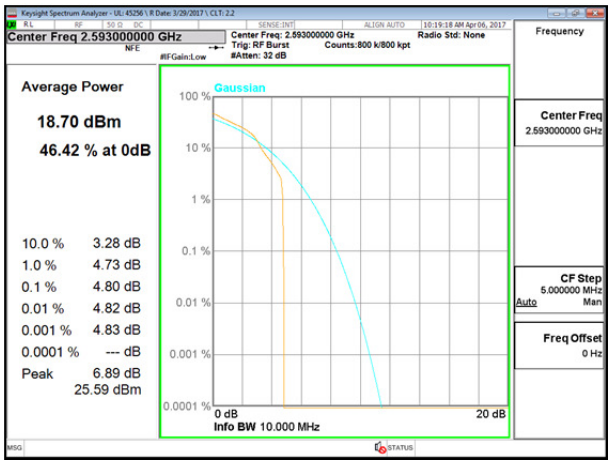
LTE B41 10MHz QPSK Middle Channel



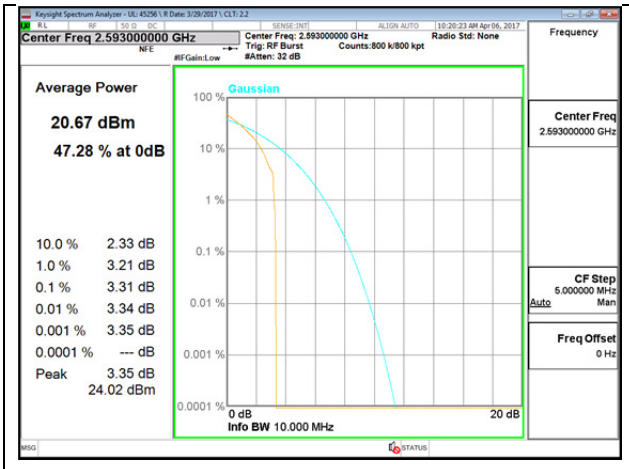
LTE B41 10MHz 16QAM Middle Channel



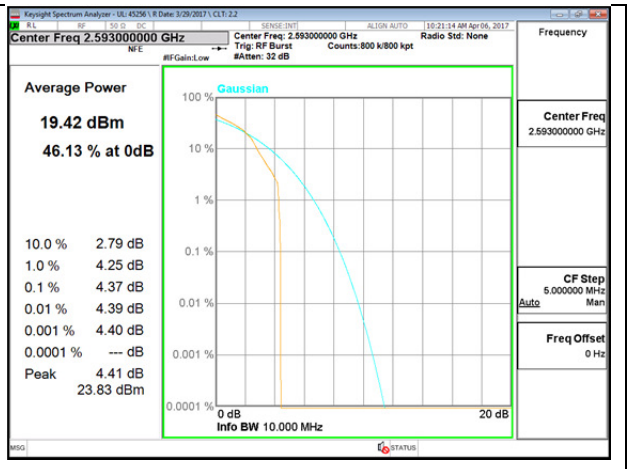
LTE B41 15MHz QPSK Middle Channel



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

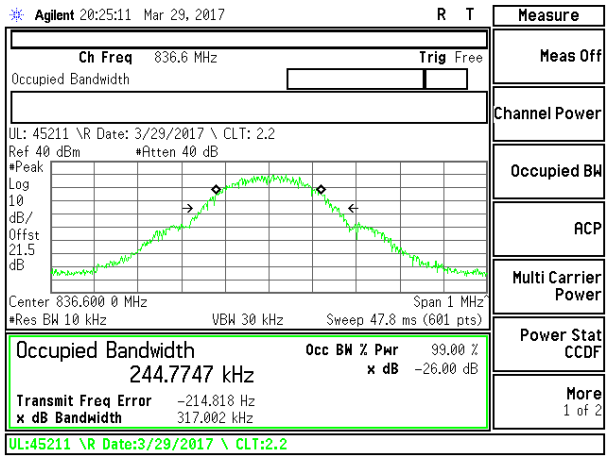
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v02r02)

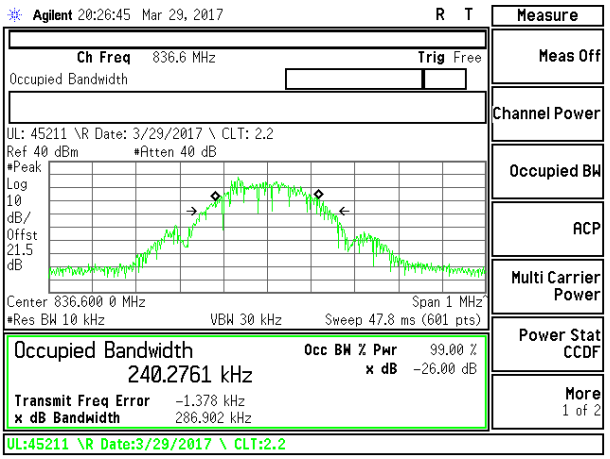
13.1. OCCUPIED BANDWIDTH RESULTS AND PLOTS

GSM

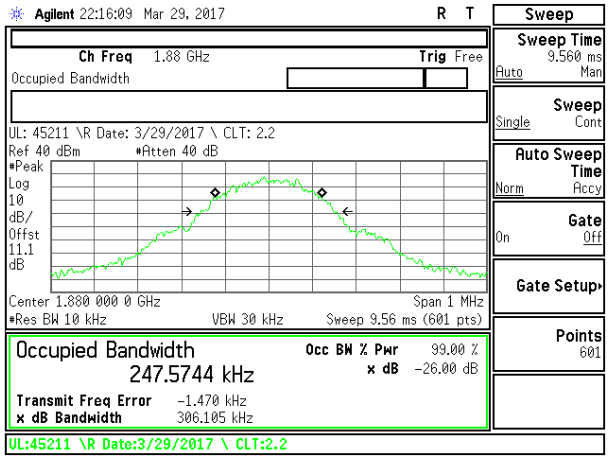
Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB (kHz)
GSM 850	GPRS	128	824.2	243.2	313.6
		190	836.6	244.8	317
		251	848.8	246.7	319.7
	EGPRS	128	824.2	244.7	295.8
		190	836.6	240.3	286.9
		251	848.8	241.2	289.2
GSM 1900	GPRS	512	1850.2	237.2	313.8
		661	1880	247.6	306.1
		810	1909.8	250	316.3
	EGPRS	512	1850.2	241.4	302.5
		661	1880	247.7	311.9
		810	1909.8	247.7	300.3



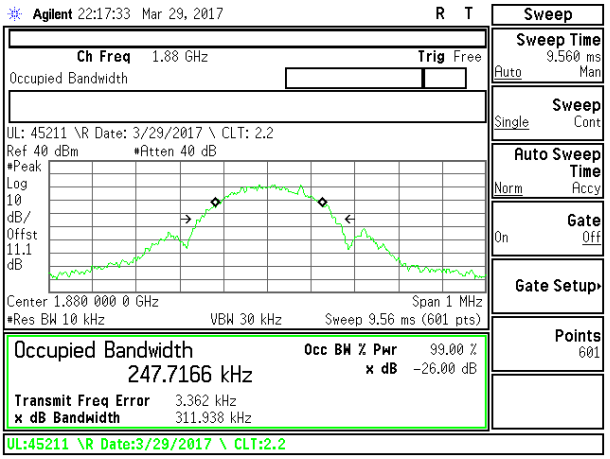
GSM850 GPRS Middle Channel



GSM850 EGPRS Middle Channel



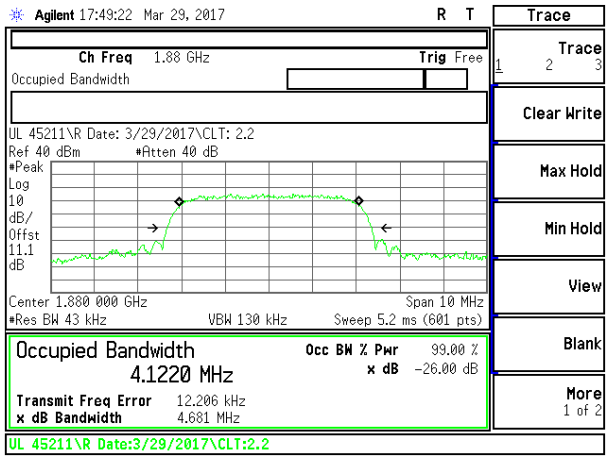
GSM1900 GPRS Middle Channel



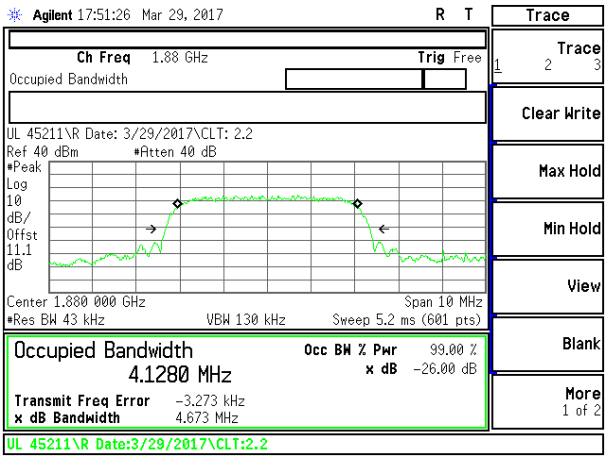
GSM1900 EGPRS Middle Channel

WCDMA

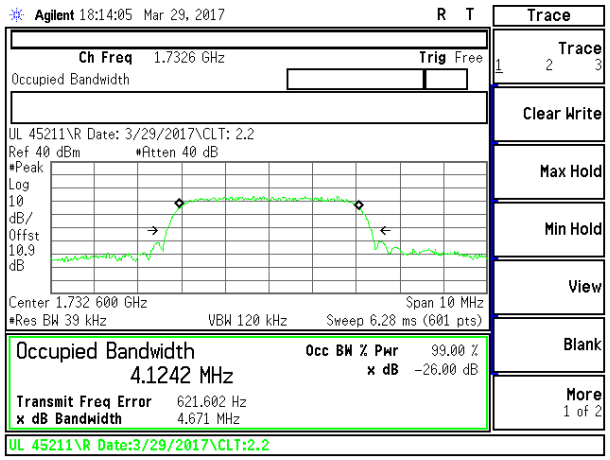
Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB (MHz)
Band 2	REL99	9262	1852.4	4.12	4.71
		9400	1880	4.12	4.68
		9538	1907.6	4.13	4.68
	HSDPA	9262	1852.4	4.13	4.7
		9400	1880	4.13	4.67
		9538	1907.6	4.12	4.68
Band 4	REL99	9262	1712.4	4.11	4.68
		9400	1732.6	4.12	4.67
		9538	1752.6	4.1	4.67
	HSDPA	9262	1712.4	4.12	4.68
		9400	1732.6	4.12	4.68
		9538	1752.6	4.15	4.69
Band 5	REL99	4132	826.4	4.1	4.67
		4183	836.6	4.13	4.68
		4233	846.6	4.12	4.7
	HSDPA	4132	826.4	4.11	4.69
		4183	836.6	4.14	4.67
		4233	846.6	4.11	4.72



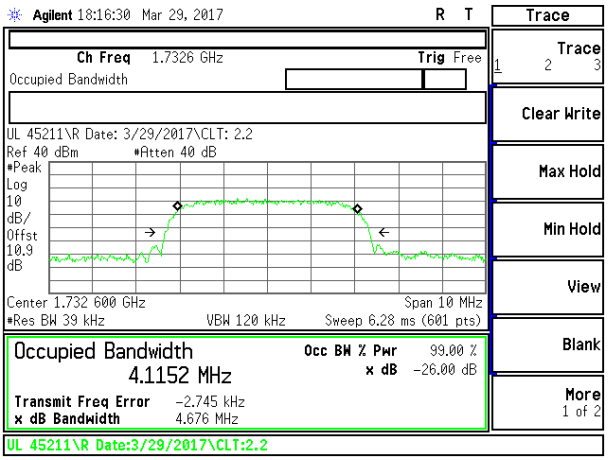
B2 REL99 Middle Channel



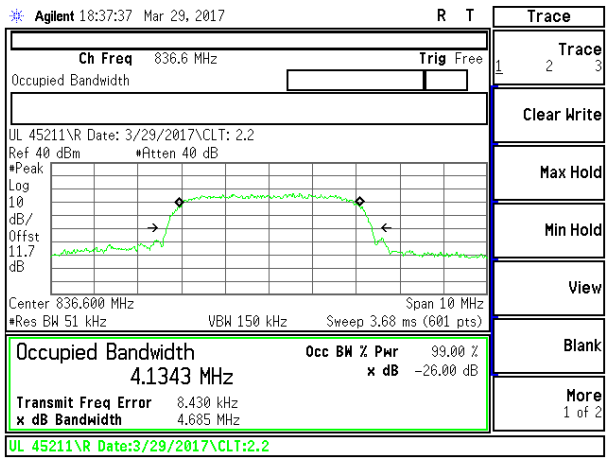
B2 HSDPA Middle Channel



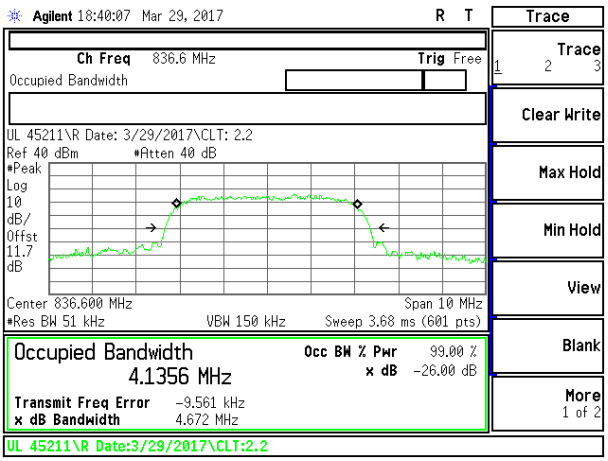
B4 REL99 Middle Channel



B4 HSDPA Middle Channel



B5 REL99 Middle Channel

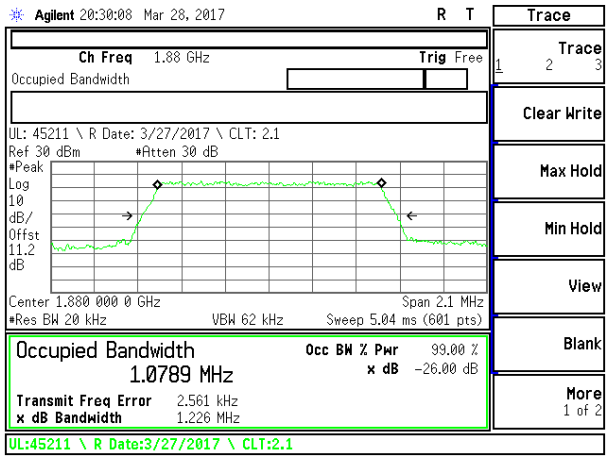


B5 HSDPA Middle Channel

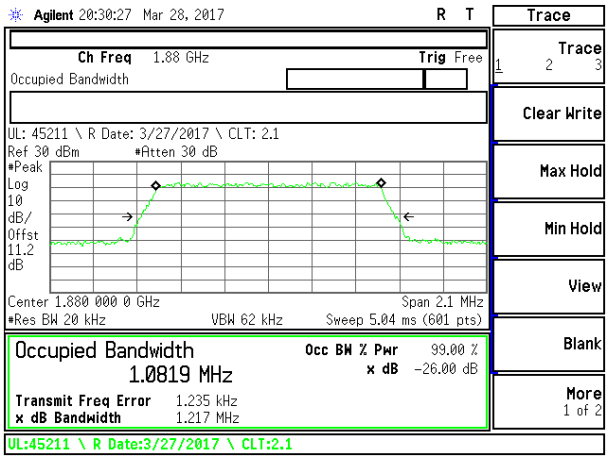
LTE Band 2

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	20	16QAM	100/0	1860	17.82	19.03
			100/0	1880	17.86	19.09
			100/0	1900	17.85	19.3
		QPSK	100/0	1860	17.86	19.22
			100/0	1880	17.83	19.05
			100/0	1900	17.85	19.27
	15	16QAM	75/0	1857.5	13.4	14.38
			75/0	1880	13.41	14.45
			75/0	1902.5	13.41	14.48
		QPSK	75/0	1857.5	13.35	14.14
			75/0	1880	13.42	14.52
			75/0	1902.5	13.41	14.34
	10	16QAM	50/0	1855	8.94	9.75
			50/0	1880	8.95	9.78
			50/0	1905	8.95	9.67
		QPSK	50/0	1855	8.96	9.72
			50/0	1880	8.94	9.69
			50/0	1905	8.96	9.64
	5	16QAM	25/0	1852.5	4.5	4.96
			25/0	1880	4.49	4.92
			25/0	1907.5	4.49	4.88
		QPSK	25/0	1852.5	4.49	4.93
			25/0	1880	4.49	4.94
			25/0	1907.5	4.51	4.95

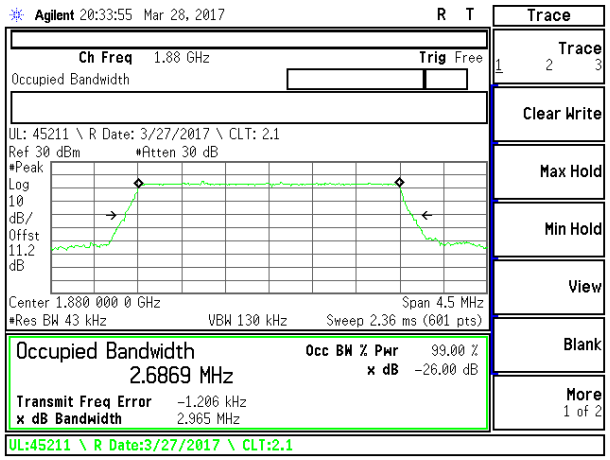
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE2	3	16QAM	15/0	1851.5	2.69	2.97
			15/0	1880	2.68	2.98
			15/0	1908.5	2.69	2.96
		QPSK	15/0	1851.5	2.68	2.96
			15/0	1880	2.69	2.97
			15/0	1908.5	2.69	2.98
	1.4	16QAM	6/0	1850.7	1.08	1.22
			6/0	1880	1.08	1.22
			6/0	1909.3	1.09	1.23
		QPSK	6/0	1850.7	1.09	1.23
			6/0	1880	1.08	1.23
			6/0	1909.3	1.08	1.23



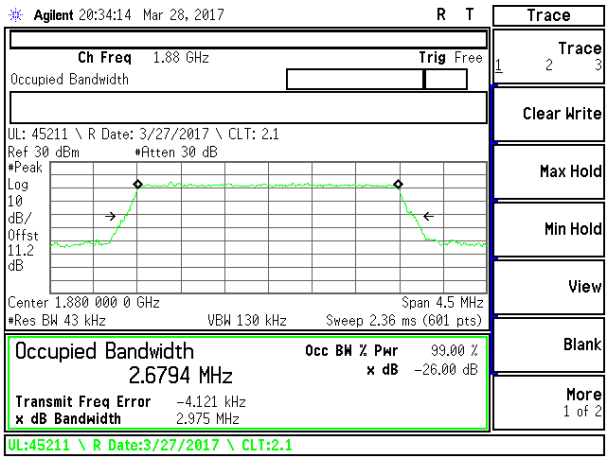
LTE B2 1.4MHz QPSK Middle Channel



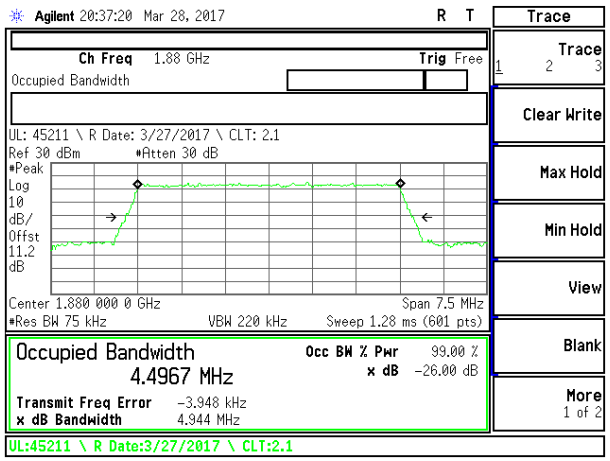
LTE B2 1.4MHz 16QAM Middle Channel



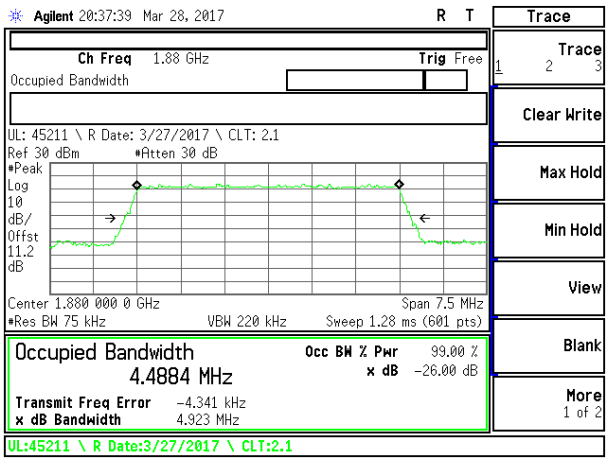
LTE B2 3MHz QPSK Middle Channel



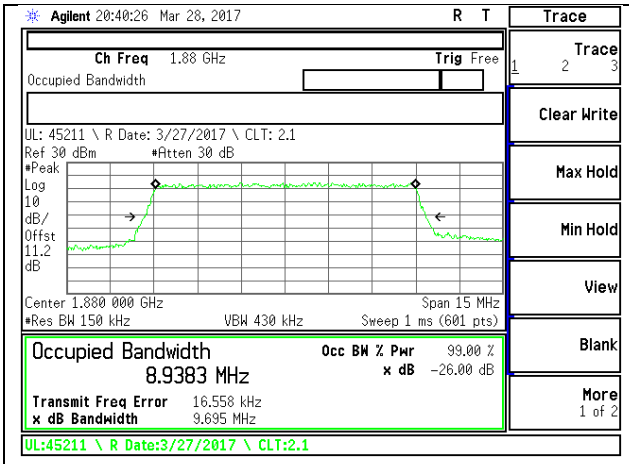
LTE B2 3MHz 16QAM Middle Channel



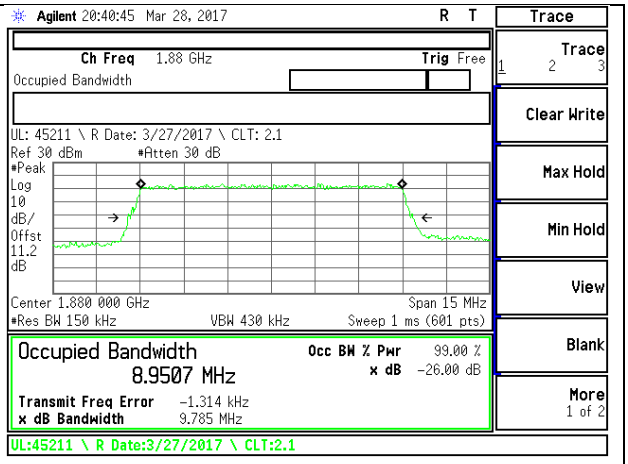
LTE B2 5MHz QPSK Middle Channel



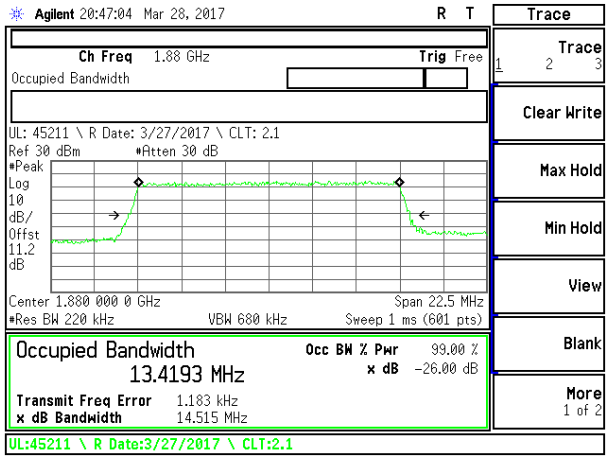
LTE B2 5MHz 16QAM Middle Channel



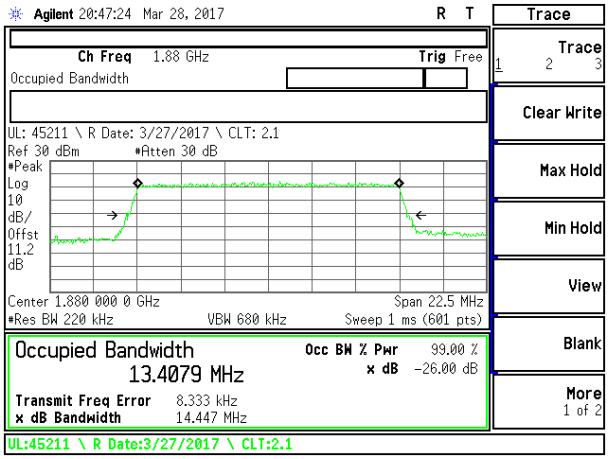
LTE B2 10MHz QPSK Middle Channel



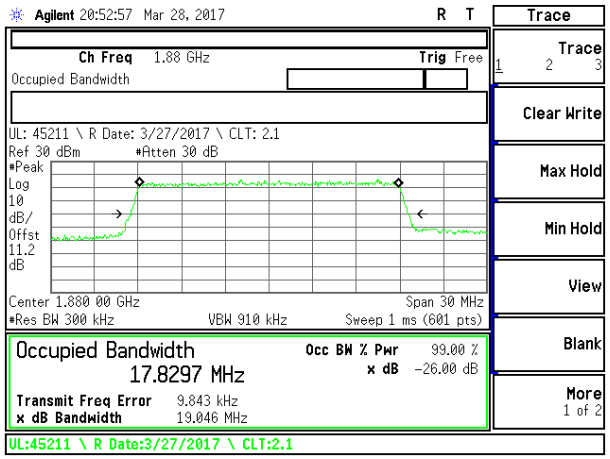
LTE B2 10MHz 16QAM Middle Channel



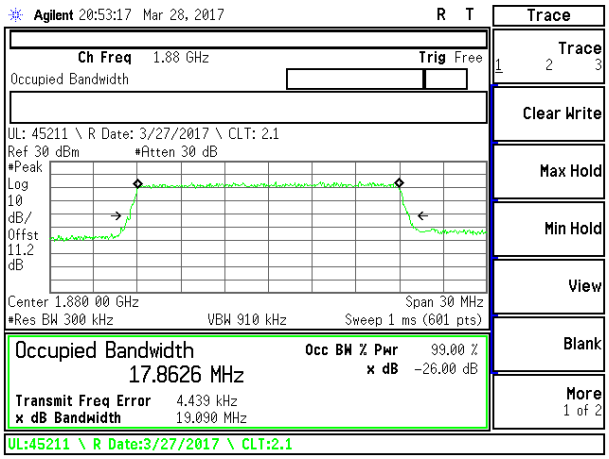
LTE B2 15MHz QPSK Middle Channel



LTE B2 15MHz 16QAM Middle Channel



LTE B2 20MHz QPSK Middle Channel

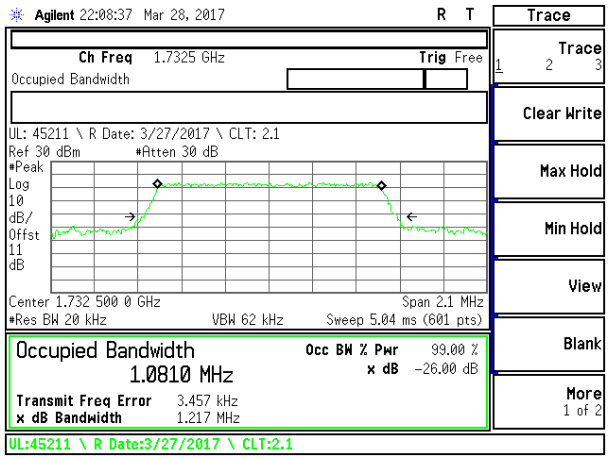


LTE B2 20MHz 16QAM Middle Channel

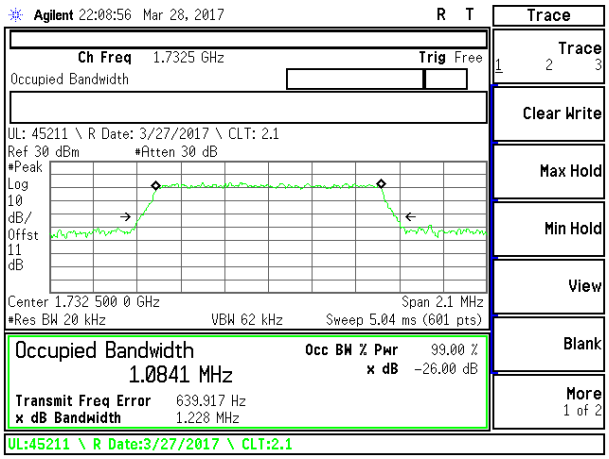
LTE Band 4

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	20	16QAM	100/0	1720	17.87	19.21
			100/0	1732.5	17.87	19.03
			100/0	1745	17.88	19.19
		QPSK	100/0	1720	17.85	19.14
			100/0	1732.5	17.88	19.19
			100/0	1745	17.85	19.14
	15	16QAM	75/0	1717.5	13.41	14.43
			75/0	1732.5	13.39	14.53
			75/0	1747.5	13.42	14.31
		QPSK	75/0	1717.5	13.39	14.36
			75/0	1732.5	13.42	14.32
			75/0	1747.5	13.39	14.36
	10	16QAM	50/0	1715	8.98	9.71
			50/0	1732.5	8.97	9.69
			50/0	1750	8.96	9.73
		QPSK	50/0	1715	8.95	9.73
			50/0	1732.5	8.96	9.73
			50/0	1750	8.98	9.67
	5	16QAM	25/0	1712.5	4.49	4.91
			25/0	1732.5	4.49	4.92
			25/0	1752.5	4.51	4.95
		QPSK	25/0	1712.5	4.49	4.9
			25/0	1732.5	4.51	4.95
			25/0	1752.5	4.5	4.91

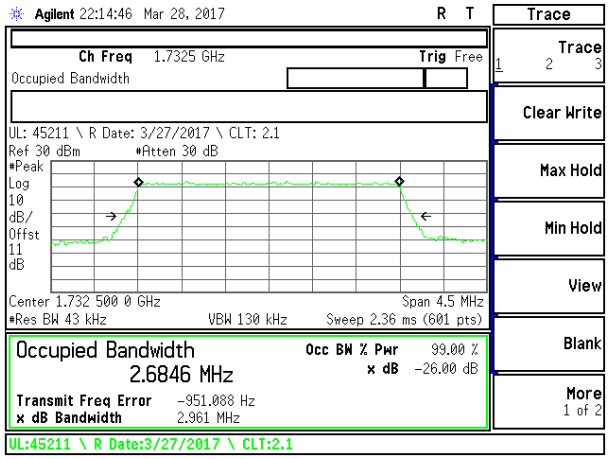
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE4	3	16QAM	15/0	1711.5	2.68	3
			15/0	1732.5	2.68	2.97
			15/0	1753.5	2.69	2.96
		QPSK	15/0	1711.5	2.69	2.96
			15/0	1732.5	2.68	2.96
			15/0	1753.5	2.68	2.98
	1.4	16QAM	6/0	1710.7	1.08	1.22
			6/0	1732.5	1.08	1.23
			6/0	1754.3	1.09	1.23
		QPSK	6/0	1710.7	1.09	1.23
			6/0	1732.5	1.08	1.22
			6/0	1754.3	1.08	1.22



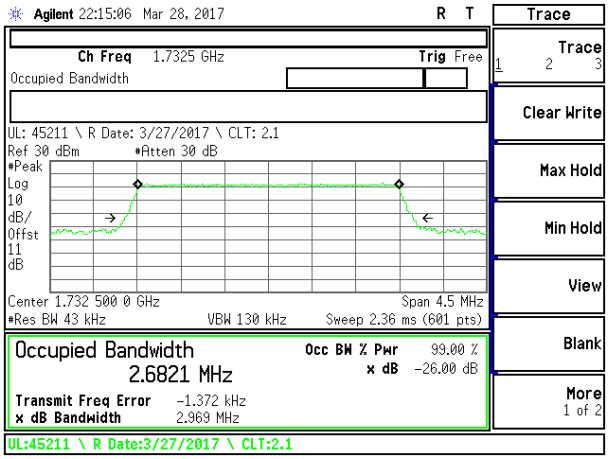
LTE B4 1.4MHz QPSK Middle Channel



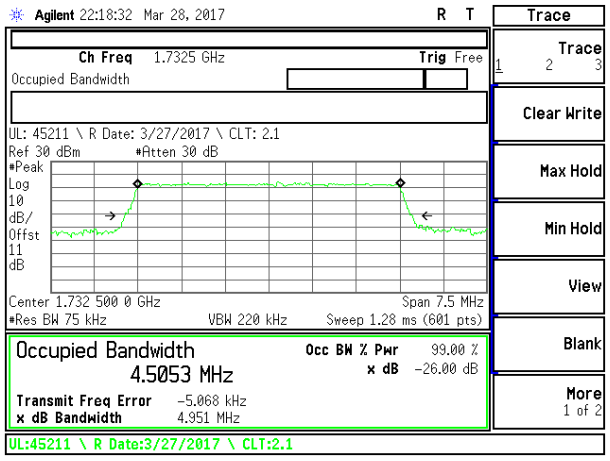
LTE B4 1.4MHz 16QAM Middle Channel



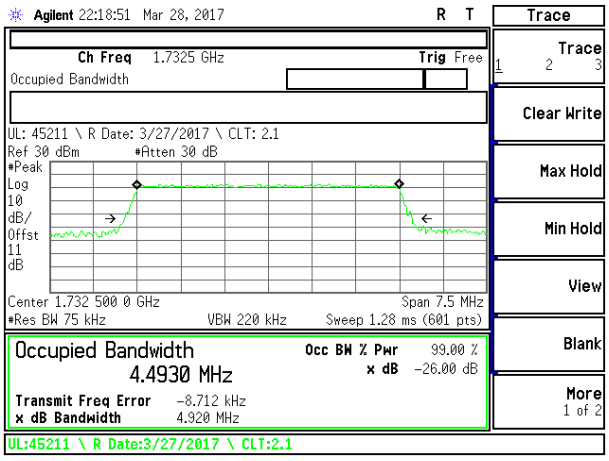
LTE B4 3MHz QPSK Middle Channel



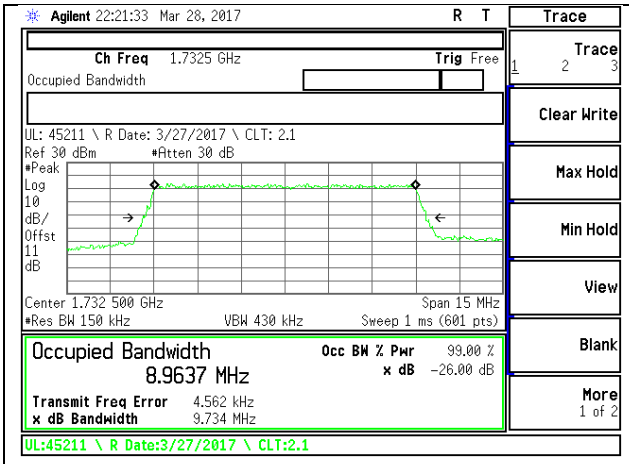
LTE B4 3MHz 16QAM Middle Channel



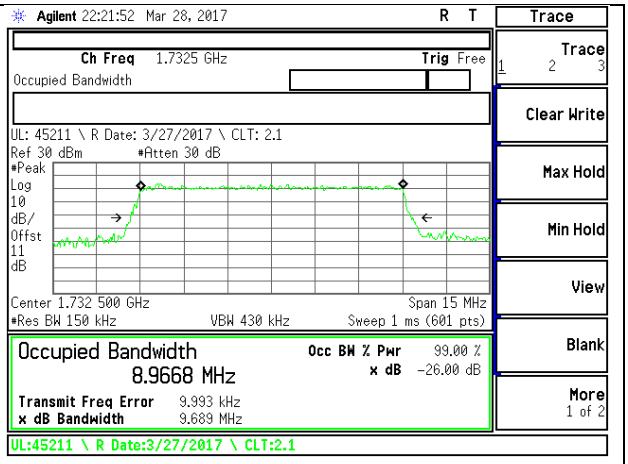
LTE B4 5MHz QPSK Middle Channel



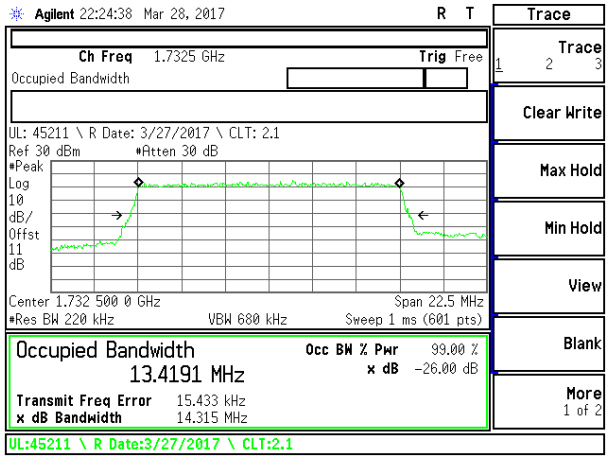
LTE B4 5MHz 16QAM Middle Channel



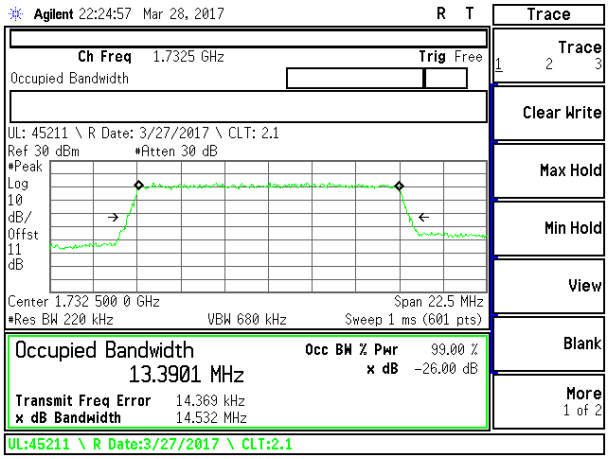
LTE B4 10MHz QPSK Middle Channel



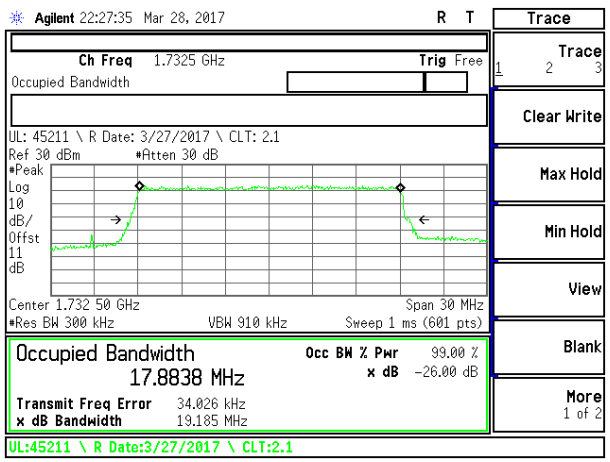
LTE B4 10MHz 16QAM Middle Channel



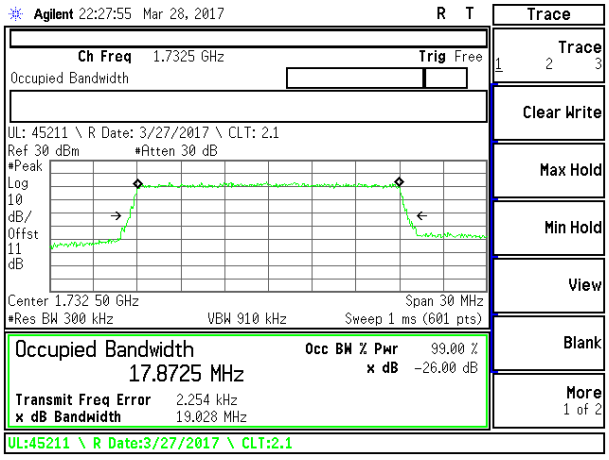
LTE B4 15MHz QPSK Middle Channel



LTE B4 15MHz 16QAM Middle Channel



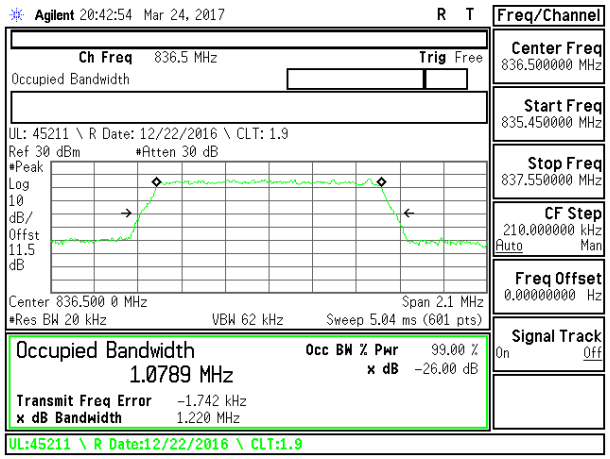
LTE B4 20MHz QPSK Middle Channel



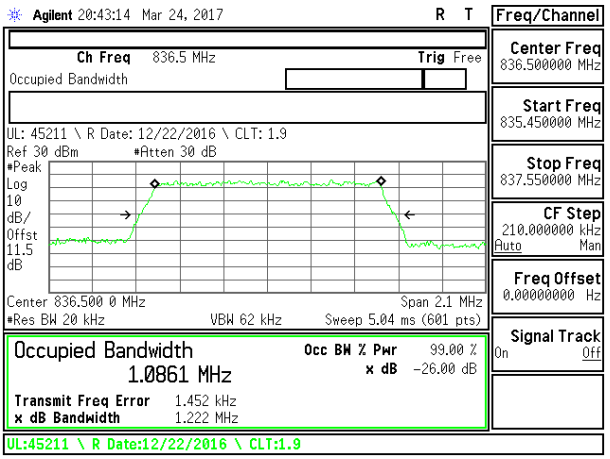
LTE B4 20MHz 16QAM Middle Channel

LTE Band 5

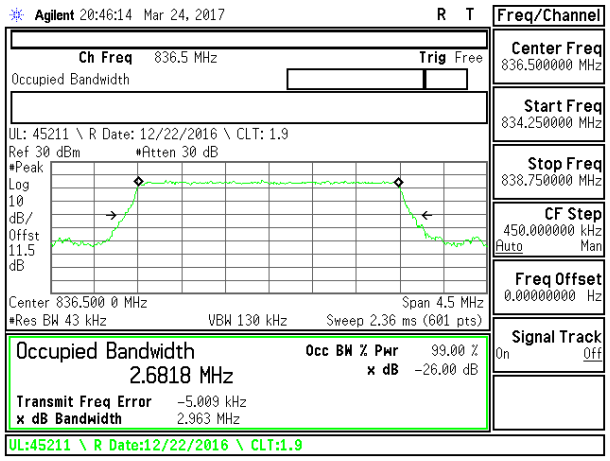
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE5	10	16QAM	50/0	829	8.93	9.67
			50/0	836.5	8.95	9.62
			50/0	844	8.94	9.72
		QPSK	50/0	829	8.94	9.79
			50/0	836.5	8.98	9.71
			50/0	844	8.94	9.68
	5	16QAM	25/0	826.5	4.5	4.96
			25/0	836.5	4.5	4.93
			25/0	846.5	4.49	4.88
		QPSK	25/0	826.5	4.49	4.89
			25/0	836.5	4.5	4.94
			25/0	846.5	4.49	4.88
	3	16QAM	15/0	825.5	2.69	2.96
			15/0	836.5	2.69	2.98
			15/0	847.5	2.69	3.01
		QPSK	15/0	825.5	2.69	2.97
			15/0	836.5	2.68	2.96
			15/0	847.5	2.69	2.99
	1.4	16QAM	6/0	824.7	1.08	1.23
			6/0	836.5	1.09	1.22
			6/0	848.3	1.09	1.24
		QPSK	6/0	824.7	1.08	1.22
			6/0	836.5	1.08	1.22
			6/0	848.3	1.08	1.23



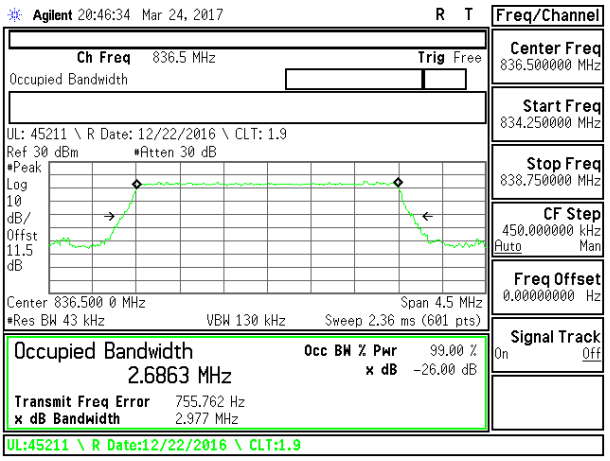
LTE B5 1.4MHz QPSK Middle Channel



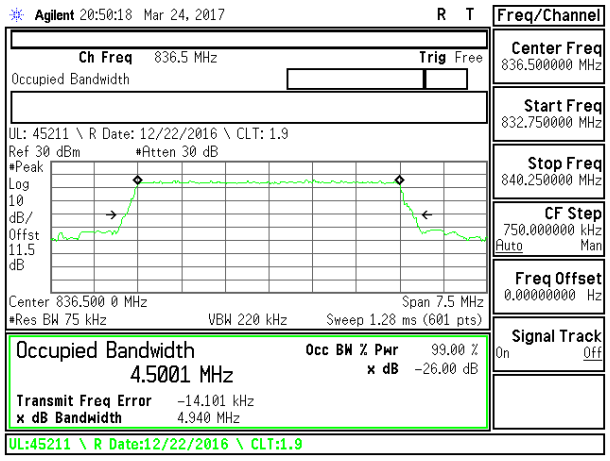
LTE B5 1.4MHz 16QAM Middle Channel



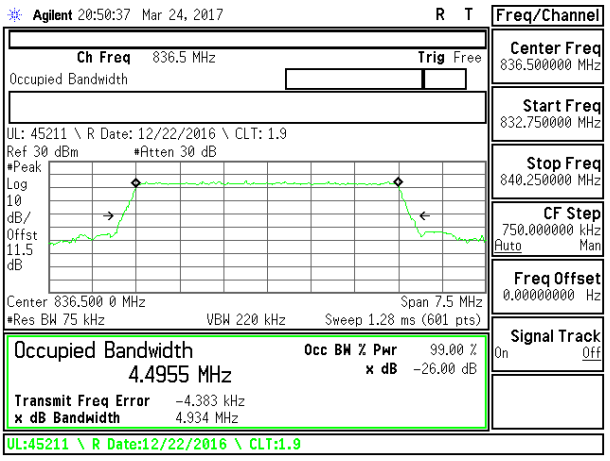
LTE B5 3MHz QPSK Middle Channel



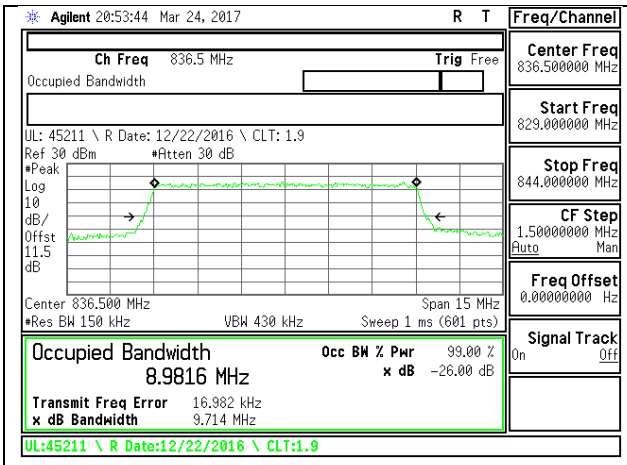
LTE B5 3MHz 16QAM Middle Channel



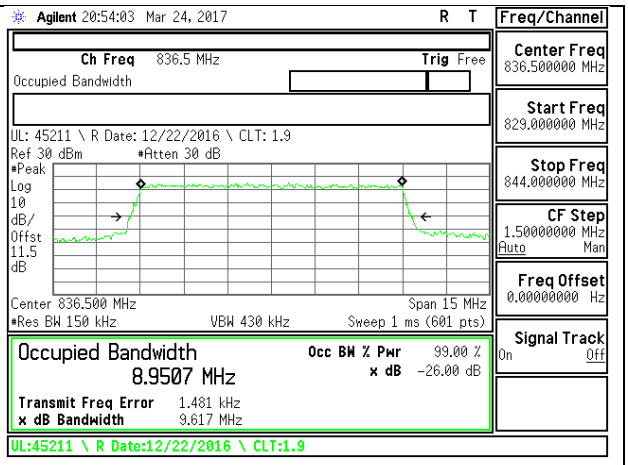
LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel



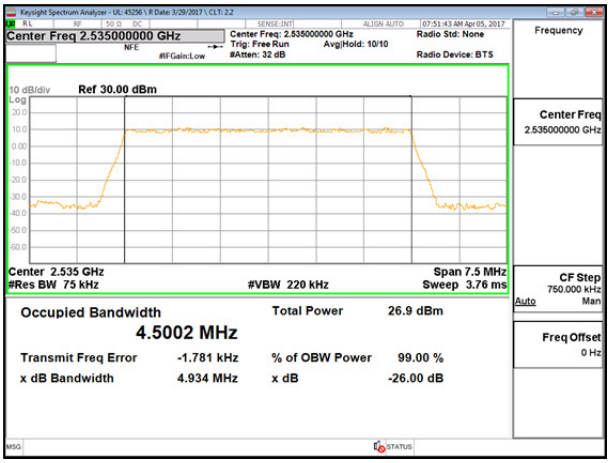
LTE B5 10MHz QPSK Middle Channel



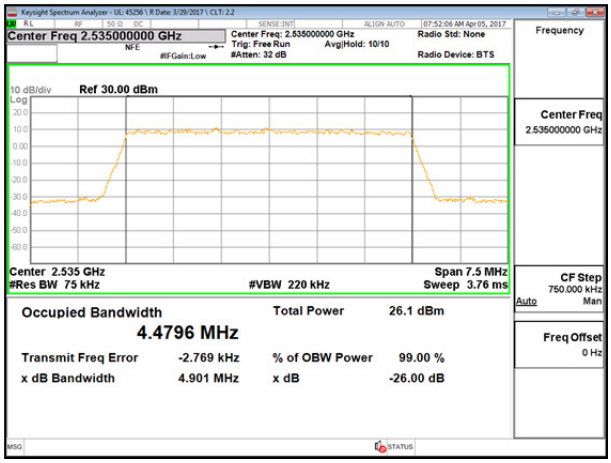
LTE B5 10MHz 16QAM Middle Channel

LTE Band 7

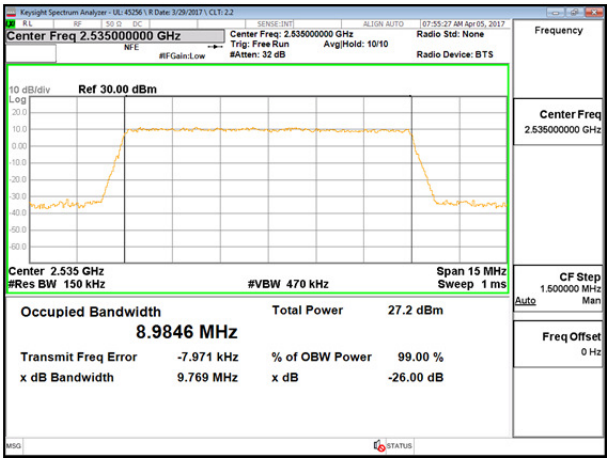
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE7	20	16QAM	100/0	2510	17.88	19.34
			100/0	2535	17.87	19.26
			100/0	2560	17.88	19.3
		QPSK	100/0	2510	17.89	19.33
			100/0	2535	17.9	19.21
			100/0	2560	17.83	19.33
	15	16QAM	75/0	2507.5	13.44	14.51
			75/0	2535	13.41	14.62
			75/0	2562.5	13.41	14.56
		QPSK	75/0	2507.5	13.42	14.51
			75/0	2535	13.41	14.5
			75/0	2562.5	13.4	14.58
	10	16QAM	50/0	2505	8.95	9.74
			50/0	2535	8.95	9.77
			50/0	2565	8.98	9.8
		QPSK	50/0	2505	8.95	9.8
			50/0	2535	8.98	9.77
			50/0	2565	8.97	9.73
	5	16QAM	25/0	2502.5	4.48	4.93
			25/0	2535	4.48	4.9
			25/0	2567.5	4.5	4.97
		QPSK	25/0	2502.5	4.49	4.93
			25/0	2535	4.5	4.93
			25/0	2567.5	4.52	4.96



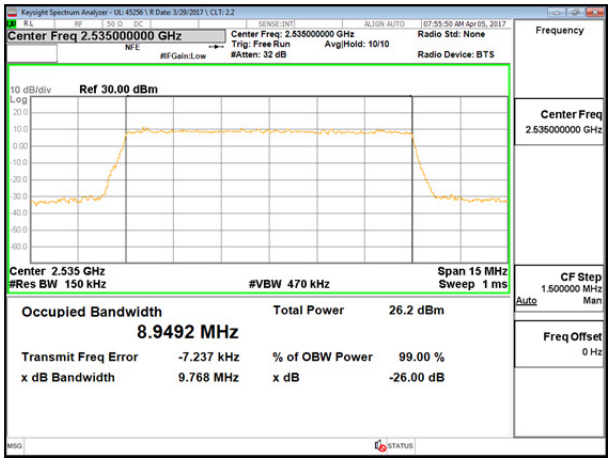
LTE B7 5MHz QPSK Middle Channel



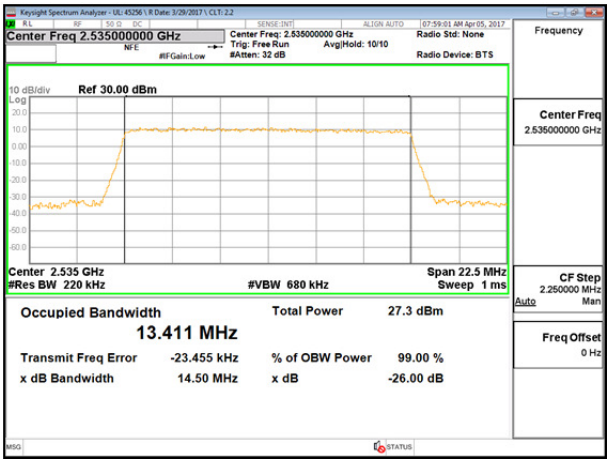
LTE B7 5MHz 16QAM Middle Channel



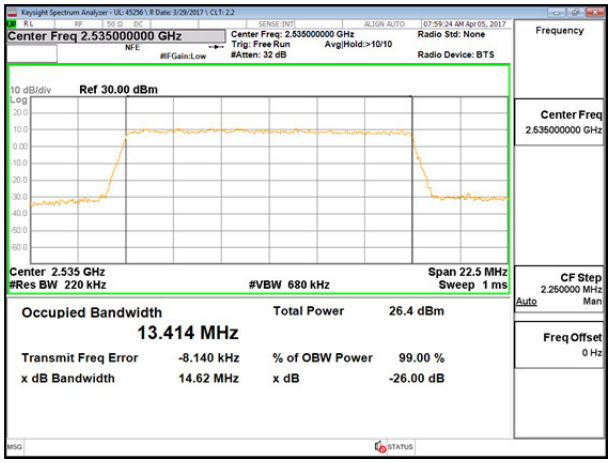
LTE B7 10MHz QPSK Middle Channel



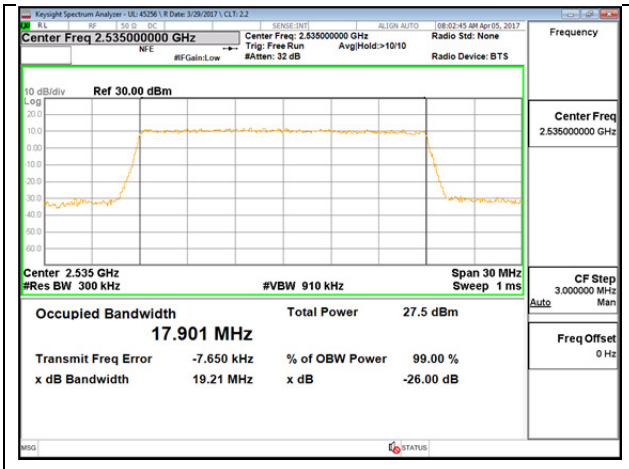
LTE B7 10MHz 16QAM Middle Channel



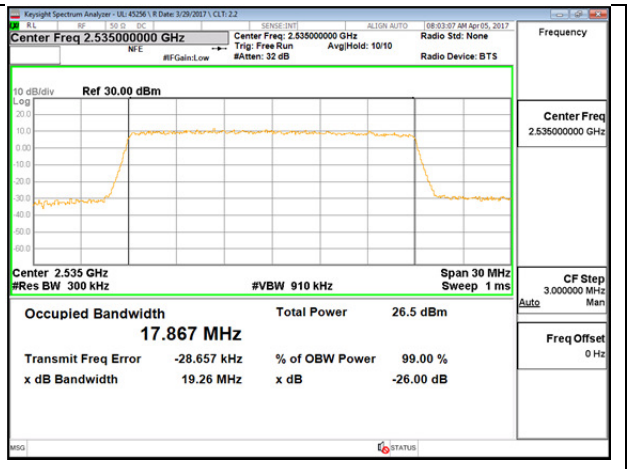
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel



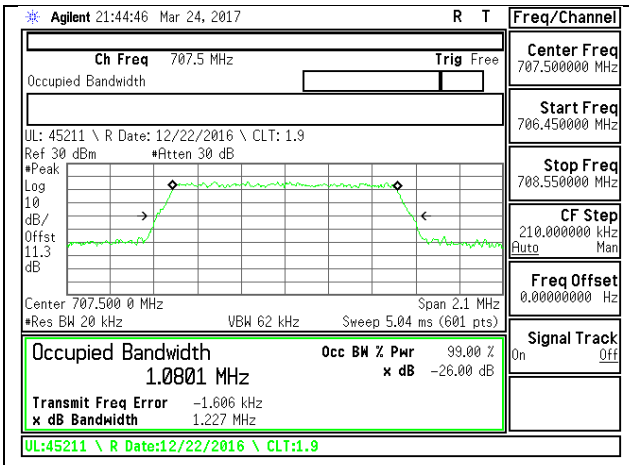
LTE B7 20MHz QPSK Middle Channel



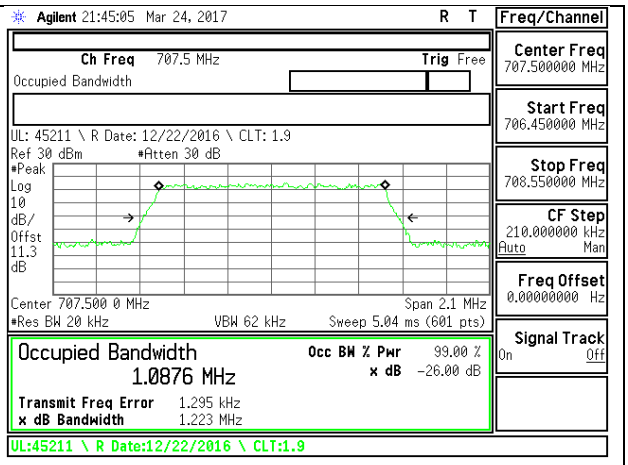
LTE B7 20MHz 16QAM Middle Channel

LTE Band 12

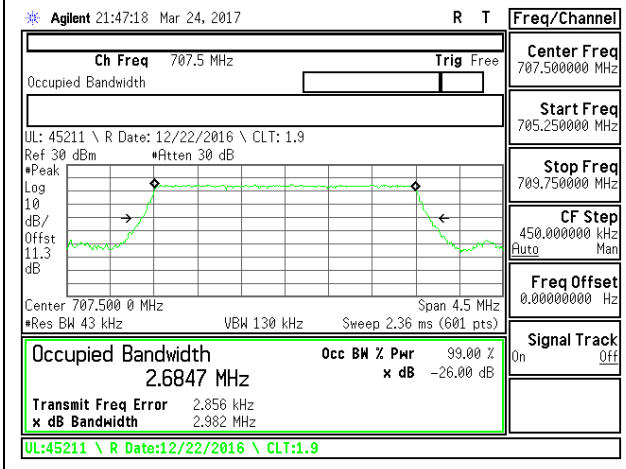
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE12	10	16QAM	50/0	704	8.93	9.68
			50/0	707.5	8.94	9.64
			50/0	711	8.94	9.72
		QPSK	50/0	704	8.94	9.46
			50/0	707.5	8.94	9.78
			50/0	711	8.95	9.59
	5	16QAM	25/0	701.5	4.5	4.85
			25/0	707.5	4.49	4.96
			25/0	713.5	4.49	4.97
		QPSK	25/0	701.5	4.5	4.91
			25/0	707.5	4.52	4.95
			25/0	713.5	4.48	4.93
	3	16QAM	15/0	700.5	2.68	2.96
			15/0	707.5	2.68	2.99
			15/0	714.5	2.68	2.94
		QPSK	15/0	700.5	2.69	2.97
			15/0	707.5	2.68	2.98
			15/0	714.5	2.68	2.94
	1.4	16QAM	6/0	699.7	1.08	1.22
			6/0	707.5	1.09	1.22
			6/0	715.3	1.09	1.22
		QPSK	6/0	699.7	1.08	1.22
			6/0	707.5	1.08	1.23
			6/0	715.3	1.08	1.22



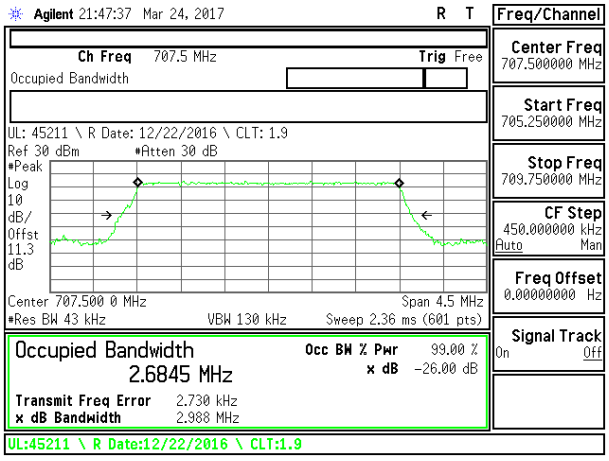
LTE B12 1.4MHz QPSK Middle Channel



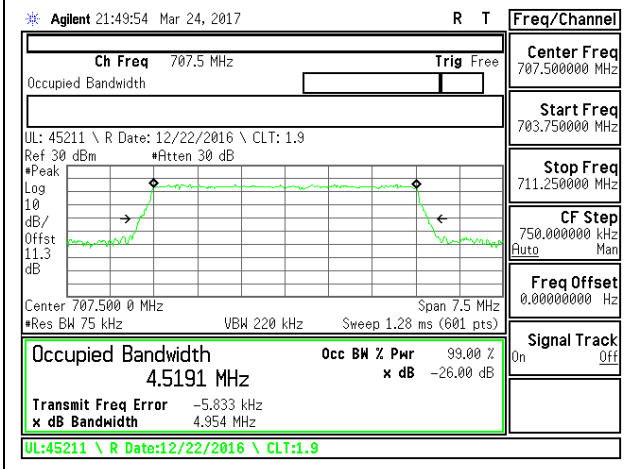
LTE B12 1.4MHz 16QAM Middle Channel



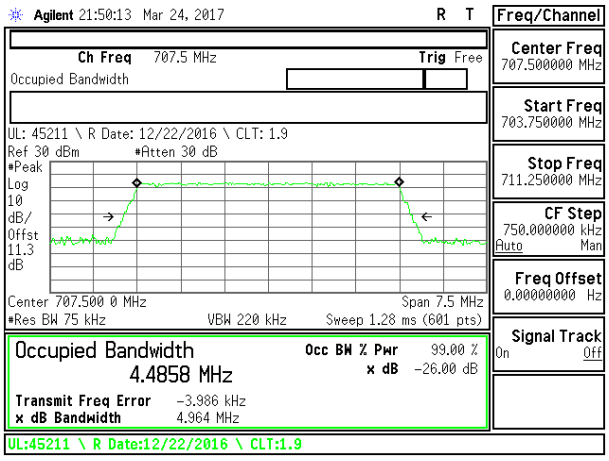
LTE B12 3MHz QPSK Middle Channel



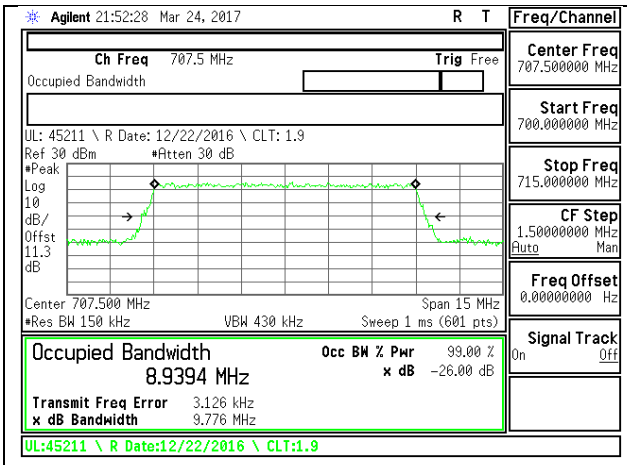
LTE B12 3MHz 16QAM Middle Channel



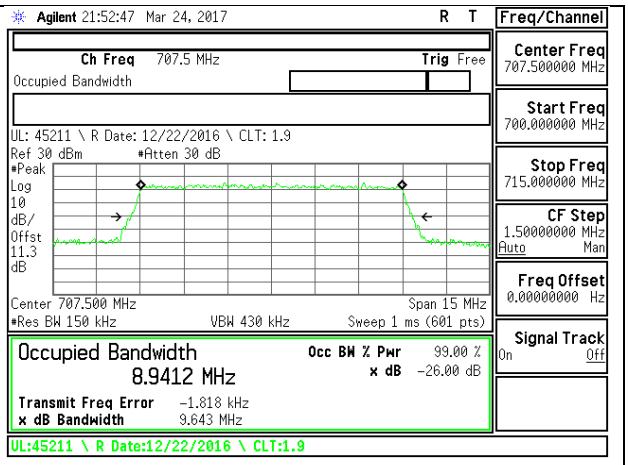
LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel



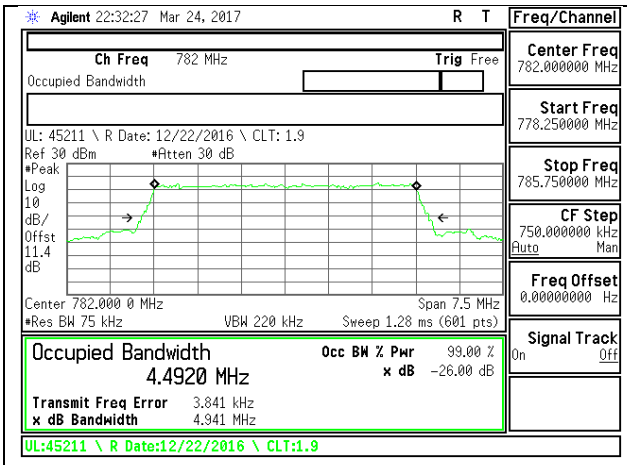
LTE B12 10MHz QPSK Middle Channel



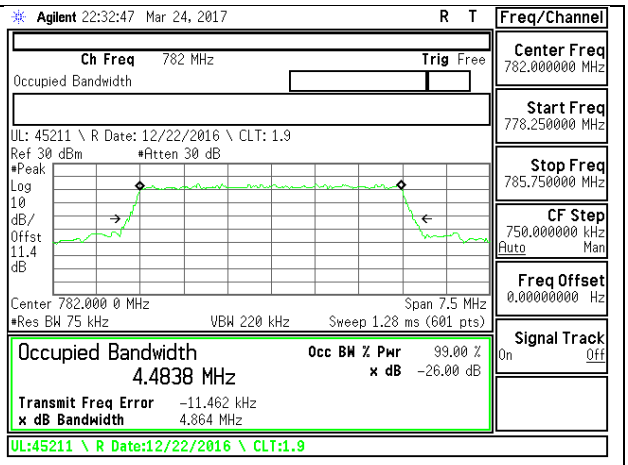
LTE B12 10MHz 16QAM Middle Channel

LTE Band 13

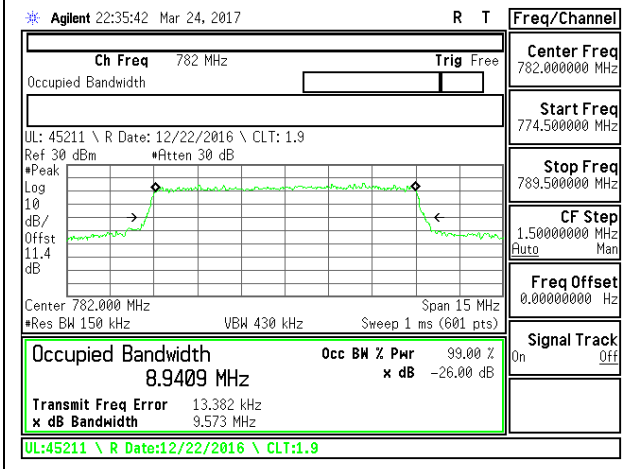
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE13	10	16QAM	50/0			
			50/0	782	9.0	9.66
			50/0			
		QPSK	50/0			
			50/0	782	8.94	9.58
			50/0			
	5	16QAM	25/0	779.5	4.5	4.94
			25/0	782	4.48	4.86
			25/0	784.5	4.5	4.95
		QPSK	25/0	779.5	4.5	4.89
			25/0	782	4.49	4.94
			25/0	784.5	4.49	4.94



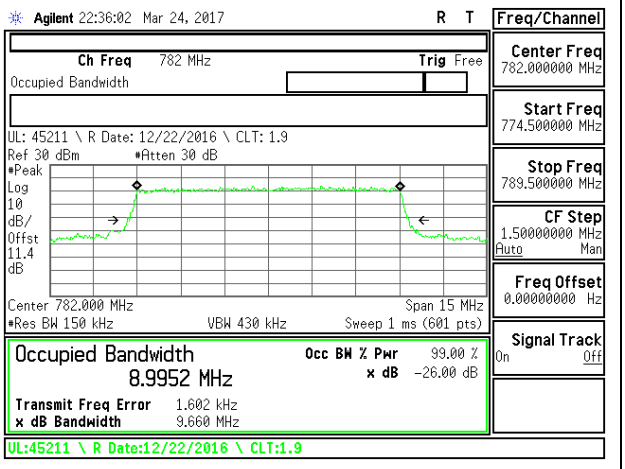
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



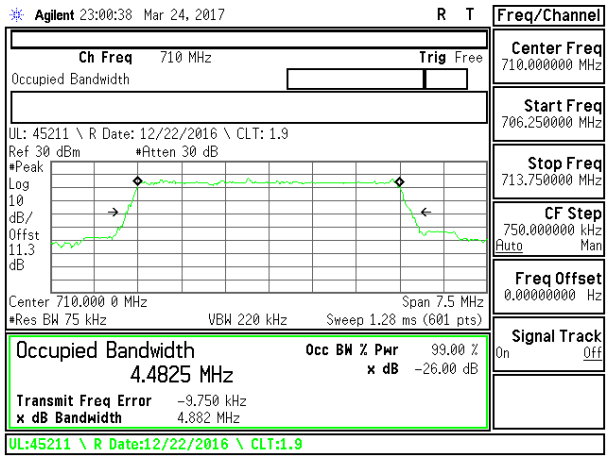
LTE B13 10MHz QPSK Middle Channel



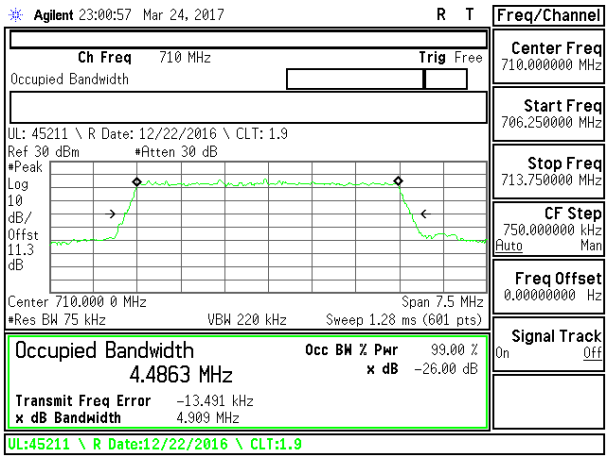
LTE B13 10MHz 16QAM Middle Channel

LTE Band 17

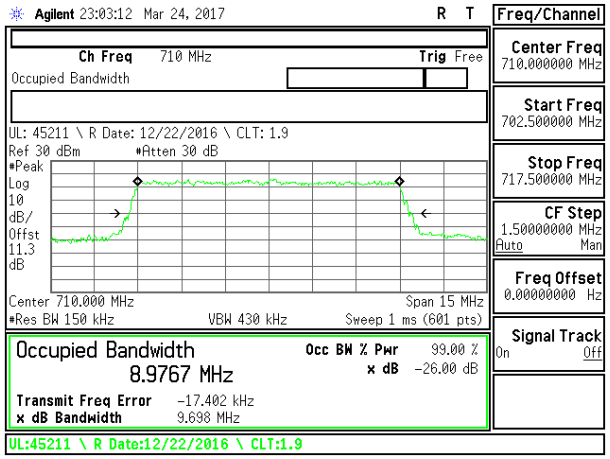
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE17	10	16QAM	50/0	709	9	9.57
			50/0	710	8.95	9.66
			50/0	711	8.97	9.61
		QPSK	50/0	709	8.95	9.62
			50/0	710	8.98	9.7
			50/0	711	8.93	9.62
	5	16QAM	25/0	706.5	4.5	4.93
			25/0	710	4.49	4.91
			25/0	713.5	4.48	4.94
		QPSK	25/0	706.5	4.5	4.91
			25/0	710	4.48	4.88
			25/0	713.5	4.52	4.88



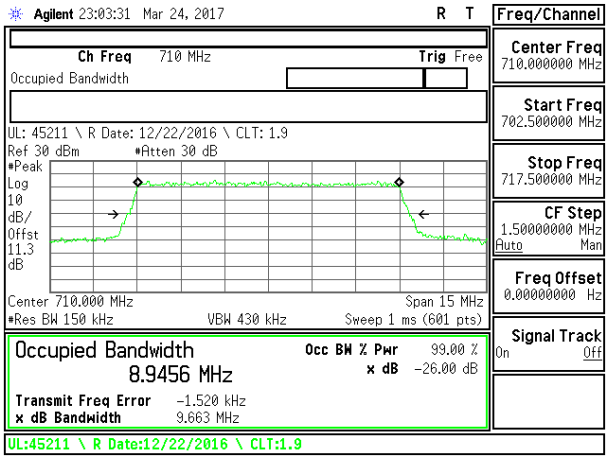
LTE B17 5MHz QPSK Middle Channel



LTE B17 5MHz 16QAM Middle Channel



LTE B17 10MHz QPSK Middle Channel

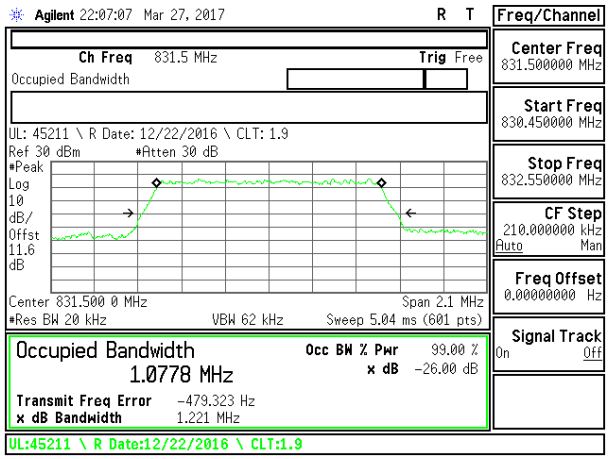


LTE B17 10MHz 16QAM Middle Channel

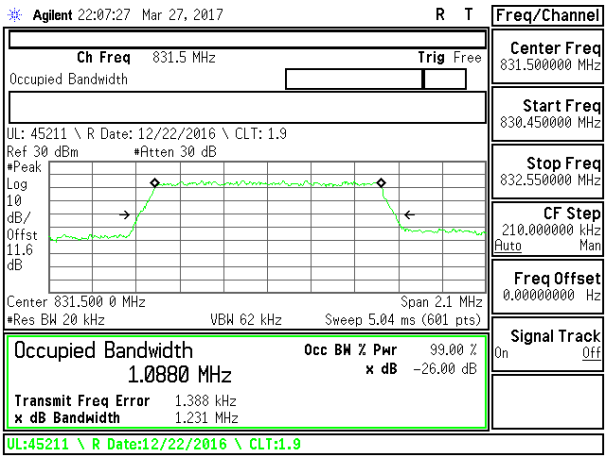
LTE Band 26

Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE26	15	16QAM	75/0	831.5	13.38	14.44
			75/0	836.5	13.41	14.52
			75/0	841.5	13.38	14.46
		QPSK	75/0	831.5	13.39	14.38
			75/0	836.5	13.41	14.48
			75/0	841.5	13.4	14.5
	10	16QAM	50/0	819	8.94	9.64
			50/0	831.5	8.94	9.71
			50/0	844	8.93	9.71
		QPSK	50/0	819	8.96	9.76
			50/0	831.5	8.96	9.6
			50/0	844	8.95	9.71
	5	16QAM	25/0	816.5	4.49	4.91
			25/0	831.5	4.5	4.91
			25/0	846.5	4.5	4.94
		QPSK	25/0	816.5	4.51	4.94
			25/0	831.5	4.49	4.94
			25/0	846.5	4.49	4.87
	3	16QAM	25/0	815.5	2.69	2.98
			25/0	831.5	2.68	2.95
			25/0	847.5	2.69	2.97
		QPSK	25/0	815.5	2.68	2.95
			25/0	831.5	2.69	2.95
			25/0	847.5	2.68	2.94

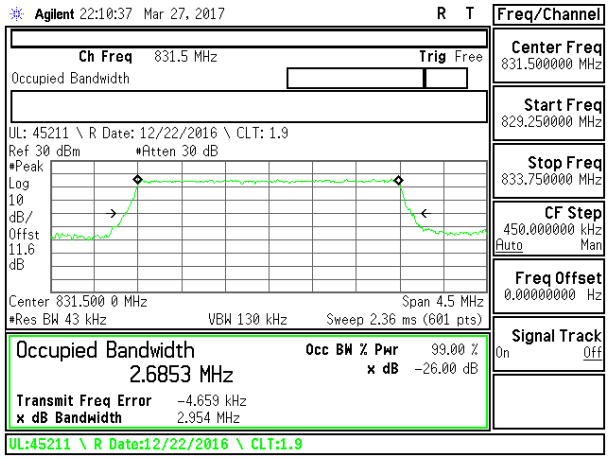
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
	1.4	16QAM	6/0	814.7	1.09	1.23
			6/0	831.5	1.09	1.23
			6/0	848.3	1.08	1.23
		QPSK	6/0	814.7	1.08	1.22
			6/0	831.5	1.08	1.22
			6/0	848.3	1.09	1.23



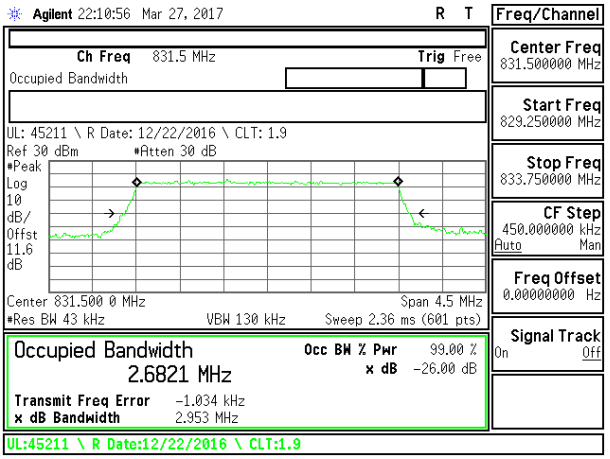
LTE B26 1.4MHz QPSK Middle Channel



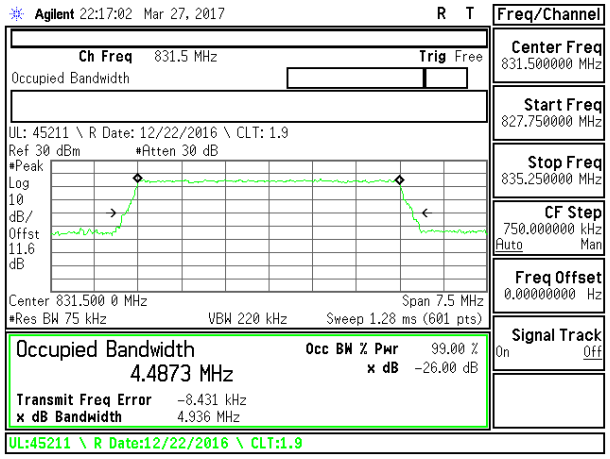
LTE B26 1.4MHz 16QAM Middle Channel



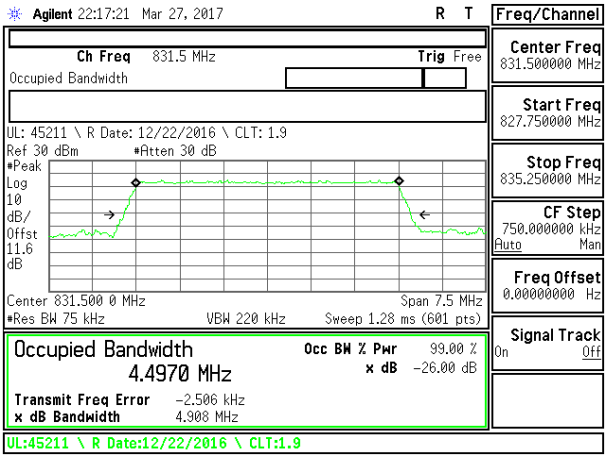
LTE B26 3MHz QPSK Middle Channel



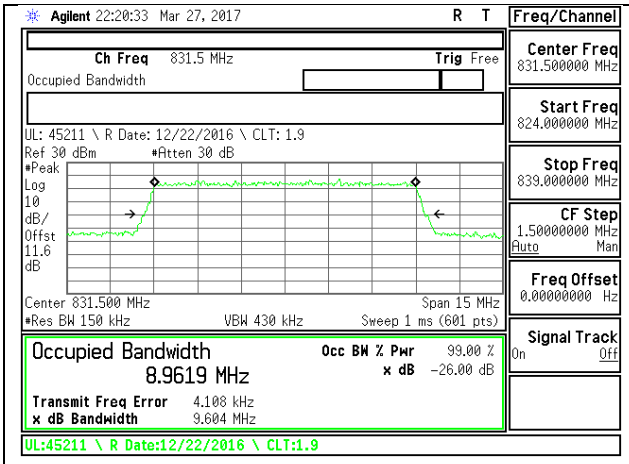
LTE B26 3MHz 16QAM Middle Channel



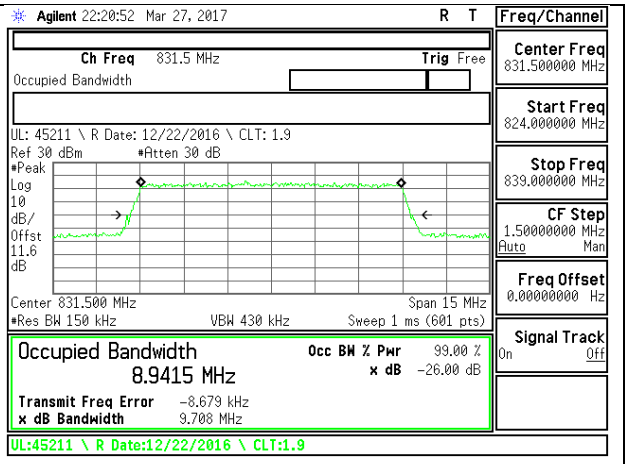
LTE B26 5MHz QPSK Middle Channel



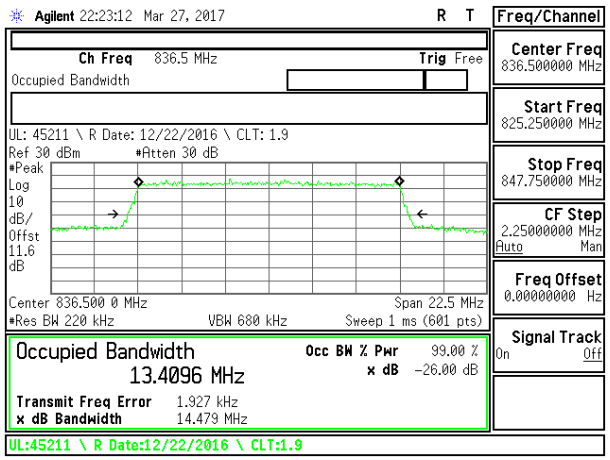
LTE B26 5MHz 16QAM Middle Channel



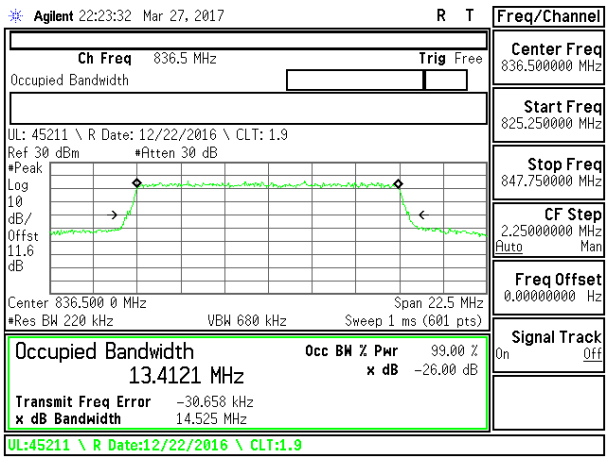
LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel



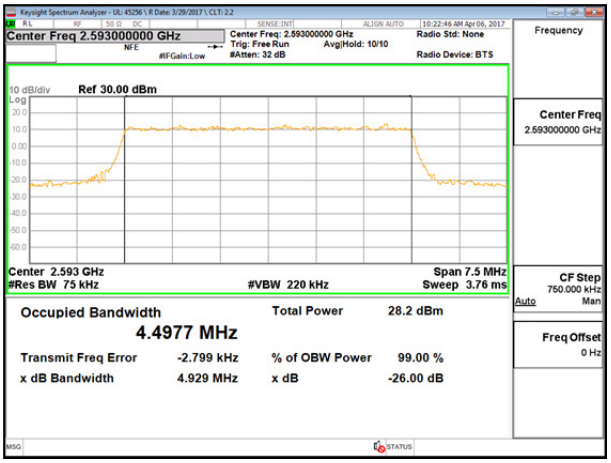
LTE B26 15MHz QPSK Middle Channel



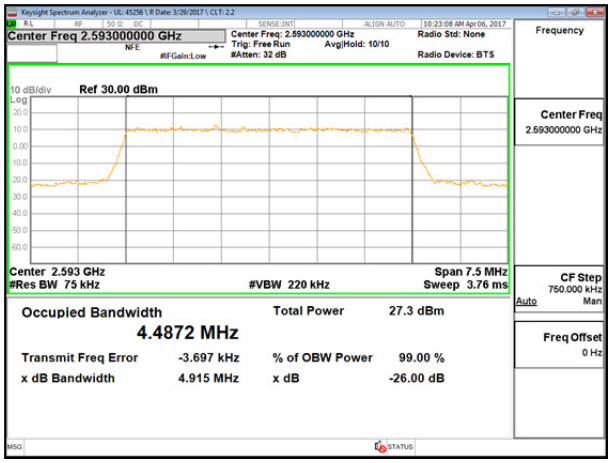
LTE B26 15MHz 16QAM Middle Channel

LTE Band 41

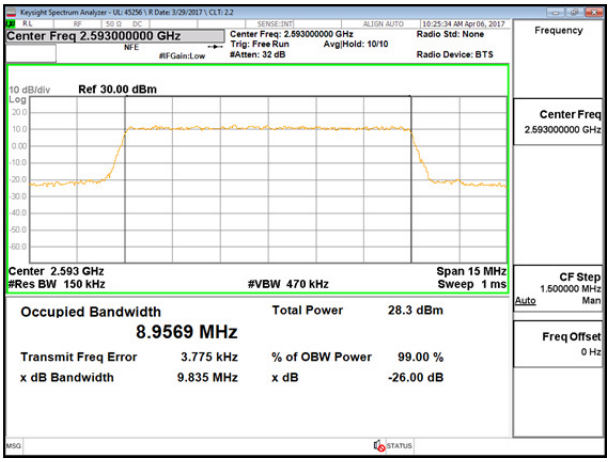
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE41	20	16QAM	100/0	2506	17.89	19.34
			100/0	2593	17.92	19.35
			100/0	2680	17.88	19.24
		QPSK	100/0	2506	17.88	19.3
			100/0	2593	17.85	19.25
			100/0	2680	17.86	19.27
	15	16QAM	75/0	2503.5	13.41	14.51
			75/0	2593	13.44	14.56
			75/0	2682.5	13.44	14.55
		QPSK	75/0	2503.5	13.43	14.55
			75/0	2593	13.44	14.6
			75/0	2682.5	13.44	14.54
	10	16QAM	50/0	2501	9	9.79
			50/0	2593	8.96	9.75
			50/0	2685	8.95	9.75
		QPSK	50/0	2501	9	9.82
			50/0	2593	8.96	9.84
			50/0	2685	8.95	9.75
	5	16QAM	25/0	2498.5	4.49	4.93
			25/0	2593	4.49	4.92
			25/0	2687.5	4.5	4.98
		QPSK	25/0	2498.5	4.49	4.93
			25/0	2593	4.5	4.93
			25/0	2687.5	4.5	5.07



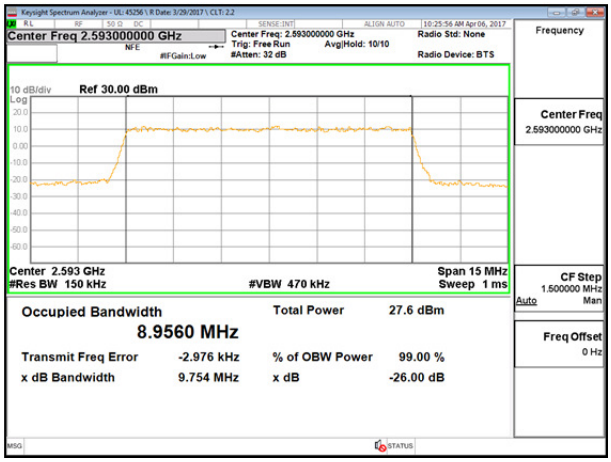
LTE B41 5MHz QPSK Middle Channel



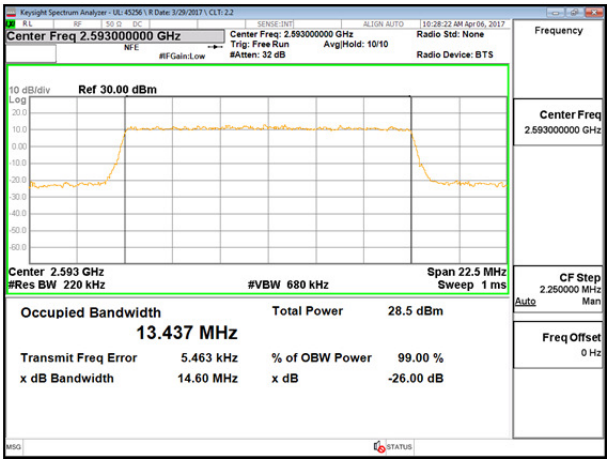
LTE B41 5MHz 16QAM Middle Channel



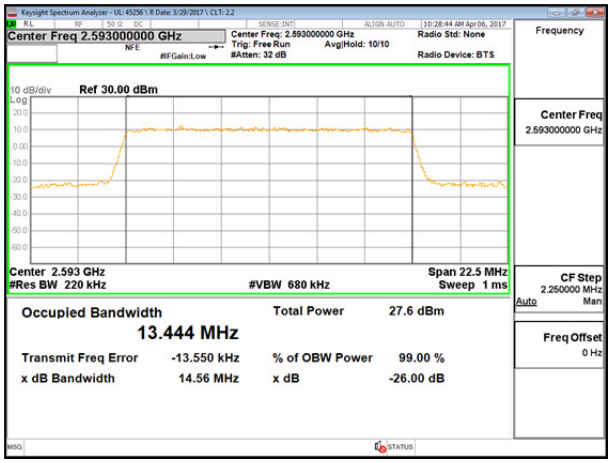
LTE B41 10MHz QPSK Middle Channel



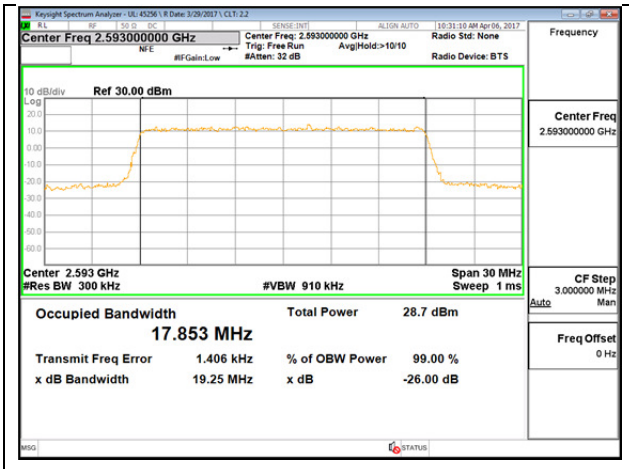
LTE B41 10MHz 16QAM Middle Channel



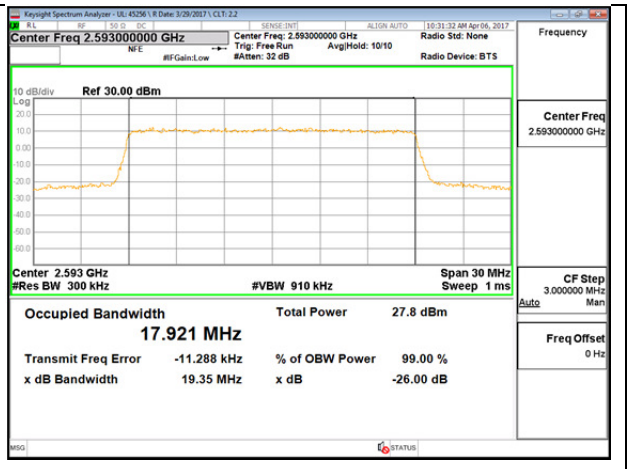
LTE B41 15MHz QPSK Middle Channel



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 and § 90.691

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.

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

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

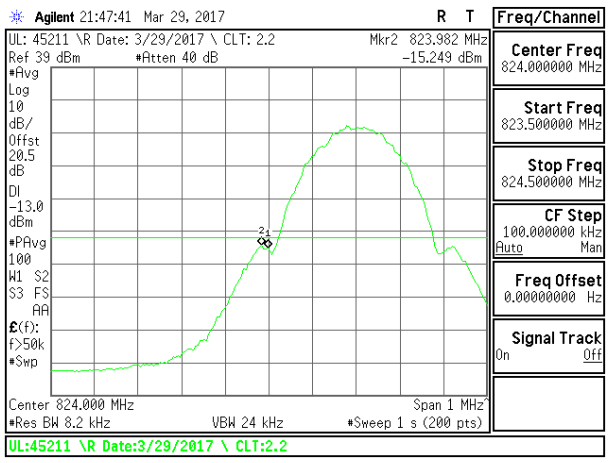
TEST PROCEDURE

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

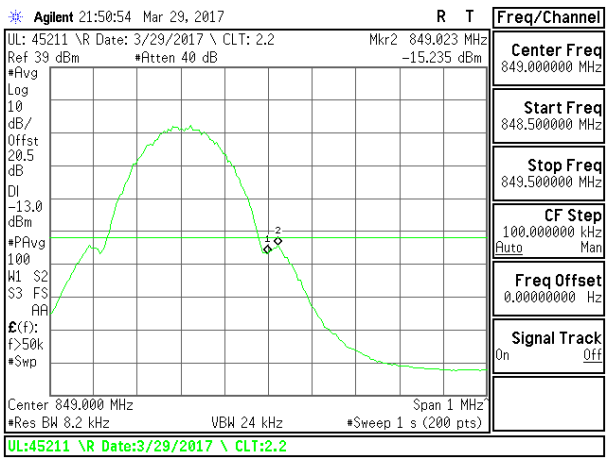
- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

14.1. BAND EDGE PLOTS

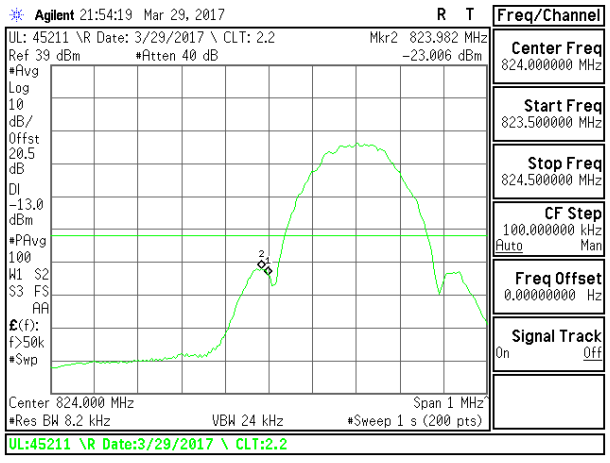
GSM



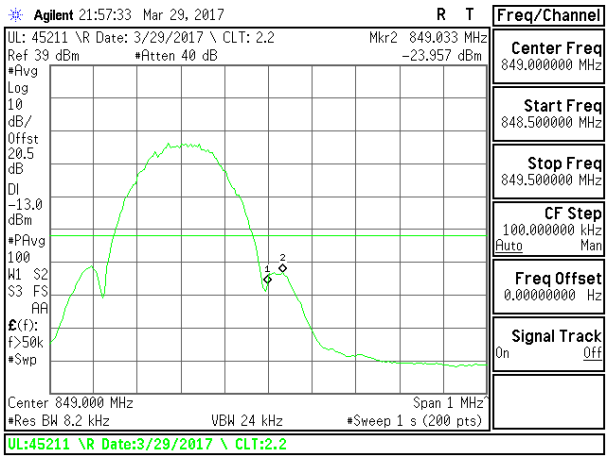
GSM850 GPRS Low Channel



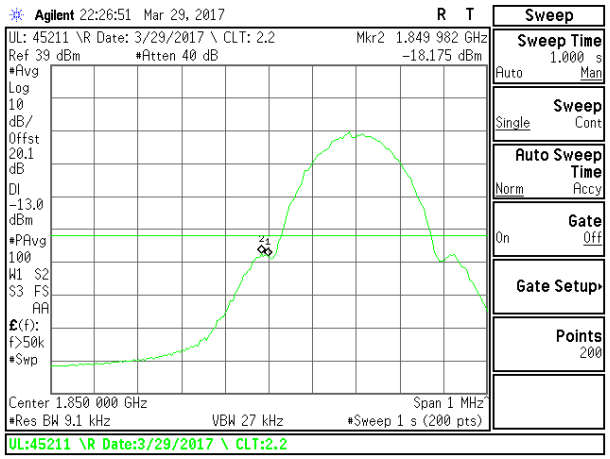
GSM850 GPRS High Channel



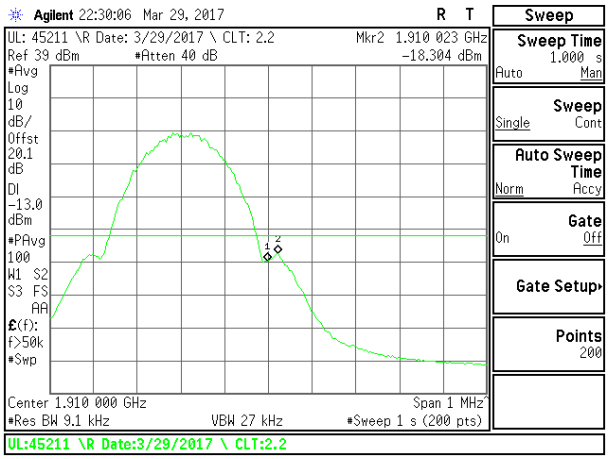
GSM850 EGPRS Low Channel



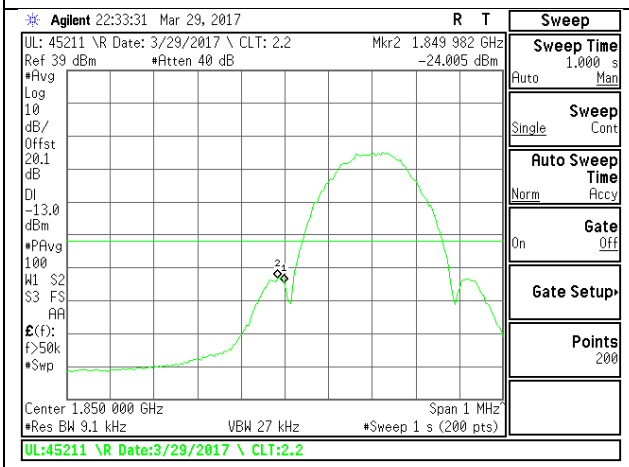
GSM850 EGPRS High Channel



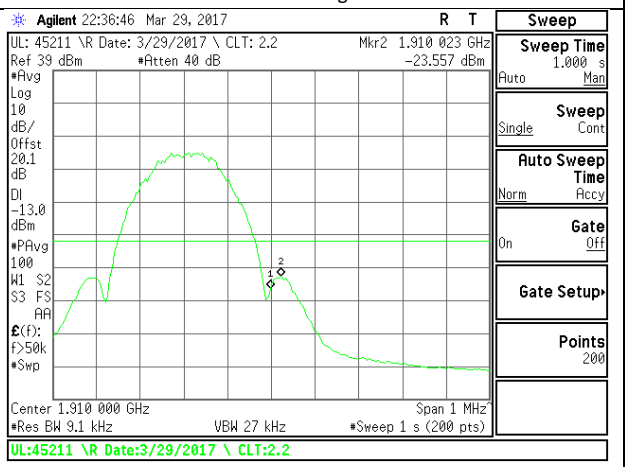
GSM1900 GPRS Low Channel



GSM1900 GPRS High Channel

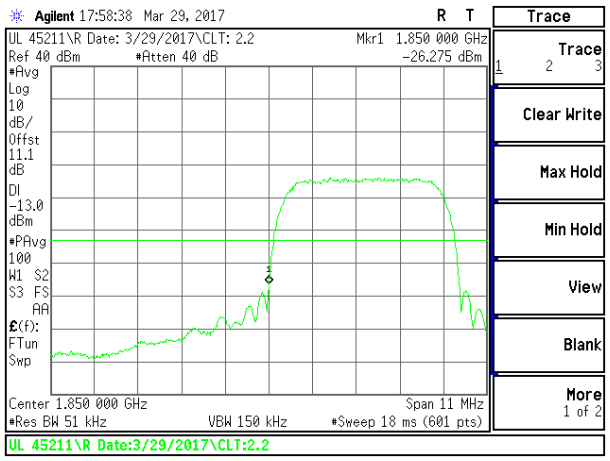


GSM1900 EGPRS Low Channel

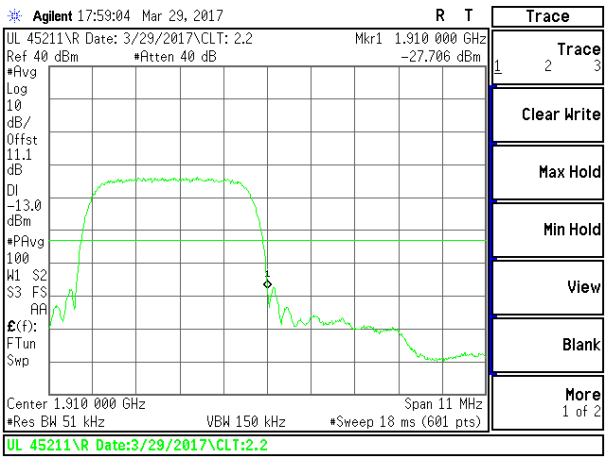


GSM1900 EGPRS High Channel

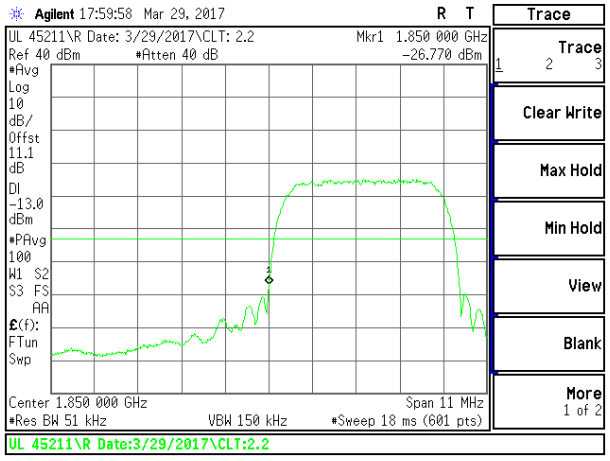
WCDMA



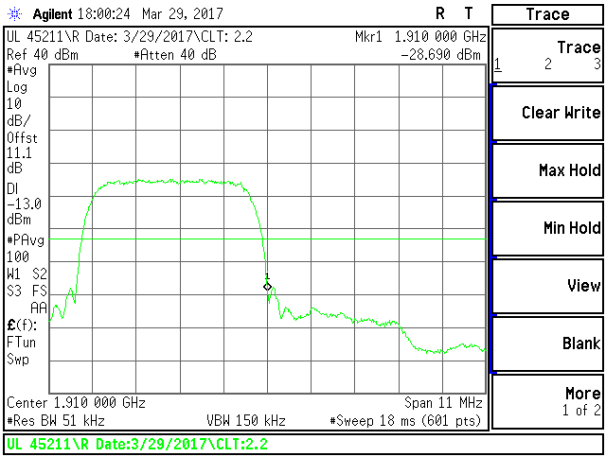
B2 REL99 Low Channel



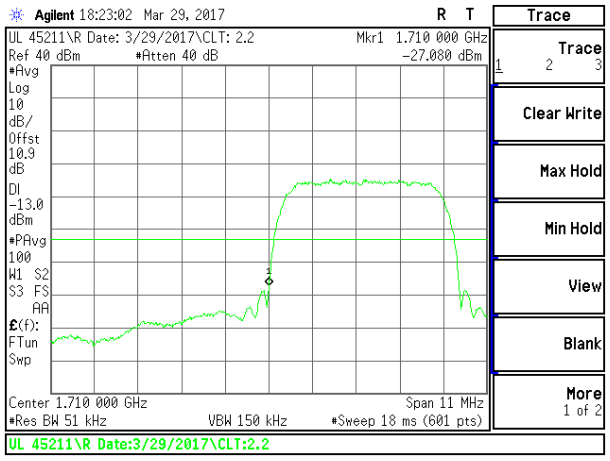
B2 REL99 High Channel



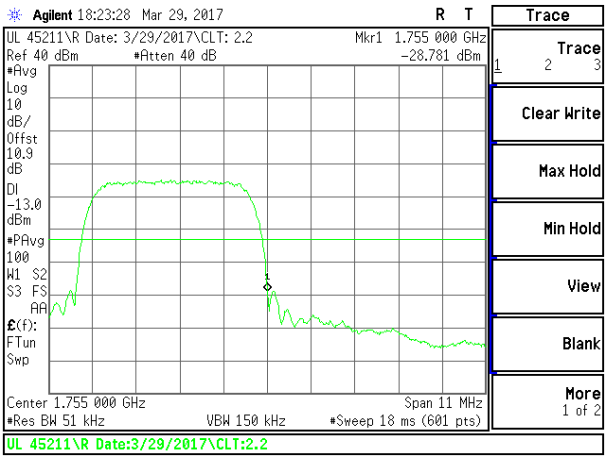
B2 HSDPA Low Channel



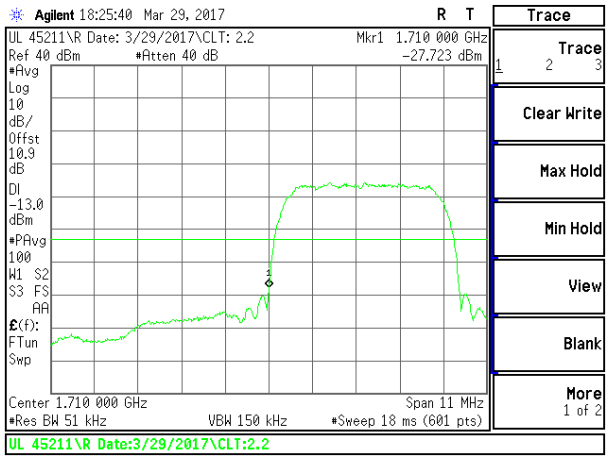
B2 HSDPA High Channel



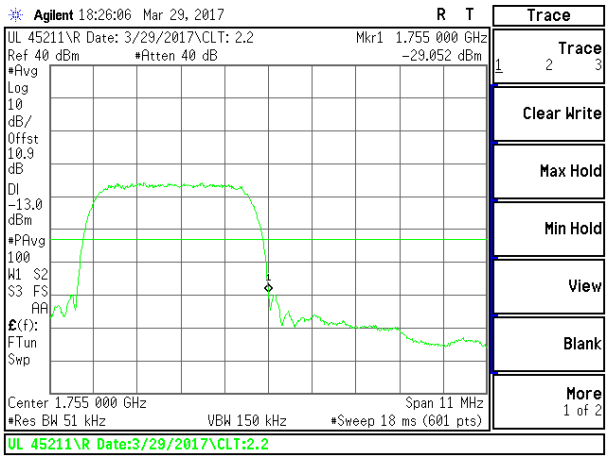
B4 REL99 Low Channel



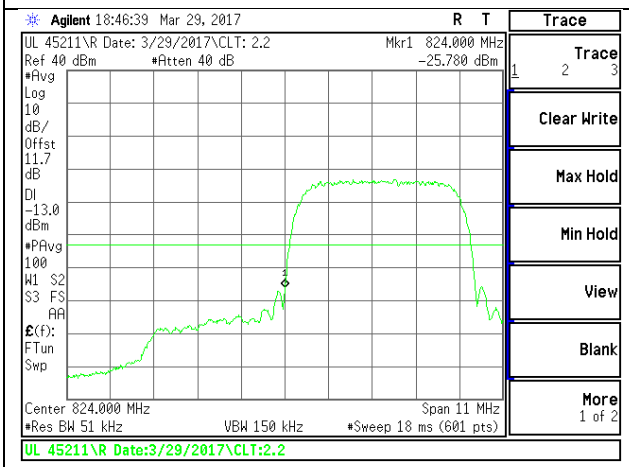
B4 REL99 High Channel



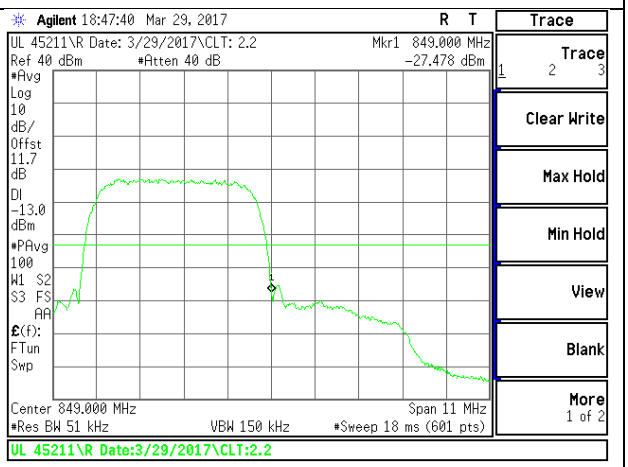
B4 HSDPA Low Channel



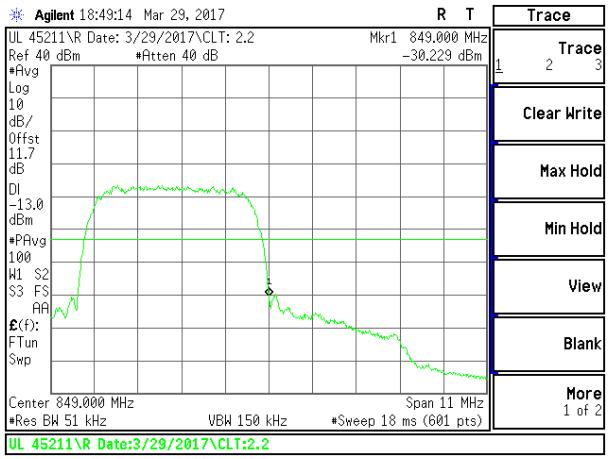
B4 HSDPA High Channel



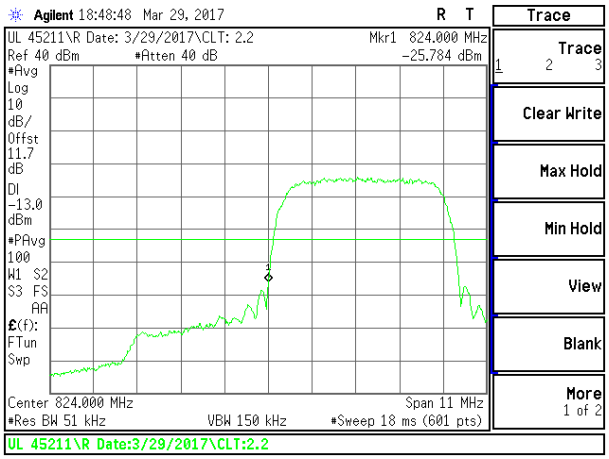
B5 REL99 Low Channel



B5 REL99 High Channel

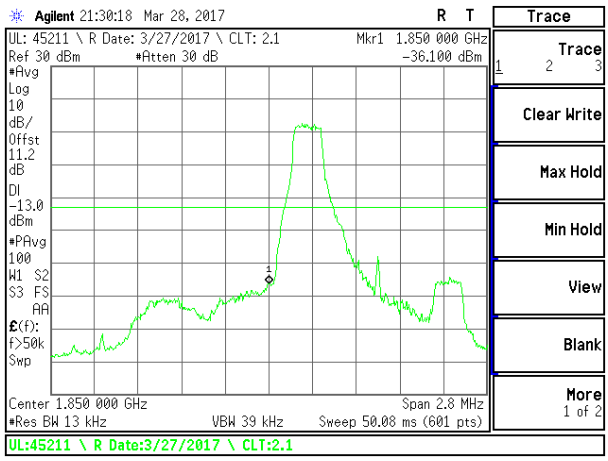


B5 HSDPA Low Channel

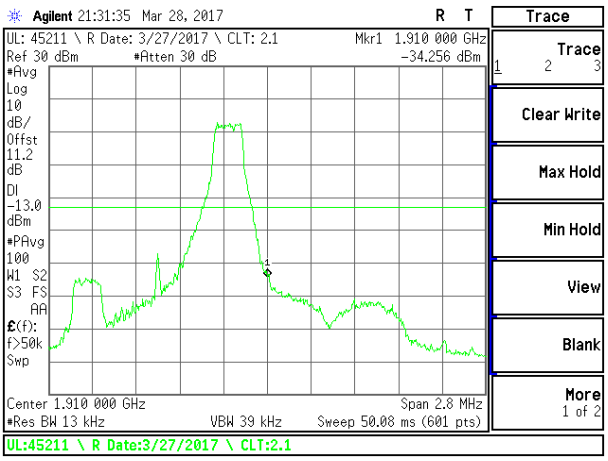


B5 HSDPA High Channel

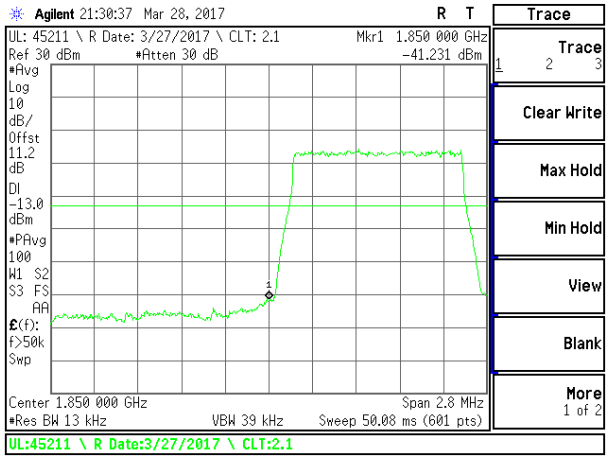
LTE Band 2



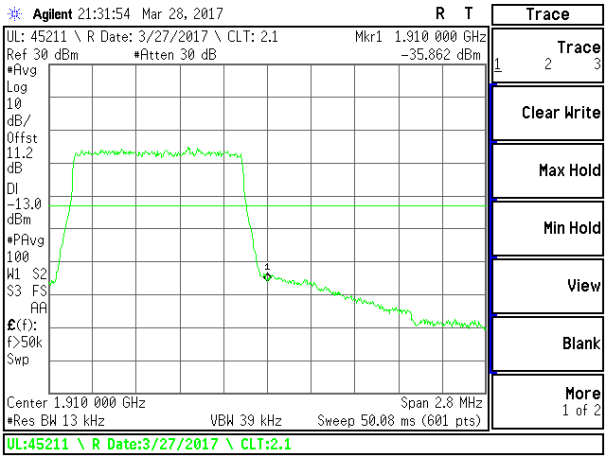
LTE B2 1.4MHz QPSK Low Channel 1RB



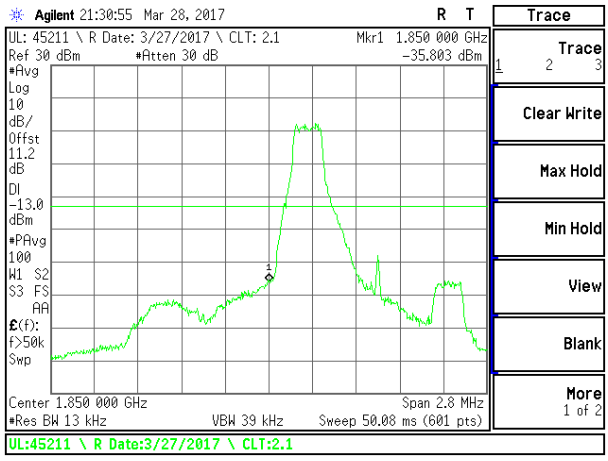
LTE B2 1.4MHz QPSK High Channel 1RB



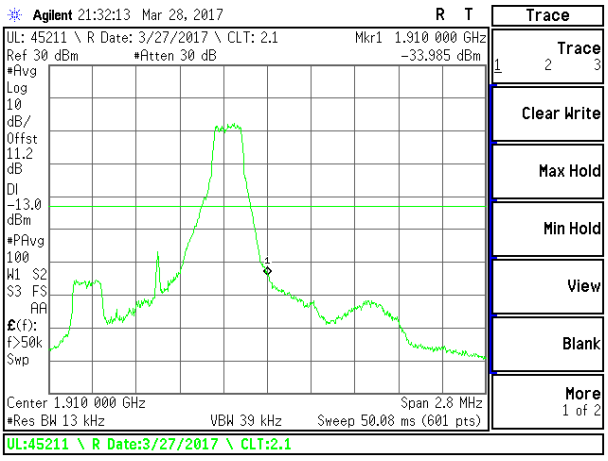
LTE B2 1.4MHz QPSK Low Channel FRB



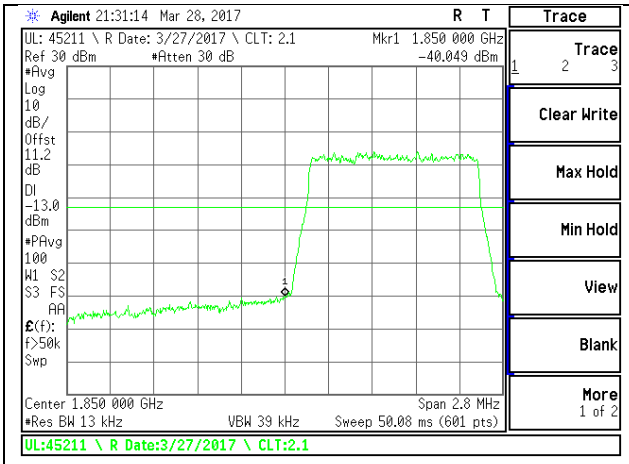
LTE B2 1.4MHz QPSK High Channel FRB



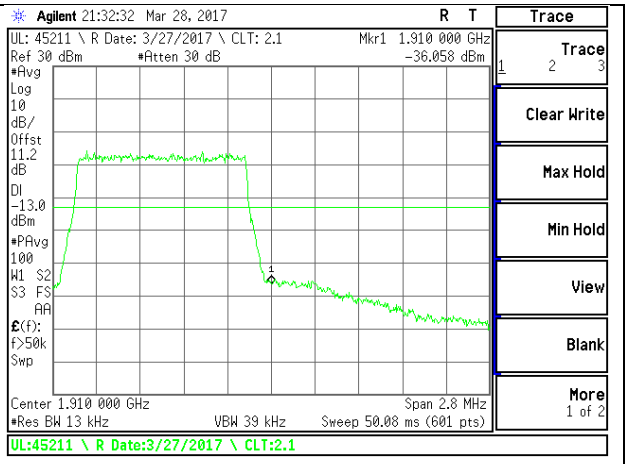
LTE B2 1.4MHz 16QAM Low Channel 1RB



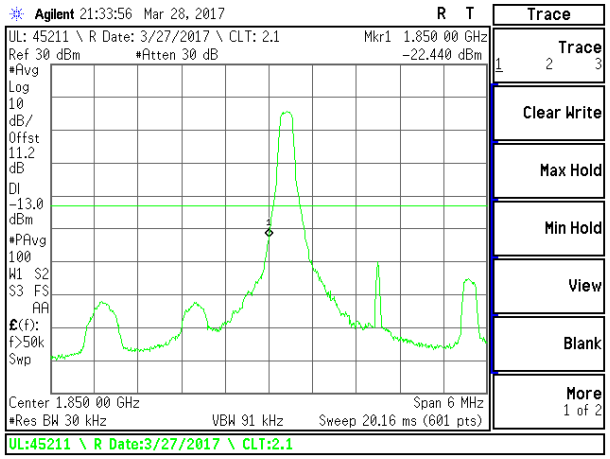
LTE B2 1.4MHz 16QAM High Channel 1RB



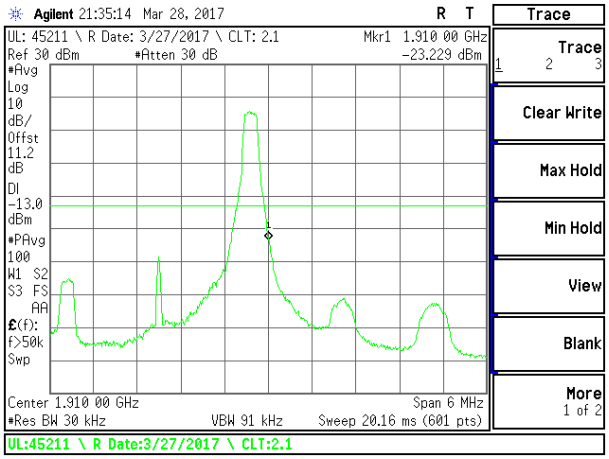
LTE B2 1.4MHz 16QAM Low Channel FRB



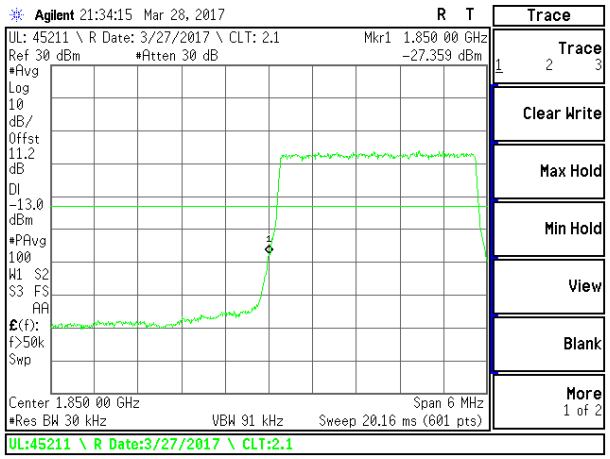
LTE B2 1.4MHz 16QAM High Channel FRB



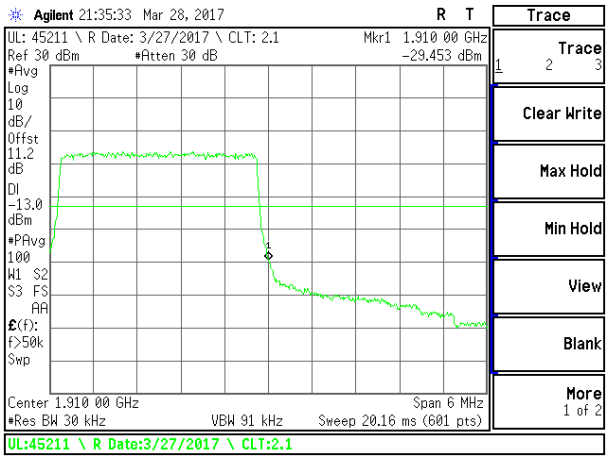
LTE B2 3MHz QPSK Low Channel 1RB



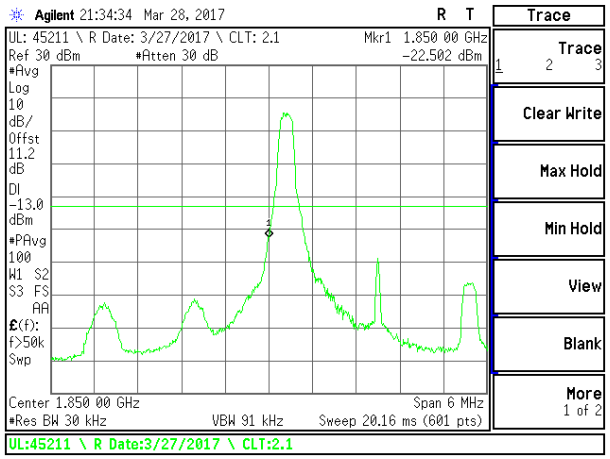
LTE B2 3MHz QPSK High Channel 1RB



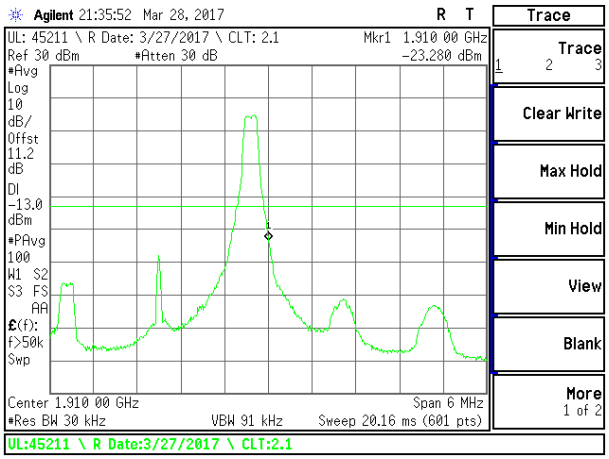
LTE B2 3MHz QPSK Low Channel FRB



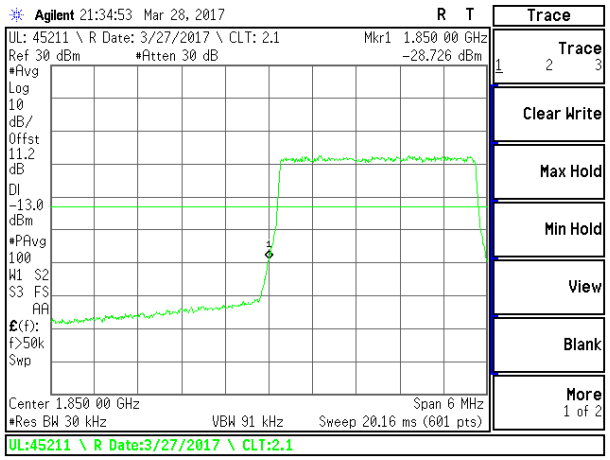
LTE B2 3MHz QPSK High Channel FRB



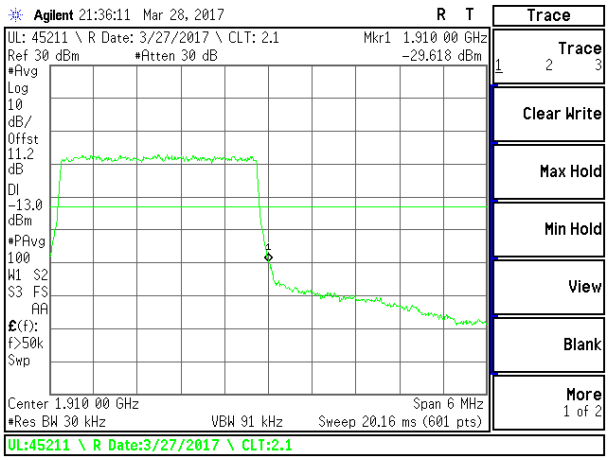
LTE B2 3MHz 16QAM Low Channel 1RB



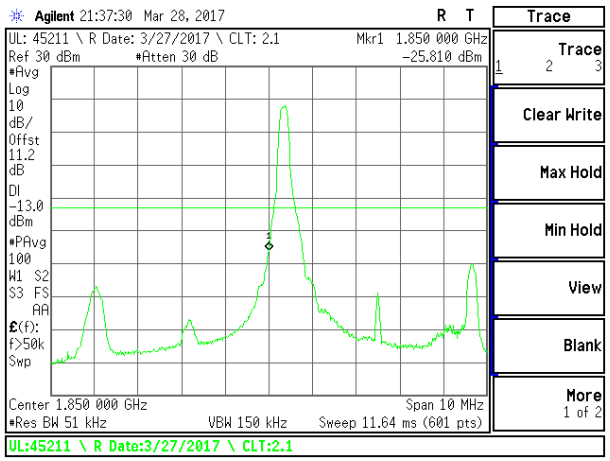
LTE B2 3MHz 16QAM High Channel 1RB



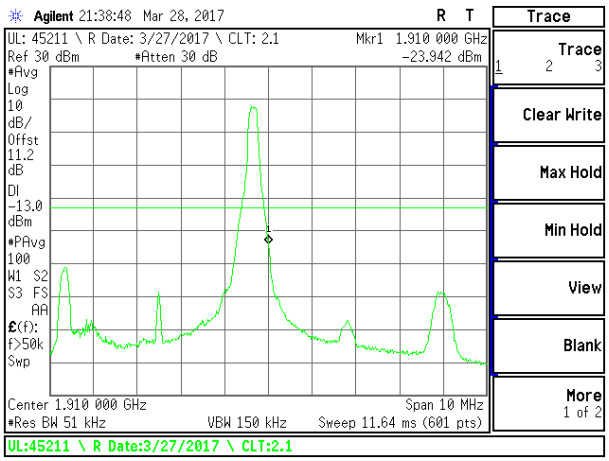
LTE B2 3MHz 16QAM Low Channel FRB



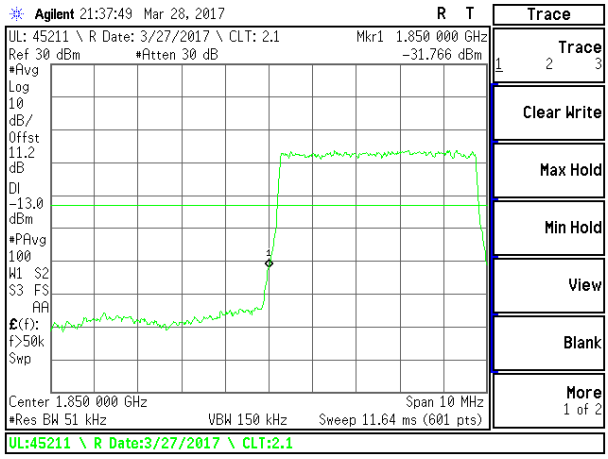
LTE B2 3MHz 16QAM High Channel FRB



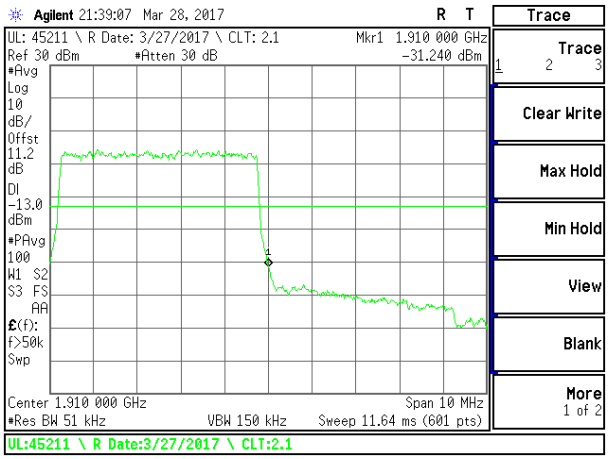
LTE B2 5MHz QPSK Low Channel 1RB



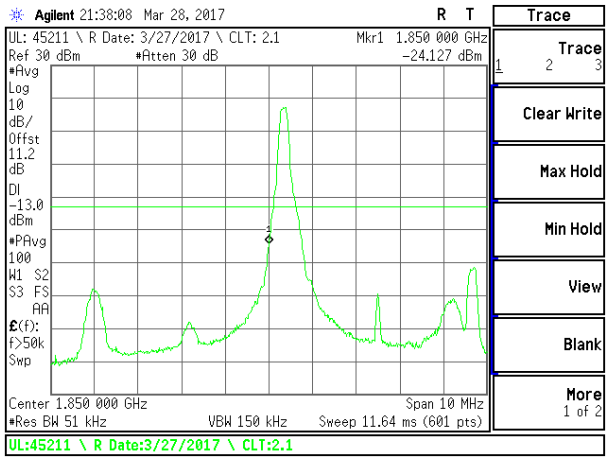
LTE B2 5MHz QPSK High Channel 1RB



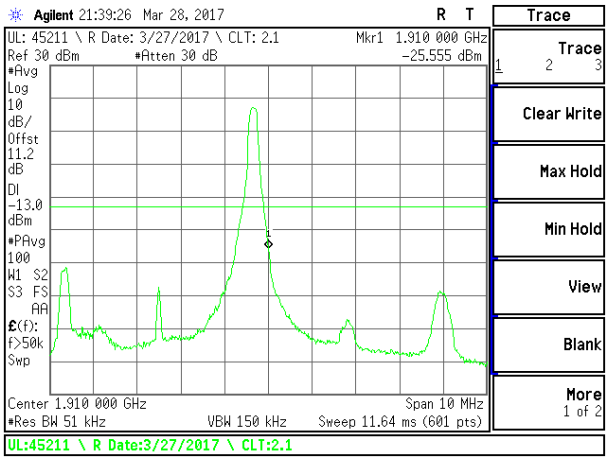
LTE B2 5MHz QPSK Low Channel FRB



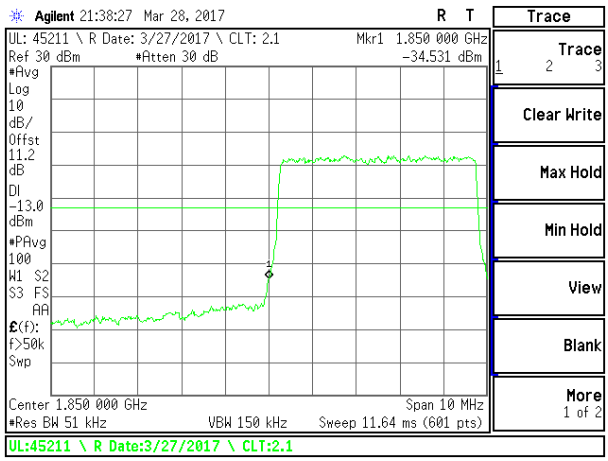
LTE B2 5MHz QPSK High Channel FRB



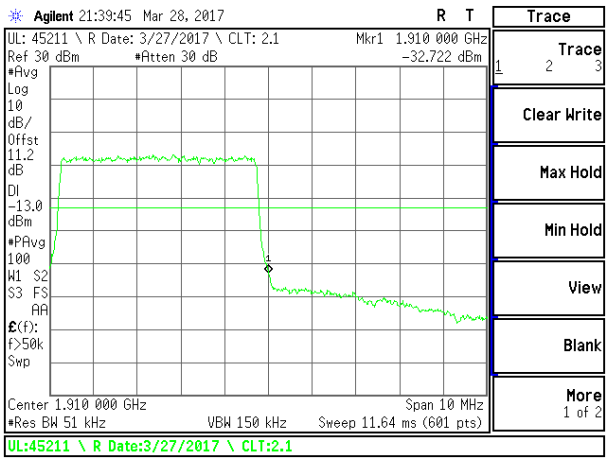
LTE B2 5MHz 16QAM Low Channel 1RB



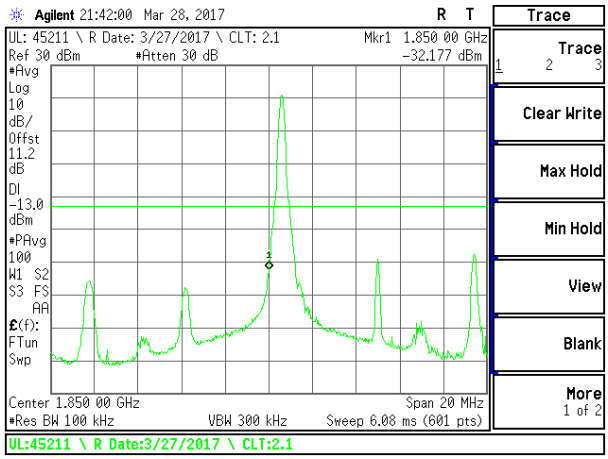
LTE B2 5MHz 16QAM High Channel 1RB



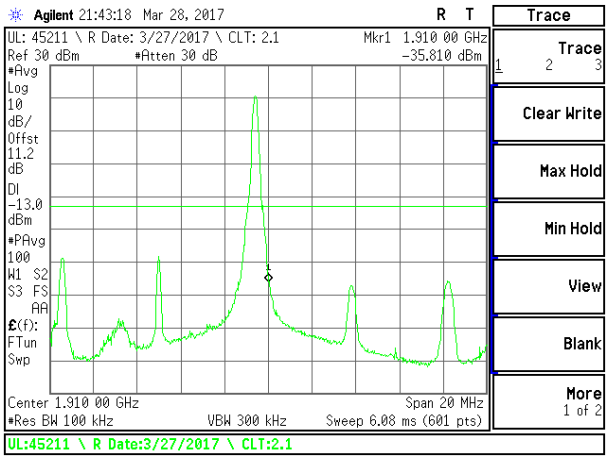
LTE B2 5MHz 16QAM Low Channel FRB



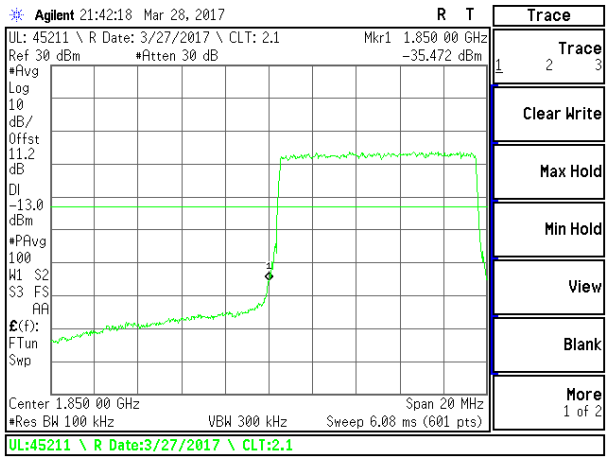
LTE B2 5MHz 16QAM High Channel FRB



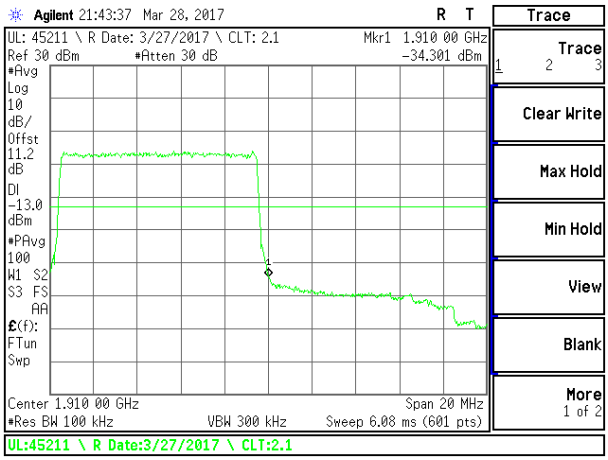
LTE B2 10MHz QPSK Low Channel 1RB



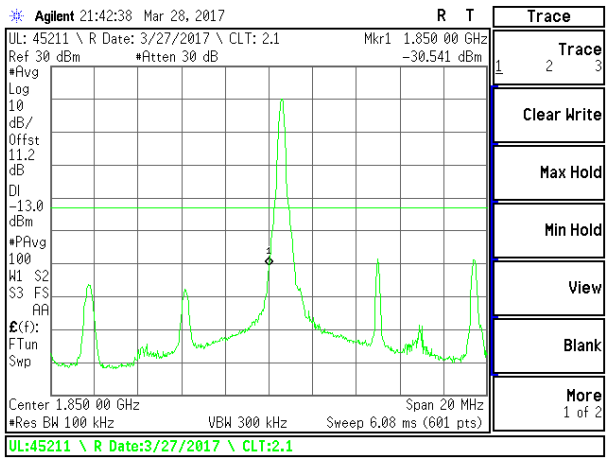
LTE B2 10MHz QPSK High Channel 1RB



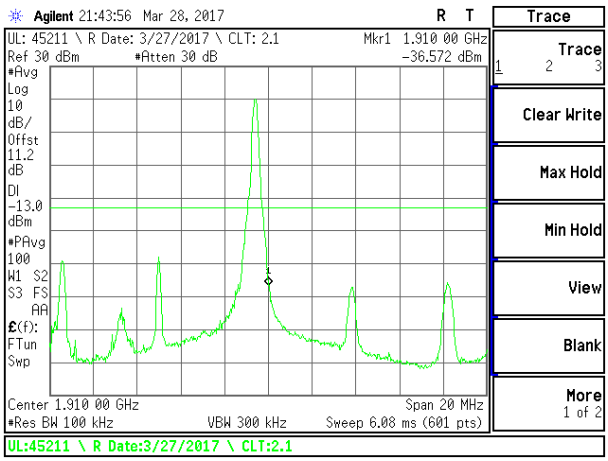
LTE B2 10MHz QPSK Low Channel FRB



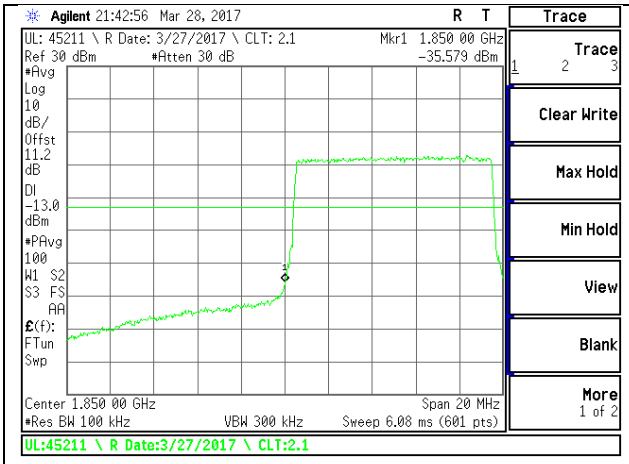
LTE B2 10MHz QPSK High Channel FRB



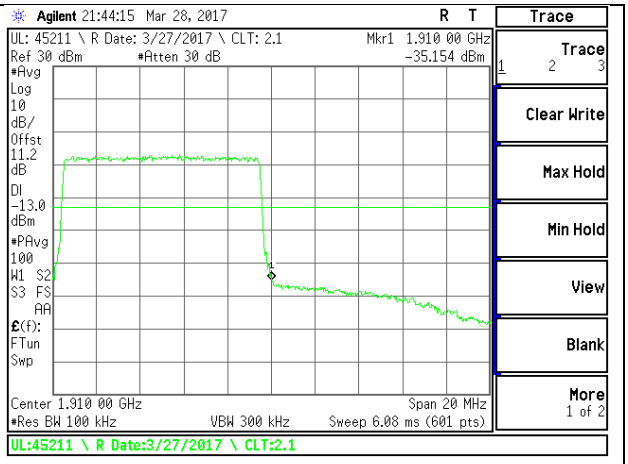
LTE B2 10MHz 16QAM Low Channel 1RB



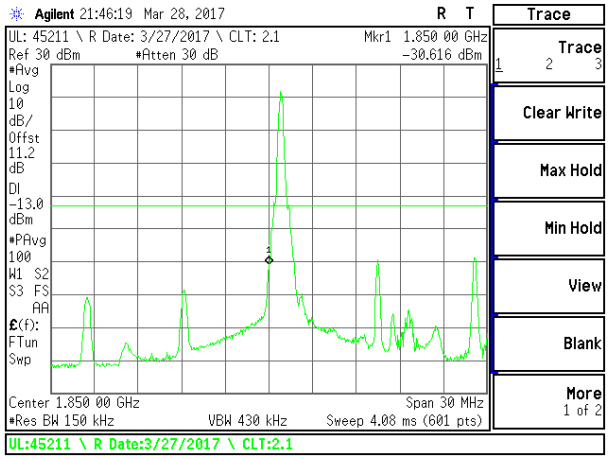
LTE B2 10MHz 16QAM High Channel 1RB



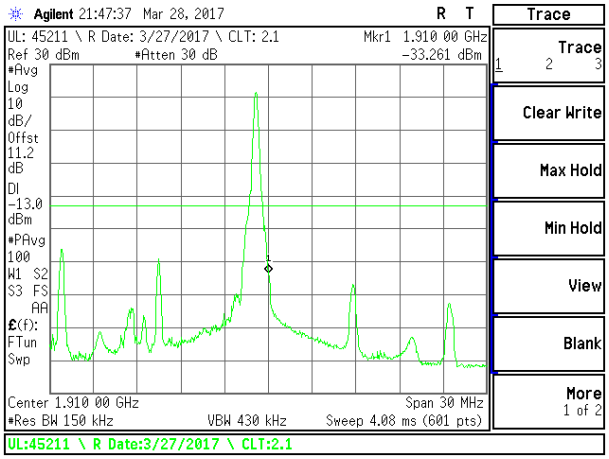
LTE B2 10MHz 16QAM Low Channel FRB



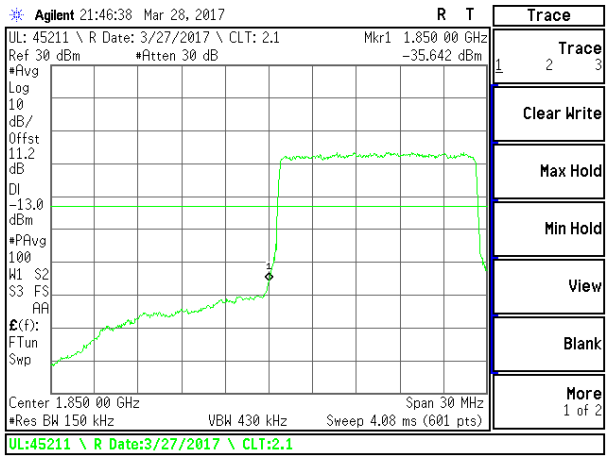
LTE B2 10MHz 16QAM High Channel FRB



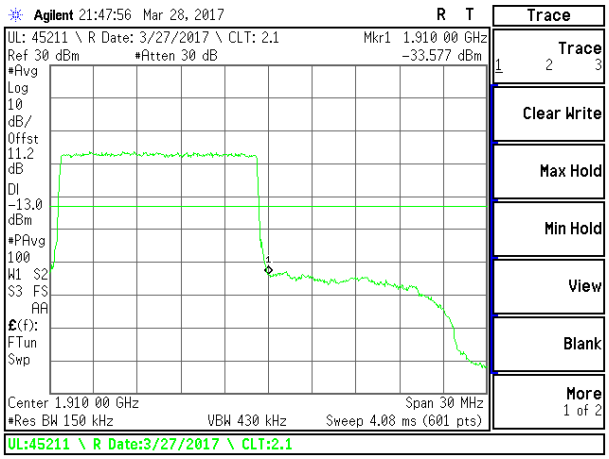
LTE B2 15MHz QPSK Low Channel 1RB



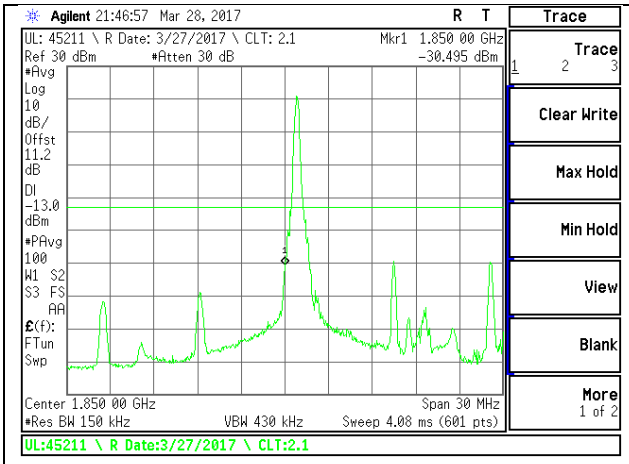
LTE B2 15MHz QPSK High Channel 1RB



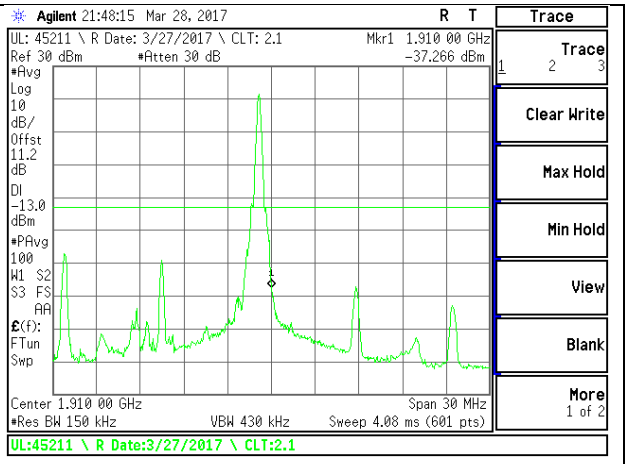
LTE B2 15MHz QPSK Low Channel FRB



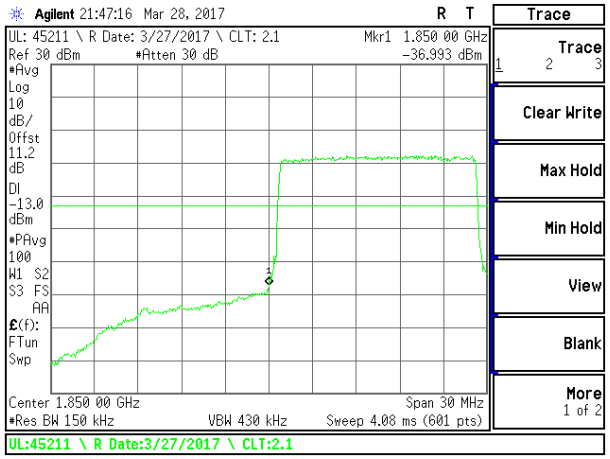
LTE B2 15MHz QPSK High Channel FRB



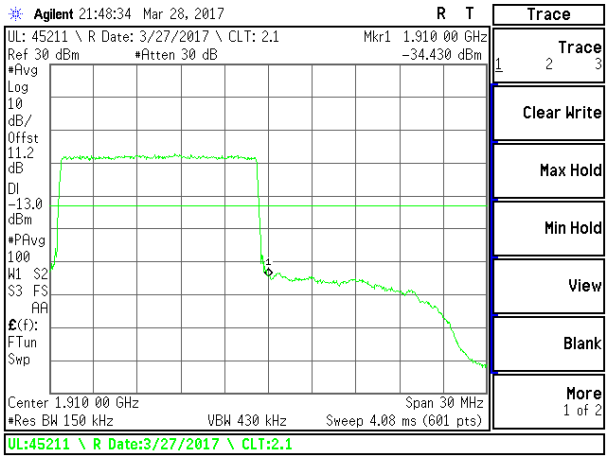
LTE B2 15MHz 16QAM Low Channel 1RB



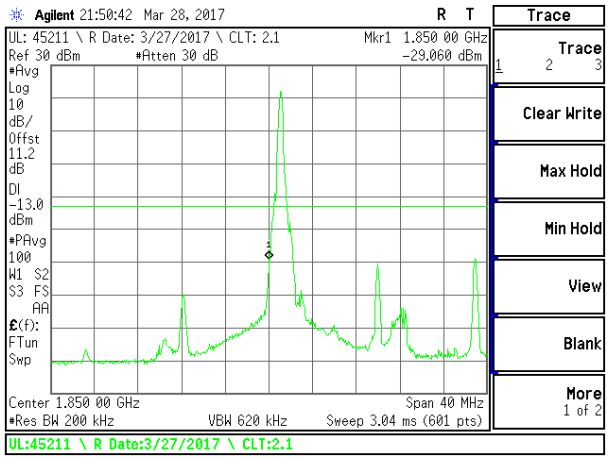
LTE B2 15MHz 16QAM High Channel 1RB



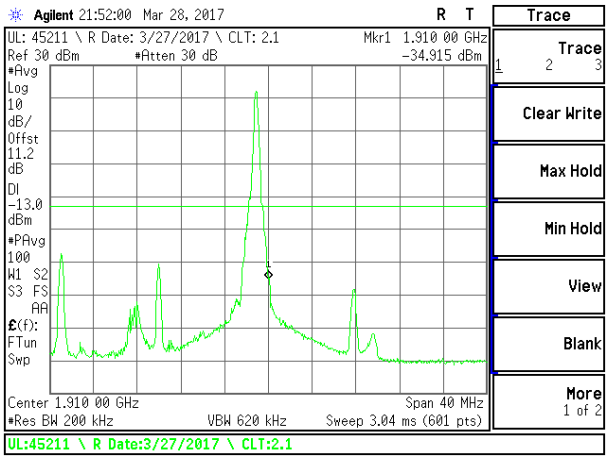
LTE B2 15MHz 16QAM Low Channel FRB



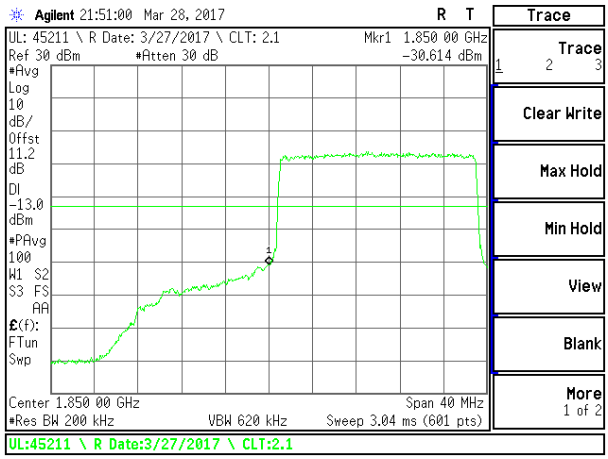
LTE B2 15MHz 16QAM High Channel FRB



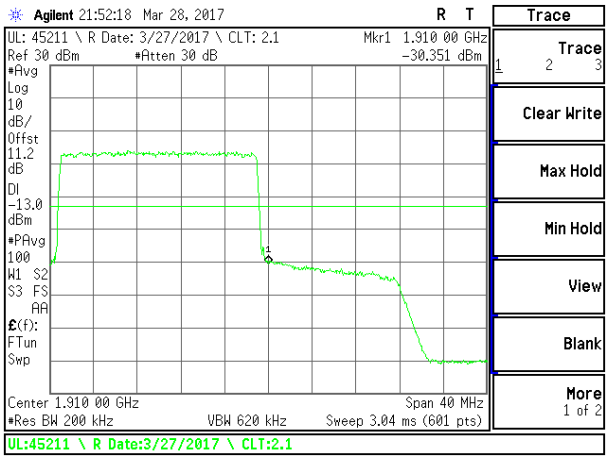
LTE B2 20MHz QPSK Low Channel 1RB



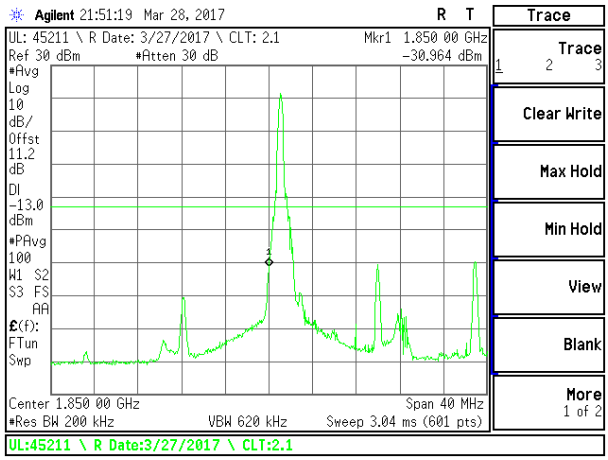
LTE B2 20MHz QPSK High Channel 1RB



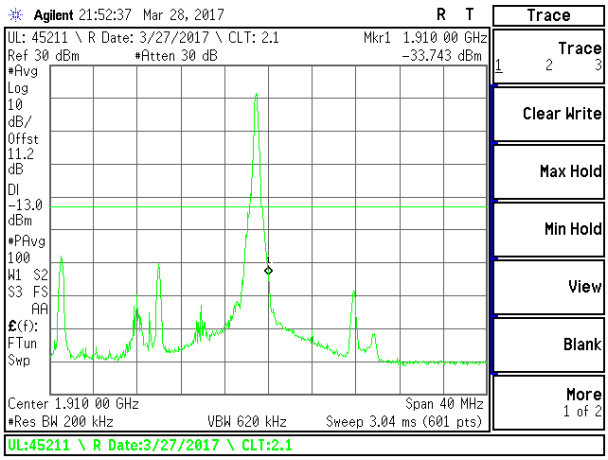
LTE B2 20MHz QPSK Low Channel FRB



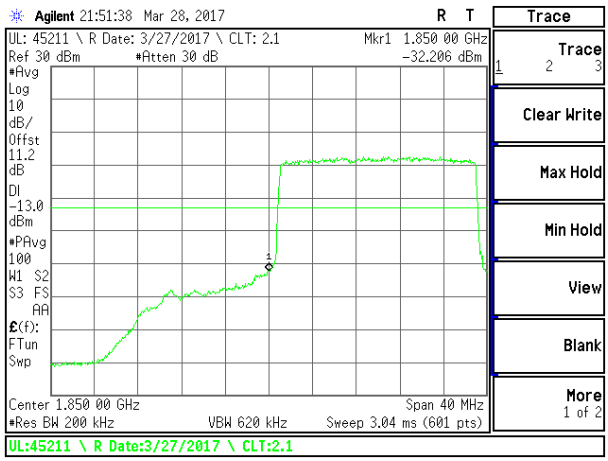
LTE B2 20MHz QPSK High Channel FRB



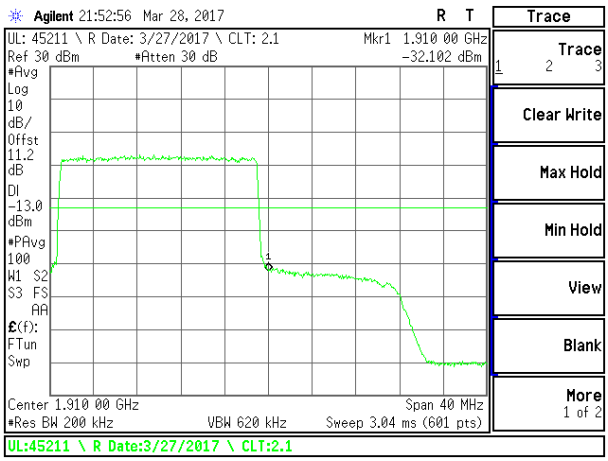
LTE B2 20MHz 16QAM Low Channel 1RB



LTE B2 20MHz 16QAM High Channel 1RB

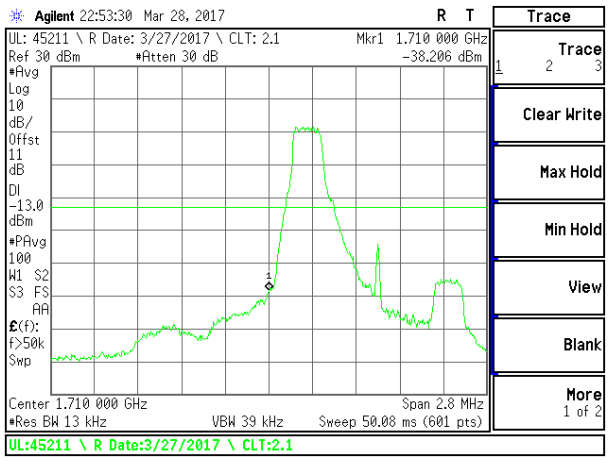


LTE B2 20MHz 16QAM Low Channel FRB

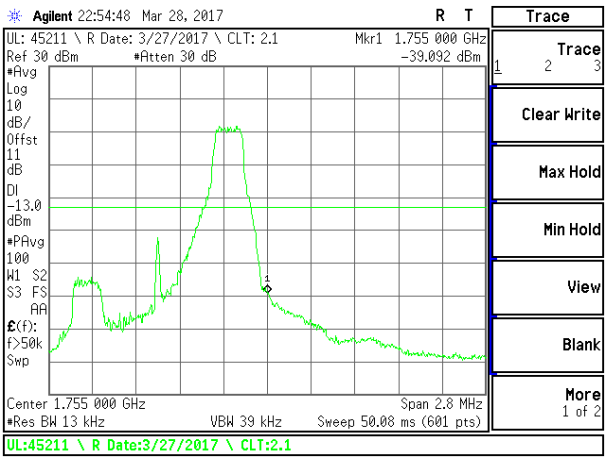


LTE B2 20MHz 16QAM High Channel FRB

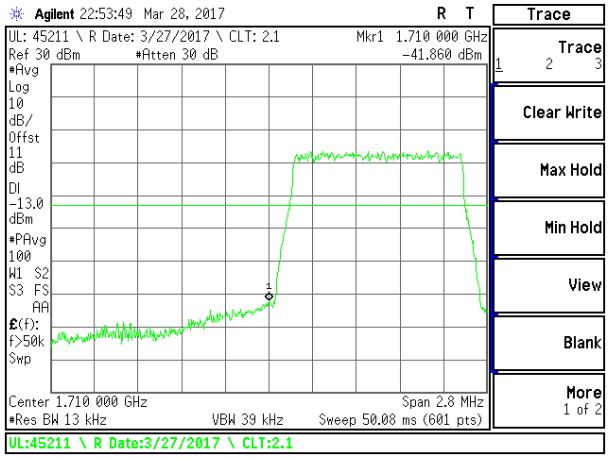
LTE Band 4



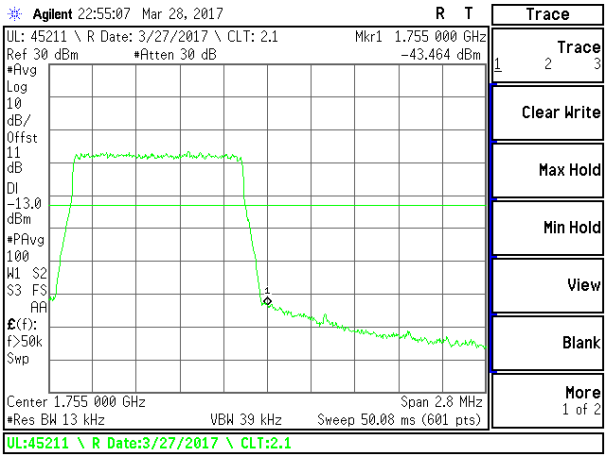
LTE B4 1.4MHz QPSK Low Channel 1RB



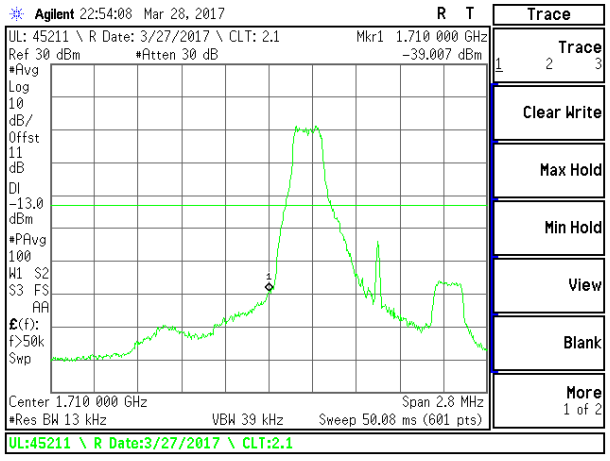
LTE B4 1.4MHz QPSK High Channel 1RB



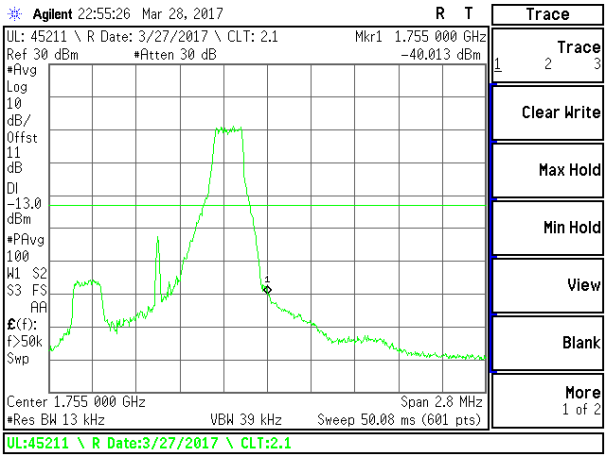
LTE B4 1.4MHz QPSK Low Channel FRB



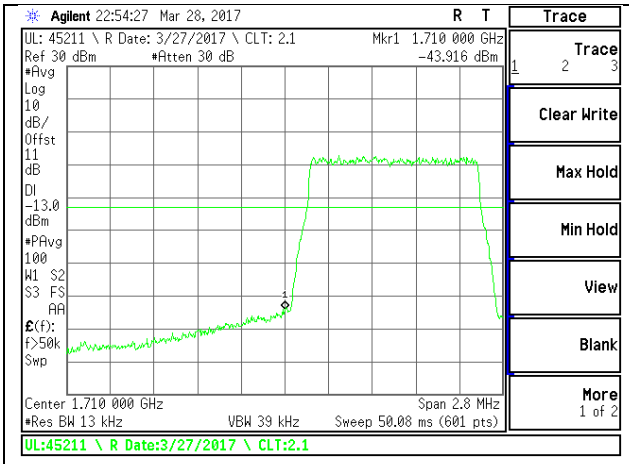
LTE B4 1.4MHz QPSK High Channel FRB



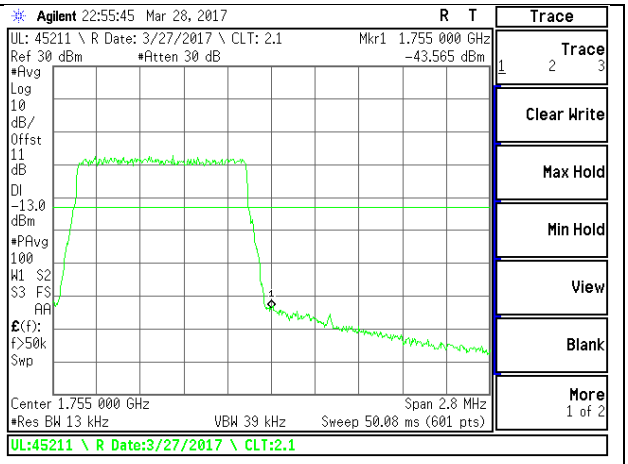
LTE B4 1.4MHz 16QAM Low Channel 1RB



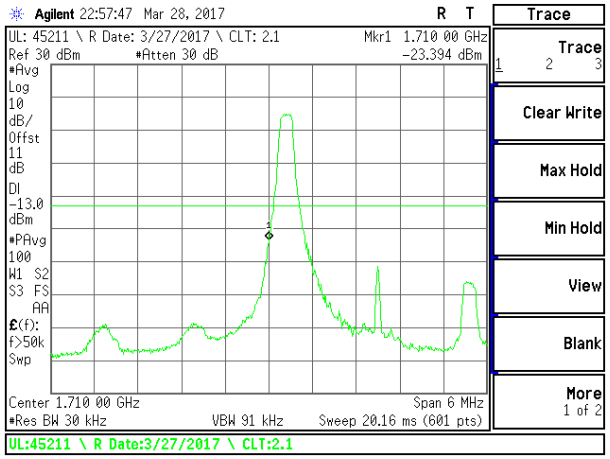
LTE B4 1.4MHz 16QAM High Channel 1RB



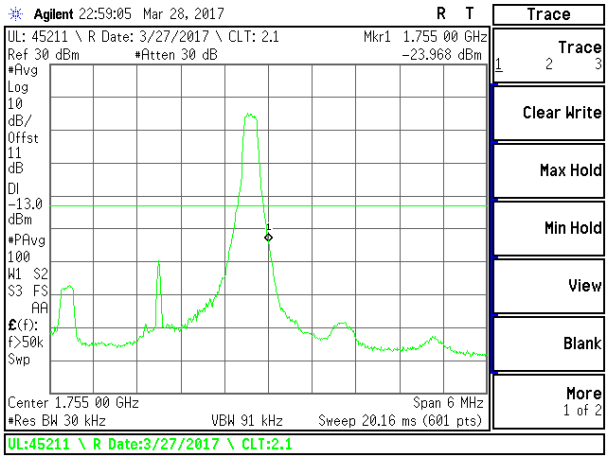
LTE B4 1.4MHz 16QAM Low Channel FRB



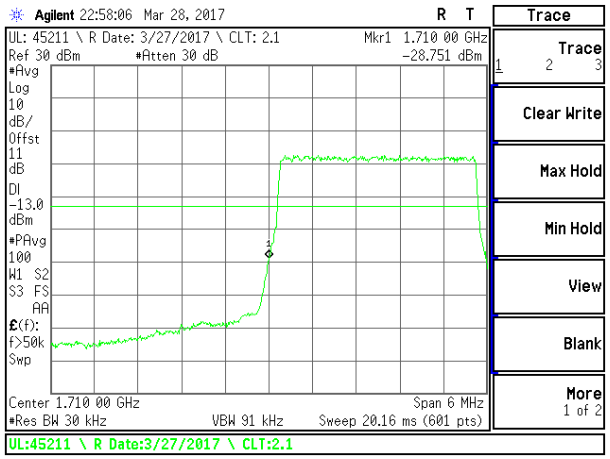
LTE B4 1.4MHz 16QAM High Channel FRB



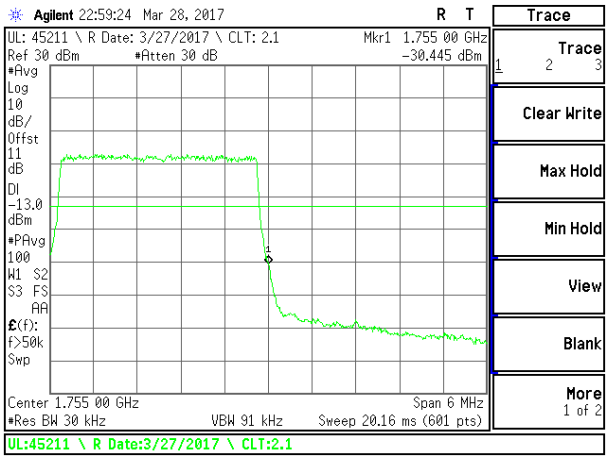
LTE B4 3MHz QPSK Low Channel 1RB



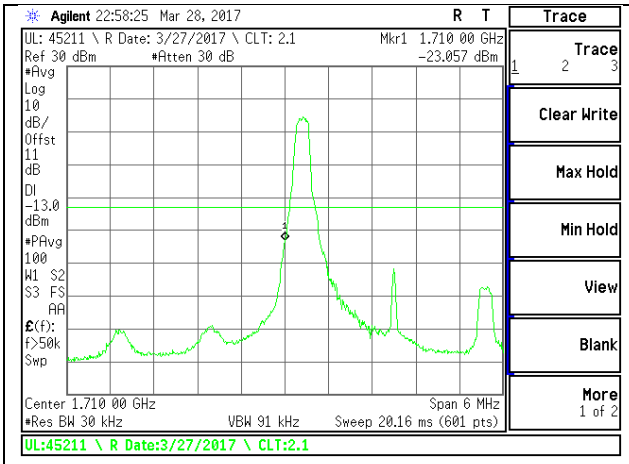
LTE B4 3MHz QPSK High Channel 1RB



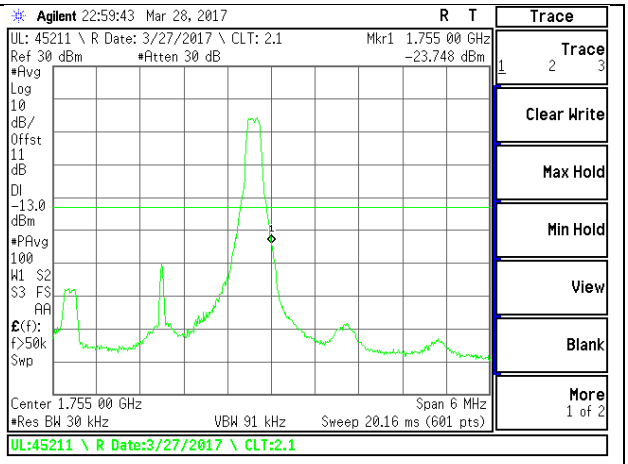
LTE B4 3MHz QPSK Low Channel FRB



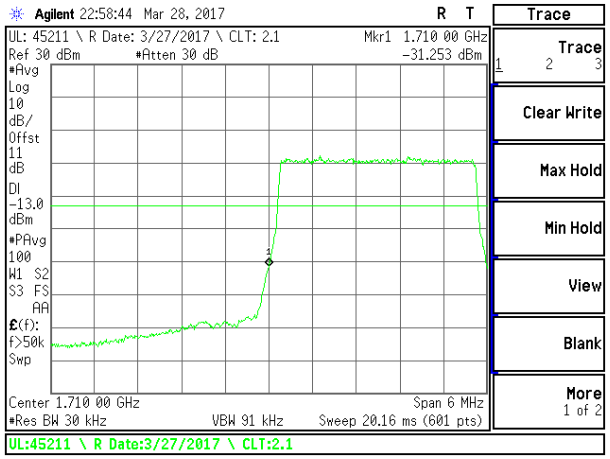
LTE B4 3MHz QPSK High Channel FRB



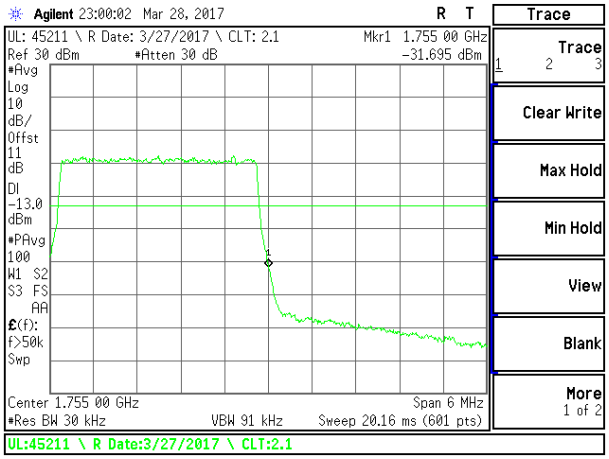
LTE B4 3MHz 16QAM Low Channel 1RB



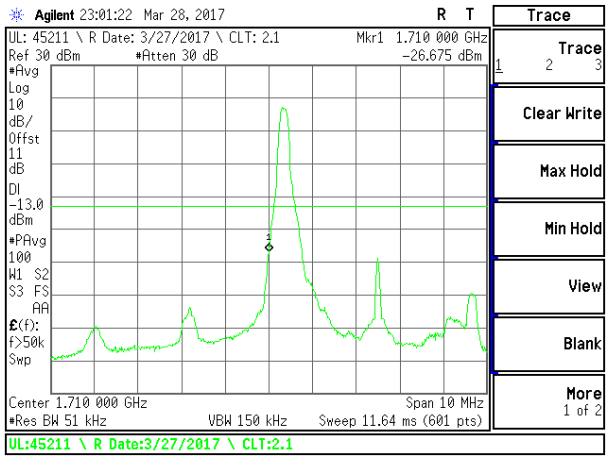
LTE B4 3MHz 16QAM High Channel 1RB



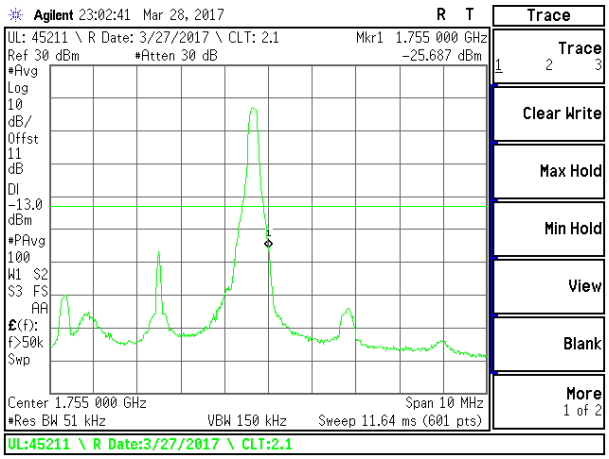
LTE B4 3MHz 16QAM Low Channel FRB



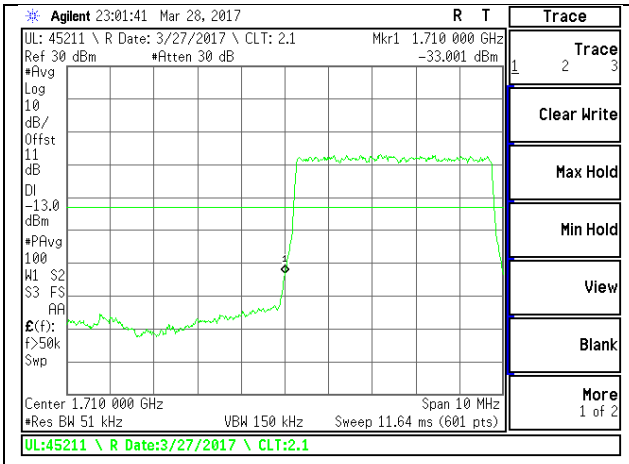
LTE B4 3MHz 16QAM High Channel FRB



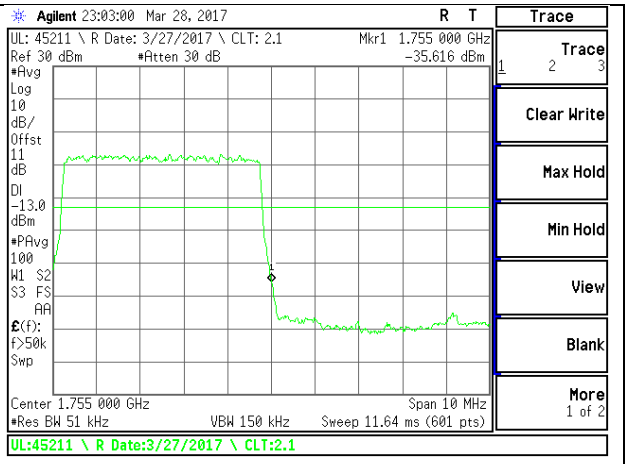
LTE B4 5MHz QPSK Low Channel 1RB



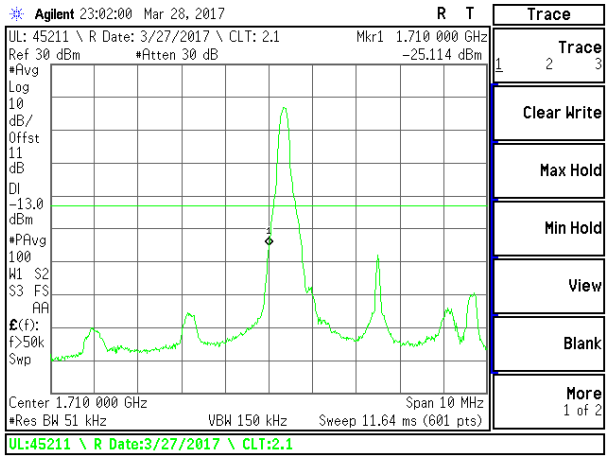
LTE B4 5MHz QPSK High Channel 1RB



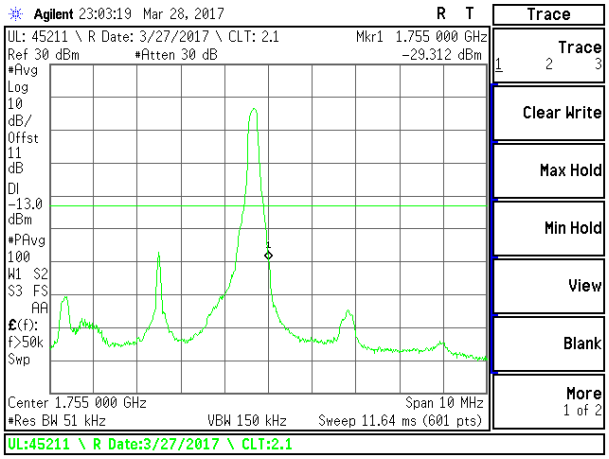
LTE B4 5MHz QPSK Low Channel FRB



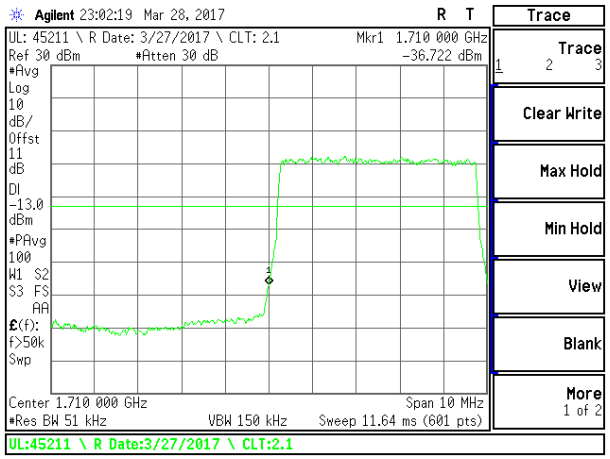
LTE B4 5MHz QPSK High Channel FRB



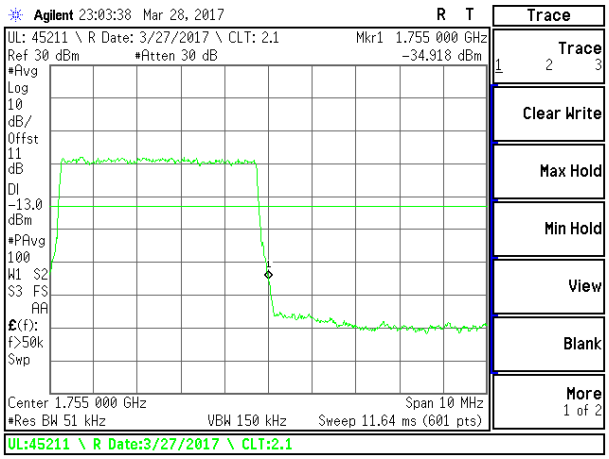
LTE B4 5MHz 16QAM Low Channel 1RB



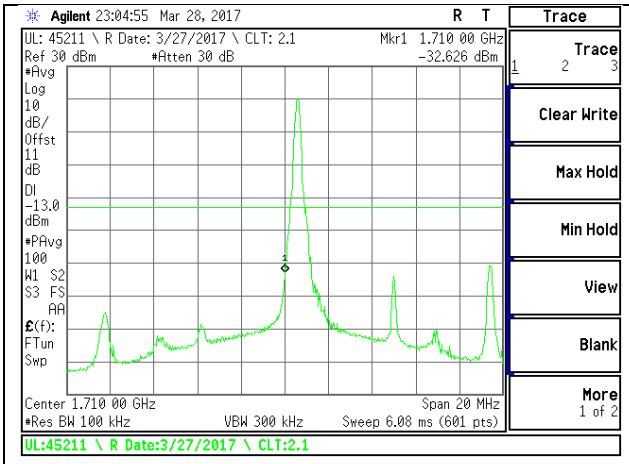
LTE B4 5MHz 16QAM High Channel 1RB



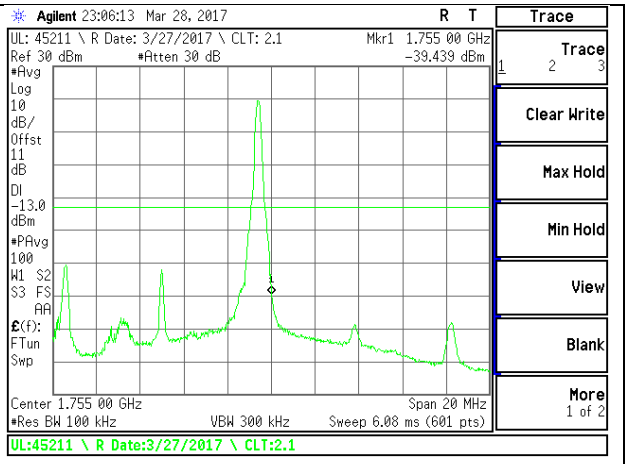
LTE B4 5MHz 16QAM Low Channel FRB



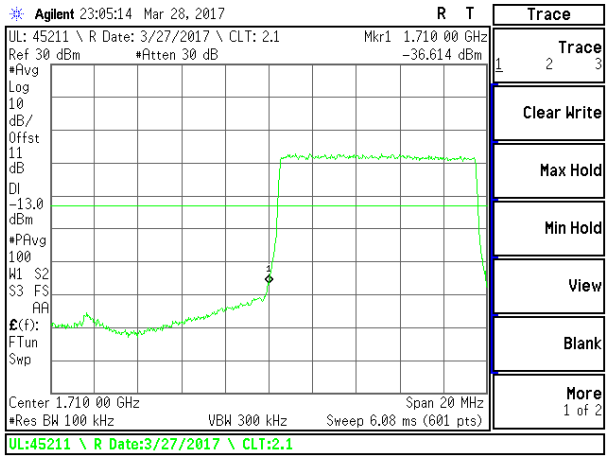
LTE B4 5MHz 16QAM High Channel FRB



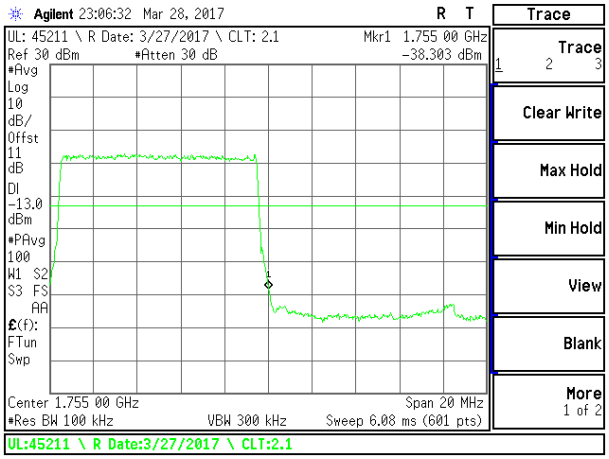
LTE B4 10MHz QPSK Low Channel 1RB



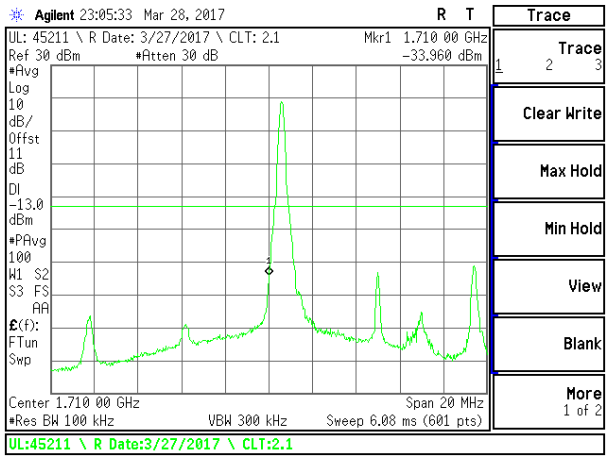
LTE B4 10MHz QPSK High Channel 1RB



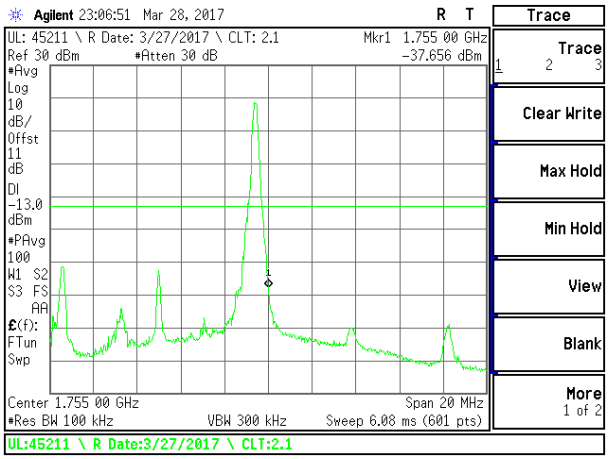
LTE B4 10MHz QPSK Low Channel FRB



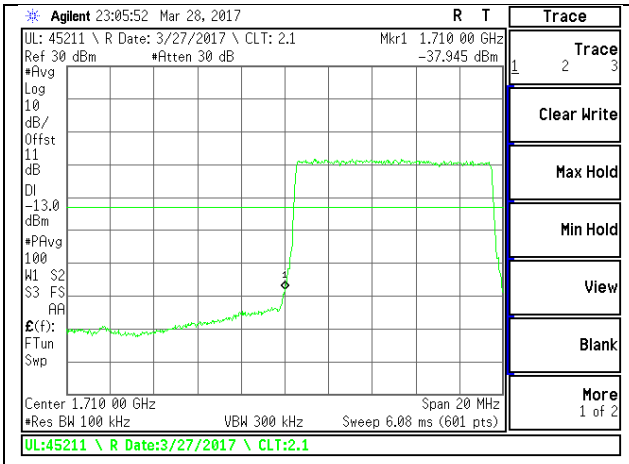
LTE B4 10MHz QPSK High Channel FRB



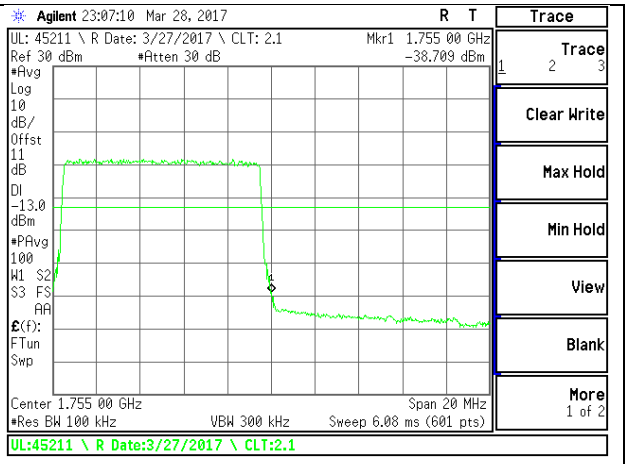
LTE B4 10MHz 16QAM Low Channel 1RB



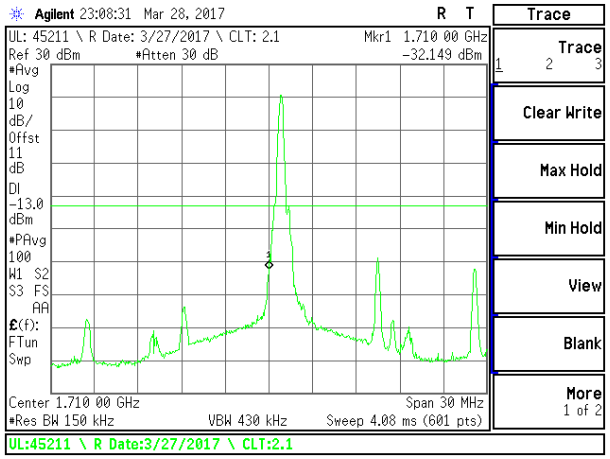
LTE B4 10MHz 16QAM High Channel 1RB



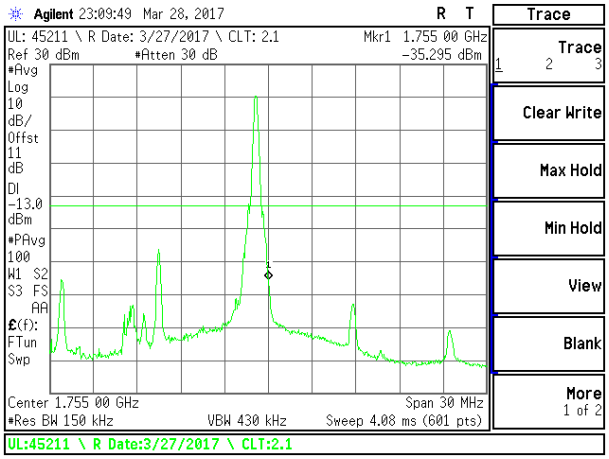
LTE B4 10MHz 16QAM Low Channel FRB



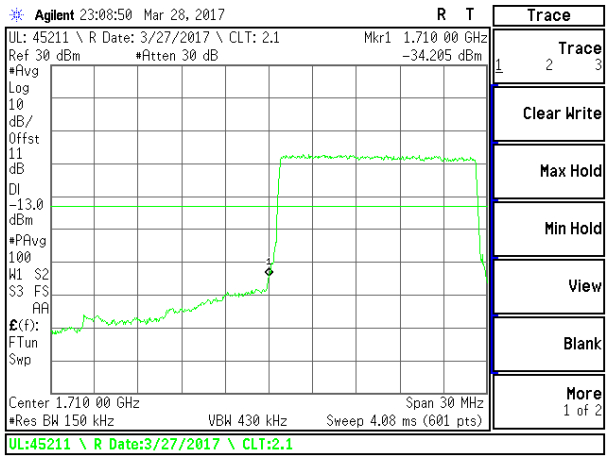
LTE B4 10MHz 16QAM High Channel FRB



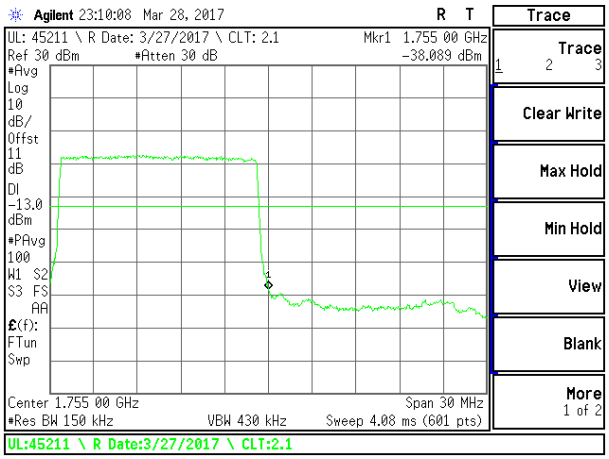
LTE B4 15MHz QPSK Low Channel 1RB



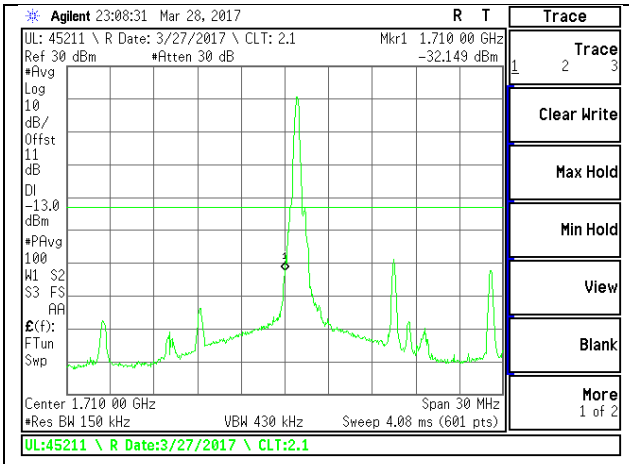
LTE B4 15MHz QPSK High Channel 1RB



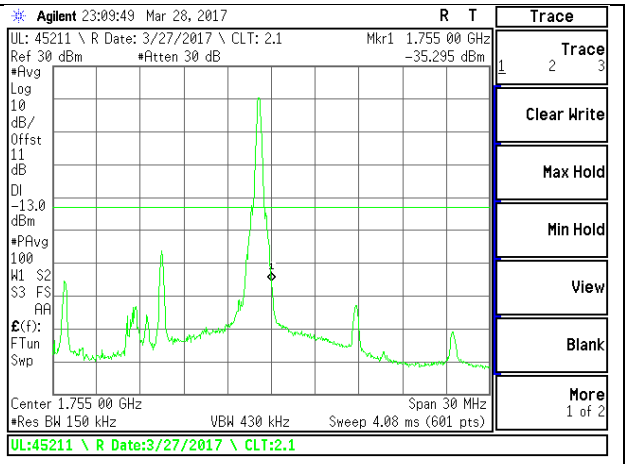
LTE B4 15MHz QPSK Low Channel FRB



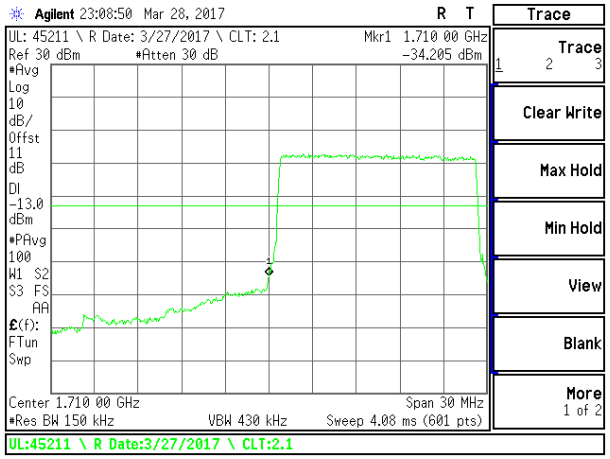
LTE B4 15MHz QPSK High Channel FRB



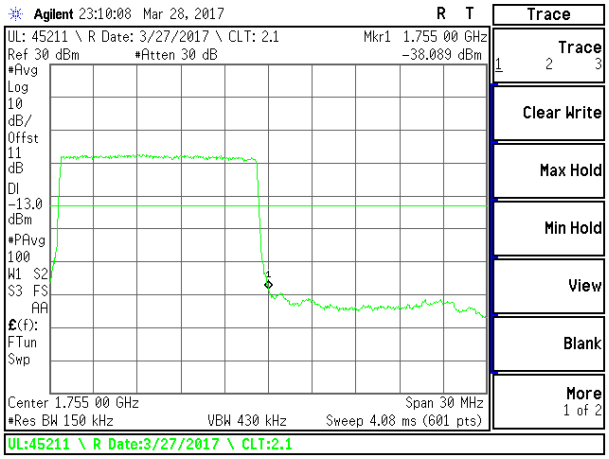
LTE B4 15MHz 16QAM Low Channel 1RB



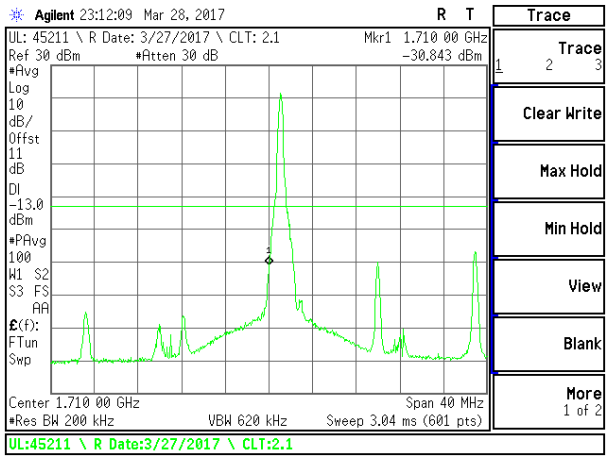
LTE B4 15MHz 16QAM High Channel 1RB



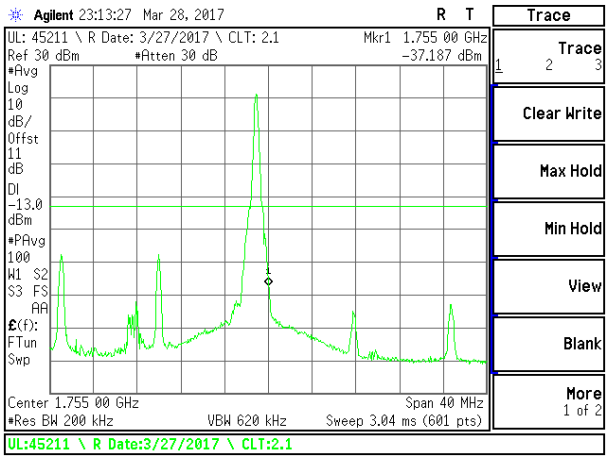
LTE B4 15MHz 16QAM Low Channel FRB



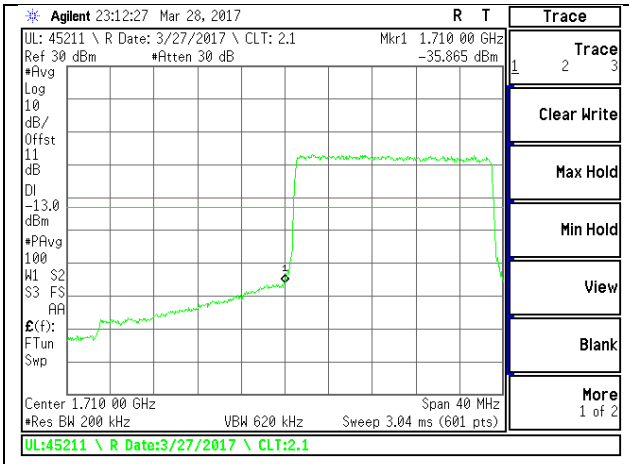
LTE B4 15MHz 16QAM High Channel FRB



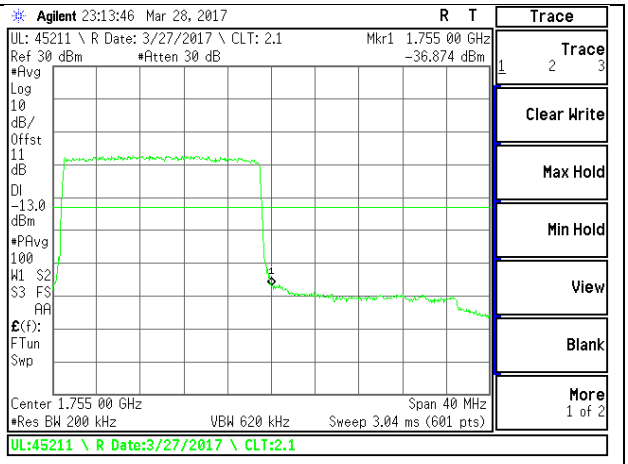
LTE B4 20MHz QPSK Low Channel 1RB



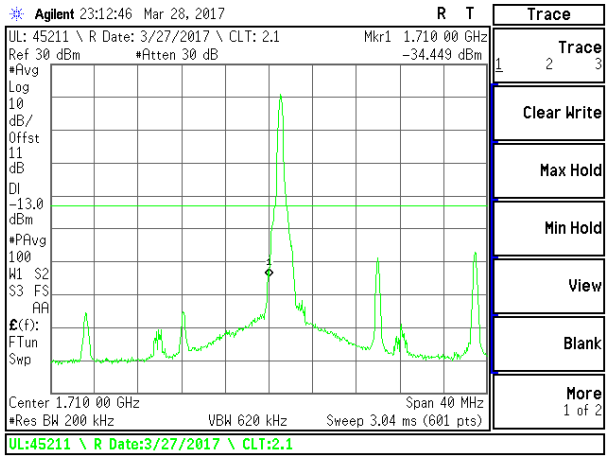
LTE B4 20MHz QPSK High Channel 1RB



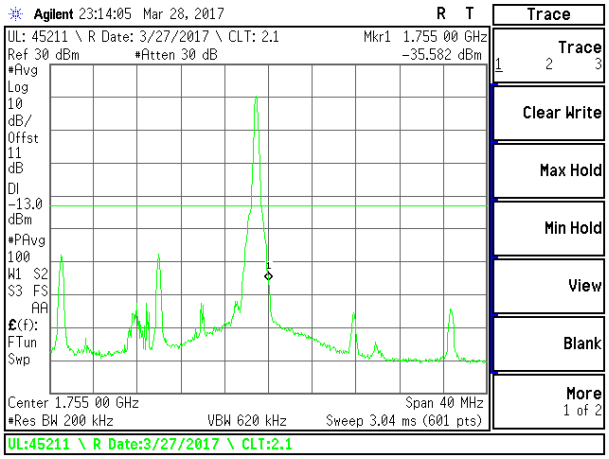
LTE B4 20MHz QPSK Low Channel FRB



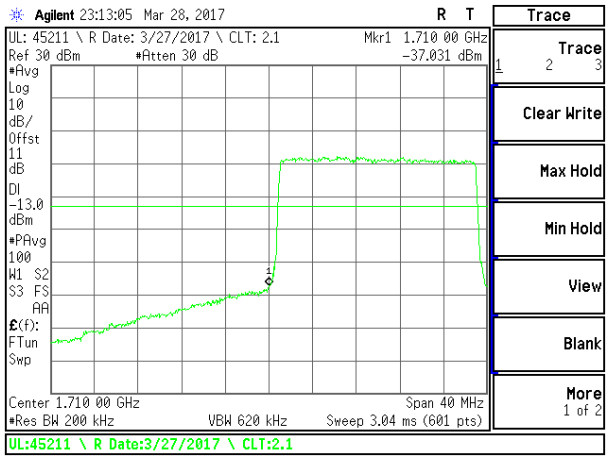
LTE B4 20MHz QPSK High Channel FRB



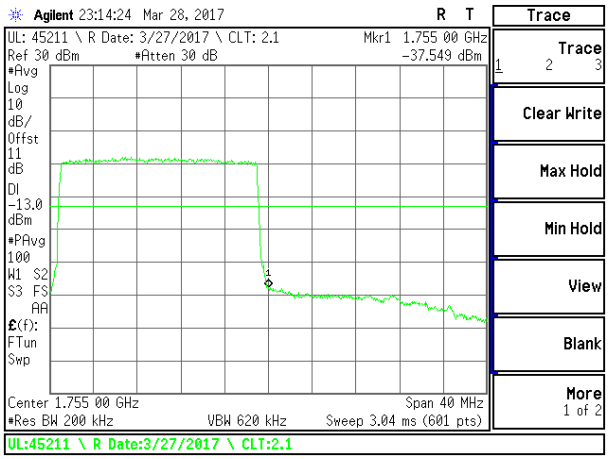
LTE B4 20MHz 16QAM Low Channel 1RB



LTE B4 20MHz 16QAM High Channel 1RB

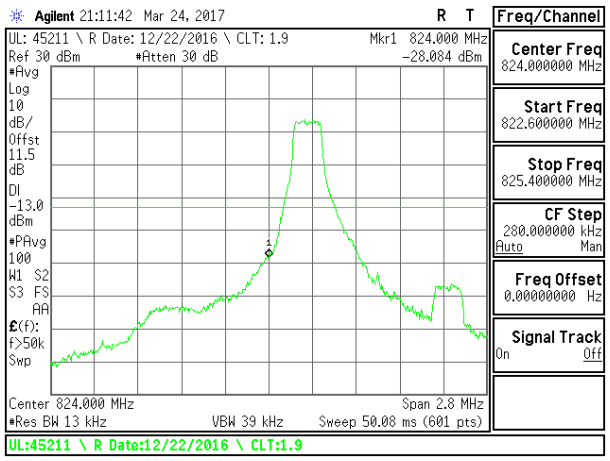


LTE B4 20MHz 16QAM Low Channel FRB

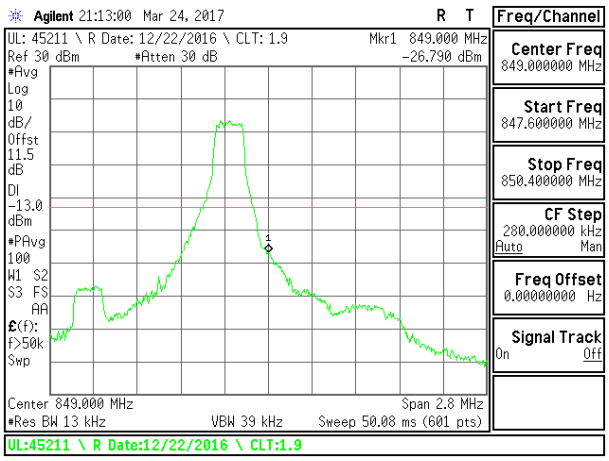


LTE B4 20MHz 16QAM High Channel FRB

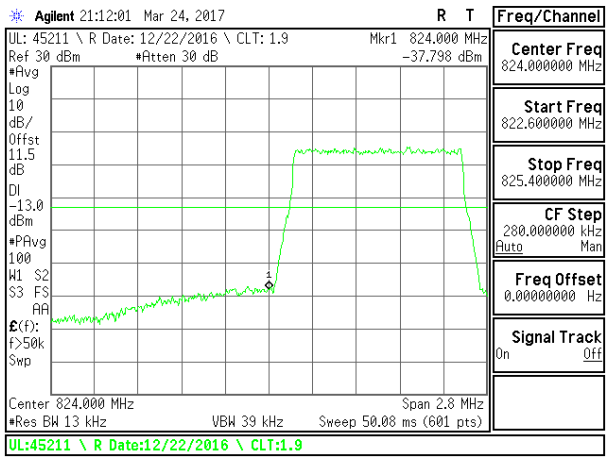
LTE Band 5



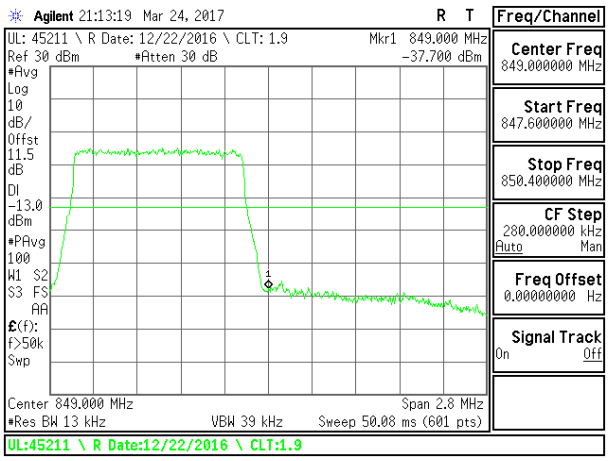
LTE B5 1.4MHz QPSK Low Channel 1RB



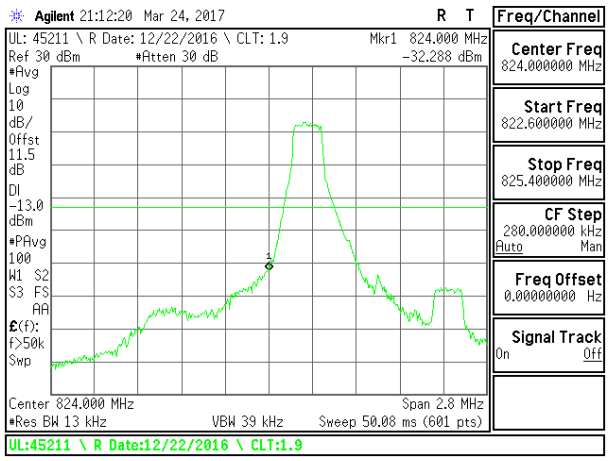
LTE B5 1.4MHz QPSK High Channel 1RB



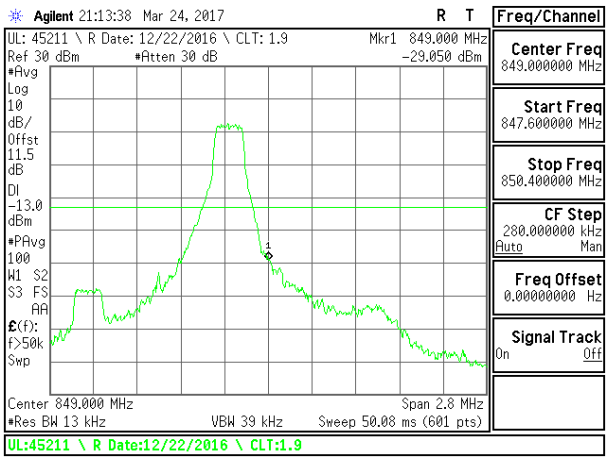
LTE B5 1.4MHz QPSK Low Channel FRB



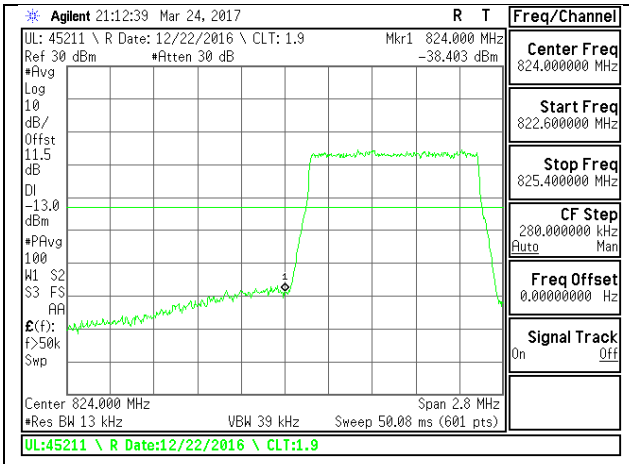
LTE B5 1.4MHz QPSK High Channel FRB



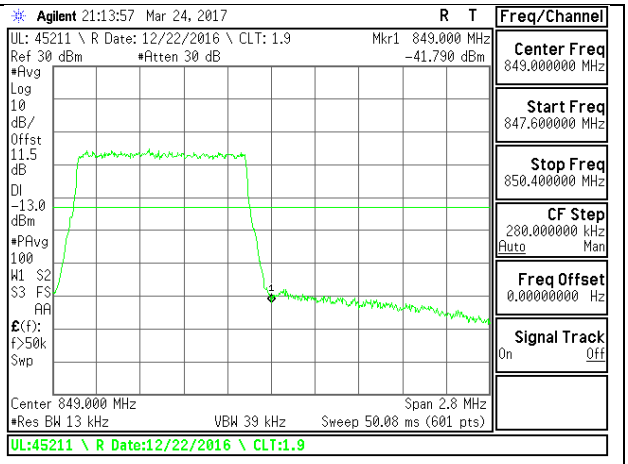
LTE B5 1.4MHz 16QAM Low Channel 1RB



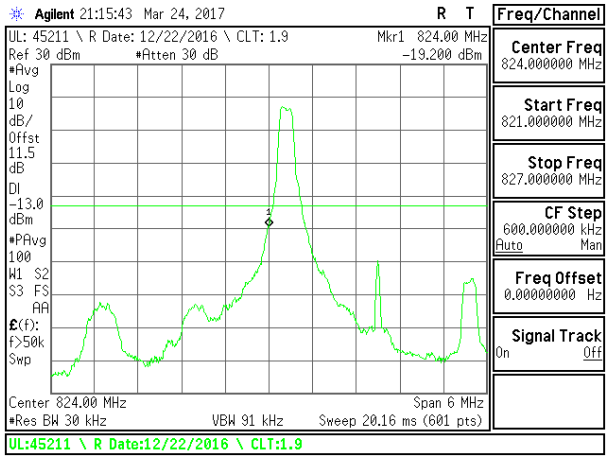
LTE B5 1.4MHz 16QAM High Channel 1RB



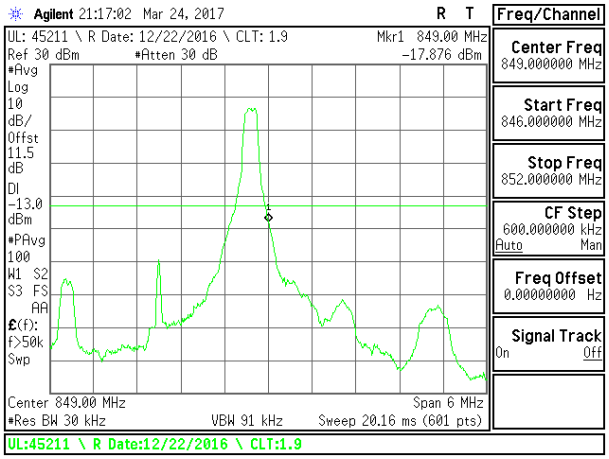
LTE B5 1.4MHz 16QAM Low Channel FRB



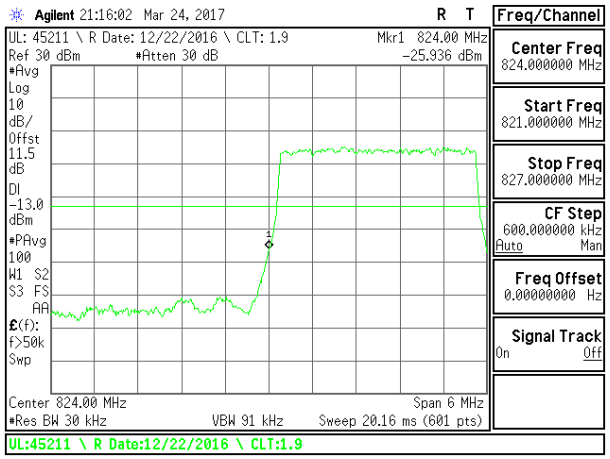
LTE B5 1.4MHz 16QAM High Channel FRB



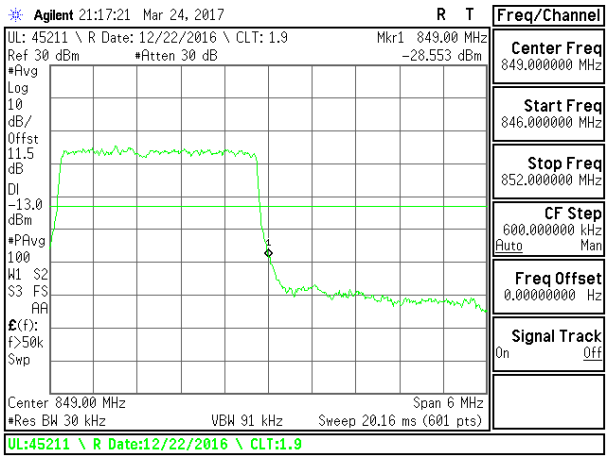
LTE B5 3MHz QPSK Low Channel 1RB



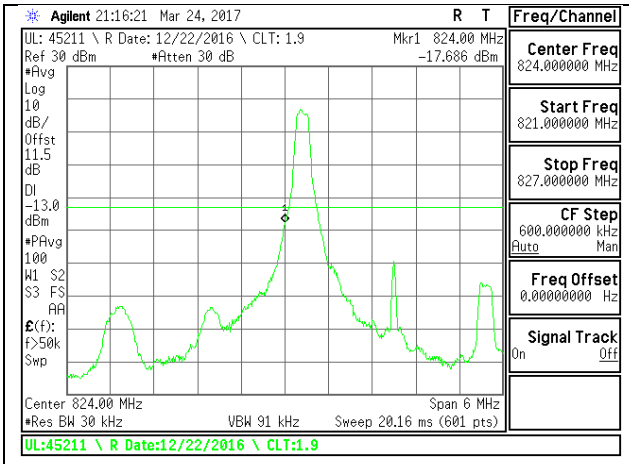
LTE B5 3MHz QPSK High Channel 1RB



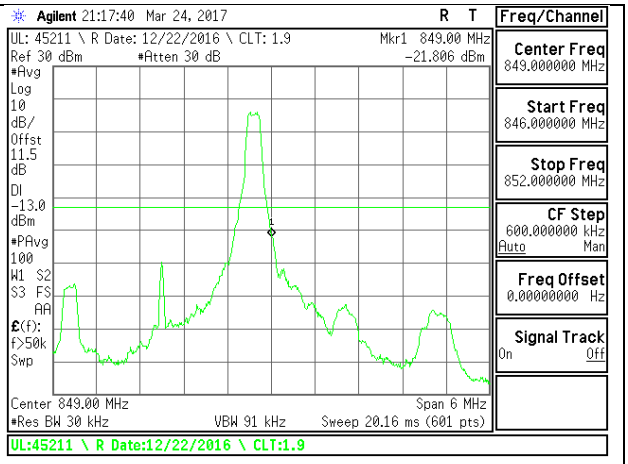
LTE B5 3MHz QPSK Low Channel FRB



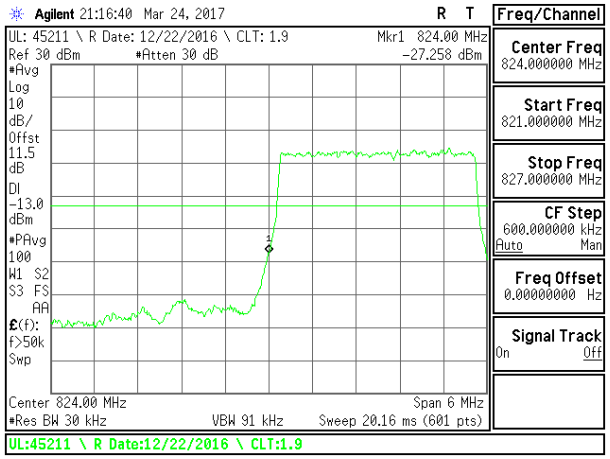
LTE B5 3MHz QPSK High Channel FRB



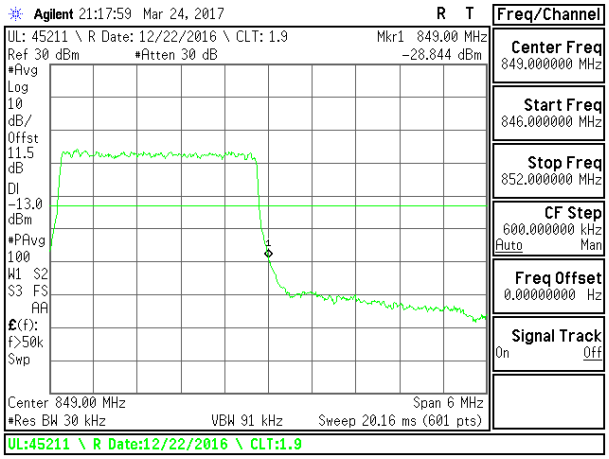
LTE B5 3MHz 16QAM Low Channel 1RB



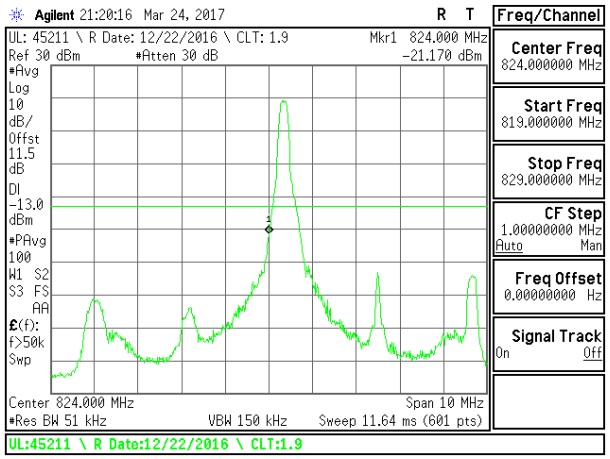
LTE B5 3MHz 16QAM High Channel 1RB



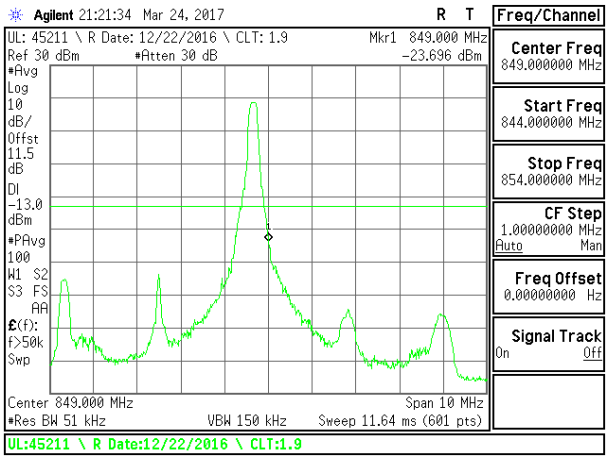
LTE B5 3MHz 16QAM Low Channel FRB



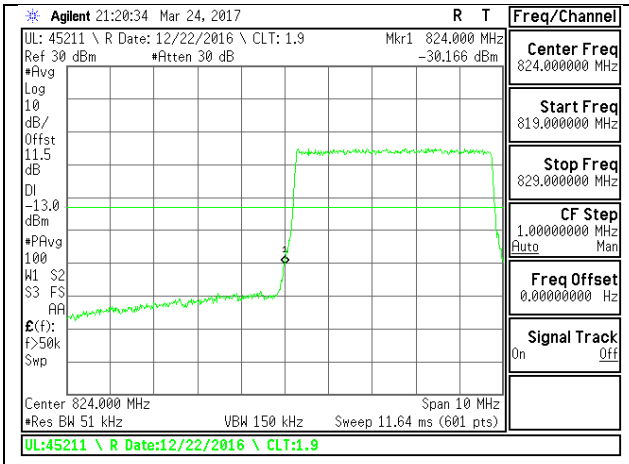
LTE B5 3MHz 16QAM High Channel FRB



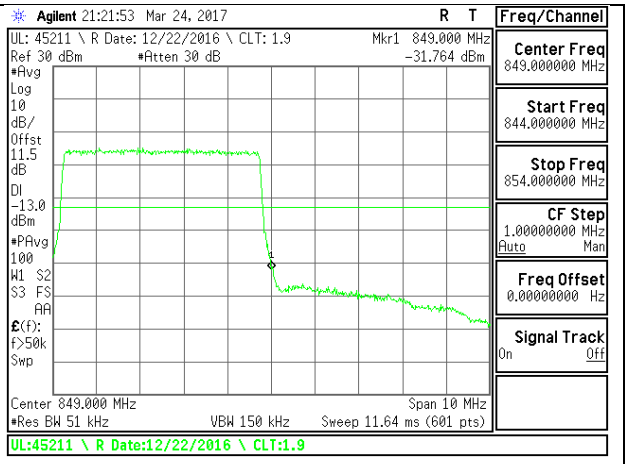
LTE B5 5MHz QPSK Low Channel 1RB



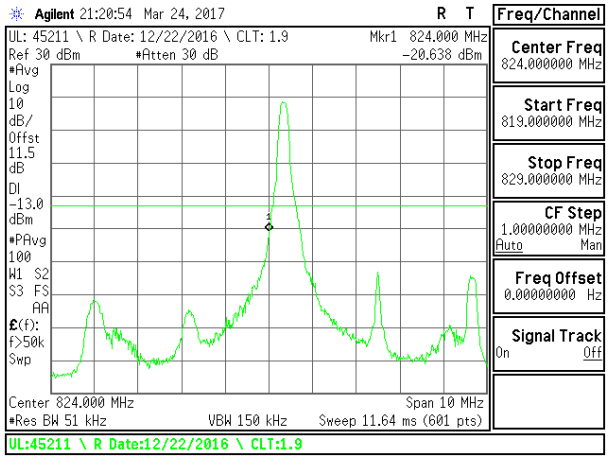
LTE B5 5MHz QPSK High Channel 1RB



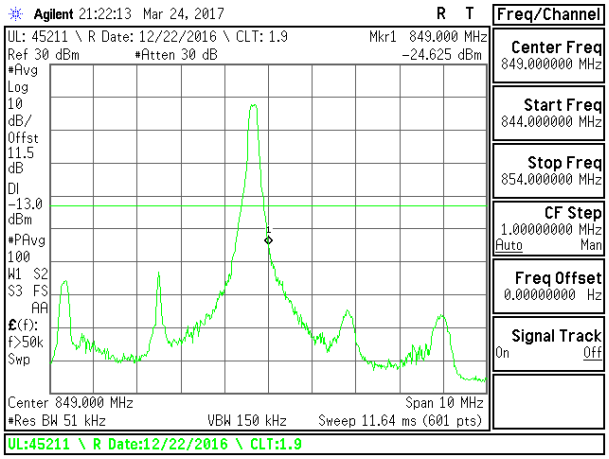
LTE B5 5MHz QPSK Low Channel FRB



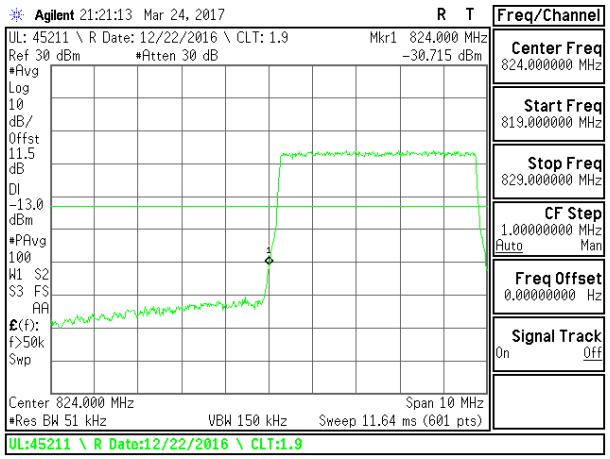
LTE B5 5MHz QPSK High Channel FRB



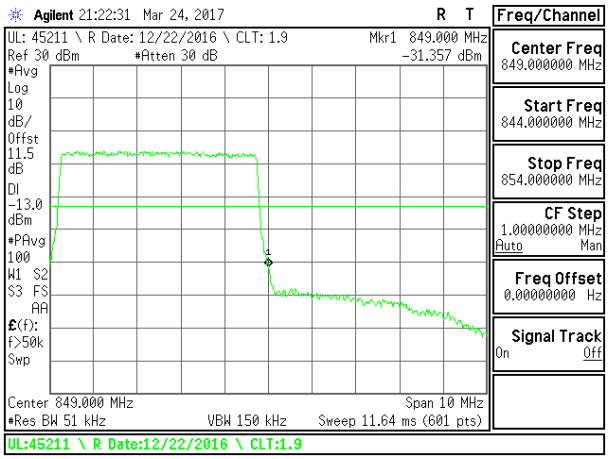
LTE B5 5MHz 16QAM Low Channel 1RB



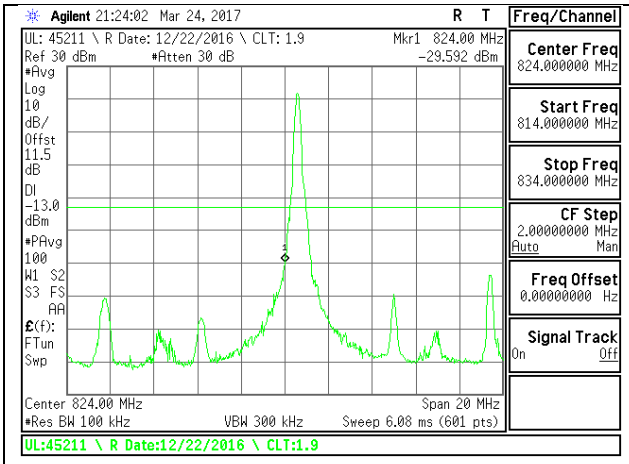
LTE B5 5MHz 16QAM High Channel 1RB



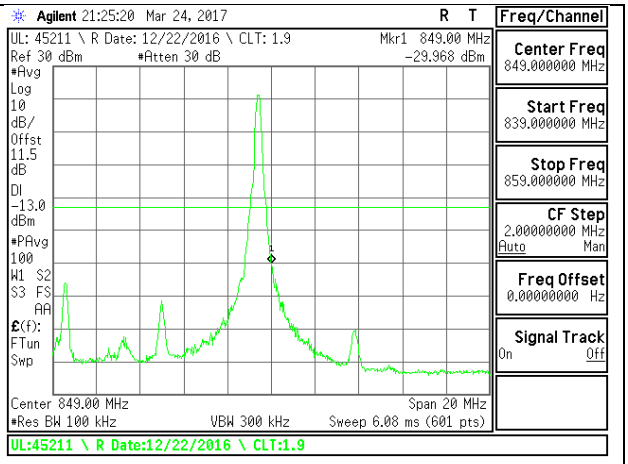
LTE B5 5MHz 16QAM Low Channel FRB



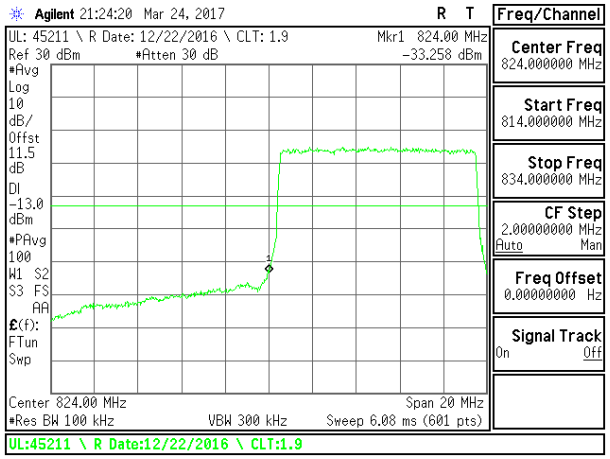
LTE B5 5MHz 16QAM High Channel FRB



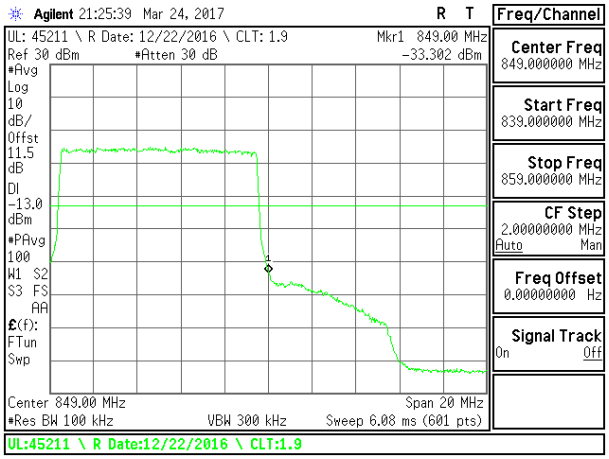
LTE B5 10MHz QPSK Low Channel 1RB



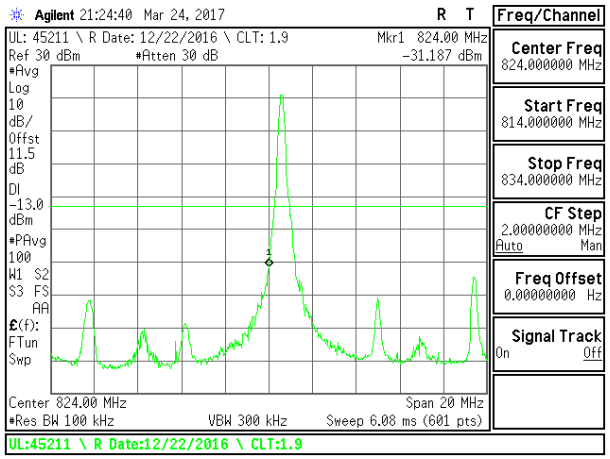
LTE B5 10MHz QPSK High Channel 1RB



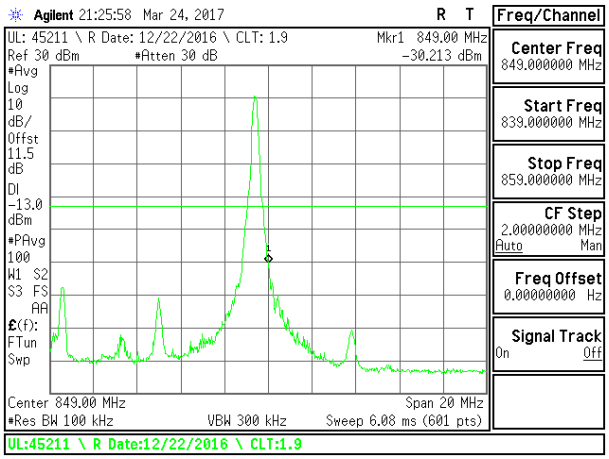
LTE B5 10MHz QPSK Low Channel FRB



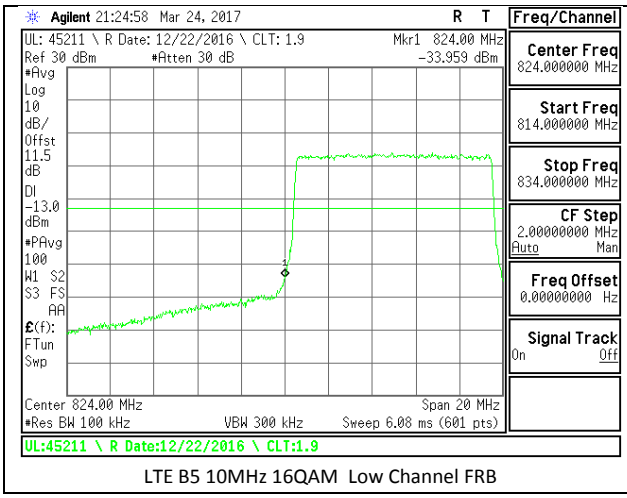
LTE B5 10MHz QPSK High Channel FRB



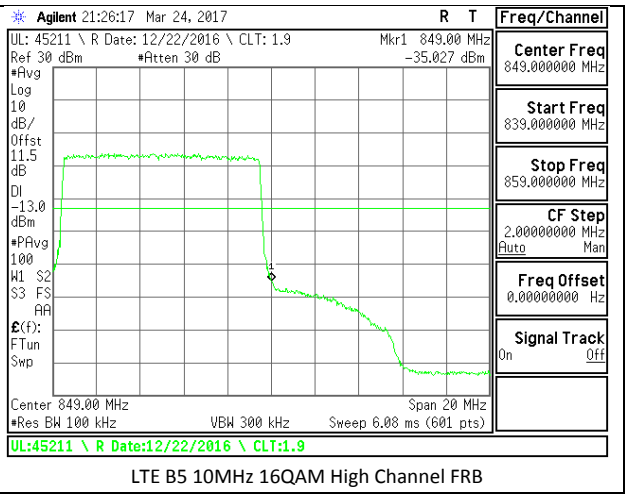
LTE B5 10MHz 16QAM Low Channel 1RB



LTE B5 10MHz 16QAM High Channel 1RB

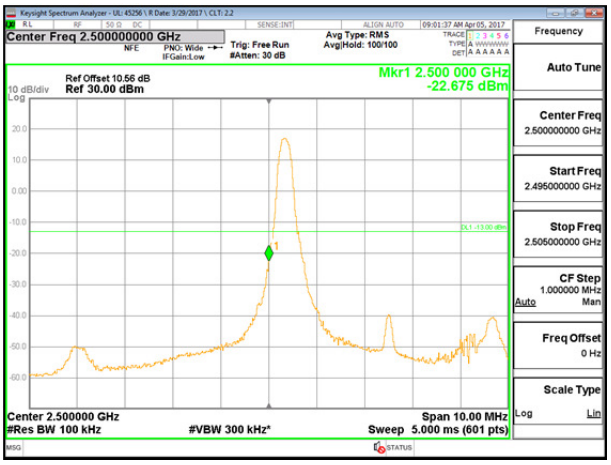


LTE B5 10MHz 16QAM Low Channel FRB

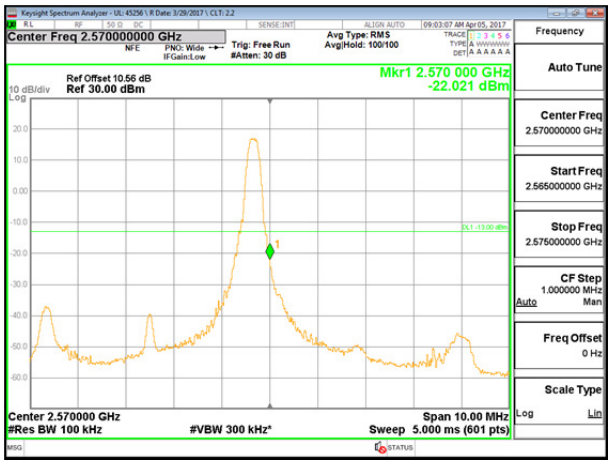


LTE B5 10MHz 16QAM High Channel FRB

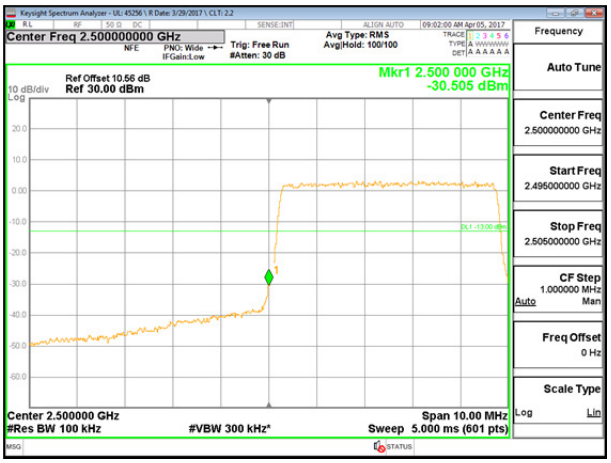
LTE Band 7



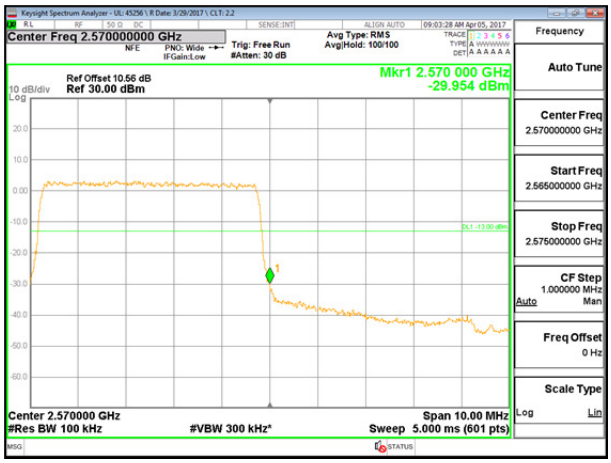
LTE B7 5MHz QPSK Low Channel 1RB



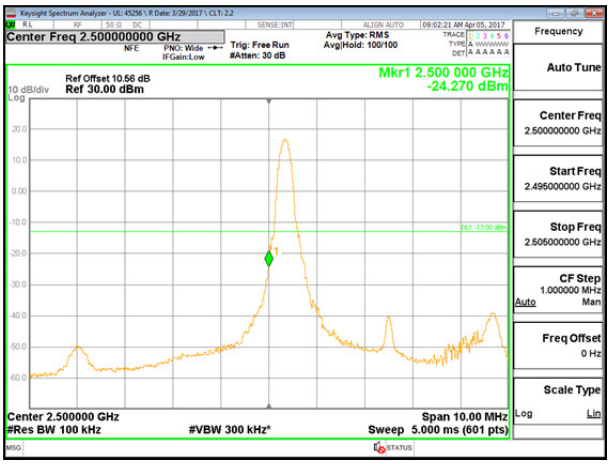
LTE B7 5MHz QPSK High Channel 1RB



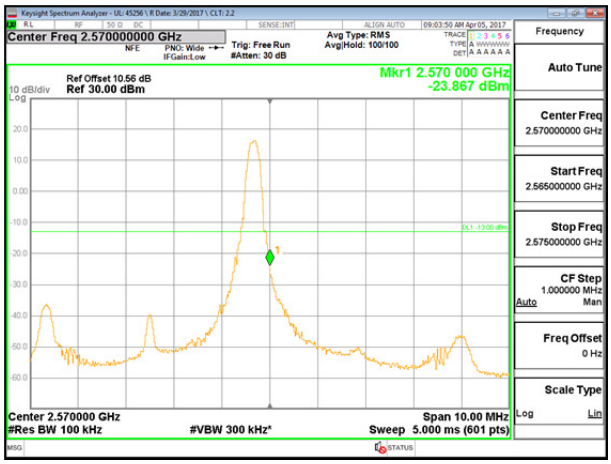
LTE B7 5MHz QPSK Low Channel FRB



LTE B7 5MHz QPSK High Channel FRB



LTE B7 5MHz 16QAM Low Channel 1RB



LTE B7 5MHz 16QAM High Channel 1RB