



# **CERTIFICATION TEST REPORT**

**Report Number. :** 11626381M-E1V2

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

**FCC ID :** PY7-66475M

**EUT Description :** GSM/WCDMA/LTE Phone with BT,DTS/UNII a/b/g/n/ac, GPS & NFC

**Test Standard(s) :** FCC CFR47 PART 27 SUBPART M

**Date Of Issue:**

May 18, 2017

**Prepared by:**

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NVLAP LAB CODE 200065-0

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**Revision History**

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	04/13/17	Initial Issue	C. Vergonio
V2	05/18/17	Updated FCC ID in Cover page. Updated EUT Description in Section 5.1. Updated C2PC statement in Section 5.2.	C. Vergonio

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SONY MOBILE COMMUNICATIONS, INC.  
4-12-3 HIGASHI-SHINAGAWA,  
SHINAGAWA –KU, TOKYO, 140-0002, JAPAN

**EUT DESCRIPTION:** GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC

**SERIAL NUMBER:** CB512DRH6B,CB512DRH8W, CB512DJPE6, CB512DJQEX

**DATE TESTED:** March 22-April 12, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 27M	PASS

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

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

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## 2. TEST METHODOLOGY

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

## 3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street
<input type="checkbox"/> Chamber A(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 22541-1)
<input checked="" type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 22541-2)
<input checked="" type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 22541-3)
	<input type="checkbox"/> Chamber G(IC: 22541-4)
	<input type="checkbox"/> 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:

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

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

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

### 4.3. MEASUREMENT UNCERTAINTY

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

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

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

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

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

### 5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The purpose of this C2PC: Changed the LTE band 7, LTE Band 38 and LTE Band 41 antenna matching circuit.

**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.

## 6. MAXIMUM OUTPUT POWER

### 6.1. MAXIMUM OUTPUT POWER (LTE)

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

#### 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	28.04	636.80
			16QAM	20.5	112.20	28.00	630.96
		10MHz	QPSK	21.1	128.82	27.56	570.16
			16QAM	20.3	107.15	27.71	590.20
		15MHz	QPSK	21.2	131.83	26.78	476.43
			16QAM	20.4	109.65	27.31	538.27
		20MHz	QPSK	21.2	131.83	26.61	458.14
			16QAM	20.5	112.20	26.67	464.52

#### 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	22.4	173.78	28.55	716.14
			16QAM	21.2	131.83	28.83	763.84
		10MHz	QPSK	22.5	177.83	28.02	633.87
			16QAM	21.3	134.90	28.04	636.80
		15MHz	QPSK	22.5	177.83	27.03	504.66
			16QAM	21.4	138.04	27.21	526.02
		20MHz	QPSK	21.9	154.88	29.42	874.98
			16QAM	20.6	114.82	27.40	549.54

## 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)
LTE Band 7, 2500~2570MHz	-1.3
LTE Band 41, 2496~2690MHz	-0.4

## 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

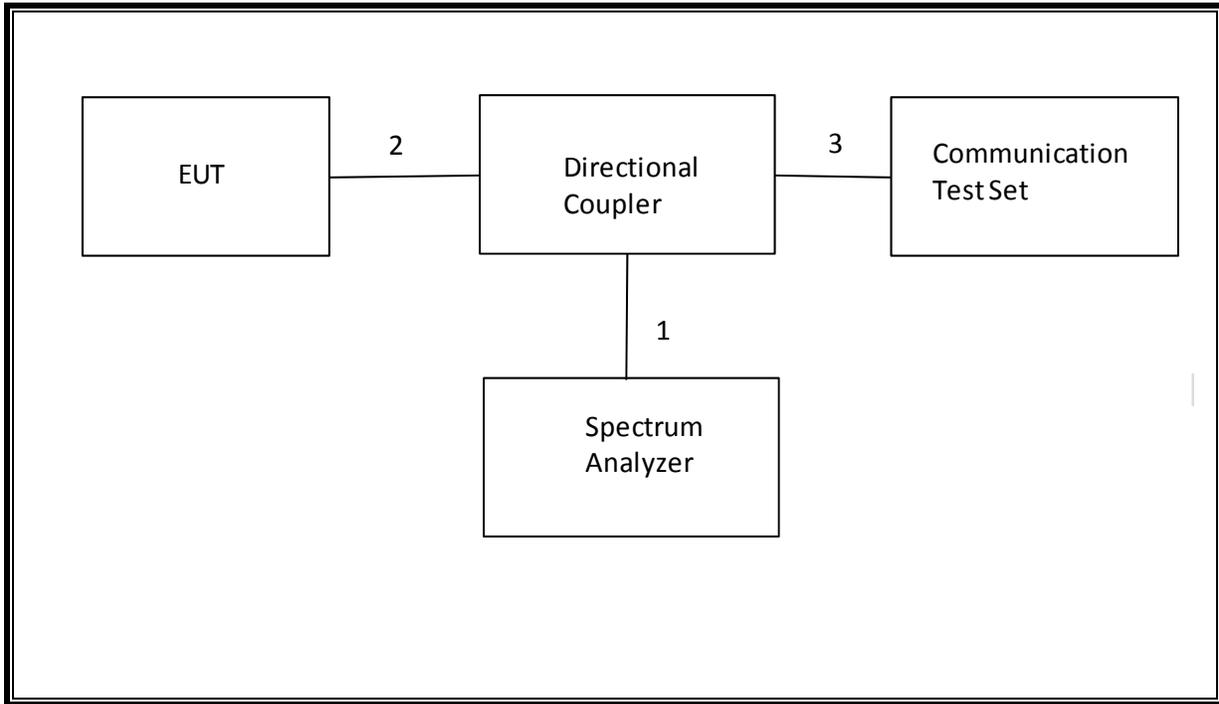
### I/O CABLES (RADIATED SETUP)

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

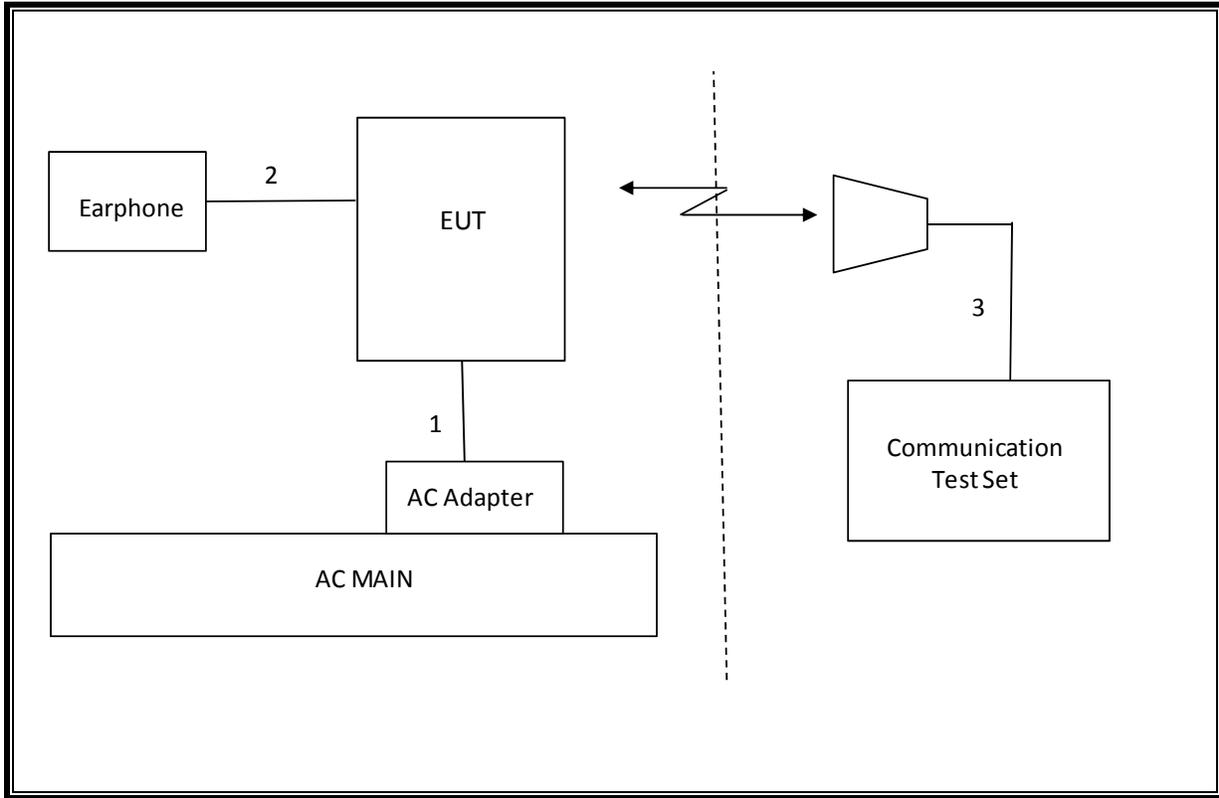
### TEST SETUP

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, 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
27.53(g)	Band Edge / Conducted Spurious Emission	-13dBm		Pass
27.53(m)		-25dBm		Pass
2.1046	Conducted output power	N/A		Pass
27.53(m)	Emission Mask	Please refer to limit under section 14		Pass
27.54	Frequency Stability	2.5PPM		Pass
27.50(h)(2)	Equivalent Isotropic Radiated Power	33dBm		Pass
27.53(m)	Radiated Spurious Emission	-25dBm		Pass

## 11. RF POWER OUTPUT VERIFICATION

### 11.1. 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.

Tested By	AJ Newcomer/ Coltyce Sanders
Date	3/22/2017- 3/24/2017

**LTE Band 7**

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20850	21100	21350
						2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	21.0	21.2	21.0
			1	49	0	20.7	20.8	20.9
			1	99	0	20.5	20.6	21.1
			50	0	1	19.9	20.0	20.1
			50	24	1	19.8	19.9	20.1
			50	50	1	19.6	19.7	20.1
			100	0	1	19.7	19.8	20.1
		16QAM	1	0	1	20.4	20.5	20.4
			1	49	1	20.2	20.1	20.4
			1	99	1	20.0	19.8	20.5
			50	0	2	18.9	19.0	19.0
			50	24	2	18.8	18.9	19.1
			50	50	2	18.6	18.7	19.1
			100	0	2	18.8	18.8	19.1
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20825	21100	21375
						2507.5 MHz	2535 MHz	2562.5 MHz
LTE Band 7	15	QPSK	1	0	0	21.0	21.0	21.1
			1	37	0	20.8	20.7	21.0
			1	74	0	20.7	20.5	21.2
			36	0	1	20.0	19.9	20.1
			36	20	1	20.0	19.8	20.1
			36	39	1	19.9	19.7	20.1
			75	0	1	19.9	19.8	20.1
		16QAM	1	0	1	19.9	20.4	20.4
			1	37	1	19.7	20.0	20.4
			1	74	1	19.6	19.9	20.5
			36	0	2	19.0	19.0	19.0
			36	20	2	19.0	18.8	19.1
			36	39	2	18.9	18.7	19.1
			75	0	2	18.9	18.8	19.1

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20800	21100	21400
						2505 MHz	2535 MHz	2565 MHz
LTE Band 7	10	QPSK	1	0	0	20.8	20.9	21.0
			1	25	0	20.7	20.8	21.0
			1	49	0	20.7	20.6	21.1
			25	0	1	19.9	19.9	20.1
			25	12	1	19.9	19.9	20.2
			25	25	1	19.8	19.8	20.2
		16QAM	50	0	1	19.9	19.8	20.2
			1	0	1	19.8	20.3	20.1
			1	25	1	19.7	20.1	20.1
			1	49	1	19.6	20.0	20.2
			25	0	2	18.9	18.9	19.2
			25	12	2	18.9	18.9	19.3
			25	25	2	18.9	18.8	19.2
			50	0	2	18.9	18.8	19.2
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20775	21100	21425
						2502.5 MHz	2535 MHz	2567.5 MHz
LTE Band 7	5	QPSK	1	0	0	21.1	20.8	21.0
			1	12	0	21.1	20.7	21.1
			1	24	0	21.1	20.6	21.1
			12	0	1	20.1	19.9	20.2
			12	7	1	20.1	19.8	20.2
			12	13	1	20.1	19.8	20.2
		16QAM	25	0	1	20.1	19.8	20.2
			1	0	1	20.5	19.9	20.3
			1	12	1	20.5	19.8	20.4
			1	24	1	20.5	19.8	20.4
			12	0	2	19.3	18.9	19.3
			12	7	2	19.3	18.9	19.3
			12	13	2	19.3	18.8	19.3
			25	0	2	19.2	18.8	19.2

**LTE Band 41**

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)				
						39750	40185	40620	41055	41490
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	21.8	21.9	21.8	21.7	21.6
			1	49	0	21.6	21.7	21.5	21.5	21.3
			1	99	0	21.5	21.6	21.4	21.4	21.2
			50	0	1	20.7	20.7	20.6	20.6	20.4
			50	24	1	20.6	20.7	20.5	20.6	20.4
			50	50	1	20.6	20.6	20.5	20.5	20.3
			100	0	1	20.6	20.7	20.5	20.6	20.4
		16QAM	1	0	1	20.6	20.6	20.4	20.4	20.5
			1	49	1	20.3	20.4	20.1	20.2	20.2
			1	99	1	20.2	20.3	20.0	20.1	20.1
			50	0	2	19.7	19.7	19.6	19.6	19.5
			50	24	2	19.6	19.6	19.5	19.6	19.4
			50	50	2	19.5	19.6	19.5	19.5	19.3
			100	0	2	19.6	19.7	19.6	19.6	19.4
LTE Band 41	15	QPSK	1	0	0	22.5	22.5	22.5	22.4	22.3
			1	37	0	22.2	22.4	22.2	22.3	22.1
			1	74	0	22.2	22.3	22.2	22.2	22.0
			36	0	1	21.5	21.5	21.3	21.3	21.1
			36	20	1	21.4	21.4	21.3	21.3	21.1
			36	39	1	21.4	21.4	21.2	21.3	21.0
			75	0	1	21.4	21.4	21.3	21.3	21.0
		16QAM	1	0	1	21.4	21.3	21.2	21.2	21.0
			1	37	1	21.1	21.1	21.0	21.0	20.8
			1	74	1	21.1	21.0	20.9	21.0	20.7
			36	0	2	20.5	20.4	20.3	20.3	20.1
			36	20	2	20.4	20.4	20.3	20.3	20.1
			36	39	2	20.3	20.3	20.2	20.2	20.0
			75	0	2	20.4	20.4	20.3	20.3	20.1

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)				
						39750	40185	40620	41055	41490
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	10	QPSK	1	0	0	22.4	22.5	22.4	22.1	22.1
			1	25	0	22.3	22.4	22.3	22.1	22.0
			1	49	0	22.2	22.4	22.2	22.0	21.9
			25	0	1	21.4	21.5	21.3	21.1	21.1
			25	12	1	21.4	21.5	21.3	21.1	21.1
			25	25	1	21.4	21.4	21.3	21.1	21.0
			50	0	1	21.4	21.4	21.3	21.1	21.1
		16QAM	1	0	1	21.2	21.3	21.1	21.1	20.9
			1	25	1	21.1	21.2	21.0	21.0	20.8
			1	49	1	21.0	21.1	20.9	21.0	20.7
			25	0	2	20.4	20.5	20.3	20.2	20.1
			25	12	2	20.4	20.4	20.3	20.1	20.1
			25	25	2	20.3	20.4	20.2	20.1	20.0
			50	0	2	20.4	20.4	20.3	20.1	20.1
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)				
						39750	40185	40620	41055	41490
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	5	QPSK	1	0	0	22.4	22.4	22.3	22.1	22.1
			1	12	0	22.4	22.4	22.3	22.0	22.1
			1	24	0	22.3	22.4	22.2	22.0	22.0
			12	0	1	21.4	21.5	21.3	21.1	21.1
			12	7	1	21.4	21.4	21.3	21.1	21.1
			12	13	1	21.3	21.4	21.3	21.1	21.0
			25	0	1	21.4	21.4	21.2	21.1	21.1
		16QAM	1	0	1	21.2	21.3	21.1	20.8	20.9
			1	12	1	21.1	21.3	21.0	20.8	20.8
			1	24	1	21.1	21.3	21.0	20.8	20.8
			12	0	2	20.4	20.5	20.2	20.1	20.0
			12	7	2	20.4	20.5	20.3	20.2	20.1
			12	13	2	20.3	20.4	20.2	20.1	20.0
			25	0	2	20.4	20.4	20.3	20.1	20.1

## 12. PEAK TO AVERAGE RATIO

### TEST PROCEDURE

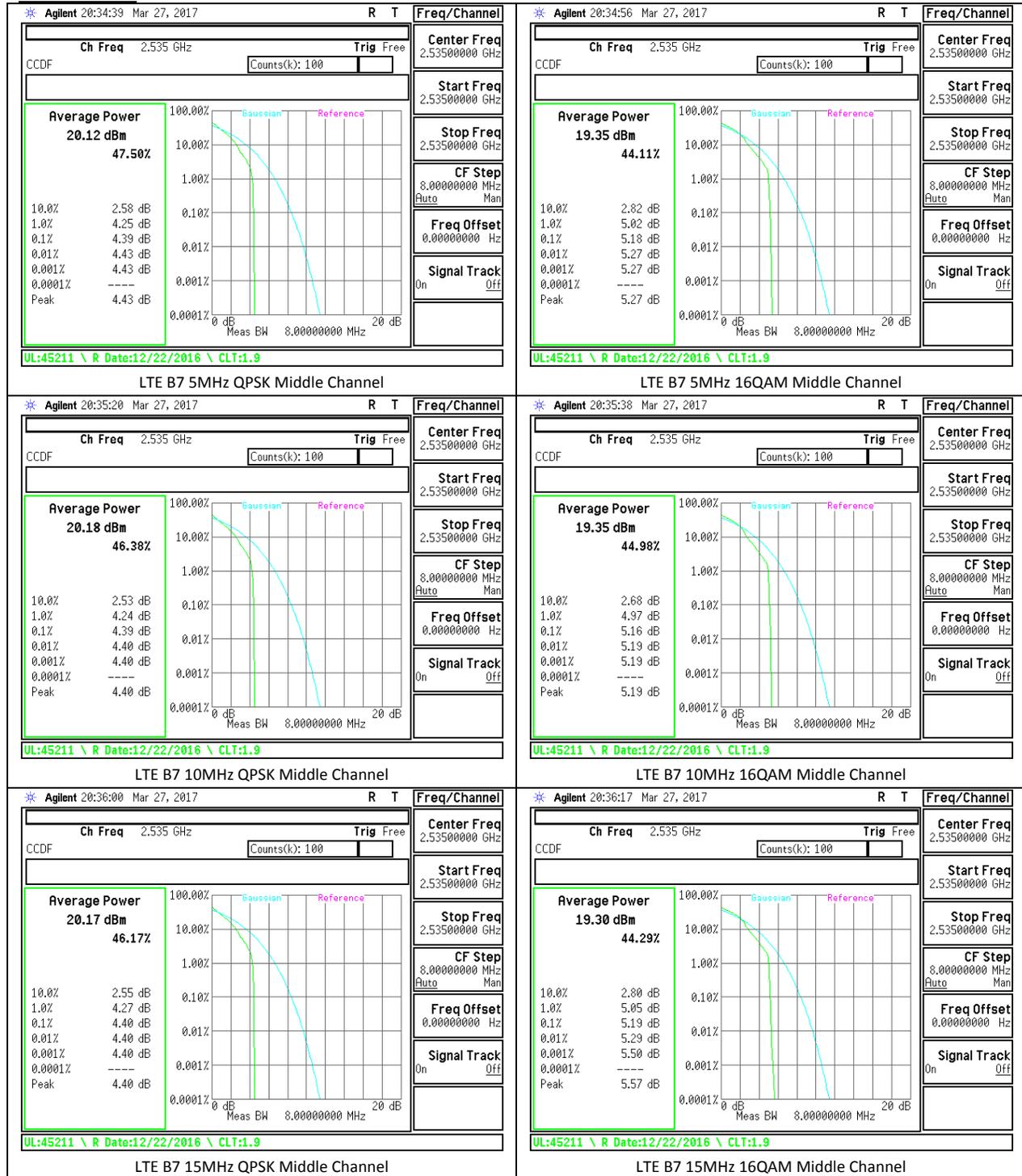
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

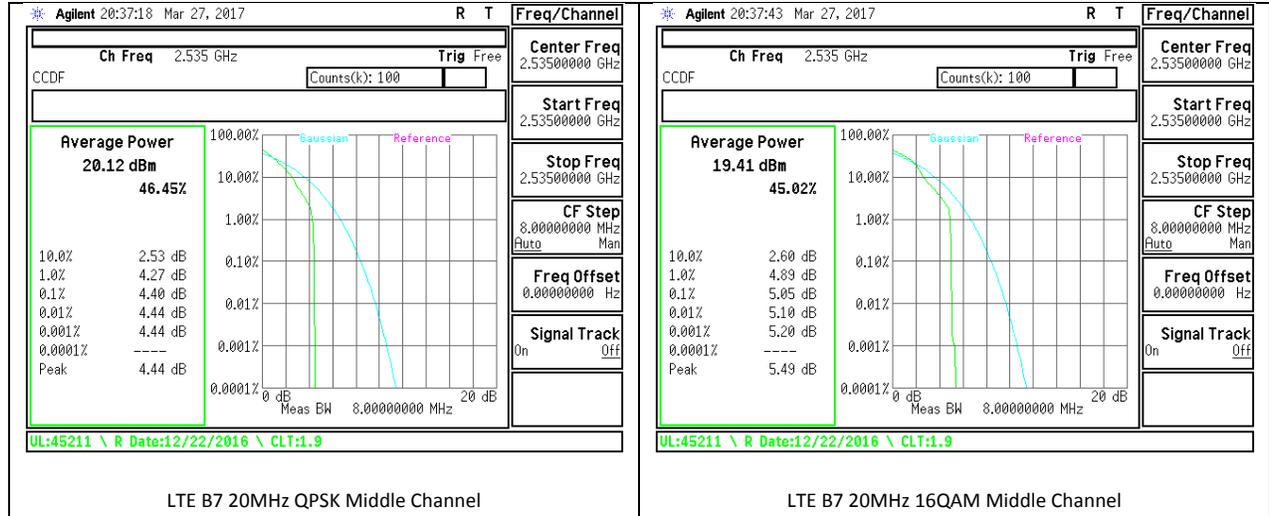
### TEST SPEC

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.

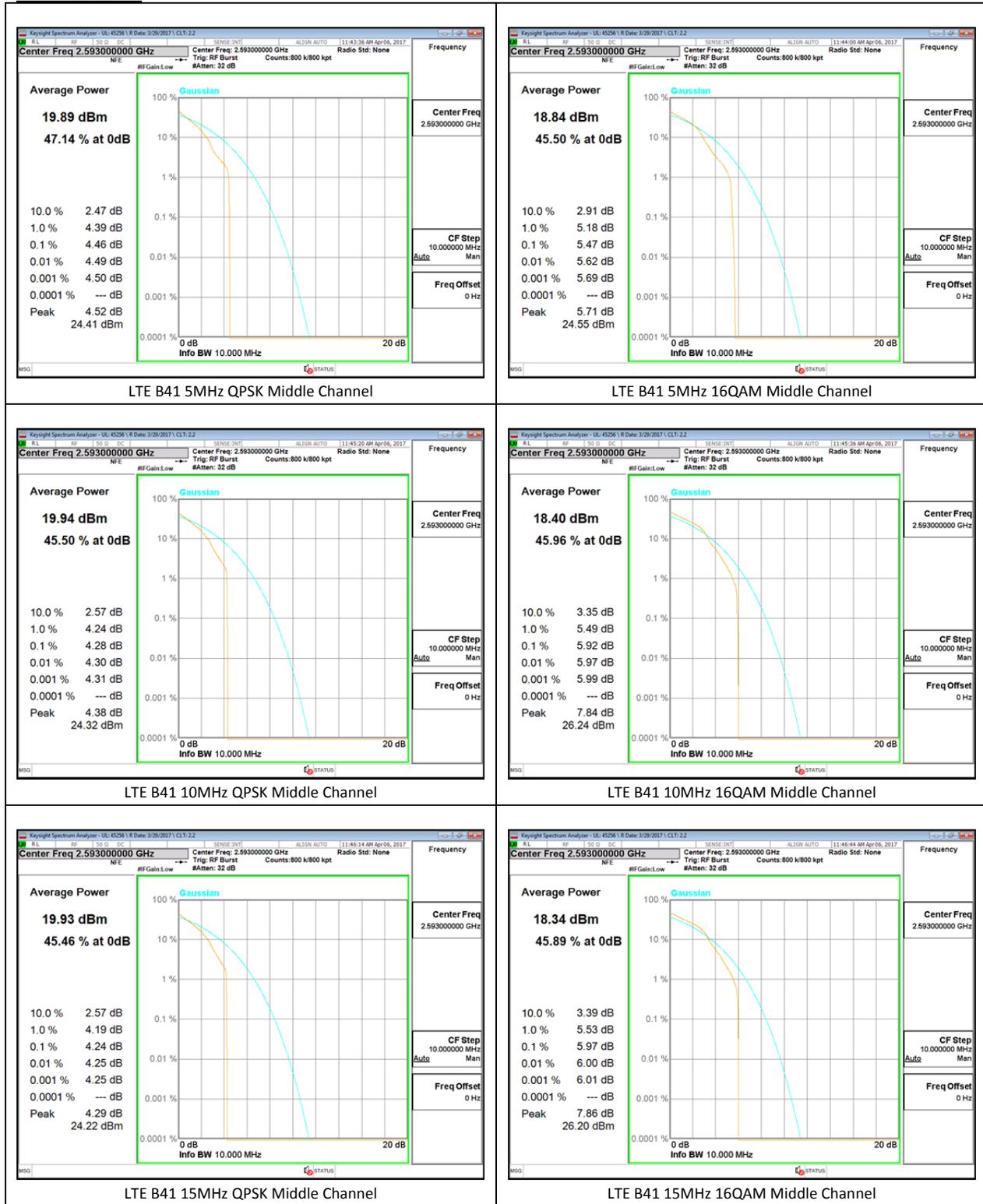
## 12.1. CONDUCTED PEAK TO AVERAGE RESULT

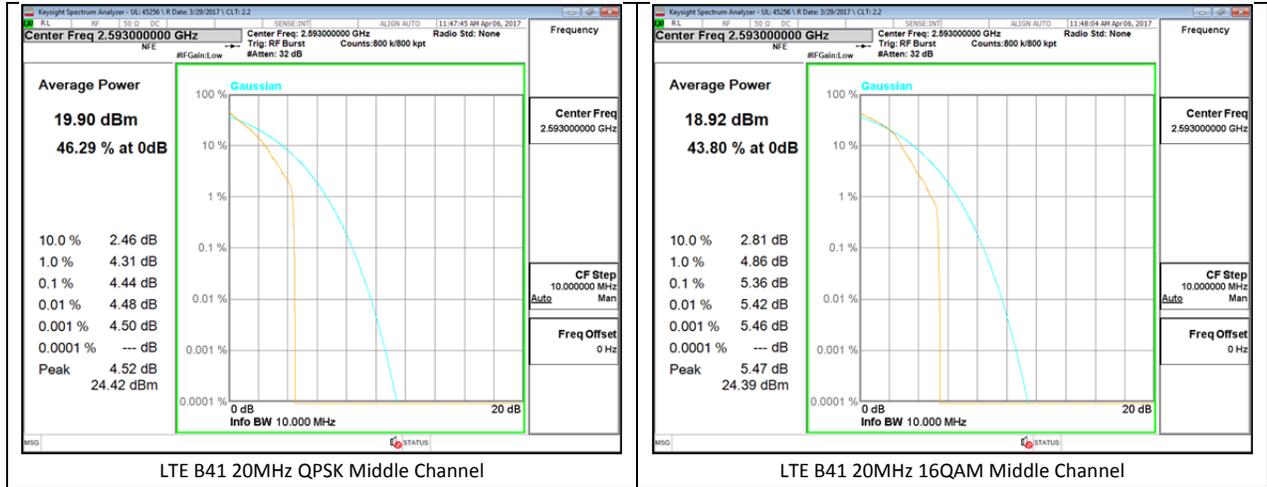
### LTE Band 7





**LTE Band 41**





## 13. OCCUPIED BANDWIDTH

### RULE PART(S)

FCC: §2.1049

### LIMITS

For reporting purposes only

### TEST PROCEDURE

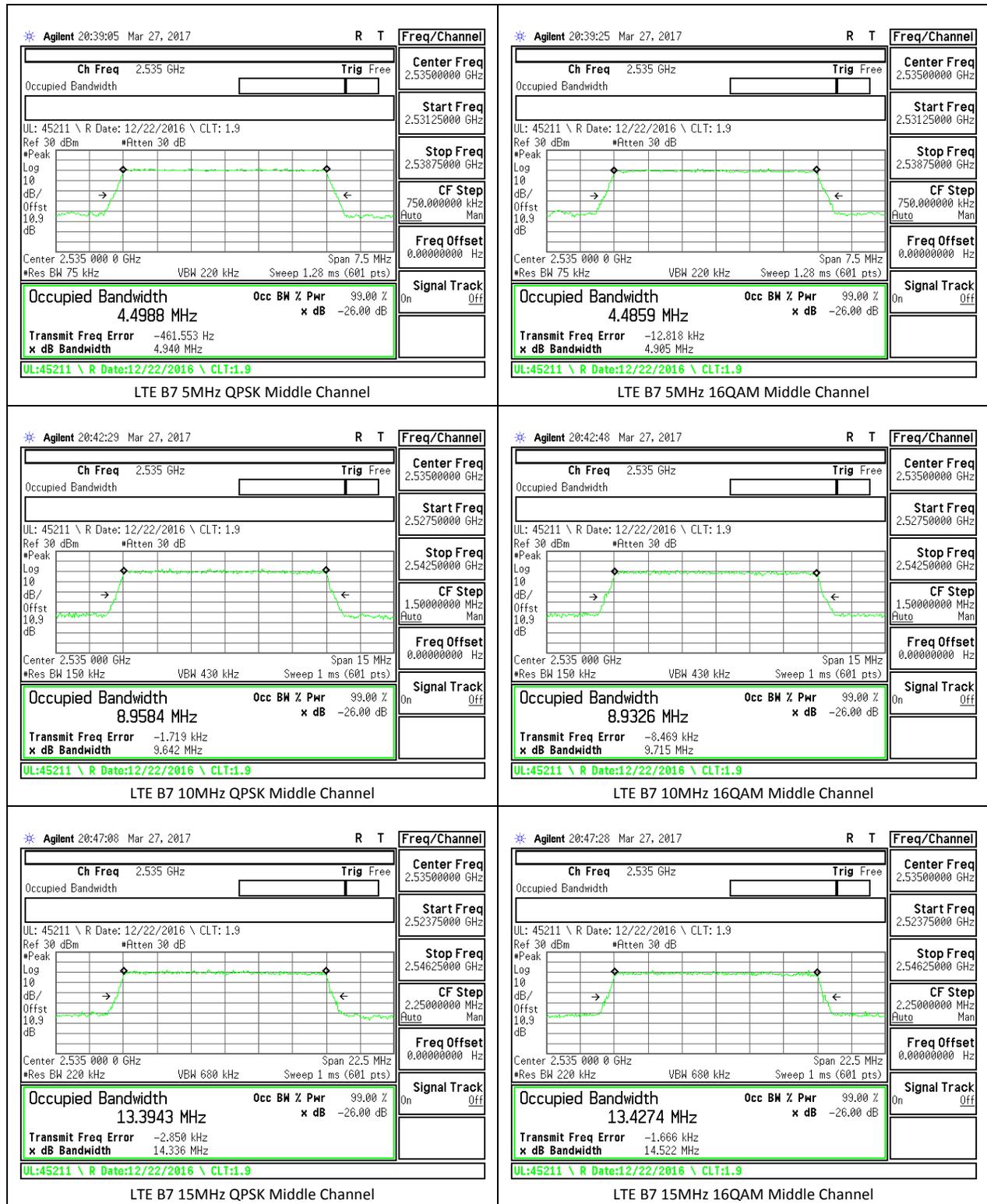
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

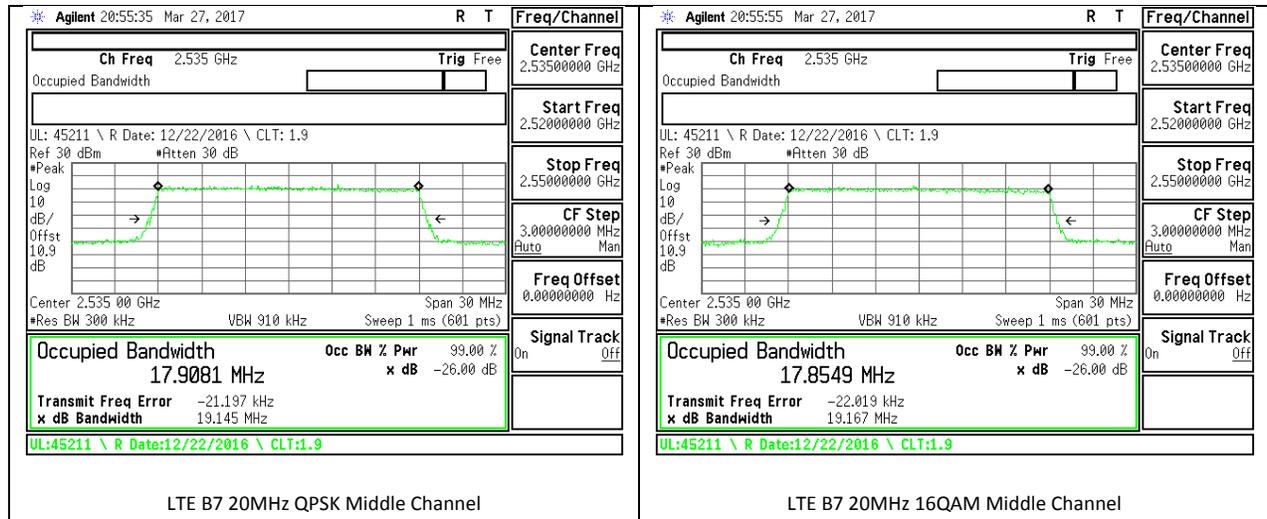
(KDB 971168 D01 Power Meas License Digital Systems v02r02)

### 13.1. OCCUPIED BANDWIDTH RESULTS AND PLOTS

**LTE Band 7**

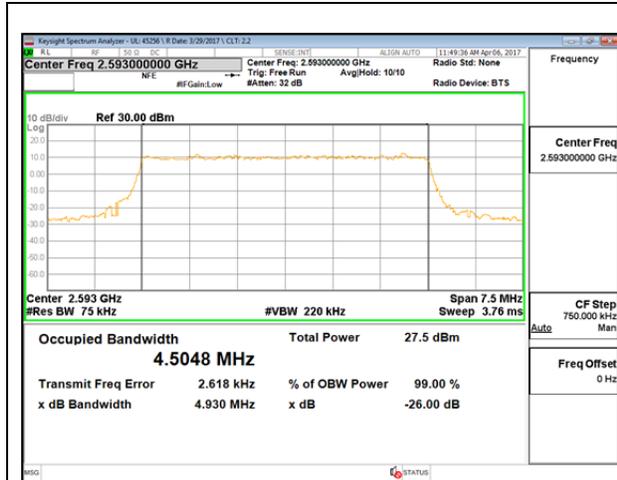
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE7	20	16QAM	100/0	2510	17.92	19.29
			100/0	2535	17.85	19.17
			100/0	2560	17.83	19.03
		QPSK	100/0	2510	17.84	19.21
			100/0	2535	17.91	19.15
			100/0	2560	17.84	19.09
	15	16QAM	75/0	2507.5	13.41	14.43
			75/0	2535	13.43	14.52
			75/0	2562.5	13.4	14.52
		QPSK	75/0	2507.5	13.38	14.35
			75/0	2535	13.39	14.34
			75/0	2562.5	13.39	14.49
	10	16QAM	50/0	2505	8.95	9.66
			50/0	2535	8.93	9.71
			50/0	2565	9	9.66
		QPSK	50/0	2505	8.95	9.72
			50/0	2535	8.96	9.64
			50/0	2565	8.94	9.69
	5	16QAM	25/0	2502.5	4.5	4.92
			25/0	2535	4.49	4.91
			25/0	2567.5	4.51	4.99
		QPSK	25/0	2502.5	4.5	4.93
			25/0	2535	4.5	4.94
			25/0	2567.5	4.51	4.91



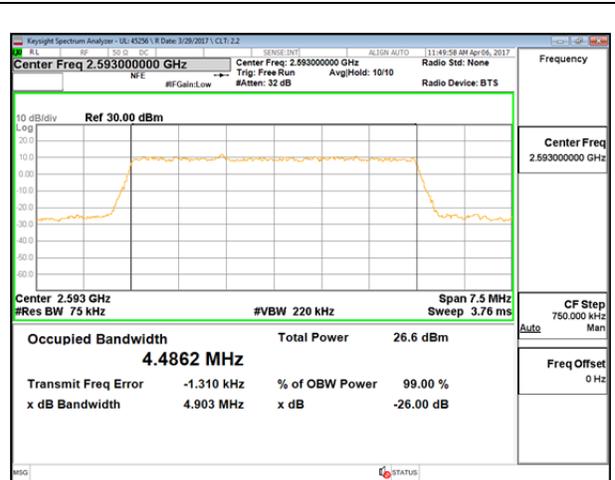


**LTE Band 41**

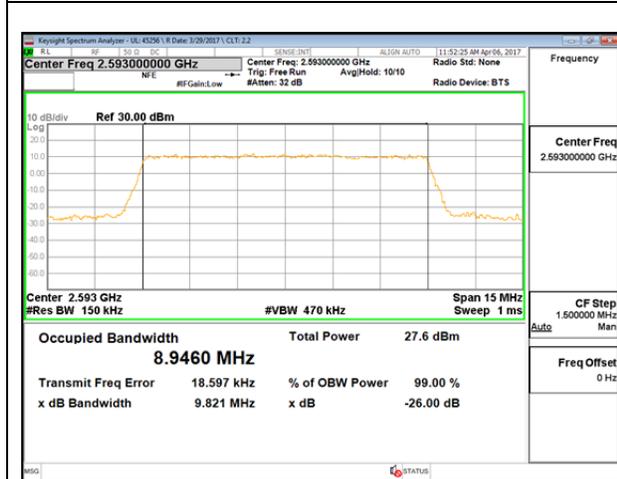
Band	BW(MHz)	Mode	RB/RB Size	f (MHz)	99% BW (MHz)	-26dB BW
LTE41	20	16QAM	100/0	2506	17.9	19.21
			100/0	2593	17.88	19.27
			100/0	2680	17.86	19.21
		QPSK	100/0	2506	17.88	19.28
			100/0	2593	17.88	19.16
			100/0	2680	17.89	19.24
	15	16QAM	75/0	2503.5	13.41	14.52
			75/0	2593	13.43	14.46
			75/0	2682.5	13.44	14.59
		QPSK	75/0	2503.5	13.44	14.6
			75/0	2593	13.43	14.57
			75/0	2682.5	13.44	14.52
	10	16QAM	50/0	2501	9	9.72
			50/0	2593	8.97	9.74
			50/0	2685	8.96	9.71
		QPSK	50/0	2501	8.97	9.82
			50/0	2593	8.95	9.82
			50/0	2685	8.96	9.75
	5	16QAM	25/0	2498.5	4.49	4.93
			25/0	2593	4.49	4.9
			25/0	2687.5	4.49	4.98
		QPSK	25/0	2498.5	4.49	4.91
			25/0	2593	4.5	4.93
			25/0	2687.5	4.5	5.09



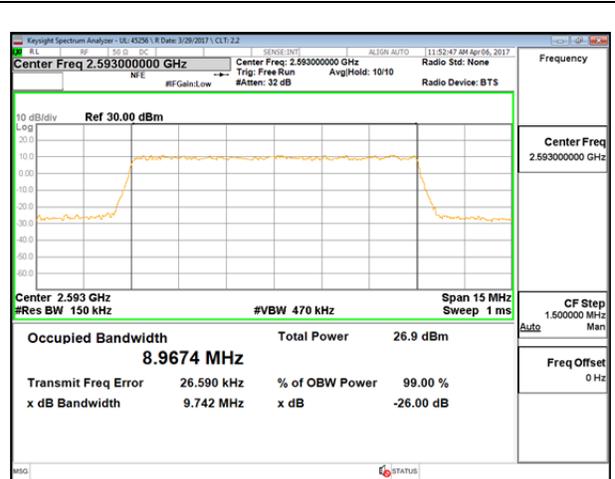
LTE B41 5MHz QPSK Middle Channel



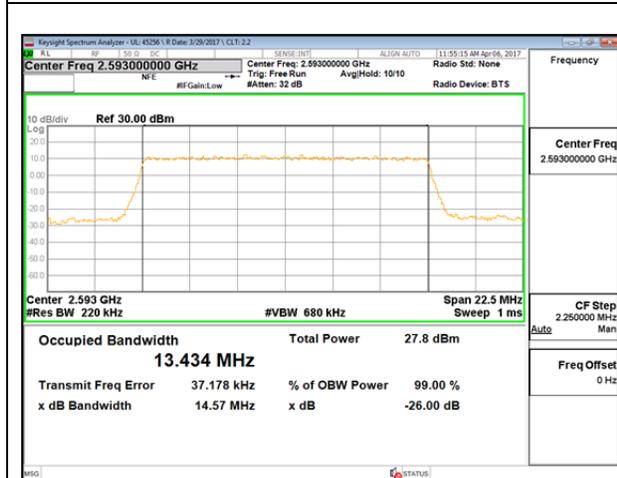
LTE B41 5MHz 16QAM Middle Channel



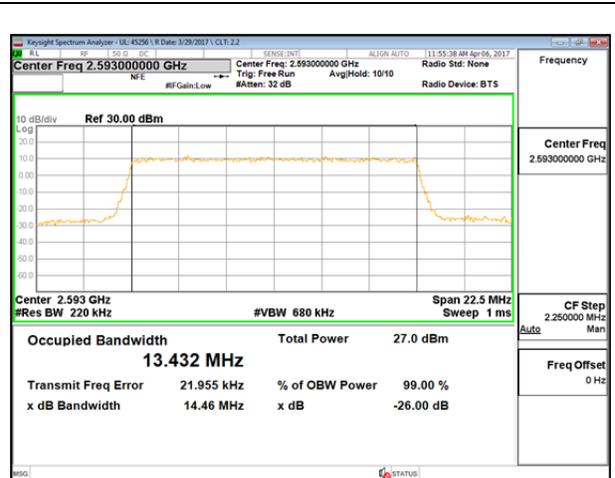
LTE B41 10MHz QPSK Middle Channel



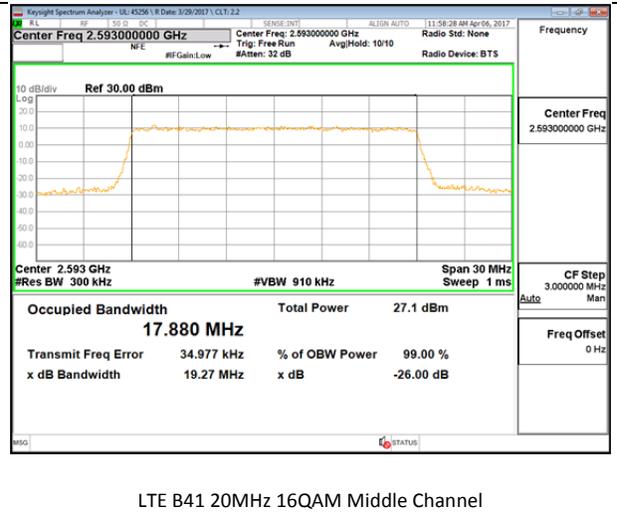
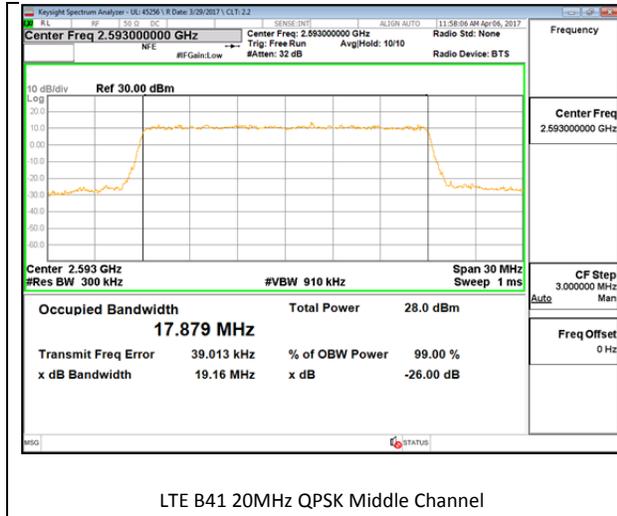
LTE B41 10MHz 16QAM Middle Channel



LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel



## 14. BAND EDGE EMISSIONS

### RULE PART(S)

FCC: §27. 53

### LIMITS

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

Part 27: (m)(4) (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 than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

### TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

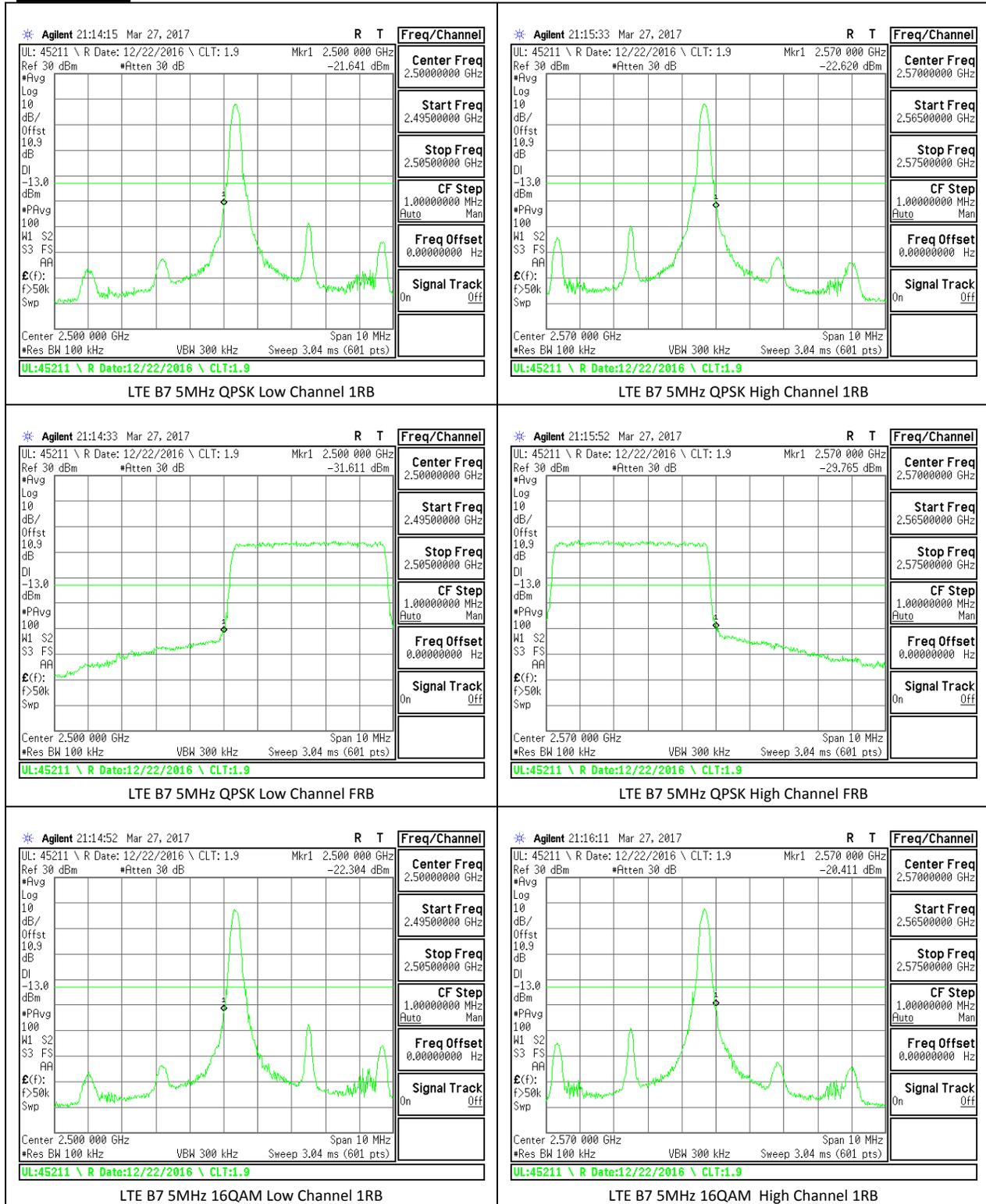
The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

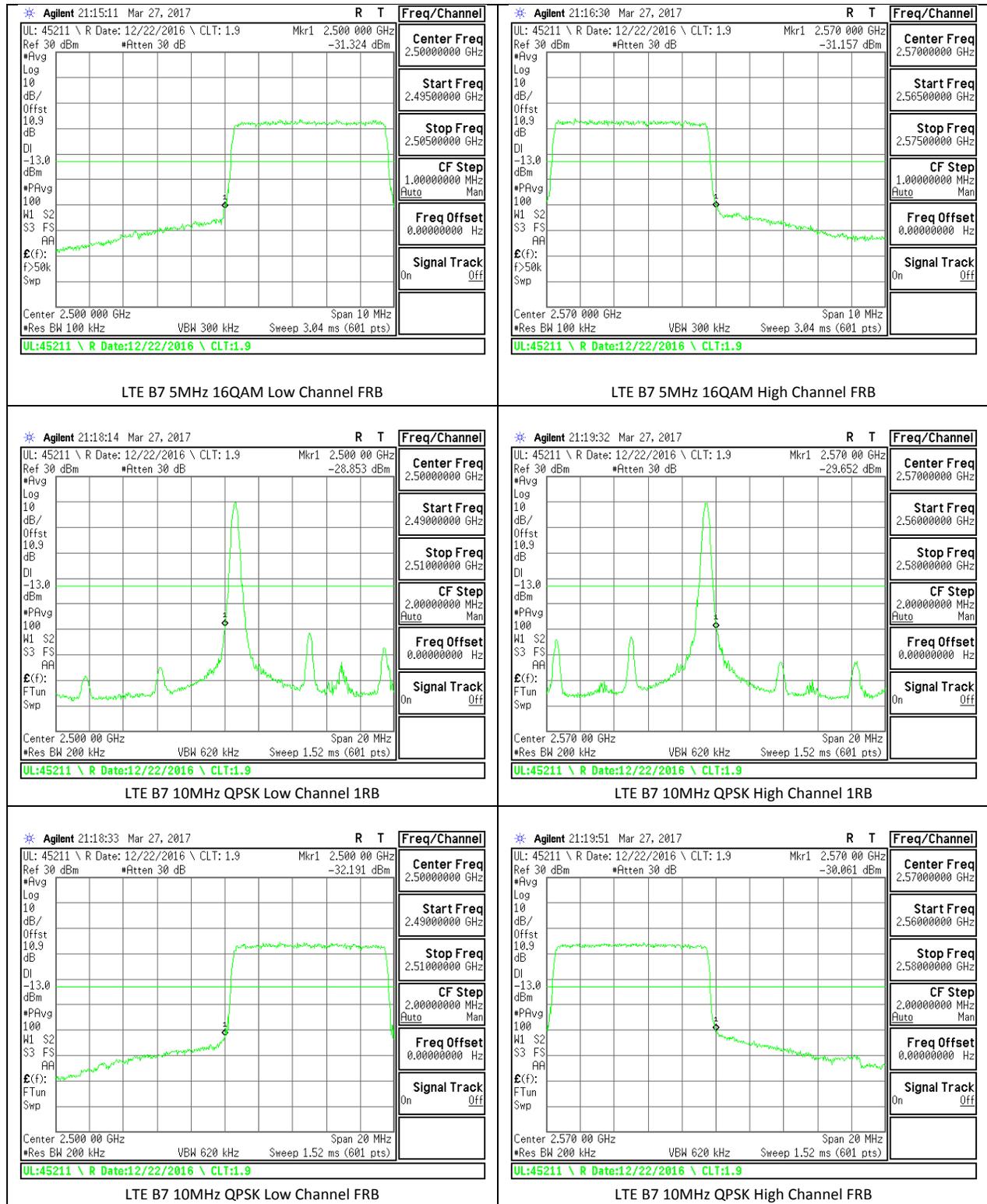
For each band edge measurement:

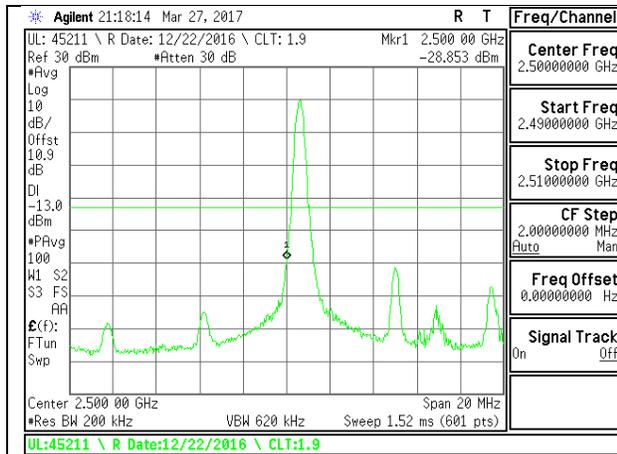
- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

### 14.1. BAND EDGE PLOTS

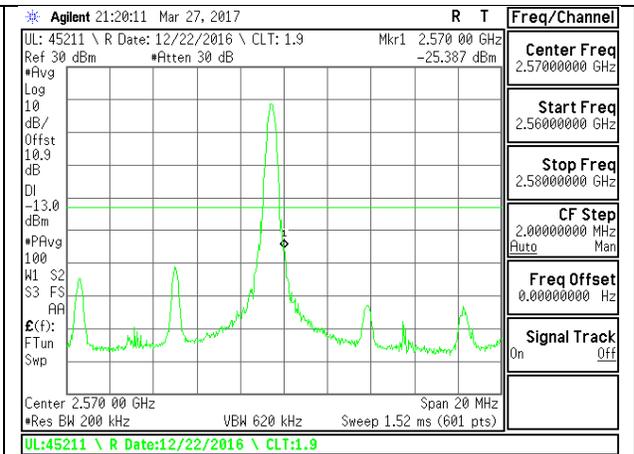
#### LTE Band 7



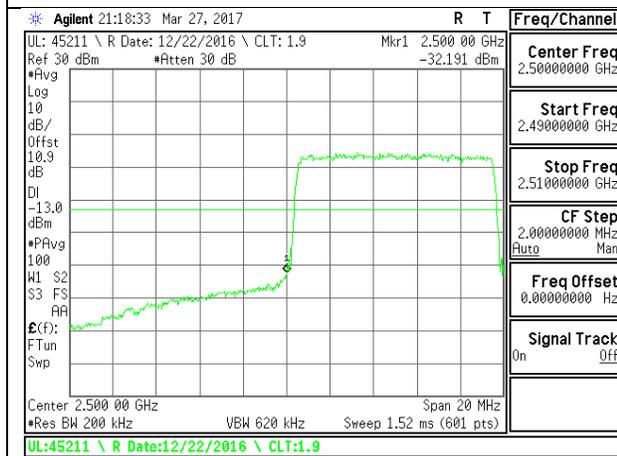




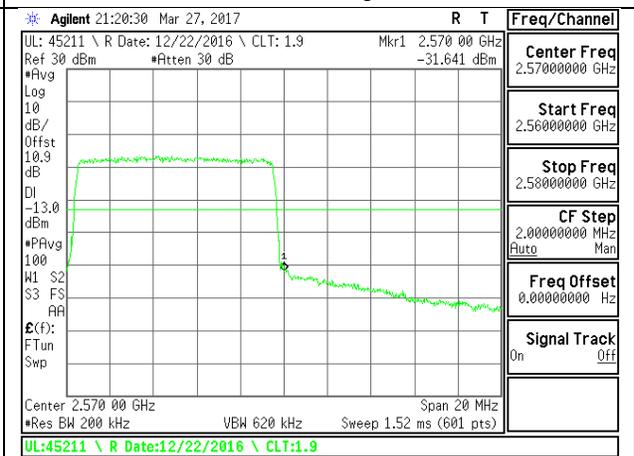
LTE B7 10MHz 16QAM Low Channel 1RB



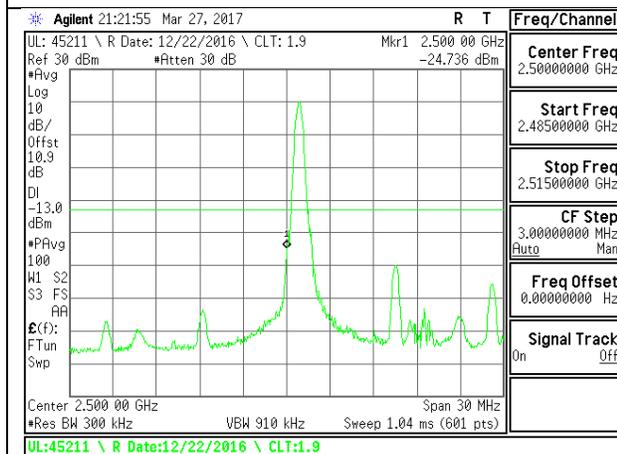
LTE B7 10MHz 16QAM High Channel 1RB



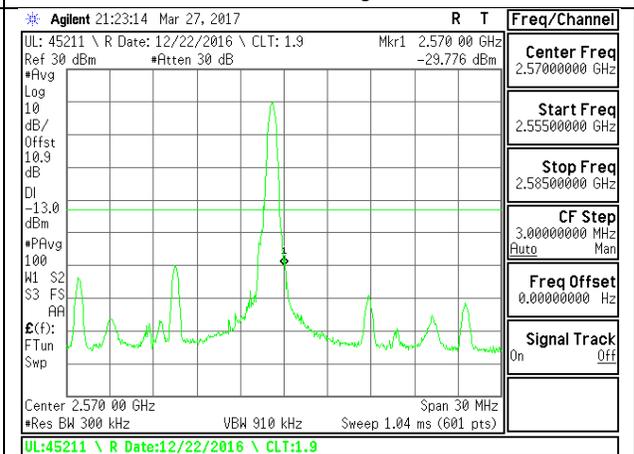
LTE B7 10MHz 16QAM Low Channel FRB



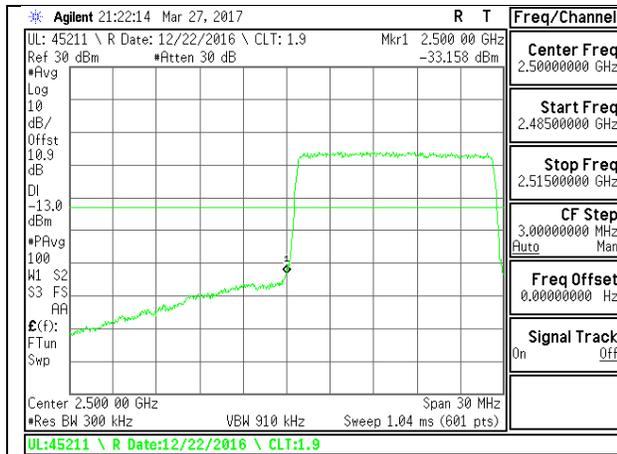
LTE B7 10MHz 16QAM High Channel FRB



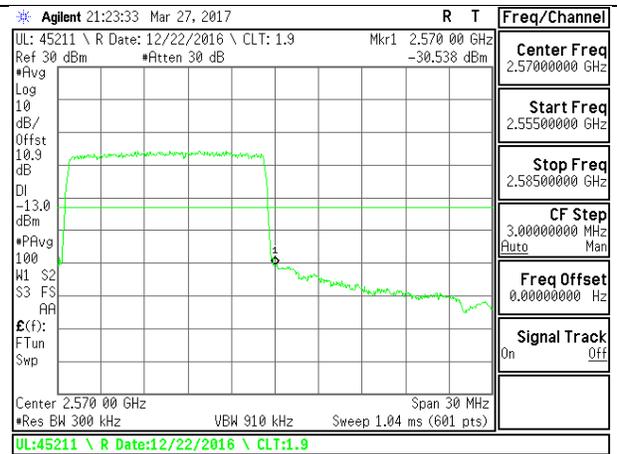
LTE B7 15MHz QPSK Low Channel 1RB



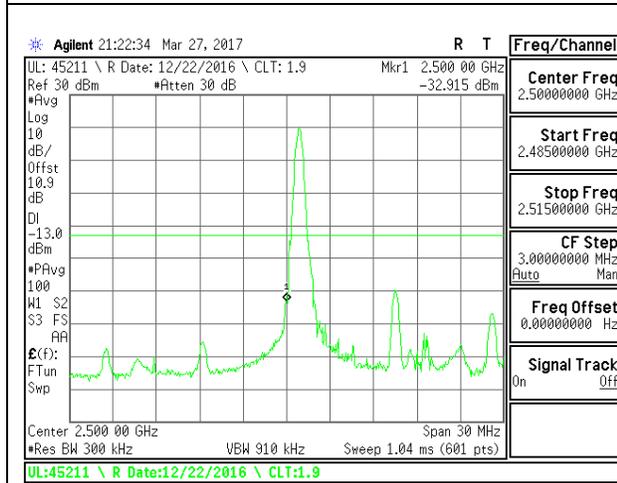
LTE B7 15MHz QPSK High Channel 1RB



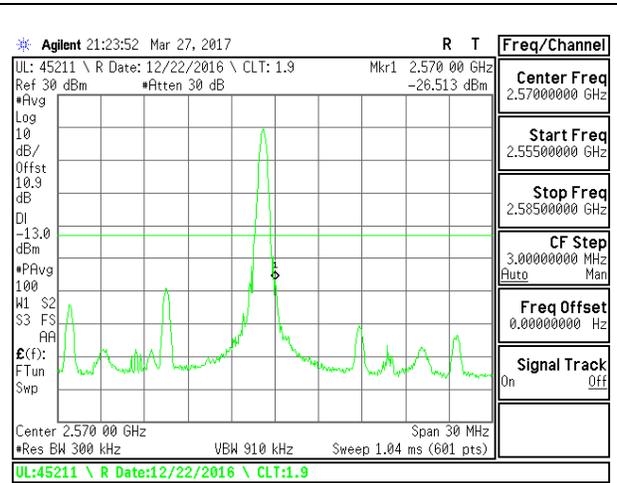
LTE B7 15MHz QPSK Low Channel FRB



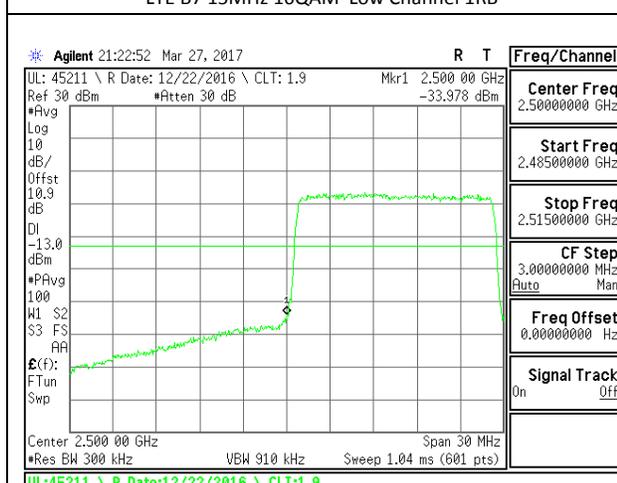
LTE B7 15MHz QPSK High Channel FRB



LTE B7 15MHz 16QAM Low Channel 1RB



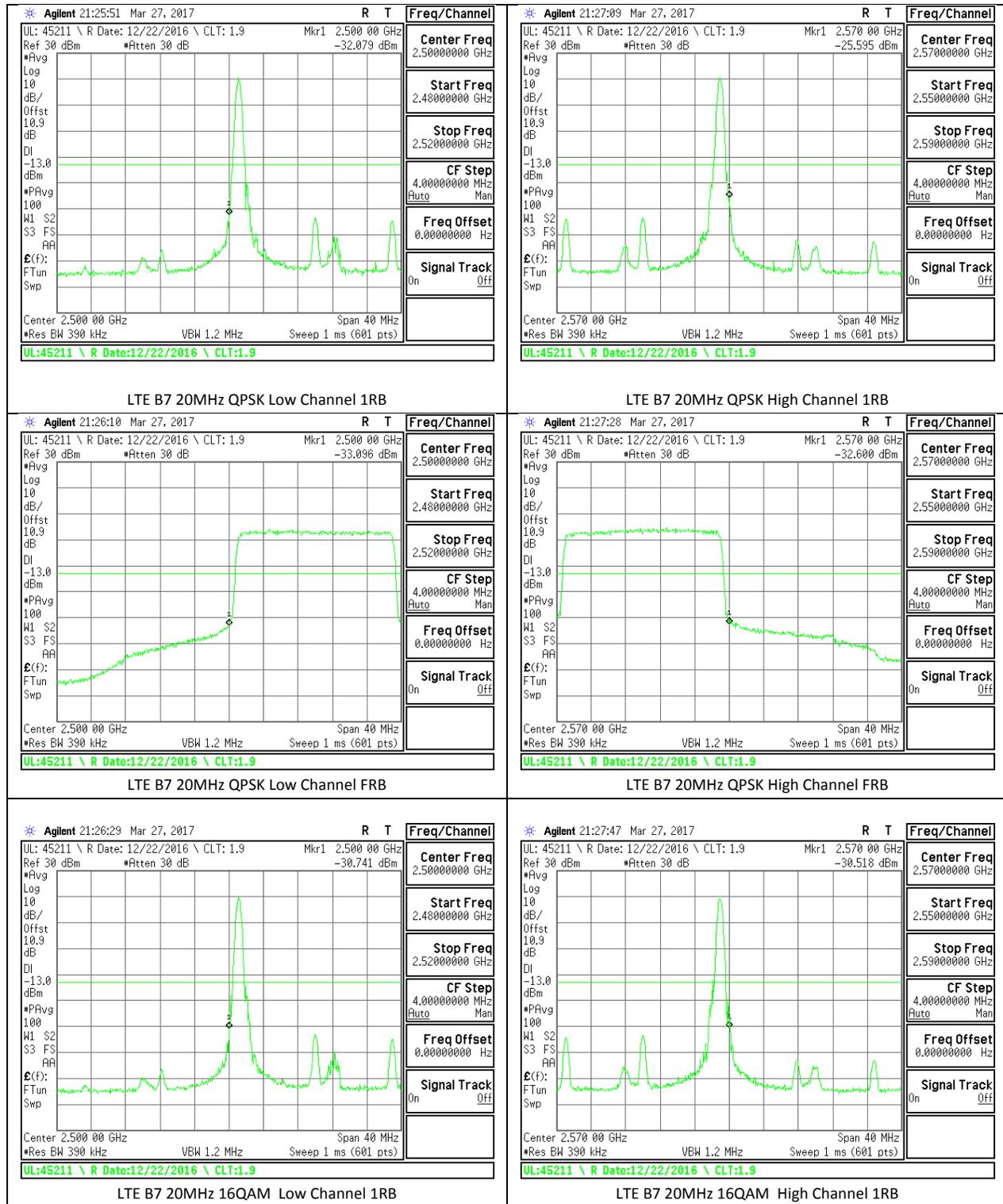
LTE B7 15MHz 16QAM High Channel 1RB

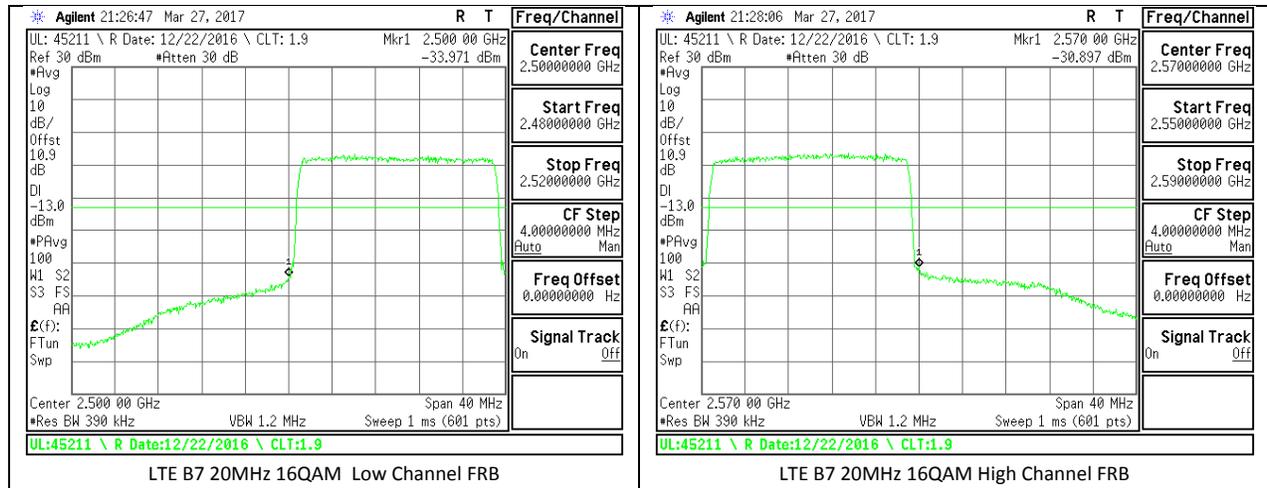


LTE B7 15MHz 16QAM Low Channel FRB

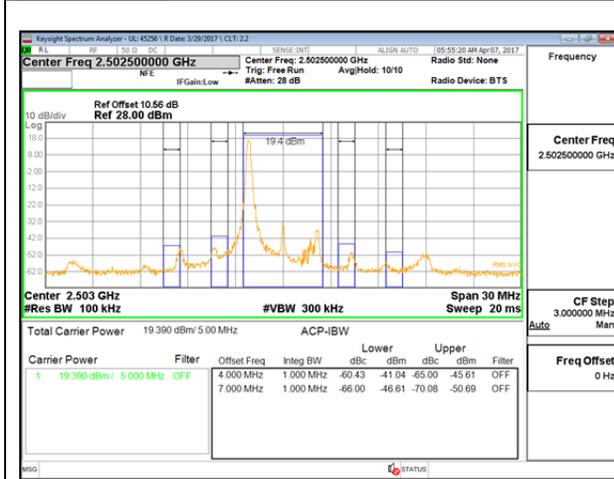


LTE B7 15MHz 16QAM High Channel FRB

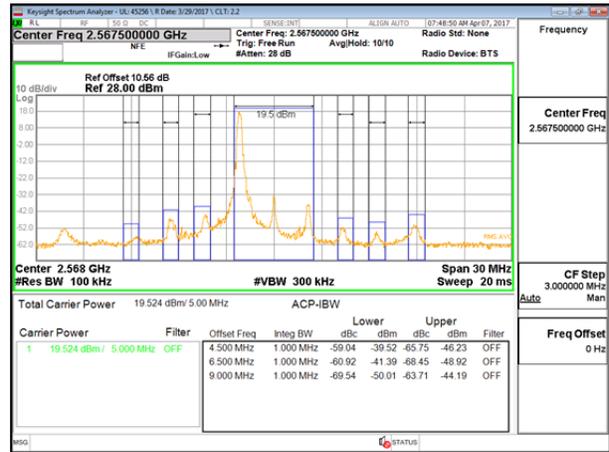




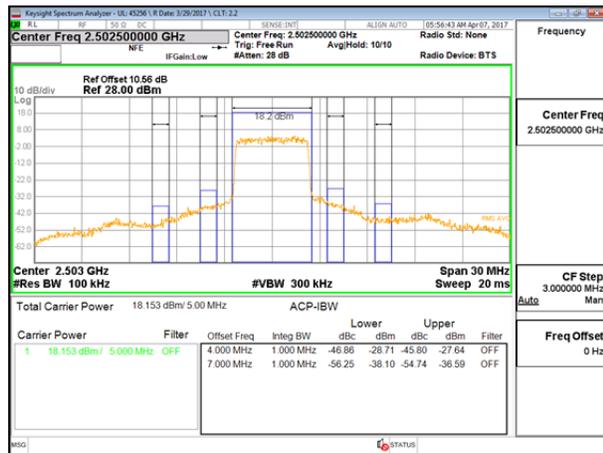
## 14.2. EMISSION MASK PLOTS LTE Band 7



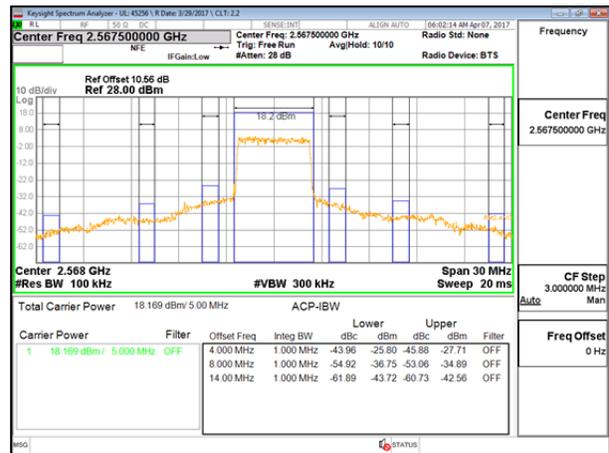
LTE B7 5MHz QPSK Low Channel 1RB



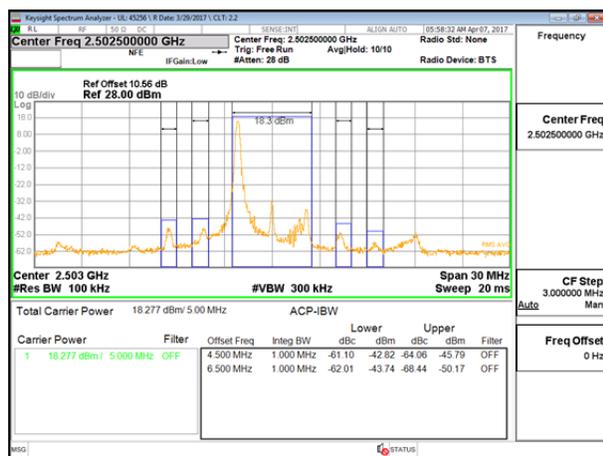
LTE B7 5MHz QPSK High Channel 1RB



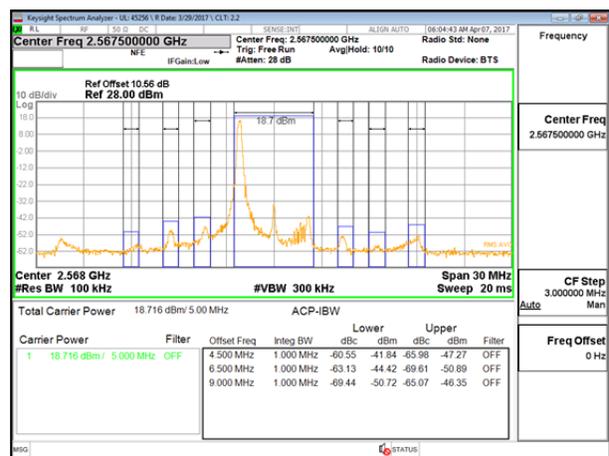
LTE B7 5MHz QPSK Low Channel FRB



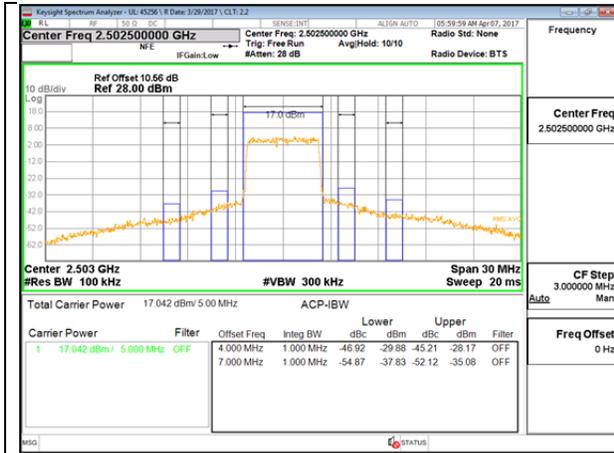
LTE B7 5MHz QPSK High Channel FRB



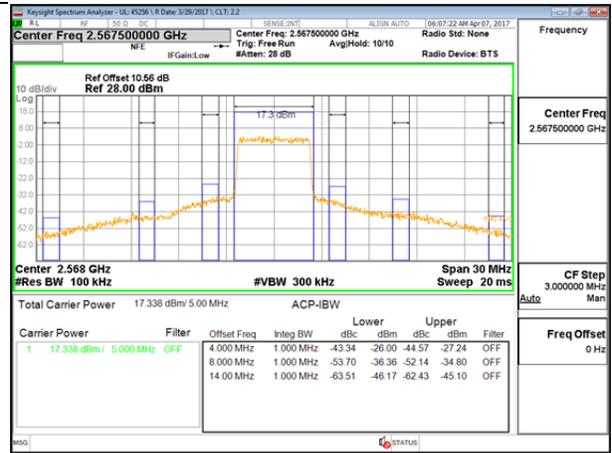
LTE B7 5MHz 16QAM Low Channel 1RB



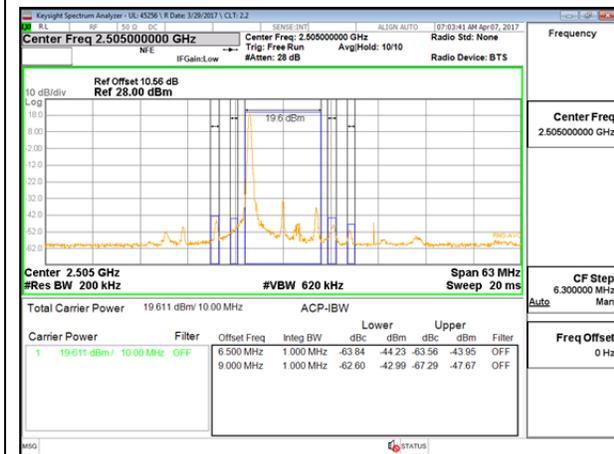
LTE B7 5MHz 16QAM High Channel 1RB



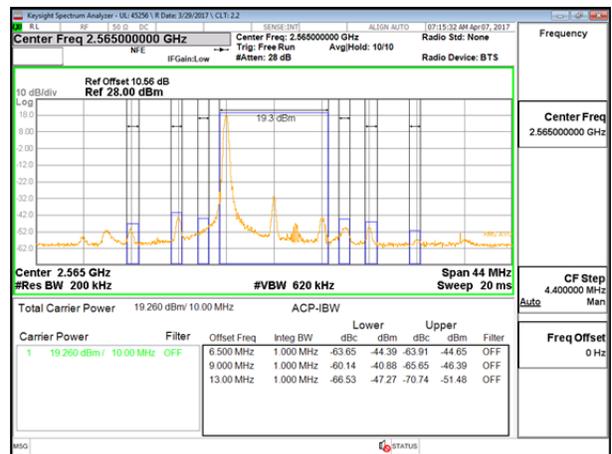
LTE B7 5MHz 16QAM Low Channel FRB



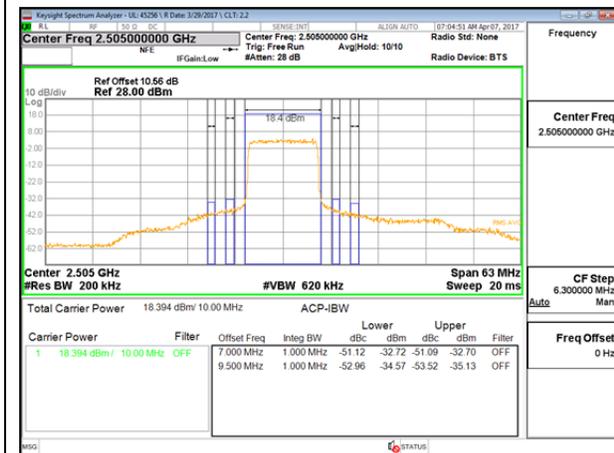
LTE B7 5MHz 16QAM High Channel FRB



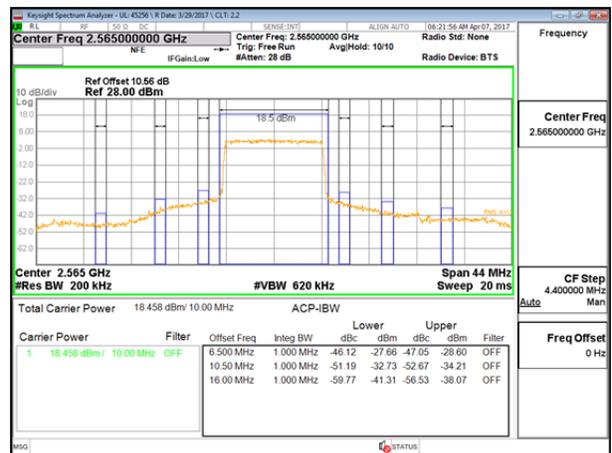
LTE B7 10MHz QPSK Low Channel 1RB



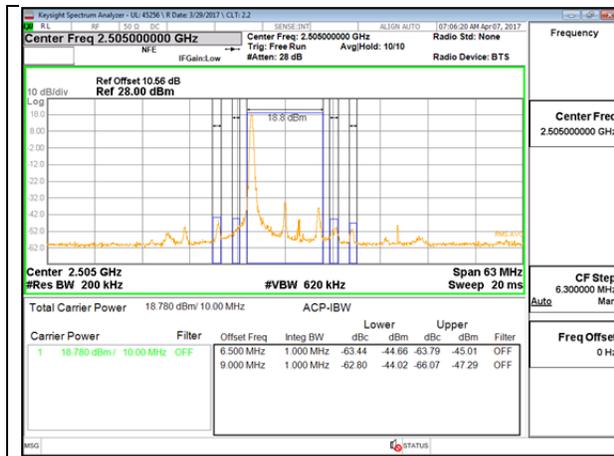
LTE B7 10MHz QPSK High Channel 1RB



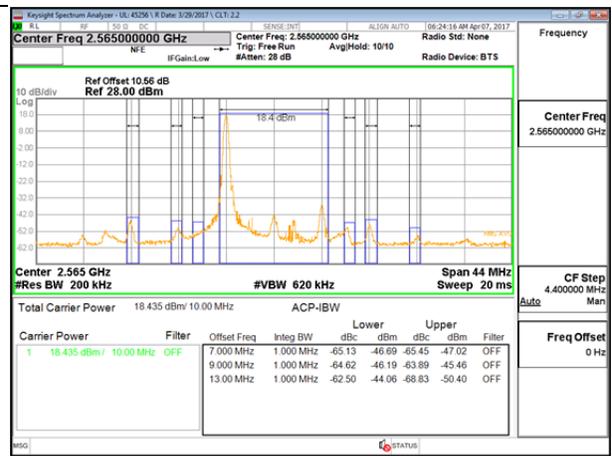
LTE B7 10MHz QPSK Low Channel FRB



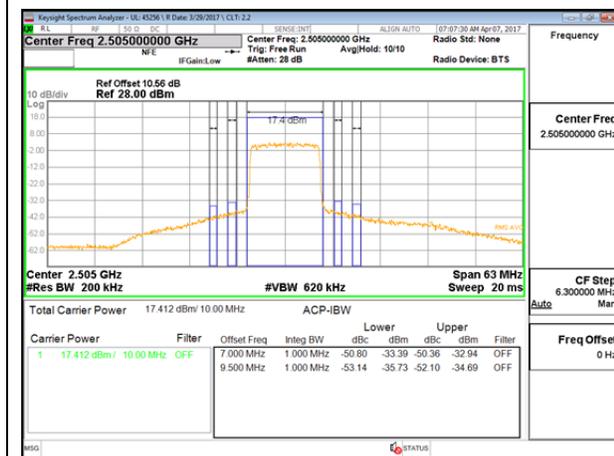
LTE B7 10MHz QPSK High Channel FRB



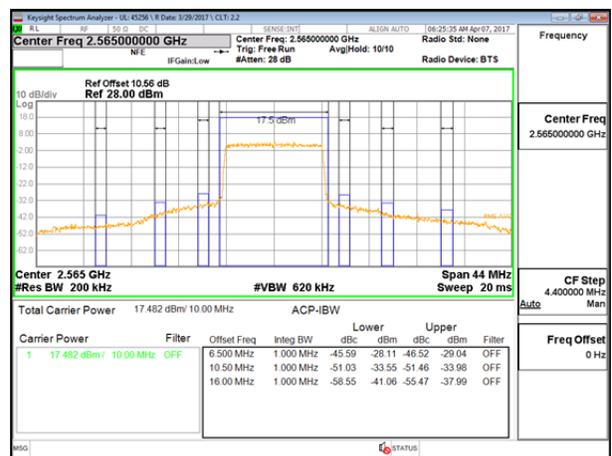
LTE B7 10MHz 16QAM Low Channel 1RB



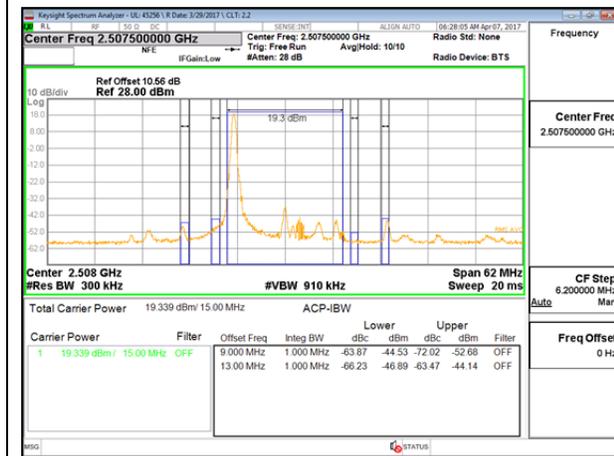
LTE B7 10MHz 16QAM High Channel 1RB



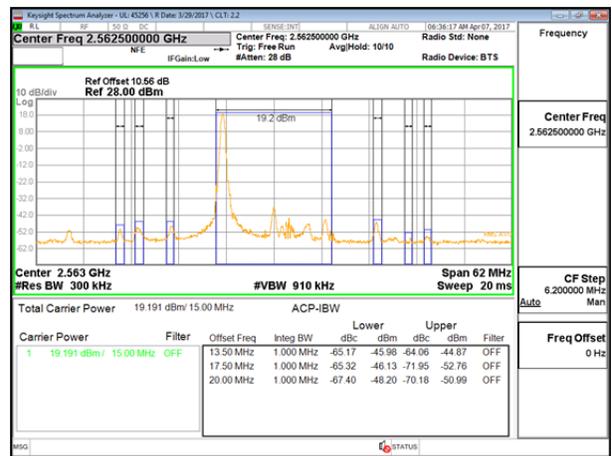
LTE B7 10MHz 16QAM Low Channel FRB



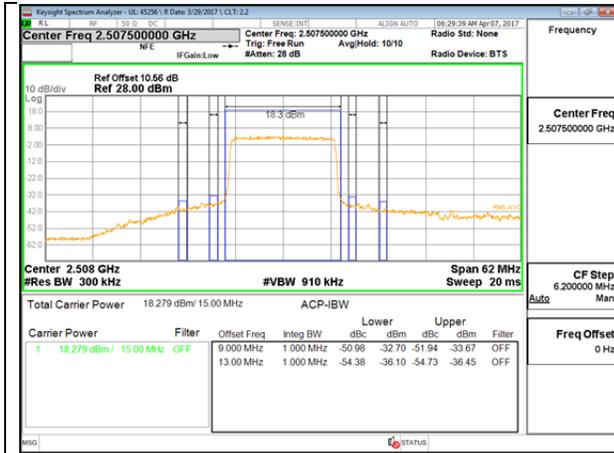
LTE B7 10MHz 16QAM High Channel FRB



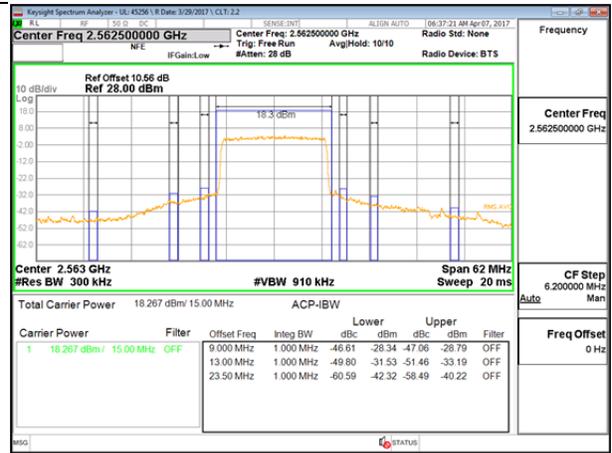
LTE B7 15MHz QPSK Low Channel 1RB



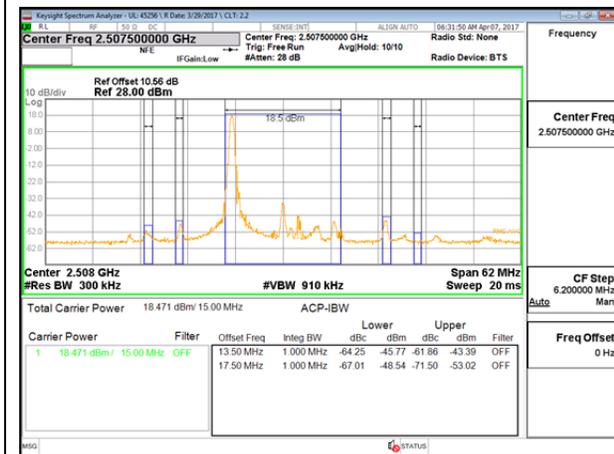
LTE B7 15MHz QPSK High Channel 1RB



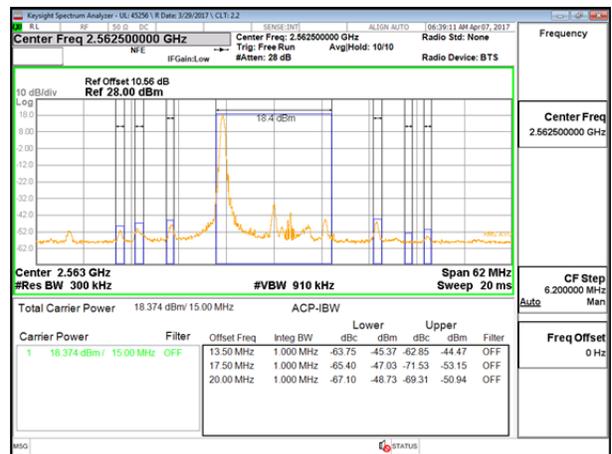
LTE B7 15MHz QPSK Low Channel FRB



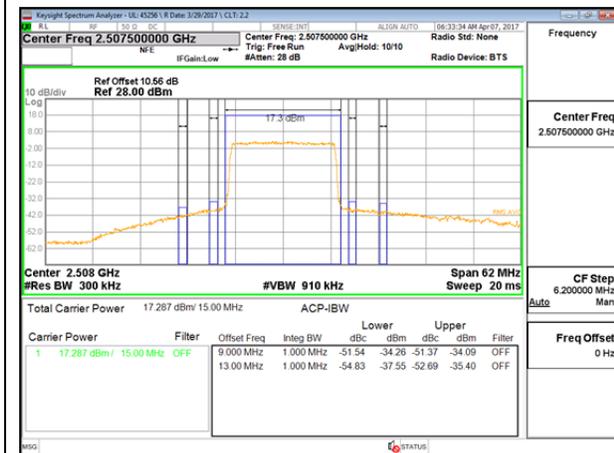
LTE B7 15MHz QPSK High Channel FRB



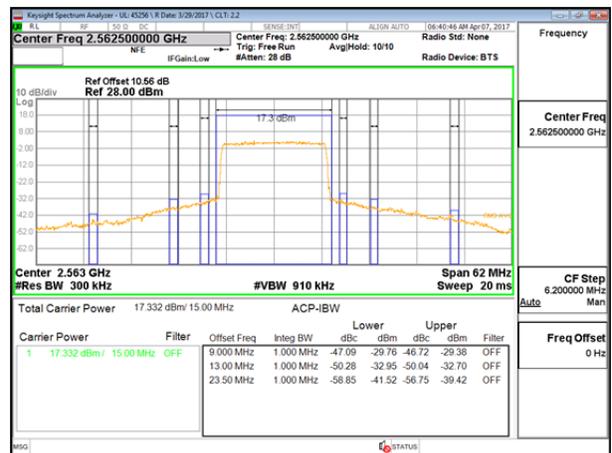
LTE B7 15MHz 16QAM Low Channel 1RB



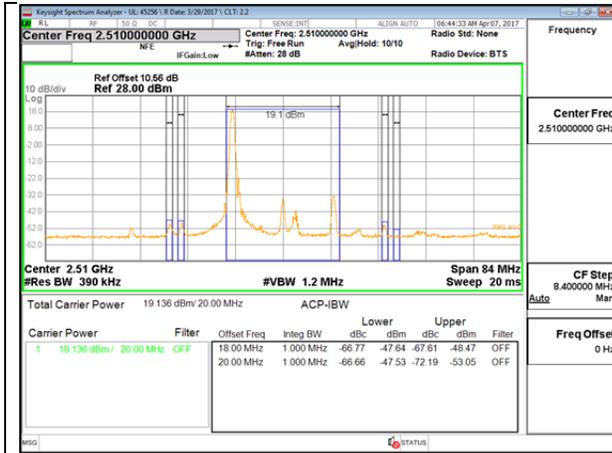
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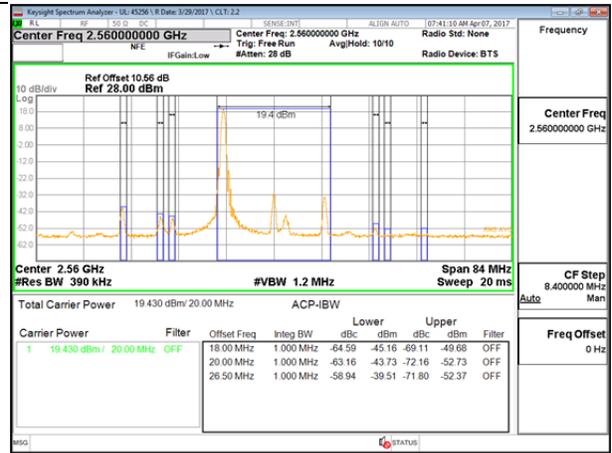
LTE B7 15MHz 16QAM Low Channel FRB



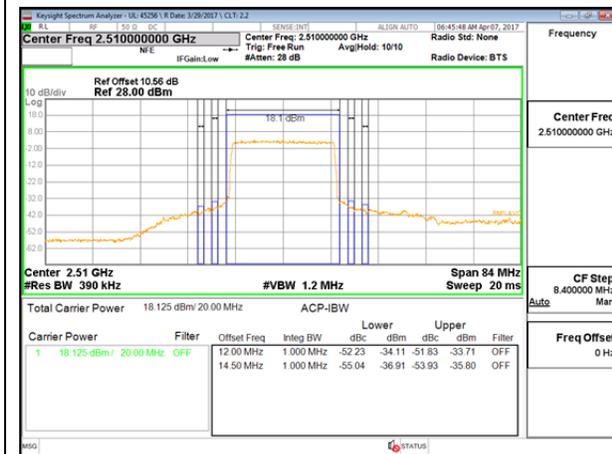
LTE B7 15MHz 16QAM High Channel FRB



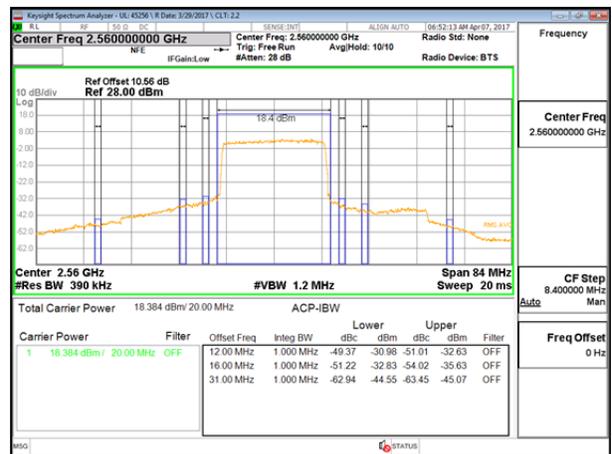
LTE B7 20MHz QPSK Low Channel 1RB



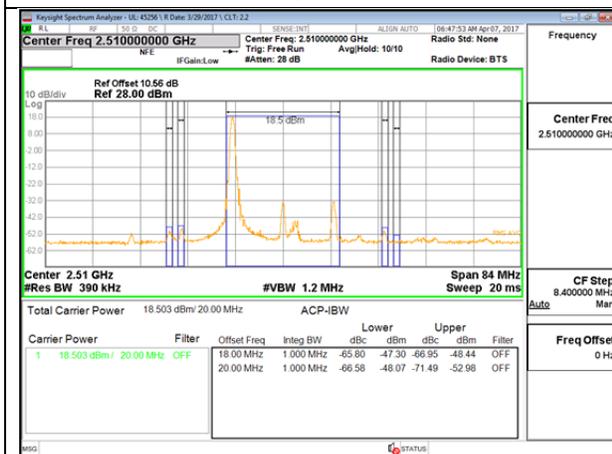
LTE B7 20MHz QPSK High Channel 1RB



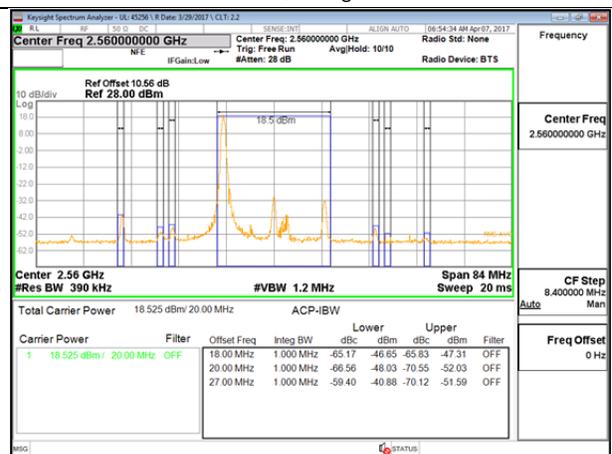
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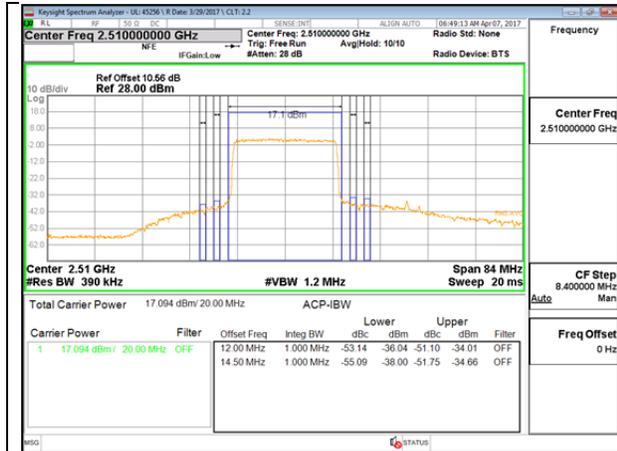
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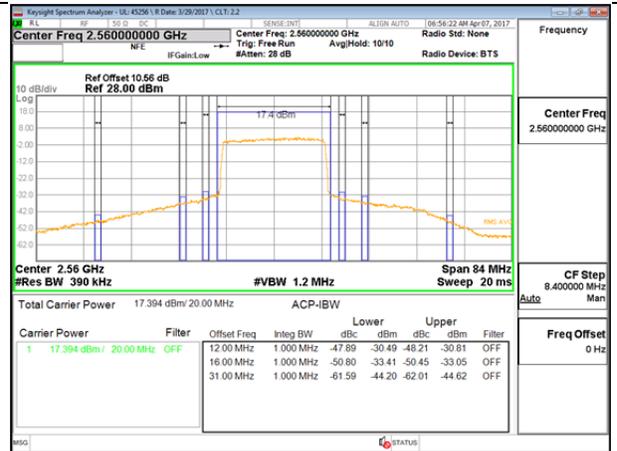
LTE B7 20MHz 16QAM Low Channel 1RB



LTE B7 20MHz 16QAM High Channel 1RB



LTE B7 20MHz 16QAM Low Channel FRB



LTE B7 20MHz 16QAM High Channel FRB