



CERTIFICATION TEST REPORT

Report Number. : 16U23818-E14V4

Applicant : APPLE, INC.
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.

Model : A1709, A1852

FCC ID : BCGA1709

EUT Description : TABLET DEVICE

Test Standard(s) : FCC CFR47 PART 27

Date Of Issue:
March 22, 2017

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	02/20/2017	Initial Review	Mengistu Mekuria
V2	03/06/2017	Addressed TCB's questions.	Devin Chang
V3	03/07/2017	Lowering Band 41 Antenna C powers	Mengistu Mekuria
V4	03/22/2017	Address TCB's Questions	Chin Pang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: TABLET DEVICE

MODEL: A1709, A1852

SERIAL NUMBER: DLXSR05EHQG3 (CONDUCTED); DLXSG09RHLXJ (RADIATED)

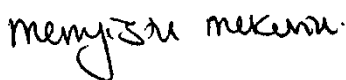
DATE TESTED: DECEMBER 13, 2016 – JANUARY 14, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC CFR47 PART 27	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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Prepared By:



MONA HUA
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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.26:2015, FCC CFR 47 Part 2, FCC KDB 971168 D01 v02r02, 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. 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:2324B-4)
☐ Chamber B (IC:2324B-2)	☐ Chamber E (IC:2324B-5)
☐ Chamber C (IC:2324B-3)	☐ Chamber F (IC:2324B-6)
	☐ Chamber G (IC:2324B-7)
	☒ Chamber H (IC:2324B-8)

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. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamplifier Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Radiated Disturbance, 26000 to 40000 MHz	5.24 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a tablet with multimedia functions (music, application support, and video), Cellular GSM/GPRS/EGPRS/CDMA2000 1xRTT/1x Advanced/EVDO Rev.A/WCDMA /HSPA+/DC-HSDPA/LTE FDD & Carrier Aggregation/TDD/TD-SCDMA radio, IEEE 802.11a/b/g/n/ac radio, and Bluetooth radio. The rechargeable battery is not user accessible.

5.2. DESCRIPTION OF MODELS DIFFERENCES

Both Model A1709 and A1852 have identical PCB layout, design and functionality, except that A1709 supports second electronic-UICC based SIM or “soft SIM” (called eSIM) beside the regular UICC based SIM and A1852 will come with eSIM removed. RF and electromagnetic characteristic are independent of the eSIM element. Both Models have exactly same technology and band support. Model A1709 is used for EMC/RSE and that data will be used for both Models.

5.3. MAXIMUM OUTPUT POWER

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

5.3.1. ANTENNA C

OUTPUT POWER FOR LTE BAND 7

Part 27 / RSS199 LTE Band 7				
Bandwidth (MHz)	Frequency Range (MHz)	Modulation	EIRP (Average)	
			dBm	mW
10+20	2500 - 2570	QPSK	22.5	177.8
		16QAM	22.2	166.0
20+10		QPSK	22.4	173.8
		16QAM	22.2	166.0
15+15		QPSK	22.3	169.8
		16QAM	22.1	162.2
15+20		QPSK	22.4	173.8
		16QAM	22.0	158.5
20+15		QPSK	22.5	177.8
		16QAM	22.3	169.8
20+20		QPSK	22.5	177.8
		16QAM	22.4	173.8

OUTPUT POWER FOR LTE BAND 41

Part 27 / RSS199 LTE Band 41				
Bandwidth (MHz)	Frequency Range (MHz)	Modulation	EIRP (Average)	
			dBm	mW
5+20	2496-2690	QPSK	21.1	128.8
		16QAM	20.2	104.7
20+5		QPSK	21.0	125.9
		16QAM	20.7	117.5
10+20		QPSK	21.1	128.8
		16QAM	20.6	114.8
20+10		QPSK	21.0	125.9
		16QAM	20.6	114.8
15+15		QPSK	21.0	125.9
		16QAM	20.5	112.2
15+20		QPSK	21.0	125.9
		16QAM	20.6	114.8
20+15		QPSK	20.9	123.0
		16QAM	20.6	114.8
20+20		QPSK	20.7	117.5
		16QAM	20.3	107.2

5.3.2. ANTENNA D

OUTPUT POWER FOR LTE BAND 7

Part 27 / RSS199 LTE Band 7				
Bandwidth (MHz)	Frequency Range (MHz)	Modulation	EIRP (Average)	
			dBm	mW
10+20	2500 - 2570	QPSK	21.50	141.3
		16QAM	20.20	104.7
20+10		QPSK	21.50	141.3
		16QAM	21.20	131.8
15+15		QPSK	21.50	141.3
		16QAM	20.50	112.2
15+20		QPSK	21.60	144.5
		16QAM	20.70	117.5
20+15		QPSK	21.50	141.3
		16QAM	20.90	123.0
20+20		QPSK	21.50	141.3
		16QAM	20.90	123.0

OUTPUT POWER FOR LTE BAND 41

Part 27 / RSS199 LTE Band 41				
Bandwidth (MHz)	Frequency Range (MHz)	Modulation	EIRP (Average)	
			dBm	mW
5+20	2496-2690	QPSK	21.60	144.5
		16QAM	20.70	117.5
20+5		QPSK	21.60	144.5
		16QAM	20.60	114.8
10+20		QPSK	21.50	141.3
		16QAM	20.60	114.8
20+10		QPSK	21.60	144.5
		16QAM	20.60	114.8
15+15		QPSK	21.50	141.3
		16QAM	21.00	125.9
15+20		QPSK	21.60	144.5
		16QAM	21.00	125.9
20+15		QPSK	21.60	144.5
		16QAM	20.60	114.8
20+20		QPSK	21.60	144.5
		16QAM	20.40	109.6

5.4. SOFTWARE AND FIRMWARE

The EUT software installed during testing was 14E22020w and firmware was 1.54.09.

5.5. MAXIMUM ANTENNA GAIN

Please see table below:

LTE BANDS	Antenna C Antenna Gain (dBi)	Antenna D Antenna Gain (dBi)
LTE Band 7, 2500 – 2570 MHz	-0.46	0.53
LTE Band 41, 2496 – 2690 MHz	-0.46	0.56

5.6. WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has LTE Bands of: Band 7, and Band 41.

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

The EUT was investigated in three orthogonal orientations X/Y/Z, it was determined that Y-Landscape orientation for Band 7, and Band 41 without AC/DC adapter and headset. Radiated spurious emissions were investigated below 30MHz and 30 MHz - 1GHz and above 1GHz. There were no emissions found on below 30MHz and 30 MHz - 1GHz.

All of the test modes for each test items are the worst case configuration after investigation.

Note: Originally the Emission Mask and Peak to Average ratio tests have done with the power higher than the EUT Average power. Lowering the Average Power doesn't influence the outcome of those measurements.

5.7. DESCRIPTION OF TEST SETUP

TESTS SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer	Model	Serial Number
Laptop AC Adapter	Dell	PA-1900-02D	N/A
Laptop	Dell	Latitude 3540	N/A
DC power supply	Sorensen	XT-20-3	N/A

I/O CABLES (RF CONDUCTED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	3	US 115V	Un-shielded	2m	N/A
2	DC	1	DC	Un-shielded	1.4m	N/A
3	RF In/Out	1	EUT	Un-shielded	0.4m	N/A
4	RF In/Out	1	Barrel	N/A	N/A	N/A
5	RF In/Out	1	Communication Test Set	Un-shielded	1m	N/A

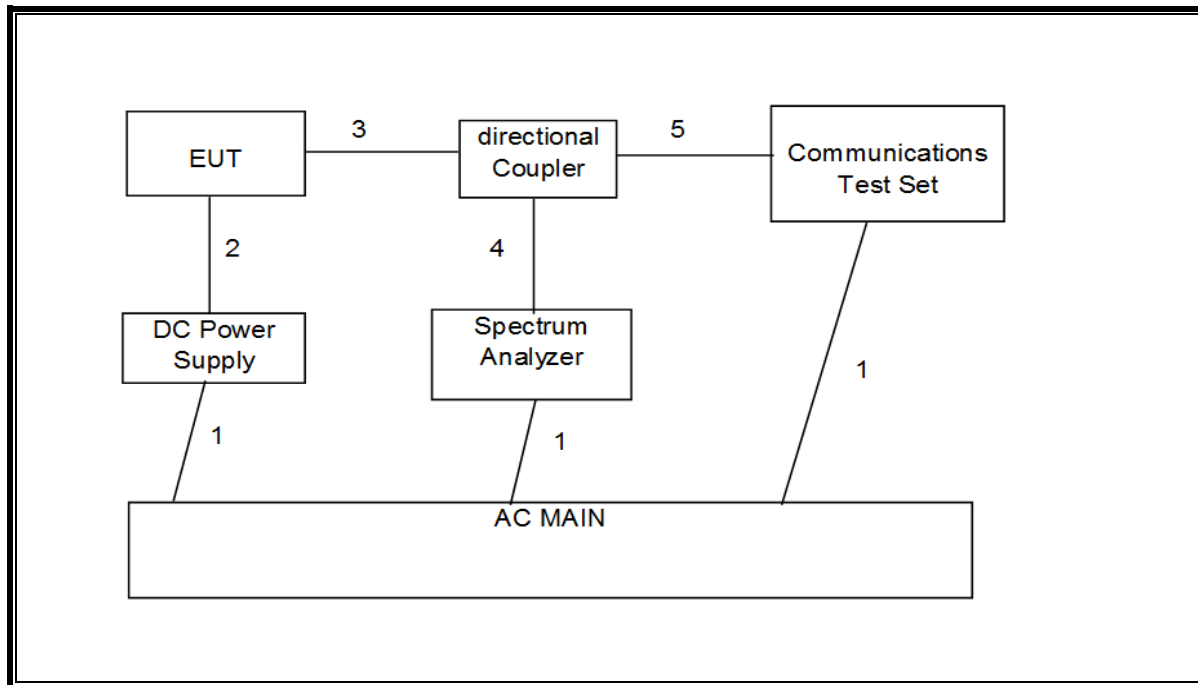
I/O CABLES (RF RADIATED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	RF In/Out	1	Antenna	Un-shielded	5m	NA

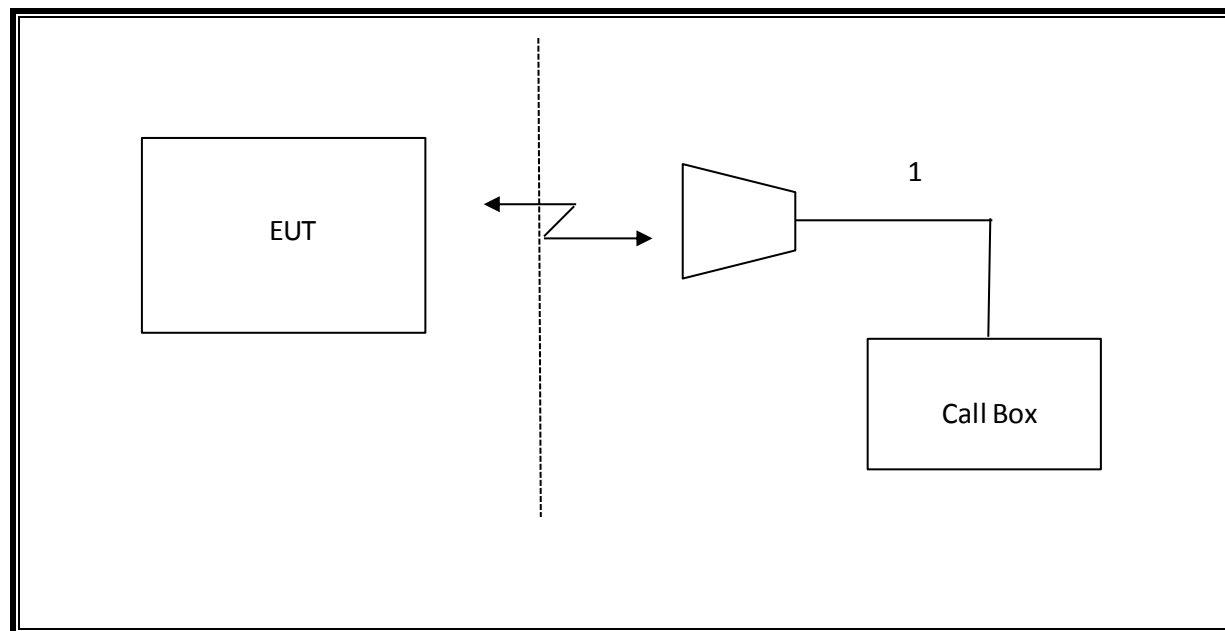
TEST SETUP

SETUP DIAGRAM FOR TESTS

CONDUCTED SETUP



RADIATED SETUP



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T863	4/26/2017
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T900	5/3/2017
Amplifier, 1 to 18GHz, 35dB	Ampical	AMP1G18-35	T1569	9/15/2017
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T835	6/18/2017
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T906	2/03/2017
Spectrum Analyzer, PSA 3Hz to 44GHz	Keysight	E4446A	T123	10/20/2017
Directional Coupler	KRYTAR	152610	T1536	4/11/2017
Directional Coupler	KRYTAR	152610	T1537	4/11/2017
Power Meter, P-series single channel	Keysight	N1912A	T1245	5/03/2017
Power Sensor, P - series, 50MHz to 18GHz,	Keysight	N1921A	T1226	5/18/2017
Filter, HPF 3.0GHz	MICROTRONICS	HPM17543	T487	1/26/2017
Filter, HPF 1.2GHz	Micro-Tronics	WHKX1.2/15G-6ST	T1182	5/31/2017
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	T1466	3/09/2017
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T959	7/09/2017
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T971	8/05/2017
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T1154	3/12/2017
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	T260	7/20/2017
Antenna, Horn 1-18GHz	Emco	3115	T59	11/18/2017
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826/B	T447	06/16/2017
Amplifier, 1 to 26.5GHz, 23.5dB Gain minimum	Keysight	8449B	T402	07/05/2017
Amplifier, 26.5GHz to 40GHz	Miteq	NSP 4000 SP2	T88	04/07/2017
Antenna, Horn 26.5GHz to 40GHz	ARA	MWH-2640/B	T446	05/25/2017

NOTE: * testing is completed before equipment calibration expiration date.

7. TRANSMITTER OUTPUT POWER (CONDUCTED AND EIRP)

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set.

ERP/EIRP LIMIT

FCC: §2.1046, §27.50

27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

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.

MODES TESTED

- LTE Band 7
- LTE Band 41

TEST PROCEDURE

3GPP TR 36.827, TR.36 830 and TR 36.831

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

$$\text{ERP/EIRP} = \text{PMeas} + \text{GT} - \text{LC}$$

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);

PMeas = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.2

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

7.1. ANTENNA C

7.1.1. LTE Band 7

ID:	29439	Date:	1/11/17
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OUTPUT POWER FOR LTE BAND 7 (10.0MHz + 20.0MHz)

Antenna Gain (dBi)		-0.46										
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)	
				Size	Offset	Size	Offset					
10MHz / 20MHz	2505.5	2519.9	QPSK	1	49	1	0	22.9	22.5	33.0	-10.5	
				1	24	1	49	15.4	15.0	33.0	-18.0	
				50	0	100	0	21.6	21.2	33.0	-11.8	
			16QAM	1	74	1	0	22.4	22.0	33.0	-11.0	
				1	24	1	49	15.4	15.0	33.0	-18.1	
				50	0	100	0	20.6	20.2	33.0	-12.9	
10MHz / 20MHz	2525.6	2540.0	QPSK	1	49	1	0	22.8	22.4	33.0	-10.6	
				1	24	1	49	15.6	15.1	33.0	-17.9	
				50	0	100	0	21.7	21.2	33.0	-11.8	
			16QAM	1	49	1	0	22.7	22.2	33.0	-10.8	
				1	24	1	49	15.7	15.2	33.0	-17.8	
				50	0	100	0	20.7	20.2	33.0	-12.8	
10MHz / 20MHz	2545.6	2560.0	QPSK	1	49	1	0	22.6	22.2	33.0	-10.8	
				1	24	1	49	15.4	15.0	33.0	-18.1	
				50	0	100	0	21.6	21.1	33.0	-11.9	
			16QAM	1	49	1	0	22.4	22.0	33.0	-11.1	
				1	24	1	49	15.7	15.2	33.0	-17.8	
				50	0	100	0	20.6	20.1	33.0	-12.9	

OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 10.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 10MHz	2510.0	2524.4	QPSK	1	0	1	0	15.5	15.1	33.0	-17.9
				1	0	1	49	15.4	15.0	33.0	-18.0
				1	0	50	0	20.1	19.6	33.0	-13.4
				1	99	1	49	15.4	14.9	33.0	-18.1
				1	99	50	0	21.5	21.0	33.0	-12.0
				100	0	1	49	20.6	20.2	33.0	-12.9
				100	0	50	0	21.6	21.2	33.0	-11.8
				1	99	1	0	22.9	22.4	33.0	-10.6
				100	0	1	0	22.2	21.7	33.0	-11.3
			16QAM	1	0	1	0	15.5	15.0	33.0	-18.0
				1	0	1	49	15.5	15.0	33.0	-18.0
				1	0	50	0	20.1	19.6	33.0	-13.4
				1	99	1	49	15.5	15.0	33.0	-18.0
				1	99	50	0	20.6	20.2	33.0	-12.9
				100	0	1	49	20.5	20.1	33.0	-13.0
				100	0	50	0	20.6	20.2	33.0	-12.9
				1	99	1	0	22.6	22.1	33.0	-10.9
				100	0	1	0	21.1	20.6	33.0	-12.4
20MHz / 10MHz	2530.1	2544.5	QPSK	1	0	1	0	15.6	15.1	33.0	-17.9
				1	0	1	49	15.5	15.0	33.0	-18.0
				1	0	50	0	20.0	19.5	33.0	-13.5
				1	99	1	49	15.3	14.9	33.0	-18.2
				1	99	50	0	21.4	20.9	33.0	-12.1
				100	0	1	49	20.5	20.1	33.0	-12.9
				100	0	50	0	21.5	21.1	33.0	-11.9
				1	99	1	0	22.8	22.4	33.0	-10.7
				100	0	1	0	22.1	21.6	33.0	-11.4
			16QAM	1	0	1	0	15.6	15.2	33.0	-17.9
				1	0	1	49	15.5	15.1	33.0	-17.9
				1	0	50	0	20.1	19.6	33.0	-13.4
				1	99	1	49	15.5	15.0	33.0	-18.0
				1	99	50	0	20.5	20.0	33.0	-13.0
				100	0	1	49	20.5	20.0	33.0	-13.0
				100	0	50	0	20.5	20.1	33.0	-12.9
				1	99	1	0	22.6	22.1	33.0	-10.9
				100	0	1	0	21.0	20.6	33.0	-12.5
20MHz / 10MHz	2550.1	2564.5	QPSK	1	0	1	0	15.5	15.1	33.0	-17.9
				1	0	1	49	15.5	15.0	33.0	-18.0
				1	0	50	0	19.9	19.5	33.0	-13.5
				1	99	1	49	15.3	14.9	33.0	-18.1
				1	99	50	0	21.4	21.0	33.0	-12.0
				100	0	1	49	20.6	20.2	33.0	-12.9
				100	0	50	0	21.5	21.1	33.0	-11.9
				1	99	1	0	22.9	22.4	33.0	-10.6
				100	0	1	0	22.0	21.5	33.0	-11.5
			16QAM	1	0	1	0	15.6	15.2	33.0	-17.8
				1	0	1	49	15.6	15.1	33.0	-17.9
				1	0	50	0	20.0	19.5	33.0	-13.5
				1	99	1	49	15.4	14.9	33.0	-18.1
				1	99	50	0	20.4	20.0	33.0	-13.1
				100	0	1	49	20.7	20.3	33.0	-12.8
				100	0	50	0	20.5	20.0	33.0	-13.0
				1	99	1	0	22.6	22.2	33.0	-10.9
				100	0	1	0	21.1	20.6	33.0	-12.4

OUTPUT POWER FOR LTE BAND 7 (15.0MHz + 15.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
15MHz / 15MHz	2507.5	2522.5	QPSK	1	74	1	0	22.8	22.3	33.0	-10.7
				75	0	75	0	21.7	21.2	33.0	-11.8
			16QAM	1	74	1	0	22.6	22.1	33.0	-10.9
				75	0	75	0	20.7	20.2	33.0	-12.8
15MHz / 15MHz	2527.5	2542.5	QPSK	1	74	1	0	22.7	22.3	33.0	-10.8
				75	0	75	0	21.7	21.3	33.0	-11.7
			16QAM	1	74	1	0	22.6	22.1	33.0	-10.9
				75	0	75	0	20.8	20.3	33.0	-12.7
15MHz / 15MHz	2547.5	2562.5	QPSK	1	74	1	0	22.6	22.1	33.0	-10.9
				75	0	75	0	21.6	21.2	33.0	-11.9
			16QAM	1	74	1	0	22.4	21.9	33.0	-11.1
				75	0	75	0	20.6	20.2	33.0	-12.8

OUTPUT POWER FOR LTE BAND 7 (15.0MHz + 20.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
15MHz / 20MHz	2507.8	2524.9	QPSK	1	74	1	0	22.9	22.4	33.0	-10.6
				1	36	1	49	15.7	15.3	33.0	-17.8
				75	0	100	0	21.8	21.4	33.0	-11.6
			16QAM	1	74	1	0	22.5	22.0	33.0	-11.0
				1	36	1	49	15.4	15.0	33.0	-18.1
				75	0	100	0	20.8	20.4	33.0	-12.7
15MHz / 20MHz	2525.3	2542.4	QPSK	1	74	1	0	22.7	22.3	33.0	-10.8
				1	36	1	49	15.6	15.2	33.0	-17.8
				75	0	100	0	21.7	21.3	33.0	-11.8
			16QAM	1	74	1	0	22.5	22.0	33.0	-11.0
				1	36	1	49	15.4	15.0	33.0	-18.0
				75	0	100	0	20.7	20.3	33.0	-12.8
15MHz / 20MHz	2542.9	2560.0	QPSK	1	74	1	0	22.7	22.2	33.0	-10.8
				1	36	1	49	15.5	15.1	33.0	-18.0
				75	0	100	0	21.7	21.2	33.0	-11.8
			16QAM	1	74	1	0	22.4	22.0	33.0	-11.0
				1	36	1	49	15.3	14.9	33.0	-18.2
				75	0	100	0	20.6	20.2	33.0	-12.9

OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 15.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 15MHz	2510.0	2527.1	QPSK	1	99	1	0	23.0	22.5	33.0	-10.5
				100	0	75	0	21.7	21.2	33.0	-11.8
			16QAM	1	99	1	0	22.8	22.3	33.0	-10.7
				100	0	75	0	20.8	20.3	33.0	-12.7
20MHz / 15MHz	2527.6	2544.7	QPSK	1	99	1	0	22.9	22.5	33.0	-10.6
				100	0	75	0	21.7	21.2	33.0	-11.8
			16QAM	1	99	1	0	22.6	22.1	33.0	-10.9
				100	0	75	0	20.7	20.2	33.0	-12.8
20MHz / 15MHz	2545.1	2562.2	QPSK	1	99	1	0	22.9	22.5	33.0	-10.6
				100	0	75	0	21.6	21.2	33.0	-11.9
			16QAM	1	99	1	0	22.6	22.1	33.0	-10.9
				100	0	75	0	20.6	20.1	33.0	-12.9

OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 20.0MHz)

Antenna Gain (dBi)		-0.46								
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)
				Size	Offset	Size	Offset			
20MHz/ 20MHz	2510.0	2529.8	QPSK	1	0	1	0	15.3	14.8	33.0
				1	0	1	99	15.3	14.9	33.0
				1	0	100	0	20.3	19.8	33.0
				1	49	1	49	15.3	14.8	33.0
				1	99	1	99	15.1	14.7	33.0
				1	99	100	0	21.1	20.7	33.0
				100	0	1	99	20.2	19.8	33.0
				100	0	100	0	21.5	21.0	33.0
				1	99	1	0	22.9	22.4	33.0
				100	0	1	0	21.7	21.3	33.0
			16QAM	1	0	1	0	15.1	14.7	33.0
				1	0	1	99	15.1	14.7	33.0
				1	0	100	0	20.8	20.4	33.0
				1	49	1	49	15.1	14.7	33.0
				1	99	1	99	15.0	14.5	33.0
				1	99	100	0	20.1	19.7	33.0
				100	0	1	99	19.9	19.5	33.0
				100	0	100	0	20.5	20.0	33.0
				1	99	1	0	22.8	22.3	33.0
				100	0	1	0	20.7	20.3	33.0
20MHz/ 20MHz	2525.1	2544.9	QPSK	1	0	1	0	15.3	14.8	33.0
				1	0	1	99	15.3	14.8	33.0
				1	0	100	0	20.3	19.9	33.0
				1	49	1	49	15.3	14.8	33.0
				1	99	1	99	15.1	14.7	33.0
				1	99	100	0	21.1	20.6	33.0
				100	0	1	99	20.2	19.7	33.0
				100	0	100	0	21.2	20.7	33.0
				1	99	1	0	22.9	22.5	33.0
				100	0	1	0	21.7	21.3	33.0
			16QAM	1	0	1	0	15.1	14.7	33.0
				1	0	1	99	15.1	14.6	33.0
				1	0	100	0	20.8	20.4	33.0
				1	49	1	49	15.1	14.6	33.0
				1	99	1	99	14.9	14.4	33.0
				1	99	100	0	20.1	19.7	33.0
				100	0	1	99	20.0	19.5	33.0
				100	0	100	0	20.2	19.7	33.0
				1	99	1	0	22.8	22.4	33.0
				100	0	1	0	20.7	20.3	33.0
20MHz/ 20MHz	2540.2	2560.0	QPSK	1	0	1	0	15.3	14.8	33.0
				1	0	1	99	15.3	14.9	33.0
				1	0	100	0	20.3	19.8	33.0
				1	49	1	49	15.3	14.8	33.0
				1	99	1	99	15.1	14.7	33.0
				1	99	100	0	21.2	20.7	33.0
				100	0	1	99	20.2	19.8	33.0
				100	0	100	0	21.6	21.1	33.0
				1	99	1	0	22.9	22.4	33.0
				100	0	1	0	21.7	21.3	33.0
			16QAM	1	0	1	0	15.1	14.6	33.0
				1	0	1	99	15.1	14.7	33.0
				1	0	100	0	20.8	20.4	33.0
				1	49	1	49	15.1	14.6	33.0
				1	99	1	99	14.9	14.5	33.0
				1	99	100	0	20.2	19.7	33.0
				100	0	1	99	20.0	19.5	33.0
				100	0	100	0	20.6	20.1	33.0
				1	99	1	0	22.8	22.3	33.0
				100	0	1	0	20.8	20.3	33.0

7.1.2. LTE Band 41

ID:	37290	Date:	1/7/17
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OUTPUT POWER FOR LTE BAND 41 (5.0MHz + 20.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
5MHz / 20MHz	2499.3	2511.0	QPSK	1	24	1	0	21.5	21.1	33.0	-12.0
				1	12	1	49	13.7	13.3	33.0	-19.8
				25	0	100	0	19.7	19.3	33.0	-13.8
			16QAM	1	24	1	0	20.6	20.2	33.0	-12.9
				1	12	1	49	13.5	13.1	33.0	-20.0
				25	0	100	0	18.8	18.4	33.0	-14.7
5MHz / 20MHz	2583.8	2595.5	QPSK	1	24	1	0	21.5	21.1	33.0	-12.0
				1	12	1	49	13.7	13.2	33.0	-19.8
				25	0	100	0	19.7	19.2	33.0	-13.8
			16QAM	1	24	1	0	20.6	20.1	33.0	-12.9
				1	12	1	49	13.6	13.2	33.0	-19.8
				25	0	100	0	18.6	18.2	33.0	-14.8
5MHz / 20MHz	2668.3	2680.0	QPSK	1	24	1	0	21.5	21.0	33.0	-12.0
				1	12	1	49	13.7	13.3	33.0	-19.8
				25	0	100	0	19.7	19.3	33.0	-13.8
			16QAM	1	24	1	0	20.6	20.2	33.0	-12.9
				1	12	1	49	13.7	13.2	33.0	-19.8
				25	0	100	0	18.7	18.2	33.0	-14.8

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 5.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 5MHz	2506.0	2517.7	QPSK	1	0	1	0	13.6	13.2	33.0	-19.9
				1	0	1	24	13.8	13.3	33.0	-19.7
				1	0	25	0	17.0	16.6	33.0	-16.5
				1	99	1	24	13.8	13.3	33.0	-19.7
				1	99	25	0	19.7	19.3	33.0	-13.8
				100	0	1	24	18.5	18.1	33.0	-15.0
				100	0	25	0	19.9	19.5	33.0	-13.6
				1	99	1	0	21.4	21.0	33.0	-12.1
				100	0	1	0	20.5	20.0	33.0	-13.0
			16QAM	1	0	1	0	13.6	13.2	33.0	-19.9
				1	0	1	24	13.6	13.2	33.0	-19.9
				1	0	25	0	17.8	17.4	33.0	-15.7
				1	99	1	24	14.2	13.7	33.0	-19.3
				1	99	25	0	19.9	19.5	33.0	-13.6
				100	0	1	24	18.7	18.2	33.0	-14.8
				100	0	25	0	19.0	18.6	33.0	-14.5
				1	99	1	0	21.2	20.7	33.0	-12.3
				100	0	1	0	19.2	18.7	33.0	-14.3
20MHz / 5MHz	2590.5	2602.2	QPSK	1	0	1	0	13.4	12.9	33.0	-20.1
				1	0	1	24	13.4	12.9	33.0	-20.1
				1	0	25	0	16.8	16.3	33.0	-16.7
				1	99	1	24	13.6	13.1	33.0	-19.9
				1	99	25	0	19.4	19.0	33.0	-14.1
				100	0	1	24	18.5	18.0	33.0	-15.0
				100	0	25	0	19.8	19.4	33.0	-13.6
				1	99	1	0	21.4	21.0	33.0	-12.1
				100	0	1	0	20.2	19.7	33.0	-13.3
			16QAM	1	0	1	0	13.5	13.0	33.0	-20.0
				1	0	1	24	13.4	13.0	33.0	-20.0
				1	0	25	0	16.9	16.4	33.0	-16.6
				1	99	1	24	13.6	13.1	33.0	-19.9
				1	99	25	0	18.4	17.9	33.0	-15.1
				100	0	1	24	18.5	18.0	33.0	-15.0
				100	0	25	0	18.4	18.0	33.0	-15.1
				1	99	1	0	21.0	20.5	33.0	-12.5
				100	0	1	0	18.9	18.5	33.0	-14.6
20MHz / 5MHz	2675.0	2686.7	QPSK	1	0	1	0	13.2	12.8	33.0	-20.2
				1	0	1	24	13.5	13.0	33.0	-20.0
				1	0	25	0	16.8	16.4	33.0	-16.6
				1	99	1	24	13.6	13.2	33.0	-19.9
				1	99	25	0	19.6	19.1	33.0	-13.9
				100	0	1	24	18.4	17.9	33.0	-15.1
				100	0	25	0	20.0	19.5	33.0	-13.5
				1	99	1	0	21.4	20.9	33.0	-12.1
				100	0	1	0	19.9	19.4	33.0	-13.6
			16QAM	1	0	1	0	12.6	12.2	33.0	-20.8
				1	0	1	24	12.6	12.2	33.0	-20.9
				1	0	25	0	17.5	17.0	33.0	-16.0
				1	99	1	24	13.6	13.1	33.0	-19.9
				1	99	25	0	18.6	18.1	33.0	-14.9
				100	0	1	24	18.5	18.0	33.0	-15.0
				100	0	25	0	18.9	18.5	33.0	-14.6
				1	99	1	0	20.9	20.5	33.0	-12.5
				100	0	1	0	18.9	18.4	33.0	-14.6

OUTPUT POWER FOR LTE BAND 41 (10.0MHz + 20.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
10MHz / 20MHz	2501.5	2515.9	QPSK	1	49	1	0	21.5	21.1	33.0	-12.0
				1	24	1	49	13.7	13.2	33.0	-19.8
				50	0	100	0	19.4	19.0	33.0	-14.1
			16QAM	1	49	1	0	21.1	20.6	33.0	-12.4
				1	24	1	49	13.6	13.1	33.0	-19.9
				50	0	100	0	18.5	18.0	33.0	-15.0
10MHz / 20MHz	2583.6	2598.0	QPSK	1	49	1	0	21.1	20.7	33.0	-12.4
				1	24	1	49	13.4	12.9	33.0	-20.1
				50	0	100	0	19.8	19.3	33.0	-13.7
			16QAM	1	49	1	0	20.3	19.8	33.0	-13.2
				1	24	1	49	13.7	13.3	33.0	-19.8
				50	0	100	0	18.3	17.8	33.0	-15.2
10MHz / 20MHz	2665.6	2680.0	QPSK	1	49	1	0	21.2	20.7	33.0	-12.3
				1	24	1	49	13.5	13.1	33.0	-20.0
				50	0	100	0	19.7	19.3	33.0	-13.8
			16QAM	1	49	1	0	20.8	20.3	33.0	-12.7
				1	24	1	49	19.8	19.4	33.0	-13.7
				50	0	100	0	18.7	18.3	33.0	-14.7

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 10.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 10MHz	2506.0	2520.4	QPSK	1	99	1	0	21.5	21.0	33.0	-12.0
				100	0	50	0	19.5	19.0	33.0	-14.0
			16QAM	1	99	1	0	20.9	20.5	33.0	-12.6
				100	0	50	0	18.9	18.5	33.0	-14.6
20MHz / 10MHz	2588.1	2602.5	QPSK	1	99	1	0	21.4	21.0	33.0	-12.1
				100	0	50	0	19.1	18.7	33.0	-14.4
			16QAM	1	99	1	0	21.0	20.5	33.0	-12.5
				100	0	50	0	18.3	17.9	33.0	-15.1
20MHz / 10MHz	2670.1	2684.5	QPSK	1	99	1	0	21.5	21.0	33.0	-12.0
				100	0	50	0	19.1	18.7	33.0	-14.3
			16QAM	1	99	1	0	21.0	20.6	33.0	-12.4
				100	0	50	0	18.5	18.0	33.0	-15.0

OUTPUT POWER FOR LTE BAND 41 (15.0MHz + 15.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
15MHz / 15MHz	2503.5	2518.5	QPSK	1	74	1	0	21.4	20.9	33.0	-12.1
				75	0	75	0	19.2	18.7	33.0	-14.3
			16QAM	1	74	1	0	20.9	20.5	33.0	-12.6
				75	0	75	0	19.1	18.6	33.0	-14.4
15MHz / 15MHz	2585.5	2600.5	QPSK	1	74	1	0	21.5	21.0	33.0	-12.0
				75	0	75	0	19.3	18.8	33.0	-14.2
			16QAM	1	74	1	0	20.8	20.4	33.0	-12.7
				75	0	75	0	19.0	18.6	33.0	-14.4
15MHz / 15MHz	2667.5	2682.5	QPSK	1	74	1	0	21.5	21.0	33.0	-12.0
				75	0	75	0	19.4	18.9	33.0	-14.1
			16QAM	1	74	1	0	20.8	20.4	33.0	-12.7
				75	0	75	0	19.2	18.7	33.0	-14.3

OUTPUT POWER FOR LTE BAND 41 (15.0MHz + 20.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
15MHz / 20MHz	2503.8	2520.9	QPSK	1	74	1	0	21.5	21.0	33.0	-12.0
				1	36	1	49	13.8	13.3	33.0	-19.7
				75	0	100	0	19.8	19.4	33.0	-13.6
			16QAM	1	74	1	0	21.0	20.6	33.0	-12.4
				1	36	1	49	13.9	13.5	33.0	-19.5
				75	0	100	0	18.8	18.3	33.0	-14.7
15MHz / 20MHz	2583.3	2600.4	QPSK	1	74	1	0	21.5	21.0	33.0	-12.0
				1	36	1	49	13.8	13.3	33.0	-19.7
				75	0	100	0	19.8	19.3	33.0	-13.7
			16QAM	1	74	1	0	20.8	20.4	33.0	-12.7
				1	36	1	49	13.8	13.4	33.0	-19.6
				75	0	100	0	18.8	18.3	33.0	-14.7
15MHz / 20MHz	2662.9	2680.0	QPSK	1	74	1	0	21.5	21.0	33.0	-12.0
				1	36	1	49	14.0	13.6	33.0	-19.4
				75	0	100	0	19.9	19.5	33.0	-13.5
			16QAM	1	74	1	0	20.7	20.3	33.0	-12.7
				1	36	1	49	13.8	13.4	33.0	-19.6
				75	0	100	0	19.2	18.8	33.0	-14.2

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 15.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 15MHz	2506.0	2523.1	QPSK	1	99	1	0	21.3	20.9	33.0	-12.1
				100	0	75	0	19.4	18.9	33.0	-14.1
			16QAM	1	99	1	0	21.0	20.6	33.0	-12.4
				100	0	75	0	18.7	18.2	33.0	-14.8
20MHz / 15MHz	2585.6	2602.7	QPSK	1	99	1	0	21.3	20.8	33.0	-12.2
				100	0	75	0	19.4	19.0	33.0	-14.0
			16QAM	1	99	1	0	21.0	20.5	33.0	-12.5
				100	0	75	0	18.6	18.2	33.0	-14.8
20MHz / 15MHz	2665.1	2682.2	QPSK	1	99	1	0	21.4	20.9	33.0	-12.1
				100	0	75	0	19.5	19.1	33.0	-13.9
			16QAM	1	99	1	0	21.1	20.6	33.0	-12.4
				100	0	75	0	18.4	18.0	33.0	-15.0

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 20.0MHz)

Antenna Gain (dBi)		-0.46									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20MHz/ 20MHz	2506.0	2525.8	QPSK	1	0	1	0	13.7	13.2	33.0	-19.8
				1	0	1	99	13.7	13.2	33.0	-19.8
				1	0	100	0	18.7	18.3	33.0	-14.8
				1	49	1	49	13.6	13.1	33.0	-19.9
				1	99	1	99	13.7	13.2	33.0	-19.8
				1	99	100	0	19.5	19.0	33.0	-14.0
				100	0	1	99	18.4	18.0	33.0	-15.1
				100	0	100	0	19.7	19.3	33.0	-13.8
				1	99	1	0	21.2	20.7	33.0	-12.3
				100	0	1	0	19.8	19.4	33.0	-13.6
			16QAM	1	0	1	0	13.6	13.2	33.0	-19.8
				1	0	1	99	13.6	13.2	33.0	-19.9
				1	0	100	0	18.6	18.1	33.0	-14.9
				1	49	1	49	13.4	13.0	33.0	-20.1
				1	99	1	99	13.5	13.1	33.0	-20.0
				1	99	100	0	18.6	18.2	33.0	-14.9
				100	0	1	99	18.5	18.0	33.0	-15.0
				100	0	100	0	18.8	18.3	33.0	-14.7
				1	99	1	0	20.7	20.3	33.0	-12.7
				100	0	1	0	18.7	18.2	33.0	-14.8
20MHz/ 20MHz	2583.1	2602.9	QPSK	1	0	1	0	13.7	13.3	33.0	-19.8
				1	0	1	99	13.7	13.3	33.0	-19.8
				1	0	100	0	18.7	18.2	33.0	-14.8
				1	49	1	49	13.6	13.1	33.0	-19.9
				1	99	1	99	13.7	13.2	33.0	-19.8
				1	99	100	0	19.6	19.1	33.0	-13.9
				100	0	1	99	18.4	17.9	33.0	-15.1
				100	0	100	0	19.6	19.2	33.0	-13.8
				1	99	1	0	21.2	20.7	33.0	-12.3
				100	0	1	0	19.9	19.4	33.0	-13.6
			16QAM	1	0	1	0	13.7	13.2	33.0	-19.8
				1	0	1	99	13.7	13.2	33.0	-19.8
				1	0	100	0	18.6	18.1	33.0	-14.9
				1	49	1	49	13.5	13.0	33.0	-20.0
				1	99	1	99	13.6	13.1	33.0	-19.9
				1	99	100	0	18.6	18.1	33.0	-14.9
				100	0	1	99	18.6	18.1	33.0	-14.9
				100	0	100	0	18.8	18.4	33.0	-14.7
				1	99	1	0	20.6	20.2	33.0	-12.8
				100	0	1	0	18.7	18.2	33.0	-14.8
20MHz/ 20MHz	2660.2	2680.0	QPSK	1	0	1	0	13.7	13.3	33.0	-19.8
				1	0	1	99	13.7	13.3	33.0	-19.7
				1	0	100	0	18.7	18.2	33.0	-14.8
				1	49	1	49	13.6	13.1	33.0	-19.9
				1	99	1	99	13.7	13.2	33.0	-19.8
				1	99	100	0	19.6	19.1	33.0	-13.9
				100	0	1	99	18.4	17.9	33.0	-15.1
				100	0	100	0	19.7	19.2	33.0	-13.8
				1	99	1	0	21.2	20.7	33.0	-12.3
				100	0	1	0	19.9	19.4	33.0	-13.6
			16QAM	1	0	1	0	13.7	13.2	33.0	-19.8
				1	0	1	99	13.7	13.2	33.0	-19.8
				1	0	100	0	18.6	18.2	33.0	-14.9
				1	49	1	49	13.4	13.0	33.0	-20.0
				1	99	1	99	13.6	13.2	33.0	-19.9
				1	99	100	0	18.6	18.1	33.0	-14.9
				100	0	1	99	18.6	18.2	33.0	-14.9
				100	0	100	0	18.8	18.3	33.0	-14.7
				1	99	1	0	20.7	20.3	33.0	-12.8
				100	0	1	0	18.7	18.2	33.0	-14.8

7.2. ANTENNA D

7.2.1. LTE Band 7

ID:	29439	Date:	1/11/17
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OUTPUT POWER FOR LTE BAND 7 (10.0MHz + 20.0MHz)

Antenna Gain (dBi)		0.53									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC 1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
10MHz / 20MHz	2505.5	2519.9	QPSK	1	49	1	0	21.0	21.5	33.0	-11.5
				1	24	1	49	12.6	13.1	33.0	-19.9
				50	0	100	0	18.8	19.3	33.0	-13.7
			16QAM	1	74	1	0	19.7	20.2	33.0	-12.8
				1	24	1	49	12.8	13.3	33.0	-19.7
				50	0	100	0	17.7	18.3	33.0	-14.8
10MHz / 20MHz	2525.6	2540.0	QPSK	1	49	1	0	20.9	21.5	33.0	-11.6
				1	24	1	49	12.5	13.0	33.0	-20.0
				50	0	100	0	18.6	19.2	33.0	-13.8
			16QAM	1	49	1	0	19.7	20.2	33.0	-12.8
				1	24	1	49	12.8	13.3	33.0	-19.7
				50	0	100	0	17.6	18.1	33.0	-14.9
10MHz / 20MHz	2545.6	2560.0	QPSK	1	49	1	0	20.8	21.4	33.0	-11.7
				1	24	1	49	12.5	13.0	33.0	-20.0
				50	0	100	0	18.6	19.2	33.0	-13.9
			16QAM	1	49	1	0	19.5	20.1	33.0	-13.0
				1	24	1	49	12.5	13.1	33.0	-20.0
				50	0	100	0	17.7	18.2	33.0	-14.8

OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 10.0MHz)

Antenna Gain (dBi)		0.53									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC 1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 10MHz	2510.0	2524.4	QPSK	1	0	1	0	13.1	13.6	33.0	-19.4
				1	0	1	49	13.1	13.6	33.0	-19.4
				1	0	50	0	17.6	18.1	33.0	-14.9
				1	99	1	49	13.0	13.5	33.0	-19.5
				1	99	50	0	19.1	19.6	33.0	-13.4
				100	0	1	49	18.0	18.6	33.0	-14.5
				100	0	50	0	19.0	19.5	33.0	-13.5
				1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	1	0	19.6	20.1	33.0	-12.9
			16QAM	1	0	1	0	13.0	13.6	33.0	-19.4
				1	0	1	49	12.7	13.2	33.0	-19.8
				1	0	50	0	17.5	18.1	33.0	-14.9
				1	99	1	49	12.7	13.2	33.0	-19.8
				1	99	50	0	18.0	18.5	33.0	-14.5
				100	0	1	49	17.8	18.3	33.0	-14.7
				100	0	50	0	18.2	18.7	33.0	-14.3
				1	99	1	0	20.4	20.9	33.0	-12.1
				100	0	1	0	18.3	18.9	33.0	-14.2
20MHz / 10MHz	2530.1	2544.5	QPSK	1	0	1	0	13.2	13.7	33.0	-19.3
				1	0	1	49	13.0	13.5	33.0	-19.5
				1	0	50	0	17.6	18.2	33.0	-14.9
				1	99	1	49	12.9	13.4	33.0	-19.6
				1	99	50	0	19.0	19.5	33.0	-13.5
				100	0	1	49	18.0	18.5	33.0	-14.5
				100	0	50	0	19.1	19.7	33.0	-13.4
				1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	1	0	19.5	20.1	33.0	-12.9
			16QAM	1	0	1	0	13.2	13.7	33.0	-19.3
				1	0	1	49	12.7	13.2	33.0	-19.8
				1	0	50	0	17.4	18.0	33.0	-15.1
				1	99	1	49	12.6	13.1	33.0	-19.9
				1	99	50	0	17.9	18.4	33.0	-14.6
				100	0	1	49	17.7	18.3	33.0	-14.7
				100	0	50	0	18.1	18.6	33.0	-14.4
				1	99	1	0	20.6	21.2	33.0	-11.9
				100	0	1	0	18.3	18.9	33.0	-14.2
20MHz / 10MHz	2550.1	2564.5	QPSK	1	0	1	0	13.1	13.6	33.0	-19.4
				1	0	1	49	13.1	13.6	33.0	-19.4
				1	0	50	0	17.6	18.1	33.0	-14.9
				1	99	1	49	12.9	13.4	33.0	-19.6
				1	99	50	0	18.9	19.5	33.0	-13.6
				100	0	1	49	17.9	18.4	33.0	-14.6
				100	0	50	0	18.9	19.5	33.0	-13.6
				1	99	1	0	20.9	21.4	33.0	-11.6
				100	0	1	0	19.4	20.0	33.0	-13.0
			16QAM	1	0	1	0	12.7	13.3	33.0	-19.7
				1	0	1	49	12.8	13.3	33.0	-19.7
				1	0	50	0	17.4	17.9	33.0	-15.1
				1	99	1	49	12.6	13.1	33.0	-19.9
				1	99	50	0	17.8	18.3	33.0	-14.7
				100	0	1	49	17.8	18.3	33.0	-14.7
				100	0	50	0	18.0	18.5	33.0	-14.5
				1	99	1	0	20.2	20.7	33.0	-12.3
				100	0	1	0	18.3	18.8	33.0	-14.2

OUTPUT POWER FOR LTE BAND 7 (15.0MHz + 15.0MHz)

Antenna Gain (dBi)		0.53									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC 1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
15MHz / 15MHz	2507.5	2522.5	QPSK	1	74	1	0	20.9	21.5	33.0	-11.5
				75	0	75	0	18.8	19.4	33.0	-13.6
			16QAM	1	74	1	0	19.8	20.3	33.0	-12.7
				75	0	75	0	17.8	18.4	33.0	-14.7
15MHz / 15MHz	2527.5	2542.5	QPSK	1	74	1	0	21.0	21.5	33.0	-11.5
				75	0	75	0	18.8	19.3	33.0	-13.7
			16QAM	1	74	1	0	20.0	20.5	33.0	-12.5
				75	0	75	0	17.8	18.3	33.0	-14.7
15MHz / 15MHz	2547.5	2562.5	QPSK	1	74	1	0	20.9	21.4	33.0	-11.6
				75	0	75	0	18.8	19.3	33.0	-13.7
			16QAM	1	74	1	0	19.8	20.3	33.0	-12.7
				75	0	75	0	17.8	18.4	33.0	-14.7

OUTPUT POWER FOR LTE BAND 7 (15.0MHz + 20.0MHz)

Antenna Gain (dBi)		0.53									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC 1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
15MHz / 20MHz	2507.8	2524.9	QPSK	1	74	1	0	21.0	21.6	33.0	-11.4
				1	36	1	49	13.1	13.6	33.0	-19.4
				75	0	100	0	19.0	19.6	33.0	-13.4
			16QAM	1	74	1	0	20.0	20.5	33.0	-12.5
				1	36	1	49	13.0	13.6	33.0	-19.4
				75	0	100	0	18.0	18.6	33.0	-14.5
15MHz / 20MHz	2525.3	2542.4	QPSK	1	74	1	0	21.0	21.6	33.0	-11.4
				1	36	1	49	13.1	13.6	33.0	-19.4
				75	0	100	0	19.1	19.6	33.0	-13.4
			16QAM	1	74	1	0	20.1	20.7	33.0	-12.4
				1	36	1	49	13.1	13.6	33.0	-19.4
				75	0	100	0	18.1	18.6	33.0	-14.4
15MHz / 20MHz	2542.9	2560.0	QPSK	1	74	1	0	21.0	21.5	33.0	-11.5
				1	36	1	49	13.1	13.6	33.0	-19.4
				75	0	100	0	19.0	19.5	33.0	-13.5
			16QAM	1	74	1	0	20.0	20.5	33.0	-12.5
				1	36	1	49	13.0	13.5	33.0	-19.5
				75	0	100	0	18.0	18.6	33.0	-14.4

OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 15.0MHz)

Antenna Gain (dBi)		0.53									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC 1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 15MHz	2510.0	2527.1	QPSK	1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	75	0	18.7	19.2	33.0	-13.8
			16QAM	1	99	1	0	20.4	20.9	33.0	-12.1
				100	0	75	0	17.7	18.2	33.0	-14.8
20MHz / 15MHz	2527.6	2544.7	QPSK	1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	75	0	18.6	19.2	33.0	-13.9
			16QAM	1	99	1	0	20.3	20.8	33.0	-12.2
				100	0	75	0	17.6	18.2	33.0	-14.9
20MHz / 15MHz	2545.1	2562.2	QPSK	1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	75	0	18.6	19.1	33.0	-13.9
			16QAM	1	99	1	0	20.4	20.9	33.0	-12.1
				100	0	75	0	17.7	18.2	33.0	-14.8

OUTPUT POWER FOR LTE BAND 7 (20.0MHz + 20.0MHz)

Antenna Gain (dBi)		0.53									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB Size	PCC RB Offset	SCC 1 RB Size	SCC1 RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20MHz/20MHz	2510.0	2529.8	QPSK	1	0	1	0	13.0	13.5	33.0	-19.5
				1	0	1	99	12.9	13.5	33.0	-19.6
				1	0	100	0	18.0	18.5	33.0	-14.5
				1	49	1	49	12.9	13.4	33.0	-19.6
				1	99	1	99	12.7	13.3	33.0	-19.7
				1	99	100	0	18.8	19.4	33.0	-13.7
				100	0	1	99	17.9	18.4	33.0	-14.6
				100	0	100	0	18.8	19.3	33.0	-13.7
			16QAM	1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	1	0	19.3	19.9	33.0	-13.1
				1	0	1	0	12.9	13.4	33.0	-19.6
				1	0	1	99	12.9	13.4	33.0	-19.6
				1	0	100	0	18.0	18.5	33.0	-14.5
				1	49	1	49	12.6	13.1	33.0	-19.9
				1	99	1	99	12.5	13.0	33.0	-20.0
				1	99	100	0	17.9	18.5	33.0	-14.6
				100	0	1	99	17.8	18.4	33.0	-14.7
				100	0	100	0	17.8	18.3	33.0	-14.7
				1	99	1	0	20.4	20.9	33.0	-12.1
				100	0	1	0	18.5	19.0	33.0	-14.0
20MHz/20MHz	2525.1	2544.9	QPSK	1	0	1	0	13.0	13.5	33.0	-19.5
				1	0	1	99	13.0	13.5	33.0	-19.5
				1	0	100	0	18.0	18.6	33.0	-14.5
				1	49	1	49	12.9	13.4	33.0	-19.6
				1	99	1	99	12.7	13.3	33.0	-19.8
				1	99	100	0	18.8	19.4	33.0	-13.7
				100	0	1	99	17.9	18.4	33.0	-14.6
				100	0	100	0	18.8	19.3	33.0	-13.7
			16QAM	1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	1	0	19.3	19.9	33.0	-13.2
				1	0	1	0	13.0	13.5	33.0	-19.5
				1	0	1	99	13.0	13.5	33.0	-19.5
				1	0	100	0	18.0	18.5	33.0	-14.5
				1	49	1	49	12.6	13.1	33.0	-19.9
				1	99	1	99	12.6	13.1	33.0	-19.9
				1	99	100	0	18.0	18.5	33.0	-14.5
				100	0	1	99	17.9	18.4	33.0	-14.6
				100	0	100	0	17.8	18.3	33.0	-14.7
				1	99	1	0	20.4	20.9	33.0	-12.1
				100	0	1	0	18.5	19.0	33.0	-14.0
20MHz/20MHz	2540.2	2560.0	QPSK	1	0	1	0	13.0	13.5	33.0	-19.5
				1	0	1	99	13.0	13.5	33.0	-19.5
				1	0	100	0	18.0	18.5	33.0	-14.5
				1	49	1	49	12.9	13.4	33.0	-19.6
				1	99	1	99	12.7	13.3	33.0	-19.8
				1	99	100	0	18.8	19.3	33.0	-13.7
				100	0	1	99	17.8	18.4	33.0	-14.7
				100	0	100	0	18.8	19.3	33.0	-13.7
			16QAM	1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	1	0	19.4	19.9	33.0	-13.1
				1	0	1	0	12.8	13.4	33.0	-19.7
				1	0	1	99	12.9	13.4	33.0	-19.6
				1	0	100	0	17.9	18.4	33.0	-14.6
				1	49	1	49	12.6	13.1	33.0	-19.9
				1	99	1	99	12.5	13.1	33.0	-19.9
				1	99	100	0	18.0	18.5	33.0	-14.5
				100	0	1	99	17.8	18.3	33.0	-14.7
				100	0	100	0	17.8	18.3	33.0	-14.7
				1	99	1	0	20.4	20.9	33.0	-12.1
				100	0	1	0	18.4	19.0	33.0	-14.1

7.2.2. LTE Band 41

ID:	45258	Date:	1/13/17
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OUTPUT POWER FOR LTE BAND 41 (5.0MHz + 20.0MHz)

Antenna Gain (dBi)		0.56									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
5MHz / 20MHz	2499.3	2511.0	QPSK	1	24	1	0	21.0	21.6	33.0	-11.5
				1	12	1	49	13.0	13.5	33.0	-19.5
				25	0	100	0	19.0	19.6	33.0	-13.4
			16QAM	1	24	1	0	19.8	20.3	33.0	-12.7
				1	12	1	49	13.1	13.7	33.0	-19.4
				25	0	100	0	18.0	18.6	33.0	-14.5
5MHz / 20MHz	2583.8	2595.5	QPSK	1	24	1	0	20.3	20.9	33.0	-12.1
				1	12	1	49	12.8	13.4	33.0	-19.7
				25	0	100	0	18.9	19.4	33.0	-13.6
			16QAM	1	24	1	0	19.9	20.5	33.0	-12.6
				1	12	1	49	12.7	13.3	33.0	-19.7
				25	0	100	0	17.9	18.4	33.0	-14.6
5MHz / 20MHz	2668.3	2680.0	QPSK	1	24	1	0	19.6	20.1	33.0	-12.9
				1	12	1	49	12.5	13.1	33.0	-20.0
				25	0	100	0	19.1	19.6	33.0	-13.4
			16QAM	1	24	1	0	20.1	20.7	33.0	-12.4
				1	12	1	49	12.6	13.1	33.0	-19.9
				25	0	100	0	18.1	18.7	33.0	-14.4

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 5.0MHz)

Antenna Gain (dBi)		0.56									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 5MHz	2506.0	2517.7	QPSK	1	0	1	0	12.6	13.1	33.0	-19.9
				1	0	1	24	12.6	13.1	33.0	-19.9
				1	0	25	0	16.1	16.7	33.0	-16.3
				1	99	1	24	12.7	13.3	33.0	-19.7
				1	99	25	0	18.6	19.1	33.0	-13.9
				100	0	1	24	17.6	18.2	33.0	-14.8
				100	0	25	0	19.2	19.7	33.0	-13.3
				1	99	1	0	20.9	21.4	33.0	-11.6
			100	0	1	0	19.1	19.7	33.0	-13.3	
			16QAM	1	0	1	0	12.5	13.1	33.0	-19.9
				1	0	1	24	12.6	13.2	33.0	-19.8
				1	0	25	0	16.2	16.7	33.0	-16.3
				1	99	1	24	12.7	13.3	33.0	-19.8
				1	99	25	0	17.8	18.4	33.0	-14.6
				100	0	1	24	17.6	18.1	33.0	-14.9
				100	0	25	0	18.3	18.8	33.0	-14.2
1	99	1		0	20.0	20.6	33.0	-12.4			
100	0	1	0	18.6	19.1	33.0	-13.9				
20MHz / 5MHz	2590.5	2602.2	QPSK	1	0	1	0	12.7	13.2	33.0	-19.8
				1	0	1	24	12.6	13.2	33.0	-19.8
				1	0	25	0	16.3	16.8	33.0	-16.2
				1	99	1	24	12.7	13.3	33.0	-19.7
				1	99	25	0	18.8	19.4	33.0	-13.6
				100	0	1	24	17.7	18.2	33.0	-14.8
				100	0	25	0	19.1	19.7	33.0	-13.4
				1	99	1	0	20.9	21.5	33.0	-11.6
			100	0	1	0	19.3	19.9	33.0	-13.1	
			16QAM	1	0	1	0	12.6	13.2	33.0	-19.8
				1	0	1	24	12.5	13.0	33.0	-20.0
				1	0	25	0	16.1	16.6	33.0	-16.4
				1	99	1	24	12.6	13.1	33.0	-19.9
				1	99	25	0	17.7	18.3	33.0	-14.7
				100	0	1	24	17.6	18.2	33.0	-14.8
				100	0	25	0	18.2	18.7	33.0	-14.3
1	99	1		0	19.4	20.0	33.0	-13.0			
100	0	1	0	19.0	19.6	33.0	-13.5				
20MHz / 5MHz	2675.0	2686.7	QPSK	1	0	1	0	12.6	13.2	33.0	-19.8
				1	0	1	24	12.7	13.2	33.0	-19.8
				1	0	25	0	16.1	16.6	33.0	-16.4
				1	99	1	24	12.6	13.2	33.0	-19.9
				1	99	25	0	18.6	19.1	33.0	-13.9
				100	0	1	24	17.6	18.2	33.0	-14.8
				100	0	25	0	19.0	19.6	33.0	-13.4
				1	99	1	0	21.0	21.6	33.0	-11.4
			100	0	1	0	19.1	19.6	33.0	-13.4	
			16QAM	1	0	1	0	12.4	13.0	33.0	-20.1
				1	0	1	24	12.3	12.9	33.0	-20.1
				1	0	25	0	15.8	16.4	33.0	-16.6
				1	99	1	24	12.3	12.9	33.0	-20.2
				1	99	25	0	17.4	18.0	33.0	-15.0
				100	0	1	24	17.6	18.2	33.0	-14.9
				100	0	25	0	18.0	18.6	33.0	-14.4
1	99	1		0	19.8	20.4	33.0	-12.6			
100	0	1	0	18.1	18.6	33.0	-14.4				

OUTPUT POWER FOR LTE BAND 41 (10.0MHz + 20.0MHz)

Antenna Gain (dBi)		0.56									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
10MHz / 20MHz	2501.5	2515.9	QPSK	1	49	1	0	20.9	21.5	33.0	-11.5
				1	24	1	49	12.9	13.5	33.0	-19.6
				50	0	100	0	18.9	19.5	33.0	-13.5
			16QAM	1	49	1	0	19.7	20.2	33.0	-12.8
				1	24	1	49	13.1	13.6	33.0	-19.4
				50	0	100	0	17.9	18.5	33.0	-14.5
10MHz / 20MHz	2583.6	2598.0	QPSK	1	49	1	0	20.2	20.8	33.0	-12.2
				1	24	1	49	12.7	13.3	33.0	-19.7
				50	0	100	0	18.8	19.4	33.0	-13.6
			16QAM	1	49	1	0	19.8	20.4	33.0	-12.6
				1	24	1	49	12.7	13.3	33.0	-19.8
				50	0	100	0	17.8	18.4	33.0	-14.7
10MHz / 20MHz	2665.6	2680.0	QPSK	1	49	1	0	19.5	20.0	33.0	-13.0
				1	24	1	49	12.4	13.0	33.0	-20.0
				50	0	100	0	19.0	19.6	33.0	-13.5
			16QAM	1	49	1	0	20.0	20.6	33.0	-12.4
				1	24	1	49	12.5	13.1	33.0	-20.0
				50	0	100	0	18.1	18.7	33.0	-14.3

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 10.0MHz)

Antenna Gain (dBi)		0.56									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 10MHz	2506.0	2520.4	QPSK	1	99	1	0	20.8	21.4	33.0	-11.6
				100	0	50	0	18.6	19.1	33.0	-13.9
			16QAM	1	99	1	0	20.0	20.6	33.0	-12.4
				100	0	50	0	17.6	18.1	33.0	-14.9
20MHz / 10MHz	2588.1	2602.5	QPSK	1	99	1	0	20.6	21.2	33.0	-11.8
				100	0	50	0	18.6	19.1	33.0	-13.9
			16QAM	1	99	1	0	19.9	20.5	33.0	-12.5
				100	0	50	0	17.5	18.1	33.0	-14.9
20MHz / 10MHz	2670.1	2684.5	QPSK	1	99	1	0	21.0	21.6	33.0	-11.4
				100	0	50	0	18.5	19.1	33.0	-13.9
			16QAM	1	99	1	0	19.8	20.3	33.0	-12.7
				100	0	50	0	18.0	18.5	33.0	-14.5

OUTPUT POWER FOR LTE BAND 41 (15.0MHz + 15.0MHz)

Antenna Gain (dBi)		0.56									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
15MHz / 15MHz	2503.5	2518.5	QPSK	1	74	1	0	20.5	21.0	33.0	-12.0
				75	0	75	0	18.4	19.0	33.0	-14.0
			16QAM	1	74	1	0	19.4	19.9	33.0	-13.1
				75	0	75	0	17.4	17.9	33.0	-15.1
15MHz / 15MHz	2585.5	2600.5	QPSK	1	74	1	0	20.5	21.0	33.0	-12.0
				75	0	75	0	18.4	19.0	33.0	-14.0
			16QAM	1	74	1	0	19.4	19.9	33.0	-13.1
				75	0	75	0	17.4	17.9	33.0	-15.1
15MHz / 15MHz	2667.5	2682.5	QPSK	1	74	1	0	21.0	21.5	33.0	-11.5
				75	0	75	0	18.4	19.0	33.0	-14.1
			16QAM	1	74	1	0	20.4	21.0	33.0	-12.0
				75	0	75	0	17.3	17.9	33.0	-15.2

OUTPUT POWER FOR LTE BAND 41 (15.0MHz + 20.0MHz)

Antenna Gain (dBi)		0.56									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
15MHz / 20MHz	2503.8	2520.9	QPSK	1	74	1	0	21.0	21.6	33.0	-11.5
				1	36	1	49	12.7	13.2	33.0	-19.8
				75	0	100	0	18.6	19.1	33.0	-13.9
			16QAM	1	74	1	0	19.9	20.5	33.0	-12.5
				1	36	1	49	12.4	12.9	33.0	-20.1
				75	0	100	0	17.5	18.1	33.0	-14.9
15MHz / 20MHz	2583.3	2600.4	QPSK	1	74	1	0	20.8	21.4	33.0	-11.7
				1	36	1	49	12.6	13.1	33.0	-19.9
				75	0	100	0	18.4	18.9	33.0	-14.1
			16QAM	1	74	1	0	20.4	21.0	33.0	-12.1
				1	36	1	49	12.7	13.2	33.0	-19.8
				75	0	100	0	18.3	18.9	33.0	-14.1
15MHz / 20MHz	2662.9	2680.0	QPSK	1	74	1	0	20.8	21.4	33.0	-11.6
				1	36	1	49	12.5	13.1	33.0	-19.9
				75	0	100	0	18.4	19.0	33.0	-14.0
			16QAM	1	74	1	0	19.8	20.4	33.0	-12.7
				1	36	1	49	12.3	12.9	33.0	-20.2
				75	0	100	0	17.5	18.0	33.0	-15.0

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 15.0MHz)

Antenna Gain (dBi)		0.56									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz / 15MHz	2506.0	2523.1	QPSK	1	99	1	0	21.0	21.6	33.0	-11.5
				100	0	75	0	18.6	19.1	33.0	-13.9
			16QAM	1	99	1	0	19.9	20.5	33.0	-12.6
				100	0	75	0	17.7	18.2	33.0	-14.8
20MHz / 15MHz	2585.6	2602.7	QPSK	1	99	1	0	20.8	21.4	33.0	-11.7
				100	0	75	0	18.4	19.0	33.0	-14.0
			16QAM	1	99	1	0	20.0	20.5	33.0	-12.5
				100	0	75	0	17.4	18.0	33.0	-15.1
20MHz / 15MHz	2665.1	2682.2	QPSK	1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	75	0	18.0	18.6	33.0	-14.4
			16QAM	1	99	1	0	20.1	20.6	33.0	-12.4
				100	0	75	0	17.0	17.6	33.0	-15.4

OUTPUT POWER FOR LTE BAND 41 (20.0MHz + 20.0MHz)

Antenna Gain (dBi)		0.56									
Bandwidth	Frequency (MHz)	Frequency (MHz)	Modulation	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				Size	Offset	Size	Offset				
20MHz/ 20MHz	2506.0	2525.8	QPSK	1	0	1	0	12.7	13.3	33.0	-19.7
				1	0	1	99	13.0	13.5	33.0	-19.5
				1	0	100	0	18.0	18.6	33.0	-14.4
				1	49	1	49	12.9	13.5	33.0	-19.5
				1	99	1	99	12.9	13.4	33.0	-19.6
				1	99	100	0	18.8	19.3	33.0	-13.7
				100	0	1	99	17.8	18.4	33.0	-14.6
				100	0	100	0	19.0	19.6	33.0	-13.5
			16QAM	1	99	1	0	21.0	21.6	33.0	-11.5
				100	0	1	0	19.2	19.8	33.0	-13.2
				1	0	1	0	12.6	13.2	33.0	-19.8
				1	0	1	99	13.0	13.5	33.0	-19.5
				1	0	100	0	18.0	18.5	33.0	-14.5
				1	49	1	49	12.9	13.5	33.0	-19.6
				1	99	1	99	12.6	13.2	33.0	-19.9
				1	99	100	0	17.6	18.2	33.0	-14.8
				100	0	1	99	17.7	18.2	33.0	-14.8
				100	0	100	0	18.0	18.6	33.0	-14.5
				1	99	1	0	19.8	20.4	33.0	-12.7
				100	0	1	0	18.3	18.9	33.0	-14.1
20MHz/ 20MHz	2583.1	2602.9	QPSK	1	0	1	0	12.9	13.4	33.0	-19.6
				1	0	1	99	13.0	13.5	33.0	-19.5
				1	0	100	0	18.0	18.6	33.0	-14.4
				1	49	1	49	13.0	13.5	33.0	-19.5
				1	99	1	99	12.9	13.4	33.0	-19.6
				1	99	100	0	18.8	19.3	33.0	-13.7
				100	0	1	99	17.8	18.4	33.0	-14.6
				100	0	100	0	19.0	19.6	33.0	-13.4
			16QAM	1	99	1	0	21.0	21.5	33.0	-11.5
				100	0	1	0	19.2	19.8	33.0	-13.3
				1	0	1	0	12.8	13.4	33.0	-19.6
				1	0	1	99	12.7	13.3	33.0	-19.8
				1	0	100	0	17.7	18.2	33.0	-14.8
				1	49	1	49	12.7	13.2	33.0	-19.8
				1	99	1	99	12.6	13.2	33.0	-19.9
				1	99	100	0	17.7	18.2	33.0	-14.8
				100	0	1	99	17.7	18.2	33.0	-14.8
				100	0	100	0	18.3	18.9	33.0	-14.2
				1	99	1	0	19.6	20.1	33.0	-12.9
				100	0	1	0	18.3	18.9	33.0	-14.2
20MHz/ 20MHz	2660.2	2680.0	QPSK	1	0	1	0	12.8	13.4	33.0	-19.6
				1	0	1	99	13.0	13.5	33.0	-19.5
				1	0	100	0	18.0	18.6	33.0	-14.5
				1	49	1	49	12.9	13.4	33.0	-19.6
				1	99	1	99	12.9	13.4	33.0	-19.6
				1	99	100	0	18.8	19.3	33.0	-13.7
				100	0	1	99	17.8	18.4	33.0	-14.6
				100	0	100	0	18.9	19.5	33.0	-13.6
			16QAM	1	99	1	0	21.0	21.6	33.0	-11.4
				100	0	1	0	19.2	19.8	33.0	-13.2
				1	0	1	0	12.6	13.2	33.0	-19.9
				1	0	1	99	12.6	13.2	33.0	-19.8
				1	0	100	0	17.7	18.3	33.0	-14.8
				1	49	1	49	12.8	13.3	33.0	-19.7
				1	99	1	99	12.6	13.1	33.0	-19.9
				1	99	100	0	17.6	18.2	33.0	-14.9
				100	0	1	99	17.6	18.2	33.0	-14.8
				100	0	100	0	18.0	18.6	33.0	-14.4
				1	99	1	0	19.8	20.4	33.0	-12.6
				100	0	1	0	18.3	18.8	33.0	-14.2

8. CONDUCTED TEST RESULTS

8.1. 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 middle channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

- LTE Band 7
- LTE Band 41

RESULTS

LTE BAND 7

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 7	20MHz + 10MHz BAND QPSK	100/0 + 50/0	2535	28.0720	30.170
	20MHz + 10MHz BAND 16QAM	100/0 + 50/0	2535	28.0320	30.120
	10.0 MHz BAND QPSK	50/0	2544.5	9.0157	9.907
	10.0 MHz BAND 16QAM	50/0	2544.5	8.9959	9.872
	10.0 MHz BAND QPSK	1/0	2544.5	0.2279	0.3515
	10.0 MHz BAND 16QAM	1/0	2544.5	0.2449	0.4045
	20MHz + 20MHz BAND QPSK	100/0 + 100/0	2535	37.5340	39.890
	20MHz + 20MHz BAND 16QAM	100/0 + 100/0	2535	37.5320	39.910
	20.0 MHz BAND QPSK	100/0	2525.1	17.8430	19.190
	20.0 MHz BAND 16QAM	100/0	2525.1	17.8650	19.350
	20.0 MHz BAND QPSK	1/0	2525.1	0.2577	0.4065
	20.0 MHz BAND 16QAM	1/0	2525.1	0.2725	0.4287

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 7	10MHz + 20MHz BAND QPSK	50/0 + 100/0	2535	28.0900	30.00
	10MHz + 20MHz BAND 16QAM	50/0 + 100/0	2535	28.081	30.08
	15MHz + 15MHz BAND QPSK	75/0 + 75/0	2535	28.590	30.66
	15MHz + 15MHz BAND 16QAM	75/0 + 75/0	2535	28.536	30.65
	15MHz + 20MHz BAND QPSK	75/0 + 100/0	2535	32.747	35.04
	15MHz + 20MHz BAND 16QAM	75/0 + 100/0	2535	32.782	35.11
	20MHz + 15MHz BAND QPSK	100/0 + 75/0	2535	32.840	35.05
	20MHz + 15MHz BAND 16QAM	100/0 + 75/0	2535	32.811	35.06

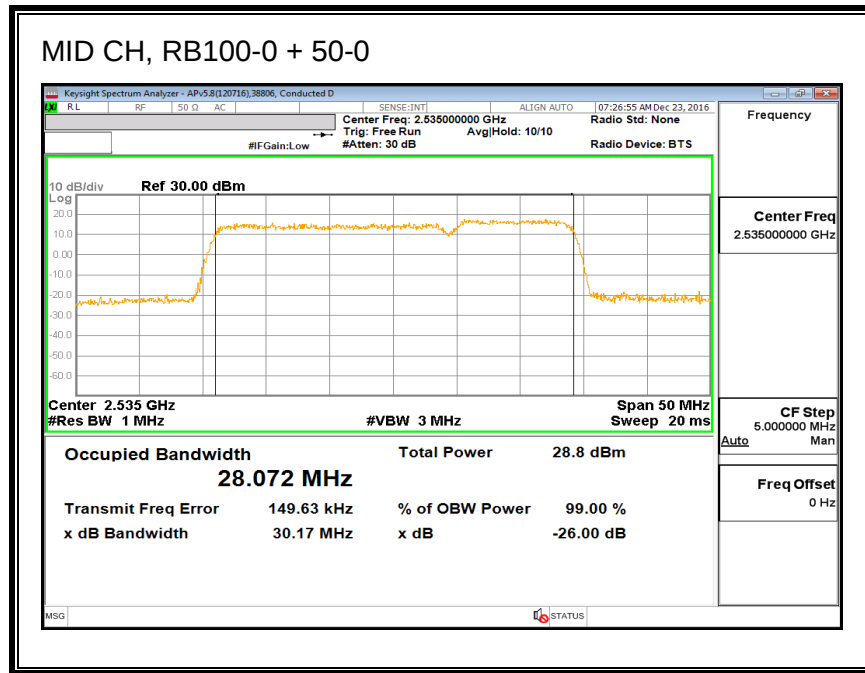
LTE BAND 41

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 41 (FCC)	20MHz + 5MHz BAND QPSK	100/0 + 25/0	2593	23.323	24.97
	20MHz + 5MHz BAND 16QAM	100/0 + 25/0	2593	23.342	24.99
	5.0 MHz BAND QPSK	25/0	2602.2	4.5385	4.995
	5.0 MHz BAND 16QAM	25/0	2602.2	4.5624	5.000
	5.0 MHz BAND QPSK	1/0	2602.2	0.2318	0.3540
	5.0 MHz BAND 16QAM	1/0	2602.2	0.2241	0.3655
	20MHz + 20MHz BAND QPSK	100/0 + 100/0	2593	37.616	40.580
	20MHz + 20MHz BAND 16QAM	100/0 + 100/0	2593	37.6450	40.270
	20.0 MHz BAND QPSK	100/0	2583.1	17.751	18.870
	20.0 MHz BAND 16QAM	100/0	2583.1	17.793	18.820
	20.0 MHz BAND QPSK	1/0	2583.1	0.2676	0.4359
	20.0 MHz BAND 16QAM	1/0	2583.1	0.2795	0.4117

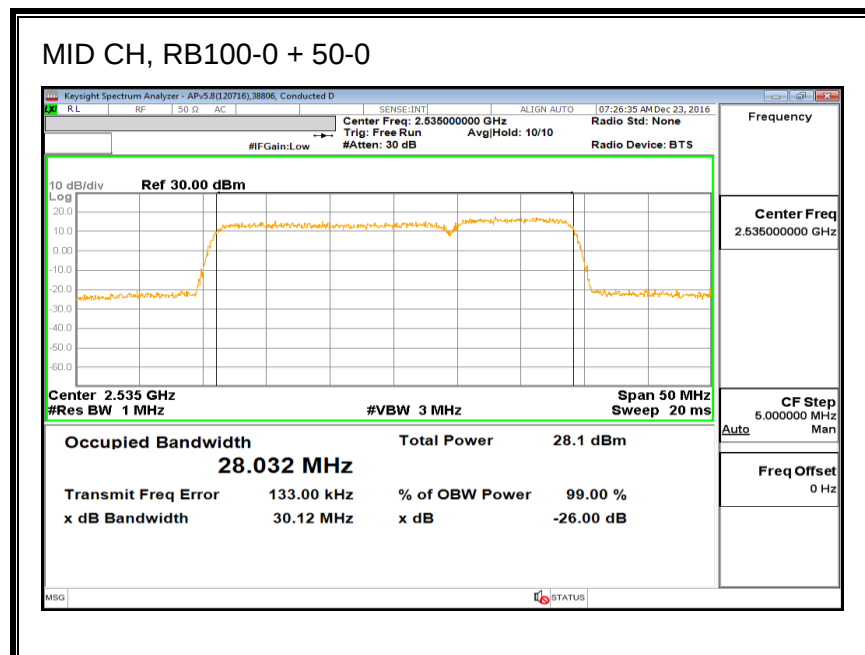
BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 41 (FCC)	5MHz + 20MHz BAND QPSK	25/0 + 100/0	2593	23.264	26.45
	5MHz + 20MHz BAND 16QAM	25/0 + 100/0	2593	23.406	26.91
	10MHz + 20MHz BAND QPSK	50/0 + 100/0	2593	27.978	30.12
	10MHz + 20MHz BAND 16QAM	50/0 + 100/0	2593	28.112	29.83
	20MHz + 10MHz BAND QPSK	100/0 + 50/0	2593	28.085	29.90
	20MHz + 10MHz BAND 16QAM	100/0 + 50/0	2593	28.080	29.91
	15MHz + 15MHz BAND QPSK	75/0 + 75/0	2593	28.648	30.74
	15MHz + 15MHz BAND 16QAM	75/0 + 75/0	2593	28.567	30.53
	15MHz + 20MHz BAND QPSK	75/0 + 100/0	2593	32.818	34.98
	15MHz + 20MHz BAND 16QAM	75/0 + 100/0	2593	32.867	34.95
	20MHz + 15MHz BAND QPSK	100/0 + 75/0	2593	32.788	34.95
	20MHz + 15MHz BAND 16QAM	100/0 + 75/0	2593	32.849	34.95

8.1.1. LTE BAND 7

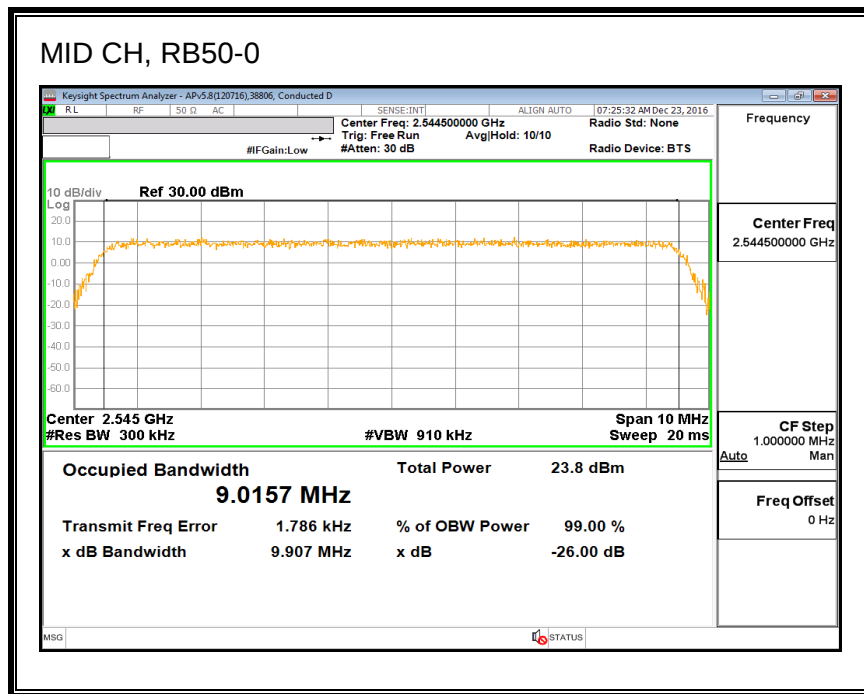
QPSK, (20.0MHz + 10.0MHz BAND WIDTH)



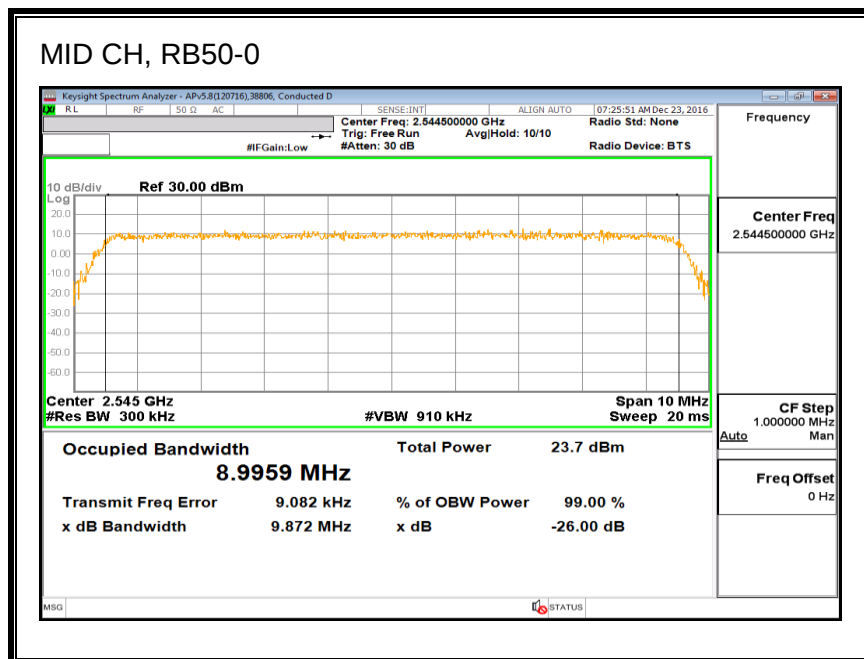
16QAM, (20.0MHz + 10.0MHz BAND WIDTH)



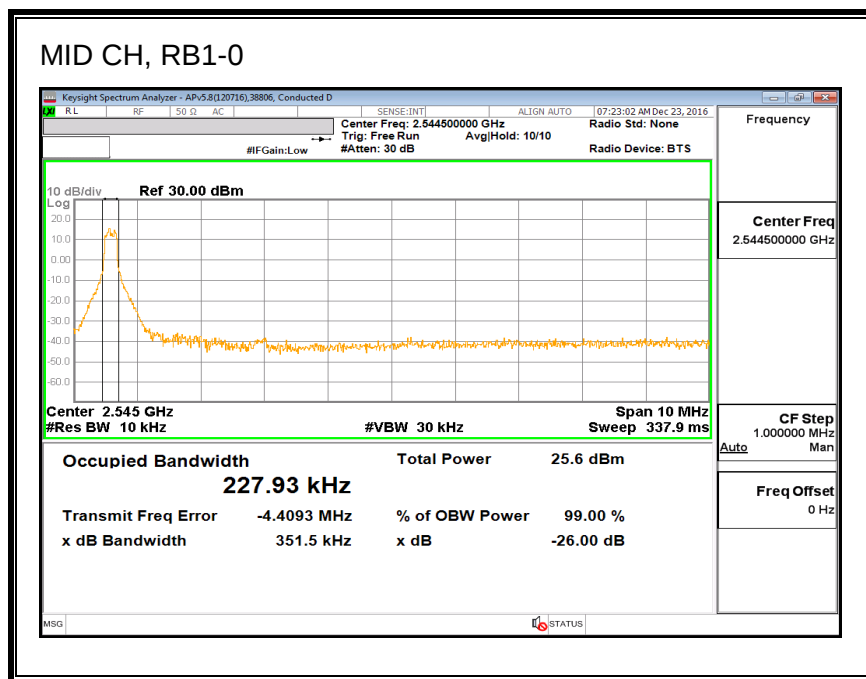
QPSK, (10.0MHz BAND WIDTH)



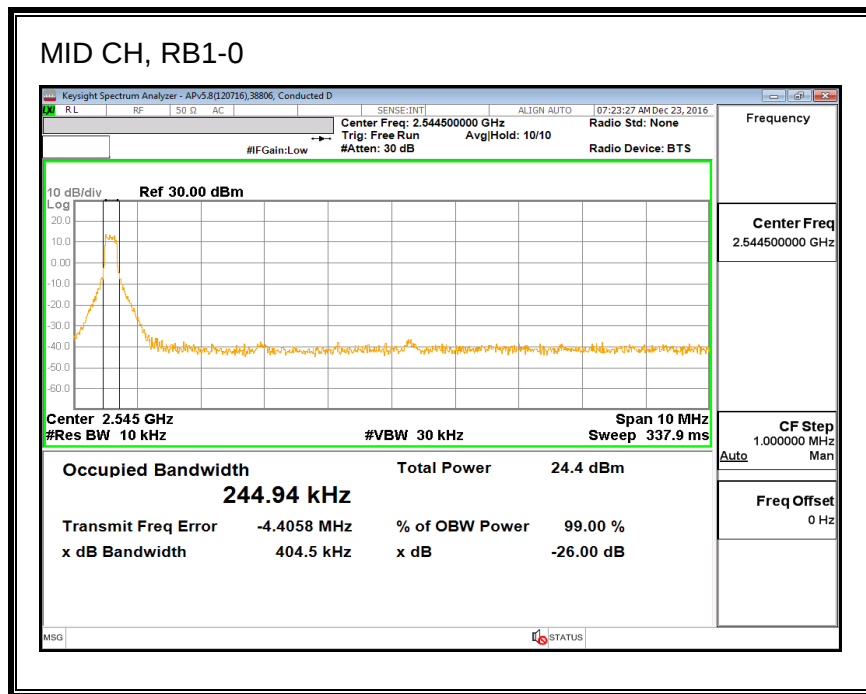
16QAM, (10.0MHz BAND WIDTH)



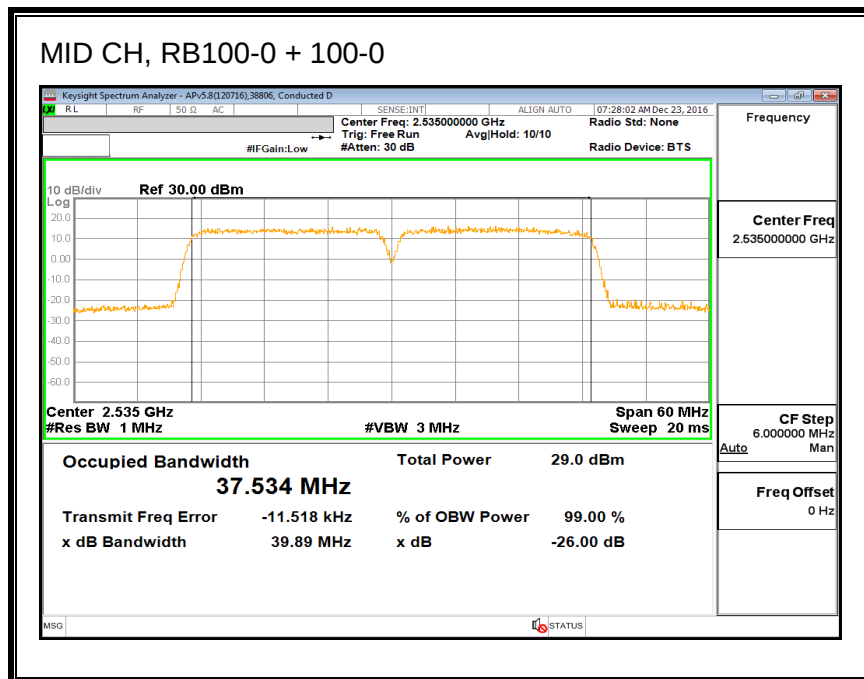
QPSK, (10.0MHz BAND WIDTH)



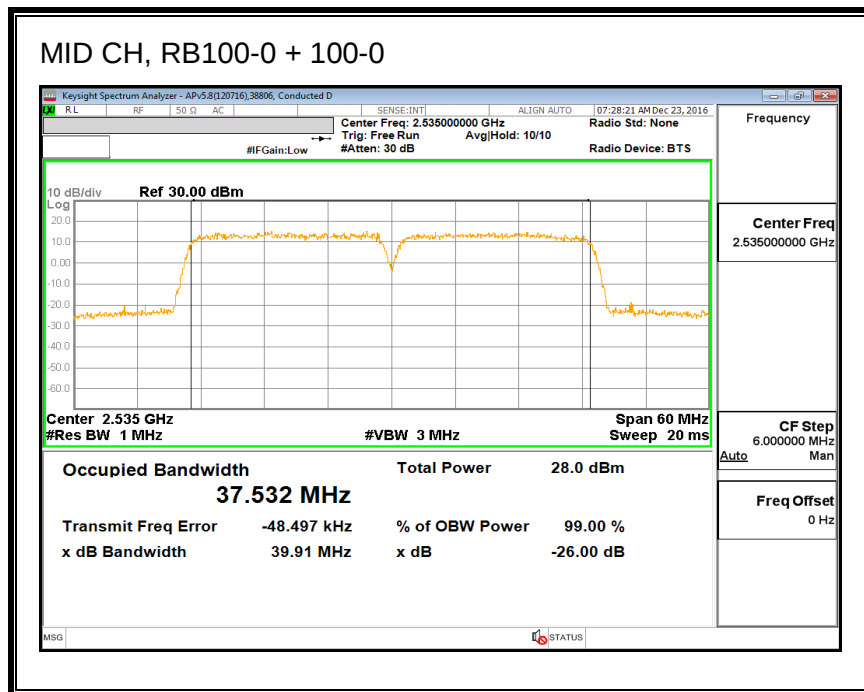
16QAM, (10.0MHz BAND WIDTH)



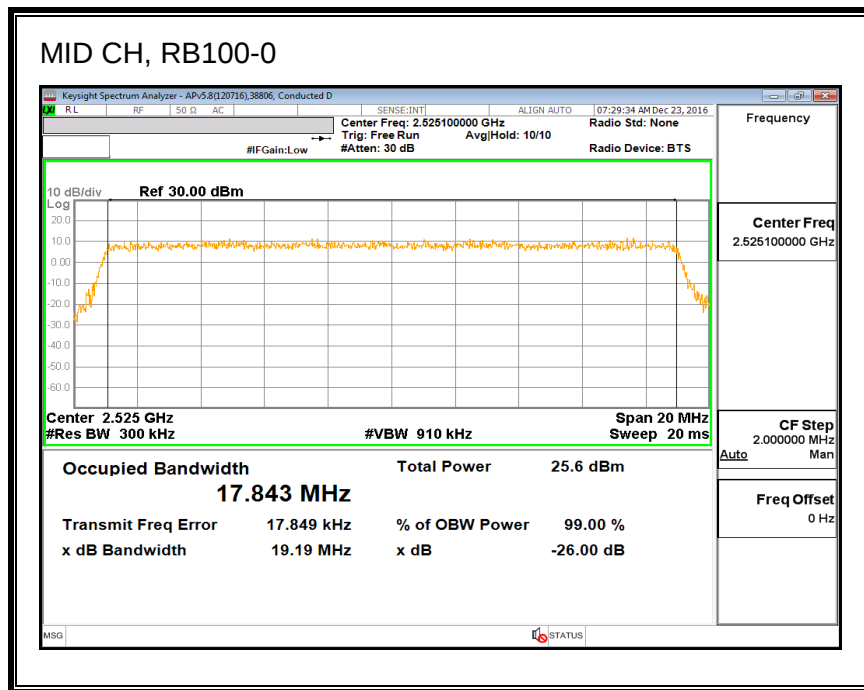
QPSK, (20.0MHz + 20.0MHz BAND WIDTH)



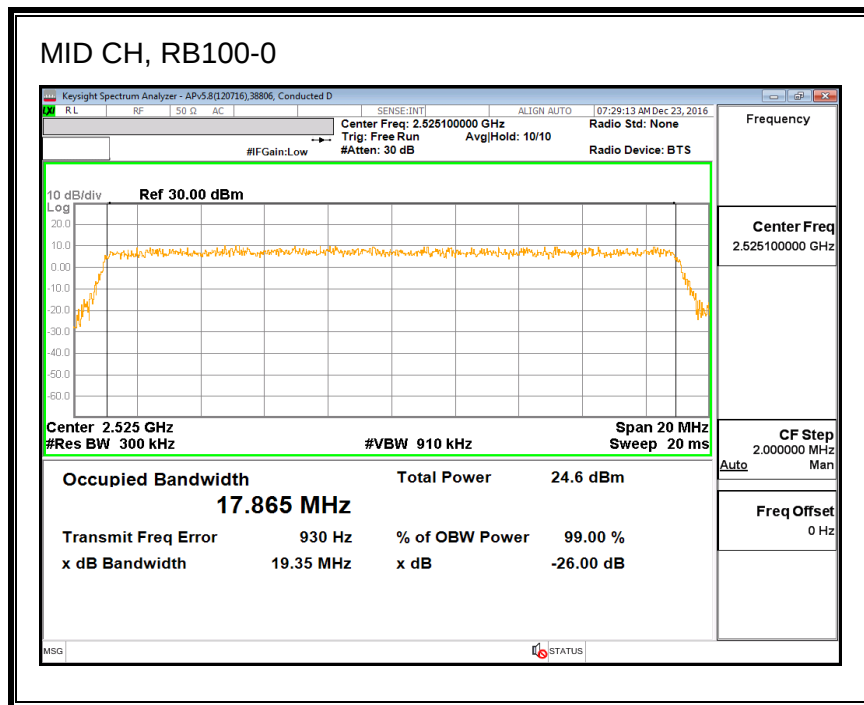
16QAM, (20.0MHz + 20.0MHz BAND WIDTH)



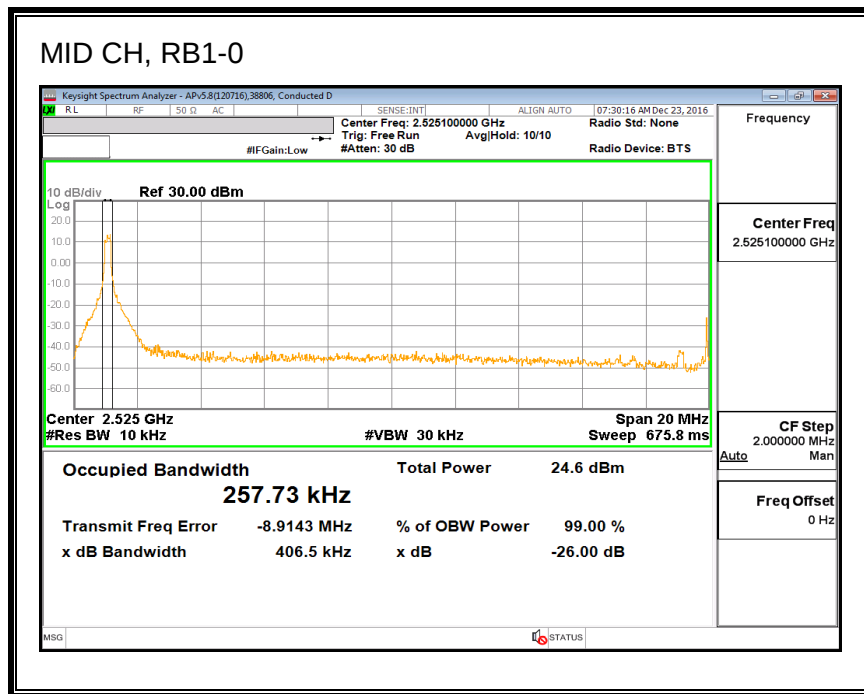
QPSK, (20.0MHz BAND WIDTH)



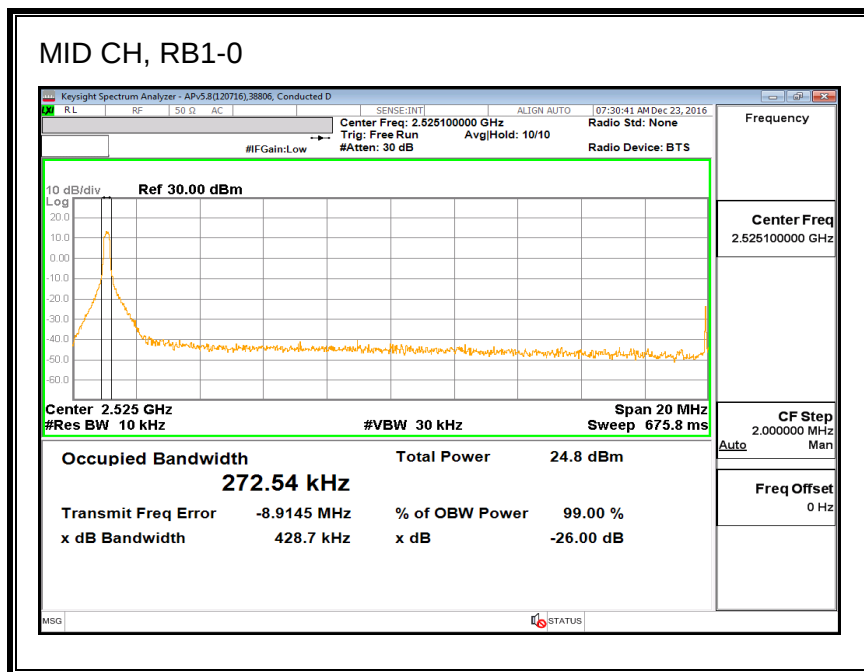
16QAM, (20.0MHz BAND WIDTH)



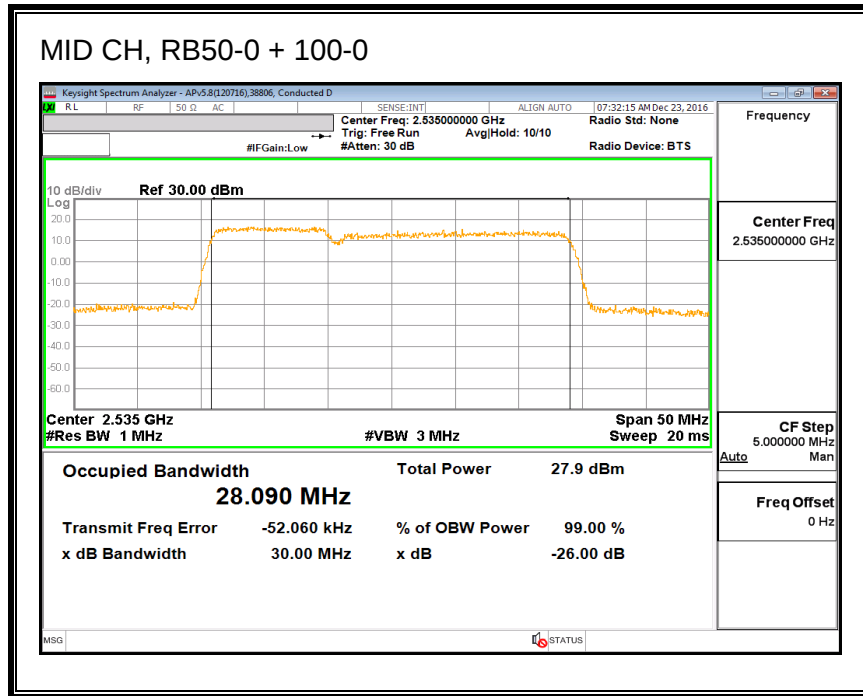
QPSK, (20.0MHz BAND WIDTH)



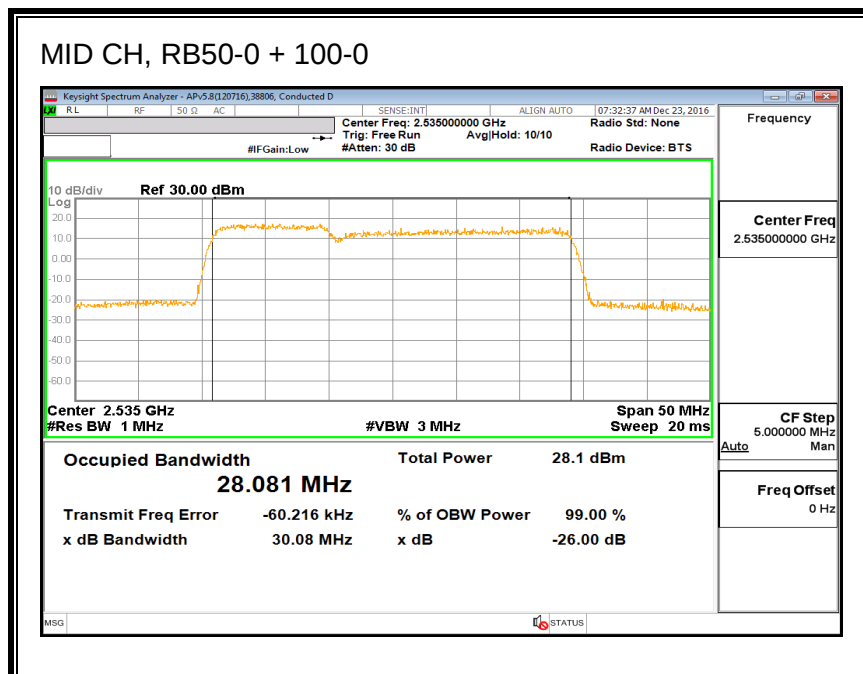
16QAM, (20.0MHz BAND WIDTH)



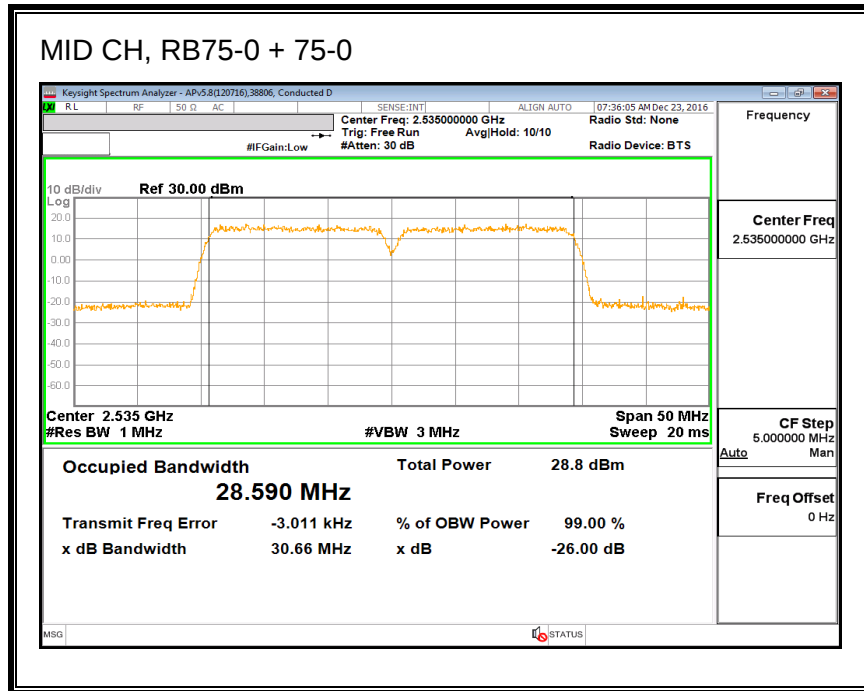
QPSK, (10.0MHz + 20.0MHz BAND WIDTH)



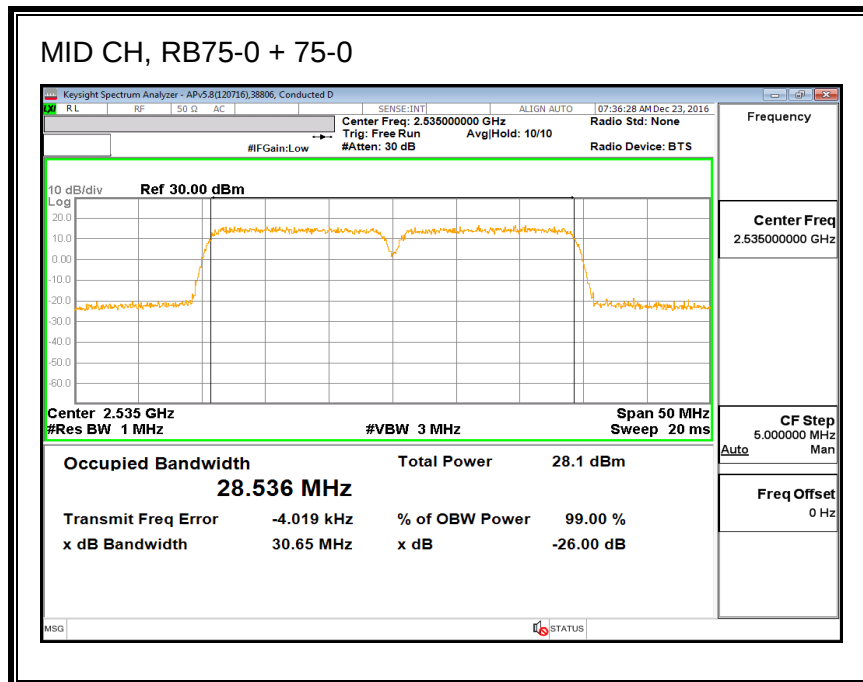
16QAM, (10.0MHz + 20.0MHz BAND WIDTH)



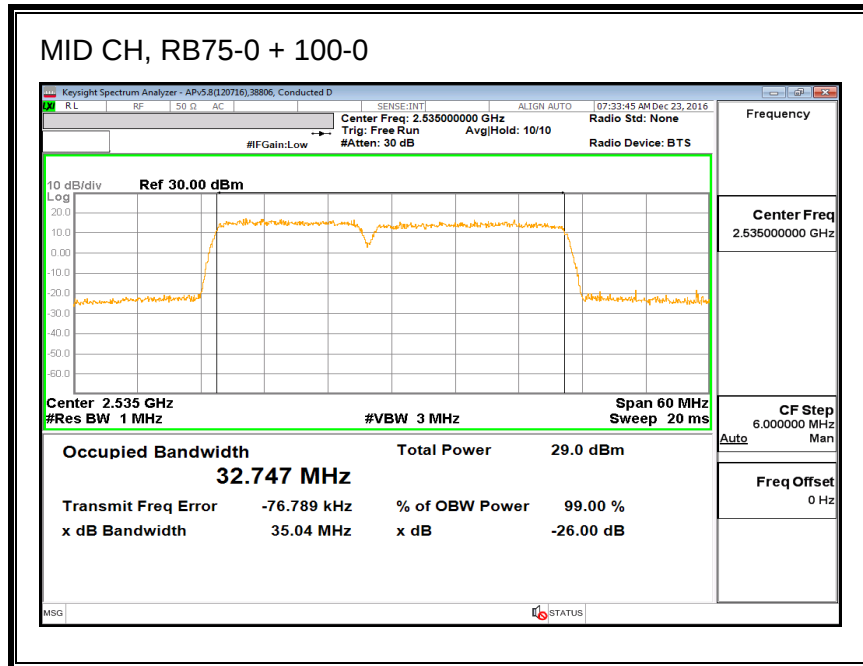
QPSK, (15.0MHz + 15.0MHz BAND WIDTH)



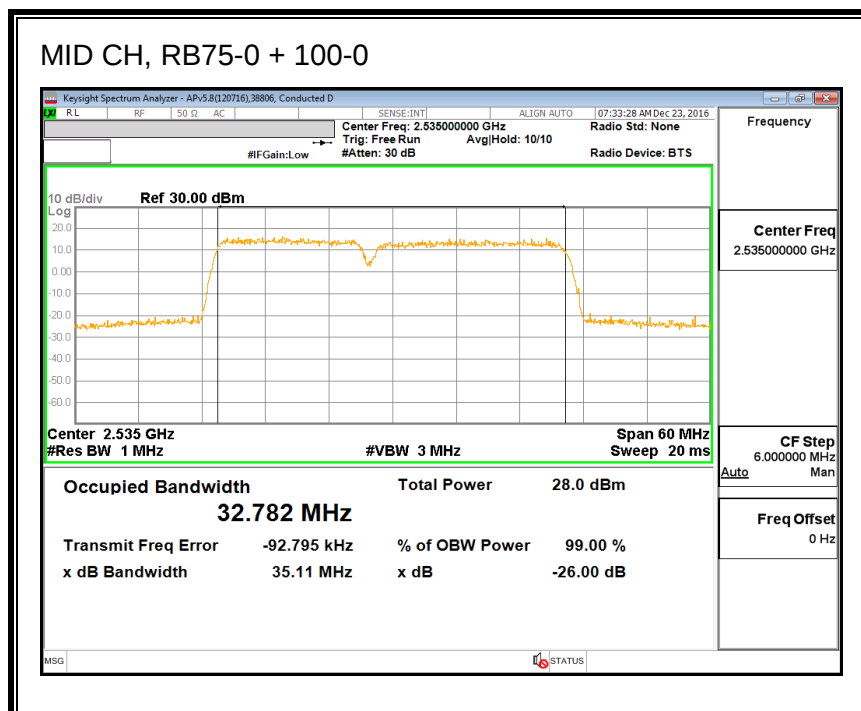
16QAM, (15.0MHz + 15.0MHz BAND WIDTH)



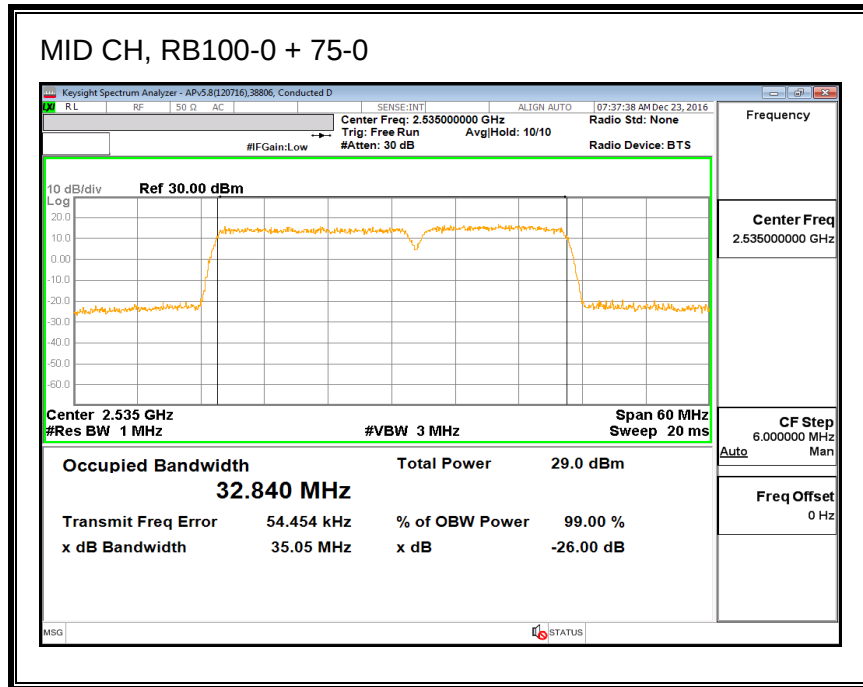
QPSK, (15.0MHz + 20.0MHz BAND WIDTH)



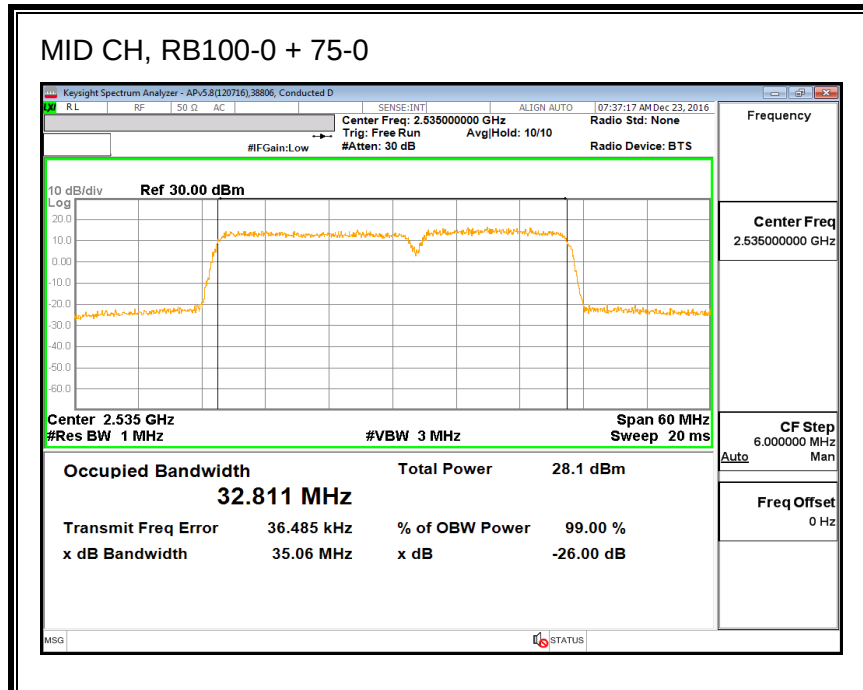
16QAM, (15.0MHz + 20.0MHz BAND WIDTH)



QPSK, (20.0MHz + 15.0MHz BAND WIDTH)

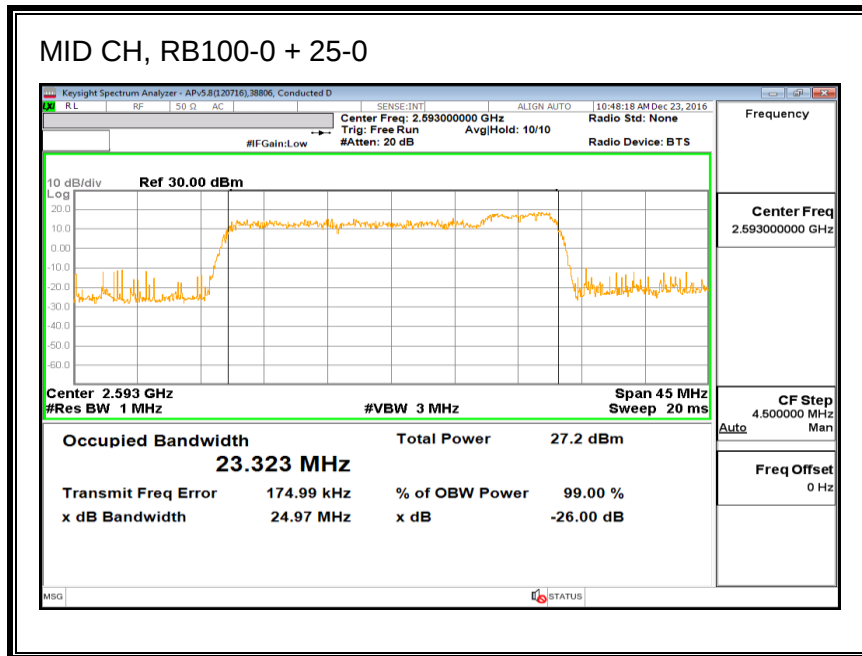


16QAM, (20.0MHz + 15.0MHz BAND WIDTH)

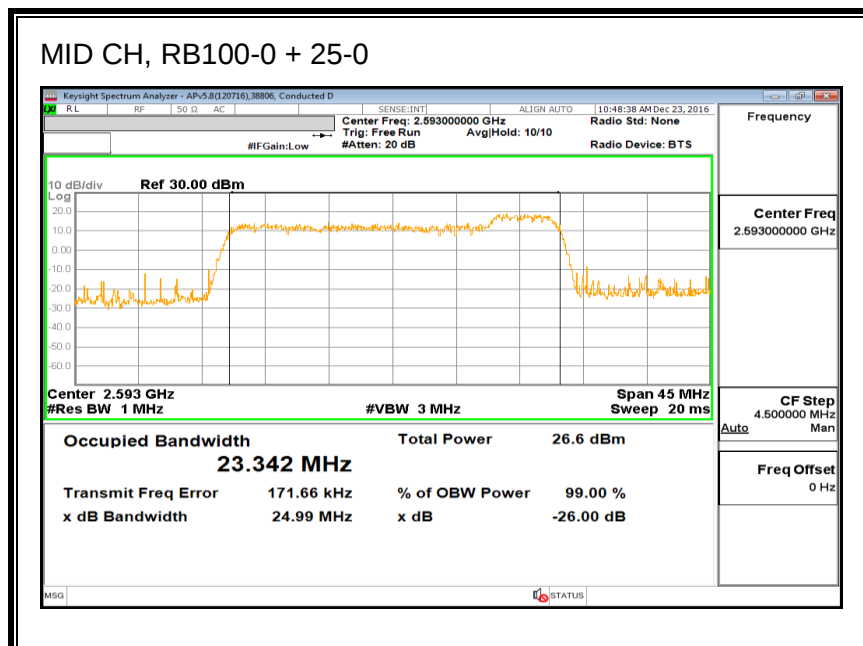


8.1.2. LTE BAND 41

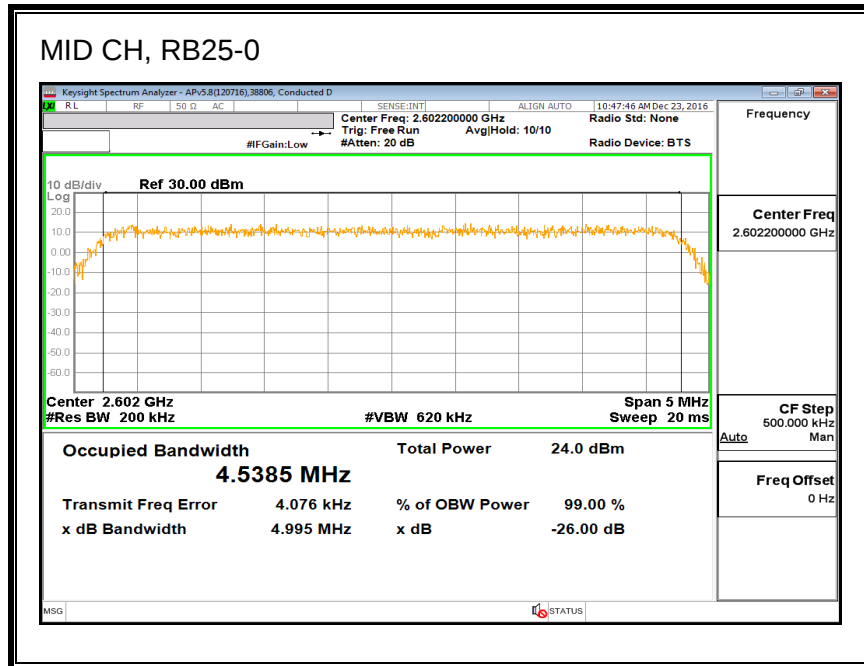
QPSK, (20.0MHz + 5.0MHz BAND WIDTH)



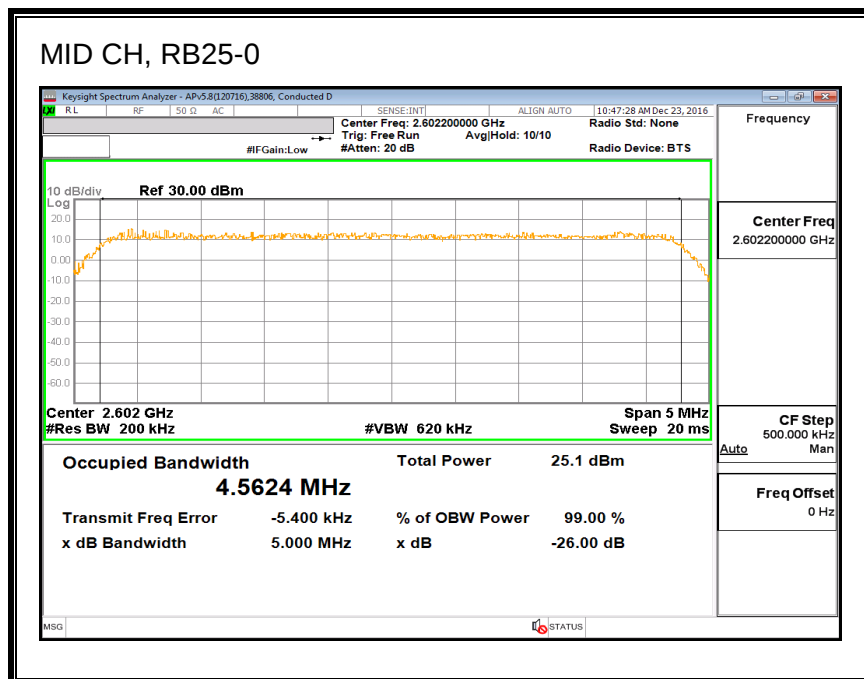
16QAM, (20.0MHz + 5.0MHz BAND WIDTH)



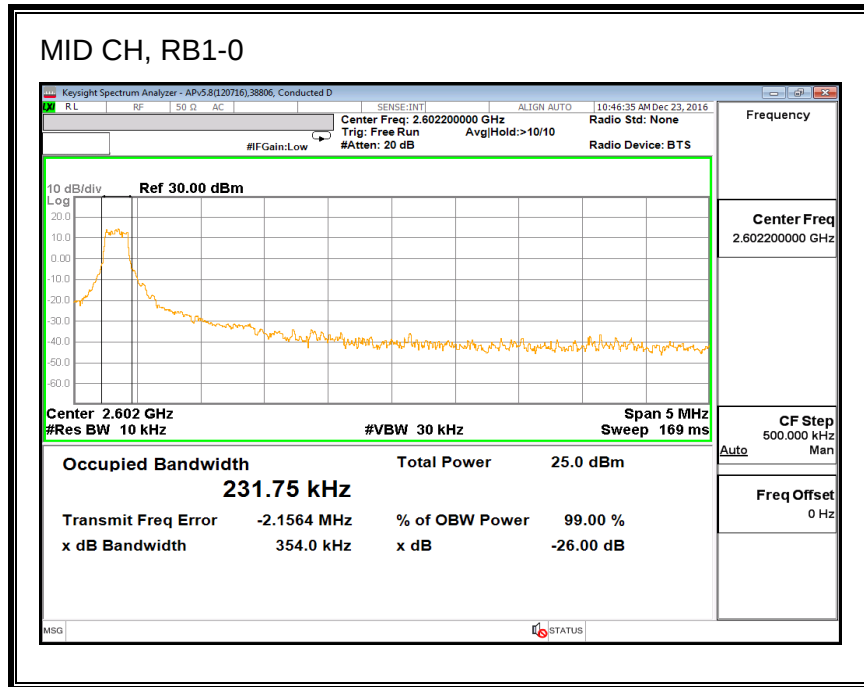
QPSK, (5.0MHz BAND WIDTH)



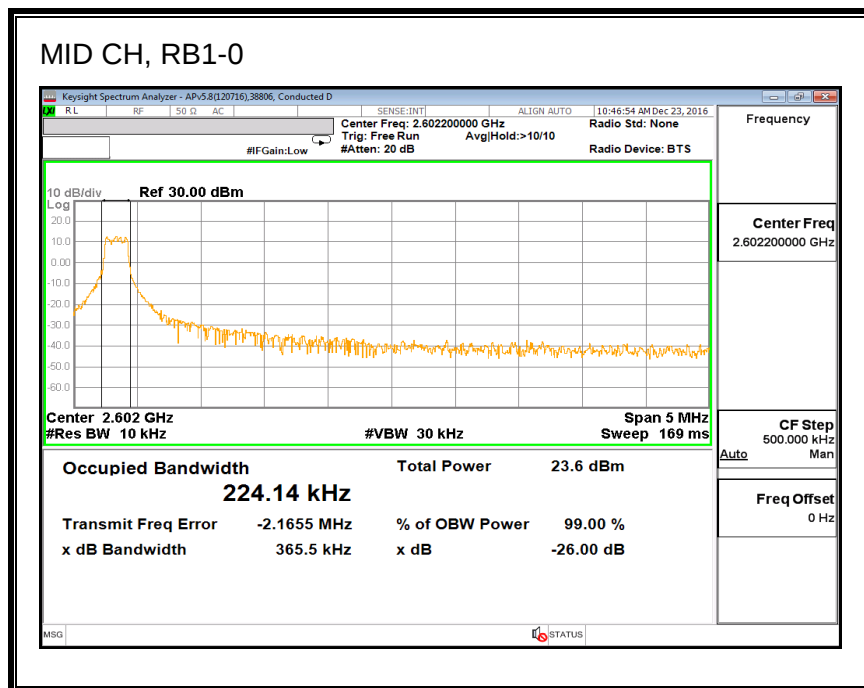
16QAM, (5.0MHz BAND WIDTH)



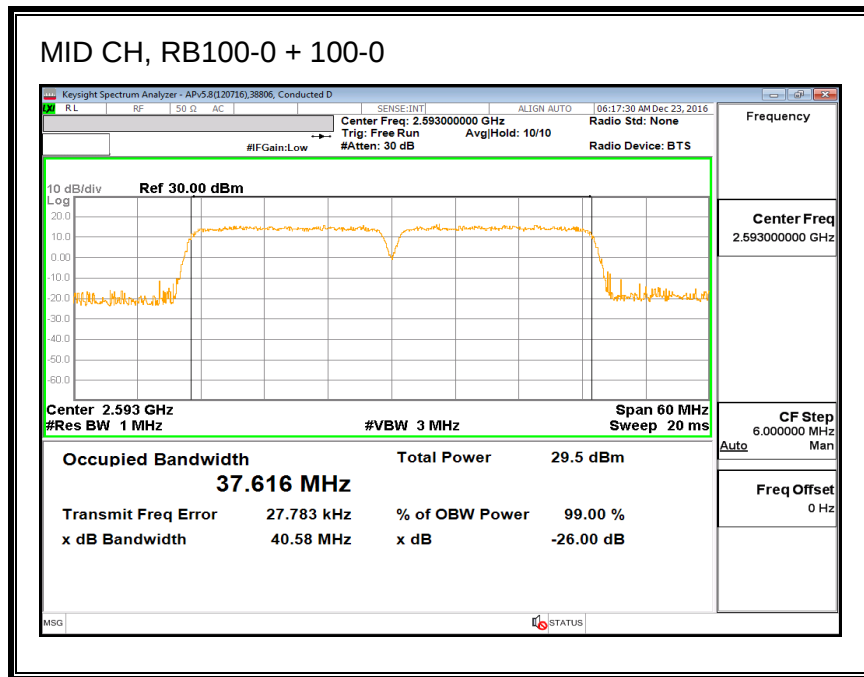
QPSK, (5.0MHz BAND WIDTH)



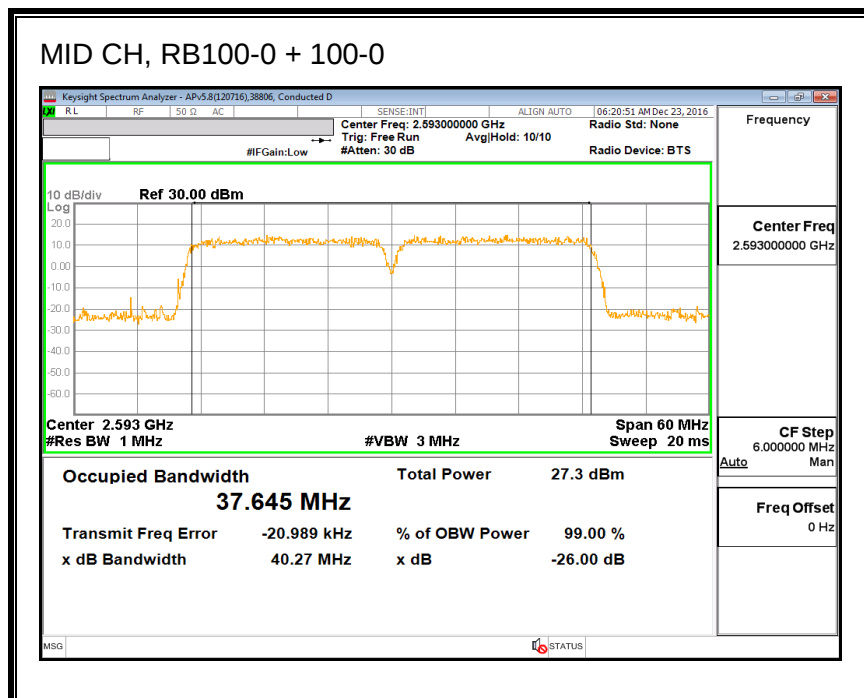
16QAM, (5.0MHz BAND WIDTH)



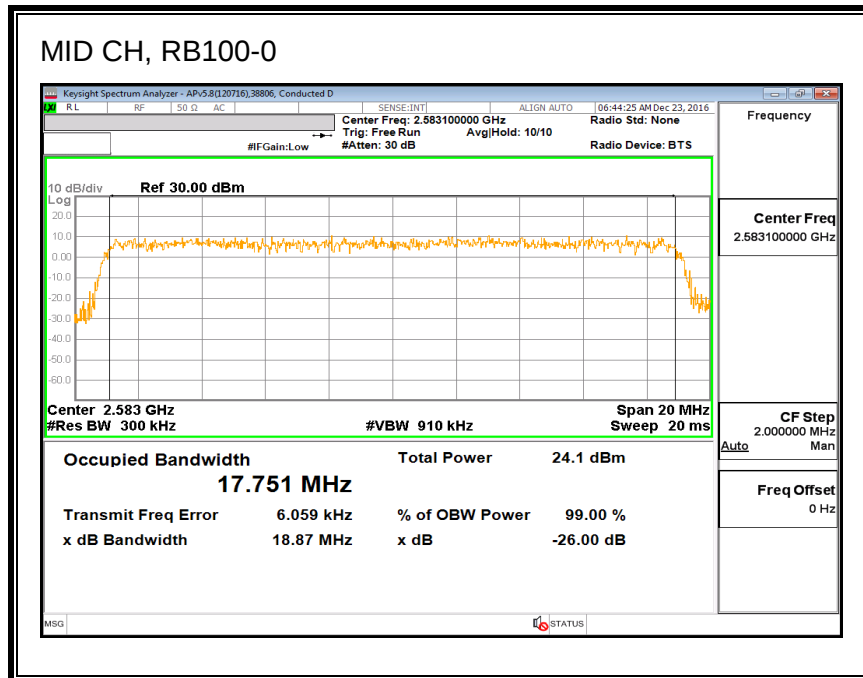
QPSK, (20.0MHz + 20.0MHz BAND WIDTH)



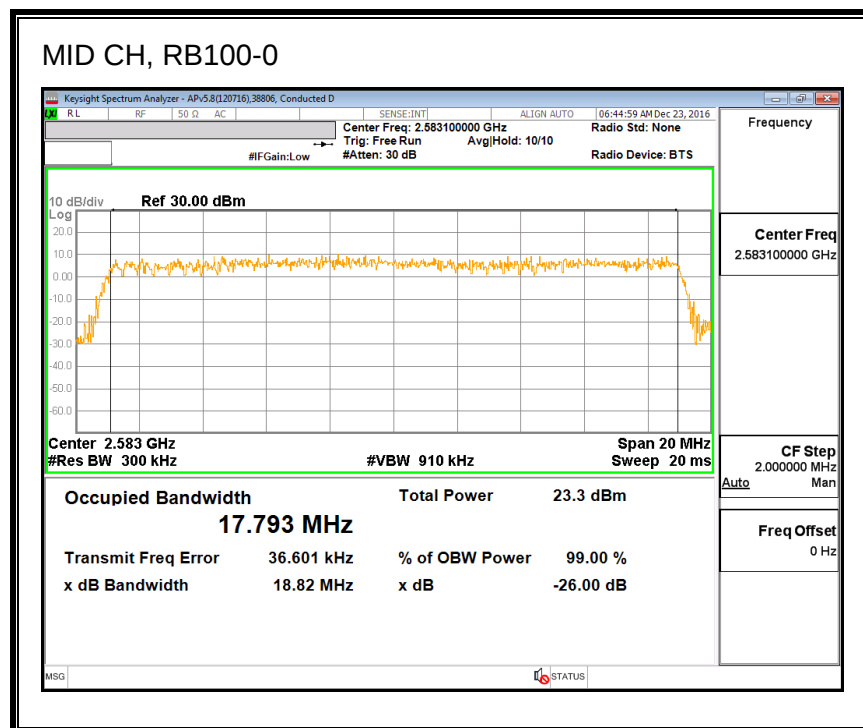
16QAM, (20.0MHz + 20.0MHz BAND WIDTH)



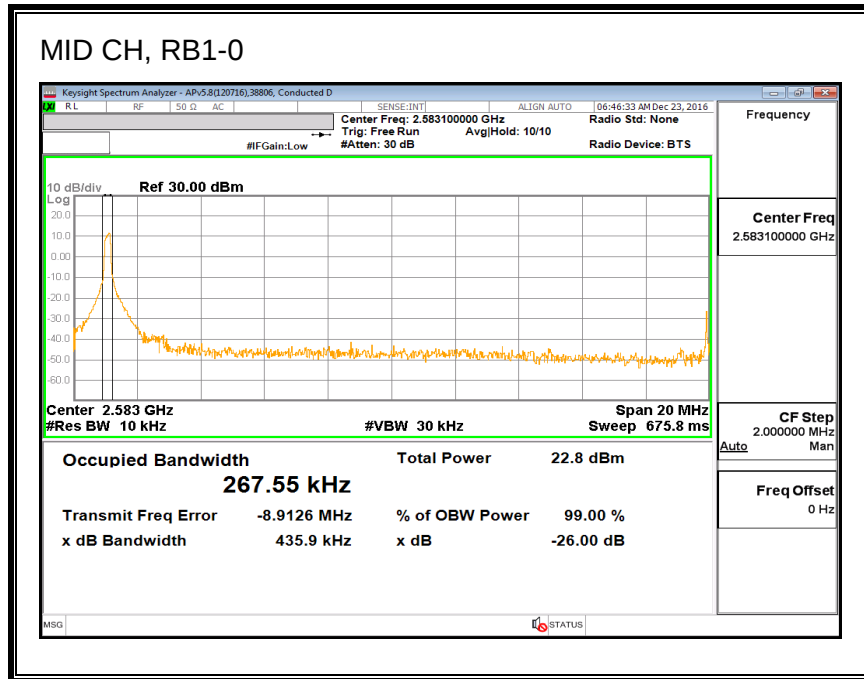
QPSK, (20.0MHz BAND WIDTH)



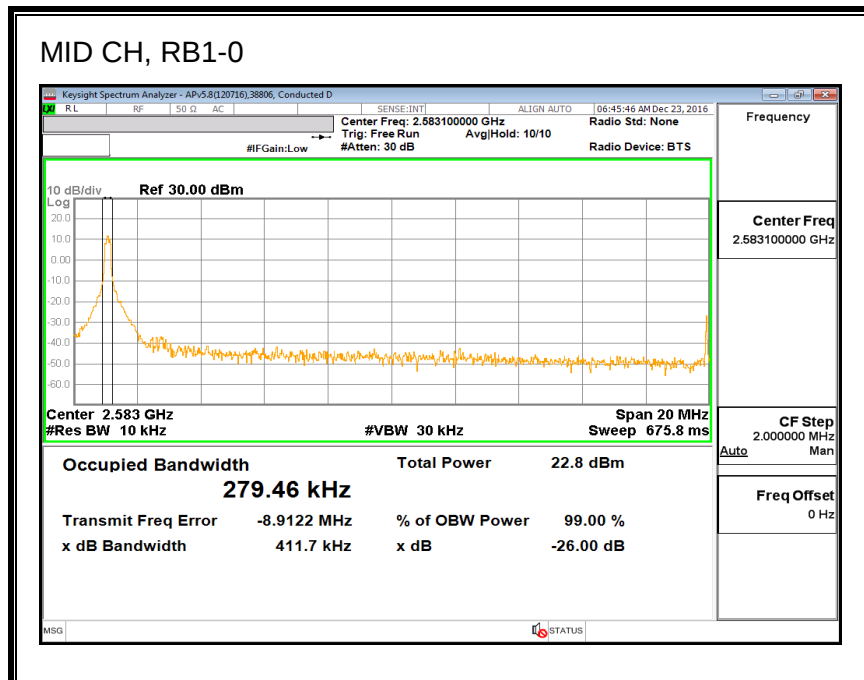
16QAM, (20.0MHz BAND WIDTH)



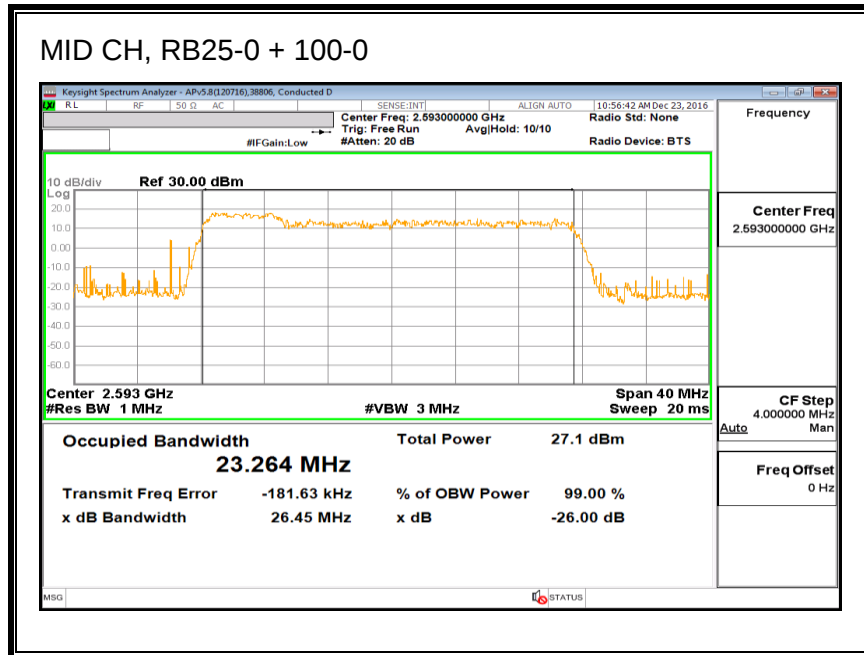
QPSK, (20.0MHz BAND WIDTH)



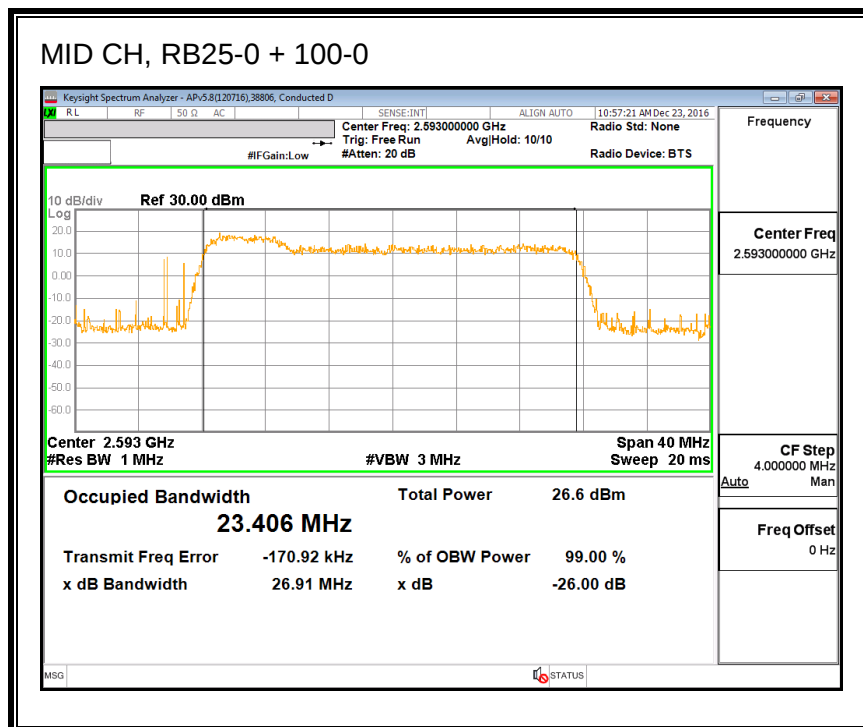
16QAM, (20.0MHz BAND WIDTH)



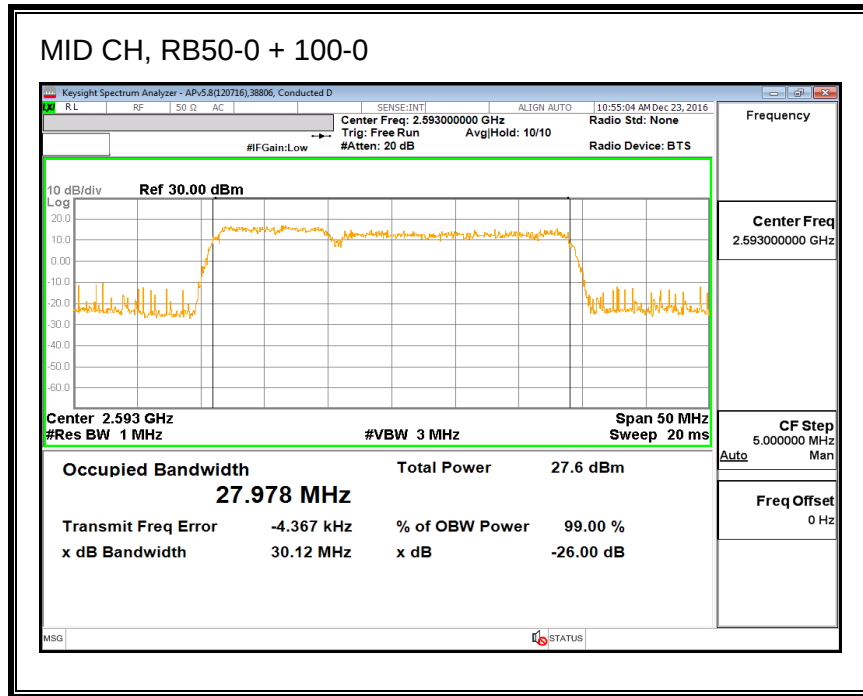
QPSK, (5.0MHz + 20.0MHz BAND WIDTH)



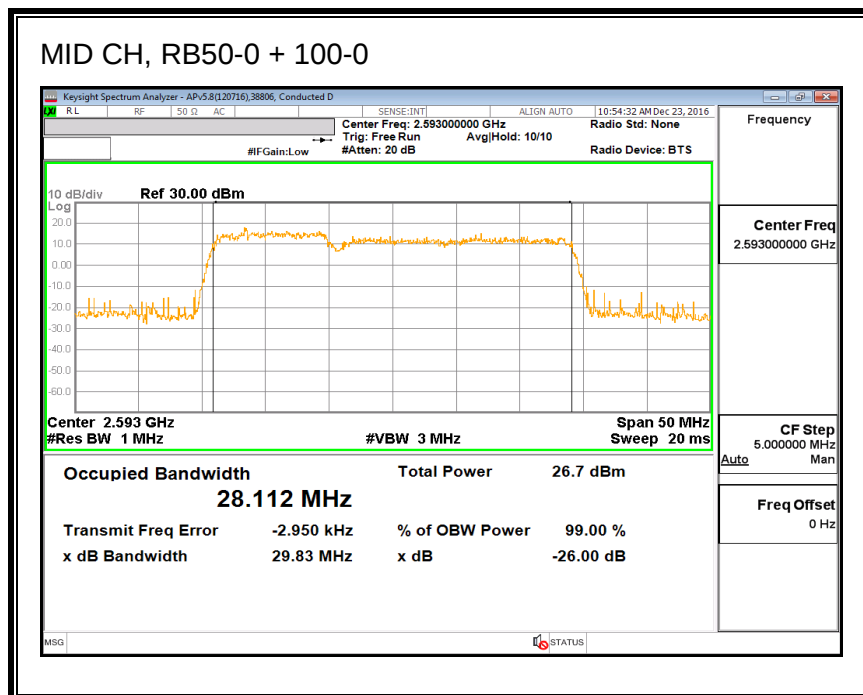
16QAM, (5.0MHz + 20.0MHz BAND WIDTH)



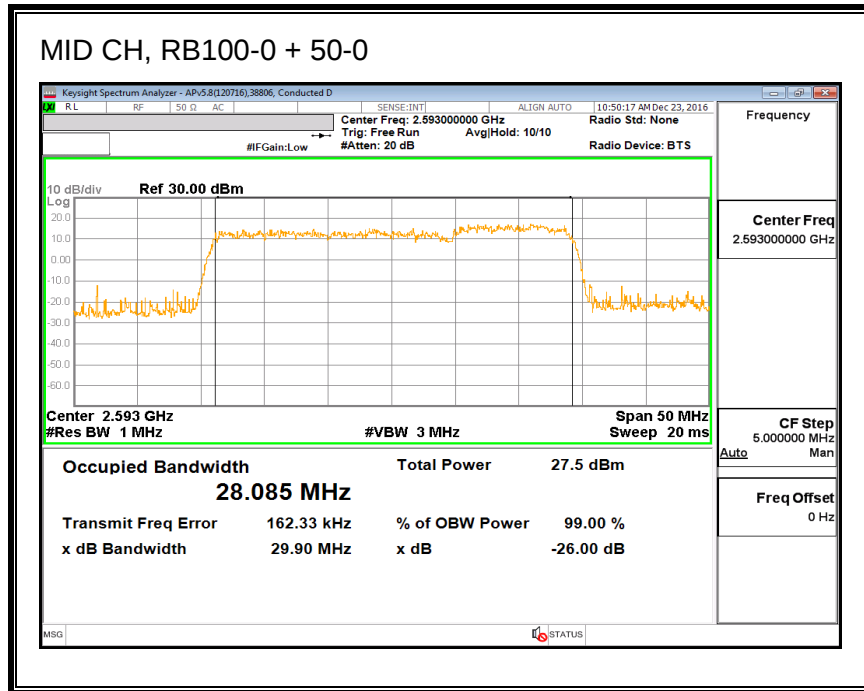
QPSK, (10.0MHz + 20.0MHz BAND WIDTH)



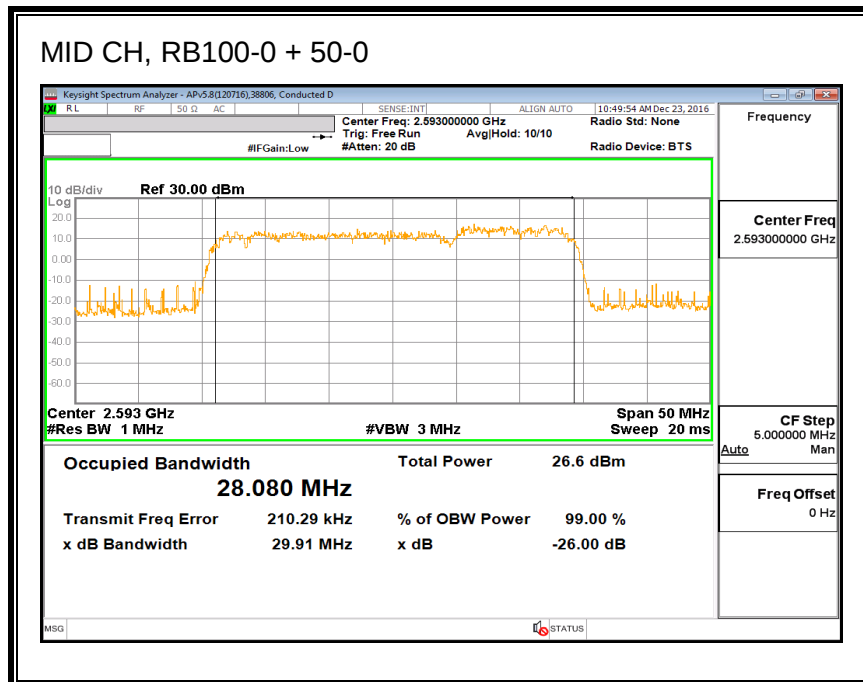
16QAM, (10.0MHz + 20.0MHz BAND WIDTH)



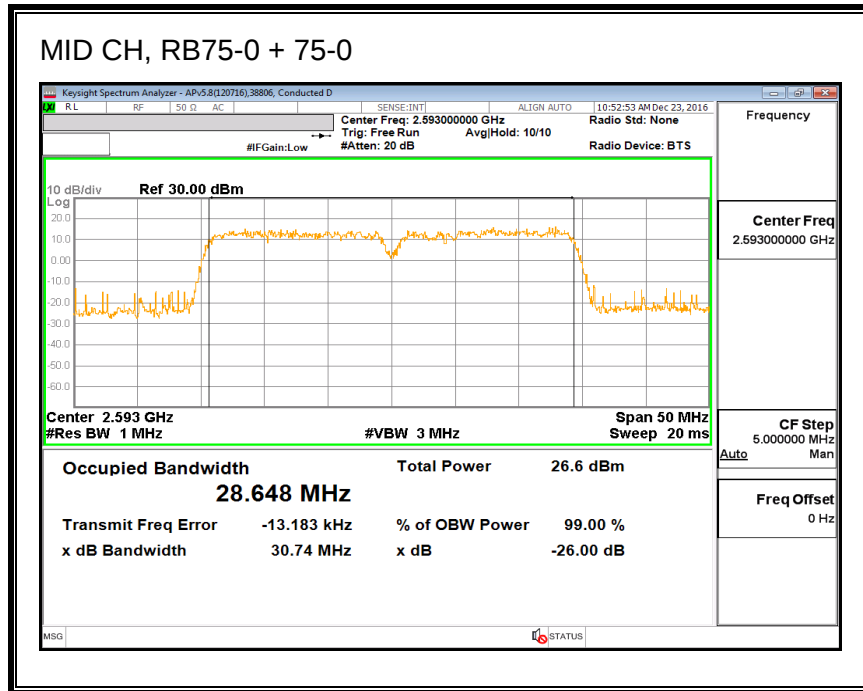
QPSK, (20.0MHz + 10.0MHz BAND WIDTH)



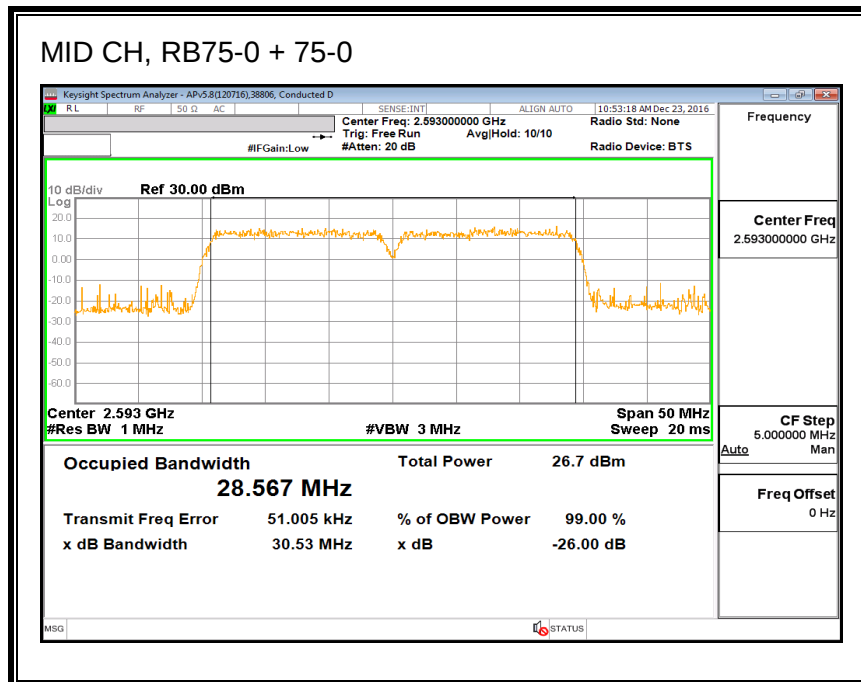
16QAM, (20.0MHz + 10.0MHz BAND WIDTH)



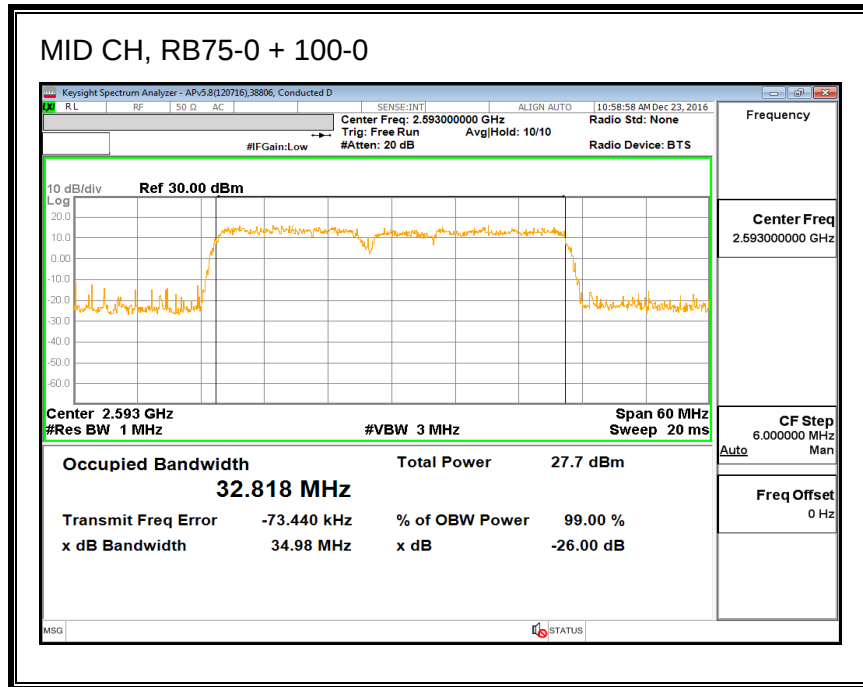
QPSK, (15.0MHz + 15.0MHz BAND WIDTH)



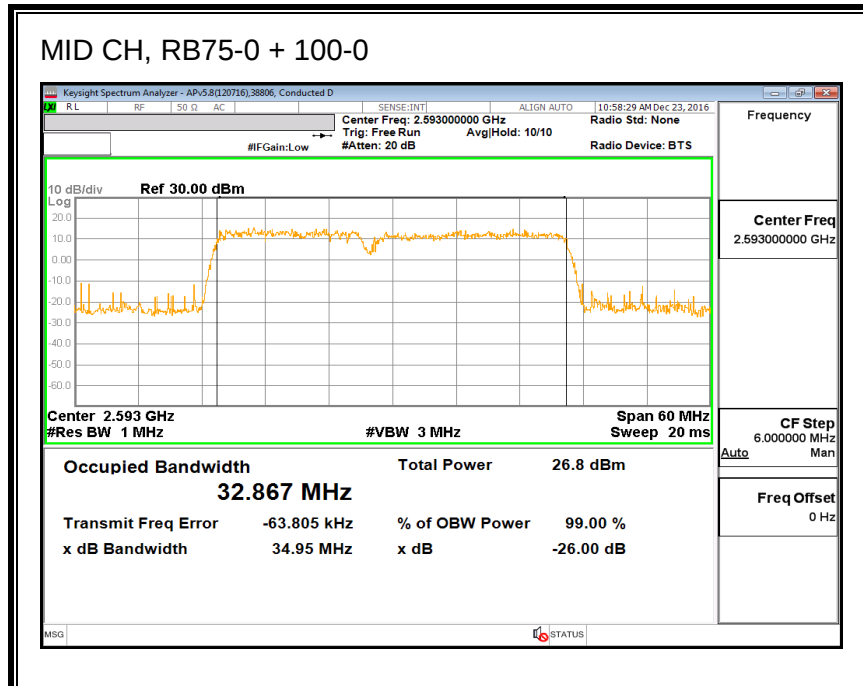
16QAM, (15.0MHz + 15.0MHz BAND WIDTH)



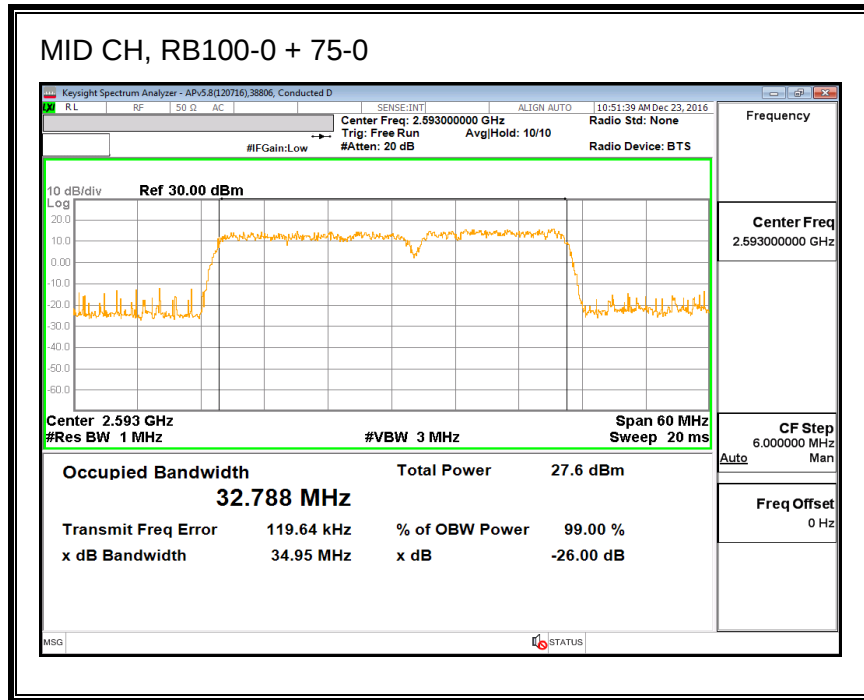
QPSK, (15.0MHz + 20.0MHz BAND WIDTH)



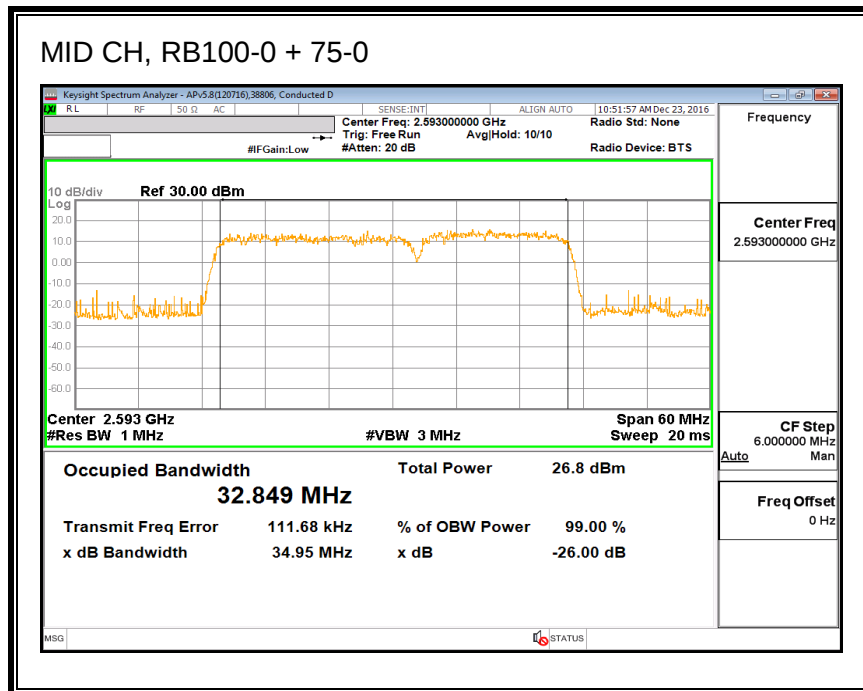
16QAM, (15.0MHz + 20.0MHz BAND WIDTH)



QPSK, (20.0MHz + 15.0MHz BAND WIDTH)



16QAM, (20.0MHz + 15.0MHz BAND WIDTH)



8.2. EMISSION MASK

RULE PART(S)

FCC: §2.1051, §27.53

LIMITS

FCC: §27.53

(m)(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

(m)(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. Show citation box.

TEST PROCEDURE FOR FCC PART 27

The transmitter output was connected to 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.

Set resolution bandwidth to at least 1% of emission bandwidth.

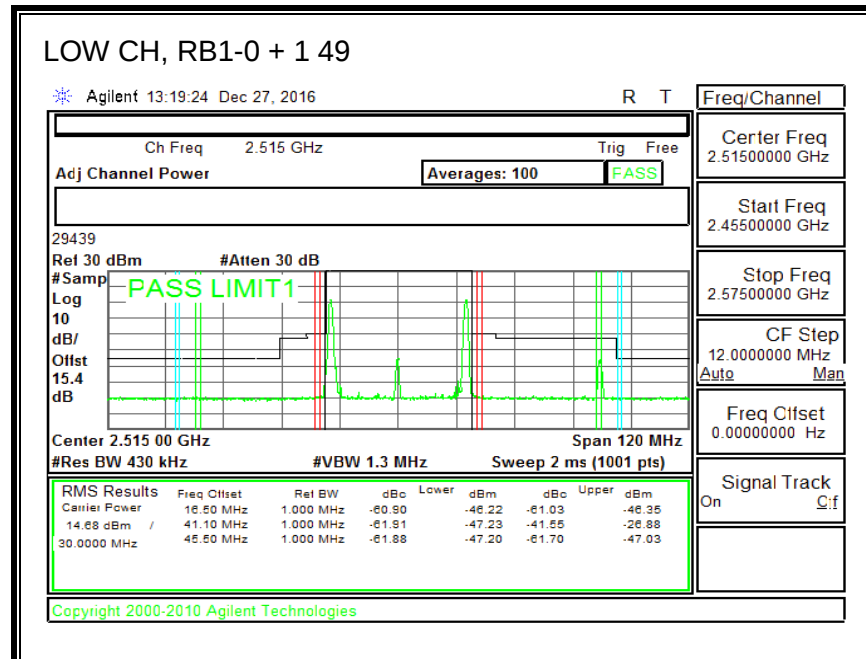
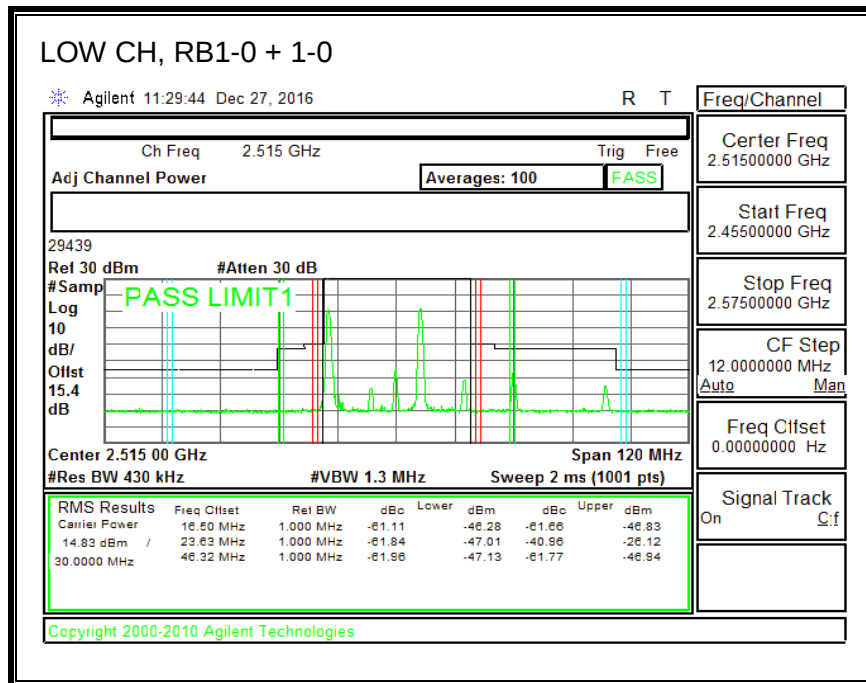
MODES TESTED

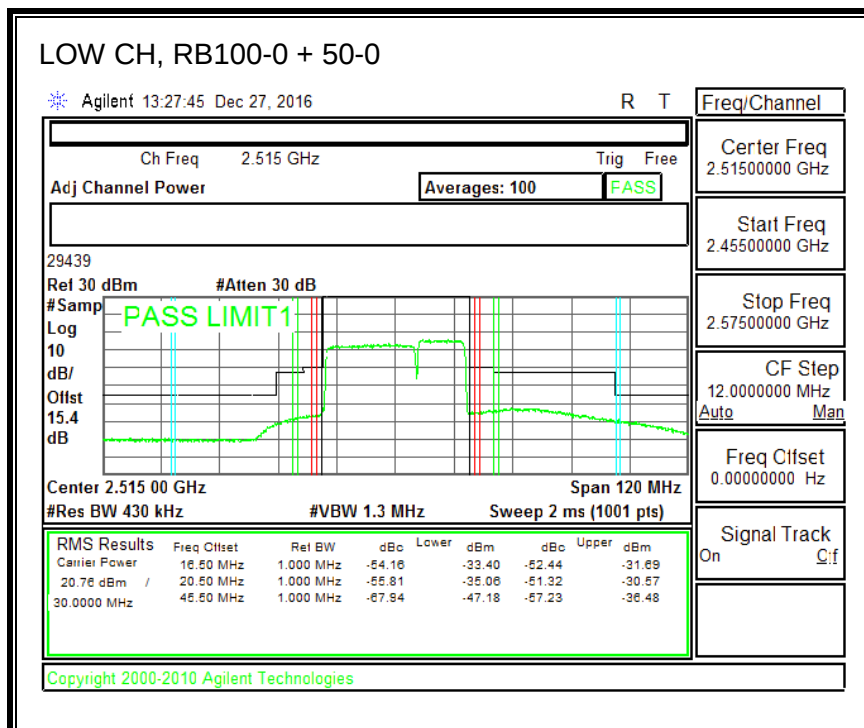
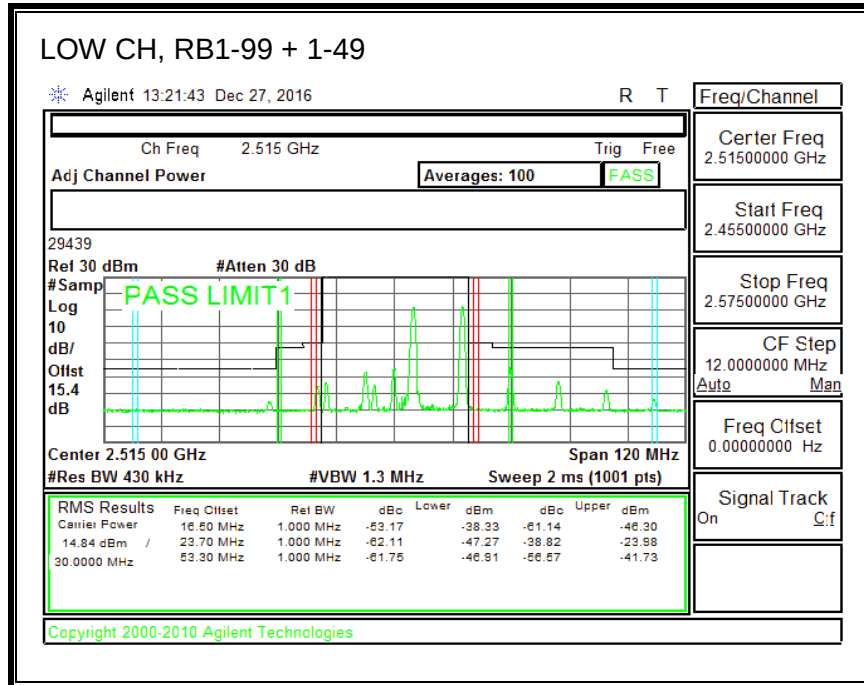
- LTE Band 7
- LTE Band 41

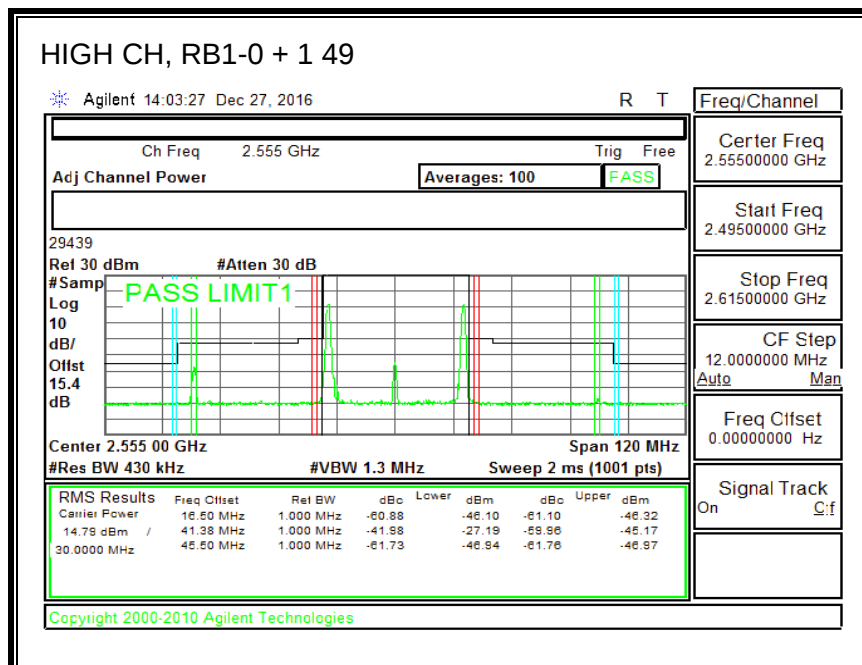
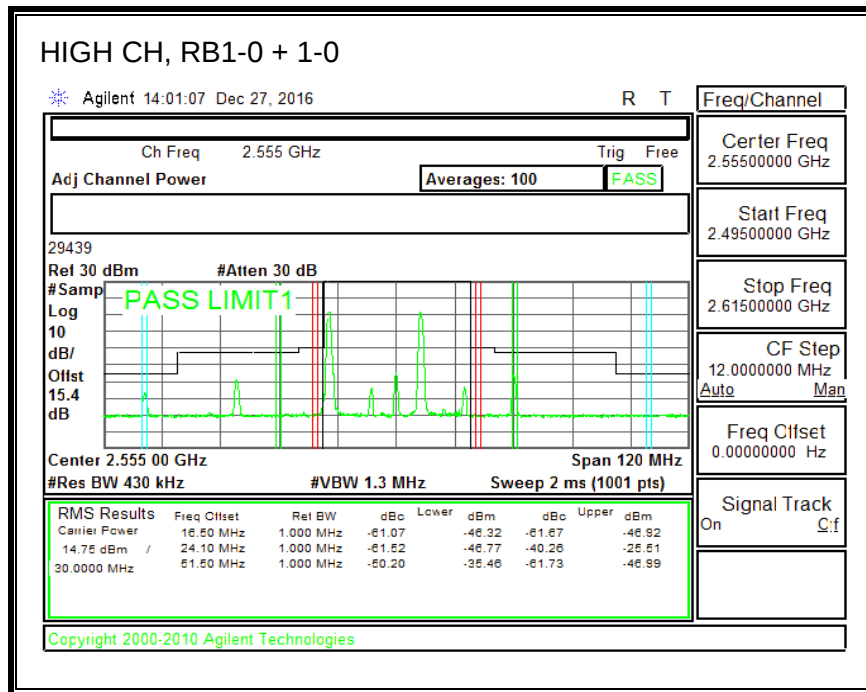
RESULTS

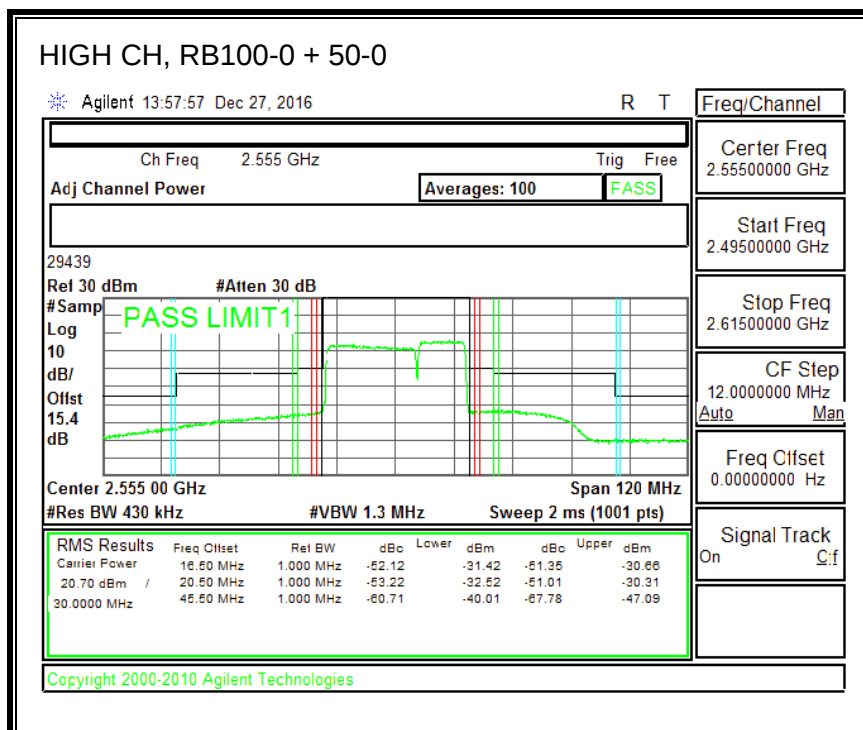
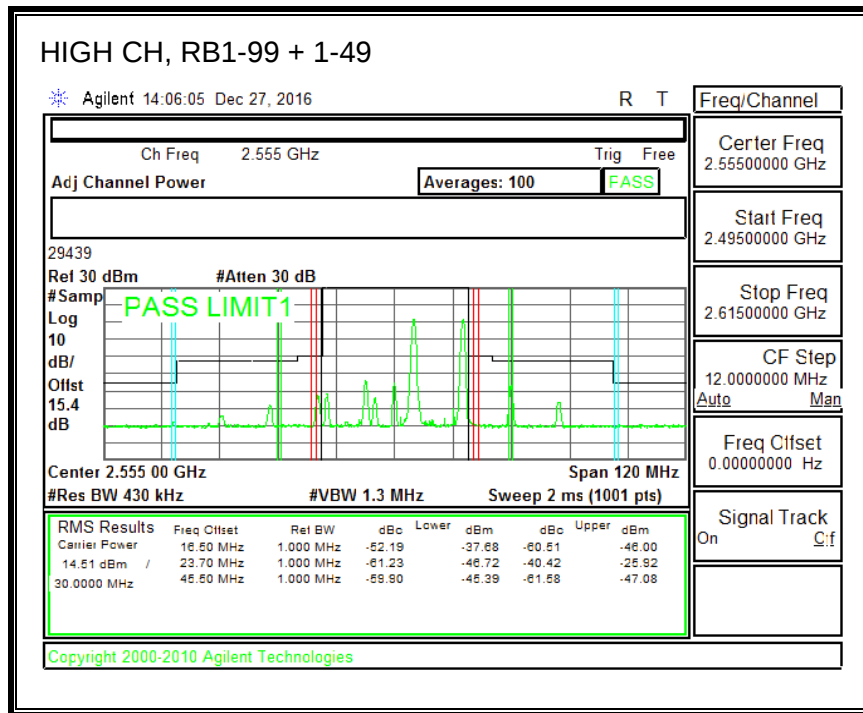
8.2.1. LTE BAND 7

QPSK, (20.0 MHz + 10.0 MHz BAND WIDTH)

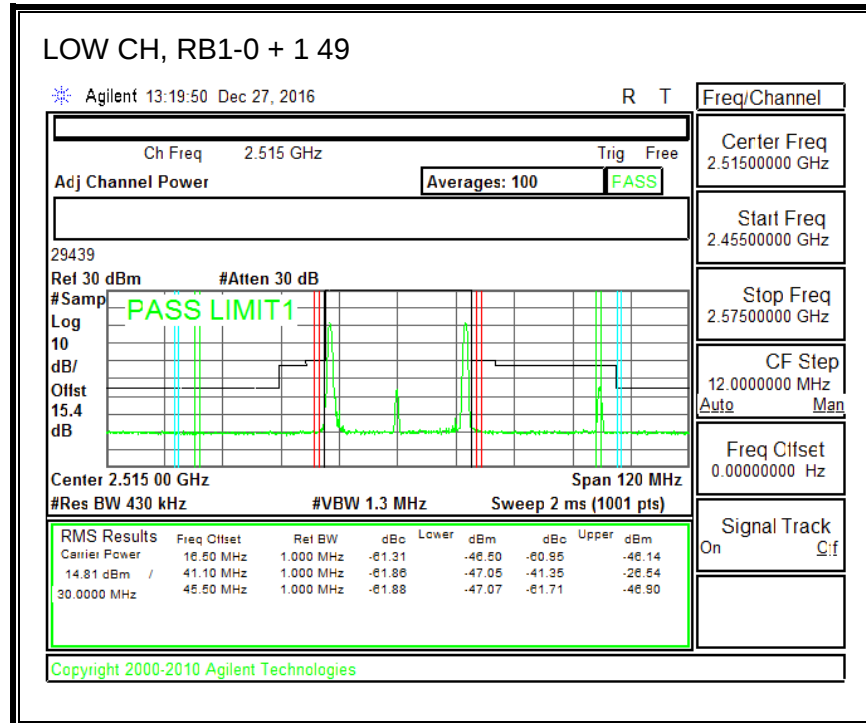
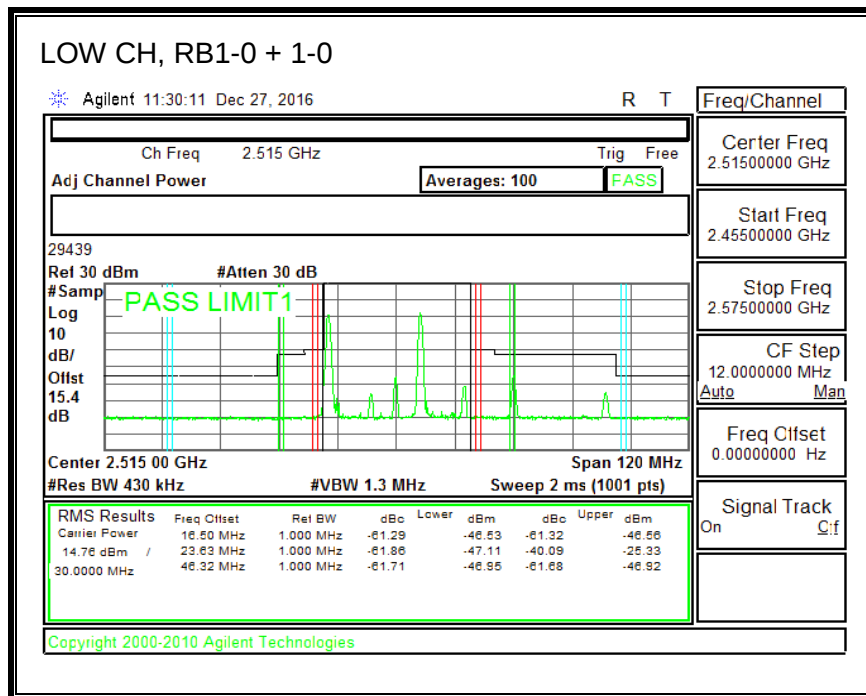


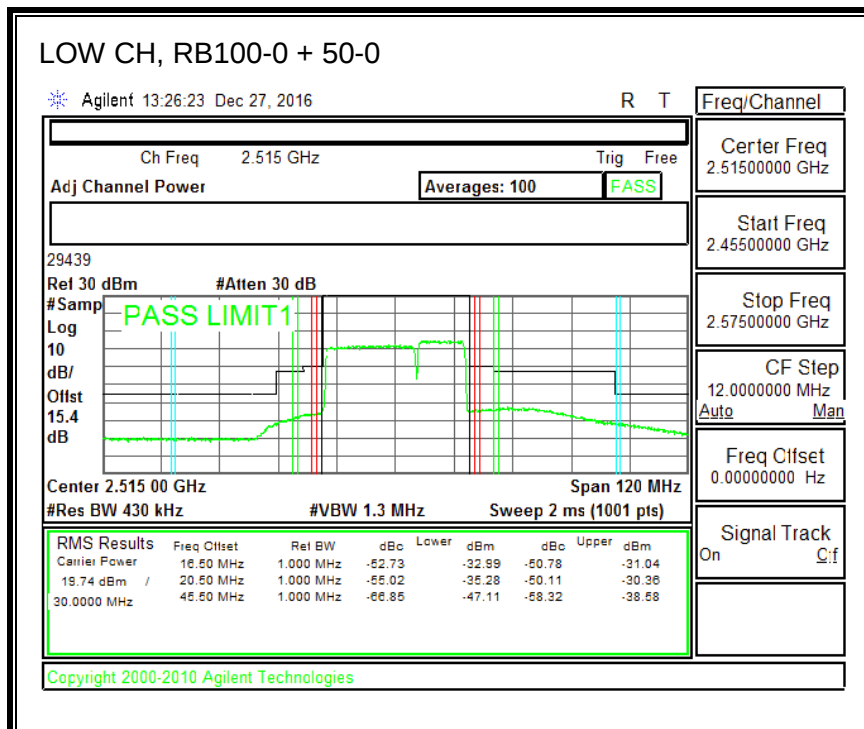
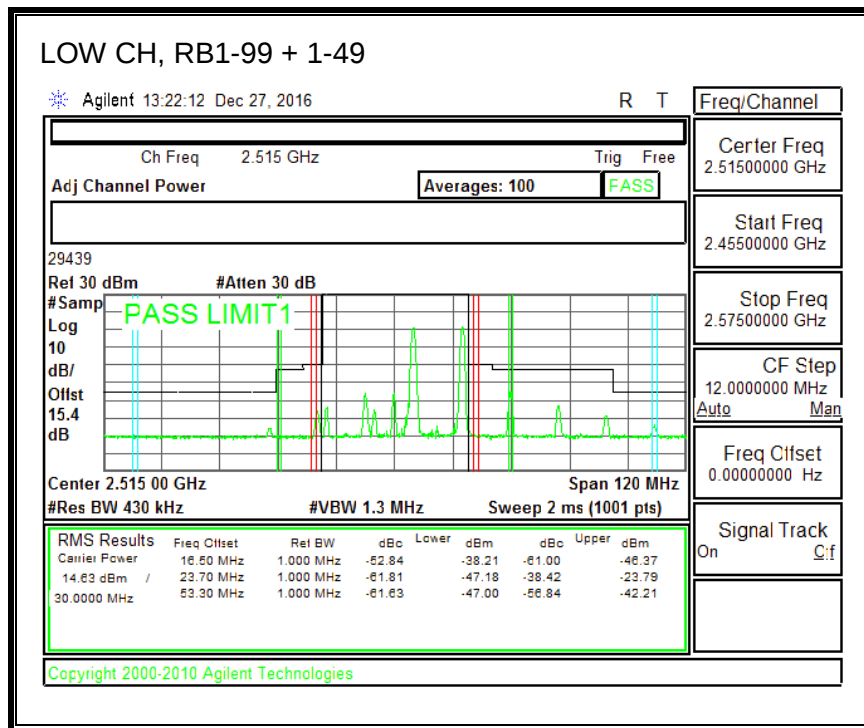


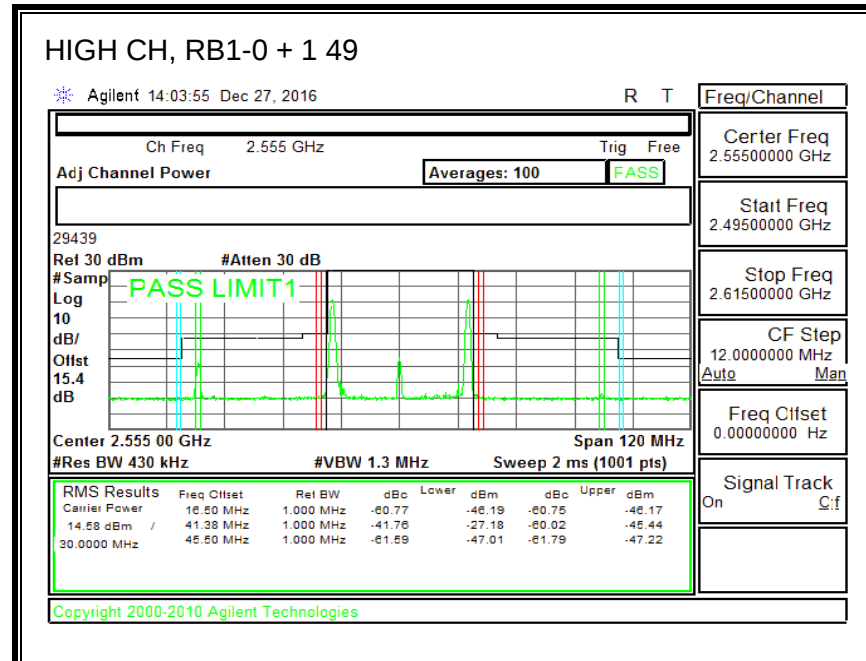
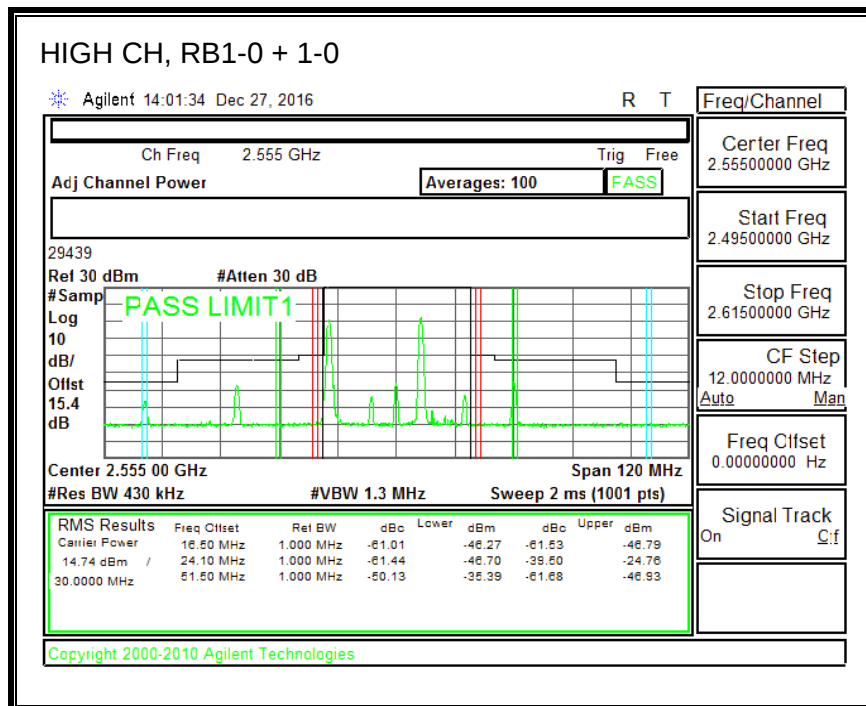


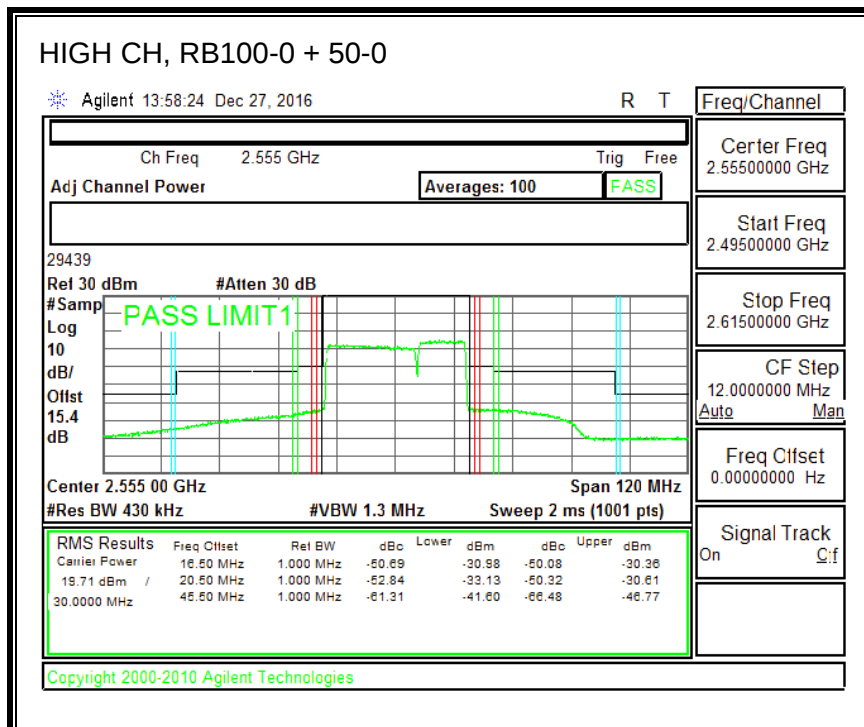
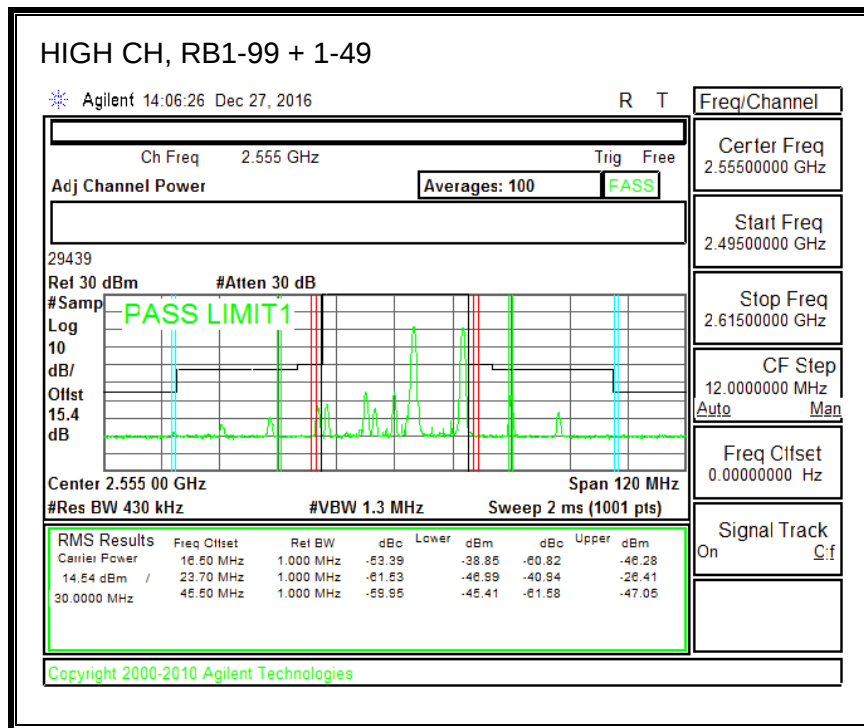


16QAM (20.0 MHz + 10.0 MHz BAND WIDTH)

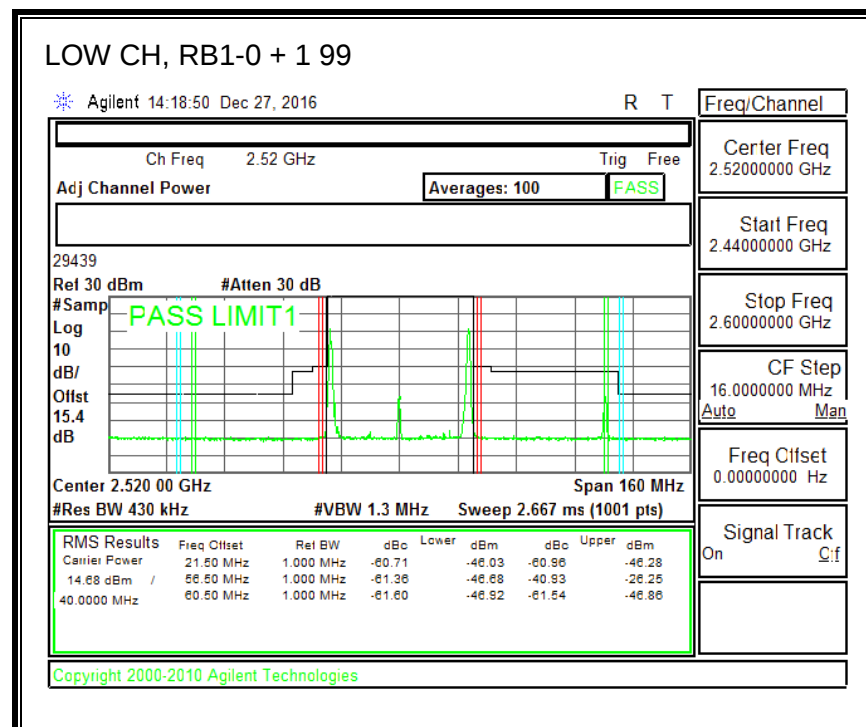
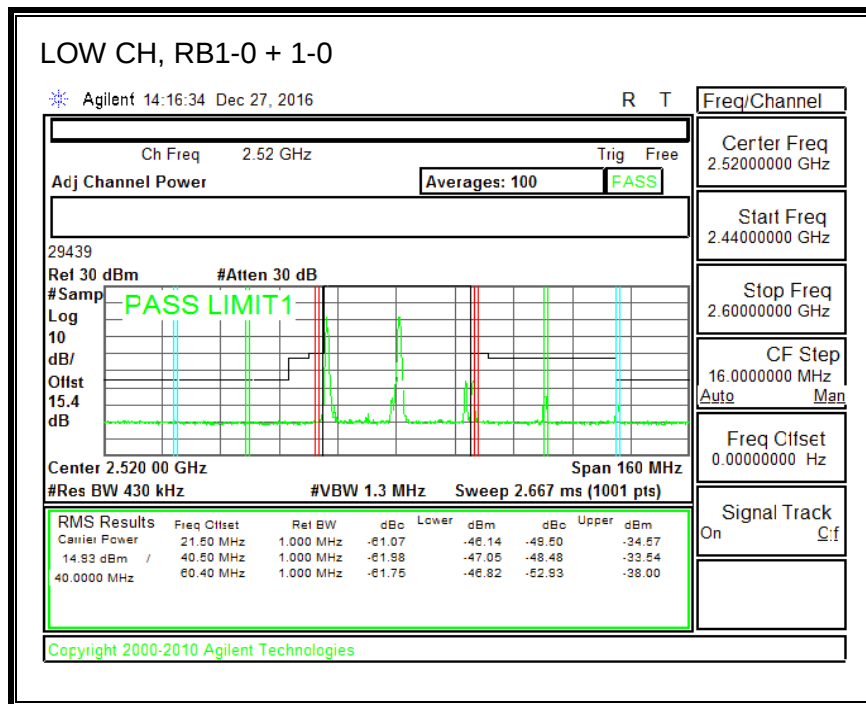


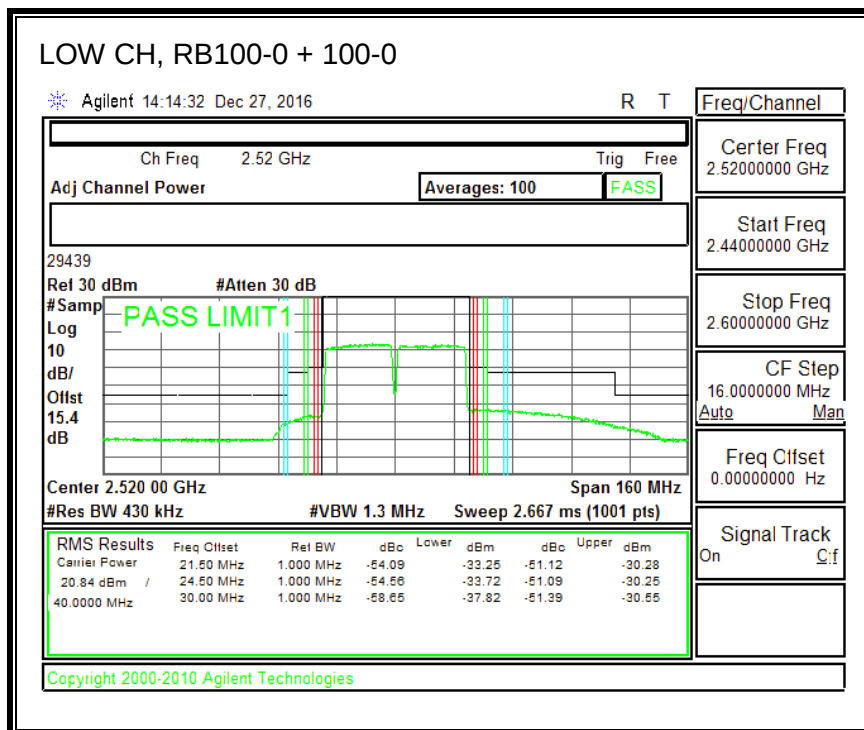
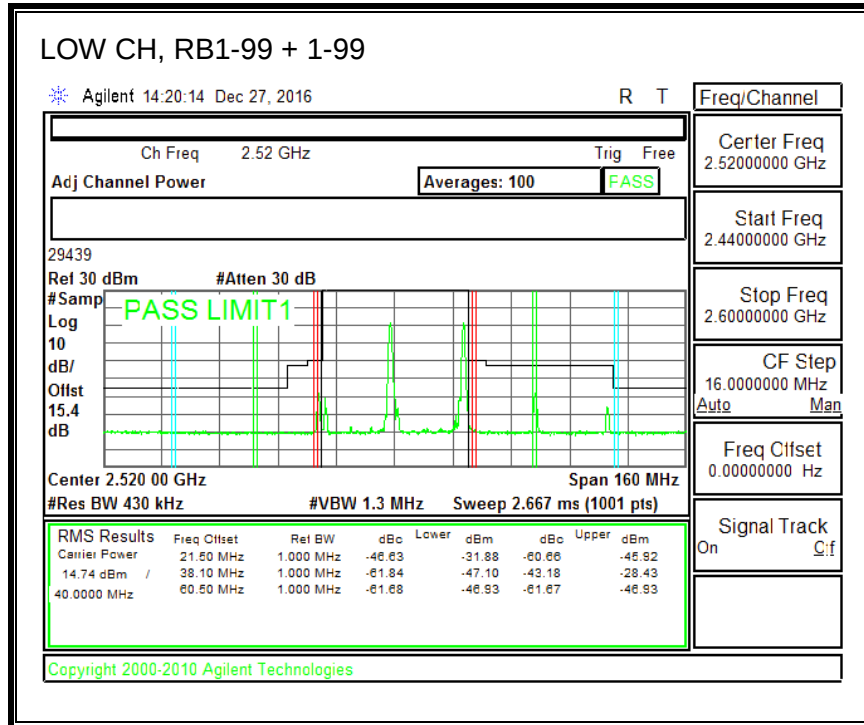


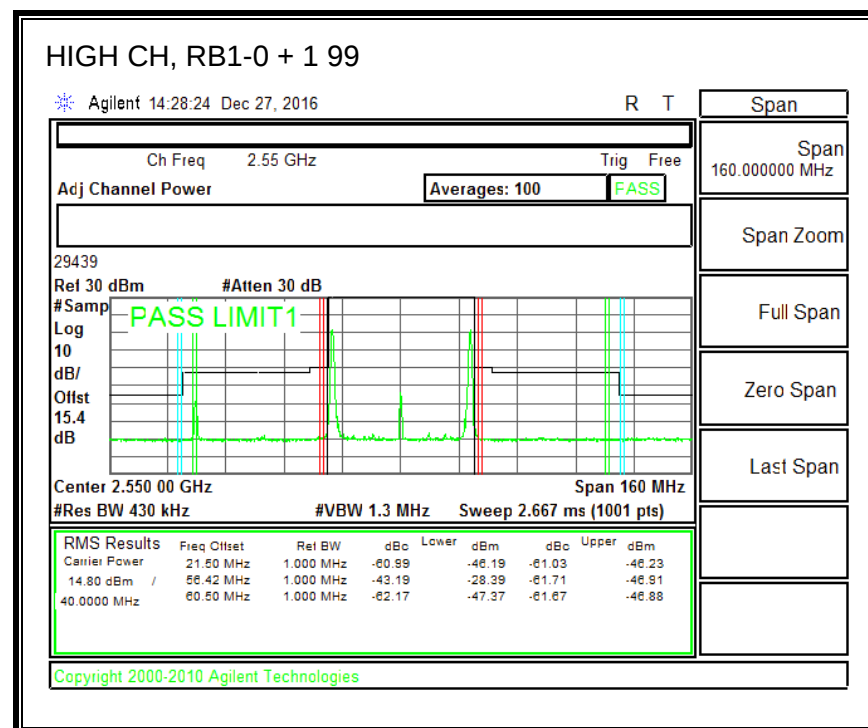
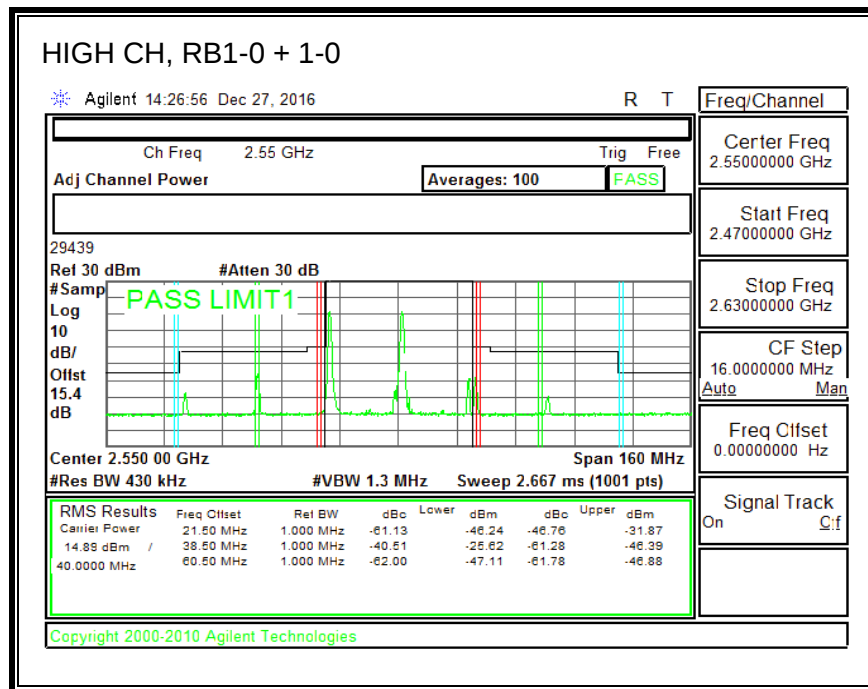


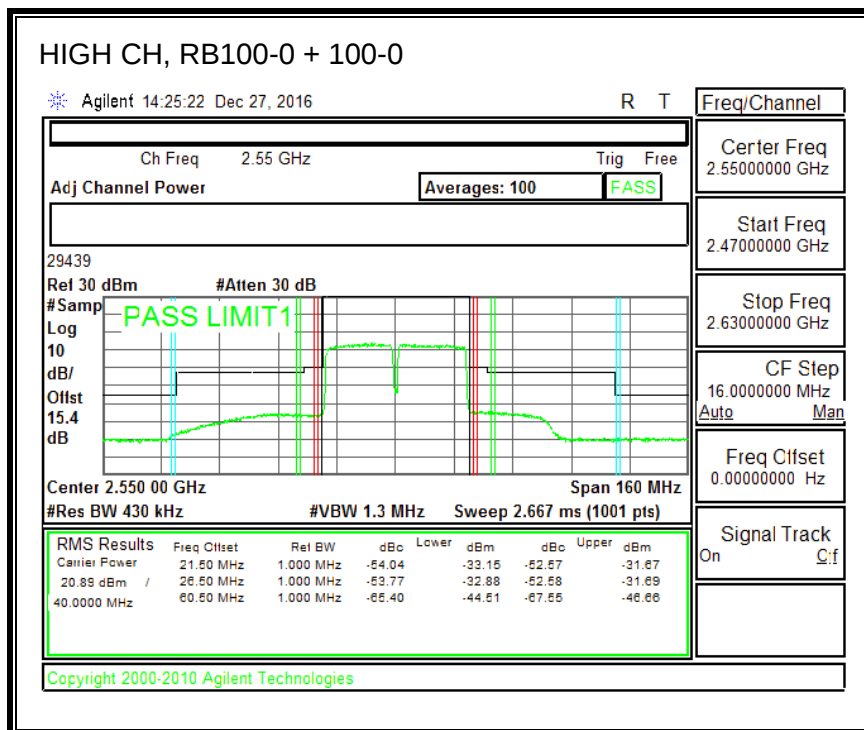
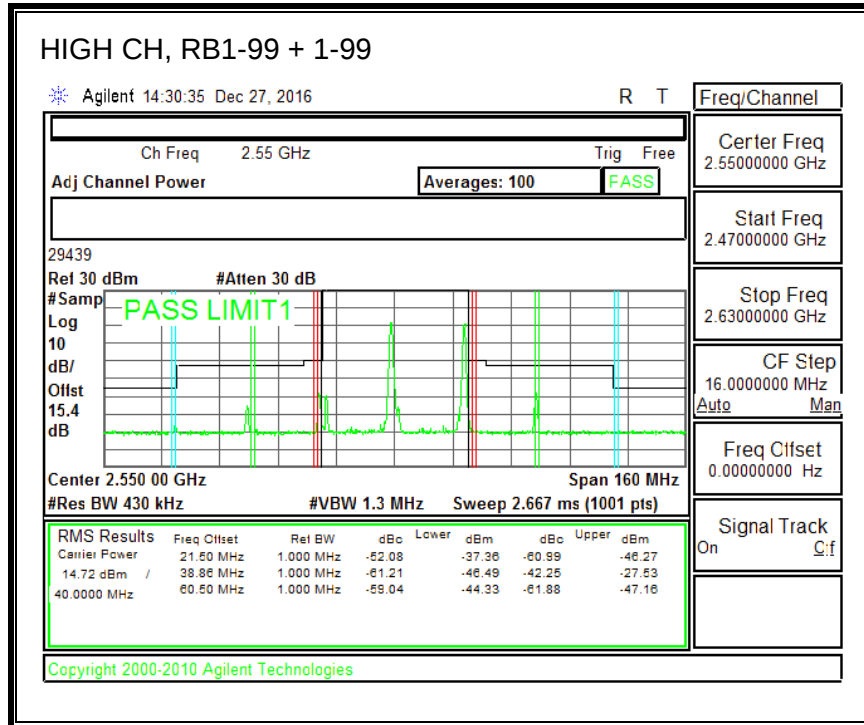


QPSK, (20.0 MHz + 20.0 MHz BAND WIDTH)

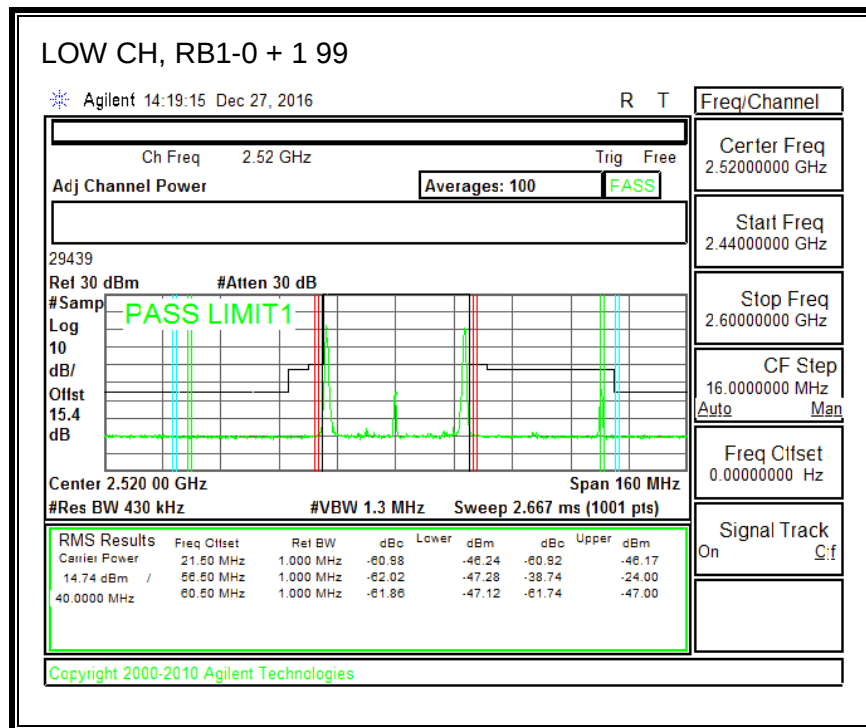
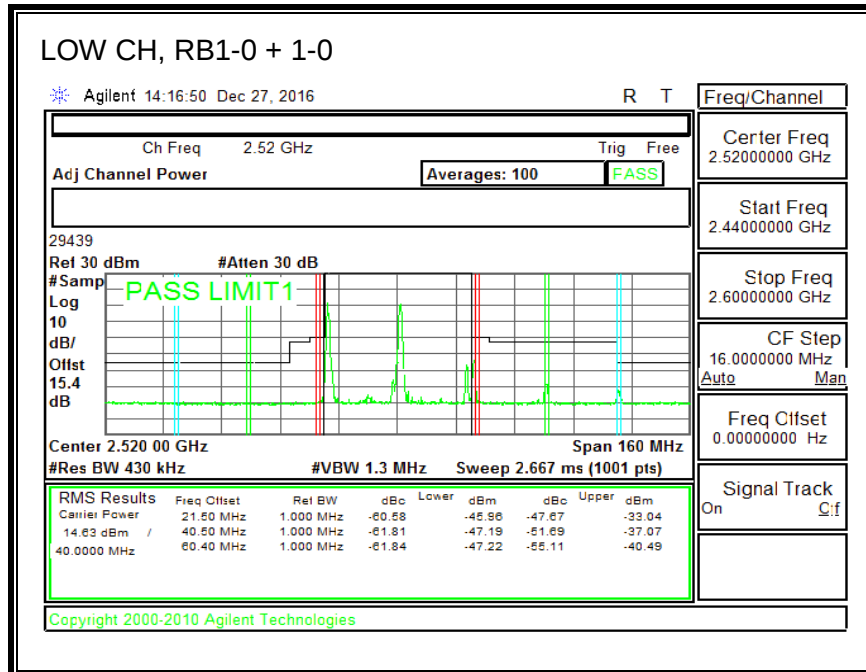


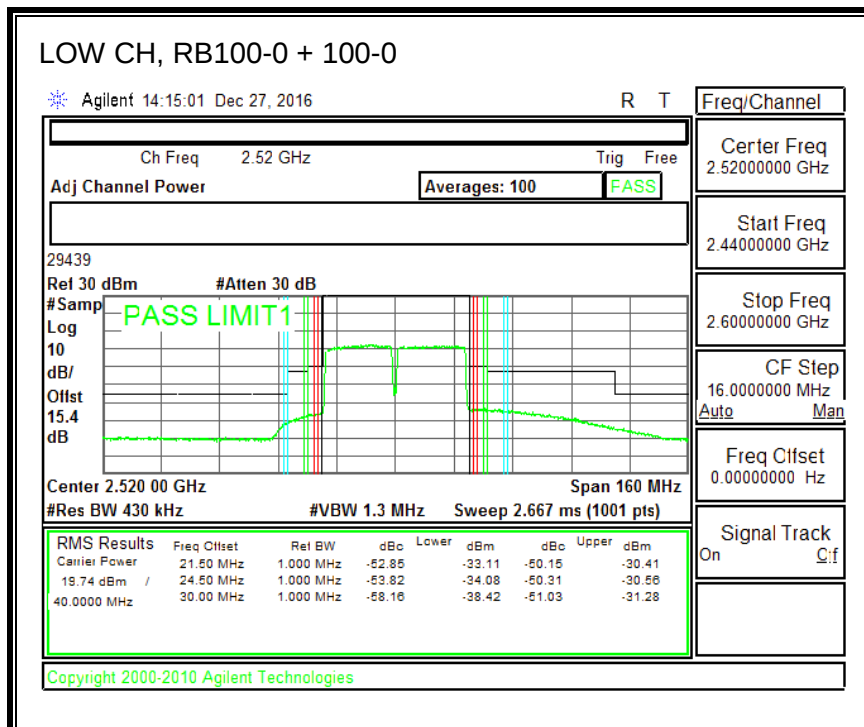
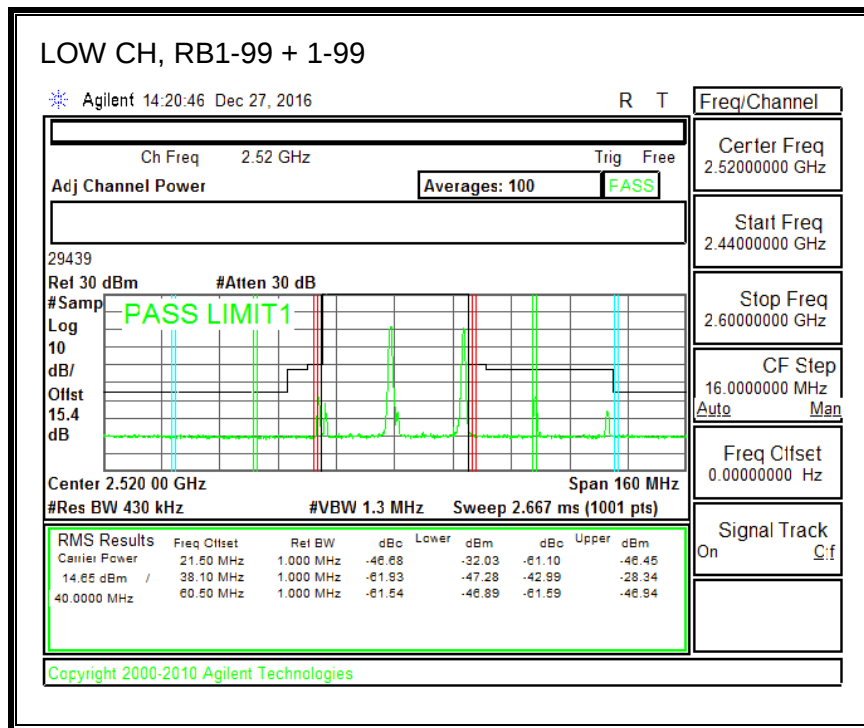


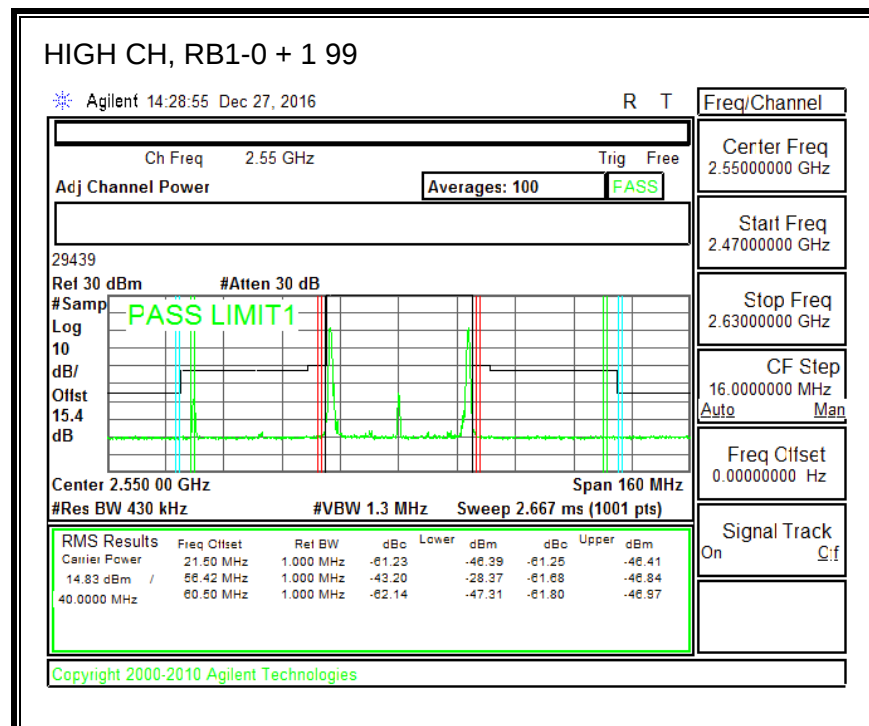
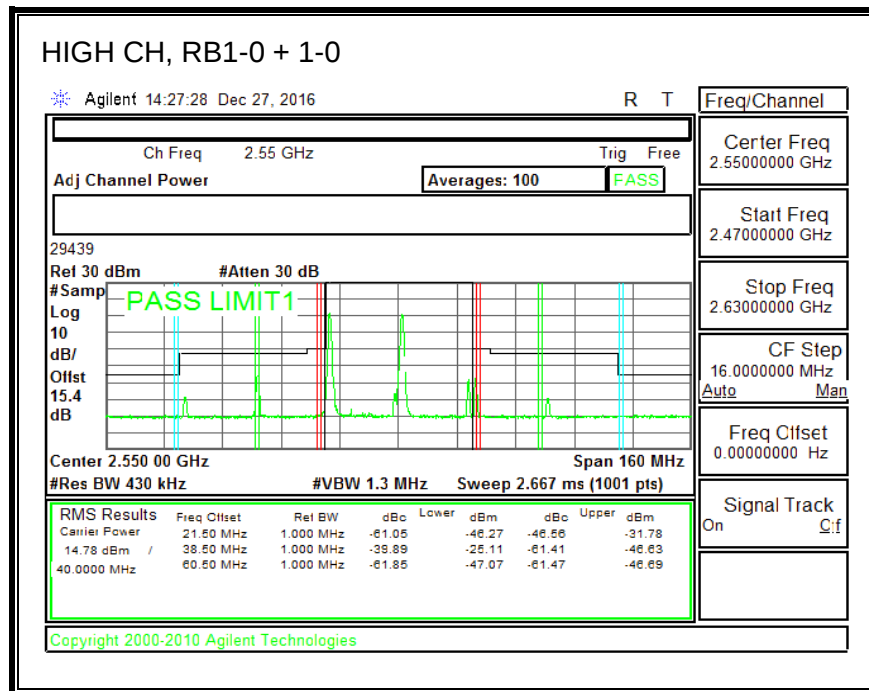


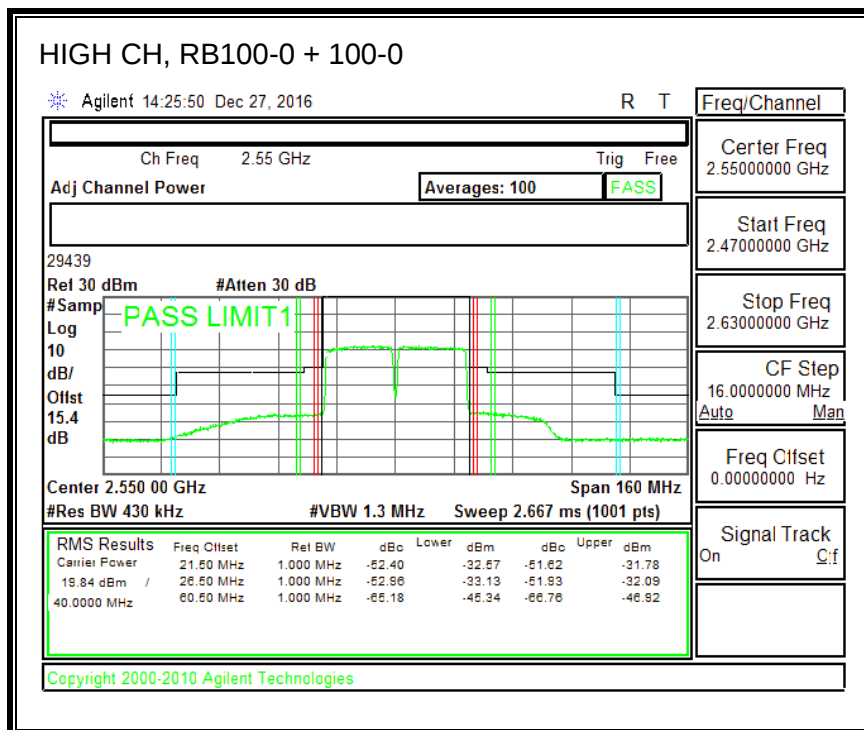
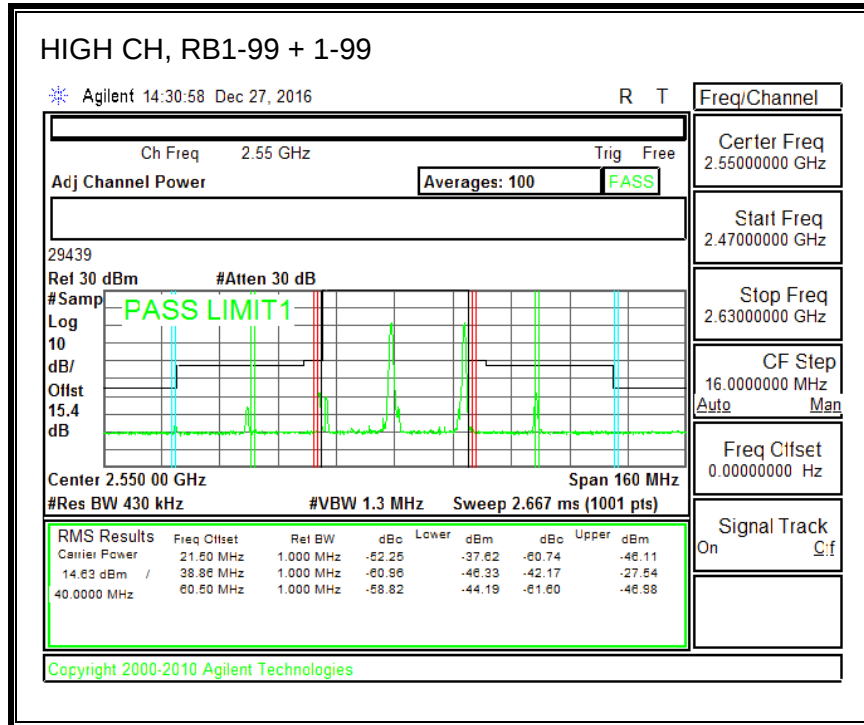


16QAM (20.0 MHz + 20.0 MHz BAND WIDTH)



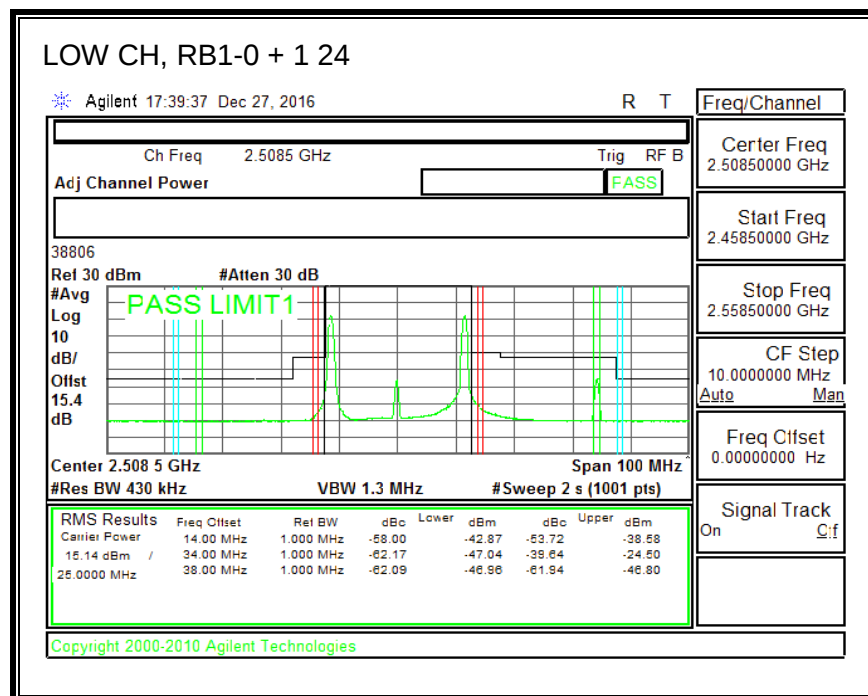
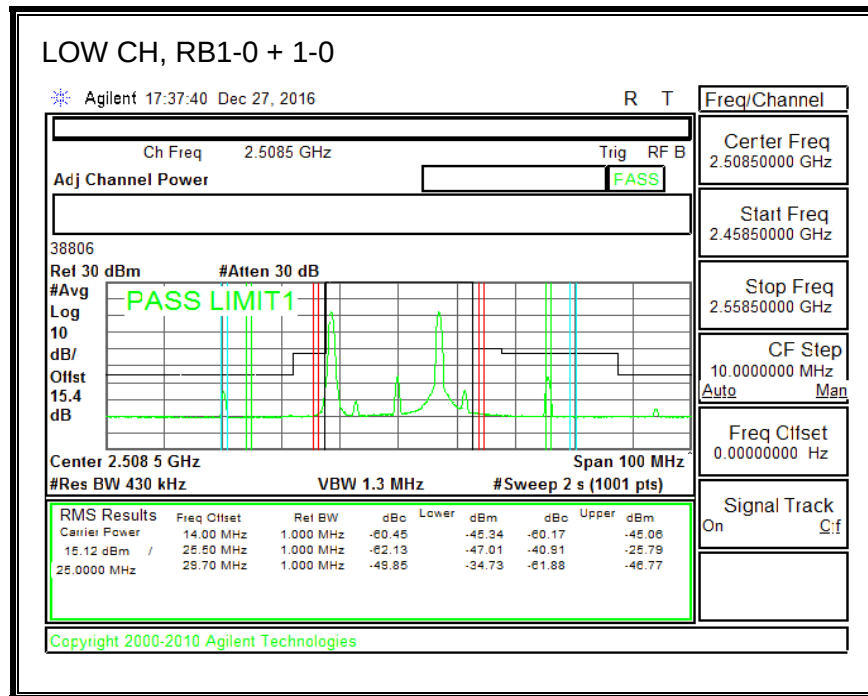


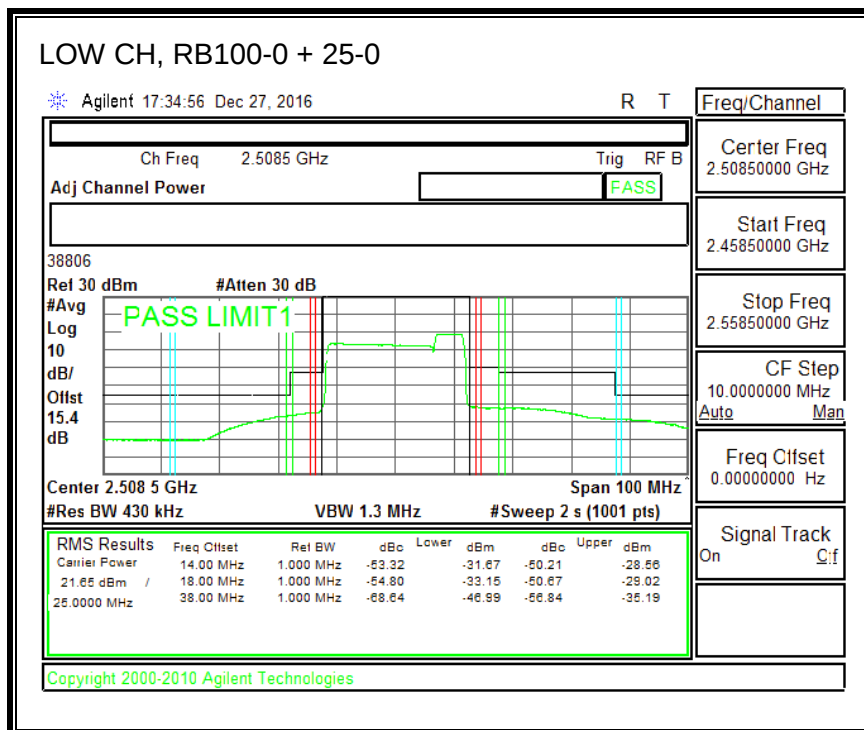
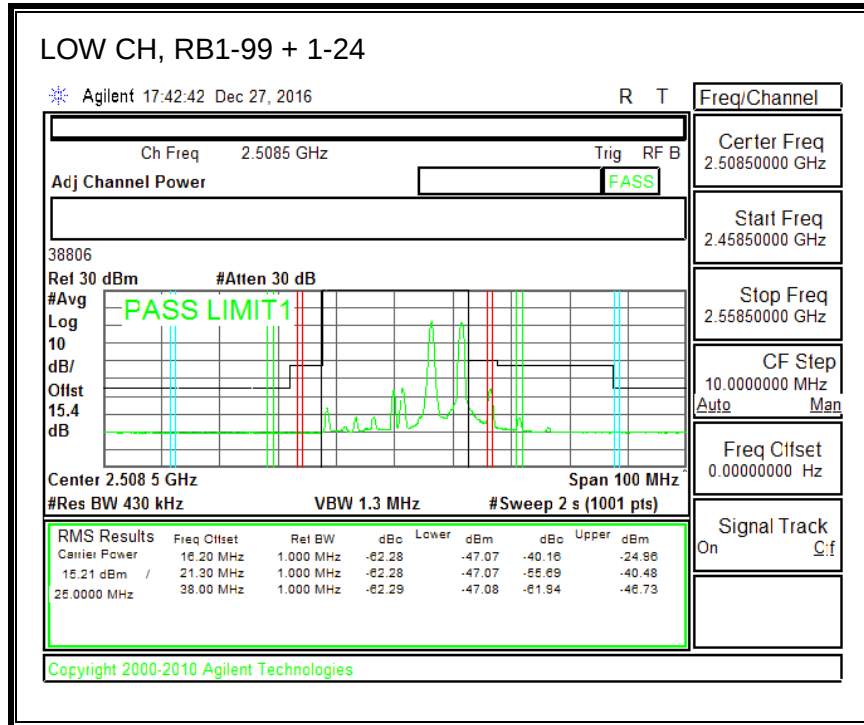


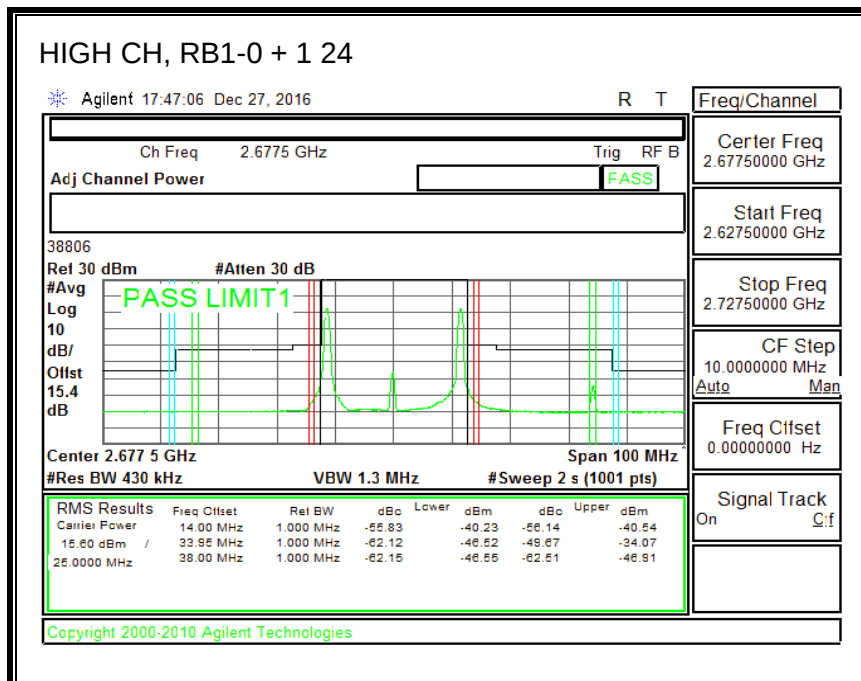
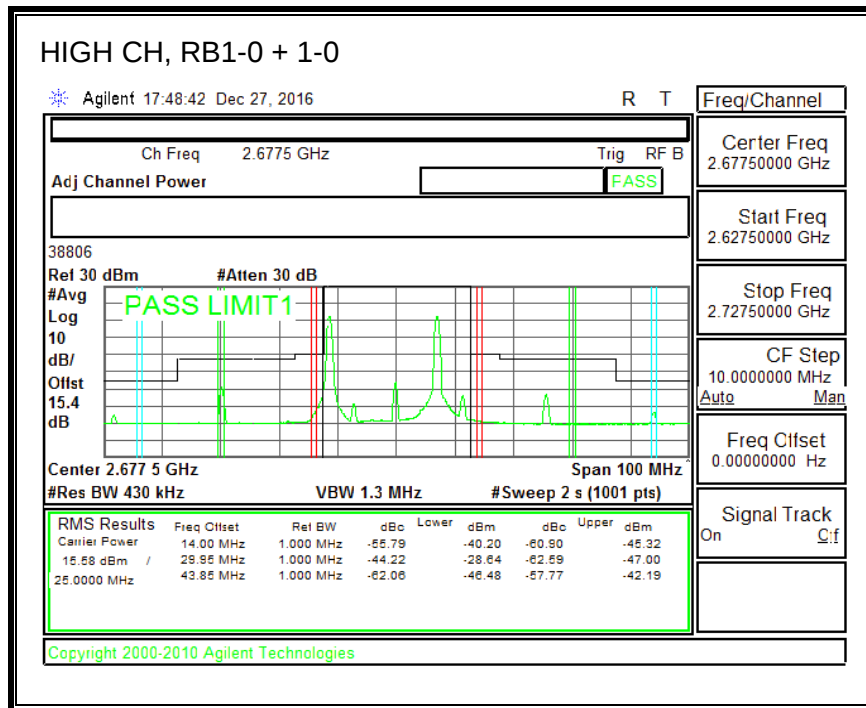


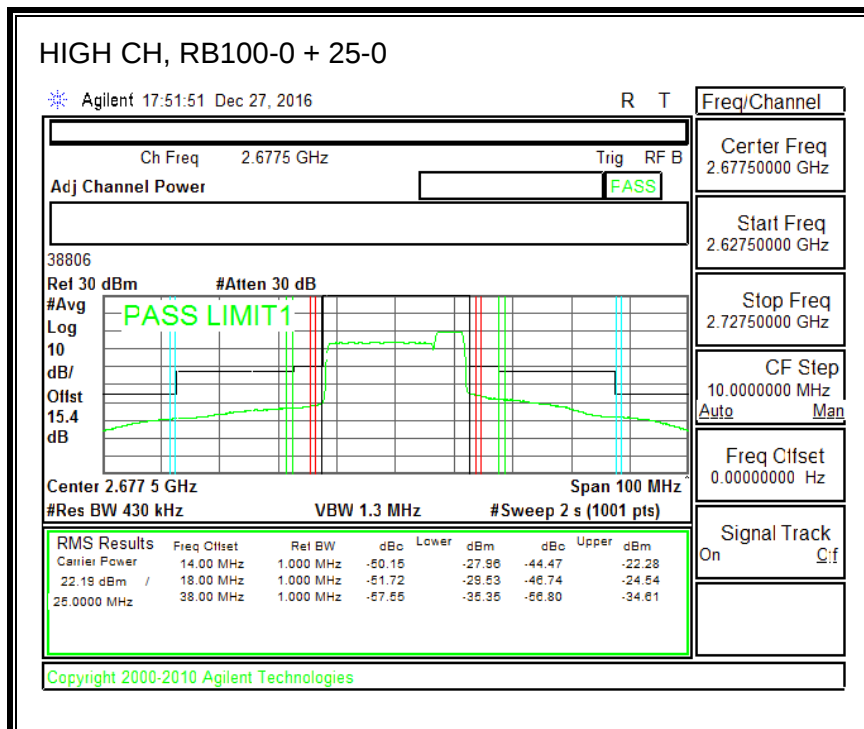
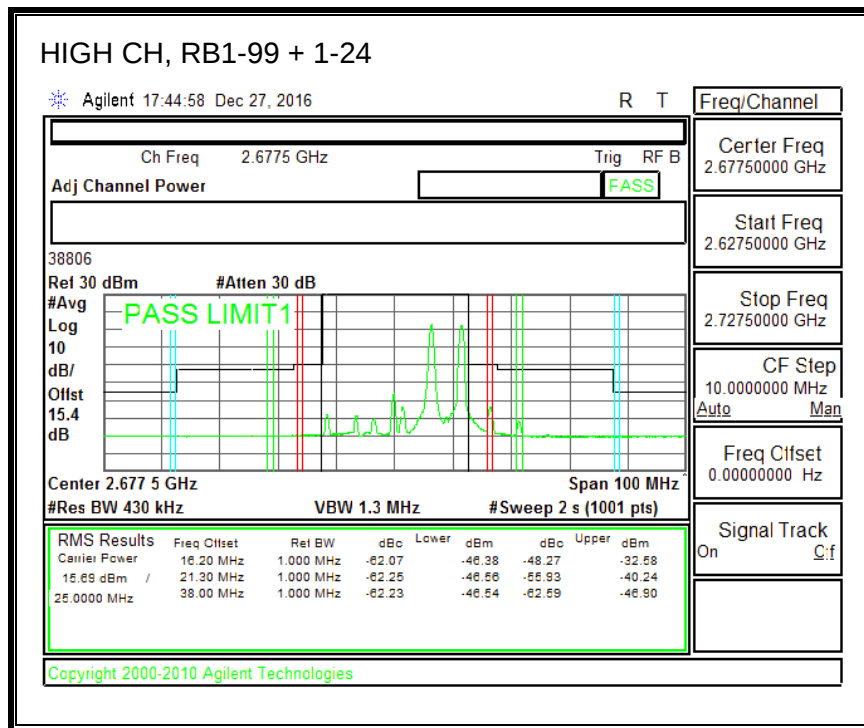
8.2.2. LTE BAND 41

QPSK, (20.0 MHz + 5.0 MHz BAND WIDTH)

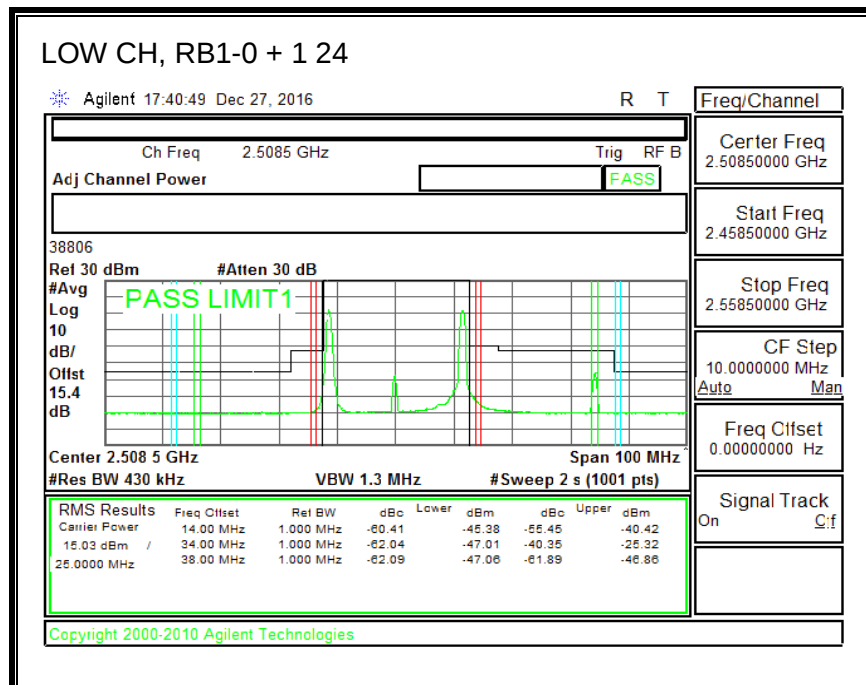
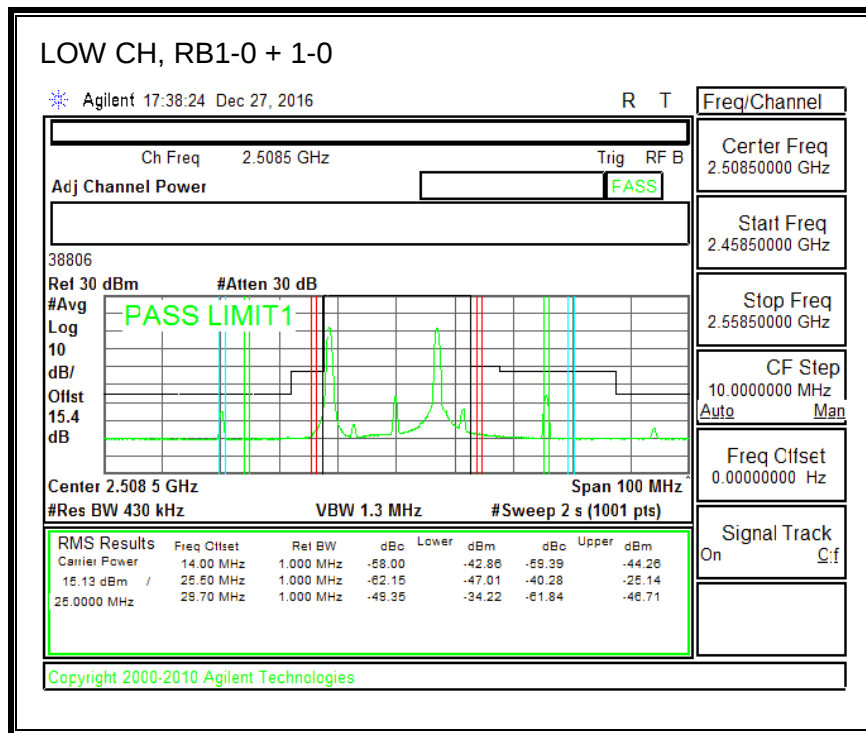


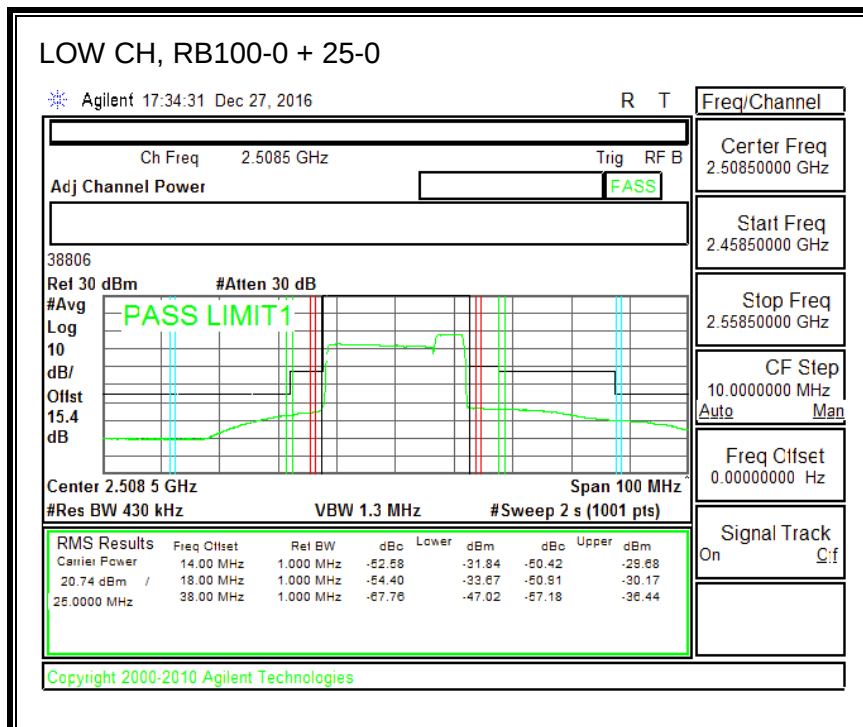
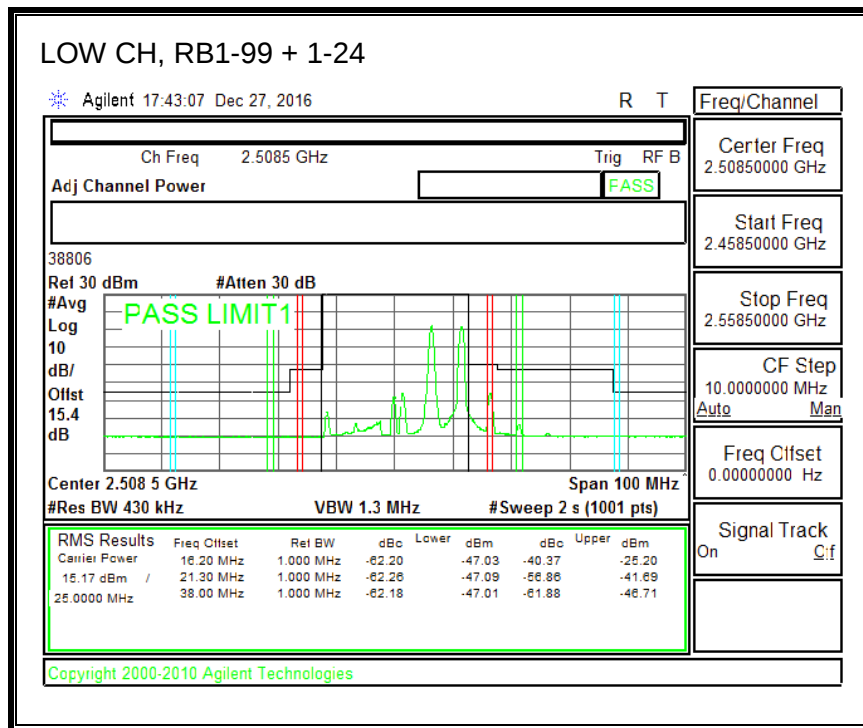


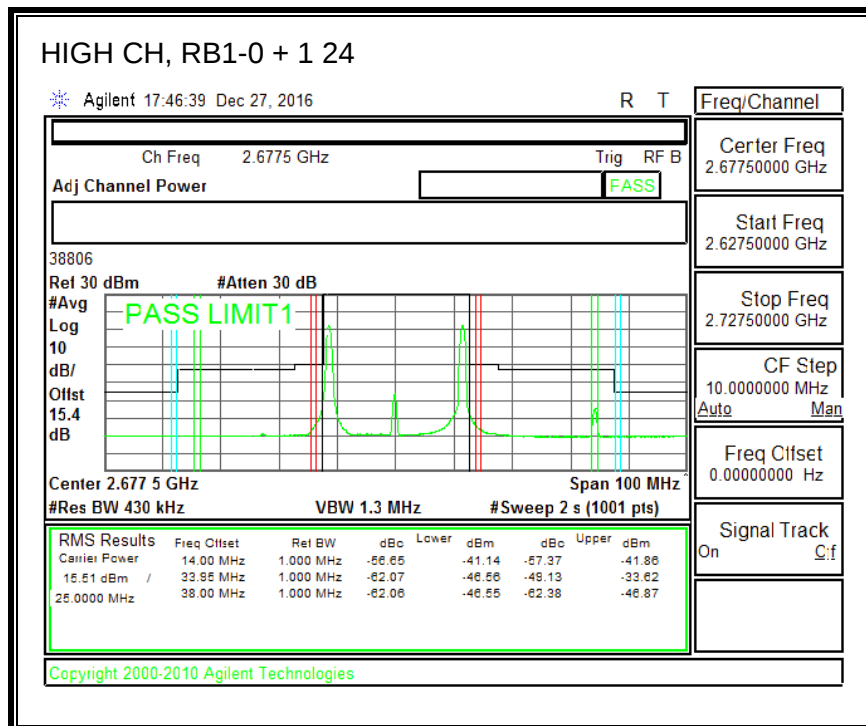
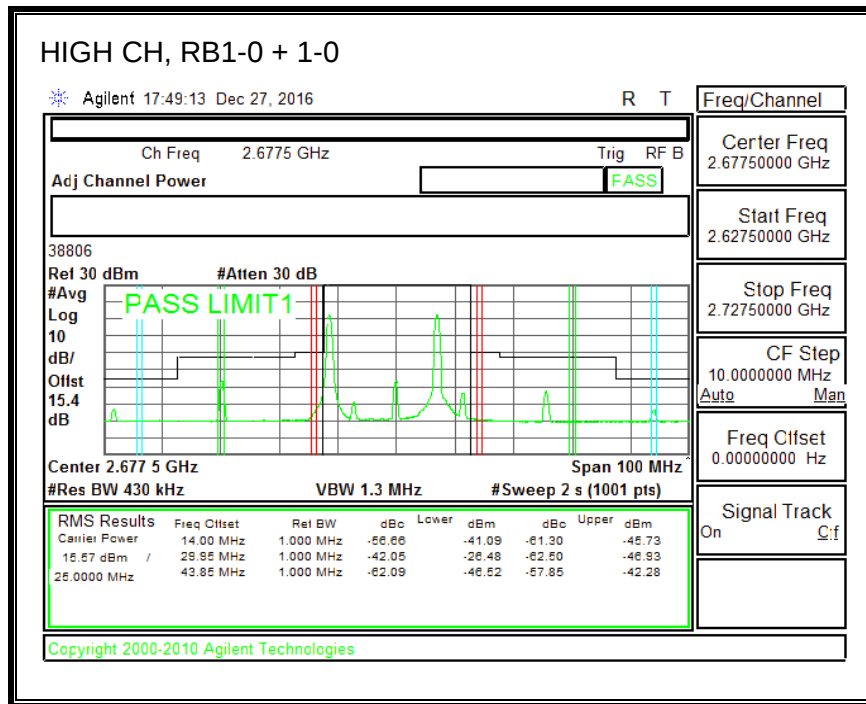


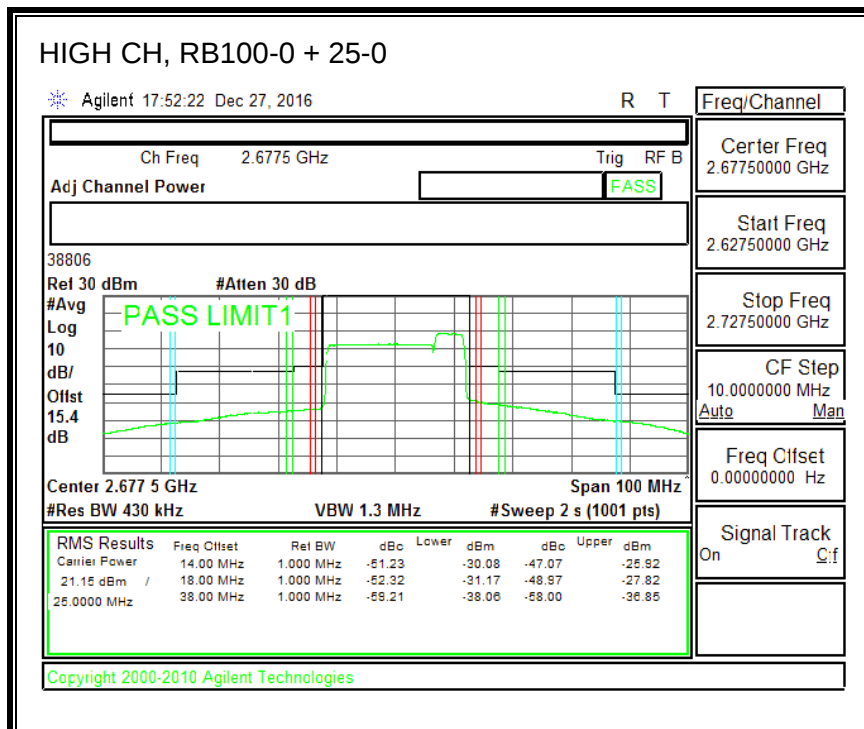
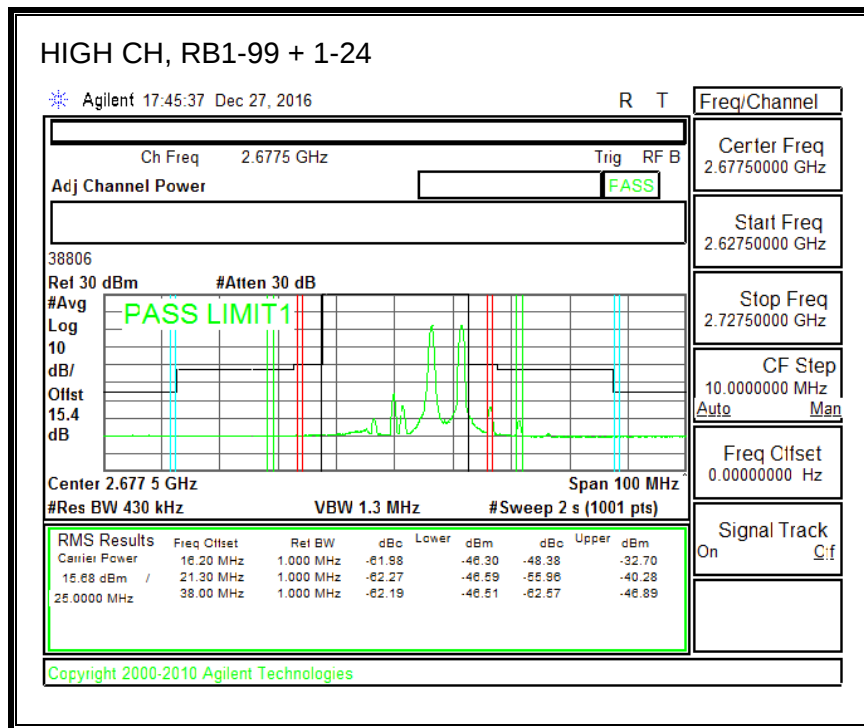


16QAM (20.0 MHz + 5.0 MHz BAND WIDTH)

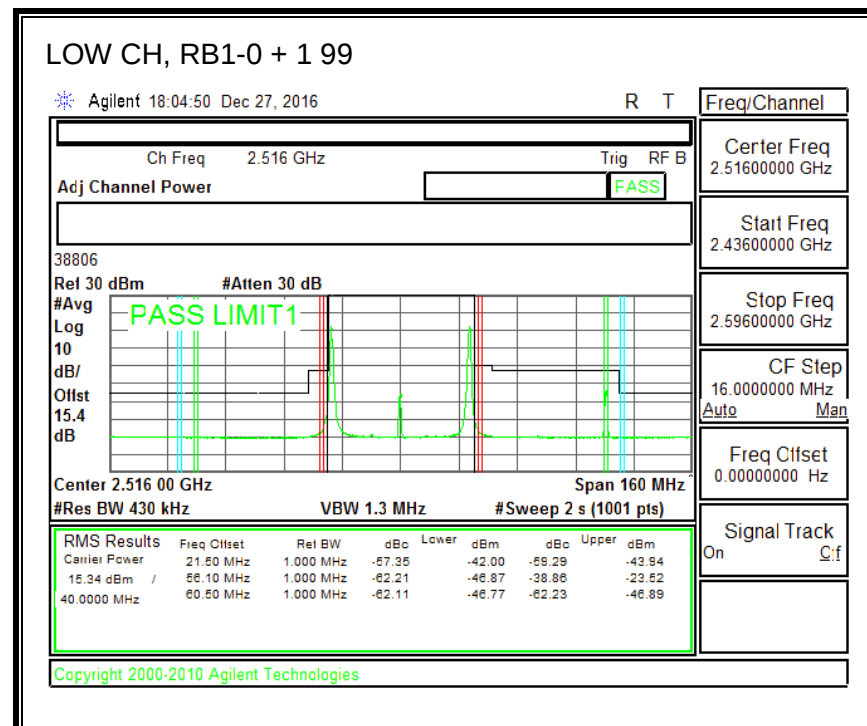
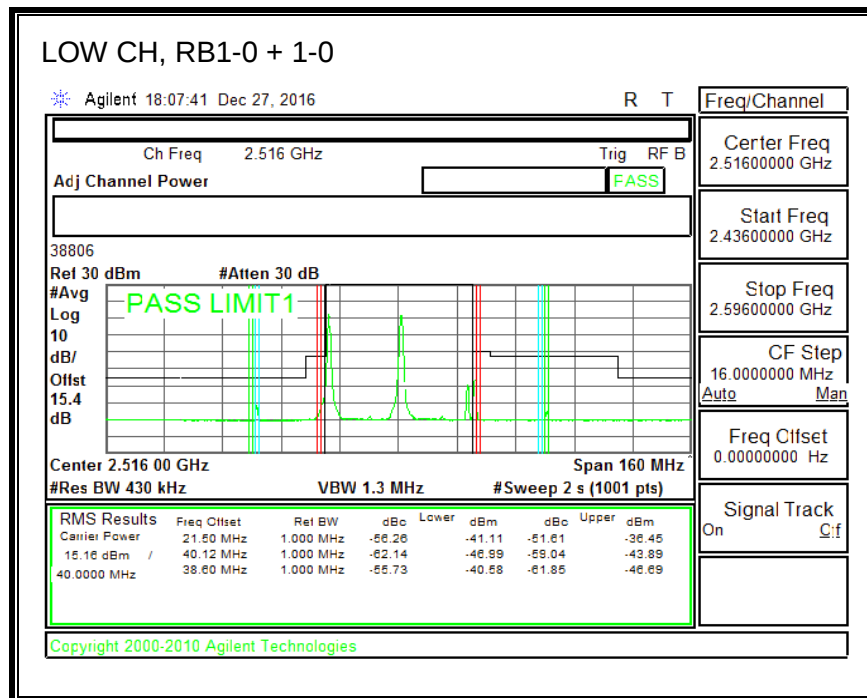


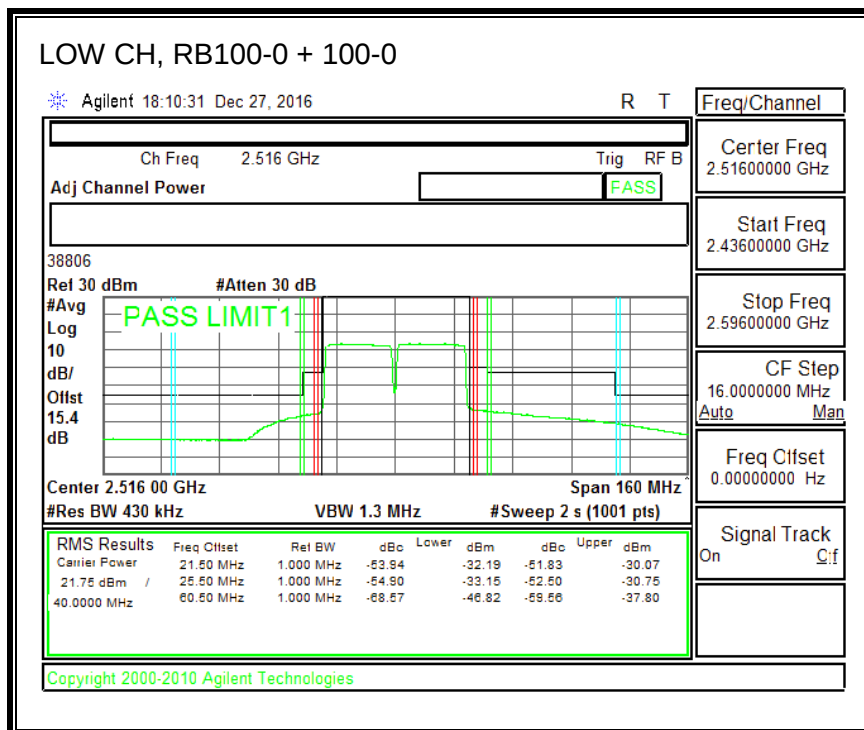
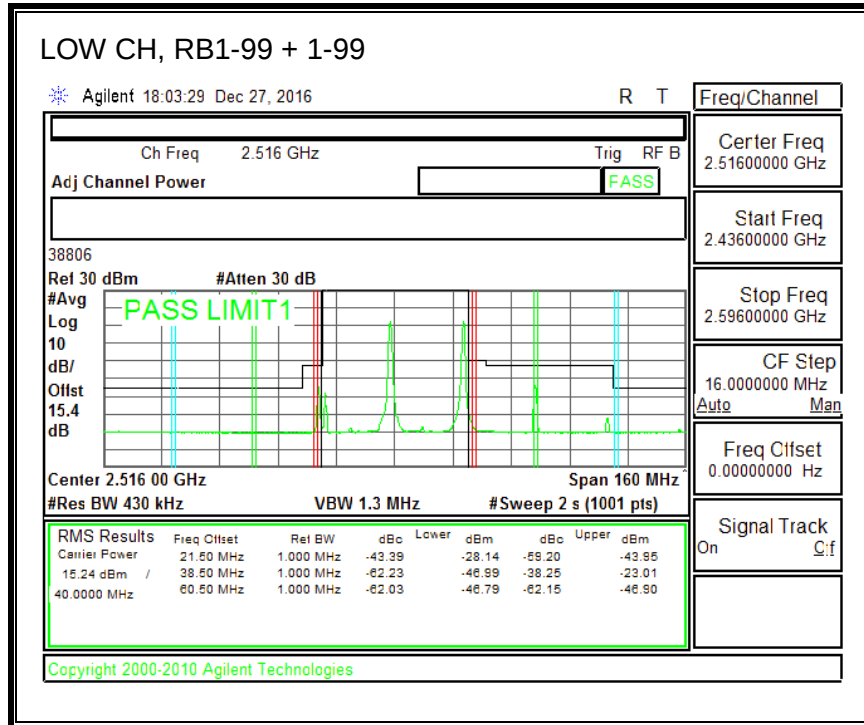


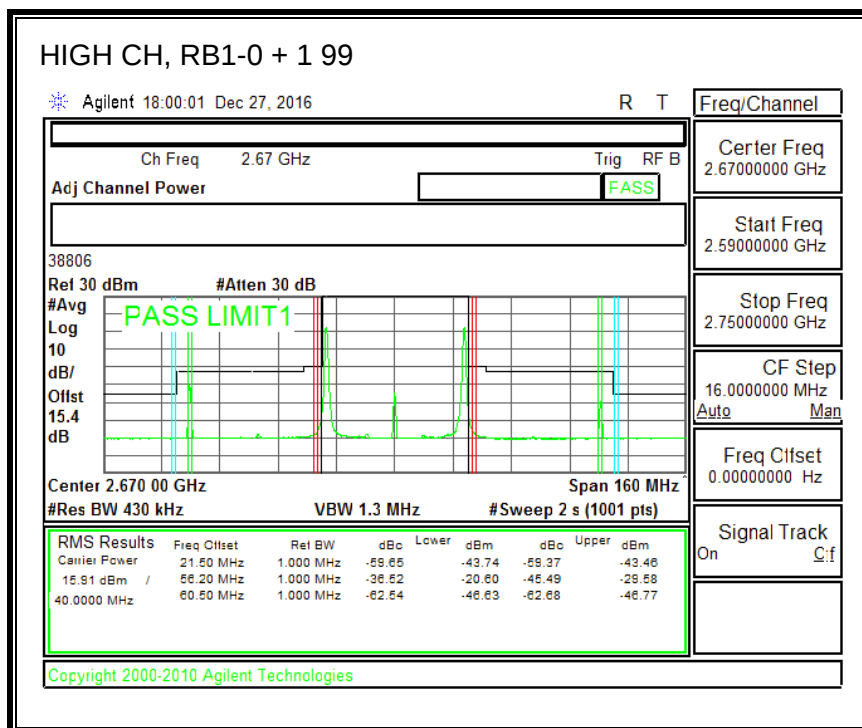
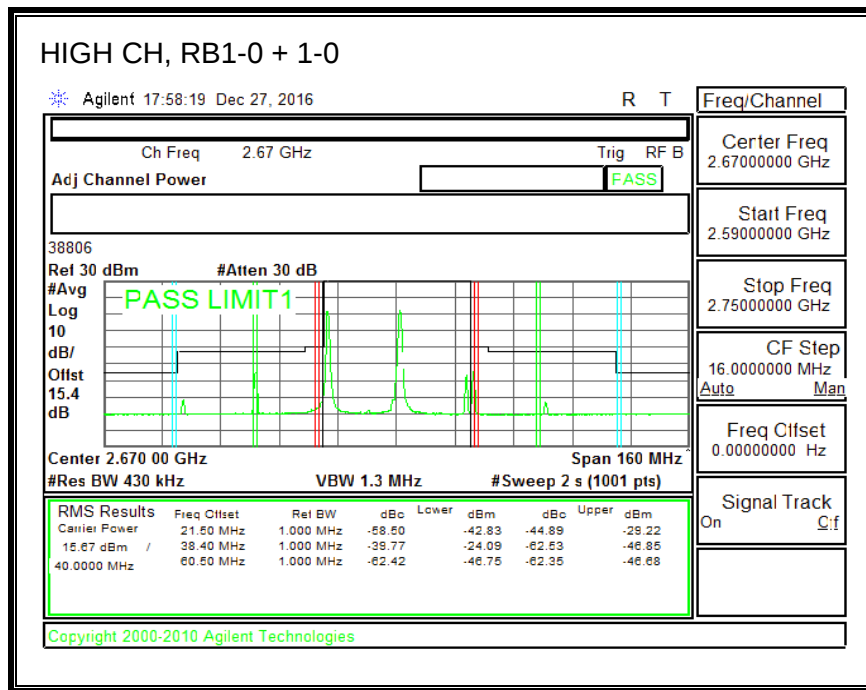


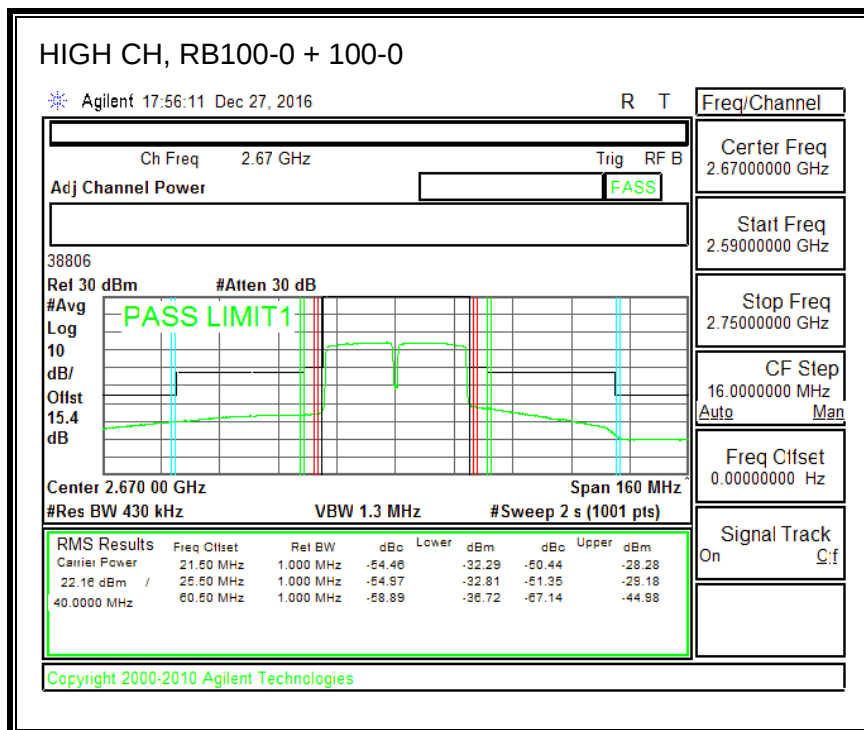
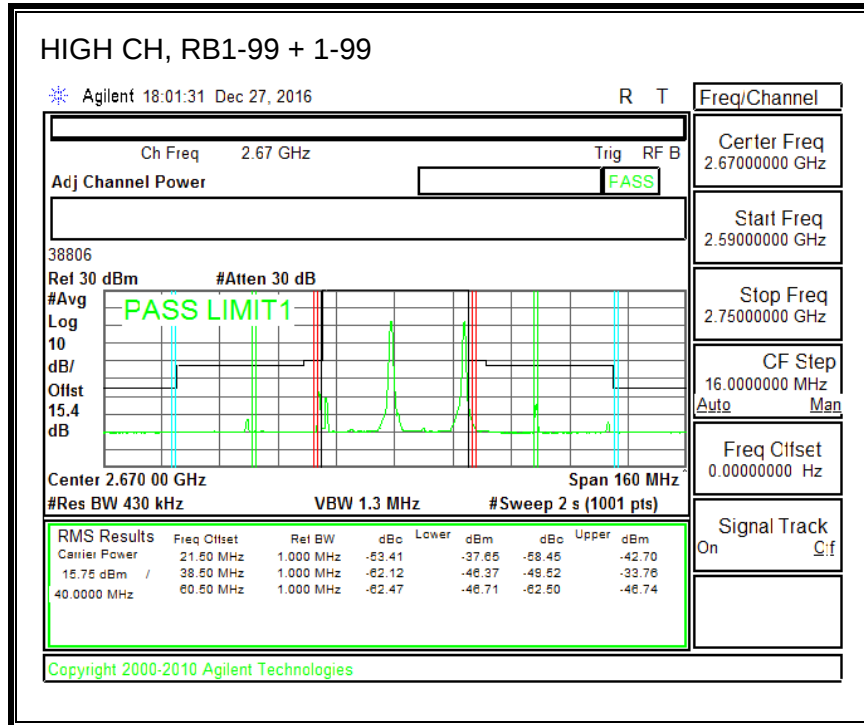


QPSK, (20.0 MHz + 20.0 MHz BAND WIDTH)

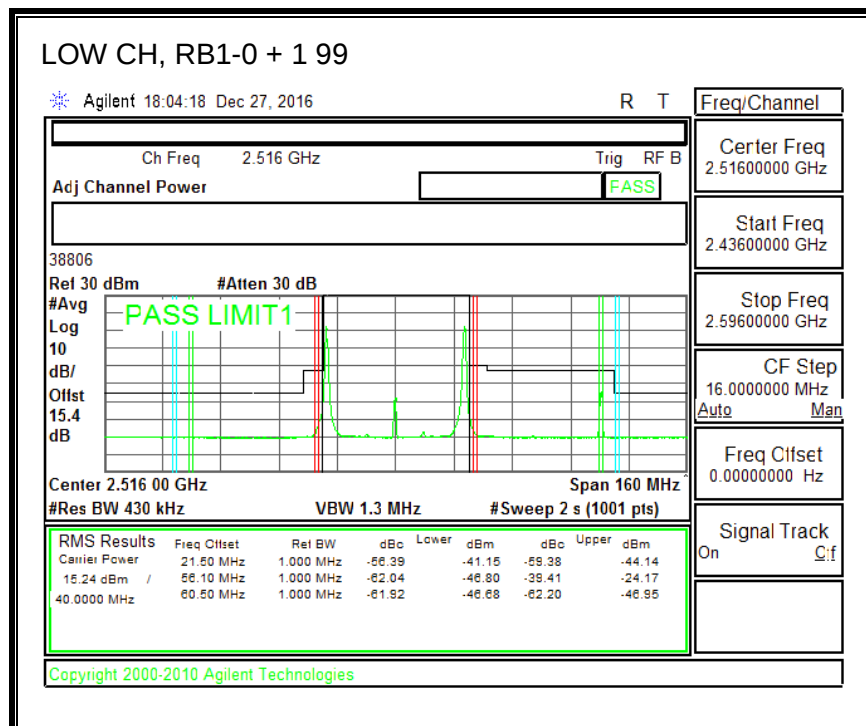
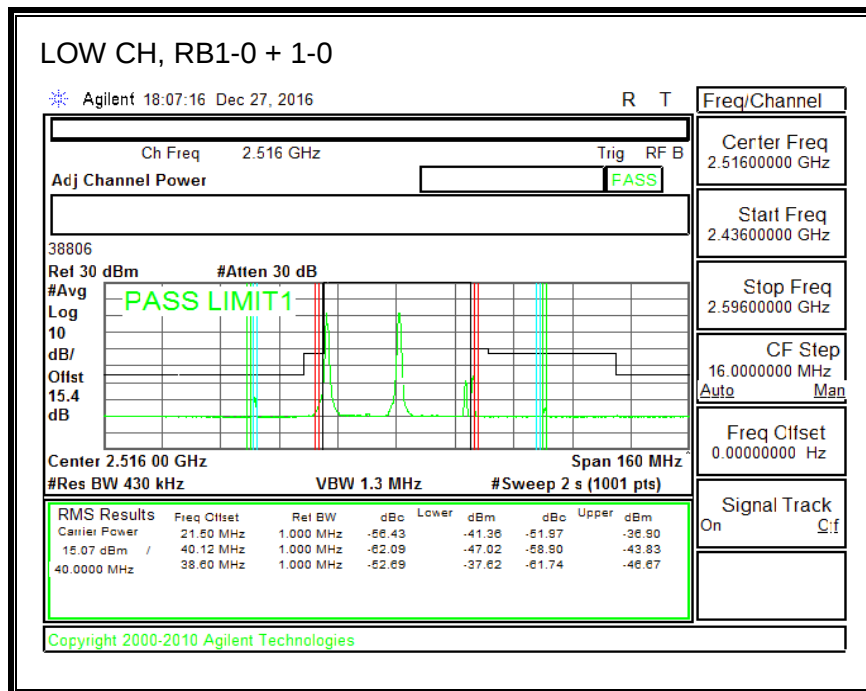


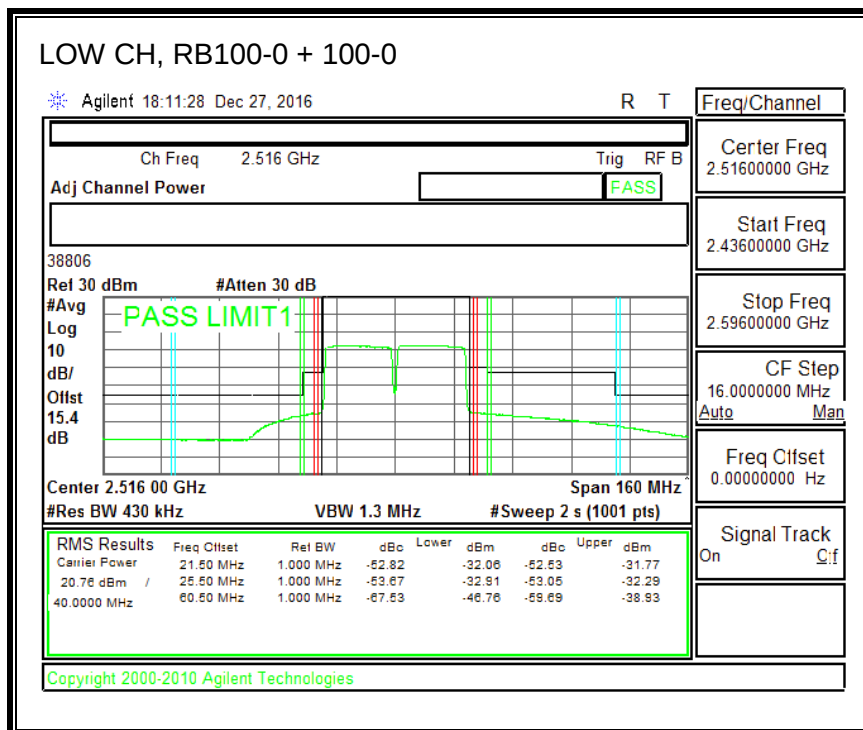
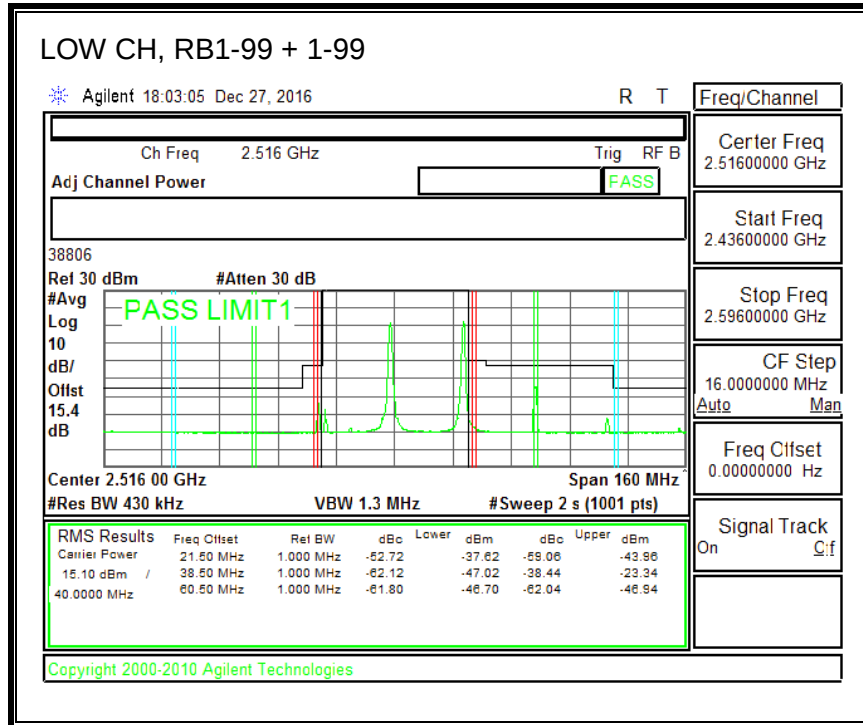


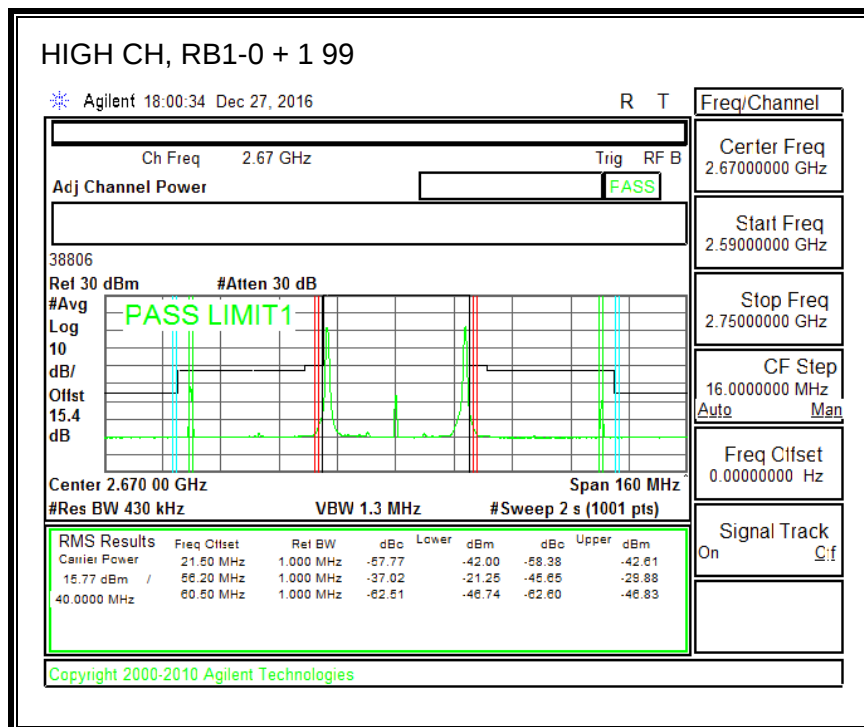
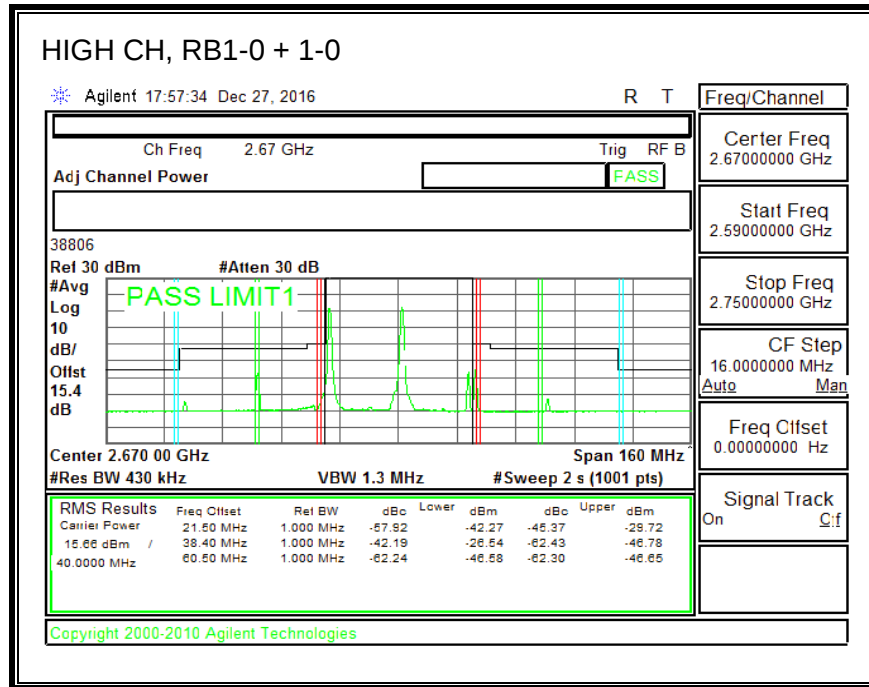


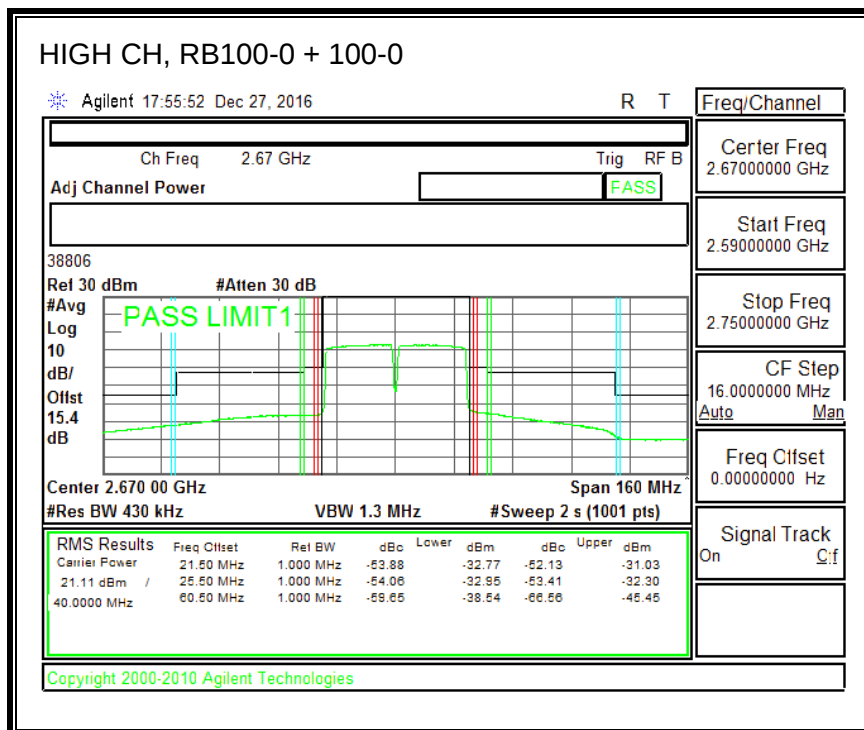
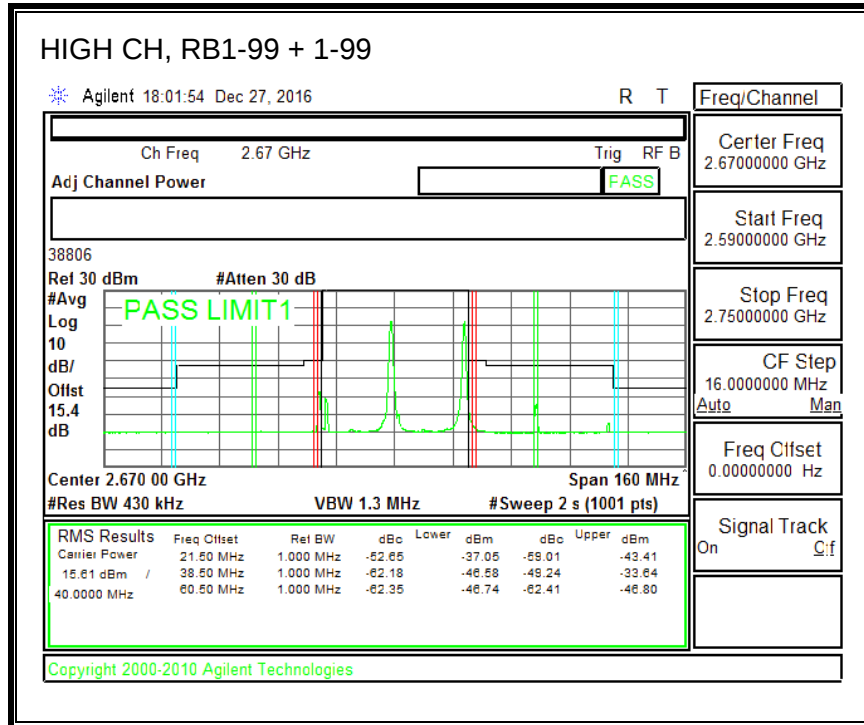


16QAM (20.0 MHz + 20.0 MHz BAND WIDTH)









8.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §27.53

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

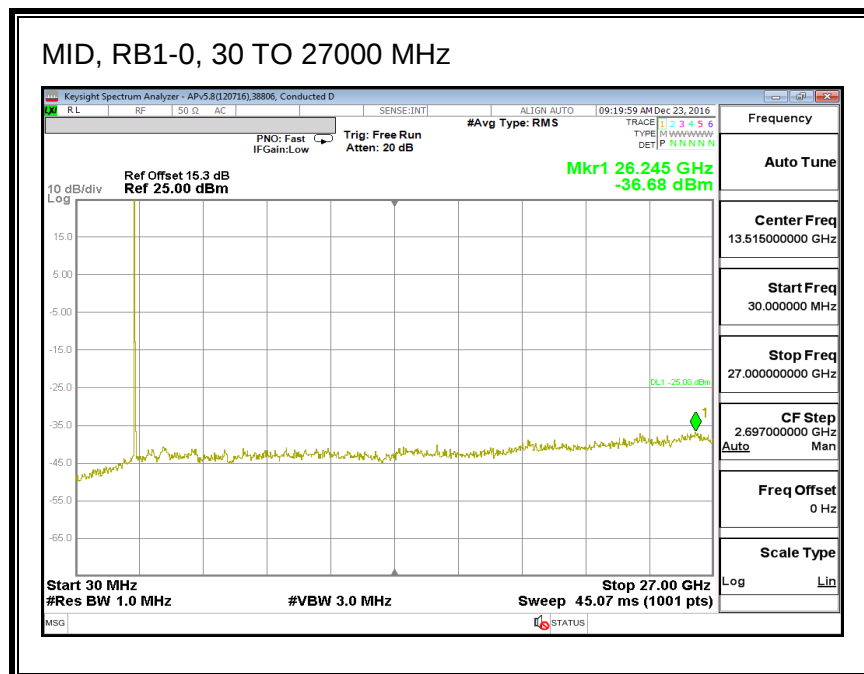
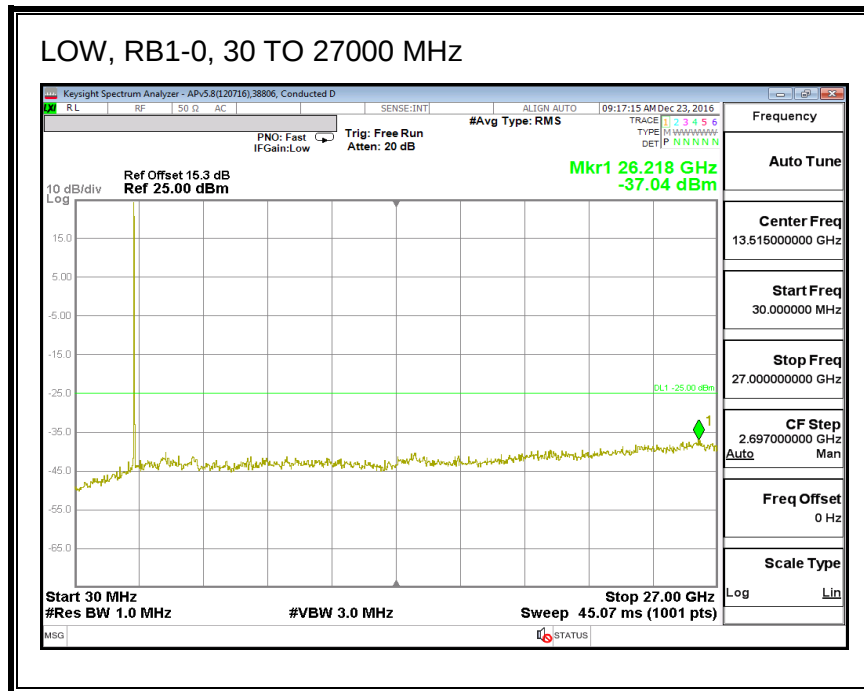
- Set display line at -25 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz. (NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

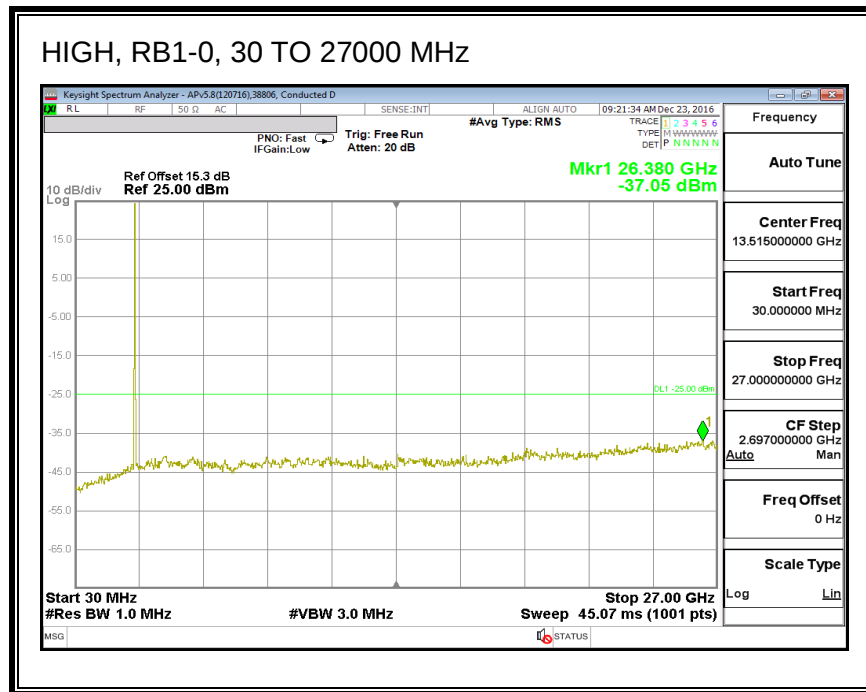
MODES TESTED

- LTE Band 7
- LTE Band 41

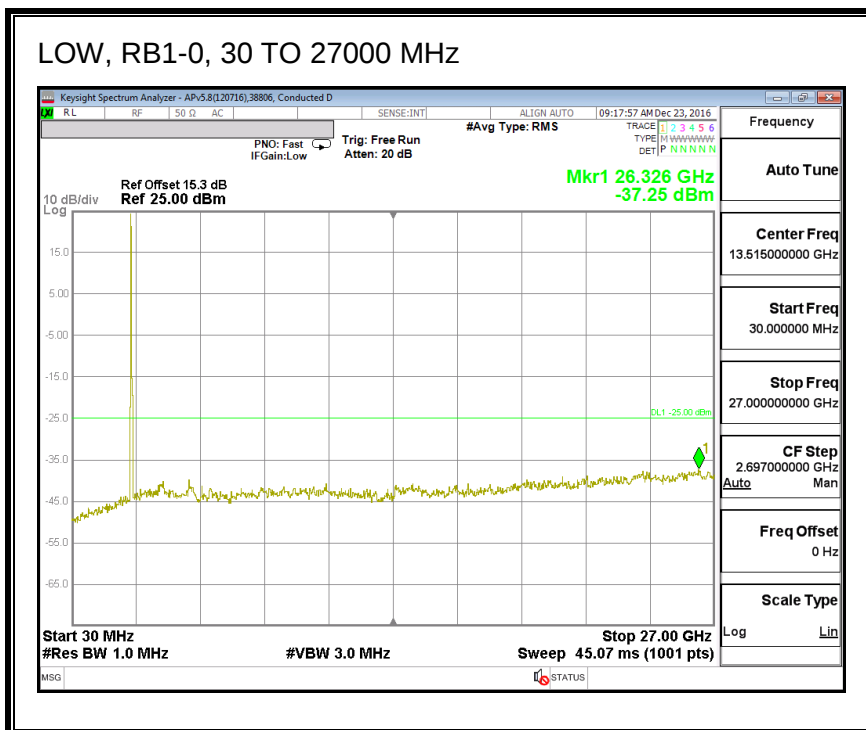
8.3.1. LTE BAND 7

QPSK, (20.0 MHz+ 10.0 MHz BAND WIDTH)

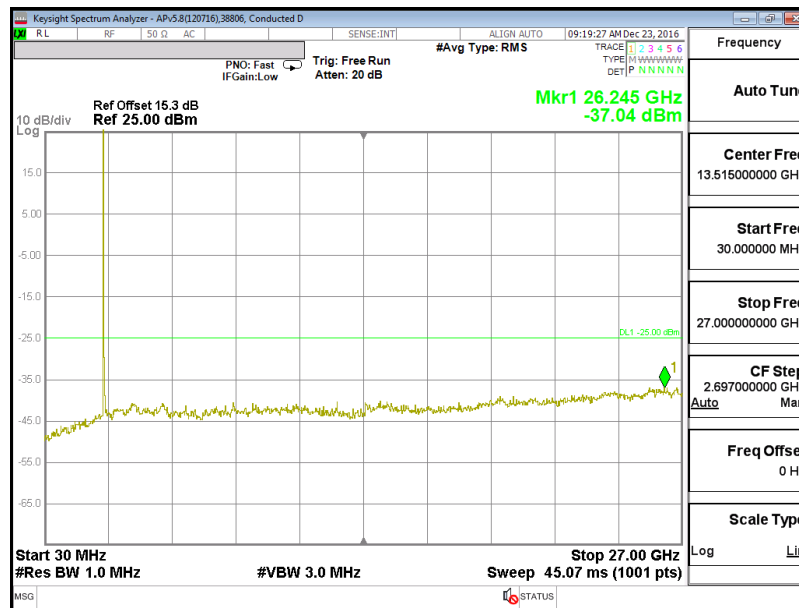




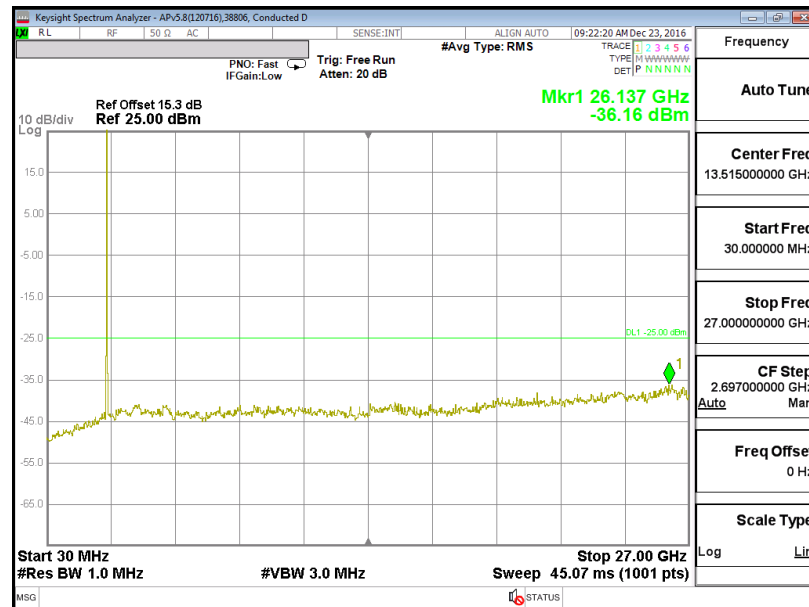
16QAM, (20.0 MHz+ 10.0 MHz BAND WIDTH)



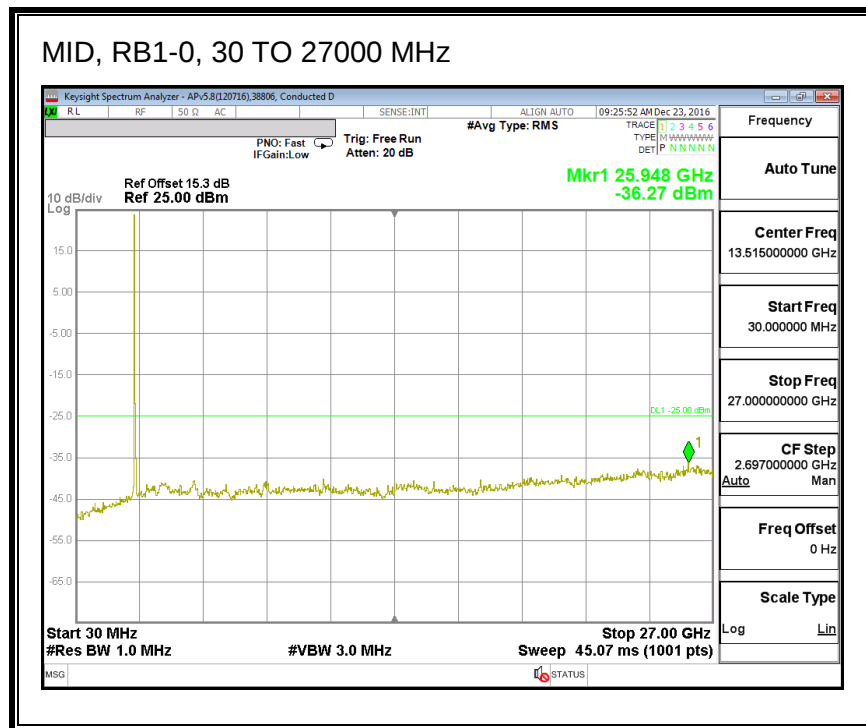
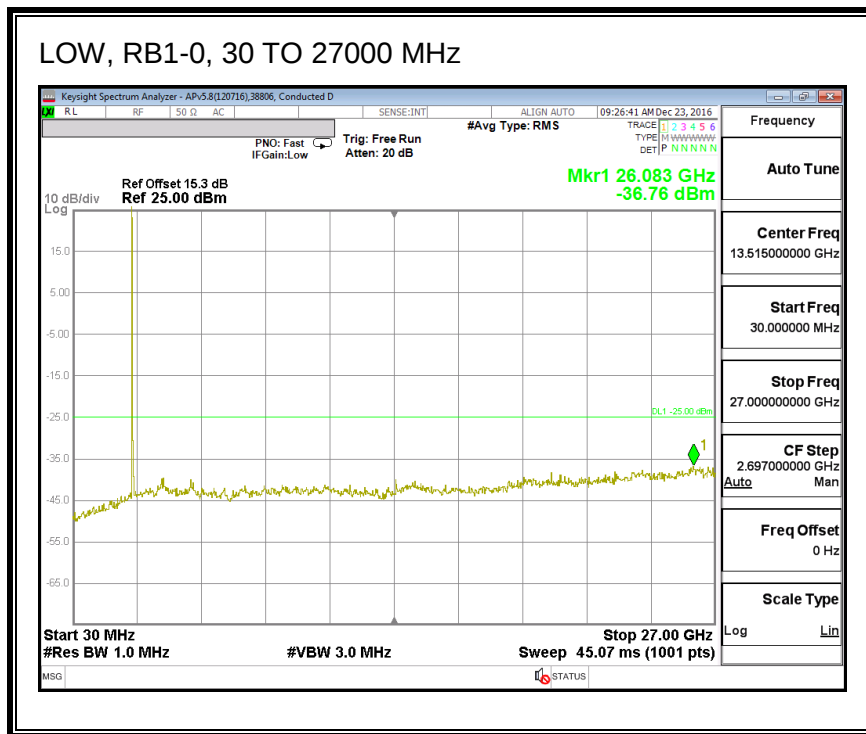
MID, RB1-0, 30 TO 27000 MHz

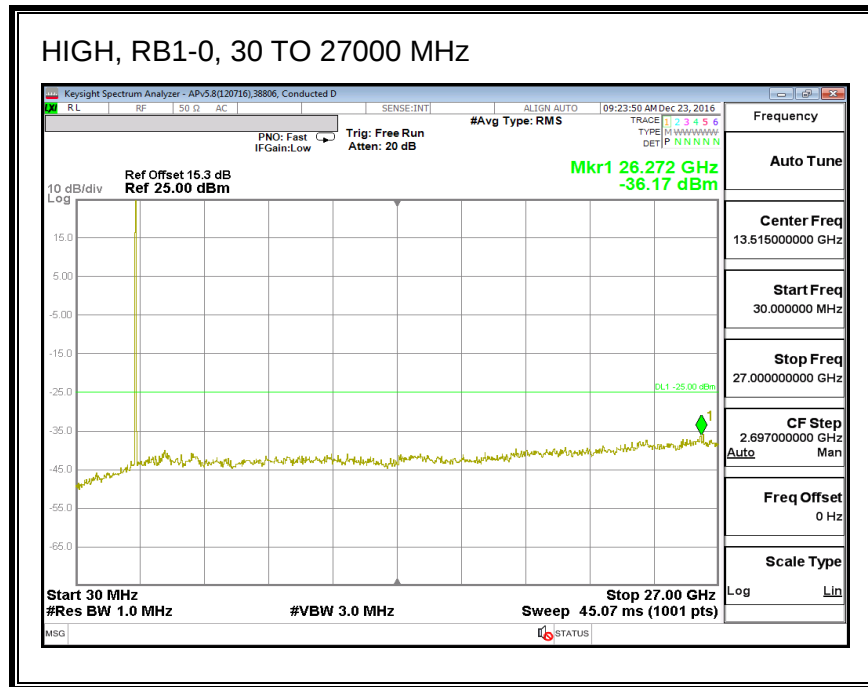


HIGH, RB1-0, 30 TO 27000 MHz

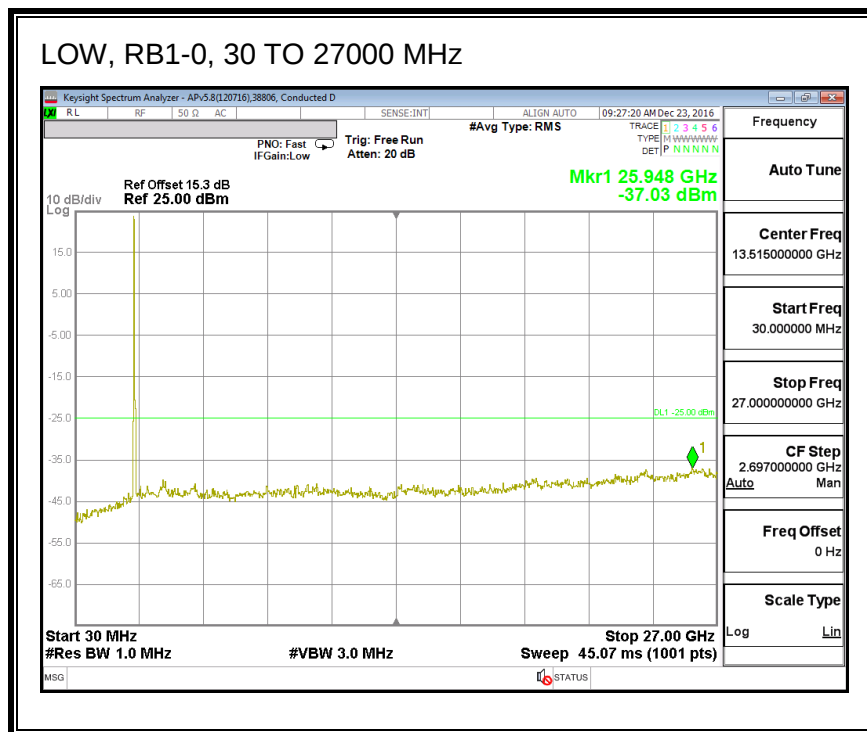


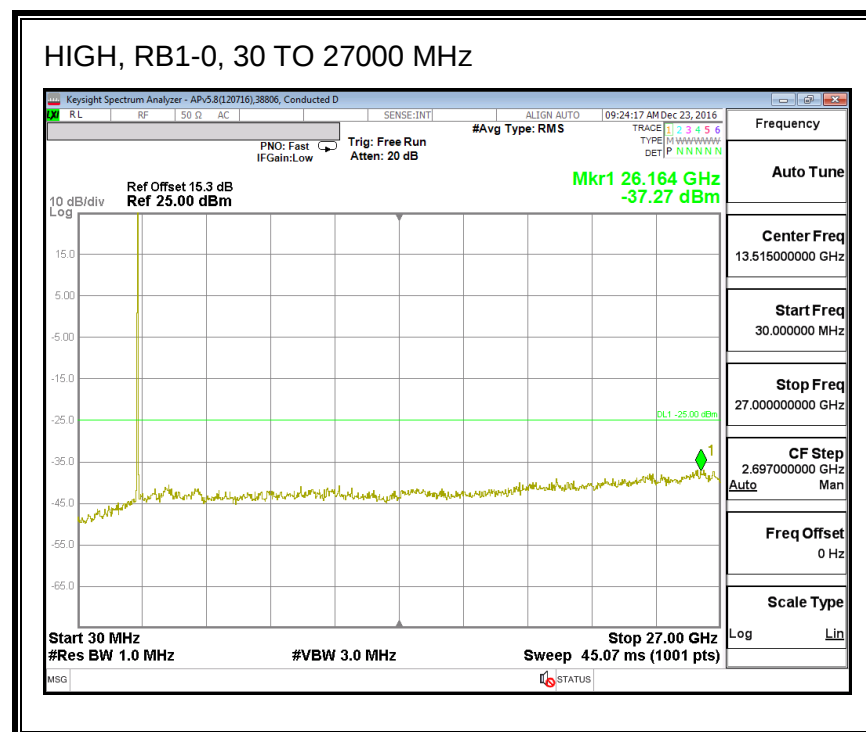
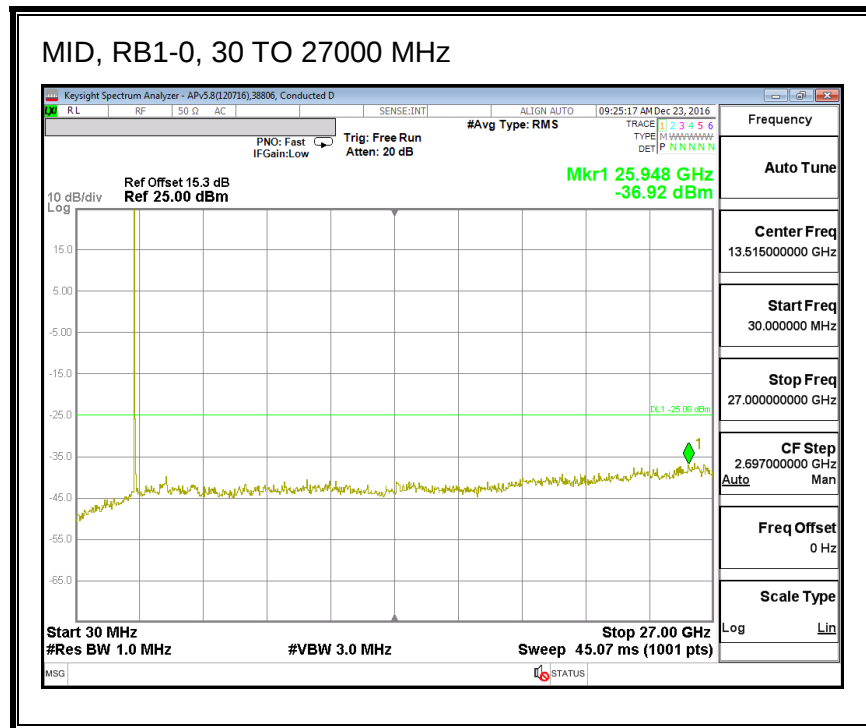
QPSK, (20.0 MHz+ 20.0 MHz BAND WIDTH)





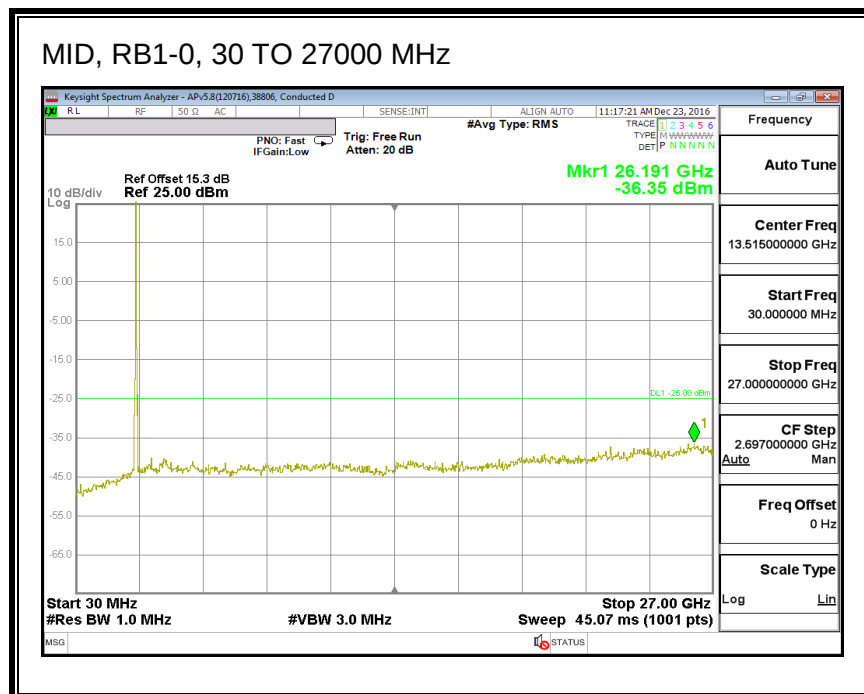
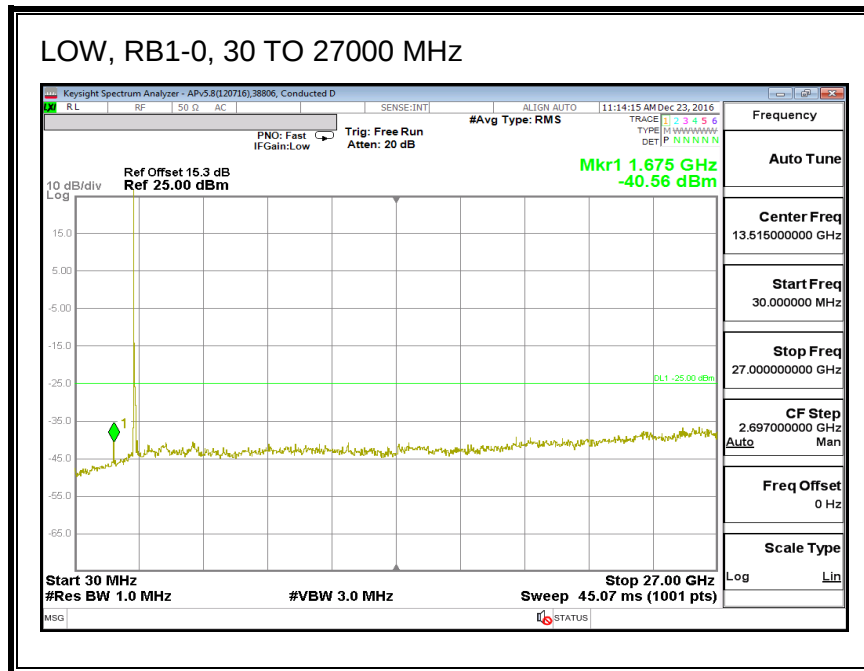
16QAM, (20.0 MHz+ 20.0 MHz BAND WIDTH)

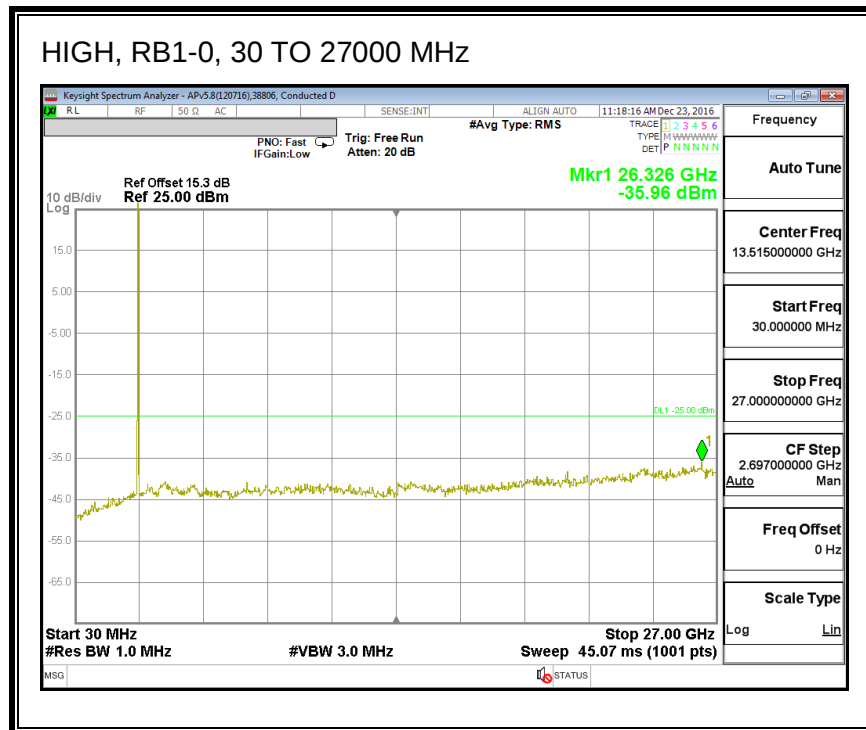




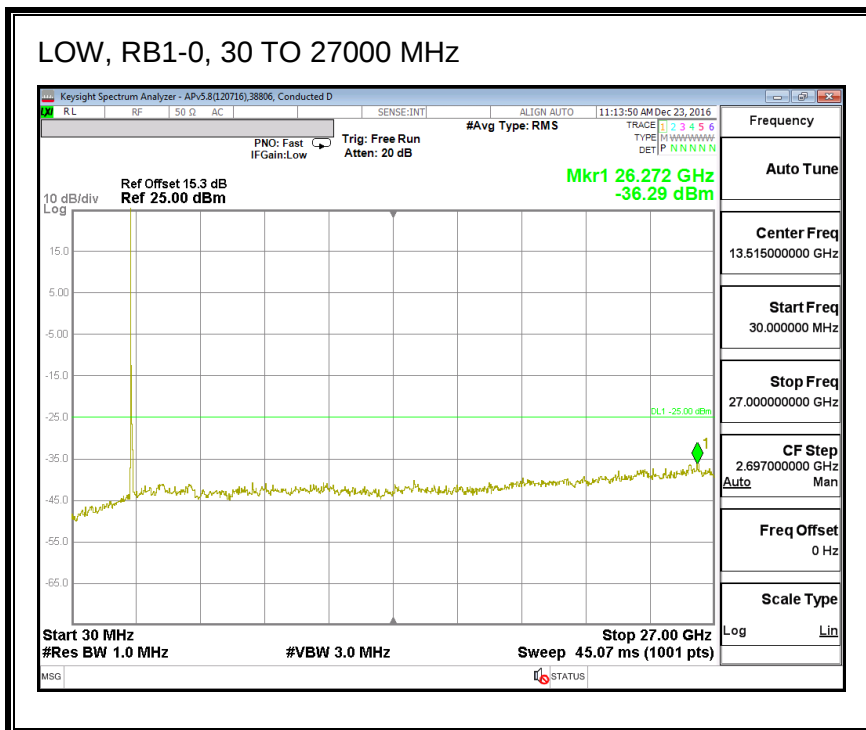
8.3.2. LTE BAND 41

QPSK, (20.0 MHz+ 5.0 MHz BAND WIDTH)

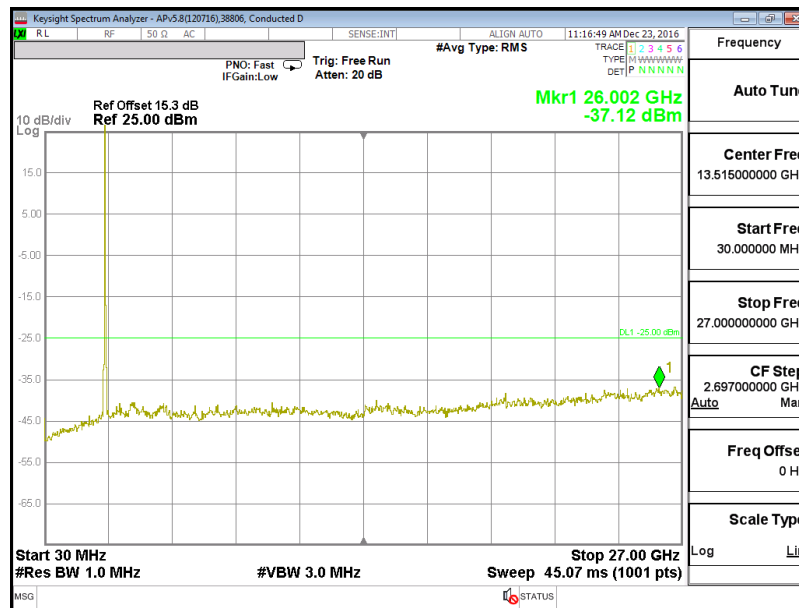




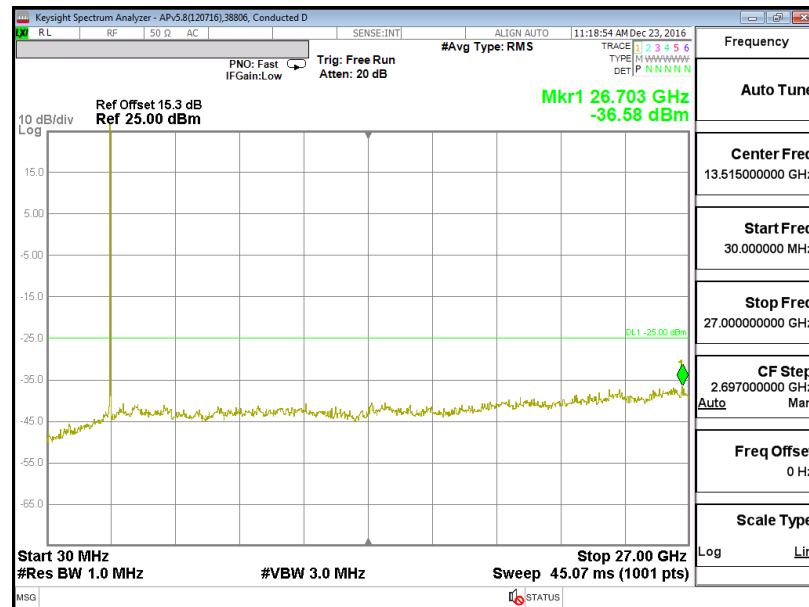
16QAM, (20.0 MHz+ 5.0 MHz BAND WIDTH)



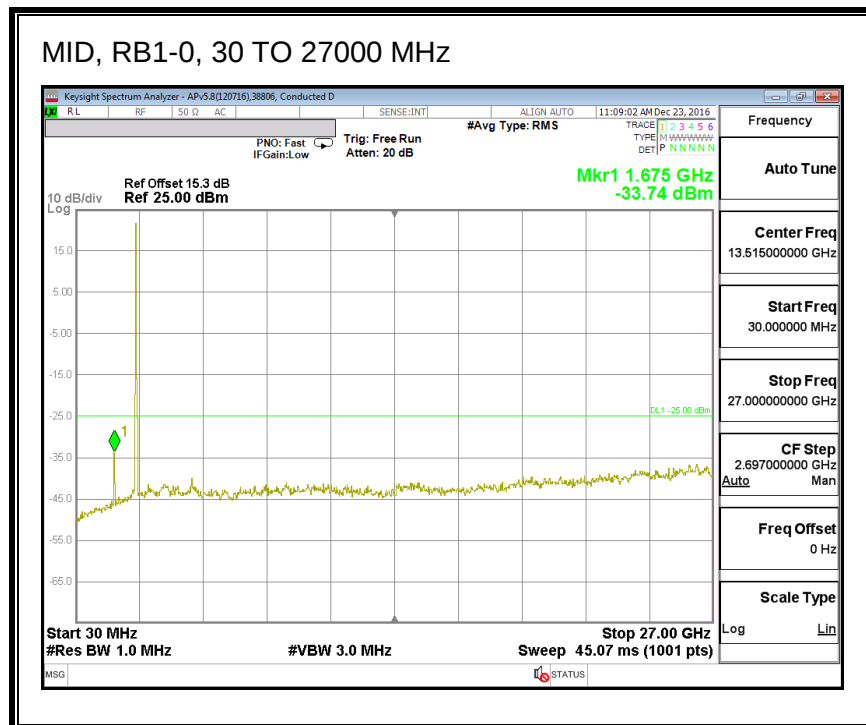
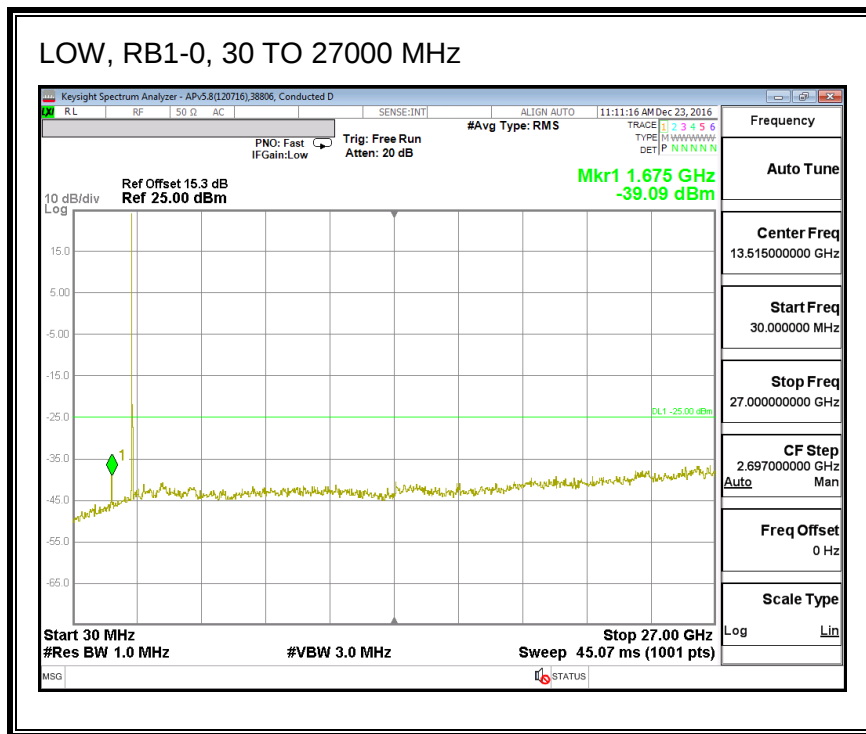
MID, RB1-0, 30 TO 27000 MHz

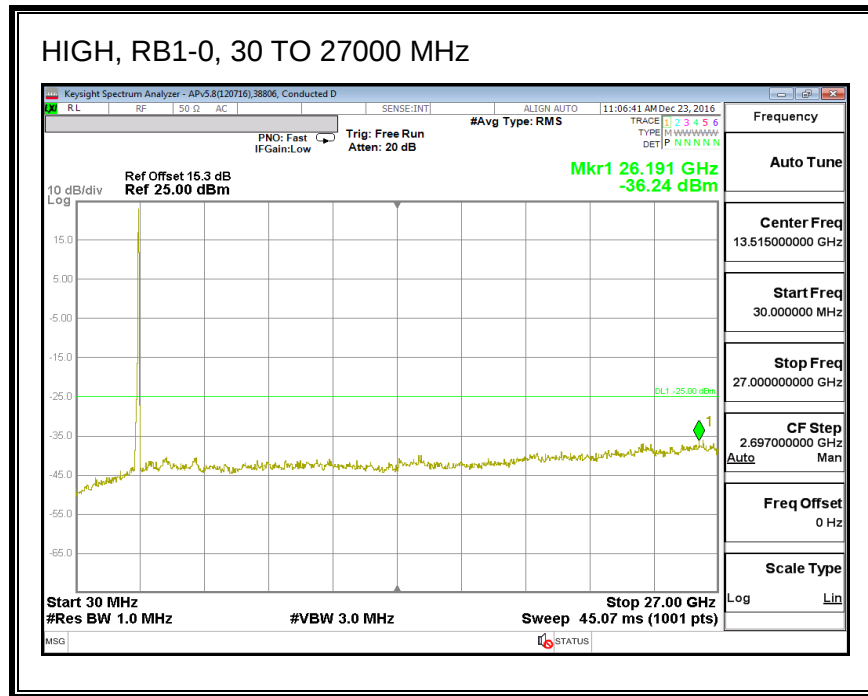


HIGH, RB1-0, 30 TO 27000 MHz

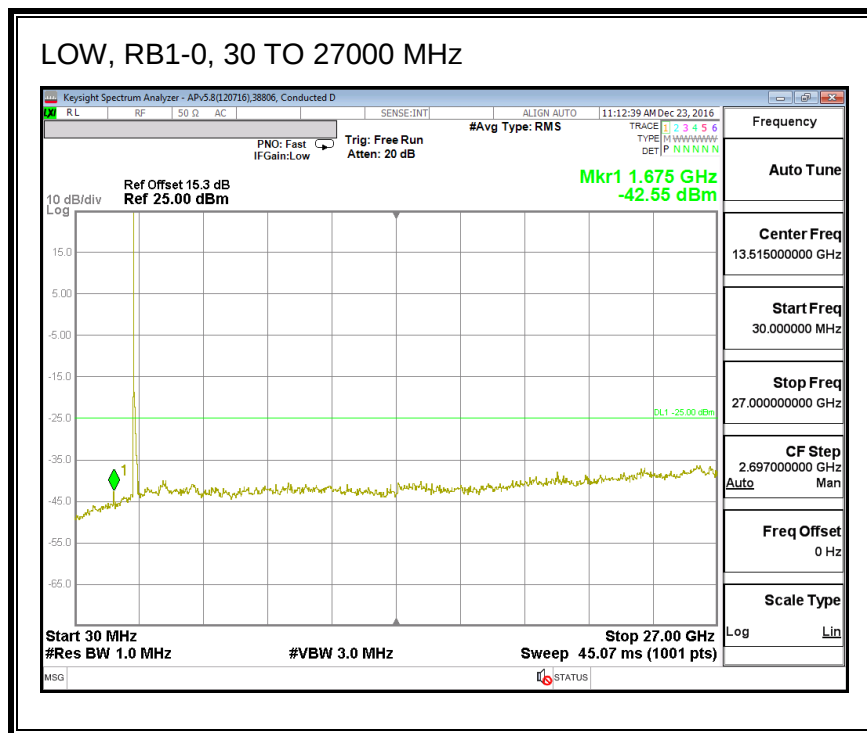


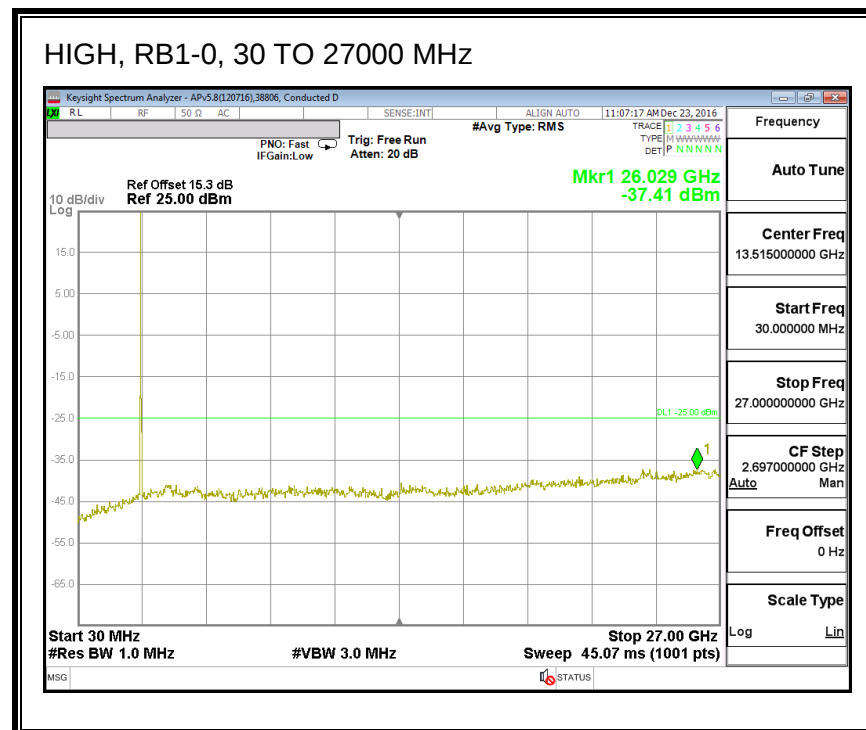
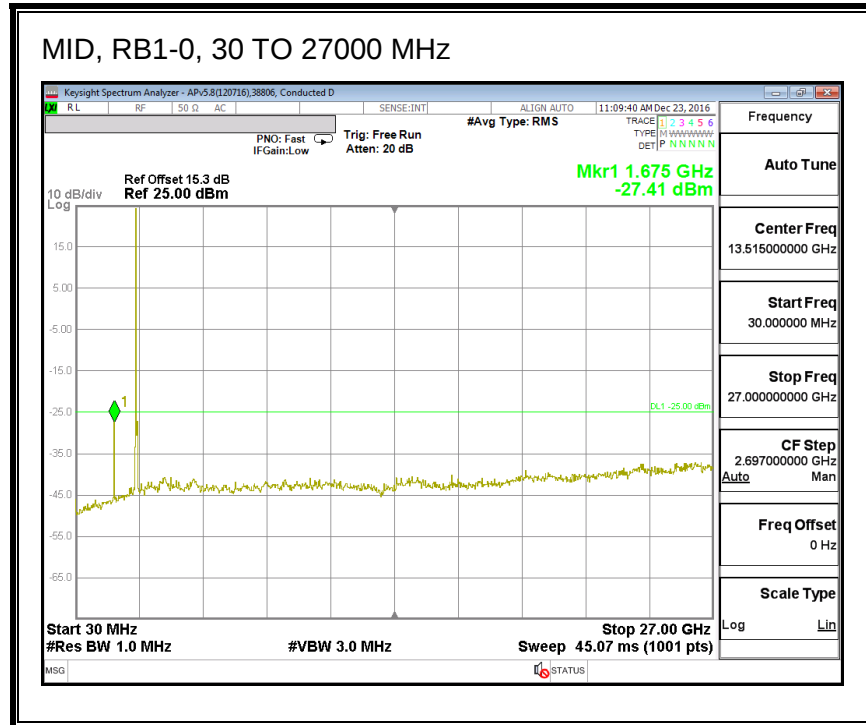
QPSK, (20.0 MHz+ 20.0 MHz BAND WIDTH)





16QAM, (20.0 MHz+ 20.0 MHz BAND WIDTH)





9. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §27.54

LIMITS

§27.54

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to $+50^{\circ}\text{C}$
- Voltage = (85% - 115%)
Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.
End Voltage, 3.2VDC.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

- LTE Band 7
- LTE Band 41

RESULTS

See the following pages.

9.1. LTE BAND 7

ID:	39005	Date:	12/29/16
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QPSK, (20MHz + 10MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2501.0896	2568.9000		
Extreme (50C)		2501.0896	2568.9000	36.2	0.014
Extreme (40C)		2501.0896	2568.9000	37.5	0.015
Extreme (30C)		2501.0896	2568.9000	35.2	0.014
Extreme (10C)		2501.0896	2568.9000	10.5	0.004
Extreme (0C)		2501.0896	2568.9000	-20.8	-0.008
Extreme (-10C)		2501.0896	2568.9000	-24.5	-0.010
Extreme (-20C)		2501.0896	2568.9000	-21.5	-0.008
Extreme (-30C)		2501.0896	2568.9000	-24.5	-0.010
20C	15%	2501.0896	2568.9000	-15.8	-0.006
	-15%	2501.0896	2568.9000	-14.7	-0.006
	End Point	2501.0896	2568.9000	-17.0	-0.007

16QAM, (20MHz + 10MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2501.1399	2568.8767		
Extreme (50C)		2501.1399	2568.8768	36.9	0.015
Extreme (40C)		2501.1399	2568.8768	36.7	0.014
Extreme (30C)		2501.1399	2568.8768	36.8	0.015
Extreme (10C)		2501.1399	2568.8767	9.6	0.004
Extreme (0C)		2501.1399	2568.8767	-20.1	-0.008
Extreme (-10C)		2501.1399	2568.8767	-22.3	-0.009
Extreme (-20C)		2501.1399	2568.8767	-24.4	-0.010
Extreme (-30C)		2501.1399	2568.8767	-23.1	-0.009
20C	15%	2501.1399	2568.8767	-12.5	-0.005
	-15%	2501.1399	2568.8767	-15.4	-0.006
	End Point	2501.1399	2568.8767	-17.1	-0.007

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2501.2777	2568.7886		
Extreme (50C)		2501.2778	2568.7887	56.4	0.022
Extreme (40C)		2501.2778	2568.7887	54.5	0.021
Extreme (30C)		2501.2778	2568.7887	56.0	0.022
Extreme (10C)		2501.2777	2568.7886	-16.5	-0.006
Extreme (0C)		2501.2777	2568.7886	-36.6	-0.014
Extreme (-10C)		2501.2777	2568.7886	-48.4	-0.019
Extreme (-20C)		2501.2777	2568.7886	-47.8	-0.019
Extreme (-30C)		2501.2777	2568.7886	-46.6	-0.018
20C	15%	2501.2777	2568.7886	-24.4	-0.010
	-15%	2501.2777	2568.7886	-19.4	-0.008
	End Point	2501.2777	2568.7886	-19.5	-0.008

16QAM, (20MHz + 20MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2501.3150	2568.8682		
Extreme (50C)		2501.3150	2568.8682	55.7	0.022
Extreme (40C)		2501.3150	2568.8682	54.6	0.022
Extreme (30C)		2501.3150	2568.8682	57.5	0.023
Extreme (10C)		2501.3149	2568.8682	-16.9	-0.007
Extreme (0C)		2501.3149	2568.8681	-37.5	-0.015
Extreme (-10C)		2501.3149	2568.8681	-50.3	-0.020
Extreme (-20C)		2501.3149	2568.8681	-46.8	-0.018
Extreme (-30C)		2501.3149	2568.8681	-45.9	-0.018
20C	15%	2501.3149	2568.8682	-22.2	-0.009
	-15%	2501.3149	2568.8682	-19.7	-0.008
	End Point	2501.3149	2568.8682	-20.8	-0.008

9.2. LTE BAND 41

ID:	52269	Date:	12/26/16
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QPSK, (20MHz + 5MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.9564	2689.0708		
Extreme (50C)		2496.9564	2689.0708	26.8	0.010
Extreme (40C)		2496.9564	2689.0708	25.1	0.010
Extreme (30C)		2496.9564	2689.0708	17.9	0.007
Extreme (10C)		2496.9564	2689.0708	17.5	0.007
Extreme (0C)		2496.9564	2689.0708	-7.4	-0.003
Extreme (-10C)		2496.9564	2689.0708	-13.1	-0.005
Extreme (-20C)		2496.9564	2689.0708	-15.2	-0.006
Extreme (-30C)		2496.9564	2689.0708	-15.5	-0.006
20C	15%	2496.9564	2689.0708	18.7	0.007
	-15%	2496.9564	2689.0708	24.0	0.009
	End Point	2496.9564	2689.0708	21.1	0.008

16QAM, (20MHz + 5MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.9303	2689.0885		
Extreme (50C)		2496.9303	2689.0885	23.8	0.009
Extreme (40C)		2496.9303	2689.0885	22.2	0.009
Extreme (30C)		2496.9303	2689.0885	16.9	0.006
Extreme (10C)		2496.9303	2689.0885	16.9	0.006
Extreme (0C)		2496.9303	2689.0884	-9.0	-0.003
Extreme (-10C)		2496.9303	2689.0884	-11.3	-0.004
Extreme (-20C)		2496.9303	2689.0884	-16.7	-0.006
Extreme (-30C)		2496.9303	2689.0884	-17.2	-0.007
20C	15%	2496.9303	2689.0885	17.9	0.007
	-15%	2496.9303	2689.0885	25.3	0.010
	End Point	2496.9303	2689.0885	23.6	0.009

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2496.9839	2689.1130		
Extreme (50C)		2496.9839	2689.1130	40.8	0.016
Extreme (40C)		2496.9839	2689.1130	29.0	0.011
Extreme (30C)		2496.9839	2689.1130	14.9	0.006
Extreme (10C)		2496.9839	2689.1130	-36.3	-0.014
Extreme (0C)		2496.9839	2689.1129	-50.0	-0.019
Extreme (-10C)		2496.9838	2689.1129	-74.4	-0.029
Extreme (-20C)		2496.9839	2689.1129	-52.5	-0.020
Extreme (-30C)		2496.9839	2689.1130	-7.8	-0.003
20C	15%	2496.9839	2689.1130	20.0	0.008
	-15%	2496.9839	2689.1130	15.5	0.006
	End Point	2496.9839	2689.1130	10.3	0.004

16QAM, (20MHz + 20MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	2497.0187	2689.1270		
Extreme (50C)		2497.0187	2689.1270	38.2	0.015
Extreme (40C)		2497.0187	2689.1270	31.4	0.012
Extreme (30C)		2497.0187	2689.1270	13.3	0.005
Extreme (10C)		2497.0187	2689.1270	-30.3	-0.012
Extreme (0C)		2497.0186	2689.1269	-58.7	-0.023
Extreme (-10C)		2497.0186	2689.1269	-54.2	-0.021
Extreme (-20C)		2497.0186	2689.1270	-49.1	-0.019
Extreme (-30C)		2497.0187	2689.1270	-5.1	-0.002
20C	15%	2497.0187	2689.1270	18.7	0.007
	-15%	2497.0187	2689.1270	16.0	0.006
	End Point	2497.0187	2689.1270	10.4	0.004

10. PEAK-TO-AVERAGE RATIO

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

RESULT

Antenna C was used to measure as the worst case. The results from all CCDF plots are passed with 13dB peak-to-average ratio criteria.

10.1. LTE BAND 7

ID:	37290	Date:	12/29/17
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Mode	Channel Band-	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Ratio
					Peak	Average	
LTE Band 7	10MHz / 20MHz	2525.6	2540.0	QPSK	28.98	20.81	8.17
				16QAM	28.63	19.86	8.77
	15 MHz / 15MHz	2527.5	2542.5	QPSK	28.98	20.84	8.14
				16QAM	28.81	19.85	8.96
	15MHz / 20MHz	2525.3	2542.4	QPSK	28.69	20.82	7.87
				16QAM	28.83	19.82	9.01
	20MHz / 10MHz	2530.1	2544.5	QPSK	28.68	20.82	7.86
				16QAM	28.58	19.83	8.75
	20MHz / 15MHz	2527.6	2544.7	QPSK	28.60	20.8	7.80
				16QAM	28.53	19.82	8.71
	20MHz / 20MHz	2525.1	2544.9	QPSK	28.97	20.82	8.15
				16QAM	28.73	19.82	8.91
Duty Cycle Correction Factor			0				
Peak to Average Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

10.2. LTE BAND 41

ID:	37290	Date:	12/29/17
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Mode	Channel Band-	PCC f (MHz)	SCC1 f (MHz)	Modulation	Conducted Power (dBm)		Peak-to-Average Ratio
					Peak	Average	
LTE Band 41 (FCC)	5MHz / 20MHz	2583.8	2595.5	QPSK	34.94	20.39	7.56
				16QAM	34.75	19.41	8.35
	10MHz / 20MHz	2583.6	2598.0	QPSK	34.61	20.40	7.22
				16QAM	34.53	19.41	8.13
	15MHz / 15MHz	2585.5	2600.5	QPSK	34.71	20.32	7.40
				16QAM	34.42	19.31	8.12
	15MHz / 20MHz	2583.3	2600.4	QPSK	33.46	19.27	7.20
				16QAM	33.24	18.28	7.97
	20MHz / 5MHz	2590.5	2602.2	QPSK	33.02	18.79	7.24
				16QAM	32.99	17.84	8.16
	20MHz / 10MHz	2588.1	2602.5	QPSK	32.60	18.2	7.41
				16QAM	32.11	17.23	7.89
	20MHz / 15MHz	2585.6	2602.7	QPSK	32.88	18.77	7.12
				16QAM	32.84	17.81	8.04
	20MHz / 20MHz	2583.1	2602.9	QPSK	35.69	21.2	7.50
				16QAM	35.22	20.19	8.04
Duty Cycle Correction Factor			6.99				
Peak to Average Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor							

11. RADIATED TEST RESULTS

11.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANTENNA C

RULE PART(S)

FCC: §2.1053, §27.53

LIMIT

§27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

TEST PROCEDURE

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

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

The unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.

The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB at the channel edges and $55 + 10 \log_{10}(p)$ at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

- LTE Band 7
- LTE Band 41

RESULTS

11.1.1. LTE BAND 7

QPSK LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/13/16
Test Engineer: 50820
Configuration: EUT only
Mode: LTE Band 7, 10MHz QPSK UL CA 20/10

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)+2524.4MHz 1-99 1-0										
5.15	-64.8	H	3.0	-14.5	36.8	1.0	-50.3	-25.0	-25.3	
7.56	-65.6	H	3.0	-11.7	35.9	1.0	-46.6	-25.0	-21.6	
9.63	-66.6	H	3.0	-10.5	34.0	1.0	-43.5	-25.0	-18.5	
5.15	-64.2	V	3.0	-13.8	36.8	1.0	-49.6	-25.0	-24.6	
7.56	-65.7	V	3.0	-12.0	35.9	1.0	-46.9	-25.0	-21.9	
9.62	-67.3	V	3.0	-11.5	34.0	1.0	-44.6	-25.0	-19.6	
Mid Channel (2530.1MHz)+2544.5MHz 1-99 1-0										
5.13	-64.0	H	3.0	-13.7	36.8	1.0	-49.6	-25.0	-24.6	
7.78	-65.9	H	3.0	-11.8	35.7	1.0	-46.4	-25.0	-21.4	
9.45	-65.1	H	3.0	-9.2	34.2	1.0	-42.3	-25.0	-17.3	
5.05	-64.1	V	3.0	-13.8	36.9	1.0	-49.7	-25.0	-24.7	
7.65	-64.6	V	3.0	-10.9	35.8	1.0	-45.7	-25.0	-20.7	
9.82	-65.4	V	3.0	-9.4	33.8	1.0	-42.3	-25.0	-17.3	
High Channel (2550.1MHz)+2564.5MHz 1-99 1-0										
5.14	-64.2	H	3.0	-13.9	36.8	1.0	-49.8	-25.0	-24.8	
7.28	-65.0	H	3.0	-11.4	36.1	1.0	-46.5	-25.0	-21.5	
9.68	-66.3	H	3.0	-10.1	34.0	1.0	-43.1	-25.0	-18.1	
5.18	-64.1	V	3.0	-13.6	36.8	1.0	-49.4	-25.0	-24.4	
7.28	-65.8	V	3.0	-12.4	36.1	1.0	-47.6	-25.0	-22.6	
9.68	-65.9	V	3.0	-10.1	34.0	1.0	-43.0	-25.0	-18.0	

Rev. 05.21.15

16QAM LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/13/16
Test Engineer: 50820
Configuration: EUT only
Mode: LTE Band 7, 10MHz 16QAM UL CA 20/10

Test Equipment:
Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber H

Pre-amplifier

3m Chamber H

Filter

Filter

Limit

LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)+2524.4MHz 1-99 1-0										
5.15	-63.6	H	3.0	-13.3	36.8	1.0	-49.2	-25.0	-24.2	
7.56	-65.5	H	3.0	-11.6	35.9	1.0	-46.5	-25.0	-21.5	
9.63	-65.5	H	3.0	-9.4	34.0	1.0	-42.4	-25.0	-17.4	
5.15	-63.8	V	3.0	-13.3	36.8	1.0	-49.1	-25.0	-24.1	
7.56	-65.4	V	3.0	-11.7	35.9	1.0	-46.6	-25.0	-21.6	
9.62	-66.7	V	3.0	-10.9	34.0	1.0	-44.0	-25.0	-19.0	
Mid Channel (2530.1MHz)+2544.5MHz 1-99 1-0										
5.13	-63.0	H	3.0	-12.7	36.8	1.0	-48.6	-25.0	-23.6	
7.78	-64.7	H	3.0	-10.5	35.7	1.0	-45.2	-25.0	-20.2	
9.45	-66.1	H	3.0	-10.1	34.2	1.0	-43.3	-25.0	-18.3	
5.05	-65.4	V	3.0	-15.1	36.9	1.0	-50.9	-25.0	-25.9	
7.65	-64.0	V	3.0	-10.2	35.8	1.0	-45.0	-25.0	-20.0	
9.82	-65.9	V	3.0	-9.9	33.8	1.0	-42.8	-25.0	-17.8	
High Channel (2550.1MHz)+2564.5MHz 1-99 1-0										
5.14	-64.6	H	3.0	-14.3	36.8	1.0	-50.2	-25.0	-25.2	
7.28	-66.2	H	3.0	-12.6	36.1	1.0	-47.8	-25.0	-22.8	
9.68	-66.8	H	3.0	-10.6	34.0	1.0	-43.5	-25.0	-18.5	
5.18	-64.4	V	3.0	-13.9	36.8	1.0	-49.7	-25.0	-24.7	
7.28	-63.9	V	3.0	-10.5	36.1	1.0	-45.7	-25.0	-20.7	
9.68	-66.1	V	3.0	-10.2	34.0	1.0	-43.2	-25.0	-18.2	

Rev. 05.21.15

QPSK LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:

Project #: 16U23818

Date: 12/13/16

Test Engineer: 50820

Configuration: EUT only

Mode: LTE Band 7, 20MHz QPSK UL CA 20/20

Test Equipment:

Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)+ 2529.8MHz 1-99 1-0										
5.04	-63.0	H	3.0	-14.9	36.1	1.0	-50.0	-25.0	-25.0	
7.78	-64.6	H	3.0	-14.9	36.3	1.0	-50.1	-25.0	-25.1	
9.35	-63.5	H	3.0	-8.1	33.4	1.0	-40.6	-25.0	-15.6	
5.09	-64.0	V	3.0	-14.4	36.3	1.0	-49.6	-25.0	-24.6	
7.78	-64.6	V	3.0	-11.0	34.8	1.0	-44.8	-25.0	-19.8	
9.35	-65.7	V	3.0	-9.7	33.4	1.0	-42.2	-25.0	-17.2	
Mid Channel (2525.1MHz)+2544.9MHz 1-99 1-0										
5.25	-64.7	H	3.0	-13.7	36.0	1.0	-48.7	-25.0	-23.7	
7.42	-65.1	H	3.0	-12.1	35.2	1.0	-46.3	-25.0	-21.3	
8.96	-65.7	H	3.0	-9.4	34.0	1.0	-42.4	-25.0	-17.4	
5.19	-65.5	V	3.0	-17.9	36.1	1.0	-53.0	-25.0	-28.0	
7.01	-64.7	V	3.0	-11.6	36.4	1.0	-47.0	-25.0	-22.0	
9.21	-66.3	V	3.0	-10.9	34.4	1.0	-44.3	-25.0	-19.3	
High Channel (2540.2MHz)+2560MHz 1-99 1-0										
5.08	-63.7	H	3.0	-14.5	36.2	1.0	-49.7	-25.0	-24.7	
6.88	-64.7	H	3.0	-14.0	36.0	1.0	-49.1	-25.0	-24.1	
8.96	-65.4	H	3.0	-9.2	32.0	1.0	-40.2	-25.0	-15.2	
5.16	-63.7	V	3.0	-16.7	36.3	1.0	-51.9	-25.0	-26.9	
7.72	-64.7	V	3.0	-13.4	35.8	1.0	-48.2	-25.0	-23.2	
9.46	-66.4	V	3.0	-10.8	34.2	1.0	-44.0	-25.0	-19.0	

Rev. 05.21.15

16QAM LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: 16U23818 Date: 12/13/16 Test Engineer: 50820 Configuration: EUT only Mode: LTE Band 7, 20MHz 16QAM UL CA 20/20										
Test Equipment: Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber H		3m Chamber H		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)+ 2529.8MHz 1-99 1-0										
5.04	-64.2	H	3.0	-14.2	36.9	1.0	-50.0	-25.0	-25.0	
7.78	-65.4	H	3.0	-11.3	35.7	1.0	-46.0	-25.0	-21.0	
9.35	-66.3	H	3.0	-10.5	34.3	1.0	-43.8	-25.0	-18.8	
5.09	-62.9	V	3.0	-12.5	36.9	1.0	-48.4	-25.0	-23.4	
7.78	-65.2	V	3.0	-11.3	35.7	1.0	-46.0	-25.0	-21.0	
9.35	-66.0	V	3.0	-10.5	34.3	1.0	-43.7	-25.0	-18.7	
Mid Channel (2525.1MHz)+2544.9MHz 1-99 1-0										
5.25	-64.2	H	3.0	-13.8	36.8	1.0	-49.6	-25.0	-24.6	
7.42	-65.0	H	3.0	-11.2	36.0	1.0	-46.3	-25.0	-21.3	
8.96	-65.3	H	3.0	-9.9	34.6	1.0	-43.5	-25.0	-18.5	
5.19	-62.2	V	3.0	-11.7	36.8	1.0	-47.5	-25.0	-22.5	
7.01	-64.8	V	3.0	-11.7	36.4	1.0	-47.1	-25.0	-22.1	
9.21	-65.8	V	3.0	-10.4	34.4	1.0	-43.8	-25.0	-18.8	
High Channel (2540.2MHz)+2560MHz 1-99 1-0										
5.08	-63.6	H	3.0	-13.5	36.9	1.0	-49.4	-25.0	-24.4	
6.88	-66.0	H	3.0	-12.9	36.4	1.0	-48.3	-25.0	-23.3	
8.96	-66.1	H	3.0	-10.7	34.6	1.0	-44.3	-25.0	-19.3	
5.16	-62.6	V	3.0	-12.1	36.8	1.0	-48.0	-25.0	-23.0	
7.72	-65.1	V	3.0	-11.3	35.7	1.0	-46.0	-25.0	-21.0	
9.46	-65.4	V	3.0	-9.8	34.2	1.0	-42.9	-25.0	-17.9	
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11.1.2. LTE BAND 41

QPSK LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/13/16
Test Engineer: 50820
Configuration: EUT only
Mode: LTE Band 41, 5MHz QPSK UL CA 20/5

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz)+2517.7MHz 1-99, 1-0										
4.88	-63.8	H	3.0	-14.1	36.9	1.0	-50.0	-25.0	-25.0	
6.13	-65.4	H	3.0	-13.6	36.6	1.0	-49.2	-25.0	-24.2	
8.41	-65.4	H	3.0	-10.6	35.1	1.0	-44.7	-25.0	-19.7	
4.88	-64.3	V	3.0	-14.3	36.9	1.0	-50.2	-25.0	-25.2	
6.13	-65.3	V	3.0	-13.4	36.6	1.0	-49.0	-25.0	-24.0	
8.41	-65.3	V	3.0	-10.8	35.1	1.0	-44.9	-25.0	-19.9	
Mid Channel (2590.5MHz)+2602.2MHz 1-99, 1-0										
5.12	-64.1	H	3.0	-13.9	36.8	1.0	-49.7	-25.0	-24.7	
7.02	-64.2	H	3.0	-10.9	36.4	1.0	-46.3	-25.0	-21.3	
8.25	-64.9	H	3.0	-10.2	35.3	1.0	-44.5	-25.0	-19.5	
5.44	-64.5	V	3.0	-13.6	36.8	1.0	-49.4	-25.0	-24.4	
6.41	-65.0	V	3.0	-12.7	36.5	1.0	-48.2	-25.0	-23.2	
7.71	-64.4	V	3.0	-10.6	35.7	1.0	-45.4	-25.0	-20.4	
High Channel (2675MHz)+2686.7MHz 1-99, 1-0										
5.08	-64.4	H	3.0	-14.2	36.9	1.0	-50.1	-25.0	-25.1	
7.24	-65.1	H	3.0	-11.6	36.2	1.0	-46.7	-25.0	-21.7	
9.05	-65.9	H	3.0	-10.4	34.5	1.0	-43.9	-25.0	-18.9	
5.16	-64.5	V	3.0	-14.0	36.8	1.0	-49.9	-25.0	-24.9	
7.18	-64.6	V	3.0	-11.3	36.2	1.0	-46.5	-25.0	-21.5	
9.25	-67.1	V	3.0	-11.7	34.4	1.0	-45.0	-25.0	-20.0	

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16QAM LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/13/16
Test Engineer: 50820
Configuration: EUT only
Mode: LTE Band 41, 5MHz 16QAM UL CA 20/5

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz) +2517.7MHz 1-99, 1-0										
4.88	-63.5	H	3.0	-13.7	36.9	1.0	49.6	-25.0	-24.6	
6.13	-65.5	H	3.0	-13.6	36.6	1.0	49.2	-25.0	-24.2	
8.41	-66.3	H	3.0	-11.4	35.1	1.0	45.6	-25.0	-20.6	
4.88	-63.0	V	3.0	-13.0	36.9	1.0	48.9	-25.0	-23.9	
6.13	-65.6	V	3.0	-13.7	36.6	1.0	49.3	-25.0	-24.3	
8.41	-66.3	V	3.0	-11.8	35.1	1.0	45.9	-25.0	-20.9	
Mid Channel (2590.5MHz)+2602.2MHz 1-99, 1-0										
5.12	-63.5	H	3.0	-13.2	36.8	1.0	49.1	-25.0	-24.1	
7.02	-64.8	H	3.0	-11.5	36.4	1.0	46.9	-25.0	-21.9	
8.25	-65.9	H	3.0	-11.3	35.3	1.0	45.6	-25.0	-20.6	
5.44	-64.3	V	3.0	-13.4	36.8	1.0	49.2	-25.0	-24.2	
6.41	-65.3	V	3.0	-13.1	36.5	1.0	48.6	-25.0	-23.6	
7.71	-66.3	V	3.0	-12.5	35.7	1.0	47.3	-25.0	-22.3	
High Channel (2675MHz)+2686.7MHz 1-99, 1-0										
5.08	-64.4	H	3.0	-14.3	36.9	1.0	50.1	-25.0	-25.1	
7.24	-65.6	H	3.0	-12.1	36.2	1.0	47.3	-25.0	-22.3	
9.05	-66.0	H	3.0	-10.4	34.5	1.0	44.0	-25.0	-19.0	
5.16	-63.0	V	3.0	-12.5	36.8	1.0	48.3	-25.0	-23.3	
7.18	-64.7	V	3.0	-11.4	36.2	1.0	46.7	-25.0	-21.7	
9.25	-66.4	V	3.0	-10.9	34.4	1.0	44.3	-25.0	-19.3	

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QPSK LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: 16U23818 Date: 12/13/16 Test Engineer: 50820 Configuration: EUT only Mode: LTE Band 41, 20MHz QPSK UL CA 20/20										
Test Equipment: Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber H		3m Chamber H		Filter		LTE B41				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz) + 2525.8MHz 1-99 1-0										
5.01	-63.0	H	3.0	-13.0	36.9	1.0	-48.9	-25.0	-23.9	
6.39	-63.9	H	3.0	-11.6	36.5	1.0	-47.2	-25.0	-22.2	
8.59	-66.4	H	3.0	-11.4	34.9	1.0	-45.4	-25.0	-20.4	
4.87	-63.0	V	3.0	-13.1	36.9	1.0	-49.0	-25.0	-24.0	
6.42	-66.0	V	3.0	-13.7	36.5	1.0	-49.2	-25.0	-24.2	
8.40	-65.3	V	3.0	-10.8	35.1	1.0	-44.9	-25.0	-19.9	
Mid Channel (2583.1MHz) + 2602.9MHz 1-99 1-0										
4.99	-67.2	H	3.0	-17.2	36.9	1.0	-53.1	-25.0	-28.1	
5.66	-66.3	H	3.0	-15.1	36.7	1.0	-50.9	-25.0	-25.9	
9.05	-66.2	H	3.0	-10.7	34.5	1.0	-44.3	-25.0	-19.3	
5.13	-63.7	V	3.0	-13.3	36.8	1.0	-49.1	-25.0	-24.1	
6.49	-65.0	V	3.0	-12.6	36.5	1.0	-48.1	-25.0	-23.1	
8.35	-66.0	V	3.0	-11.6	35.2	1.0	-45.7	-25.0	-20.7	
High Channel (2660.2MHz) + 2680MHz 1-99 1-0										
5.08	-63.9	H	3.0	-13.7	36.9	1.0	-49.6	-25.0	-24.6	
6.24	-64.8	H	3.0	-12.7	36.6	1.0	-48.3	-25.0	-23.3	
8.90	-65.3	H	3.0	-9.9	34.7	1.0	-43.6	-25.0	-18.6	
5.02	-61.7	V	3.0	-11.5	36.9	1.0	-47.4	-25.0	-22.4	
7.07	-66.0	V	3.0	-12.8	36.3	1.0	-48.2	-25.0	-23.2	
8.89	-65.5	V	3.0	-10.5	34.7	1.0	-44.1	-25.0	-19.1	
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16QAM LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/13/16
Test Engineer: 50820
Configuration: EUT only
Mode: LTE Band 41, 20MHz 16QAM UL CA 20/20

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz) + 2525.8MHz 1-99 1-0										
5.01	-62.4	H	3.0	-12.3	36.9	1.0	-48.2	-25.0	-23.2	
6.39	-64.8	H	3.0	-12.5	36.5	1.0	-48.0	-25.0	-23.0	
8.59	-66.2	H	3.0	-11.2	34.9	1.0	-45.2	-25.0	-20.2	
4.87	-62.6	V	3.0	-12.6	36.9	1.0	-48.5	-25.0	-23.5	
6.42	-64.9	V	3.0	-12.6	36.5	1.0	-48.1	-25.0	-23.1	
8.40	-65.1	V	3.0	-10.6	35.1	1.0	-44.7	-25.0	-19.7	
Mid Channel (2583.1MHz) + 2602.9MHz 1-99 1-0										
4.99	-63.5	H	3.0	-13.6	36.9	1.0	-49.4	-25.0	-24.4	
5.66	-63.9	H	3.0	-12.8	36.7	1.0	-48.5	-25.0	-23.5	
9.05	-65.5	H	3.0	-10.0	34.5	1.0	-43.5	-25.0	-18.5	
5.13	-63.9	V	3.0	-13.5	36.8	1.0	-49.3	-25.0	-24.3	
6.49	-65.4	V	3.0	-13.1	36.5	1.0	-48.6	-25.0	-23.6	
8.35	-66.4	V	3.0	-12.0	35.2	1.0	-46.1	-25.0	-21.1	
High Channel (2660.2MHz) + 2680MHz 1-99 1-0										
5.08	-63.2	H	3.0	-13.0	36.9	1.0	-48.9	-25.0	-23.9	
6.24	-65.1	H	3.0	-13.1	36.6	1.0	-48.6	-25.0	-23.6	
8.90	-66.5	H	3.0	-11.2	34.7	1.0	-44.9	-25.0	-19.9	
5.02	-62.2	V	3.0	-11.9	36.9	1.0	-47.8	-25.0	-22.8	
7.07	-66.1	V	3.0	-13.0	36.3	1.0	-48.3	-25.0	-23.3	
8.89	-64.6	V	3.0	-9.5	34.7	1.0	-43.2	-25.0	-18.2	

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11.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANTENNA D

11.2.1. LTE BAND 7

QPSK LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/28/16
Test Engineer: 52269
Configuration: EUT only
Mode: LTE Band 7, 10MHz QPSK UL CA 20/10

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)+2524.4MHz 1-99 1-0										
5.15	-63.5	H	3.0	-13.2	36.8	1.0	-49.1	-25.0	-24.1	
7.56	-64.0	H	3.0	-10.2	35.9	1.0	-45.0	-25.0	-20.0	
9.63	-65.9	H	3.0	-9.8	34.0	1.0	-42.8	-25.0	-17.8	
5.15	-64.7	V	3.0	-14.2	36.8	1.0	-50.1	-25.0	-25.1	
7.56	-64.7	V	3.0	-11.1	35.9	1.0	-46.0	-25.0	-21.0	
9.62	-65.7	V	3.0	-9.9	34.0	1.0	-42.9	-25.0	-17.9	
Mid Channel (2530.1MHz)+2544.5MHz 1-99 1-0										
5.13	-64.1	H	3.0	-13.9	36.8	1.0	-49.7	-25.0	-24.7	
7.78	-65.2	H	3.0	-11.0	35.7	1.0	-45.7	-25.0	-20.7	
9.45	-65.6	H	3.0	-9.6	34.2	1.0	-42.8	-25.0	-17.8	
5.05	-63.4	V	3.0	-13.1	36.9	1.0	-49.0	-25.0	-24.0	
7.65	-64.5	V	3.0	-10.8	35.8	1.0	-45.6	-25.0	-20.6	
9.82	-65.5	V	3.0	-9.5	33.8	1.0	-42.4	-25.0	-17.4	
High Channel (2550.1MHz)+2564.5MHz 1-99 1-0										
5.14	-64.4	H	3.0	-14.2	36.8	1.0	-50.0	-25.0	-25.0	
7.28	-65.6	H	3.0	-12.0	36.1	1.0	-47.1	-25.0	-22.1	
9.68	-66.4	H	3.0	-10.2	34.0	1.0	-43.2	-25.0	-18.2	
5.18	-64.0	V	3.0	-13.5	36.8	1.0	-49.3	-25.0	-24.3	
7.28	-65.8	V	3.0	-12.4	36.1	1.0	-47.6	-25.0	-22.6	
9.68	-66.4	V	3.0	-10.6	34.0	1.0	-43.5	-25.0	-18.5	

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16QAM LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/28/16
Test Engineer: 52269
Configuration: EUT only
Mode: LTE Band 7, 10MHz 16QAM UL CA 20/10

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)+2524.4MHz 1-99 1-0										
5.15	-64.3	H	3.0	-14.0	36.8	1.0	-49.9	-25.0	-24.9	
7.56	-65.2	H	3.0	-11.3	35.9	1.0	-46.2	-25.0	-21.2	
9.63	-65.2	H	3.0	-9.1	34.0	1.0	-42.1	-25.0	-17.1	
5.15	-64.6	V	3.0	-14.1	36.8	1.0	-49.9	-25.0	-24.9	
7.56	-64.8	V	3.0	-11.1	35.9	1.0	-46.0	-25.0	-21.0	
9.62	-65.2	V	3.0	-9.4	34.0	1.0	-42.4	-25.0	-17.4	
Mid Channel (2530.1MHz)+2544.5MHz 1-99 1-0										
5.13	-65.5	H	3.0	-15.3	36.8	1.0	-51.1	-25.0	-26.1	
7.78	-65.1	H	3.0	-11.0	35.7	1.0	-45.7	-25.0	-20.7	
9.45	-65.8	H	3.0	-9.9	34.2	1.0	-43.1	-25.0	-18.1	
5.05	-64.7	V	3.0	-14.5	36.9	1.0	-50.3	-25.0	-25.3	
7.65	-65.3	V	3.0	-11.5	35.8	1.0	-46.3	-25.0	-21.3	
9.82	-66.1	V	3.0	-10.1	33.8	1.0	-42.9	-25.0	-17.9	
High Channel (2550.1MHz)+2564.5MHz 1-99 1-0										
5.14	-64.1	H	3.0	-13.8	36.8	1.0	-49.7	-25.0	-24.7	
7.28	-65.4	H	3.0	-11.9	36.1	1.0	-47.0	-25.0	-22.0	
9.68	-66.9	H	3.0	-10.7	34.0	1.0	-43.7	-25.0	-18.7	
5.18	-64.4	V	3.0	-13.9	36.8	1.0	-49.7	-25.0	-24.7	
7.28	-64.3	V	3.0	-11.0	36.1	1.0	-46.1	-25.0	-21.1	
9.68	-65.3	V	3.0	-9.4	34.0	1.0	-42.4	-25.0	-17.4	

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QPSK LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/28/16
Test Engineer: 39005
Configuration: EUT only
Mode: LTE Band 7, 20MHz QPSK UL CA 20/20

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B7

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)+ 2529.8MHz 1-99 1-0										
5.03	-63.1	H	3.0	-15.0	36.1	1.0	-50.1	-25.0	-25.1	
7.77	-64.4	H	3.0	-14.7	36.3	1.0	-49.9	-25.0	-24.9	
9.40	-63.9	H	3.0	-8.4	33.4	1.0	-40.9	-25.0	-15.9	
5.09	-63.9	V	3.0	-14.3	36.3	1.0	-49.6	-25.0	-24.6	
7.79	-64.7	V	3.0	-11.2	34.8	1.0	-44.9	-25.0	-19.9	
9.36	-65.6	V	3.0	-9.6	33.4	1.0	-42.0	-25.0	-17.0	
Mid Channel (2525.1MHz)+2544.9MHz 1-99 1-0										
5.27	-64.8	H	3.0	-13.8	36.0	1.0	-48.8	-25.0	-23.8	
7.43	-65.2	H	3.0	-12.1	35.2	1.0	-46.4	-25.0	-21.4	
8.95	-65.8	H	3.0	-9.5	34.0	1.0	-42.5	-25.0	-17.5	
5.20	-65.5	V	3.0	-17.9	36.1	1.0	-53.0	-25.0	-28.0	
7.00	-64.6	V	3.0	-11.5	36.4	1.0	-46.9	-25.0	-21.9	
9.21	-66.3	V	3.0	-11.0	34.4	1.0	-44.4	-25.0	-19.4	
High Channel (2540.2MHz)+2560MHz 1-99 1-0										
5.21	-63.5	H	3.0	-14.3	36.2	1.0	-49.5	-25.0	-24.5	
6.89	-64.9	H	3.0	-14.2	36.0	1.0	-49.3	-25.0	-24.3	
8.97	-65.5	H	3.0	-9.2	32.0	1.0	-40.3	-25.0	-15.3	
5.19	-63.5	V	3.0	-16.5	36.3	1.0	-51.8	-25.0	-26.8	
7.72	-64.9	V	3.0	-13.6	35.8	1.0	-48.4	-25.0	-23.4	
9.46	-65.9	V	3.0	-10.2	34.2	1.0	-43.4	-25.0	-18.4	

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16QAM LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: 16U23818 Date: 12/28/16 Test Engineer: 39005 Configuration: EUT only Mode: LTE Band 7, 20MHz 16QAM UL CA 20/20										
Test Equipment: Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber H		3m Chamber H		Filter		LTE B7				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2510MHz)+ 2529.8MHz 1-99 1-0										
5.09	-64.5	H	3.0	-14.4	36.9	1.0	-50.2	-25.0	-25.2	
7.75	-65.8	H	3.0	-11.7	35.7	1.0	-46.4	-25.0	-21.4	
9.35	-66.0	H	3.0	-10.2	34.3	1.0	-43.4	-25.0	-18.4	
5.09	-63.5	V	3.0	-13.2	36.9	1.0	-49.0	-25.0	-24.0	
7.79	-65.3	V	3.0	-11.4	35.7	1.0	-46.1	-25.0	-21.1	
9.35	-65.8	V	3.0	-10.3	34.3	1.0	-43.6	-25.0	-18.6	
Mid Channel (2525.1MHz)+2544.9MHz 1-99 1-0										
5.25	-64.6	H	3.0	-14.1	36.8	1.0	-49.9	-25.0	-24.9	
7.44	-65.2	H	3.0	-11.5	36.0	1.0	-46.5	-25.0	-21.5	
8.96	-65.6	H	3.0	-10.2	34.6	1.0	-43.8	-25.0	-18.8	
5.17	-63.5	V	3.0	-13.0	36.8	1.0	-48.9	-25.0	-23.9	
7.01	-64.8	V	3.0	-11.8	36.4	1.0	-47.1	-25.0	-22.1	
9.22	-65.9	V	3.0	-10.5	34.4	1.0	-43.9	-25.0	-18.9	
High Channel (2540.2MHz)+2560MHz 1-99 1-0										
5.03	-63.9	H	3.0	-13.8	36.9	1.0	-49.7	-25.0	-24.7	
6.74	-65.5	H	3.0	-12.6	36.5	1.0	-48.1	-25.0	-23.1	
8.90	-66.4	H	3.0	-11.1	34.7	1.0	-44.7	-25.0	-19.7	
5.16	-63.5	V	3.0	-13.0	36.8	1.0	-48.9	-25.0	-23.9	
7.74	-65.1	V	3.0	-11.2	35.7	1.0	-46.0	-25.0	-21.0	
9.53	-65.5	V	3.0	-9.8	34.1	1.0	-42.9	-25.0	-17.9	
Rev. 05.21.15										

11.2.2. LTE BAND 41

QPSK LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/28/16
Test Engineer: 52269
Configuration: EUT only
Mode: LTE Band 41, 5MHz QPSK UL CA 20/5

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz)+2517.7MHz 1-99, 1-0										
4.88	-65.4	H	3.0	-15.6	36.9	1.0	-51.5	-25.0	-26.5	
6.13	-66.2	H	3.0	-14.4	36.6	1.0	-50.0	-25.0	-25.0	
8.41	-65.0	H	3.0	-10.2	35.1	1.0	-44.3	-25.0	-19.3	
4.88	-65.2	V	3.0	-15.2	36.9	1.0	-51.1	-25.0	-26.1	
6.13	-67.1	V	3.0	-15.3	36.6	1.0	-50.9	-25.0	-25.9	
8.41	-67.1	V	3.0	-12.6	35.1	1.0	-46.7	-25.0	-21.7	
Mid Channel (2590.5MHz)+2602.2MHz 1-99, 1-0										
5.12	-66.4	H	3.0	-16.2	36.8	1.0	-52.0	-25.0	-27.0	
7.02	-65.9	H	3.0	-12.6	36.4	1.0	-48.0	-25.0	-23.0	
8.25	-66.6	H	3.0	-12.0	35.3	1.0	-46.2	-25.0	-21.2	
5.44	-67.1	V	3.0	-16.2	36.8	1.0	-52.0	-25.0	-27.0	
6.41	-65.5	V	3.0	-13.2	36.5	1.0	-48.7	-25.0	-23.7	
7.71	-65.7	V	3.0	-11.9	35.7	1.0	-46.6	-25.0	-21.6	
High Channel (2675MHz)+2686.7MHz 1-99, 1-0										
5.08	-65.6	H	3.0	-15.5	36.9	1.0	-51.3	-25.0	-26.3	
7.24	-66.0	H	3.0	-12.5	36.2	1.0	-47.6	-25.0	-22.6	
9.05	-67.3	H	3.0	-11.8	34.5	1.0	-45.3	-25.0	-20.3	
5.16	-65.5	V	3.0	-15.0	36.8	1.0	-50.9	-25.0	-25.9	
7.18	-65.8	V	3.0	-12.6	36.2	1.0	-47.8	-25.0	-22.8	
9.25	-66.4	V	3.0	-11.0	34.4	1.0	-44.3	-25.0	-19.3	

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16QAM LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23818
Date: 12/28/16
Test Engineer: 52269
Configuration: EUT only
Mode: LTE Band 41, 5MHz 16QAM UL CA 20/5

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber H

Pre-amplifier
 3m Chamber H

Filter
 Filter

Limit
 LTE B41

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz)+2517.7MHz 1-99, 1-0										
4.88	-65.1	H	3.0	-15.4	36.9	1.0	-51.3	-25.0	-26.3	
6.13	-67.2	H	3.0	-15.3	36.6	1.0	-50.9	-25.0	-25.9	
8.41	-66.5	H	3.0	-11.7	35.1	1.0	-45.8	-25.0	-20.8	
4.88	-65.9	V	3.0	-15.9	36.9	1.0	-51.8	-25.0	-26.8	
6.13	-67.9	V	3.0	-16.0	36.6	1.0	-51.6	-25.0	-26.6	
8.41	-66.3	V	3.0	-11.8	35.1	1.0	-45.9	-25.0	-20.9	
Mid Channel (2590.5MHz)+2602.2MHz 1-99, 1-0										
5.12	-66.5	H	3.0	-16.2	36.8	1.0	-52.1	-25.0	-27.1	
7.02	-66.9	H	3.0	-13.6	36.4	1.0	-49.0	-25.0	-24.0	
8.25	-67.9	H	3.0	-13.3	35.3	1.0	-47.5	-25.0	-22.5	
5.44	-68.0	V	3.0	-17.1	36.8	1.0	-52.8	-25.0	-27.8	
6.41	-66.3	V	3.0	-14.1	36.5	1.0	-49.6	-25.0	-24.6	
7.71	-65.5	V	3.0	-11.7	35.7	1.0	-46.5	-25.0	-21.5	
High Channel (2675MHz)+2686.7MHz 1-99, 1-0										
5.08	-67.3	H	3.0	-17.2	36.9	1.0	-53.0	-25.0	-28.0	
7.24	-65.9	H	3.0	-12.3	36.2	1.0	-47.5	-25.0	-22.5	
9.05	-65.1	H	3.0	-9.6	34.5	1.0	-43.1	-25.0	-18.1	
5.16	-66.0	V	3.0	-15.6	36.8	1.0	-51.4	-25.0	-26.4	
7.18	-66.3	V	3.0	-13.1	36.2	1.0	-48.3	-25.0	-23.3	
9.25	-67.5	V	3.0	-12.1	34.4	1.0	-45.5	-25.0	-20.5	

Rev. 05.21.15

QPSK LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber										
Company: Project #: 16U23818 Date: 12/27/16 Test Engineer: 39005 Configuration: EUT only Mode: LTE Band 41, 20MHz QPSK UL CA 20/20										
Test Equipment: Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber H		3m Chamber H		Filter		LTE B41				
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (2506MHz) + 2525.8MHz 1-99 1-0										
5.22	-63.6	H	3.0	-13.2	36.8	1.0	-49.0	-25.0	-24.0	
6.40	-64.1	H	3.0	-11.8	36.5	1.0	-47.3	-25.0	-22.3	
8.59	-63.5	H	3.0	-8.5	34.9	1.0	-42.5	-25.0	-17.5	
4.89	-63.7	V	3.0	-13.7	36.9	1.0	-49.6	-25.0	-24.6	
6.43	-64.9	V	3.0	-12.6	36.5	1.0	-48.1	-25.0	-23.1	
8.41	-65.5	V	3.0	-11.0	35.1	1.0	-45.1	-25.0	-20.1	
Mid Channel (2583.1MHz) + 2602.9MHz 1-99 1-0										
5.11	-64.7	H	3.0	-14.5	36.8	1.0	-50.4	-25.0	-25.4	
5.67	-64.9	H	3.0	-13.7	36.7	1.0	-49.5	-25.0	-24.5	
9.09	-65.7	H	3.0	-10.2	34.5	1.0	-43.7	-25.0	-18.7	
5.14	-64.5	V	3.0	-14.1	36.8	1.0	-49.9	-25.0	-24.9	
6.49	-64.7	V	3.0	-12.4	36.5	1.0	-47.9	-25.0	-22.9	
8.34	-65.7	V	3.0	-11.2	35.2	1.0	-45.4	-25.0	-20.4	
High Channel (2660.2MHz) + 2680MHz 1-99 1-0										
5.08	-63.6	H	3.0	-13.5	36.9	1.0	-49.3	-25.0	-24.3	
6.26	-64.8	H	3.0	-12.8	36.6	1.0	-48.3	-25.0	-23.3	
8.90	-65.4	H	3.0	-10.1	34.7	1.0	-43.8	-25.0	-18.8	
5.03	-63.5	V	3.0	-13.3	36.9	1.0	-49.2	-25.0	-24.2	
7.07	-64.4	V	3.0	-11.3	36.3	1.0	-46.6	-25.0	-21.6	
8.91	-65.7	V	3.0	-10.6	34.7	1.0	-44.3	-25.0	-19.3	
Rev. 05.21.15										

16QAM LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement UL Fremont Radiated Chamber											
Company: Project #: 16U23818 Date: 12/27/16 Test Engineer: 39005 Configuration: EUT only Mode: LTE Band 41, 20MHz 16QAM UL CA 20/20											
Test Equipment: Substitution: Horn T59 Substitution, and 8ft SMA Cable											
Chamber		Pre-amplifier		Filter		Limit					
3m Chamber H		3m Chamber H		Filter		LTE B41					
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes	
Low Channel (2506MHz) + 2525.8MHz 1-99 1-0											
5.22	-63.4	H	3.0	-13.0	36.8	1.0	-48.9	-25.0	-23.9		
6.41	-64.3	H	3.0	-12.0	36.5	1.0	-47.5	-25.0	-22.5		
8.58	-63.6	H	3.0	-8.6	35.0	1.0	-42.5	-25.0	-17.5		
4.84	-63.7	V	3.0	-13.9	36.9	1.0	-49.8	-25.0	-24.8		
6.45	-65.0	V	3.0	-12.7	36.5	1.0	-48.2	-25.0	-23.2		
8.41	-65.6	V	3.0	-11.0	35.1	1.0	-45.2	-25.0	-20.2		
Mid Channel (2583.1MHz) + 2602.9MHz 1-99 1-0											
5.11	-64.8	H	3.0	-14.6	36.8	1.0	-50.5	-25.0	-25.5		
5.67	-64.6	H	3.0	-13.5	36.7	1.0	-49.2	-25.0	-24.2		
9.13	-65.6	H	3.0	-10.1	34.5	1.0	-43.5	-25.0	-18.5		
5.14	-64.4	V	3.0	-14.0	36.8	1.0	-49.8	-25.0	-24.8		
6.50	-64.7	V	3.0	-12.3	36.5	1.0	-47.8	-25.0	-22.8		
8.43	-65.9	V	3.0	-11.4	35.1	1.0	-45.5	-25.0	-20.5		
High Channel (2660.2MHz) + 2680MHz 1-99 1-0											
5.15	-63.8	H	3.0	-13.5	36.8	1.0	-49.3	-25.0	-24.3		
6.28	-64.5	H	3.0	-12.4	36.6	1.0	-48.0	-25.0	-23.0		
8.93	-65.2	H	3.0	-9.9	34.6	1.0	-43.5	-25.0	-18.5		
5.05	-63.7	V	3.0	-13.4	36.9	1.0	-49.3	-25.0	-24.3		
7.07	-64.5	V	3.0	-11.4	36.3	1.0	-46.7	-25.0	-21.7		
8.95	-65.9	V	3.0	-10.8	34.6	1.0	-44.4	-25.0	-19.4		
Rev. 05.21.15											