FCC CFR47 PART 27

UP LINK CARRIER AGGREGATION CERTIFICATION TEST REPORT

FOR

CELLULAR PHONE WITH BLUETOOH AND WLAN RADIOS

MODEL NUMBER: A1779

FCC ID: BCG-E3086A

REPORT NUMBER: 16U23310-E1V4

ISSUE DATE: AUGUST 16, 2016

Prepared for
APPLE, INC.
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.

Prepared by
UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	07/25/2016	Initial Review	Mengistu Mekuria
V2	07/25/2016	Updated page 25 and 36 heading, add additional occupied bandwidth for remaining bandwidth combinations	Tina Chu
V3	07/26/2016	Add additional occupied bandwidth for remaining bandwidth combinations and fix max bandwidth table in same section	Mona Hua
V4	08/16/2016	Specify correct RB combination in radiated section	Mona Hua

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: CELLULAR PHONE WITH BLUETOOTH AND WLAN RADIOS

MODEL: A1779

SERIAL NUMBER: C7CRQ00DHCQ2 (CONDUCTED);
C7CRP036HCQ2, C7CRQ001HCQC (RADIATED)

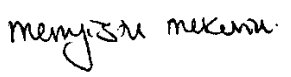
DATE TESTED: JULY 12, 2016 – JULY 26, 2016

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.

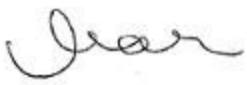
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. 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.

Approved & Released For
UL Verification Services Inc. By:



MENGISTU MEKURIA
SENIOR ENGINEER
UL VERIFICATION SERVICES INC.

Prepared By:



MONA HUA
LAB ENGINEER
UL VERIFICATION SERVICES INC.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.26:2015, TIA-603-D, 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	☐ Chamber D
☐ Chamber B	☐ Chamber E
☐ Chamber C	☐ Chamber F
	☒ Chamber G
	☒ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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 Model A1779 is a mobile phone with multimedia functions (music, application support, and video), cellular GSM/GPRS/EGPRS/CDMA/WCDMA/HSPA+/DC-HSDPA/LTE-radio, IEEE 802.11a/b/g/n/ac, NFC and Bluetooth radio. The rechargeable battery is not user accessible.

5.2. MAXIMUM OUTPUT POWER

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

5.2.1. LAT

OUTPUT POWER FOR LTE BAND 7

Part 27 / RSS199 LTE Band 7						
Bandwidth (MHz)	Frequency Range	Modulation	Conducted (Average)		EIRP (Average)	
			dBm	mW	dBm	mW
10+20	2500 - 2570	QPSK	23.00	199.5	25.16	328.1
		16QAM	22.00	158.5	24.26	266.7
20+10		QPSK	22.88	194.1	25.10	323.6
		16QAM	21.95	156.7	24.18	261.8
15+15		QPSK	23.00	199.5	25.18	329.6
		16QAM	22.00	158.5	24.38	274.2
15+20		QPSK	22.97	198.2	25.14	326.6
		16QAM	21.93	156.0	24.20	263.0
20+15		QPSK	22.95	197.2	25.00	316.2
		16QAM	21.95	156.7	23.99	250.6
20+20		QPSK	22.84	192.3	25.11	324.3
		16QAM	21.80	151.4	24.21	263.6

OUTPUT POWER FOR LTE BAND 41

Part 27 LTE Band 41						
Bandwidth (MHz)	Frequency Range	Modulation	Conducted (Average)		EIRP (Average)	
			dBm	mW	dBm	mW
5+20	2496-2690	QPSK	22.50	177.8	25.08	322.1
		16QAM	21.48	140.6	24.09	256.4
20+5		QPSK	22.35	171.8	25.16	328.1
		16QAM	21.13	129.7	23.95	248.3
10+20		QPSK	22.50	177.8	25.06	320.6
		16QAM	21.39	137.7	23.97	249.5
20+10		QPSK	22.27	168.7	24.94	311.9
		16QAM	21.34	136.1	24.04	253.5
15+15		QPSK	22.35	171.8	24.94	311.9
		16QAM	21.30	134.9	24.00	251.2
15+20		QPSK	22.44	175.4	25.06	320.6
		16QAM	21.39	137.7	24.09	256.4
20+15		QPSK	22.40	173.8	25.05	319.9
		16QAM	21.41	138.4	24.05	254.1
20+20		QPSK	22.35	171.8	24.94	311.9
		16QAM	21.50	141.3	23.87	243.8

5.2.2. UAT

OUTPUT POWER FOR LTE BAND 7

Part 27 / RSS199 LTE Band 7						
Bandwidth (MHz)	Frequency Range	Modulation	Conducted (Average)		EIRP (Average)	
			dBm	mW	dBm	mW
10+20	2500 - 2570	QPSK	17.29	53.6	17.63	57.9
		16QAM	16.23	42.0	16.68	46.6
20+10		QPSK	16.98	49.9	17.98	62.8
		16QAM	16.30	42.7	16.99	50.0
15+15		QPSK	17.26	53.2	17.87	61.2
		16QAM	16.24	42.1	16.72	47.0
15+20		QPSK	17.30	53.7	17.99	63.0
		16QAM	16.23	42.0	17.12	51.5
20+15		QPSK	17.30	53.7	17.87	61.2
		16QAM	16.20	41.7	16.70	46.8
20+20		QPSK	17.30	53.7	17.90	61.7
		16QAM	16.30	42.7	16.68	46.6

OUTPUT POWER FOR LTE BAND 41

Part 27 LTE Band 41						
Bandwidth (MHz)	Frequency Range	Modulation	Conducted (Average)		EIRP (Average)	
			dBm	mW	dBm	mW
5+20	2496-2690	QPSK	18.00	63.1	20.04	100.9
		16QAM	16.99	50.0	19.19	83.0
20+5		QPSK	17.85	61.0	20.02	100.5
		16QAM	17.00	50.1	19.15	82.2
10+20		QPSK	17.98	62.8	20.01	100.2
		16QAM	16.96	49.7	19.14	82.0
20+10		QPSK	18.00	63.1	20.03	100.7
		16QAM	17.00	50.1	19.18	82.8
15+15		QPSK	17.97	62.7	19.38	86.7
		16QAM	16.97	49.8	18.84	76.6
15+20		QPSK	18.00	63.1	19.31	85.3
		16QAM	16.98	49.9	18.69	74.0
20+15		QPSK	18.00	63.1	19.34	85.9
		16QAM	17.00	50.1	18.75	75.0
20+20		QPSK	17.85	61.0	19.30	85.1
		16QAM	17.00	50.1	18.84	76.6

5.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.26.02.

5.4. MAXIMUM ANTENNA GAIN

Please see table below:

LTE BANDS	Port A (LAT) Antenna Gain (dBi)	Port B (UAT) Antenna Gain (dBi)
LTE Band 7, 2500 – 2570 MHz	-0.07	0.48
LTE Band 41, 2496 – 2690 MHz	2.85	1.40

5.5. 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 fundamental of the EUT was investigated in three orthogonal orientations X/Y/Z, it was determined that Flatbed orientation was worst-case orientation for Band 7 and Band 41 without AC/DC adapter and headset.

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

5.6. DESCRIPTION OF TEST SETUP

TESTS SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer	Model	Serial Number
AC/DC adapter	HP	HNSTNN-DA40	WDWR7OBAR9AKS8
Laptop	HP	HP ProBook 450 G2	CND5367Z97
DC power supply	Sorensen	XT 20-3	1318A00530

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

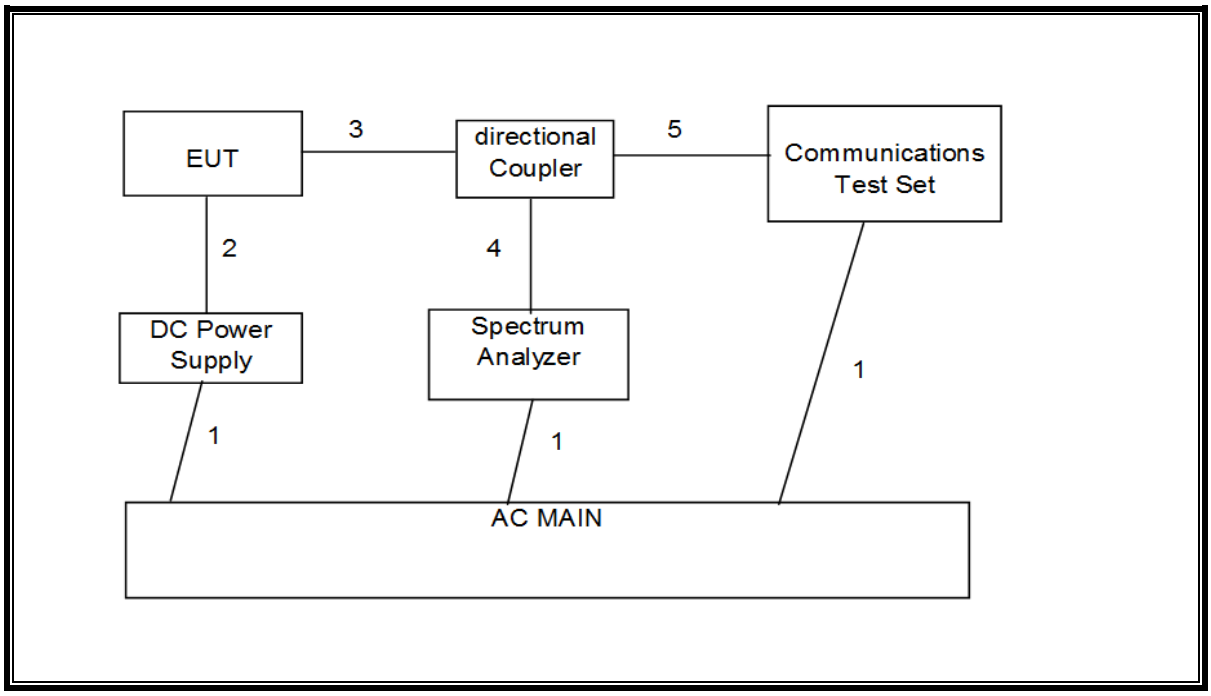
I/O CABLES (RF RADIATED TEST)

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

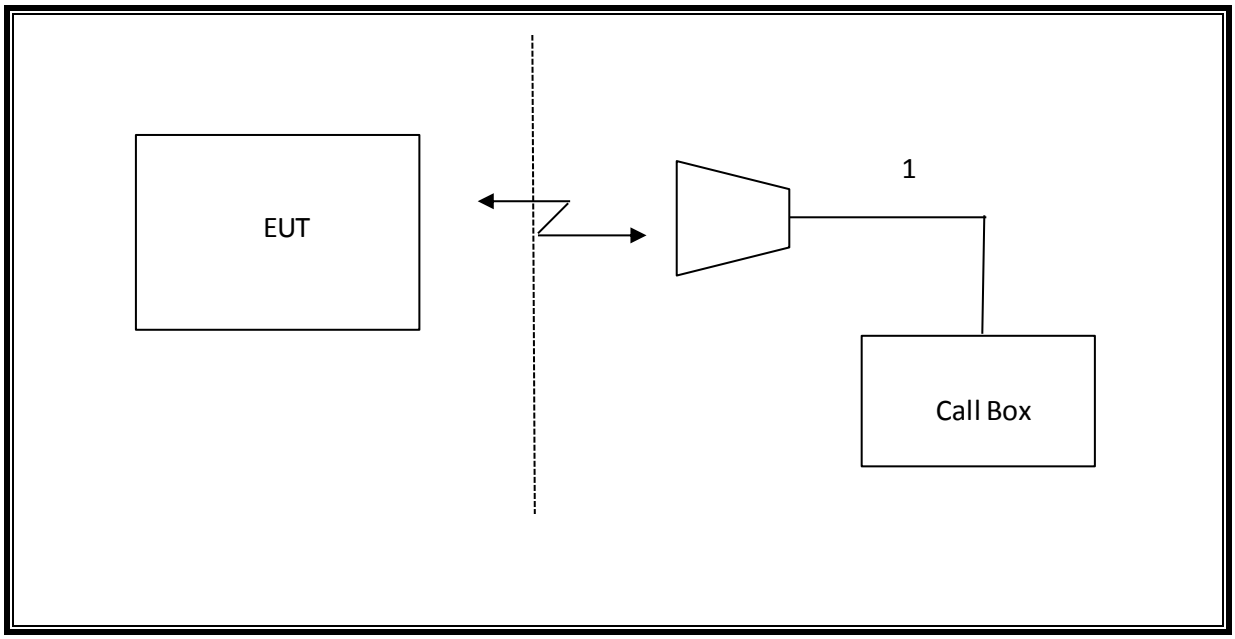
TEST SETUP

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	T No.	Cal Due
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4446A	T1239	10/22/16
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	T959	07/08/17
Directional Coupler, 10dB SMA, 0.5GHz to 26.5GHz	Krytar	152610	T922	06/17/17
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T1154	09/14/16
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	T978	08/10/16
Wireless Communications Test Set, 8960 Series 10	Keysight	E5515C	T211	11/19/16
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	T341	10/15/16
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T344	02/22/17
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T185	03/09/17
Directional Coupler, 10dB SMA, 0.5GHz to 26.5GHz	Krytar	152613	T1538	04/11/17
*Amplifier, 1 - 18GHz	Miteq	AFS42-00101800-25-S-42	T740	01/25/17
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T173	06/17/17
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	T340	11/16/16
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T834	06/17/17
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	T906	02/03/17
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	T259	10/23/16
Power Meter, P-series single channel	Keysight	N1911A	T1265	12/03/16
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight	N1921A	T1226	05/18/17
Power Meter, RF	Anritsu	ML2495A	T1413	12/26/16
Power Sensor, 50MHz VBW Pulsed Radar & Comm Signals	Anritsu	MA2411B	T1415	12/16/16
Antenna, Horn 1-18GHz	Emco	3117	T136	03/14/17
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826	T447	06/16/17
Spectrum Analyzer, 40 GHz	Agilent	8564E	T106	08/06/16
**Filter, Highpass 4.0GHz	Micro-Tronics	HPM13351	T1239	06/24/17
**Filter, HPF 1.2GHz	Wainwright Instruments	WHKX1.2/15G-6ST	T1182	05/31/17
*Filter, HPF 3.0GHz	Micro-Tronics	HPM17543	T428	01/25/17

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

7. RF POWER OUTPUT VERIFICATION

LTE Measurement Procedure:

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

TEST PROCEDURE

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

7.1. LAT

7.1.1. LTE Band 7

ID:	38806	Date:	7/13/16

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
10MHz / 20MHz	2505.5	2519.9	QPSK	1	49	1	0	22.89	27.74
				1	24	1	49	12.34	20.65
				50	0	100	0	20.97	**28.46**
			16QAM	1	74	1	0	**22.00**	27.14
				1	24	1	49	12.32	20.60
				50	0	100	0	20.00	27.65
10MHz / 20MHz	2525.6	2540.0	QPSK	1	49	1	0	**23.00**	27.47
				1	24	1	49	12.34	20.84
				50	0	100	0	21.14	27.80
			16QAM	1	49	1	0	21.96	27.14
				1	24	1	49	12.33	20.83
				50	0	100	0	20.07	**27.79**
10MHz / 20MHz	2545.6	2560.0	QPSK	1	49	1	0	22.94	27.63
				1	24	1	49	12.33	20.75
				50	0	100	0	21.19	27.89
			16QAM	1	49	1	0	21.95	27.50
				1	24	1	49	12.29	20.64
				50	0	100	0	20.12	27.78

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
20MHz / 10MHz	2510.0	2524.4	QPSK	1	0	1	0	12.50	20.61
				1	0	1	49	12.46	20.58
				1	0	50	0	18.79	26.26
				1	99	1	49	12.43	20.45
				1	99	50	0	20.72	27.40
				100	0	1	49	19.38	25.87
				100	0	50	0	20.77	27.20
				1	99	1	0	22.74	27.68
				100	0	1	0	20.97	27.32
			16QAM	1	0	1	0	12.41	20.71
				1	0	1	49	12.48	20.64
				1	0	50	0	18.63	26.15
				1	99	1	49	12.55	20.86
				1	99	50	0	19.73	27.17
				100	0	1	49	19.82	25.79
				100	0	50	0	19.75	27.34
				1	99	1	0	21.74	27.20
				100	0	1	0	20.00	27.07
20MHz / 10MHz	2530.1	2544.5	QPSK	1	0	1	0	12.43	20.01
				1	0	1	49	12.48	20.00
				1	0	50	0	18.77	25.97
				1	99	1	49	12.54	19.95
				1	99	50	0	20.72	26.47
				100	0	1	49	19.47	26.32
				100	0	50	0	20.45	26.75
				1	99	1	0	**22.88**	**28.33**
				100	0	1	0	20.99	26.70
			16QAM	1	0	1	0	12.46	19.98
				1	0	1	49	12.38	20.20
				1	0	50	0	18.60	25.76
				1	99	1	49	12.55	19.75
				1	99	50	0	19.70	26.37
				100	0	1	49	19.74	26.85
				100	0	50	0	19.80	26.69
				1	99	1	0	**21.95**	**27.74**
				100	0	1	0	20.25	26.63
20MHz / 10MHz	2550.1	2564.5	QPSK	1	0	1	0	12.43	20.72
				1	0	1	49	12.41	20.64
				1	0	50	0	18.87	26.35
				1	99	1	49	12.48	20.78
				1	99	50	0	20.59	27.53
				100	0	1	49	19.43	26.48
				100	0	50	0	20.80	27.26
				1	99	1	0	22.43	28.05
				100	0	1	0	21.00	27.15
			16QAM	1	0	1	0	12.48	20.96
				1	0	1	49	12.42	20.73
				1	0	50	0	18.76	26.21
				1	99	1	49	12.52	20.96
				1	99	50	0	19.50	27.28
				100	0	1	49	19.28	26.01
				100	0	50	0	19.52	27.18
				1	99	1	0	20.92	27.72
				100	0	1	0	20.29	27.21

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
15MHz / 15MHz	2507.5	2522.5	QPSK	1	74	1	0	**23.00**	27.98
				75	0	75	0	21.00	27.48
			16QAM	1	74	1	0	21.95	27.23
				75	0	75	0	19.90	27.08
15MHz / 15MHz	2527.5	2542.5	QPSK	1	74	1	0	22.95	28.13
				75	0	75	0	20.98	27.28
			16QAM	1	74	1	0	21.97	27.18
				75	0	75	0	20.00	**27.35**
15MHz / 15MHz	2547.5	2562.5	QPSK	1	74	1	0	22.89	**28.28**
				75	0	75	0	21.00	27.17
			16QAM	1	74	1	0	**22.00**	27.31
				75	0	75	0	19.99	27.20

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
15MHz / 20MHz	2507.8	2524.9	QPSK	1	74	1	0	22.86	27.71
				1	36	1	49	12.31	20.62
				75	0	100	0	20.94	27.40
			16QAM	1	74	1	0	21.90	27.11
				1	36	1	49	12.29	20.57
				75	0	100	0	19.97	**27.62**
15MHz / 20MHz	2525.3	2542.4	QPSK	1	74	1	0	**22.97**	27.44
				1	36	1	49	12.31	20.81
				75	0	100	0	21.11	27.77
			16QAM	1	74	1	0	**21.93**	27.11
				1	36	1	49	12.30	20.80
				75	0	100	0	20.04	27.16
15MHz / 20MHz	2542.9	2560.0	QPSK	1	74	1	0	22.91	27.60
				1	36	1	49	12.30	20.72
				75	0	100	0	21.16	**28.26**
			16QAM	1	74	1	0	21.92	27.47
				1	36	1	49	12.26	20.61
				75	0	100	0	20.09	27.15

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average (dBm)	Peak (dBm)
				Size	Offset	Size	Offset		
20MHz / 15MHz	2510.0	2527.1	QPSK	1	99	1	0	**22.95**	**28.20**
				100	0	75	0	20.95	27.43
			16QAM	1	99	1	0	21.90	**27.97**
				100	0	75	0	19.85	27.03
20MHz / 15MHz	2527.6	2544.7	QPSK	1	99	1	0	22.90	28.08
				100	0	75	0	20.93	27.23
			16QAM	1	99	1	0	**21.95**	27.64
				100	0	75	0	19.95	27.30
20MHz / 15MHz	2545.1	2562.2	QPSK	1	99	1	0	22.84	28.00
				100	0	75	0	20.95	27.12
			16QAM	1	99	1	0	21.90	27.86
				100	0	75	0	19.94	27.15

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
20MHz/ 20MHz	2510.0	2529.8	QPSK	1	0	1	0	12.50	20.61
				1	0	1	99	12.46	20.58
				1	0	100	0	19.38	26.76
				1	49	1	49	12.80	21.00
				1	99	1	99	12.43	20.45
				1	99	100	0	20.72	27.40
				100	0	1	99	19.38	25.87
				100	0	100	0	20.77	27.20
				1	99	1	0	22.84	**27.68**
				100	0	1	0	20.97	27.32
			16QAM	1	0	1	0	12.41	20.71
				1	0	1	99	12.48	20.64
				1	0	100	0	19.26	26.66
				1	49	1	49	12.71	20.96
				1	99	1	99	12.55	20.86
				1	99	100	0	19.73	27.17
				100	0	1	99	19.82	25.79
				100	0	100	0	19.75	**27.34**
				1	99	1	0	21.74	27.20
				100	0	1	0	20.00	27.07
20MHz/ 20MHz	2525.1	2544.9	QPSK	1	0	1	0	12.13	20.40
				1	0	1	99	12.05	20.32
				1	0	100	0	19.36	26.15
				1	49	1	49	12.20	20.40
				1	99	1	99	12.33	20.05
				1	99	100	0	20.12	26.80
				100	0	1	99	19.78	24.27
				100	0	100	0	20.17	26.60
				1	99	1	0	**22.84**	27.08
				100	0	1	0	20.37	26.72
			16QAM	1	0	1	0	12.00	20.11
				1	0	1	99	12.98	20.04
				1	0	100	0	18.66	26.06
				1	49	1	49	12.11	20.36
				1	99	1	99	11.95	20.26
				1	99	100	0	19.83	26.57
				100	0	1	99	19.22	25.19
				100	0	100	0	19.15	26.74
				1	99	1	0	**21.80**	26.60
				100	0	1	0	19.40	26.47
20MHz/ 20MHz	2540.2	2560.0	QPSK	1	0	1	0	12.33	20.30
				1	0	1	99	12.48	20.12
				1	0	100	0	18.76	26.50
				1	49	1	49	12.20	20.90
				1	99	1	99	12.36	20.36
				1	99	100	0	20.78	26.80
				100	0	1	99	19.08	25.27
				100	0	100	0	20.67	27.10
				1	99	1	0	22.73	27.08
				100	0	1	0	20.77	27.12
			16QAM	1	0	1	0	12.11	20.11
				1	0	1	99	12.36	20.04
				1	0	100	0	19.10	26.06
				1	49	1	49	12.11	20.36
				1	99	1	99	11.95	20.26
				1	99	100	0	20.13	26.57
				100	0	1	99	19.22	25.19
				100	0	100	0	19.15	26.74
				1	99	1	0	21.74	26.60
				100	0	1	0	19.70	26.47

7.1.2. LTE Band 41

ID:	38806	Date:	7/13/16

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average (dBm)	Peak (dBm)
				Size	Offset	Size	Offset		
5MHz / 20MHz	2499.3	2511.0	QPSK	1	24	1	0	**22.50**	**27.26**
				1	12	1	49	12.00	20.32
				25	0	100	0	20.43	26.45
			16QAM	1	24	1	0	**21.48**	**26.32**
				1	12	1	49	11.96	20.21
				25	0	100	0	19.31	26.18
5MHz / 20MHz	2583.8	2595.5	QPSK	1	24	1	0	22.48	27.19
				1	12	1	49	11.98	20.24
				25	0	100	0	20.40	26.36
			16QAM	1	24	1	0	21.46	26.25
				1	12	1	49	11.94	20.18
				25	0	100	0	19.30	26.12
5MHz / 20MHz	2668.3	2680.0	QPSK	1	24	1	0	22.47	27.18
				1	12	1	49	12.00	20.30
				25	0	100	0	20.37	26.36
			16QAM	1	24	1	0	21.45	26.22
				1	12	1	49	11.93	20.11
				25	0	100	0	19.18	26.07

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
20MHz / 5MHz	2506.0	2517.7	QPSK	1	0	1	0	12.00	18.55
				1	0	1	24	11.95	18.54
				1	0	25	0	17.53	24.03
				1	99	1	24	11.89	18.49
				1	99	25	0	20.47	26.74
				100	0	1	24	18.93	26.04
				100	0	25	0	20.47	26.67
				1	99	1	0	**22.35**	27.58
				100	0	1	0	20.32	26.77
			16QAM	1	0	1	0	11.59	19.25
				1	0	1	24	11.68	19.40
				1	0	25	0	17.42	23.97
				1	99	1	24	11.86	18.30
				1	99	25	0	19.50	26.49
				100	0	1	24	18.77	26.01
				100	0	25	0	19.37	26.45
				1	99	1	0	21.13	27.39
				100	0	1	0	19.11	26.41
20MHz / 5MHz	2590.5	2602.2	QPSK	1	0	1	0	11.76	18.50
				1	0	1	24	11.71	18.30
				1	0	25	0	17.38	24.48
				1	99	1	24	11.82	18.40
				1	99	25	0	20.38	26.66
				100	0	1	24	18.65	24.98
				100	0	25	0	20.23	26.80
				1	99	1	0	22.12	26.97
				100	0	1	0	20.10	26.15
			16QAM	1	0	1	0	11.72	19.20
				1	0	1	24	11.60	18.97
				1	0	25	0	17.19	24.29
				1	99	1	24	11.64	18.06
				1	99	25	0	19.40	26.90
				100	0	1	24	18.70	25.60
				100	0	25	0	19.30	26.70
				1	99	1	0	21.03	27.34
				100	0	1	0	19.10	25.81
20MHz / 5MHz	2675.0	2686.7	QPSK	1	0	1	0	11.76	18.71
				1	0	1	24	11.97	18.41
				1	0	25	0	17.32	24.87
				1	99	1	24	11.88	18.71
				1	99	25	0	20.34	26.61
				100	0	1	24	18.83	25.20
				100	0	25	0	20.34	26.81
				1	99	1	0	22.34	**27.74**
				100	0	1	0	20.48	26.61
			16QAM	1	0	1	0	11.90	19.26
				1	0	1	24	11.98	19.29
				1	0	25	0	17.21	24.73
				1	99	1	24	11.83	18.23
				1	99	25	0	19.36	25.90
				100	0	1	24	18.71	25.23
				100	0	25	0	19.31	26.61
				1	99	1	0	**21.47**	**27.90**
				100	0	1	0	19.36	26.08

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
10MHz / 20MHz	2501.5	2515.9	QPSK	1	49	1	0	22.48	27.24
				1	24	1	49	11.98	20.30
				50	0	100	0	20.41	26.43
			16QAM	1	49	1	0	**21.39**	**26.30**
				1	24	1	49	11.94	20.19
				50	0	100	0	19.29	26.16
10MHz / 20MHz	2583.6	2598.0	QPSK	1	49	1	0	**22.50**	**27.30**
				1	24	1	49	11.91	20.17
				50	0	100	0	20.33	26.29
			16QAM	1	49	1	0	**21.39**	26.18
				1	24	1	49	11.87	20.11
				50	0	100	0	19.23	26.05
10MHz / 20MHz	2665.6	2680.0	QPSK	1	49	1	0	22.37	27.08
				1	24	1	49	11.90	20.20
				50	0	100	0	20.27	26.26
			16QAM	1	49	1	0	21.35	26.12
				1	24	1	49	11.83	20.01
				50	0	100	0	19.08	25.97

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
20MHz / 10MHz	2506.0	2520.4	QPSK	1	99	1	0	22.13	26.79
				100	0	50	0	20.08	25.71
			16QAM	1	99	1	0	**21.34**	26.71
				100	0	50	0	19.31	25.91
20MHz / 10MHz	2588.1	2602.5	QPSK	1	99	1	0	22.15	26.89
				100	0	50	0	20.19	25.97
			16QAM	1	99	1	0	21.25	**26.91**
				100	0	50	0	19.02	26.03
20MHz / 10MHz	2670.1	2684.5	QPSK	1	99	1	0	**22.27**	**27.12**
				100	0	50	0	19.99	26.31
			16QAM	1	99	1	0	21.31	26.89
				100	0	50	0	19.03	26.25

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
15MHz / 15MHz	2503.5	2518.5	QPSK	1	74	1	0	22.09	26.75
				75	0	75	0	20.04	25.67
			16QAM	1	74	1	0	21.20	26.67
				75	0	75	0	19.27	25.87
15MHz / 15MHz	2585.5	2600.5	QPSK	1	74	1	0	22.11	26.88
				75	0	75	0	20.14	25.92
			16QAM	1	74	1	0	**21.30**	**26.86**
				75	0	75	0	18.97	25.98
15MHz / 15MHz	2667.5	2682.5	QPSK	1	74	1	0	**22.35**	**27.13**
				75	0	75	0	19.98	26.30
			16QAM	1	74	1	0	21.30	26.84
				75	0	75	0	19.02	26.24

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
15MHz / 20MHz	2503.8	2520.9	QPSK	1	74	1	0	**22.44**	**27.21**
				1	36	1	49	11.92	20.24
				75	0	100	0	20.35	26.37
			16QAM	1	74	1	0	21.28	**26.20**
				1	36	1	49	11.88	20.13
				75	0	100	0	19.23	26.10
15MHz / 20MHz	2583.3	2600.4	QPSK	1	74	1	0	22.40	27.18
				1	36	1	49	11.85	20.11
				75	0	100	0	20.27	26.23
			16QAM	1	74	1	0	**21.39**	26.12
				1	36	1	49	11.81	20.05
				75	0	100	0	19.17	25.99
15MHz / 20MHz	2662.9	2680.0	QPSK	1	74	1	0	22.31	27.02
				1	36	1	49	11.84	20.14
				75	0	100	0	20.21	26.20
			16QAM	1	74	1	0	21.29	26.06
				1	36	1	49	11.77	19.95
				75	0	100	0	19.02	25.91

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average (dBm)	Peak (dBm)
				Size	Offset	Size	Offset		
20MHz / 15MHz	2506.0	2523.1	QPSK	1	99	1	0	**22.40**	**27.25**
				100	0	75	0	20.15	25.78
			16QAM	1	99	1	0	21.40	26.78
				100	0	75	0	19.38	25.98
20MHz / 15MHz	2585.6	2602.7	QPSK	1	99	1	0	22.22	26.99
				100	0	75	0	20.25	26.03
			16QAM	1	99	1	0	21.39	**26.97**
				100	0	75	0	19.08	26.09
20MHz / 15MHz	2665.1	2682.2	QPSK	1	99	1	0	22.38	27.20
				100	0	75	0	20.09	26.41
			16QAM	1	99	1	0	**21.41**	26.95
				100	0	75	0	19.13	26.35

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
20MHz/ 20MHz	2506.0	2525.8	QPSK	1	0	1	0	11.81	19.93
				1	0	1	99	12.00	20.00
				1	0	100	0	18.54	25.30
				1	49	1	49	12.00	20.10
				1	99	1	99	11.93	20.02
				1	99	100	0	20.39	26.48
				100	0	1	99	18.40	25.25
				100	0	100	0	19.98	26.26
				1	99	1	0	**22.35**	27.64
				100	0	1	0	19.84	26.13
			16QAM	1	0	1	0	11.89	19.37
				1	0	1	99	12.09	19.13
				1	0	100	0	18.53	26.11
				1	49	1	49	11.95	19.58
				1	99	1	99	11.90	19.27
				1	99	100	0	19.03	25.99
				100	0	1	99	18.41	25.67
				100	0	100	0	18.99	26.25
				1	99	1	0	21.44	27.47
				100	0	1	0	18.97	26.43
20MHz/ 20MHz	2583.1	2602.9	QPSK	1	0	1	0	11.73	20.49
				1	0	1	99	11.95	20.42
				1	0	100	0	18.56	25.59
				1	49	1	49	12.00	20.62
				1	99	1	99	11.93	20.59
				1	99	100	0	20.06	26.26
				100	0	1	99	18.42	25.24
				100	0	100	0	20.14	26.59
				1	99	1	0	22.32	**27.86**
				100	0	1	0	19.94	26.46
			16QAM	1	0	1	0	11.80	19.83
				1	0	1	99	11.84	19.59
				1	0	100	0	18.56	26.16
				1	49	1	49	11.96	19.58
				1	99	1	99	11.93	19.36
				1	99	100	0	19.16	26.29
				100	0	1	99	18.51	25.59
				100	0	100	0	19.22	26.36
				1	99	1	0	**21.50**	27.56
				100	0	1	0	19.04	26.34
20MHz/ 20MHz	2660.2	2680.0	QPSK	1	0	1	0	11.91	19.34
				1	0	1	99	11.86	19.43
				1	0	100	0	18.94	26.28
				1	49	1	49	11.96	19.83
				1	99	1	99	11.84	19.70
				1	99	100	0	20.11	27.12
				100	0	1	99	19.12	25.63
				100	0	100	0	20.53	27.12
				1	99	1	0	**22.35**	22.02
				100	0	1	0	20.76	27.20
			16QAM	1	0	1	0	11.84	19.61
				1	0	1	99	11.86	19.52
				1	0	100	0	18.97	26.07
				1	49	1	49	11.95	19.75
				1	99	1	99	11.87	19.64
				1	99	100	0	19.18	26.61
				100	0	1	99	18.88	26.53
				100	0	100	0	19.52	26.92
				1	99	1	0	21.40	**28.16**
				100	0	1	0	19.66	26.98

7.2. UAT

7.2.1. LTE Band 7

ID:	50820	Date:	7/14/16

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
10MHz / 20MHz	2505.5	2519.9	QPSK	1	49	1	0	**17.29**	22.27
				1	24	1	49	6.80	14.33
				50	0	100	0	15.05	22.47
			16QAM	1	49	1	0	**16.23**	22.03
				1	24	1	49	6.75	14.87
				50	0	100	0	14.00	22.35
10MHz / 20MHz	2525.6	2540.0	QPSK	1	49	1	0	17.18	22.50
				1	24	1	49	6.55	13.30
				50	0	100	0	15.05	**22.90**
			16QAM	1	49	1	0	16.10	22.05
				1	24	1	49	6.38	14.05
				50	0	100	0	14.04	**22.60**
10MHz / 20MHz	2545.6	2560.0	QPSK	1	49	1	0	17.08	22.05
				1	24	1	49	6.50	14.13
				50	0	100	0	15.10	22.12
			16QAM	1	49	1	0	16.00	22.58
				1	24	1	49	6.60	14.50
				50	0	100	0	14.00	22.25

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
20MHz / 10MHz	2510.0	2524.4	QPSK	1	0	1	0	6.80	14.99
				1	0	1	49	6.45	14.53
				1	0	50	0	13.30	21.83
				1	99	1	49	6.68	14.14
				1	99	50	0	15.10	22.73
				100	0	1	49	13.80	21.84
				100	0	50	0	15.17	**23.09**
				1	99	1	0	**16.98**	22.67
				100	0	1	0	15.01	22.51
			16QAM	1	0	1	0	6.71	15.39
				1	0	1	49	6.36	14.87
				1	0	50	0	13.19	21.77
				1	99	1	49	6.64	15.19
				1	99	50	0	14.71	22.87
				100	0	1	49	13.67	22.42
				100	0	50	0	14.98	22.09
				1	99	1	0	**16.30**	22.80
				100	0	1	0	14.15	22.32
20MHz / 10MHz	2530.1	2544.5	QPSK	1	0	1	0	6.76	14.95
				1	0	1	49	6.41	14.49
				1	0	50	0	13.26	21.83
				1	99	1	49	6.64	14.10
				1	99	50	0	15.06	22.69
				100	0	1	49	13.76	21.80
				100	0	50	0	15.13	22.71
				1	99	1	0	16.94	22.63
				100	0	1	0	14.97	22.47
			16QAM	1	0	1	0	6.67	15.35
				1	0	1	49	6.32	14.83
				1	0	50	0	13.10	21.70
				1	99	1	49	6.60	15.15
				1	99	50	0	14.67	**23.05**
				100	0	1	49	13.63	22.38
				100	0	50	0	14.94	22.45
				1	99	1	0	16.26	22.76
				100	0	1	0	14.11	22.78
20MHz / 10MHz	2550.1	2564.5	QPSK	1	0	1	0	6.76	14.95
				1	0	1	49	6.41	14.49
				1	0	50	0	13.26	21.76
				1	99	1	49	6.64	14.10
				1	99	50	0	15.06	22.69
				100	0	1	49	13.76	21.80
				100	0	50	0	15.13	22.71
				1	99	1	0	16.94	22.63
				100	0	1	0	14.97	22.47
			16QAM	1	0	1	0	6.67	15.35
				1	0	1	49	6.32	14.83
				1	0	50	0	13.09	21.63
				1	99	1	49	6.60	15.15
				1	99	50	0	14.67	22.05
				100	0	1	49	13.63	22.38
				100	0	50	0	14.94	22.05
				1	99	1	0	16.26	22.76
				100	0	1	0	14.11	22.18

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
15MHz / 15MHz	2507.5	2522.5	QPSK	1	74	1	0	17.16	22.51
				75	0	75	0	15.25	22.97
			16QAM	1	74	1	0	16.20	23.00
				75	0	75	0	14.19	22.18
15MHz / 15MHz	2527.5	2542.5	QPSK	1	74	1	0	17.20	23.12
				75	0	75	0	15.10	20.15
			16QAM	1	74	1	0	16.20	22.90
				75	0	75	0	14.30	23.01
15MHz / 15MHz	2547.5	2562.5	QPSK	1	74	1	0	**17.26**	**23.40**
				75	0	75	0	15.30	22.90
			16QAM	1	74	1	0	**16.24**	22.45
				75	0	75	0	14.28	**23.03**

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
15MHz / 20MHz	2507.8	2524.9	QPSK	1	74	1	0	**17.30**	23.00
				1	36	1	49	6.80	15.35
				75	0	100	0	15.35	23.03
			16QAM	1	74	1	0	16.04	23.08
				1	36	1	49	6.53	15.77
				75	0	100	0	14.30	23.00
15MHz / 20MHz	2525.3	2542.4	QPSK	1	74	1	0	17.19	22.68
				1	36	1	49	6.39	15.23
				75	0	100	0	15.25	22.97
			16QAM	1	74	1	0	16.22	22.59
				1	36	1	49	6.37	16.09
				75	0	100	0	14.28	22.89
15MHz / 20MHz	2542.9	2560.0	QPSK	1	74	1	0	17.17	**23.37**
				1	36	1	49	6.27	14.92
				75	0	100	0	15.13	22.91
			16QAM	1	74	1	0	**16.23**	**23.24**
				1	36	1	49	6.12	15.93
				75	0	100	0	14.25	22.88

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average (dBm)	Peak (dBm)
				Size	Offset	Size	Offset		
20MHz / 15MHz	2510.0	2527.1	QPSK	1	99	1	0	17.22	23.22
				100	0	75	0	15.28	23.38
			16QAM	1	99	1	0	16.00	22.07
				100	0	75	0	14.63	22.60
20MHz / 15MHz	2527.6	2544.7	QPSK	1	99	1	0	16.97	22.72
				100	0	75	0	15.82	23.63
			16QAM	1	99	1	0	16.08	23.00
				100	0	75	0	14.30	22.03
20MHz / 15MHz	2545.1	2562.2	QPSK	1	99	1	0	**17.30**	20.57
				100	0	75	0	15.32	**23.74**
			16QAM	1	99	1	0	**16.20**	23.40
				100	0	75	0	14.65	**23.47**

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
20MHz/ 20MHz	2510.0	2529.8	QPSK	1	0	1	0	6.80	15.11
				1	0	1	99	6.76	15.08
				1	0	100	0	13.80	21.26
				1	49	1	49	7.30	15.50
				1	99	1	99	6.93	14.95
				1	99	100	0	15.22	21.90
				100	0	1	99	13.78	20.37
				100	0	100	0	15.27	21.70
				1	99	1	0	**17.30**	**22.18**
				100	0	1	0	15.47	21.82
			16QAM	1	0	1	0	6.91	15.21
				1	0	1	99	6.98	15.14
				1	0	100	0	13.76	21.16
				1	49	1	49	7.21	15.46
				1	99	1	99	7.05	15.36
				1	99	100	0	14.23	21.67
				100	0	1	99	13.65	20.29
				100	0	100	0	14.25	**22.04**
				1	99	1	0	16.24	21.70
				100	0	1	0	14.50	21.57
20MHz/ 20MHz	2525.1	2544.9	QPSK	1	0	1	0	6.63	14.90
				1	0	1	99	6.55	14.82
				1	0	100	0	13.86	20.65
				1	49	1	49	6.70	14.90
				1	99	1	99	6.83	14.55
				1	99	100	0	15.10	21.80
				100	0	1	99	13.78	18.77
				100	0	100	0	15.27	21.10
				1	99	1	0	**17.30**	21.58
				100	0	1	0	15.23	21.52
			16QAM	1	0	1	0	6.50	14.61
				1	0	1	99	7.48	14.54
				1	0	100	0	13.16	20.56
				1	49	1	49	6.61	14.86
				1	99	1	99	6.45	14.76
				1	99	100	0	14.33	21.07
				100	0	1	99	13.72	19.69
				100	0	100	0	14.25	21.24
				1	99	1	0	**16.30**	21.10
				100	0	1	0	13.90	20.97
20MHz/ 20MHz	2540.2	2560.0	QPSK	1	0	1	0	6.83	14.80
				1	0	1	99	6.98	14.62
				1	0	100	0	13.66	21.00
				1	49	1	49	6.70	15.40
				1	99	1	99	6.86	14.86
				1	99	100	0	15.28	21.30
				100	0	1	99	13.58	19.77
				100	0	100	0	15.17	21.60
				1	99	1	0	17.23	21.58
				100	0	1	0	15.27	21.62
			16QAM	1	0	1	0	6.61	14.61
				1	0	1	99	6.86	14.54
				1	0	100	0	13.60	20.56
				1	49	1	49	6.61	14.86
				1	99	1	99	6.45	14.76
				1	99	100	0	14.63	21.07
				100	0	1	99	13.72	19.69
				100	0	100	0	13.95	21.24
				1	99	1	0	16.24	21.10
				100	0	1	0	14.20	20.97

7.2.2. LTE Band 41

ID:	38806	Date:	7/14/16

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
5MHz / 20MHz	2499.3	2511.0	QPSK	1	24	1	0	**18.00**	**22.76**
				1	12	1	49	7.50	15.82
				25	0	100	0	15.93	21.95
			16QAM	1	24	1	0	16.98	**21.82**
				1	12	1	49	7.46	15.71
				25	0	100	0	14.81	21.68
5MHz / 20MHz	2583.8	2595.5	QPSK	1	24	1	0	17.98	22.69
				1	12	1	49	7.48	15.74
				25	0	100	0	15.90	21.86
			16QAM	1	24	1	0	**16.99**	21.75
				1	12	1	49	7.44	15.68
				25	0	100	0	14.80	21.62
5MHz / 20MHz	2668.3	2680.0	QPSK	1	24	1	0	17.97	22.68
				1	12	1	49	7.50	15.80
				25	0	100	0	15.87	21.86
			16QAM	1	24	1	0	16.95	21.72
				1	12	1	49	7.43	15.61
				25	0	100	0	14.68	21.57

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
20MHz / 5MHz	2506.0	2517.7	QPSK	1	0	1	0	7.50	14.05
				1	0	1	24	7.45	14.04
				1	0	25	0	13.03	19.38
				1	99	1	24	7.39	13.99
				1	99	25	0	15.97	22.24
				100	0	1	24	14.43	21.54
				100	0	25	0	15.97	22.17
				1	99	1	0	**17.85**	**23.48**
				100	0	1	0	15.82	22.27
			16QAM	1	0	1	0	7.09	14.75
				1	0	1	24	7.18	14.90
				1	0	25	0	12.88	19.21
				1	99	1	24	7.36	13.80
				1	99	25	0	15.00	21.99
				100	0	1	24	14.27	21.51
				100	0	25	0	14.87	21.95
				1	99	1	0	16.63	22.89
				100	0	1	0	14.61	21.91
20MHz / 5MHz	2590.5	2602.2	QPSK	1	0	1	0	7.26	14.00
				1	0	1	24	7.21	13.80
				1	0	25	0	12.87	20.08
				1	99	1	24	7.32	13.90
				1	99	25	0	15.88	22.16
				100	0	1	24	14.15	20.48
				100	0	25	0	15.73	22.30
				1	99	1	0	17.62	22.47
				100	0	1	0	15.60	21.65
			16QAM	1	0	1	0	7.22	14.70
				1	0	1	24	7.10	14.47
				1	0	25	0	12.73	19.88
				1	99	1	24	7.14	13.56
				1	99	25	0	14.90	22.40
				100	0	1	24	14.20	21.10
				100	0	25	0	14.80	22.20
				1	99	1	0	16.53	22.84
				100	0	1	0	14.60	21.31
20MHz / 5MHz	2675.0	2686.7	QPSK	1	0	1	0	7.26	14.21
				1	0	1	24	7.47	13.91
				1	0	25	0	13.02	20.19
				1	99	1	24	7.38	14.21
				1	99	25	0	15.84	22.11
				100	0	1	24	14.33	20.70
				100	0	25	0	15.84	22.31
				1	99	1	0	17.84	23.24
				100	0	1	0	15.98	22.11
			16QAM	1	0	1	0	7.40	14.76
				1	0	1	24	7.48	14.79
				1	0	25	0	13.05	20.03
				1	99	1	24	7.33	13.73
				1	99	25	0	14.86	21.40
				100	0	1	24	14.21	20.73
				100	0	25	0	14.81	22.11
				1	99	1	0	**17.00**	**23.40**
				100	0	1	0	14.86	21.58

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
10MHz / 20MHz	2501.5	2515.9	QPSK	1	49	1	0	17.97	22.73
				1	24	1	49	7.47	15.79
				50	0	100	0	15.90	21.92
			16QAM	1	49	1	0	16.95	21.69
				1	24	1	49	7.43	15.68
				50	0	100	0	14.78	21.65
10MHz / 20MHz	2583.6	2598.0	QPSK	1	49	1	0	17.95	22.66
				1	24	1	49	7.45	15.71
				50	0	100	0	15.87	21.83
			16QAM	1	49	1	0	**16.96**	21.70
				1	24	1	49	7.41	15.65
				50	0	100	0	14.77	21.59
10MHz / 20MHz	2665.6	2680.0	QPSK	1	49	1	0	**17.98**	**22.75**
				1	24	1	49	7.47	15.77
				50	0	100	0	15.84	21.83
			16QAM	1	49	1	0	16.92	**21.72**
				1	24	1	49	7.40	15.58
				50	0	100	0	14.65	21.54

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
20MHz / 10MHz	2506.0	2520.4	QPSK	1	99	1	0	17.99	22.66
				100	0	50	0	15.95	21.58
			16QAM	1	99	1	0	**17.00**	22.58
				100	0	50	0	15.00	21.78
20MHz / 10MHz	2588.1	2602.5	QPSK	1	99	1	0	17.72	22.76
				100	0	50	0	16.06	21.84
			16QAM	1	99	1	0	16.72	**22.78**
				100	0	50	0	14.89	21.90
20MHz / 10MHz	2670.1	2684.5	QPSK	1	99	1	0	**18.00**	**22.99**
				100	0	50	0	15.86	22.18
			16QAM	1	99	1	0	16.98	22.76
				100	0	50	0	14.90	22.12

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
15MHz / 15MHz	2503.5	2518.5	QPSK	1	74	1	0	17.95	22.58
				75	0	75	0	16.00	21.47
			16QAM	1	74	1	0	**16.97**	22.41
				75	0	75	0	14.98	21.70
15MHz / 15MHz	2585.5	2600.5	QPSK	1	74	1	0	**17.97**	22.63
				75	0	75	0	15.92	21.55
			16QAM	1	74	1	0	16.90	22.55
				75	0	75	0	14.97	21.75
15MHz / 15MHz	2667.5	2682.5	QPSK	1	74	1	0	17.69	**22.73**
				75	0	75	0	16.03	21.81
			16QAM	1	74	1	0	16.69	**22.75**
				75	0	75	0	14.86	21.87

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average	Peak (dBm)
				Size	Offset	Size	Offset	(dBm)	
15MHz / 20MHz	2503.8	2520.9	QPSK	1	74	1	0	17.94	**22.70**
				1	36	1	49	7.44	15.76
				75	0	100	0	15.87	21.89
			16QAM	1	74	1	0	**16.98**	21.66
				1	36	1	49	7.40	15.65
				75	0	100	0	14.75	21.62
15MHz / 20MHz	2583.3	2600.4	QPSK	1	74	1	0	17.97	22.68
				1	36	1	49	7.47	15.73
				75	0	100	0	15.89	21.85
			16QAM	1	74	1	0	16.98	**21.72**
				1	36	1	49	7.43	15.67
				75	0	100	0	14.79	21.61
15MHz / 20MHz	2662.9	2680.0	QPSK	1	74	1	0	**18.00**	22.67
				1	36	1	49	7.46	15.76
				75	0	100	0	15.80	21.82
			16QAM	1	74	1	0	16.91	21.68
				1	36	1	49	7.39	15.57
				75	0	100	0	14.69	21.53

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

BW	Freq	Freq	Mode	PCC RB	PCC RB	SCC1 RB	SCC1 RB	Average (dBm)	Peak (dBm)
				Size	Offset	Size	Offset		
20MHz / 15MHz	2506.0	2523.1	QPSK	1	99	1	0	17.92	22.55
				100	0	75	0	15.97	21.44
			16QAM	1	99	1	0	16.94	22.38
				100	0	75	0	14.95	21.67
20MHz / 15MHz	2585.6	2602.7	QPSK	1	99	1	0	17.94	22.60
				100	0	75	0	15.89	21.52
			16QAM	1	99	1	0	**17.00**	22.52
				100	0	75	0	14.94	21.72
20MHz / 15MHz	2665.1	2682.2	QPSK	1	99	1	0	**18.00**	**22.70**
				100	0	75	0	16.00	21.78
			16QAM	1	99	1	0	16.86	**22.63**
				100	0	75	0	14.83	21.84

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

BW	Freq	Freq	Mode	PCC RB Size	PCC RB Offset	SCC1 RB Size	SCC1 RB Offset	Average (dBm)	Peak (dBm)
20MHz/ 20MHz	2506.0	2525.8	QPSK	1	0	1	0	7.31	15.43
				1	0	1	99	7.50	15.50
				1	0	100	0	14.04	20.80
				1	49	1	49	7.50	15.60
				1	99	1	99	7.43	15.52
				1	99	100	0	15.89	21.98
				100	0	1	99	13.90	20.75
				100	0	100	0	15.48	21.76
				1	99	1	0	17.77	23.14
				100	0	1	0	15.34	21.63
			16QAM	1	0	1	0	7.39	14.87
				1	0	1	99	7.59	14.63
				1	0	100	0	14.03	21.61
				1	49	1	49	7.45	15.08
				1	99	1	99	7.40	14.77
				1	99	100	0	14.53	21.49
				100	0	1	99	13.91	21.17
				100	0	100	0	14.49	21.75
				1	99	1	0	16.94	22.97
				100	0	1	0	14.47	21.93
20MHz/ 20MHz	2583.1	2602.9	QPSK	1	0	1	0	7.23	15.99
				1	0	1	99	7.45	15.92
				1	0	100	0	14.06	21.09
				1	49	1	49	7.50	16.12
				1	99	1	99	7.43	16.09
				1	99	100	0	15.56	21.76
				100	0	1	99	13.92	20.74
				100	0	100	0	15.64	22.09
				1	99	1	0	17.82	**23.36**
				100	0	1	0	15.44	21.96
			16QAM	1	0	1	0	7.30	15.33
				1	0	1	99	7.34	15.09
				1	0	100	0	14.06	21.66
				1	49	1	49	7.46	15.08
				1	99	1	99	7.43	14.86
				1	99	100	0	14.66	21.79
				100	0	1	99	14.01	21.09
				100	0	100	0	14.72	21.86
				1	99	1	0	**17.00**	23.06
				100	0	1	0	14.54	21.84
20MHz/ 20MHz	2660.2	2680.0	QPSK	1	0	1	0	7.41	14.84
				1	0	1	99	7.36	14.93
				1	0	100	0	14.44	21.78
				1	49	1	49	7.46	15.33
				1	99	1	99	7.34	15.20
				1	99	100	0	15.61	22.62
				100	0	1	99	14.62	21.13
				100	0	100	0	16.03	22.62
				1	99	1	0	**17.85**	17.52
				100	0	1	0	16.26	22.70
			16QAM	1	0	1	0	7.34	15.11
				1	0	1	99	7.36	15.02
				1	0	100	0	14.47	21.57
				1	49	1	49	7.45	15.25
				1	99	1	99	7.37	15.14
				1	99	100	0	14.68	22.11
				100	0	1	99	14.38	22.03
				100	0	100	0	15.02	22.42
				1	99	1	0	16.90	**23.66**
				100	0	1	0	15.16	22.48

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

MODES TESTED

- LTE Band 7
- LTE Band 41

RESULTS

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	27.8965	29.989
	20MHz + 10MHz BAND 16QAM	100/0 + 50/0	2535	27.9077	29.937
	10.0 MHz BAND QPSK	50/0	2525.6	9.0114	9.949
	10.0 MHz BAND 16QAM	50/0	2525.6	9.0357	9.987
	10.0 MHz BAND QPSK	1/0	2525.6	0.2316806	0.392732
	10.0 MHz BAND 16QAM	1/0	2525.6	0.2424277	0.402531
	20MHz + 20MHz BAND QPSK	100/0 + 1000/0	2535	**37.5003**	**40.014**
	20MHz + 20MHz BAND 16QAM	100/0 + 100/0	2535	37.4168	39.84
	20.0 MHz BAND QPSK	100/0	2525.1	17.8689	19.43
	20.0 MHz BAND 16QAM	100/0	2525.1	17.8634	19.423
	20.0 MHz BAND QPSK	1/0	2525.1	0.2523998	0.428084
	20.0 MHz BAND 16QAM	1/0	2525.1	0.253536	0.415488

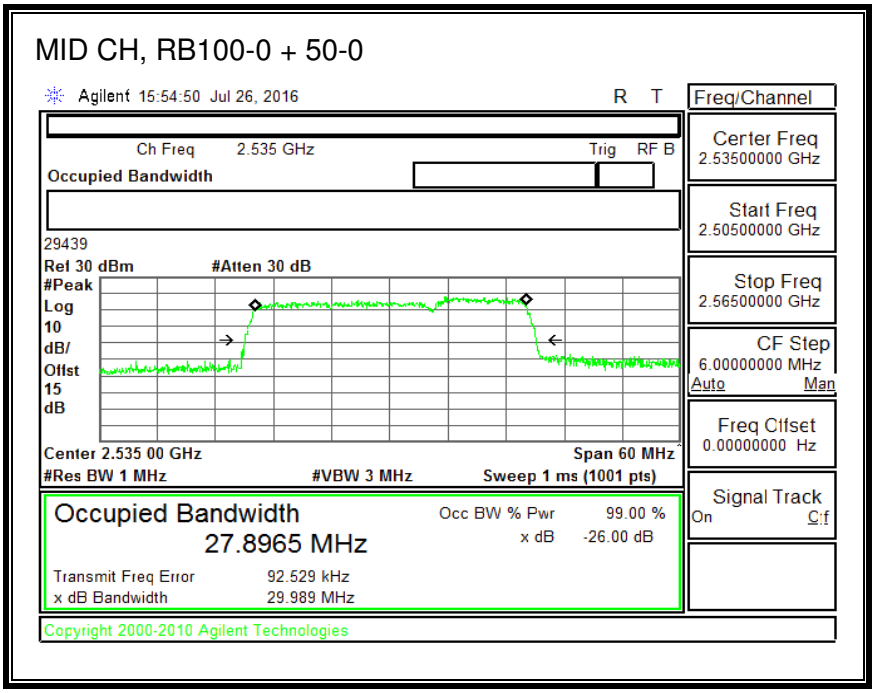
BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 7	10MHz + 20MHz BAND QPSK	50/0 + 100/0	2535	28.0319	30.209
	10MHz + 20MHz BAND 16QAM	50/0 + 100/0	2535	28.0061	30.618
	15MHz + 15MHz BAND QPSK	75/0 + 75/0	2535	28.3634	30.538
	15MHz + 15MHz BAND 16QAM	75/0 + 75/0	2535	28.3784	30.588
	15MHz + 20MHz BAND QPSK	75/0 + 100/0	2535	32.5423	34.888
	15MHz + 20MHz BAND 16QAM	75/0 + 100/0	2535	32.5849	34.881
	20MHz + 15MHz BAND QPSK	100/0 + 75/0	2535	**32.7583**	**34.958**
	20MHz + 15MHz BAND 16QAM	100/0 + 75/0	2535	32.7059	34.953

BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 41	20MHz + 5MHz BAND QPSK	100/0 + 25/0	2593	23.0165	24.918
	20MHz + 5MHz BAND 16QAM	100/0 + 25/0	2593	23.2153	24.86
	5.0 MHz BAND QPSK	25/0	2583.8	4.5872	4.997
	5.0 MHz BAND 16QAM	25/0	2583.8	4.5798	5.000
	5.0 MHz BAND QPSK	1/0	2583.8	0.2239061	0.356379
	5.0 MHz BAND 16QAM	1/0	2583.8	0.2297893	0.372233
	20MHz + 20MHz BAND QPSK	100/0 + 100/0	2593	**37.538**	**40.265**
	20MHz + 20MHz BAND 16QAM	100/0 + 100/0	2593	37.4902	39.847
	20.0 MHz BAND QPSK	100/0	2583.1	17.8102	19.316
	20.0 MHz BAND 16QAM	100/0	2583.1	17.7916	19.223
	20.0 MHz BAND QPSK	1/0	2583.1	0.300439	0.402531
	20.0 MHz BAND 16QAM	1/0	2583.1	0.2752113	0.407082

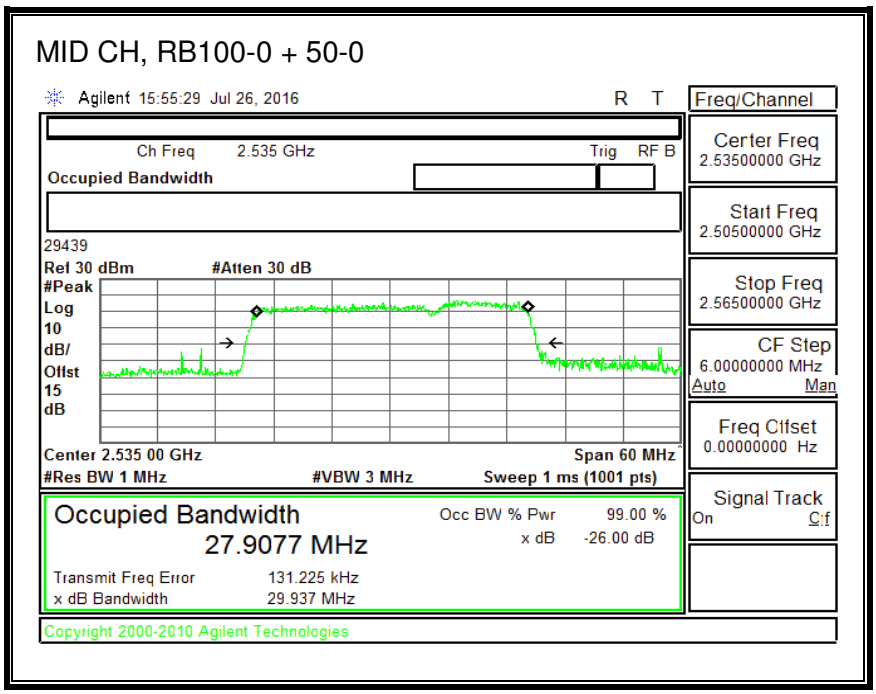
BAND	MODE	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	- 26dB BW (MHz)
LTE BAND 41	5MHz + 20MHz BAND QPSK	25/0 + 100/0	2593	23.2632	24.956
	5MHz + 20MHz BAND 16QAM	25/0 + 100/0	2593	23.1902	24.799
	10MHz + 20MHz BAND QPSK	50/0 + 100/0	2593	27.8862	29.945
	10MHz + 20MHz BAND 16QAM	50/0 + 100/0	2593	28.0952	29.955
	20MHz + 10MHz BAND QPSK	100/0 + 50/0	2593	27.9438	29.819
	20MHz + 10MHz BAND 16QAM	100/0 + 50/0	2593	27.988	29.946
	15MHz + 15MHz BAND QPSK	75/0 + 75/0	2593	28.6698	30.570
	15MHz + 15MHz BAND 16QAM	75/0 + 75/0	2593	28.6755	30.568
	15MHz + 20MHz BAND QPSK	75/0 + 100/0	2593	**32.6386**	**34.932**
	15MHz + 20MHz BAND 16QAM	75/0 + 100/0	2593	32.6246	34.637
	20MHz + 15MHz BAND QPSK	100/0 + 75/0	2593	32.5224	34.880
	20MHz + 15MHz BAND 16QAM	100/0 + 75/0	2593	32.6378	34.878

8.1.1. LTE BAND 7

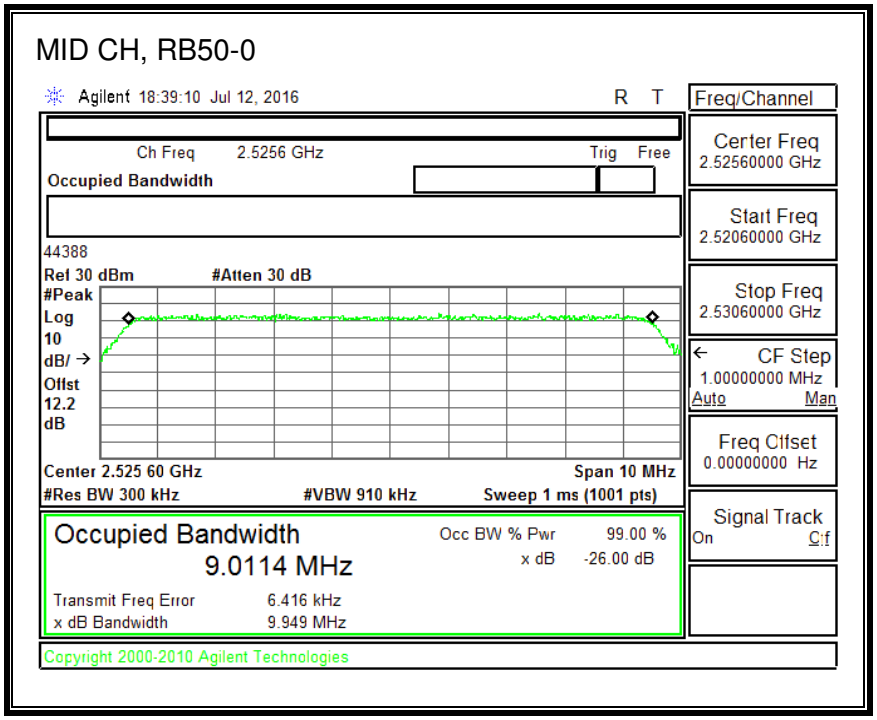
QPSK, (20.0MHz + 10.0MHz BAND WIDTH)



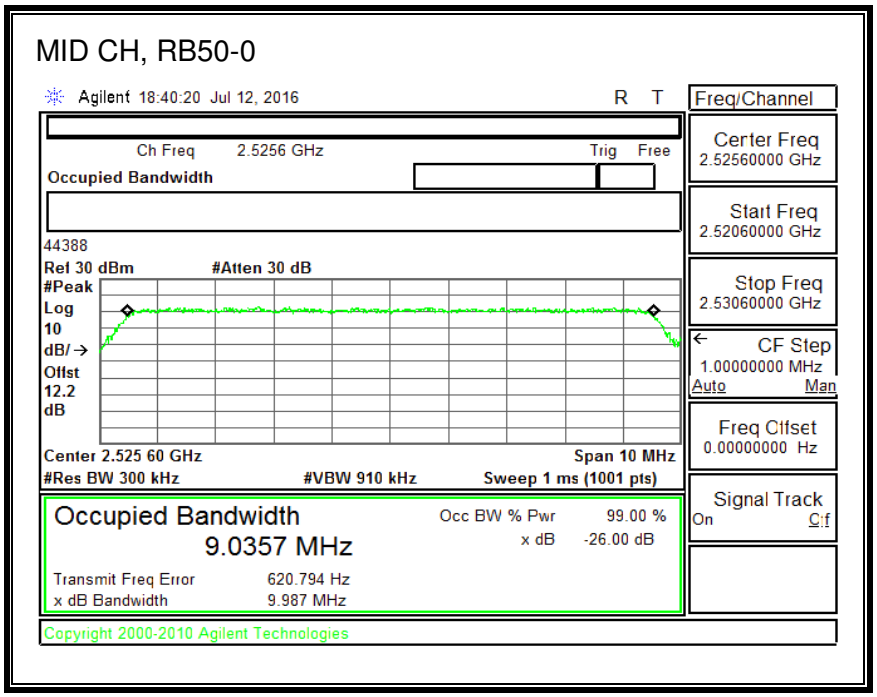
16QAM, (20.0MHz + 10.0MHz BAND WIDTH)



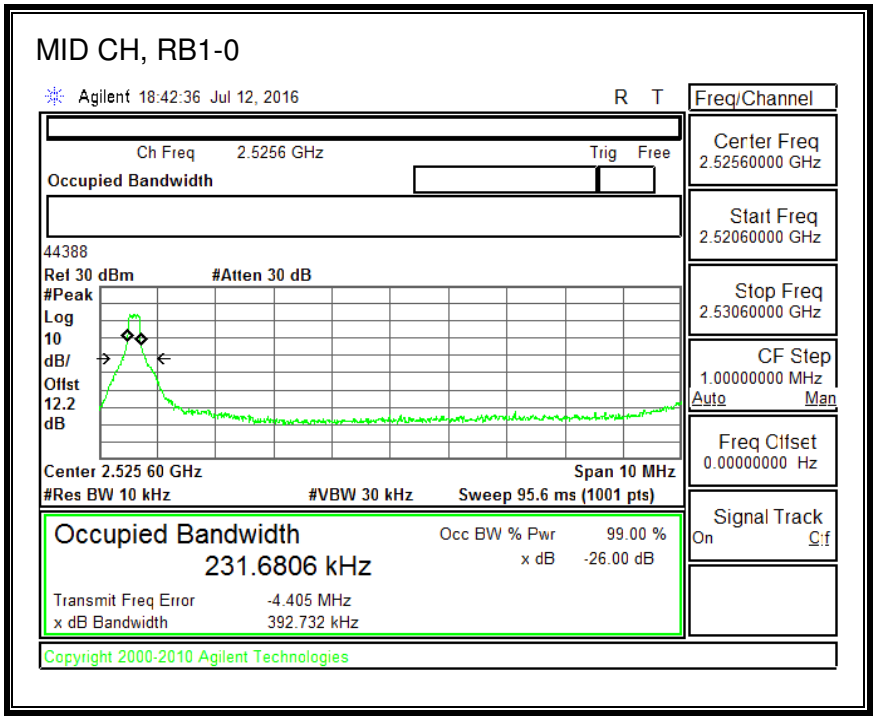
QPSK, (10.0MHz BAND WIDTH)



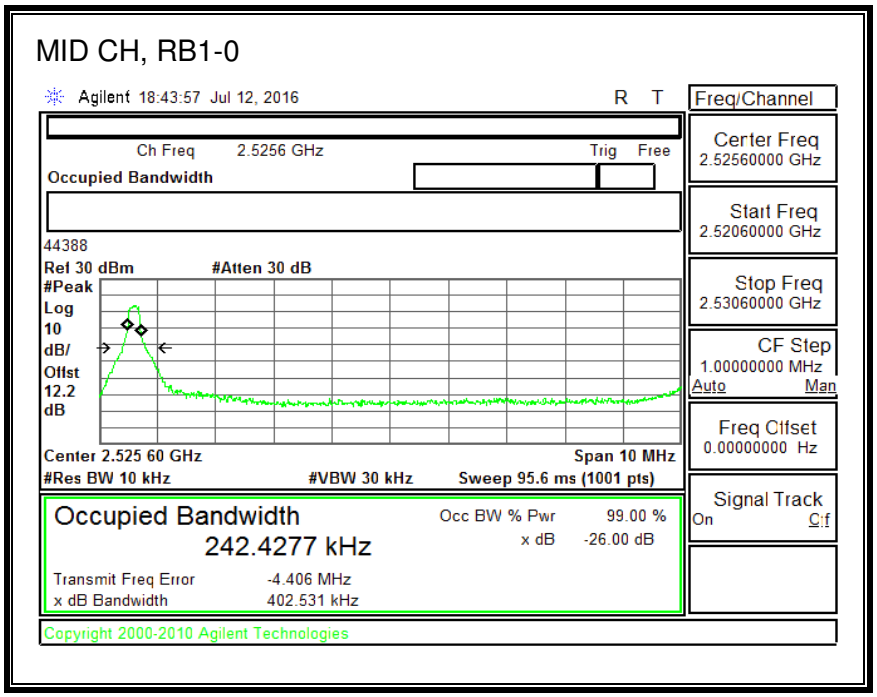
16QAM, (10.0MHz BAND WIDTH)



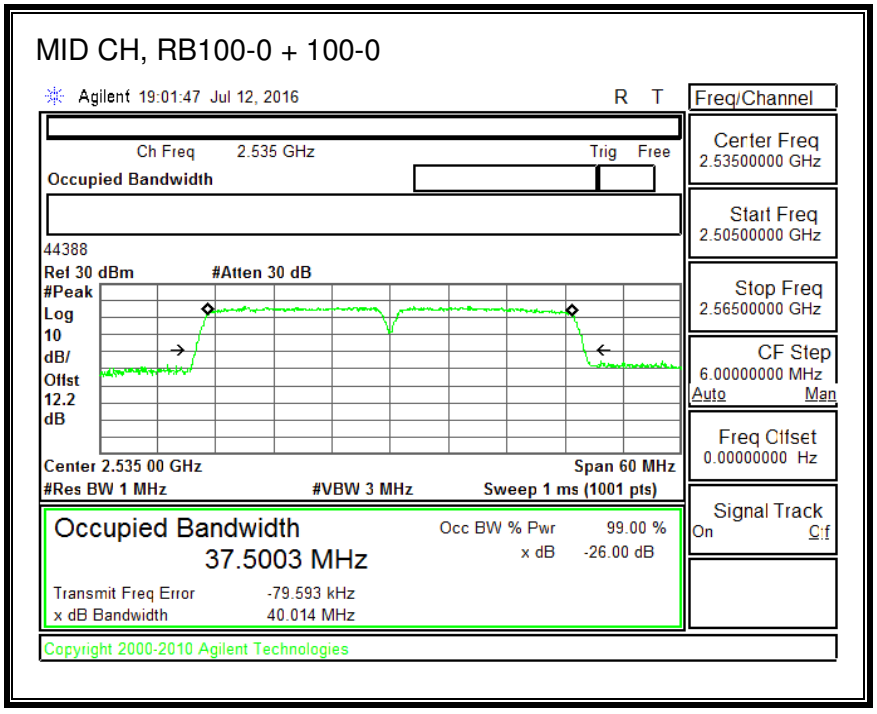
QPSK, (10.0MHz BAND WIDTH)



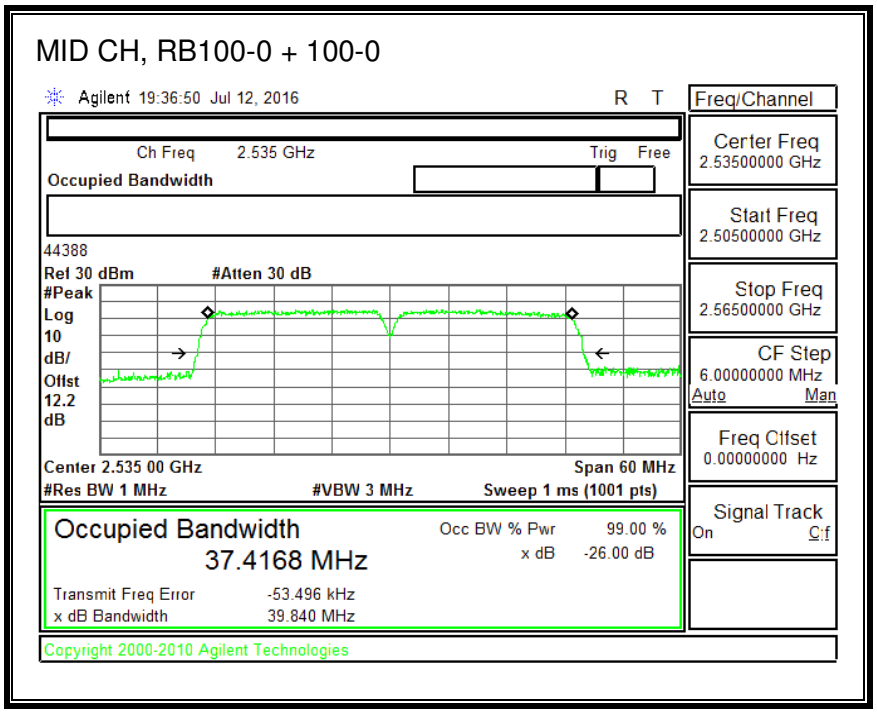
16QAM, (10.0MHz BAND WIDTH)



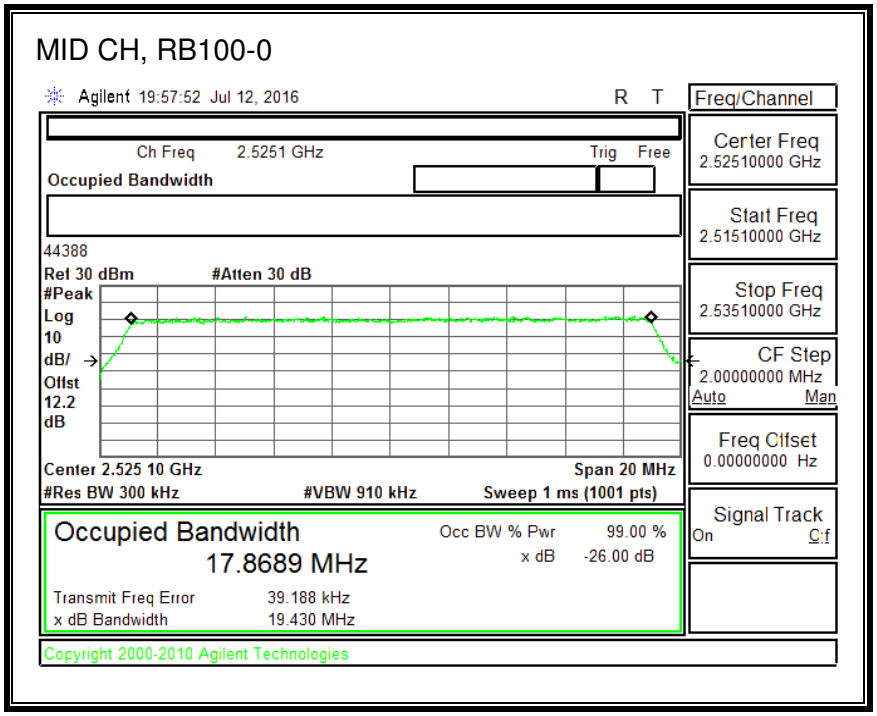
QPSK, (20.0MHz + 20.0MHz BAND WIDTH)



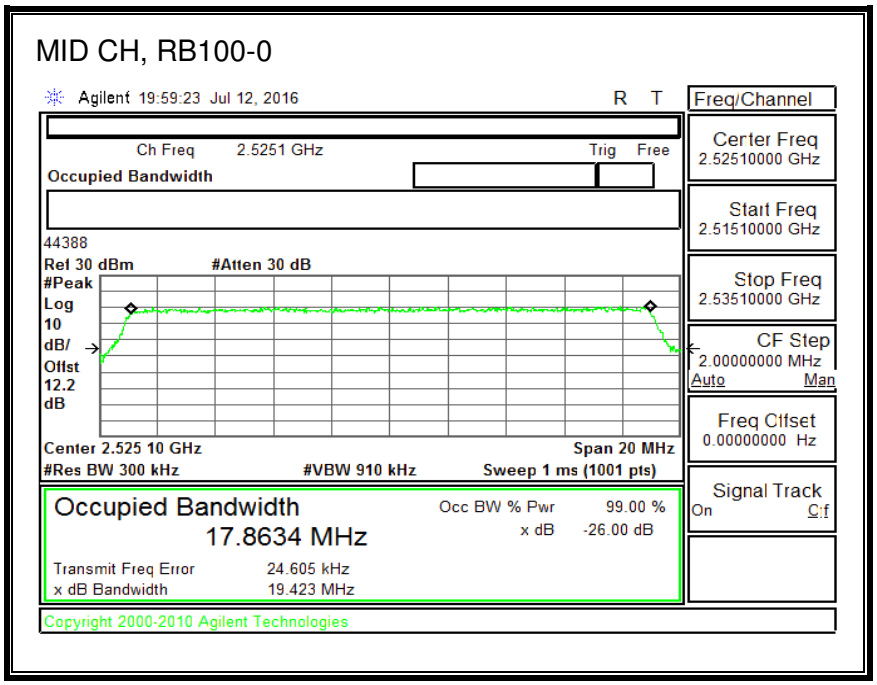
16QAM, (20.0MHz + 20.0MHz BAND WIDTH)



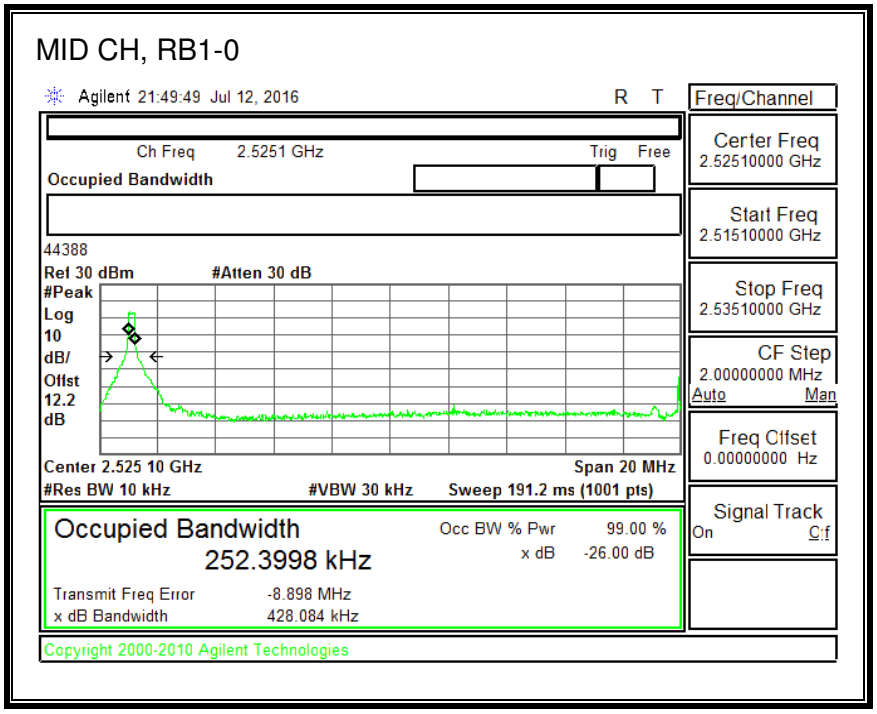
QPSK, (20.0MHz BAND WIDTH)



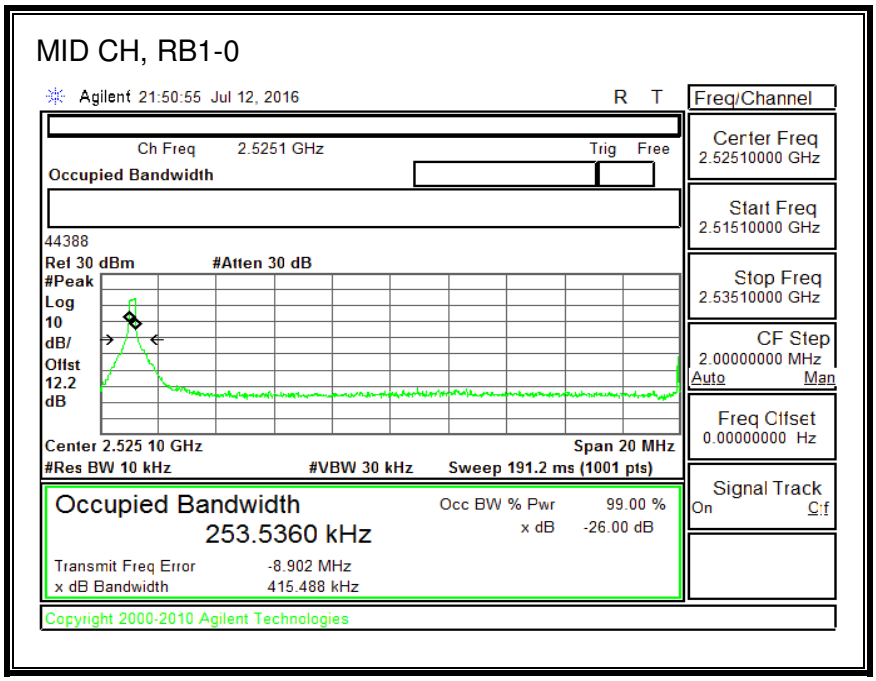
16QAM, (20.0MHz BAND WIDTH)



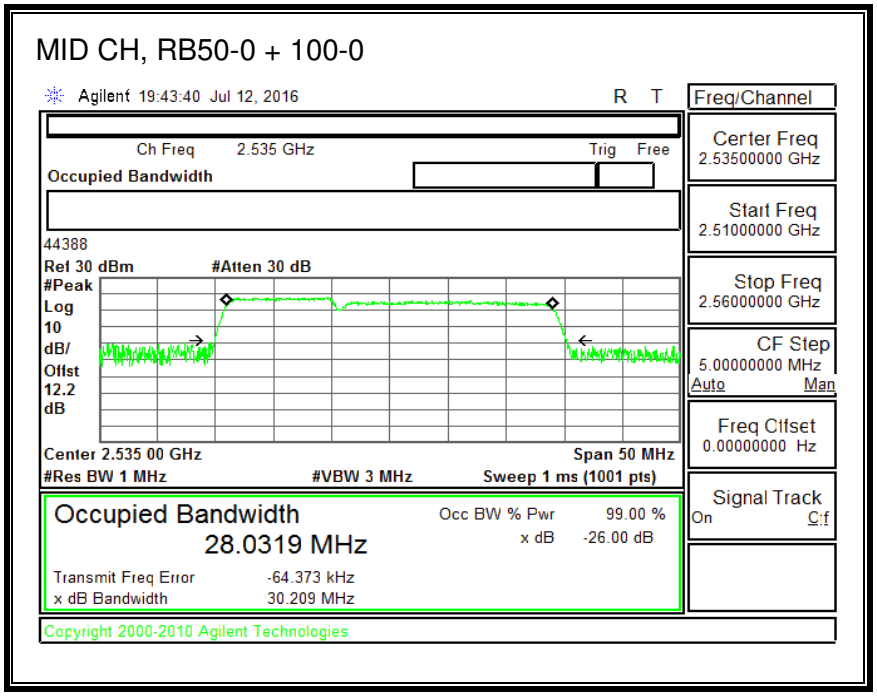
QPSK, (20.0MHz BAND WIDTH)



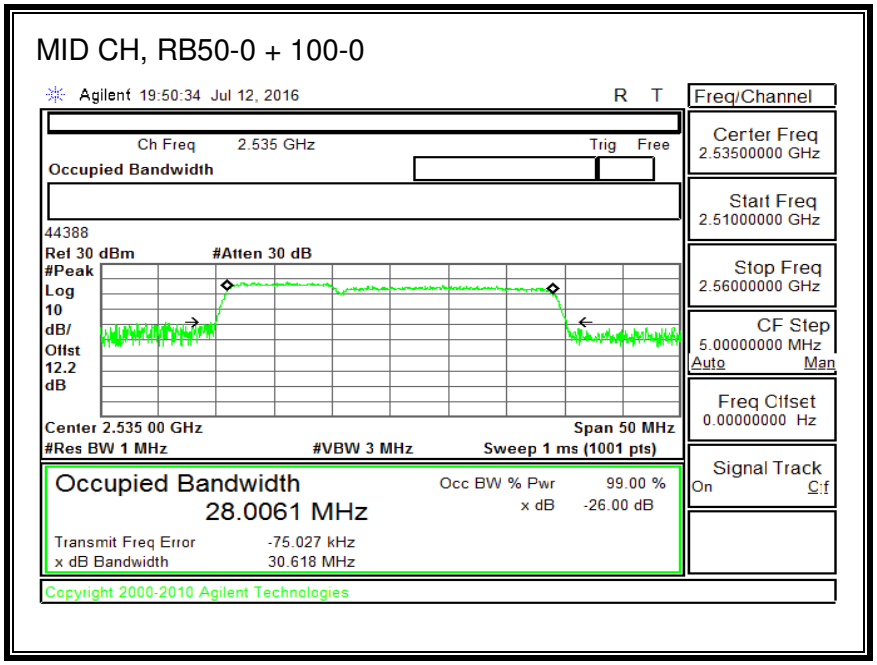
16QAM, (20.0MHz BAND WIDTH)



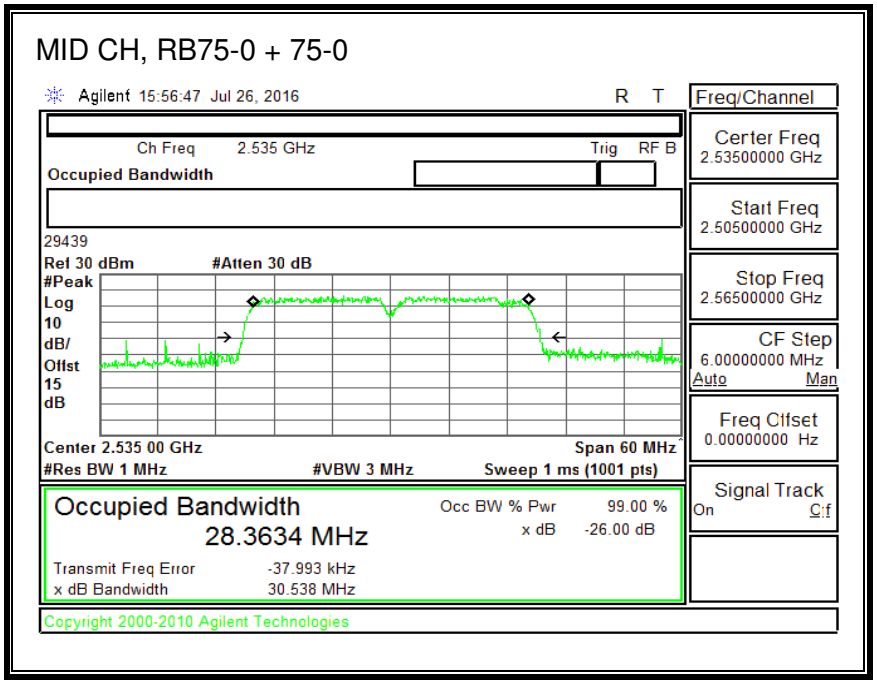
QPSK, (10.0MHz + 20.0MHz BAND WIDTH)



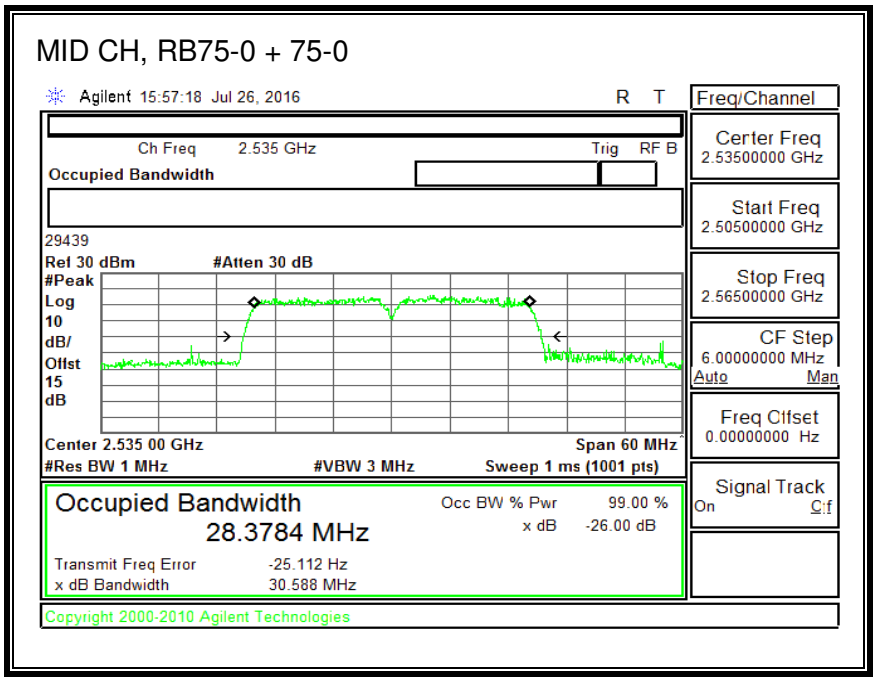
16QAM, (10.0MHz + 20.0MHz BAND WIDTH)



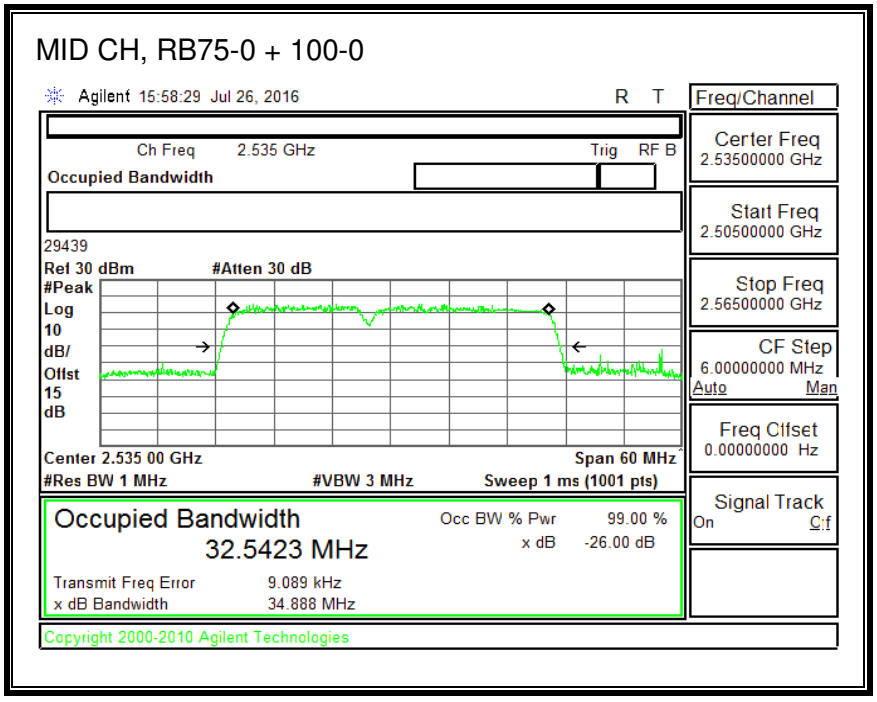
QPSK, (15.0MHz + 15.0MHz BAND WIDTH)



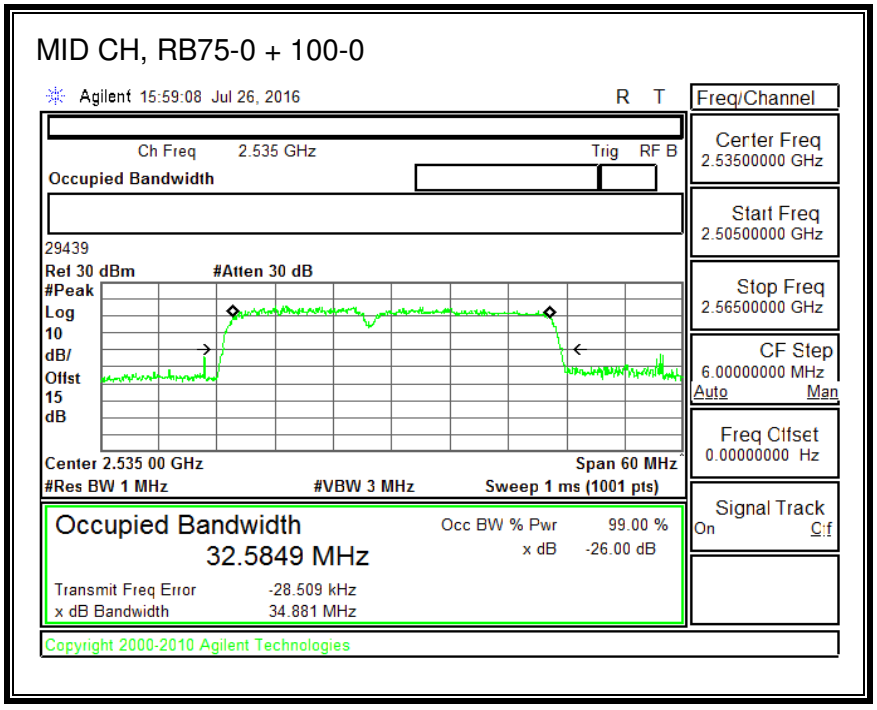
16QAM, (15.0MHz + 15.0MHz BAND WIDTH)



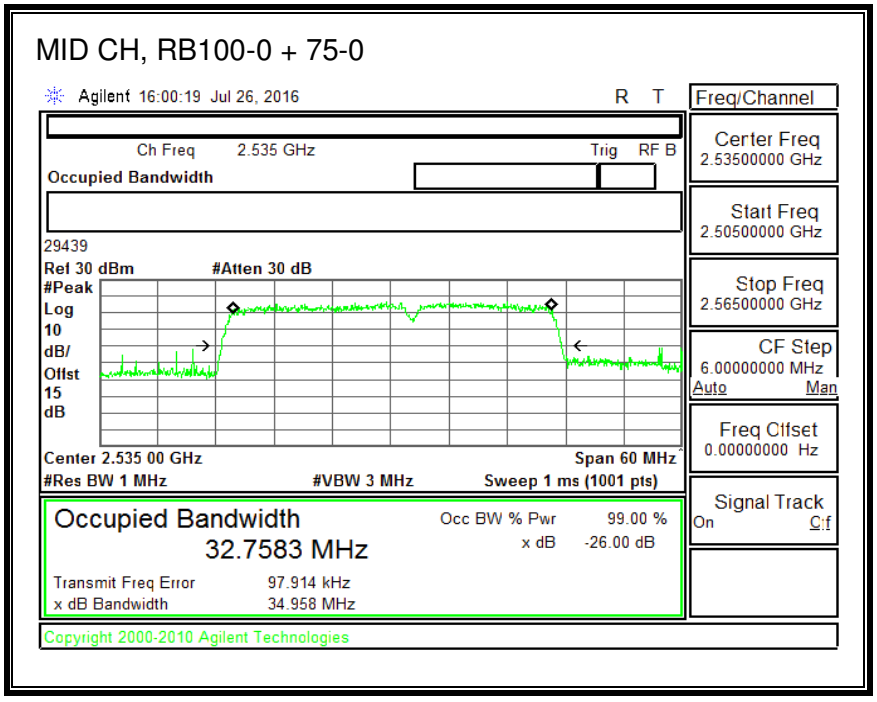
QPSK, (15.0MHz + 20.0MHz BAND WIDTH)



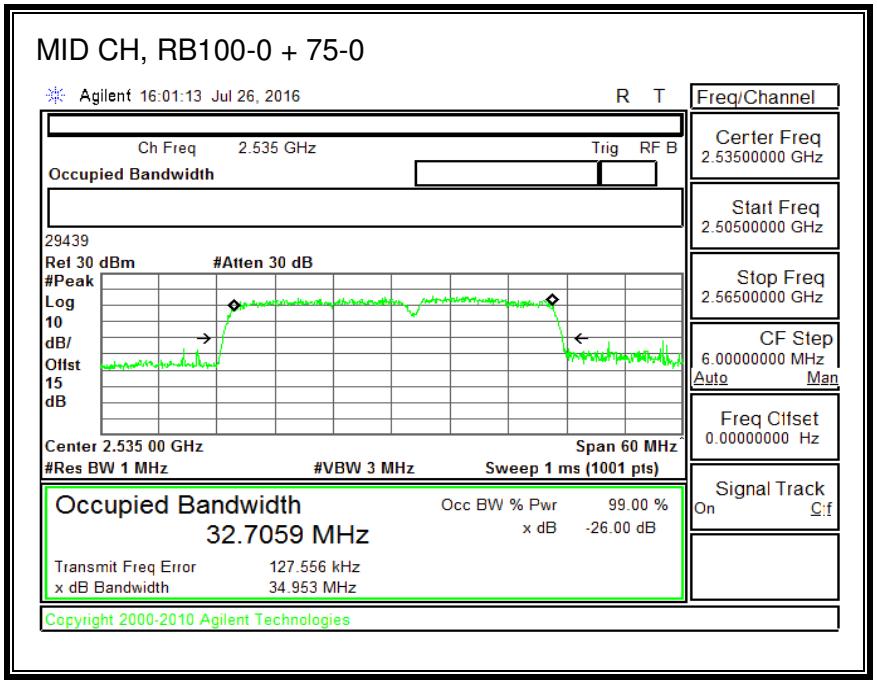
16QAM, (15.0MHz + 20.0MHz BAND WIDTH)



QPSK, (20.0MHz + 15.0MHz BAND WIDTH)

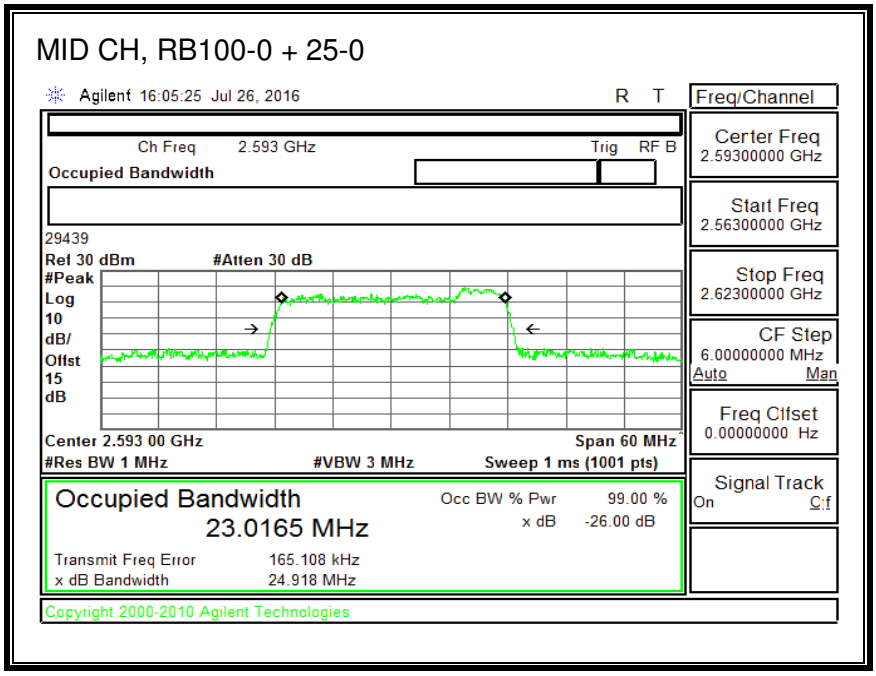


16QAM, (20.0MHz + 15.0MHz BAND WIDTH)

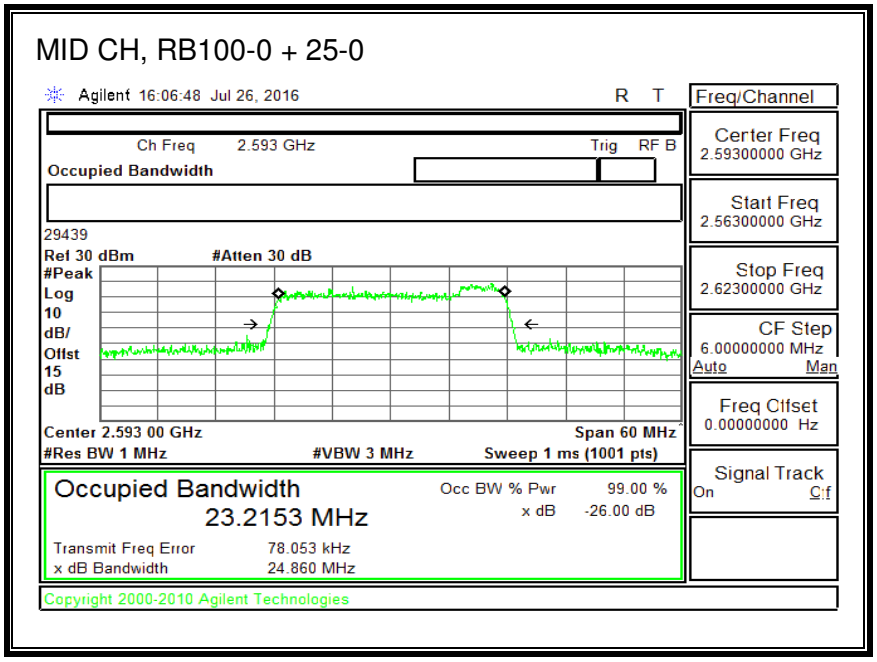


8.1.2. LTE BAND 41

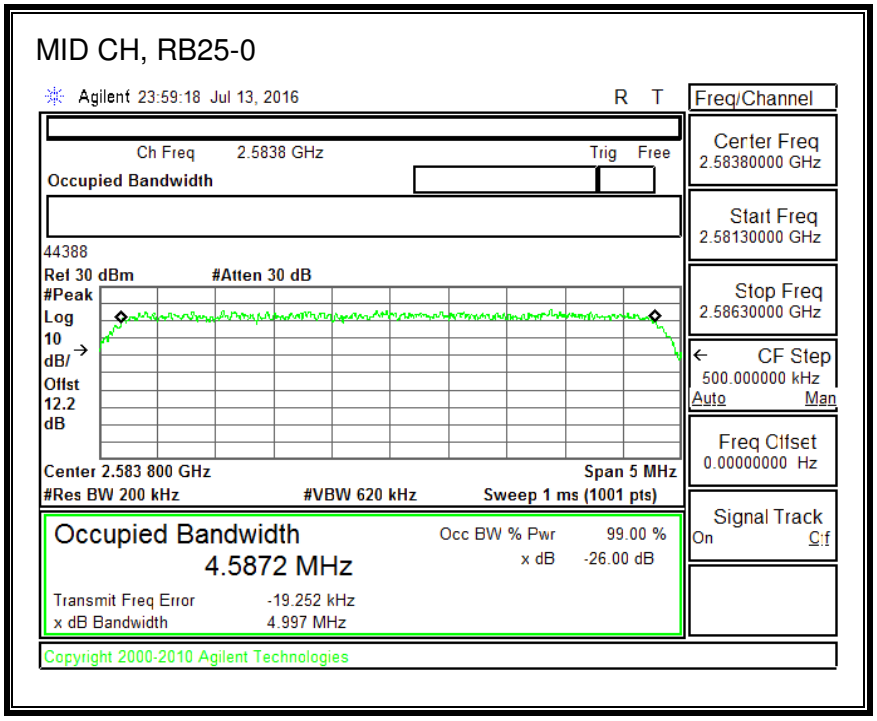
QPSK, (20.0MHz + 5.0MHz BAND WIDTH)



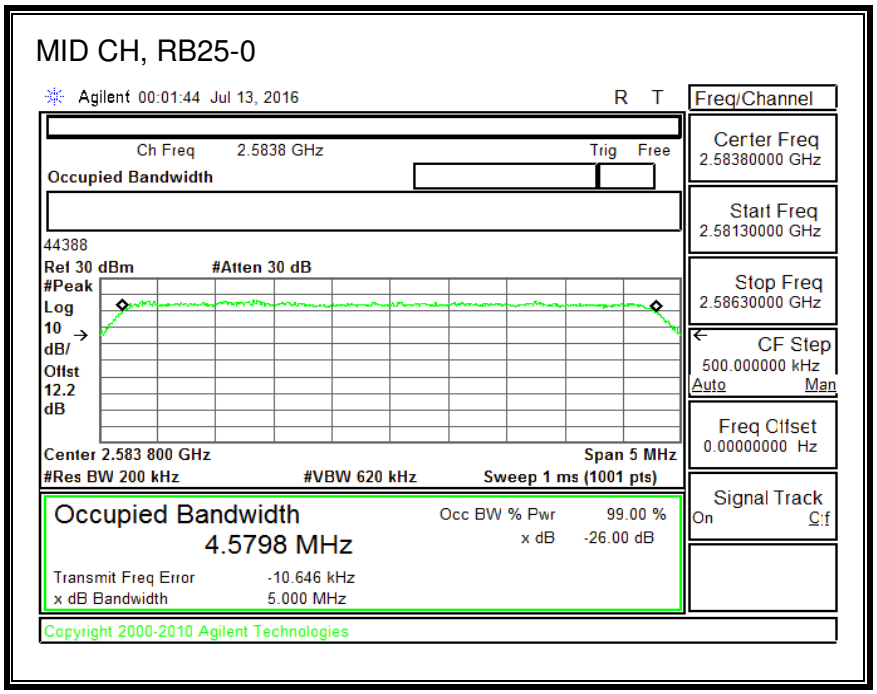
16QAM, (20.0MHz + 5.0MHz BAND WIDTH)



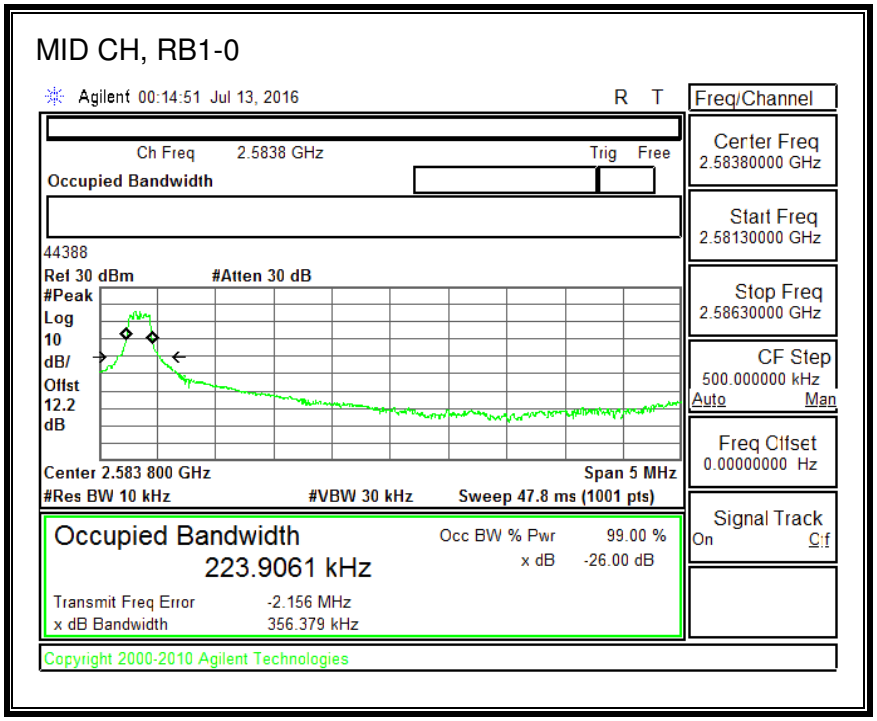
QPSK, (5.0MHz BAND WIDTH)



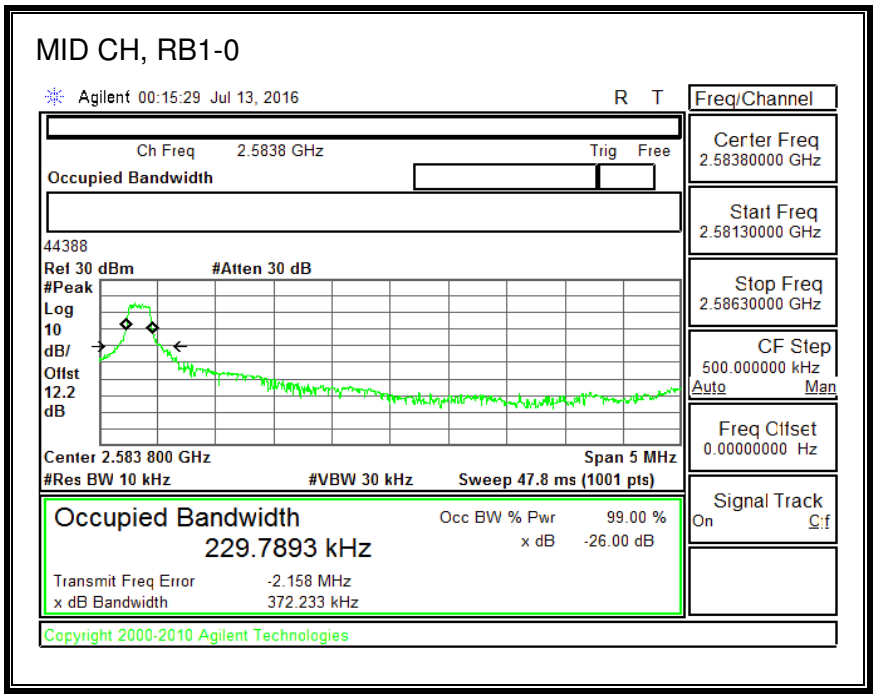
16QAM, (5.0MHz BAND WIDTH)



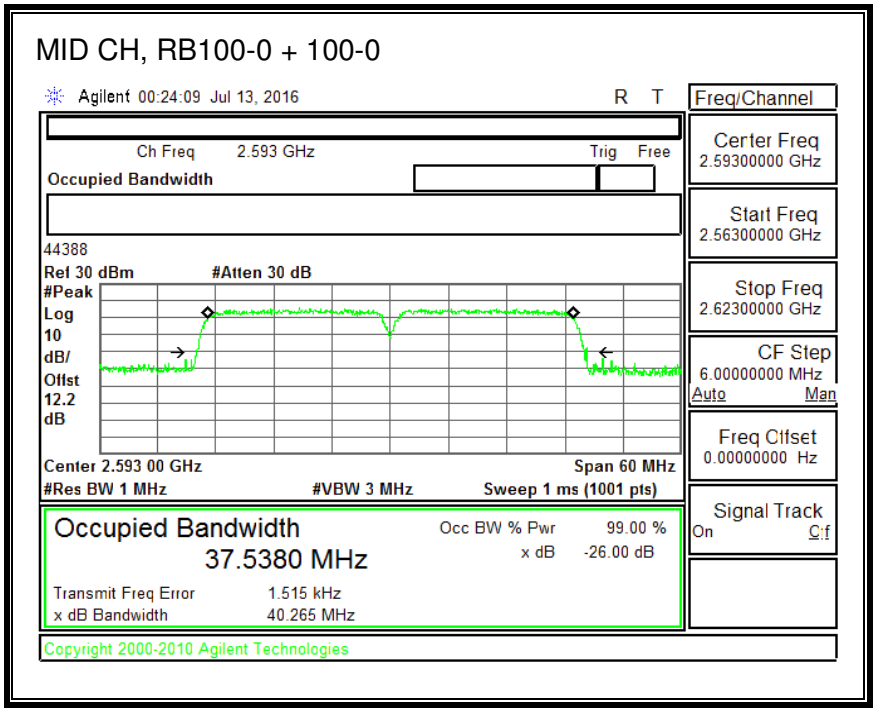
QPSK, (5.0MHz BAND WIDTH)



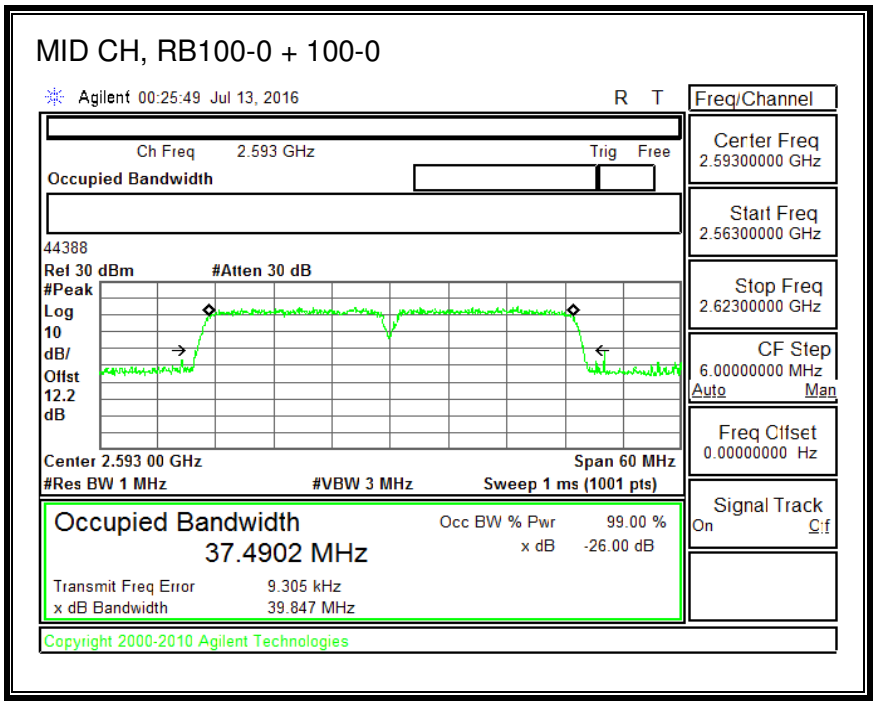
16QAM, (5.0MHz BAND WIDTH)



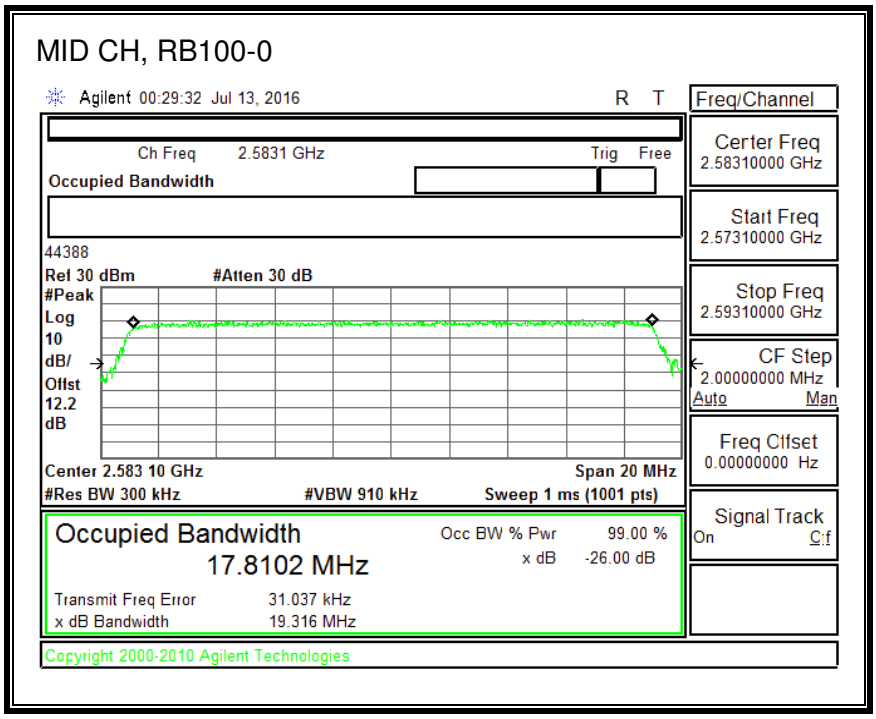
QPSK, (20.0MHz + 20.0MHz BAND WIDTH)



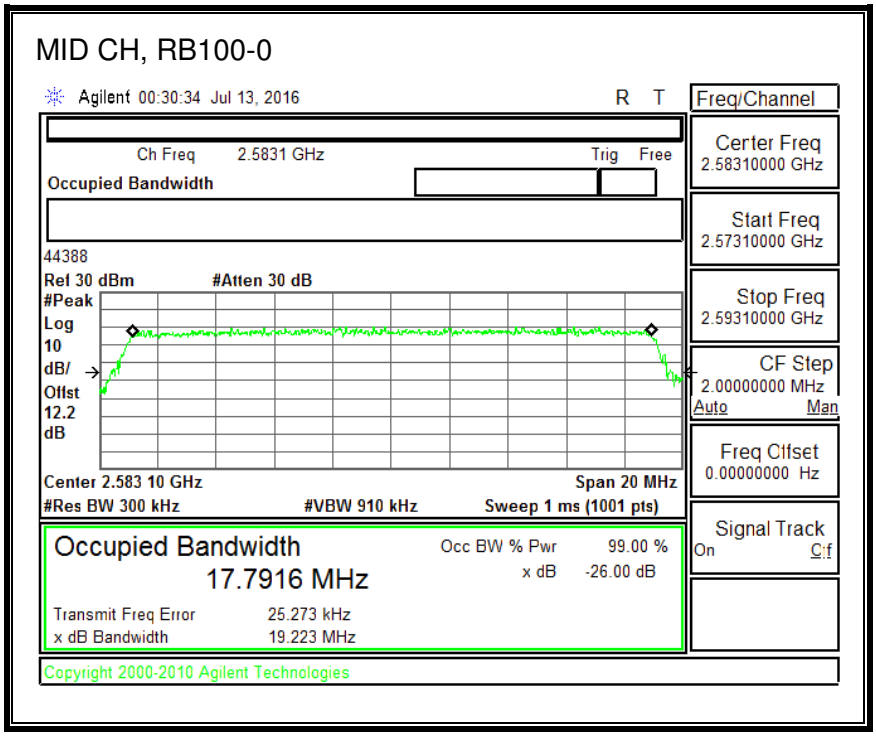
16QAM, (20.0MHz + 20.0MHz BAND WIDTH)



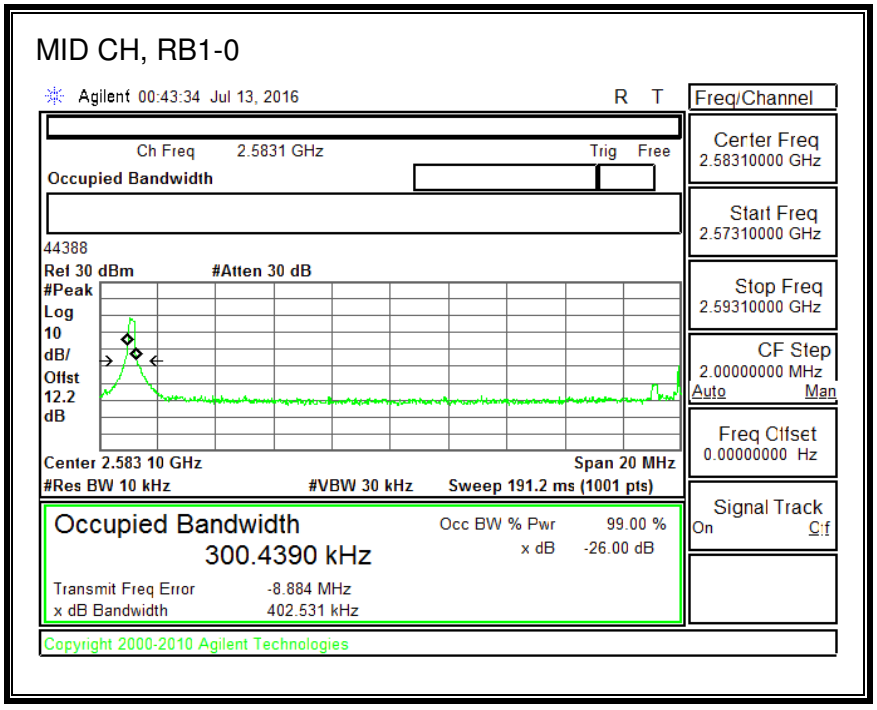
QPSK, (20.0MHz BAND WIDTH)



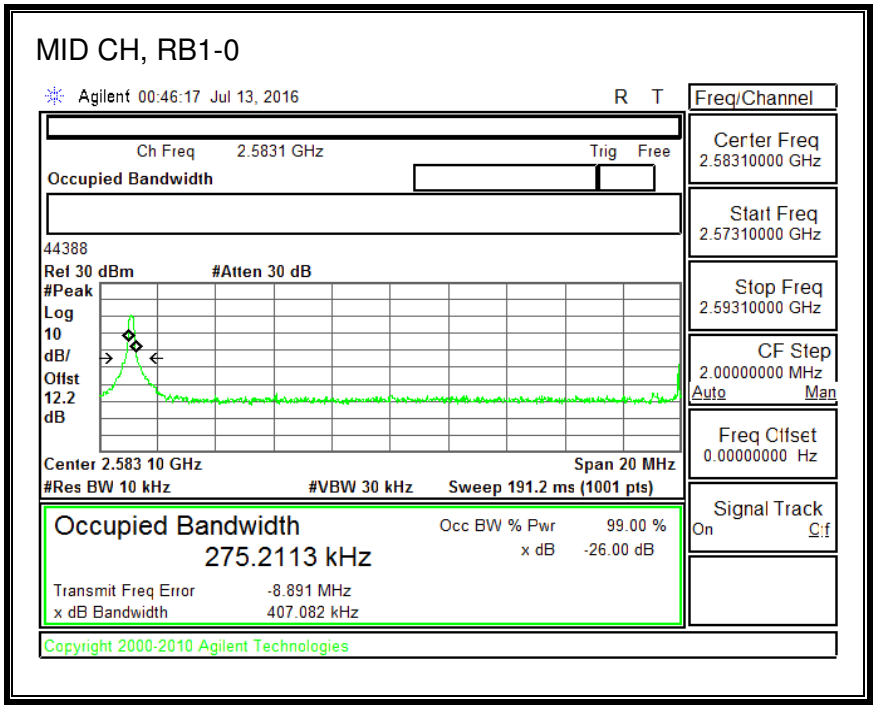
16QAM, (20.0MHz BAND WIDTH)



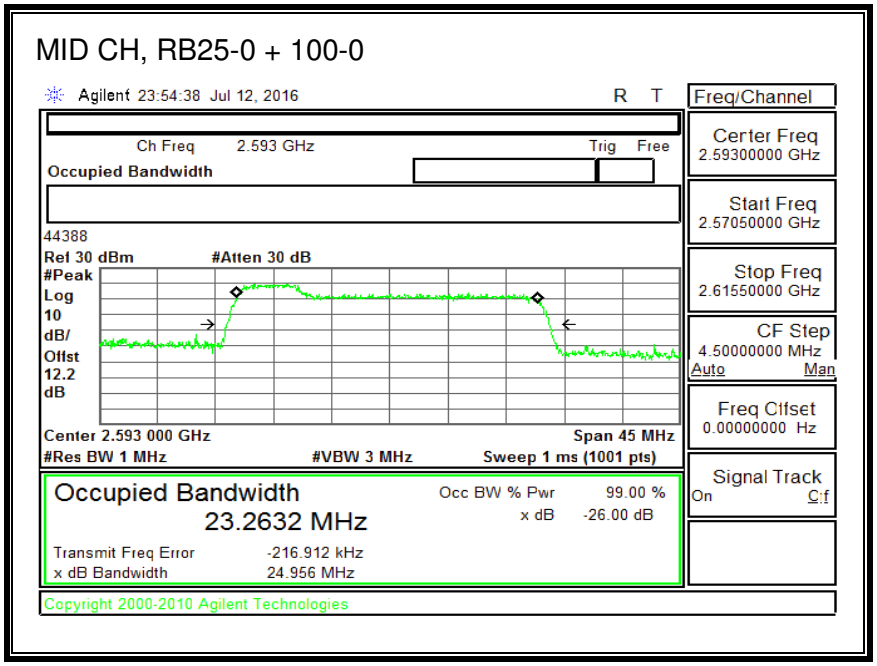
QPSK, (20.0MHz BAND WIDTH)



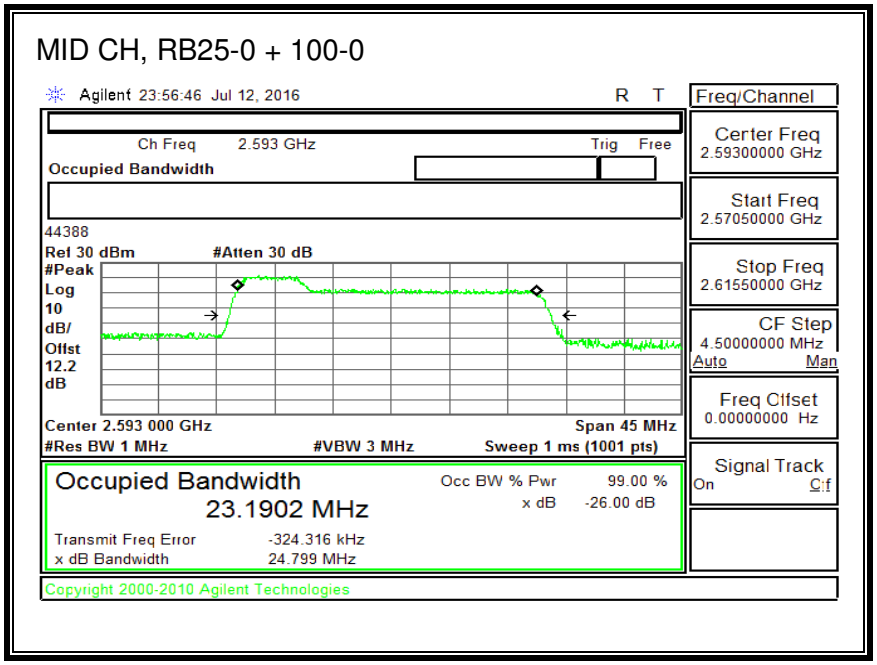
16QAM, (20.0MHz BAND WIDTH)



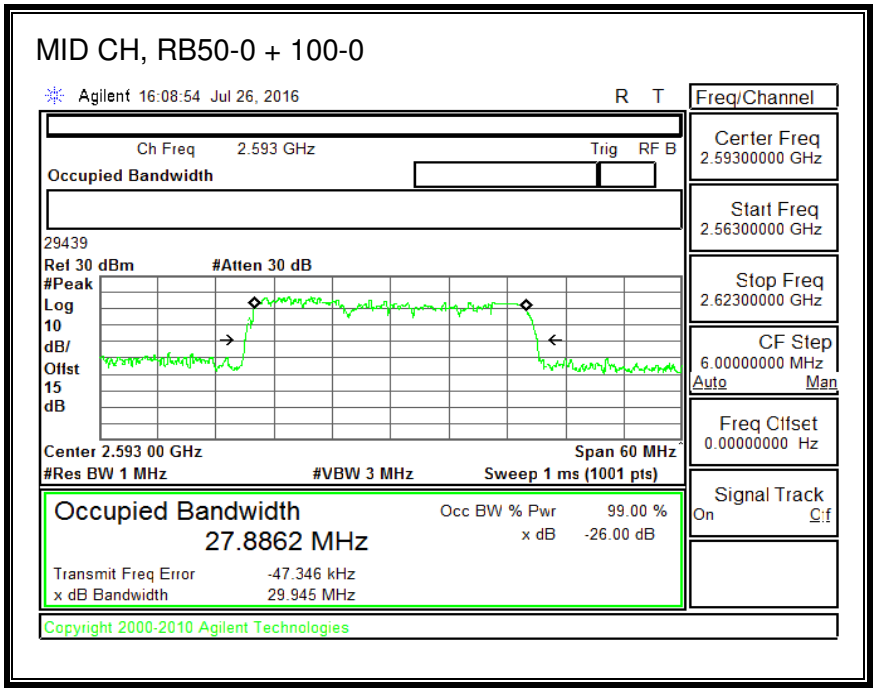
QPSK, (5.0MHz + 20.0MHz BAND WIDTH)



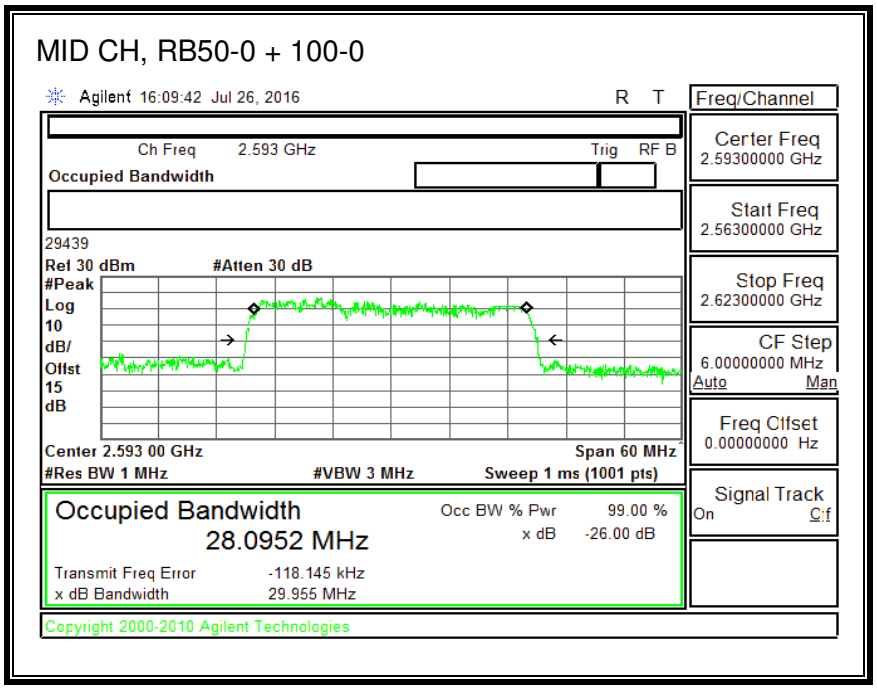
16QAM, (5.0MHz + 20.0MHz BAND WIDTH)



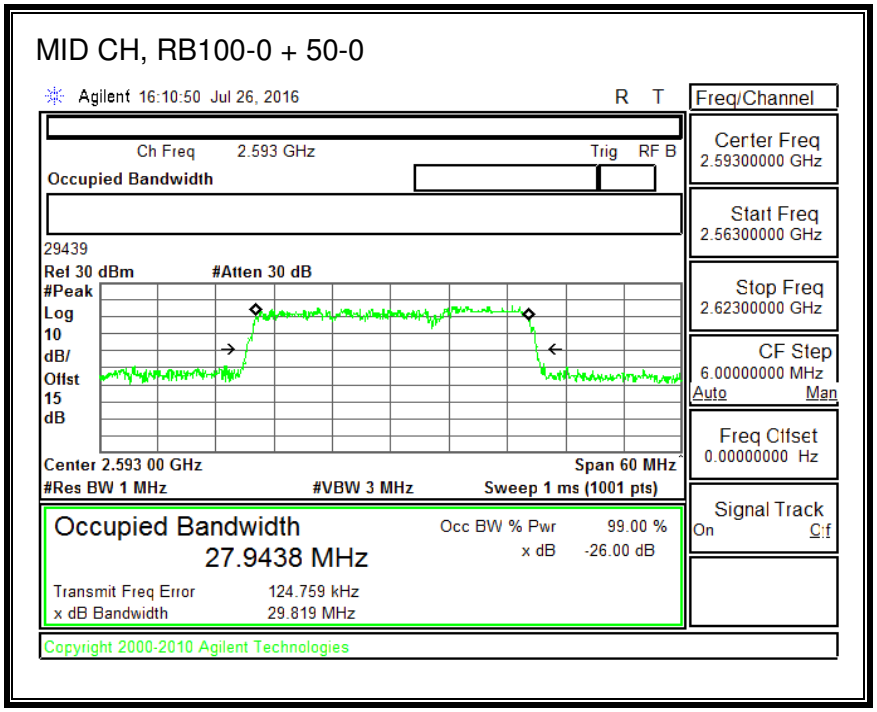
QPSK, (10.0MHz + 20.0MHz BAND WIDTH)



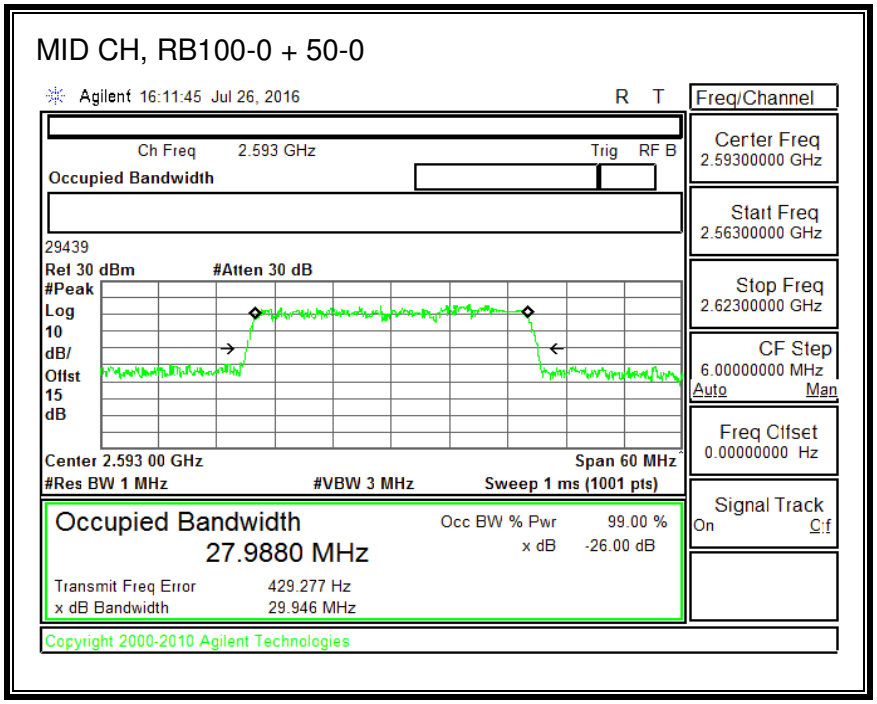
16QAM, (10.0MHz + 20.0MHz BAND WIDTH)



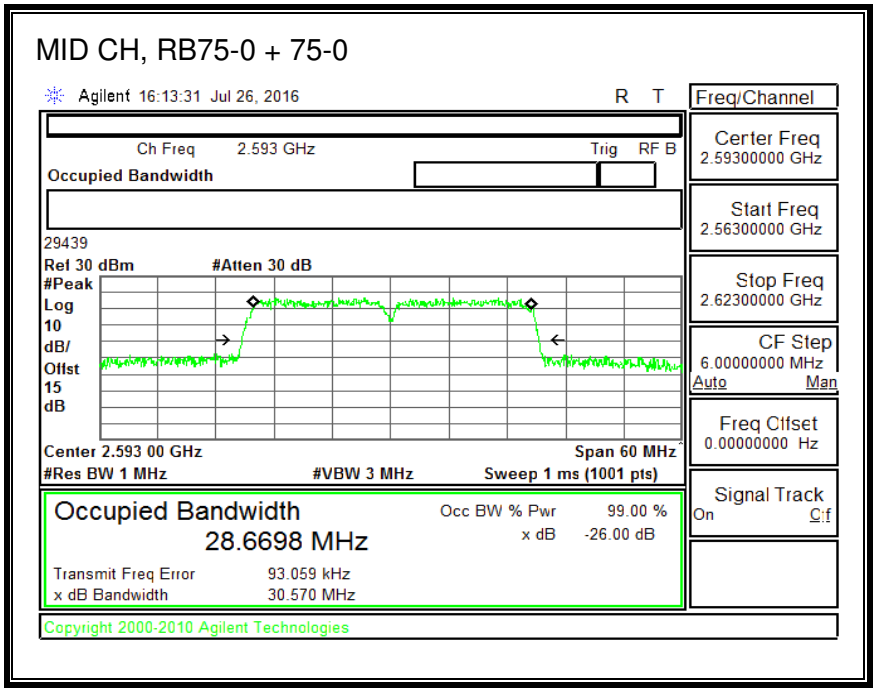
QPSK, (20.0MHz + 10.0MHz BAND WIDTH)



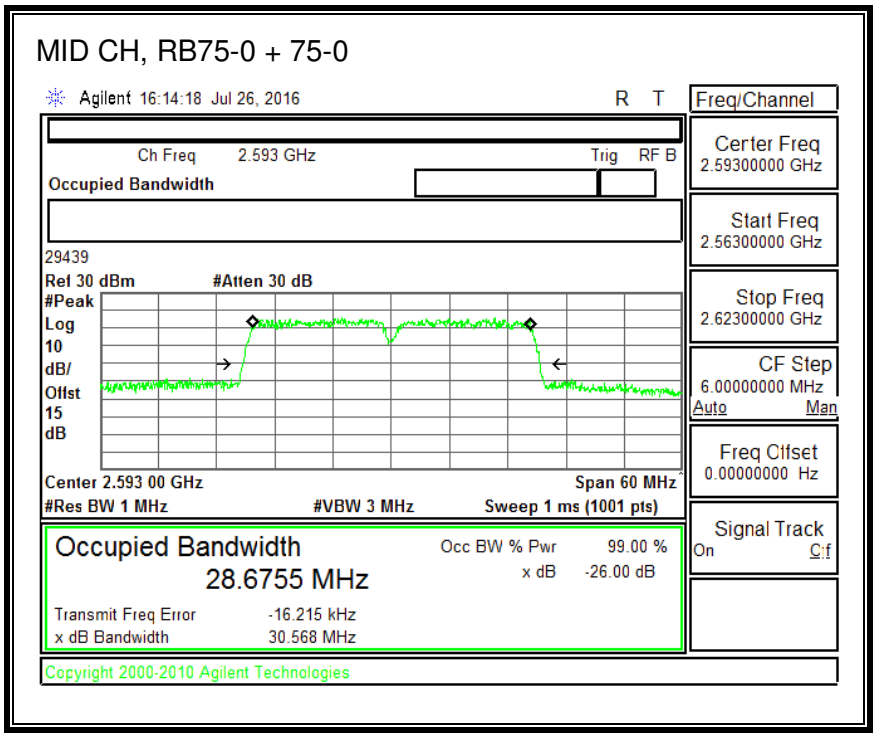
16QAM, (20.0MHz + 10.0MHz BAND WIDTH)



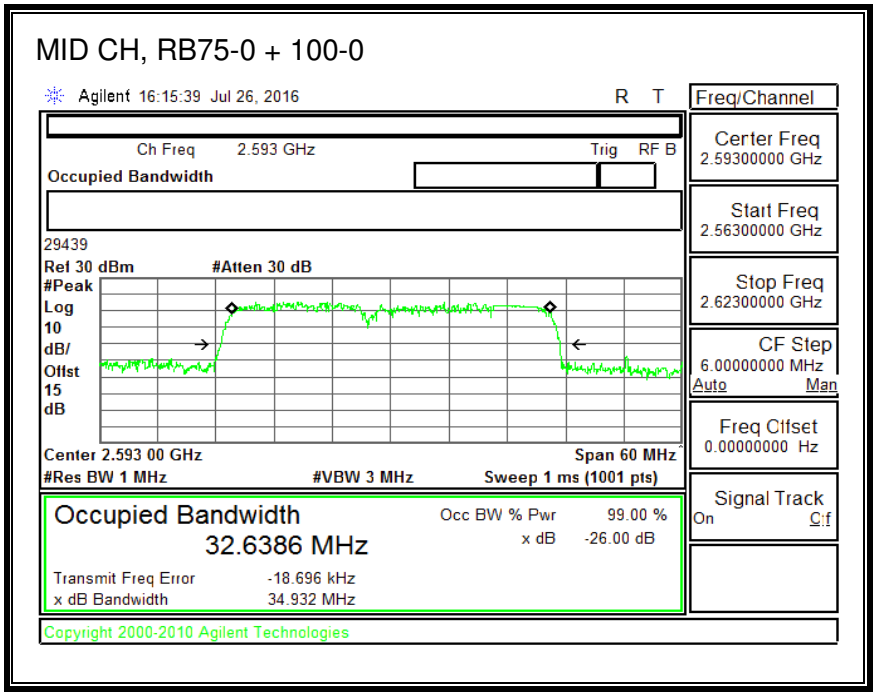
QPSK, (15.0MHz + 15.0MHz BAND WIDTH)



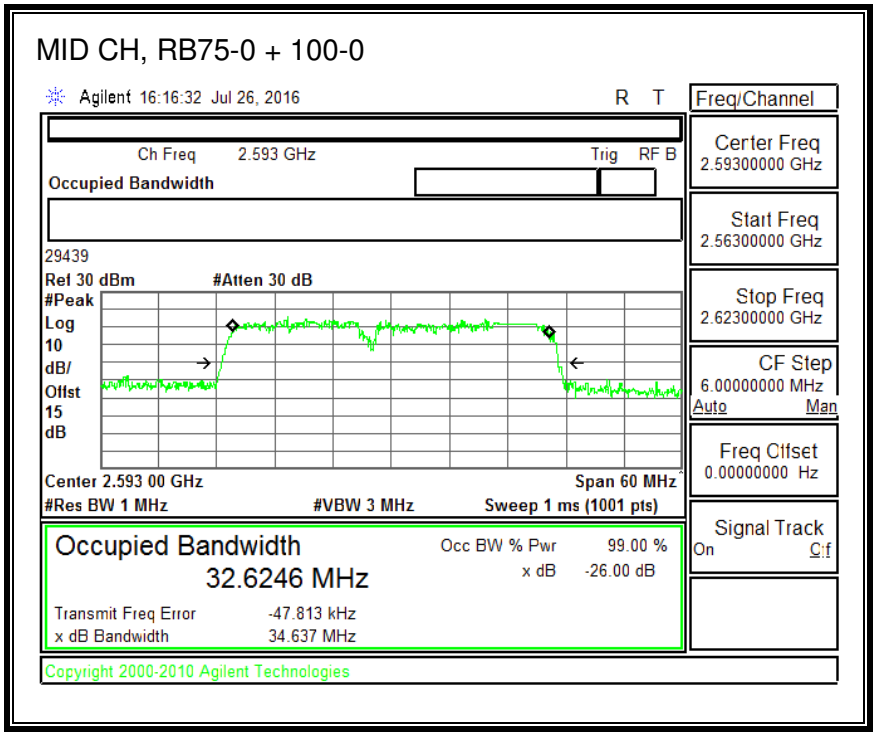
16QAM, (15.0MHz + 15.0MHz BAND WIDTH)



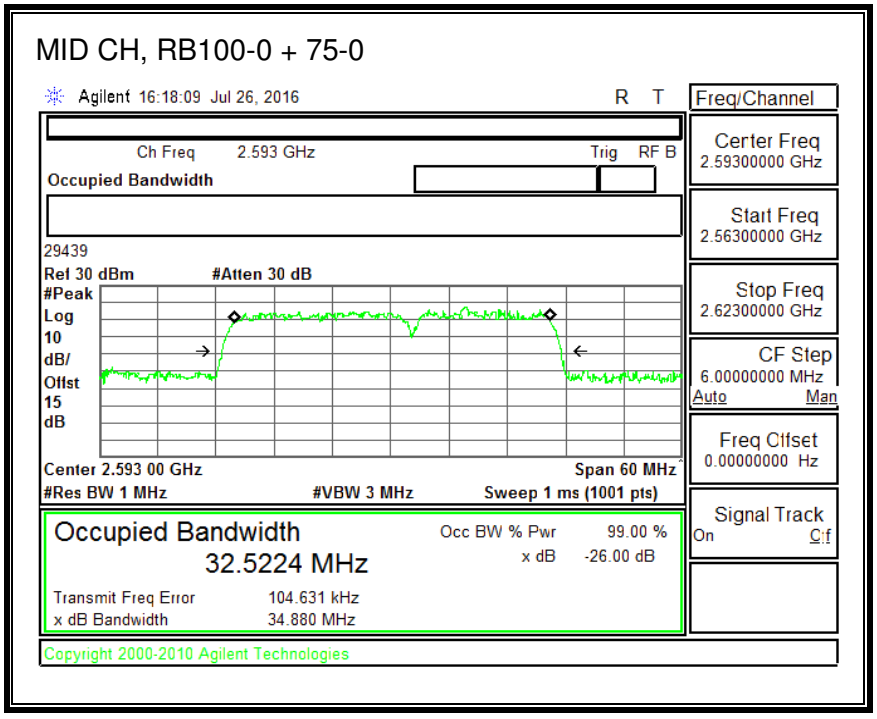
QPSK, (15.0MHz + 20.0MHz BAND WIDTH)



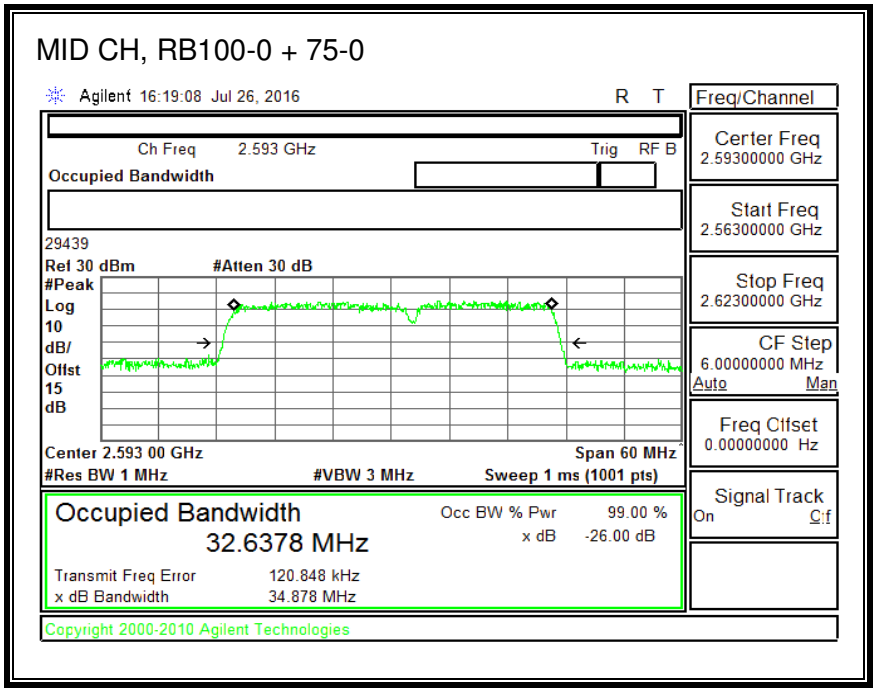
16QAM, (15.0MHz + 20.0MHz BAND WIDTH)



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 that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.Show citation box.

TEST PROCEDURE

The transmitter output was connected to a CMW500Test 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.

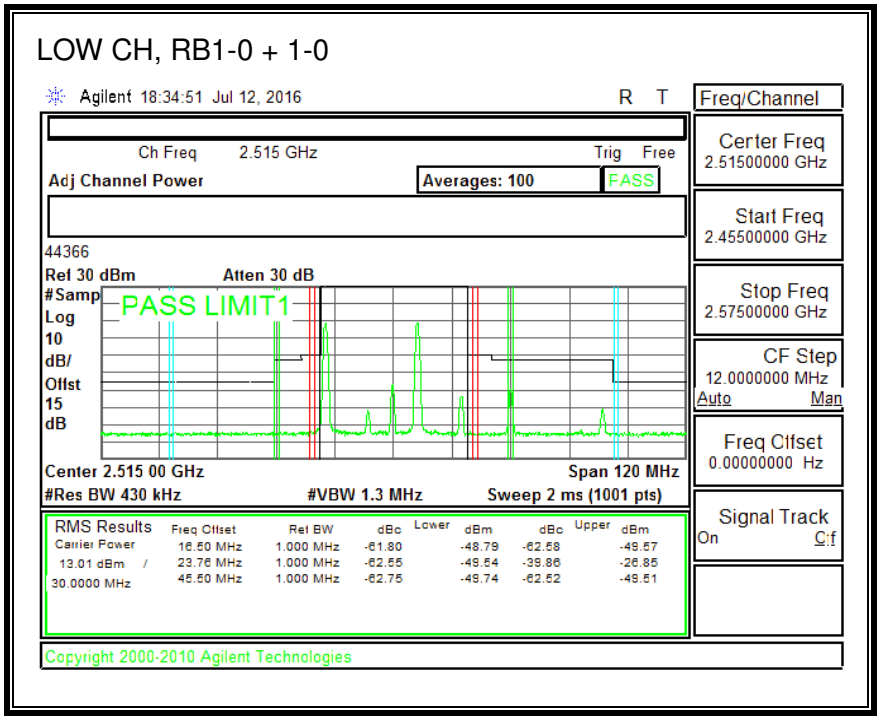
MODES TESTED

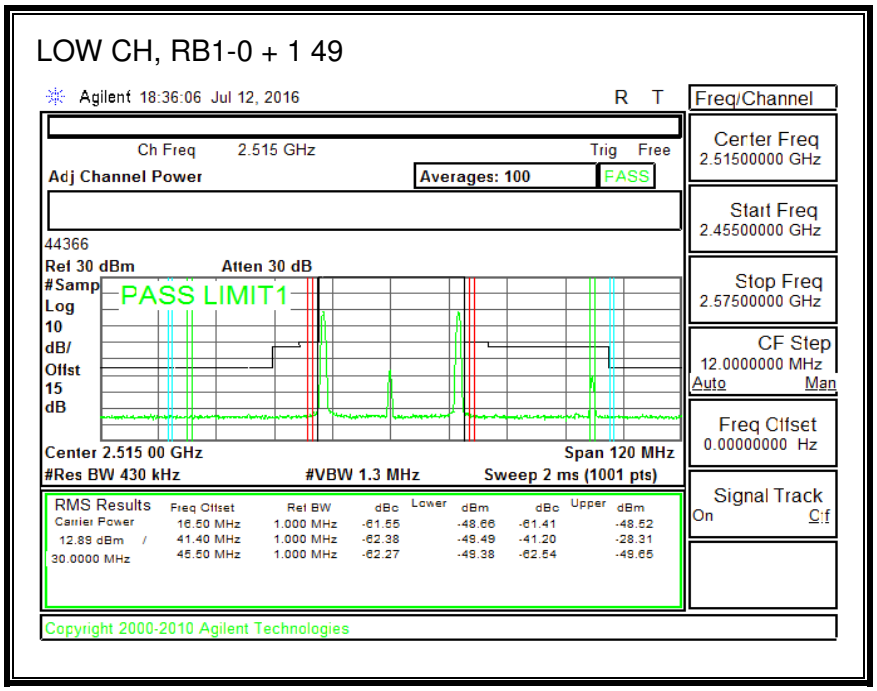
- LTE Band 7
- LTE Band 41

RESULTS

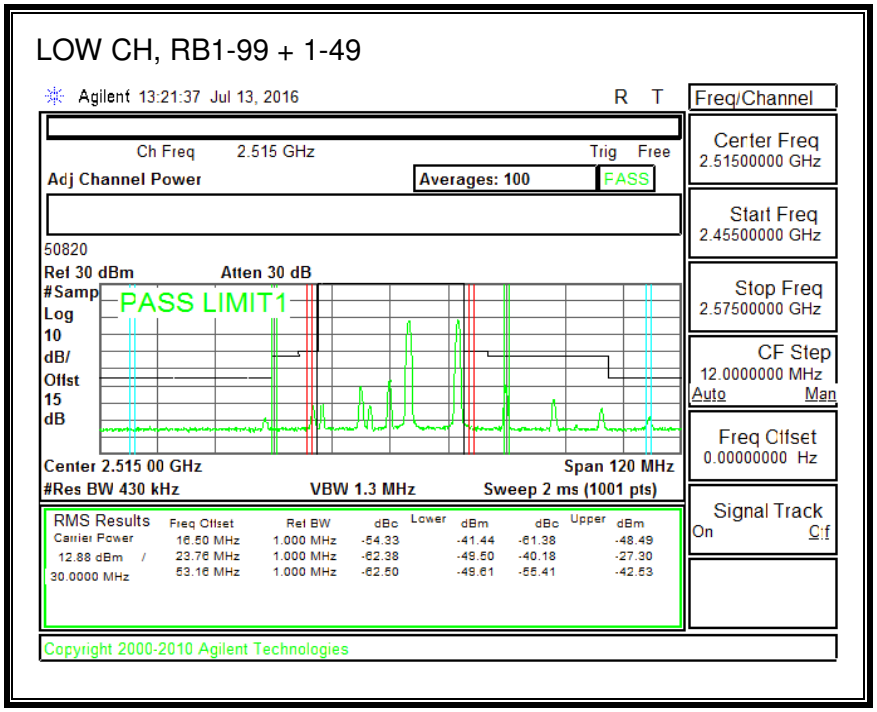
8.2.1. LTE BAND 7

QPSK, (20.0 MHz + 10.0 MHz BAND WIDTH)

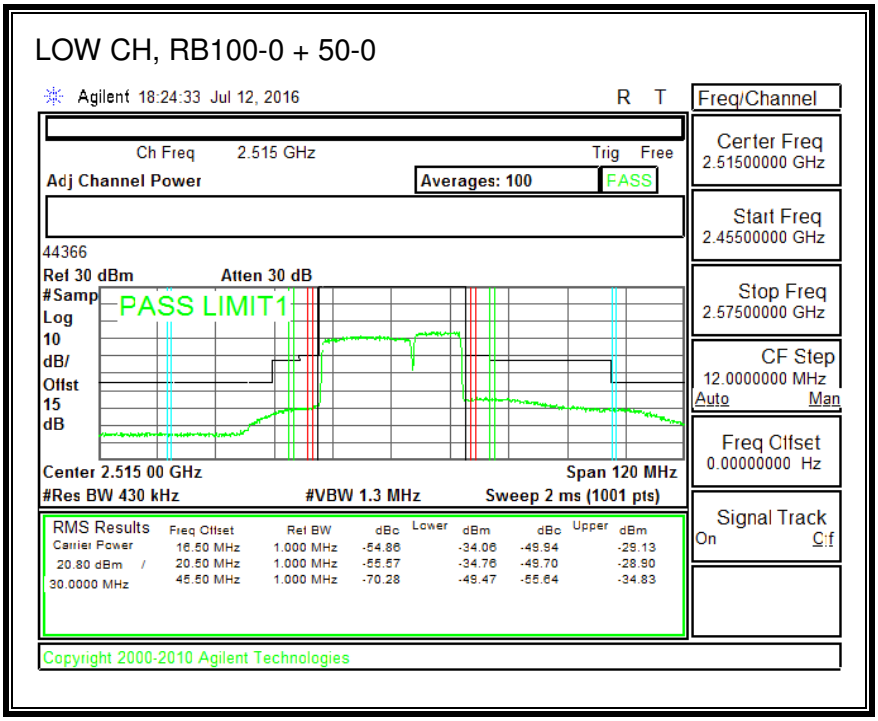


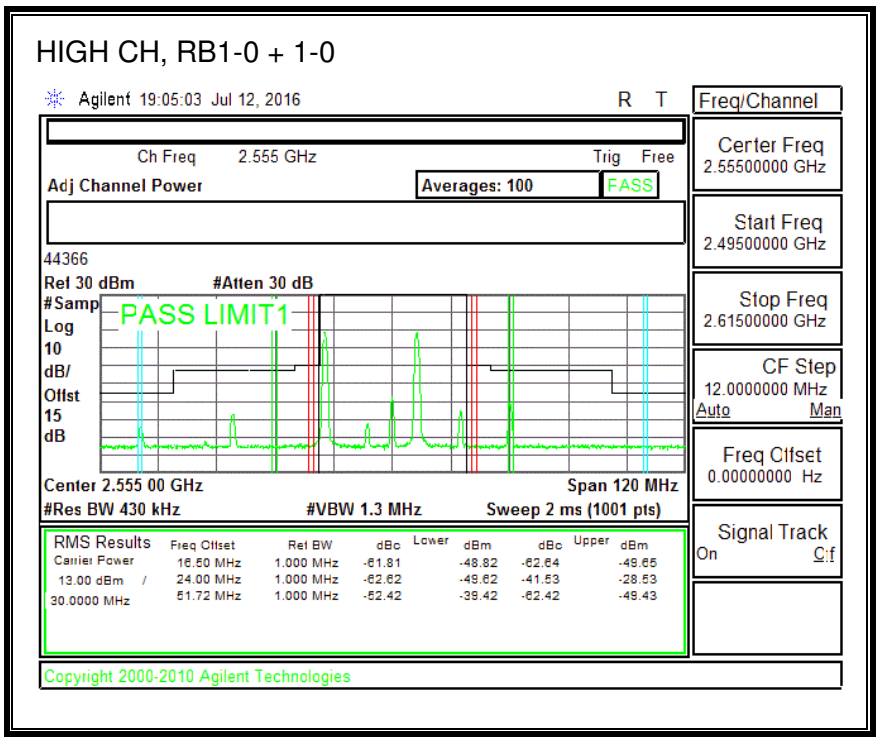


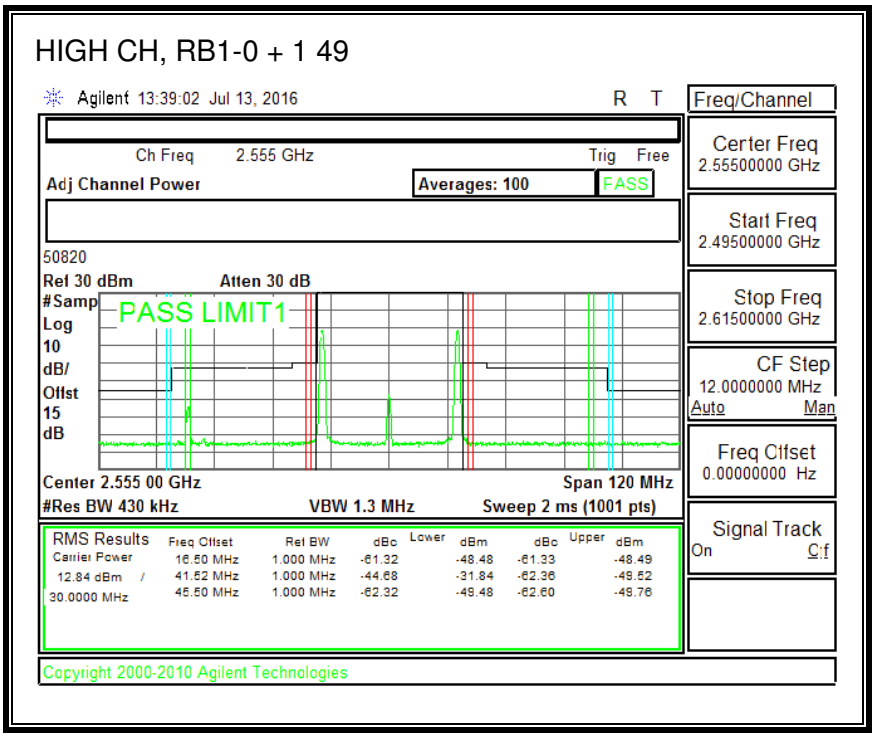
LOW CH, RB1-99 + 1-49



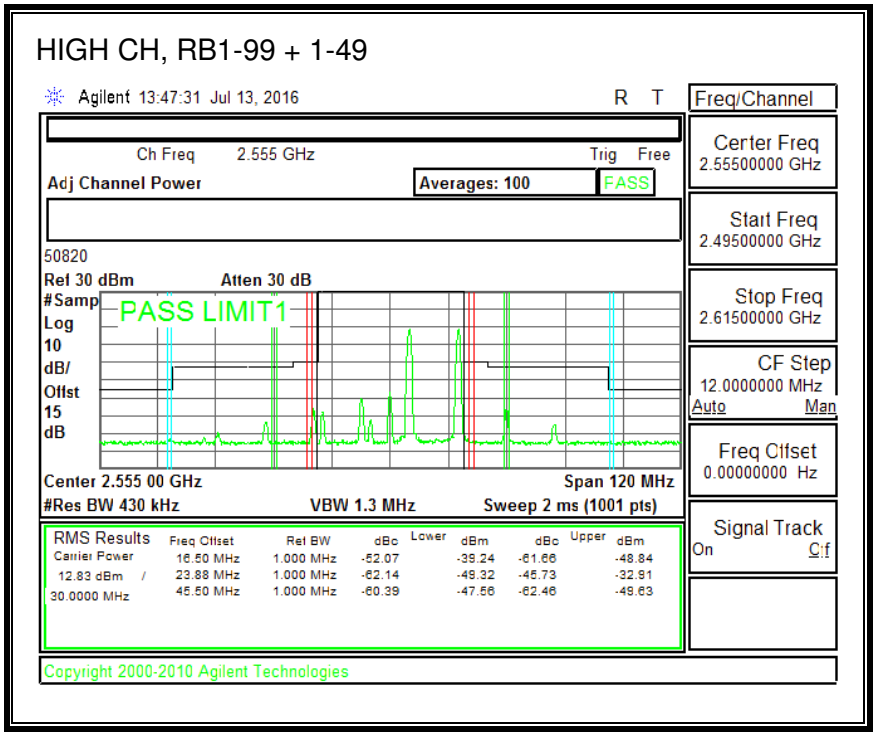
LOW CH, RB100-0 + 50-0



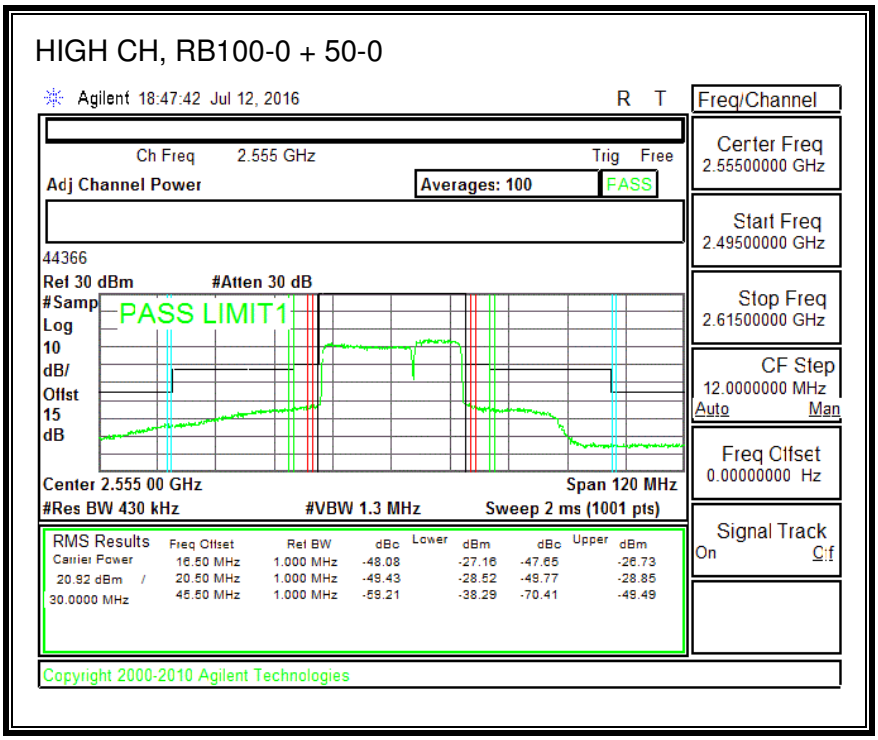




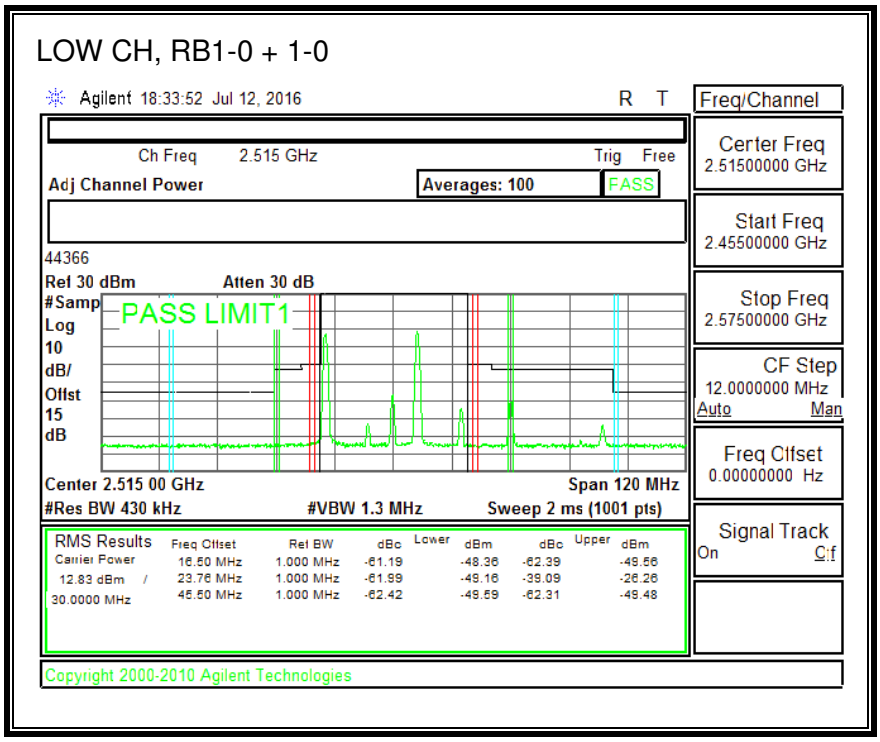
HIGH CH, RB1-99 + 1-49

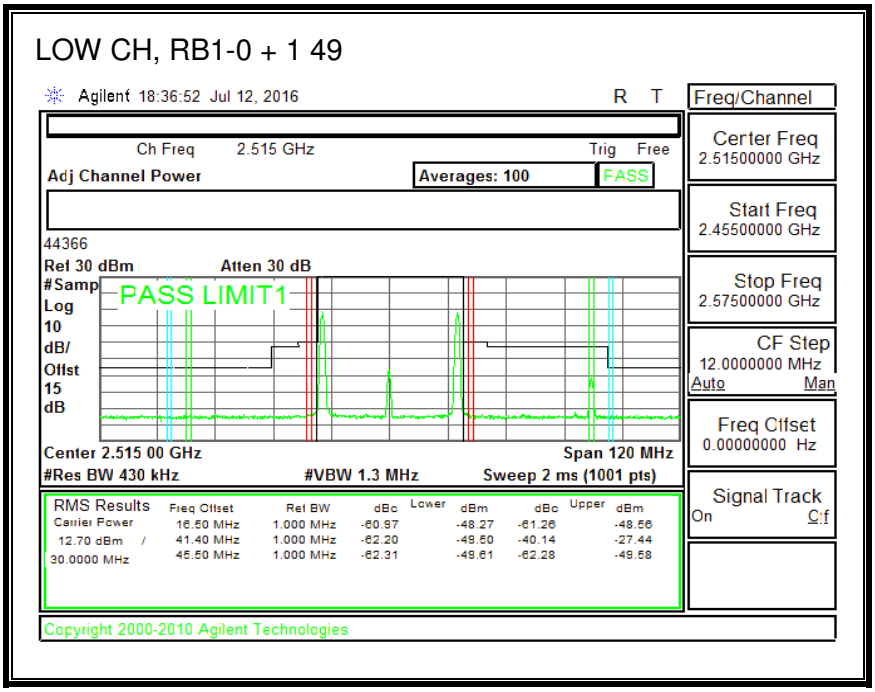


HIGH CH, RB100-0 + 50-0

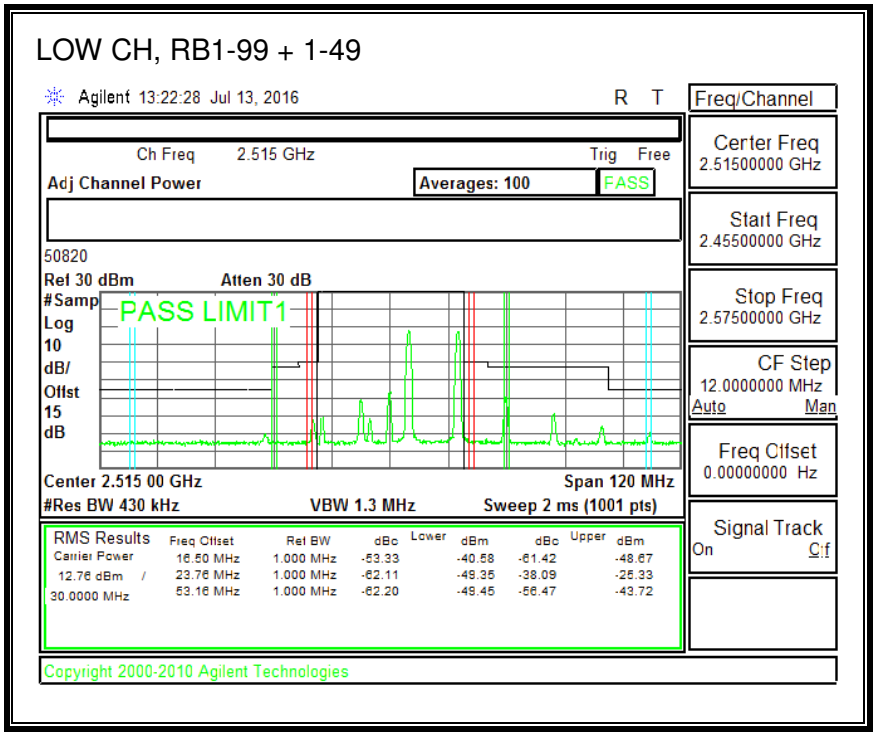


16QAM (20.0 MHz + 10.0 MHz BAND WIDTH)

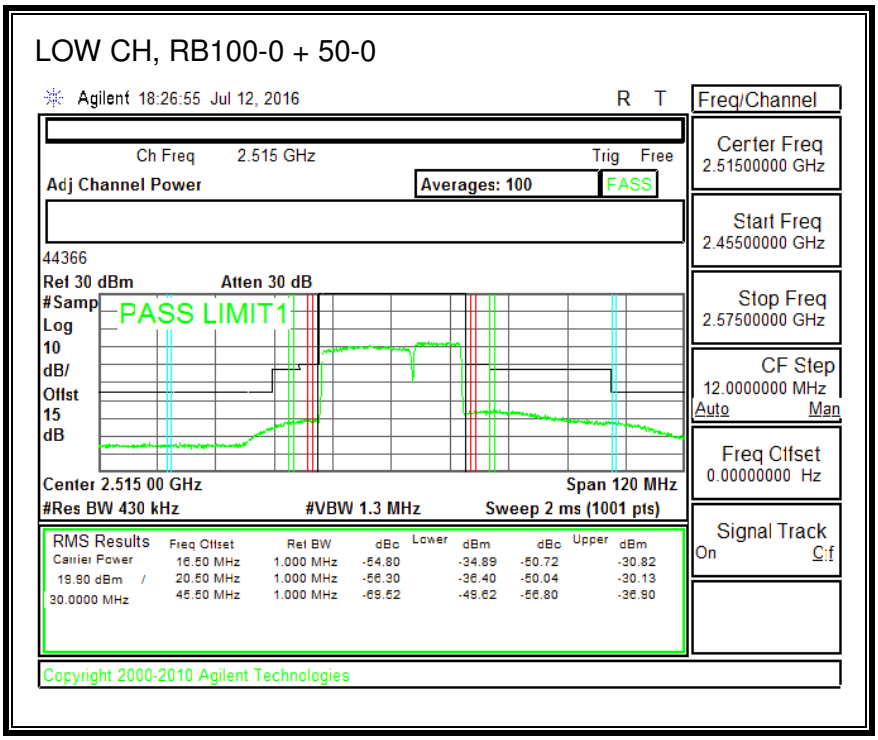




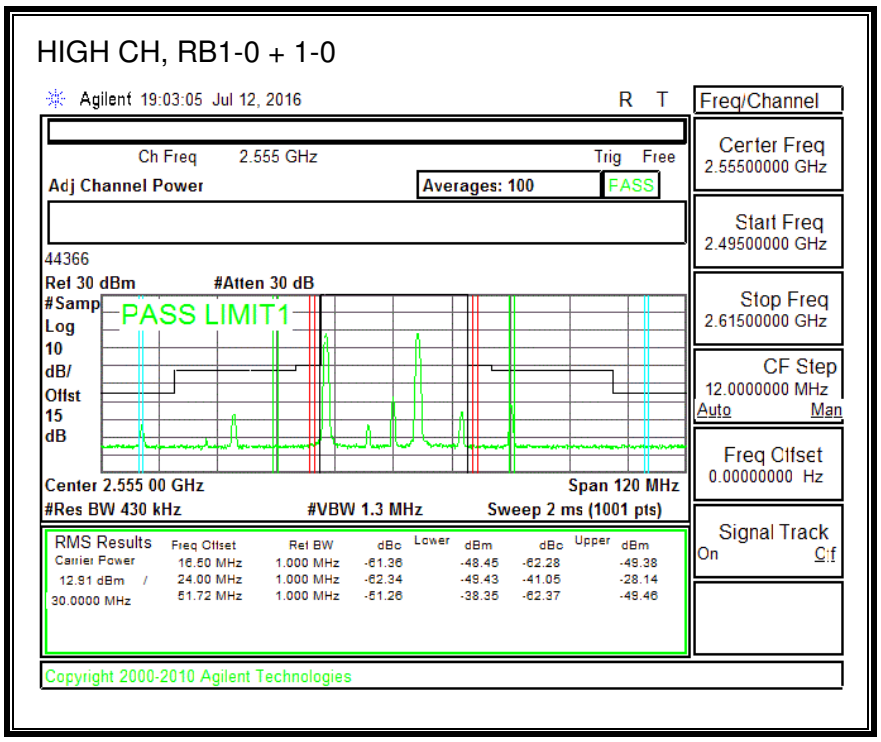
LOW CH, RB1-99 + 1-49



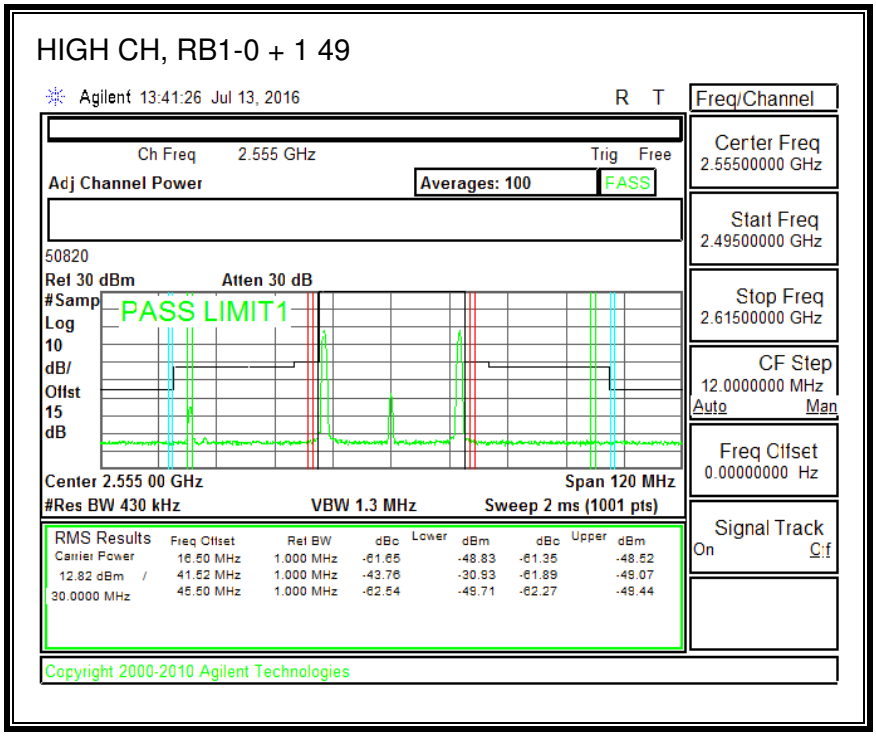
LOW CH, RB100-0 + 50-0



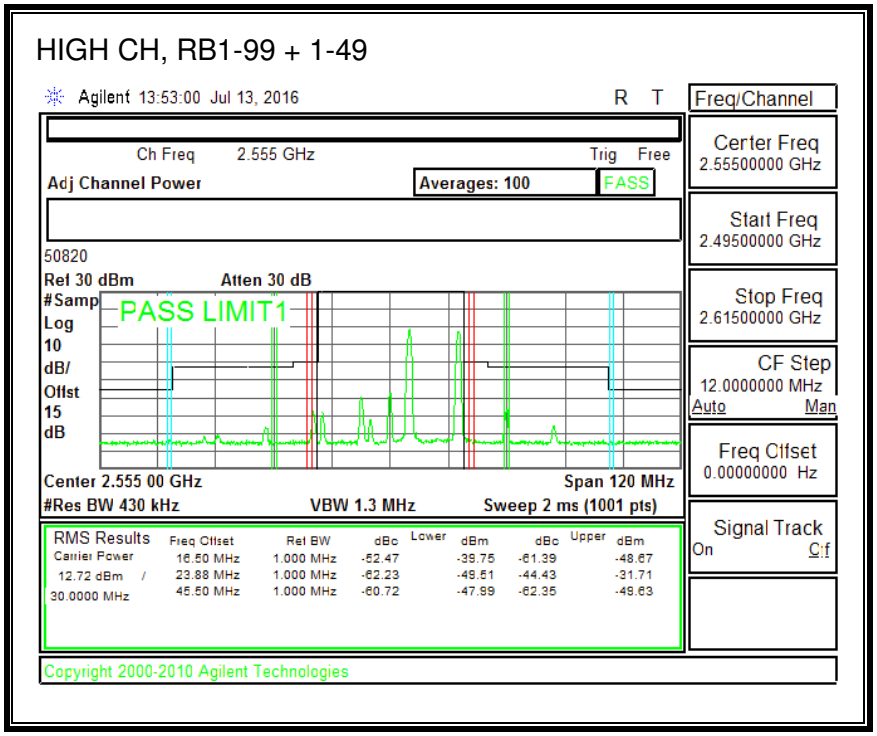
HIGH CH, RB1-0 + 1-0



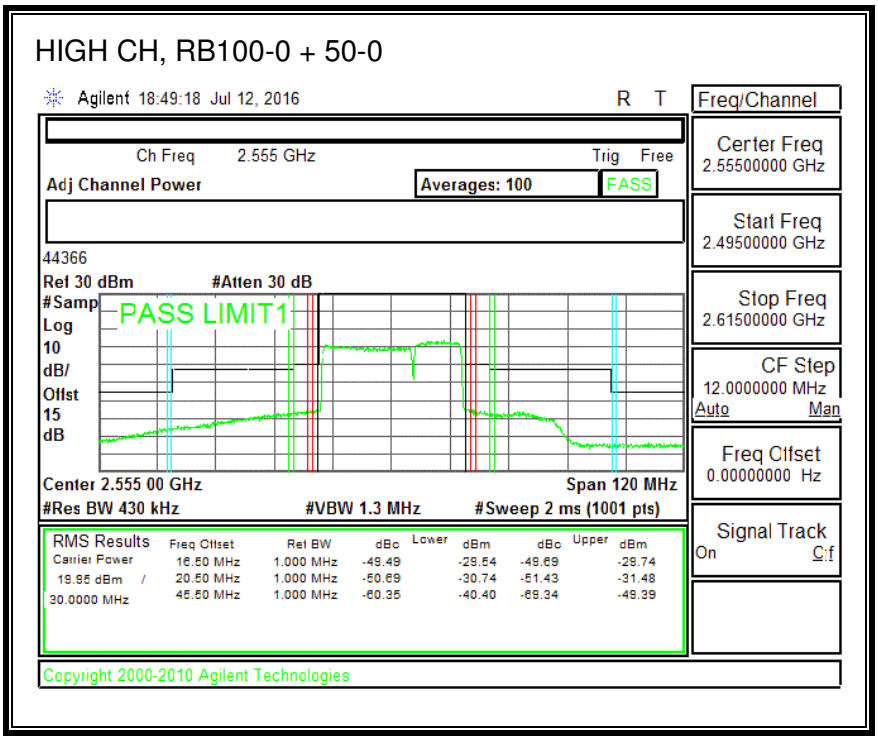
HIGH CH, RB1-0 + 1 49



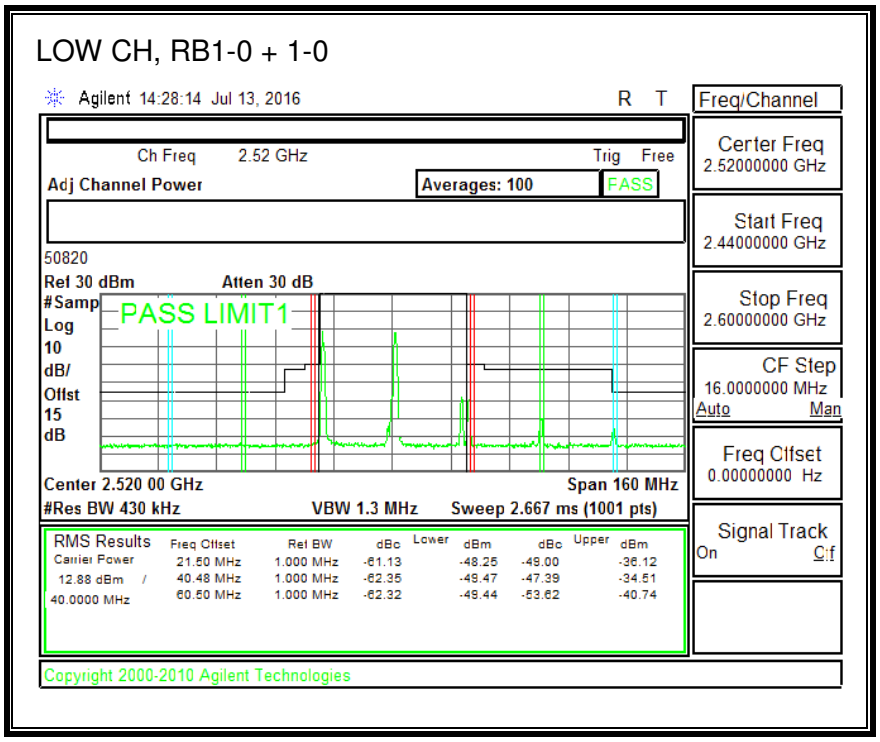
HIGH CH, RB1-99 + 1-49

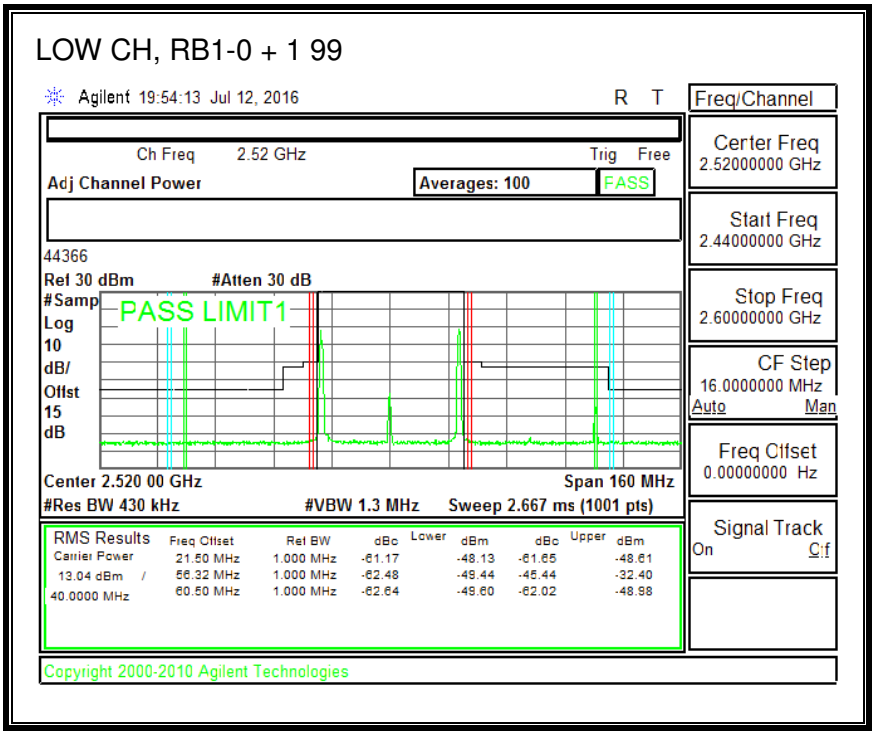


HIGH CH, RB100-0 + 50-0

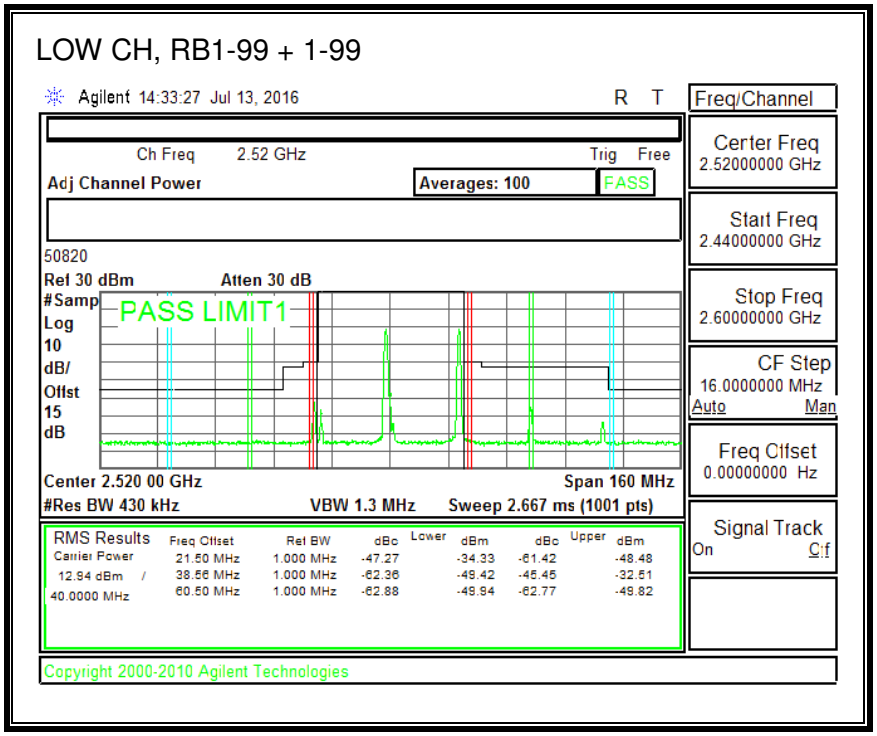


QPSK, (20.0 MHz + 20.0 MHz BAND WIDTH)

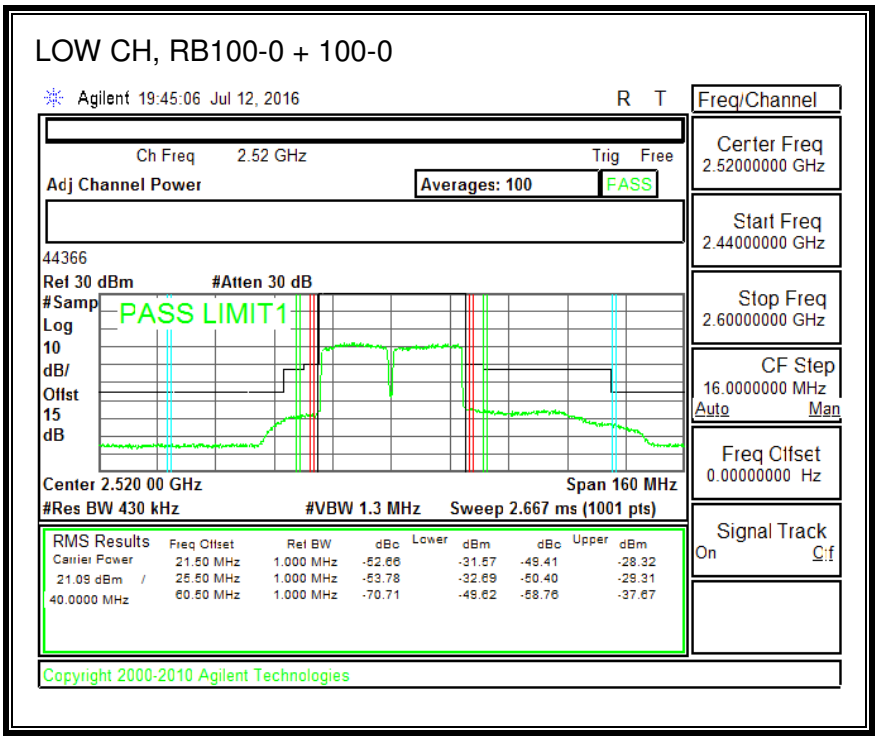




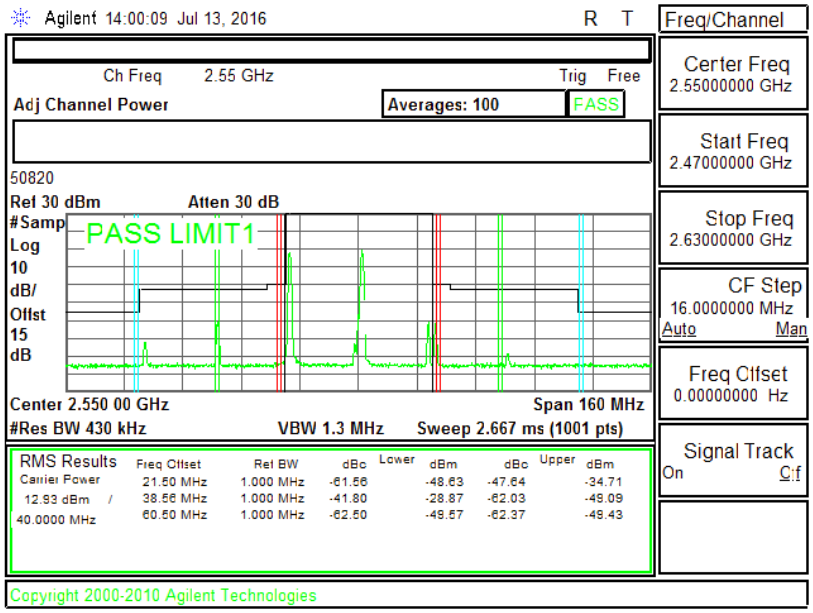
LOW CH, RB1-99 + 1-99



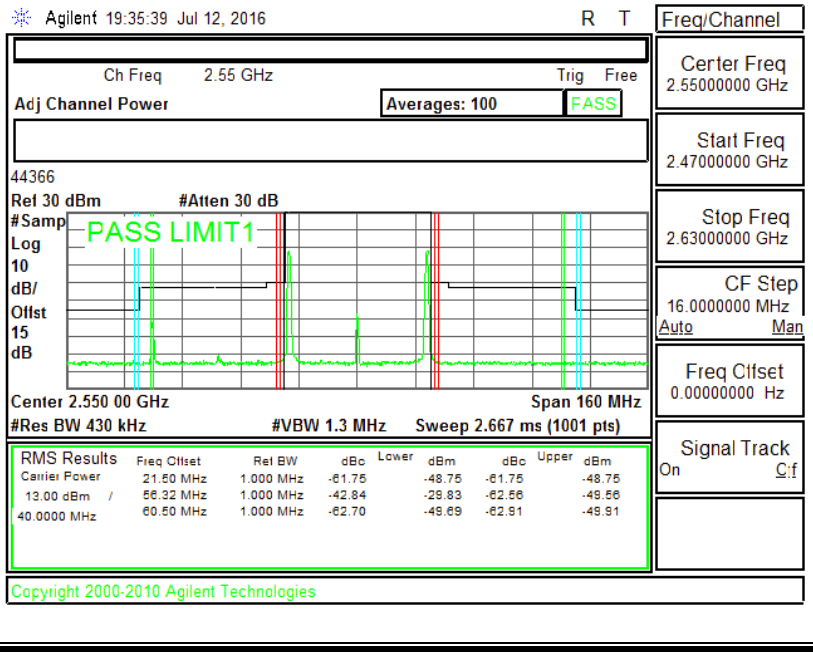
LOW CH, RB100-0 + 100-0



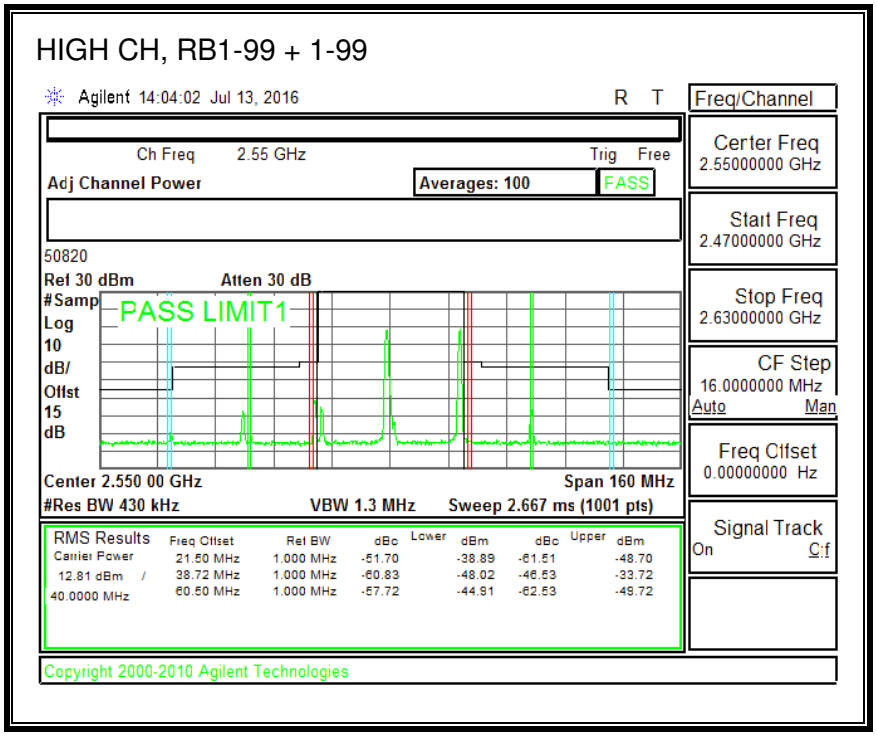
HIGH CH, RB1-0 + 1-0



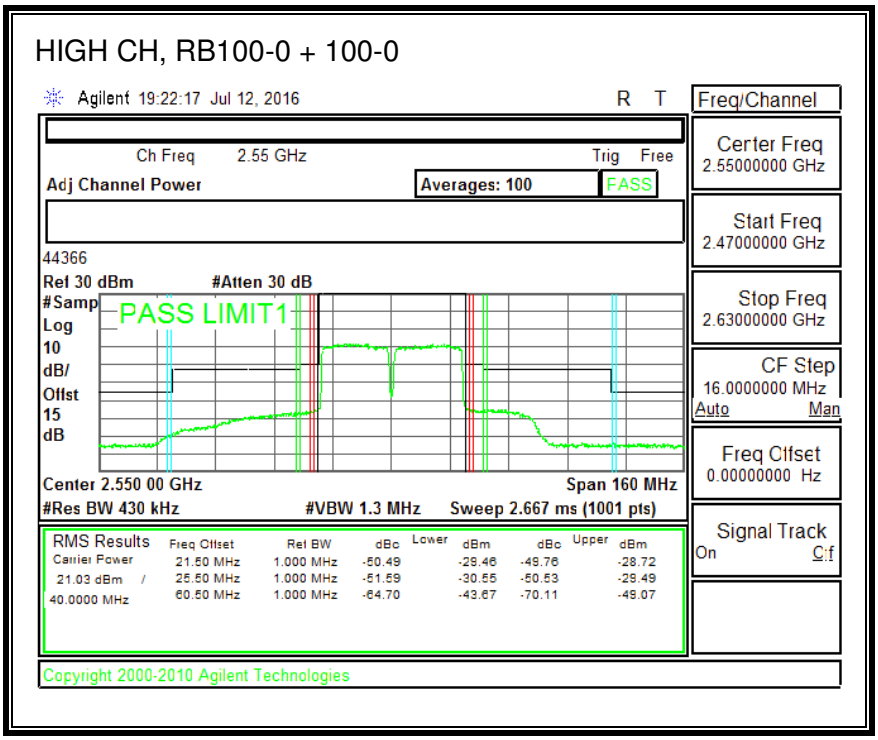
HIGH CH, RB1-0 + 1 99



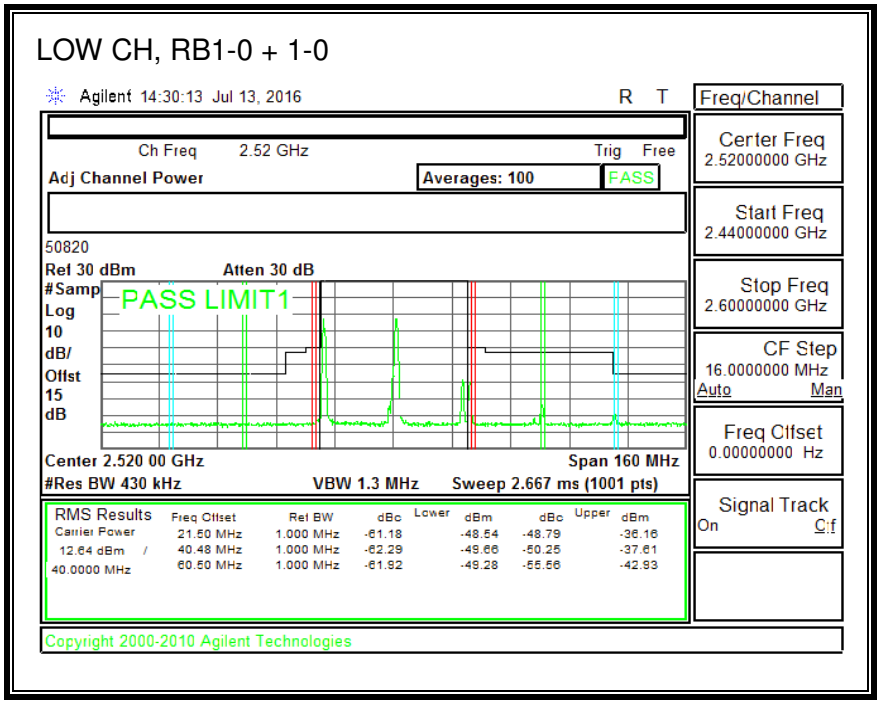
HIGH CH, RB1-99 + 1-99

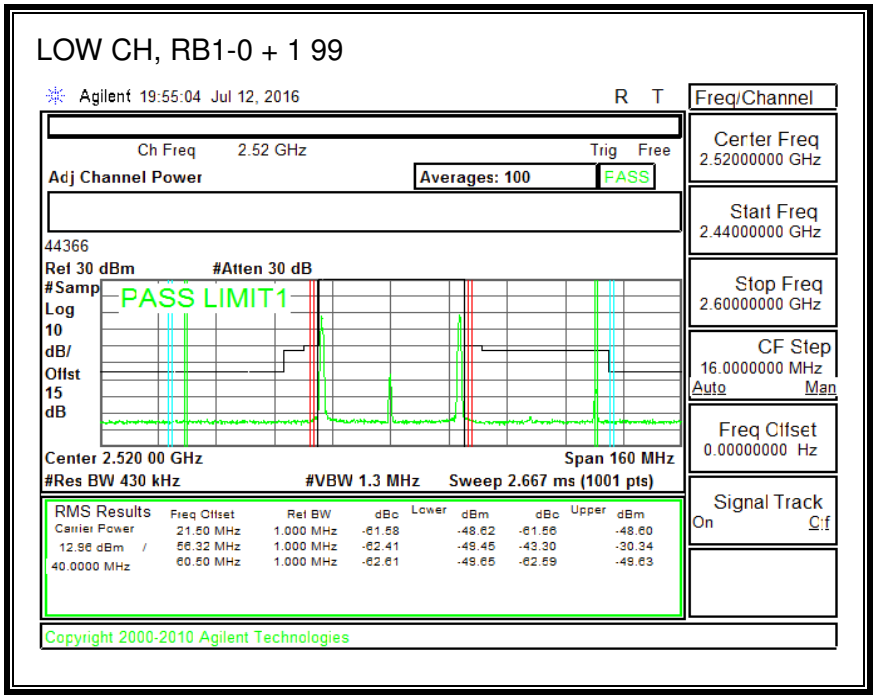


HIGH CH, RB100-0 + 100-0

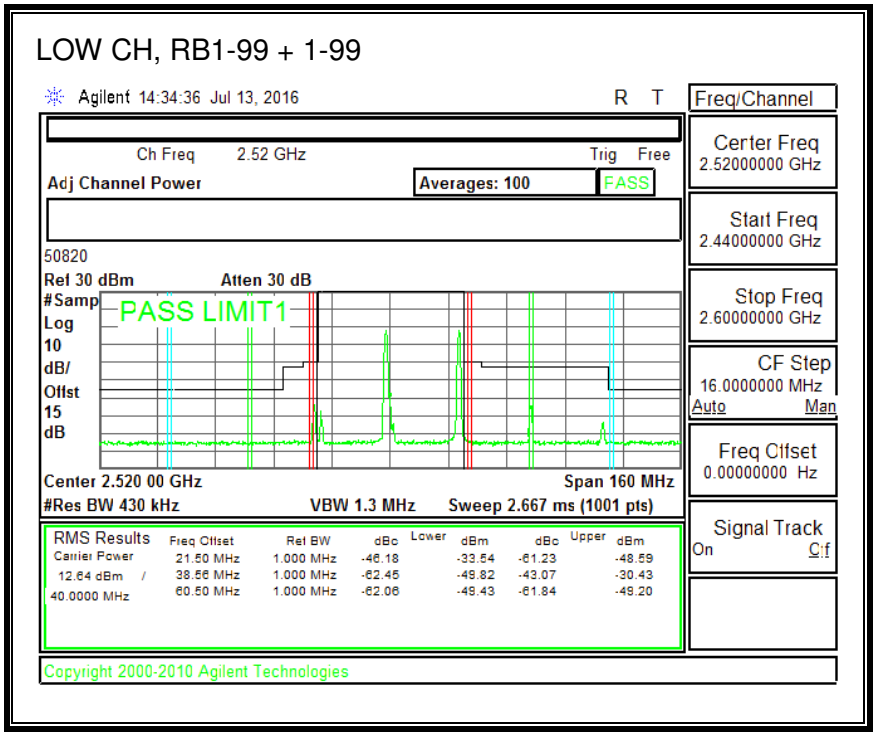


16QAM (20.0 MHz + 20.0 MHz BAND WIDTH)

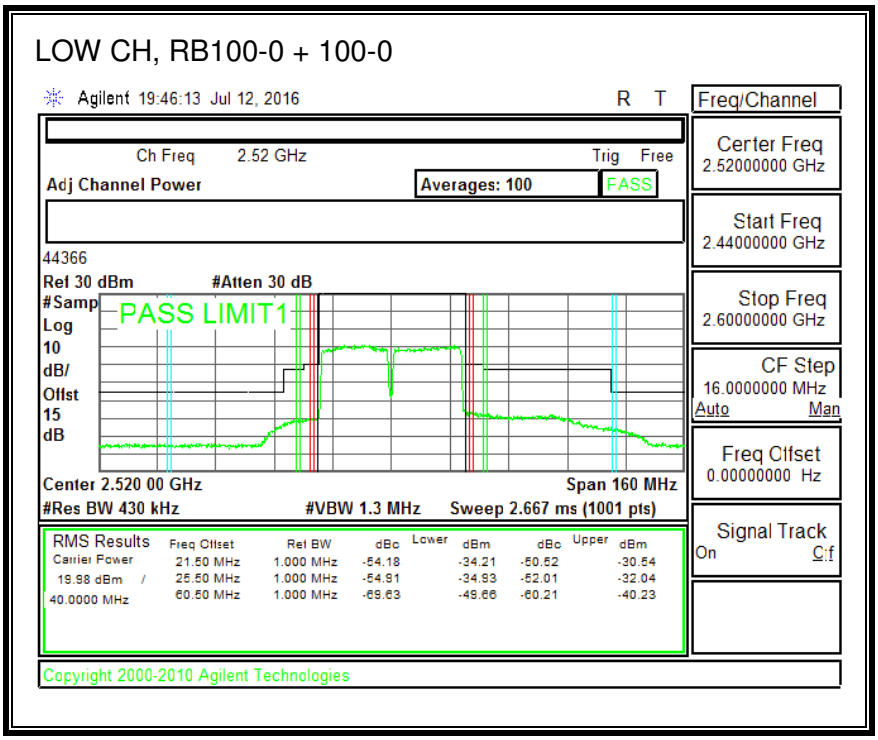




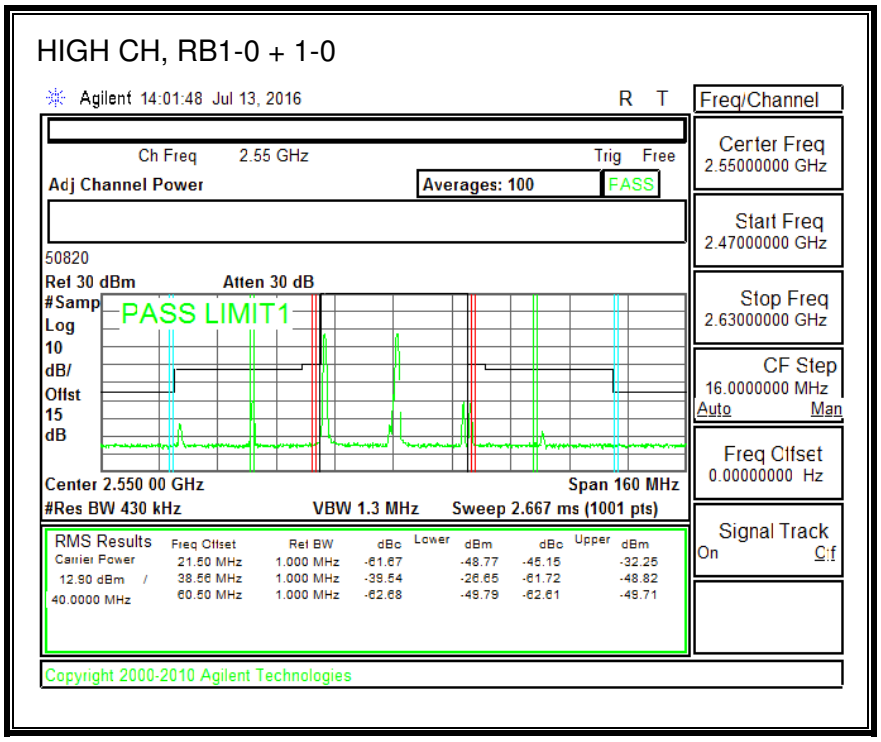
LOW CH, RB1-99 + 1-99



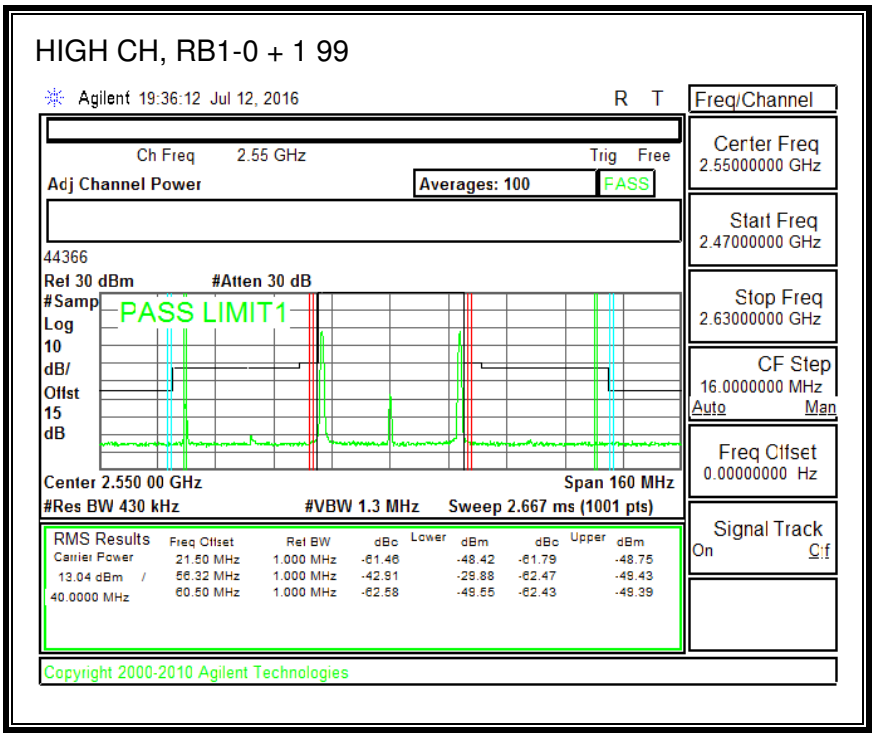
LOW CH, RB100-0 + 100-0



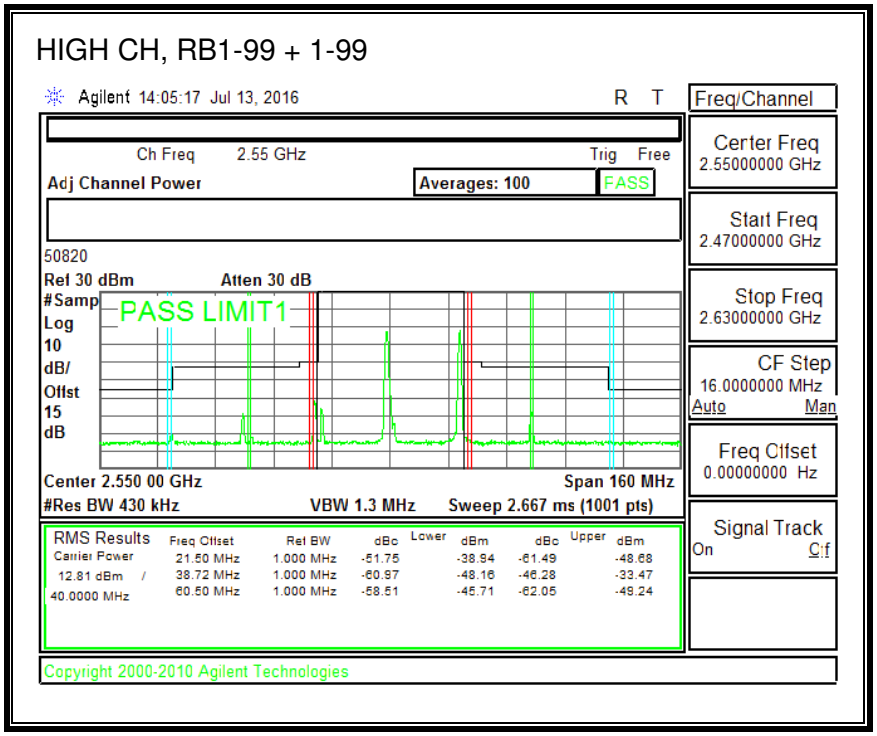
HIGH CH, RB1-0 + 1-0



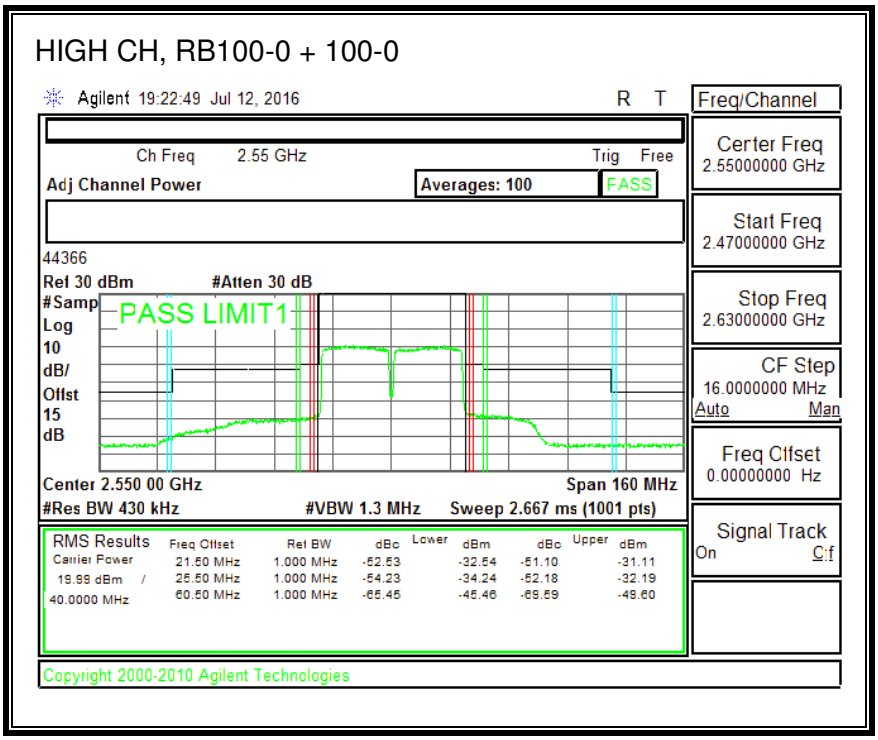
HIGH CH, RB1-0 + 1 99



HIGH CH, RB1-99 + 1-99

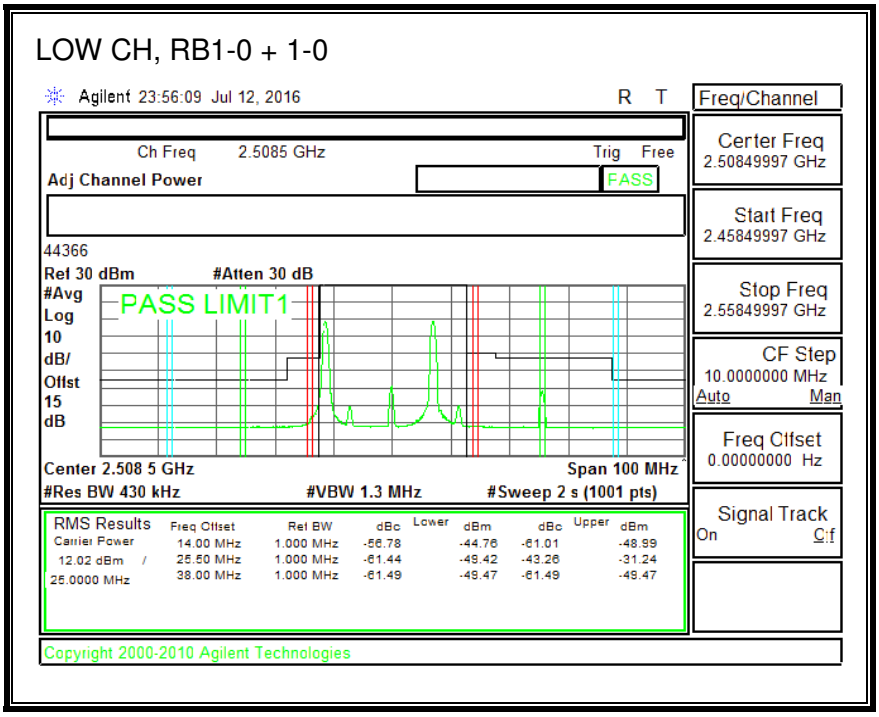


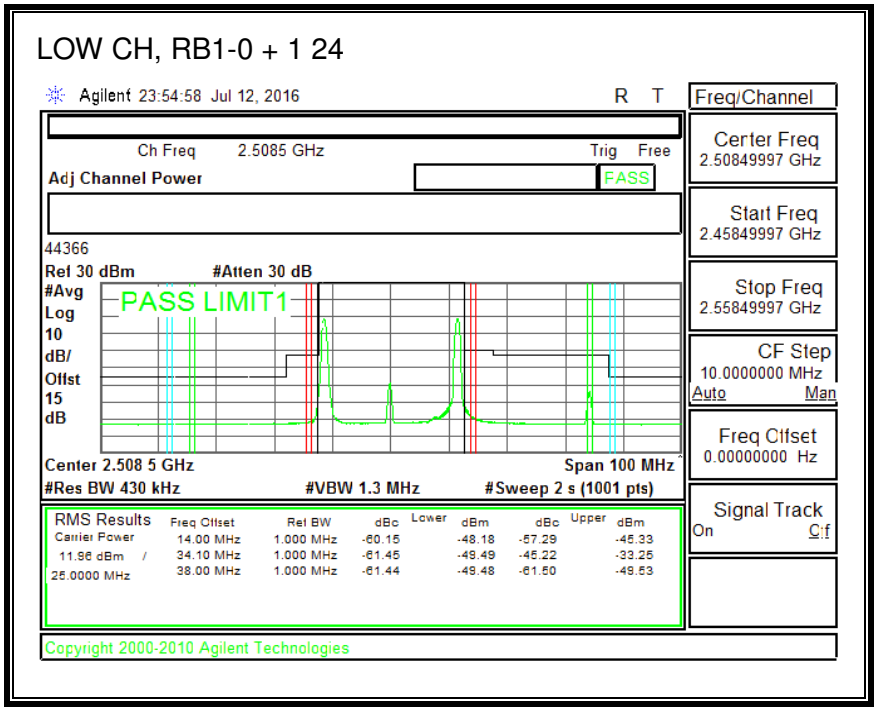
HIGH CH, RB100-0 + 100-0



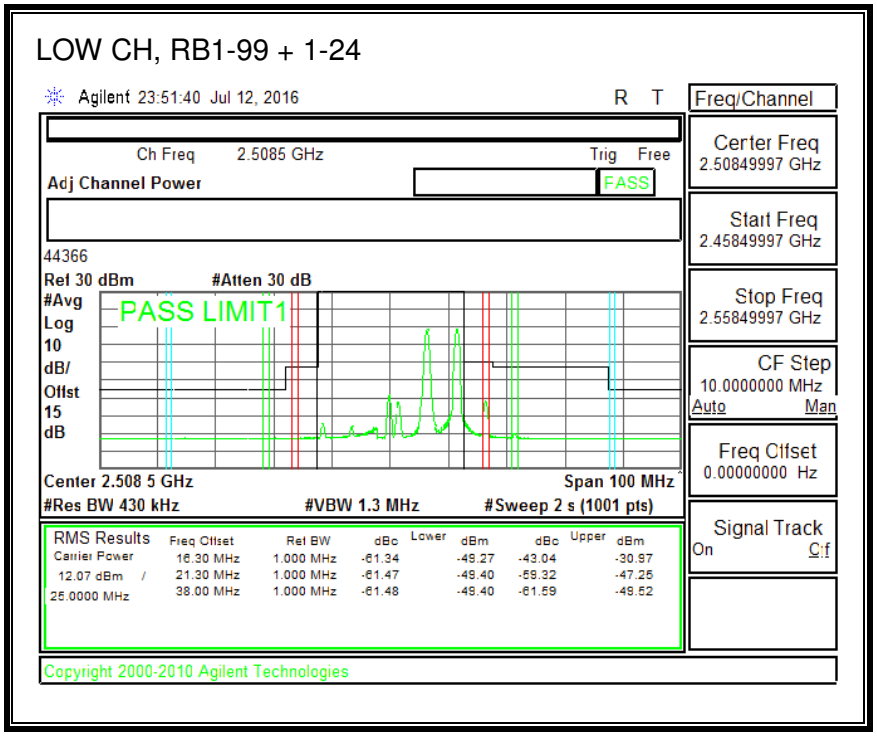
8.2.2. LTE BAND 41

QPSK, (20.0 MHz + 5.0 MHz BAND WIDTH)

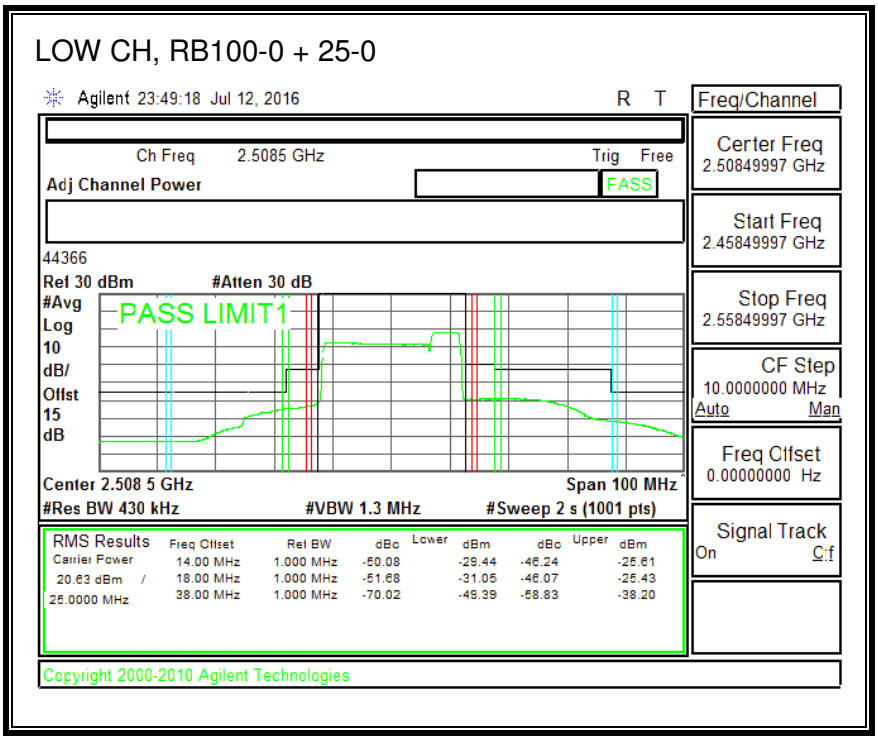




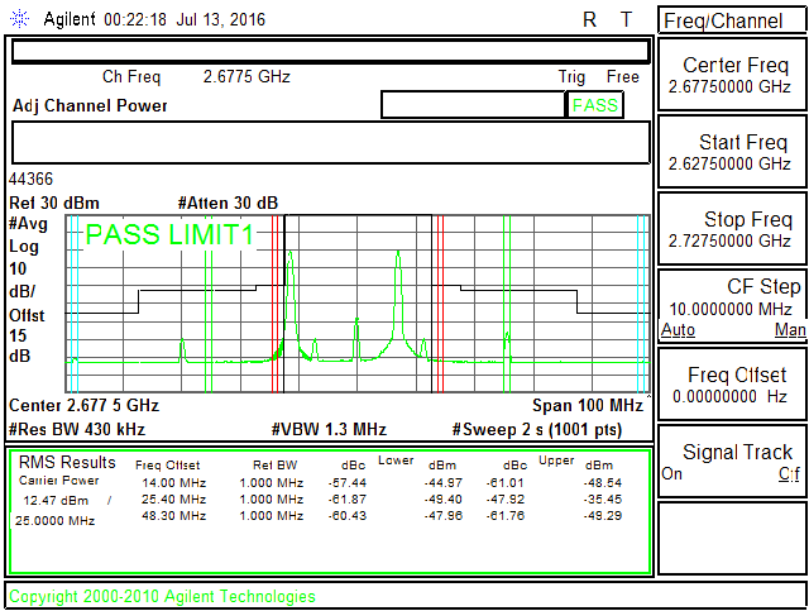
LOW CH, RB1-99 + 1-24



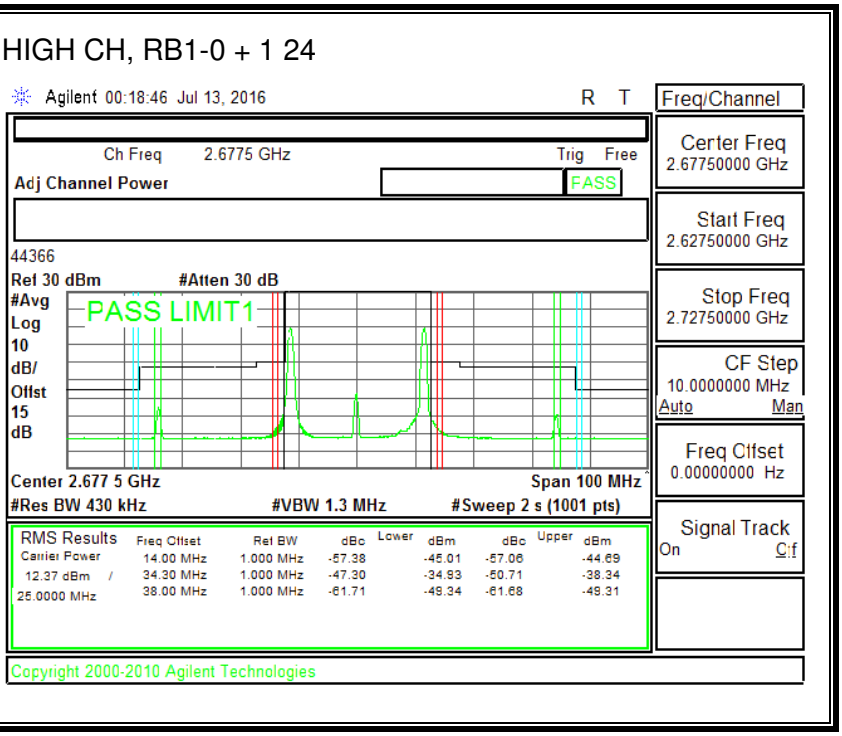
LOW CH, RB100-0 + 25-0



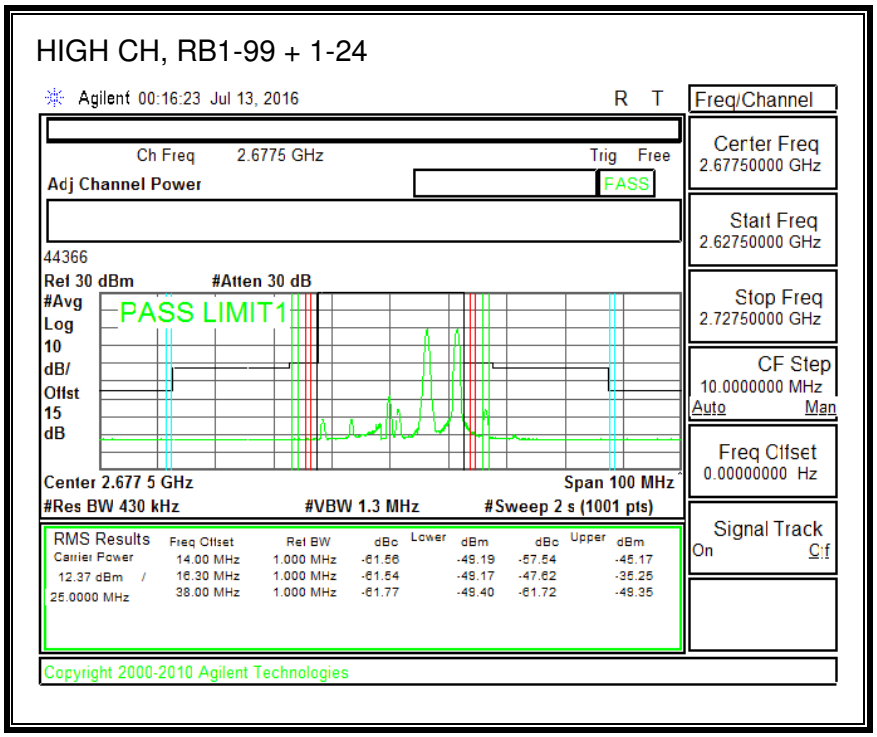
HIGH CH, RB1-0 + 1-0



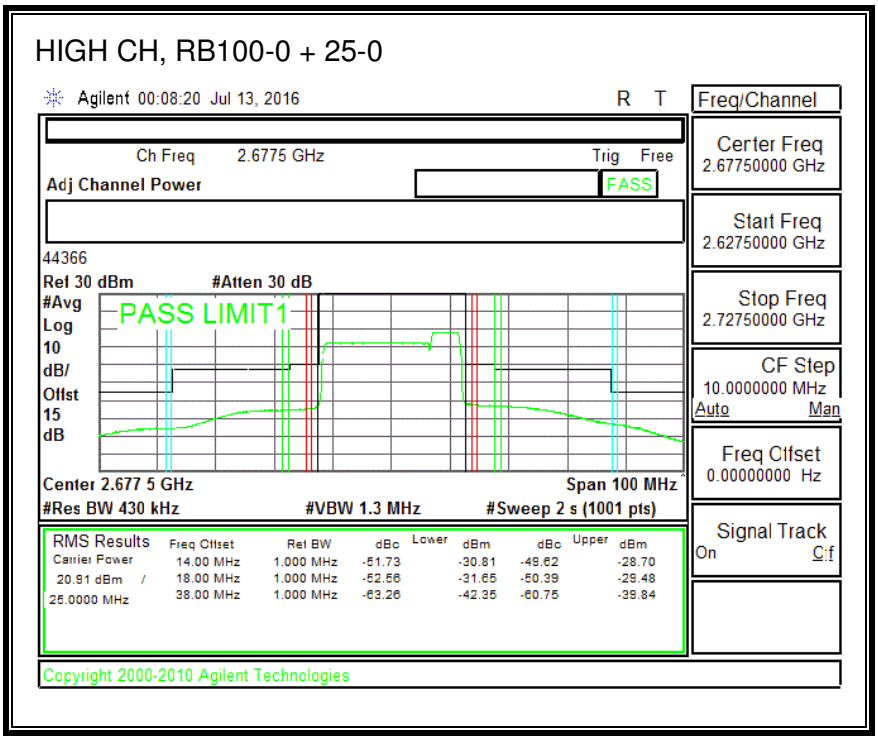
HIGH CH, RB1-0 + 1 24



HIGH CH, RB1-99 + 1-24

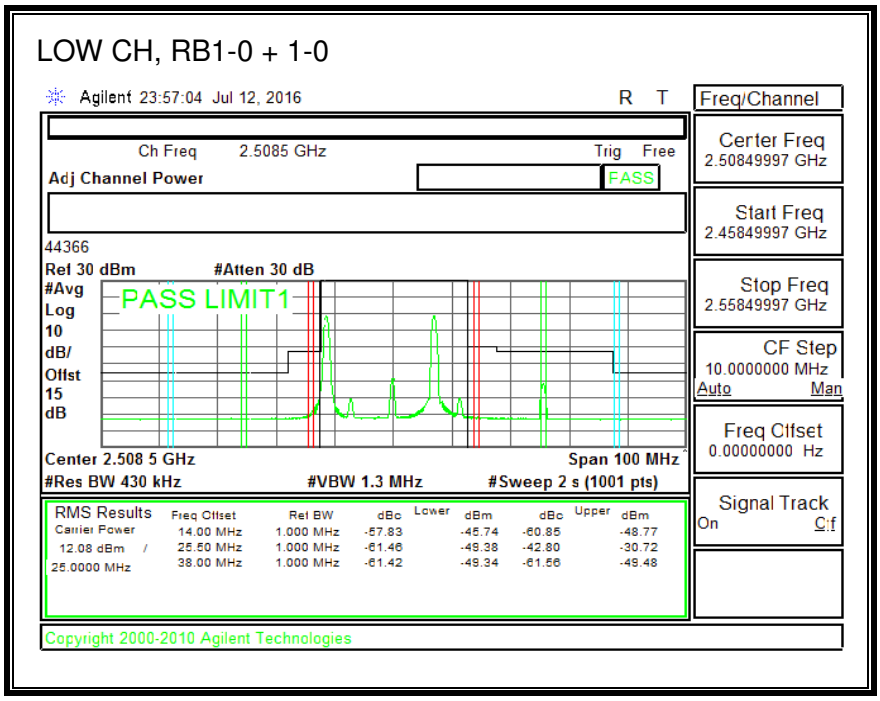


HIGH CH, RB100-0 + 25-0

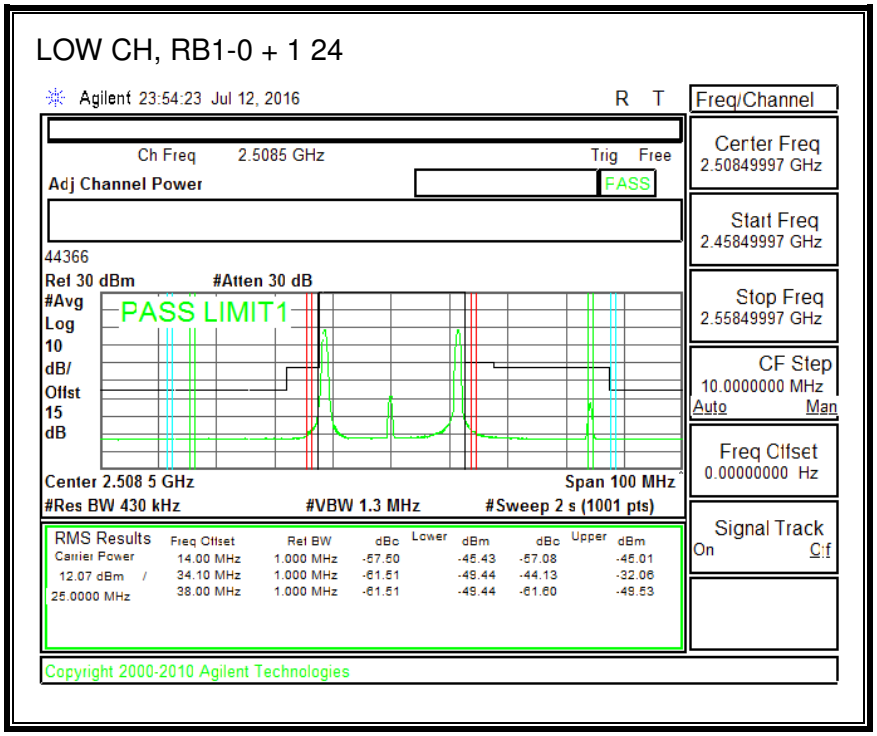


16QAM (20.0 MHz + 5.0 MHz BAND WIDTH)

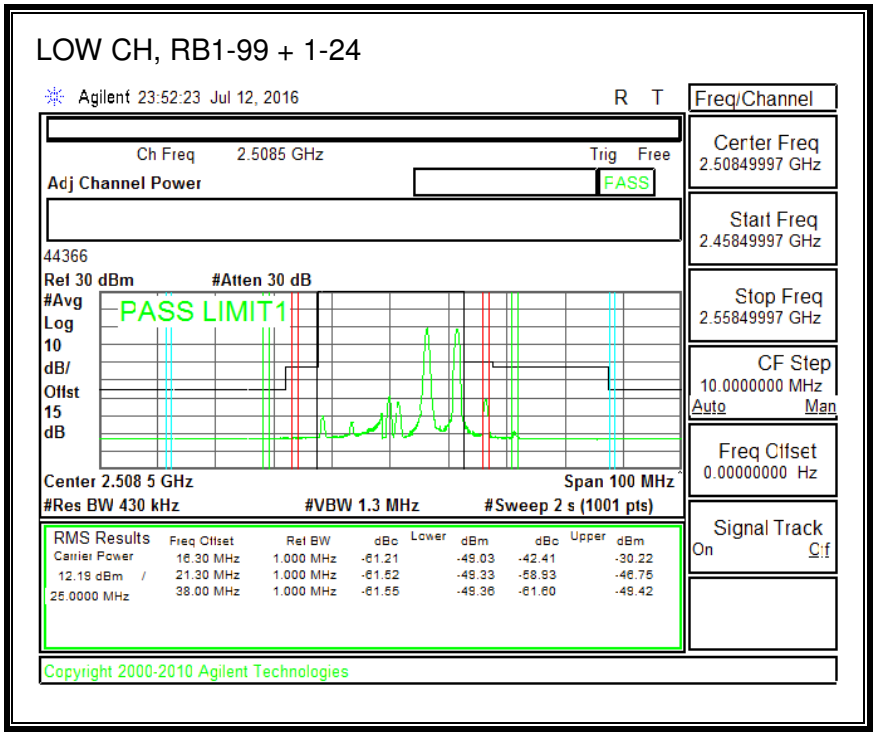
LOW CH, RB1-0 + 1-0



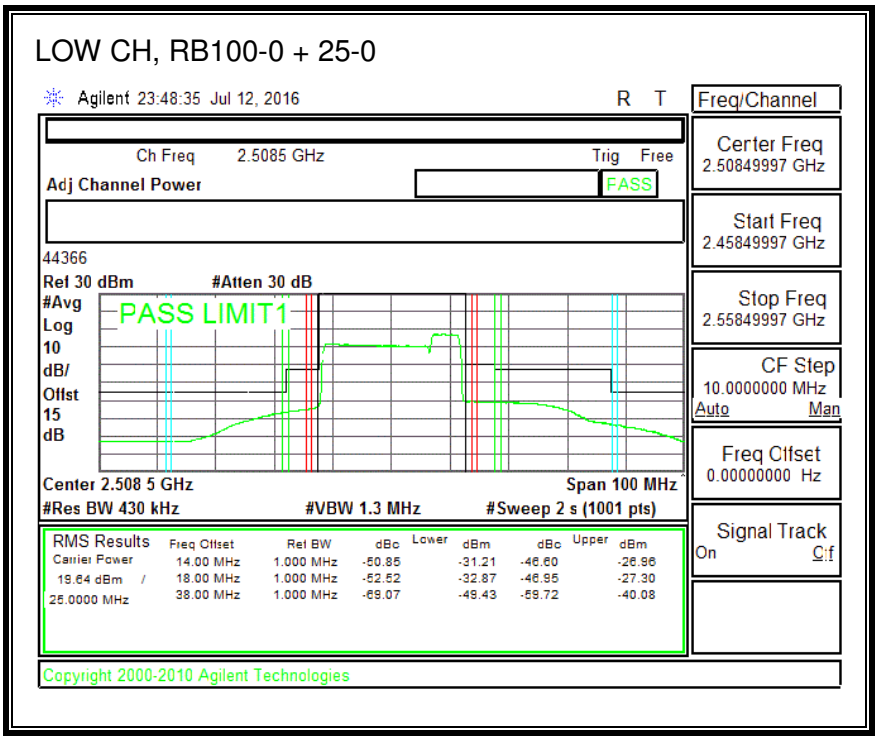
LOW CH, RB1-0 + 1 24



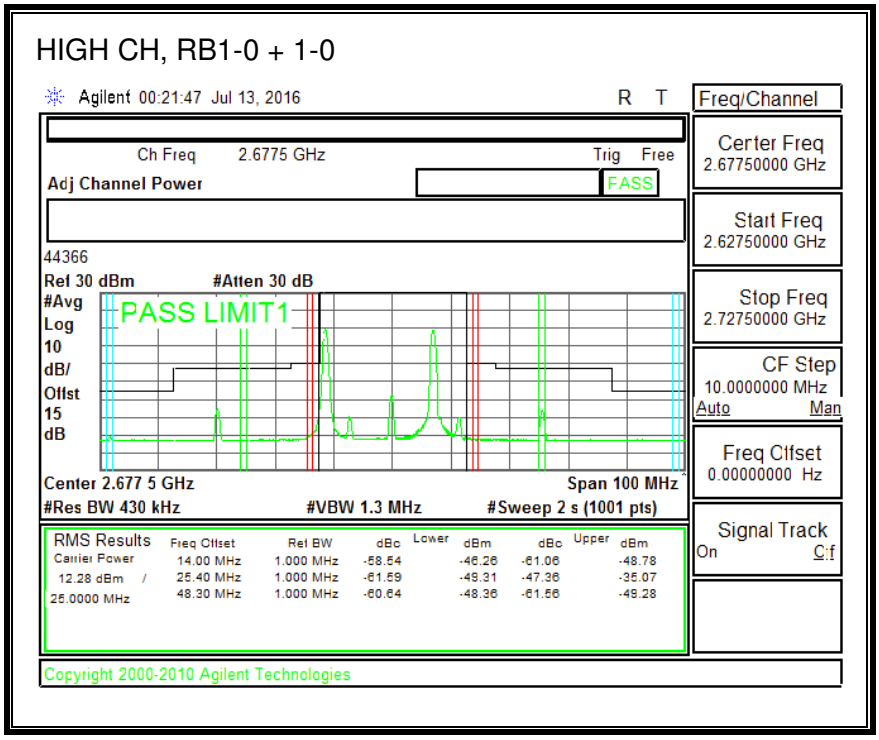
LOW CH, RB1-99 + 1-24



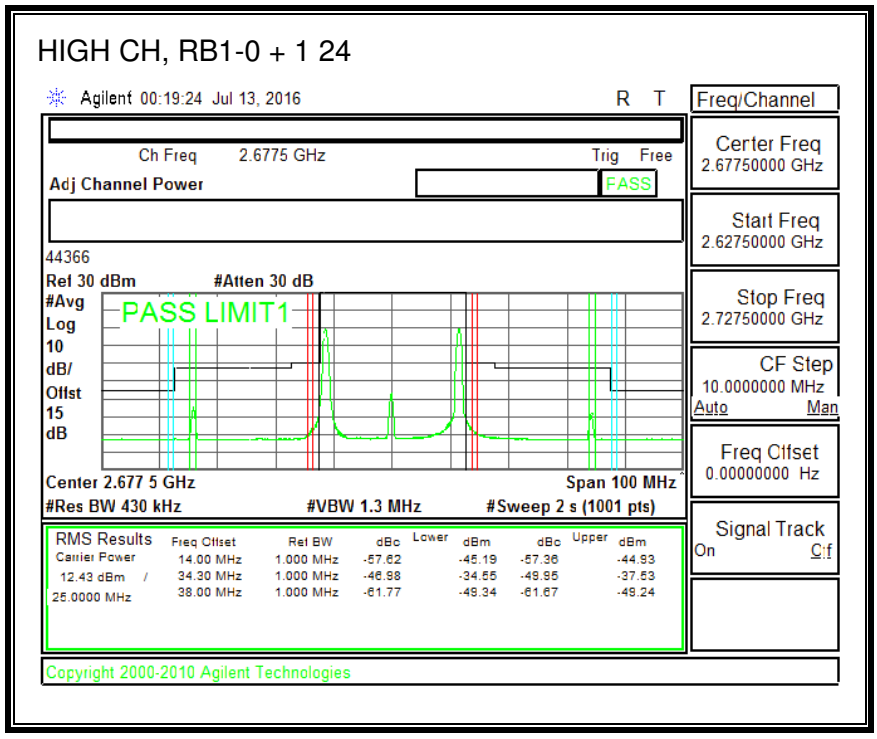
LOW CH, RB100-0 + 25-0



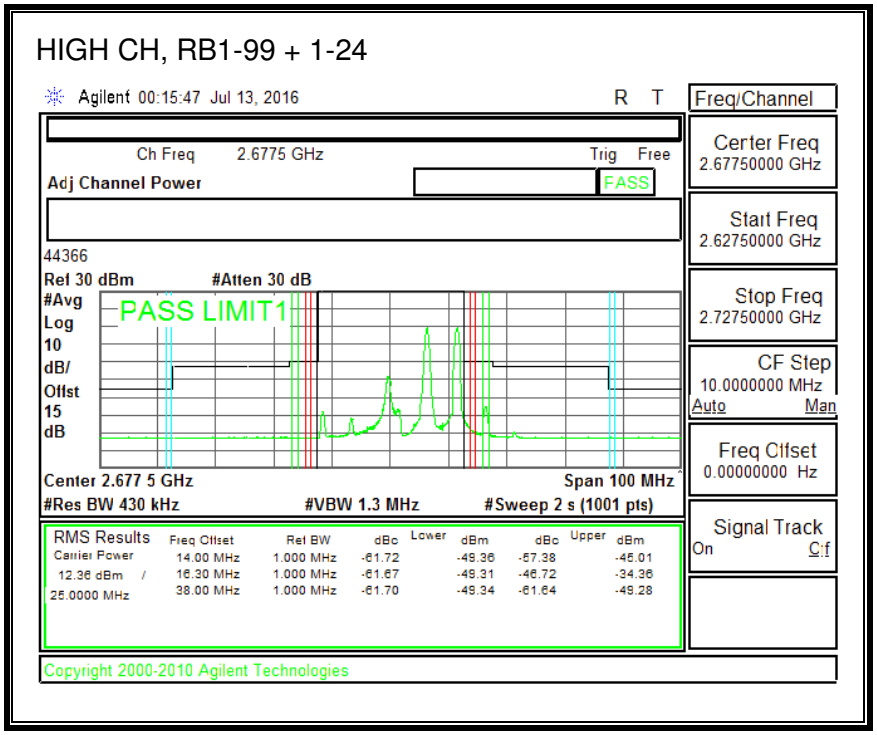
HIGH CH, RB1-0 + 1-0



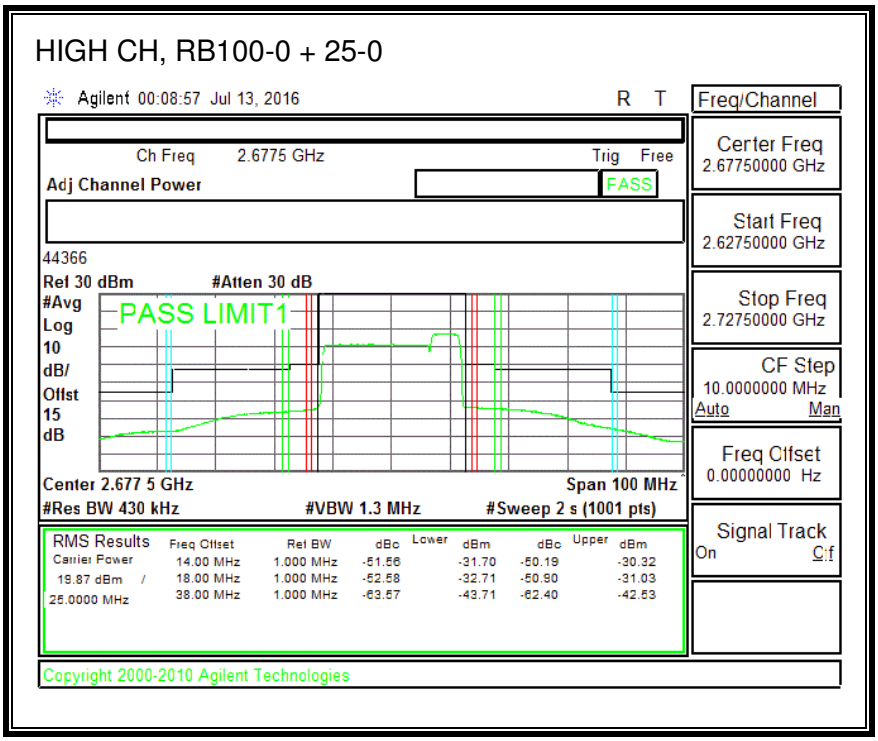
HIGH CH, RB1-0 + 1 24



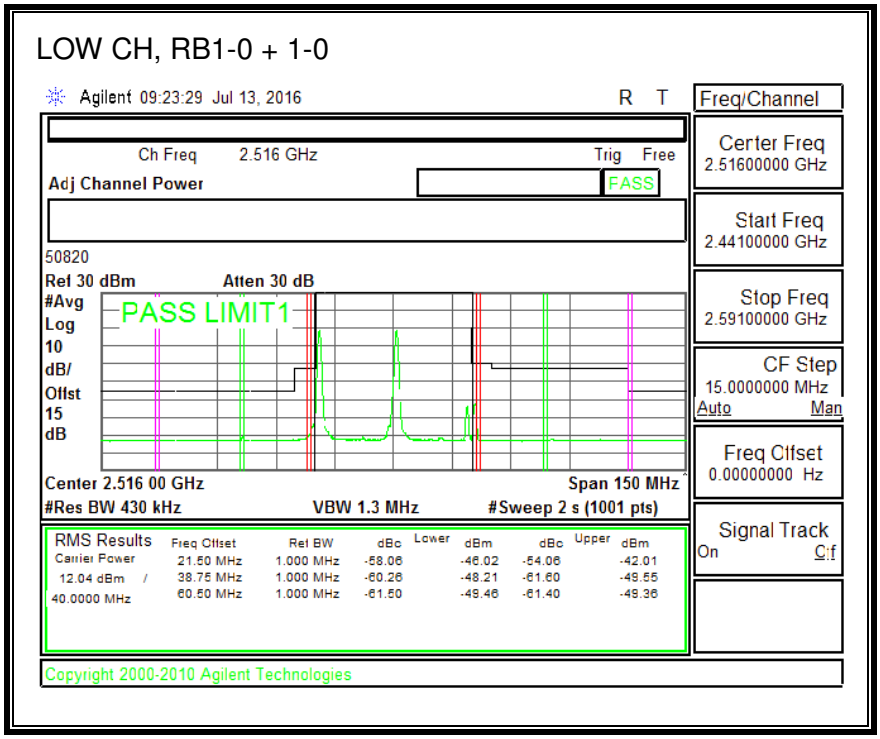
HIGH CH, RB1-99 + 1-24

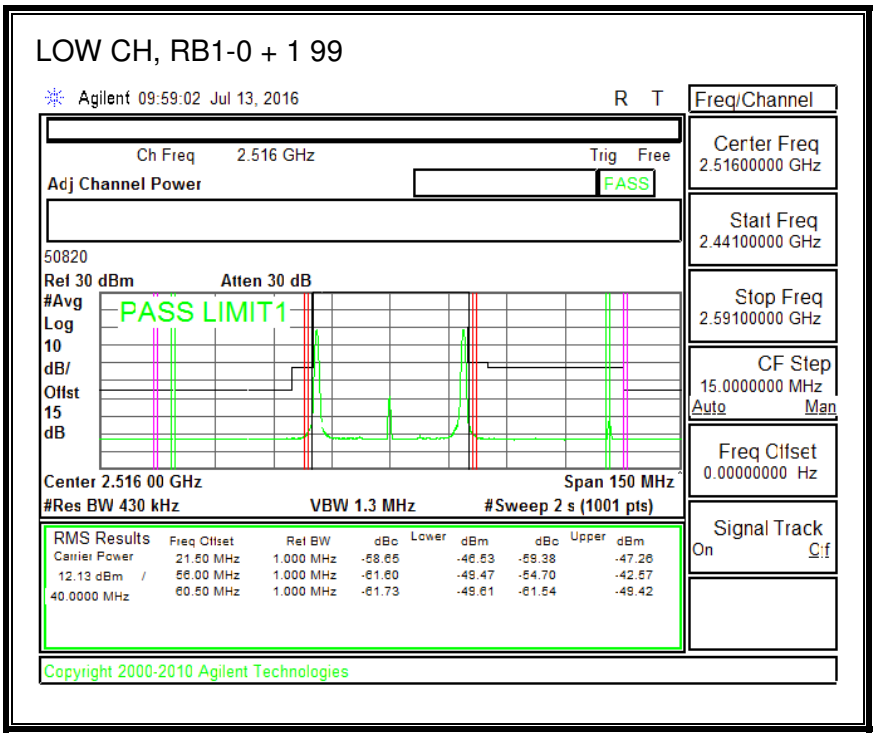


HIGH CH, RB100-0 + 25-0

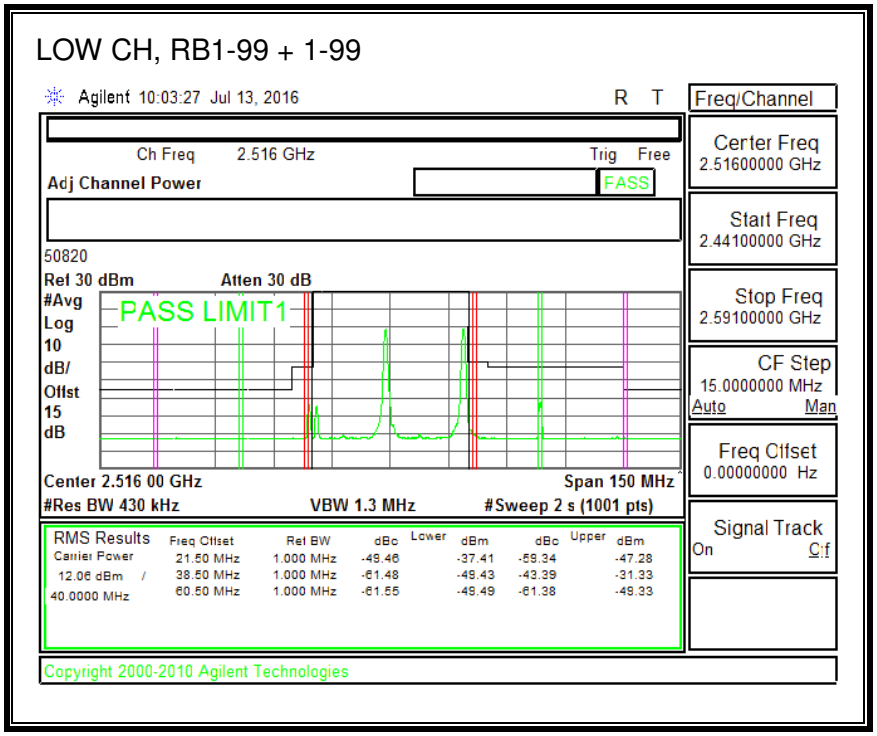


QPSK, (20.0 MHz + 20.0 MHz BAND WIDTH)

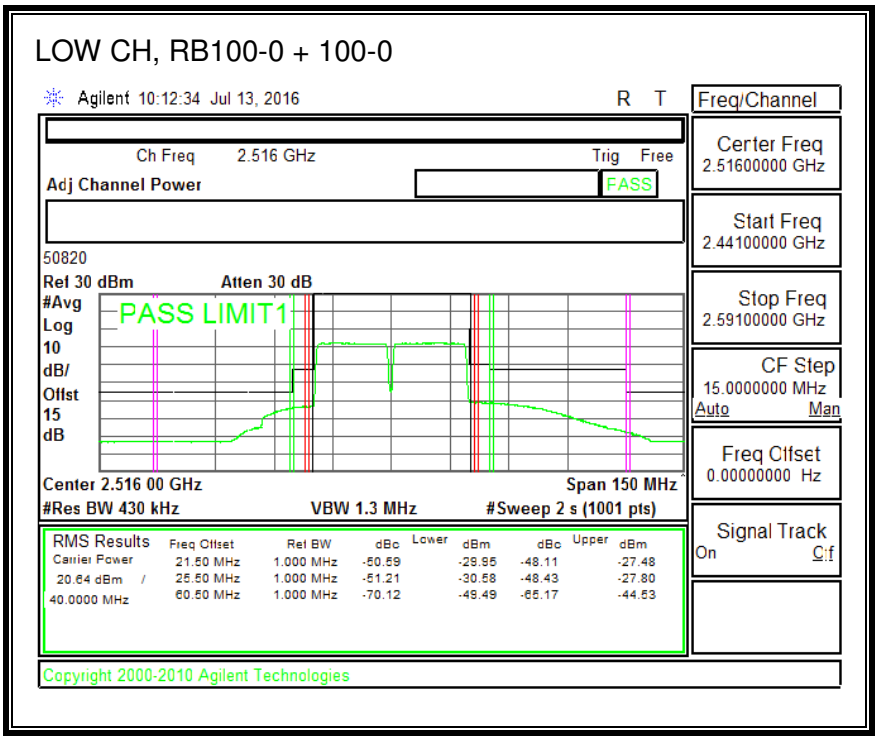




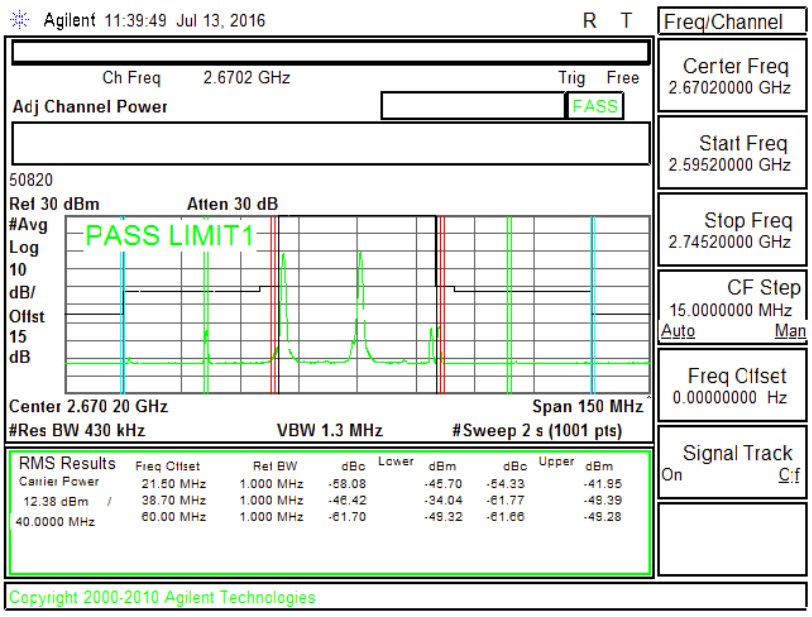
LOW CH, RB1-99 + 1-99



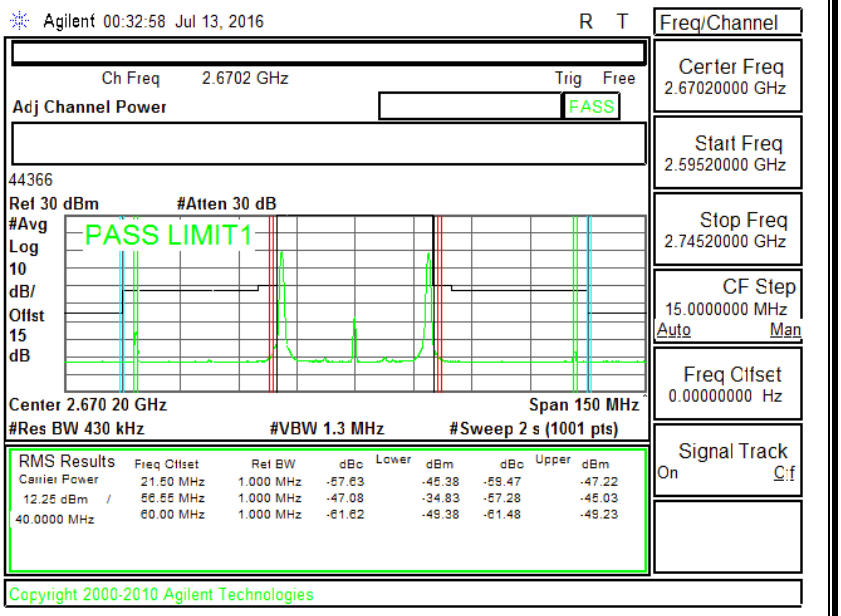
LOW CH, RB100-0 + 100-0



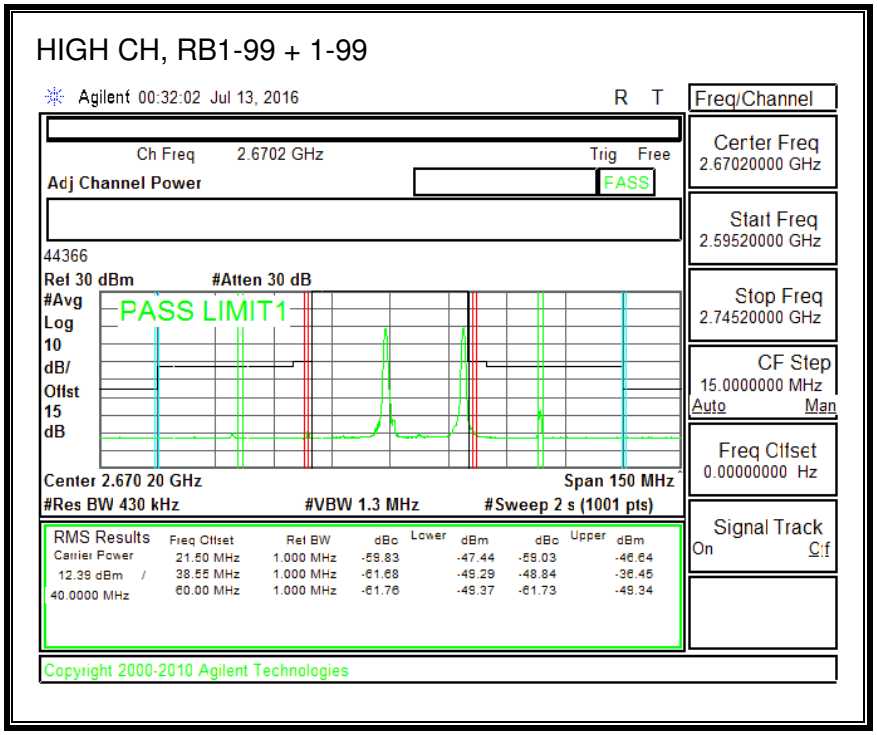
HIGH CH, RB1-0 + 1-0



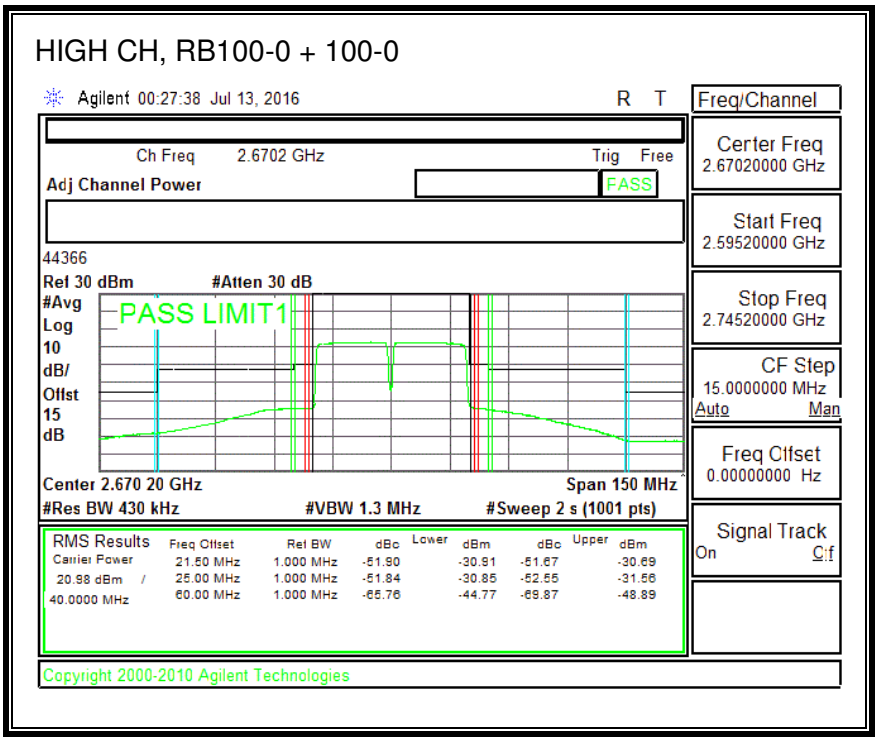
HIGH CH, RB1-0 + 1 99



HIGH CH, RB1-99 + 1-99

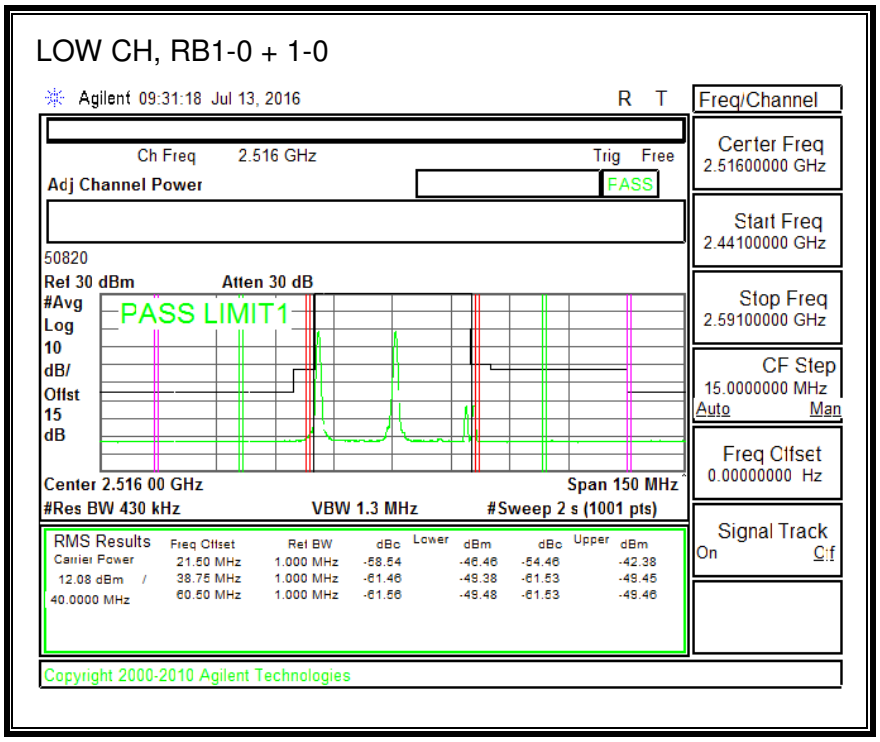


HIGH CH, RB100-0 + 100-0

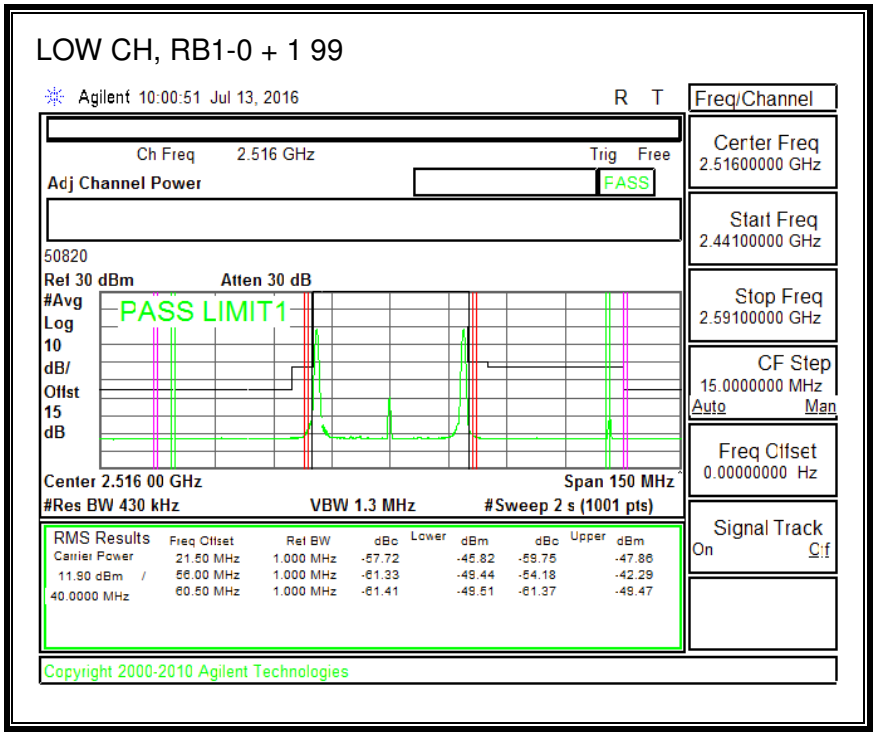


16QAM (20.0 MHz + 20.0 MHz BAND WIDTH)

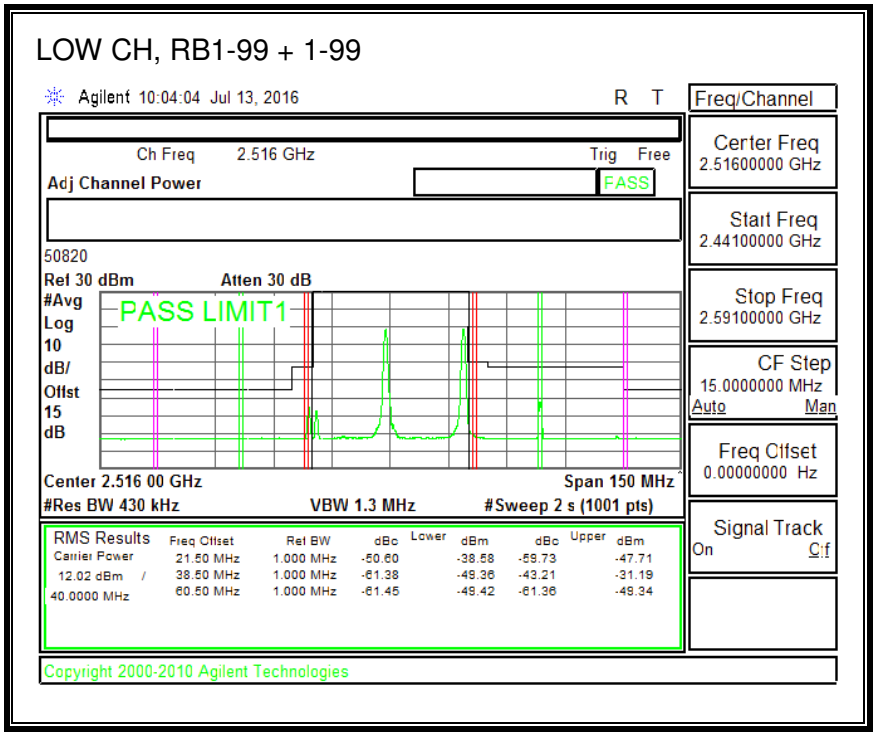
LOW CH, RB1-0 + 1-0



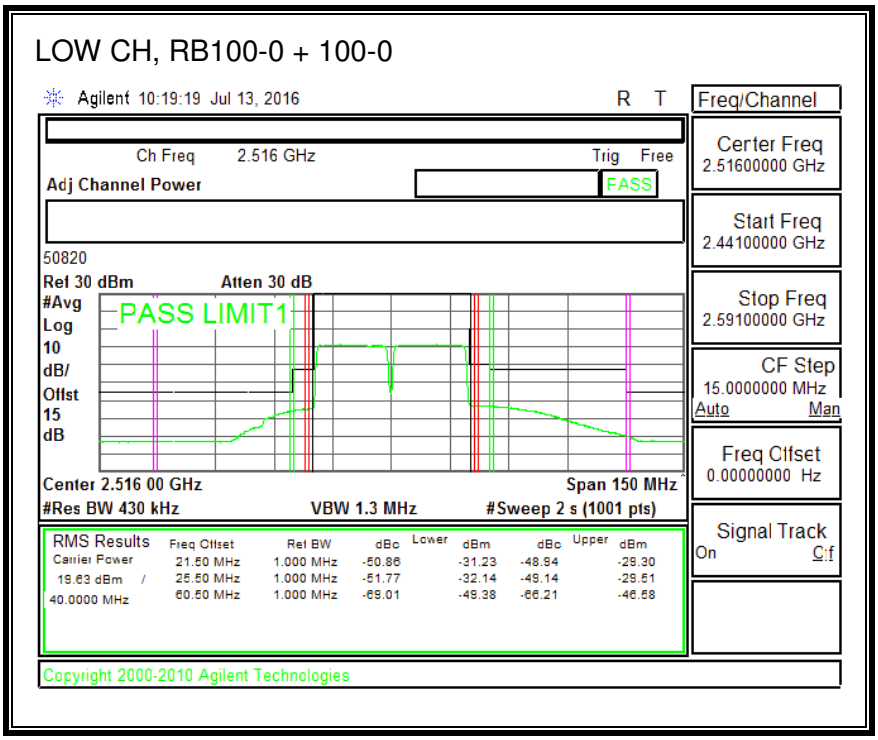
LOW CH, RB1-0 + 1 99



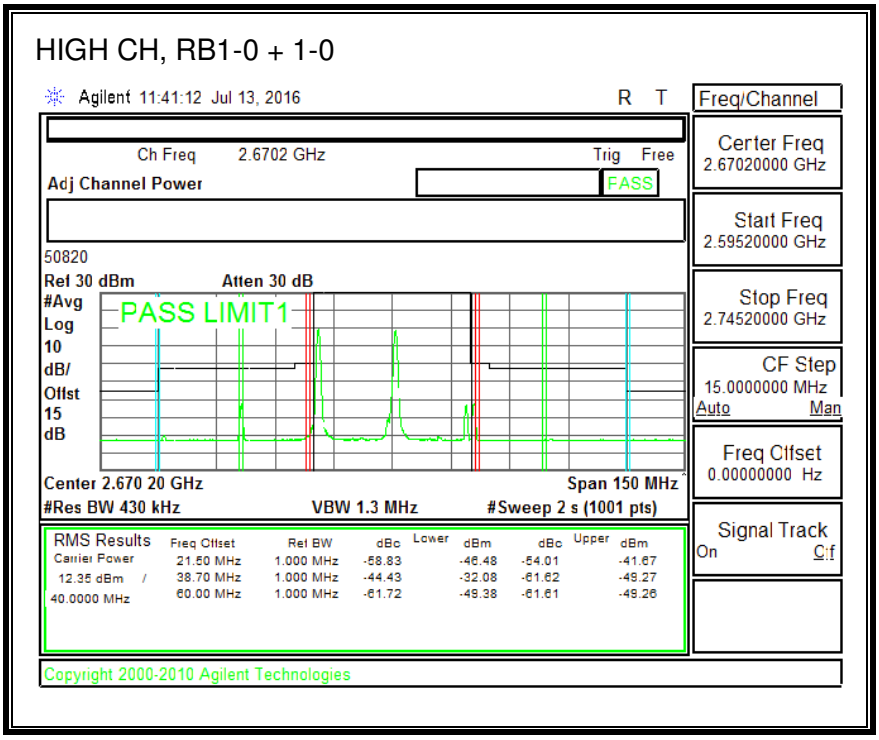
LOW CH, RB1-99 + 1-99



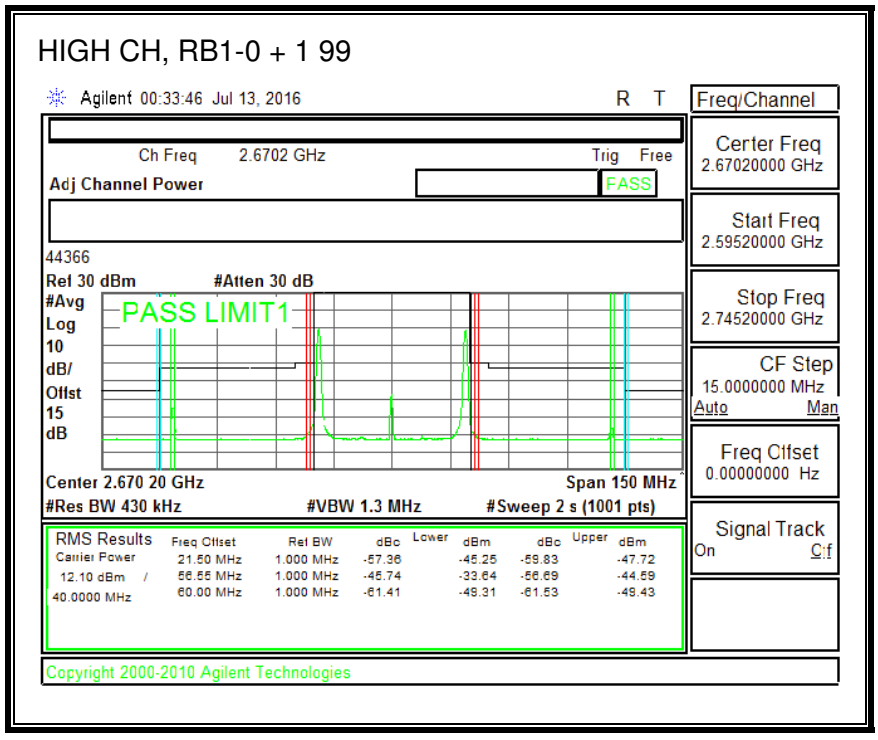
LOW CH, RB100-0 + 100-0



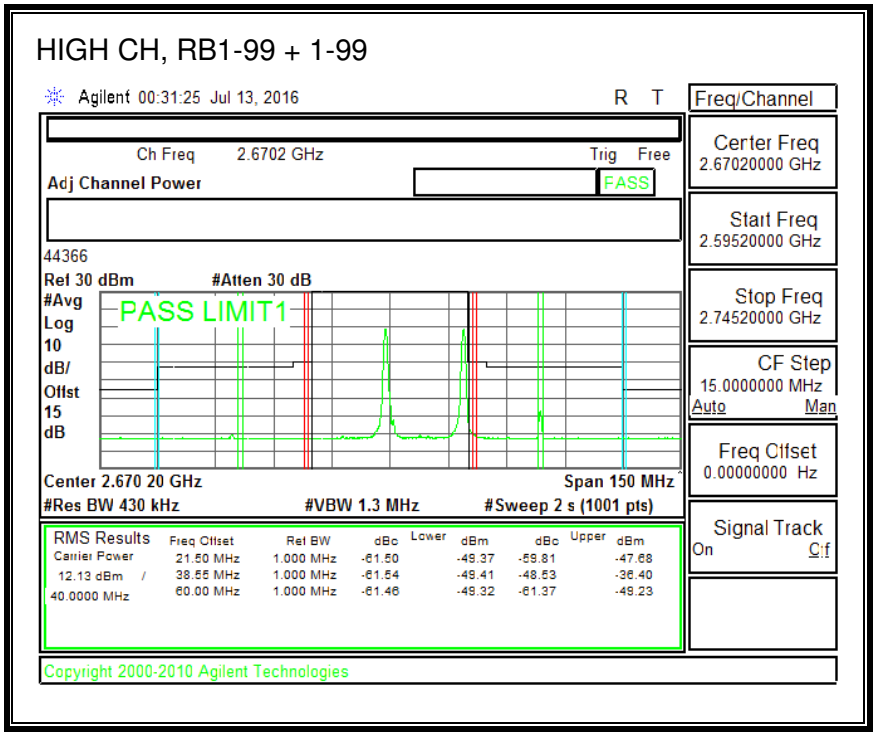
HIGH CH, RB1-0 + 1-0



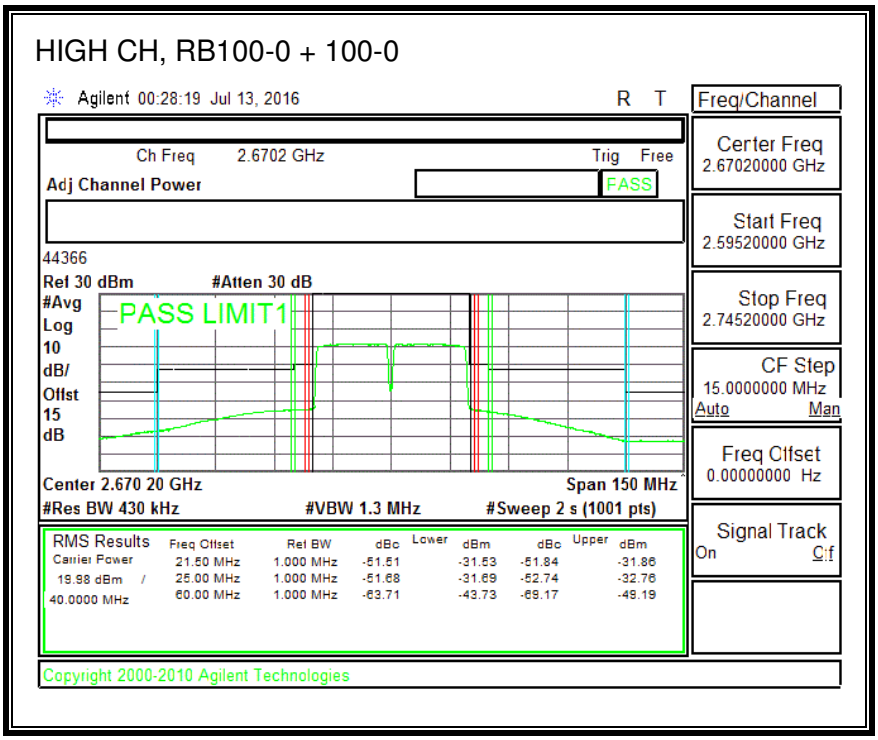
HIGH CH, RB1-0 + 1 99



HIGH CH, RB1-99 + 1-99



HIGH CH, RB100-0 + 100-0



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.

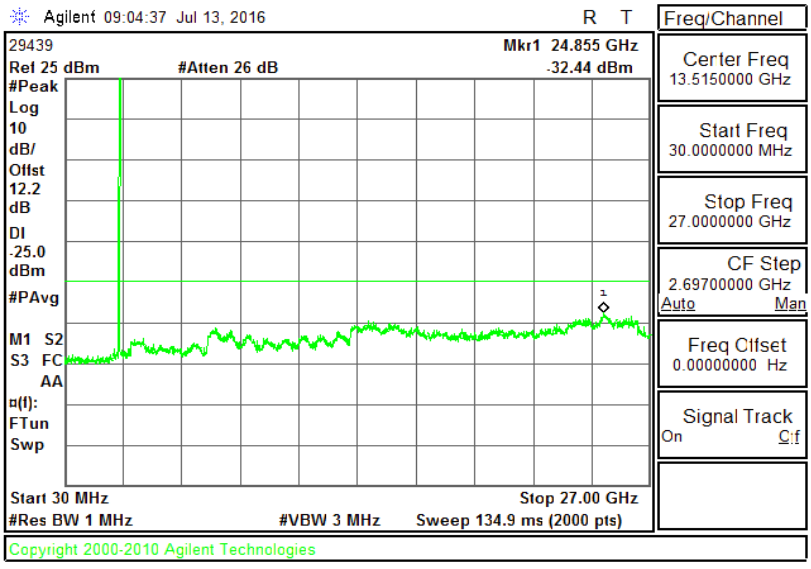
MODES TESTED

- LTE Band 7
- LTE Band 41

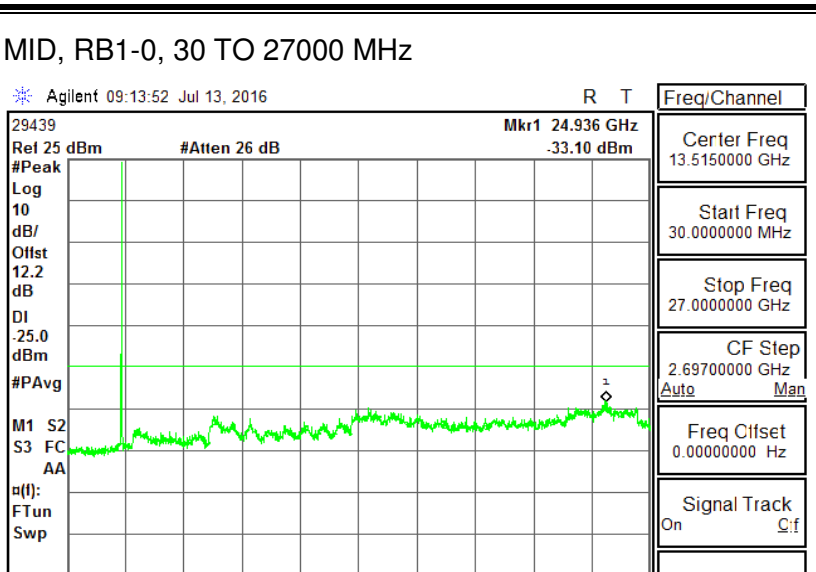
8.3.1. LTE BAND 7

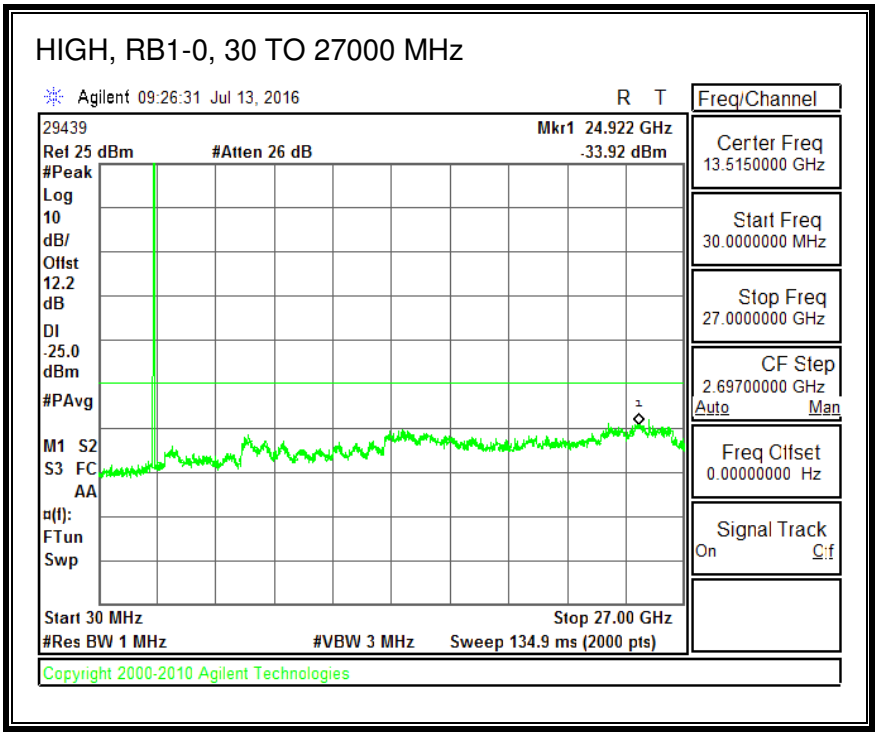
QPSK, (20.0 MHz+ 10.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 27000 MHz

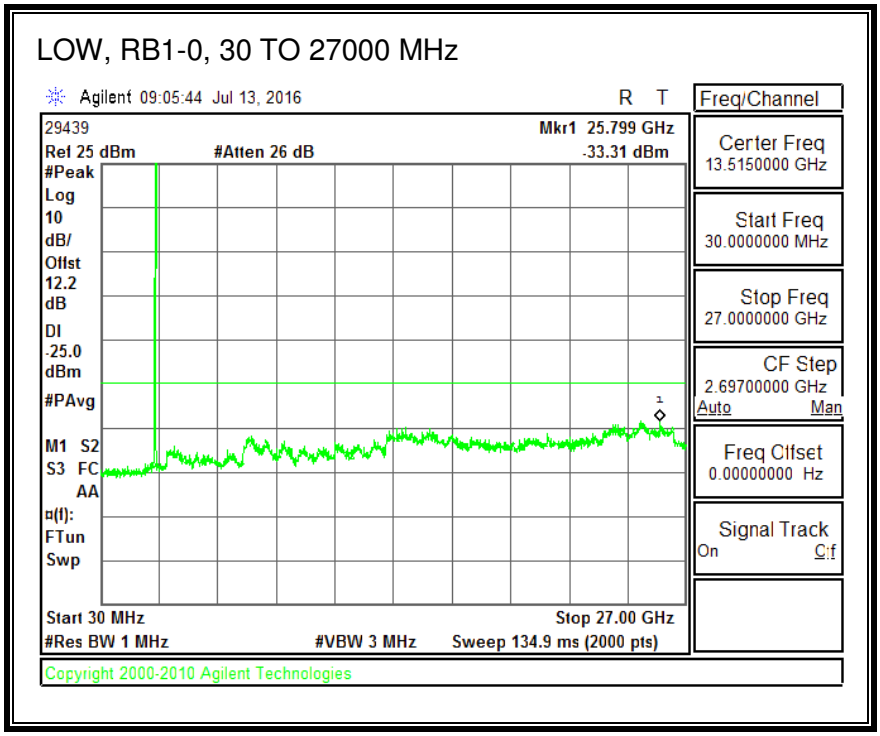


MID, RB1-0, 30 TO 27000 MHz

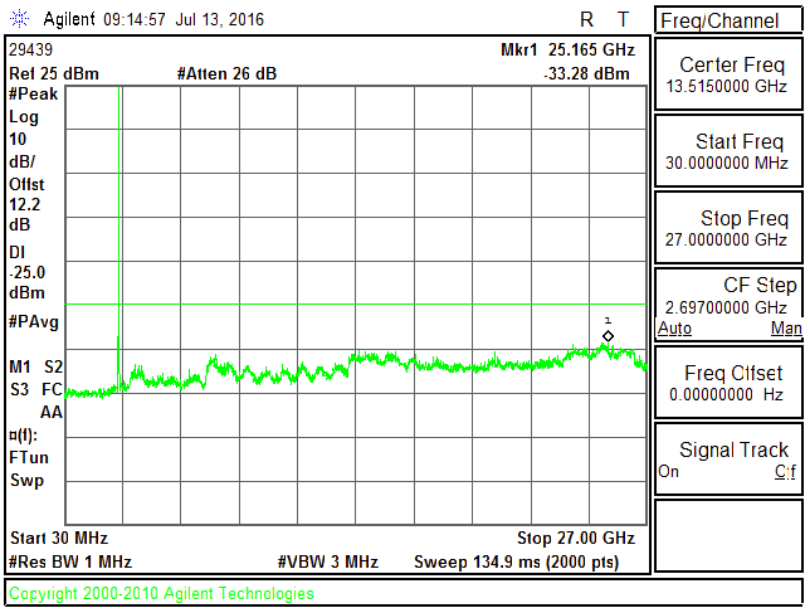




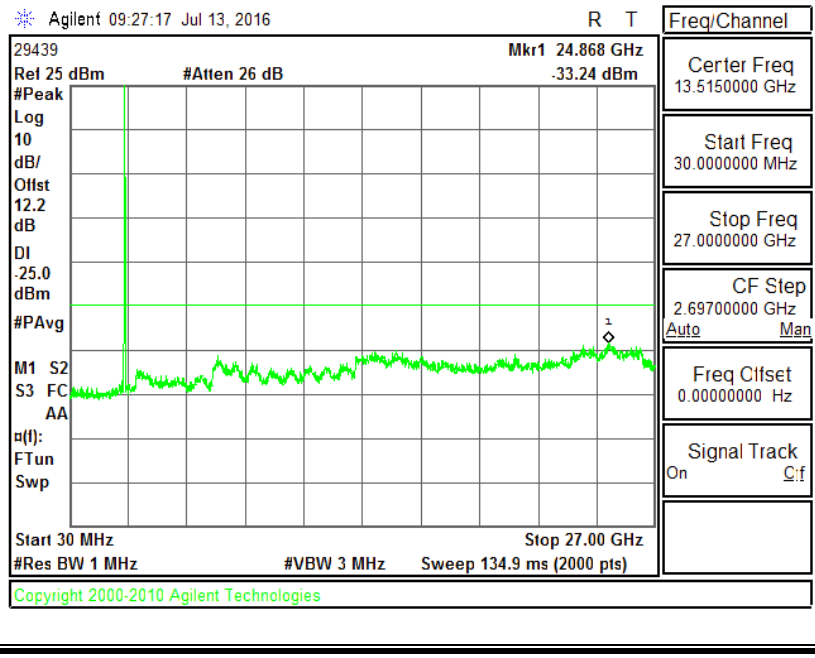
16QAM, (20.0 MHz+ 10.0 MHz BAND WIDTH)



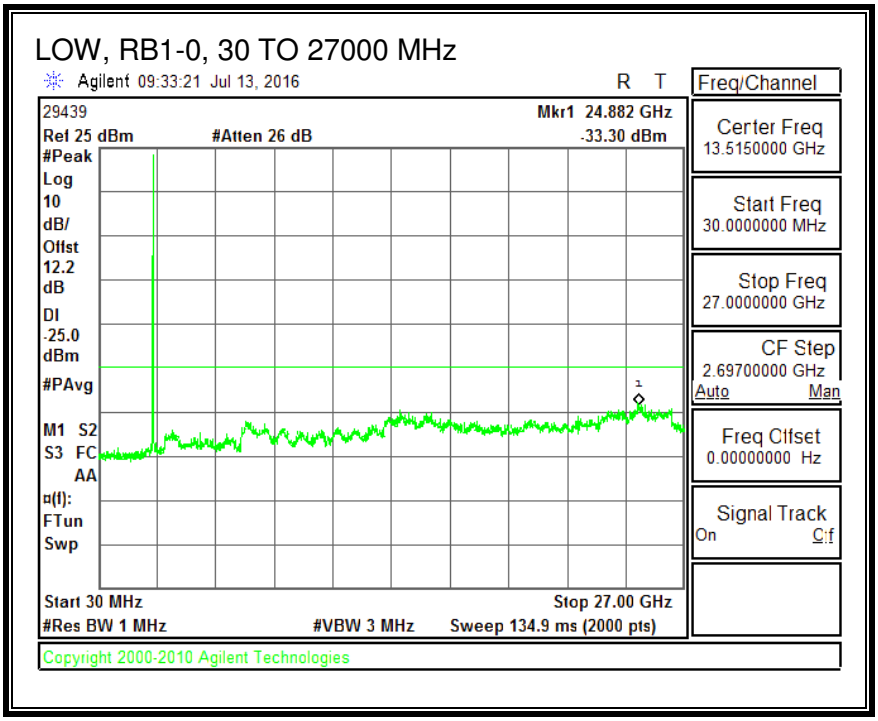
MID, RB1-0, 30 TO 27000 MHz

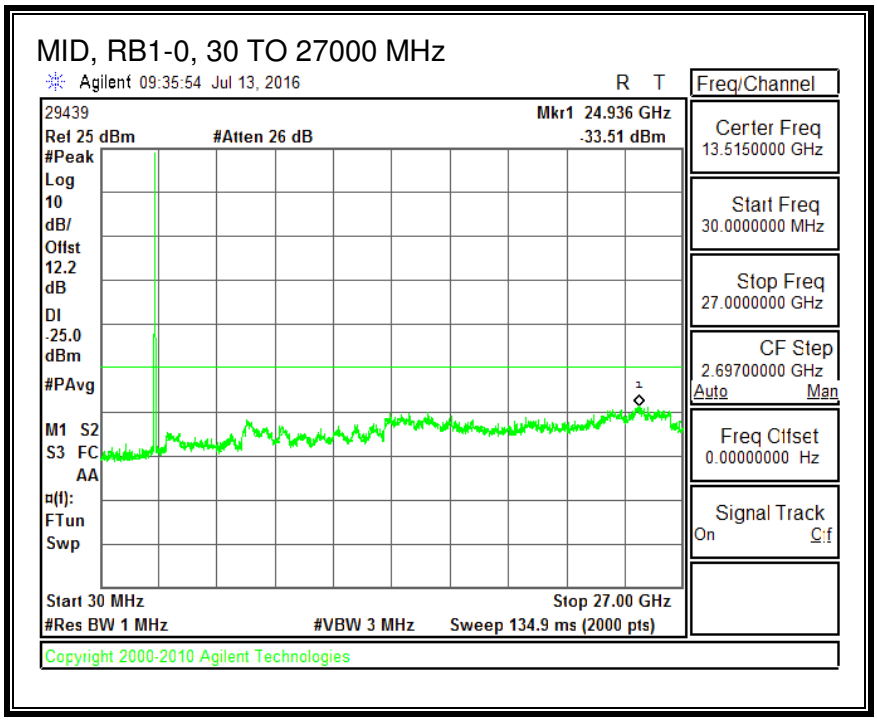


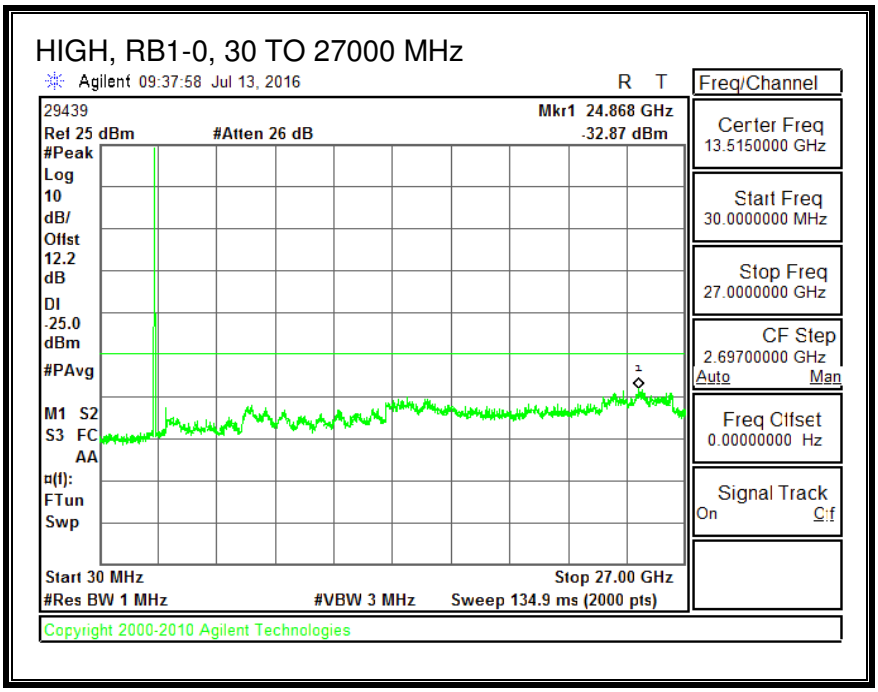
HIGH, RB1-0, 30 TO 27000 MHz



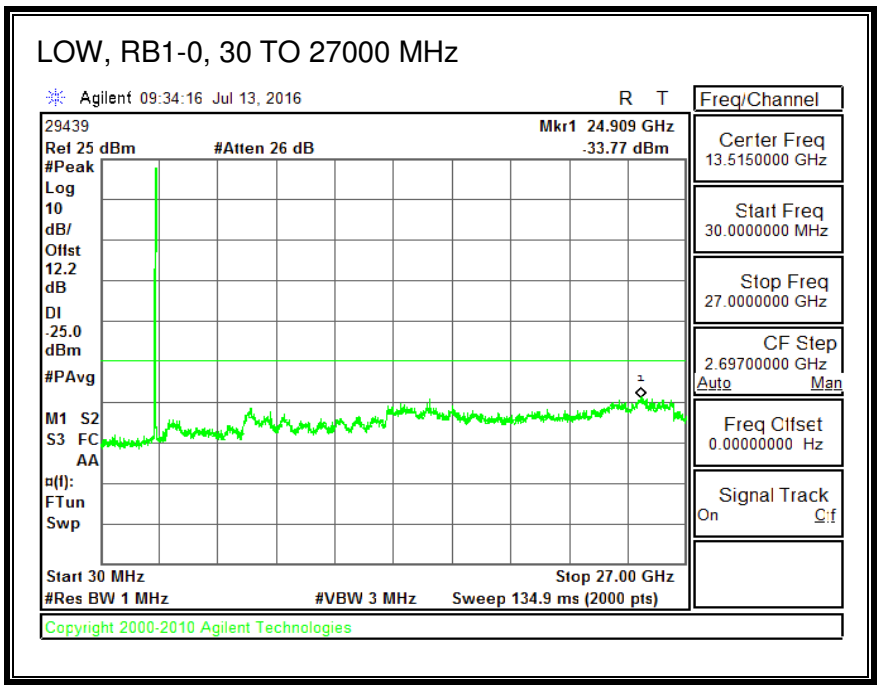
QPSK, (20.0 MHz+ 20.0 MHz BAND WIDTH)



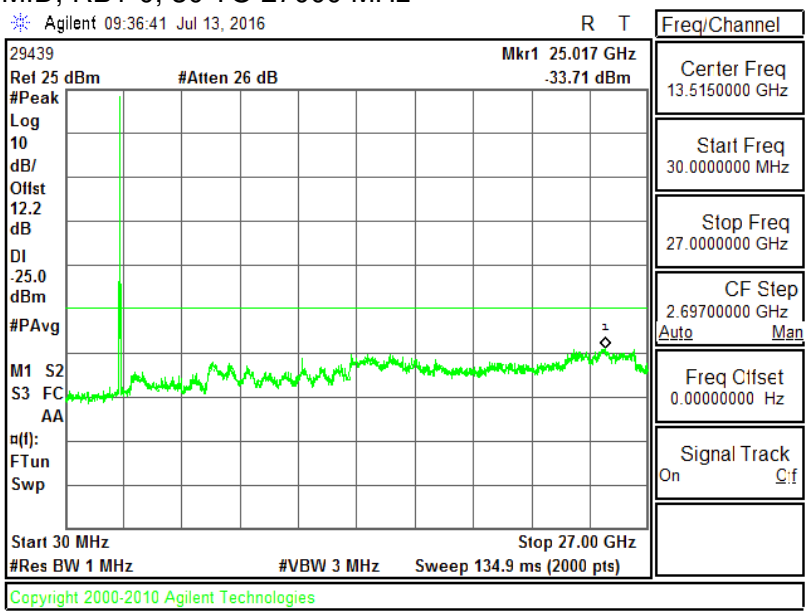




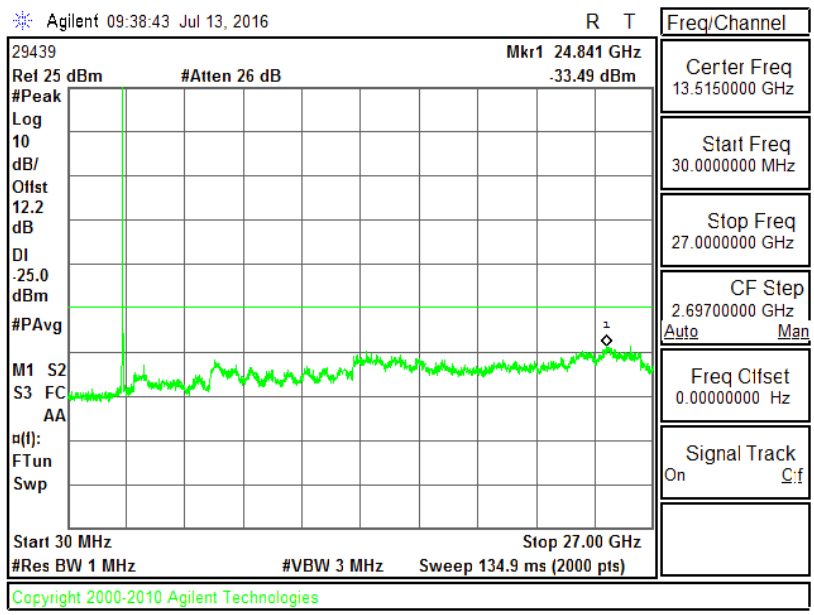
16QAM, (20.0 MHz+ 20.0 MHz BAND WIDTH)



MID, RB1-0, 30 TO 27000 MHz



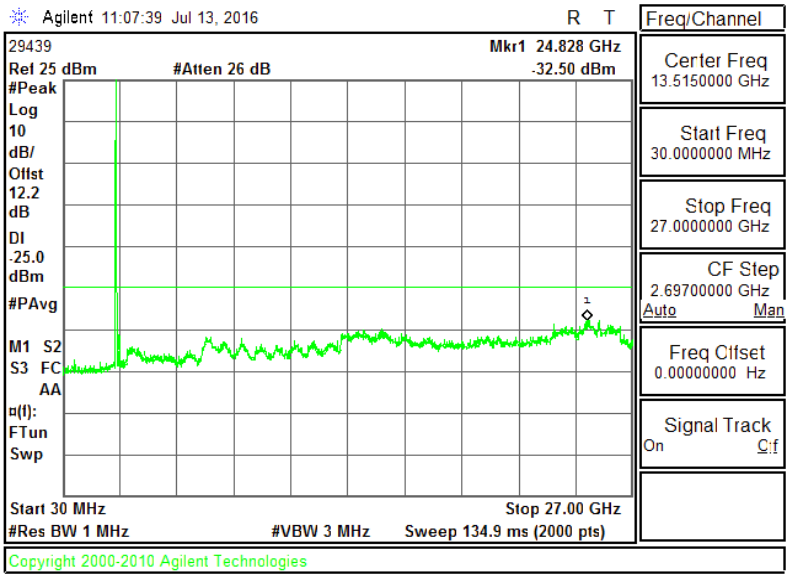
HIGH, RB1-0, 30 TO 27000 MHz



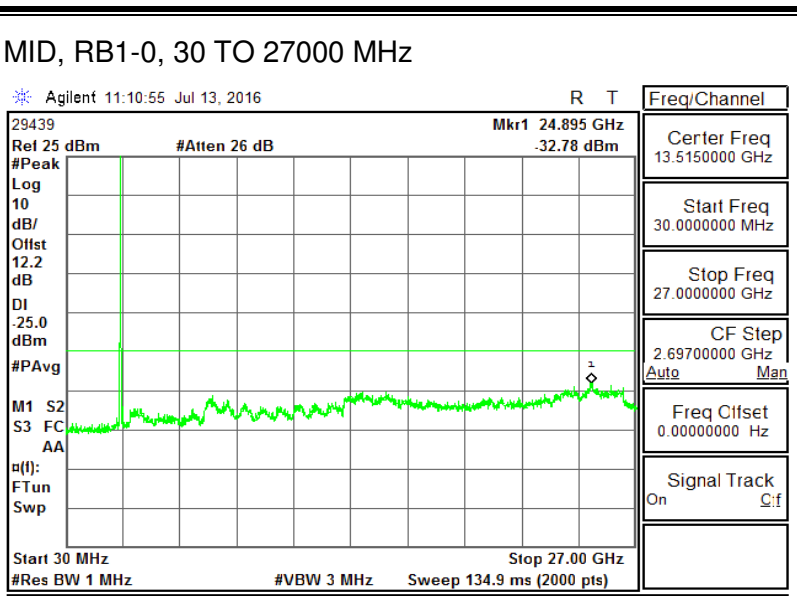
8.3.2. LTE BAND 41

QPSK, (20.0 MHz+ 5.0 MHz BAND WIDTH)

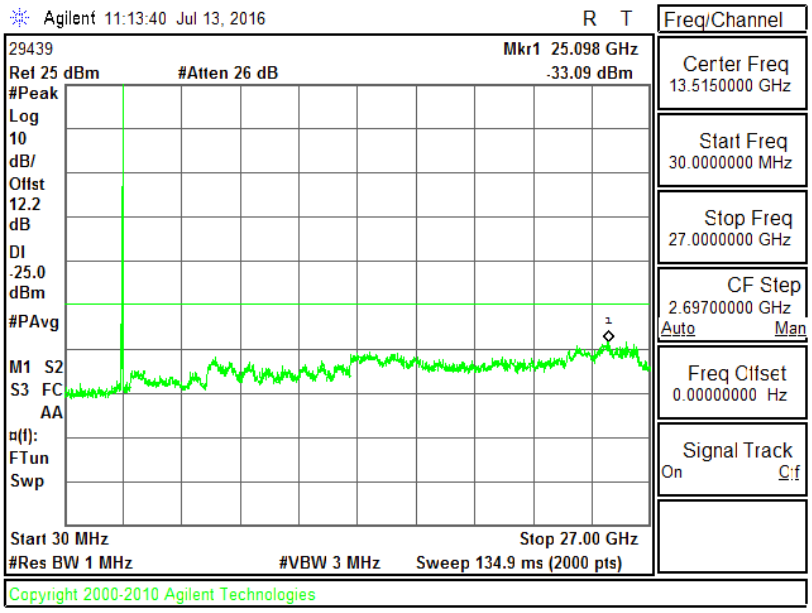
LOW, RB1-0, 30 TO 27000 MHz



MID, RB1-0, 30 TO 27000 MHz

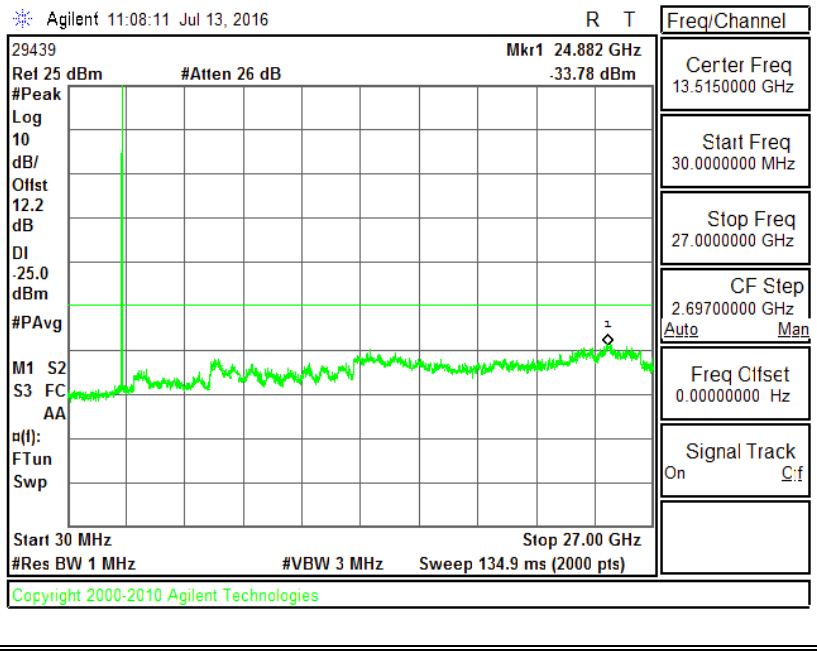


HIGH, RB1-0, 30 TO 27000 MHz

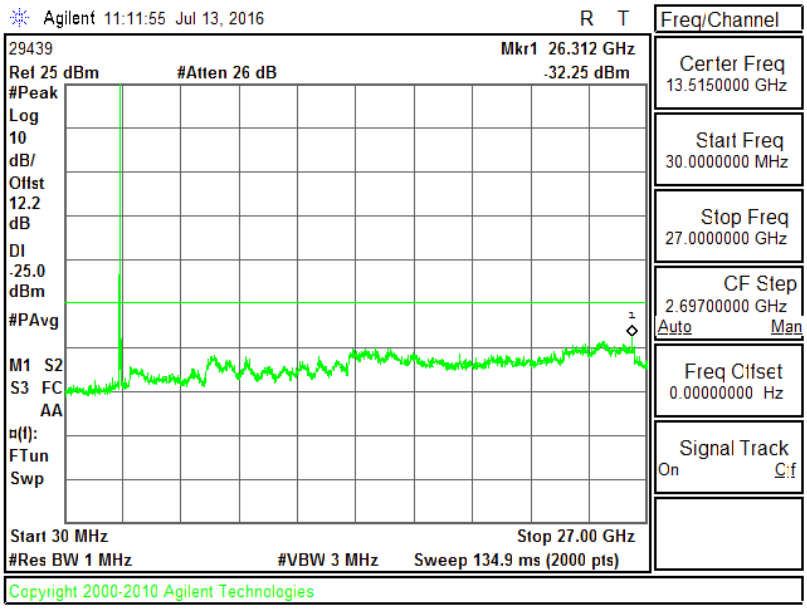


16QAM, (20.0 MHz+ 5.0 MHz BAND WIDTH)

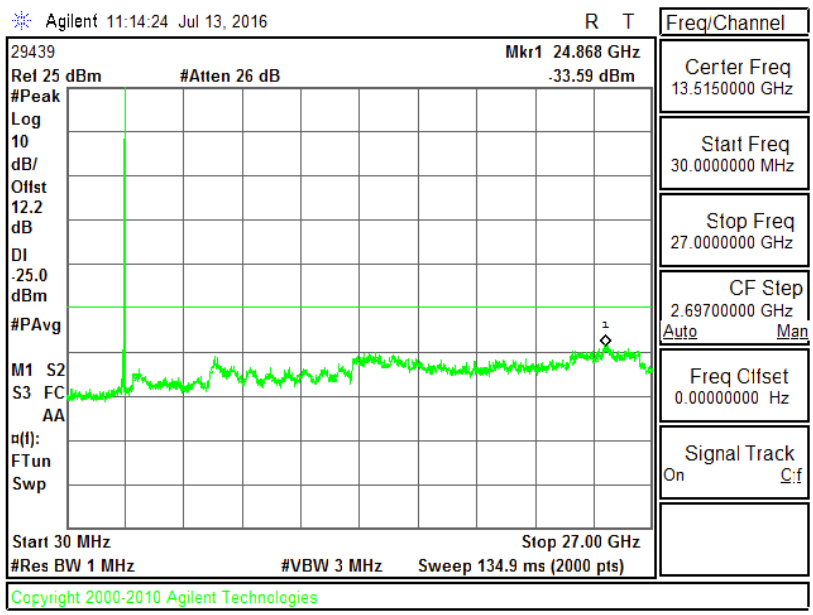
LOW, RB1-0, 30 TO 27000 MHz



MID, RB1-0, 30 TO 27000 MHz

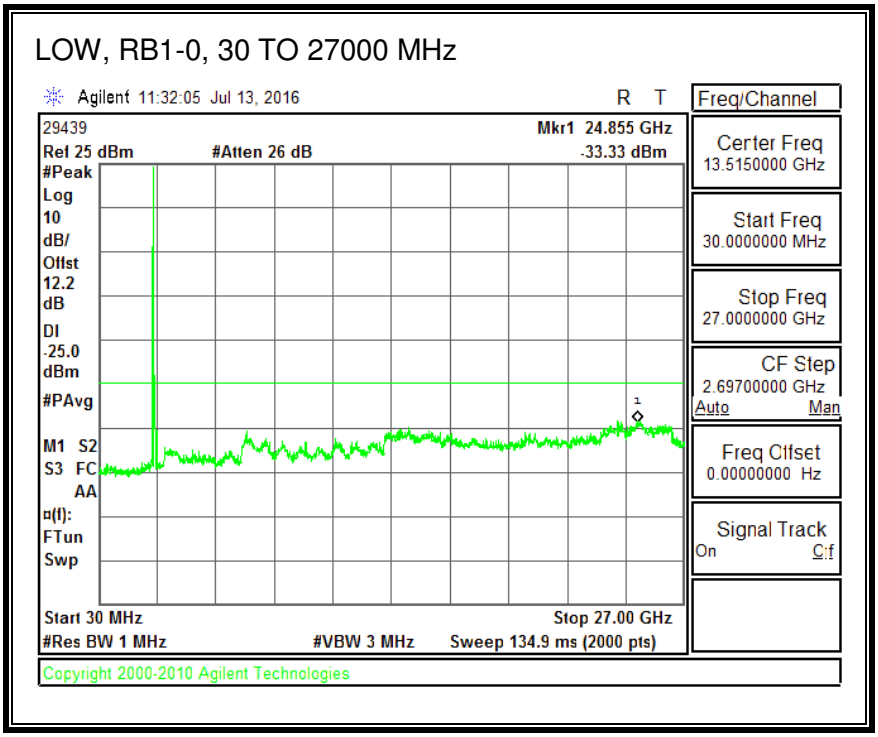


HIGH, RB1-0, 30 TO 27000 MHz

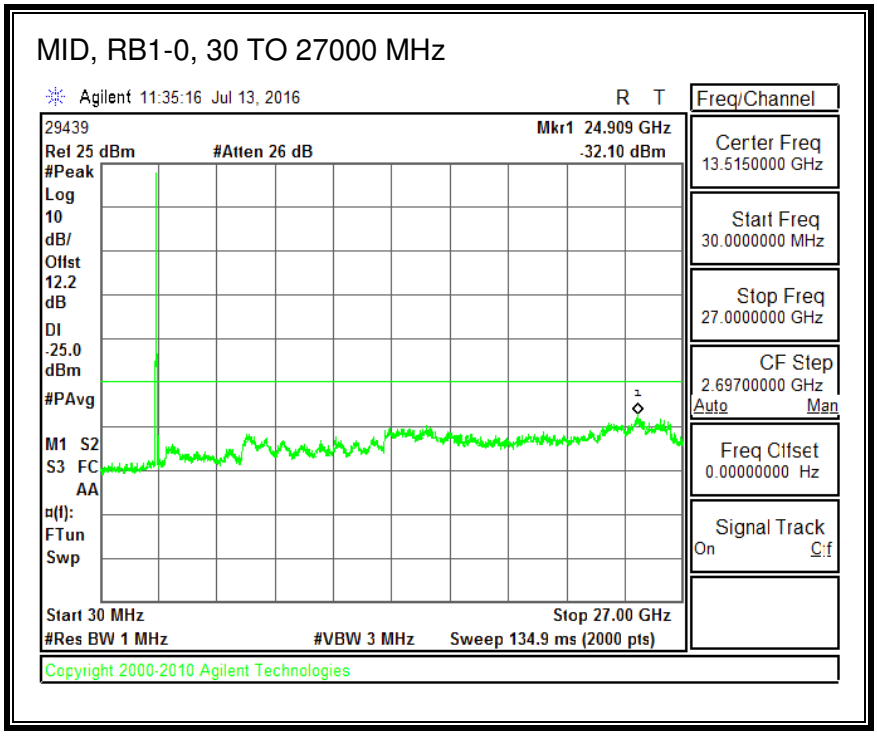


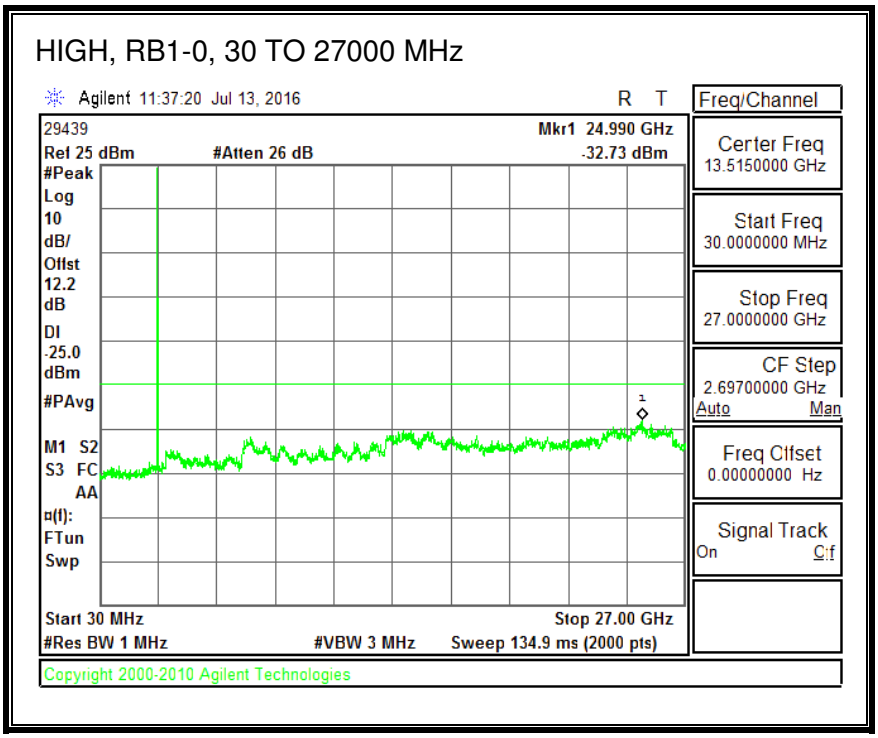
QPSK, (20.0 MHz+ 20.0 MHz BAND WIDTH)

LOW, RB1-0, 30 TO 27000 MHz

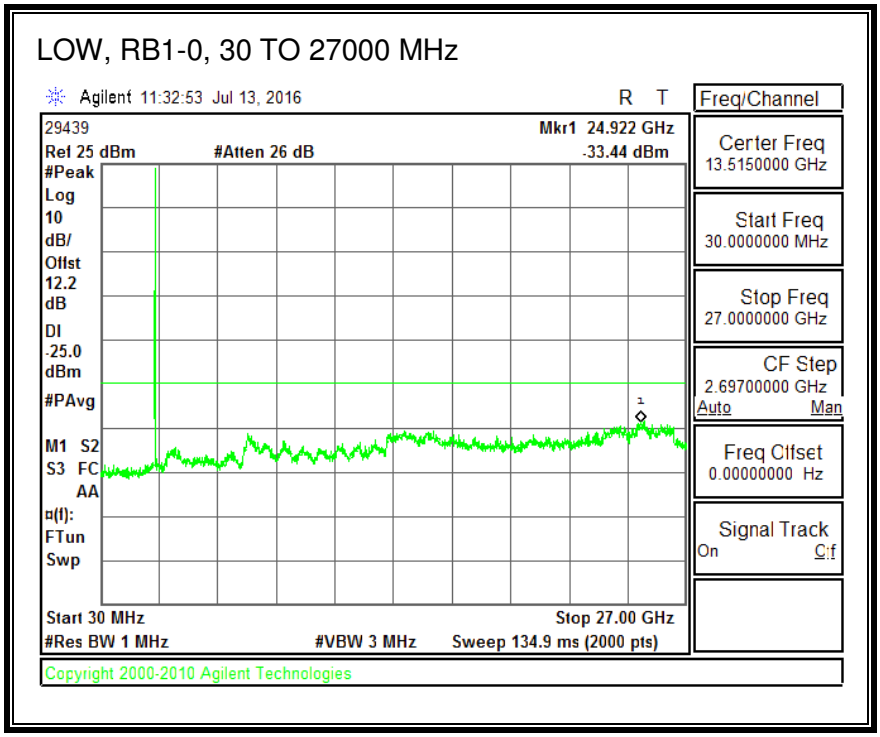


MID, RB1-0, 30 TO 27000 MHz

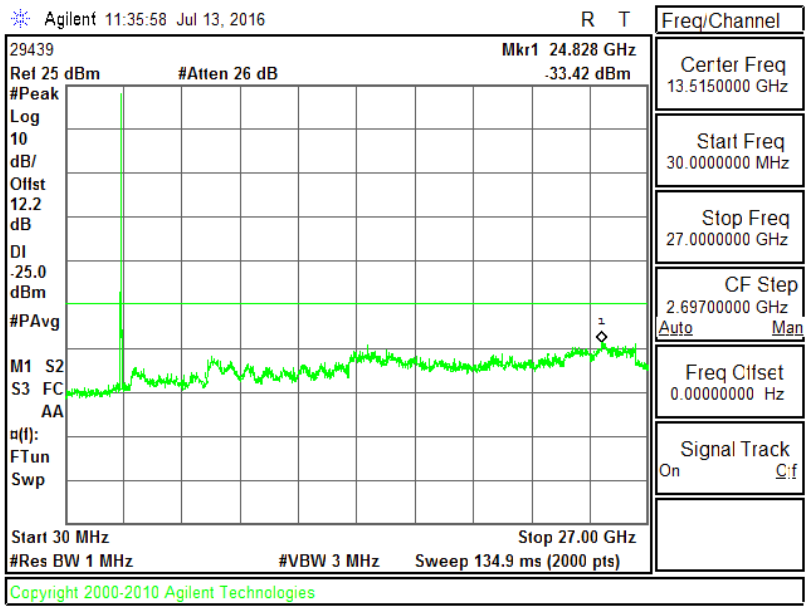




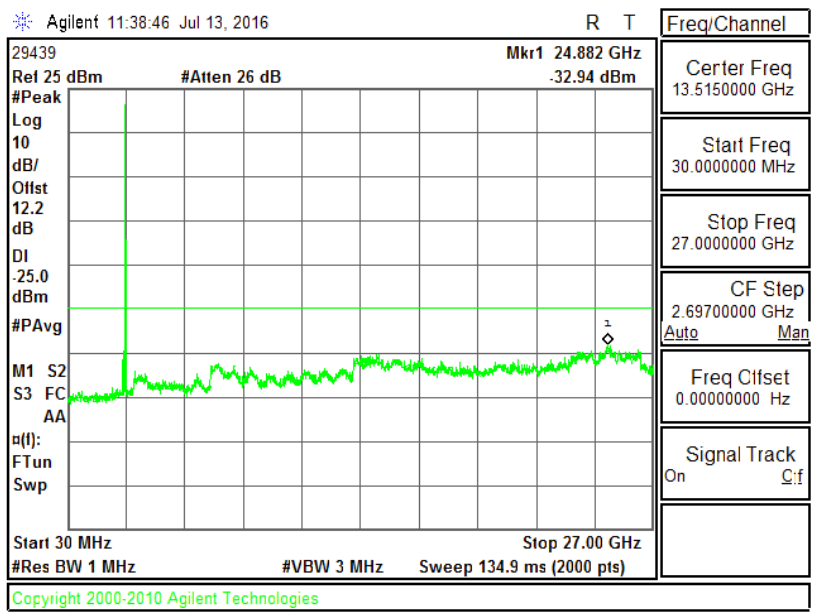
16QAM, (20.0 MHz+ 20.0 MHz BAND WIDTH)



MID, RB1-0, 30 TO 27000 MHz



HIGH, RB1-0, 30 TO 27000 MHz



9. FREQUENCY STABILITY

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°C
- Voltage =low voltage, 3.4VDC, Normal, 3.8VDC and High voltage, 4.3VDC.

Frequency Stability vs Temperature:
The EUT is place inside a temperature chamber. The temperature is set to 20ºC 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 +50ºC 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:	50822	Date:	7/14/16

QPSK, (20MHz + 10MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (25C)	Normal	2500.6670	2569.2830		
Extreme (50C)		2500.6670	2569.2830	30.7	0.012
Extreme (40C)		2500.6670	2569.2830	32.4	0.013
Extreme (30C)		2500.6670	2569.2830	22.6	0.009
Extreme (10C)		2500.6670	2569.2830	9.1	0.004
Extreme (0C)		2500.6670	2569.2830	-3.5	-0.001
Extreme (-10C)		2500.6670	2569.2830	-14.8	-0.006
Extreme (-20C)		2500.6670	2569.2830	-20.6	-0.008
Extreme (-30C)		2500.6670	2569.2830	-16.6	-0.007
25C	10%	2500.6670	2569.2830	17.6	0.007
	-10%	2500.6670	2569.2830	14.6	0.006
	End Point	2500.6670	2569.2830	9.4	0.004

16QAM, (20MHz + 10MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (25C)	Normal	2500.7170	2569.3170		
Extreme (50C)		2500.7170	2569.3170	30.5	0.012
Extreme (40C)		2500.7170	2569.3170	30.1	0.012
Extreme (30C)		2500.7170	2569.3170	24.2	0.010
Extreme (10C)		2500.7170	2569.3170	25.3	0.010
Extreme (0C)		2500.7170	2569.3170	-12.4	-0.005
Extreme (-10C)		2500.7170	2569.3170	-19.8	-0.008
Extreme (-20C)		2500.7170	2569.3170	-25.4	-0.010
Extreme (-30C)		2500.7170	2569.3170	-34.7	-0.014
25C	10%	2500.7170	2569.3170	15.6	0.006
	-10%	2500.7170	2569.3170	18.0	0.007
	End Point	2500.7170	2569.3170	15.1	0.006

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (25C)	Normal	2500.6830	2569.2330		
Extreme (50C)		2500.6830	2569.2330	5.7	0.002
Extreme (40C)		2500.6830	2569.2330	-2.6	-0.001
Extreme (30C)		2500.6830	2569.2330	-3.8	-0.002
Extreme (10C)		2500.6830	2569.2330	-3.9	-0.002
Extreme (0C)		2500.6830	2569.2330	-3.0	-0.001
Extreme (-10C)		2500.6830	2569.2330	-1.3	-0.001
Extreme (-20C)		2500.6830	2569.2330	-1.2	0.000
Extreme (-30C)		2500.6830	2569.2330	-2.7	-0.001
25C	10%	2500.6830	2569.2330	-3.6	-0.001
	-10%	2500.6830	2569.2330	-4.6	-0.002
	End Point	2500.6830	2569.2330	-4.8	-0.002

16QAM, (20MHz + 20MHz BANDWIDTH)

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (25C)	Normal	2500.6000	2569.2000		
Extreme (50C)		2500.5999	2569.1999	-58.2	-0.023
Extreme (40C)		2500.5999	2569.1999	-61.7	-0.024
Extreme (30C)		2500.5999	2569.1999	-56.7	-0.022
Extreme (10C)		2500.6000	2569.2000	-9.4	-0.004
Extreme (0C)		2500.6000	2569.2000	-17.8	-0.007
Extreme (-10C)		2500.6000	2569.2000	-44.1	-0.017
Extreme (-20C)		2500.5999	2569.1999	-51.5	-0.020
Extreme (-30C)		2500.6000	2569.2000	-47.2	-0.019
25C	10%	2500.6000	2569.2000	4.0	0.002
	-10%	2500.6000	2569.2000	16.2	0.006
	End Point	2500.6000	2569.2000	14.1	0.006

9.2. LTE BAND 41

ID:	52269	Date:	7/15/16

QPSK, (20MHz + 5MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (25C)	Normal	2496.8000	2689.2330		
Extreme (50C)		2496.8000	2689.2330	-38.3	-0.015
Extreme (40C)		2496.8000	2689.2330	-24.2	-0.009
Extreme (30C)		2496.8000	2689.2330	-21.3	-0.008
Extreme (10C)		2496.8000	2689.2330	-22.7	-0.009
Extreme (0C)		2496.8000	2689.2330	-4.4	-0.002
Extreme (-10C)		2496.8000	2689.2330	15.1	0.006
Extreme (-20C)		2496.8000	2689.2330	24.3	0.009
Extreme (-30C)		2496.8000	2689.2330	31.4	0.012
25C	10%	2496.8000	2689.2330	-20.4	-0.008
	-10%	2496.8000	2689.2330	-22.8	-0.009
	End Point	2496.8000	2689.2330	-28.5	-0.011

16QAM, (20MHz + 5MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (25C)	Normal	2496.8000	2689.2330		
Extreme (50C)		2496.8000	2689.2330	-37.5	-0.014
Extreme (40C)		2496.8000	2689.2330	-25.6	-0.010
Extreme (30C)		2496.8000	2689.2330	-23.4	-0.009
Extreme (10C)		2496.8000	2689.2330	-22.2	-0.009
Extreme (0C)		2496.8000	2689.2330	-4.6	-0.002
Extreme (-10C)		2496.8000	2689.2330	15.4	0.006
Extreme (-20C)		2496.8000	2689.2330	24.8	0.010
Extreme (-30C)		2496.8000	2689.2330	32.4	0.013
25C	10%	2496.8000	2689.2330	-21.6	-0.008
	-10%	2496.8000	2689.2330	-24.1	-0.009
	End Point	2496.8000	2689.2330	-19.6	-0.008

QPSK, (20MHz + 20MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (25C)	Normal	2496.6170	2689.2330		
Extreme (50C)		2496.6170	2689.2330	-44.3	-0.017
Extreme (40C)		2496.6170	2689.2330	-31.2	-0.012
Extreme (30C)		2496.6170	2689.2330	-26.7	-0.010
Extreme (10C)		2496.6170	2689.2330	-24.4	-0.009
Extreme (0C)		2496.6170	2689.2330	-5.2	-0.002
Extreme (-10C)		2496.6170	2689.2330	14.3	0.006
Extreme (-20C)		2496.6170	2689.2330	23.4	0.009
Extreme (-30C)		2496.6170	2689.2330	30.2	0.012
25C	10%	2496.6170	2689.2330	-27.4	-0.011
	-10%	2496.6170	2689.2330	-26.2	-0.010
	End Point	2496.6170	2689.2330	-27.6	-0.011

16QAM, (20MHz + 20MHz BANDWIDTH)

Limit		2496	2690	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (25C)	Normal	2496.8170	2689.2330		
Extreme (50C)		2496.8170	2689.2330	-42.2	-0.016
Extreme (40C)		2496.8170	2689.2330	-28.3	-0.011
Extreme (30C)		2496.8170	2689.2330	-29.4	-0.011
Extreme (10C)		2496.8170	2689.2330	-28.5	-0.011
Extreme (0C)		2496.8170	2689.2330	-7.2	-0.003
Extreme (-10C)		2496.8170	2689.2330	10.3	0.004
Extreme (-20C)		2496.8170	2689.2330	21.6	0.008
Extreme (-30C)		2496.8170	2689.2330	-28.2	-0.011
25C	10%	2496.8170	2689.2330	-28.3	-0.011
	-10%	2496.8170	2689.2330	-26.5	-0.010
	End Point	2496.8170	2689.2330	-30.1	-0.012

10. RADIATED TEST RESULTS

10.1. RADIATED POWER (ERP & EIRP), LAT

FCC: §2.1046, §27.50

LIMITS:

§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-

TEST PROCEDURE

ANSI C63.26:2015/ TIA / EIA 603-D Clause 2.2.17
KDB 971168 D01 RF power output using broadband peak and average power meter method.

MODES TESTED

- LTE Band 7
- LTE Band 41

RESULTS

LAT

EIRP POWER FOR LTE BAND 7 (10.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
10.0MHZ + 20.0MHZ BAND QPSK	1/49 + 1/0	2505.5 + 2519.9	24.48	280.54
		2525.6 + 2540	**25.16**	328.10
		2545.6 + 2560	24.83	304.09
10.0MHZ + 20.0MHZ BAND 16QAM	1/49 + 1/0	2505.5 + 2519.9	23.58	228.03
		2525.6 + 2540	**24.26**	266.69
		2545.6 + 2560	23.93	247.17

EIRP POWER FOR LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 10.0MHZ BAND QPSK	1/99 + 1/0	2510 + 2524.4	24.51	282.49
		2530.1 + 2544.5	**25.10**	323.59
		2550.1 + 2564.5	24.55	285.10
20.0MHZ + 10.0MHZ BAND 16QAM	1/99 + 1/0	2510 + 2524.4	23.61	229.61
		2530.1 + 2544.5	23.96	248.89
		2550.1 + 2564.5	**24.18**	261.82

EIRP POWER FOR LTE BAND 7 (15.0MHZ + 15MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
15.0MHZ + 15.0MHZ BAND QPSK	1/74 + 1/0	2507.5 + 2522.5	24.74	297.85
		2527.5 + 2542.5	24.86	306.20
		2547.5 + 2562.5	**25.18**	329.61
15.0MHZ + 15.0MHZ BAND 16QAM	1/74 + 1/0	2507.5 + 2522.5	23.94	247.74
		2527.5 + 2542.5	24.06	254.68
		2547.5 + 2562.5	**24.38**	274.16

EIRP POWER FOR LTE BAND 7 (15.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
15.0MHZ + 20.0MHZ BAND QPSK	1/74 + 1/0	2507.8 + 2524.9	24.76	299.23
		2525.3 + 2542.4	**25.14**	326.59
		2542.9 + 2560	24.82	303.39
15.0MHZ + 20.0MHZ BAND 16QAM	1/74 + 1/0	2507.8 + 2524.9	23.96	248.89
		2525.3 + 2542.4	**24.20**	263.03
		2542.9 + 2560	24.02	252.35

EIRP POWER FOR LTE BAND 7 (20.0MHZ + 15.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 15.0MHZ BAND QPSK	1/99 + 1/0	2510 + 2527.1	24.89	308.32
		2527.6 + 2544.7	**25.00**	316.23
		2545.1 + 2562.2	24.65	291.74
20.0MHZ + 15.0MHZ BAND 16QAM	1/99 + 1/0	2510 + 2527.1	23.99	250.61
		2527.6 + 2544.7	**24.38**	274.16
		2545.1 + 2562.2	23.95	248.31

EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 20.0MHZ BAND QPSK	1/99 + 1/0	2510 + 2529.8	24.69	294.44
		2525.1 + 2544.9	**25.11**	324.34
		2540.2 + 2560	24.75	298.54
20.0MHZ + 20.0MHZ BAND 16QAM	1/99 + 1/0	2510 + 2529.8	23.79	239.33
		2525.1 + 2544.9	**24.21**	263.63
		2540.2 + 2560	23.85	242.66

EIRP POWER FOR LTE BAND 41 (5.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
5.0MHZ + 20.0MHZ BAND QPSK	1/24 + 1/0	2499.3 + 2511	24.78	300.61
		2583.8 + 2595.5	**25.08**	322.11
		2668.3 + 2680	24.29	268.53
5.0MHZ + 20.0MHZ BAND 16QAM	1/24 + 1/0	2499.3 + 2511	23.88	244.34
		2583.8 + 2595.5	**24.09**	256.45
		2668.3 + 2680	23.29	213.30

EIRP POWER FOR LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 5.0MHZ BAND QPSK	1/99 + 1/0	2506 + 2517.7	24.84	304.79
		2590.5 + 2602.2	**25.16**	328.10
		2675 + 2686.7	24.49	281.19
20.0MHZ + 5.0MHZ BAND 16QAM	1/99 + 1/0	2506 + 2517.7	23.84	242.10
		2590.5 + 2602.2	**23.95**	248.31
		2675 + 2686.7	23.49	223.36

EIRP POWER FOR LTE BAND 41 (10.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
10.0MHZ + 20.0MHZ BAND QPSK	1/49 + 1/0	2501.5 + 2515.9	**25.06**	320.63
		2583.6 + 2598	24.87	306.90
		2665.6 + 2680	24.38	274.16
10.0MHZ + 20.0MHZ BAND 16QAM	1/49 + 1/0	2501.5 + 2515.9	**23.97**	249.46
		2583.6 + 2598	23.87	243.78
		2665.6 + 2680	23.56	226.99

EIRP POWER FOR LTE BAND 41 (20.0MHZ + 10.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 10.0MHZ BAND QPSK	1/99 + 1/0	2506 + 2520.4	**24.94**	311.89
		2588.1 + 2602.5	24.85	305.49
		2670.1 + 2684.5	24.37	273.53
20.0MHZ + 10.0MHZ BAND 16QAM	1/99 + 1/0	2506 + 2520.4	**24.04**	253.51
		2588.1 + 2602.5	23.95	248.31
		2670.1 + 2684.5	23.58	228.03

EIRP POWER FOR LTE BAND 41 (15.0MHZ + 15.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
15.0MHZ + 15.0MHZ BAND QPSK	1/74 + 1/0	2503.5 + 2518.5	24.52	283.14
		2585.5 + 2600.5	**24.94**	311.89
		2667.5 + 2682.5	24.18	261.82
15.0MHZ + 15.0MHZ BAND 16QAM	1/74 + 1/0	2503.5 + 2518.5	23.56	226.99
		2585.5 + 2600.5	**24.00**	251.19
		2667.5 + 2682.5	23.48	222.84

EIRP POWER FOR LTE BAND 41 (15.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
15.0MHZ + 20.0MHZ BAND QPSK	1/74 + 1/0	2503.8 + 2520.9	24.52	283.14
		2583.3 + 2600.4	**25.06**	320.63
		2662.9 + 2680	24.22	264.24
15.0MHZ + 20.0MHZ BAND 16QAM	1/74 + 1/0	2503.8 + 2520.9	23.58	228.03
		2583.3 + 2600.4	**24.09**	256.45
		2662.9 + 2680	23.25	211.35

EIRP POWER FOR LTE BAND 41 (20.0MHZ + 15.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 15.0MHZ BAND QPSK	1/99 + 1/0	2506 + 2523.1	24.48	280.54
		2585.6 + 2602.7	**25.05**	319.89
		2665.1 + 2682.2	24.23	264.85
20.0MHZ + 15.0MHZ BAND 16QAM	1/99 + 1/0	2506 + 2523.1	23.58	228.03
		2585.6 + 2602.7	**24.05**	254.10
		2665.1 + 2682.2	23.27	212.32

EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 20.0MHZ BAND QPSK	1/99 + 1/0	2506 + 2525.8	24.39	274.79
		2583.1 + 2602.9	**24.94**	311.89
		2660.2 + 2680	24.25	266.07
20.0MHZ + 20.0MHZ BAND 16QAM	1/99 + 1/0	2506 + 2525.8	23.20	208.93
		2583.1 + 2602.9	**23.87**	243.78
		2660.2 + 2680	23.05	201.84

10.1.1. LTE BAND 7

QPSK EIRP POWER FOR LTE BAND 7 (10.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B7 QPSK 10MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2505.5MHz + 2519.9MHz)								
2.515	14.7	V	1.15	9.35	22.89	33.0	-10.1	
2.515	16.3	H	1.15	9.35	24.48	33.0	-8.5	
Mid Ch (2525.6MHz + 2540MHz)								
2.535	15.0	V	1.16	9.38	23.18	33.0	-9.8	
2.535	16.9	H	1.16	9.38	25.16	33.0	-7.8	
High Ch (2545.6MHz + 2560MHz)								
2.555	14.9	V	1.17	9.41	23.13	33.0	-9.9	
2.555	16.6	H	1.17	9.41	24.83	33.0	-8.2	

Rev. 05.25.16

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B7 16QAM 10MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2505.5MHz + 2519.9MHz)								
2.515	13.8	V	1.15	9.35	21.99	33.0	-11.0	
2.515	15.4	H	1.15	9.35	23.58	33.0	-9.4	
Mid Ch (2525.6MHz + 2540MHz)								
2.535	14.1	V	1.16	9.38	22.28	33.0	-10.7	
2.535	16.0	H	1.16	9.38	24.26	33.0	-8.7	
High Ch (2545.6MHz + 2560MHz)								
2.555	14.0	V	1.17	9.41	22.23	33.0	-10.8	
2.555	15.7	H	1.17	9.41	23.93	33.0	-9.1	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B7 QPSK 20MHz+10MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2524.4MHz)								
2.515	14.7	V	1.15	9.35	22.91	33.0	-10.1	
2.515	16.3	H	1.15	9.35	24.51	33.0	-8.5	
Mid Ch (2530.1MHz + 2544.5MHz)								
2.535	14.9	V	1.16	9.38	23.07	33.0	-9.9	
2.535	16.9	H	1.16	9.38	25.10	33.0	-7.9	
High Ch (2550.1MHz + 2564.5MHz)								
2.555	14.9	V	1.17	9.41	23.15	33.0	-9.8	
2.555	16.3	H	1.17	9.41	24.55	33.0	-8.4	

Rev. 05.25.16

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B7 16QAM 20MHz+10MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2524.4MHz)								
2.515	13.8	V	1.15	9.35	22.01	33.0	-11.0	
2.515	15.4	H	1.15	9.35	23.61	33.0	-9.4	
Mid Ch (2530.1MHz + 2544.5MHz)								
2.535	14.0	V	1.16	9.38	22.17	33.0	-10.8	
2.535	15.7	H	1.16	9.38	23.96	33.0	-9.0	
High Ch (2550.1MHz + 2564.5MHz)								
2.555	14.0	V	1.17	9.41	22.25	33.0	-10.7	
2.555	15.9	H	1.17	9.41	24.18	33.0	-8.8	

Rev. 10.24.13

QPSK EIRP POWER FOR LTE BAND 7 (15.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B7 QPSK 15MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2507.5MHz + 2522.5MHz)								
2.515	14.8	V	1.15	9.35	22.95	33.0	-10.0	
2.515	16.5	H	1.15	9.35	24.74	33.0	-8.3	
Mid Ch (2527.5MHz + 2542.5MHz)								
2.535	14.9	V	1.16	9.38	23.16	33.0	-9.8	
2.535	16.6	H	1.16	9.38	24.86	33.0	-8.1	
High Ch (2547.5MHz + 2562.5MHz)								
2.555	15.0	V	1.17	9.41	23.25	33.0	-9.7	
2.555	16.9	H	1.17	9.41	25.18	33.0	-7.8	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 7 (15.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: LTE B7 16QAM 15MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2507.5MHz + 2522.5MHz)								
2.515	14.0	V	1.15	9.35	22.15	33.0	-10.8	
2.515	15.7	H	1.15	9.35	23.94	33.0	-9.1	
Mid Ch (2527.5MHz + 2542.5MHz)								
2.535	14.1	V	1.16	9.38	22.36	33.0	-10.6	
2.535	15.8	H	1.16	9.38	24.06	33.0	-8.9	
High Ch (2547.5MHz + 2562.5MHz)								
2.555	14.2	V	1.17	9.41	22.45	33.0	-10.5	
2.555	16.1	H	1.17	9.41	24.38	33.0	-8.6	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 7 (15.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B7 QPSK 15MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2507.8MHz + 2524.9MHz)								
2.518	14.7	V	1.15	9.36	22.91	33.0	-10.1	
2.518	16.6	H	1.15	9.36	24.76	33.0	-8.2	
Mid Ch (2525.3MHz + 2542.4MHz)								
2.535	15.0	V	1.16	9.38	23.17	33.0	-9.8	
2.535	16.9	H	1.16	9.38	25.14	33.0	-7.9	
High Ch (2542.9MHz + 2560MHz)								
2.553	15.0	V	1.17	9.41	23.22	33.0	-9.8	
2.553	16.6	H	1.17	9.41	24.82	33.0	-8.2	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 7 (15.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: LTE B7 16QAM 15MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2507.8MHz + 2524.9MHz)								
2.518	13.9	V	1.15	9.36	22.11	33.0	-10.9	
2.518	15.8	H	1.15	9.36	23.96	33.0	-9.0	
Mid Ch (2525.3MHz + 2542.4MHz)								
2.535	14.2	V	1.16	9.38	22.37	33.0	-10.6	
2.535	16.0	H	1.16	9.38	24.20	33.0	-8.8	
High Ch (2542.9MHz + 2560MHz)								
2.553	14.2	V	1.17	9.41	22.42	33.0	-10.6	
2.553	15.8	H	1.17	9.41	24.02	33.0	-9.0	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B7 QPSK 20MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2527.1MHz)								
2.518	14.4	V	1.15	9.36	22.61	33.0	-10.4	
2.518	16.7	H	1.15	9.36	24.89	33.0	-8.1	
Mid Ch (2527.6MHz + 2544.7MHz)								
2.535	14.7	V	1.16	9.38	22.92	33.0	-10.1	
2.535	16.8	H	1.16	9.38	25.00	33.0	-8.0	
High Ch (2545.1MHz + 2562.2MHz)								
2.553	14.7	V	1.17	9.41	22.95	33.0	-10.1	
2.553	16.4	H	1.17	9.41	24.65	33.0	-8.4	

Rev. 10.24.13

16QAM EIRP POWER FOR LTE BAND 7 (20.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: LTE B7 16QAM 20MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2527.1MHz)								
2.518	13.6	V	1.15	9.36	21.81	33.0	-11.2	
2.518	15.8	H	1.15	9.36	23.99	33.0	-9.0	
Mid Ch (2527.6MHz + 2544.7MHz)								
2.535	13.9	V	1.16	9.38	22.12	33.0	-10.9	
2.535	16.2	H	1.16	9.38	24.38	33.0	-8.6	
High Ch (2545.1MHz + 2562.2MHz)								
2.553	13.9	V	1.17	9.41	22.15	33.0	-10.9	
2.553	15.7	H	1.17	9.41	23.95	33.0	-9.1	

Rev. 10.24.13

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B7 QPSK 20MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2529.8MHz)								
2.520	14.6	V	1.15	9.36	22.85	33.0	-10.1	
2.520	16.5	H	1.15	9.36	24.69	33.0	-8.3	
Mid Ch (2525.1MHz + 2544.9MHz)								
2.535	14.9	V	1.16	9.38	23.12	33.0	-9.9	
2.535	16.9	H	1.16	9.38	25.11	33.0	-7.9	
High Ch (2540.2MHz + 2560MHz)								
2.550	14.9	V	1.17	9.41	23.17	33.0	-9.8	
2.550	16.5	H	1.17	9.41	24.75	33.0	-8.3	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B7 16QAM 20MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2529.8MHz)								
2.520	13.7	V	1.15	9.36	21.95	33.0	-11.0	
2.520	15.6	H	1.15	9.36	23.79	33.0	-9.2	
Mid Ch (2525.1MHz + 2544.9MHz)								
2.535	14.0	V	1.16	9.38	22.22	33.0	-10.8	
2.535	16.0	H	1.16	9.38	24.21	33.0	-8.8	
High Ch (2540.2MHz + 2560MHz)								
2.550	14.0	V	1.17	9.41	22.27	33.0	-10.7	
2.550	15.6	H	1.17	9.41	23.85	33.0	-9.2	

Rev. 05.25.16

10.1.2. LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (5.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 QPSK 5MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2499.3MHz + 2511MHz)								
2.509	14.4	V	1.15	9.35	22.61	33.0	-10.4	
2.509	16.6	H	1.15	9.35	24.78	33.0	-8.2	
Mid Ch (2583.8MHz + 2595.5MHz)								
2.593	14.0	V	1.16	9.47	22.27	33.0	-10.7	
2.593	16.8	H	1.16	9.47	25.08	33.0	-7.9	
High Ch (2668.3MHz + 2680MHz)								
2.678	13.1	V	1.17	9.75	21.66	33.0	-11.3	
2.678	15.7	H	1.17	9.75	24.29	33.0	-8.7	

Rev. 05.25.16

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 16QAM 5MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2499.3MHz + 2511MHz)								
2.509	13.5	V	1.15	9.35	21.71	33.0	-11.3	
2.509	15.7	H	1.15	9.35	23.88	33.0	-9.1	
Mid Ch (2583.8MHz + 2595.5MHz)								
2.593	13.1	V	1.16	9.47	21.37	33.0	-11.6	
2.593	15.8	H	1.16	9.47	24.09	33.0	-8.9	
High Ch (2668.3MHz + 2680MHz)								
2.678	12.1	V	1.17	9.75	20.68	33.0	-12.3	
2.678	14.7	H	1.17	9.75	23.29	33.0	-9.7	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 QPSK 20MHz+5MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2517.7MHz)								
2.509	15.0	V	1.15	9.35	23.15	33.0	-9.9	
2.509	16.6	H	1.15	9.35	24.84	33.0	-8.2	
Mid Ch (2590.5MHz + 2602.2MHz)								
2.593	14.4	V	1.16	9.47	22.71	33.0	-10.3	
2.593	16.9	H	1.16	9.47	25.16	33.0	-7.8	
High Ch (2675MHz + 2686.7MHz)								
2.678	13.5	V	1.17	9.75	22.07	33.0	-10.9	
2.678	15.9	H	1.17	9.75	24.49	33.0	-8.5	

Rev. 05.25.16

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 16QAM 20MHz+5MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2517.7MHz)								
2.509	14.0	V	1.15	9.35	22.15	33.0	-10.9	
2.509	15.6	H	1.15	9.35	23.84	33.0	-9.2	
Mid Ch (2590.5MHz + 2602.2MHz)								
2.593	13.4	V	1.16	9.47	21.71	33.0	-11.3	
2.593	15.6	H	1.16	9.47	23.95	33.0	-9.1	
High Ch (2675MHz + 2686.7MHz)								
2.678	12.5	V	1.17	9.75	21.07	33.0	-11.9	
2.678	14.9	H	1.17	9.75	23.49	33.0	-9.5	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (10.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 QPSK 10MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2501.5MHz + 2515.9MHz)								
2.511	14.9	V	1.15	9.35	23.10	33.0	-9.9	
2.511	16.9	H	1.15	9.35	25.06	33.0	-7.9	
Mid Ch (2583.6MHz + 2598MHz)								
2.593	14.3	V	1.16	9.47	22.61	33.0	-10.4	
2.593	16.6	H	1.16	9.47	24.87	33.0	-8.1	
High Ch (2665.6MHz + 2680MHz)								
2.675	13.5	V	1.17	9.74	22.02	33.0	-11.0	
2.675	15.8	H	1.17	9.74	24.38	33.0	-8.6	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (10.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 16QAM 10MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2501.5MHz + 2515.9MHz)								
2.511	13.9	V	1.15	9.35	22.10	33.0	-10.9	
2.511	15.8	H	1.15	9.35	23.97	33.0	-9.0	
Mid Ch (2583.6MHz + 2598MHz)								
2.593	13.3	V	1.16	9.47	21.61	33.0	-11.4	
2.593	15.6	H	1.16	9.47	23.87	33.0	-9.1	
High Ch (2665.6MHz + 2680MHz)								
2.675	12.5	V	1.17	9.74	21.02	33.0	-12.0	
2.675	15.0	H	1.17	9.74	23.56	33.0	-9.4	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 QPSK 20MHz+10MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2520.4MHz)								
2.511	15.0	V	1.15	9.35	23.20	33.0	-9.8	
2.511	16.7	H	1.15	9.35	24.94	33.0	-8.1	
Mid Ch (2588.1MHz + 2602.5MHz)								
2.593	14.4	V	1.16	9.47	22.71	33.0	-10.3	
2.593	16.5	H	1.16	9.47	24.85	33.0	-8.2	
High Ch (2670.1MHz + 2684.5MHz)								
2.675	13.5	V	1.17	9.74	22.09	33.0	-10.9	
2.675	15.8	H	1.17	9.74	24.37	33.0	-8.6	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 16QAM 20MHz+10MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2520.4MHz)								
2.511	14.1	V	1.15	9.35	22.30	33.0	-10.7	
2.511	15.8	H	1.15	9.35	24.04	33.0	-9.0	
Mid Ch (2588.1MHz + 2602.5MHz)								
2.593	13.5	V	1.16	9.47	21.81	33.0	-11.2	
2.593	15.6	H	1.16	9.47	23.95	33.0	-9.1	
High Ch (2670.1MHz + 2684.5MHz)								
2.675	12.6	V	1.17	9.74	21.19	33.0	-11.8	
2.675	15.0	H	1.17	9.74	23.58	33.0	-9.4	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (15.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 QPSK 15MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2503.5MHz + 2518.5MHz)								
2.511	14.5	V	1.15	9.35	22.70	33.0	-10.3	
2.511	16.3	H	1.15	9.35	24.52	33.0	-8.5	
Mid Ch (2585.5MHz + 2600.5MHz)								
2.593	14.0	V	1.16	9.47	22.31	33.0	-10.7	
2.593	16.6	H	1.16	9.47	24.94	33.0	-8.1	
High Ch (2667.5MHz + 2682.5MHz)								
2.675	13.4	V	1.17	9.74	22.00	33.0	-11.0	
2.675	15.6	H	1.17	9.74	24.18	33.0	-8.8	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (15.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 16QAM 15MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2503.5MHz + 2518.5MHz)								
2.511	13.6	V	1.15	9.35	21.80	33.0	-11.2	
2.511	15.4	H	1.15	9.35	23.56	33.0	-9.4	
Mid Ch (2585.5MHz + 2600.5MHz)								
2.593	13.1	V	1.16	9.47	21.41	33.0	-11.6	
2.593	15.7	H	1.16	9.47	24.00	33.0	-9.0	
High Ch (2667.5MHz + 2682.5MHz)								
2.675	12.5	V	1.17	9.74	21.10	33.0	-11.9	
2.675	14.9	H	1.17	9.74	23.48	33.0	-9.5	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (15.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 QPSK 15MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2503.8MHz + 2520.9MHz)								
2.514	14.5	V	1.15	9.35	22.68	33.0	-10.3	
2.514	16.3	H	1.15	9.35	24.52	33.0	-8.5	
Mid Ch (2583.3MHz + 2600.4MHz)								
2.593	14.1	V	1.16	9.47	22.36	33.0	-10.6	
2.593	16.8	H	1.16	9.47	25.06	33.0	-7.9	
High Ch (2662.9MHz + 2680MHz)								
2.673	13.2	V	1.17	9.73	21.79	33.0	-11.2	
2.673	15.7	H	1.17	9.73	24.22	33.0	-8.8	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (15.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 16QAM 15MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2503.8MHz + 2520.9MHz)								
2.514	13.5	V	1.15	9.35	21.74	33.0	-11.3	
2.514	15.4	H	1.15	9.35	23.58	33.0	-9.4	
Mid Ch (2583.3MHz + 2600.4MHz)								
2.593	13.1	V	1.16	9.47	21.42	33.0	-11.6	
2.593	15.8	H	1.16	9.47	24.09	33.0	-8.9	
High Ch (2662.9MHz + 2680MHz)								
2.673	12.3	V	1.17	9.73	20.85	33.0	-12.2	
2.673	14.7	H	1.17	9.73	23.25	33.0	-9.8	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 QPSK 20MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2523.1MHz)								
2.514	14.6	V	1.15	9.35	22.78	33.0	-10.2	
2.514	16.3	H	1.15	9.35	24.48	33.0	-8.5	
Mid Ch (2585.6MHz + 2602.7MHz)								
2.593	14.0	V	1.16	9.47	22.31	33.0	-10.7	
2.593	16.7	H	1.16	9.47	25.05	33.0	-8.0	
High Ch (2665.1MHz + 2682.2MHz)								
2.673	13.5	V	1.17	9.73	22.01	33.0	-11.0	
2.673	15.7	H	1.17	9.73	24.23	33.0	-8.8	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 16QAM 20MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2523.1MHz)								
2.514	13.7	V	1.15	9.35	21.88	33.0	-11.1	
2.514	15.4	H	1.15	9.35	23.58	33.0	-9.4	
Mid Ch (2585.6MHz + 2602.7MHz)								
2.593	12.9	V	1.16	9.47	21.21	33.0	-11.8	
2.593	15.7	H	1.16	9.47	24.05	33.0	-9.0	
High Ch (2665.1MHz + 2682.2MHz)								
2.673	12.3	V	1.17	9.73	20.88	33.0	-12.1	
2.673	14.7	H	1.17	9.73	23.27	33.0	-9.7	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 QPSK 20MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2525.8MHz)								
2.516	14.4	V	1.15	9.36	22.65	33.0	-10.4	
2.516	16.2	H	1.15	9.36	24.39	33.0	-8.6	
Mid Ch (2583.1MHz + 2602.9MHz)								
2.593	13.9	V	1.16	9.47	22.21	33.0	-10.8	
2.593	16.6	H	1.16	9.47	24.94	33.0	-8.1	
High Ch (2660.2MHz + 2680MHz)								
2.670	13.0	V	1.17	9.72	21.58	33.0	-11.4	
2.670	15.7	H	1.17	9.72	24.25	33.0	-8.7	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 38602
Configuration: EUT only
Mode: CA LTE B41 16QAM 20MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2525.8MHz)								
2.516	13.5	V	1.15	9.36	21.75	33.0	-11.3	
2.516	15.0	H	1.15	9.36	23.20	33.0	-9.8	
Mid Ch (2583.1MHz + 2602.9MHz)								
2.593	13.0	V	1.16	9.47	21.31	33.0	-11.7	
2.593	15.6	H	1.16	9.47	23.87	33.0	-9.1	
High Ch (2660.2MHz + 2680MHz)								
2.670	12.2	V	1.17	9.72	20.77	33.0	-12.2	
2.670	14.5	H	1.17	9.72	23.05	33.0	-9.9	

Rev. 05.25.16

10.2. RADIATED POWER (ERP & EIRP), UAT

EIRP POWER FOR LTE BAND 7 (10.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
10.0MHZ + 20.0MHZ BAND QPSK	1/49 + 1/0	2505.5 + 2519.9	17.19	52.36
		2525.6 + 2540	**17.63**	57.94
		2545.6 + 2560	17.00	50.12
10.0MHZ + 20.0MHZ BAND 16QAM	1/49 + 1/0	2505.5 + 2519.9	16.45	44.16
		2525.6 + 2540	**16.68**	46.56
		2545.6 + 2560	16.24	42.07

EIRP POWER FOR LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 10.0MHZ BAND QPSK	1/99 + 1/0	2510 + 2524.4	17.48	55.98
		2530.1 + 2544.5	**17.98**	62.81
		2550.1 + 2564.5	17.25	53.09
20.0MHZ + 10.0MHZ BAND 16QAM	1/99 + 1/0	2510 + 2524.4	16.55	45.19
		2530.1 + 2544.5	**16.99**	50.00
		2550.1 + 2564.5	16.44	44.06

EIRP POWER FOR LTE BAND 7 (15.0MHZ + 15MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
15.0MHZ + 15.0MHZ BAND QPSK	1/74 + 1/0	2507.5 + 2522.5	17.78	59.98
		2527.5 + 2542.5	**17.87**	61.24
		2547.5 + 2562.5	17.49	56.10
15.0MHZ + 15.0MHZ BAND 16QAM	1/74 + 1/0	2507.5 + 2522.5	16.69	46.67
		2527.5 + 2542.5	**16.72**	46.99
		2547.5 + 2562.5	16.28	42.46

EIRP POWER FOR LTE BAND 7 (15.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
15.0MHZ + 20.0MHZ BAND QPSK	1/74 + 1/0	2507.8 + 2524.9	17.96	62.52
		2525.3 + 2542.4	**17.99**	62.95
		2542.9 + 2560	17.52	56.49
15.0MHZ + 20.0MHZ BAND 16QAM	1/74 + 1/0	2507.8 + 2524.9	**17.12**	51.52
		2525.3 + 2542.4	16.94	49.43
		2542.9 + 2560	16.41	43.75

EIRP POWER FOR LTE BAND 7 (20.0MHZ + 15.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 15.0MHZ BAND QPSK	1/99 + 1/0	2510 + 2527.1	17.71	59.02
		2527.6 + 2544.7	**17.87**	61.24
		2545.1 + 2562.2	17.42	55.21
20.0MHZ + 15.0MHZ BAND 16QAM	1/99 + 1/0	2510 + 2527.1	16.54	45.08
		2527.6 + 2544.7	**16.70**	46.77
		2545.1 + 2562.2	16.27	42.36

EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 20.0MHZ BAND QPSK	1/99 + 1/0	2510 + 2529.8	17.63	57.94
		2525.1 + 2544.9	**17.90**	61.66
		2540.2 + 2560	17.12	51.52
20.0MHZ + 20.0MHZ BAND 16QAM	1/99 + 1/0	2510 + 2529.8	**16.68**	46.56
		2525.1 + 2544.9	16.62	45.92
		2540.2 + 2560	16.06	40.36

EIRP POWER FOR LTE BAND 41 (5.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
5.0MHZ + 20.0MHZ BAND QPSK	1/24 + 1/0	2499.3 + 2511	18.39	69.02
		2583.8 + 2595.5	19.69	93.11
		2668.3 + 2680	**20.04**	100.93
5.0MHZ + 20.0MHZ BAND 16QAM	1/24 + 1/0	2499.3 + 2511	17.76	59.70
		2583.8 + 2595.5	18.84	76.56
		2668.3 + 2680	**19.19**	82.99

EIRP POWER FOR LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 5.0MHZ BAND QPSK	1/99 + 1/0	2506 + 2517.7	18.33	68.08
		2590.5 + 2602.2	19.67	92.68
		2675 + 2686.7	**20.02**	100.46
20.0MHZ + 5.0MHZ BAND 16QAM	1/99 + 1/0	2506 + 2517.7	17.72	59.16
		2590.5 + 2602.2	18.84	76.56
		2675 + 2686.7	**19.15**	82.22

EIRP POWER FOR LTE BAND 41 (10.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
10.0MHZ + 20.0MHZ BAND QPSK	1/49 + 1/0	2501.5 + 2515.9	18.45	69.98
		2583.6 + 2598	19.29	84.92
		2665.6 + 2680	**20.01**	100.23
10.0MHZ + 20.0MHZ BAND 16QAM	1/49 + 1/0	2501.5 + 2515.9	17.77	59.84
		2583.6 + 2598	18.55	71.61
		2665.6 + 2680	**19.14**	82.04

EIRP POWER FOR LTE BAND 41 (20.0MHZ + 10.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 10.0MHZ BAND QPSK	1/99 + 1/0	2506 + 2520.4	18.33	68.08
		2588.1 + 2602.5	19.19	82.99
		2670.1 + 2684.5	**20.03**	100.69
20.0MHZ + 10.0MHZ BAND 16QAM	1/99 + 1/0	2506 + 2520.4	17.84	60.81
		2588.1 + 2602.5	18.64	73.11
		2670.1 + 2684.5	**19.18**	82.79

EIRP POWER FOR LTE BAND 41 (15.0MHZ + 15.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
15.0MHZ + 15.0MHZ BAND QPSK	1/74 + 1/0	2503.5 + 2518.5	18.38	68.87
		2585.5 + 2600.5	**19.38**	86.70
		2667.5 + 2682.5	19.14	82.04
15.0MHZ + 15.0MHZ BAND 16QAM	1/74 + 1/0	2503.5 + 2518.5	17.75	59.57
		2585.5 + 2600.5	**18.84**	76.56
		2667.5 + 2682.5	18.54	71.45

EIRP POWER FOR LTE BAND 41 (15.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
15.0MHZ + 20.0MHZ BAND QPSK	1/74 + 1/0	2503.8 + 2520.9	18.37	68.71
		2583.3 + 2600.4	**19.31**	85.31
		2662.9 + 2680	19.18	82.79
15.0MHZ + 20.0MHZ BAND 16QAM	1/74 + 1/0	2503.8 + 2520.9	17.73	59.29
		2583.3 + 2600.4	**18.69**	73.96
		2662.9 + 2680	18.52	71.12

EIRP POWER FOR LTE BAND 41 (20.0MHZ + 15.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 15.0MHZ BAND QPSK	1/99 + 1/0	2506 + 2523.1	18.43	69.66
		2585.6 + 2602.7	**19.34**	85.90
		2665.1 + 2682.2	19.22	83.56
20.0MHZ + 15.0MHZ BAND 16QAM	1/99 + 1/0	2506 + 2523.1	17.84	60.81
		2585.6 + 2602.7	**18.75**	74.99
		2665.1 + 2682.2	18.62	72.78

EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

Mode	RB/RB SIZE	f (MHz)	EIRP(Average)	
			dBm	mW
20.0MHZ + 20.0MHZ BAND QPSK	1/99 + 1/0	2506 + 2525.8	18.40	69.18
		2583.1 + 2602.9	**19.30**	85.11
		2660.2 + 2680	19.18	82.79
20.0MHZ + 20.0MHZ BAND 16QAM	1/99 + 1/0	2506 + 2525.8	17.81	60.39
		2583.1 + 2602.9	**18.84**	76.56
		2660.2 + 2680	18.57	71.94

10.2.1. LTE BAND 7

QPSK EIRP POWER FOR LTE BAND 7 (10.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: CA LTE B7 QPSK 10MHz+20MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2505.5MHz + 2519.9MHz)								
2.515	7.4	V	1.15	9.35	15.55	33.0	-17.4	
2.515	9.0	H	1.15	9.35	17.19	33.0	-15.8	
Mid Ch (2525.6MHz + 2540MHz)								
2.535	6.2	V	1.16	9.38	14.47	33.0	-18.5	
2.535	9.4	H	1.16	9.38	17.63	33.0	-15.4	
High Ch (2545.6MHz + 2560MHz)								
2.555	7.3	V	1.17	9.41	15.54	33.0	-17.5	
2.555	8.8	H	1.17	9.41	17.00	33.0	-16.0	

Rev. 05.25.16

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: CA LTE B7 16QAM 10MHz+20MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2505.5MHz + 2519.9MHz)								
2.515	6.5	V	1.15	9.35	14.69	33.0	-18.3	
2.515	8.3	H	1.15	9.35	16.45	33.0	-16.5	
Mid Ch (2525.6MHz + 2540MHz)								
2.535	5.6	V	1.16	9.38	13.77	33.0	-19.2	
2.535	8.5	H	1.16	9.38	16.68	33.0	-16.3	
High Ch (2545.6MHz + 2560MHz)								
2.555	6.4	V	1.17	9.41	14.65	33.0	-18.3	
2.555	8.0	H	1.17	9.41	16.24	33.0	-16.8	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: CA LTE B7 QPSK 20MHz+10MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2524.4MHz)								
2.515	7.3	V	1.15	9.35	15.50	33.0	-17.5	
2.515	9.3	H	1.15	9.35	17.48	33.0	-15.5	
Mid Ch (2530.1MHz + 2544.5MHz)								
2.535	6.6	V	1.16	9.38	14.86	33.0	-18.1	
2.535	9.8	H	1.16	9.38	17.98	33.0	-15.0	
High Ch (2550.1MHz + 2564.5MHz)								
2.555	7.4	V	1.17	9.41	15.63	33.0	-17.4	
2.555	9.0	H	1.17	9.41	17.25	33.0	-15.7	

Rev. 05.25.16

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: CA LTE B7 16QAM 20MHz+10MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2524.4MHz)								
2.515	6.4	V	1.15	9.35	14.56	33.0	-18.4	
2.515	8.4	H	1.15	9.35	16.55	33.0	-16.4	
Mid Ch (2530.1MHz + 2544.5MHz)								
2.535	5.8	V	1.16	9.38	14.05	33.0	-18.9	
2.535	8.8	H	1.16	9.38	16.99	33.0	-16.0	
High Ch (2550.1MHz + 2564.5MHz)								
2.555	6.5	V	1.17	9.41	14.71	33.0	-18.3	
2.555	8.2	H	1.17	9.41	16.44	33.0	-16.6	

Rev. 10.24.13

QPSK EIRP POWER FOR LTE BAND 7 (15.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: CA LTE B7 QPSK 15MHz+15MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2507.5MHz + 2522.5MHz)								
2.515	7.6	V	1.15	9.35	15.79	33.0	-17.2	
2.515	9.6	H	1.15	9.35	17.78	33.0	-15.2	
Mid Ch (2527.5MHz + 2542.5MHz)								
2.535	7.0	V	1.16	9.38	15.18	33.0	-17.8	
2.535	9.7	H	1.16	9.38	17.87	33.0	-15.1	
High Ch (2547.5MHz + 2562.5MHz)								
2.555	7.7	V	1.17	9.41	15.91	33.0	-17.1	
2.555	9.3	H	1.17	9.41	17.49	33.0	-15.5	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 7 (15.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: LTE B7 16QAM 15MHz+15MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2507.5MHz + 2522.5MHz)								
2.515	6.5	V	1.15	9.35	14.67	33.0	-18.3	
2.515	8.5	H	1.15	9.35	16.69	33.0	-16.3	
Mid Ch (2527.5MHz + 2542.5MHz)								
2.535	5.8	V	1.16	9.38	13.98	33.0	-19.0	
2.535	8.5	H	1.16	9.38	16.72	33.0	-16.3	
High Ch (2547.5MHz + 2562.5MHz)								
2.555	6.5	V	1.17	9.41	14.77	33.0	-18.2	
2.555	8.0	H	1.17	9.41	16.28	33.0	-16.7	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 7 (15.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: CA LTE B7 QPSK 15MHz+20MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2507.8MHz + 2524.9MHz)								
2.518	7.7	V	1.15	9.36	15.91	33.0	-17.1	
2.518	9.8	H	1.15	9.36	17.96	33.0	-15.0	
Mid Ch (2525.3MHz + 2542.4MHz)								
2.535	7.3	V	1.16	9.38	15.53	33.0	-17.5	
2.535	9.8	H	1.16	9.38	17.99	33.0	-15.0	
High Ch (2542.9MHz + 2560MHz)								
2.553	8.1	V	1.17	9.41	16.31	33.0	-16.7	
2.553	9.3	H	1.17	9.41	17.52	33.0	-15.5	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 7 (15.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: LTE B7 16QAM 15MHz+20MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2507.8MHz + 2524.9MHz)								
2.518	6.6	V	1.15	9.36	14.85	33.0	-18.2	
2.518	8.9	H	1.15	9.36	17.12	33.0	-15.9	
Mid Ch (2525.3MHz + 2542.4MHz)								
2.535	6.4	V	1.16	9.38	14.57	33.0	-18.4	
2.535	8.7	H	1.16	9.38	16.94	33.0	-16.1	
High Ch (2542.9MHz + 2560MHz)								
2.553	7.9	V	1.17	9.41	16.16	33.0	-16.8	
2.553	8.2	H	1.17	9.41	16.41	33.0	-16.6	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: CA LTE B7 QPSK 20MHz+15MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2527.1MHz)								
2.518	7.5	V	1.15	9.36	15.66	33.0	-17.3	
2.518	9.5	H	1.15	9.36	17.71	33.0	-15.3	
Mid Ch (2527.6MHz + 2544.7MHz)								
2.535	6.9	V	1.16	9.38	15.12	33.0	-17.9	
2.535	9.7	H	1.16	9.38	17.87	33.0	-15.1	
High Ch (2545.1MHz + 2562.2MHz)								
2.553	7.6	V	1.17	9.41	15.87	33.0	-17.1	
2.553	9.2	H	1.17	9.41	17.42	33.0	-15.6	

Rev. 10.24.13

16QAM EIRP POWER FOR LTE BAND 7 (20.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: LTE B7 16QAM 20MHz+15MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2527.1MHz)								
2.518	6.2	V	1.15	9.36	14.45	33.0	-18.6	
2.518	8.3	H	1.15	9.36	16.54	33.0	-16.5	
Mid Ch (2527.6MHz + 2544.7MHz)								
2.535	5.7	V	1.16	9.38	13.97	33.0	-19.0	
2.535	8.5	H	1.16	9.38	16.70	33.0	-16.3	
High Ch (2545.1MHz + 2562.2MHz)								
2.553	6.5	V	1.17	9.41	14.74	33.0	-18.3	
2.553	8.0	H	1.17	9.41	16.27	33.0	-16.7	

Rev. 10.24.13

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: CA LTE B7 QPSK 20MHz+20MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2529.8MHz)								
2.520	7.5	V	1.15	9.36	15.75	33.0	-17.2	
2.520	9.4	H	1.15	9.36	17.63	33.0	-15.4	
Mid Ch (2525.1MHz + 2544.9MHz)								
2.535	7.1	V	1.16	9.38	15.31	33.0	-17.7	
2.535	9.7	H	1.16	9.38	17.90	33.0	-15.1	
High Ch (2540.2MHz + 2560MHz)								
2.550	7.8	V	1.17	9.41	16.04	33.0	-17.0	
2.550	8.9	H	1.17	9.41	17.12	33.0	-15.9	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber E

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39004
Configuration: EUT only
Mode: CA LTE B7 16QAM 20MHz+20MHz BW

Test Equipment:
Receiving: Horn T346, and Chamber E SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2510MHz + 2529.8MHz)								
2.520	6.6	V	1.15	9.36	14.80	33.0	-18.2	
2.520	8.5	H	1.15	9.36	16.68	33.0	-16.3	
Mid Ch (2525.1MHz + 2544.9MHz)								
2.535	6.0	V	1.16	9.38	14.17	33.0	-18.8	
2.535	8.4	H	1.16	9.38	16.62	33.0	-16.4	
High Ch (2540.2MHz + 2560MHz)								
2.550	6.9	V	1.17	9.41	15.15	33.0	-17.9	
2.550	7.8	H	1.17	9.41	16.06	33.0	-16.9	

Rev. 05.25.16

10.2.2. LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (5.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 QPSK 5MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2499.3MHz + 2511MHz)								
2.509	8.3	V	1.15	9.35	16.48	33.0	-16.5	
2.509	10.2	H	1.15	9.35	18.39	33.0	-14.6	
Mid Ch (2583.8MHz + 2595.5MHz)								
2.593	8.6	V	1.16	9.47	16.87	33.0	-16.1	
2.593	11.4	H	1.16	9.47	19.69	33.0	-13.3	
High Ch (2668.3MHz + 2680MHz)								
2.678	8.4	V	1.17	9.75	16.99	33.0	-16.0	
2.678	11.5	H	1.17	9.75	20.04	33.0	-13.0	

Rev. 05.25.16

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 16QAM 5MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2499.3MHz + 2511MHz)								
2.509	7.7	V	1.15	9.35	15.85	33.0	-17.2	
2.509	9.6	H	1.15	9.35	17.76	33.0	-15.2	
Mid Ch (2583.8MHz + 2595.5MHz)								
2.593	8.0	V	1.16	9.47	16.32	33.0	-16.7	
2.593	10.5	H	1.16	9.47	18.84	33.0	-14.2	
High Ch (2668.3MHz + 2680MHz)								
2.678	7.9	V	1.17	9.75	16.45	33.0	-16.6	
2.678	10.6	H	1.17	9.75	19.19	33.0	-13.8	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 QPSK 20MHz+5MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2517.7MHz)								
2.509	8.2	V	1.15	9.35	16.42	33.0	-16.6	
2.509	10.1	H	1.15	9.35	18.33	33.0	-14.7	
Mid Ch (2590.5MHz + 2602.2MHz)								
2.593	8.6	V	1.16	9.47	16.87	33.0	-16.1	
2.593	11.4	H	1.16	9.47	19.67	33.0	-13.3	
High Ch (2675MHz + 2686.7MHz)								
2.678	8.4	V	1.17	9.75	16.96	33.0	-16.0	
2.678	11.4	H	1.17	9.75	20.02	33.0	-13.0	

Rev. 05.25.16

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 16QAM 20MHz+5MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2517.7MHz)								
2.509	7.6	V	1.15	9.35	15.84	33.0	-17.2	
2.509	9.5	H	1.15	9.35	17.72	33.0	-15.3	
Mid Ch (2590.5MHz + 2602.2MHz)								
2.593	7.9	V	1.16	9.47	16.22	33.0	-16.8	
2.593	10.5	H	1.16	9.47	18.84	33.0	-14.2	
High Ch (2675MHz + 2686.7MHz)								
2.678	7.9	V	1.17	9.75	16.45	33.0	-16.6	
2.678	10.6	H	1.17	9.75	19.15	33.0	-13.9	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (10.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 QPSK 10MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2501.5MHz + 2515.9MHz)								
2.511	8.4	V	1.15	9.35	16.56	33.0	-16.4	
2.511	10.3	H	1.15	9.35	18.45	33.0	-14.6	
Mid Ch (2583.6MHz + 2598MHz)								
2.593	8.7	V	1.16	9.47	16.97	33.0	-16.0	
2.593	11.0	H	1.16	9.47	19.29	33.0	-13.7	
High Ch (2665.6MHz + 2680MHz)								
2.675	8.6	V	1.17	9.74	17.20	33.0	-15.8	
2.675	11.4	H	1.17	9.74	20.01	33.0	-13.0	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (10.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 16QAM 10MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2501.5MHz + 2515.9MHz)								
2.511	7.7	V	1.15	9.35	15.87	33.0	-17.1	
2.511	9.6	H	1.15	9.35	17.77	33.0	-15.2	
Mid Ch (2583.6MHz + 2598MHz)								
2.593	7.9	V	1.16	9.47	16.22	33.0	-16.8	
2.593	10.2	H	1.16	9.47	18.55	33.0	-14.5	
High Ch (2665.6MHz + 2680MHz)								
2.675	7.8	V	1.17	9.74	16.41	33.0	-16.6	
2.675	10.6	H	1.17	9.74	19.14	33.0	-13.9	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 QPSK 20MHz+10MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2520.4MHz)								
2.511	8.3	V	1.15	9.35	16.50	33.0	-16.5	
2.511	10.1	H	1.15	9.35	18.33	33.0	-14.7	
Mid Ch (2588.1MHz + 2602.5MHz)								
2.593	8.7	V	1.16	9.47	16.97	33.0	-16.0	
2.593	10.9	H	1.16	9.47	19.19	33.0	-13.8	
High Ch (2670.1MHz + 2684.5MHz)								
2.675	8.4	V	1.17	9.74	17.00	33.0	-16.0	
2.675	11.5	H	1.17	9.74	20.03	33.0	-13.0	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 16QAM 20MHz+10MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2520.4MHz)								
2.511	7.8	V	1.15	9.35	15.97	33.0	-17.0	
2.511	9.6	H	1.15	9.35	17.84	33.0	-15.2	
Mid Ch (2588.1MHz + 2602.5MHz)								
2.593	8.0	V	1.16	9.47	16.31	33.0	-16.7	
2.593	10.3	H	1.16	9.47	18.64	33.0	-14.4	
High Ch (2670.1MHz + 2684.5MHz)								
2.675	7.9	V	1.17	9.74	16.50	33.0	-16.5	
2.675	10.6	H	1.17	9.74	19.18	33.0	-13.8	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (15.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 QPSK 15MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2503.5MHz + 2518.5MHz)								
2.511	8.3	V	1.15	9.35	16.45	33.0	-16.6	
2.511	10.2	H	1.15	9.35	18.38	33.0	-14.6	
Mid Ch (2585.5MHz + 2600.5MHz)								
2.593	8.6	V	1.16	9.47	16.95	33.0	-16.1	
2.593	11.1	H	1.16	9.47	19.38	33.0	-13.6	
High Ch (2667.5MHz + 2682.5MHz)								
2.675	8.5	V	1.17	9.74	17.05	33.0	-16.0	
2.675	10.6	H	1.17	9.74	19.14	33.0	-13.9	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (15.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 16QAM 15MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2503.5MHz + 2518.5MHz)								
2.511	7.8	V	1.15	9.35	15.95	33.0	-17.1	
2.511	9.6	H	1.15	9.35	17.75	33.0	-15.3	
Mid Ch (2585.5MHz + 2600.5MHz)								
2.593	7.9	V	1.16	9.47	16.25	33.0	-16.8	
2.593	10.5	H	1.16	9.47	18.84	33.0	-14.2	
High Ch (2667.5MHz + 2682.5MHz)								
2.675	7.9	V	1.17	9.74	16.42	33.0	-16.6	
2.675	10.0	H	1.17	9.74	18.54	33.0	-14.5	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (15.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 QPSK 15MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2503.8MHz + 2520.9MHz)								
2.514	8.3	V	1.15	9.35	16.47	33.0	-16.5	
2.514	10.2	H	1.15	9.35	18.37	33.0	-14.6	
Mid Ch (2583.3MHz + 2600.4MHz)								
2.593	8.6	V	1.16	9.47	16.86	33.0	-16.1	
2.593	11.0	H	1.16	9.47	19.31	33.0	-13.7	
High Ch (2662.9MHz + 2680MHz)								
2.673	8.5	V	1.17	9.73	17.01	33.0	-16.0	
2.673	10.6	H	1.17	9.73	19.18	33.0	-13.8	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (15.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 16QAM 15MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2503.8MHz + 2520.9MHz)								
2.514	7.7	V	1.15	9.35	15.85	33.0	-17.1	
2.514	9.5	H	1.15	9.35	17.73	33.0	-15.3	
Mid Ch (2583.3MHz + 2600.4MHz)								
2.593	7.9	V	1.16	9.47	16.22	33.0	-16.8	
2.593	10.4	H	1.16	9.47	18.69	33.0	-14.3	
High Ch (2662.9MHz + 2680MHz)								
2.673	7.9	V	1.17	9.73	16.43	33.0	-16.6	
2.673	10.0	H	1.17	9.73	18.52	33.0	-14.5	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 QPSK 20MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2523.1MHz)								
2.514	8.3	V	1.15	9.35	16.53	33.0	-16.5	
2.514	10.2	H	1.15	9.35	18.43	33.0	-14.6	
Mid Ch (2585.6MHz + 2602.7MHz)								
2.593	8.7	V	1.16	9.47	16.98	33.0	-16.0	
2.593	11.0	H	1.16	9.47	19.34	33.0	-13.7	
High Ch (2665.1MHz + 2682.2MHz)								
2.673	8.5	V	1.17	9.73	17.08	33.0	-15.9	
2.673	10.7	H	1.17	9.73	19.22	33.0	-13.8	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ + 15.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 16QAM 20MHz+15MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2523.1MHz)								
2.514	7.8	V	1.15	9.35	15.95	33.0	-17.0	
2.514	9.6	H	1.15	9.35	17.84	33.0	-15.2	
Mid Ch (2585.6MHz + 2602.7MHz)								
2.593	8.1	V	1.16	9.47	16.39	33.0	-16.6	
2.593	10.4	H	1.16	9.47	18.75	33.0	-14.3	
High Ch (2665.1MHz + 2682.2MHz)								
2.673	7.9	V	1.17	9.73	16.49	33.0	-16.5	
2.673	10.1	H	1.17	9.73	18.62	33.0	-14.4	

Rev. 05.25.16

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 QPSK 20MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2525.8MHz)								
2.516	8.3	V	1.15	9.36	16.55	33.0	-16.5	
2.516	10.2	H	1.15	9.36	18.40	33.0	-14.6	
Mid Ch (2583.1MHz + 2602.9MHz)								
2.593	8.6	V	1.16	9.47	16.92	33.0	-16.1	
2.593	11.0	H	1.16	9.47	19.30	33.0	-13.7	
High Ch (2660.2MHz + 2680MHz)								
2.673	8.5	V	1.17	9.73	17.08	33.0	-15.9	
2.670	10.6	H	1.17	9.72	19.18	33.0	-13.8	

Rev. 05.25.16

16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber G

Company:
Project #: 16U23310
Date: 7/13/2016
Test Engineer: 39005
Configuration: EUT only
Mode: CA LTE B41 16QAM 20MHz+20MHz BW

Test Equipment:
Receiving: Horn T136, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 4ft SMA Cable (s/n 245182-003; SUCOFLEX 104PEA)

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin EIRP (dB)	Notes
Low Ch (2506MHz + 2525.8MHz)								
2.516	7.7	V	1.15	9.36	15.92	33.0	-17.1	
2.516	9.6	H	1.15	9.36	17.81	33.0	-15.2	
Mid Ch (2583.1MHz + 2602.9MHz)								
2.593	8.0	V	1.16	9.47	16.30	33.0	-16.7	
2.593	10.5	H	1.16	9.47	18.84	33.0	-14.2	
High Ch (2660.2MHz + 2680MHz)								
2.670	7.9	V	1.17	9.72	16.46	33.0	-16.5	
2.670	10.0	H	1.17	9.72	18.57	33.0	-14.4	

Rev. 05.25.16

10.3. PEAK-TO-AVERAGE RATIO

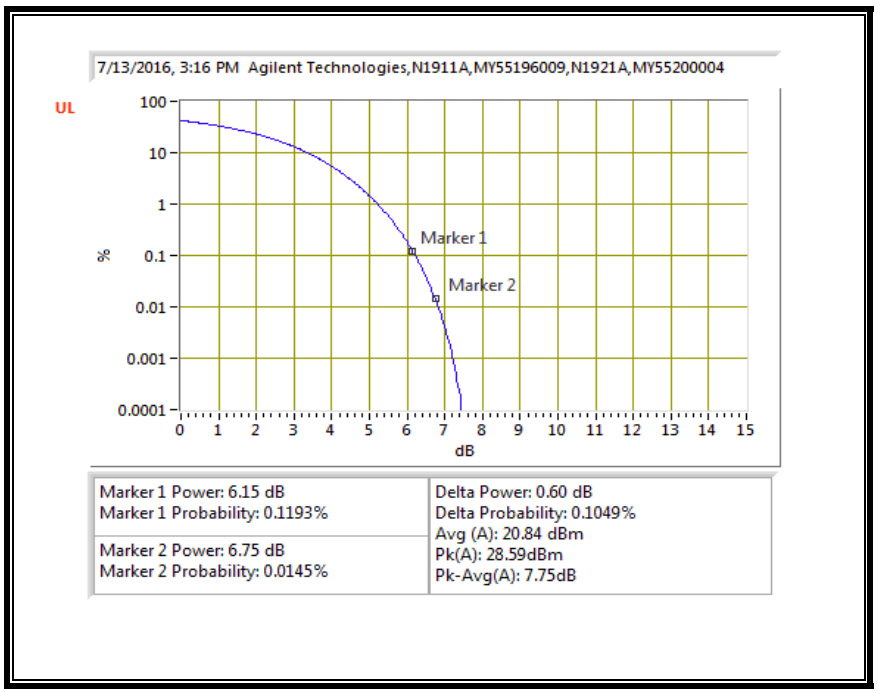
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB

RESULT

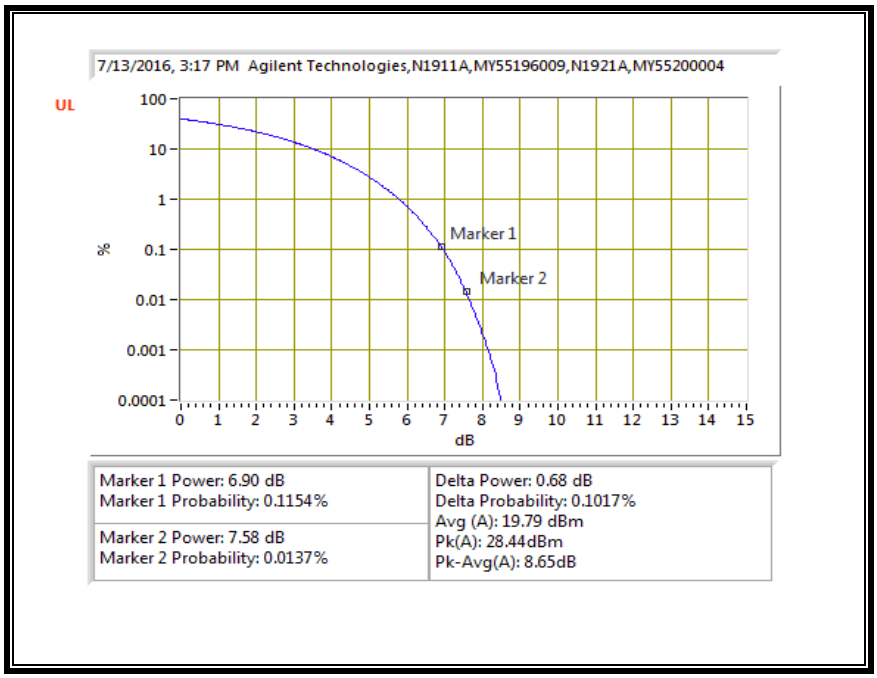
The results from all CCDF plots are passed with 13dB peak-to-average ratio criteria.

10.3.1. LTE BAND 7

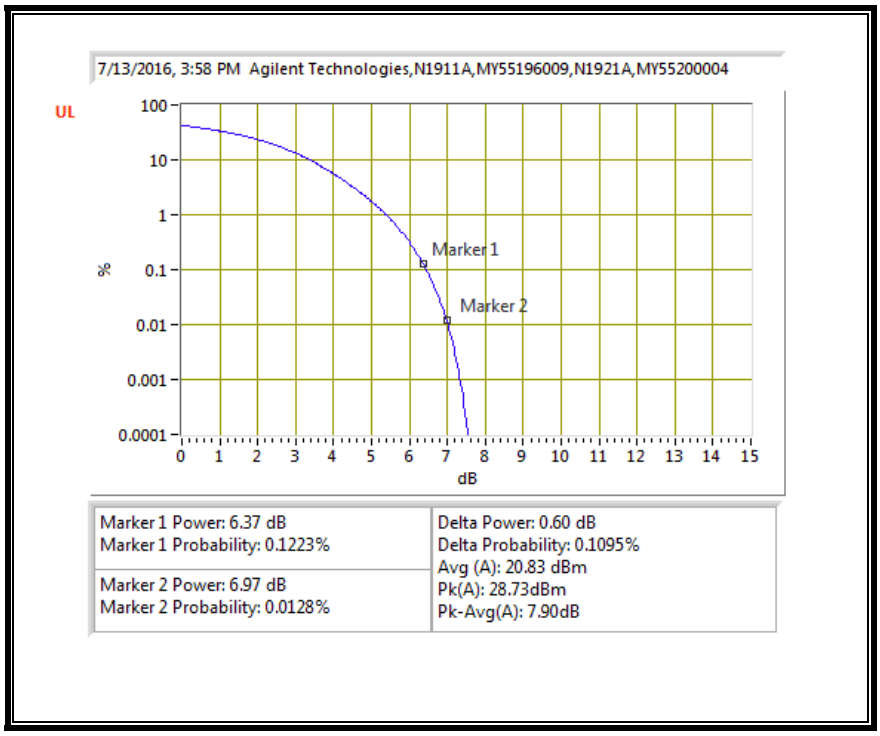
QPSK, (10.0 MHz + 20.0 MHz BAND WIDTH)



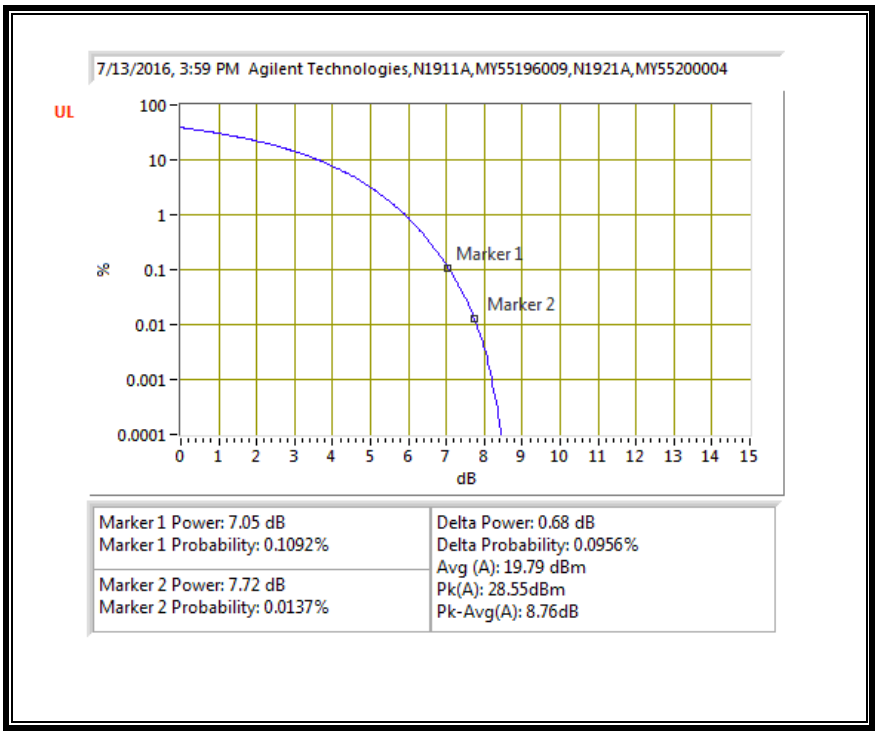
16QAM, (10.0 MHz + 20.0 MHz BAND WIDTH)



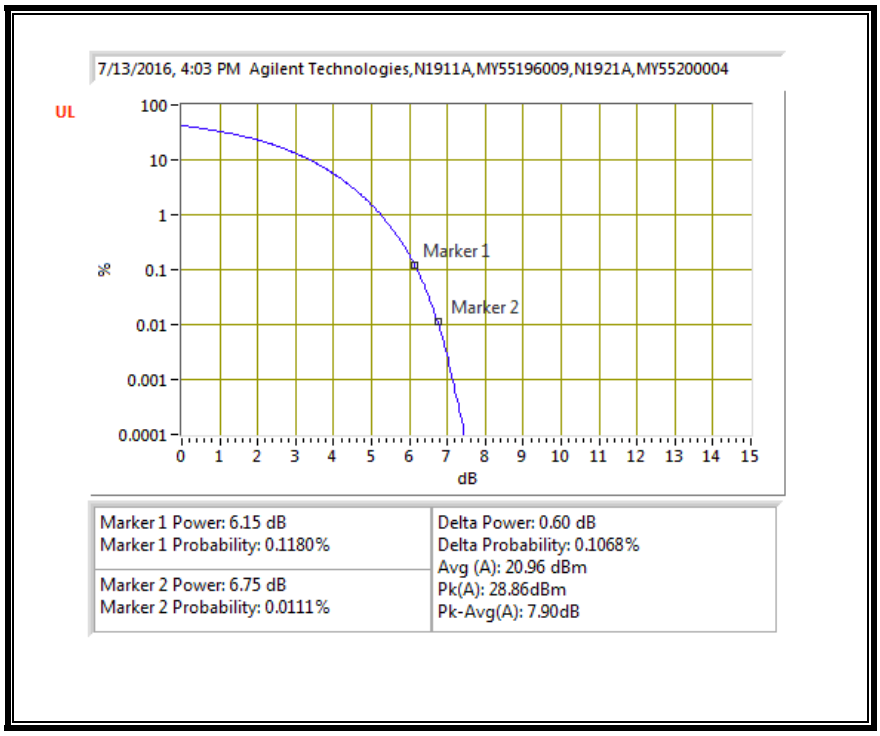
QPSK, (15.0 MHz + 15 MHz BAND WIDTH)



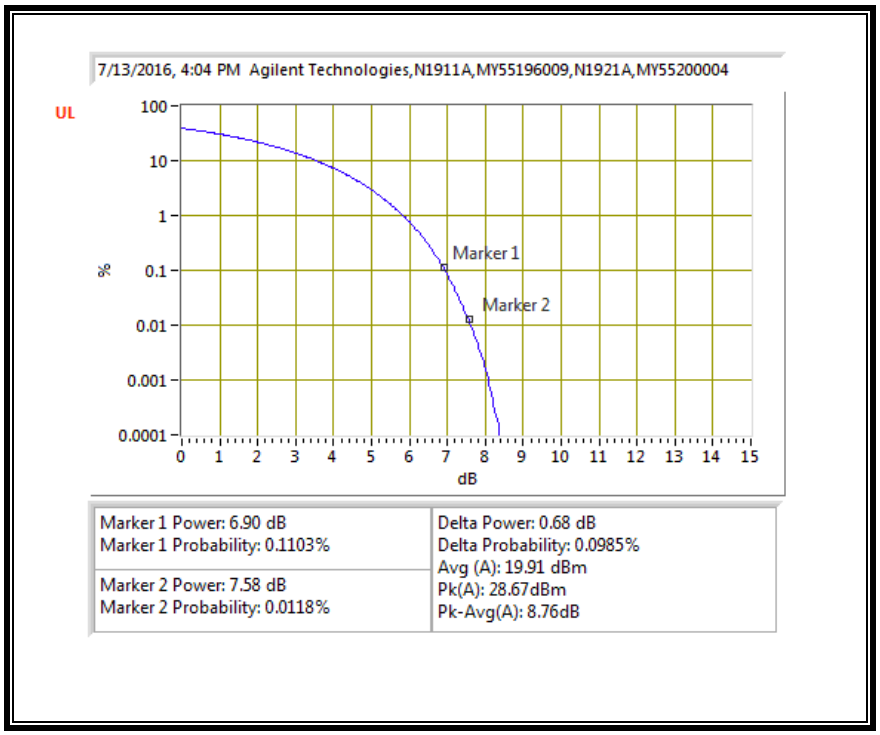
16QAM, (15.0 MHz + 15.0 MHz BAND WIDTH)



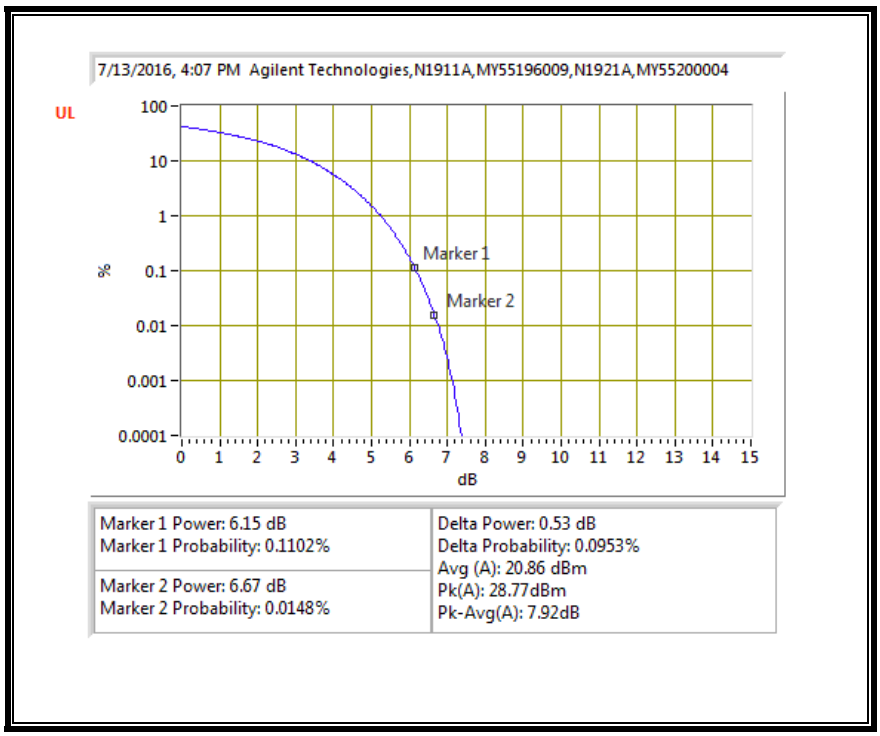
QPSK, (15.0 MHz + 20.0 MHz BAND WIDTH)



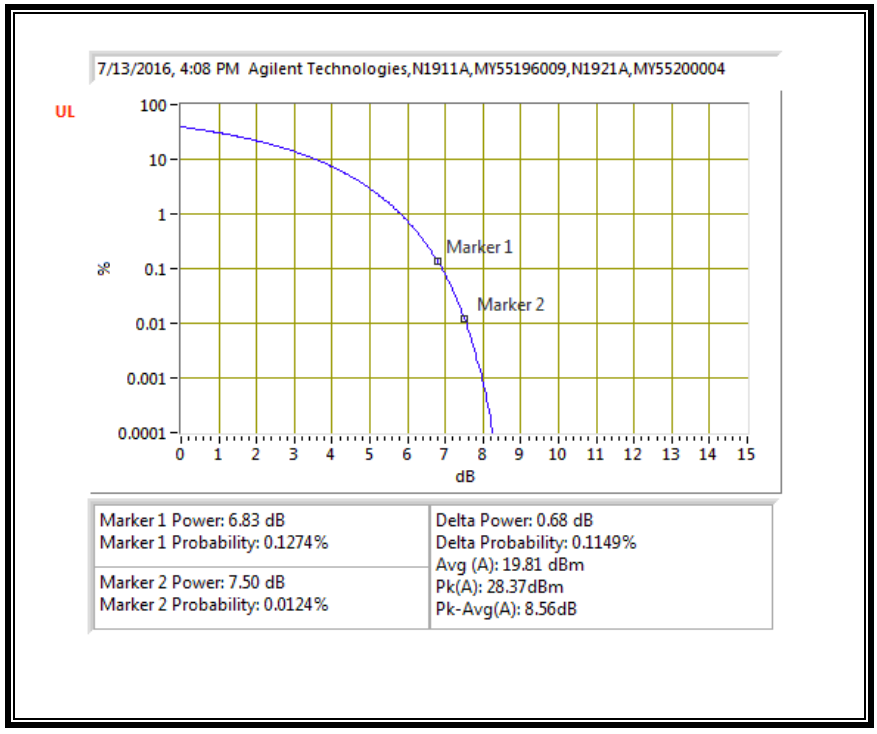
16QAM, (15.0 MHz + 20.0 MHz BAND WIDTH)



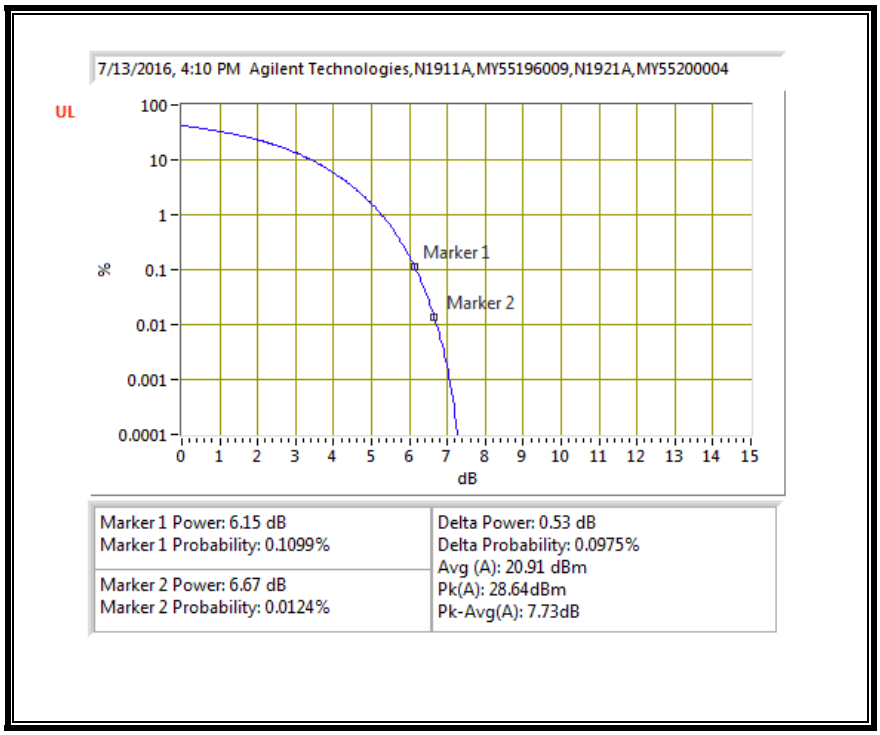
QPSK, (20.0 MHz + 15.0 MHz BAND WIDTH)



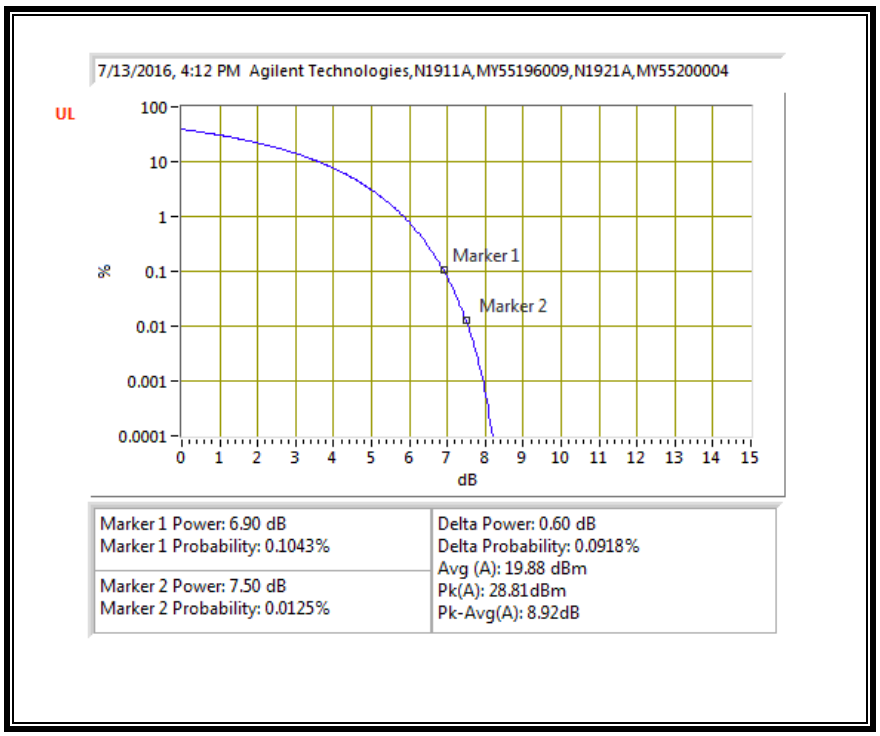
16QAM, (20.0 MHz + 15.0 MHz BAND WIDTH)



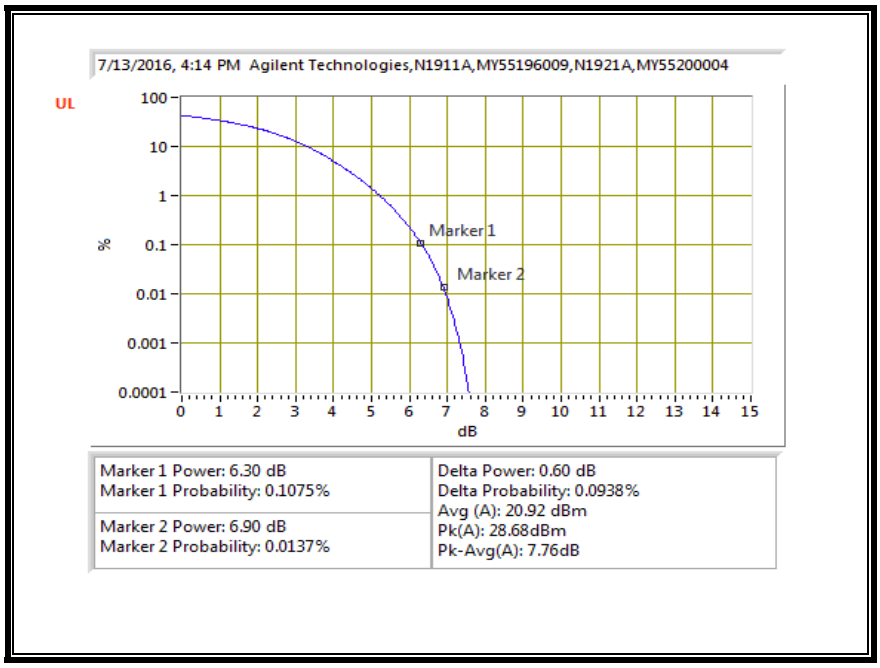
QPSK, (20.0 MHz + 10.0 MHz BAND WIDTH)



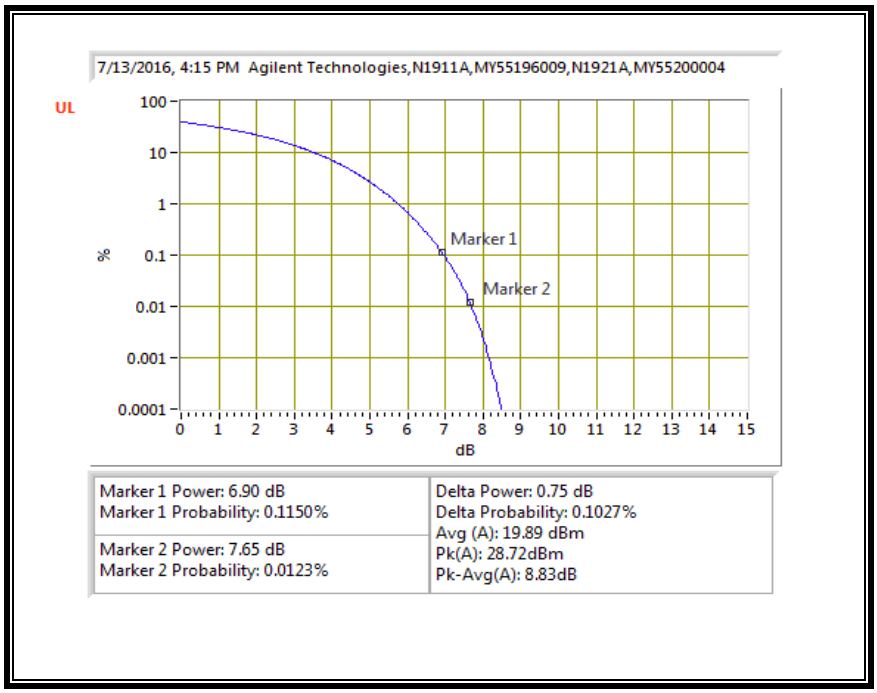
16QAM, (20.0 MHz + 10.0 MHz BAND WIDTH)



QPSK, (20.0 MHz + 20.0 MHz BAND WIDTH)

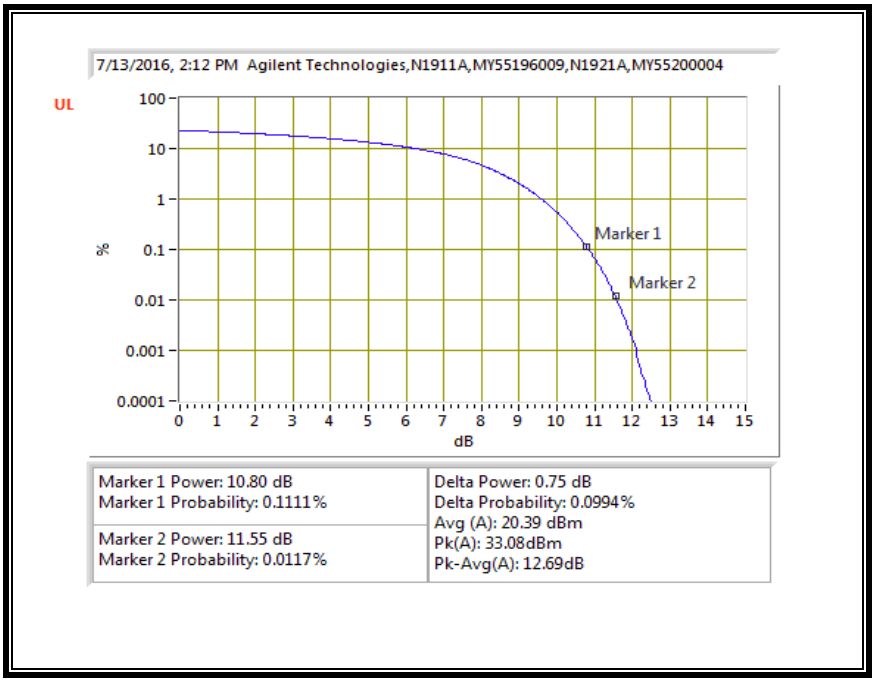


16QAM, (20.0 MHz + 20.0 MHz BAND WIDTH)

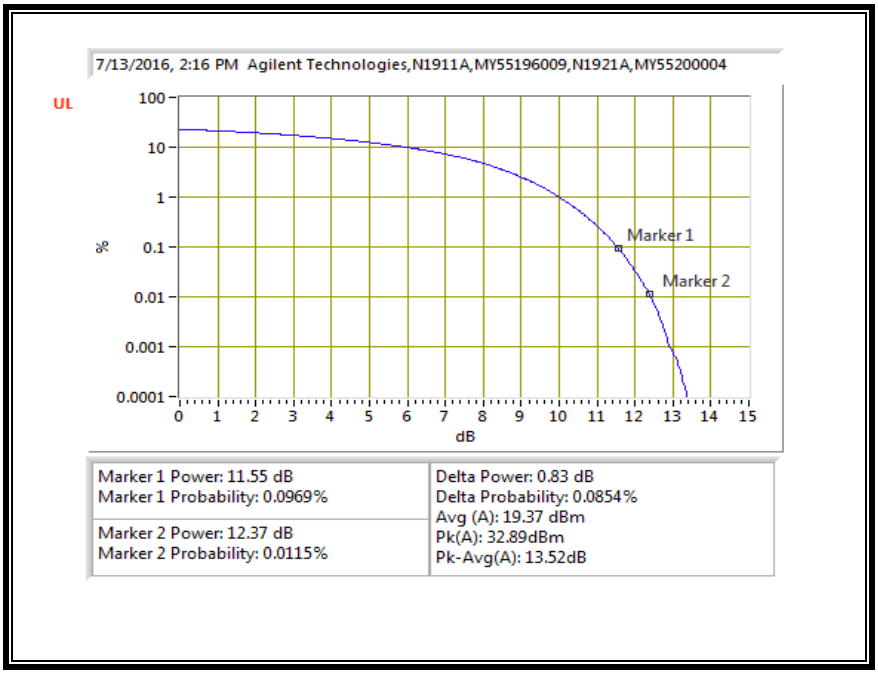


10.3.2. LTE BAND 41

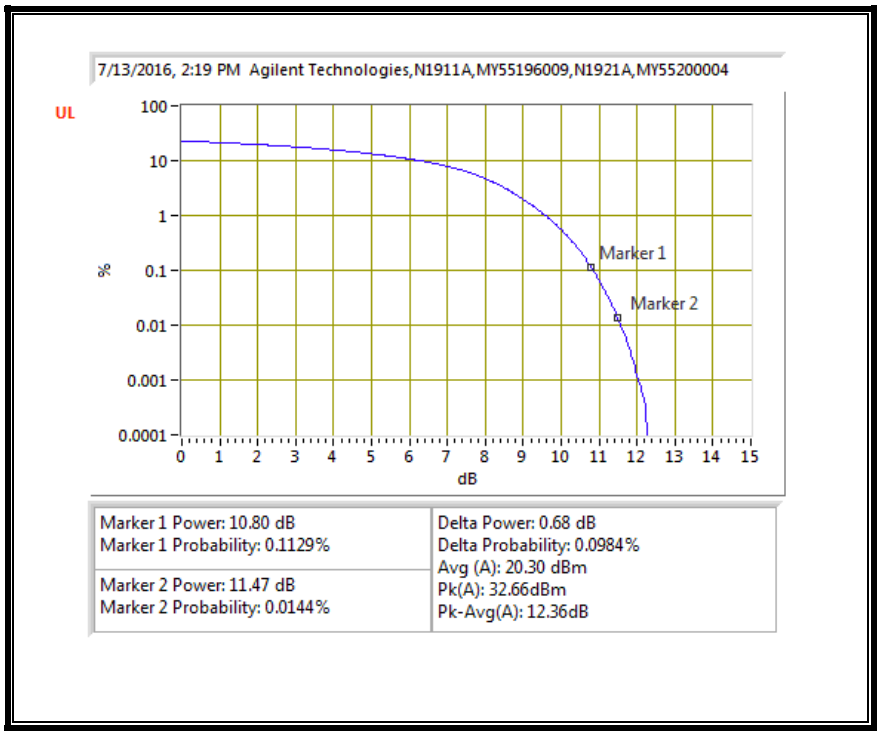
QPSK, (5.0 MHz + 20.0 MHz BAND WIDTH)



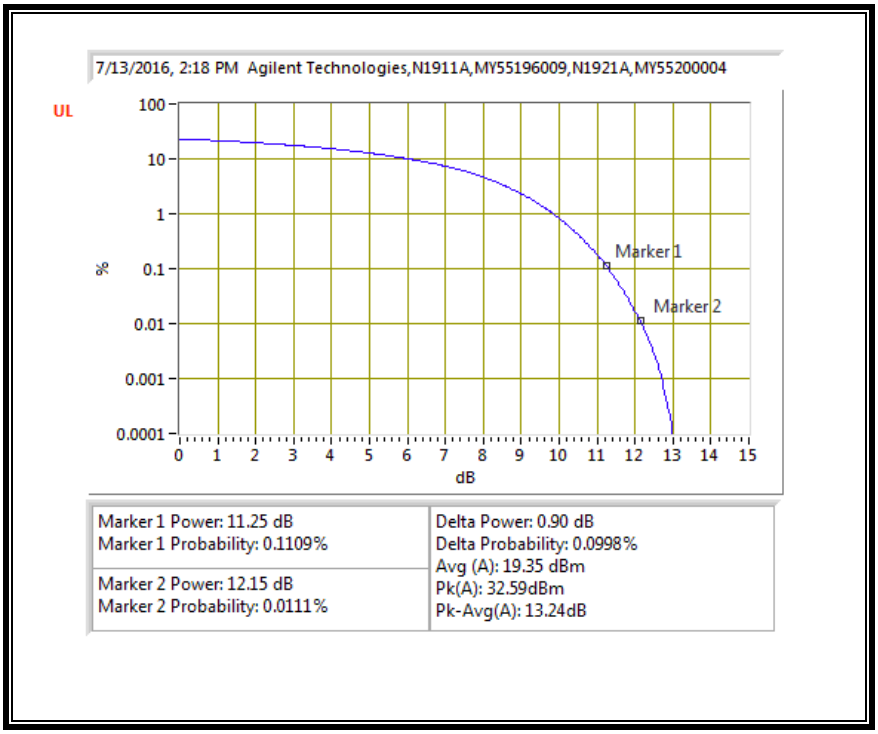
16 QAM, (5.0 MHz + 20.0 MHz BAND WIDTH)



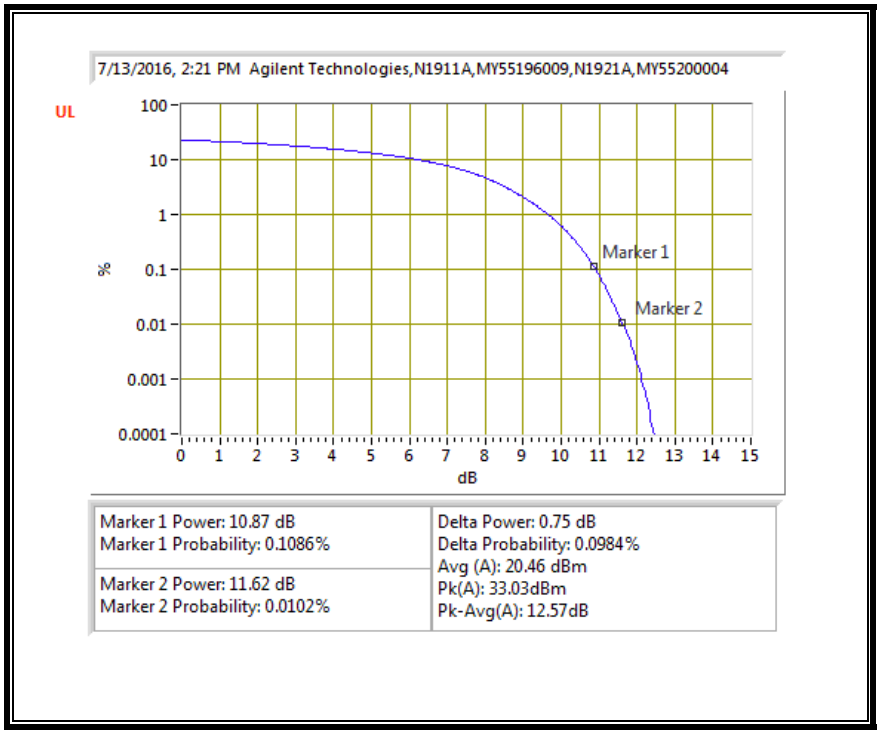
QPSK, (10.0 MHz + 20.0 MHz BAND WIDTH)



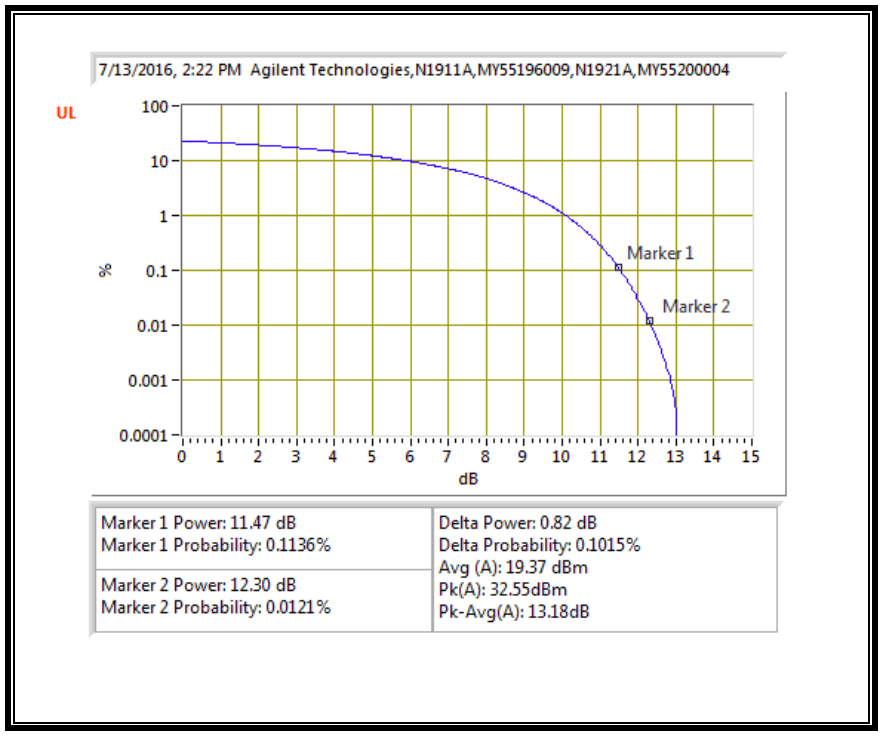
16QAM, (10.0 MHz + 20.0 MHz BAND WIDTH)



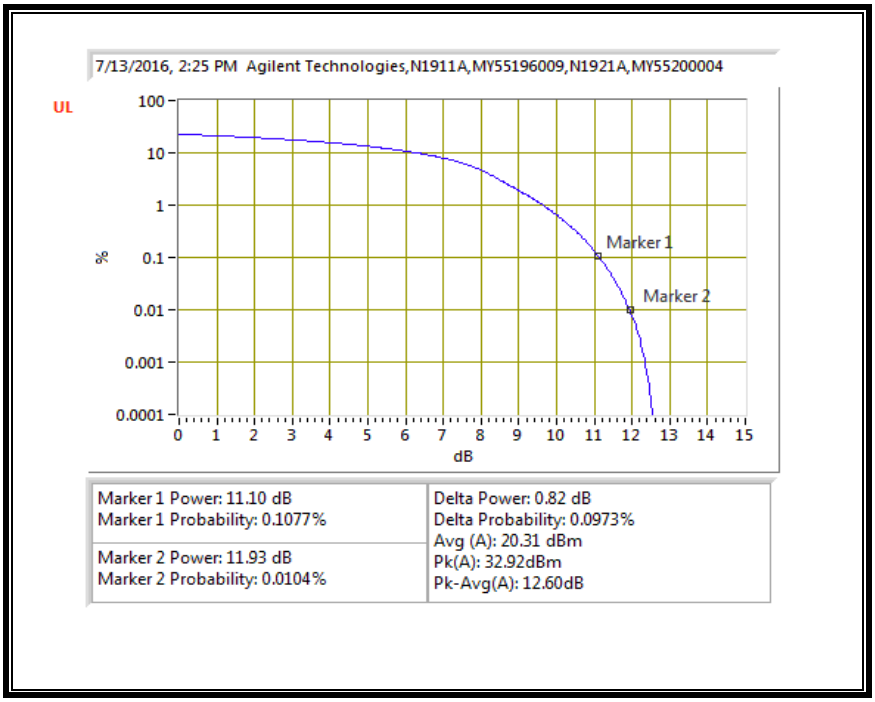
QPSK, (20.0 MHz + 10.0 MHz BAND WIDTH)



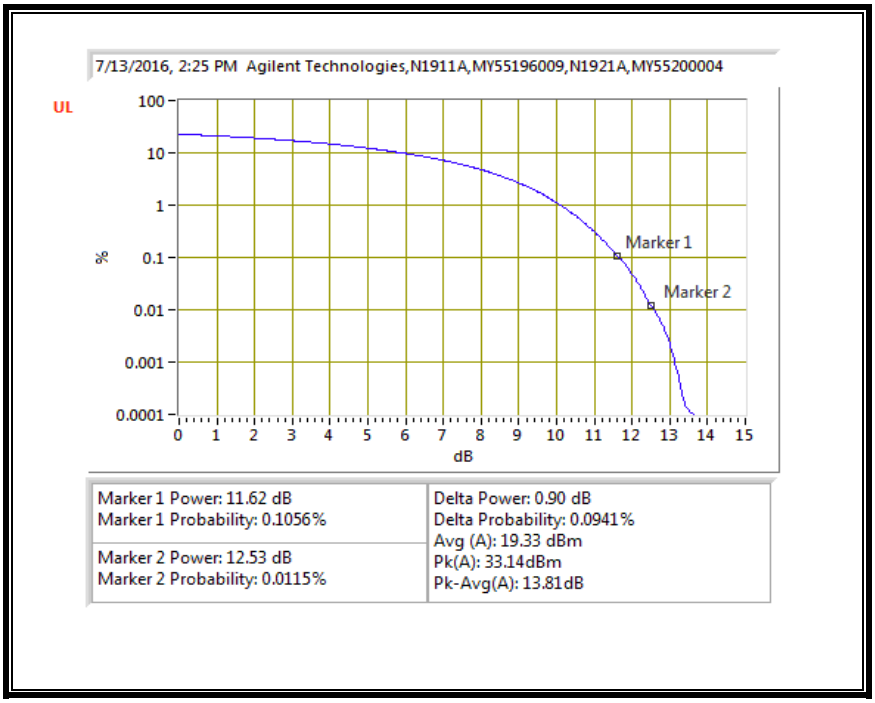
16QAM, (20.0 MHz + 10.0 MHz BAND WIDTH)



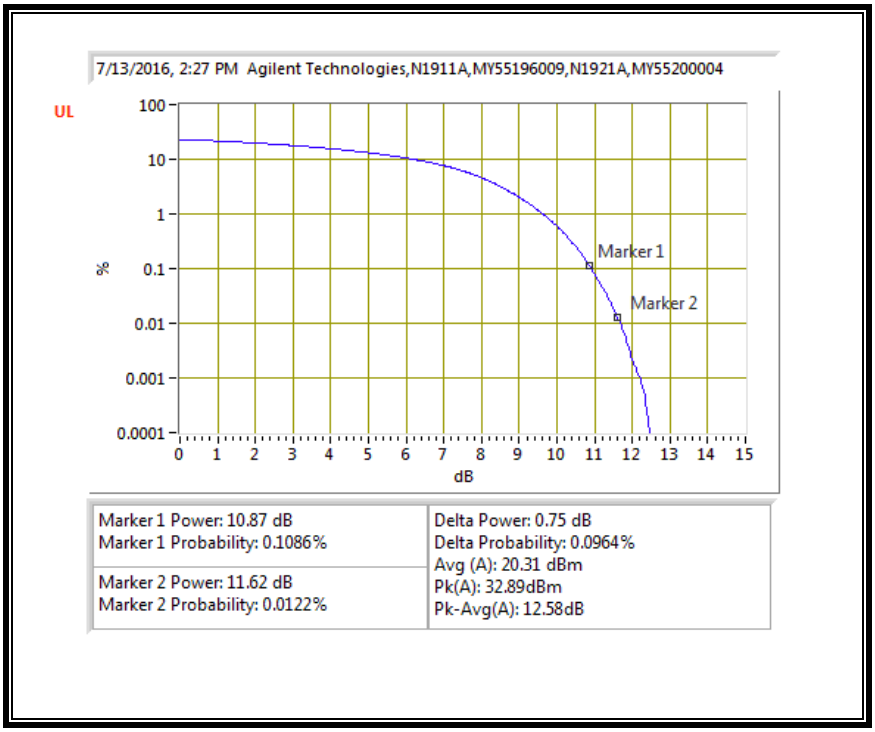
QPSK, (15.0 MHz + 15.0 MHz BAND WIDTH)



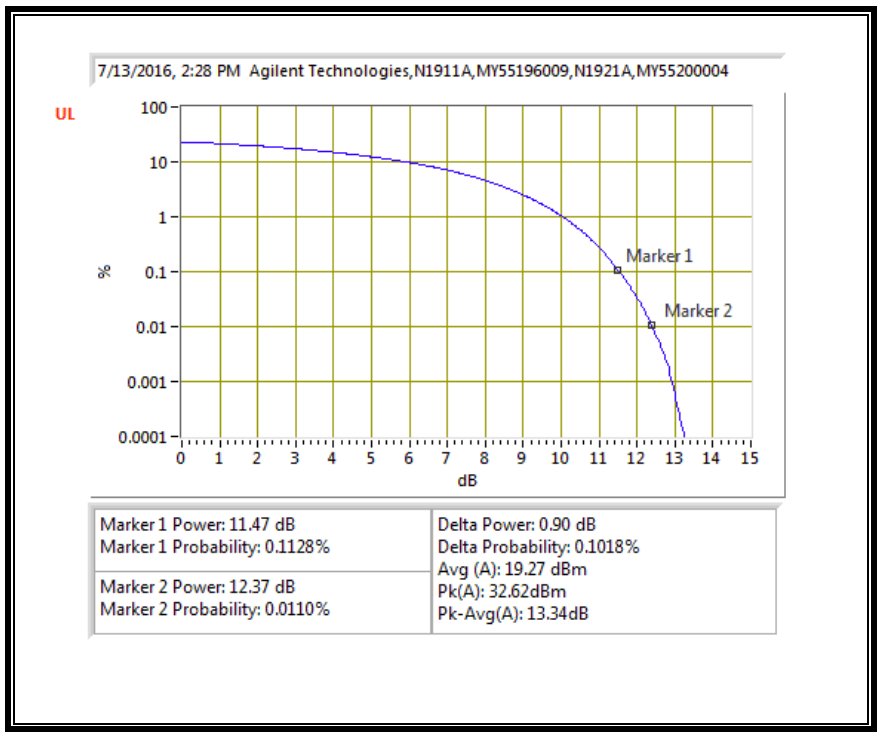
16QAM, (15.0 MHz + 15.0 MHz BAND WIDTH)



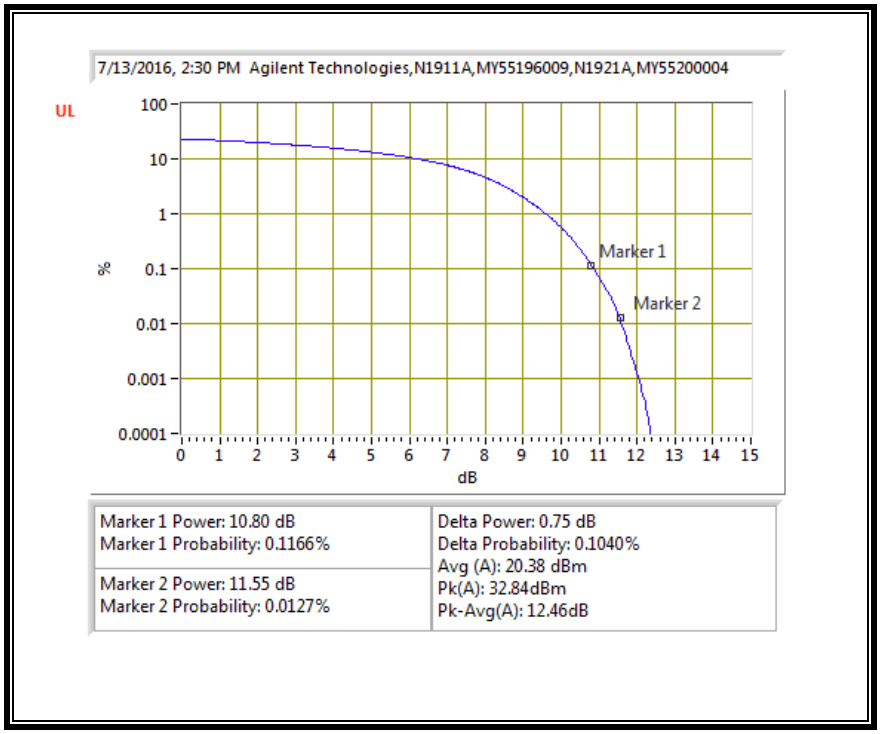
QPSK, (15.0 MHz + 20.0 MHz BAND WIDTH)



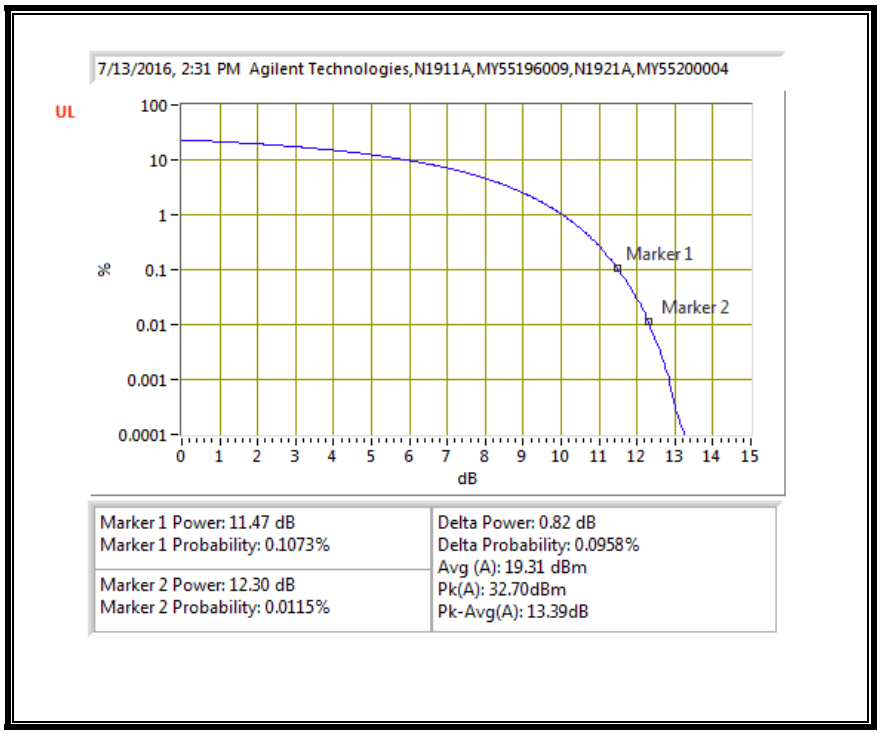
16 QAM, (15.0 MHz + 20.0 MHz BAND WIDTH)



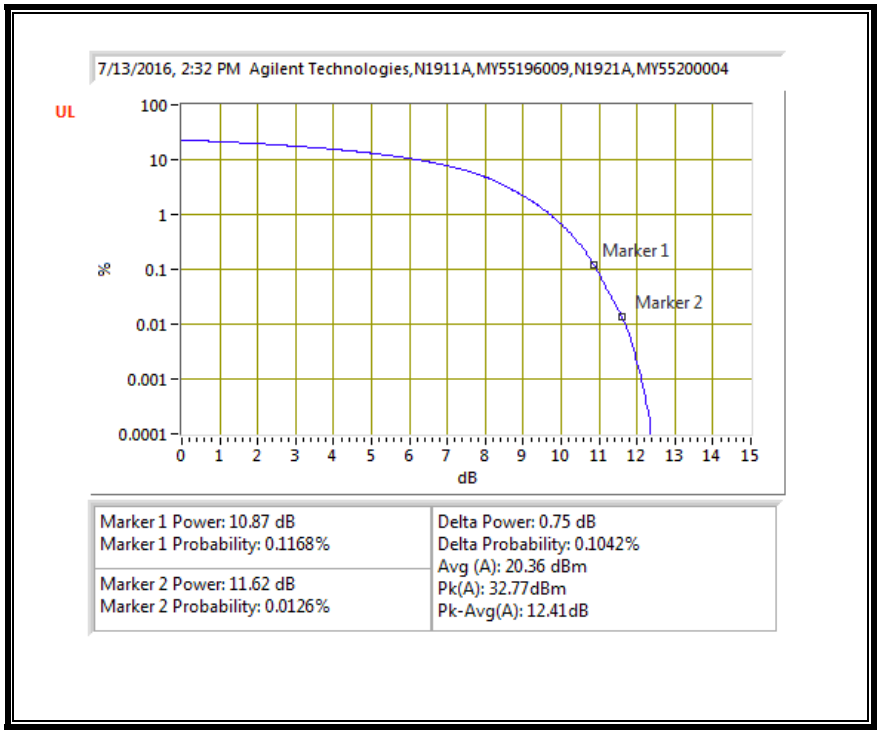
QPSK, (20.0 MHz + 15.0 MHz BAND WIDTH)



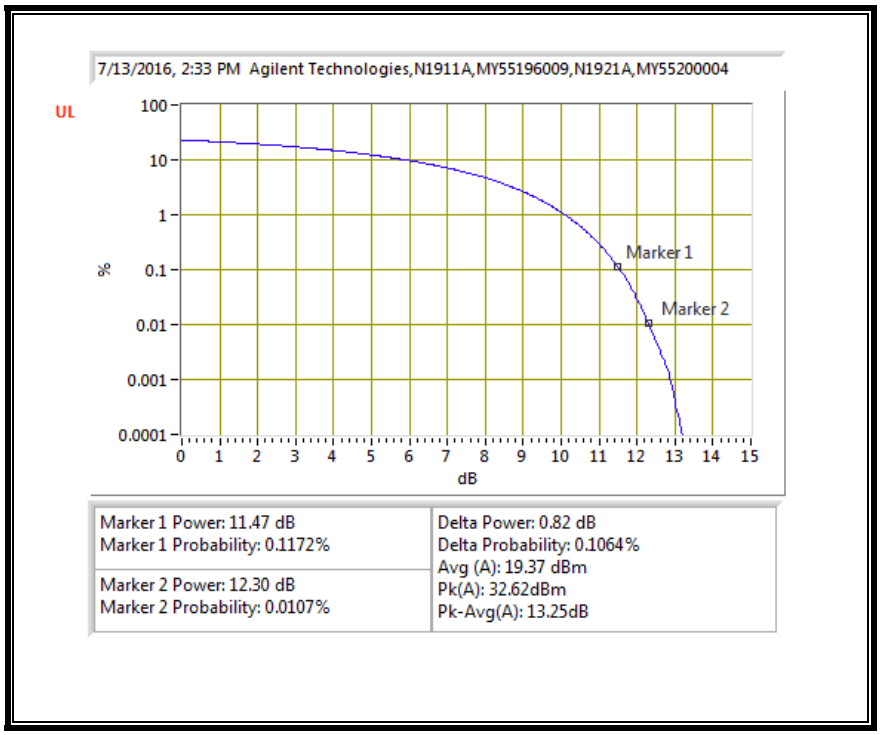
16QAM, (20.0 MHz + 15.0 MHz BAND WIDTH)



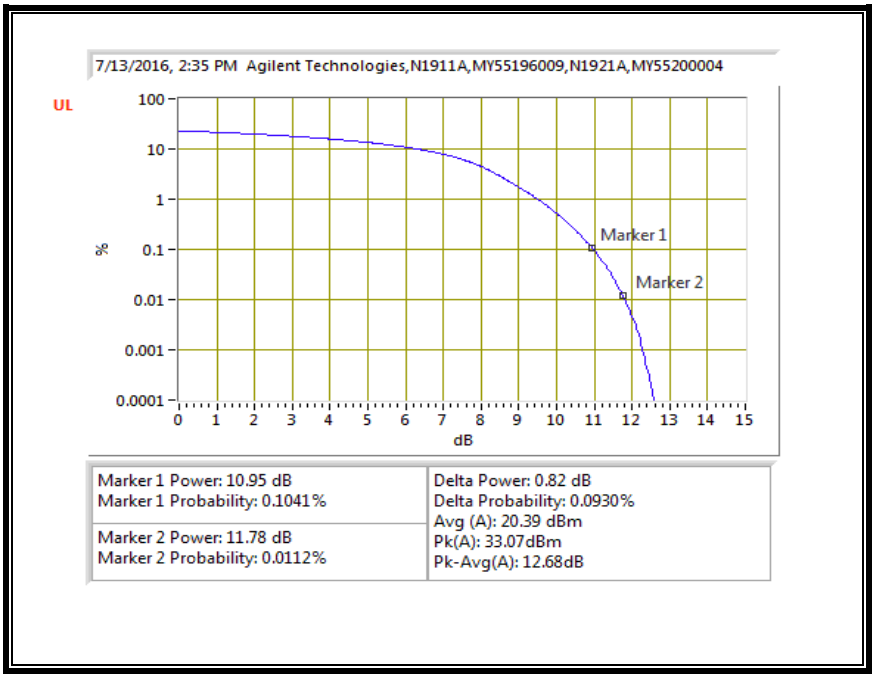
QPSK, (20.0 MHz + 5.0 MHz BAND WIDTH)



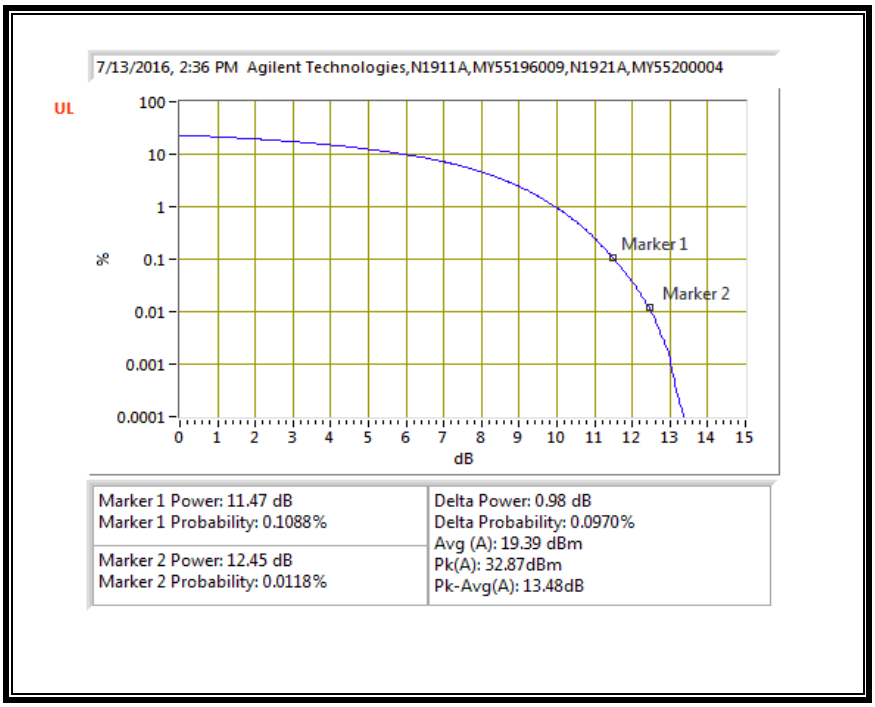
16QAM, (20.0 MHz + 5.0 MHz BAND WIDTH)



QPSK, (20.0 MHz + 20.0 MHz BAND WIDTH)



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



10.4. FIELD STRENGTH OF SPURIOUS RADIATION, LAT

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 log10(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 Log10 (p), dB; and

b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB at the channel edges and 55 + 10 Log10 (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

10.4.1. LTE BAND 7

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 7, 10MHz QPSK CA 20/10

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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)+2524.4MHz 1-99 1-0										
5.12	-61.5	H	3.0	-8.4	38.7	1.0	-46.1	-25.0	-21.1	
7.64	-62.6	H	3.0	-4.6	37.7	1.0	-41.3	-25.0	-16.3	
10.14	-61.4	H	3.0	-0.5	36.2	1.0	-35.7	-25.0	-10.7	
5.09	-61.5	V	3.0	-8.7	38.7	1.0	-46.4	-25.0	-21.4	
7.60	-61.6	V	3.0	-3.8	37.7	1.0	-40.5	-25.0	-15.5	
10.14	-62.4	V	3.0	-1.4	36.2	1.0	-36.7	-25.0	-11.7	
Mid Channel (2530.1MHz)+2544.5MHz 1-99 1-0										
5.13	-61.8	H	3.0	-8.7	38.7	1.0	-46.3	-25.0	-21.3	
7.65	-62.5	H	3.0	-4.6	37.7	1.0	-41.2	-25.0	-16.2	
10.18	-61.7	H	3.0	-0.8	36.2	1.0	-36.0	-25.0	-11.0	
5.11	-61.6	V	3.0	-8.8	38.7	1.0	-46.5	-25.0	-21.5	
7.65	-62.6	V	3.0	-4.8	37.7	1.0	-41.5	-25.0	-16.5	
10.19	-61.1	V	3.0	-0.2	36.2	1.0	-35.4	-25.0	-10.4	
High Channel (2550.1MHz)+2564.5MHz 1-99 1-0										
5.18	-62.8	H	3.0	-9.6	38.7	1.0	-47.2	-25.0	-22.2	
7.75	-62.5	H	3.0	-4.4	37.6	1.0	-41.0	-25.0	-16.0	
10.29	-62.1	H	3.0	-1.0	36.3	1.0	-36.3	-25.0	-11.3	
5.19	-60.6	V	3.0	-7.7	38.7	1.0	-45.4	-25.0	-20.4	
7.71	-61.7	V	3.0	-3.8	37.6	1.0	-40.5	-25.0	-15.5	
10.28	-61.8	V	3.0	-0.8	36.3	1.0	-36.1	-25.0	-11.1	

Rev. 05.21.15

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 7, 10MHz 16QAM CA 20/10

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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)+2524.4MHz 1-99 1-0										
5.05	-61.9	H	3.0	-9.0	38.7	1.0	-46.7	-25.0	-21.7	
7.64	-62.1	H	3.0	-4.1	37.7	1.0	-40.8	-25.0	-15.8	
10.15	-61.4	H	3.0	-0.4	36.2	1.0	-35.6	-25.0	-10.6	
5.08	-62.4	V	3.0	-9.7	38.7	1.0	-47.4	-25.0	-22.4	
7.63	-61.8	V	3.0	-4.0	37.7	1.0	-40.7	-25.0	-15.7	
10.08	-62.1	V	3.0	-1.2	36.2	1.0	-36.4	-25.0	-11.4	
Mid Channel (2530.1MHz)+2544.5MHz 1-99 1-0										
5.14	-61.2	H	3.0	-8.0	38.7	1.0	-45.7	-25.0	-20.7	
7.69	-61.3	H	3.0	-3.3	37.6	1.0	-39.9	-25.0	-14.9	
10.23	-62.2	H	3.0	-1.2	36.3	1.0	-36.4	-25.0	-11.4	
5.13	-62.6	V	3.0	-9.7	38.7	1.0	-47.4	-25.0	-22.4	
7.67	-62.8	V	3.0	-5.0	37.6	1.0	-41.7	-25.0	-16.7	
10.17	-62.3	V	3.0	-1.3	36.2	1.0	-36.6	-25.0	-11.6	
High Channel (2550.1MHz)+2564.5MHz 1-99 1-0										
5.13	-61.5	H	3.0	-8.4	38.7	1.0	-46.1	-25.0	-21.1	
7.71	-62.1	H	3.0	-4.1	37.6	1.0	-40.7	-25.0	-15.7	
10.31	-62.3	H	3.0	-1.2	36.3	1.0	-36.5	-25.0	-11.5	
5.13	-62.4	V	3.0	-9.6	38.7	1.0	-47.3	-25.0	-22.3	
7.75	-62.1	V	3.0	-4.2	37.6	1.0	-40.8	-25.0	-15.8	
10.27	-61.7	V	3.0	-0.7	36.3	1.0	-36.0	-25.0	-11.0	

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QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 7, 20MHz QPSK UL CA 20/20

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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										
5.05	-62.2	H	3.0	-14.1	36.1	1.0	-49.2	-25.0	-24.2	
7.59	-61.5	H	3.0	-11.8	36.3	1.0	-47.0	-25.0	-22.0	
10.14	-61.1	H	3.0	-5.7	33.4	1.0	-38.2	-25.0	-13.2	
5.06	-62.9	V	3.0	-13.4	36.3	1.0	-48.6	-25.0	-23.6	
7.58	-63.0	V	3.0	-9.4	34.8	1.0	-43.2	-25.0	-18.2	
10.10	-62.1	V	3.0	-6.1	32.1	1.0	-37.2	-25.0	-12.2	
Mid Channel (2525.1MHz)+2544.9MHz 1-99 1-0										
5.15	-63.1	H	3.0	-12.1	36.0	1.0	-47.1	-25.0	-22.1	
7.65	-61.7	H	3.0	-8.7	35.2	1.0	-42.9	-25.0	-17.9	
10.16	-61.2	H	3.0	-4.9	32.0	1.0	-35.9	-25.0	-10.9	
5.16	-62.2	V	3.0	-14.5	36.1	1.0	-49.6	-25.0	-24.6	
7.69	-63.0	V	3.0	-5.2	37.6	1.0	-41.8	-25.0	-16.8	
10.24	-61.7	V	3.0	-0.6	36.3	1.0	-35.9	-25.0	-10.9	
High Channel (2540.2MHz)+2560Mhz 1-99 1-0										
5.15	-62.1	H	3.0	-13.0	36.2	1.0	-48.2	-25.0	-23.2	
7.70	-61.4	H	3.0	-10.7	36.0	1.0	-45.8	-25.0	-20.8	
10.28	-60.9	H	3.0	-4.7	32.0	1.0	-35.7	-25.0	-10.7	
5.15	-61.3	V	3.0	-14.2	36.3	1.0	-49.5	-25.0	-24.5	
7.69	-61.6	V	3.0	-10.3	35.8	1.0	-45.2	-25.0	-20.2	
10.29	-61.3	V	3.0	-0.3	36.3	1.0	-35.6	-25.0	-10.6	

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16QAM EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 7, 20MHz 16QAM CA 20/20

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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										
5.12	-61.8	H	3.0	-8.7	38.7	1.0	-46.4	-25.0	-21.4	
7.61	-62.3	H	3.0	-4.4	37.7	1.0	-41.0	-25.0	-16.0	
10.11	-60.7	H	3.0	0.2	36.2	1.0	-35.0	-25.0	-10.0	
5.13	-61.7	V	3.0	-8.9	38.7	1.0	-46.6	-25.0	-21.6	
7.65	-62.2	V	3.0	-4.5	37.7	1.0	-41.1	-25.0	-16.1	
10.14	-62.2	V	3.0	-1.3	36.2	1.0	-36.5	-25.0	-11.5	
Mid Channel (2525.1MHz)+2544.9MHz 1-99 1-0										
5.13	-62.3	H	3.0	-9.1	38.7	1.0	-46.8	-25.0	-21.8	
7.66	-63.5	H	3.0	-5.5	37.7	1.0	-42.2	-25.0	-17.2	
10.15	-61.2	H	3.0	-0.3	36.2	1.0	-35.5	-25.0	-10.5	
5.09	-61.3	V	3.0	-8.5	38.7	1.0	-46.2	-25.0	-21.2	
7.63	-61.8	V	3.0	-4.0	37.7	1.0	-40.7	-25.0	-15.7	
10.17	-63.1	V	3.0	-2.2	36.2	1.0	-37.4	-25.0	-12.4	
High Channel (2540.2MHz)+2560Mhz 1-99 1-0										
5.12	-63.2	H	3.0	-10.1	38.7	1.0	-47.7	-25.0	-22.7	
7.72	-61.3	H	3.0	-3.2	37.6	1.0	-39.8	-25.0	-14.8	
10.28	-61.1	H	3.0	-0.1	36.3	1.0	-35.4	-25.0	-10.4	
5.15	-62.4	V	3.0	-9.6	38.7	1.0	-47.3	-25.0	-22.3	
7.72	-62.3	V	3.0	-4.4	37.6	1.0	-41.0	-25.0	-16.0	
10.21	-62.5	V	3.0	-1.5	36.3	1.0	-36.8	-25.0	-11.8	

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10.4.2. LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 41, 5MHz QPSK CA 20/5

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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) +2517.7MHz 1-99, 1-0										
5.13	-61.5	H	3.0	-8.4	38.7	1.0	-46.1	-25.0	-21.1	
7.59	-61.8	H	3.0	-3.9	37.7	1.0	-40.5	-25.0	-15.5	
10.12	-63.1	H	3.0	-2.2	36.2	1.0	-37.4	-25.0	-12.4	
5.06	-62.0	V	3.0	-9.3	38.7	1.0	-47.0	-25.0	-22.0	
7.57	-62.8	V	3.0	-5.2	37.7	1.0	-41.9	-25.0	-16.9	
10.12	-62.0	V	3.0	-1.1	36.2	1.0	-36.3	-25.0	-11.3	
Mid Channel (2590.5MHz)+2602.2MHz 1-99, 1-0										
5.24	-62.3	H	3.0	-8.9	38.7	1.0	-46.6	-25.0	-21.6	
7.86	-61.2	H	3.0	-3.0	37.5	1.0	-39.5	-25.0	-14.5	
10.46	-61.6	H	3.0	-0.4	36.4	1.0	-35.8	-25.0	-10.8	
5.30	-62.3	V	3.0	-9.1	38.7	1.0	-46.8	-25.0	-21.8	
7.87	-60.9	V	3.0	-2.8	37.5	1.0	-39.3	-25.0	-14.3	
10.46	-61.3	V	3.0	-0.1	36.4	1.0	-35.5	-25.0	-10.5	
High Channel (2675MHz)+2686.7MHz 1-99, 1-0										
5.42	-62.6	H	3.0	-8.9	38.6	1.0	-46.5	-25.0	-21.5	
8.10	-62.7	H	3.0	-4.2	37.4	1.0	-40.6	-25.0	-15.6	
10.75	-62.0	H	3.0	-0.6	36.6	1.0	-36.2	-25.0	-11.2	
5.48	-62.6	V	3.0	-9.0	38.6	1.0	-46.6	-25.0	-21.6	
8.11	-61.4	V	3.0	-3.0	37.4	1.0	-39.4	-25.0	-14.4	
10.78	-62.4	V	3.0	-0.8	36.6	1.0	-36.4	-25.0	-11.4	

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 41, 5MHz 16QAM CA 20/5

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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) +2517.7MHz 1-99, 1-0										
5.12	-61.5	H	3.0	-8.4	38.7	1.0	-46.1	-25.0	-21.1	
7.66	-61.8	H	3.0	-3.8	37.7	1.0	-40.4	-25.0	-15.4	
10.13	-63.1	H	3.0	-2.2	36.2	1.0	-37.4	-25.0	-12.4	
5.11	-62.0	V	3.0	-9.2	38.7	1.0	-46.9	-25.0	-21.9	
7.60	-62.8	V	3.0	-5.1	37.7	1.0	-41.8	-25.0	-16.8	
10.14	-62.0	V	3.0	-1.1	36.2	1.0	-36.3	-25.0	-11.3	
Mid Channel (2590.5MHz)+2602.2MHz 1-99, 1-0										
5.24	-62.3	H	3.0	-8.9	38.7	1.0	-46.6	-25.0	-21.6	
7.85	-61.2	H	3.0	-3.0	37.5	1.0	-39.5	-25.0	-14.5	
10.46	-61.6	H	3.0	-0.4	36.4	1.0	-35.8	-25.0	-10.8	
5.30	-62.3	V	3.0	-9.1	38.7	1.0	-46.7	-25.0	-21.7	
7.88	-60.9	V	3.0	-2.8	37.5	1.0	-39.3	-25.0	-14.3	
10.48	-61.3	V	3.0	0.0	36.4	1.0	-35.5	-25.0	-10.5	
High Channel (2675MHz)+2686.7MHz 1-99, 1-0										
5.39	-62.6	H	3.0	-8.9	38.6	1.0	-46.5	-25.0	-21.5	
8.17	-62.7	H	3.0	-4.1	37.3	1.0	-40.5	-25.0	-15.5	
10.81	-62.0	H	3.0	-0.5	36.6	1.0	-36.2	-25.0	-11.2	
5.46	-62.6	V	3.0	-9.1	38.6	1.0	-46.7	-25.0	-21.7	
8.12	-61.4	V	3.0	-3.0	37.3	1.0	-39.3	-25.0	-14.3	
10.76	-62.4	V	3.0	-0.8	36.6	1.0	-36.4	-25.0	-11.4	

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QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 41, 20MHz QPSK CA 20/20

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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										
5.11	-63.1	H	3.0	-10.1	38.7	1.0	-47.7	-25.0	-22.7	
7.60	-62.2	H	3.0	-4.3	37.7	1.0	-41.0	-25.0	-16.0	
10.14	-61.6	H	3.0	-0.7	36.2	1.0	-35.9	-25.0	-10.9	
5.10	-62.1	V	3.0	-9.3	38.7	1.0	-47.0	-25.0	-22.0	
7.63	-62.3	V	3.0	-4.6	37.7	1.0	-41.2	-25.0	-16.2	
10.18	-62.6	V	3.0	-1.6	36.2	1.0	-36.8	-25.0	-11.8	
Mid Channel (2583.1MHz) + 2602.9MHz 1-99 1-0										
5.29	-61.6	H	3.0	-8.1	38.7	1.0	-45.7	-25.0	-20.7	
7.85	-62.3	H	3.0	-4.1	37.5	1.0	-40.6	-25.0	-15.6	
10.42	-62.9	H	3.0	-1.7	36.4	1.0	-37.1	-25.0	-12.1	
5.29	-60.6	V	3.0	-7.5	38.7	1.0	-45.1	-25.0	-20.1	
7.85	-62.7	V	3.0	-4.7	37.5	1.0	-41.2	-25.0	-16.2	
10.42	-61.1	V	3.0	0.1	36.4	1.0	-35.3	-25.0	-10.3	
High Channel (2660.2MHz) + 2680MHz 1-99 1-0										
5.37	-62.7	H	3.0	-9.0	38.6	1.0	-46.6	-25.0	-21.6	
8.10	-62.8	H	3.0	-4.3	37.4	1.0	-40.7	-25.0	-15.7	
10.74	-62.0	H	3.0	-0.5	36.6	1.0	-36.1	-25.0	-11.1	
5.37	-61.7	V	3.0	-8.3	38.6	1.0	-46.0	-25.0	-21.0	
8.10	-61.8	V	3.0	-3.5	37.4	1.0	-39.9	-25.0	-14.9	
10.74	-62.4	V	3.0	-0.8	36.6	1.0	-36.4	-25.0	-11.4	

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16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 41, 20MHz 16QAM CA 20/20

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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										
5.14	-61.5	H	3.0	-8.3	38.7	1.0	-46.0	-25.0	-21.0	
7.60	-61.8	H	3.0	-3.8	37.7	1.0	-40.5	-25.0	-15.5	
10.11	-63.1	H	3.0	-2.3	36.2	1.0	-37.5	-25.0	-12.5	
5.13	-62.0	V	3.0	-9.1	38.7	1.0	-46.8	-25.0	-21.8	
7.59	-62.8	V	3.0	-5.1	37.7	1.0	-41.8	-25.0	-16.8	
10.15	-62.0	V	3.0	-1.1	36.2	1.0	-36.3	-25.0	-11.3	
Mid Channel (2583.1MHz) + 2602.9MHz 1-99 1-0										
5.26	-62.3	H	3.0	-8.9	38.7	1.0	-46.5	-25.0	-21.5	
7.79	-61.2	H	3.0	-3.0	37.6	1.0	-39.6	-25.0	-14.6	
10.48	-61.6	H	3.0	-0.4	36.4	1.0	-35.8	-25.0	-10.8	
5.28	-62.3	V	3.0	-9.1	38.7	1.0	-46.8	-25.0	-21.8	
7.88	-60.9	V	3.0	-2.8	37.5	1.0	-39.3	-25.0	-14.3	
10.47	-61.3	V	3.0	0.0	36.4	1.0	-35.5	-25.0	-10.5	
High Channel (2660.2MHz) + 2680MHz 1-99 1-0										
5.37	-62.6	H	3.0	-9.0	38.6	1.0	-46.6	-25.0	-21.6	
8.10	-62.7	H	3.0	-4.2	37.4	1.0	-40.6	-25.0	-15.6	
10.75	-62.0	H	3.0	-0.6	36.6	1.0	-36.2	-25.0	-11.2	
5.39	-62.6	V	3.0	-9.2	38.6	1.0	-46.8	-25.0	-21.8	
8.03	-61.4	V	3.0	-3.1	37.4	1.0	-39.5	-25.0	-14.5	
10.78	-62.4	V	3.0	-0.8	36.6	1.0	-36.4	-25.0	-11.4	

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10.5. FIELD STRENGTH OF SPURIOUS RADIATION, UAT

10.5.1. LTE BAND 7

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 10.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 7, 10MHz QPSK CA 20/10

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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)+2524.4MHz 1-99 1-0										
5.07	-60.5	H	3.0	-7.5	38.7	1.0	-45.2	-25.0	-20.2	
7.56	-60.7	H	3.0	-2.8	37.7	1.0	-39.5	-25.0	-14.5	
10.13	-62.8	H	3.0	-1.8	36.2	1.0	-37.1	-25.0	-12.1	
5.01	-61.5	V	3.0	-8.9	38.7	1.0	-46.6	-25.0	-21.6	
7.69	-61.5	V	3.0	-3.7	37.6	1.0	-40.3	-25.0	-15.3	
10.13	-60.5	V	3.0	0.4	36.2	1.0	-34.8	-25.0	-9.8	
Mid Channel (2530.1MHz)+2544.5MHz 1-99 1-0										
5.18	-60.6	H	3.0	-7.4	38.7	1.0	-45.1	-25.0	-20.1	
7.60	-62.4	H	3.0	-4.5	37.7	1.0	-41.2	-25.0	-16.2	
10.24	-61.4	H	3.0	-0.4	36.3	1.0	-35.7	-25.0	-10.7	
5.26	-59.9	V	3.0	-6.9	38.7	1.0	-44.5	-25.0	-19.5	
7.73	-62.1	V	3.0	-4.2	37.6	1.0	-40.8	-25.0	-15.8	
10.16	-60.5	V	3.0	0.4	36.2	1.0	-34.8	-25.0	-9.8	
High Channel (2550.1MHz)+2564.5MHz 1-99 1-0										
5.23	-61.4	H	3.0	-8.0	38.7	1.0	-45.7	-25.0	-20.7	
7.58	-61.4	H	3.0	-3.5	37.7	1.0	-40.2	-25.0	-15.2	
10.17	-61.3	H	3.0	-0.4	36.2	1.0	-35.6	-25.0	-10.6	
5.13	-62.0	V	3.0	-9.2	38.7	1.0	-46.9	-25.0	-21.9	
7.63	-61.1	V	3.0	-3.3	37.7	1.0	-40.0	-25.0	-15.0	
10.29	-60.3	V	3.0	0.8	36.3	1.0	-34.5	-25.0	-9.5	

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 7, 10MHz 16QAM CA 20/10

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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)+2524.4MHz 1-99 1-0										
5.08	-60.8	H	3.0	-7.8	38.7	1.0	-45.5	-25.0	-20.5	
7.60	-59.8	H	3.0	-1.9	37.7	1.0	-38.6	-25.0	-13.6	
10.13	-61.5	H	3.0	-0.6	36.2	1.0	-35.8	-25.0	-10.8	
4.97	-60.1	V	3.0	-7.6	38.7	1.0	-45.3	-25.0	-20.3	
7.66	-61.5	V	3.0	-3.7	37.7	1.0	-40.3	-25.0	-15.3	
10.07	-60.8	V	3.0	0.1	36.2	1.0	-35.1	-25.0	-10.1	
Mid Channel (2530.1MHz)+2544.5MHz 1-99 1-0										
5.28	-61.9	H	3.0	-8.4	38.7	1.0	-46.1	-25.0	-21.1	
7.67	-61.1	H	3.0	-3.1	37.6	1.0	-39.7	-25.0	-14.7	
10.21	-60.1	H	3.0	0.9	36.3	1.0	-34.3	-25.0	-9.3	
5.15	-61.4	V	3.0	-8.5	38.7	1.0	-46.2	-25.0	-21.2	
7.65	-59.9	V	3.0	-2.2	37.7	1.0	-38.8	-25.0	-13.8	
10.22	-61.5	V	3.0	-0.5	36.3	1.0	-35.7	-25.0	-10.7	
High Channel (2550.1MHz)+2564.5MHz 1-99 1-0										
5.25	-61.0	H	3.0	-7.6	38.7	1.0	-45.2	-25.0	-20.2	
7.60	-61.4	H	3.0	-3.5	37.7	1.0	-40.2	-25.0	-15.2	
10.27	-61.0	H	3.0	0.0	36.3	1.0	-35.3	-25.0	-10.3	
5.12	-61.8	V	3.0	-9.0	38.7	1.0	-46.7	-25.0	-21.7	
7.65	-61.6	V	3.0	-3.8	37.7	1.0	-40.5	-25.0	-15.5	
10.38	-60.8	V	3.0	0.4	36.4	1.0	-35.0	-25.0	-10.0	

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QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 7, 20MHz QPSK UL CA 20/20

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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										
5.03	-61.0	H	3.0	-12.9	36.1	1.0	-48.0	-25.0	-23.0	
7.56	-60.9	H	3.0	-11.2	36.3	1.0	-46.5	-25.0	-21.5	
10.12	-60.3	H	3.0	-4.9	33.4	1.0	-37.3	-25.0	-12.3	
5.05	-61.4	V	3.0	-11.8	36.3	1.0	-47.1	-25.0	-22.1	
7.63	-62.0	V	3.0	-8.5	34.8	1.0	-42.2	-25.0	-17.2	
10.11	-60.5	V	3.0	-4.5	32.1	1.0	-35.6	-25.0	-10.6	
Mid Channel (2525.1MHz)+2544.9MHz 1-99 1-0										
5.19	-61.4	H	3.0	-10.4	36.0	1.0	-45.4	-25.0	-20.4	
7.69	-61.8	H	3.0	-8.8	35.2	1.0	-43.0	-25.0	-18.0	
10.20	-61.5	H	3.0	-5.2	32.0	1.0	-36.2	-25.0	-11.2	
5.19	-61.2	V	3.0	-13.6	36.1	1.0	-48.7	-25.0	-23.7	
7.69	-61.6	V	3.0	-3.8	37.6	1.0	-40.4	-25.0	-15.4	
10.20	-61.1	V	3.0	-0.1	36.3	1.0	-35.3	-25.0	-10.3	
High Channel (2540.2MHz)+2560Mhz 1-99 1-0										
5.22	-61.7	H	3.0	-12.6	36.2	1.0	-47.8	-25.0	-22.8	
7.63	-61.0	H	3.0	-10.3	36.0	1.0	-45.4	-25.0	-20.4	
10.20	-61.2	H	3.0	-4.9	32.0	1.0	-35.9	-25.0	-10.9	
5.10	-61.6	V	3.0	-14.5	36.3	1.0	-49.8	-25.0	-24.8	
7.65	-61.9	V	3.0	-10.6	35.8	1.0	-45.4	-25.0	-20.4	
10.34	-60.5	V	3.0	0.6	36.3	1.0	-34.7	-25.0	-9.7	

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16QAM EIRP POWER FOR LTE BAND 7 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 7, 20MHz 16QAM CA 20/20

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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										
4.97	-61.8	H	3.0	-9.0	38.7	1.0	-46.7	-25.0	-21.7	
7.53	-62.3	H	3.0	-4.5	37.7	1.0	-41.2	-25.0	-16.2	
10.09	-60.7	H	3.0	0.1	36.2	1.0	-35.0	-25.0	-10.0	
5.03	-61.7	V	3.0	-9.1	38.7	1.0	-46.7	-25.0	-21.7	
7.57	-62.2	V	3.0	-4.6	37.7	1.0	-41.3	-25.0	-16.3	
10.14	-62.2	V	3.0	-1.3	36.2	1.0	-36.5	-25.0	-11.5	
Mid Channel (2525.1MHz)+2544.9MHz 1-99 1-0										
5.23	-62.3	H	3.0	-8.9	38.7	1.0	-46.6	-25.0	-21.6	
7.75	-63.5	H	3.0	-5.4	37.6	1.0	-42.0	-25.0	-17.0	
10.21	-61.2	H	3.0	-0.3	36.3	1.0	-35.5	-25.0	-10.5	
5.18	-61.3	V	3.0	-8.4	38.7	1.0	-46.1	-25.0	-21.1	
7.66	-61.8	V	3.0	-4.0	37.6	1.0	-40.6	-25.0	-15.6	
10.15	-63.1	V	3.0	-2.2	36.2	1.0	-37.4	-25.0	-12.4	
High Channel (2540.2MHz)+2560Mhz 1-99 1-0										
5.17	-63.2	H	3.0	-10.0	38.7	1.0	-47.6	-25.0	-22.6	
7.67	-61.3	H	3.0	-3.3	37.6	1.0	-39.9	-25.0	-14.9	
10.19	-61.1	H	3.0	-0.1	36.2	1.0	-35.4	-25.0	-10.4	
5.10	-62.4	V	3.0	-9.7	38.7	1.0	-47.4	-25.0	-22.4	
7.73	-62.3	V	3.0	-4.4	37.6	1.0	-41.0	-25.0	-16.0	
10.33	-62.5	V	3.0	-1.4	36.3	1.0	-36.7	-25.0	-11.7	

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10.5.2. LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 5.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 41, 5MHz QPSK CA 20/5

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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) +2517.7MHz 1-99, 1-0										
5.03	-61.5	H	3.0	-8.6	38.7	1.0	-46.3	-25.0	-21.3	
7.57	-60.8	H	3.0	-2.9	37.7	1.0	-39.6	-25.0	-14.6	
10.16	-61.6	H	3.0	-0.7	36.2	1.0	-35.9	-25.0	-10.9	
4.98	-60.8	V	3.0	-8.2	38.7	1.0	-45.9	-25.0	-20.9	
7.61	-61.8	V	3.0	-4.1	37.7	1.0	-40.7	-25.0	-15.7	
10.10	-60.8	V	3.0	0.1	36.2	1.0	-35.1	-25.0	-10.1	
Mid Channel (2590.5MHz)+2602.2MHz 1-99, 1-0										
5.10	-61.1	H	3.0	-8.0	38.7	1.0	-45.7	-25.0	-20.7	
7.73	-60.9	H	3.0	-2.9	37.6	1.0	-39.5	-25.0	-14.5	
10.16	-61.9	H	3.0	-1.0	36.2	1.0	-36.2	-25.0	-11.2	
5.22	-60.3	V	3.0	-7.4	38.7	1.0	-45.0	-25.0	-20.0	
7.69	-61.9	V	3.0	-4.1	37.6	1.0	-40.7	-25.0	-15.7	
10.17	-60.9	V	3.0	0.1	36.2	1.0	-35.2	-25.0	-10.2	
High Channel (2675MHz)+2686.7MHz 1-99, 1-0										
5.19	-60.4	H	3.0	-7.2	38.7	1.0	-44.8	-25.0	-19.8	
7.61	-61.3	H	3.0	-3.4	37.7	1.0	-40.0	-25.0	-15.0	
10.24	-62.7	H	3.0	-1.7	36.3	1.0	-37.0	-25.0	-12.0	
5.09	-61.6	V	3.0	-8.9	38.7	1.0	-46.6	-25.0	-21.6	
7.66	-61.2	V	3.0	-3.5	37.7	1.0	-40.1	-25.0	-15.1	
10.26	-61.0	V	3.0	0.1	36.3	1.0	-35.2	-25.0	-10.2	

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

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 41, 5MHz 16QAM CA 20/5

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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) +2517.7MHz 1-99, 1-0										
5.04	-61.3	H	3.0	-8.3	38.7	1.0	-46.0	-25.0	-21.0	
7.56	-61.7	H	3.0	-3.9	37.7	1.0	-40.6	-25.0	-15.6	
10.08	-61.5	H	3.0	-0.6	36.2	1.0	-35.8	-25.0	-10.8	
5.04	-62.6	V	3.0	-10.0	38.7	1.0	-47.7	-25.0	-22.7	
7.60	-61.0	V	3.0	-3.3	37.7	1.0	-40.0	-25.0	-15.0	
10.06	-60.9	V	3.0	-0.1	36.2	1.0	-35.2	-25.0	-10.2	
Mid Channel (2590.5MHz)+2602.2MHz 1-99, 1-0										
5.18	-60.9	H	3.0	-7.7	38.7	1.0	-45.4	-25.0	-20.4	
7.74	-62.3	H	3.0	-4.2	37.6	1.0	-40.8	-25.0	-15.8	
10.28	-62.1	H	3.0	-1.1	36.3	1.0	-36.4	-25.0	-11.4	
5.18	-61.3	V	3.0	-8.4	38.7	1.0	-46.1	-25.0	-21.1	
7.73	-61.1	V	3.0	-3.3	37.6	1.0	-39.9	-25.0	-14.9	
10.20	-61.3	V	3.0	-0.3	36.3	1.0	-35.6	-25.0	-10.6	
High Channel (2675MHz)+2686.7MHz 1-99, 1-0										
5.17	-60.6	H	3.0	-7.4	38.7	1.0	-45.0	-25.0	-20.0	
7.70	-61.1	H	3.0	-3.1	37.6	1.0	-39.7	-25.0	-14.7	
10.23	-61.0	H	3.0	0.0	36.3	1.0	-35.3	-25.0	-10.3	
5.10	-62.0	V	3.0	-9.2	38.7	1.0	-46.9	-25.0	-21.9	
7.63	-61.7	V	3.0	-3.9	37.7	1.0	-40.6	-25.0	-15.6	
10.33	-60.8	V	3.0	0.3	36.3	1.0	-35.0	-25.0	-10.0	

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QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 41, 20MHz QPSK CA 20/20

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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										
5.11	-61.9	H	3.0	-8.8	38.7	1.0	-46.5	-25.0	-21.5	
7.53	-60.5	H	3.0	-2.7	37.7	1.0	-39.4	-25.0	-14.4	
10.12	-61.3	H	3.0	-0.4	36.2	1.0	-35.6	-25.0	-10.6	
5.06	-60.1	V	3.0	-7.4	38.7	1.0	-45.1	-25.0	-20.1	
7.66	-60.1	V	3.0	-2.3	37.7	1.0	-39.0	-25.0	-14.0	
10.13	-62.0	V	3.0	-1.1	36.2	1.0	-36.3	-25.0	-11.3	
Mid Channel (2583.1MHz) + 2602.9MHz 1-99 1-0										
5.25	-59.8	H	3.0	-6.4	38.7	1.0	-44.1	-25.0	-19.1	
7.64	-60.8	H	3.0	-2.9	37.7	1.0	-39.6	-25.0	-14.6	
10.20	-60.7	H	3.0	0.2	36.3	1.0	-35.0	-25.0	-10.0	
5.18	-60.1	V	3.0	-7.2	38.7	1.0	-44.9	-25.0	-19.9	
7.61	-61.7	V	3.0	-4.0	37.7	1.0	-40.7	-25.0	-15.7	
10.21	-61.8	V	3.0	-0.8	36.3	1.0	-36.1	-25.0	-11.1	
High Channel (2660.2MHz) + 2680MHz 1-99 1-0										
5.18	-61.5	H	3.0	-8.3	38.7	1.0	-46.0	-25.0	-21.0	
7.58	-60.3	H	3.0	-2.4	37.7	1.0	-39.1	-25.0	-14.1	
10.23	-60.0	H	3.0	1.0	36.3	1.0	-34.3	-25.0	-9.3	
5.10	-61.7	V	3.0	-8.9	38.7	1.0	-46.6	-25.0	-21.6	
7.65	-60.0	V	3.0	-2.2	37.7	1.0	-38.9	-25.0	-13.9	
10.32	-62.5	V	3.0	-1.3	36.3	1.0	-36.7	-25.0	-11.7	

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16QAM EIRP POWER FOR LTE BAND 41 (20.0MHZ + 20.0MHZ BANDWIDTH)

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 16U23310
Date: 07/12/16
Test Engineer: 44399
Configuration: EUT only
Mode: LTE Band 41, 20MHz 16QAM CA 20/20

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

Chamber	Pre-amplifer	Filter	Limit
3m Chamber E	3m Chamber E	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	-61.1	H	3.0	-8.3	38.7	1.0	-45.9	-25.0	-20.9	
7.61	-61.4	H	3.0	-3.5	37.7	1.0	-40.1	-25.0	-15.1	
10.09	-63.0	H	3.0	-2.1	36.2	1.0	-37.3	-25.0	-12.3	
5.08	-61.3	V	3.0	-8.6	38.7	1.0	-46.3	-25.0	-21.3	
7.65	-61.4	V	3.0	-3.6	37.7	1.0	-40.3	-25.0	-15.3	
10.08	-60.8	V	3.0	0.0	36.2	1.0	-35.2	-25.0	-10.2	
Mid Channel (2583.1MHz) + 2602.9MHz 1-99 1-0										
5.19	-61.8	H	3.0	-8.5	38.7	1.0	-46.2	-25.0	-21.2	
7.69	-61.5	H	3.0	-3.4	37.6	1.0	-40.1	-25.0	-15.1	
10.22	-61.4	H	3.0	-0.4	36.3	1.0	-35.7	-25.0	-10.7	
5.16	-61.7	V	3.0	-8.8	38.7	1.0	-46.5	-25.0	-21.5	
7.72	-61.6	V	3.0	-3.7	37.6	1.0	-40.3	-25.0	-15.3	
10.22	-60.8	V	3.0	0.2	36.3	1.0	-35.1	-25.0	-10.1	
High Channel (2660.2MHz) + 2680MHz 1-99 1-0										
5.23	-62.5	H	3.0	-9.1	38.7	1.0	-46.8	-25.0	-21.8	
7.56	-61.2	H	3.0	-3.3	37.7	1.0	-40.0	-25.0	-15.0	
10.14	-61.1	H	3.0	-0.2	36.2	1.0	-35.4	-25.0	-10.4	
5.16	-61.5	V	3.0	-8.6	38.7	1.0	-46.3	-25.0	-21.3	
7.66	-61.0	V	3.0	-3.2	37.7	1.0	-39.8	-25.0	-14.8	
10.34	-61.4	V	3.0	-0.2	36.3	1.0	-35.6	-25.0	-10.6	

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