



**FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247 ISSUE 1**

CERTIFICATION TEST REPORT

FOR

WIRELESS AUDIO MODULE

MODEL NUMBER: 420128RM

**FCC ID: A94420128RM
IC: 3232A-420128RM**

REPORT NUMBER: R11005838-E1

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Prepared for
BOSE CORP.
100 THE MOUNTAIN RD, FRAMINGHAM
MASSACHUSETTS, 01701, USA

Prepared by
UL LLC
12 LABORATORY DR.
RESEARCH TRIANGLE PARK, NC 27709 USA
TEL: (919) 549-1400



NVLAP Lab code: 200246-0

Revision History

<u>Version</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
<u>1</u>	<u>2016-03-25</u>	<u>Initial Issue</u>	<u>Ron Reichard</u>
<u>2</u>	<u>2016-05-06</u>	<u>Revised data rate information on page 8.</u>	<u>Jeff Moser</u>

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Bose Corp.
100 The Mountain Rd.
Framingham, Massachusetts, 01701, USA

EUT DESCRIPTION: Wireless Audio Module

MODEL: 420128RM

SERIAL NUMBER: Radiated: RE03
Conducted: 0359

DATE TESTED: 2016-01-15 to 2016-03-25

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-247 Issue 1	Pass
INDUSTRY CANADA RSS-GEN Issue 4	Pass

UL LLC 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 LLC 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 LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC 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 LLC By:



Jeff Moser
EMC Program Manager
UL – Consumer Technology Division

Prepared By:



Ron Reichard
EMC Project Lead
UL – Consumer Technology Division

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, RSS-GEN Issue 4, RSS-247 Issue 1.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Dr., Research Triangle Park, NC 27709, USA and 2800 Suite B, Perimeter Park Drive, Morrisville, NC 27560.

12 Laboratory Dr., RTP, NC 27709	
☐	Chamber A
☒	Chamber C

2800 Suite B Perimeter Park Dr., Morrisville, NC 27560	
☒	Chamber NORTH
☒	Chamber SOUTH

The onsite chambers are covered under Industry Canada company address code 2180C with site numbers 2180C -1 through 2180C-4, respectively.

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0. The full scope of accreditation can be viewed at <http://www.nist.gov/nvlap/>

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Total RF power, conducted	+/- 0.45
RF power density, conducted	+/- 1.50
Spurious emissions, conducted	+/- 2.94
All emissions, radiated up to 18 GHz	+/- 5.36
Temperature	+/- 0.07
Humidity	+/- 2.26
DC and low frequency voltages	+/- 1.27

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Model 420128RM is an Audio Transceiver module that uses QPSK modulation. The device operates in the 2.4/5.2/5.8 GHz bands, is SISO and utilizes two antennas for diversity.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum average conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2464	QPSK	3.08	2.03

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes two inverted F trace antennas with gains of 1.98 dBi (Antenna A) and 2.2 dBi (Antenna B).

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Rev. 03.

The test utility software used during testing were the following macro commands:

- 2G4 Only.TTL
- Set 2G4_Power_Level_MTXG.TTL
- RF CHx.TTL (Where x = Low/Mid/High Channel)

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z and was determined that X orientation was worst-case orientation for Antenna A and Z orientation for Antenna B. Therefore, all final radiated testing was performed with the EUT in X orientation for Antenna A and Z orientation for Antenna B.

Worst-case data rate as provided by the client was: 22 Mbps

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	T450	Not available	-
Laptop adapter	Lenovo	ADLX65NLC2A	Not available	-
USB to Serial Adapter	Tripp-Lite	USA-19HS	Not available	-
Power/communications adapter board	Not available	Not available	Not available	-
Wall mount 18V or 16V DC power supply (Control Board)	Jameco	DDU180100 or DCU160050	Not available	-

I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length	Remarks
1	Antenna	1	SMA	Un-Shielded	0.5	SMA To SMA cable connecting SMA/U.FL adapter to SA.
2	Antenna	1	SMA to U.FL	Un-Shielded	0.1	SMA to U.FL adapter
3	EUT Data Port	1	Ribbon (26 conductor FFC)	Un-Shielded	0.2	Control Board to EUT
4	DC Supply	1	Barrel	Un-Shielded	0.5	DC Supply to Control Board. Control Board supplies power to EUT.
5	Serial to 3.5 mm	1	Serial	Un-Shielded	1.5	From USB/Serial adapter to 3.5 mm data port on control board.
6	USB	1	USB to USB	Un-Shielded	0.8	From PC to USB/Serial adapter
7	DC	1	DC	Un-Shielded	0.8	N/A
8	AC	1	2 Prong	Un-Shielded	1.5	N/A

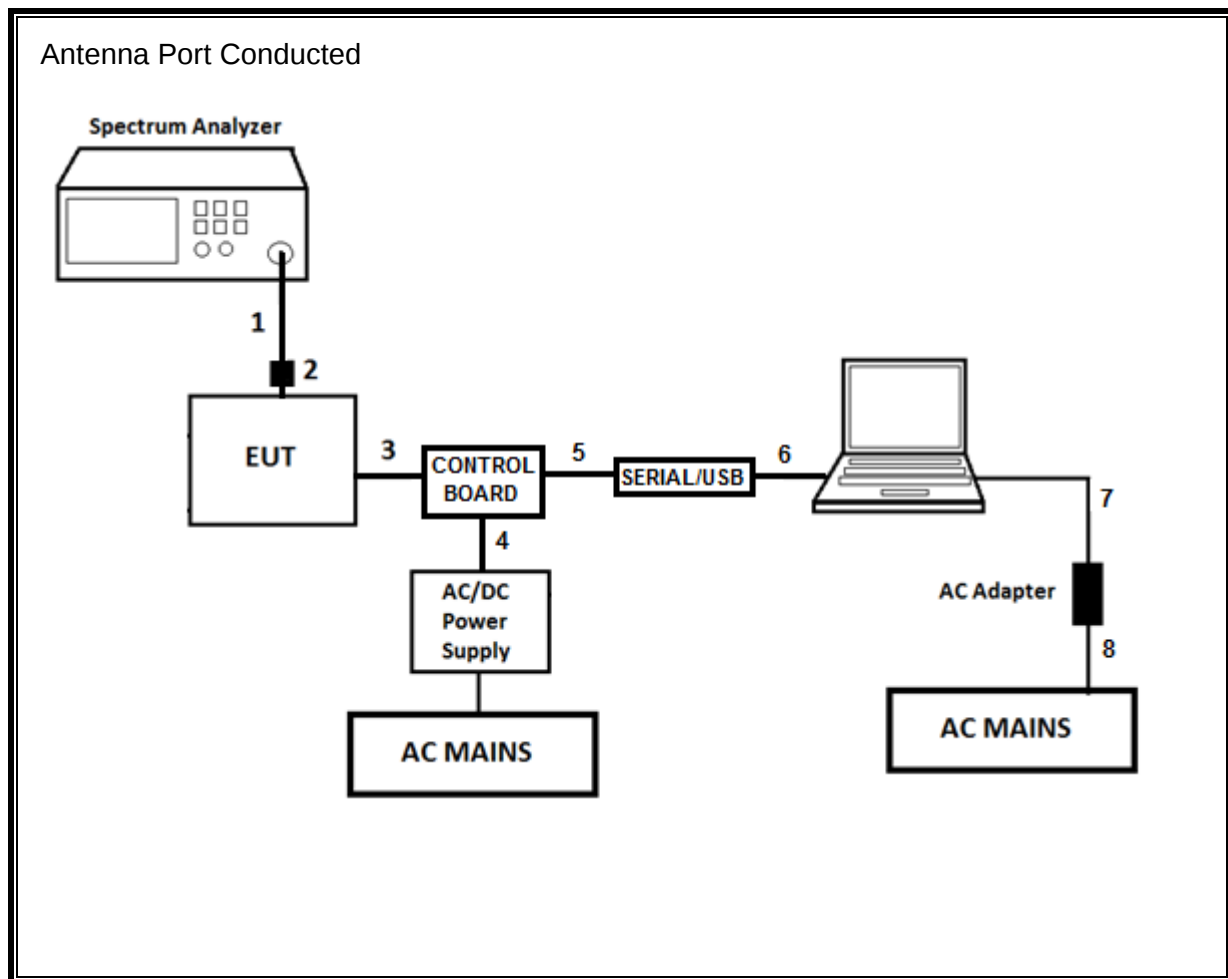
TEST SETUP

The EUT is connected to the Control Board during radiated-emissions testing. The Control Board allows for changing the EUT's channel/mode via laptop and provides power to the EUT.

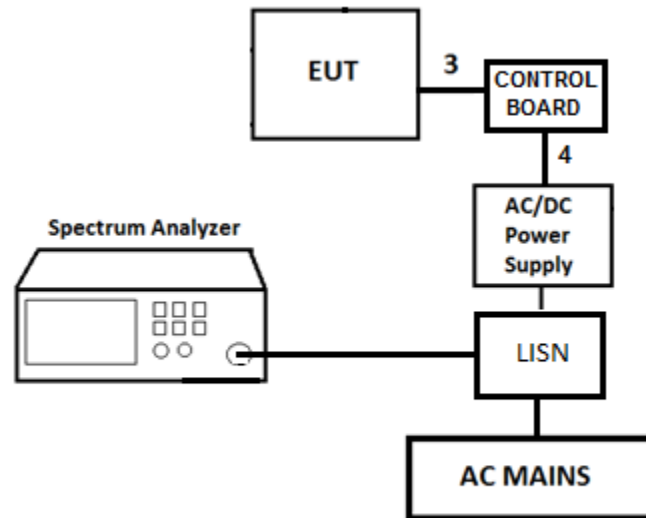
For convenience, the device is connected to a laptop PC via a Communications Control Board/Serial Cable/Serial-USB adapter/USB cable to configure the device for test during antenna-port measurements.

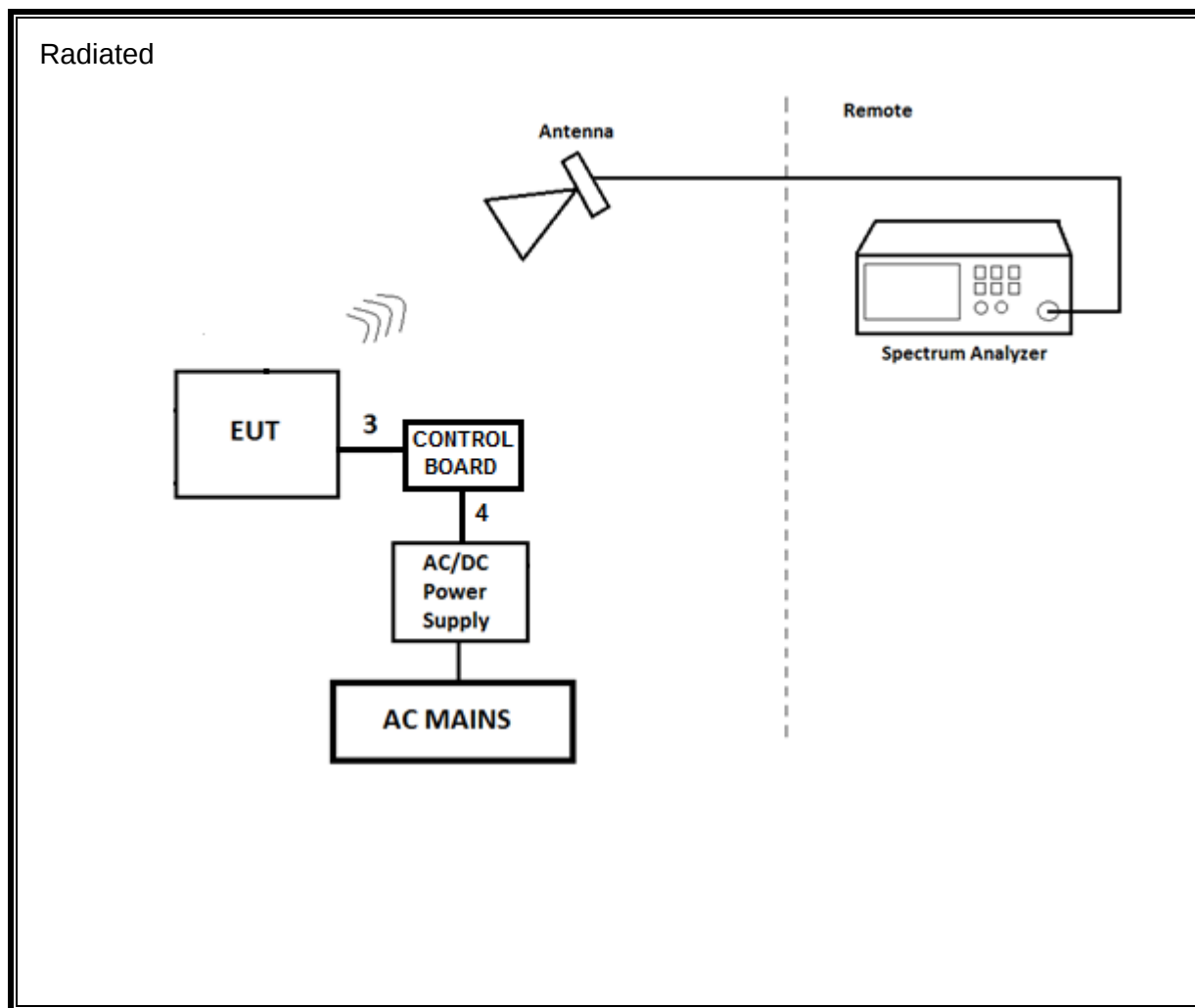
Test software exercised the radio portion of the device.

SETUP DIAGRAM FOR TESTS



Line Conducted





6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - North Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
AT0073	Hybrid Broadband Antenna, 30-1000MHz	Sunol Sciences Corp.	JB3	2015-06-10	2016-06-30
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2015-02-17	2016-02-29
N-SAC02	Gain-loss string: 30-1000MHz	Various	Various	2015-06-04	2016-06-30
N-SAC03	Gain-loss string: 1-18GHz	Various	Various	2015-09-29	2016-09-30
SA0026	Spectrum Analyzer	Agilent	N9030A	2015-03-27	2016-03-31
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
HI0079	Temp/Humid/Pressure Meter	Springfield Precision	PreciseTemp	2015-07-01	2016-07-31

Note – All testing in this chamber was prior to 2016-02-29

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - South Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2015-12-08	2016-12-31
S-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2015-10-07	2016-10-31
SA0025	Spectrum Analyzer	Agilent	N9030A	2016-03-17	2017-03-31
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
HI0050	Temp/Humid/Pressure Meter	Cole-Parmer	99760-00	2015-07-01	2016-07-31

Note – All testing in this chamber was performed on 2016-03-25.

Test Equipment Used - Radiated Disturbance Emissions (E-field) – Chamber C

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
AT0063	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2015-08-27	2016-08-31
C-SAC03	Gain-loss string: 18-40GHz	Various	Various	2015-09-27	2016-09-30
SA0016	Spectrum Analyzer	Agilent	N9030A	2015-08-26	2016-08-31
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
HI0034	Temp/Humid/Pressure Meter	Cole-Parmer	99760-00	2015-03-23	2016-03-31

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Conducted Room 2				
SA0020	Spectrum Analyzer	Agilent Technologies	E4446A	2015-02-26	2016-02-29
PWM003	RF Power Meter	Keysight Technologies	N1911A	2015-06-08	2017-06-08
PWS003	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	E9323A	2015-06-05	2016-06-05
43733	Temp/Humid/Pressure Meter	Cole-Parmer	99760-00	2014-03-24	2016-03-24
MM0168	True RMS Multimeter	Agilent	U1232A	2015-08-17	2016-08-31
76021	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA

Note – All testing in this room was performed prior to 2016-02-29

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL077	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3476-240	2015-10-29	2016-10-31
HI0079	Temp/Humid/Pressure Meter	Springfield Precision	PreciseTemp	2015-07-01	2016-07-31
LISN002	LISN, 50-ohm/50-uH, 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50-25-2-01-550V	2015-08-24	2016-08-31
MM0167	Multi-meter	Agilent	U1232A	2015-08-17	2016-08-31
PRE0101521 (75141)	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2015-08-26	2016-08-31
TL001	Transient Limiter, 0.009-30MHz	Com-Power	LIT-930A	2015-05-22	2016-05-31
PS215	AC Power Source	Elgar	CW2501M (s/n 1523A02397)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA

7. MEASUREMENT METHODS

6 dB BW: KDB 558074 D01 v03r04, Section 8.1.

Output Power: KDB 558074 D01 v03r04, Section 9.2.3.1.

Power Spectral Density: KDB 558074 D01 v03r04, Section 10.2.

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v03r04, Section 11.0.

Out-of-band emissions in restricted bands: KDB 558074 D01 v03r04, Section 12.0.

Band-edge: KDB 558074 D01 v03r04, Section 13.3

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

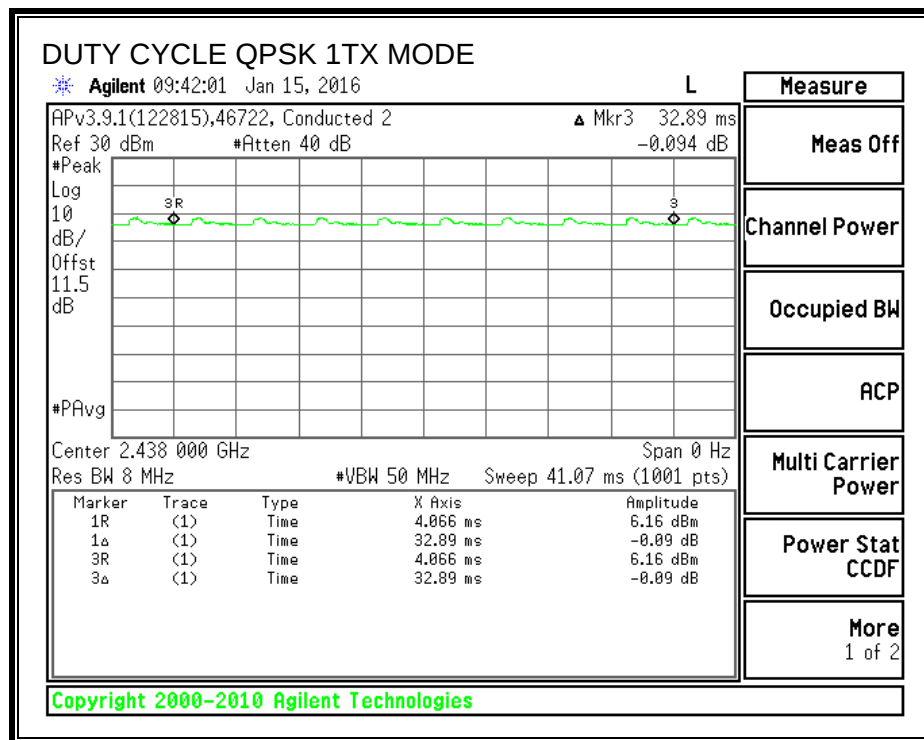
KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
QPSK	32.890	32.890	1.000	100.00%	0.00	0.010

DUTY CYCLE PLOTS

2.4 GHz BAND



8.2. QPSK MODE IN THE 2.4 GHz BAND

8.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-247 5.2 (1)

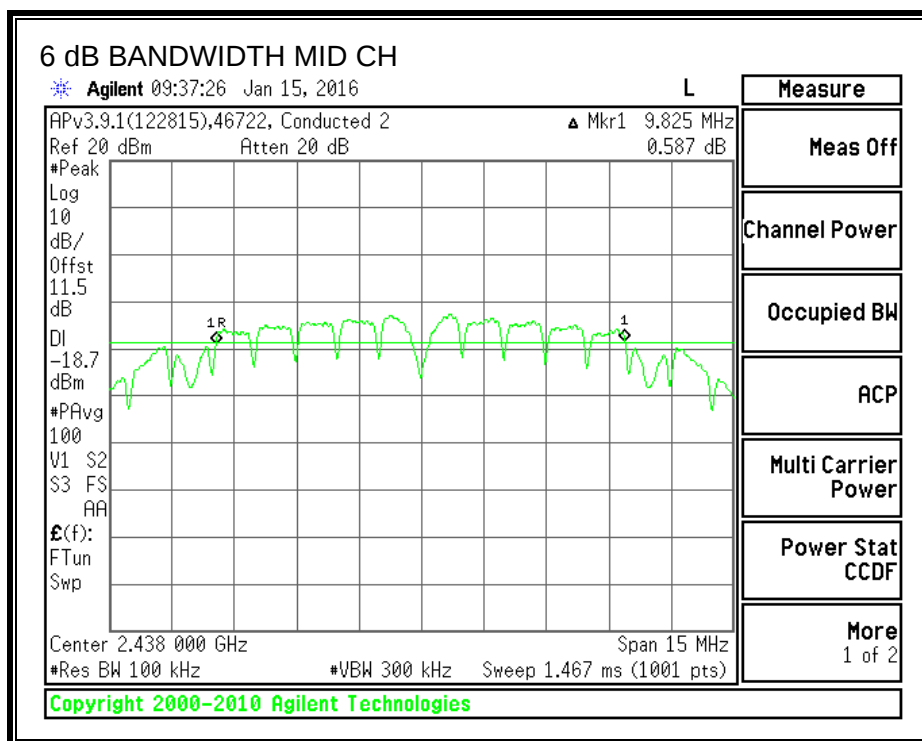
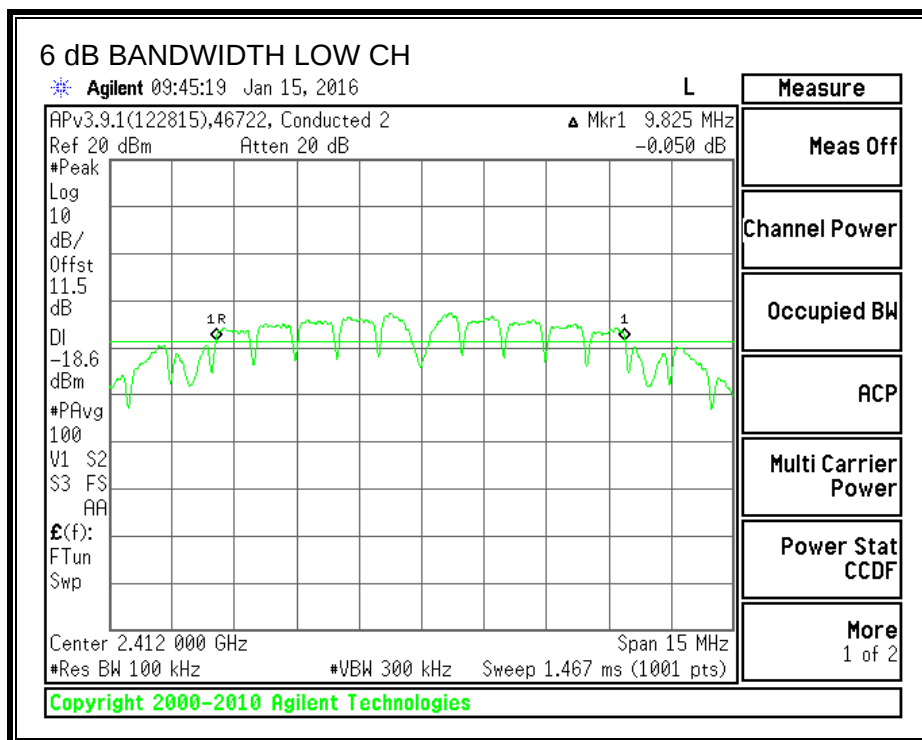
The minimum 6 dB bandwidth shall be at least 500 kHz.

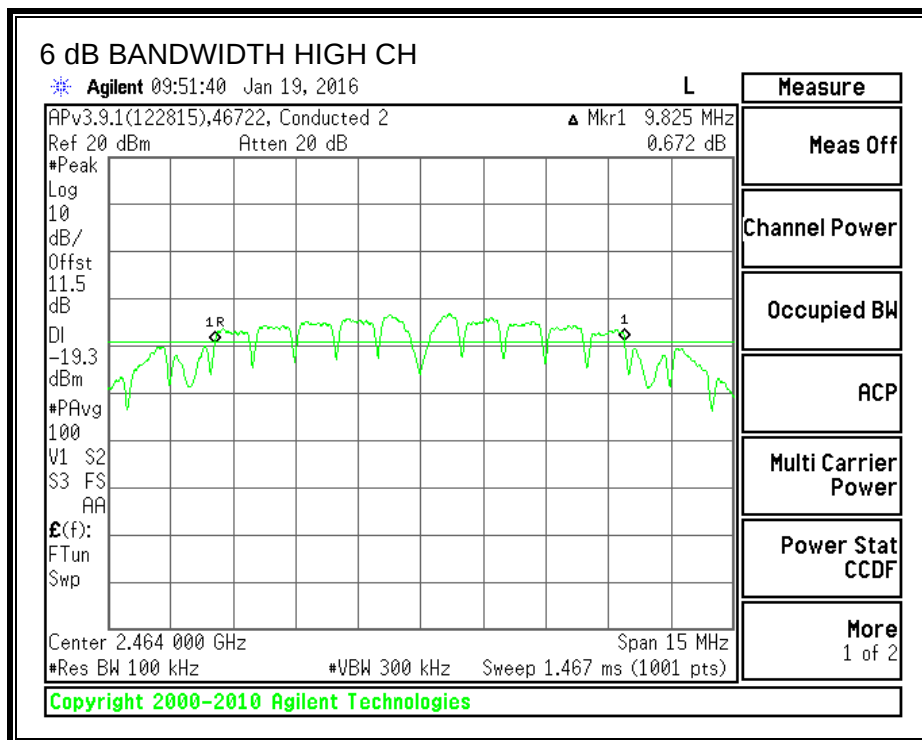
RESULTS

Chain 0

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	9.825	0.5
Mid	2438	9.825	0.5
High	2464	9.825	0.5

6 dB BANDWIDTH

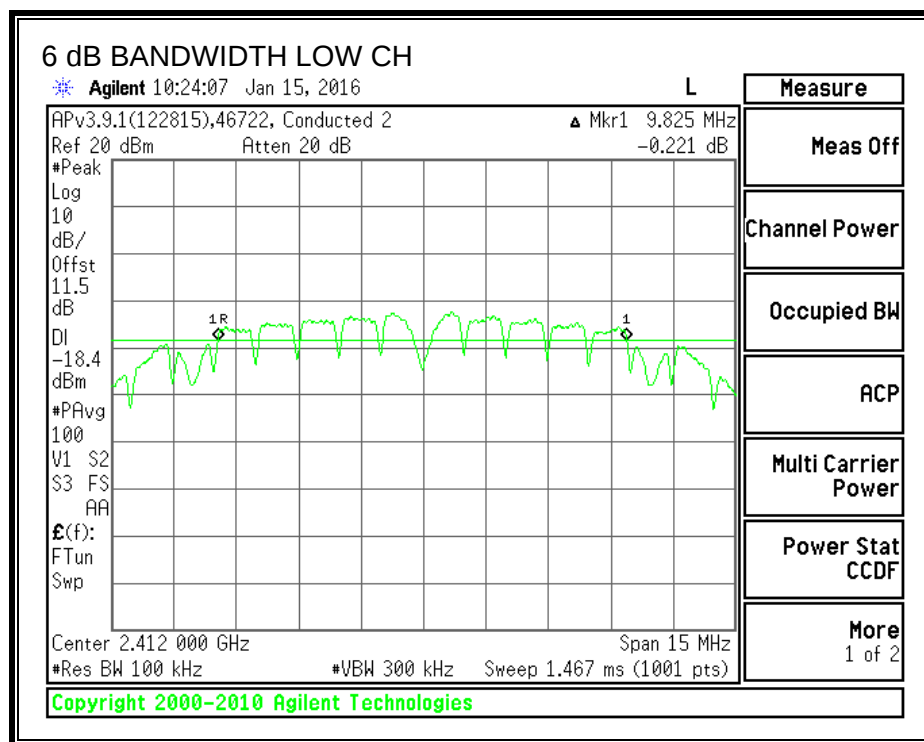


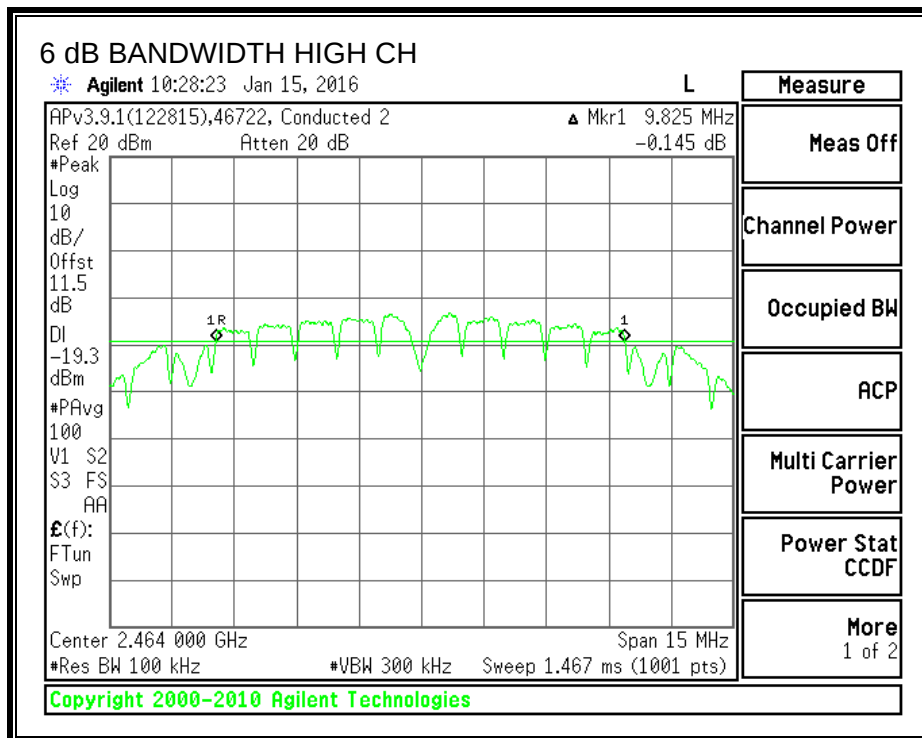
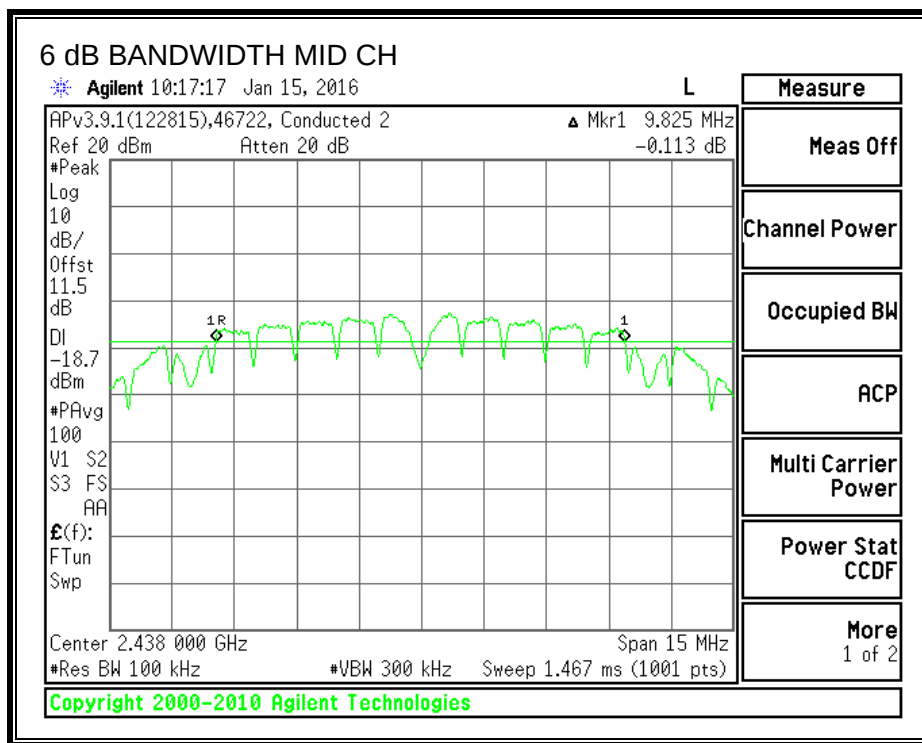


Chain 1

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	9.825	0.5
Mid	2438	9.825	0.5
High	2464	9.825	0.5

6 dB BANDWIDTH





8.2.2. 99% BANDWIDTH

LIMITS

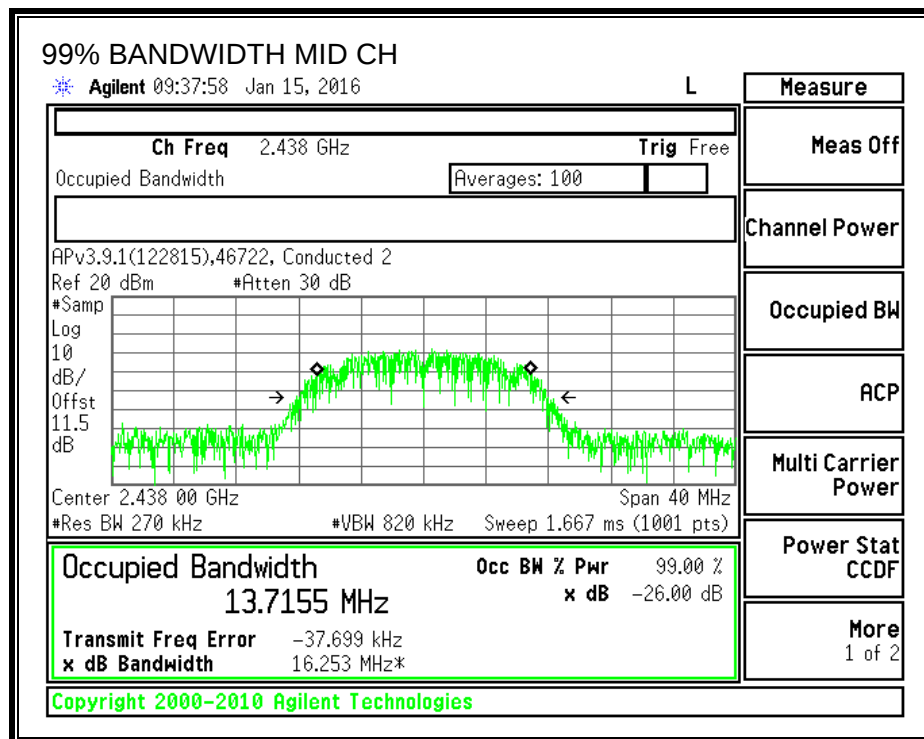
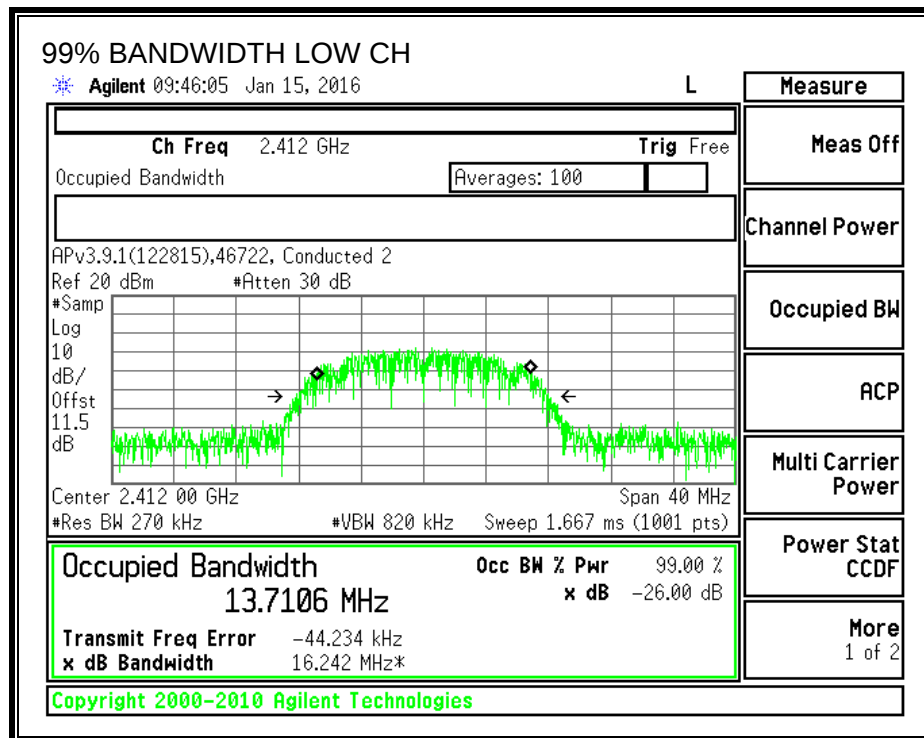
None; for reporting purposes only.

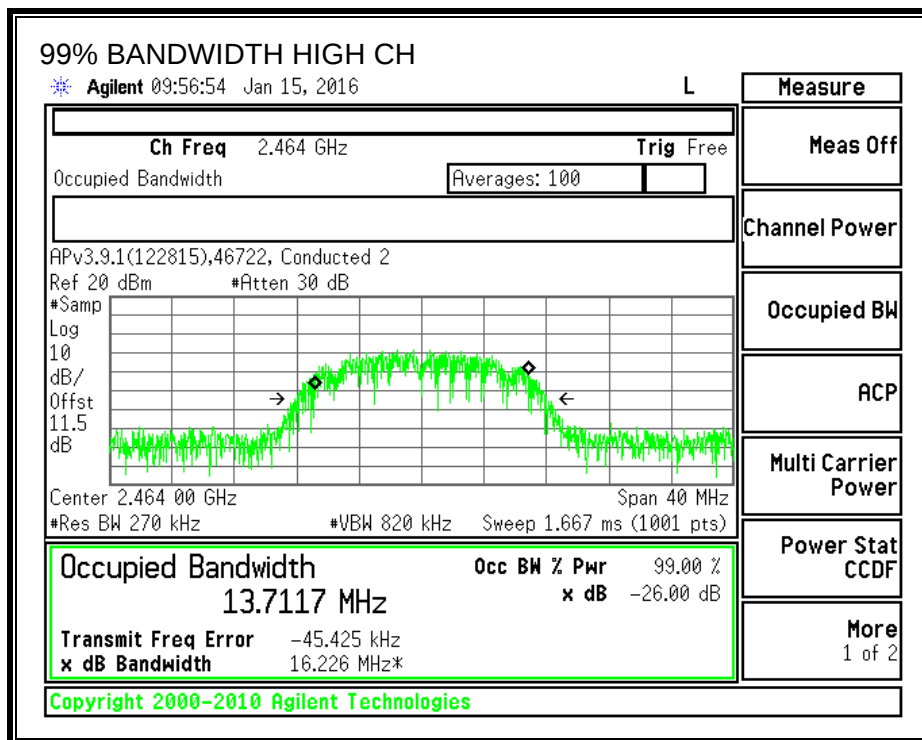
RESULTS

Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	13.7106
Mid	2438	13.7155
High	2464	13.7117

99% BANDWIDTH

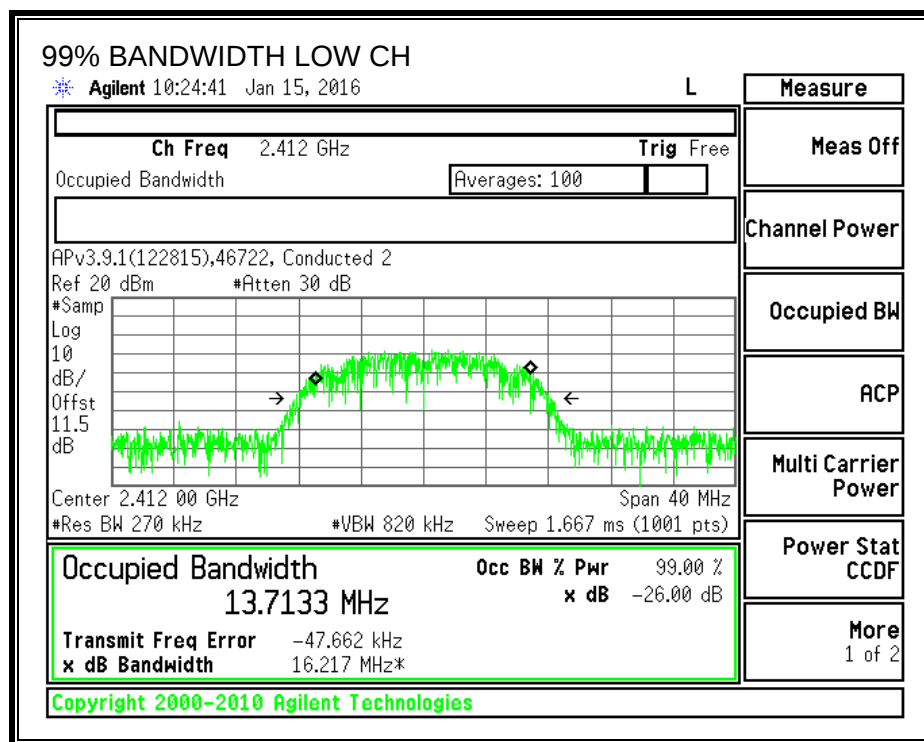


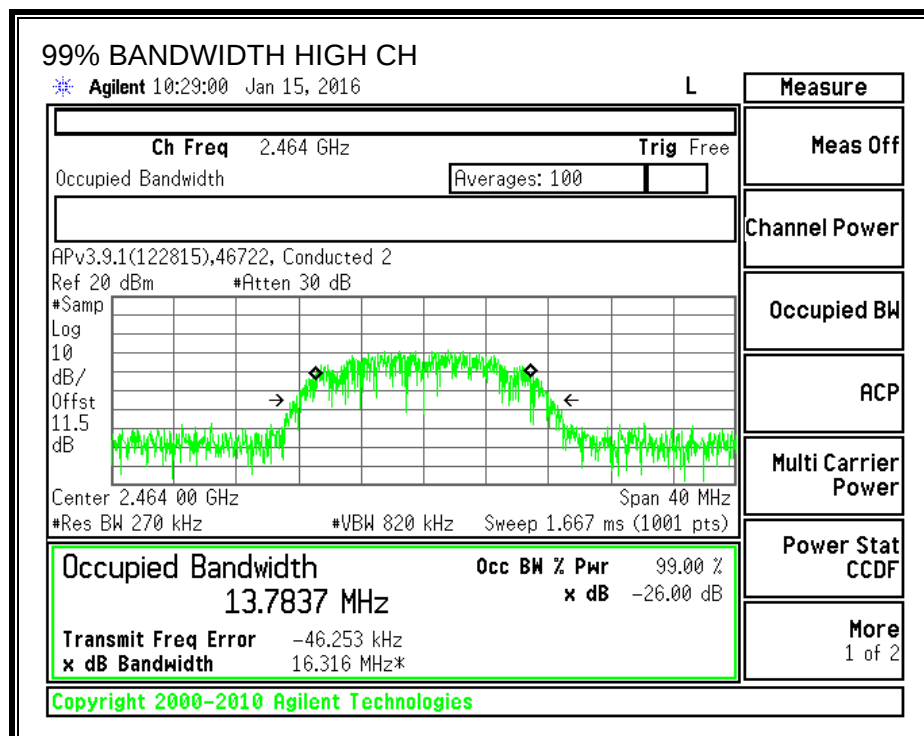
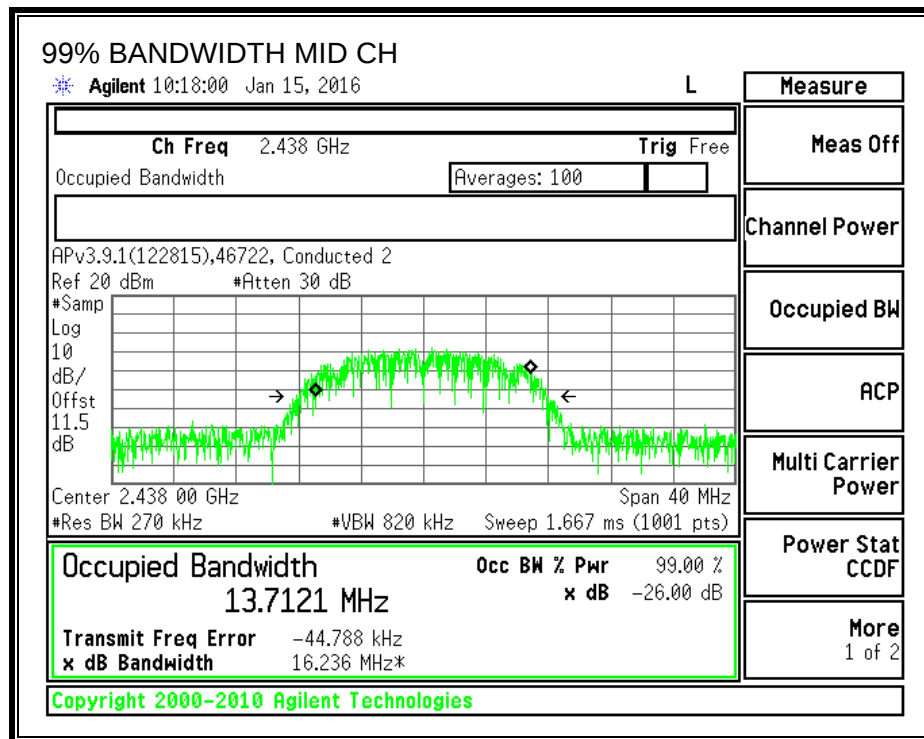


Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	13.7133
Mid	2438	13.7121
High	2464	13.7837

99% BANDWIDTH





8.2.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-247 5.4 (4)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

The below power results are average power.

Chain 0

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.98	30.00	30	36	30.00
Mid	2438	1.98	30.00	30	36	30.00
High	2464	1.98	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
--------------------	------	--

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	3.08	3.08	30.00	-26.92
Mid	2438	2.28	2.28	30.00	-27.72
High	2464	1.70	1.70	30.00	-28.30

Chain 1

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	2.20	30.00	30	36	30.00
Mid	2438	2.20	30.00	30	36	30.00
High	2464	2.20	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	2.62	2.62	30.00	-27.38
Mid	2438	2.07	2.07	30.00	-27.93
High	2464	1.63	1.63	30.00	-28.37

8.2.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-247 5.2 (2)

RESULTS

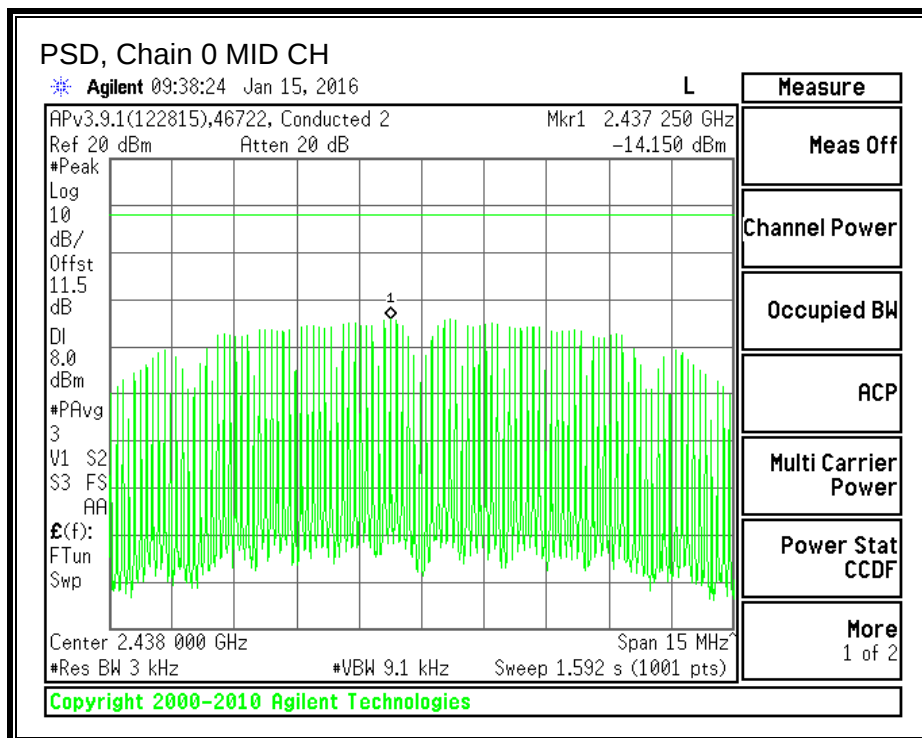
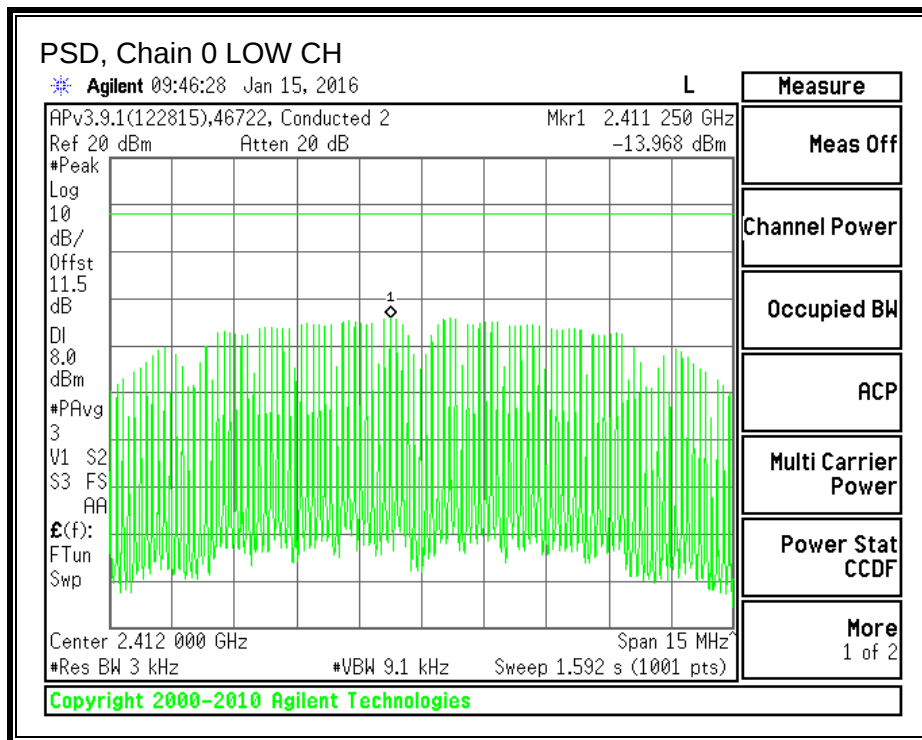
Chain 0

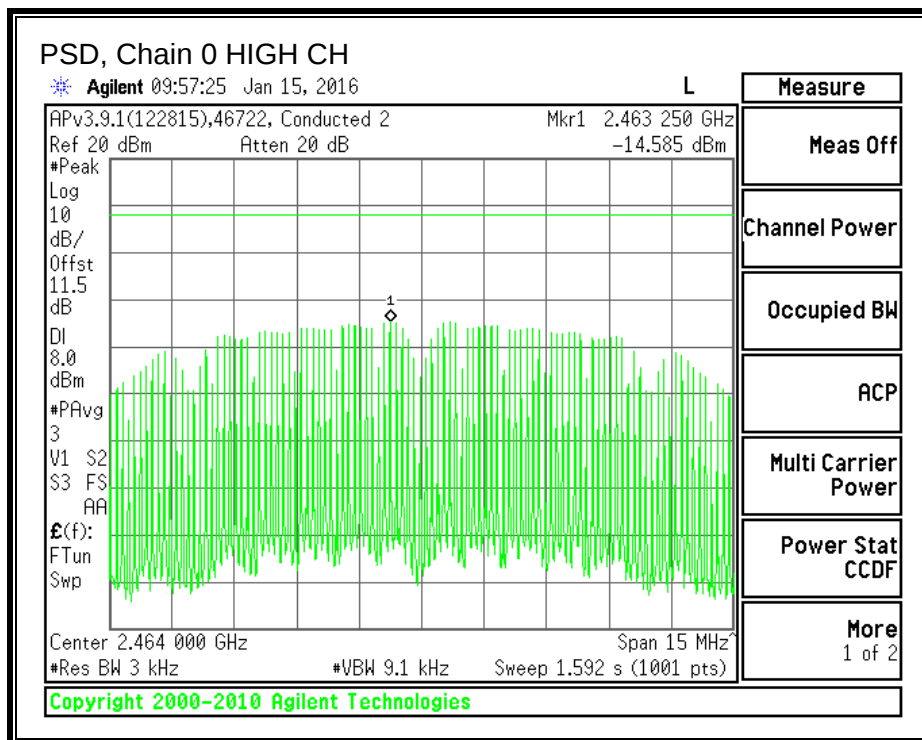
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-13.97	-13.97	8.0	-22.0
Mid	2438	-14.15	-14.15	8.0	-22.2
High	2464	-14.59	-14.59	8.0	-22.6

PSD, Chain 0





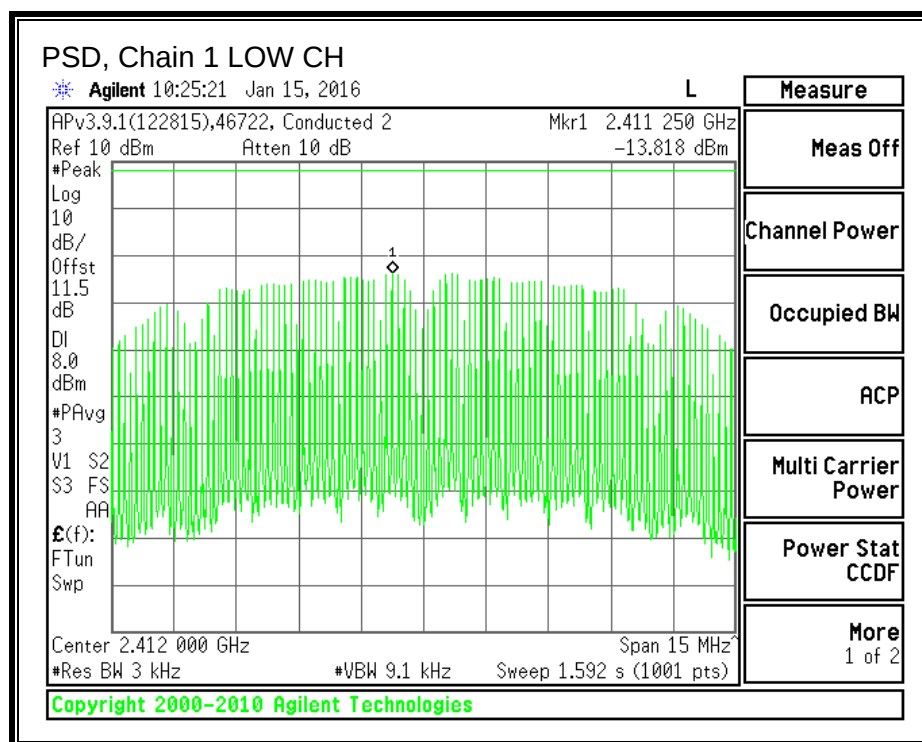
Chain 1

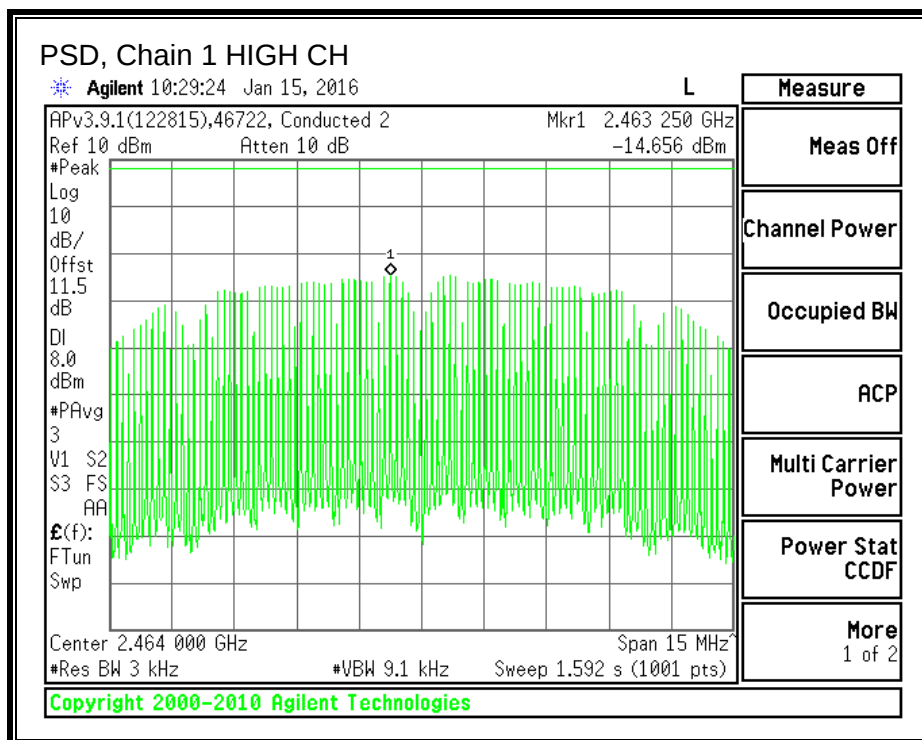
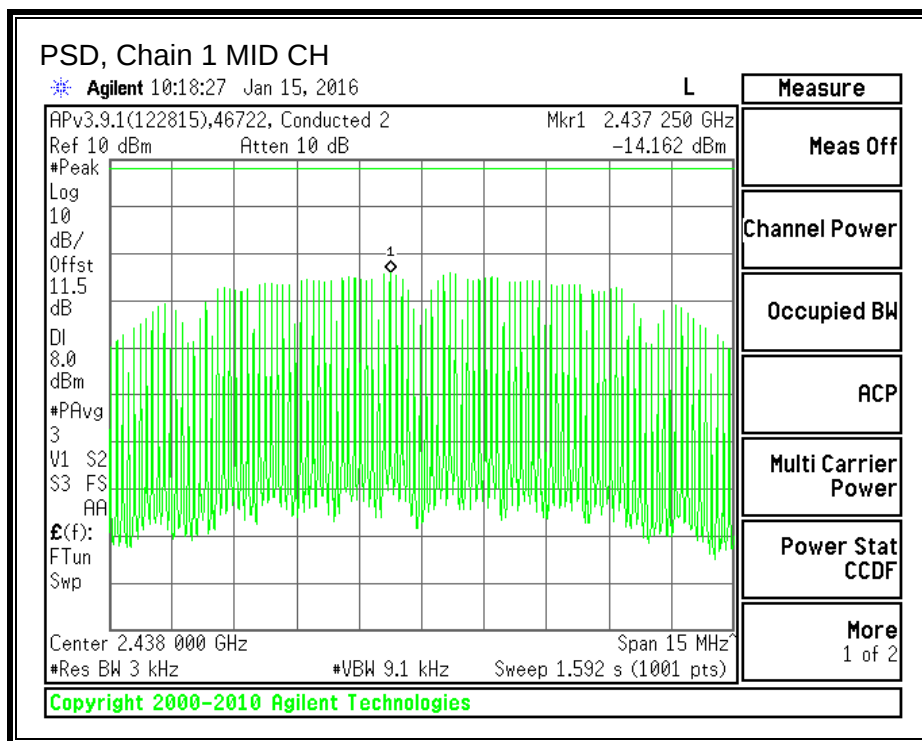
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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PSD Results

Channel	Frequency (MHz)	Chain 1 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-13.82	-13.82	8.0	-21.8
Mid	2438	-14.16	-14.16	8.0	-22.2
High	2464	-14.66	-14.66	8.0	-22.7

PSD, Chain 1





8.2.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

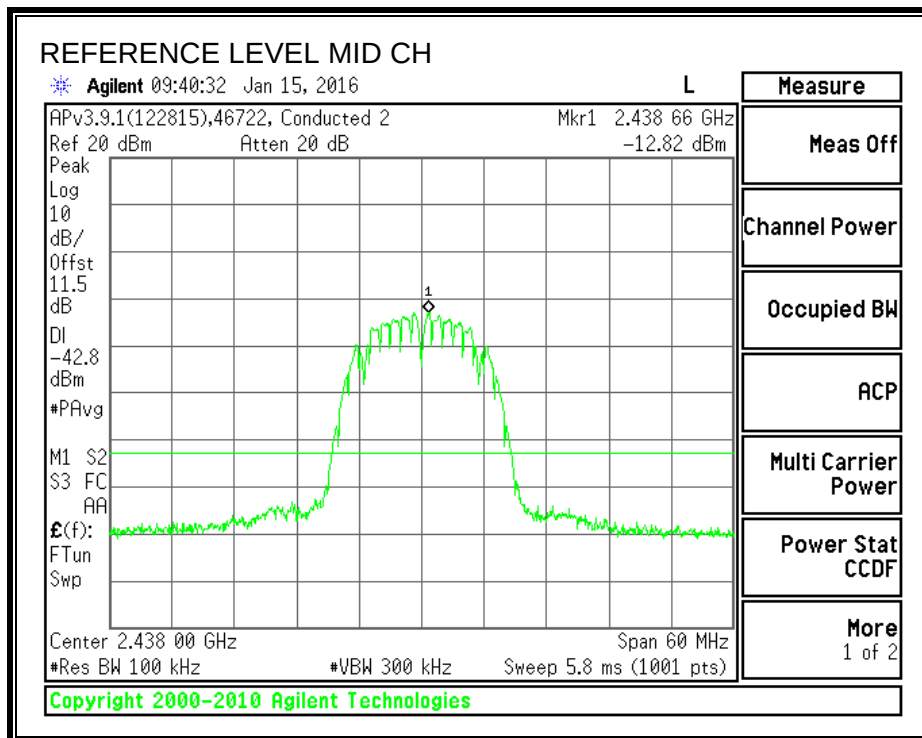
IC RSS-247 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

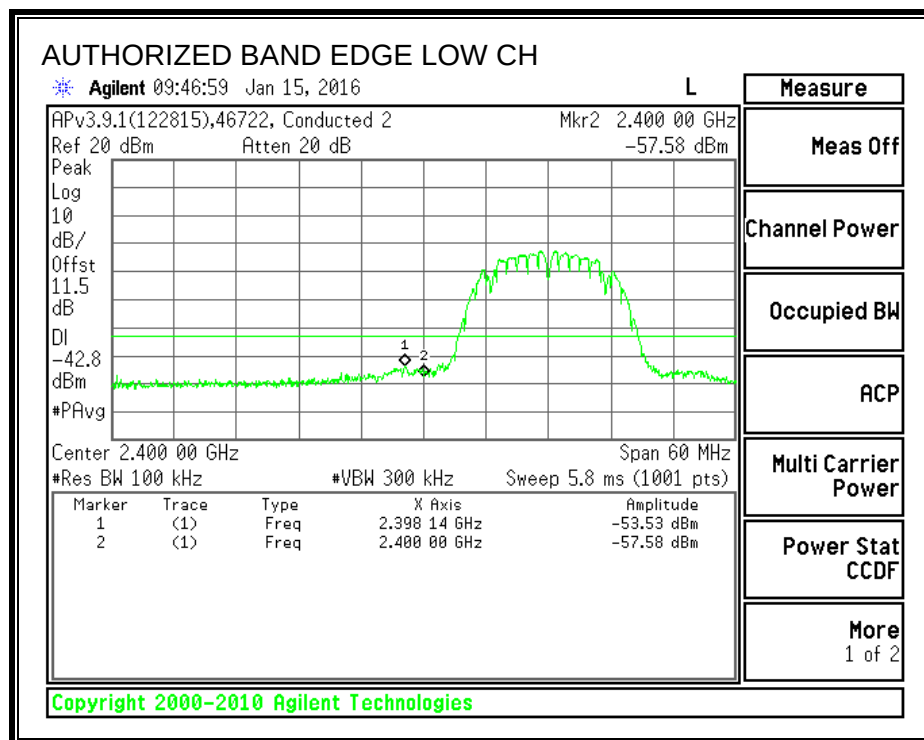
RESULTS

Chain 0

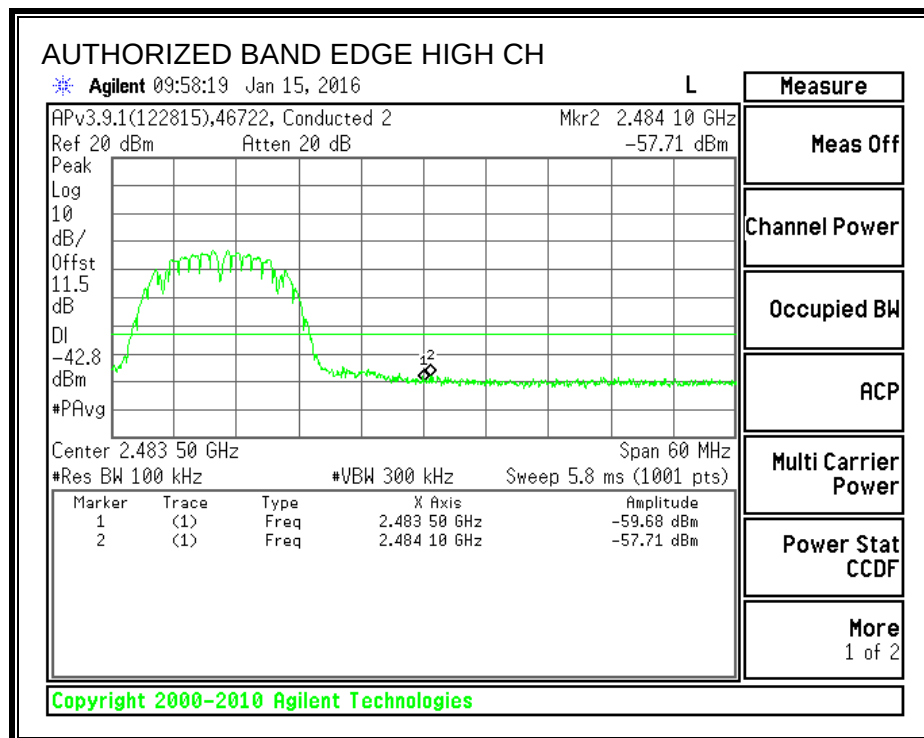
IN-BAND REFERENCE LEVEL



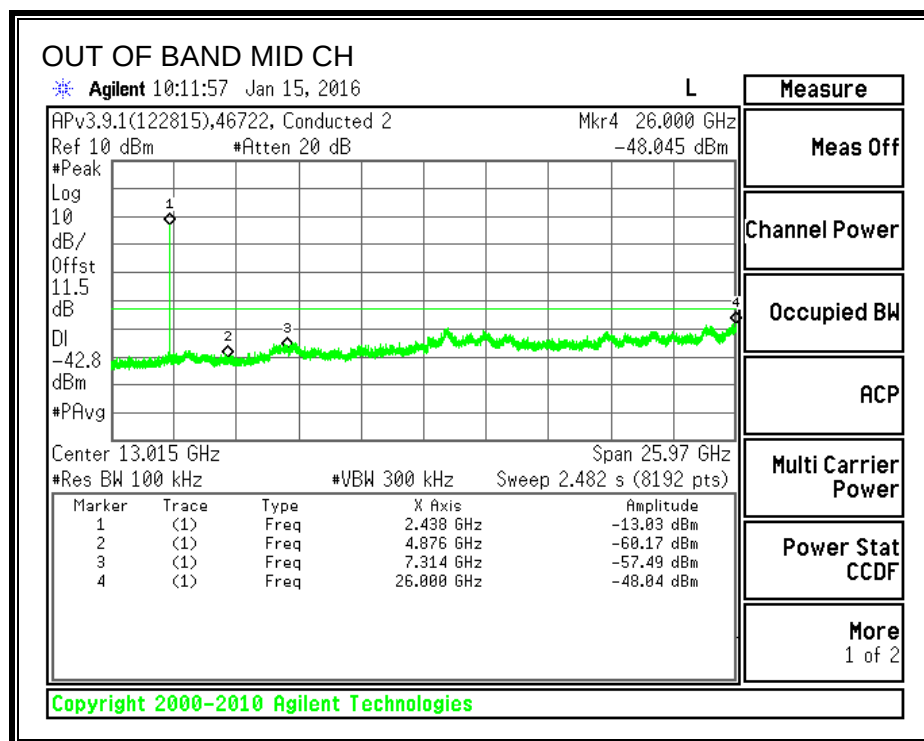
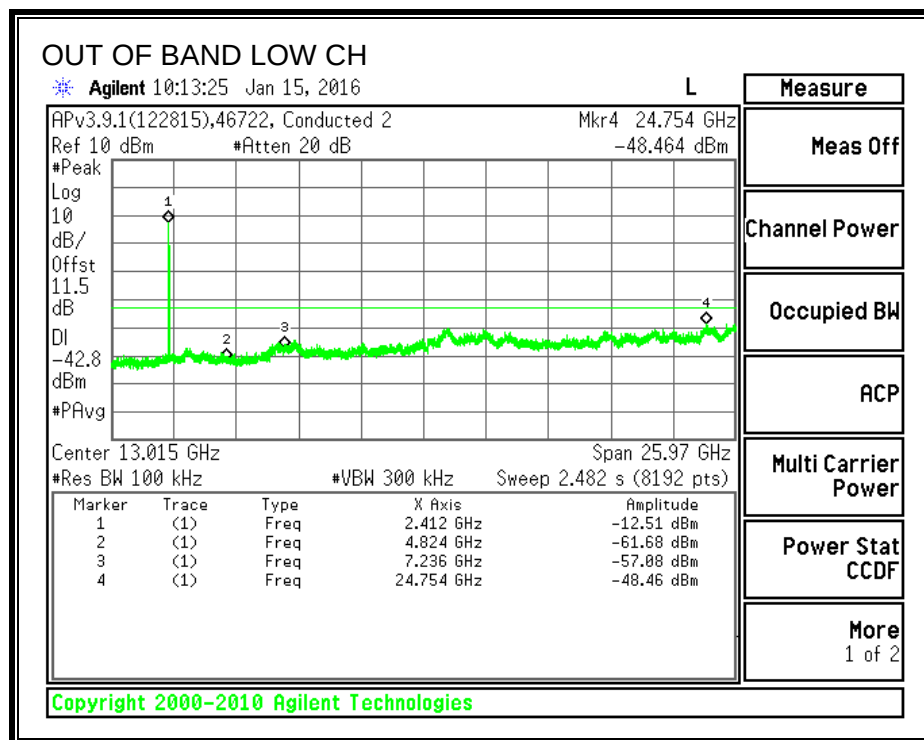
LOW CHANNEL BANDEDGE

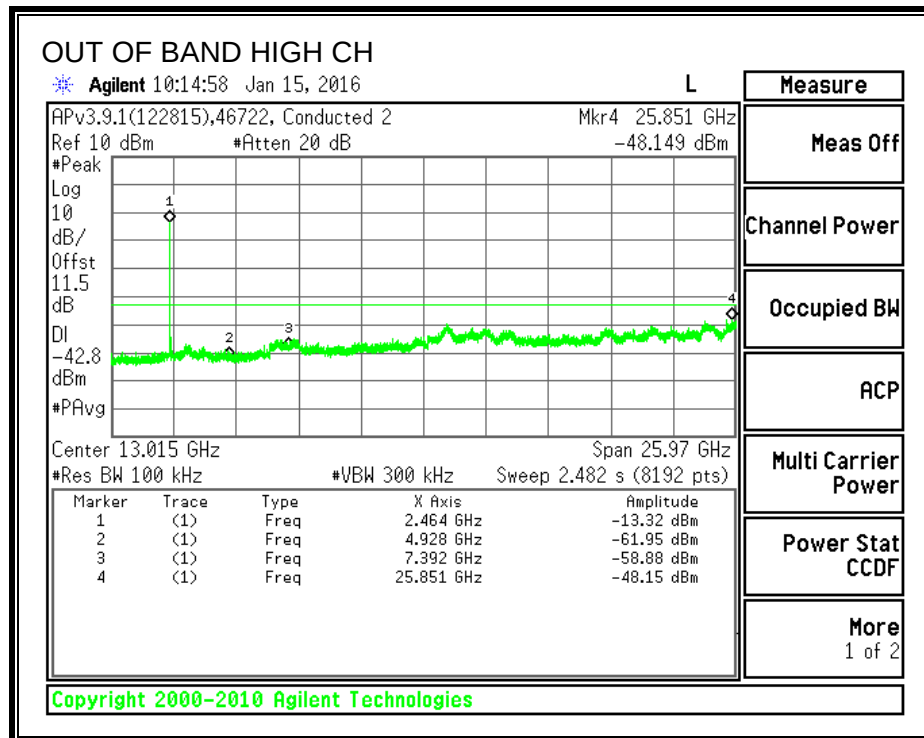


HIGH CHANNEL BANDEDGE



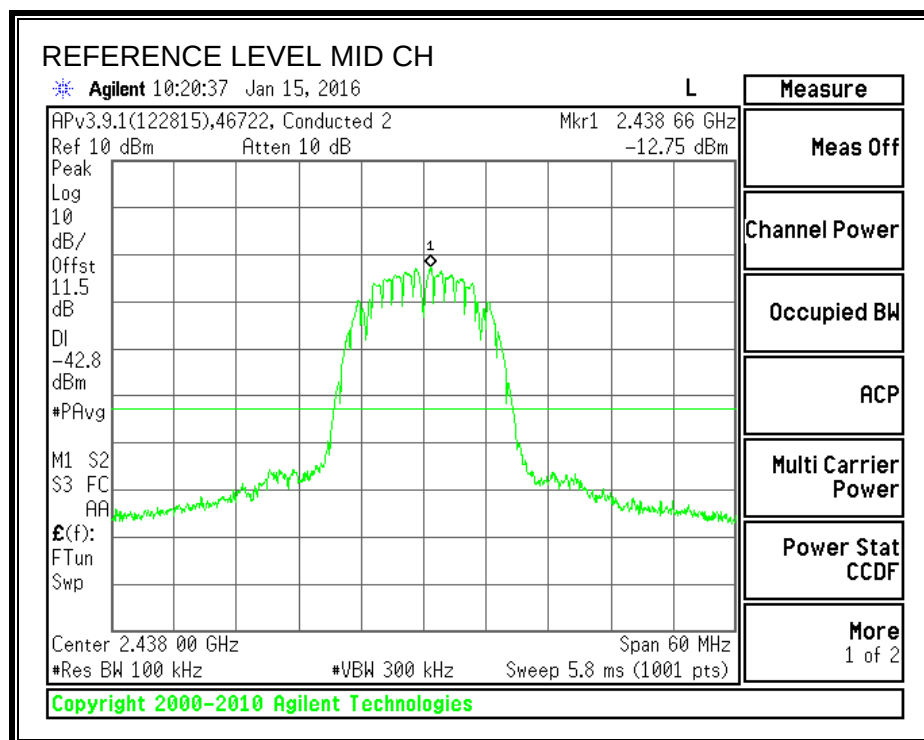
OUT-OF-BAND EMISSIONS



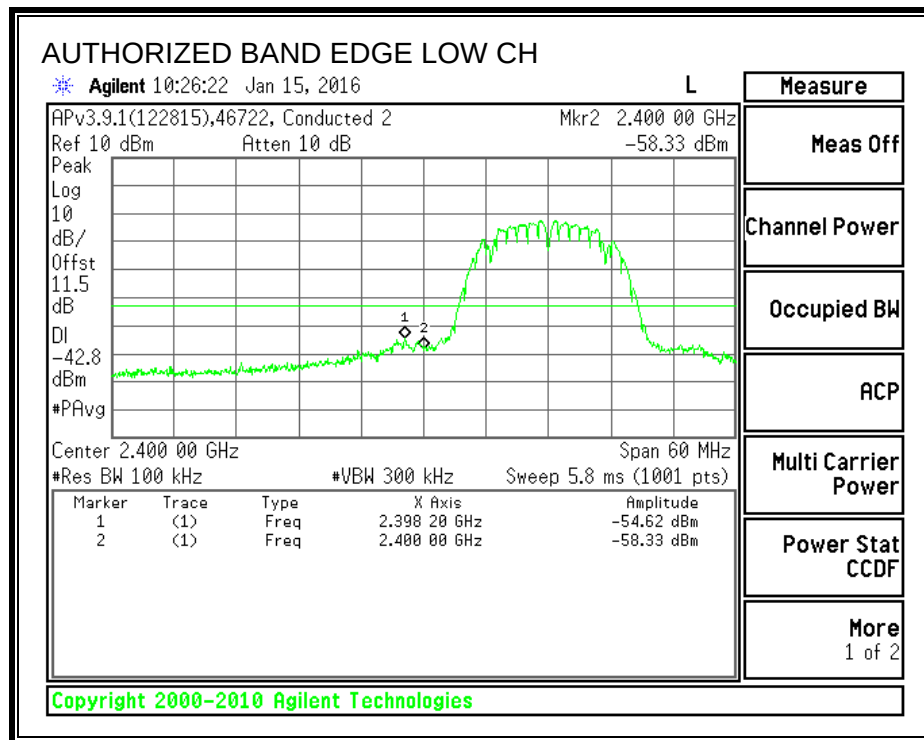


Chain 1

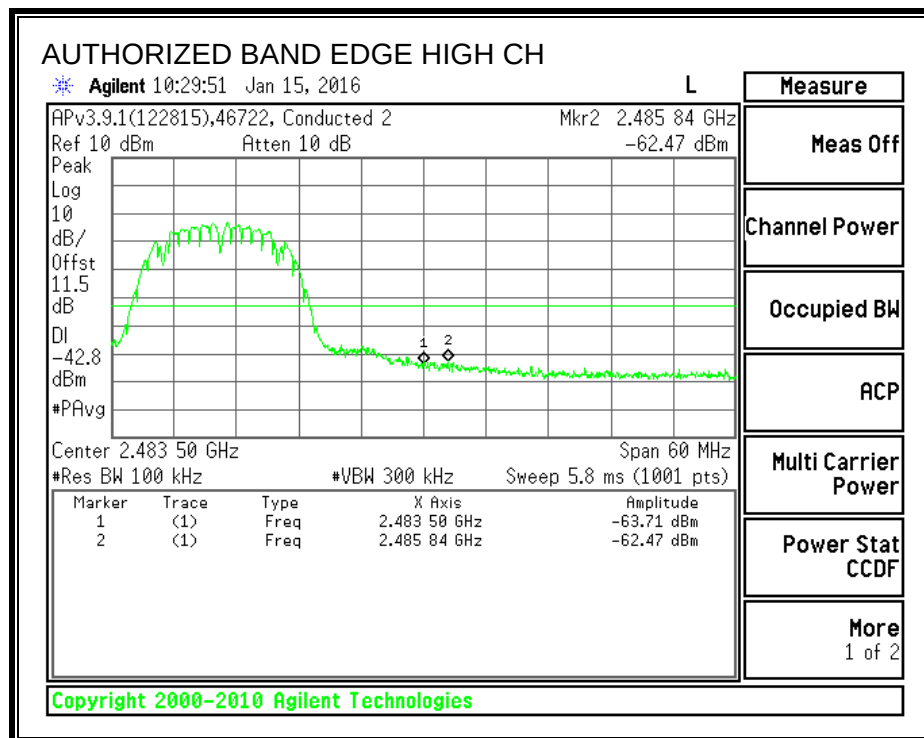
IN-BAND REFERENCE LEVEL



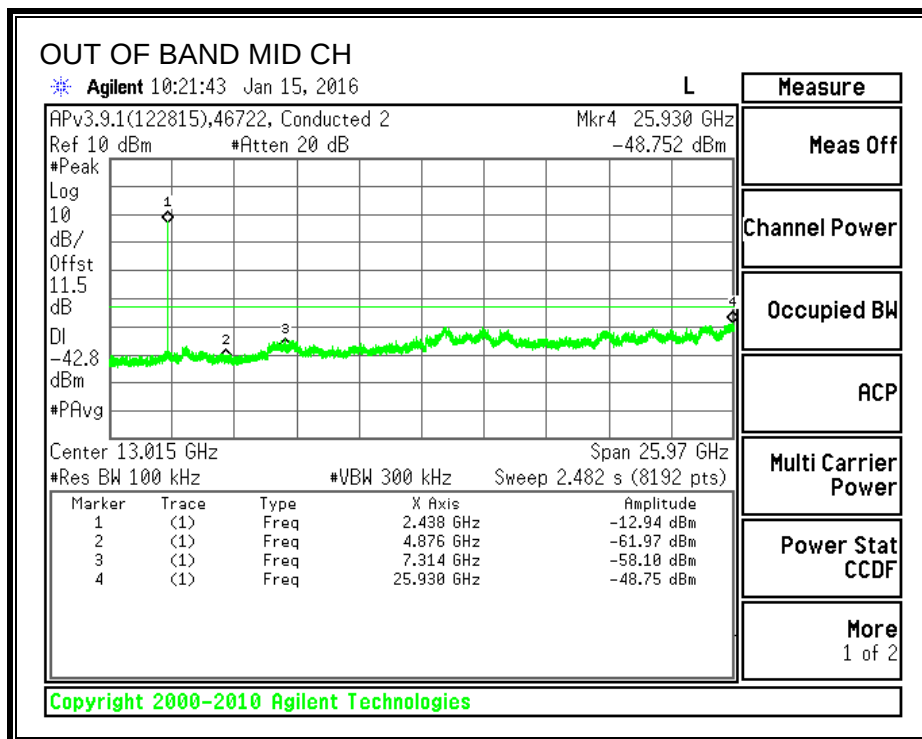
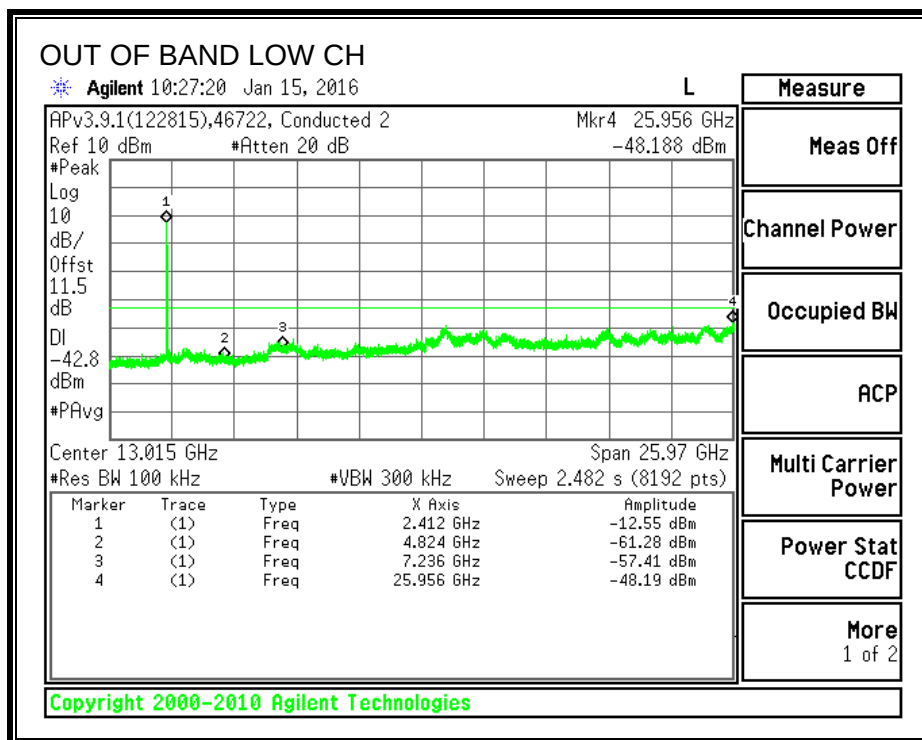
LOW CHANNEL BANDEDGE

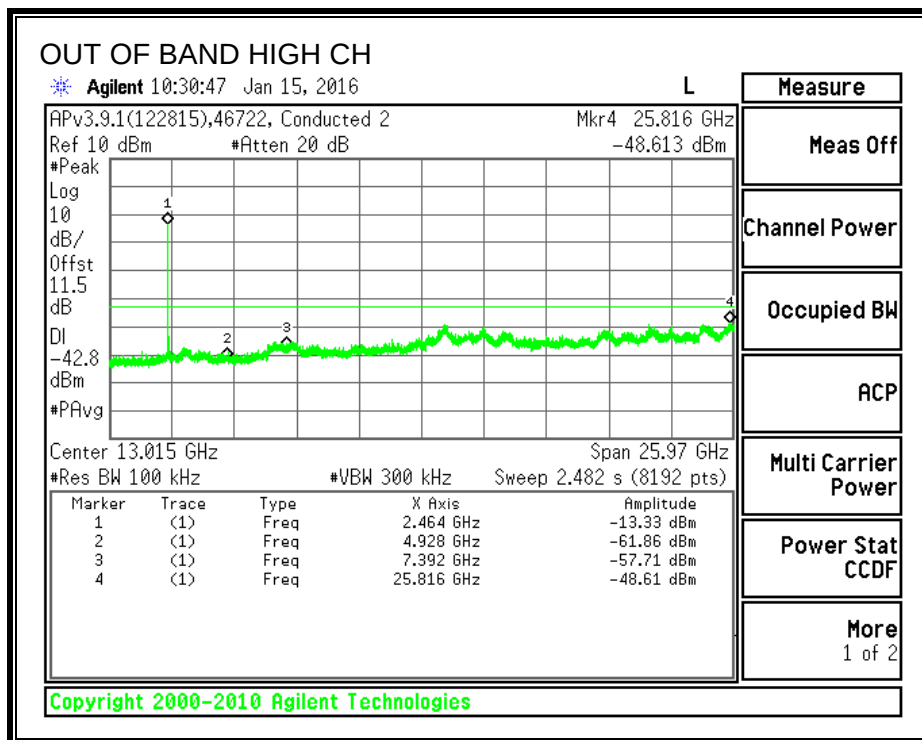


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS





9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

IC RSS-GEN Clause 7.1.2 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz measurements and 1.5 m above the ground plane for above 1GHz measurements. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 120 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements for the 30-1000 MHz range, 9 kHz for peak detection measurements or 9 kHz for quasi-peak detection measurements for the 0.15-30 MHz range and 200 Hz for peak detection measurements or 200 Hz for quasi-peak detection measurements for the 9 to 150 kHz range. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements. For this evaluation, RMS Power Averaging was used and the resolution/video bandwidth settings were 1MHz/3MHz.

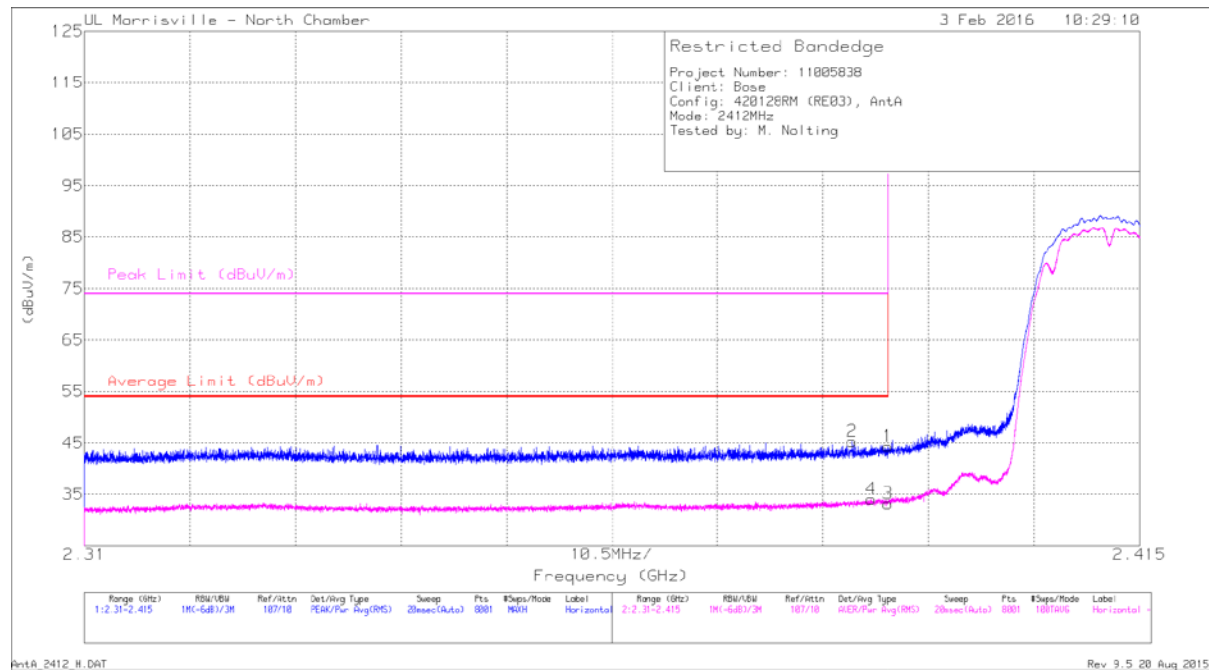
The spectrum from 9 kHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band, except where noted.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

9.2. TX SPURIOUS 1-18 GHz QPSK MODE IN THE 2.4 GHz BAND

Chain 0 (Antenna A, J402)

RESTRICTED BANDEDGE (LOW CHANNEL)

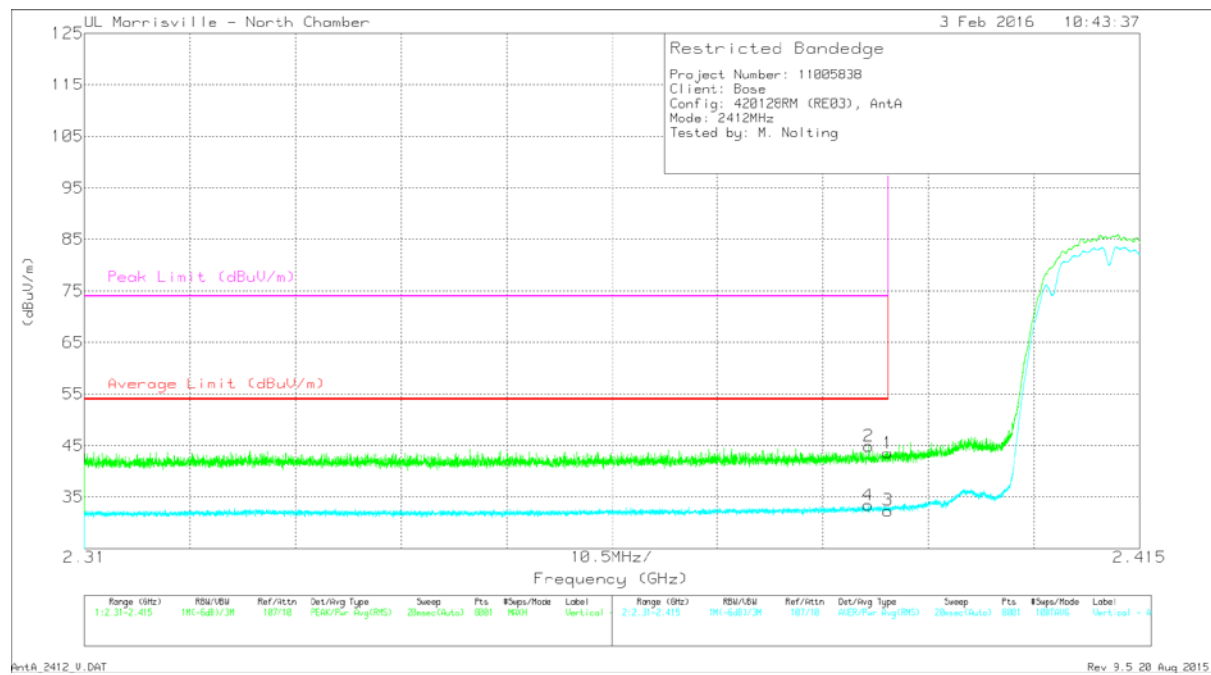


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	37.24	Pk	31.9	-24.8	44.34	-	-	74	-29.66	302	118	H
2	* 2.386	38.21	Pk	31.9	-24.8	45.31	-	-	74	-28.69	302	118	H
3	* 2.39	26.11	RMS	31.9	-24.8	33.21	54	-20.79	-	-	302	118	H
4	* 2.388	26.97	RMS	31.9	-24.8	34.07	54	-19.93	-	-	302	118	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



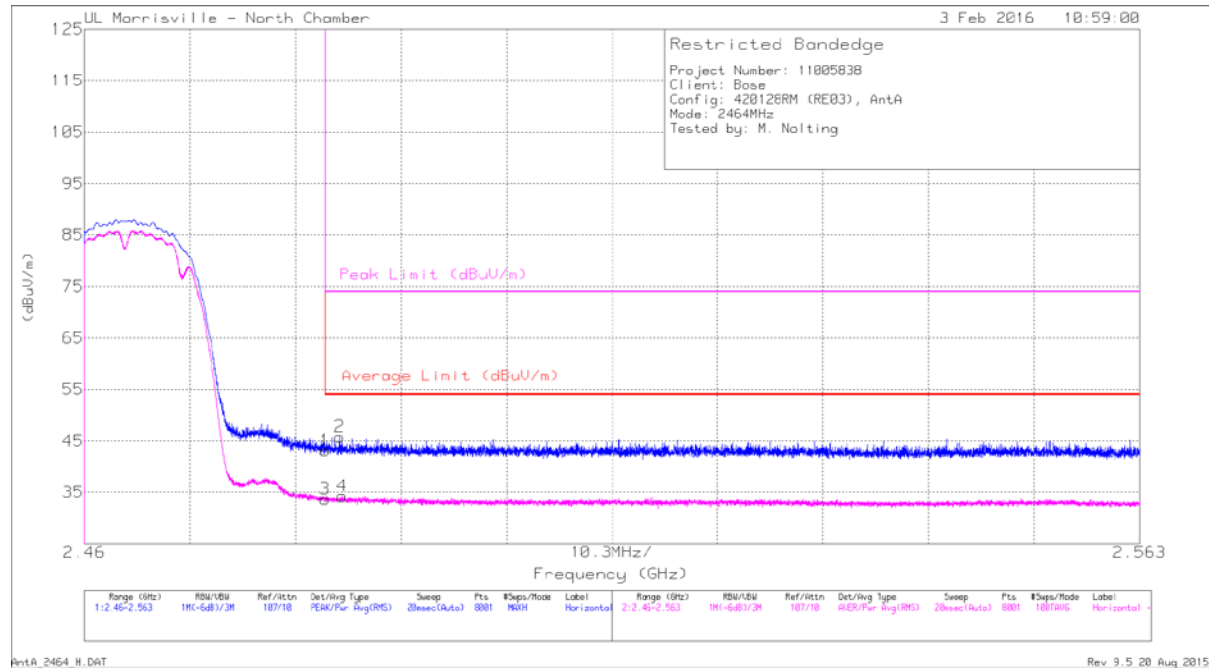
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	36.46	Pk	31.9	-24.8	43.56	-	-	74	-30.44	150	316	V
2	* 2.388	37.81	Pk	31.9	-24.8	44.91	-	-	74	-29.09	150	316	V
3	* 2.39	25.3	RMS	31.9	-24.8	32.4	54	-21.6	-	-	150	316	V
4	* 2.388	26.31	RMS	31.9	-24.8	33.41	54	-20.59	-	-	150	316	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

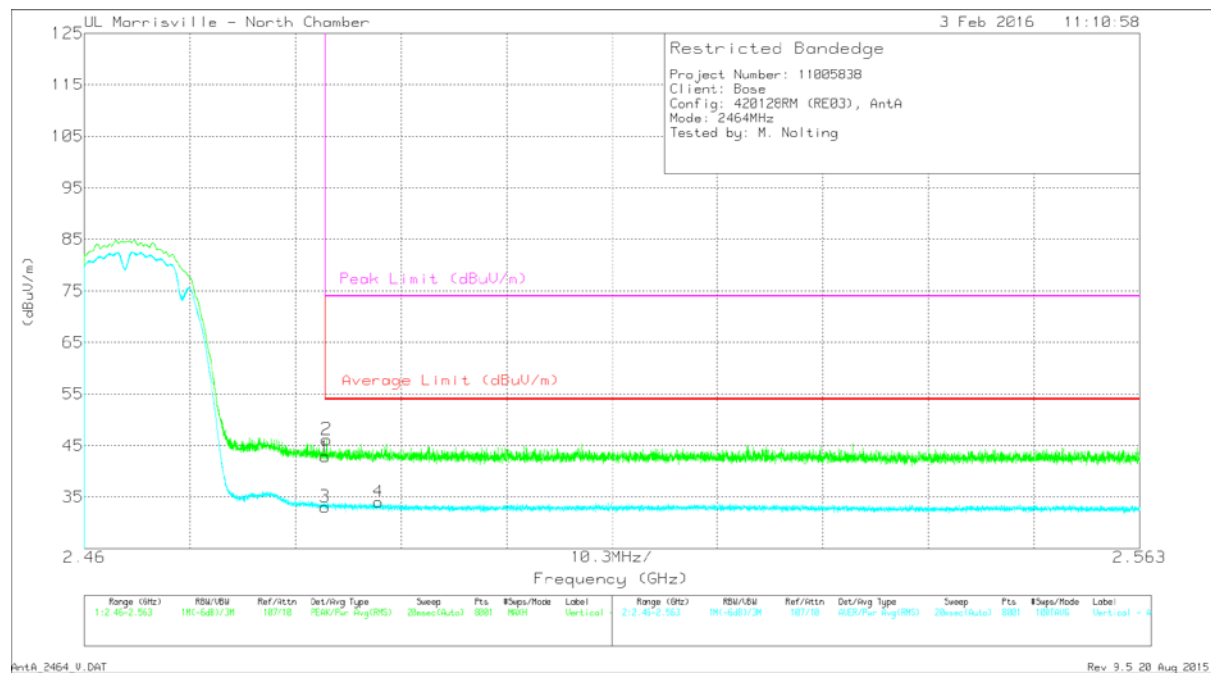


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	35.81	Pk	32.1	-24.8	43.11	-	-	74	-30.89	294	114	H
2	* 2.485	38.5	Pk	32.1	-24.8	45.8	-	-	74	-28.2	294	114	H
3	* 2.484	26.41	RMS	32.1	-24.8	33.71	54	-20.29	-	-	294	114	H
4	* 2.485	26.95	RMS	32.1	-24.8	34.25	54	-19.75	-	-	294	114	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	35.54	Pk	32.1	-24.8	42.84	-	-	74	-31.16	153	332	V
2	* 2.484	38.88	Pk	32.1	-24.8	46.18	-	-	74	-27.82	153	332	V
3	* 2.484	25.82	RMS	32.1	-24.8	33.12	54	-20.88	-	-	153	332	V
4	* 2.489	26.79	RMS	32.1	-24.8	34.09	54	-19.91	-	-	153	332	V

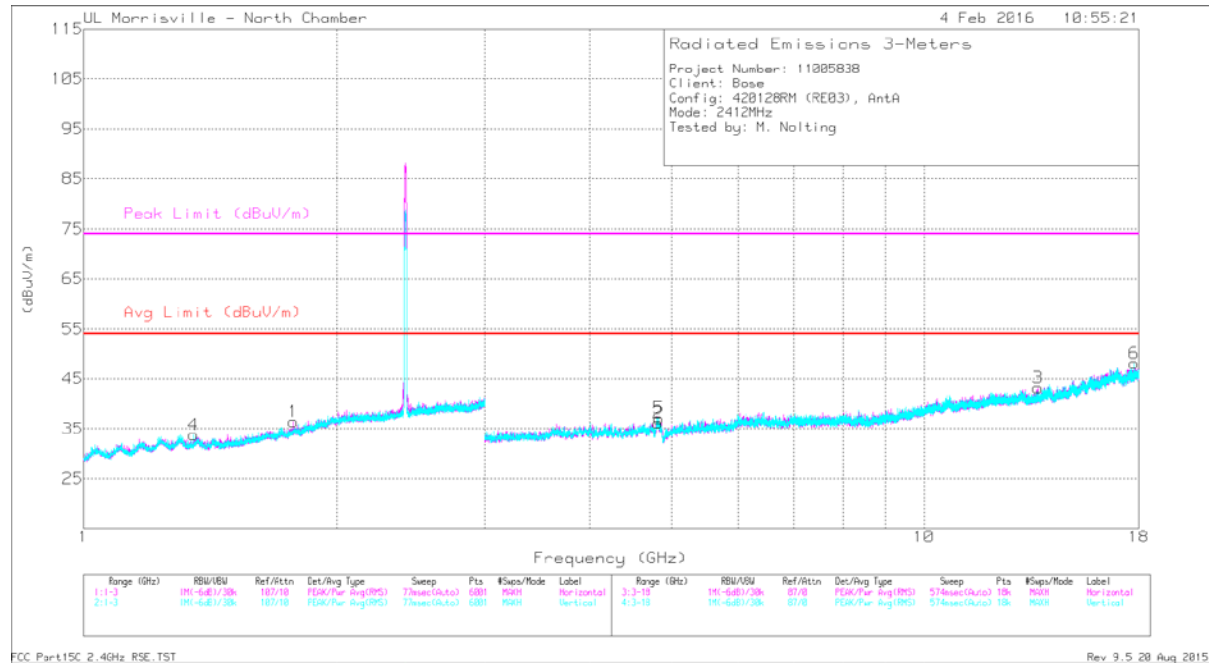
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

Low Channel



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 1.356	36.26	PK2	28.5	-25.8	38.96	-	-	74	-35.04	184	101	V
	* 1.359	24.48	MAV1	28.5	-25.8	27.18	54	-26.82	-	-	184	101	V
2	* 4.821	40.49	PK2	34.1	-32.2	42.39	-	-	74	-31.61	170	201	H
	* 4.822	29.51	MAV1	34.1	-32.2	31.41	54	-22.59	-	-	170	201	H
5	* 4.826	40.13	PK2	34.1	-32.2	42.03	-	-	74	-31.97	196	102	V
	* 4.814	29.3	MAV1	34.1	-32.2	31.2	54	-22.8	-	-	196	102	V
6	* 17.783	35.72	PK2	41.9	-23.9	53.72	-	-	74	-20.28	182	100	V
	* 17.787	23.8	MAV1	41.9	-23.9	41.8	54	-12.2	-	-	182	100	V
1	1.776	31.39	Pk	29.7	-24.7	36.39	-	-	-	-	0-360	101	H
3	13.654	32.8	Pk	39.1	-28.7	43.2	-	-	-	-	0-360	199	H

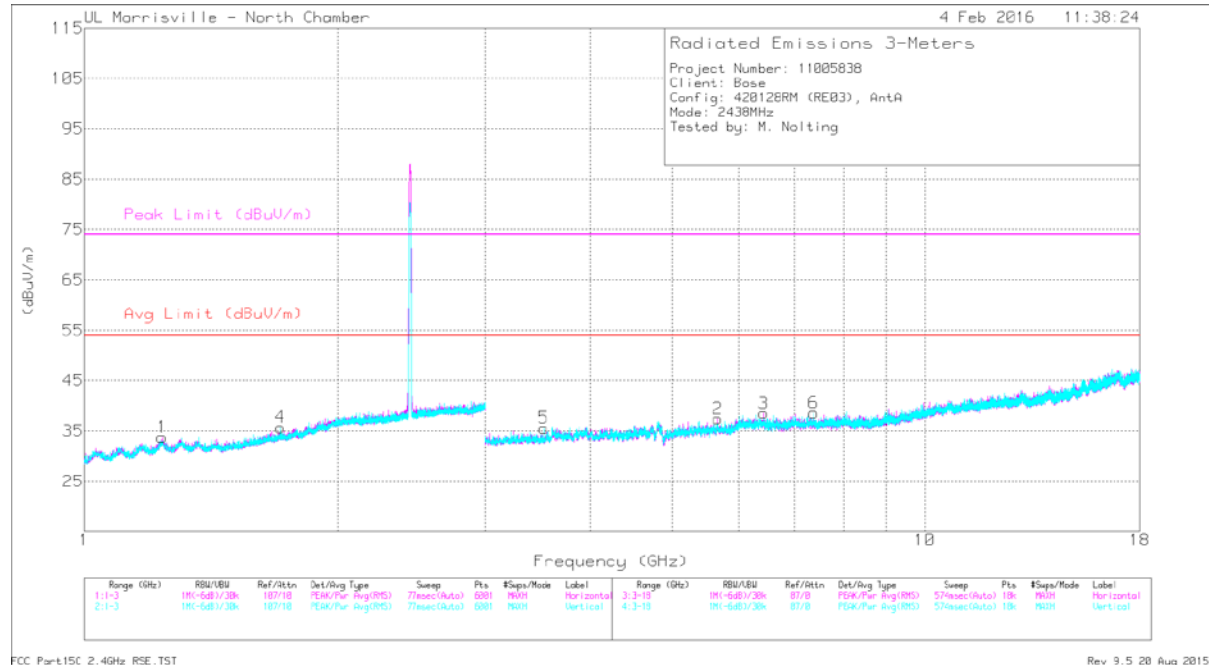
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

Middle Channel



FCC Part15C 2.4GHz RSE_TST

Rev. 9.5 20 Aug 2015

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.237	35.08	PK2	28.9	-26.2	37.78	-	-	74	-36.22	190	151	H
	* 1.234	23.25	MAV1	28.9	-26.2	25.95	54	-28.05	-	-	190	151	H
5	* 3.519	41.78	PK2	33.1	-33.7	41.18	-	-	74	-32.82	283	100	V
	* 3.519	29.39	MAV1	33.1	-33.7	28.79	54	-25.21	-	-	283	100	V
6	* 7.376	38.01	PK2	35.8	-30.2	43.61	-	-	74	-30.39	113	100	V
	* 7.373	26.34	MAV1	35.7	-30.2	31.84	54	-22.16	-	-	113	100	V
4	1.711	31.1	Pk	29.3	-24.7	35.7	-	-	-	-	0-360	101	V
2	5.671	34.93	Pk	34.6	-32.1	37.43	-	-	-	-	0-360	199	H
3	6.429	34.1	Pk	35.5	-31.1	38.5	-	-	-	-	0-360	101	H

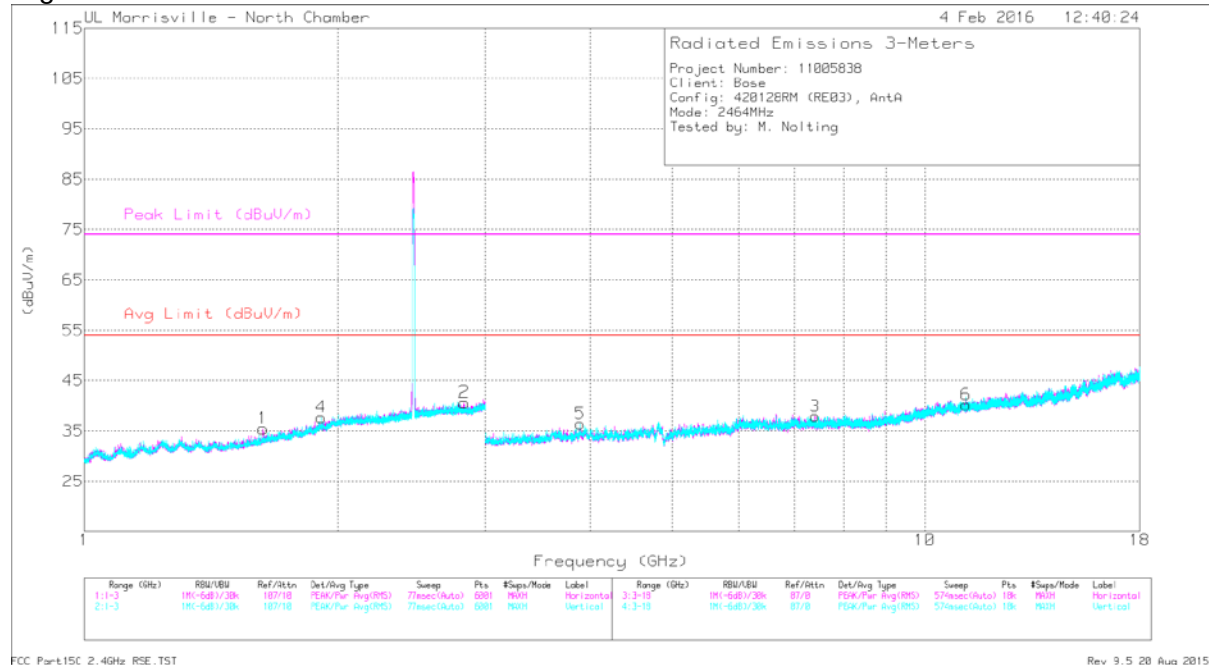
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

High Channel



FCC Part15C 2.4GHz RSE_TST

Rev. 9.5 20 Aug 2015

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.835	37.52	PK2	32.4	-24.1	45.82	-	-	74	-28.18	148	200	H
	* 2.831	25.23	MAV1	32.4	-24.1	33.53	54	-20.47	-	-	148	200	H
3	* 7.411	37.94	PK2	35.8	-30.1	43.64	-	-	74	-30.36	314	118	H
	* 7.407	26.26	MAV1	35.8	-30.1	31.96	54	-22.04	-	-	314	118	H
5	* 3.889	40.64	PK2	33.6	-32.4	41.84	-	-	74	-32.16	146	198	V
	* 3.892	29	MAV1	33.6	-32.4	30.2	54	-23.8	-	-	146	198	V
6	* 11.193	35.7	PK2	38.1	-26.9	46.9	-	-	74	-27.1	36	200	V
	* 11.201	24.13	MAV1	38.1	-26.9	35.33	54	-18.67	-	-	36	200	V
1	1.632	31.58	Pk	28.7	-24.8	35.48	-	-	-	-	0-360	100	H
4	1.913	31.62	Pk	30.9	-24.8	37.72	-	-	-	-	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

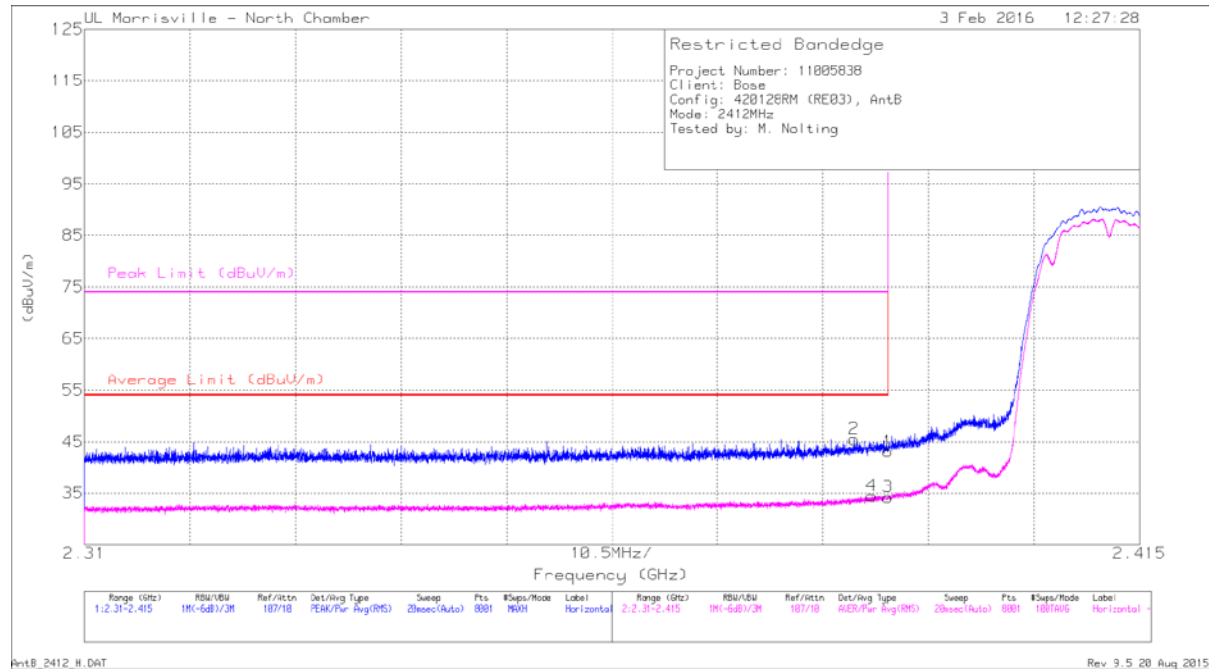
Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

Chain 1 (Antenna B, J403)

RESTRICTED BANDEDGE (LOW CHANNEL)

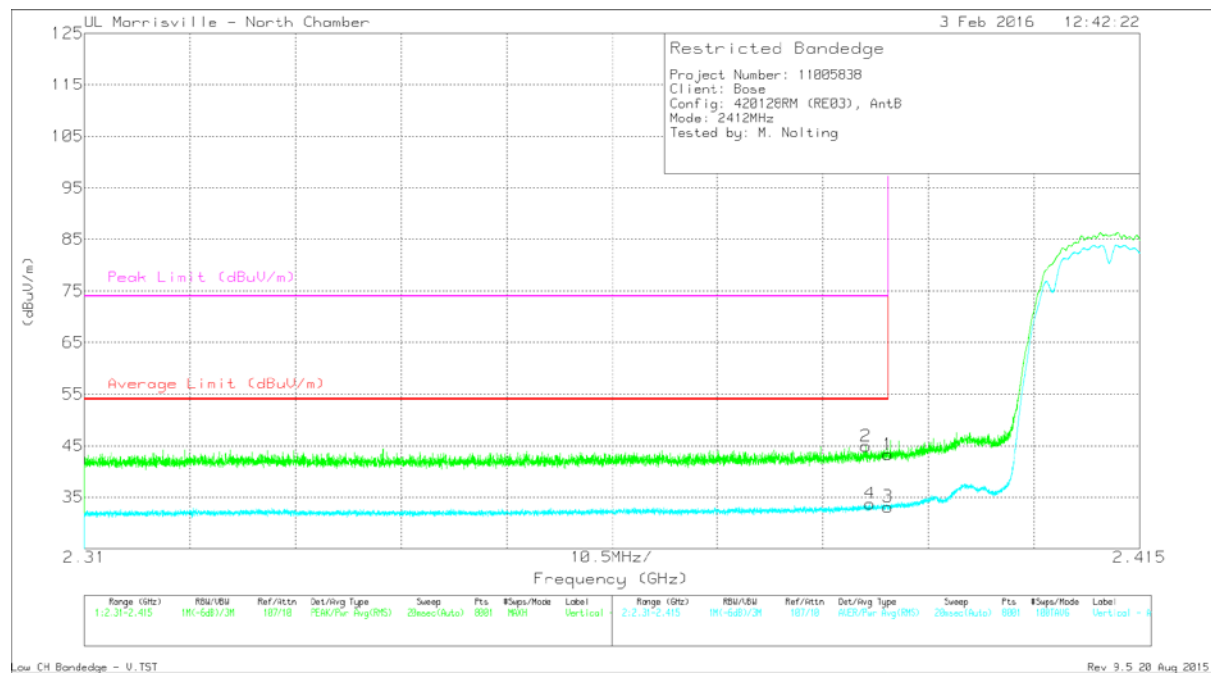


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	35.99	Pk	31.9	-24.8	43.09	-	-	74	-30.91	175	112	H
2	* 2.387	38.41	Pk	31.9	-24.8	45.51	-	-	74	-28.49	175	112	H
3	* 2.39	27.16	RMS	31.9	-24.8	34.26	54	-19.74	-	-	175	112	H
4	* 2.388	27.39	RMS	31.9	-24.8	34.49	54	-19.51	-	-	175	112	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



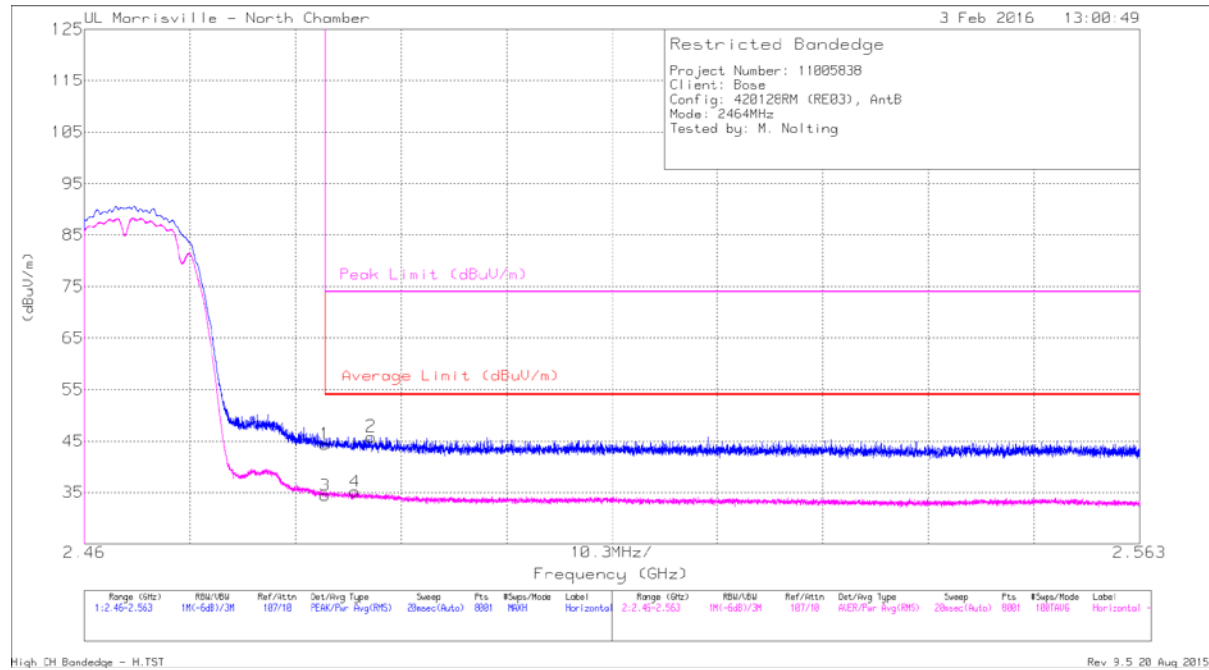
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	36.17	Pk	31.9	-24.8	43.27	-	-	74	-30.73	76	101	V
2	* 2.388	37.84	Pk	31.9	-24.8	44.94	-	-	74	-29.06	76	101	V
3	* 2.39	26.05	RMS	31.9	-24.8	33.15	54	-20.85	-	-	76	101	V
4	* 2.388	26.67	RMS	31.9	-24.8	33.77	54	-20.23	-	-	76	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

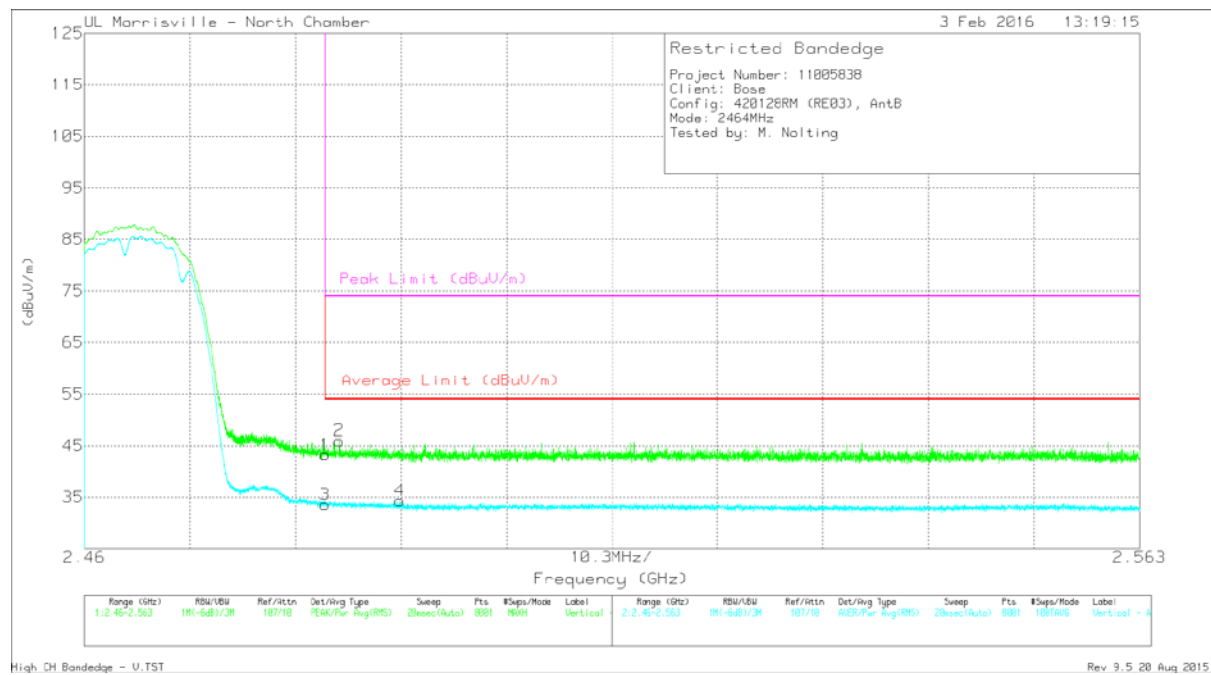


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	37.08	Pk	32.1	-24.8	44.38	-	-	74	-29.62	180	134	H
2	* 2.488	38.54	Pk	32.1	-24.8	45.84	-	-	74	-28.16	180	134	H
3	* 2.484	27.13	RMS	32.1	-24.8	34.43	54	-19.57	-	-	180	134	H
4	* 2.486	27.85	RMS	32.1	-24.8	35.15	54	-18.85	-	-	180	134	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	35.95	Pk	32.1	-24.8	43.25	-	-	74	-30.75	81	121	V
2	* 2.485	38.67	Pk	32.1	-24.8	45.97	-	-	74	-28.03	81	121	V
3	* 2.484	26.27	RMS	32.1	-24.8	33.57	54	-20.43	-	-	81	121	V
4	* 2.491	27.01	RMS	32.1	-24.8	34.31	54	-19.69	-	-	81	121	V

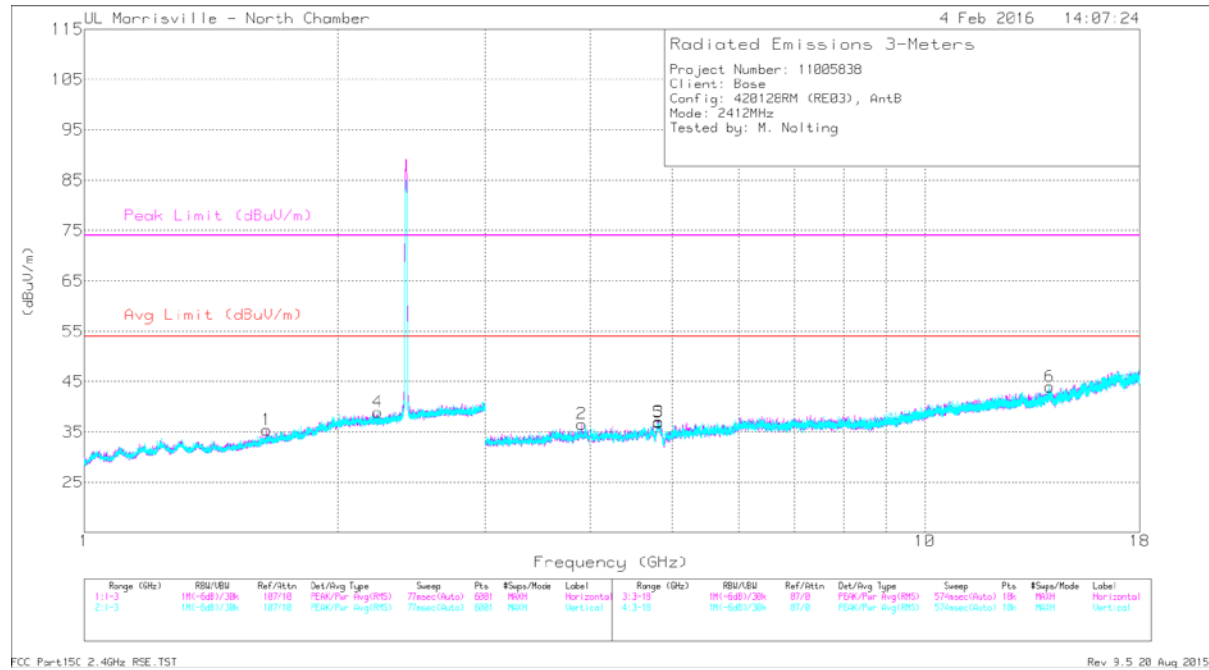
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

Low Channel



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.234	36.86	PK2	31.6	-24.8	43.66	-	-	74	-30.34	58	101	V
	* 2.236	25.04	MAV1	31.6	-24.8	31.84	54	-22.16	-	-	58	101	V
2	* 4.824	41.01	PK2	34.1	-32.2	42.91	-	-	74	-31.09	341	122	H
	* 4.817	29.29	MAV1	34.1	-32.2	31.19	54	-22.81	-	-	341	122	H
3	* 3.902	40.31	PK2	33.6	-32.5	41.41	-	-	74	-32.59	134	100	H
	* 3.9	28.79	MAV1	33.6	-32.5	29.89	54	-24.11	-	-	134	100	H
5	* 4.825	41.37	PK2	34.1	-32.2	43.27	-	-	74	-30.73	353	247	V
	* 4.824	30.59	MAV1	34.1	-32.2	32.49	54	-21.51	-	-	353	247	V
1	1.648	31.39	Pk	28.8	-24.8	35.39	-	-	-	-	0-360	101	H
6	14.073	32.29	Pk	39.3	-27.6	43.99	-	-	-	-	0-360	199	V

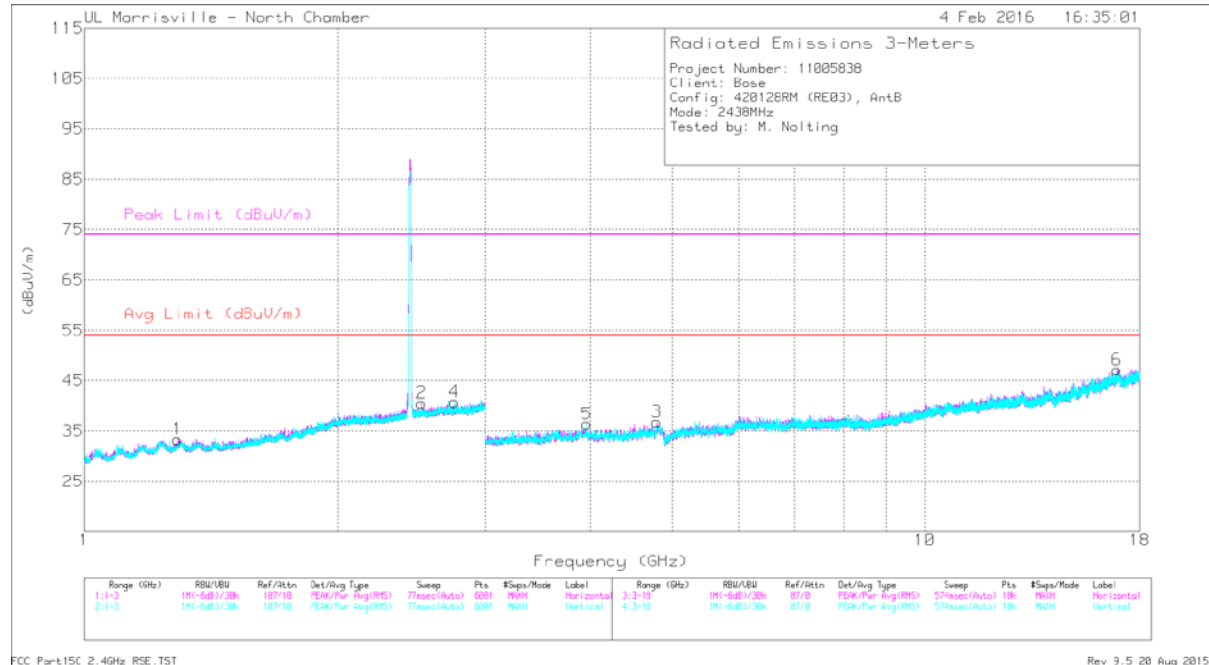
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

Middle Channel



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.297	36.6	PK2	28.8	-25.9	39.5	-	-	74	-34.5	102	200	H
	* 1.297	24.81	MAV1	28.8	-25.9	27.71	54	-26.29	-	-	102	200	H
4	* 2.762	37.64	PK2	32.4	-24.3	45.74	-	-	74	-28.26	74	200	V
	* 2.767	25.34	MAV1	32.4	-24.2	33.54	54	-20.46	-	-	74	200	V
3	* 4.805	41.36	PK2	34.1	-32.3	43.16	-	-	74	-30.84	193	147	H
	* 4.804	29.91	MAV1	34.1	-32.3	31.71	54	-22.29	-	-	193	147	H
5	* 3.965	40.25	PK2	33.7	-32.4	41.55	-	-	74	-32.45	3	157	V
	* 3.958	28.9	MAV1	33.7	-32.4	30.2	54	-23.8	-	-	3	157	V
2	2.522	33.08	Pk	32.1	-24.6	40.58	-	-	-	-	0-360	100	H
6	16.906	29.28	Pk	42.2	-24.3	47.18	-	-	-	-	0-360	199	V

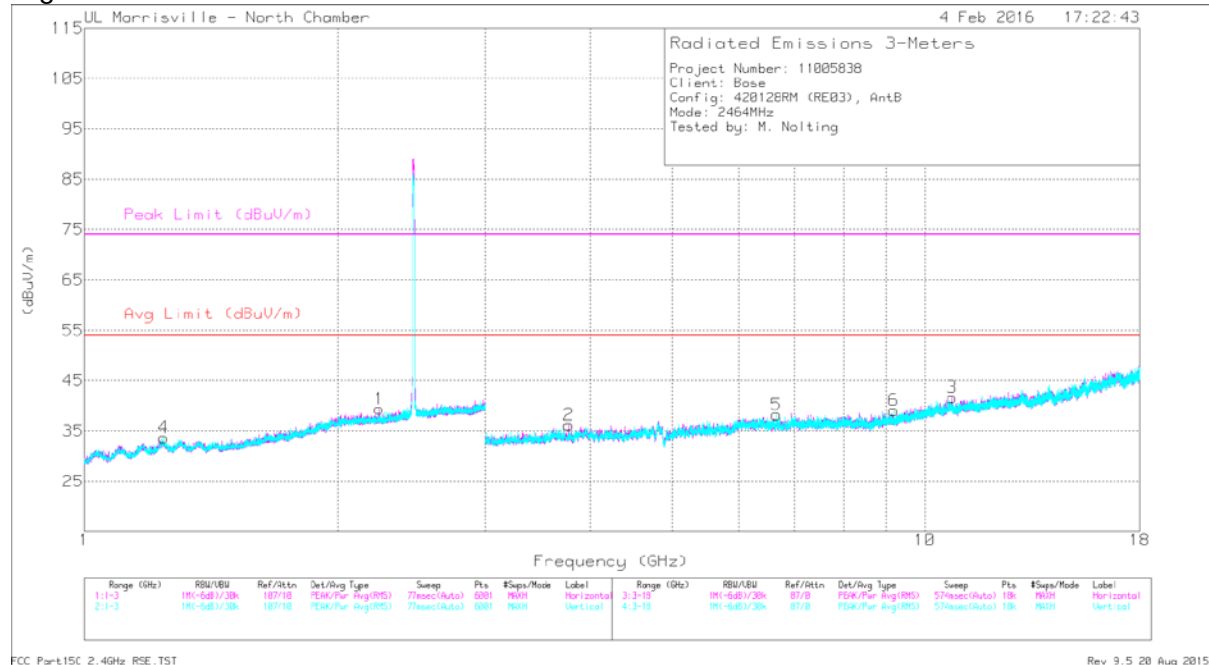
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

High Channel



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0072 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.244	38	PK2	31.6	-24.7	44.9	-	-	74	-29.1	347	200	H
	* 2.243	25.06	MAV1	31.6	-24.7	31.96	54	-22.04	-	-	347	200	H
4	* 1.241	36.89	PK2	29	-26.2	39.69	-	-	74	-34.31	104	162	V
	* 1.241	24.95	MAV1	29	-26.2	27.75	54	-26.25	-	-	104	162	V
2	* 3.773	41.39	PK2	33.4	-33.7	41.09	-	-	74	-32.91	102	223	H
	* 3.774	29.67	MAV1	33.4	-33.7	29.37	54	-24.63	-	-	102	223	H
3	* 10.773	35.43	PK2	37.8	-26.7	46.53	-	-	74	-27.47	248	133	H
	* 10.772	23.9	MAV1	37.8	-26.7	35	54	-19	-	-	248	133	H
6	* 9.186	37.12	PK2	36.4	-28.9	44.62	-	-	74	-29.38	68	230	V
	* 9.191	25.09	MAV1	36.4	-28.9	32.59	54	-21.41	-	-	68	230	V
5	6.652	33.33	Pk	35.6	-30.7	38.23	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

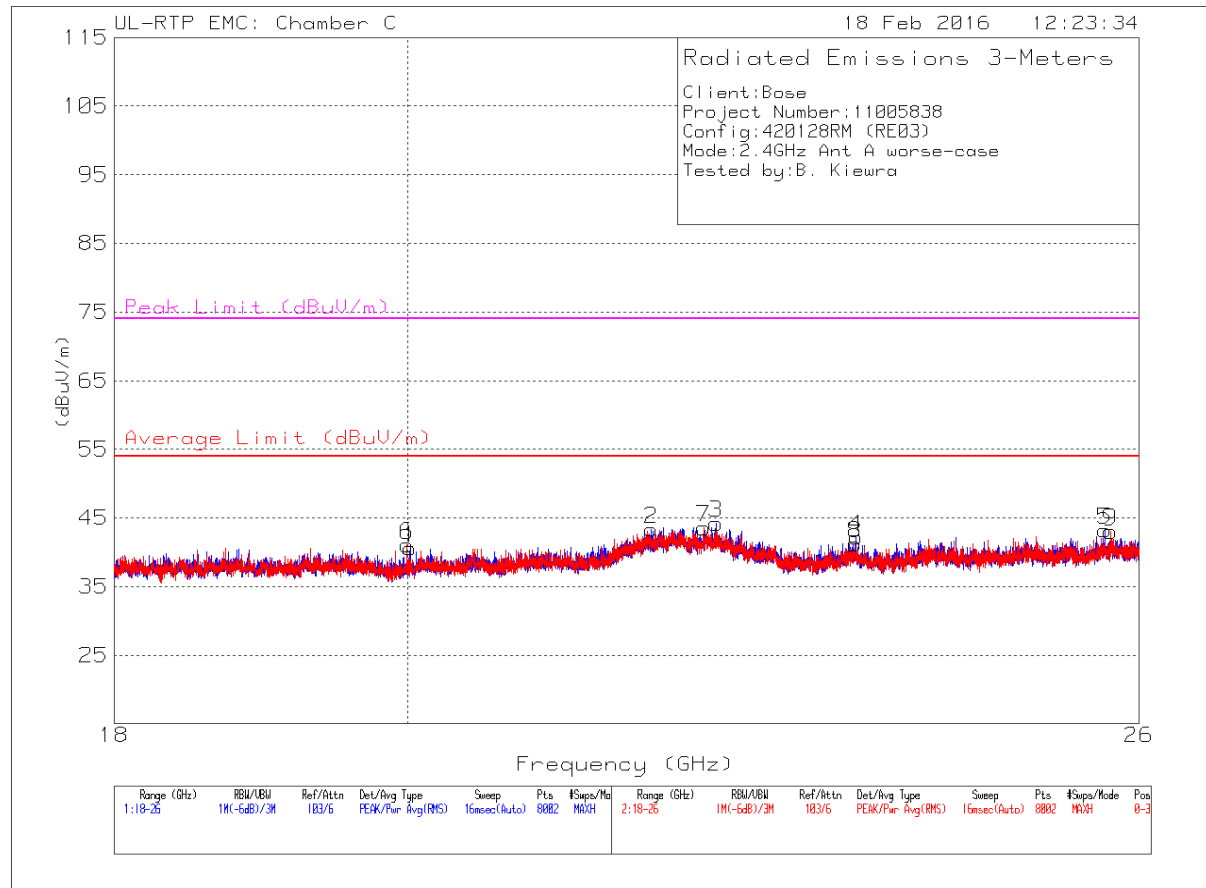
Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

9.3. TX SPURIOUS WORST-CASE 18-26GHz

Chain 0 (Antenna A, J402)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 20.015	48.95	PK2	32.7	-40.8	40.85	-	-	74	-33.15	291	170	H
	* 20.015	37.61	MAV1	32.7	-40.8	29.51	54	-24.49	-	-	291	170	H
3	* 22.34	50	PK2	36	-40.5	45.5	-	-	74	-28.5	116	326	H
	* 22.342	37.24	MAV1	36	-40.5	32.74	54	-21.26	-	-	116	326	H
6	* 19.996	48.78	PK2	32.6	-41.1	40.28	-	-	74	-33.72	292	338	V
	* 19.996	37.91	MAV1	32.6	-41.1	29.41	54	-24.59	-	-	292	338	V
7	* 22.241	49.36	PK2	36.1	-40.5	44.96	-	-	74	-29.04	267	163	V
	* 22.242	37.1	MAV1	36.1	-40.5	32.7	54	-21.3	-	-	267	163	V
2	21.828	48.15	Pk	35.7	-40.5	43.35	-	-	-	-	0-360	101	H
4	23.491	48.52	Pk	33.9	-40.2	42.22	-	-	-	-	0-360	101	H
5	25.685	47.25	Pk	34.1	-38.1	43.25	-	-	-	-	0-360	150	H
8	23.482	47.34	Pk	33.9	-40	41.24	-	-	-	-	0-360	101	V
9	25.736	46.62	Pk	34.1	-37.7	43.02	-	-	-	-	0-360	175	V

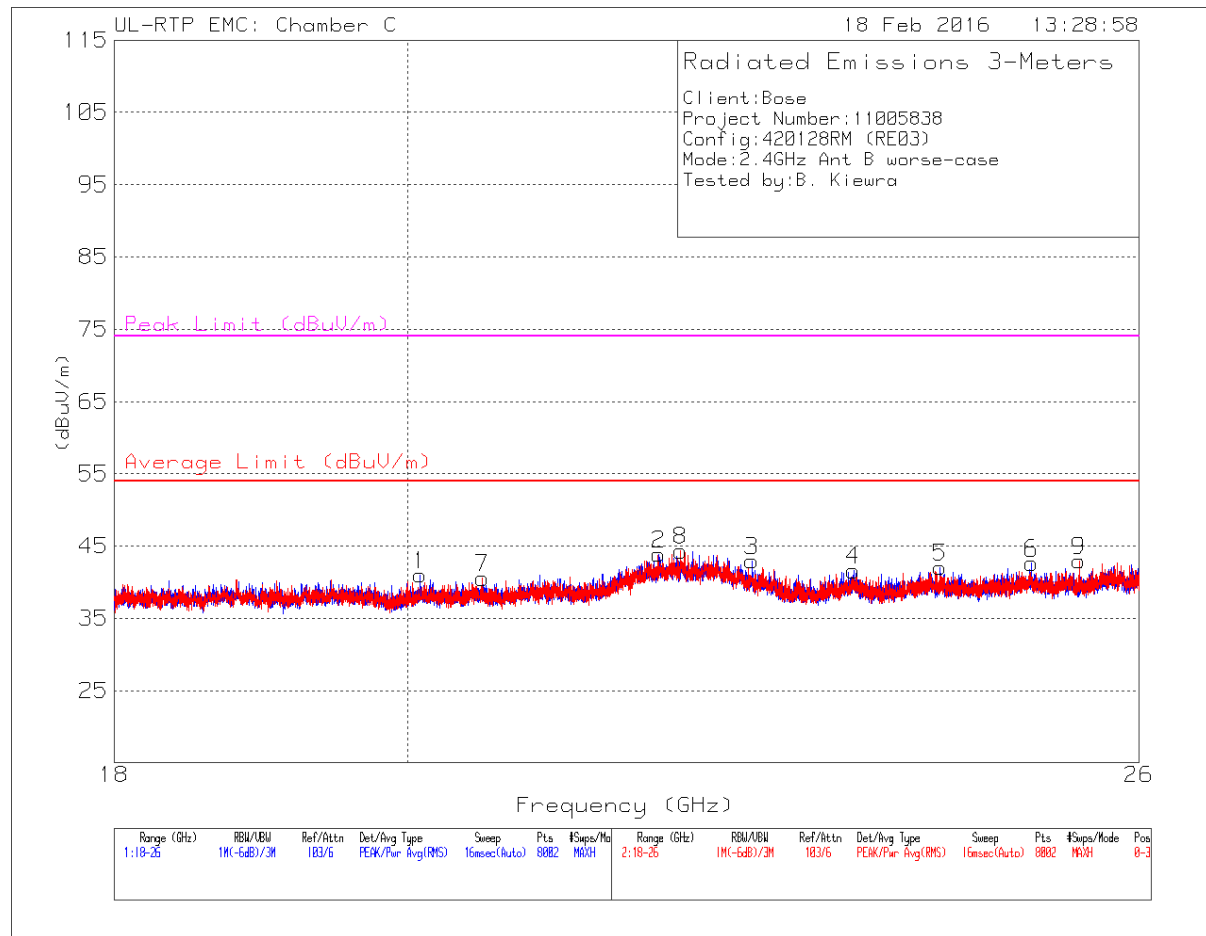
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

Chain 1 (Antenna B, J403)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 20.091	48.84	PK2	32.9	-41.1	40.64	-	-	74	-33.36	47	359	H
	* 20.09	37.61	MAV1	32.9	-41.1	29.41	54	-24.59	-	-	47	359	H
3	* 22.631	48.58	PK2	34.2	-40.2	42.58	-	-	74	-31.42	104	356	H
	* 22.629	37.15	MAV1	34.2	-40.2	31.15	54	-22.85	-	-	104	356	H
7	* 20.545	48.86	PK2	33	-40.8	41.06	-	-	74	-32.94	50	159	V
	* 20.546	37.39	MAV1	33	-40.8	29.59	54	-24.41	-	-	50	159	V
8	* 22.058	48.26	PK2	36.6	-40.5	44.36	-	-	74	-29.64	355	101	V
	* 22.059	36.92	MAV1	36.6	-40.5	33.02	54	-20.98	-	-	355	101	V
2	21.886	48.61	Pk	36	-40.7	43.91	-	-	-	-	0-360	125	H
4	23.469	47.45	Pk	33.9	-39.7	41.65	-	-	-	-	0-360	150	H
5	24.211	47.67	Pk	33.5	-39.1	42.07	-	-	-	-	0-360	125	H
6	25.019	47.33	Pk	34	-38.7	42.63	-	-	-	-	0-360	125	H
9	25.448	47.19	Pk	33.8	-38	42.99	-	-	-	-	0-360	125	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

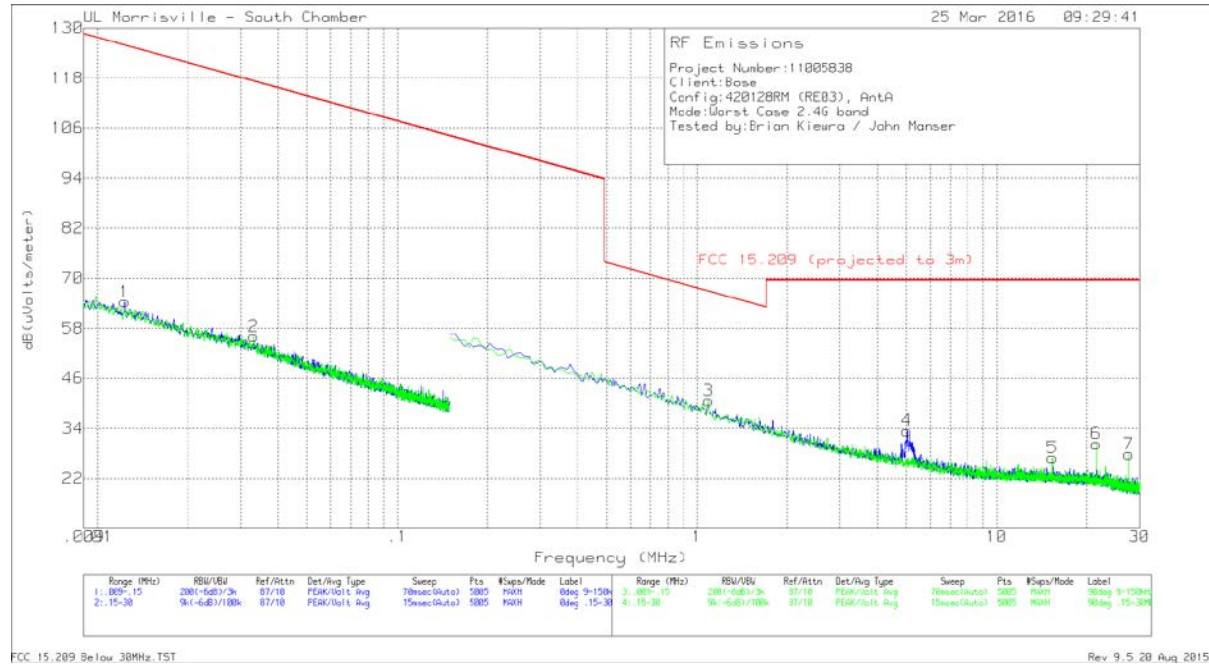
MAV1 - KDB558074 Option 1 Maximum RMS Average

9.4. TX SPURIOUS WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)

Note: All measurements were made at a test distance of 3 m. The limits in the plots and tabular data are the FCC/IC limits extrapolated from the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to the measurement distance to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were $40 \cdot \log(\text{specification distance} / \text{test distance})$.

Chain 0



Trace Markers

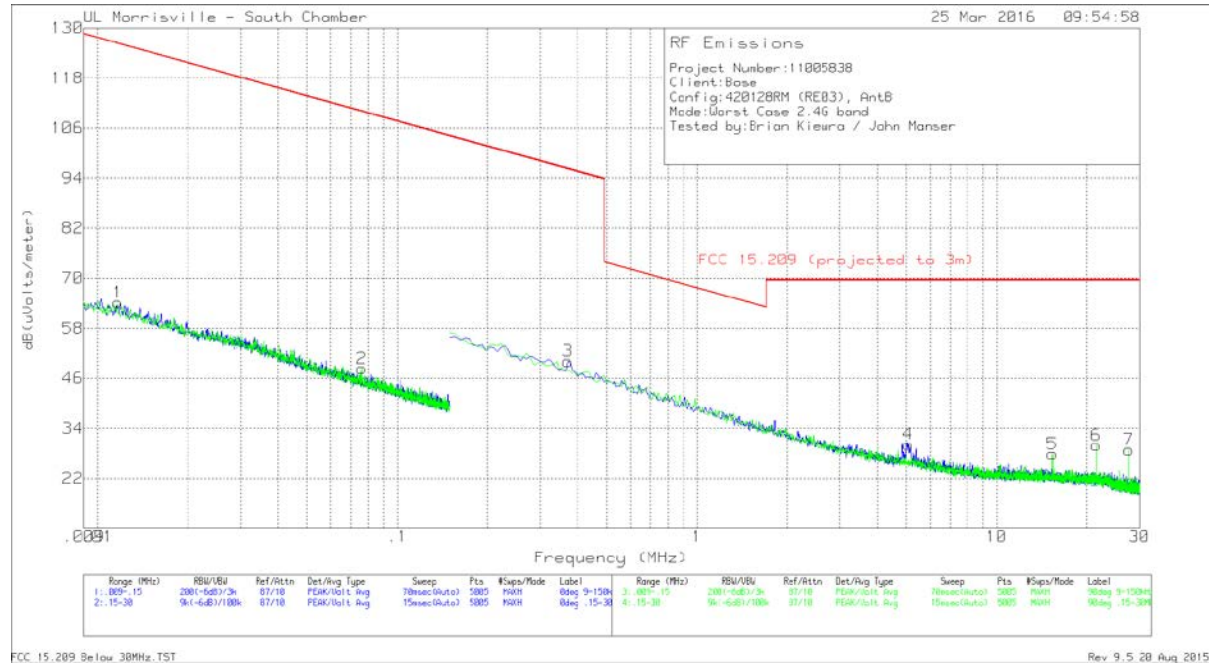
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF (dB/m)	Cbl (dB)	Corrected Reading dB(uV/m)	FCC 15.209 (projected to 3m)	Margin (dB)	Azimuth (Degs)
1	.01233	45.85	Pk	18.4	.1	64.35	125.78	-61.43	0-360
2	.03314	42.62	Pk	13.3	.1	56.02	117.2	-61.18	0-360
3	1.09247	29.99	Pk	10.5	.2	40.69	66.84	-26.15	0-360
4	5.02937	22.47	Pk	10.6	.4	33.47	69.54	-36.07	0-360
5	15.36075	15.65	Pk	10.7	.6	26.95	69.54	-42.59	0-360
6	21.5047	19.44	Pk	10.1	.8	30.34	69.54	-39.2	0-360
7	27.64865	18.39	Pk	8.5	.9	27.79	69.54	-41.75	0-360

Pk - Peak detector

FCC 15.209 Below 30MHz.TST

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Chain 1



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF (dB/m)	Cbl (dB)	Corrected Reading dB(uV/m)	FCC 15.209 (projected to 3m)	Margin (dB)	Azimuth (Degs)
1	.01169	45.4	Pk	18.7	.1	64.2	126.25	-62.05	0-360
2	.07598	37.49	Pk	10.8	.1	48.39	109.99	-61.6	0-360
3	.37071	39.8	Pk	10.2	.1	50.1	96.22	-46.12	0-360
4	5.06516	19.19	Pk	10.6	.4	30.19	69.54	-39.35	0-360
5	15.36075	16.53	Pk	10.7	.6	27.83	69.54	-41.71	0-360
6	21.5047	19.02	Pk	10.1	.8	29.92	69.54	-39.62	0-360
7	27.64865	19.44	Pk	8.5	.9	28.84	69.54	-40.7	0-360

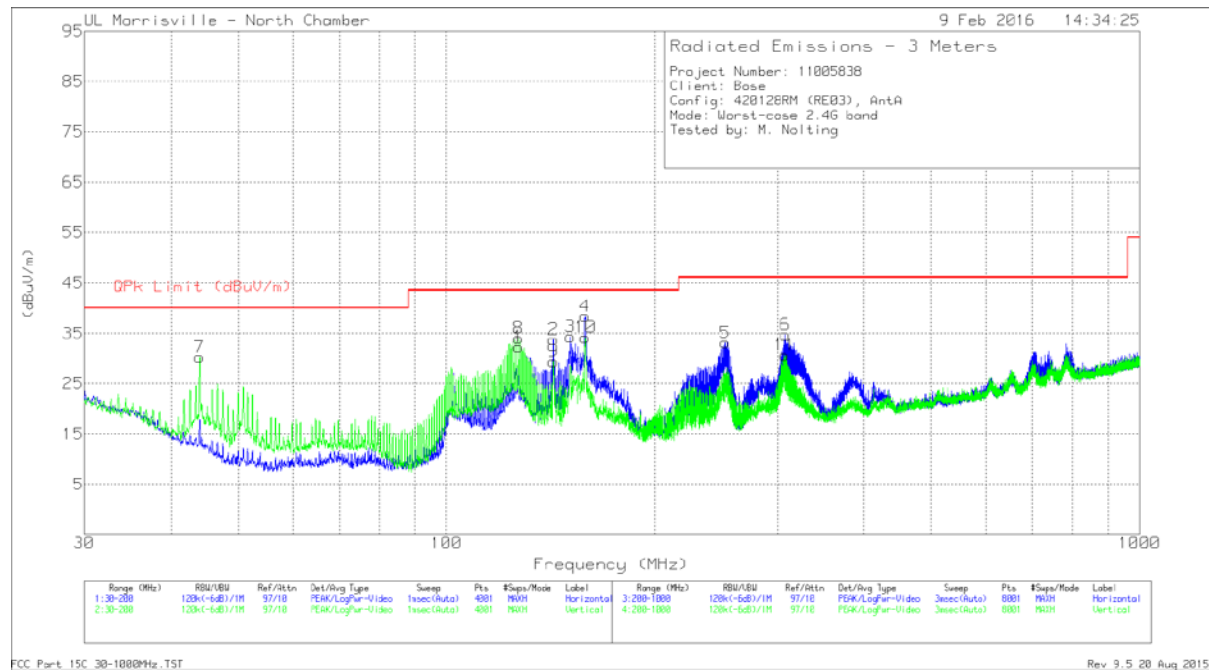
Pk - Peak detector

FCC 15.209 Below 30MHz.TST

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SPURIOUS EMISSIONS 30-1000 MHz (WORST-CASE CONFIGURATION)

Chain 0 (Antenna A, J402)



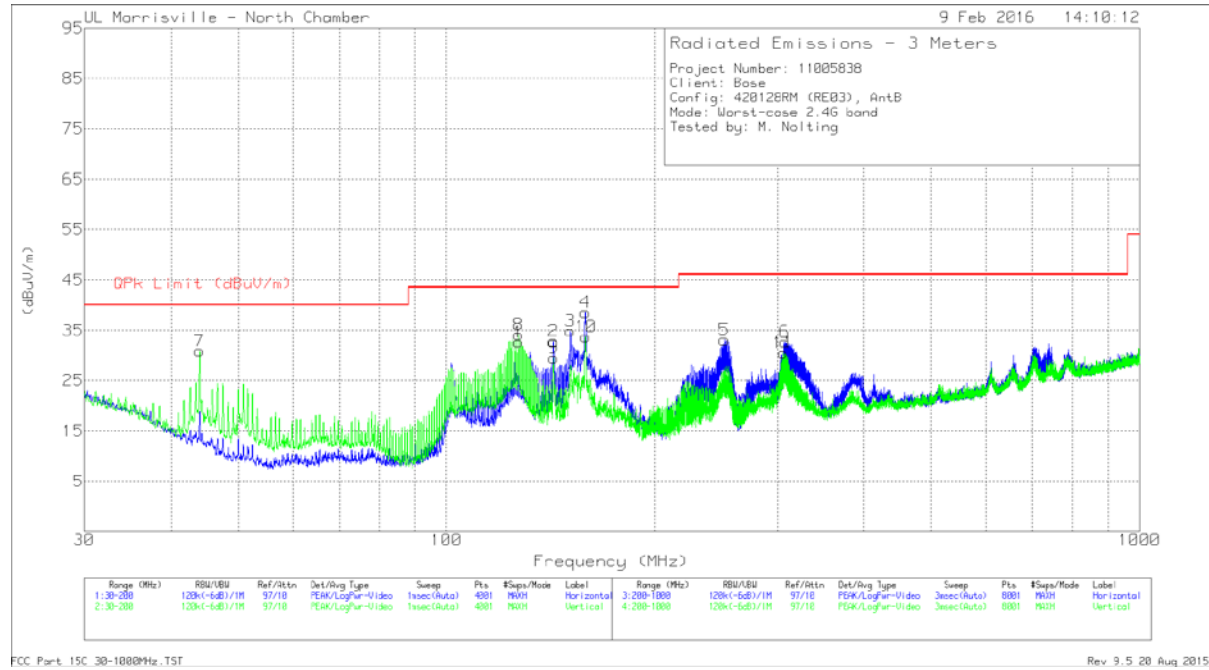
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 127.0275	44.62	Pk	18.2	-30.5	32.32	43.52	-11.2	0-360	199	H
8	* 127.07	46.35	Pk	18.2	-30.5	34.05	43.52	-9.47	0-360	102	V
5	* 252.5	46.55	Pk	16.4	-29.8	33.15	46.02	-12.87	0-360	102	H
9	142.625	42.64	Pk	17.3	-30.5	29.44	-	-	0-360	102	V
2	142.6675	47.01	Pk	17.3	-30.5	33.81	-	-	0-360	199	H
3	150.8275	47.84	Pk	16.9	-30.4	34.34	-	-	0-360	199	H
4	158.4563	51.99	Pk	16.8	-30.4	38.39	-	-	0-360	199	H
10	158.605	47.8	Pk	16.8	-30.4	34.2	-	-	0-360	102	V
11	307.5	41.76	Pk	18.3	-29.4	30.66	-	-	0-360	102	V
6	308.2	45.93	Pk	18.3	-29.5	34.73	-	-	0-360	102	H
7	43.9825	45.95	Pk	15.7	-31.4	30.25	-	-	0-360	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

FCC Part 15C 30-1000MHz.TST

Chain 1 (Antenna B, J403)



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8	* 127.0913	46.41	Pk	18.2	-30.5	34.11	43.52	-9.41	0-360	102	V
1	* 127.1125	44.93	Pk	18.2	-30.5	32.63	43.52	-10.89	0-360	199	H
5	* 251.7	46.5	Pk	16.3	-29.7	33.1	46.02	-12.92	0-360	102	H
2	142.6675	46.04	Pk	17.3	-30.5	32.84	-	-	0-360	199	H
9	142.71	42.76	Pk	17.3	-30.5	29.56	-	-	0-360	102	V
3	150.87	48.37	Pk	16.9	-30.4	34.87	-	-	0-360	199	H
4	158.69	52.16	Pk	16.8	-30.4	38.56	-	-	0-360	199	H
10	158.775	47.33	Pk	16.8	-30.4	33.73	-	-	0-360	102	V
11	305.8	41.81	Pk	18.2	-29.5	30.51	-	-	0-360	200	V
6	307.6	43.78	Pk	18.3	-29.4	32.68	-	-	0-360	102	H
7	43.9825	46.59	Pk	15.7	-31.4	30.89	-	-	0-360	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

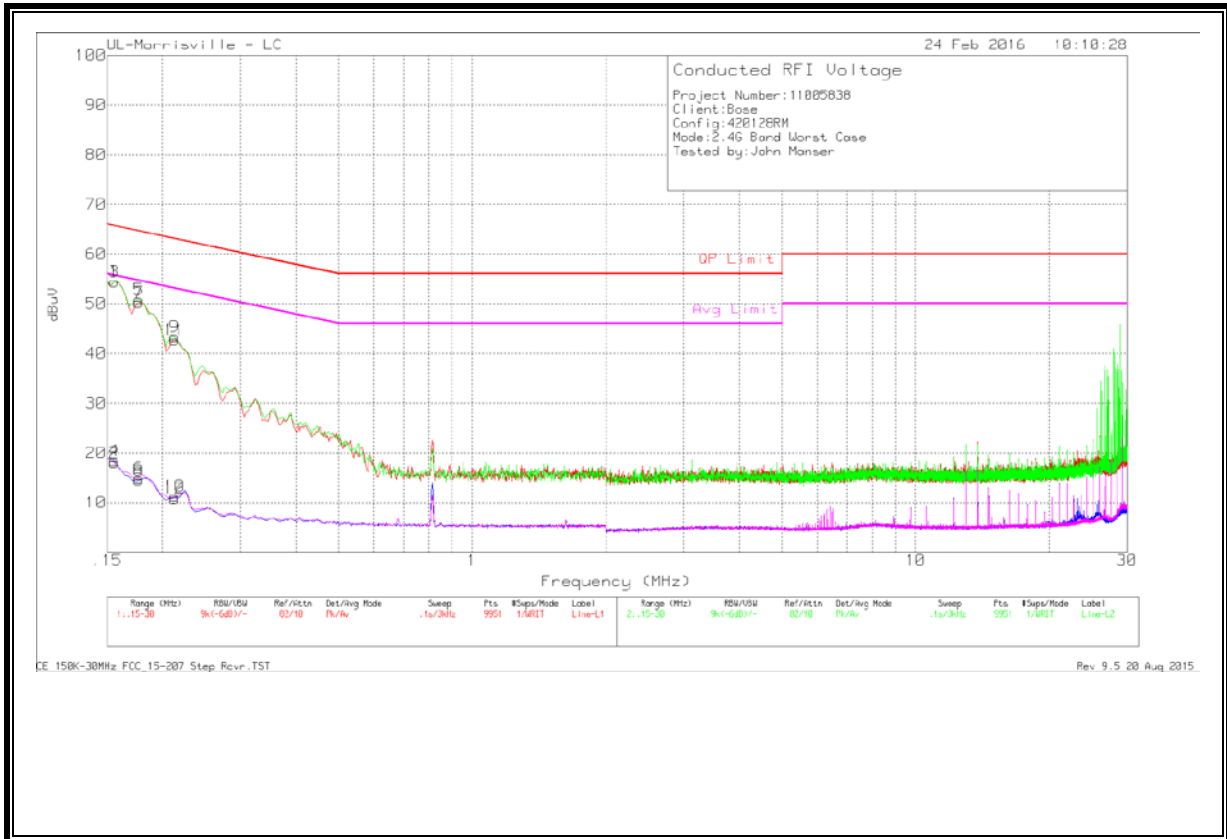
The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and LINE.

RESULTS

LINE 1 & 2 RESULTS



6 WORST EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit	Margin (dB)	Avg Limit	Margin (dB)
Range 1	Line 1									
3	.156	44.26	Pk	.2	10	54.46	65.67	-11.21	-	-
4	.156	8.23	Av	.2	10	18.43	-	-	55.67	-37.24
7	.177	40.08	Pk	.2	10	50.28	64.63	-14.35	-	-
8	.177	4.23	Av	.2	10	14.43	-	-	54.63	-40.2
11	.213	32.63	Pk	.1	10	42.73	63.09	-20.36	-	-
12	.213	.76	Av	.1	10	10.86	-	-	53.09	-42.23
Range 2	Line 2									
1	.156	44.14	Pk	.3	10	54.44	65.67	-11.23	-	-
2	.156	7.72	Av	.3	10	18.02	-	-	55.67	-37.65
5	.177	40.58	Pk	.3	10	50.88	64.63	-13.75	-	-
6	.177	4.59	Av	.3	10	14.89	-	-	54.63	-39.74
9	.213	33.17	Pk	.2	10	43.37	63.09	-19.72	-	-
10	.213	1.1	Av	.2	10	11.3	-	-	53.09	-41.79

Pk - Peak detector

Av - Average detection

CE 150K-30MHz FCC_15-207 Step Rcvr.TST

Rev 9.5 20 Aug 2015

END OF REPORT