FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

Broadcom 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Mini Card

MODEL NUMBER: BCM94352Z

FCC ID: QDS-BRCM1076
IC ID: 4324A-BRCM1076

REPORT NUMBER: 14U17915-1, Revision D

ISSUE DATE: JUNE 27, 2014

Prepared for
BROADCOM CORPORATION
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	6/12/2014	Initial Issue	C.OOI
A	6/24/2014	Typo Correction on Section 5.2	C.OOI
B	6/26/2014	Revised Section 5.3 and 5.6	C.OOI
C	6/26/2014	Revised Section 5.6 and 9.3	F. Ibrahim
D	6/27/2014	Revised Section 6	J. Gomez

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: BROADCOM CORPORATION
190 MATHILDA PLACE
SUNNYVALE, CA 94086, U.S.A.

EUT DESCRIPTION: Broadcom 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Mini Card

MODEL: BCM94352Z

SERIAL NUMBER: 30

DATE TESTED: June 06, 2014 – June 10, 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 ISSUE 8	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:

Choon Ooi
PROJECT LEADER
UL Verification Services Inc.

Tested By:

JOEY GOMEZ
LAB ENGINEER
UL Verification Services Inc.

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 C63.10-2009, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

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

47173 Benicia Street	47266 Benicia Street
☒ Chamber A	☐ Chamber D
☐ Chamber B	☐ Chamber E
☐ Chamber C	☐ Chamber F

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, 0.15 to 30 MHz	±3.52 dB
Radiated Disturbance, 30 to 1000 MHz	±4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Broadcom 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Mini Card.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

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2400 - 2483.5 MHz Authorized Frequency Band					
Frequency Range (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Total power (dBm)	Total power (mW)
2422 - 2452	802.11n HT40 1Tx		16.10	16.10	40.74
2422 - 2452	802.11n HT40 CDD 2TX	13.01	13.57	16.31	42.75

List of test reduction and modes covering other modes:

2400 - 2483.5 MHz Authorized Frequency Band (Antenna Port Testing)		
Frequency Range (MHz)	**Mode**	**Covered by**
2422 - 2452	802.11n HT40 1TX	802.11n HT40 CDD 2TX
2400 - 2483.5 MHz Authorized Frequency Band (Radiated Testing)		
Frequency Range (MHz)	**Mode**	**Covered by**
2422 - 2452	802.11n HT40 1Tx (Harmonics)	802.11n HT40 CDD 2TX (Harmonics)

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Set No	Antenna Manufacturer	Antenna Type	Model	Peak Gain
1	Electronic	802.11bgn WLAN Antenna	10000802	3.8
1	Electronic	802.11bgn WLAN Antenna	10000802	3.8

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was ver6.30 RC223.98

The test utility software used during testing was 6.30.223.98 R403946

5.5. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The purpose of this report is for adding 802.11n HT40 SISO and 802.11n HT40 CDD 2TX modes to the 2.4GHz band.

5.6. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

Worst-case data rates as provided by the client were:
Based on the baseline scan, the worst-case data rates were:

802.11n HT40mode: MCS0

The EUT was tested as an external module installed in a test jig board connected to a host Laptop PC.

For MIMO, the 2TX emissions testing are considered as a worst case scenario and were tested at power levels, per transmit chain, greater than or equal to the maximum power in any 1TX mode.

Radiated band edge was performed on the worst case receiving antenna polarization only.

Power Line Conducted Emissions is covered by original report, which was done at the mode and channel with highest output power as worst-case scenario.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	HP	Elitebook 2730p	2CE93355SF	DoC
AC Adapter	HP	384019-002	F3-07021265590D	DoC
Adapter board	Broadcom	BCM9NGFF2EC_1	1759539	n/a

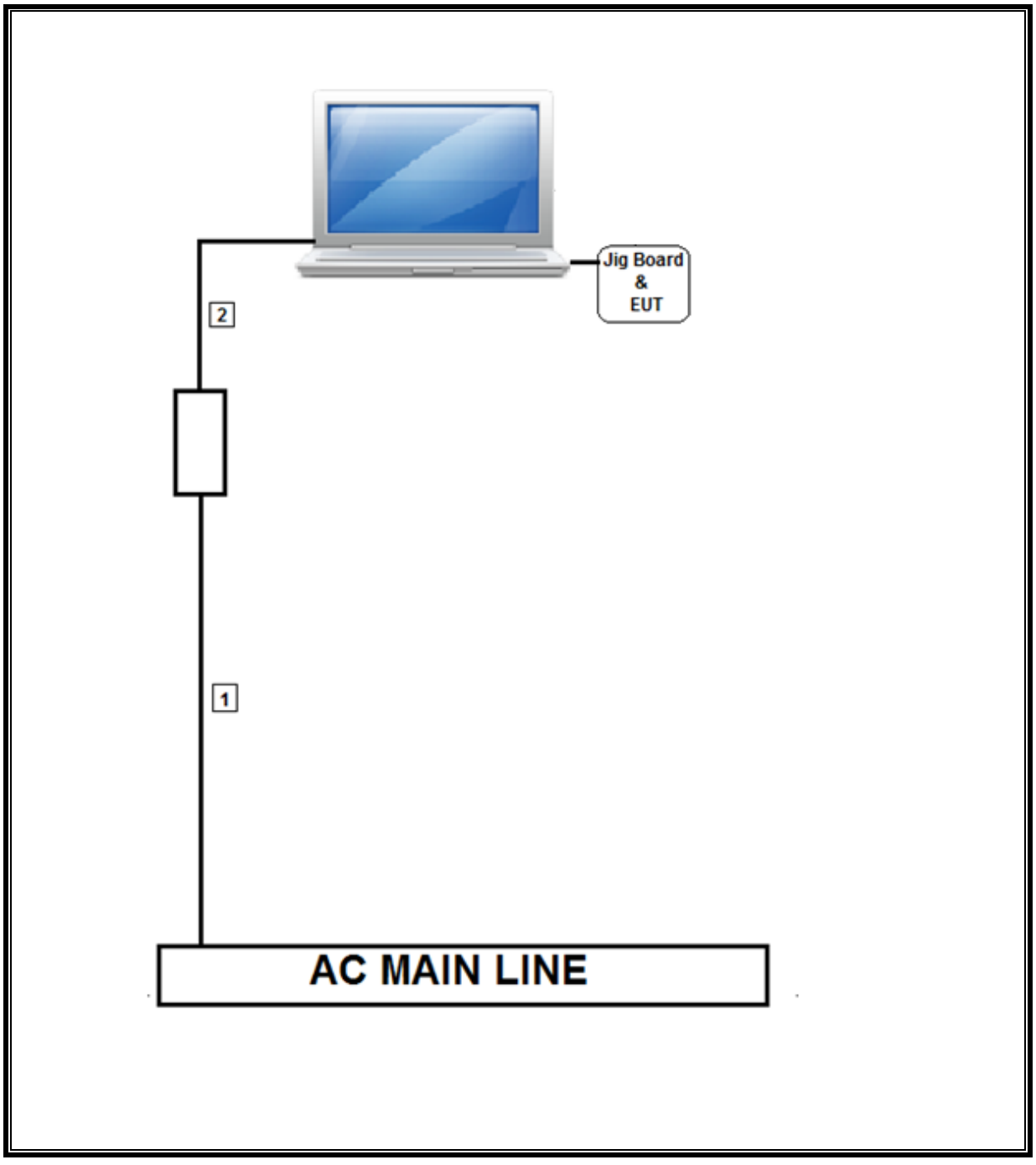
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	2	US 115V	Un-Shielded	1.0m	NA
2	DC	2	DC	Un-Shielded	1.8m	Ferrite at laptop's end

TEST SETUP

The EUT is attached to a jig board which is installed in the PCMCI slot of a host laptop computer during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	**Manufacturer**	**Model**	**Asset**	**Cal Date**	**Cal Due**
EMI Test Receiver, 9kHz-7GHz	R&S	ESCI 7	1000741	07/13/13	07/13/14
PXA Signal Analyzer	Agilent	N9030A	T339	12/10/13	12/10/14
Horn Antenna, 1GHz-18GHz	ETS Lindgren	3117	T119	01/06/14	01/06/15
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/14/13	11/14/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	10/19/13	10/19/14
Peak Power Meter	Agilent / HP	E9323A	F00051	10/04/13	10/04/14
5GHz Low Pass Filter	Micro-Tronics	LPS17541	F00219	06/26/13	06/26/14
3GHz High Pass Filter	Micro-Tronics	HPS17542	F00222	06/26/13	06/26/14
6GHz High Pass Filter	Micro-Tronics	HPM17543	F00224	06/26/13	06/26/14

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

7.1. 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						
802.11n HT40 1TX	0.943	0.962	0.980	98.03%	0.00	0.010
802.11n HT40 CDD 2TX	0.943	0.961	0.981	98.09%	0.00	0.010

7.2. MEASUREMENT METHODS

6 dB BW: KDB 558074 D01 v03r02 Section 8.1.

Output Power: KDB 558074 D01 v03r02 Section 9.2.3.2.

Power Spectral Density: KDB 558074 D01 v03r02 Section 10.3 and 10.5.

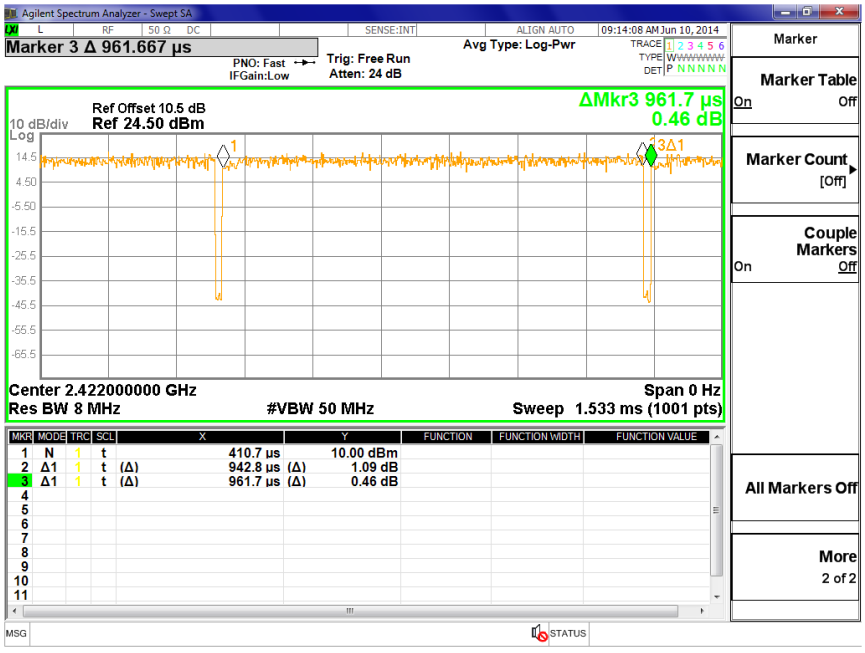
Out-of-band emissions in non-restricted bands: KDB 558074 D01 v03r02 Section 11.

Out-of-band emissions in restricted bands: KDB 558074 D01 v03r02 Section 12.1.

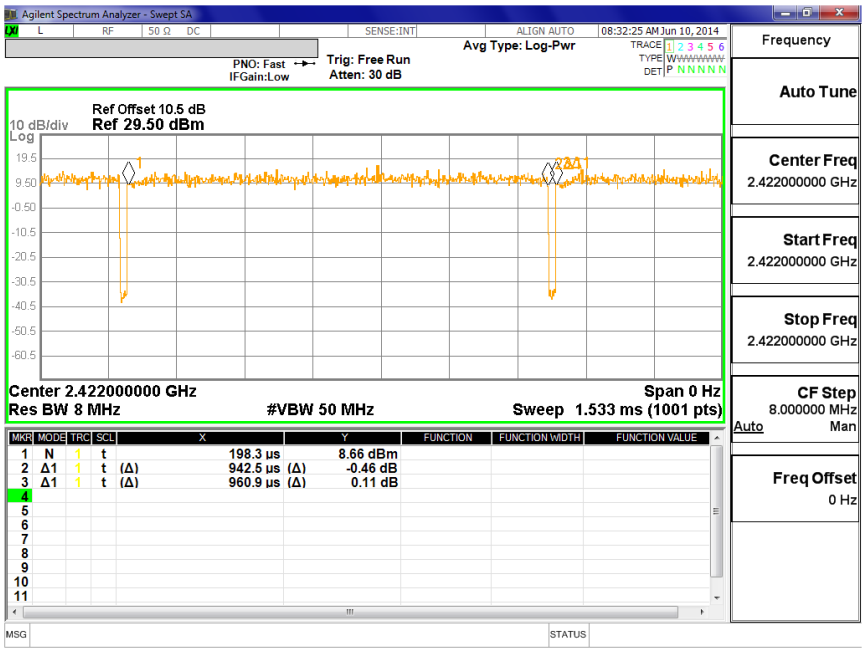
7.3. DUTY CYCLE PLOTS

2.4 GHz BAND

DUTY CYCLE 802.11n HT40 1TX MODE



DUTY CYCLE 802.11n HT40 CDD MODE



8. ANTENNA PORT TEST RESULTS

8.1. 802.11n HT40 1TX MODE IN THE 2.4 GHz BAND

8.1.1. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 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

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2422	3.80	30.00	30	36	30.00
Mid	2437	3.80	30.00	30	36	30.00
High	2452	3.80	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2422		13.70	13.70	30.00	-16.30
Mid	2437		16.10	16.10	30.00	-13.90
High	2452		12.20	12.20	30.00	-17.80

8.2. 802.11n HT40 CDD 2TX MODE IN THE 2.4 GHz BAND

8.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

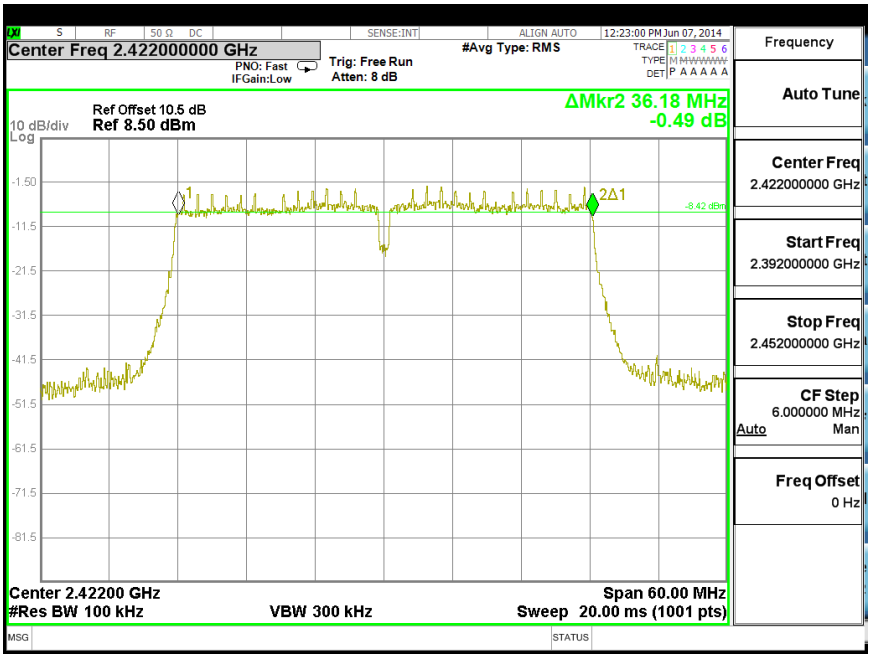
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

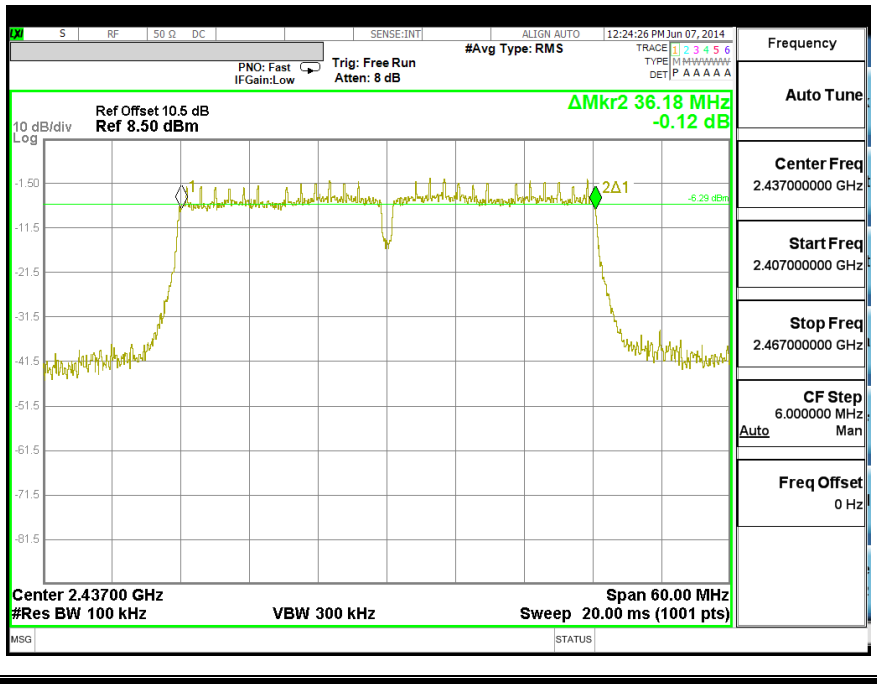
Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	2422	36.180	36.420	0.5
Mid	2437	36.180	36.420	0.5
High	2452	36.180	36.420	0.5

6 dB BANDWIDTH, Chain 0

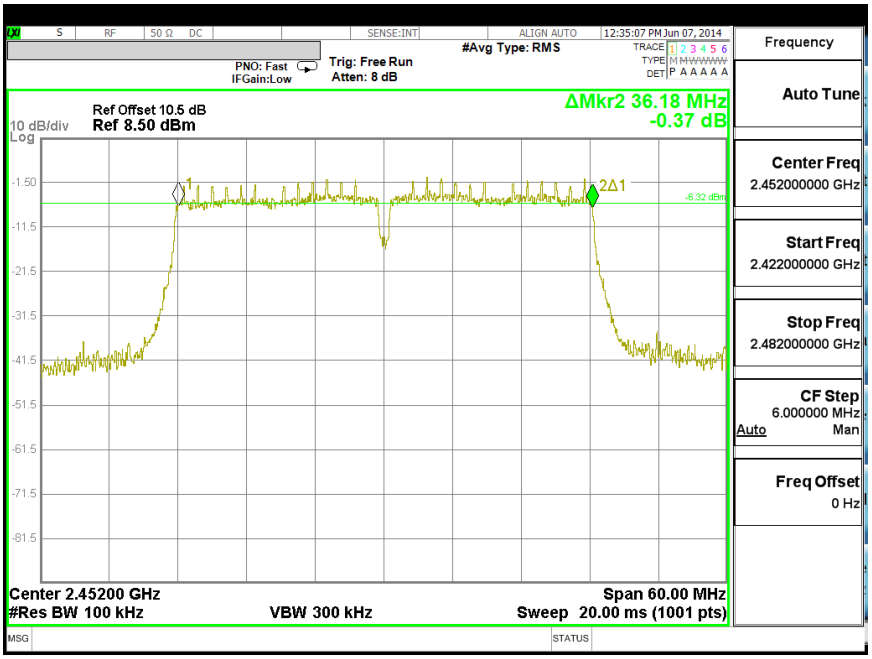
6 dB BANDWIDTH Chain 0 LOW CH



6 dB BANDWIDTH Chain 0 MID CH

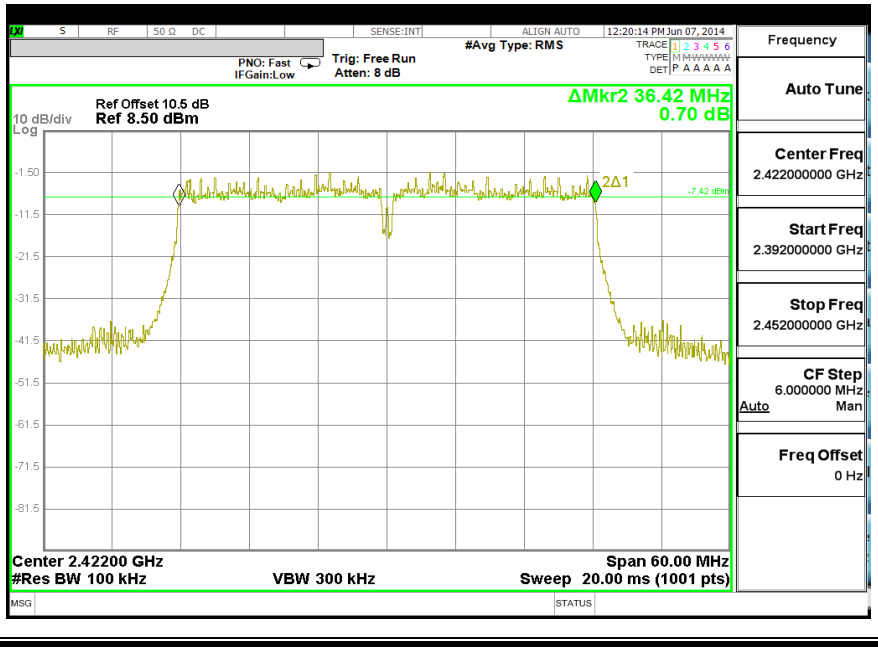


6 dB BANDWIDTH Chain 0 HIGH CH

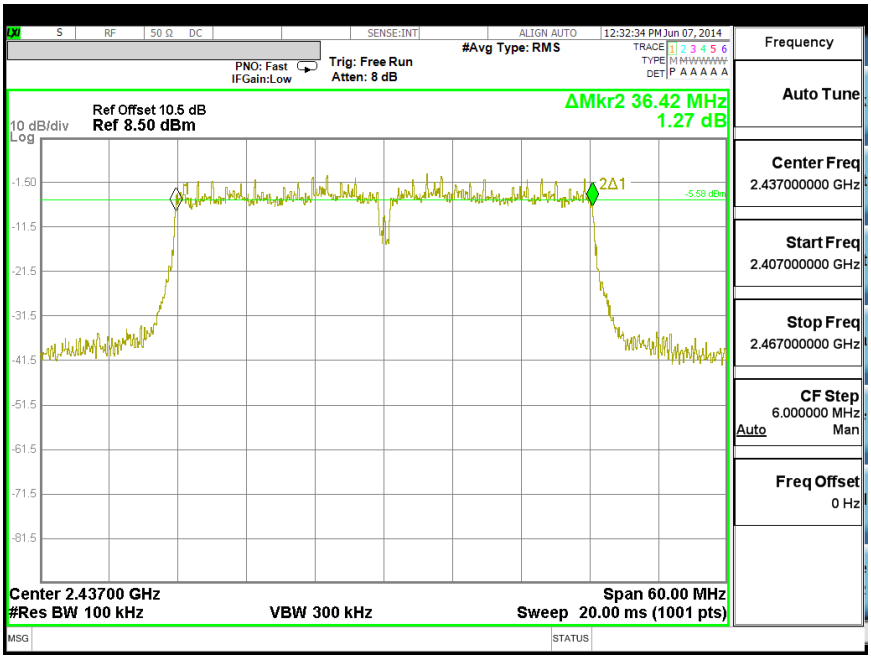


6 dB BANDWIDTH, Chain 1

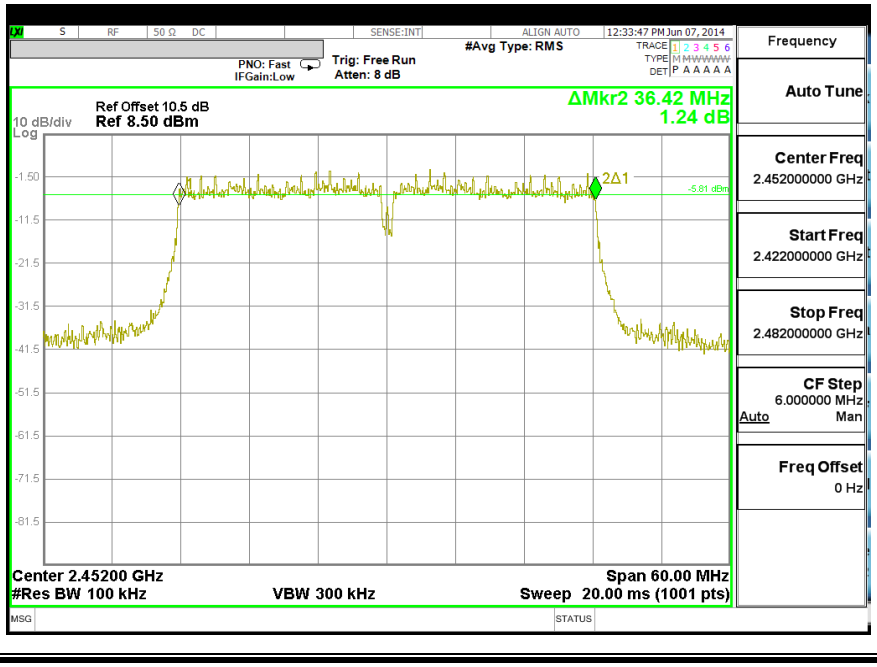
6 dB BANDWIDTH Chain 1 LOW CH



6 dB BANDWIDTH Chain 1 MID CH



6 dB BANDWIDTH Chain 1 HIGH CH



8.2.2. 99% BANDWIDTH

LIMITS

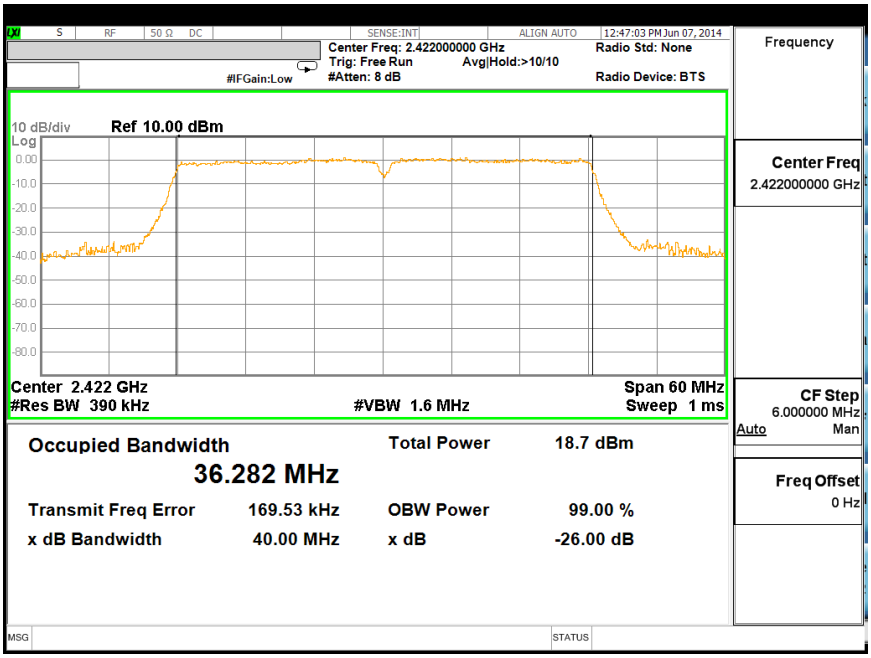
None; for reporting purposes only.

RESULTS

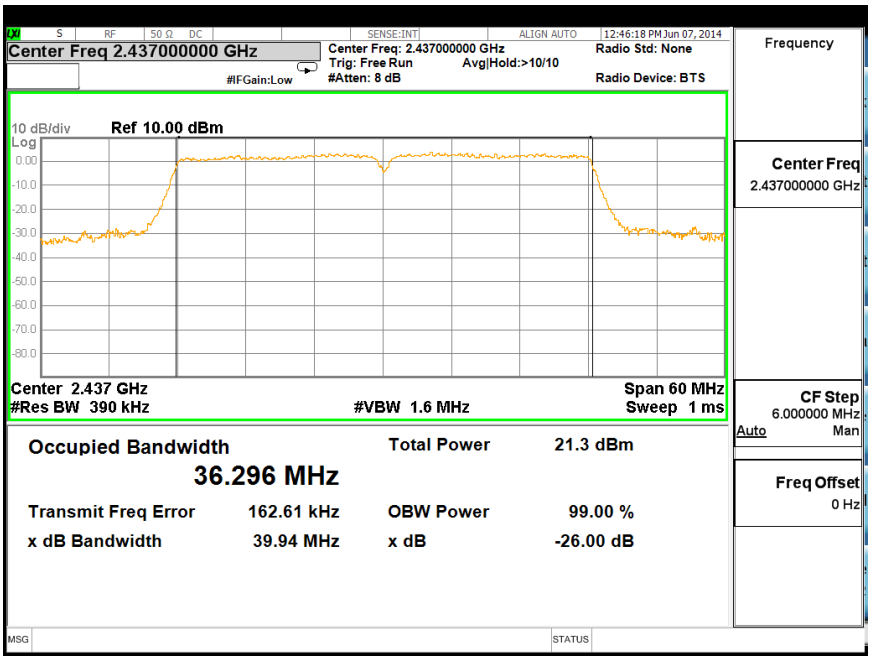
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	2422	36.2820	36.1690
Mid	2437	36.2960	36.2100
High	2452	36.2700	36.1920

99% BANDWIDTH, Chain 0

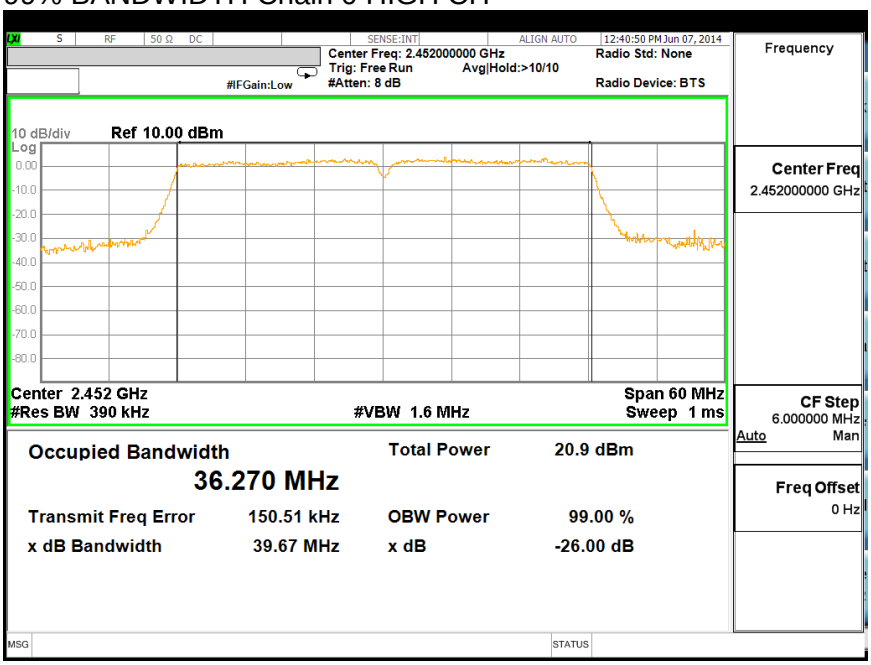
99% BANDWIDTH Chain 0 LOW CH



99% BANDWIDTH Chain 0 MID CH

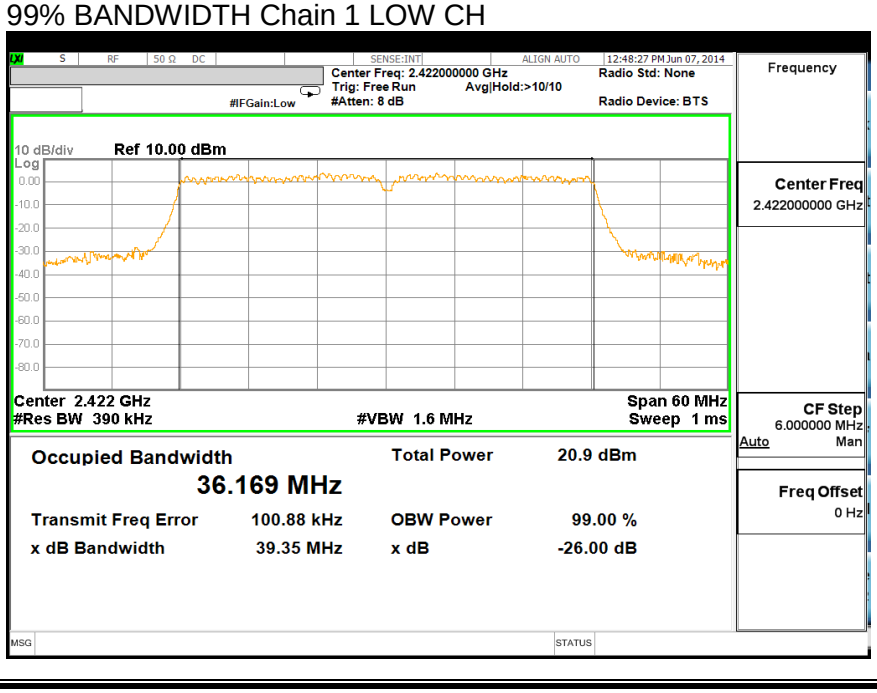


99% BANDWIDTH Chain 0 HIGH CH

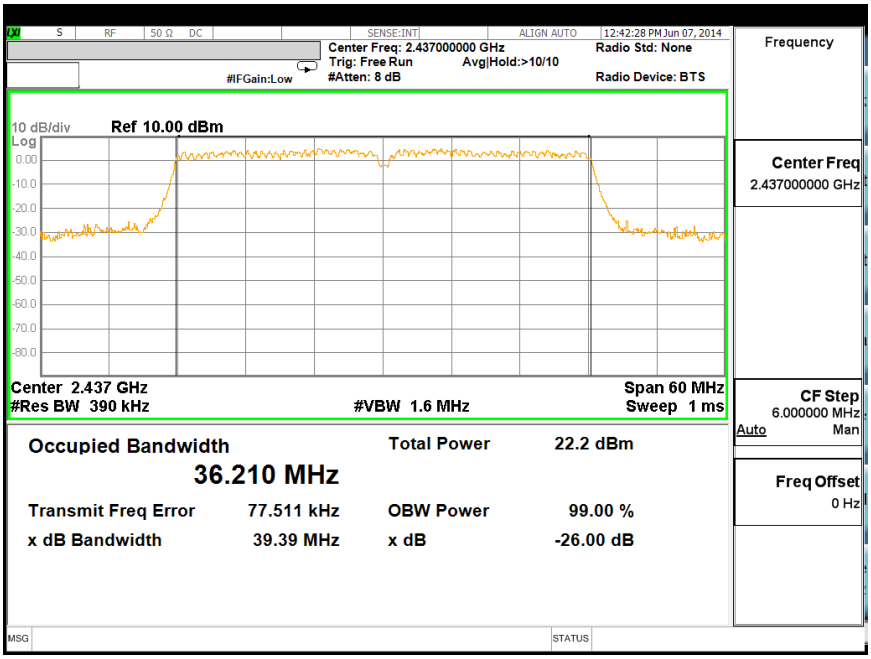


99% BANDWIDTH, Chain 1

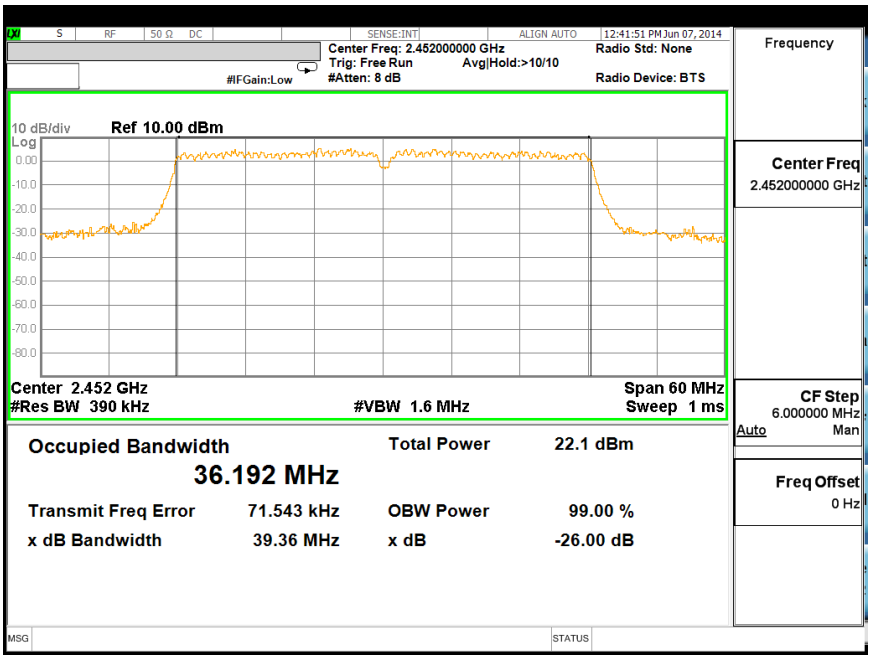
99% BANDWIDTH Chain 1 LOW CH



99% BANDWIDTH Chain 1 MID CH



99% BANDWIDTH Chain 1 HIGH CH



8.2.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 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

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

RESULTS

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2422	3.80	30.00	30	36	30.00
Mid	2437	3.80	30.00	30	36	30.00
High	2452	3.80	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2422	9.70	10.10	12.91	30.00	-17.09
Mid	2437	13.01	13.57	16.31	30.00	-13.69
High	2452	10.80	11.20	14.01	30.00	-15.99

8.2.4. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

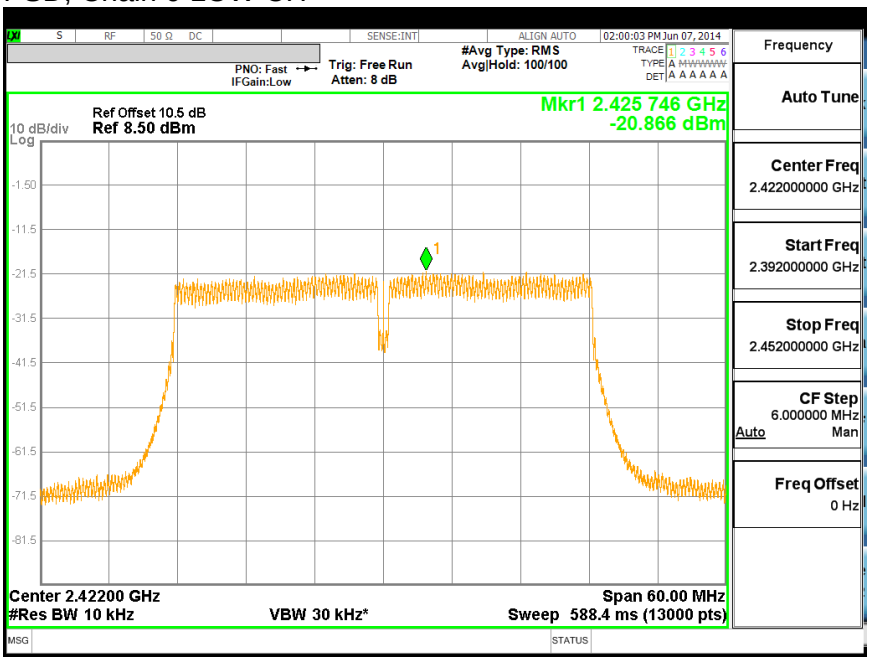
RESULTS

PSD Results

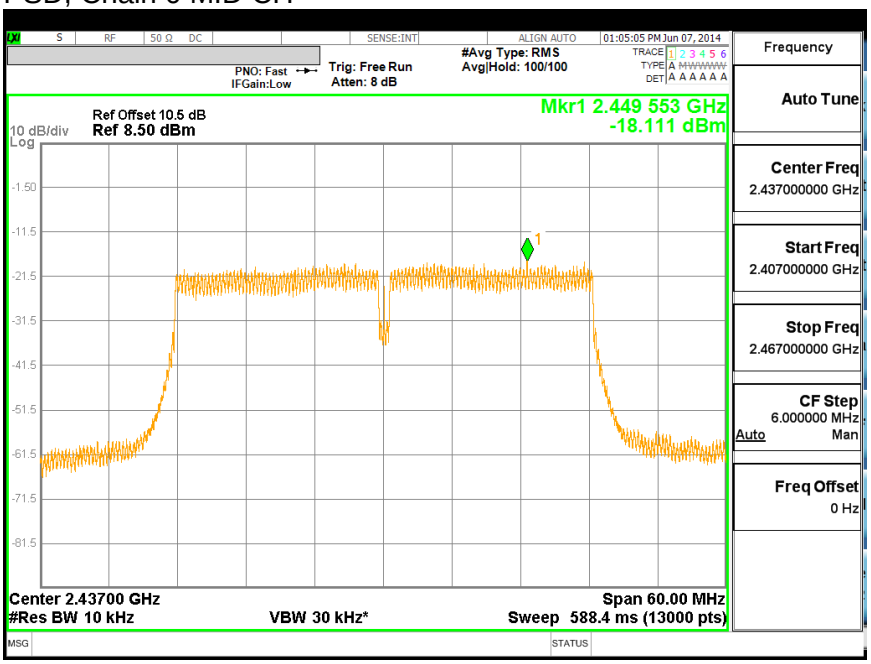
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2422	-20.866	-17.793	-16.05	8.0	-24.1
Mid	2437	-18.111	-13.245	-12.02	8.0	-20.0
High	2452	-19.931	-15.835	-14.41	8.0	-22.4

PSD, Chain 0

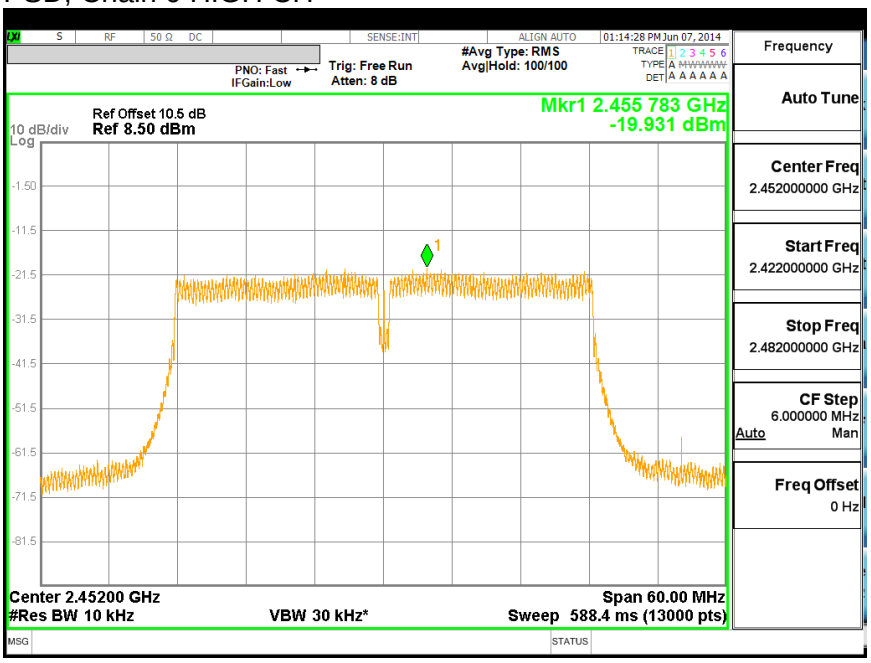
PSD, Chain 0 LOW CH



PSD, Chain 0 MID CH

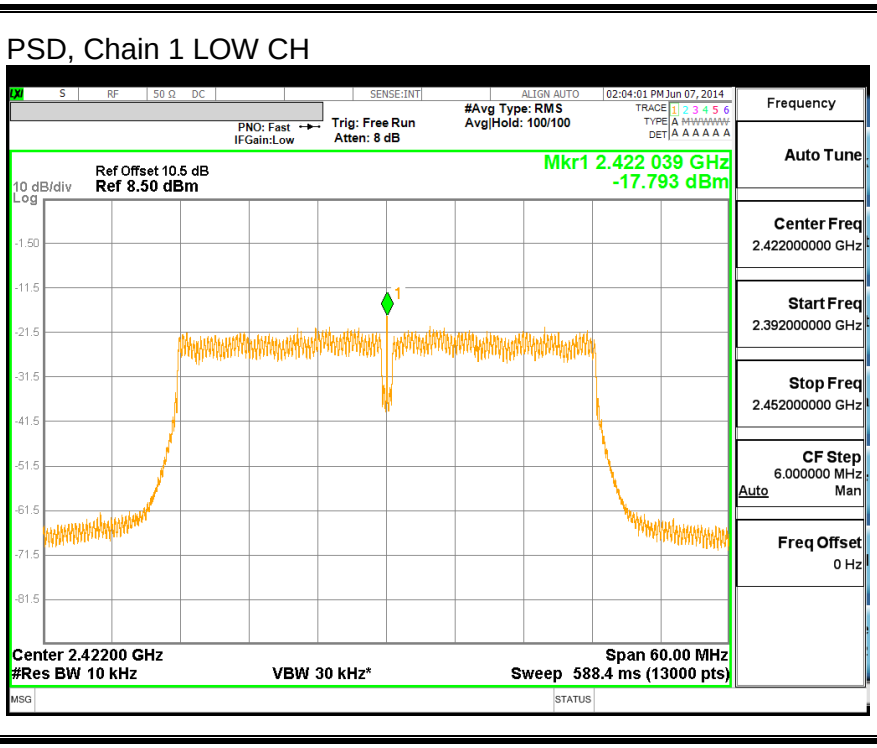


PSD, Chain 0 HIGH CH

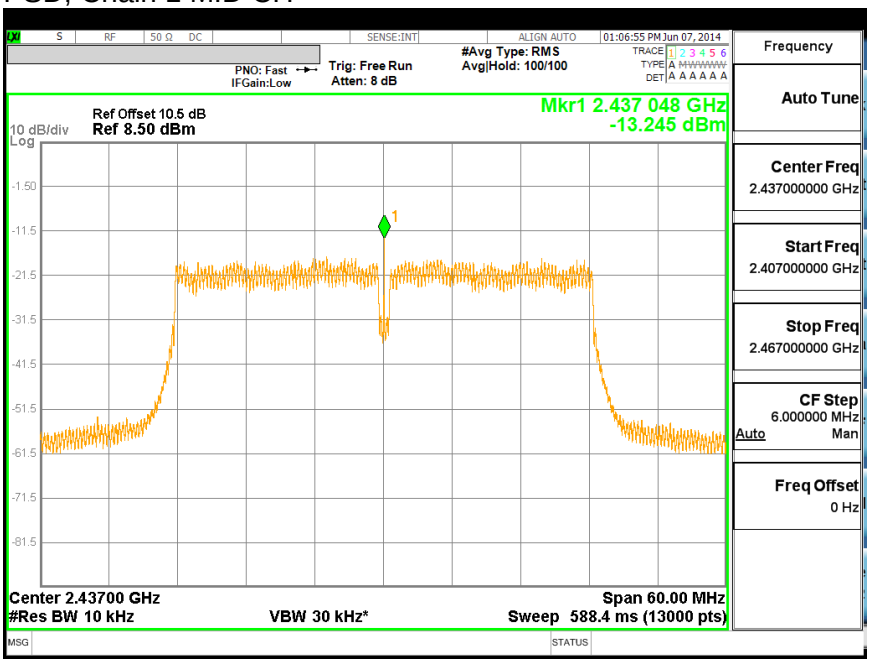


PSD, Chain 1

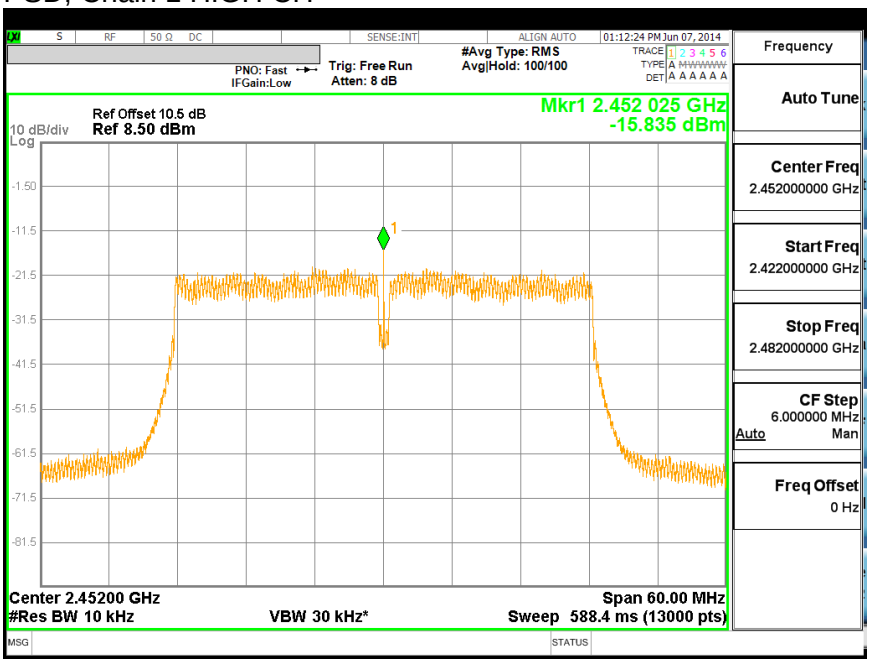
PSD, Chain 1 LOW CH



PSD, Chain 1 MID CH



PSD, Chain 1 HIGH CH



8.2.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

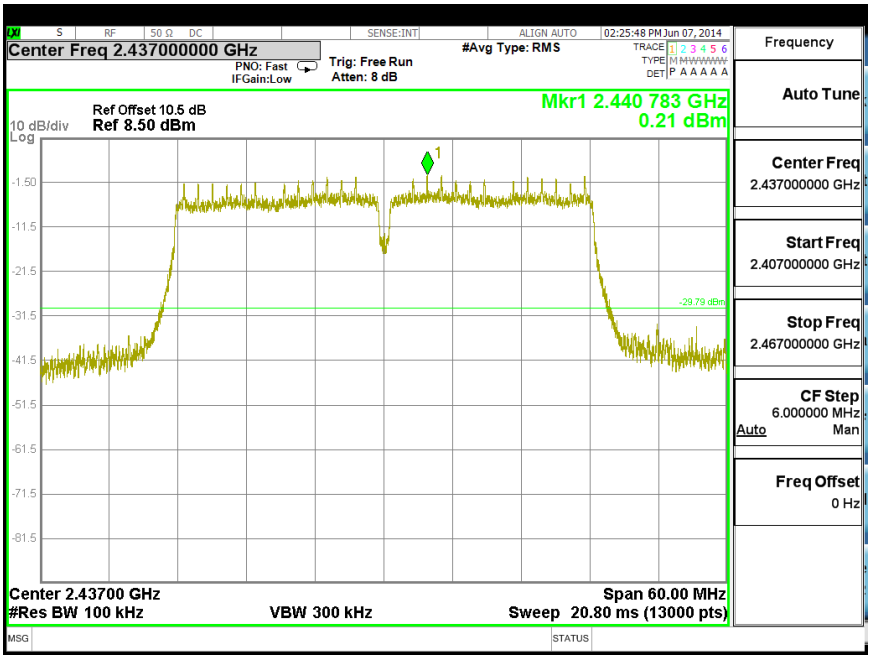
IC RSS-210 A8.5

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

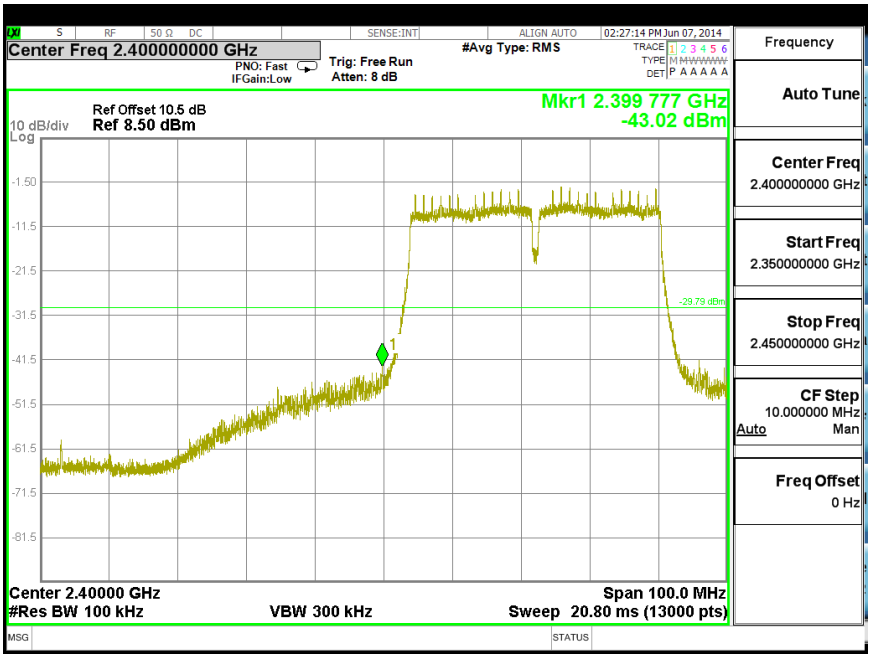
IN-BAND REFERENCE LEVEL, Chain 0

REFERENCE LEVEL Chain 0 MID CH



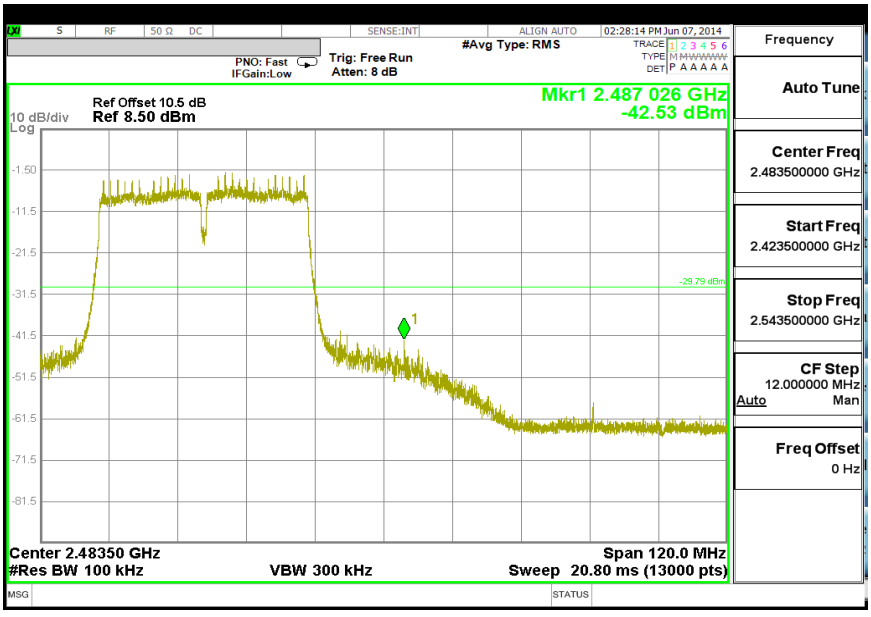
LOW CHANNEL BANDEDGE, Chain 0

AUTHORIZED BAND EDGE Chain 0 LOW CH



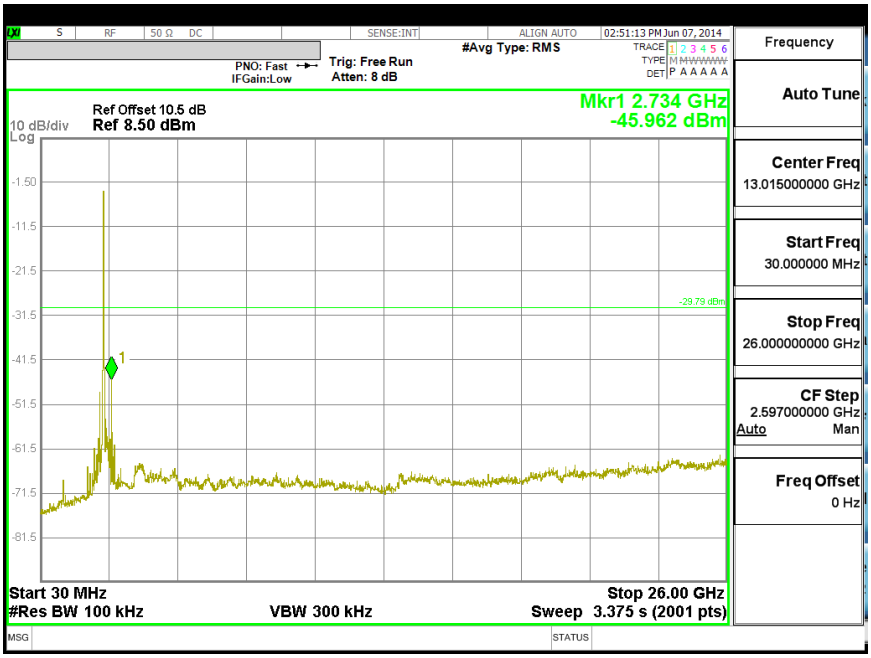
HIGH CHANNEL BANDEDGE, Chain 0

AUTHORIZED BAND EDGE Chain 0 HIGH CH

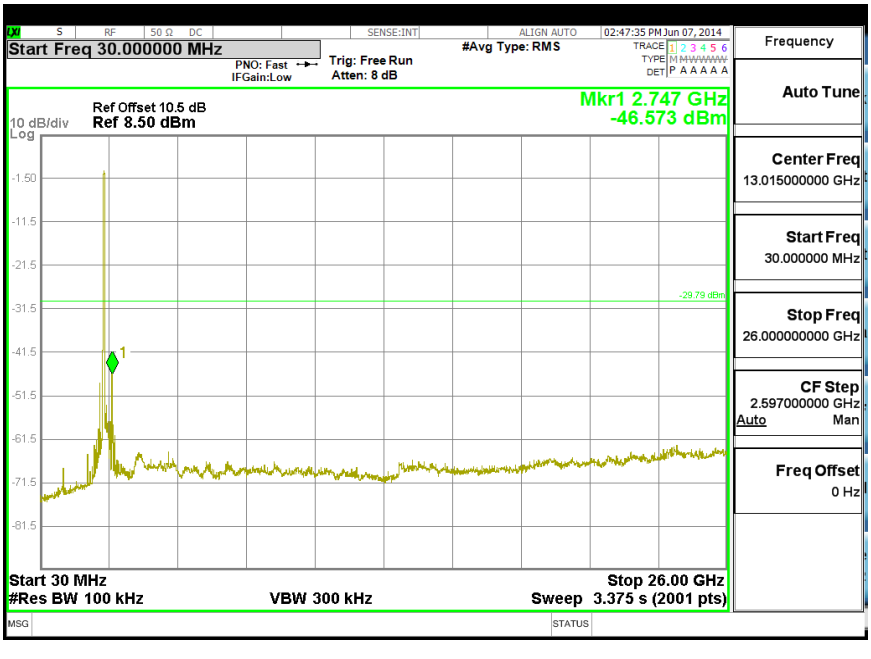


OUT-OF-BAND EMISSIONS, Chain 0

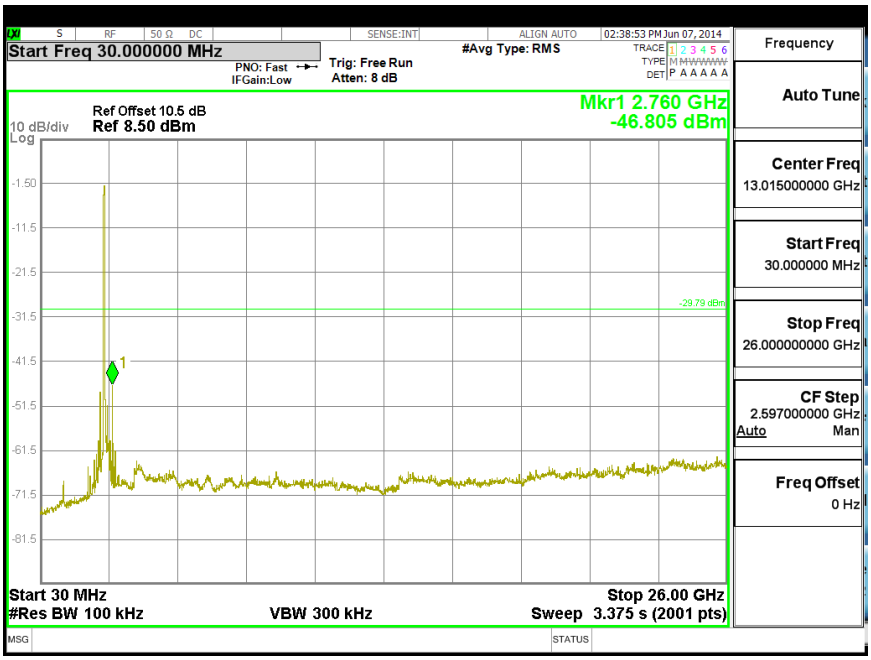
OUT OF BAND Chain 0 LOW CH



OUT OF BAND Chain 0 MID CH

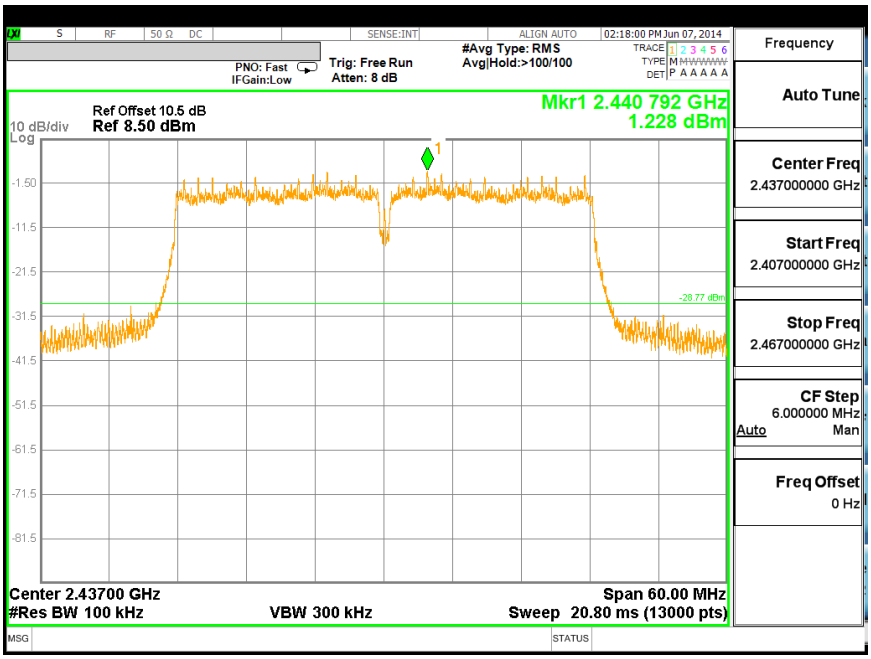


OUT OF BAND Chain 0 HIGH CH



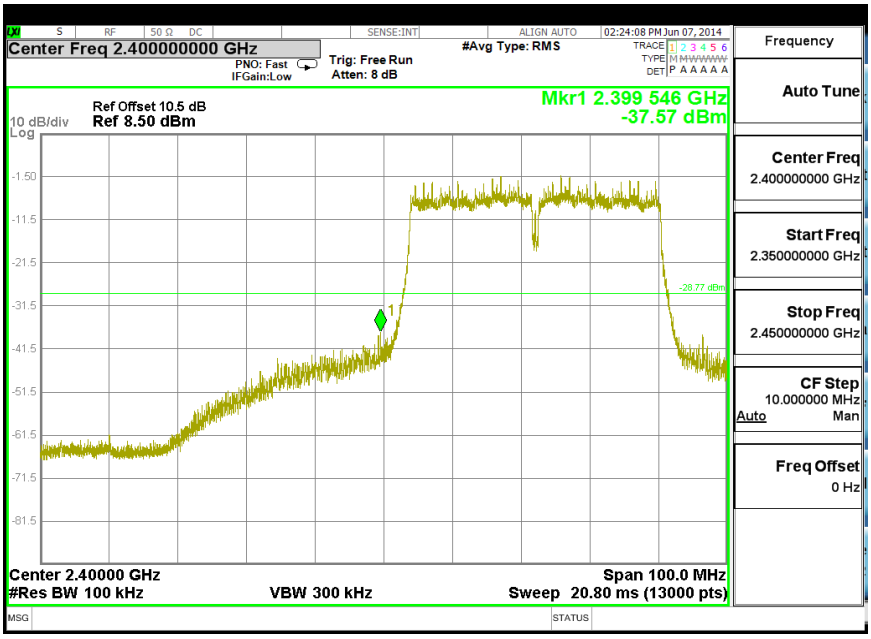
IN-BAND REFERENCE LEVEL, Chain 1

REFERENCE LEVEL Chain 1 MID CH



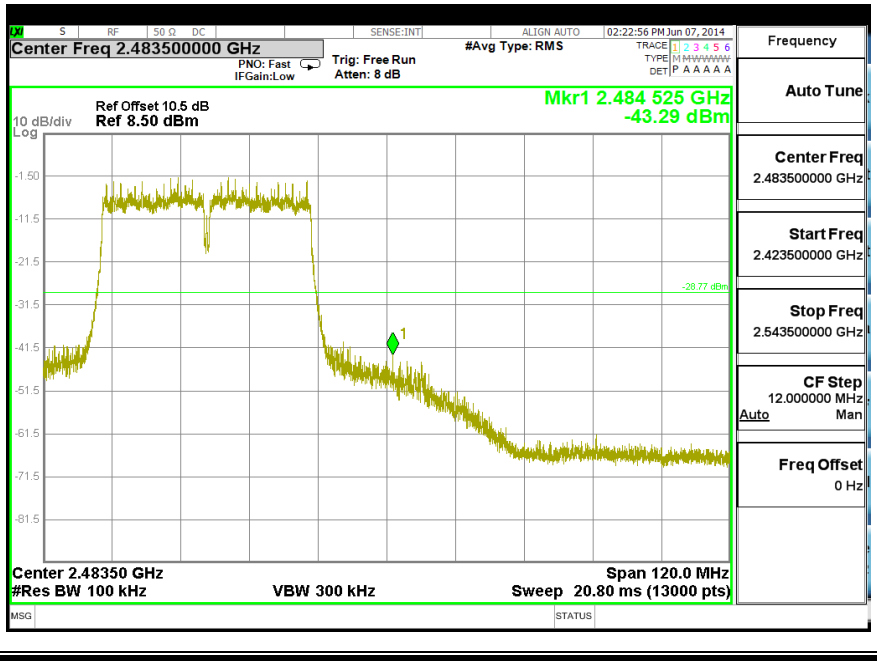
LOW CHANNEL BANDEDGE, Chain 1

AUTHORIZED BAND EDGE Chain 1 LOW CH

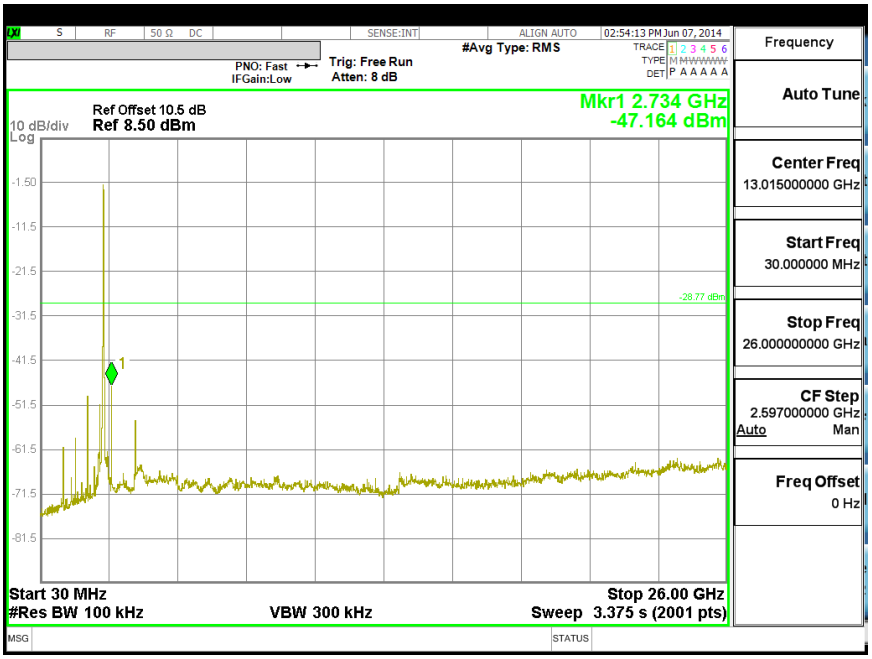


HIGH CHANNEL BANDEDGE, Chain 1

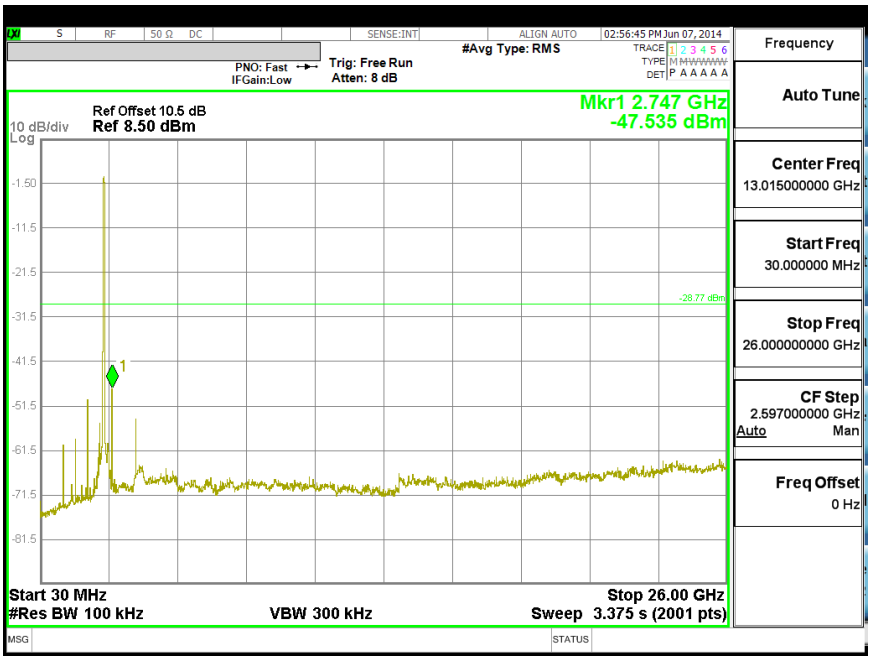
AUTHORIZED BAND EDGE Chain 1 HIGH CH



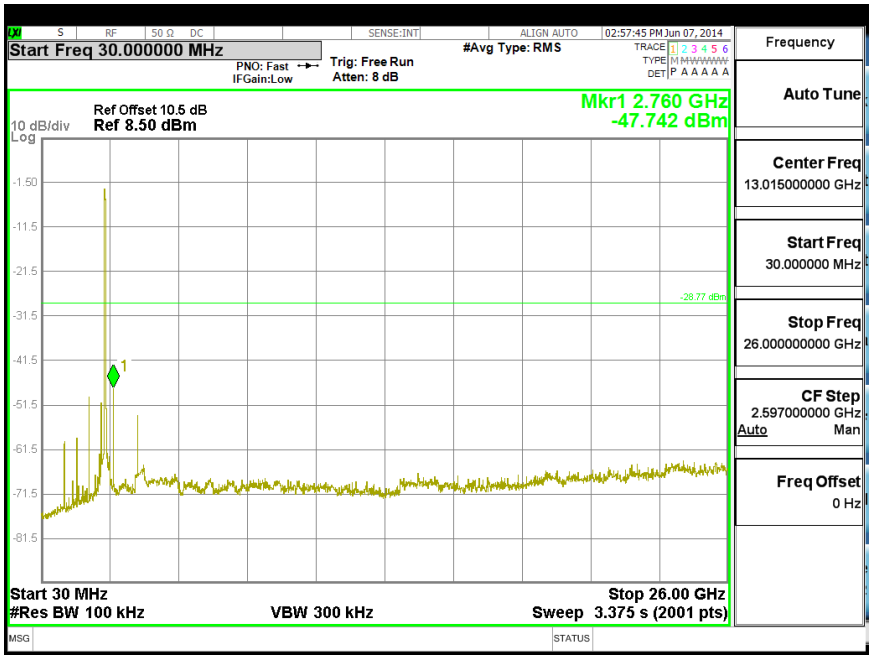
OUT OF BAND Chain 1 LOW CH



OUT OF BAND Chain 1 MID CH



OUT OF BAND Chain 1 HIGH CH



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

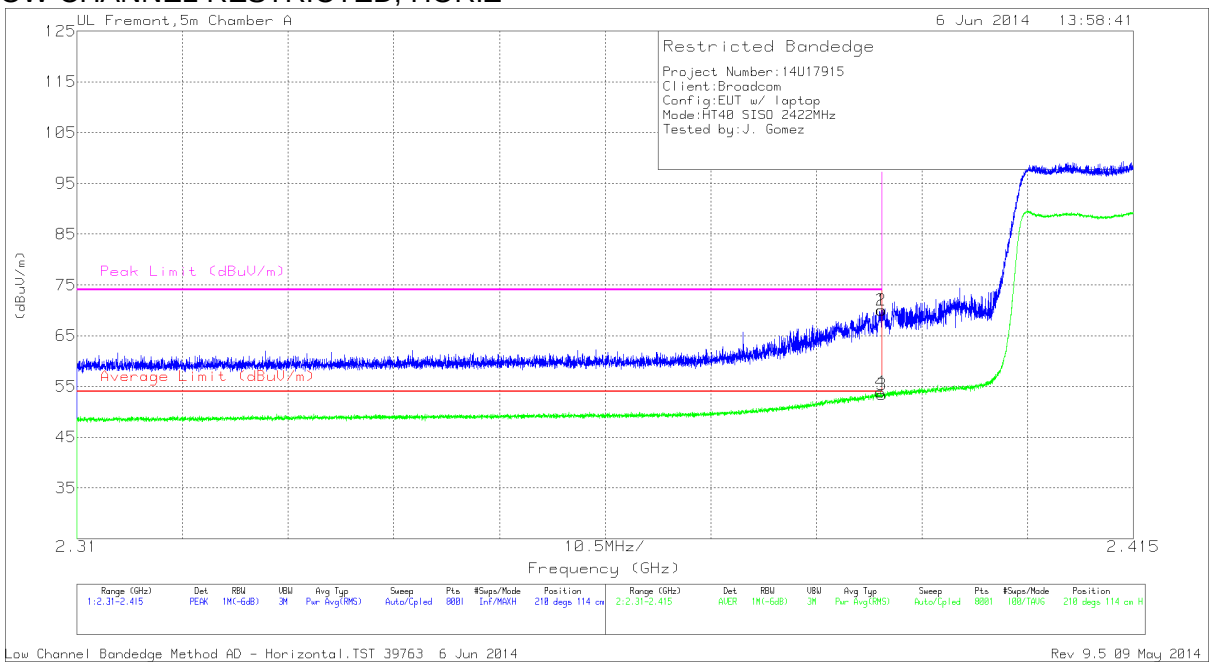
IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

9.2. TX ABOVE 1 GHz 802.11n HT40 1TX MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZ

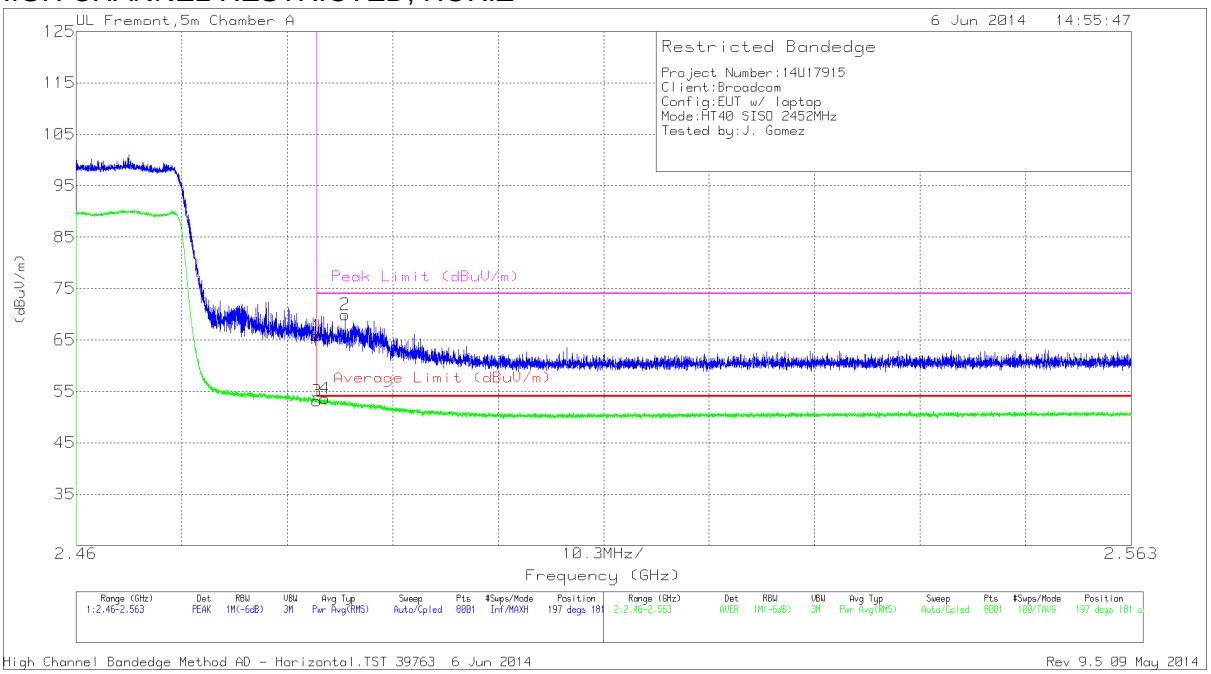


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Bypass (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.39	32.92	PK	32.2	4.9	70.02	-	-	74	-3.98	210	114	H
4	2.39	16.77	RMS	32.2	4.9	53.87	54	-.13	-	-	210	114	H

PK - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, HORIZ



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Bypass (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.484	15.82	RMS	32.7	5.1	53.62	54	-.38	-	-	197	181	H
2	2.486	32	PK	32.8	5.1	69.9	-	-	74	-4.1	197	181	H

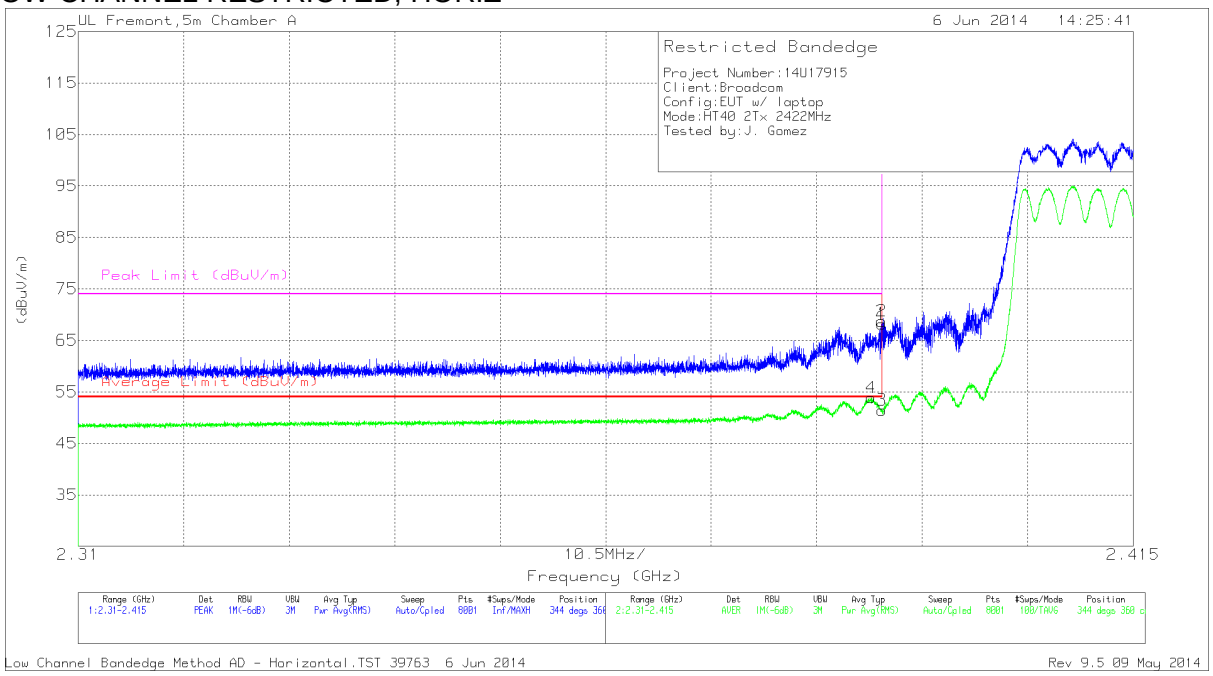
PK - Peak detector

RMS - RMS detection

9.3. TX ABOVE 1 GHz 802.11n HT40 CDD 2TX MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZ

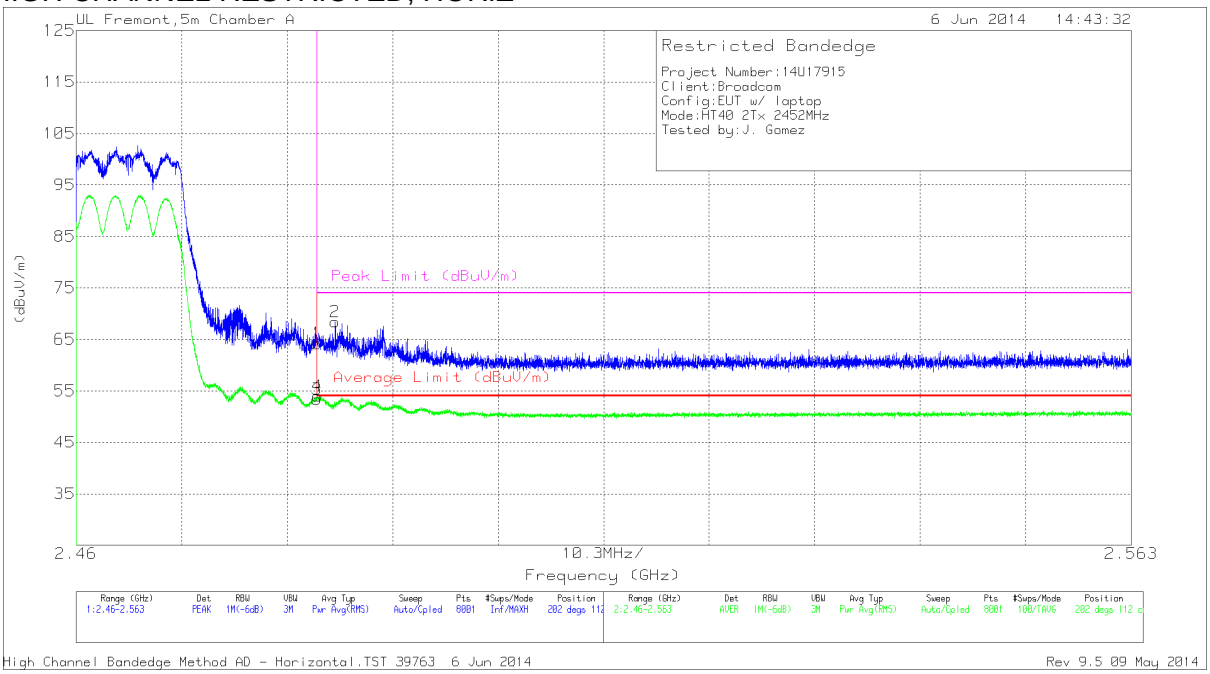


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Bypass (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.389	16.76	RMS	32.2	4.9	53.86	54	-.14	-	-	344	360	H
2	2.39	31.63	PK	32.2	4.9	68.73	-	-	74	-5.27	344	360	H

PK - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, HORIZ



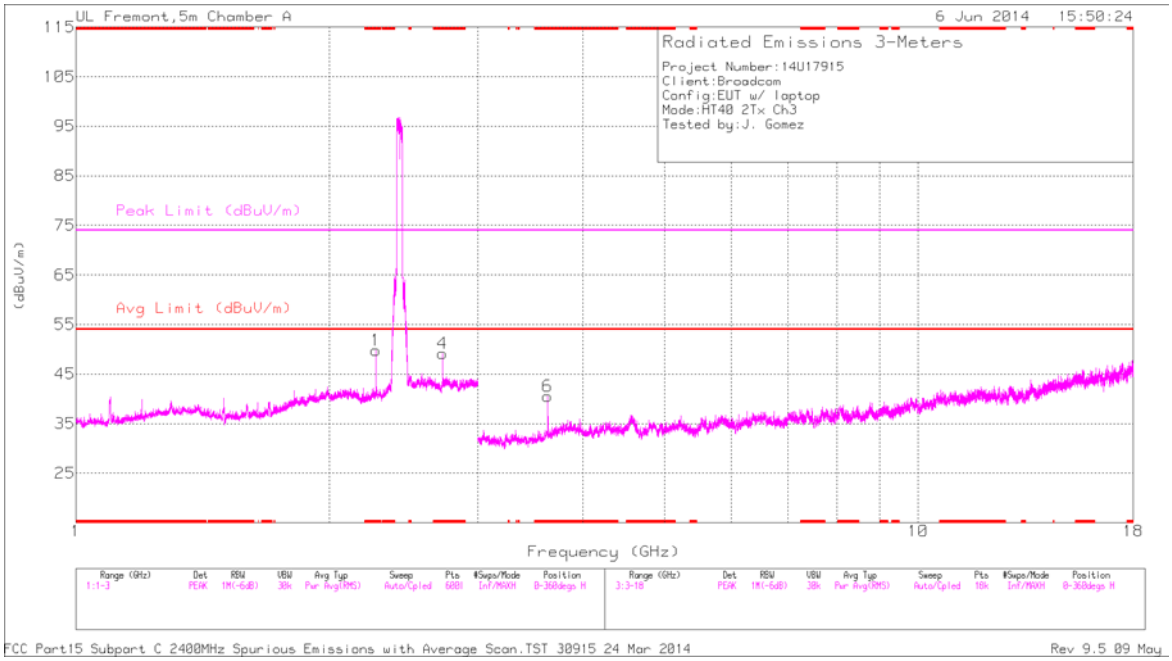
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Bypass (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.484	16.19	RMS	32.7	5.1	0	53.99	54	-.01	-	-	202	112	H
2	2.485	30.61	PK	32.7	5.1	0	68.41	-	-	74	-5.59	202	112	H

PK - Peak detector

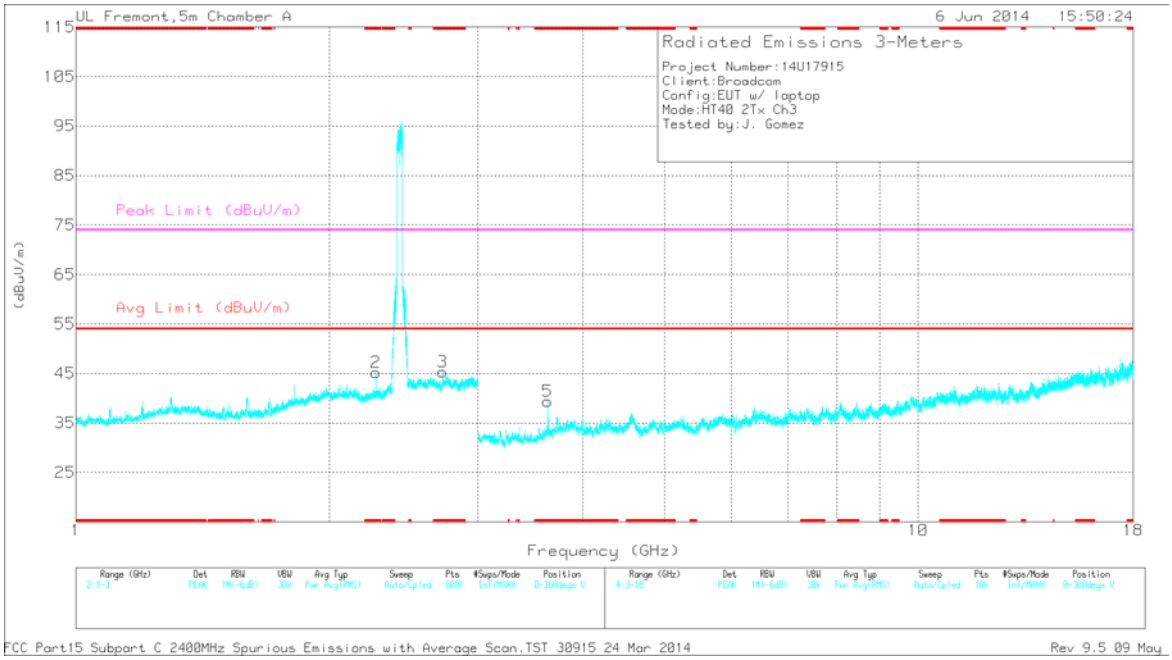
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.271	48.97	PK2	31.4	-24.7	55.67	-	-	74	-18.33	170	320	H
	* 2.271	43.52	MAv1	31.4	-24.7	50.22	54	-3.78	-	-	170	320	H
4	* 2.725	46.45	PK2	32.7	-23.1	56.05	-	-	74	-17.95	38	279	H
	* 2.725	40.23	MAv1	32.7	-23.1	49.83	54	-4.17	-	-	38	279	H
2	* 2.271	46.42	PK2	31.4	-24.7	53.12	-	-	74	-20.88	259	321	V
	* 2.271	38.45	MAv1	31.4	-24.7	45.15	54	-8.85	-	-	259	321	V
3	* 2.725	45.22	PK2	32.7	-23.1	54.82	-	-	74	-19.18	219	389	V
	* 2.725	37.63	MAv1	32.7	-23.1	47.23	54	-6.77	-	-	219	389	V
6	* 3.633	43.45	PK2	33.3	-30.8	45.95	-	-	74	-28.05	15	103	H
	* 3.633	37.7	MAv1	33.3	-30.8	40.2	54	-13.8	-	-	15	103	H
5	* 3.633	43.5	PK2	33.3	-30.8	46	-	-	74	-28	93	368	V
	* 3.633	37.6	MAv1	33.3	-30.8	40.1	54	-13.9	-	-	93	368	V

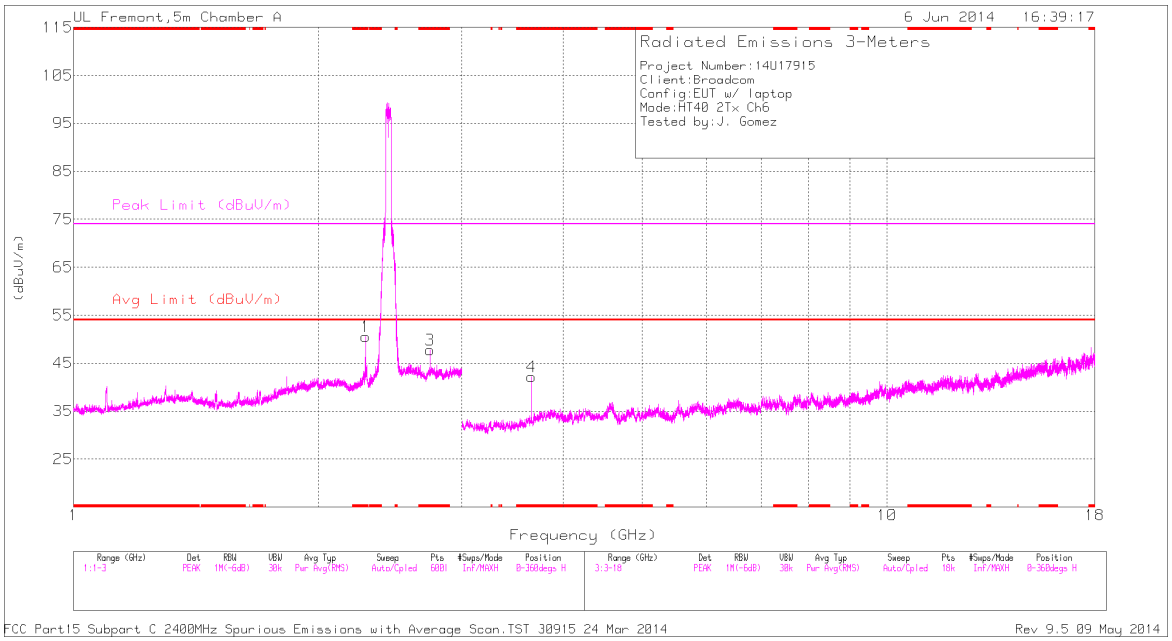
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

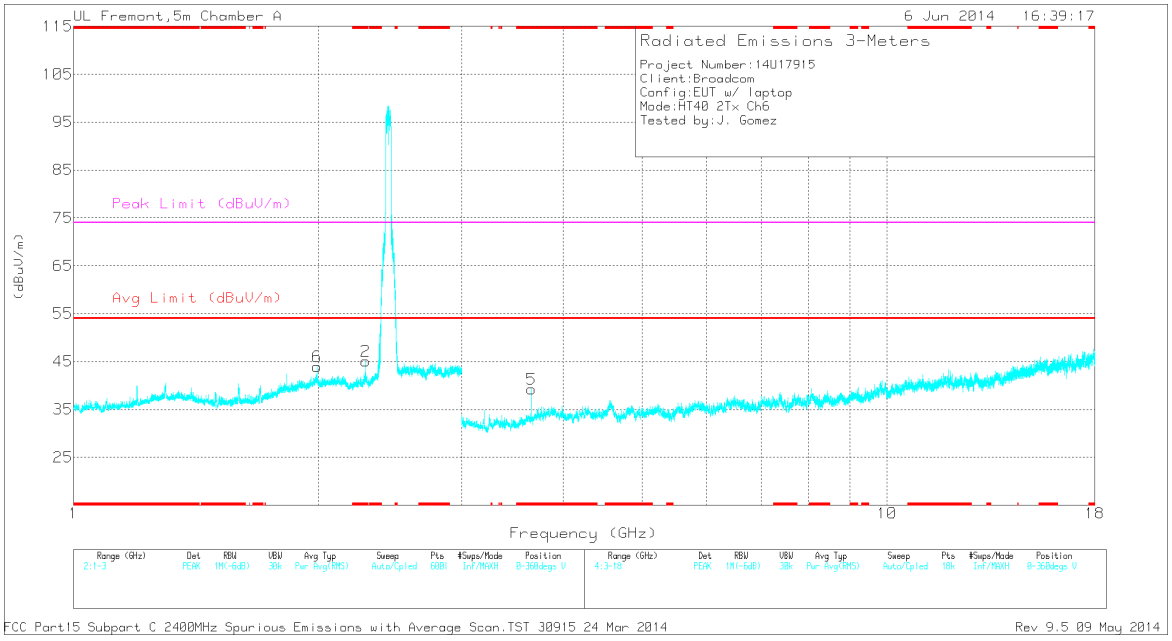
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.285	50.38	PK2	31.4	-24.5	57.28	-	-	74	-16.72	170	253	H
	* 2.285	44.3	MAv1	31.4	-24.5	51.2	54	-2.8	-	-	170	253	H
3	* 2.742	46.09	PK2	32.7	-23	55.79	-	-	74	-18.21	39	326	H
	* 2.742	39.74	MAv1	32.7	-23	49.44	54	-4.56	-	-	39	326	H
2	* 2.285	46.23	PK2	31.4	-24.5	53.13	-	-	74	-20.87	245	309	V
	* 2.285	37.21	MAv1	31.4	-24.5	44.11	54	-9.89	-	-	245	309	V
4	* 3.655	44.63	PK2	33.3	-30.9	47.03	-	-	74	-26.97	17	100	H
	* 3.656	39.17	MAv1	33.3	-30.9	41.57	54	-12.43	-	-	17	100	H
5	* 3.656	44.02	PK2	33.3	-30.9	46.42	-	-	74	-27.58	105	195	V
	* 3.656	36.96	MAv1	33.3	-30.9	39.36	54	-14.64	-	-	105	195	V
6	1.991	36.5	PK	32	-24.5	44	-	-	-	-	0-360	200	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

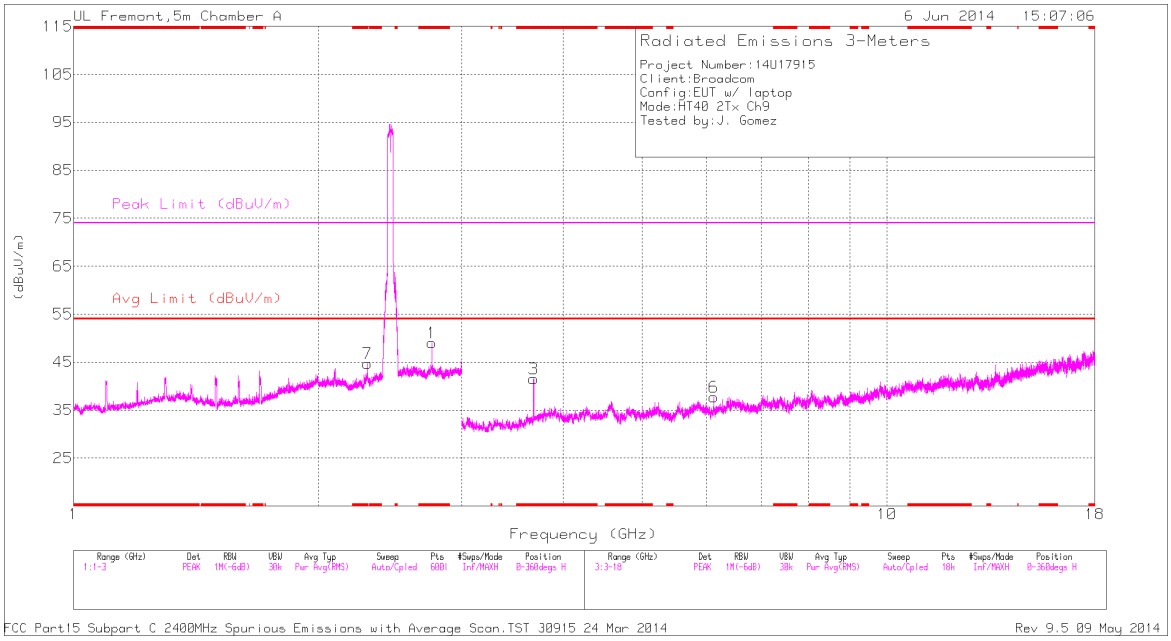
- Compliance for emissions in non-restricted bands is shown in Conducted Out Of Band testing

PK2 - KDB558074 Method: Maximum Peak

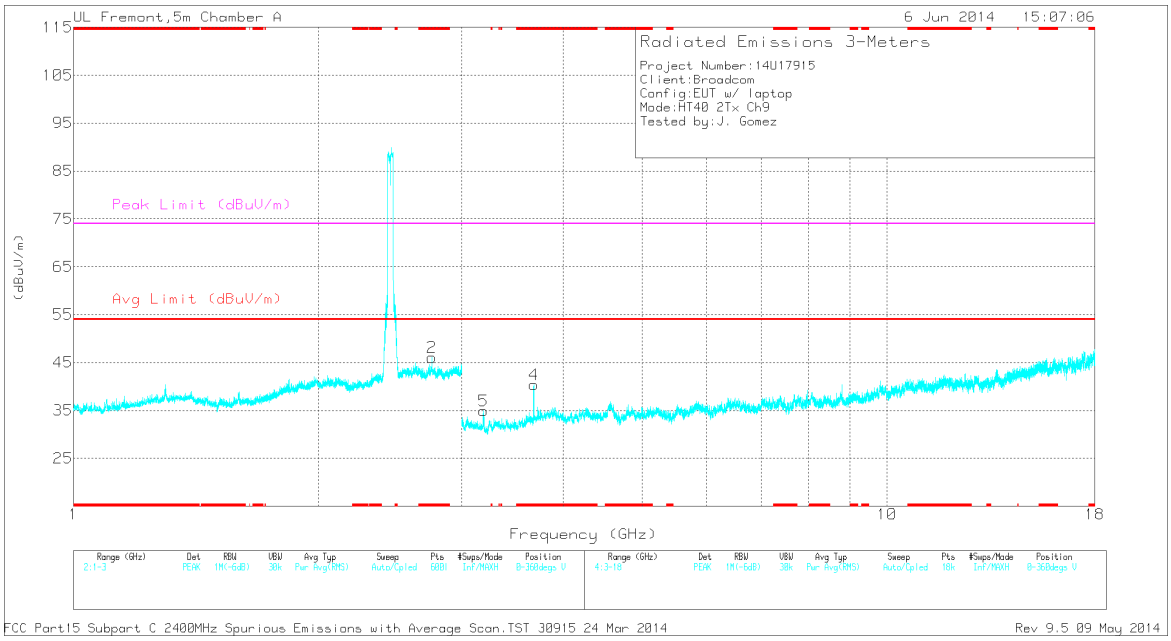
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.759	45.77	PK2	32.7	-22.5	55.97	-	-	74	-18.03	6	382	H
	* 2.758	39.71	MAv1	32.7	-22.4	50.01	54	-3.99	-	-	6	382	H
7	* 2.299	46.06	PK2	31.5	-24.5	53.06	-	-	74	-20.94	206	160	H
	* 2.299	36.29	MAv1	31.5	-24.5	43.29	54	-10.71	-	-	206	160	H
2	* 2.759	43.7	PK2	32.7	-22.4	54	-	-	74	-20	117	374	V
	* 2.758	35.11	MAv1	32.7	-22.4	45.41	54	-8.59	-	-	117	374	V
3	* 3.678	44.94	PK2	33.3	-31.3	46.94	-	-	74	-27.06	13	119	H
	* 3.678	39.49	MAv1	33.3	-31.3	41.49	54	-12.51	-	-	13	119	H
4	* 3.678	45.02	PK2	33.3	-31.4	46.92	-	-	74	-27.08	93	192	V
	* 3.678	39.44	MAv1	33.3	-31.3	41.44	54	-12.56	-	-	93	192	V
5	3.189	33.83	PK	32.6	-31.5	34.93	-	-	-	-	0-360	100	V
6	6.123	31.04	PK	35.4	-28.7	37.74	-	-	-	-	0-360	100	H

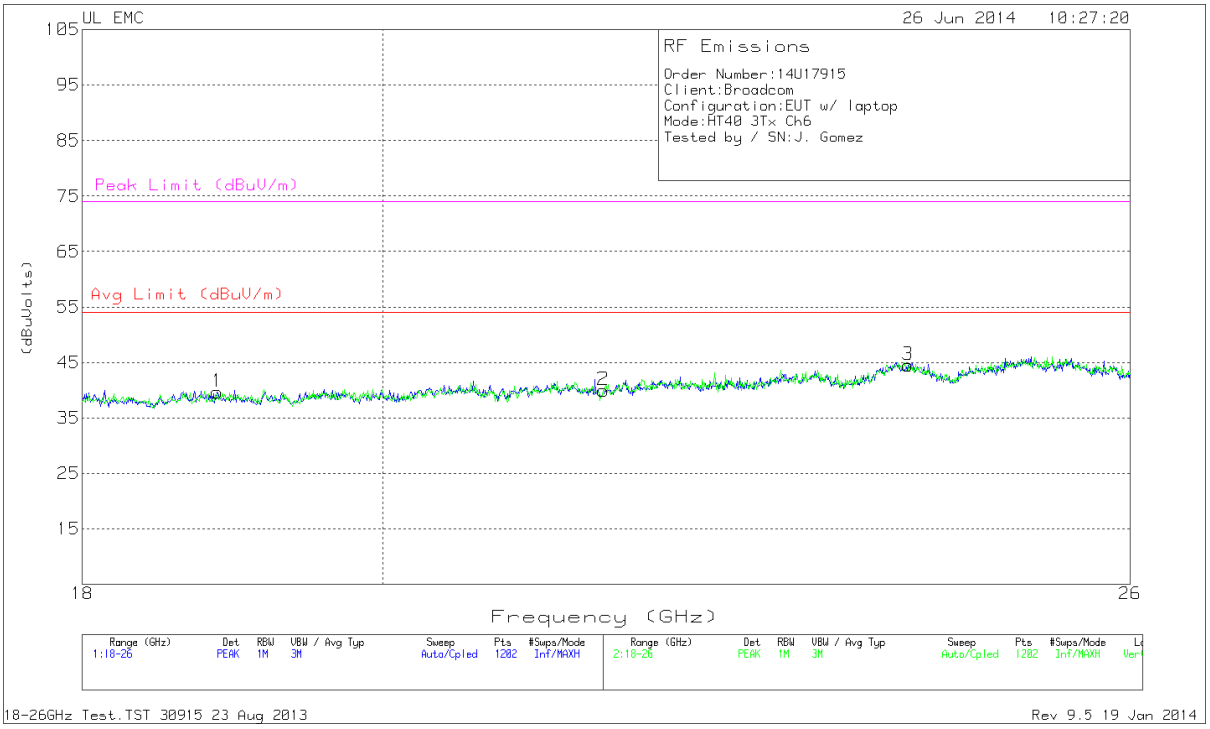
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

- Compliance for emissions in non-restricted bands is shown in Conducted Out Of Band testing

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (18 – 26 GHz)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T89 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.873	41.17	PK	32.5	-24.5	-9.5	39.6	54	-14.4	74	-34.4
2	21.61	40.3	PK	33.1	-23.9	-9.5	40	54	-14	74	-34
3	24.048	43.2	PK	33.6	-22.8	-9.5	44.5	54	-9.5	74	-29.5

PK - Peak detector

18-26GHz Test.TST 30915 23 Aug 2013 Rev 9.5 19 Jan 2014