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

CERTIFICATION TEST REPORT

FOR

REPEATER

MODEL NUMBER: RE-201

FCC ID: 2AB8I-RE-40-214
IC ID: 20949-RE40214

REPORT NUMBER: 15U22186-E1V3

ISSUE DATE: FEBRUARY 11, 2016

Prepared for
NEXT CENTURY SUBMETERING SYSTEMS, LLC
P.O. BOX 360
TYBEE ISLAND, GA 31328 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	1/11/16	Initial Issue	H. Mustapha
V2	2/5/16	Updated IC reference to RSS-247 Issue 1 Updated section 5.2 to indicate low frequency at 910.2 MH Updated sections 9.1 and 10 with test procedure Updated average power measurements in section 8.7 Updated Section 5.6	H. Mustapha
V3	2/11/16	Updated calibration date for Micro-Tronics HPM50114 filter Updated section 9 by removing reference to KDB 558074 from results table for average measurements	H. Mustapha

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: NEXT CENTURY SUBMETERING SYSTEMS, LLC
P.O. BOX 360
TYBEE ISLAND, GA 31328, U.S.A.

EUT DESCRIPTION: REPEATER

MODEL: RE-201

SERIAL NUMBER: CA0000C3 (Radiated sample)
CA0000CA (Conducted sample)

DATE TESTED: NOVEMBER 10 to 12, 2015
FEBRUARY 5, 2016

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 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.

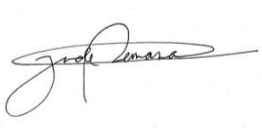
Approved & Released For
UL Verification Services Inc. By:

Huda Mustapha

HUDA MUSTAPHA
PROJECT LEAD
UL Verification Services Inc.

FRANK IBRAHIM
PROGRAM MANAGER
UL Verification Services Inc.

Tested By:



JUDE SEMANA
Lab EMC 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, DA 00-75, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 1.

3. FACILITIES AND ACCREDITATION

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

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, 0.15 to 30 MHz	± 3.52 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.94 dB
Radiated Disturbance, 1 to 6 GHz	± 3.86 dB
Radiated Disturbance, 6 to 18 GHz	± 4.23 dB
Radiated Disturbance, 18 to 26 GHz	± 5.30 dB
Radiated Disturbance, 26 to 40 GHz	± 5.23 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Repeater, submetering RF device designed to collect data from customer's devices and send them to their cloud servers.

The repeater is a frequency hopping system operating in the 902-928 MHz band and operated by 12v transformer.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
910.2-920	2GFSK	29.10	812.83

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PCB antenna, with a maximum gain of 1.25 dBi.

5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was PuTTY, rev. 0.63.0.0.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1 GHz 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 and Z). It was determined that X orientation was worst case. All final measurements were taken in X orientation.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	T420	4236B92	N/A
AC/DC Adapter	Lenovo	45N0121	11S45N0121Z1ZHXU242DMN	N/A
Remote Controller	Next Century	TR-201	BA000F35	N/A
AC/DC Adapter	Next Century	HK-DA-120A100-US	N/A	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	1	US115V	Unshielded	1	
2	DC	2	VDC	Unshielded	1.5	
3	USB	1	USB	Unshielded	1	

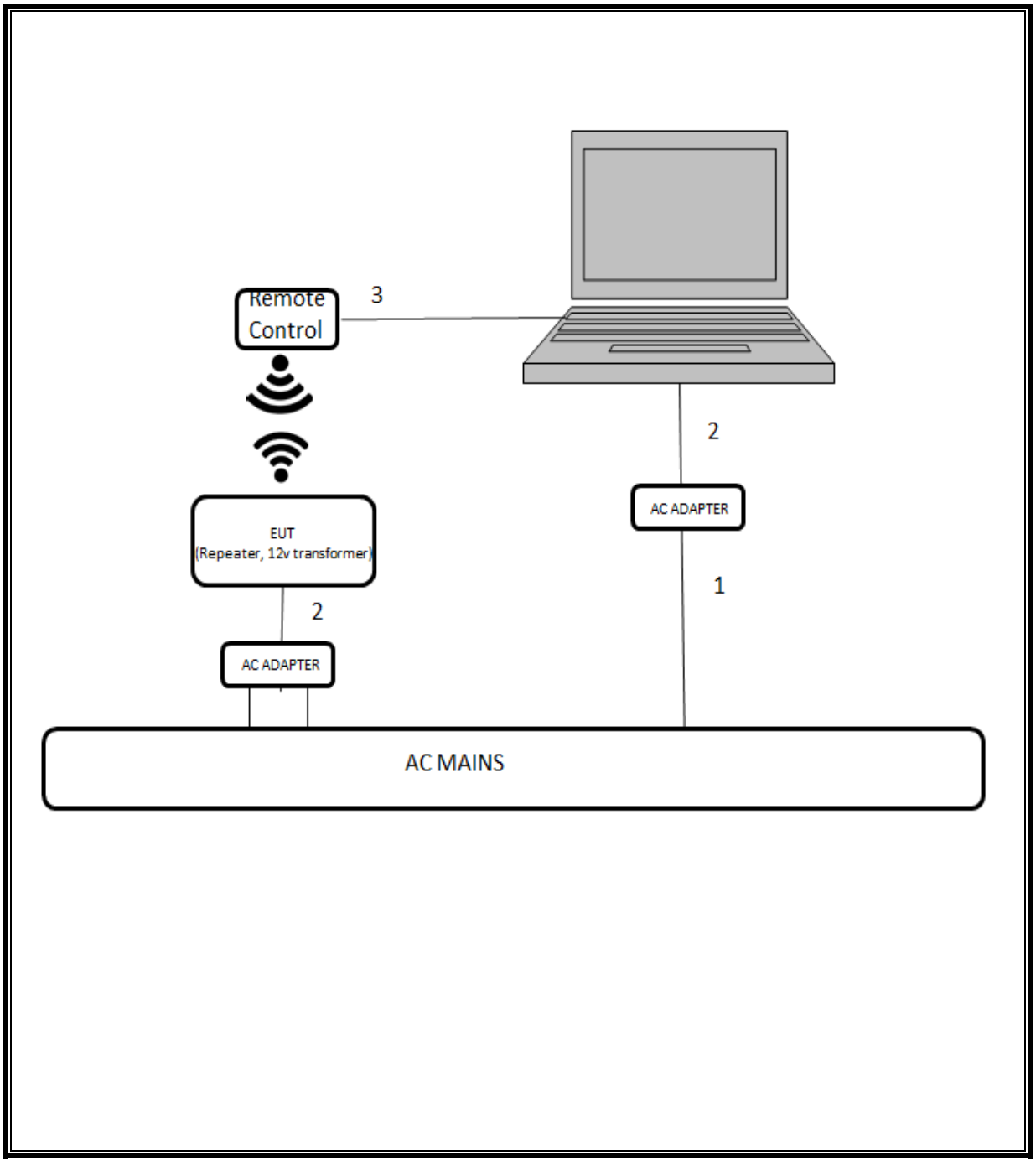
TEST SETUP

The EUT was connected to a host laptop computer through USB Remote Controller wirelessly during the tests (See setup diagram).

The USB Remote Controller was used to remotely set testing into different test modes. It was used to change the testing devices: Frequency (Channel), Tx Power Levels, Active antenna, FEMs and Modulation.

The PuTTY 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 Due**
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	02/13/16
Antenna, Horn, 18GHz	ETS-Lindgren	3117	C01006	01/15/16
RF Preamplifier, 100KHz -> 1300MHz	HP	8447D	T10	01/06/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/16
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
Spectrum Analyzer 3kHz - 44GHz	Agilent	N9030A	907	01/16/16
EMI Test Receiver	Rohde & Schwarz	ECSI 7	212	08/07/16
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/16
Power Meter	Agilent	N1911A	1268	06/06/16
Power Sensor	Agilent	N1921A	1223	06/16/16
Filter, Highpass 1.5GHz	Micro-Tronics	HPM50114	T0	11/17/15
Radiated Software	UL	UL EMC	Ver 9.5, July 24, 2015	
Conducted Software	UL	UL EMC	Ver 9.5, June 26, 2015	
Antenna Port Software	UL	UL RF	Ver 3.6, October 26, 2015	

7. MEASUREMENT METHODS

AC Power-line conducted emissions: ANSI C63.10-2013, Section 6.2.

Radiated emissions: ANSI C63.10-2013, Sections 6.5 and 6.6.

Conducted spurious emissions: ANSI C63.10-2013, Sections 7.8.8.

Occupied bandwidth (20 dB): ANSI C63.10-2013, Sections 6.9.2.

Occupied bandwidth (99% dB): ANSI C63.10-2013, Sections 6.9.3.

Band-edge measurements for RF conducted emissions: ANSI C63.10-2013, Sections 7.8.6.

Carrier frequency separation: ANSI C63.10-2013, Sections 7.8.2.

Number of hopping frequencies: ANSI C63.10-2013, Sections 7.8.3.

Average time of occupancy (dwell time): ANSI C63.10-2013, Sections 7.8.4.

Peak output power: ANSI C63.10-2013, Sections 7.8.5.

On time and duty cycle: ANSI C63.10-2013, Section 11.6.

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

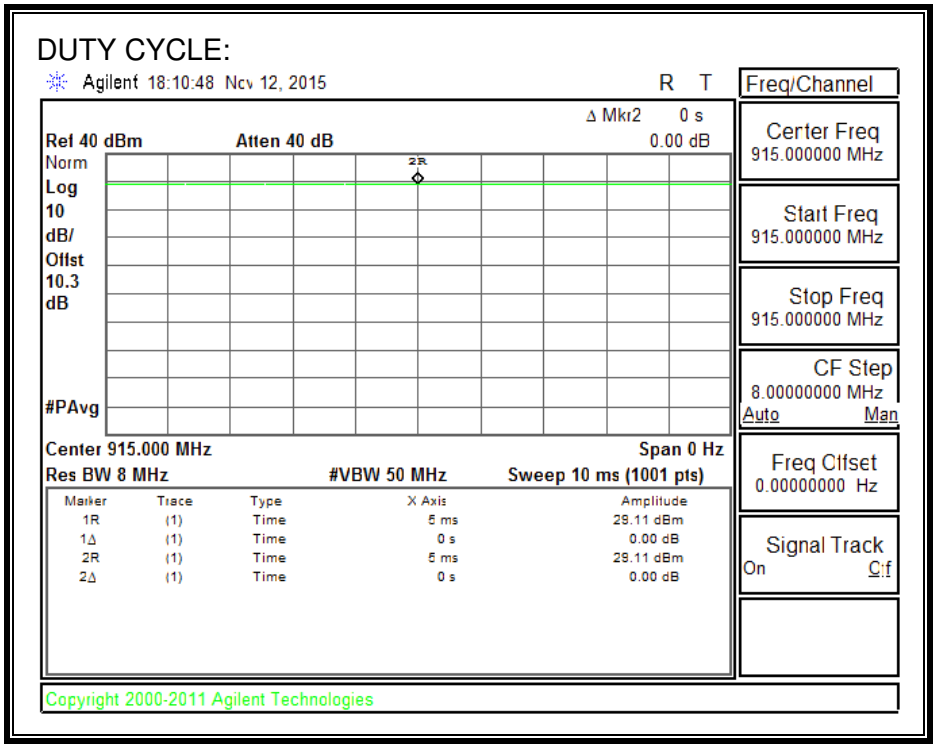
LIMITS

None; for reporting purposes only.

8.1.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
902-928 MHz Band/2GFSK	100.000	100	1.000	100.00%	0.00

8.1.2. DUTY CYCLE PLOTS



8.2. 20 dB and 99% BANDWIDTH

8.2.1. 20 dB BANDWIDTH

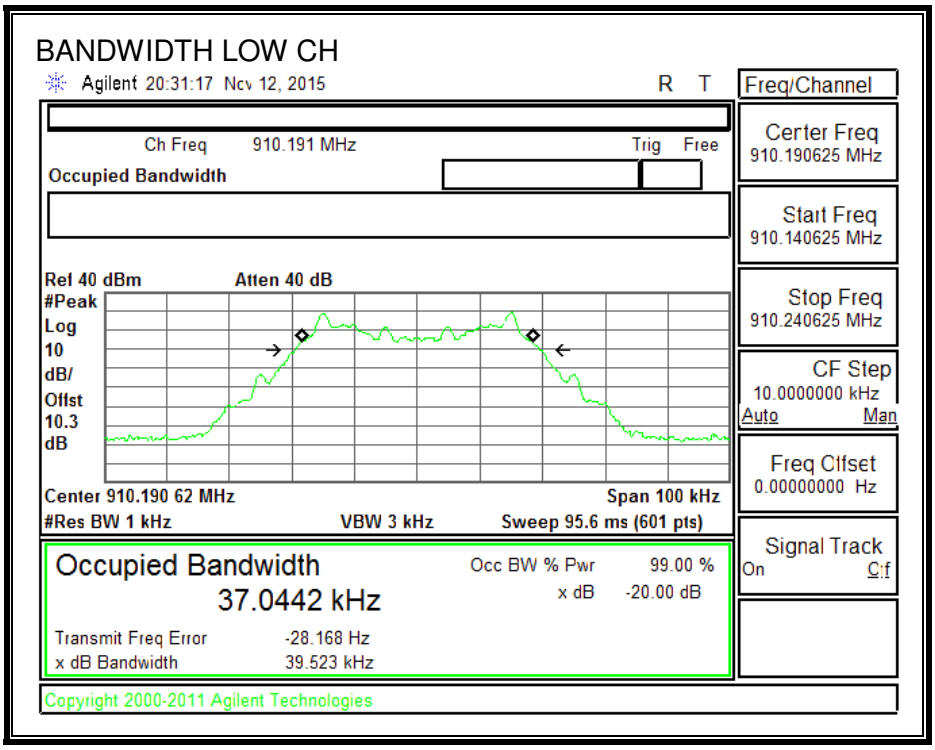
LIMIT

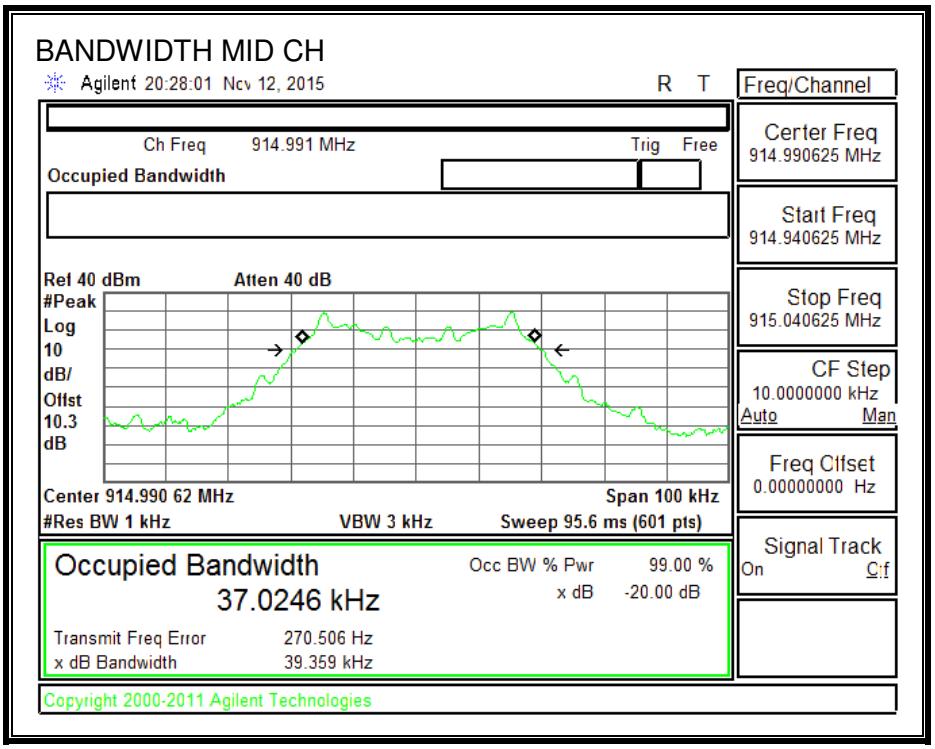
The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

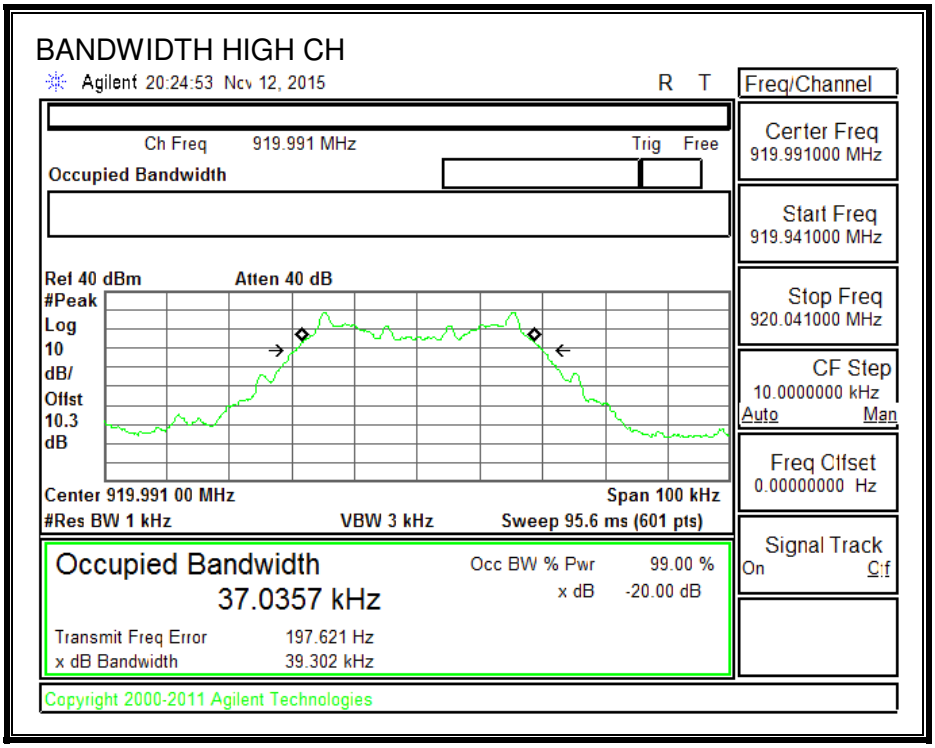
RESULTS

Channel	Frequency (MHz)	20 dB Bandwidth (kHz)
Low	910.2	39.523
Middle	915.0	39.359
High	920.0	39.302

20 dB BANDWIDTH







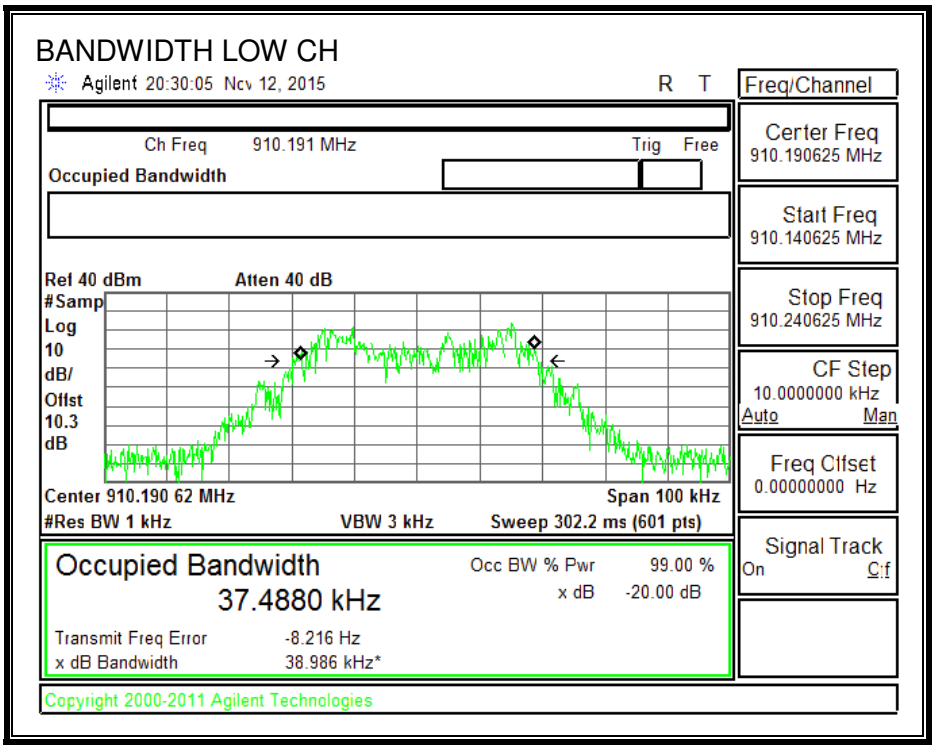
8.2.2. 99% BANDWIDTH

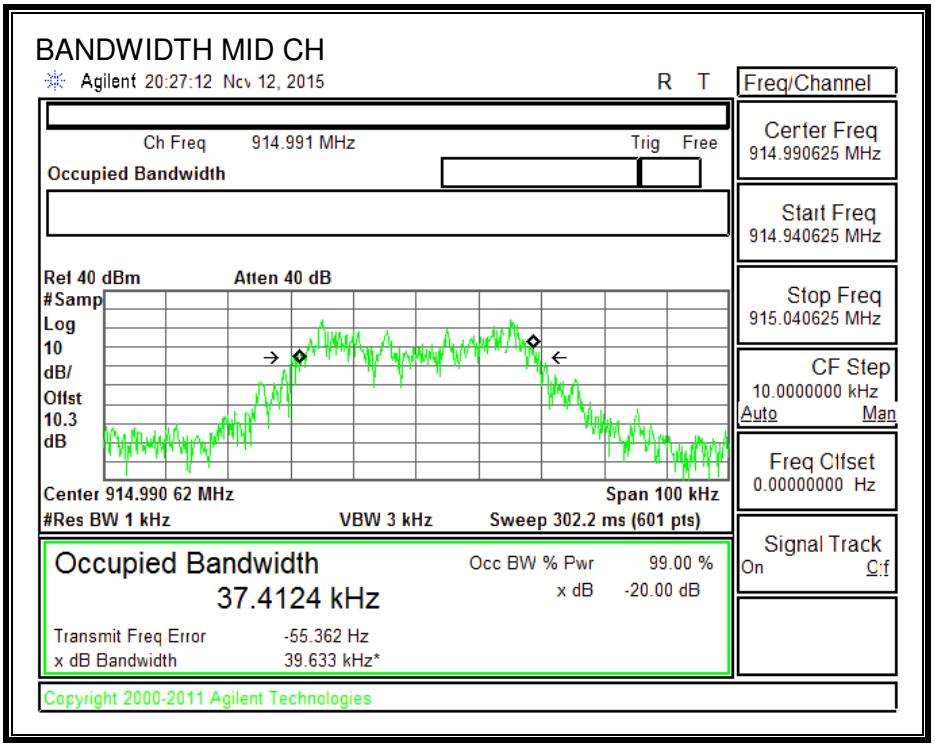
LIMIT

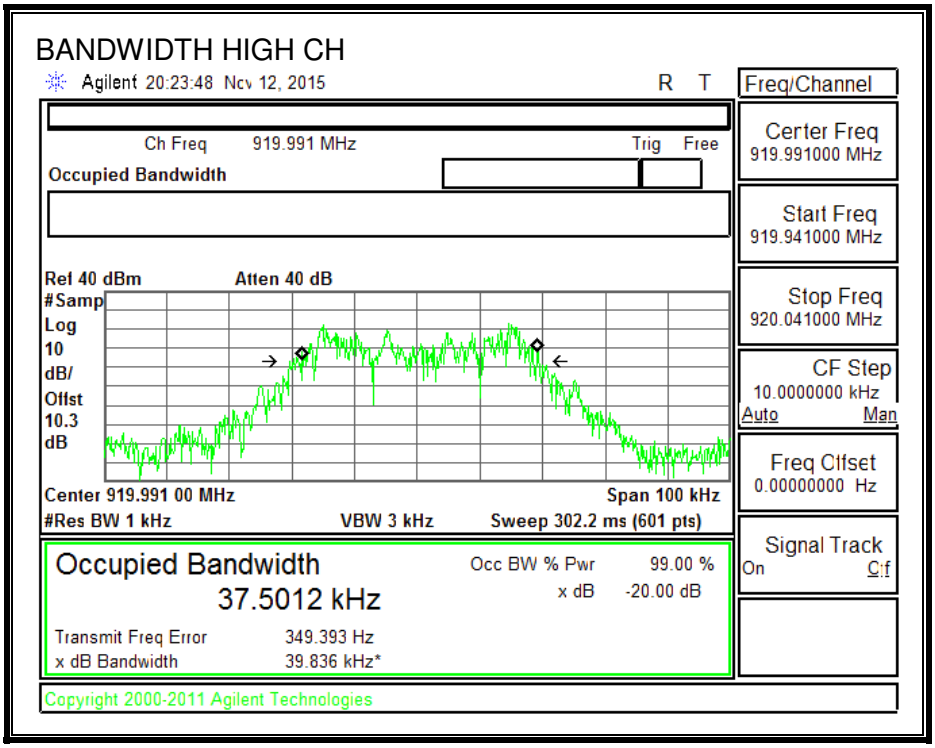
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (kHz)
Low	910.2	37.4880
Middle	915.0	37.4124
High	920.0	37.5012







8.3. CARRIER FREQUENCY SEPARATION

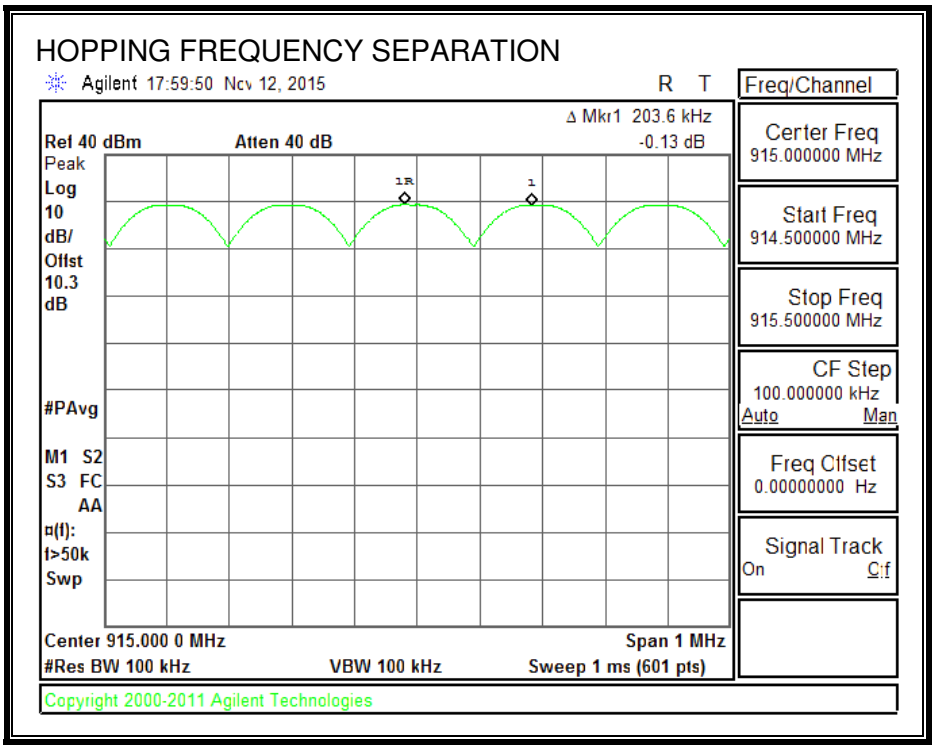
LIMIT

FCC §15.247 (a) (1)

IC RSS-247 Clause 5.1 (2)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hoping channel, whichever is greater.

RESULTS



8.4. NUMBER OF HOPPING FREQUENCIES

LIMIT

FCC §15.247 (a) (1) (i)

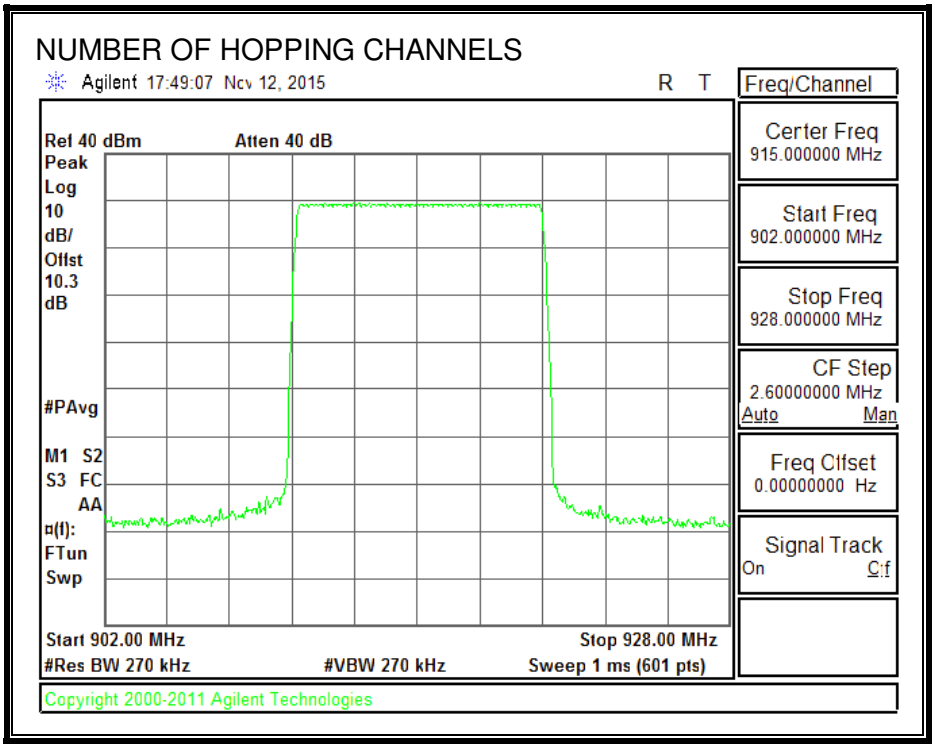
IC RSS-247 Clause 5.1(4)

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies.

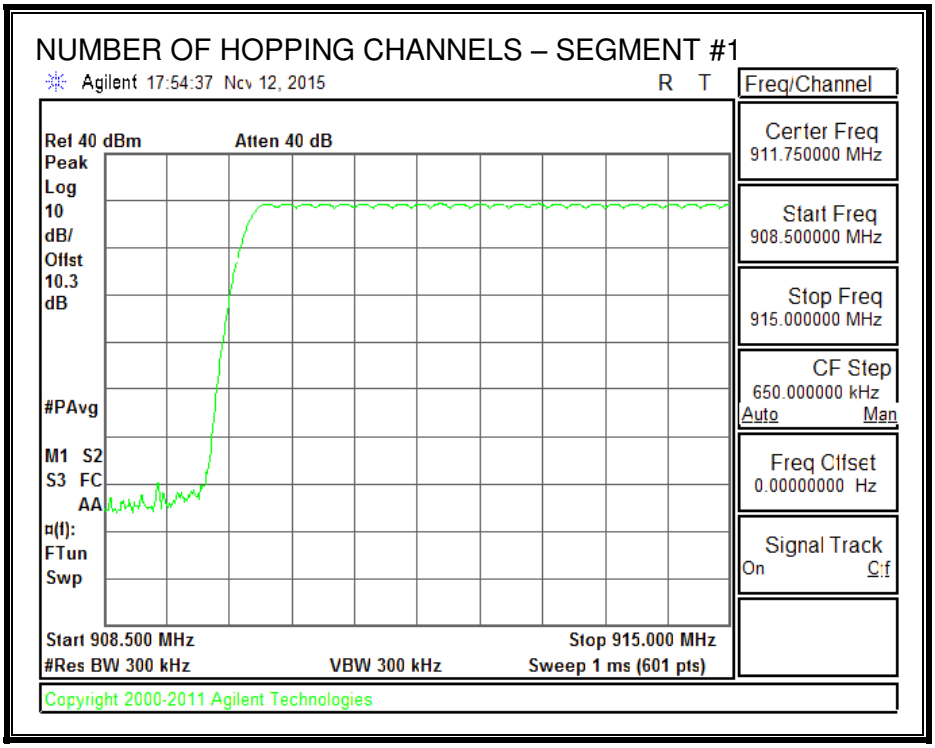
If the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies

RESULTS

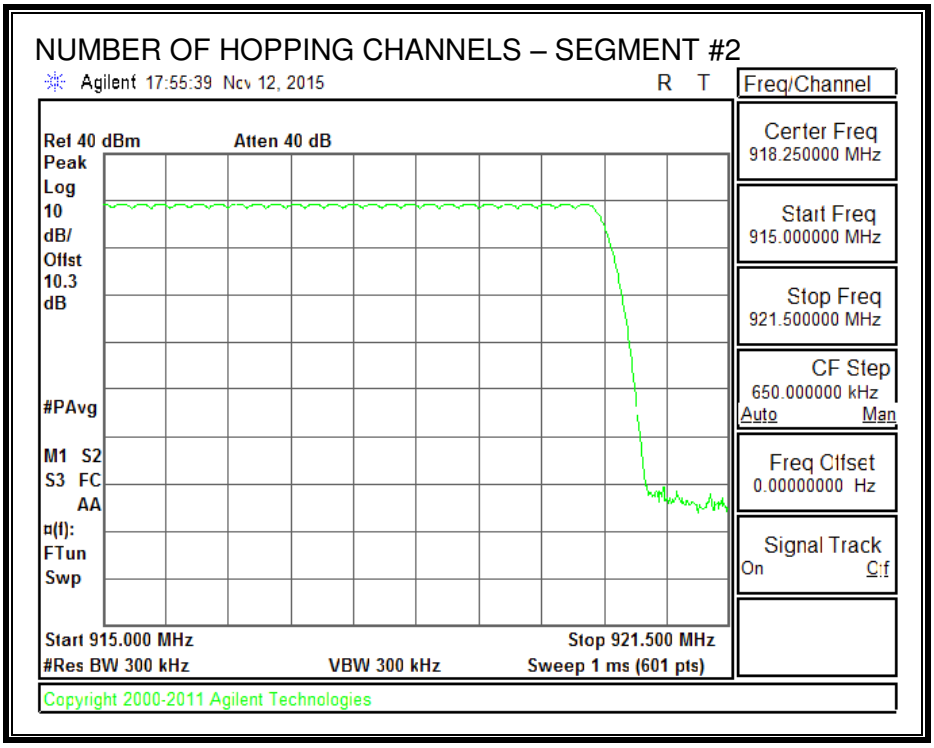
Normal Mode: 50 Channels observed.



NUMBER OF HOPPING CHANNELS – SEGMENT #1



NUMBER OF HOPPING CHANNELS – SEGMENT #2



8.5. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (i)

IC RSS-247 Clause 5.1(4)

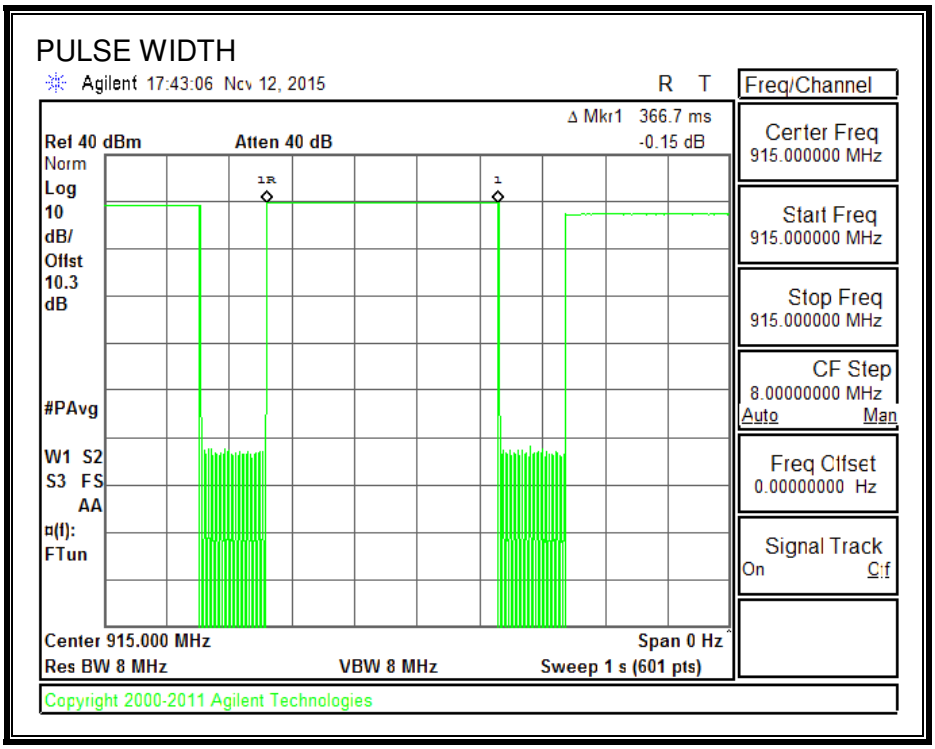
For frequency hopping systems in the band 902-928 MHz: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any channel shall not be greater than 0.4 seconds within a 20 second period.

If the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the average time of occupancy on any channel shall not be greater than 0.4 seconds within a 10 second period.

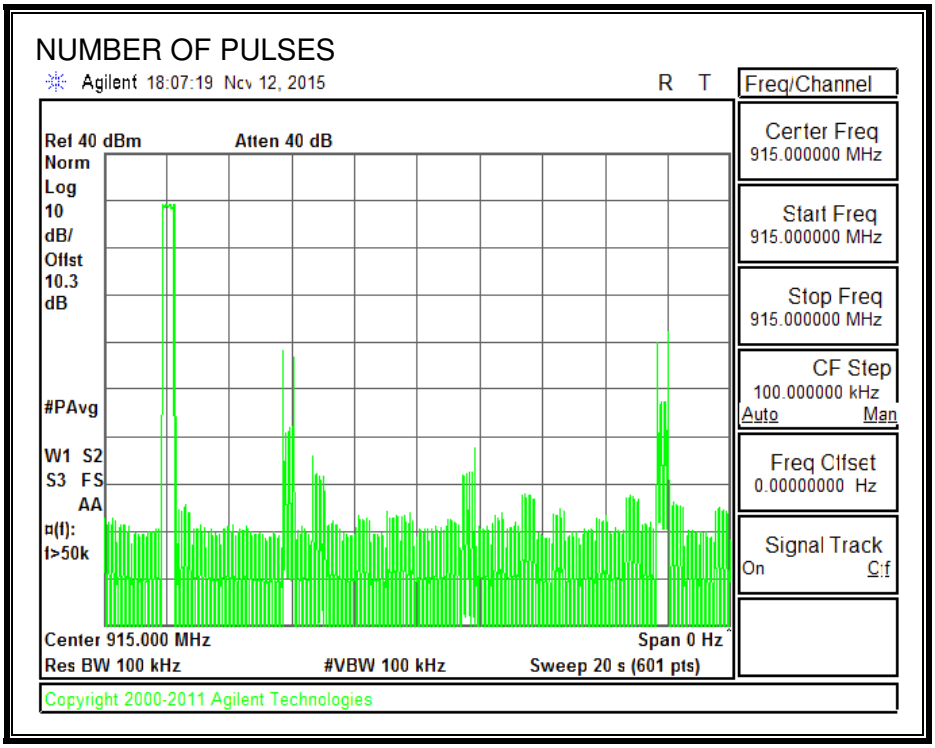
RESULTS

Mode of Operation	Pulse Width (msec)	Number of Pulses in 20 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
2GFSK	366.7	1	0.367	0.4	-0.033

PULSE WIDTH



NUMBER OF PULSES IN 10 SECOND OBSERVATION PERIOD



8.6. PEAK OUTPUT POWER

LIMIT

§15.247 (b) (2)

For frequency hopping systems operating in the 902–928 MHz band: 1watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, 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.

RSS-247 Clause 5.4 (1)

For frequency hopping systems operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1.0 W, and the e.i.r.p. shall not exceed 4 W if the hopset uses 50 or more hopping channels; the maximum peak conducted output power shall not exceed 0.25 W, and the e.i.r.p. shall not exceed 1 W if the hopset uses less than 50 hopping channels.

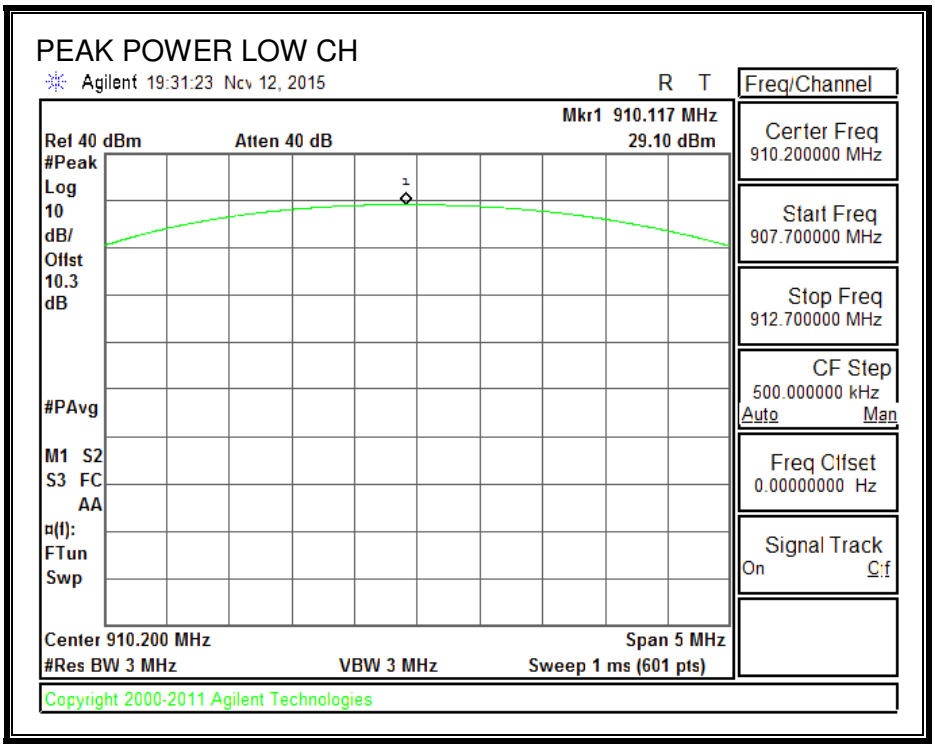
DIRECTIONAL ANTENNA GAIN

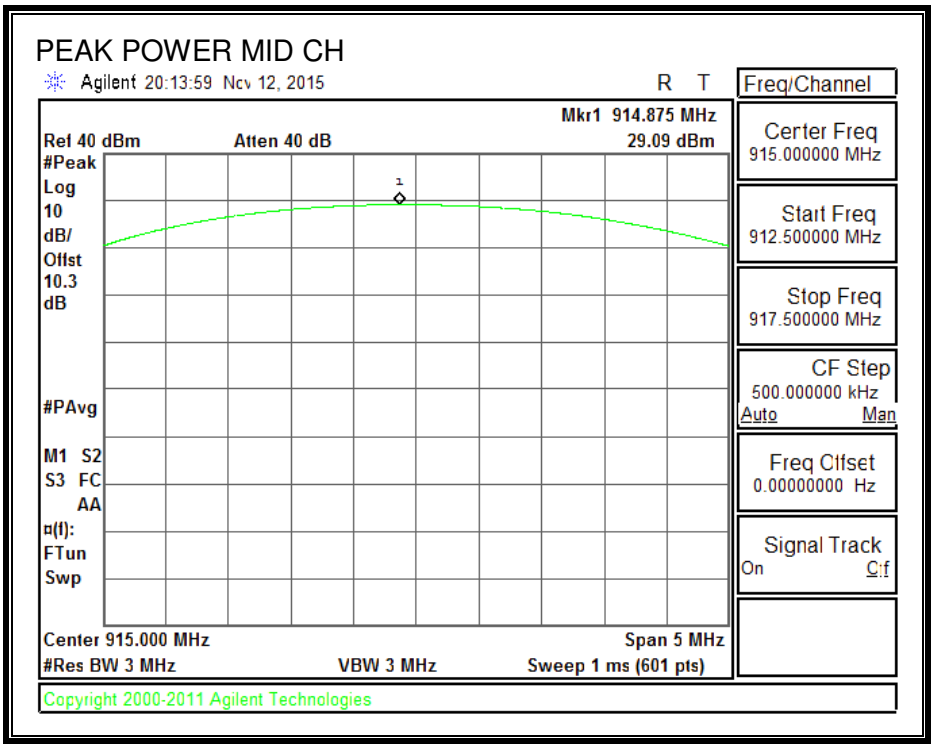
There is only one transmitter output therefore the directional gain is equal to the antenna gain.

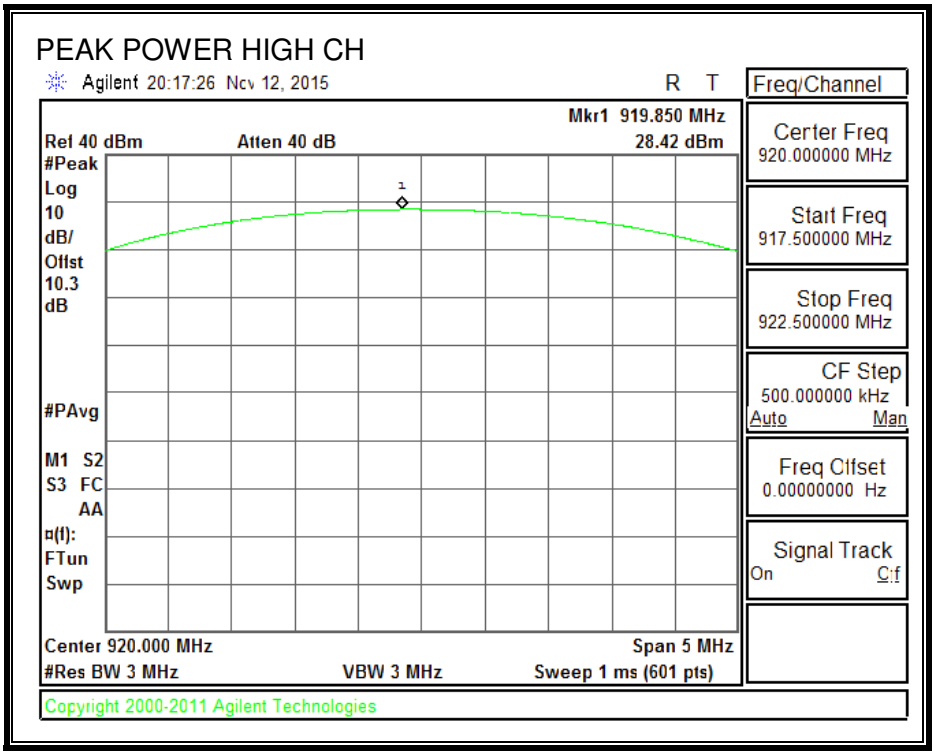
RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Directional Gain (dBi)	Limit (dBm)	Margin (dB)
Low	910.2	29.10	1.25	30	-0.90
Middle	915.0	29.09	1.25	30	-0.91
High	920.0	28.42	1.25	30	-1.58

OUTPUT POWER







8.7. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Channel	Frequency (MHz)	Average Power (dBm)
Low	910.2	29.08
Middle	915.0	29.07
High	920.0	28.30

8.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

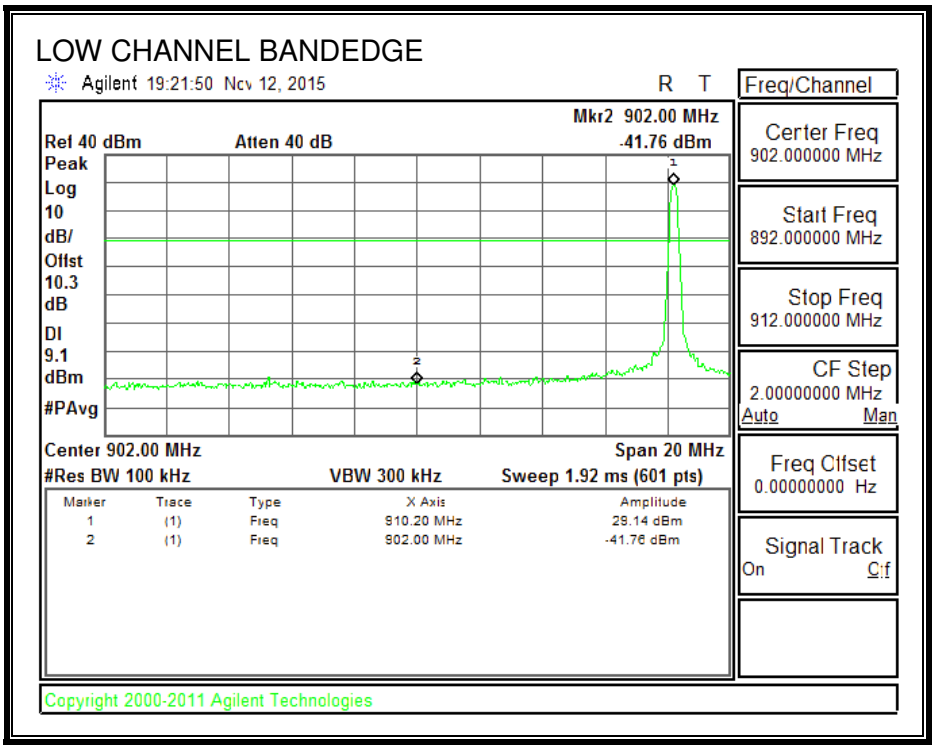
FCC §15.247 (d)

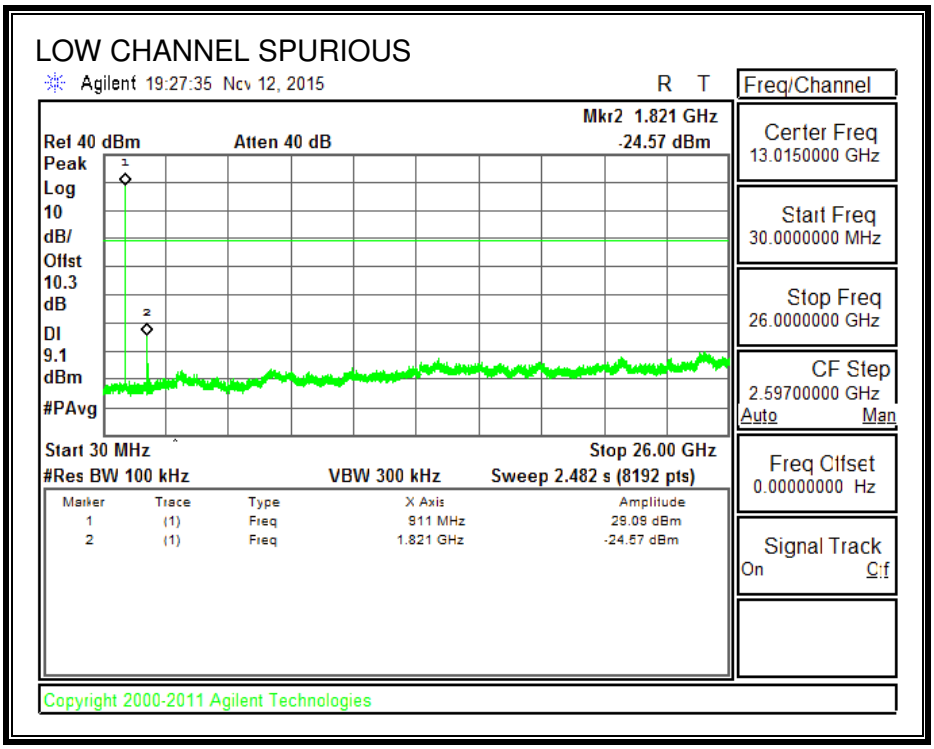
IC RSS-247 Clause 5.5

Limit = -20 dBc

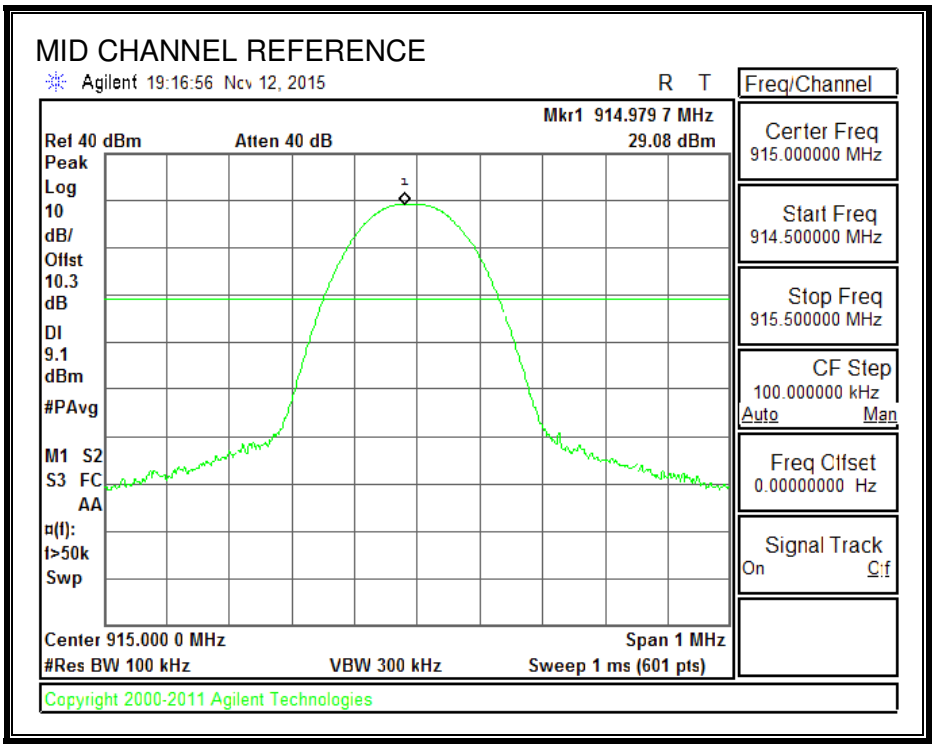
RESULTS

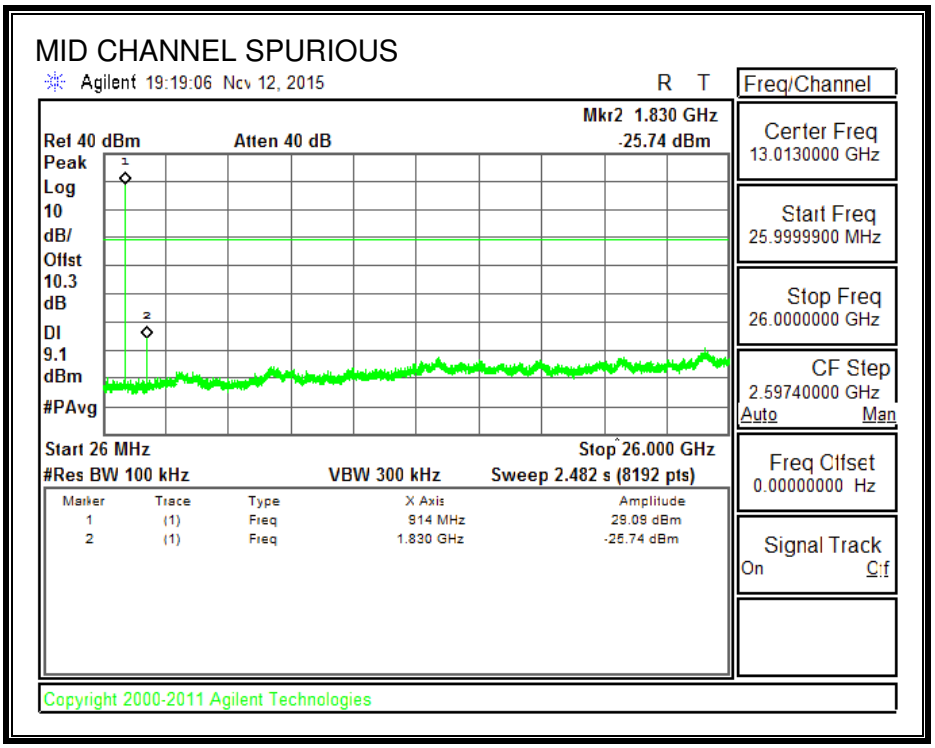
SPURIOUS EMISSIONS, LOW CHANNEL



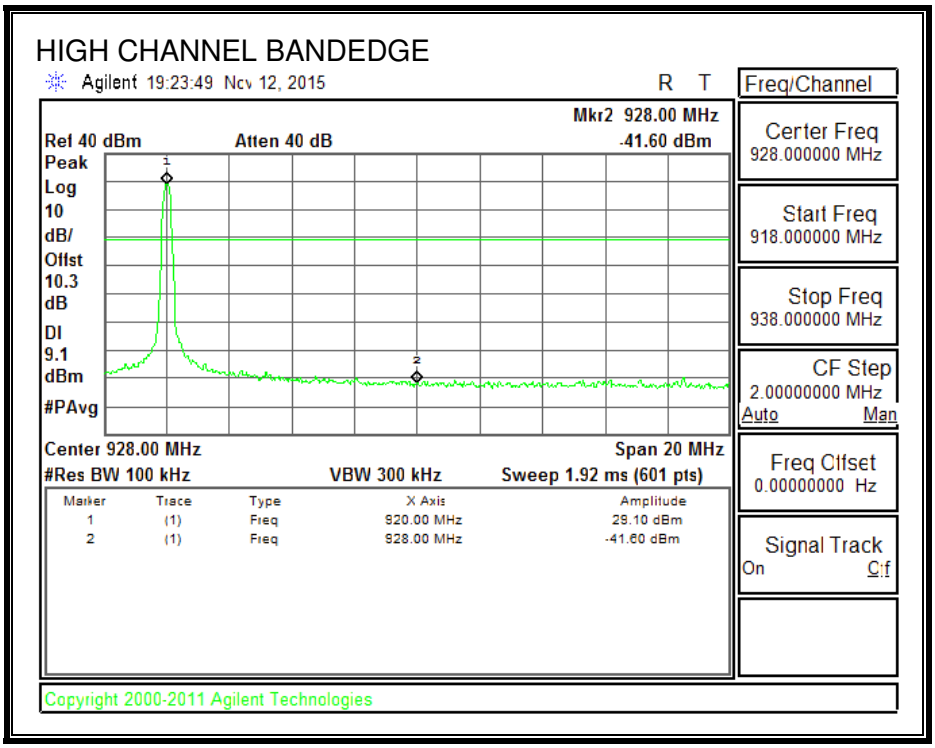


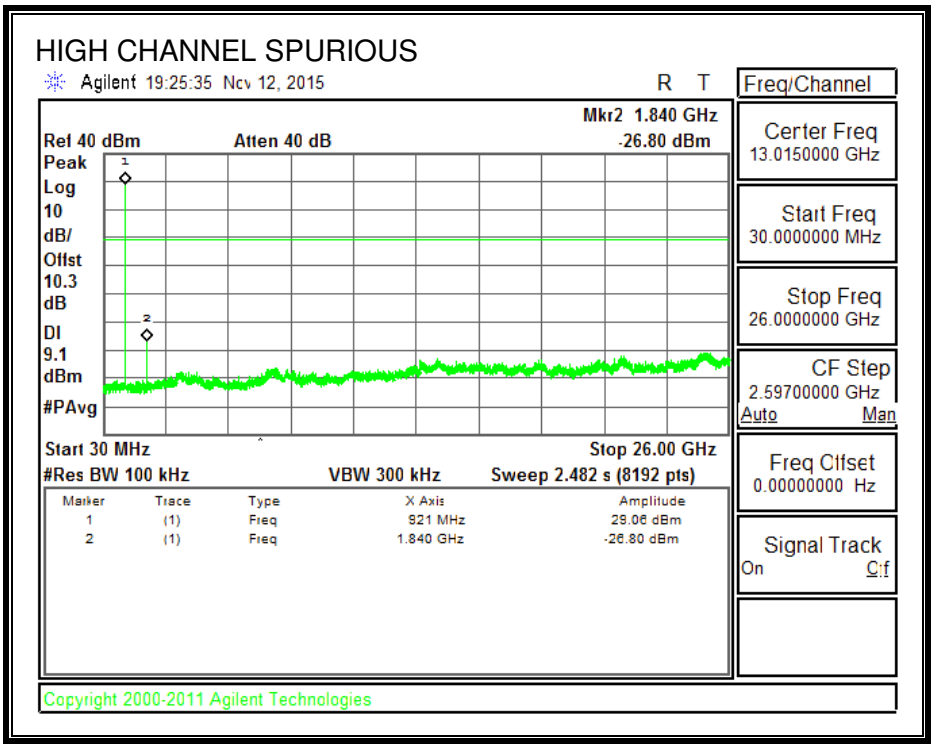
SPURIOUS EMISSIONS, MID CHANNEL





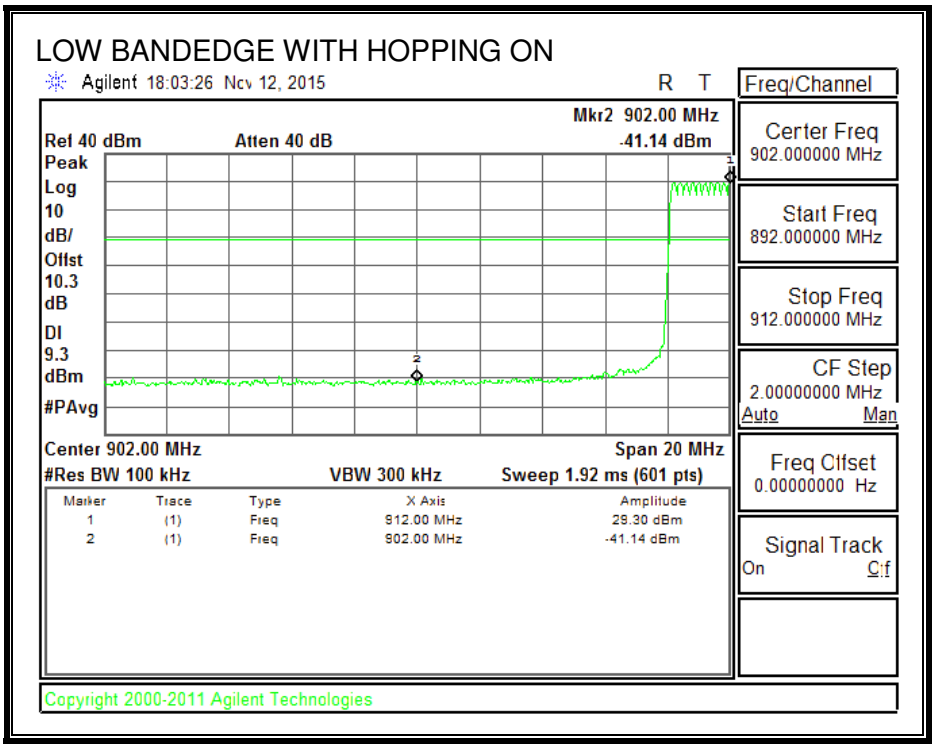
SPURIOUS EMISSIONS, HIGH CHANNEL



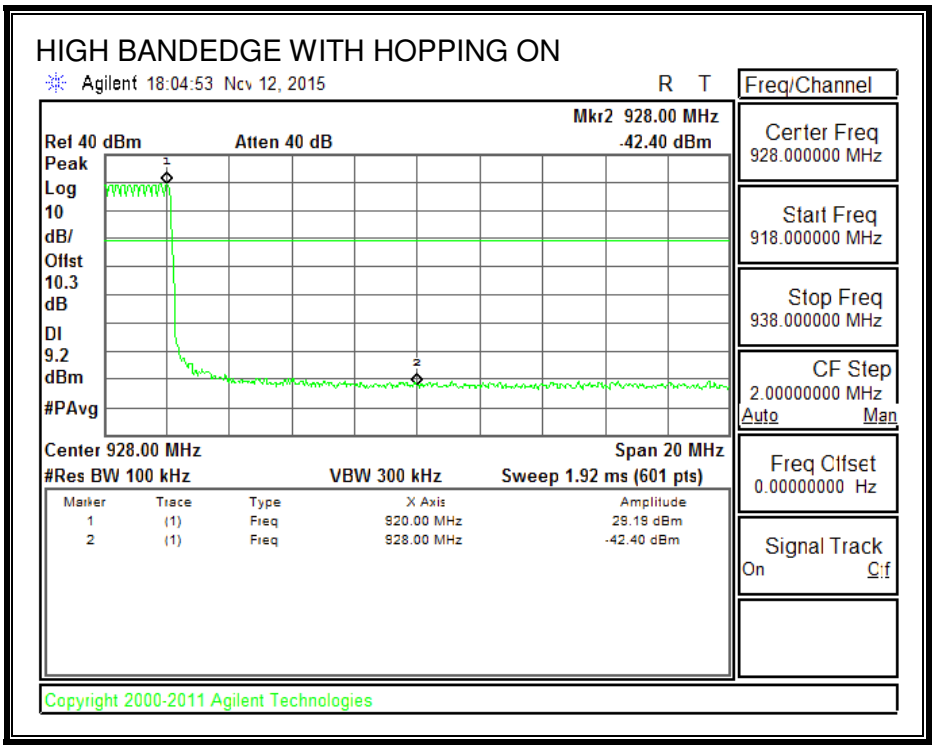


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

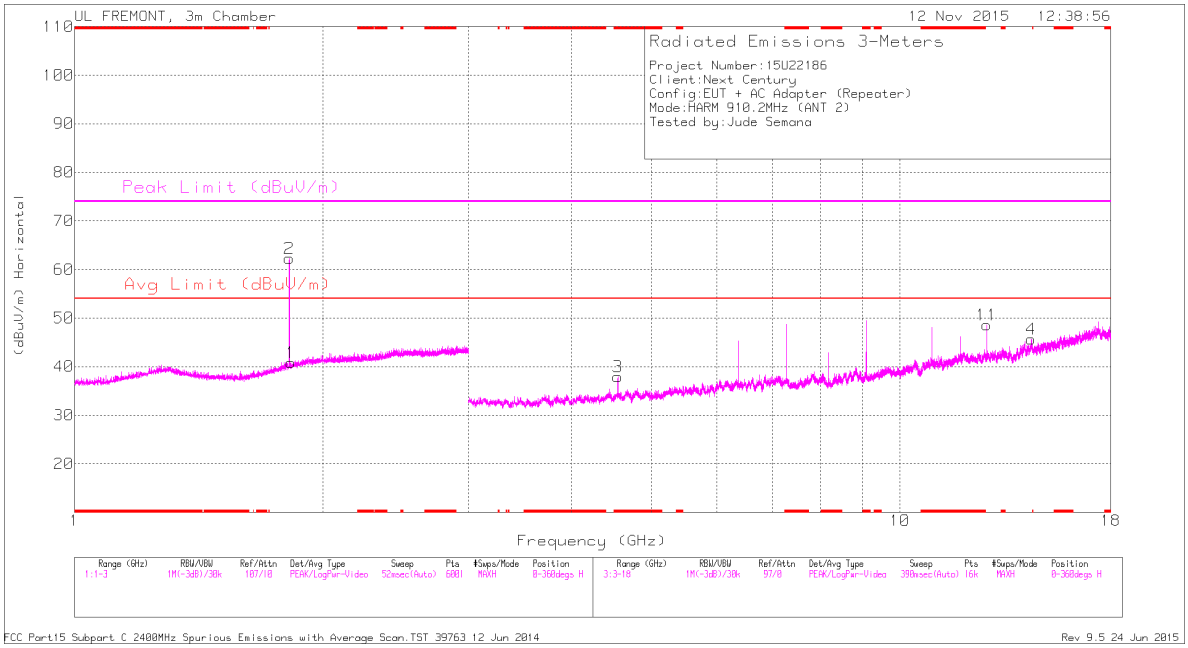
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 3MHz video bandwidth with average detector for average measurements.

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.

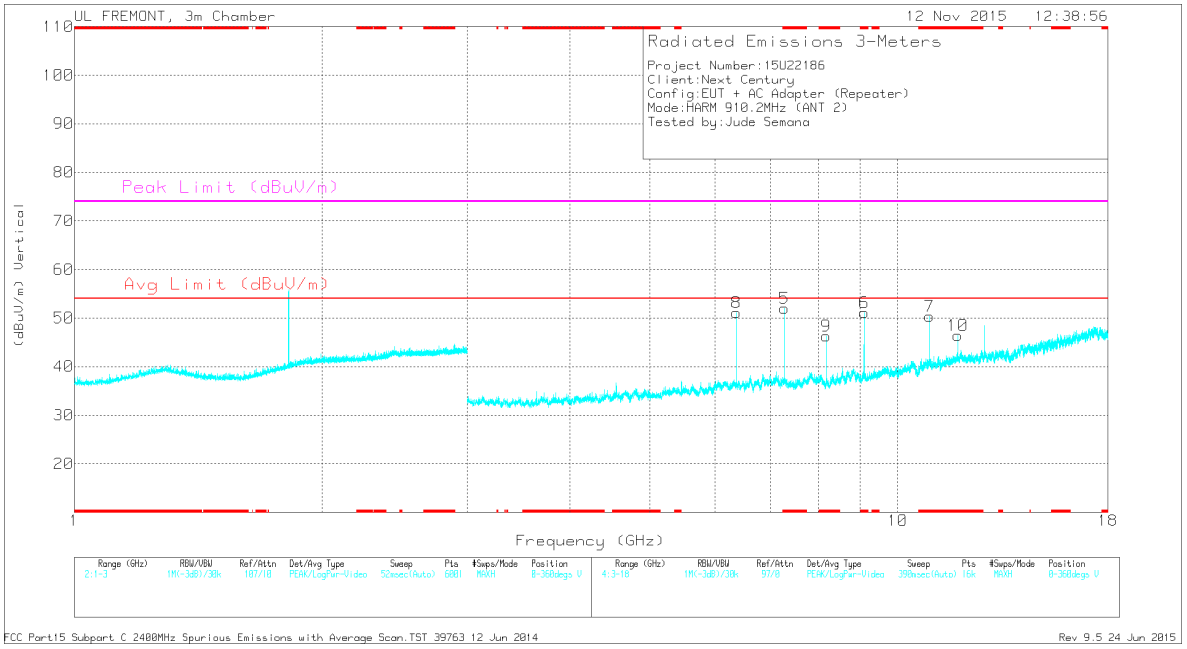
9.2. TRANSMITTER ABOVE 1 GHz

LOW CHANNEL

HORIZONTAL



VERTICAL



Trace Markers

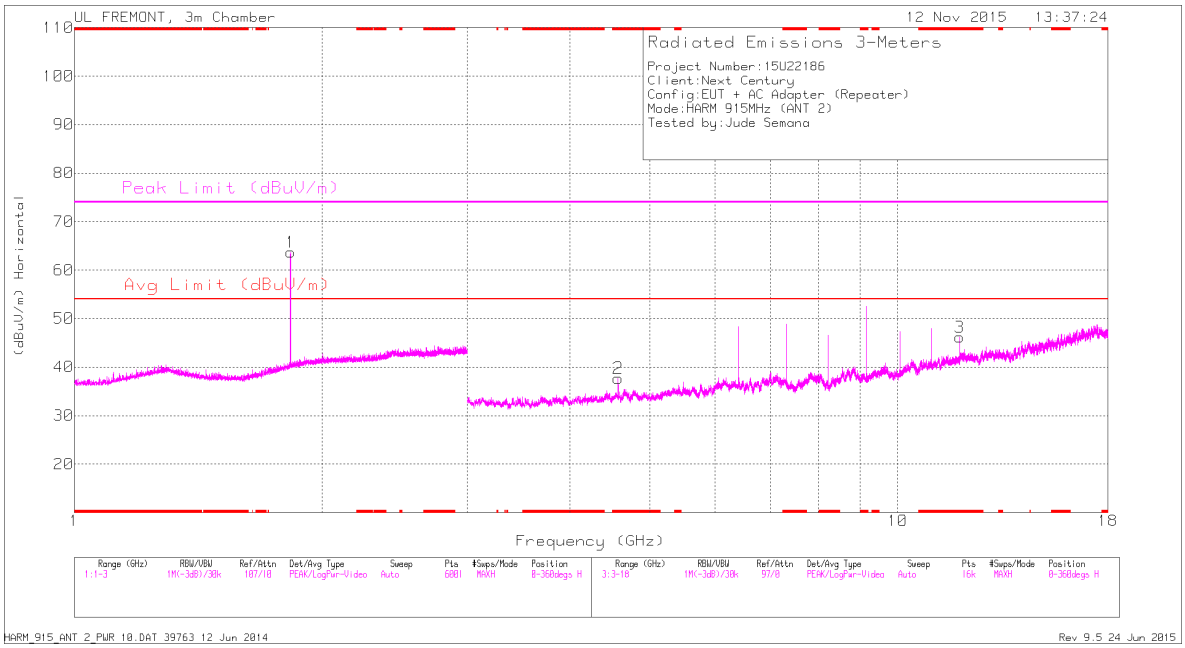
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.551	40.58	PK2	33.8	-29.8	44.58	-	-	74	-29.42	360	101	H
	* 4.551	29.43	MAv1	33.8	-29.8	33.43	54	-20.57	-	-	360	101	H
5	* 7.281	46.33	PK2	35.6	-27.4	54.53	-	-	74	-19.47	226	106	V
	* 7.282	42.13	MAv1	35.6	-27.4	50.33	54	-3.67	-	-	226	106	V
6	* 9.102	43.99	PK2	36.1	-24.4	55.69	-	-	74	-18.31	177	102	V
	* 9.102	39.59	MAv1	36.1	-24.4	51.29	54	-2.71	-	-	177	102	V
7	* 10.922	41.74	PK2	37.8	-23.1	56.44	-	-	74	-17.56	291	113	V
	* 10.922	35.89	MAv1	37.8	-23.1	50.59	54	-3.41	-	-	291	113	V
9	* 8.192	43.02	PK2	35.8	-26.6	52.22	-	-	74	-21.78	265	102	V
	* 8.192	37.37	MAv1	35.8	-26.6	46.57	54	-7.43	-	-	265	102	V
10	* 11.832	39.43	PK2	39	-24	54.43	-	-	74	-19.57	135	284	V
	* 11.833	30.44	MAv1	39	-24	45.44	54	-8.56	-	-	135	284	V
2	1.82	54.47	Avg	30.4	-22.6	62.27	-	-	-	-	0-360	101	H
1	1.827	32.9	Avg	30.5	-22.6	40.8	-	-	-	-	0-360	101	H
8	6.371	42.98	Avg	35.5	-27.3	51.18	-	-	-	-	0-360	101	V
11	12.743	33.55	Avg	39.1	-24	48.65	-	-	-	-	0-360	101	H
4	14.408	29.42	Avg	39.6	-23.3	45.72	-	-	-	-	0-360	200	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
- Compliance for emissions in non-restricted bands is shown under conducted spurious emissions.

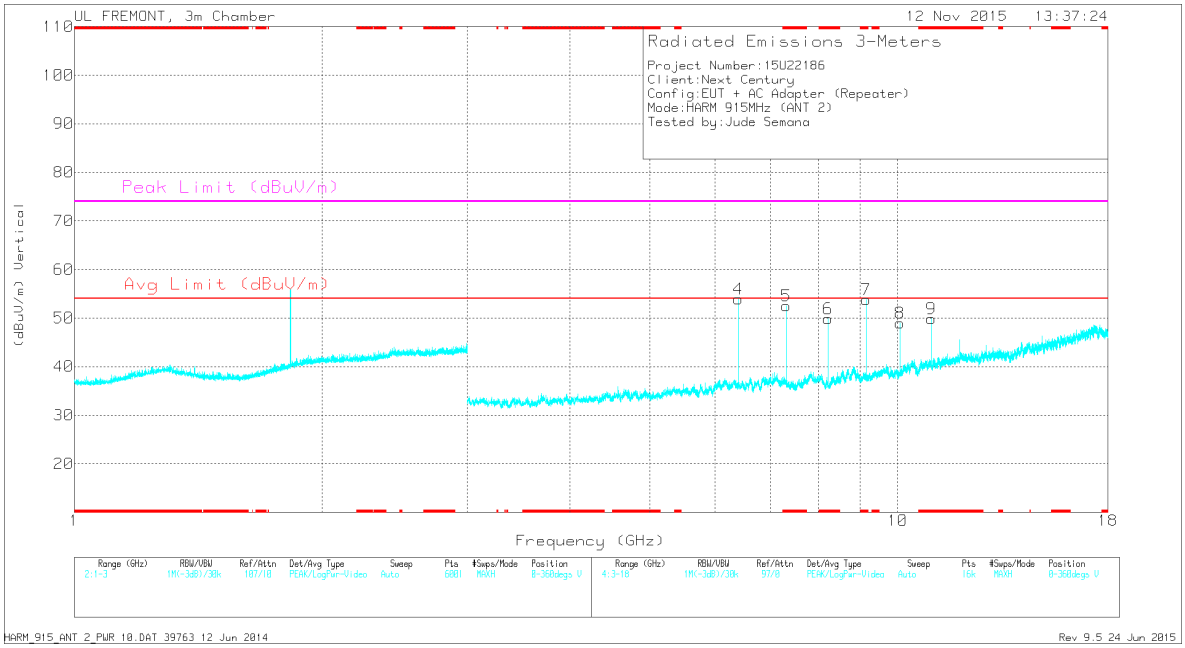
Avg - Video bandwidth < Resolution bandwidth
PK2 - Method: Maximum Peak
MAv1 - Maximum RMS Average

MID CHANNEL

HORIZONTAL



VERTICAL



Trace Markers

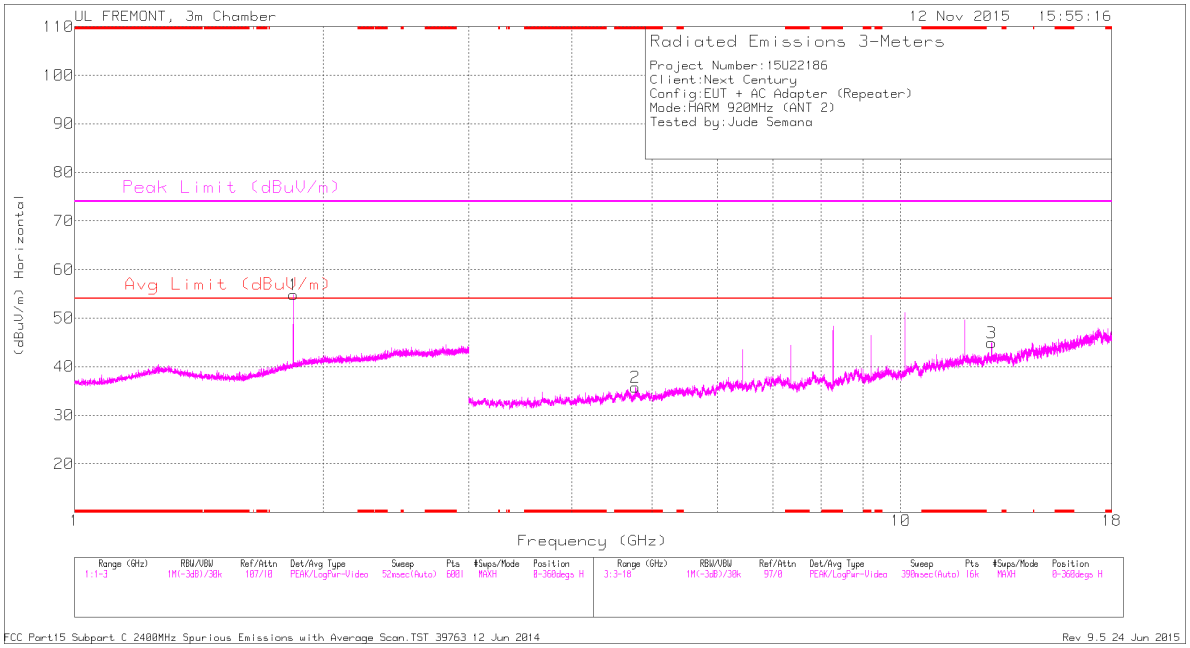
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.575	42.72	PK2	33.8	-29.6	46.92	-	-	74	-27.08	343	105	H
	* 4.575	33.63	MAv1	33.8	-29.6	37.83	54	-16.17	-	-	343	105	H
3	* 11.895	39.56	PK2	39.1	-23.9	54.76	-	-	74	-19.24	214	101	H
	* 11.895	30.94	MAv1	39.1	-23.9	46.14	54	-7.86	-	-	214	101	H
5	* 7.32	46.35	PK2	35.6	-26.6	55.35	-	-	74	-18.65	240	102	V
	* 7.32	42.77	MAv1	35.6	-26.6	51.77	54	-2.23	-	-	240	102	V
6	* 8.235	44.72	PK2	35.8	-26.8	53.72	-	-	74	-20.28	275	103	V
	* 8.235	39.91	MAv1	35.8	-26.8	48.91	54	-5.09	-	-	275	103	V
7	* 9.15	45.41	PK2	36.2	-24.5	57.11	-	-	74	-16.89	173	105	V
	* 9.15	41.76	MAv1	36.2	-24.5	53.46	54	-.54	-	-	173	105	V
9	* 10.98	40.48	PK2	37.9	-22.9	55.48	-	-	74	-18.52	300	103	V
	* 10.98	34.23	MAv1	37.9	-22.9	49.23	54	-4.77	-	-	300	103	V
1	1.83	55.78	Avg	30.5	-22.6	63.68	-	-	-	-	0-360	200	H
4	6.405	46.09	Avg	35.5	-27.7	53.89	-	-	-	-	0-360	100	V
8	10.065	35.86	Avg	36.9	-23.8	48.96	-	-	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
- Compliance for emissions in non-restricted bands is shown under conducted spurious emissions

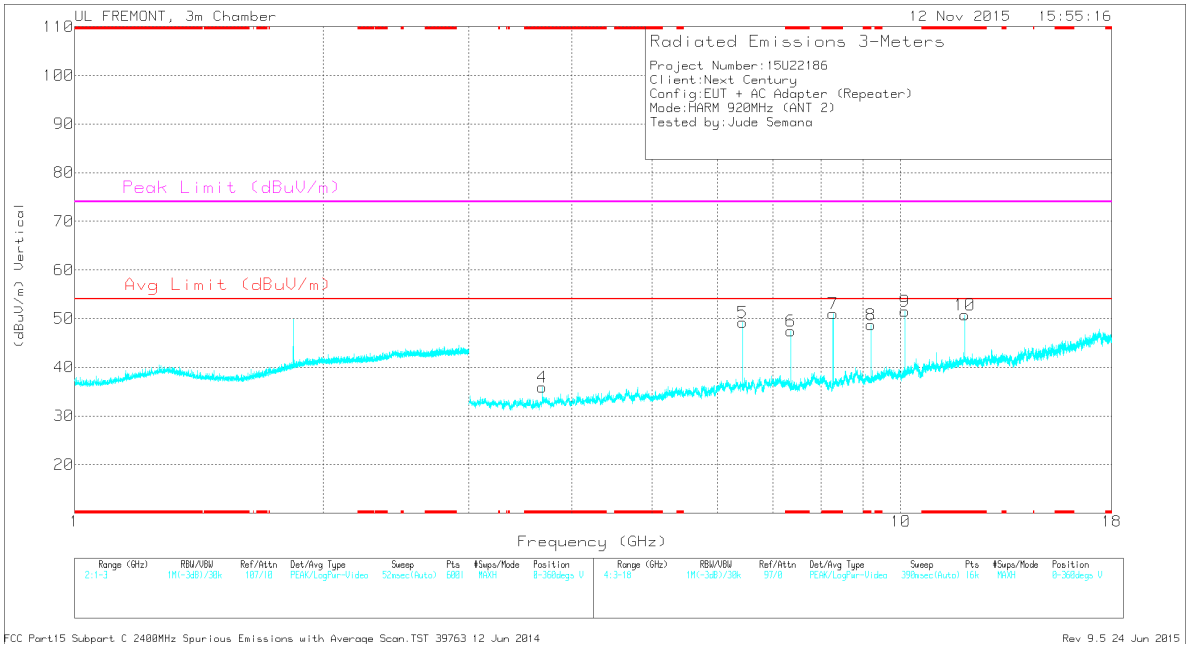
Avg - Video bandwidth < Resolution bandwidth
PK2 - Method: Maximum Peak
MAv1 - Maximum RMS Average

HIGH CHANNEL

HORIZONTAL



VERTCAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	* 4.77	40.38	PK2	34	-29.7	44.68	-	-	74	-29.32	1	101	H
	* 4.772	28.76	MAv1	34	-29.6	33.16	54	-20.84	-	-	1	101	H
4	* 3.679	40.18	PK2	33	-29.7	43.48	-	-	74	-30.52	1	200	V
	* 3.68	29.1	MAv1	33	-29.7	32.4	54	-21.6	-	-	1	200	V
6	* 7.36	43.19	PK2	35.6	-26.5	52.29	-	-	74	-21.71	253	102	V
	* 7.36	38.43	MAv1	35.6	-26.5	47.53	54	-6.47	-	-	253	102	V
7	* 8.28	43.81	PK2	35.8	-26.5	53.11	-	-	74	-20.89	287	396	V
	* 8.28	38.47	MAv1	35.8	-26.5	47.77	54	-6.23	-	-	287	396	V
8	* 9.2	41.82	PK2	36.2	-24.4	53.62	-	-	74	-20.38	180	101	V
	* 9.2	36.42	MAv1	36.2	-24.4	48.22	54	-5.78	-	-	180	101	V
10	* 11.96	41.87	PK2	39.1	-23.5	57.47	-	-	74	-16.53	146	317	V
	* 11.96	36.04	MAv1	39.1	-23.5	51.64	54	-2.36	-	-	146	317	V
1	1.84	46.83	Avg	30.6	-22.6	54.83	54	.83	-	-	0-360	101	H
5	6.439	42.33	Avg	35.5	-28.6	49.23	54	-4.77	-	-	0-360	101	V
9	10.12	37.47	Avg	37	-23	51.47	54	-2.53	-	-	0-360	101	V
3	12.88	30.02	Avg	39.1	-24.2	44.92	54	-9.08	-	-	0-360	101	H

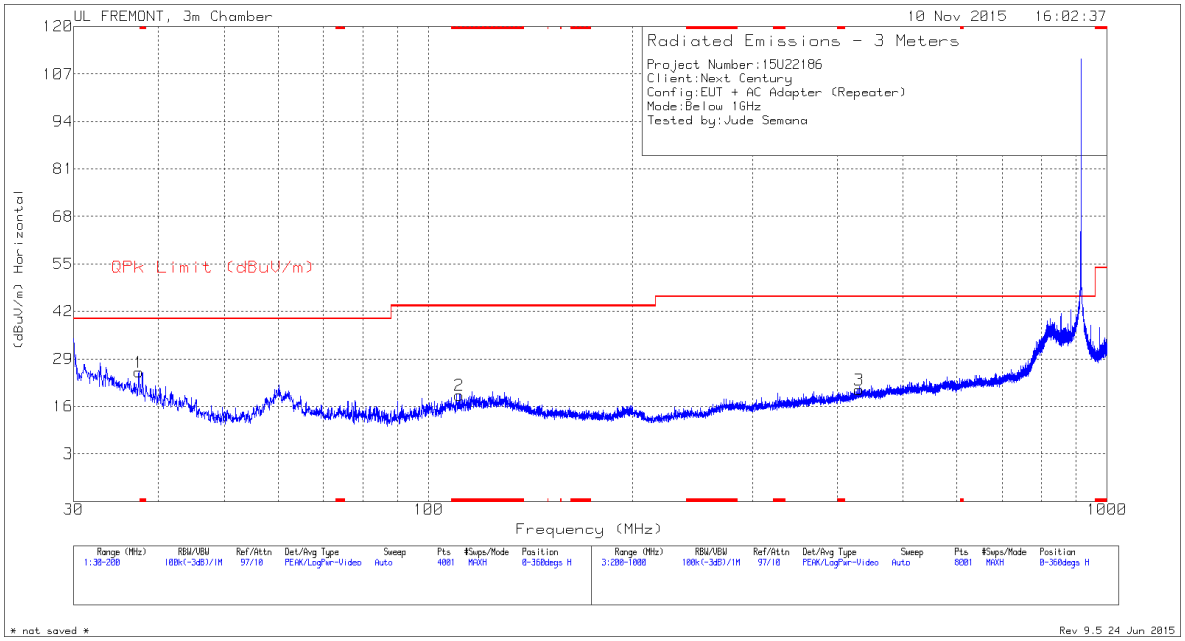
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
- Compliance for emissions in non-restricted bands is shown under conducted spurious emissions

Avg - Video bandwidth < Resolution bandwidth
PK2 - Method: Maximum Peak
MAv1 - Maximum RMS Average

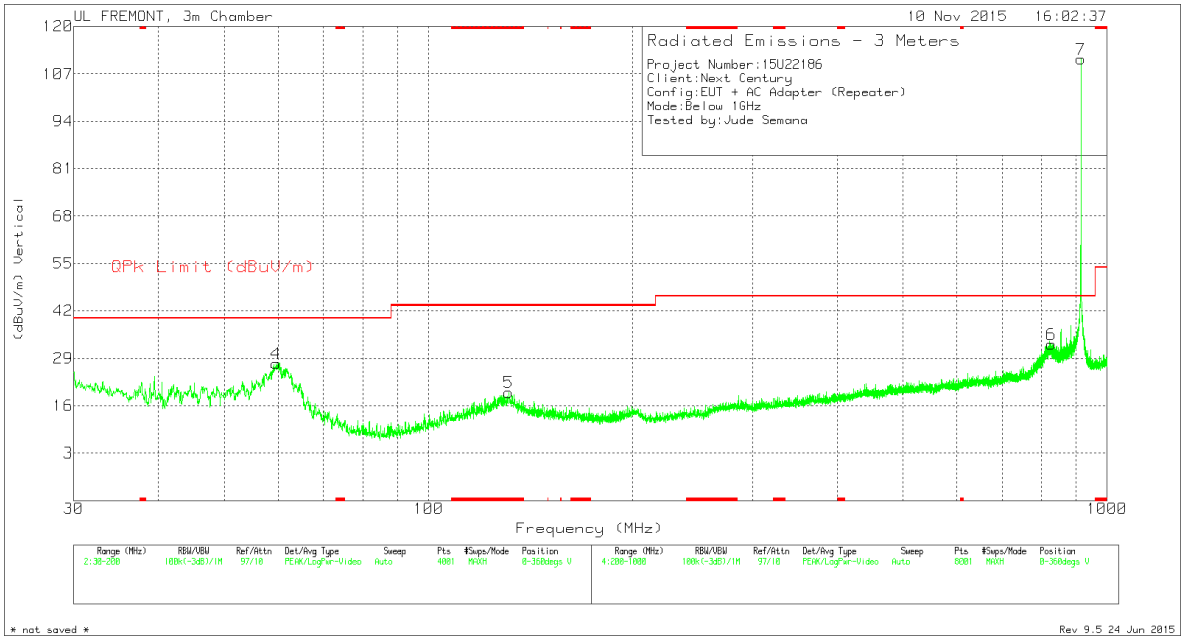
9.3. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION

HORIZONTAL PLOT



VERTICAL PLOT



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 110.9625	32.72	Pk	12.5	-26.2	19.02	43.52	-24.5	0-360	100	H
5	* 131.2563	31.74	Pk	13.9	-26	19.64	43.52	-23.88	0-360	100	V
1	37.4375	36.28	Pk	16.2	-27.1	25.38	40	-14.62	0-360	100	H
4	59.6225	47.08	Pk	7.3	-26.8	27.58	40	-12.42	0-360	100	V
3	430.8	29.05	Pk	16.4	-24.9	20.55	46.02	-25.47	0-360	300	H
6	827	34.9	Pk	21.2	-23.2	32.9	46.02	-13.12	0-360	100	V
7	**915	111.46	Pk	22.2	-22.6	111.06	-	-	0-360	100	V

* Indicates frequency in CFR15.205/8.10 Restricted Band
** Indicates fundamental frequency

Pk - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

IC 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 C63.10-2013.

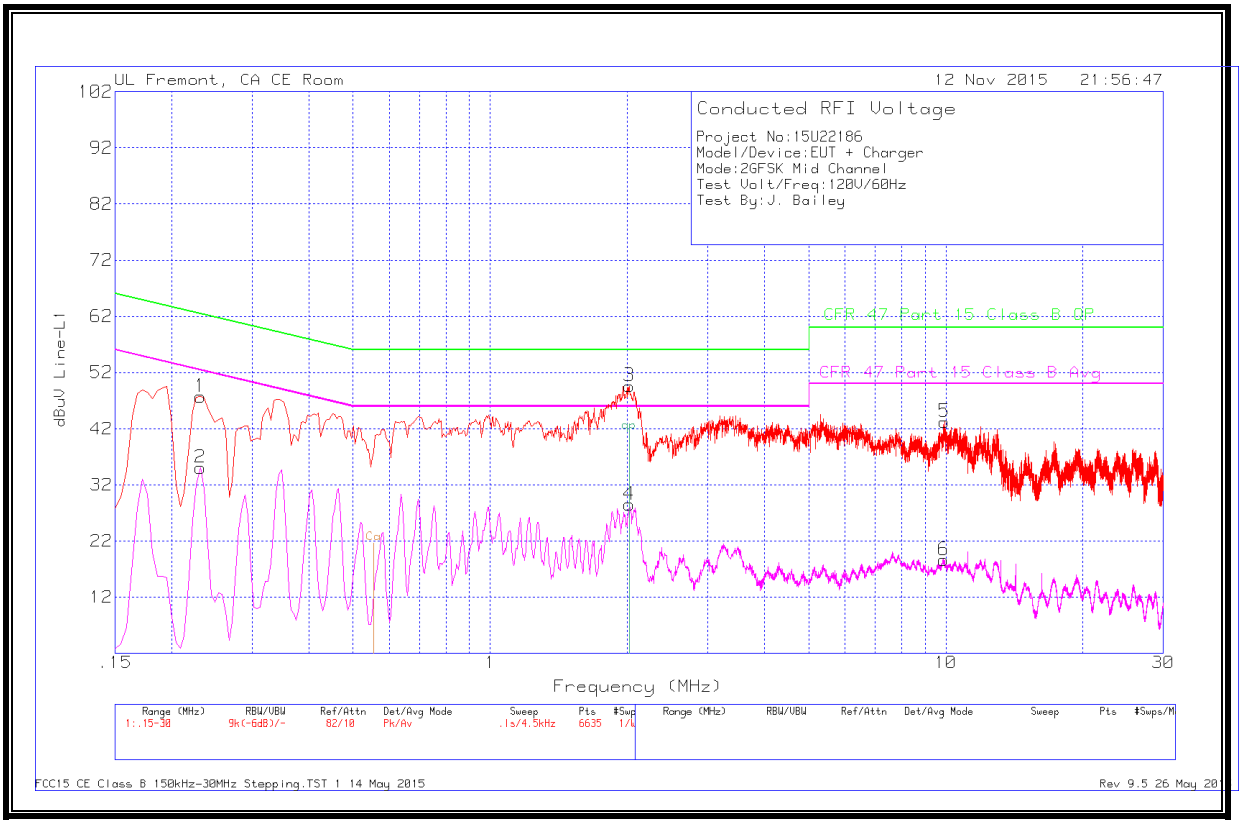
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines

RESULTS

6 WORST EMISSIONS

LINE 1 RESULTS



Trace Markers

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1	LC Cables 1&3	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
1	.231	46.88	Pk	.8	0	47.68	62.41	-14.73	-	-
2	.231	34.25	Av	.8	0	35.05	-	-	52.41	-17.36
3	2.0175	41.20	Qp	.2	.1	41.5	56	-14.5	-	-
4	2.0175	21.35	Ca	.2	.1	21.65	-	-	46	-24.35
5	9.9285	42.79	Pk	.2	.2	43.19	60	-16.81	-	-
6	9.888	18.21	Av	.2	.2	18.61	-	-	50	-31.39

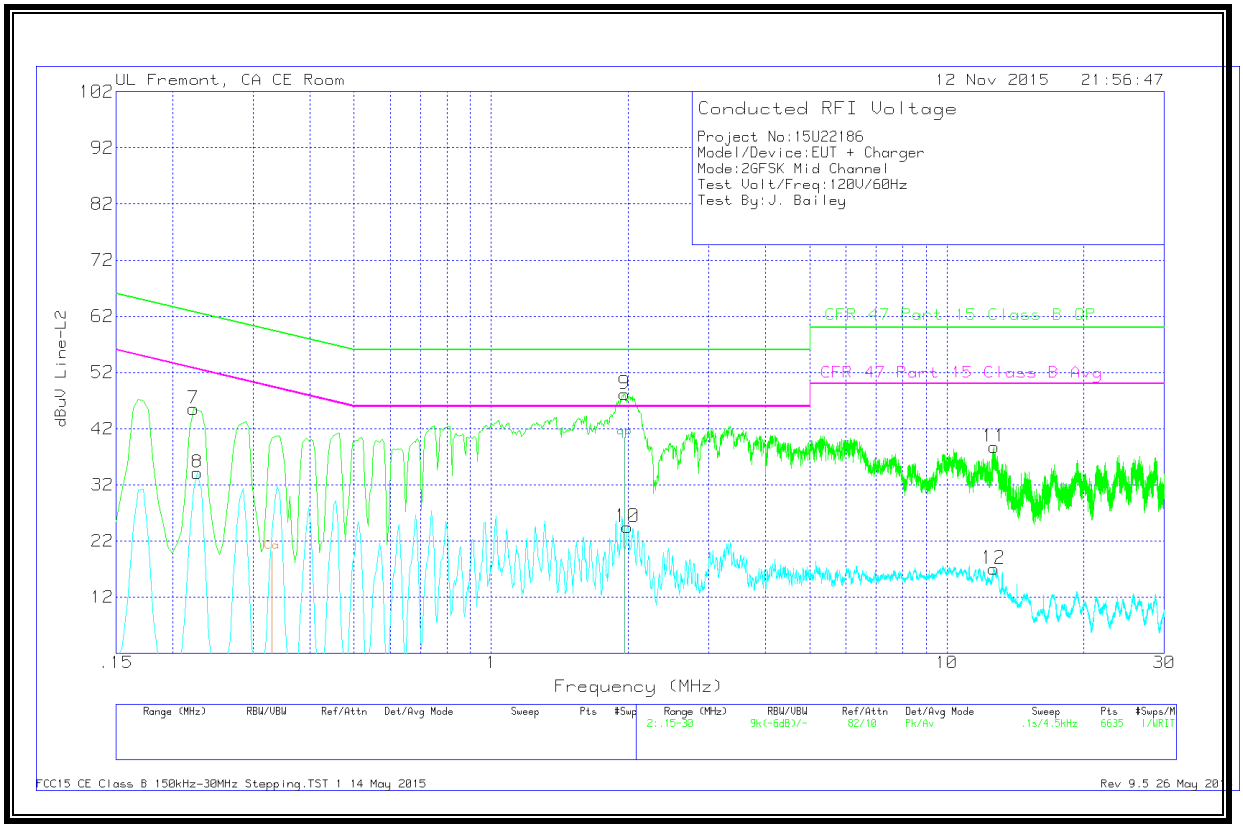
Pk - Peak detector

Av - Average detection

Ca - CISPR average detection

Qp - Quasi-Peak detector

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2	LC Cables 2&3	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
7	.222	44.64	Pk	.9	0	45.54	62.74	-17.2	-	-
8	.2265	33.26	Av	.9	0	34.16	-	-	52.58	-18.42
9	1.9635	40.16	Qp	.2	.1	40.46	56	-15.54	-	-
10	1.9905	19.81	Ca	.2	.1	20.11	-	-	46	-25.89
11	12.7005	38.36	Pk	.2	.2	38.76	60	-21.24	-	-
12	12.6735	16.65	Av	.2	.2	17.05	-	-	50	-32.95

Pk - Peak detector

Av - Average detection

Ca - CISPR average detection

Qp - Quasi-Peak detector