



FCC / ISED Test Report

For

SiXC2W

Report #: 47216

FCC ID: CFS8DL6C2W

IC ID: 573F-6C2W

Report Completion Date: 2018-04-05

Prepared by and for:
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Testing
NVLAP Lab Code: 600110

Document Introduction

Honeywell tested the above equipment in accordance with the requirements set forth in the listed standards. All indications of Pass/Fail in the report are opinions expressed by Honeywell 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.

This document is a record of the FCC/ISED Test Report for Honeywell products. It demonstrates the data required to be analyzed to certify a product according to the requirements of the FCC & ISED.

The results in the report reflect only the model of the items under test unless noted otherwise. This document may not be altered or revised in any way unless done so by Honeywell and all revisions are duly noted in the revisions section. Any alterations of this document not carried out by Honeywell 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.

Test Report Revision History				
Revision	Prepared By	Reviewed By	Revision Detail	Release Date
---	M. Antola	A. Roussin	Original Release	2018-04-05
A	M. Antola	A. Roussin	Updated test item description and worse-case mode sections	2018-04-17

Report Authorization

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Applicable Test Standards/Limits

Test Standards/Limits	Result	Dates Tested
ANSI C63.4: 2014	Compliant	3/15/18 – 4/5/18
ANSI C63.10: 2013	Compliant	3/15/18 – 4/5/18
ICES-003 Issue 6: 2016	Compliant	3/15/18 – 4/5/18
RSS-247, Issue 2, Section 5	Compliant	3/15/18 – 4/5/18
RSS-GEN, Issue 4	Compliant	3/15/18 – 4/5/18
CFR 47 Pt 15 Subpart B, Section 15.107/109	Compliant	3/15/18 – 4/5/18
CFR 47 Pt 15 Subpart C, Section 15.207/209	Compliant	3/15/18 – 4/5/18
CFR 47 Pt 15 Subpart C, Section 15.247	Compliant	3/15/18 – 4/5/18

Deviations from Test Methods

#	Deviation Description
0	None

Facilities and Accreditation

The test site and measurement facility used to collect data are located at 2 Corporate Center Dr., Melville, NY 11747, USA. Honeywell International is accredited by NVLAP, Laboratory Code 600110-0. The full scope of accreditation can be viewed at the NVLAP website.

Test Item Description

The Honeywell SiXC2W is an eight zone hardwire to wireless converter used with controllers that support Honeywell's SiX™ series devices. It is useful in retrofit 12-volt security system applications where existing contact wiring was used. It uses those existing wired contacts and converts them to wireless. The EUT is AC powered with battery backup. The power transformer used with the SiXC2W is Mfg. Honor Electronics Co., Model: ADS-6UA-06 0505E (Honeywell part number: 300-10259).

Each of the 8 zones were resistively loaded to simulate connected peripherals. This is also the configuration used during initial EUT setup/calibration

The SiXC2W utilizes a 2.4GHz Zigbee-based transmitter and contain two (2) integral antennas, each having a gain of 2dBi.

Worse-Case Configuration & Mode

Radiated emissions was performed with the EUT set to transmit at the channel with the highest output power as worst-case scenario. The EUT was tested in all three orthogonal planes in order to determine the worst-case emissions. It was determined that the X axis orientation was the worst-case orientation. Therefore, all final radiated test was performed with the EUT in the X axis orientation. See setup photos for details. AC powered proved to be the worse-case configuration and was tested as such.

Test Sample Identification

Sample ID Number	Sample Serial Number	Date Received
MEL-454	Non-serialized production unit	3/14/18
MEL-456	Non-serialized production unit	3/15/18

Calibration & Measurement Uncertainty

- Measuring Instrument Calibration – The measuring equipment utilized to perform the tests documented in this report have been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.
- 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)

[i.e.] 37 dBuV/m = 30 dBuV + 18.5 dB/m + 0.5 dB – 12 dB

- Uncertainty - Figures are valid to a confidence level of 95%.

Test	Standard Uncertainty
Radiated Emissions (30-200MHz Horizontal)	+/- 5.05 dB
Radiated Emissions (30-200MHz Vertical)	+/- 5.28 dB
Radiated Emissions (200-1000MHz Horizontal)	+/- 10.21 dB
Radiated Emissions (200-1000MHz Vertical)	+/- 10.36 dB
Radiated Emissions (Above 1GHz)	+/- 9.70 dB
Conducted Emissions (150KHz-30MHz)	+/- 4.36 dB

Opinions / Interpretations

None

Test Summary

All tests described below are required, unless otherwise noted. Notes should be described in detail in the "Additional notes" section.

#	Test Description	Status
2	99% Occupied Bandwidth	PASS
3	6 dB Emission Bandwidth	PASS
4	Maximum Conducted Output Power	PASS
5	Maximum Power Spectral Density	PASS
6	Band Edge / Conducted Spurious Emissions	PASS
7	Radiated Emissions (Unintentional)	PASS
8	Radiated Emissions (Intentional)	PASS
9	Conducted Emissions (Mains)	PASS

On Time and Duty Cycle

Test Description

Refer to KDB 558074 Zero-Span Analyzer Method.

Test Criteria

Reference	Limit
KDB 558074, Section 6	None, for reporting only

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	3/26/18	23	14.6	1010	P

Equipment List

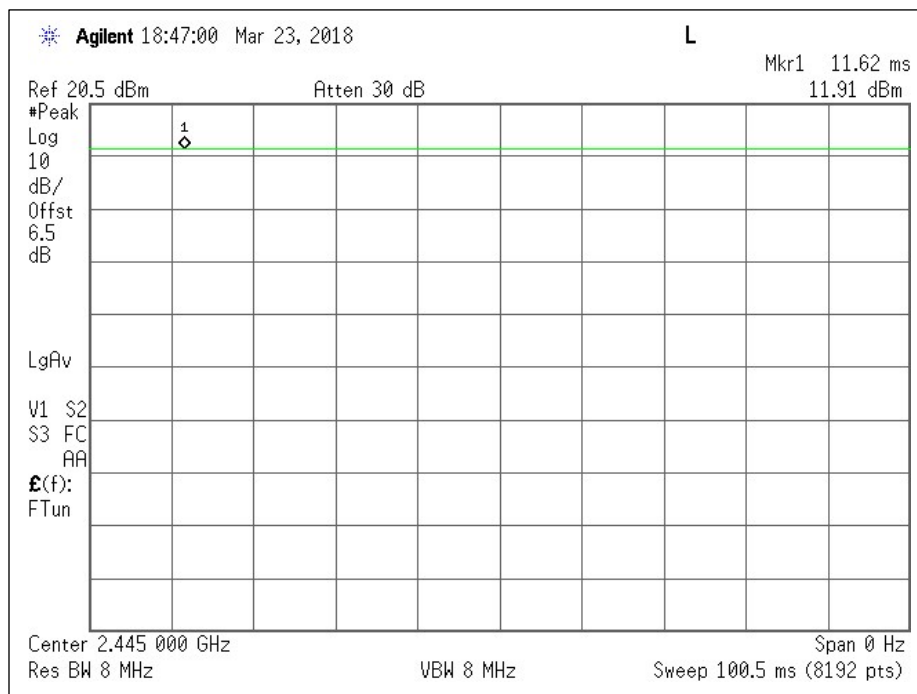
Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
Spectrum Analyzer	11549	MY46187211	Agilent	E4440A	06/06/17	06/06/19
Environmental Meter	11548	A078188	Extech Instruments	SD700	04/24/17	04/24/18

Test Results

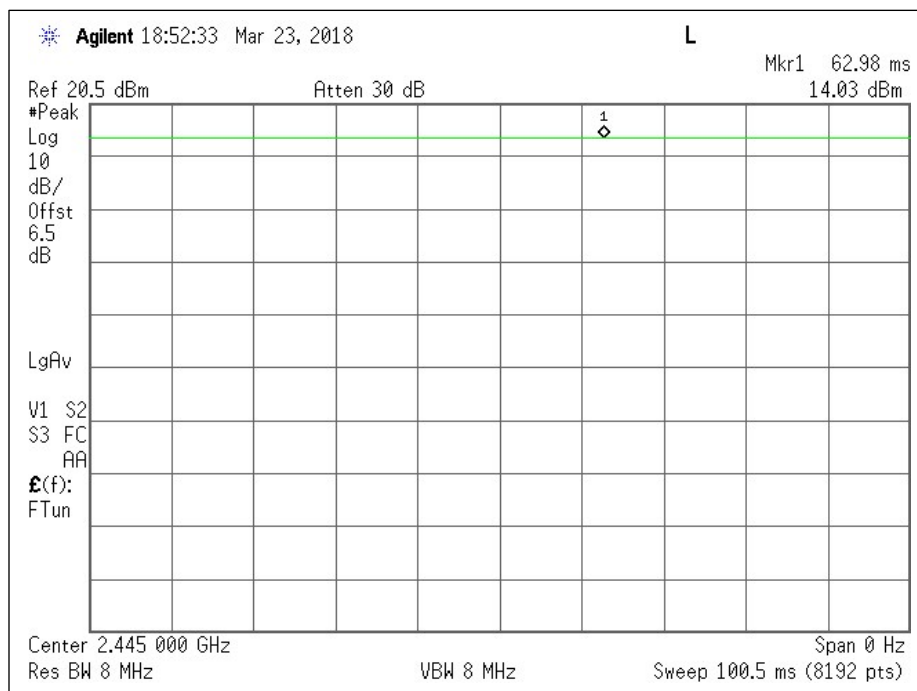
Antenna	On Time (usec)	Period (usec)	Duty Cycle	Duty Cycle (%)
1	11.62	11.62	1	100
2	62.98	62.98	1	100

Note: The duty cycle used for testing was 100%. In normal operation, the device is limited by the protocol to a maximum operational duty factor of 6.976% (refer to additional exhibits in this filing) and this value is used to determine the average level of radiated spurious emissions related to the fundamental from the measured peak level of the spurious emission using the 20log(d) factor allowed under section 12.5.2.2 (4) of KDB 558074.

Duty Cycle Plots



Antenna 1 - Plot



Antenna 2 - Plot

6dB Emission Bandwidth (DTS Bandwidth)

Test Description

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Refer to KDB 558074 D01 DTS Meas Guidance v04.

Test Criteria

Reference	Limit
CFR 47 Subpart C 15.247 (a)(2) RSS-247 Section 5.2 (a)	$\geq 500\text{kHz}$

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
MA	RF Lab	3/23/18	23	14.6	1010	P

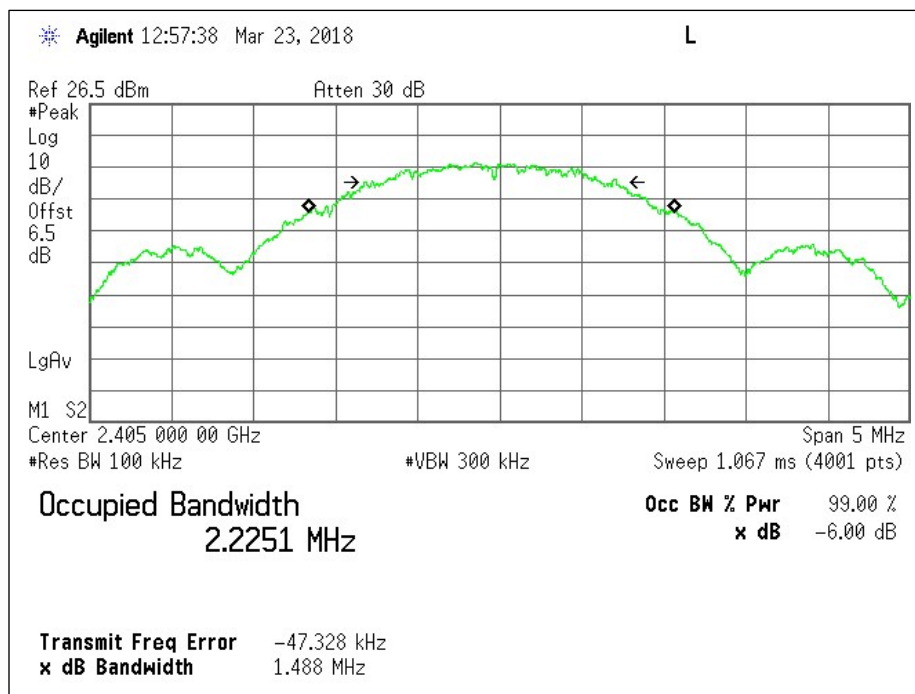
Equipment List

Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
Spectrum Analyzer	11549	MY46187211	Agilent	E4440A	06/06/17	06/06/19
Environmental Meter	11548	A078188	Extech Instruments	SD700	04/24/17	04/24/18

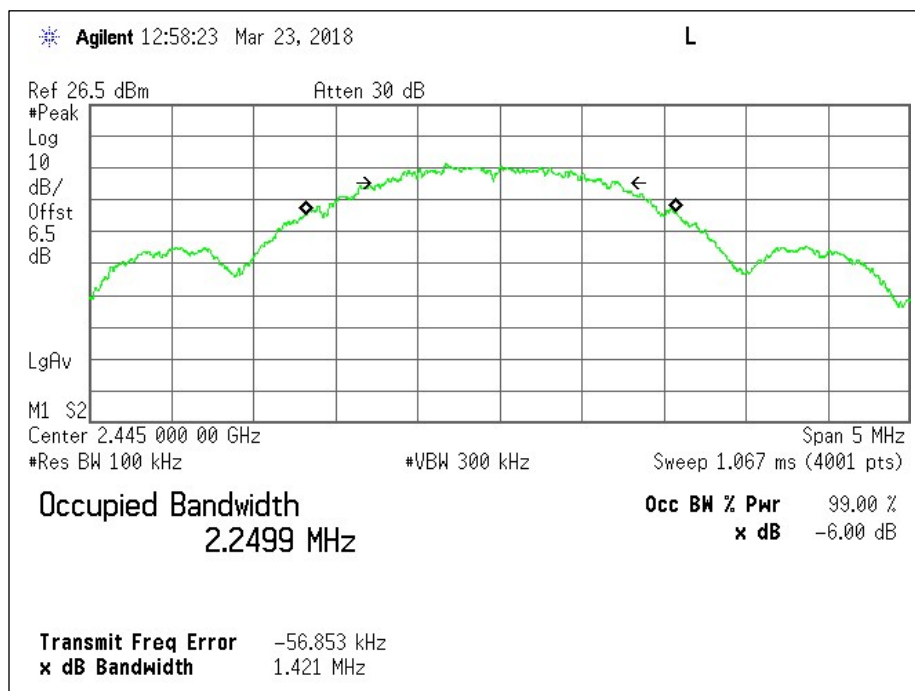
Test Results

Channel	Frequency (GHz)	6dB Bandwidth (in MHz)	
		Antenna 1	Antenna 2
Low	2.405	1.488	1.415
Mid	2.445	1.421	1.560
High	2.475	1.564	1.557

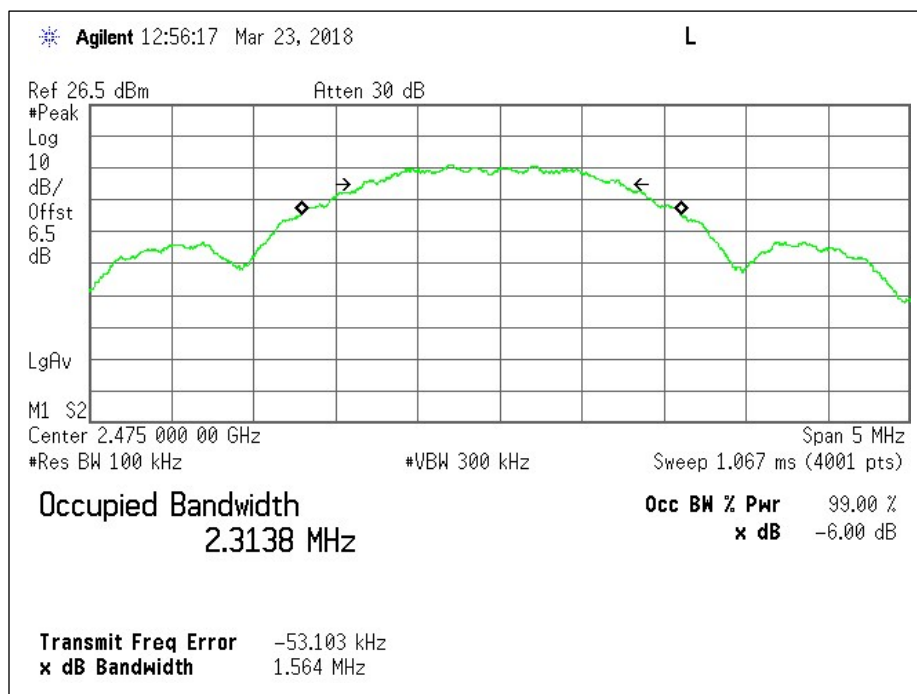
6dB Bandwidth



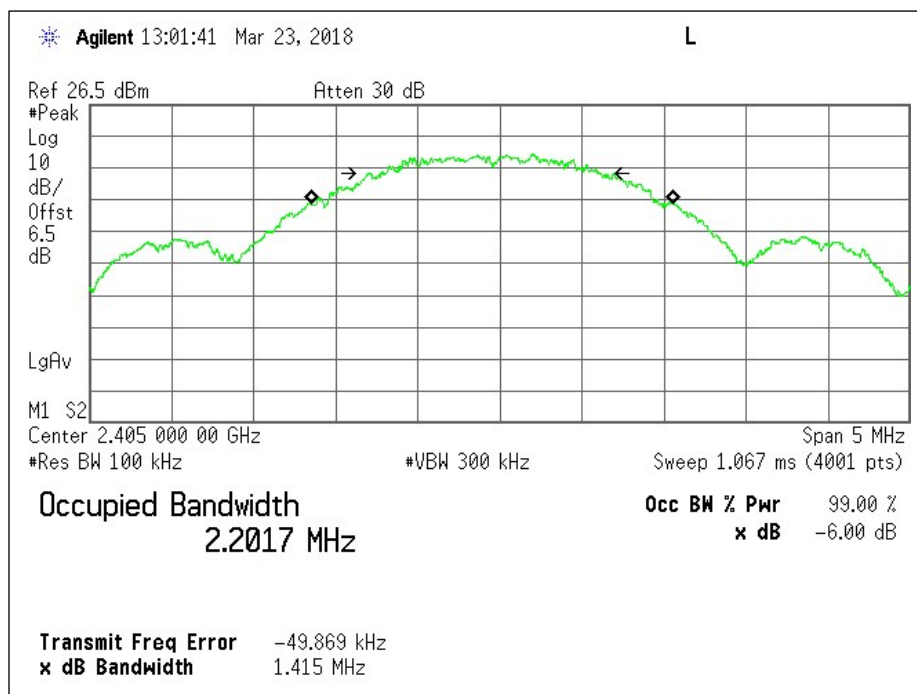
Antenna 1: Low Channel - Plot



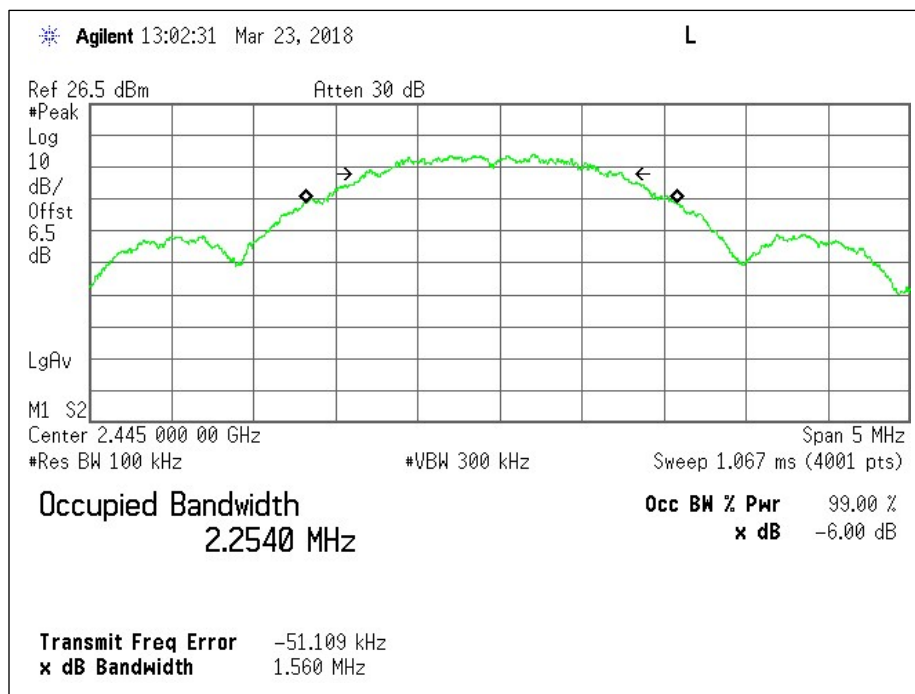
Antenna 1: Mid Channel - Plot



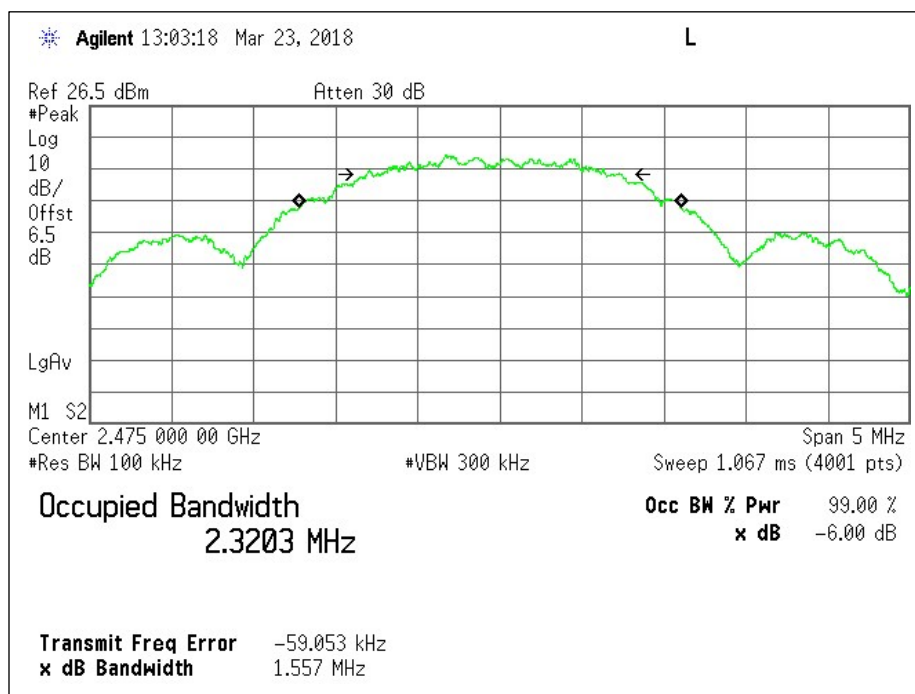
Antenna 1: High Channel – Plot



Antenna 2: Low Channel - Plot



Antenna 2: Mid Channel - Plot



Antenna 2: High Channel - Plot

99% Occupied Bandwidth

Test Description

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth.

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

Test Criteria

Reference	Limit
RSS-GEN, Section 6.6	N/A

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
MA	RF Lab	3/23/18	23	14.6	1010	P

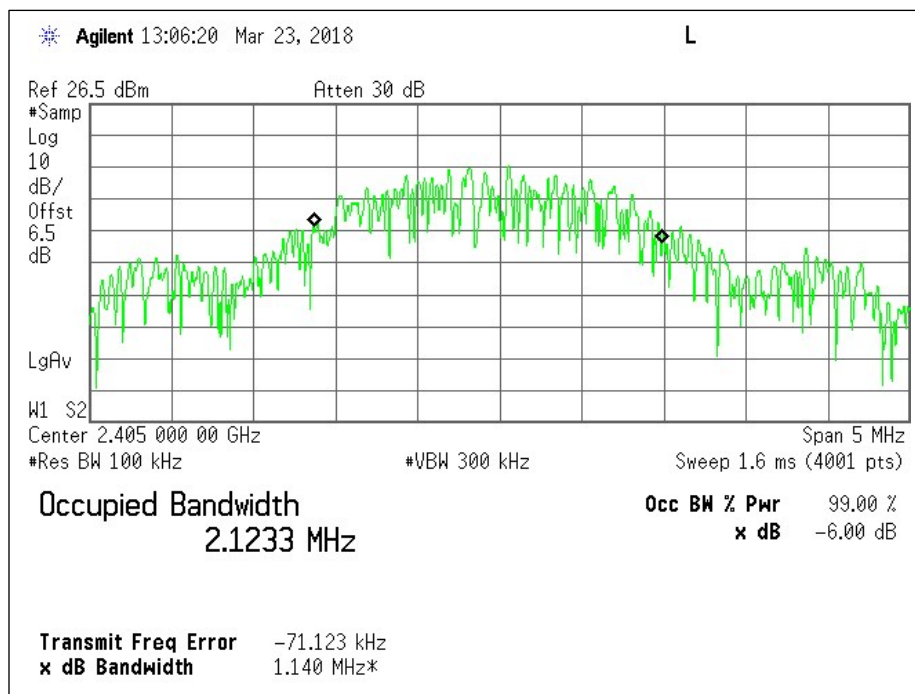
Equipment List

Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
Spectrum Analyzer	11549	MY46187211	Agilent	E4440A	06/06/17	06/06/19
Environmental Meter	11548	A078188	Extech Instruments	SD700	04/24/17	04/24/18

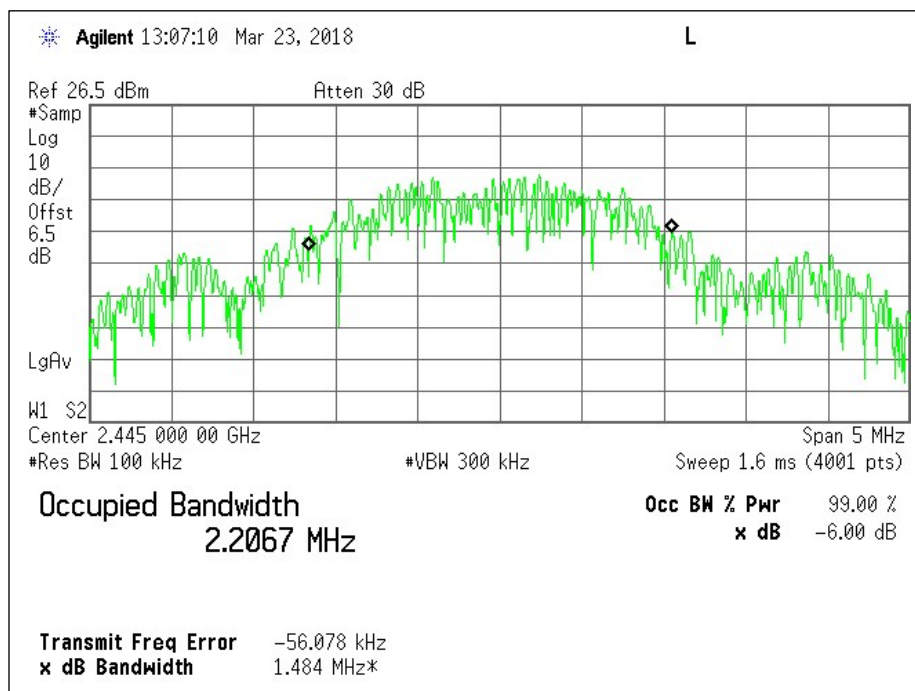
Test Results

Channel	Frequency (GHz)	99% Bandwidth (in MHz)	
		Antenna 1	Antenna 2
Low	2.405	2.1233	2.2629
Mid	2.445	2.2067	2.2025
High	2.475	2.2867	2.3411

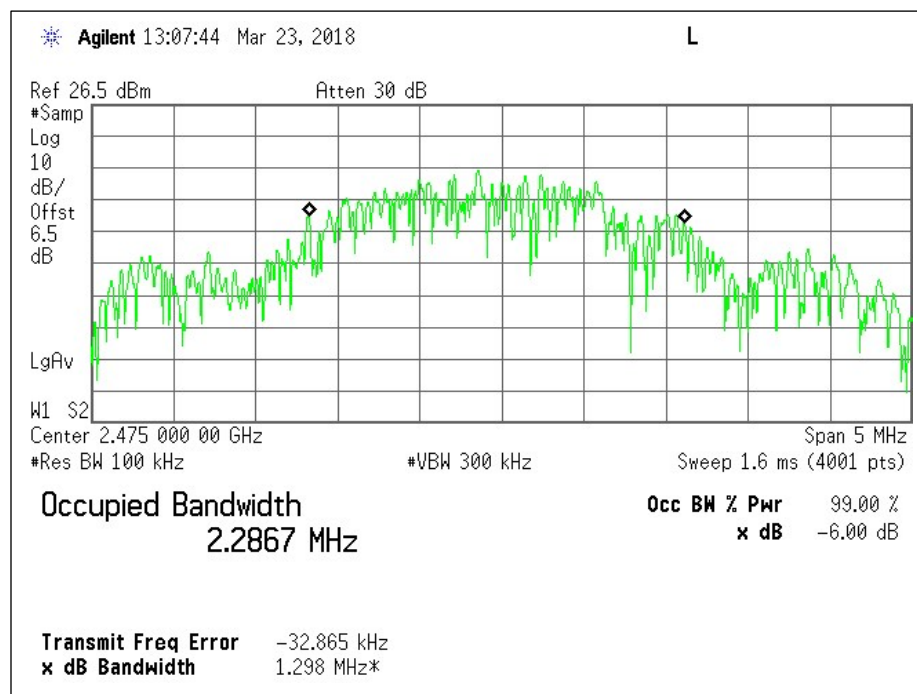
99% Occupied Bandwidth



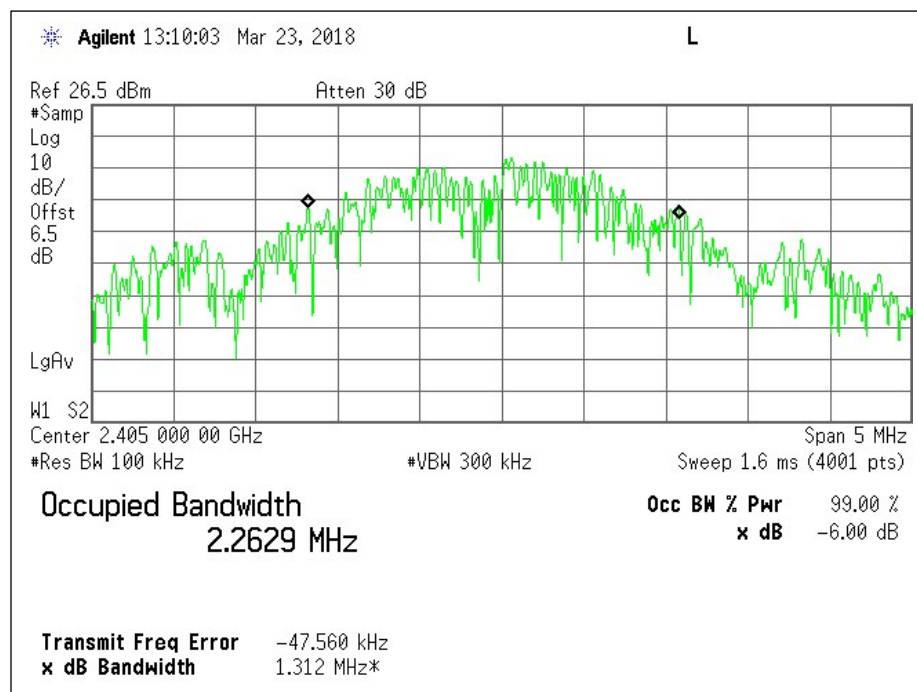
Antenna 1: Low Channel - Plot



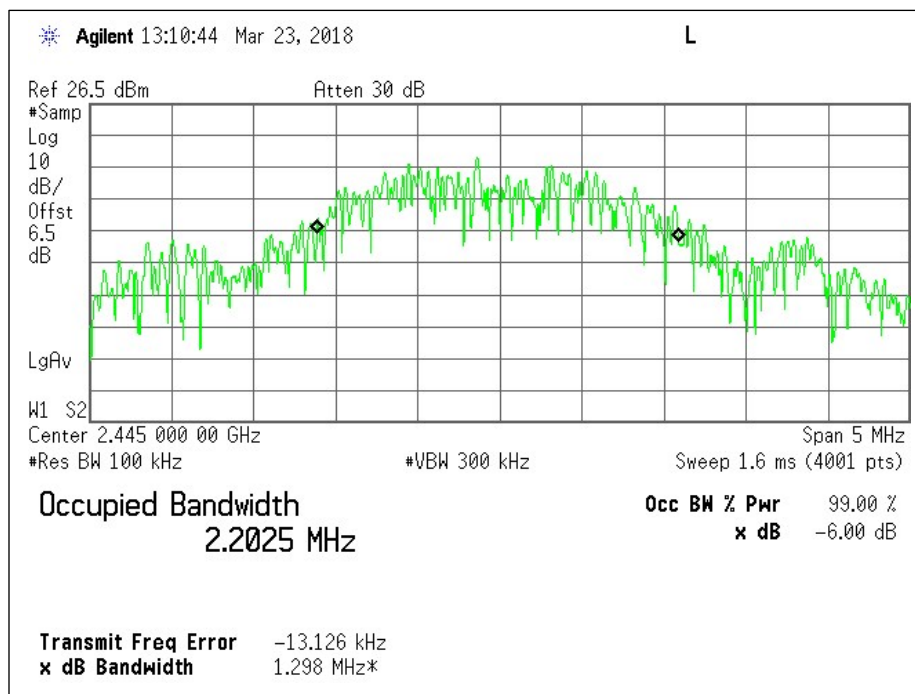
Antenna 1: Mid Channel - Plot



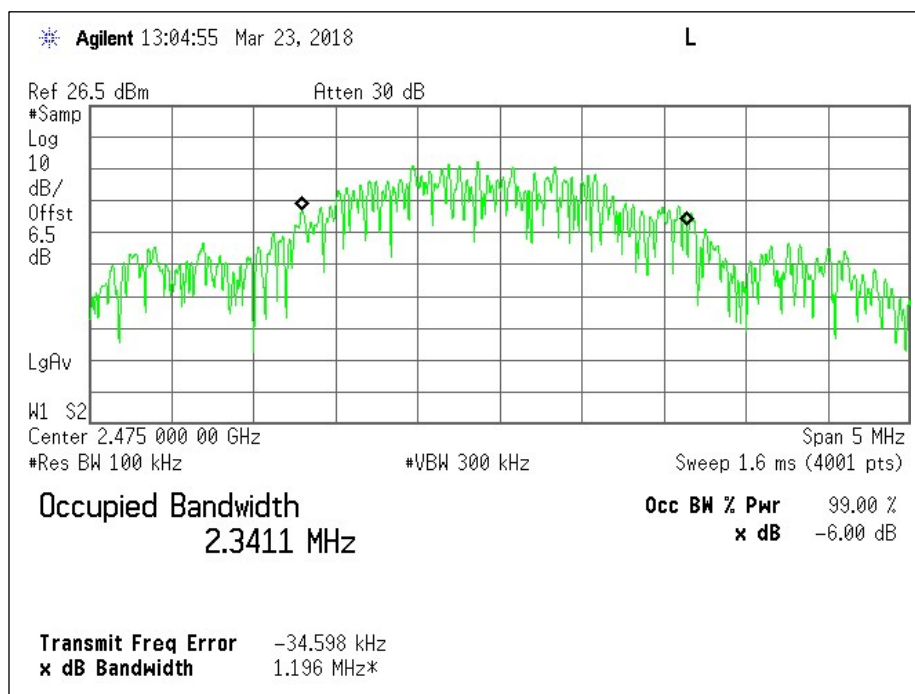
Antenna 1: High Channel – Plot



Antenna 2: Low Channel - Plot



Antenna 2: Mid Channel - Plot



Antenna 2: High Channel - Plot

Maximum Conducted Output Power

Test Description

For systems using digital modulation in the 902-928MHz, 2400-2483,5MHz and 5725-5850MHz bands, the conducted output power limit (specified below) is 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.

Maximum conducted (average) output power was the method employed to determine fundamental emission output power.

Method AVGSA-1 per C63.10 and KDB 558074 was utilized for this test program.

Test Criteria

Reference	Limit
CFR 47 Subpart C 15.247 (b)(3) RSS-247 Section 5.4 (d)	1W (30dBm)

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
MA	RF Lab	3/23/18	23	14.6	1010	P

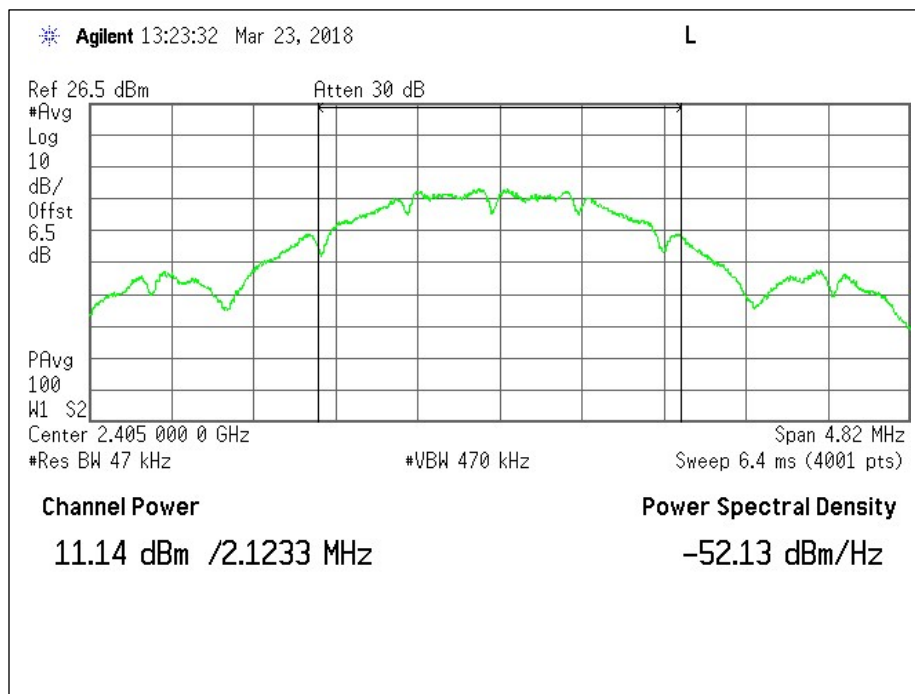
Equipment List

Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
Spectrum Analyzer	11549	MY46187211	Agilent	E4440A	06/06/17	06/06/19
Environmental Meter	11548	A078188	Extech Instruments	SD700	04/24/17	04/24/18

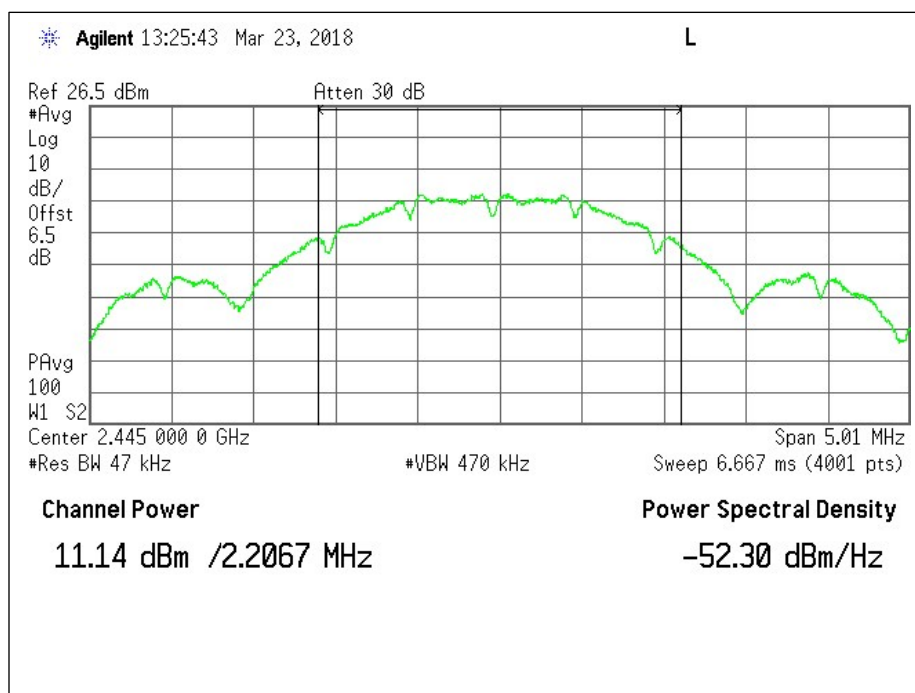
Test Results

Channel	Frequency (GHz)	Tx Channel BW Power (dBm)	
		Antenna 1	Antenna 2
Low	2.405	11.14	13.28
Mid	2.445	11.14	13.69
High	2.475	10.73	13.87

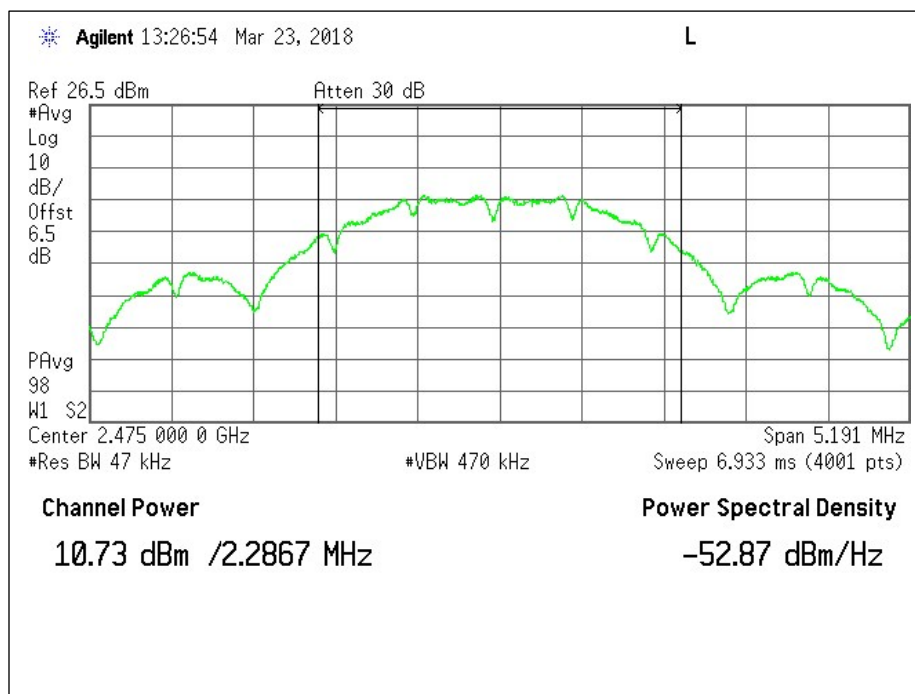
Output Power



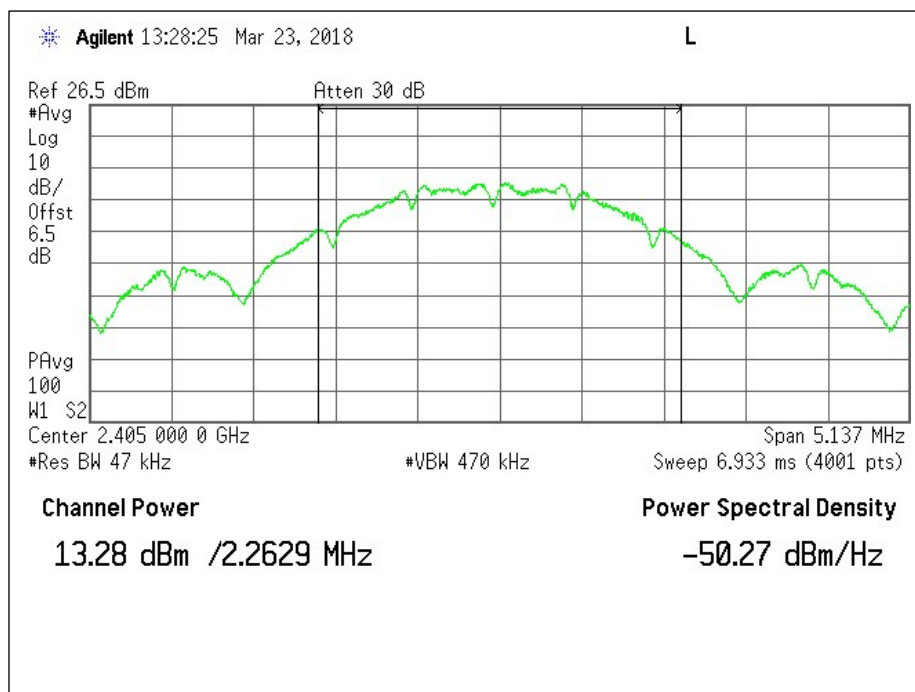
Antenna 1: Low Channel - Plot



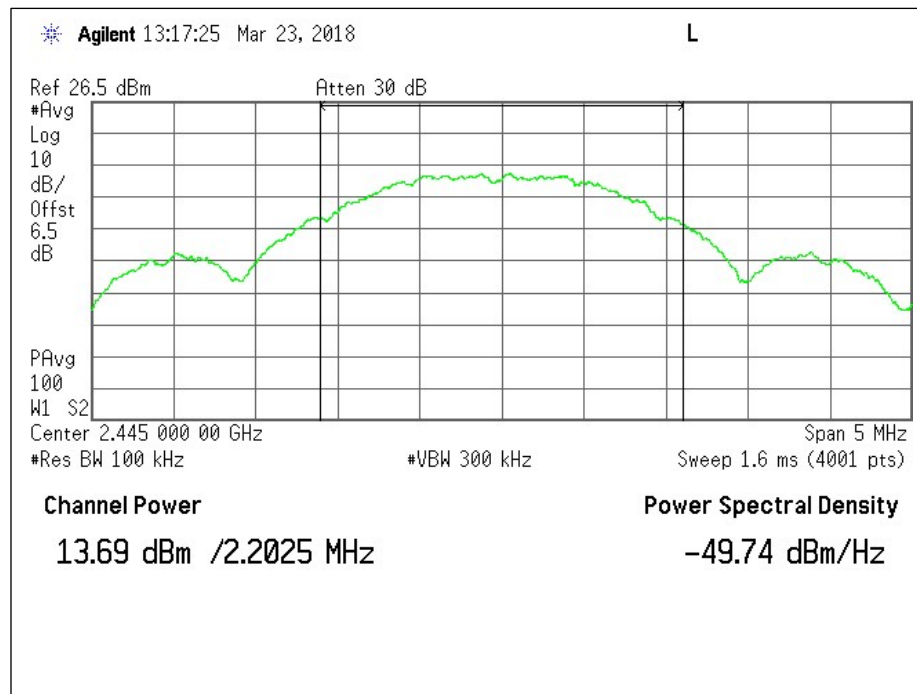
Antenna 1: Mid Channel - Plot



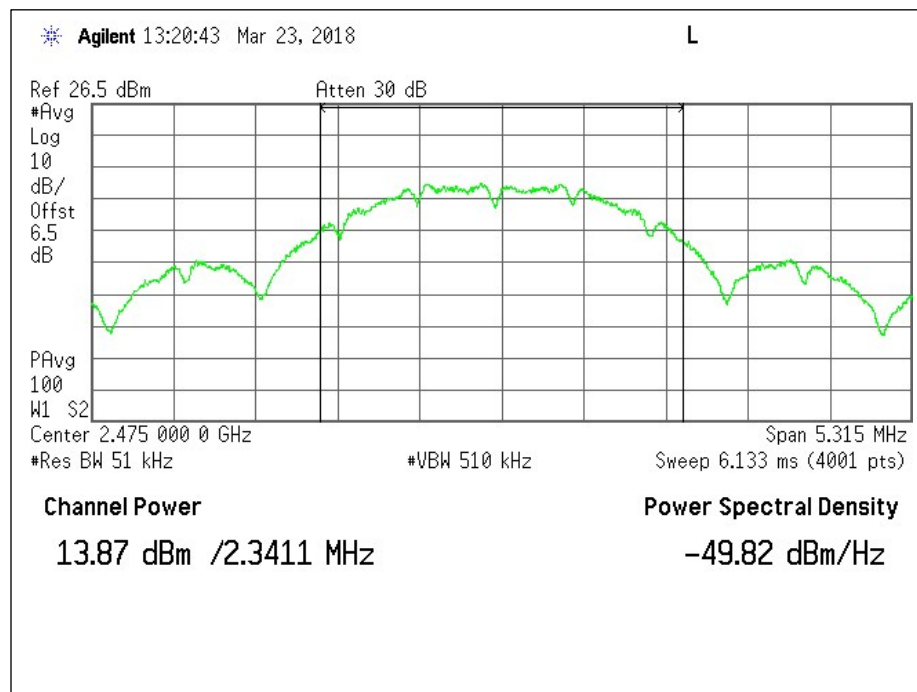
Antenna 1: High Channel – Plot



Antenna 2: Low Channel - Plot



Antenna 2: Mid Channel - Plot



Antenna 2: High Channel - Plot

Maximum Power Spectral Density

Test Description

The DTS rules specify a conducted PSD limit within the *DTS bandwidth* during any time interval of continuous transmission. Such specifications require that the same method as used to determine the conducted output power shall also be used to determine the power spectral density. Therefore, if maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used.

Since maximum conducted (average) output power was the method employed to determine fundamental emission output power, then the average power spectral density method was utilized.

Method AVGPS-1 per C63.10 and KDB 558074 was utilized for this test program.

Test Criteria

Reference	Limit
CFR 47 Subpart C 15.247 (e) RSS-247 Section 5.2 (b)	< 8 dBm in any 3 kHz Band

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
MA	RF Lab	3/23/18	23	14.6	1010	P

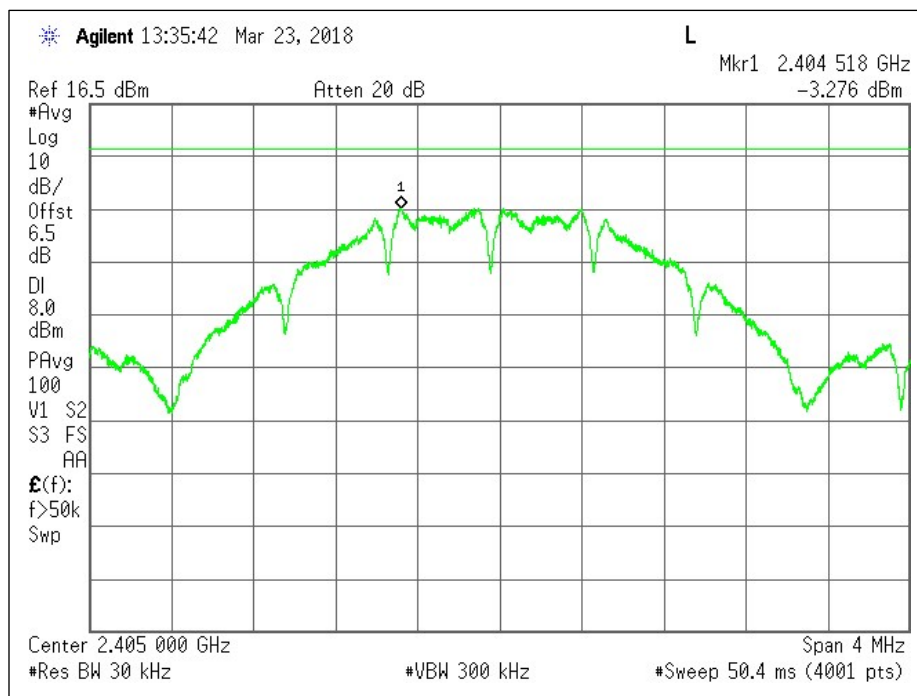
Equipment List

Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
Spectrum Analyzer	11549	MY46187211	Agilent	E4440A	06/06/17	06/06/19
Environmental Meter	11548	A078188	Extech Instruments	SD700	04/24/17	04/24/18

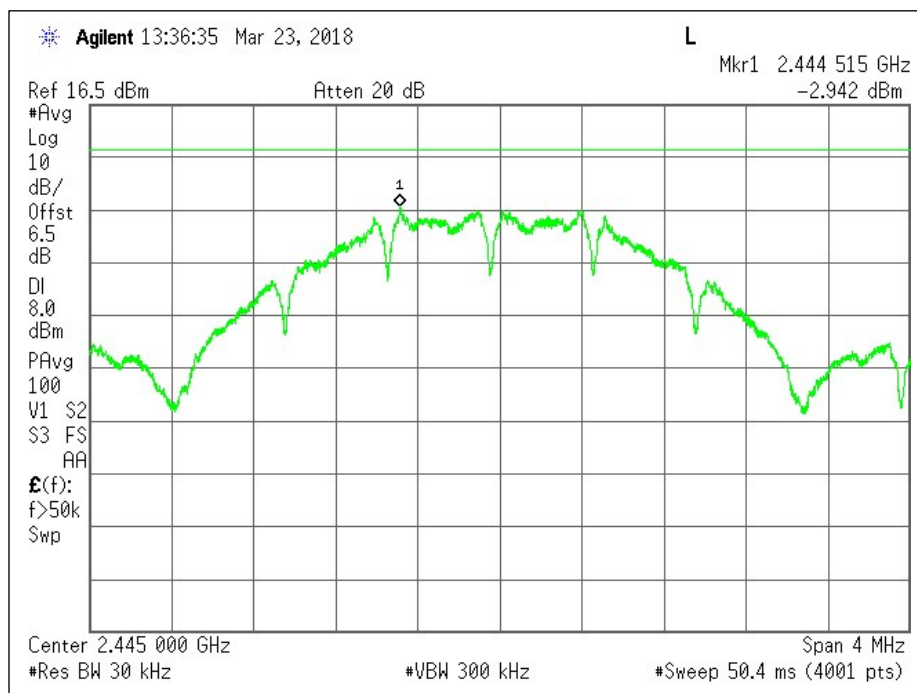
Test Results

Channel	Frequency (GHz)	Max Power (dBm)	
		Antenna 1	Antenna 2
Low	2.405	-3.276	0.228
Mid	2.445	-2.942	0.103
High	2.475	-3.479	-0.075

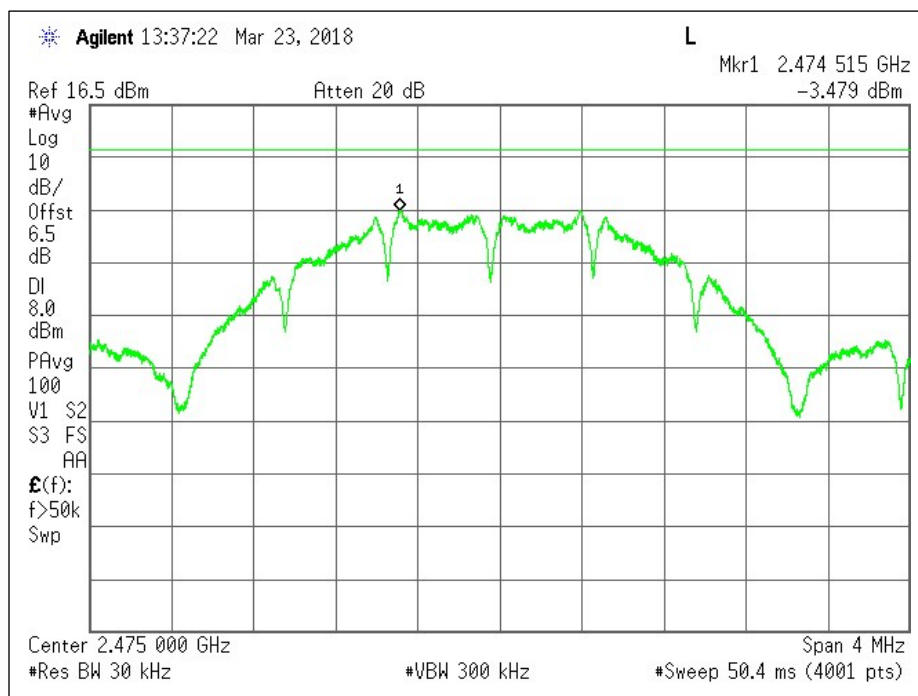
PSD



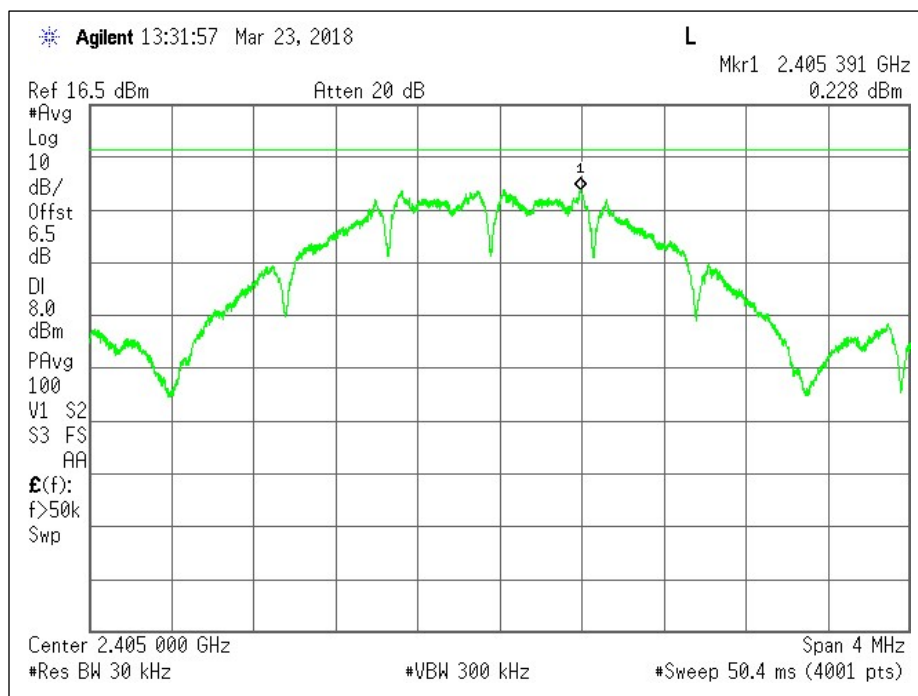
Antenna 1: Low Channel - Plot



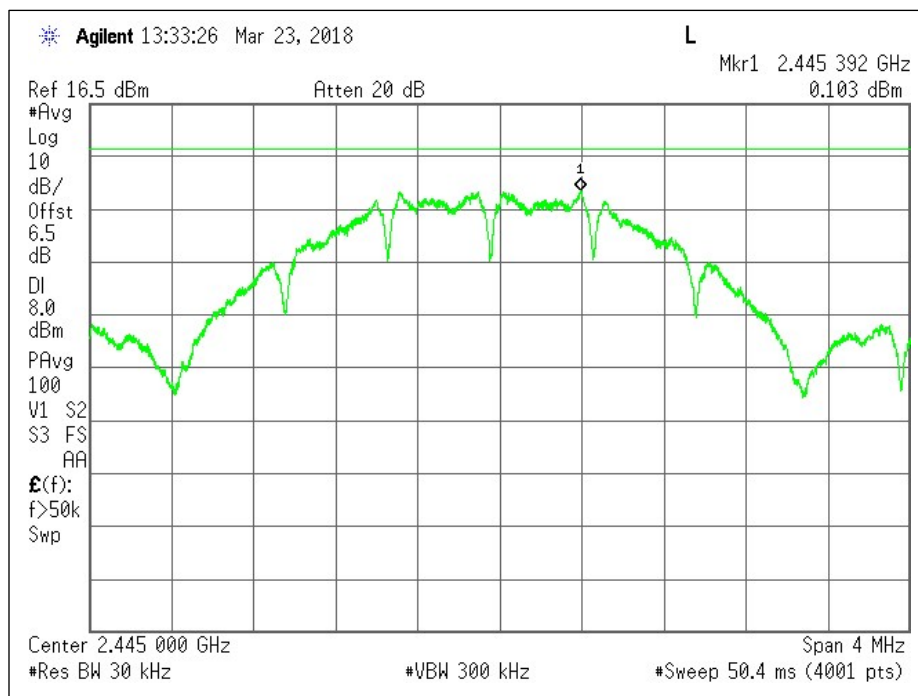
Antenna 1: Mid Channel - Plot



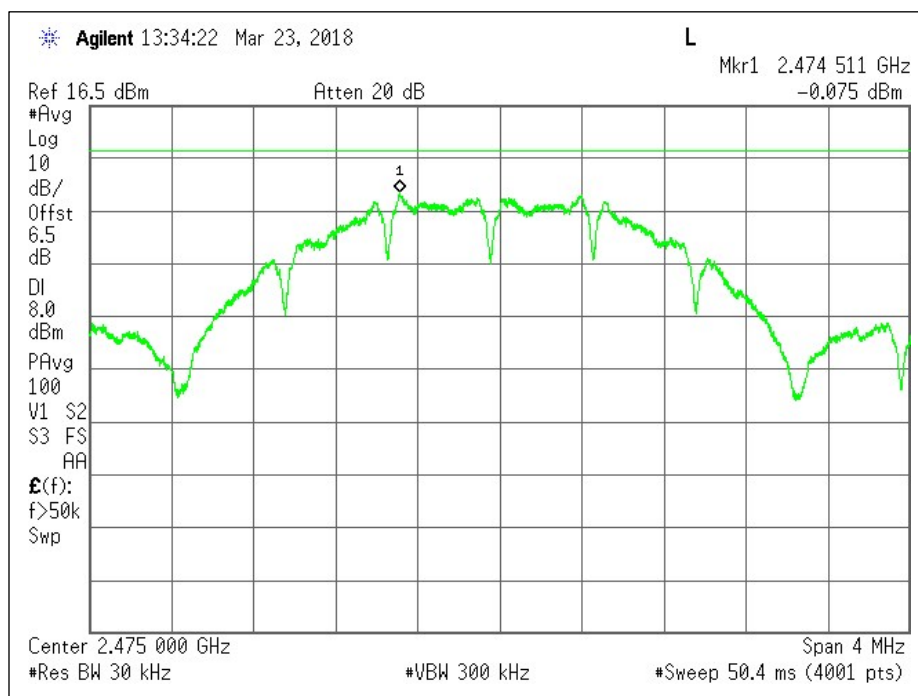
Antenna 1: High Channel – Plot



Antenna 2: Low Channel - Plot



Antenna 2: Mid Channel - Plot



Antenna 2: High Channel - Plot

Authorized Band Edge / Conducted Spurious Emissions

Test Description

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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Test Criteria

Reference	Limit
CFR 47 Subpart C 15.247 (d) RSS-247, Section 5.5	30dB Below the Fundamental

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	3/23/18	23	14.6	1010	P

Equipment List

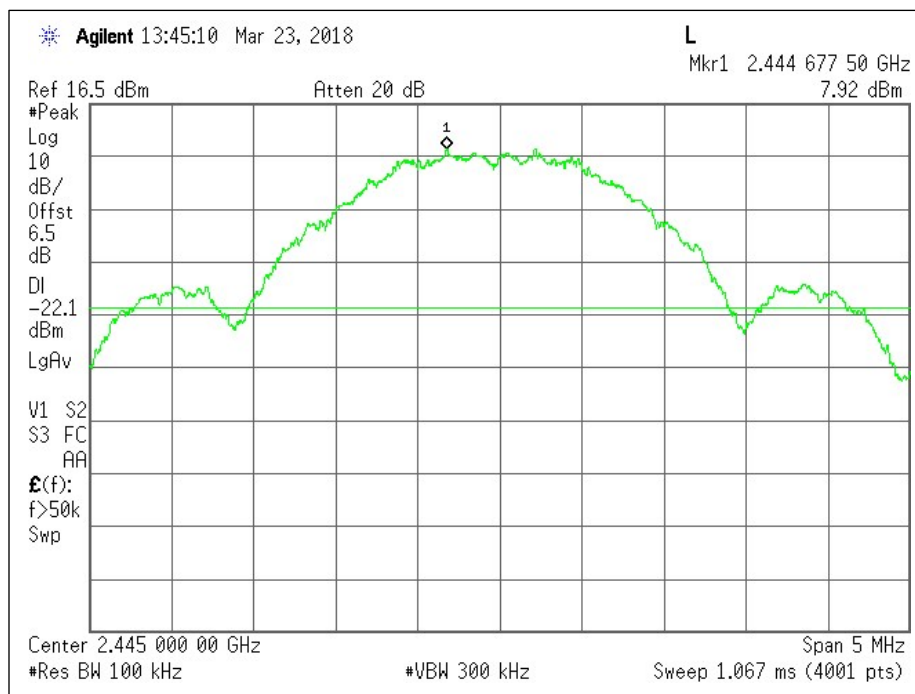
Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
Spectrum Analyzer	11549	MY46187211	Agilent	E4440A	06/06/17	06/06/19
Environmental Meter	11548	A078188	Extech Instruments	SD700	04/24/17	04/24/18

Test Results

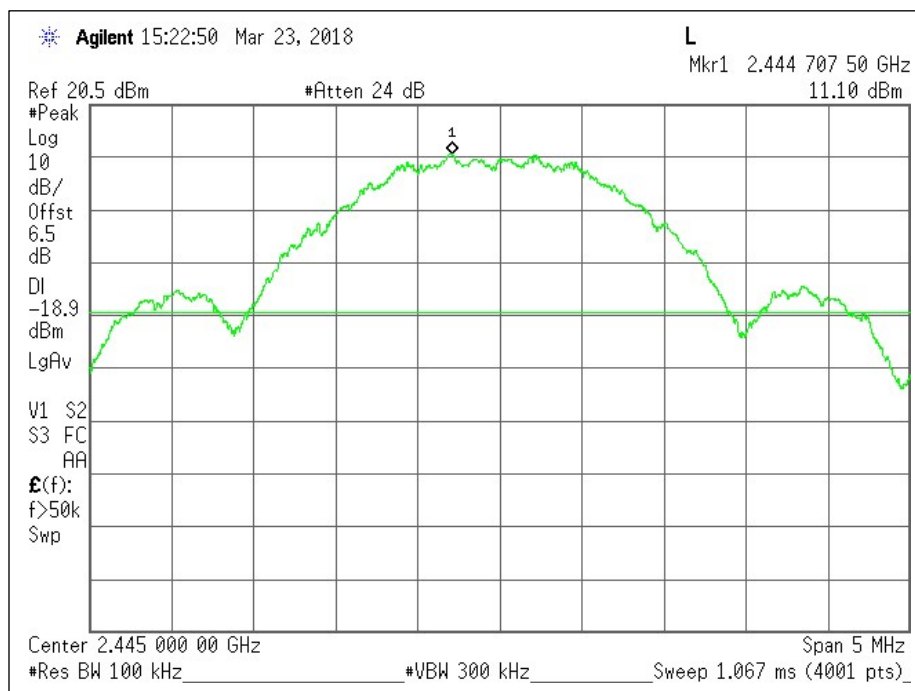
Authorized Band Edge			
Channel	Frequency (GHz)	Amplitude Delta from the -30dB down Limit (dB)	
		Antenna 1	Antenna 2
Low	2.405	-12.06	-14.09
High	2.475	-33.25	-33.95

Conducted Spurious			
Channel	Frequency (GHz)	Highest Spurious Emission Delta from the -30dB down Limit (dB)	
		Antenna 1	Antenna 2
Low	2.405	-26.33	-35.45
Mid	2.445	-26.09	-33.39
High	2.475	-26.57	-35.19

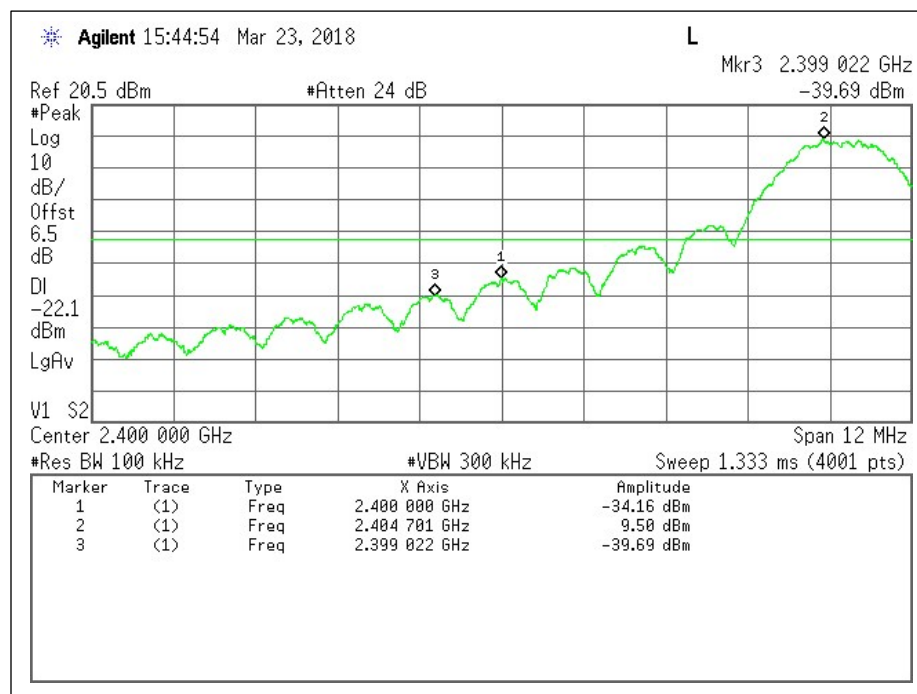
Band Edge



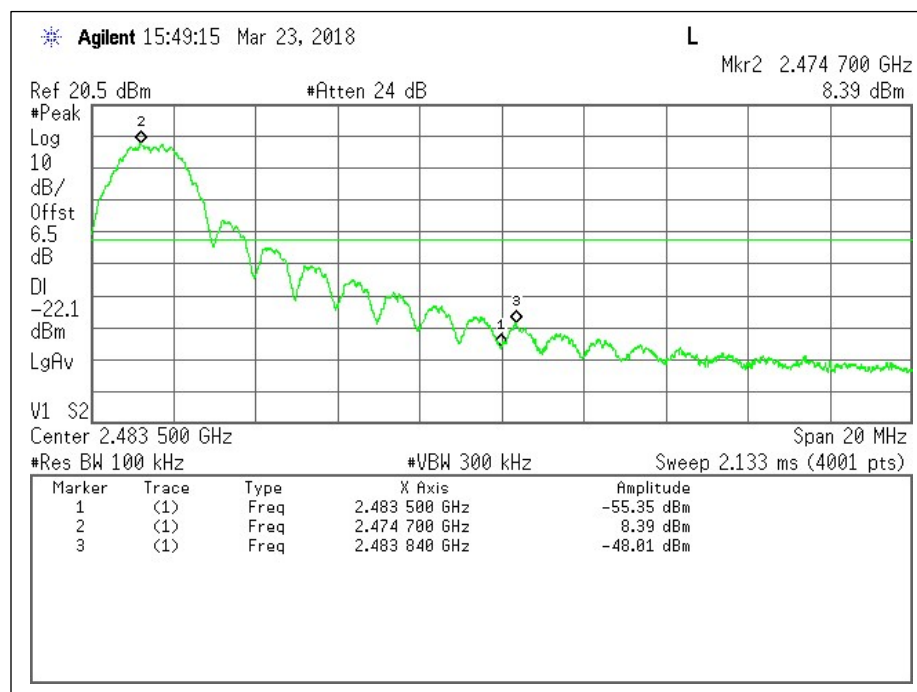
Antenna 1: Mid Channel Reference - Plot



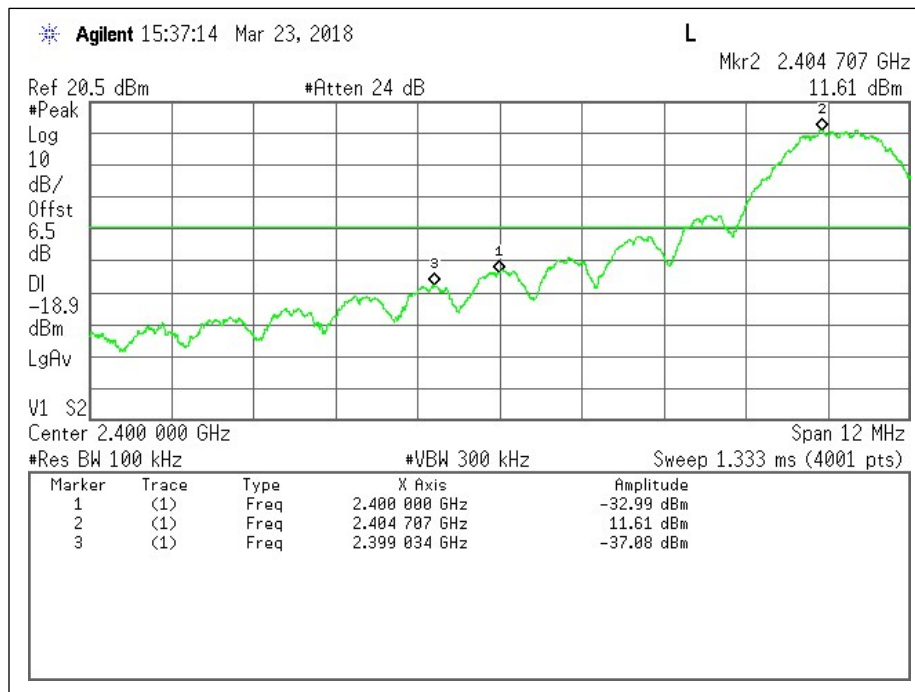
Antenna 2: Mid Channel Reference – Plot



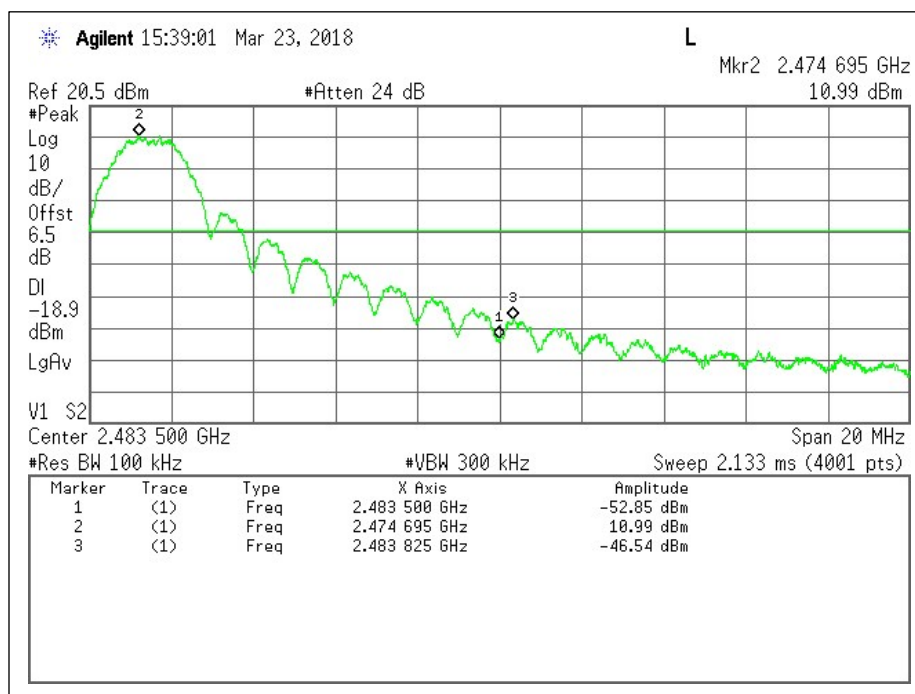
Antenna 1: Low Channel - Plot



Antenna 1: High Channel – Plot

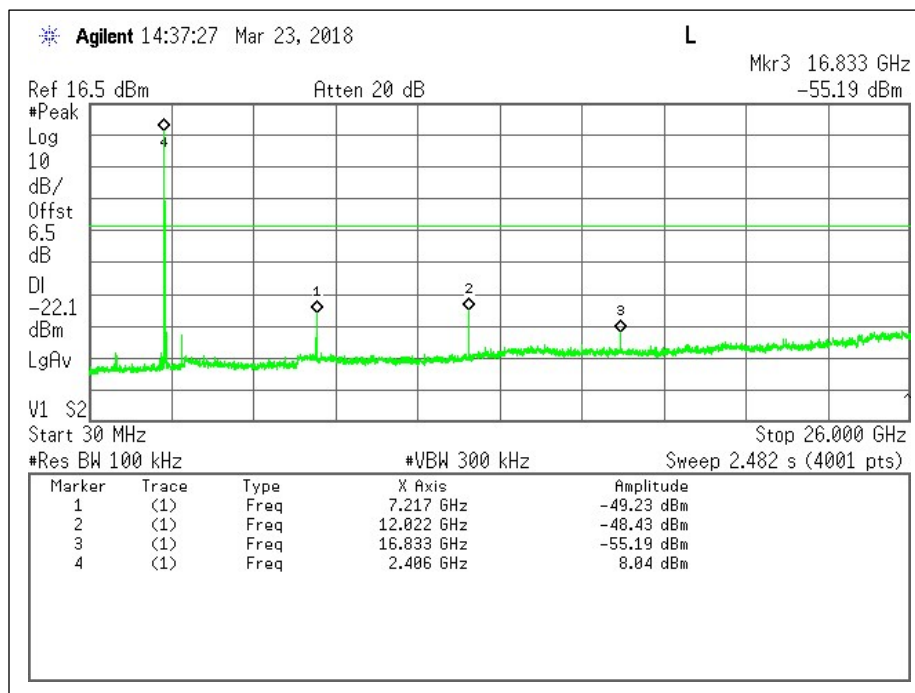


Antenna 2: Low Channel - Plot

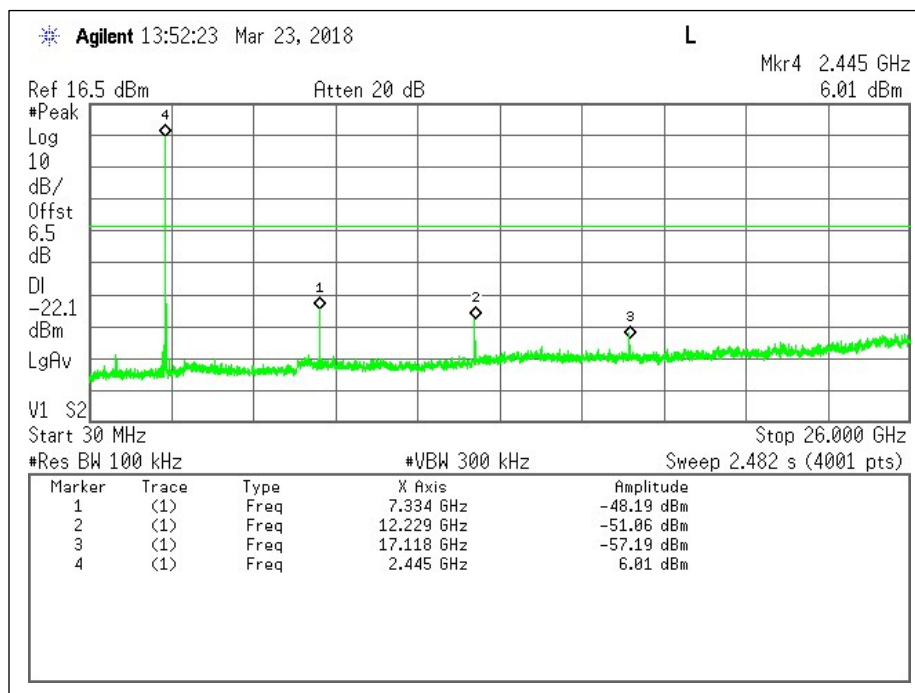


Antenna 2: High Channel - Plot

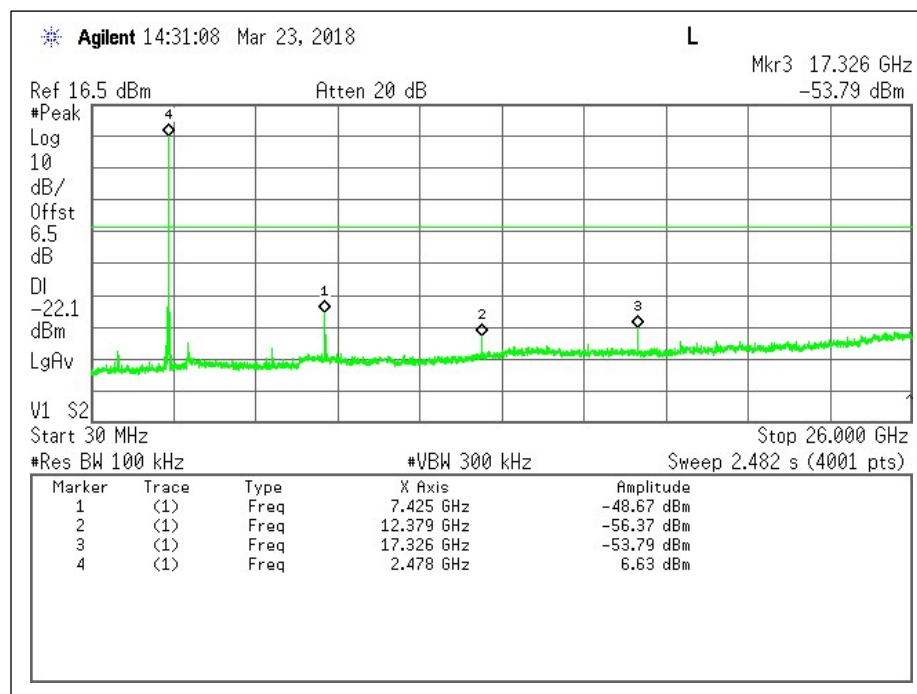
Conducted Spurious



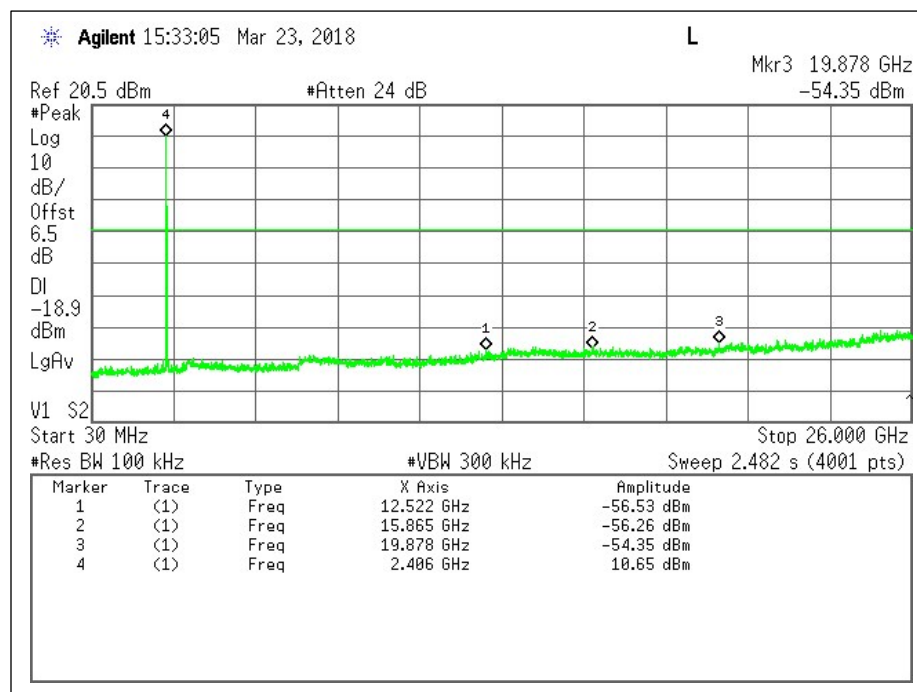
Antenna 1: Low Channel - Plot



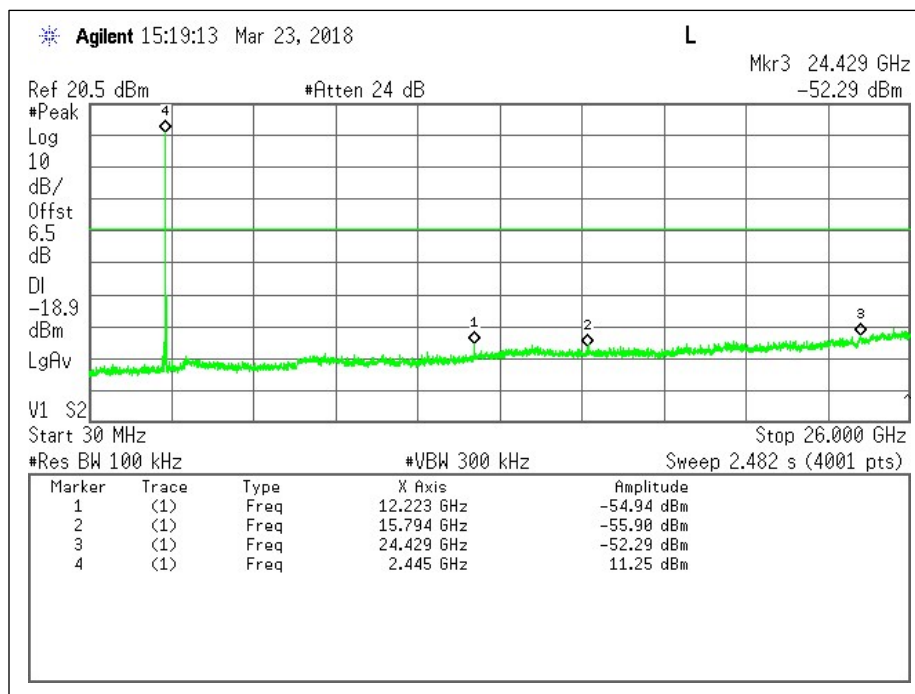
Antenna 1: Mid Channel - Plot



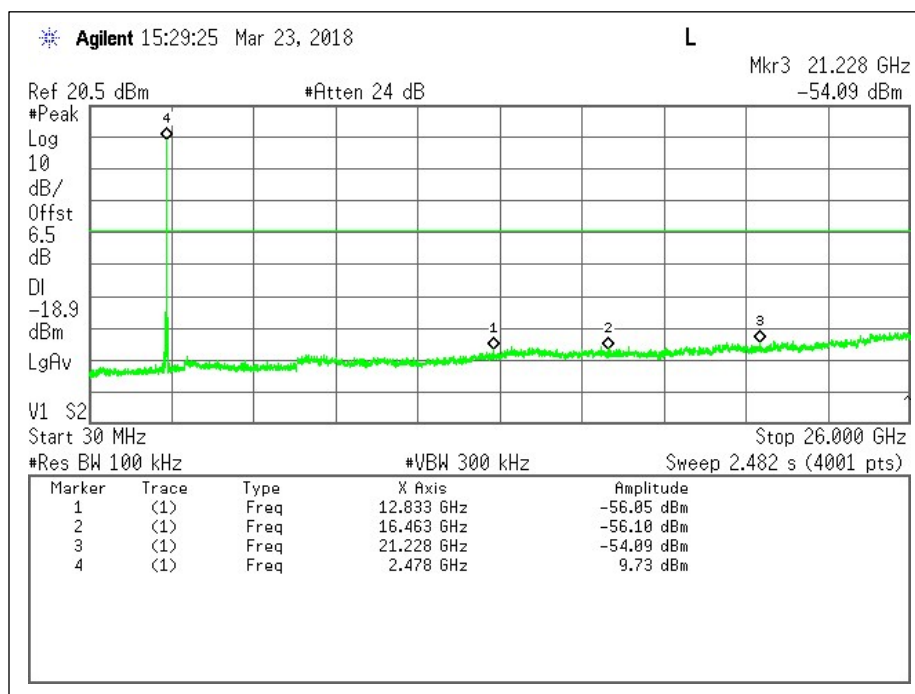
Antenna 1: High Channel – Plot



Antenna 2: Low Channel - Plot



Antenna 2: Mid Channel - Plot



Antenna 2: High Channel - Plot

Radiated Emissions (Unintentional)

Test Description

The Radiated Emissions (Unintentional) measurement is a test of the whole EUT during normal operation. It is a Radiated Emissions measurement performed from 30 MHz to 5x the highest operating frequency of the device. Prescans are done in a 3 meter anechoic chamber, while final measurements are made on the OATS. The EUT is positioned on a turntable in the manner for which the device will be normally used, with all peripherals connected in idle, with all cables typically used with the EUT dressed appropriately.

Test Criteria

Reference	Limit		
CFR 47 Subpart B, 15.109 ICES-003	Frequency Range	Field Strength Limit (uV/m) at 3M	Field Strength Limit (dBuV/m) at 3M
	30-88	100	40
	88-216	150	43.5
	216-960	200	46
	Above 960	500	54

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL/JB/MA	RF Chamber/OATS	3/21/18-3/27/18	3.3	63	1028	P

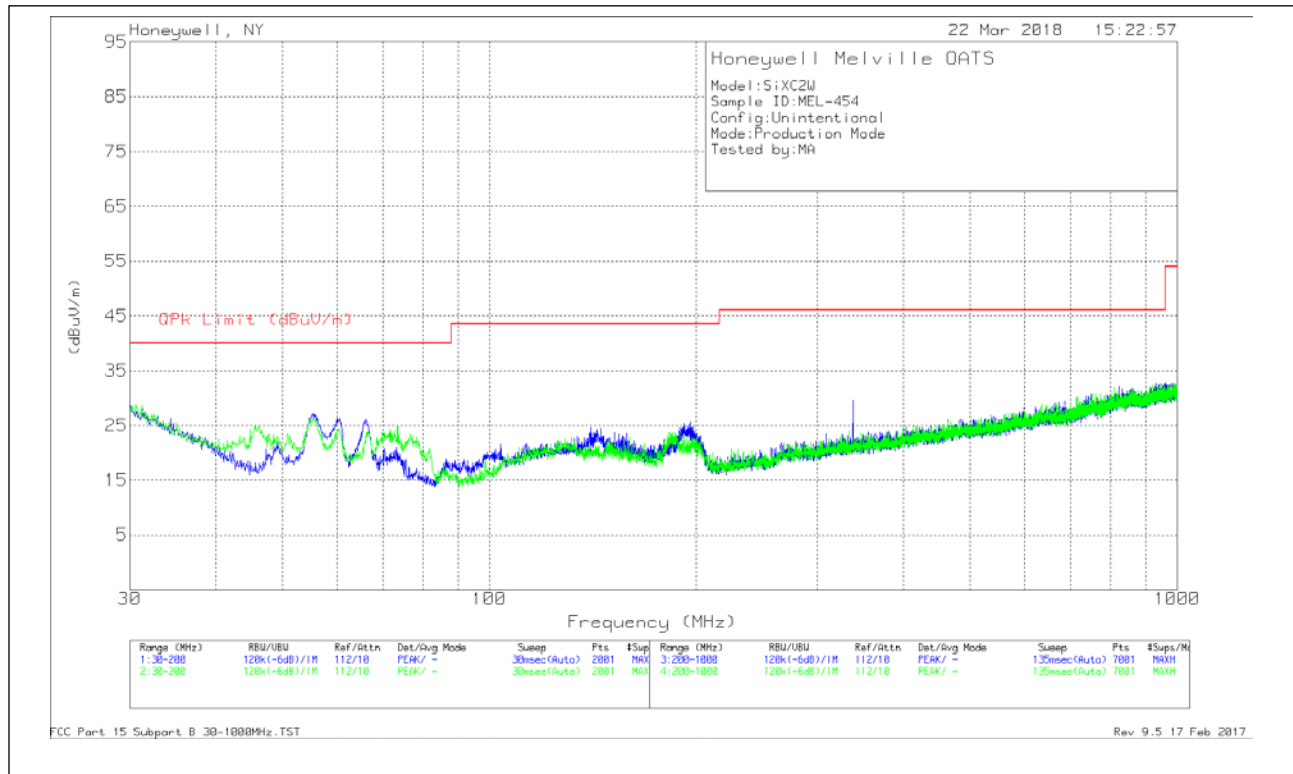
Equipment List

Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
RF Chamber						
Spectrum Analyzer	11496	100303	Rohde & Schwarz	FSU26	04/10/17	04/10/18
Bilog Antenna (30MHz-5GHz)	11311	A0022406	Sunol	JB5	02/01/18	02/01/19
Horn Antenna (1-18GHz)	2319	2317	EMCO	3115	01/10/18	01/10/19
Preamp (30-1000MHz)	11537	1603006	Mini Circuits	TVA-11-422	N/A	N/A
Preamp (1-18GHz)	11539	160362	Amplicial	AMP1G18-35	N/A	N/A
Measurement Software	11543	Version 9.5	UL	UL EMC	N/A	N/A
Environmental Meter	11548	A.078188	Extech Instruments	SD700	04/24/17	04/14/18
OATS						
Spectrum Analyzer	11545	103125	Rohde & Schwarz	FSW26	02/21/18	02/21/19
Bilog Antenna (30MHz-5GHz)	11311	A0022406	Sunol	JB5	02/01/18	02/01/19
Horn Antenna (1-18GHz)	2973	3127	EMCO	RGA-60	01/22/18	01/22/19

Preamplifier (1-18GHz)	11539	160362	Amplifier	AMP1G18-35	N/A	N/A
Measurement Software	11543	Version 9.5	UL	UL EMC	N/A	N/A
Environmental Meter	11533	A070144	Extech Instruments	SD700	08/21/17	08/21/20

Test Results

Below 1GHz



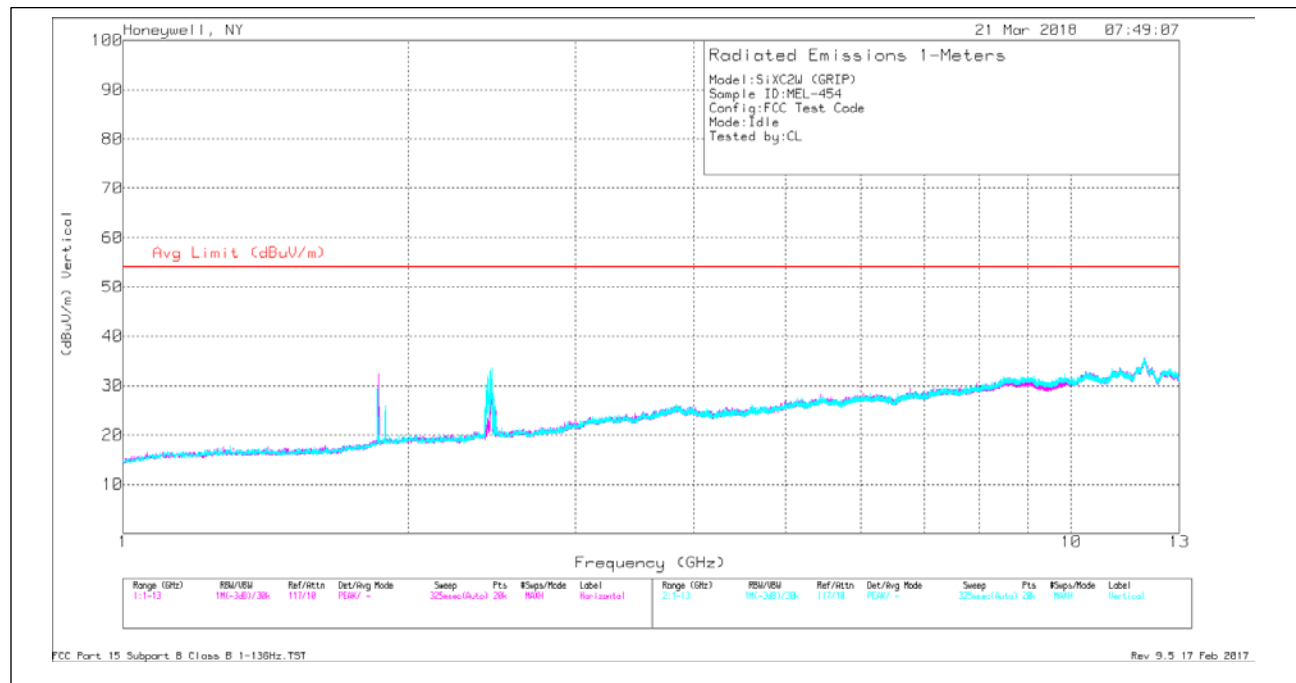
Plot

Frequency (MHz)	Meter Reading (dBuV)	Det	AF JB5 [dB]	Cable 1 [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
67.2195	15.26	Qp	13.3	1.3	29.86	40	-10.14	56	108	H
60.027	14.61	Qp	12.8	1.2	28.61	40	-11.39	189	379	H
55.8786	17.46	Qp	12.7	1.1	31.26	40	-8.74	164	166	V
59.9972	16.7	Qp	12.8	1.2	30.7	40	-9.3	189	137	V
73.2871	12.04	Qp	13.6	1.3	26.94	40	-13.06	174	186	V
335.2055	4.38	Qp	19.9	3.8	28.08	46.02	-17.94	265	290	H

Qp - Quasi-Peak detector

Data

Above 1GHz



Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX1 [dB]	SMA7 [dB]	SMA5 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.953	56.9	Av	28.1	-42.5	2.4	2.3	47.2	54	-6.8	74	-26.8	0	369	H
3.847	27.58	Av	32.7	-41.2	3.3	3.2	25.58	54	-28.42	74	-48.42	156	162	H
11.926	24.89	Av	39.5	-38.1	6.9	5.8	38.99	54	-15.01	74	-35.01	190	126	H
2.956	32.86	Av	30	-43.6	2.9	2.8	24.96	54	-29.04	74	-49.04	107	162	V
7.024	27.38	Av	35.6	-39.9	4.5	4.5	32.08	54	-21.92	74	-41.92	165	304	V
11.96	24.74	Av	39.5	-38.1	6.8	5.7	38.64	54	-15.36	74	-35.36	301	120	V

Av - Average detection

Data

Radiated Emissions (Intentional)

Test Description

Intentional Radiator Radiated Emissions are a test of the emissions, and harmonics on the EUT. The EUT is positioned to get the maximum emissions after a series of prescan measurements.

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1 GHz measurements and 1.5 m above the ground plane for above 1 GHz 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. 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 1 MHz for peak measurements and as applicable for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

Test Criteria

Reference	Limit		
	Frequency Range (MHz)	Field Strength Limit (uV/m)	Measurement distance (meters)
CFR 47 Subpart C, 15.205 CFR 47 Subpart C, 15.209 RSS-GEN	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100**	3
	88-216	150**	3
	216-960	200**	3
	Above 960	500	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL/JB/MA	RF Chamber/OATS	3/21/18-3/27/18	3.3	63	1028	P

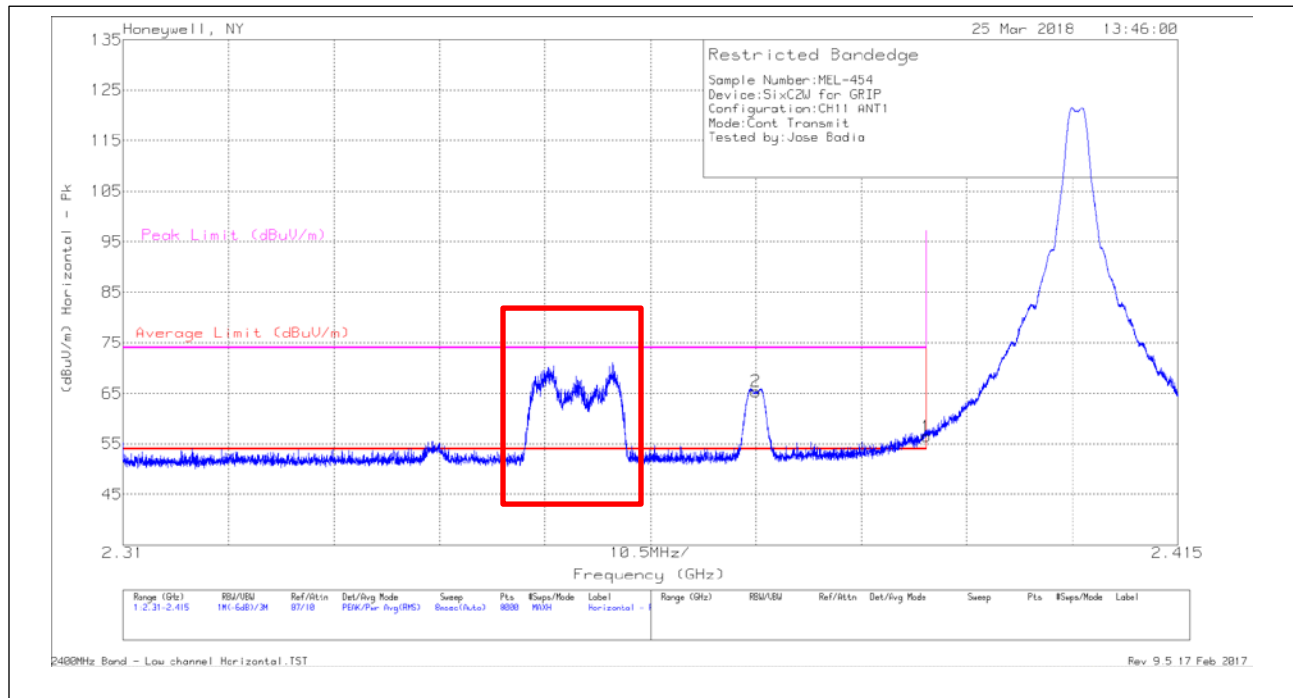
NOTE: Below 30MHz, pretesting showed that no emissions as a product of the EUT were detected within 20dB of the regulatory limit. Worse-case plot/data reported from 30MHz - 1GHz, per antenna. Worse-case plots reported per antenna above 1GHz, however, all required numerical data is provided for each channel/antenna. Prescans performed in an anechoic chamber, final measurements performed on an OATS.

Equipment List

Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
RF Chamber						
Spectrum Analyzer	11496	100303	Rohde & Schwarz	FSU26	04/10/17	04/10/18
Loop Antenna (9kHz-30MHz)	11535	121080	Com-Power	AL-130R	10/17/17	10/17/18
Bilog Antenna (30MHz-5GHz)	11311	A0022406	Sunol	JB5	02/01/18	02/01/19
Horn Antenna (1-18GHz)	2319	2317	EMCO	3115	01/10/18	01/10/19
Horn Antenna (18-40GHz)	11472	151	EMCO	EM-6963	02/14/18	02/14/19
Preamp (30-1000MHz)	11537	1603006	Mini Circuits	TVA-11-422	N/A	N/A
Preamp (1-18GHz)	11539	160362	Amplical	AMP1G18-35	N/A	N/A
Preamp (18-40GHz)	11541	160911	Amplical	AMP18G40-35	N/A	N/A
Band Reject Filter	11553	G041	Micro-tronics	BRM50702-01	N/A	N/A
Measurement Software	11543	Version 9.5	UL	UL EMC	N/A	N/A
Environmental Meter	11548	A.078188	Extech Instruments	SD700	04/24/17	04/14/18
OATS						
Spectrum Analyzer	11545	103125	Rohde & Schwarz	FSW26	02/14/17	02/14/18
Bilog Antenna (30MHz-5GHz)	11311	A0022406	Sunol	JB5	02/01/18	02/01/19
Horn Antenna (1-18GHz)	2973	3127	EMCO	RGA-60	01/22/18	01/22/19
Preamp (1-18GHz)	11539	160362	Amplical	AMP1G18-35	N/A	N/A
High Pass Filter	11552	G018	Micro-tronics	HPM50111-01	N/A	N/A
Measurement Software	11543	Version 9.5	UL	UL EMC	N/A	N/A
Environmental Meter	11533	A070144	Extech Instruments	SD700	08/21/17	08/21/20

Test Results

Restricted Band Edge



Antenna 1: Low Channel Horizontal - Plot

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	22.1	Pk	28.5	.7	2.6	2.5	-	56.4	74	-17.6	349	132	H
2	* 2.373	31.14	Pk	28.4	.7	2.6	2.5	-	65.34	74	-8.66	349	132	H
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	22.1	Av	28.5	.7	2.6	2.5	-23.1	33.3	54	-20.7	349	132	H
2	* 2.373	31.14	Av	28.4	.7	2.6	2.5	-23.1	42.24	54	-11.76	349	132	H

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

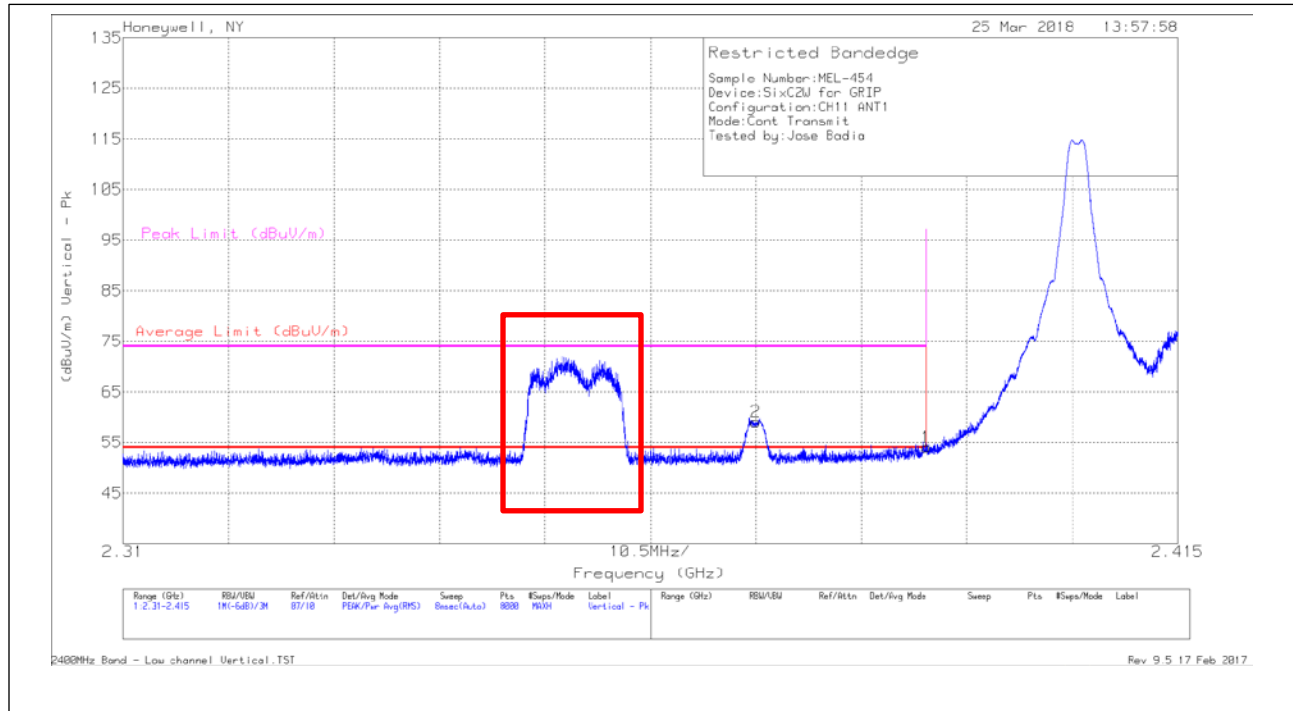
Pk - Peak detector

Av - Peak + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

NOTE: Emissions highlighted in the plot above is OATS ambient and not a product of the transmitter. Worse-case emissions are report and all other peak emissions, once corrected by the DC Corr, would be below the average limit.

Antenna 1: Low Channel Horizontal - Data



Antenna 1: Low Channel Vertical - Plot

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	19.73	Pk	28.5	.7	2.6	2.5	-	54.03	74	-19.97	337	368	V
2	* 2.373	24.83	Pk	28.4	.7	2.6	2.5	-	59.03	74	-14.97	337	368	V
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	19.73	Av	28.5	.7	2.6	2.5	-23.1	30.93	54	-23.07	337	368	V
2	* 2.373	24.83	Av	28.4	.7	2.6	2.5	-23.1	35.93	54	-18.07	337	368	V

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

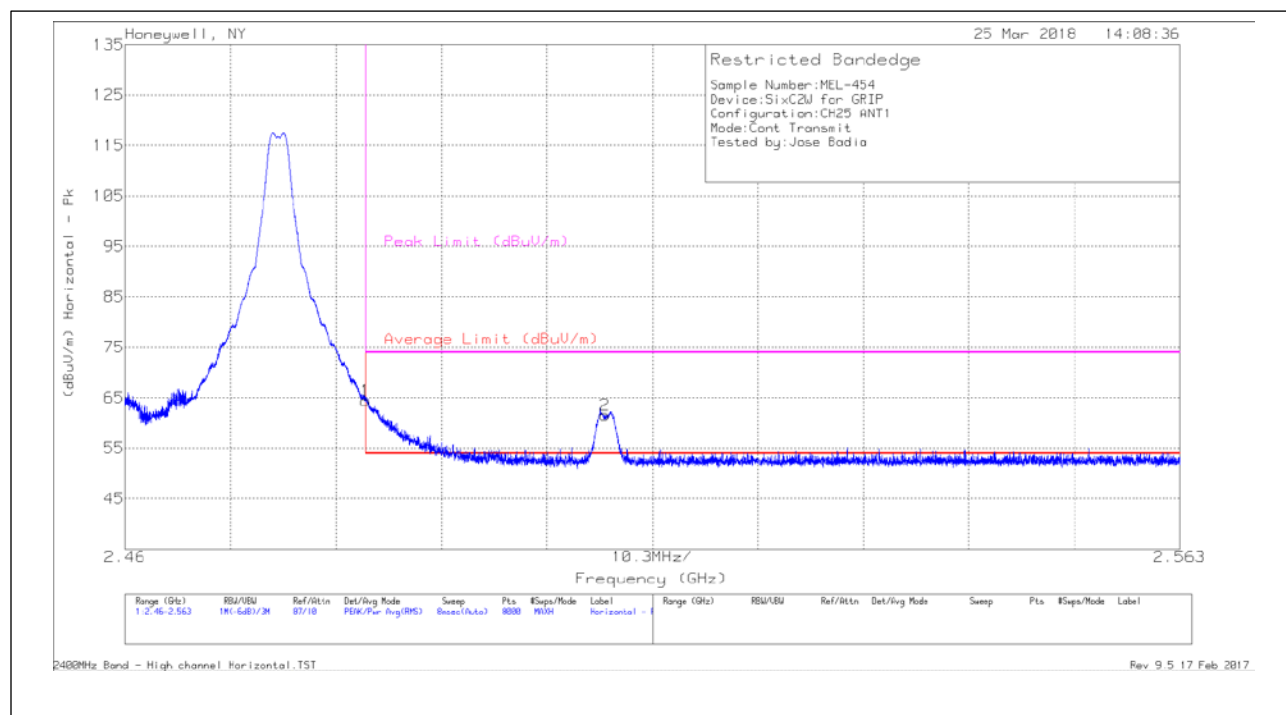
Pk - Peak detector

Av - Peak + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

NOTE: Emissions highlighted in the plot above is OATS ambient and not a product of the transmitter. Worse-case emissions are report and all other peak emissions, once corrected by the DC Corr, would be below the average limit.

Antenna 1: Low Channel Vertical - Data



Antenna 1: High Channel Horizontal - Plot

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	29.75	Pk	28.7	.7	2.6	2.6	-	64.35	74	-9.65	199	362	H
2	2.507	26.78	Pk	28.8	.7	2.7	2.6	-	61.58	74	-12.42	199	362	H
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	29.75	Av	28.7	.7	2.6	2.6	-23.1	41.25	54	-12.75	199	362	H
2	2.507	26.78	Av	28.8	.7	2.7	2.6	-23.1	38.48	54	-15.52	199	362	H

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

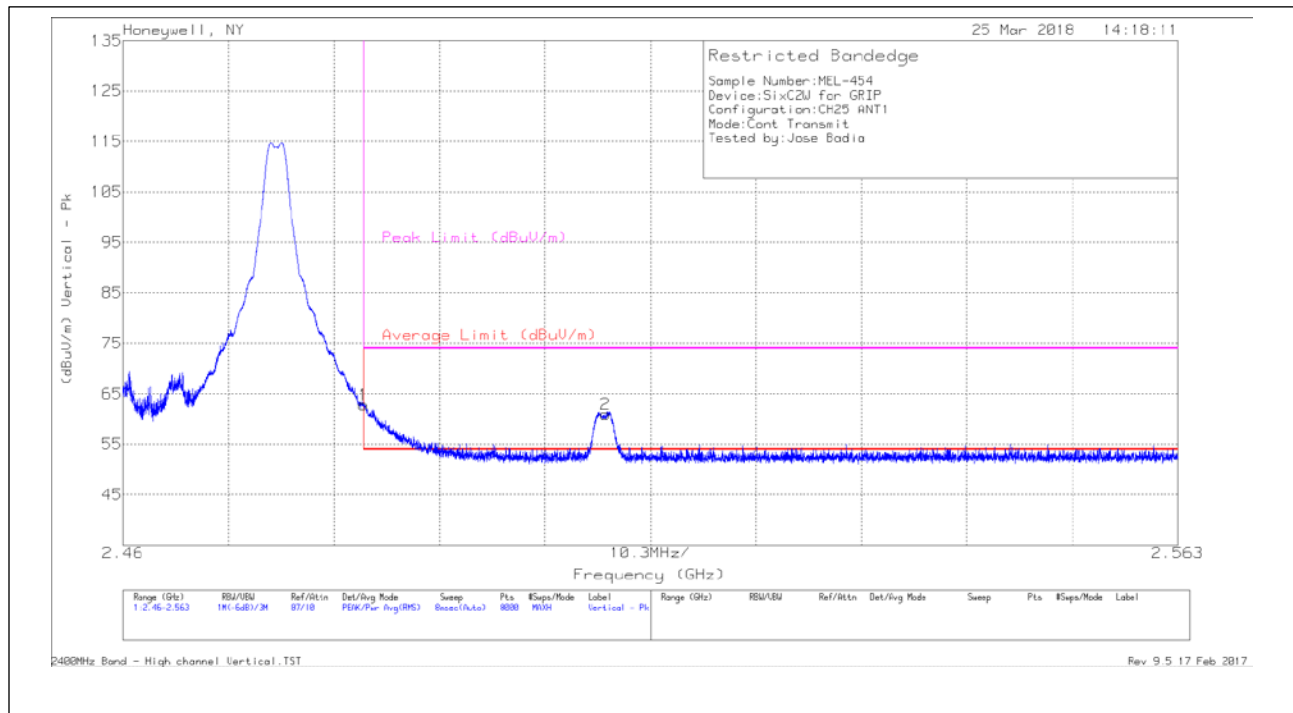
Pk - Peak detector

Av - Peak + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

NOTE: Worse-case emissions are report and all other peak emissions, once corrected by the DC Corr, would be below the average limit.

Antenna 1: High Channel Horizontal - Data



Antenna 1: High Channel Vertical - Plot

Marker	Frequency (GHz)	Meter Reading (dBUV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBUV/m)	Peak Limit (dBUV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	28.15	Pk	28.7	.7	2.6	2.6	-	62.75	74	-11.25	126	366	V
2	2.507	26.11	Pk	28.8	.7	2.7	2.6	-	60.91	74	-13.09	126	366	V
Marker	Frequency (GHz)	Meter Reading (dBUV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBUV/m)	Average Limit (dBUV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	28.15	Av	28.7	.7	2.6	2.6	-23.1	39.65	54	-14.35	126	366	V
2	2.507	26.11	Av	28.8	.7	2.7	2.6	-23.1	37.81	54	-16.19	126	366	V

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

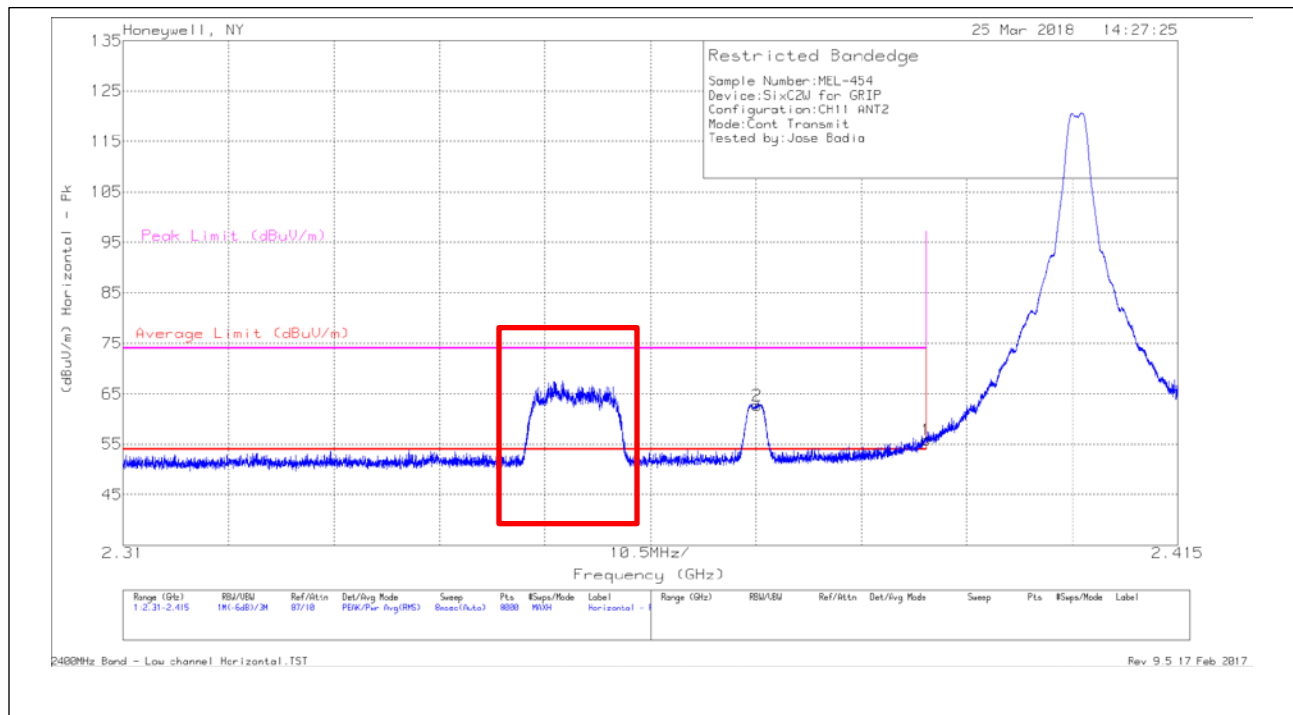
Pk - Peak detector

Av - Peak + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

NOTE: Worse-case emissions are report and all other peak emissions, once corrected by the DC Corr, would be below the average limit.

Antenna 1: High Channel Vertical - Data



Antenna 2: Low Channel Horizontal - Plot

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	21.51	Pk	28.5	.7	2.6	2.5	-	55.81	74	-18.19	231	215	H
2	* 2.373	28.45	Pk	28.4	.7	2.6	2.5	-	62.65	74	-11.35	231	215	H
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	21.51	Av	28.5	.7	2.6	2.5	-23.1	32.71	54	-21.29	231	215	H
2	* 2.373	28.45	Av	28.4	.7	2.6	2.5	-23.1	39.55	54	-14.45	231	215	H

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

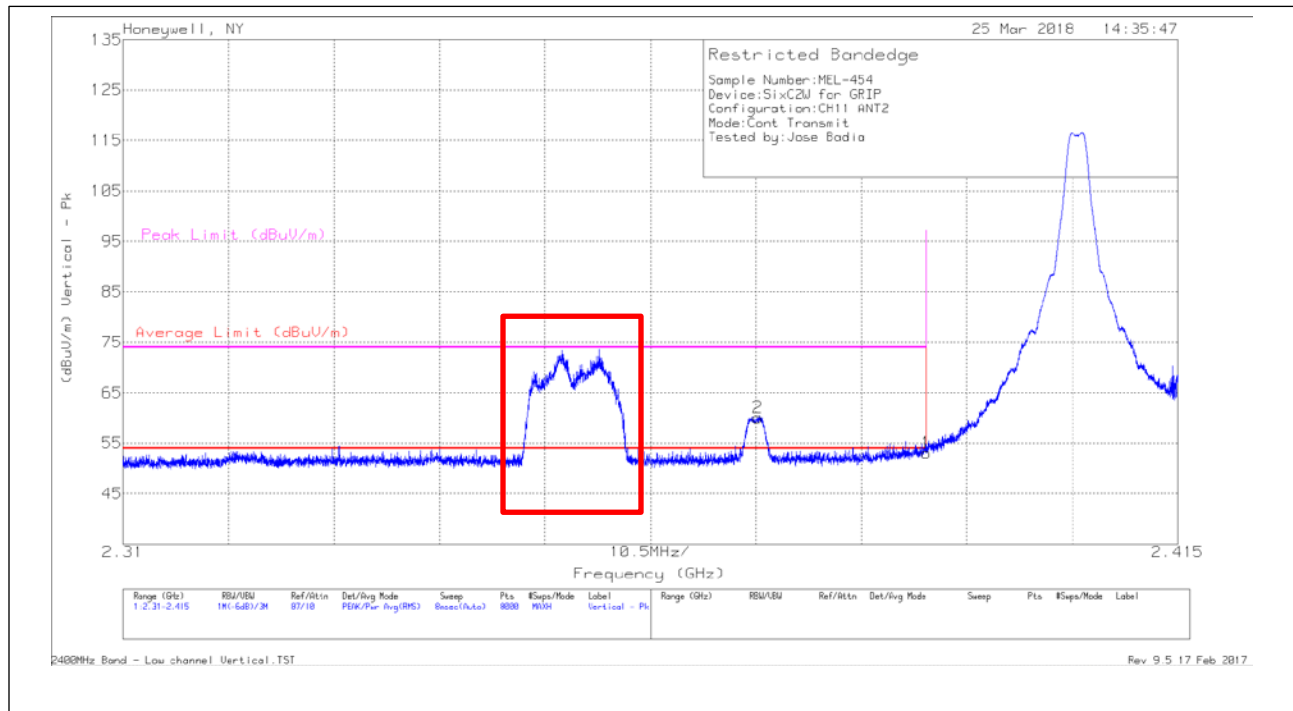
Pk - Peak detector

Av - Peak + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

NOTE: Emissions highlighted in the plot above is OATS ambient and not a product of the transmitter. Worse-case emissions are report and all other peak emissions, once corrected by the DC Corr, would be below the average limit.

Antenna 2: Low Channel Horizontal - Data



Antenna 2: Low Channel Vertical - Plot

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	18.76	Pk	28.5	.7	2.6	2.5	-	53.06	74	-20.94	47	272	V
2	* 2.373	25.86	Pk	28.4	.7	2.6	2.5	-	60.06	74	-13.94	47	272	V
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	18.76	Av	28.5	.7	2.6	2.5	-23.1	29.96	54	-24.04	47	272	V
2	* 2.373	25.86	Av	28.4	.7	2.6	2.5	-23.1	36.96	54	-17.04	47	272	V

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

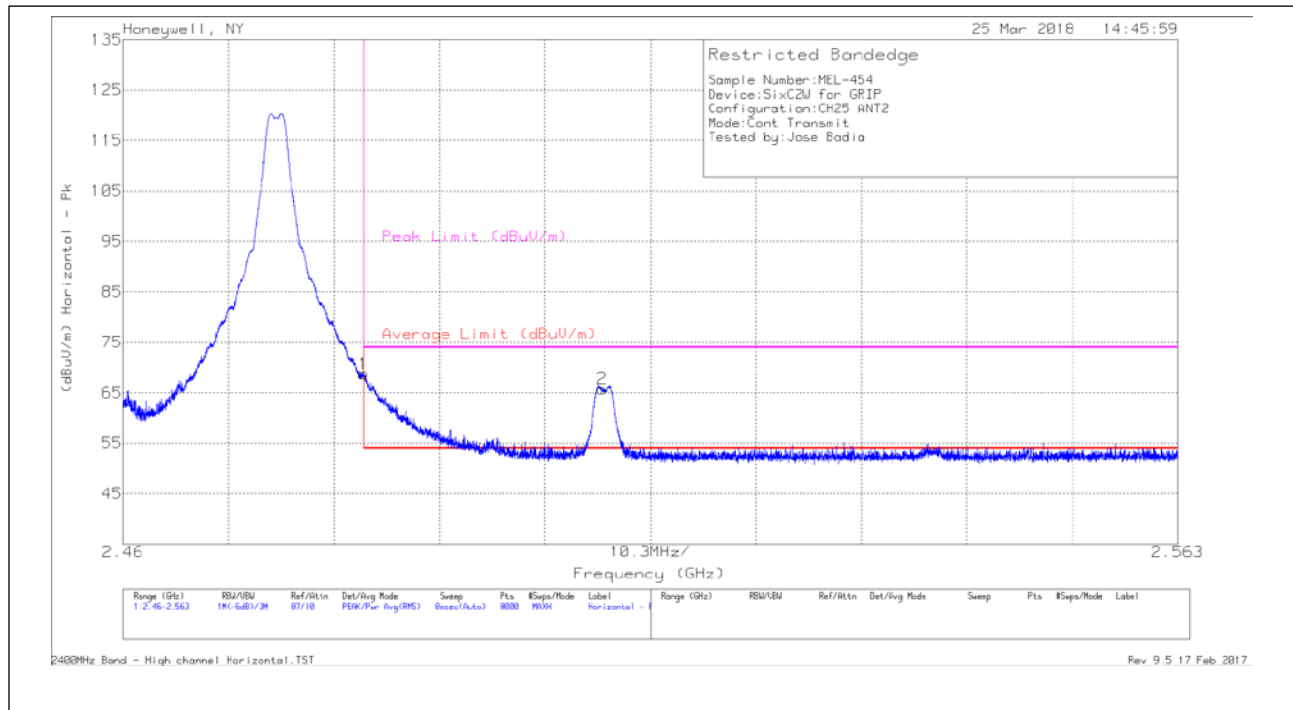
Pk - Peak detector

Av - Peak + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

NOTE: Emissions highlighted in the plot above is OATS ambient and not a product of the transmitter. Worse-case emissions are report and all other peak emissions, once corrected by the DC Corr, would be below the average limit.

Antenna 2: Low Channel Vertical - Data



Antenna 2: High Channel Horizontal - Plot

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	34.14	Pk	28.7	.7	2.6	2.6	-	68.74	74	-5.26	224	207	H
2	2.507	31	Pk	28.8	.7	2.7	2.6	-	65.8	74	-8.2	224	207	H
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	34.14	Av	28.7	.7	2.6	2.6	-23.1	45.64	54	-8.36	224	207	H
2	2.507	31	Av	28.8	.7	2.7	2.6	-23.1	42.7	54	-11.3	224	207	H

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

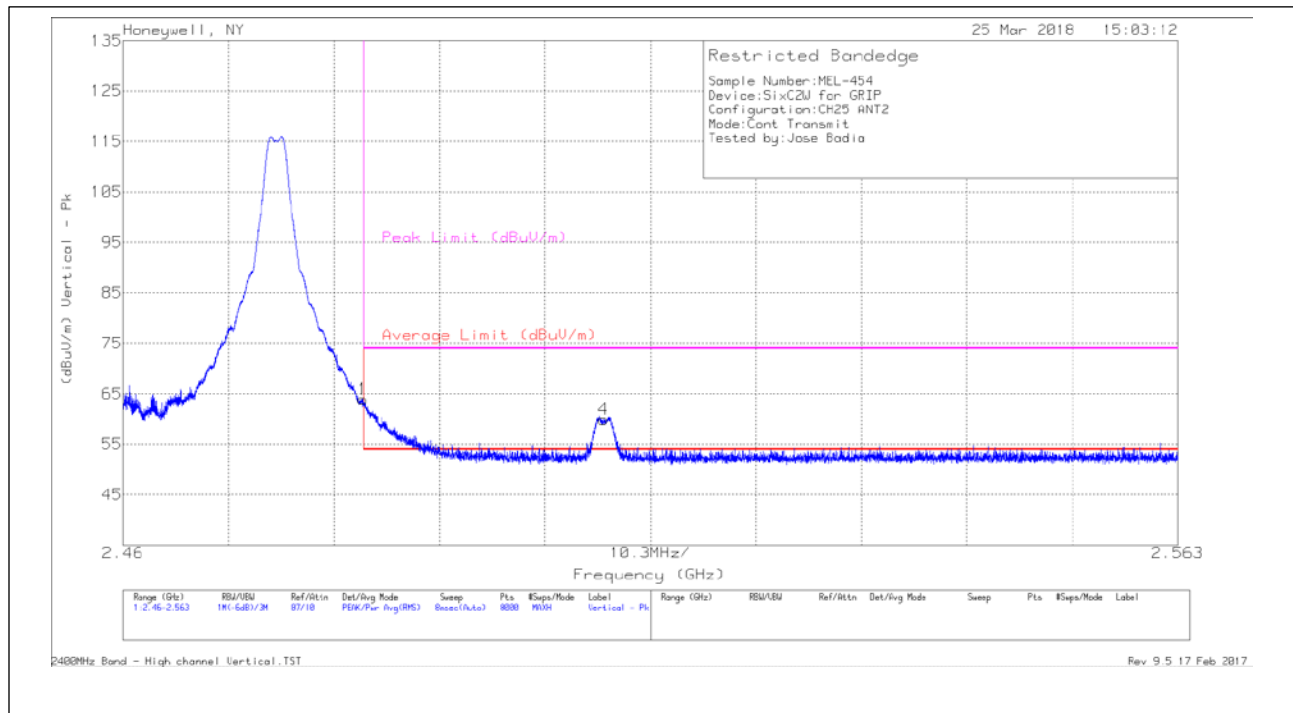
Pk - Peak detector

Av - Peak + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

NOTE: Worse-case emissions are report and all other peak emissions, once corrected by the DC Corr, would be below the average limit.

Antenna 2: High Channel Horizontal - Data



Antenna 2: High Channel Vertical - Plot

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.483	29.35	Pk	28.7	.7	2.6	2.6	-	63.95	74	-10.05	47	262	V
4	2.507	25.1	Pk	28.8	.7	2.7	2.6	-	59.9	74	-14.1	47	262	V
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.483	29.35	Av	28.7	.7	2.6	2.6	-23.1	40.85	54	-13.15	47	262	V
4	2.507	25.1	Av	28.8	.7	2.7	2.6	-23.1	36.8	54	-17.2	47	262	V

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

Pk - Peak detector

Av - Peak + DC Corr (Duty Cycle Correction Factor)

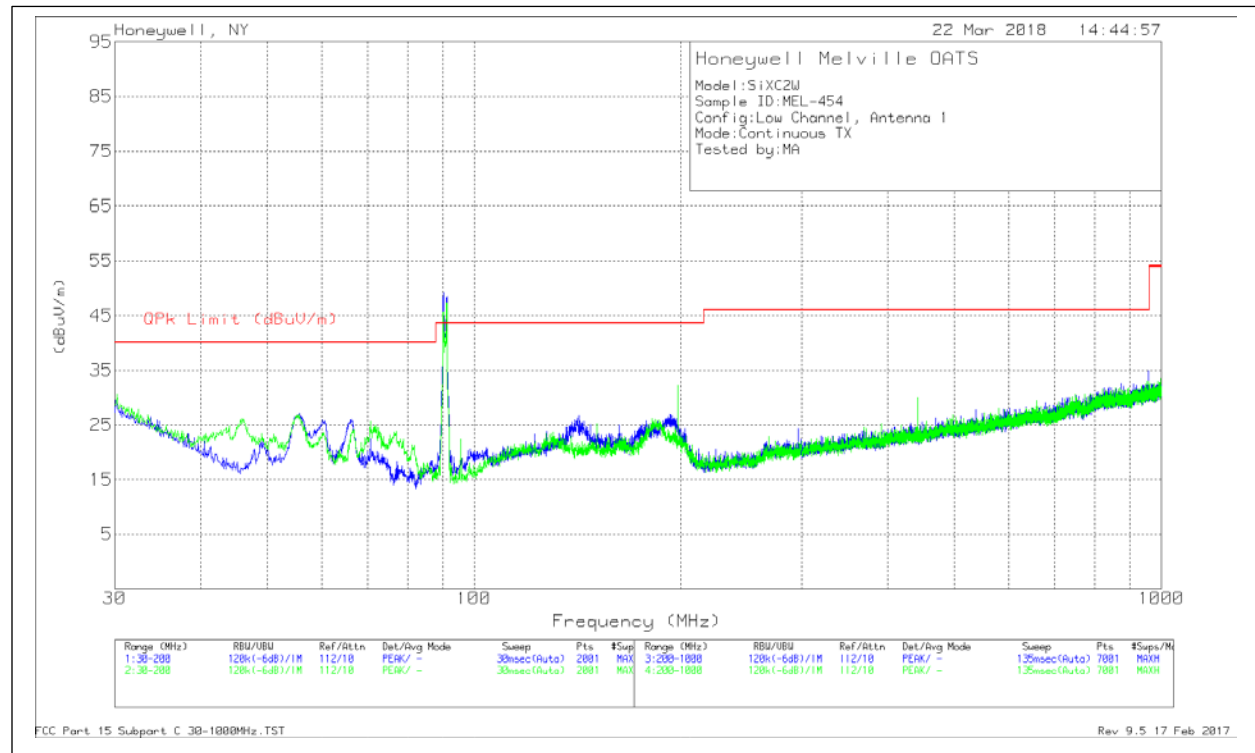
Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

NOTE: Worse-case emissions are report and all other peak emissions, once corrected by the DC Corr, would be below the average limit.

Antenna 2: High Channel Vertical - Data

Spurious Emissions

Below 1GHz (ANT1 Worse-case, Low Channel)



Frequency (MHz)	Meter Reading (dBuV)	Det	AF JB5 [dB]	Preamp [dB]	RDE #2 Cable [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
91.2	74.3	Pk	13.7	-41	1.3	48.3	43.52	4.78	0-360	100	H
66.21	53.02	Pk	13.2	-41.3	1.1	26.02	40	-13.98	0-360	100	H
60.175	53.46	Pk	12.8	-41.4	1.1	25.96	40	-14.04	0-360	100	H
91.2	73.41	Pk	13.7	-41	1.3	47.41	43.52	3.89	0-360	100	V
198.045	53.03	Pk	17.9	-40.6	1.8	32.13	43.52	-11.39	0-360	100	V
55.585	54.76	Pk	12.7	-41.5	1	26.96	40	-13.04	0-360	100	V
70.63	52.12	Pk	13.6	-41.2	1.1	25.62	40	-14.38	0-360	100	V
442.5149	46	Pk	22.1	-40.8	2.7	30	46.02	-16.02	0-360	100	V

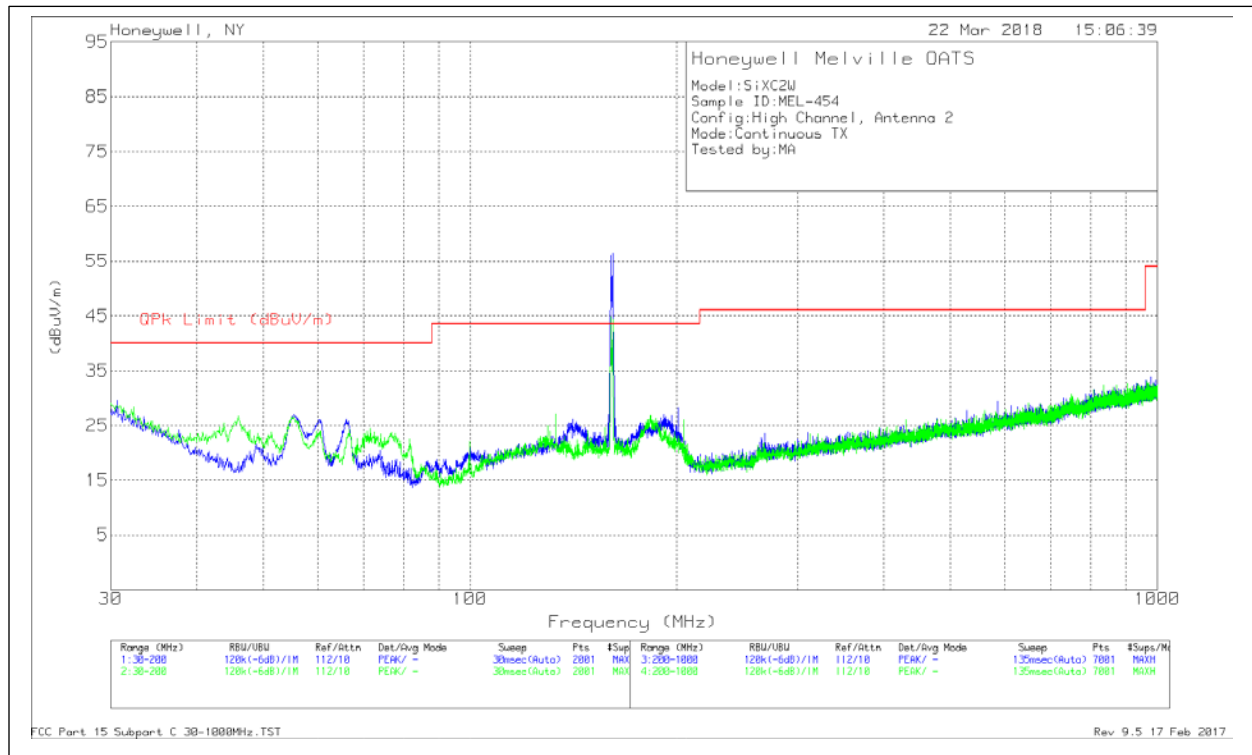
Pk - Peak detector (Prescan)

Frequency (MHz)	Meter Reading (dBuV)	Det	AF JB5 [dB]	Cable 1 [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
66.2943	11.46	Qp	13.2	1.3	25.96	40	-14.04	254	331	H
198.3173	14.56	Qp	18	2.4	34.96	43.52	-8.56	172	385	V
55.1477	17.84	Qp	12.8	1.1	31.74	40	-8.26	71	258	V

Qp - Quasi-Peak detector (Final Detection)

Note: Highlighted frequencies were found to be transient emissions from the EUT. This frequency falls in the ambient on the OATS site. Measurements were taken with the EUT on and off to confirm there is no contribution from the EUT.

Below 1GHz (ANT2 Worse-case, High Channel)



Frequency (MHz)	Meter Reading (dBuV)	Det	AF JB5 [dB]	Preampl [dB]	RDE #2 Cable [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
161.24	77.85	Pk	17.6	-40.6	1.6	56.45	43.52	12.93	0-360	100	H
66.635	52.71	Pk	13.3	-41.3	1.1	25.81	40	-14.19	0-360	100	H
60.6	53.56	Pk	12.8	-41.4	1.1	26.06	40	-13.94	0-360	100	H
160.305	66.26	Pk	17.6	-40.6	1.6	44.86	43.52	1.34	0-360	100	V
55.33	54.26	Pk	12.8	-41.5	1	26.56	40	-13.44	0-360	100	V
71.565	51.01	Pk	13.6	-41.2	1.1	24.51	40	-15.49	0-360	100	V

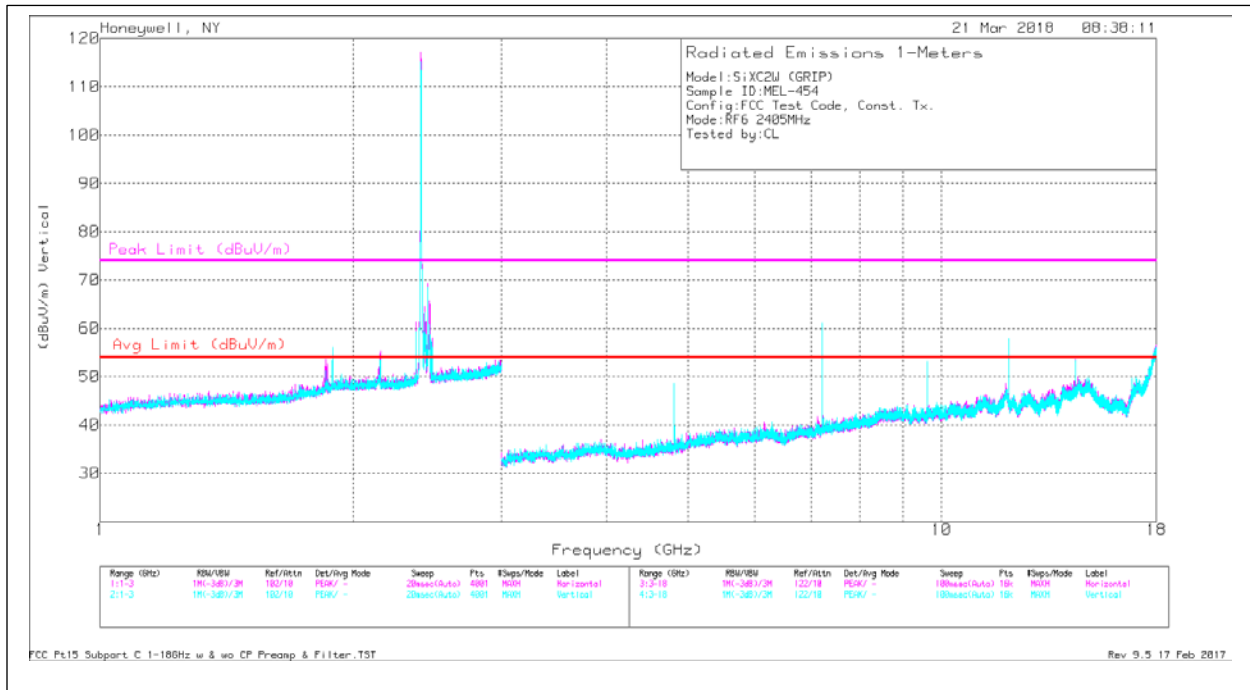
Pk - Peak detector (Prescan)

Frequency (MHz)	Meter Reading (dBuV)	Det	AF JB5 [dB]	Cable 1 [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
160.0113	12.49	Qp	17.6	2.1	32.19	43.52	-11.33	247	111	H
66.3205	11.32	Qp	13.2	1.3	25.82	40	-14.18	295	307	H
59.4724	12.72	Qp	12.7	1.2	26.62	40	-13.38	0	369	H
159.9947	10.6	Qp	17.6	2.1	30.3	43.52	-13.22	178	274	V
55.1241	17.94	Qp	12.8	1.1	31.84	40	-8.16	140	381	V
71.7097	12.75	Qp	13.6	1.3	27.65	40	-12.35	289	168	V

Qp - Quasi-Peak detector (Final Detection)

1-18GHz

Note: Emissions detected below the fundamental frequency are attributed to chamber ambient and not a product of the transmitter.



Antenna 1: Low Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.811	59.33	PK	33.1	-41.2	3.7	3.7	58.63	74	-15.37	264	137	H
7.216	66.19	PK	36.2	-39.5	4.7	4.5	72.09	74	-1.91	337	102	H
9.622	50.33	PK	38	-39	5.6	5.2	60.13	74	-13.87	308	127	H
* 12.028	54.45	PK	39.4	-37.3	6.5	5.6	68.65	74	-5.35	338	307	H
14.432	43.11	PK	42.1	-36.9	6.8	6.4	61.51	74	-12.49	319	239	H
16.831	41.92	PK	39.6	-38.1	7.4	7.1	57.92	74	-16.08	48	277	H
* 4.809	55.56	PK	33.1	-41.2	3.7	3.7	54.86	74	-19.14	185	278	V
7.216	66.29	PK	36.2	-39.5	4.7	4.5	72.19	74	-1.81	338	101	V
9.622	51.12	PK	38	-39	5.6	5.2	60.92	74	-13.08	308	102	V
* 12.027	55.2	PK	39.4	-37.3	6.5	5.6	69.4	74	-4.6	317	253	V
14.433	42.97	PK	42.1	-36.9	6.8	6.4	61.37	74	-12.63	312	281	V
16.831	42.16	PK	39.6	-38.1	7.4	7.1	58.16	74	-15.84	180	109	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.811	59.33	Av	33.1	-41.2	3.7	3.7	-23.1	35.53	54	-18.47	264	137	H
7.216	66.19	Av	36.2	-39.5	4.7	4.5	-23.1	48.99	54	-5.01	337	102	H
9.622	50.33	Av	38	-39	5.6	5.2	-23.1	37.03	54	-16.97	308	127	H
* 12.028	54.45	Av	39.4	-37.3	6.5	5.6	-23.1	45.55	54	-8.45	338	307	H
14.432	43.11	Av	42.1	-36.9	6.8	6.4	-23.1	38.41	54	-15.59	319	239	H
16.831	41.92	Av	39.6	-38.1	7.4	7.1	-23.1	34.82	54	-19.18	48	277	H
* 4.809	55.56	Av	33.1	-41.2	3.7	3.7	-23.1	31.76	54	-22.24	185	278	V
7.216	66.29	Av	36.2	-39.5	4.7	4.5	-23.1	49.09	54	-4.91	338	101	V
9.622	51.12	Av	38	-39	5.6	5.2	-23.1	37.82	54	-16.18	308	102	V
* 12.027	55.2	Av	39.4	-37.3	6.5	5.6	-23.1	46.3	54	-7.7	317	253	V
14.433	42.97	Av	42.1	-36.9	6.8	6.4	-23.1	38.27	54	-15.73	312	281	V
16.831	42.16	Av	39.6	-38.1	7.4	7.1	-23.1	35.06	54	-18.94	180	109	V

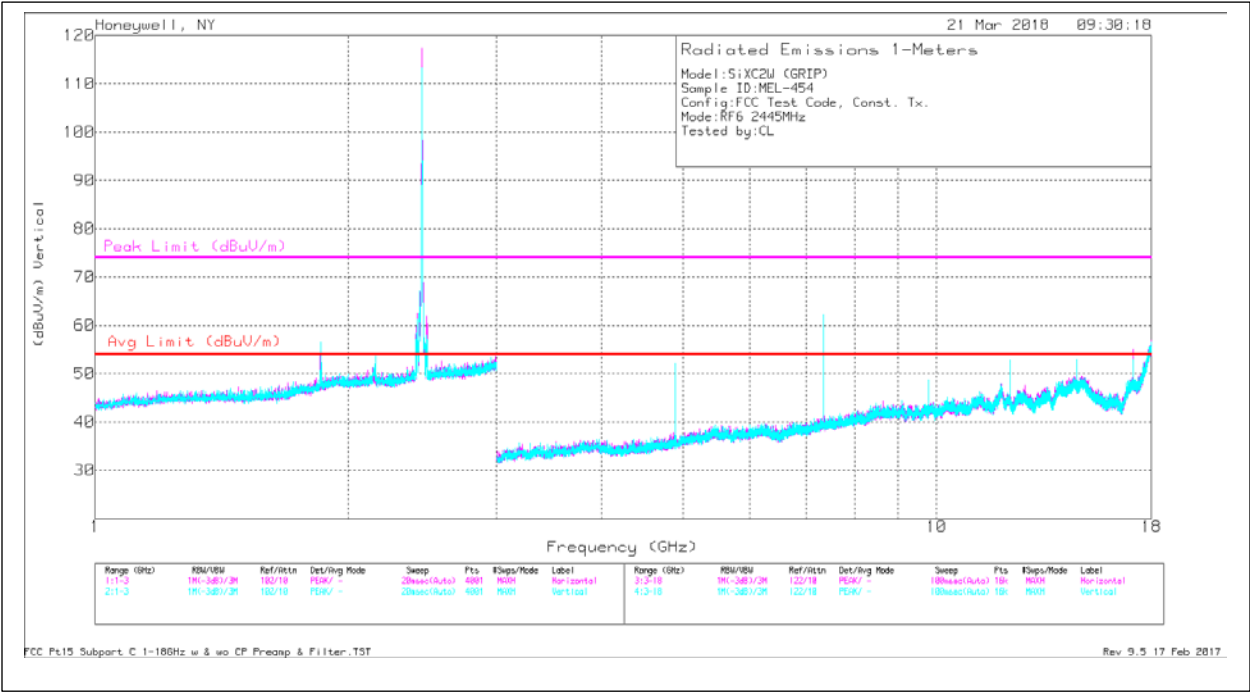
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

Av - KDB558074 Method: PK + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

Antenna 1: Low Channel - Data



Antenna 1: Mid Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.891	64.95	PK	33.2	-41.4	3.7	3.6	64.05	74	-9.95	14	153	H
* 7.333	63.23	PK	36.6	-39.7	4.6	4.5	69.23	74	-4.77	350	168	H
9.778	45.62	PK	38.1	-39.1	5.5	5.3	55.42	74	-18.58	287	170	H
* 12.227	56.09	PK	39.2	-37.2	6.5	5.9	70.49	74	-3.51	334	256	H
14.667	41.97	PK	42.6	-36.9	6.7	6.4	60.77	74	-13.23	317	257	H
17.111	40.94	PK	41.1	-38.1	7.5	7	58.44	74	-15.56	186	240	H
* 4.891	64.23	PK	33.2	-41.4	3.7	3.6	63.33	74	-10.67	6	153	V
* 7.336	58.48	PK	36.6	-39.7	4.6	4.5	64.48	74	-9.52	6	153	V
9.778	45.44	PK	38.1	-39.1	5.5	5.3	55.24	74	-18.76	279	188	V
* 12.227	55.68	PK	39.2	-37.2	6.5	5.9	70.08	74	-3.92	321	309	V
14.673	41.12	PK	42.6	-36.9	6.6	6.4	59.82	74	-14.18	291	292	V
17.111	41.05	PK	41.1	-38.1	7.5	7	58.55	74	-15.45	184	324	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.891	64.95	Av	33.2	-41.4	3.7	3.6	-23.1	40.95	54	-13.05	14	153	H
* 7.333	63.23	Av	36.6	-39.7	4.6	4.5	-23.1	46.13	54	-7.87	350	168	H
9.778	45.62	Av	38.1	-39.1	5.5	5.3	-23.1	32.32	54	-21.68	287	170	H
* 12.227	56.09	Av	39.2	-37.2	6.5	5.9	-23.1	47.39	54	-6.61	334	256	H
14.667	41.97	Av	42.6	-36.9	6.7	6.4	-23.1	37.67	54	-16.33	317	257	H
17.111	40.94	Av	41.1	-38.1	7.5	7	-23.1	35.34	54	-18.66	186	240	H
* 4.891	64.23	Av	33.2	-41.4	3.7	3.6	-23.1	40.23	54	-13.77	6	153	V
* 7.336	58.48	Av	36.6	-39.7	4.6	4.5	-23.1	41.38	54	-12.62	6	153	V
9.778	45.44	Av	38.1	-39.1	5.5	5.3	-23.1	32.14	54	-21.86	279	188	V
* 12.227	55.68	Av	39.2	-37.2	6.5	5.9	-23.1	46.98	54	-7.02	321	309	V
14.673	41.12	Av	42.6	-36.9	6.6	6.4	-23.1	36.72	54	-17.28	291	292	V
17.111	41.05	Av	41.1	-38.1	7.5	7	-23.1	35.45	54	-18.55	184	324	V

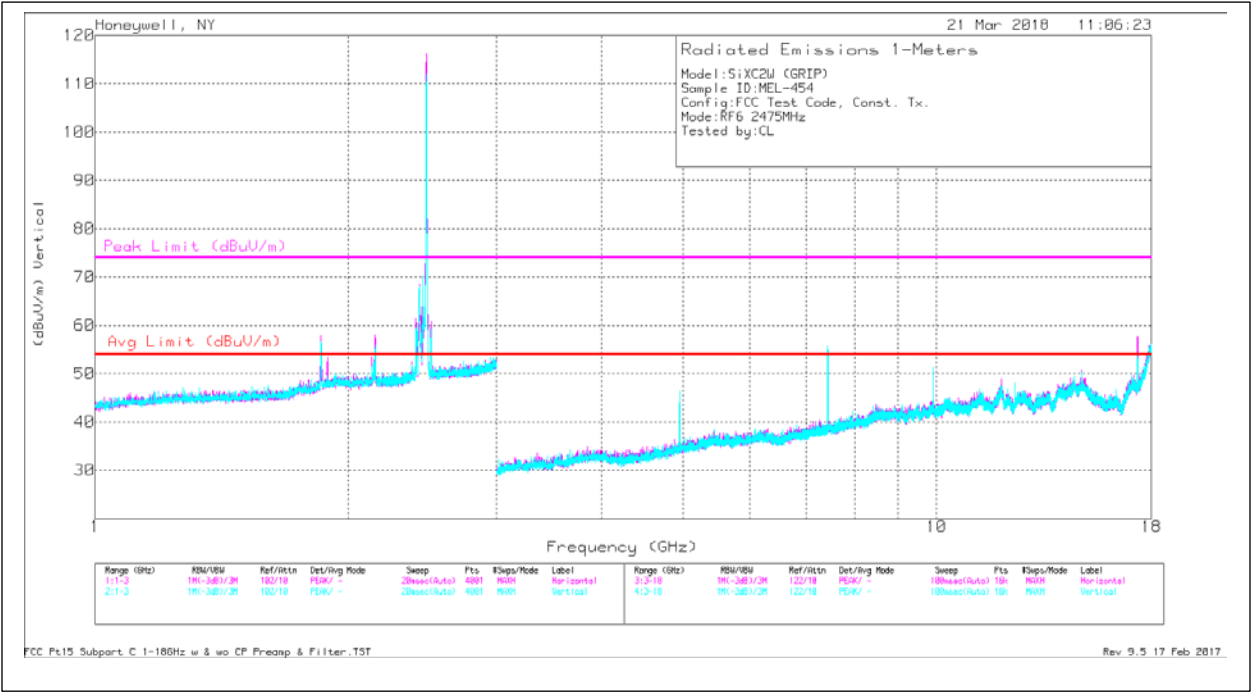
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

Av - KDB558074 Method: PK + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

Antenna 1: Mid Channel - Data



Antenna 1: High Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.951	65.44	PK	33.2	-41.5	3.8	3.7	64.64	74	-9.36	40	156	H
* 7.423	61.46	PK	36.7	-39.7	4.7	4.6	67.76	74	-6.24	327	172	H
9.902	49.09	PK	38.2	-39.2	5.5	5.3	58.89	74	-15.11	296	317	H
* 12.377	54.02	PK	38.9	-37.1	6.5	5.9	68.22	74	-5.78	325	321	H
14.853	41.09	PK	42	-36.9	6.8	6.5	59.49	74	-14.51	207	272	H
17.321	41.05	PK	42.4	-38.2	7.5	7.1	59.85	74	-14.15	60	278	H
* 4.951	65.41	PK	33.2	-41.5	3.8	3.7	64.61	74	-9.39	42	167	V
* 7.426	61.42	PK	36.7	-39.7	4.7	4.6	67.72	74	-6.28	329	121	V
9.902	50.15	PK	38.2	-39.2	5.5	5.3	59.95	74	-14.05	76	103	V
* 12.377	53.03	PK	38.9	-37.1	6.5	5.9	67.23	74	-6.77	349	301	V
14.853	41	PK	42	-36.9	6.8	6.5	59.4	74	-14.6	246	289	V
17.321	41.17	PK	42.4	-38.2	7.5	7.1	59.97	74	-14.03	206	265	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.951	65.44	Av	33.2	-41.5	3.8	3.7	-23.1	41.54	54	-12.46	40	156	H
* 7.423	61.46	Av	36.7	-39.7	4.7	4.6	-23.1	44.66	54	-9.34	327	172	H
9.902	49.09	Av	38.2	-39.2	5.5	5.3	-23.1	35.79	54	-18.21	296	317	H
* 12.377	54.02	Av	38.9	-37.1	6.5	5.9	-23.1	45.12	54	-8.88	325	321	H
14.853	41.09	Av	42	-36.9	6.8	6.5	-23.1	36.39	54	-17.61	207	272	H
17.321	41.05	Av	42.4	-38.2	7.5	7.1	-23.1	36.75	54	-17.25	60	278	H
* 4.951	65.41	Av	33.2	-41.5	3.8	3.7	-23.1	41.51	54	-12.49	42	167	V
* 7.426	61.42	Av	36.7	-39.7	4.7	4.6	-23.1	44.62	54	-9.38	329	121	V
9.902	50.15	Av	38.2	-39.2	5.5	5.3	-23.1	36.85	54	-17.15	76	103	V
* 12.377	53.03	Av	38.9	-37.1	6.5	5.9	-23.1	44.13	54	-9.87	349	301	V
14.853	41	Av	42	-36.9	6.8	6.5	-23.1	36.3	54	-17.7	246	289	V
17.321	41.17	Av	42.4	-38.2	7.5	7.1	-23.1	36.87	54	-17.13	206	265	V

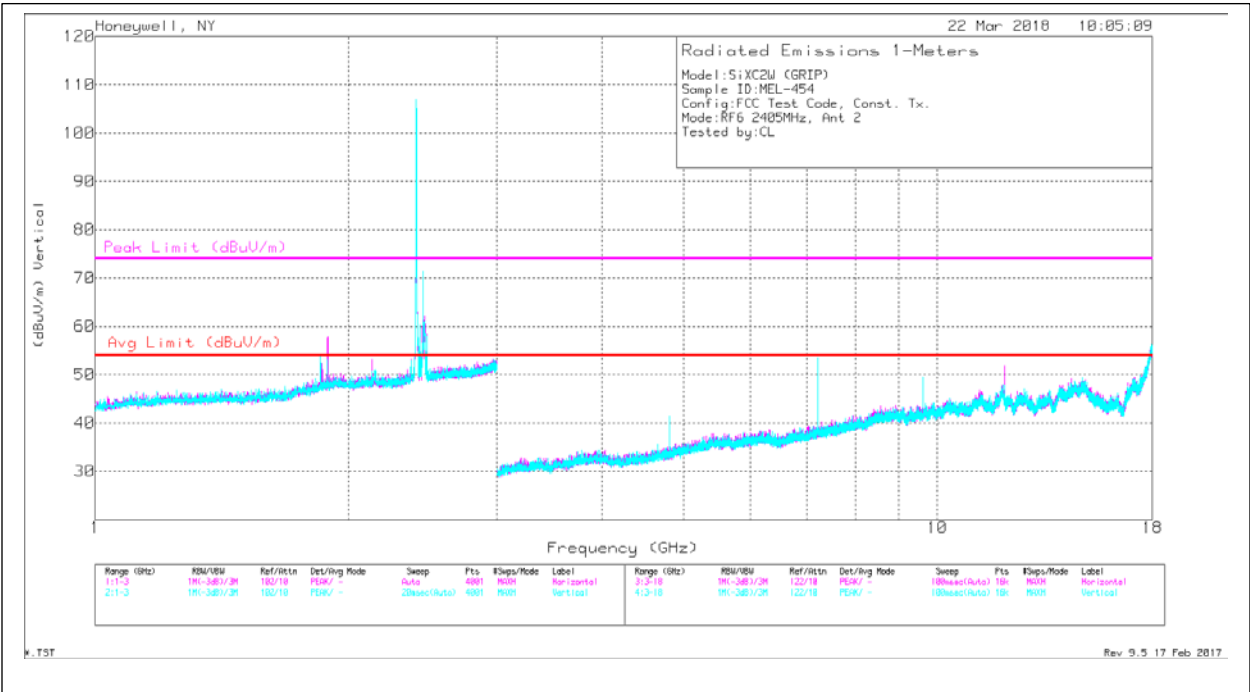
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

Av - KDB558074 Method: PK + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

Antenna 1: High Channel – Data



Antenna 2: Low Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.811	59.26	PK	33.1	-41.2	3.7	3.7	58.56	74	-15.44	125	208	H
7.216	64.03	PK	36.2	-39.5	4.7	4.5	69.93	74	-4.07	348	118	H
9.622	48.74	PK	38	-39	5.6	5.2	58.54	74	-15.46	15	276	H
* 12.027	48.33	PK	39.4	-37.3	6.5	5.6	62.53	74	-11.47	126	300	H
14.432	40.62	PK	42.1	-36.9	6.8	6.4	59.02	74	-14.98	339	234	H
16.839	40.13	PK	39.6	-38.1	7.5	7.1	56.23	74	-17.77	99	333	H
* 4.811	62.27	PK	33.1	-41.2	3.7	3.7	61.57	74	-12.43	97	116	V
7.216	58.95	PK	36.2	-39.5	4.7	4.5	64.85	74	-9.15	313	172	V
9.622	54.51	PK	38	-39	5.6	5.2	64.31	74	-9.69	293	149	V
* 12.028	46.58	PK	39.4	-37.3	6.5	5.6	60.78	74	-13.22	65	109	V
14.433	45.83	PK	42.1	-36.9	6.8	6.4	64.23	74	-9.77	284	116	V
16.838	42.29	PK	39.6	-38.1	7.5	7.1	58.39	74	-15.61	15	111	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.811	59.26	Av	33.1	-41.2	3.7	3.7	-23.1	35.46	54	-18.54	125	208	H
7.216	64.03	Av	36.2	-39.5	4.7	4.5	-23.1	46.83	54	-7.17	348	118	H
9.622	48.74	Av	38	-39	5.6	5.2	-23.1	35.44	54	-18.56	15	276	H
* 12.027	48.33	Av	39.4	-37.3	6.5	5.6	-23.1	39.43	54	-14.57	126	300	H
14.432	40.62	Av	42.1	-36.9	6.8	6.4	-23.1	35.92	54	-18.08	339	234	H
16.839	40.13	Av	39.6	-38.1	7.5	7.1	-23.1	33.13	54	-20.87	99	333	H
* 4.811	62.27	Av	33.1	-41.2	3.7	3.7	-23.1	38.47	54	-15.53	97	116	V
7.216	58.95	Av	36.2	-39.5	4.7	4.5	-23.1	41.75	54	-12.25	313	172	V
9.622	54.51	Av	38	-39	5.6	5.2	-23.1	41.21	54	-12.79	293	149	V
* 12.028	46.58	Av	39.4	-37.3	6.5	5.6	-23.1	37.68	54	-16.32	65	109	V
14.433	45.83	Av	42.1	-36.9	6.8	6.4	-23.1	41.13	54	-12.87	284	116	V
16.838	42.29	Av	39.6	-38.1	7.5	7.1	-23.1	35.29	54	-18.71	15	111	V

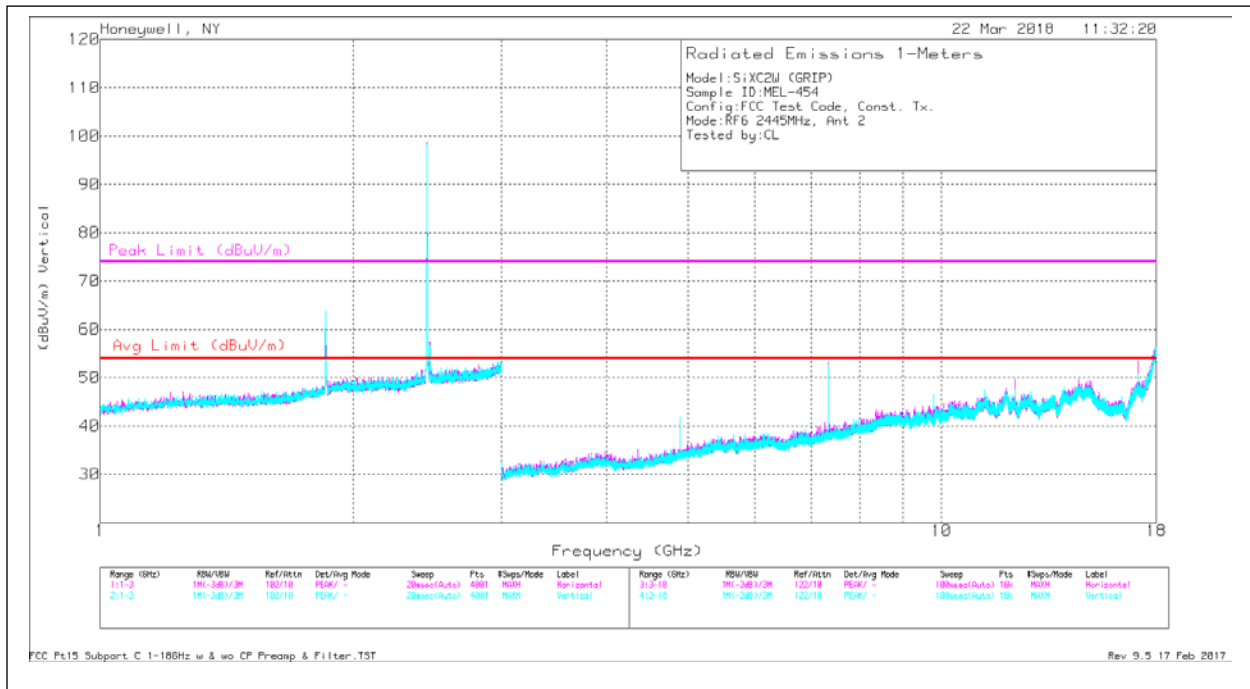
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

Av - KDB558074 Method: PK + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

Antenna 2: Low Channel - Data



Antenna 2: Mid Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.891	58.8	PK	33.2	-41.4	3.7	3.6	57.9	74	-16.1	119	108	H
* 7.333	62.33	PK	36.6	-39.7	4.6	4.5	68.33	74	-5.67	340	106	H
9.778	44.87	PK	38.1	-39.1	5.5	5.3	54.67	74	-19.33	312	129	H
* 12.227	52.57	PK	39.2	-37.2	6.5	5.9	66.97	74	-7.03	134	121	H
14.667	42.31	PK	42.6	-36.9	6.7	6.4	61.11	74	-12.89	132	104	H
17.112	40.69	PK	41.1	-38.1	7.5	7	58.19	74	-15.81	164	101	H
* 4.891	64.39	PK	33.2	-41.4	3.7	3.6	63.49	74	-10.51	92	144	V
* 7.333	64.6	PK	36.6	-39.7	4.6	4.5	70.6	74	-3.4	351	157	V
9.782	49.31	PK	38.1	-39.1	5.5	5.3	59.11	74	-14.89	296	162	V
* 12.227	53.98	PK	39.2	-37.2	6.5	5.9	68.38	74	-5.62	79	216	V
14.667	44.24	PK	42.6	-36.9	6.7	6.4	63.04	74	-10.96	297	104	V
17.119	40.39	PK	41.1	-38.1	7.5	7	57.89	74	-16.11	150	388	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.891	58.8	Av	33.2	-41.4	3.7	3.6	-23.1	34.8	54	-19.2	119	108	H
* 7.333	62.33	Av	36.6	-39.7	4.6	4.5	-23.1	45.23	54	-8.77	340	106	H
9.778	44.87	Av	38.1	-39.1	5.5	5.3	-23.1	31.57	54	-22.43	312	129	H
* 12.227	52.57	Av	39.2	-37.2	6.5	5.9	-23.1	43.87	54	-10.13	134	121	H
14.667	42.31	Av	42.6	-36.9	6.7	6.4	-23.1	38.01	54	-15.99	132	104	H
17.112	40.69	Av	41.1	-38.1	7.5	7	-23.1	35.09	54	-18.91	164	101	H
* 4.891	64.39	Av	33.2	-41.4	3.7	3.6	-23.1	40.39	54	-13.61	92	144	V
* 7.333	64.6	Av	36.6	-39.7	4.6	4.5	-23.1	47.5	54	-6.5	351	157	V
9.782	49.31	Av	38.1	-39.1	5.5	5.3	-23.1	36.01	54	-17.99	296	162	V
* 12.227	53.98	Av	39.2	-37.2	6.5	5.9	-23.1	45.28	54	-8.72	79	216	V
14.667	44.24	Av	42.6	-36.9	6.7	6.4	-23.1	39.94	54	-14.06	297	104	V
17.119	40.39	Av	41.1	-38.1	7.5	7	-23.1	34.79	54	-19.21	150	388	V

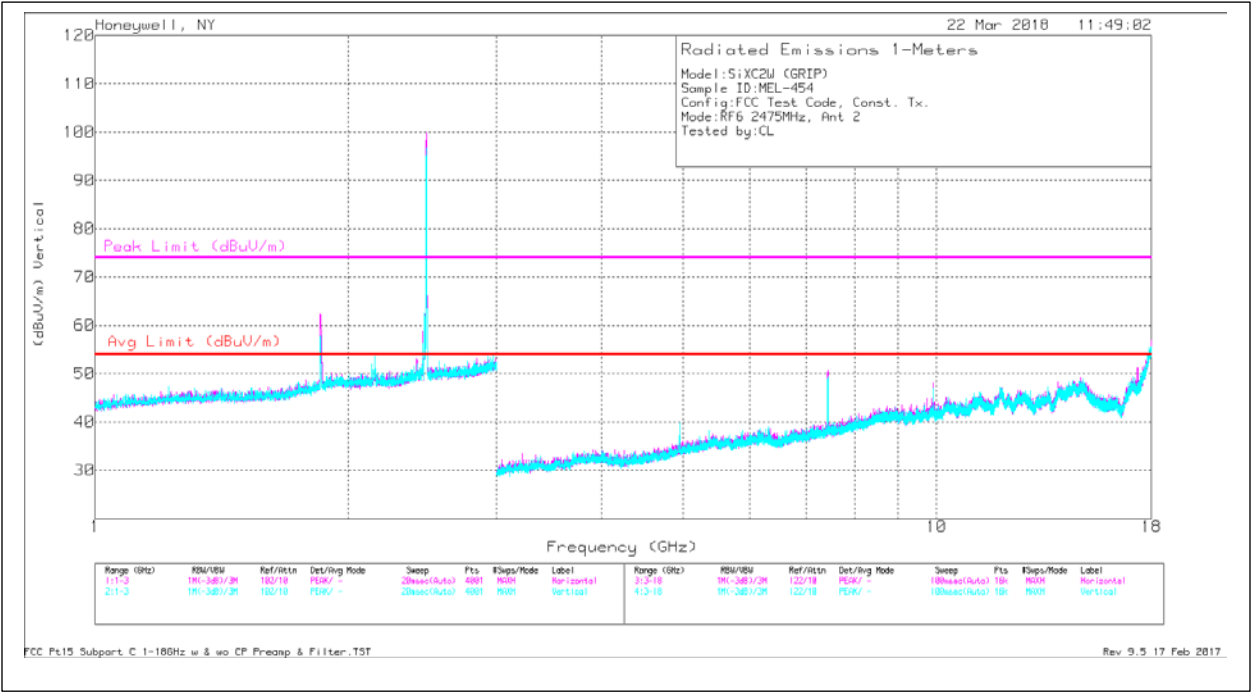
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

Av - KDB558074 Method: PK + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

Antenna 2: Mid Channel - Data



Antenna 2: High Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.951	60.51	PK	33.2	-41.5	3.8	3.7	59.71	74	-14.29	23	165	H
* 7.426	60.63	PK	36.7	-39.7	4.7	4.6	66.93	74	-7.07	331	178	H
9.902	48	PK	38.2	-39.2	5.5	5.3	57.8	74	-16.2	298	303	H
* 12.377	49.94	PK	38.9	-37.1	6.5	5.9	64.14	74	-9.86	138	103	H
14.852	39.04	PK	42	-36.9	6.8	6.5	57.44	74	-16.56	239	370	H
17.322	39.67	PK	42.4	-38.2	7.5	7.1	58.47	74	-15.53	0	296	H
* 4.951	61.12	PK	33.2	-41.5	3.8	3.7	60.32	74	-13.68	107	166	V
* 7.423	66.72	PK	36.7	-39.7	4.7	4.6	73.02	74	-9.8	22	159	V
9.902	48.44	PK	38.2	-39.2	5.5	5.3	58.24	74	-15.76	222	124	V
* 12.377	48.43	PK	38.9	-37.1	6.5	5.9	62.63	74	-11.37	13	111	V
14.846	44.19	PK	42	-36.9	6.8	6.5	62.59	74	-11.41	30	104	V
17.325	39.16	PK	42.4	-38.2	7.5	7.1	57.96	74	-16.04	351	344	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.951	60.51	Av	33.2	-41.5	3.8	3.7	-23.1	36.61	54	-17.39	23	165	H
* 7.426	60.63	Av	36.7	-39.7	4.7	4.6	-23.1	43.83	54	-10.17	331	178	H
9.902	48	Av	38.2	-39.2	5.5	5.3	-23.1	34.7	54	-19.3	298	303	H
* 12.377	49.94	Av	38.9	-37.1	6.5	5.9	-23.1	41.04	54	-12.96	138	103	H
14.852	39.04	Av	42	-36.9	6.8	6.5	-23.1	34.34	54	-19.66	239	370	H
17.322	39.67	Av	42.4	-38.2	7.5	7.1	-23.1	35.37	54	-18.63	0	296	H
* 4.951	61.12	Av	33.2	-41.5	3.8	3.7	-23.1	37.22	54	-16.78	107	166	V
* 7.423	66.72	Av	36.7	-39.7	4.7	4.6	-23.1	49.92	54	-4.08	22	159	V
9.902	48.44	Av	38.2	-39.2	5.5	5.3	-23.1	35.14	54	-18.86	222	124	V
* 12.377	48.43	Av	38.9	-37.1	6.5	5.9	-23.1	39.53	54	-14.47	13	111	V
14.846	44.19	Av	42	-36.9	6.8	6.5	-23.1	39.49	54	-14.51	30	104	V
17.325	39.16	Av	42.4	-38.2	7.5	7.1	-23.1	34.86	54	-19.14	351	344	V

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

PK - KDB558074 Method: Maximum Peak

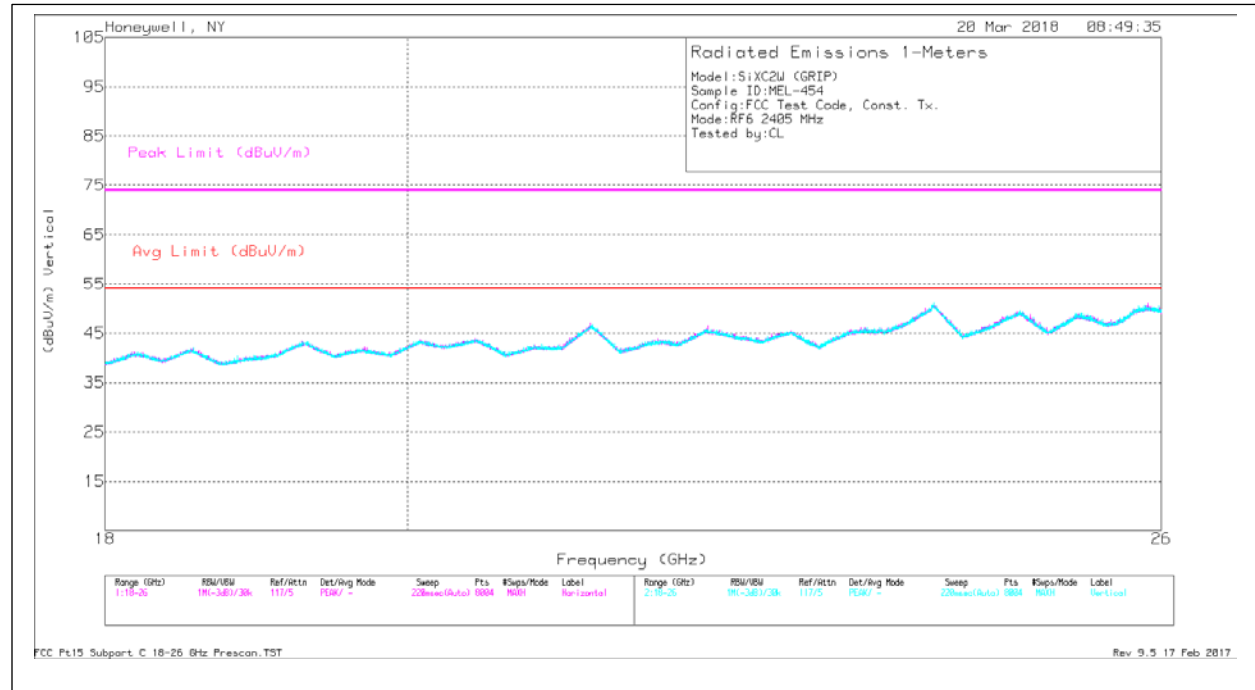
Av - KDB558074 Method: PK + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

Antenna 2: High Channel – Data

18-26GHz

Note: No emissions detected above the system noise floor



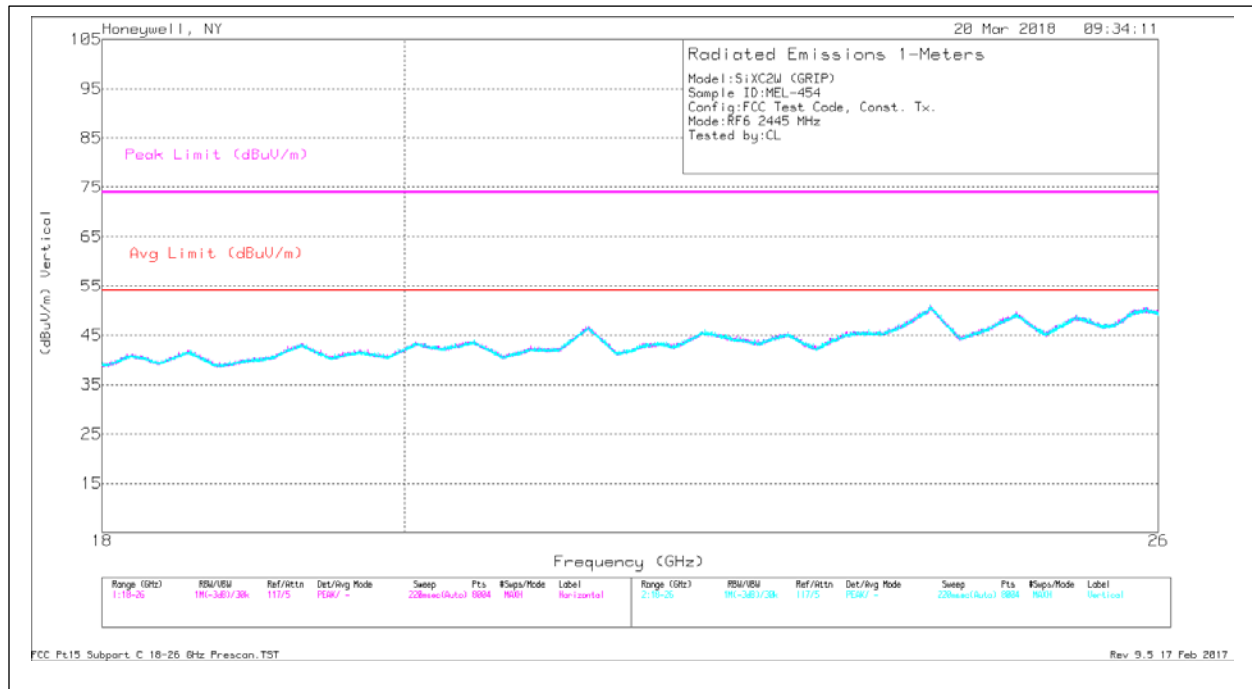
Antenna 1: Low Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn ACF [dB]	SMA 5 [dB]	18-26G Preamp [dB]	Distance Corr Factor [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
* 19.302	34.53	Pk	44.3	8	-34.2	-9.5	43.13	54	-10.87	74	-30.87	0-360	H
* 21.319	35.01	Pk	44.9	8.1	-31.9	-9.5	46.61	54	-7.39	74	-27.39	0-360	H
24.004	36.01	Pk	46.3	8.4	-30.5	-9.5	50.71	54	-3.29	74	-23.29	0-360	H
* 19.292	34.57	Pk	44.3	8	-34.3	-9.5	43.07	54	-10.93	74	-30.93	0-360	V
* 21.331	35.46	Pk	44.9	8.1	-32.2	-9.5	46.76	54	-7.24	74	-27.24	0-360	V
24.036	35.9	Pk	46.3	8.4	-30.7	-9.5	50.4	54	-3.6	74	-23.6	0-360	V

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

Pk - Peak detector

Antenna 1: Low Channel - Data



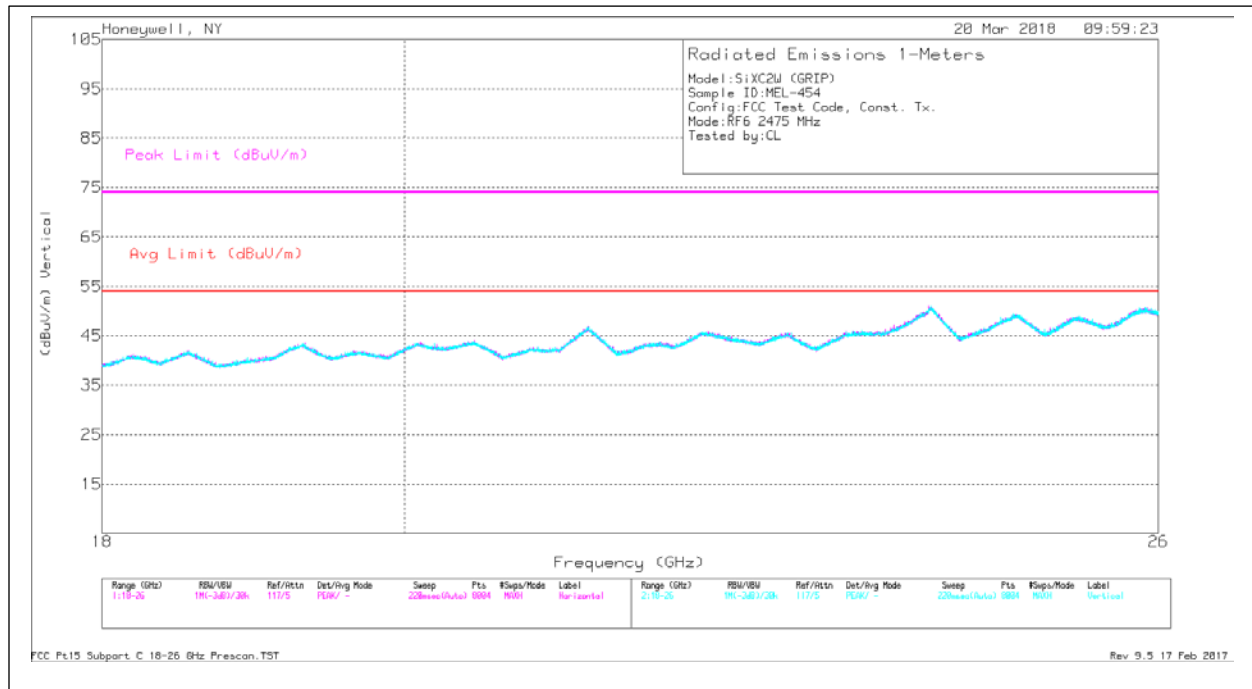
Antenna 1: Mid Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn ACF [dB]	SMA 5 [dB]	18-26G Preamp [dB]	Distance Corr Factor [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
* 19.307	34.6	Pk	44.3	8	-34.3	-9.5	43.1	54	-10.9	74	-30.9	0-360	H
* 21.325	35.27	Pk	44.9	8.1	-32.1	-9.5	46.67	54	-7.33	74	-27.33	0-360	H
24.022	36.02	Pk	46.3	8.4	-30.3	-9.5	50.92	54	-3.08	74	-23.08	0-360	H
* 19.313	34.53	Pk	44.3	8	-34.4	-9.5	42.93	54	-11.07	74	-31.07	0-360	V
* 21.318	35.14	Pk	44.9	8.1	-31.9	-9.5	46.74	54	-7.26	74	-27.26	0-360	V
24.044	35.7	Pk	46.3	8.4	-30.9	-9.5	50	54	-4	74	-24	0-360	V

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

Pk - Peak detector

Antenna 1: Mid Channel - Data



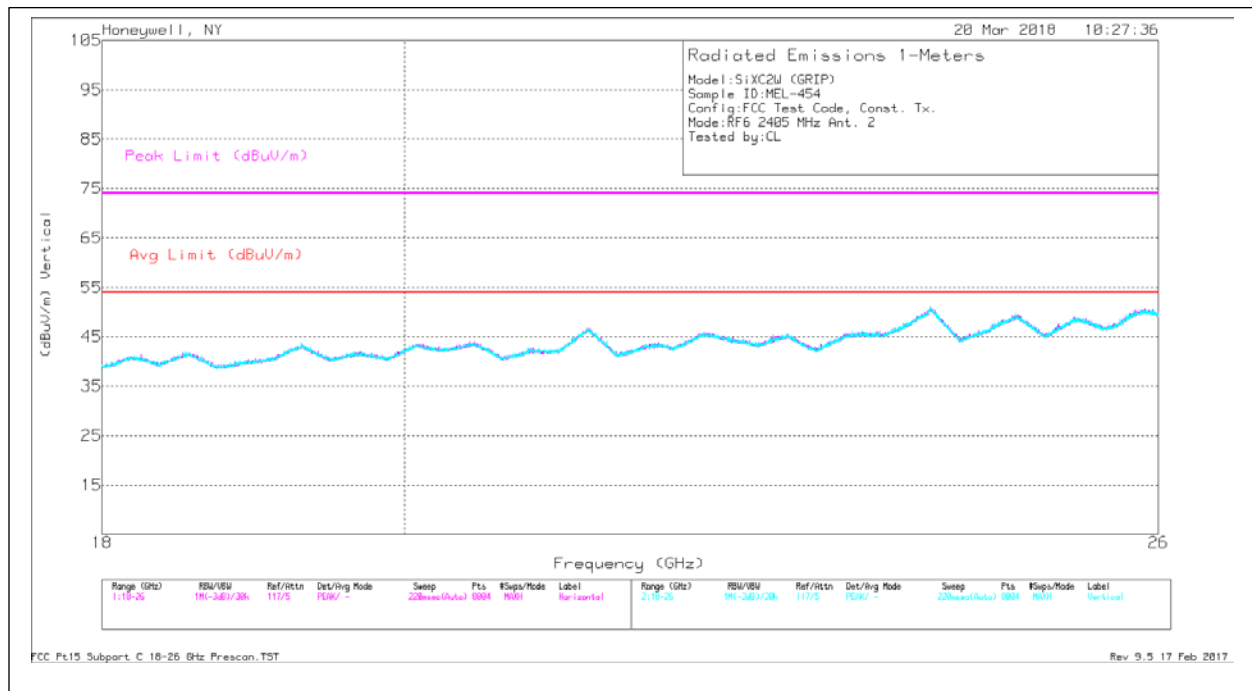
Antenna 1: High Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn ACF [dB]	SMA 5 [dB]	18-26G Preamp [dB]	Distance Corr Factor [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
* 19.315	35.22	Pk	44.3	8	-34.4	-9.5	43.62	54	-10.38	74	-30.38	0-360	H
* 21.297	35.1	Pk	44.9	8.1	-32.3	-9.5	46.3	54	-7.7	74	-27.7	0-360	H
24.016	35.86	Pk	46.3	8.4	-30.4	-9.5	50.66	54	-3.34	74	-23.34	0-360	H
* 19.28	34.5	Pk	44.3	8	-34.4	-9.5	42.9	54	-11.1	74	-31.1	0-360	V
* 21.325	35.35	Pk	44.9	8.1	-32.1	-9.5	46.75	54	-7.25	74	-27.25	0-360	V
24.049	35.7	Pk	46.3	8.4	-31	-9.5	49.9	54	-4.1	74	-24.1	0-360	V

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

Pk - Peak detector

Antenna 1: High Channel – Data

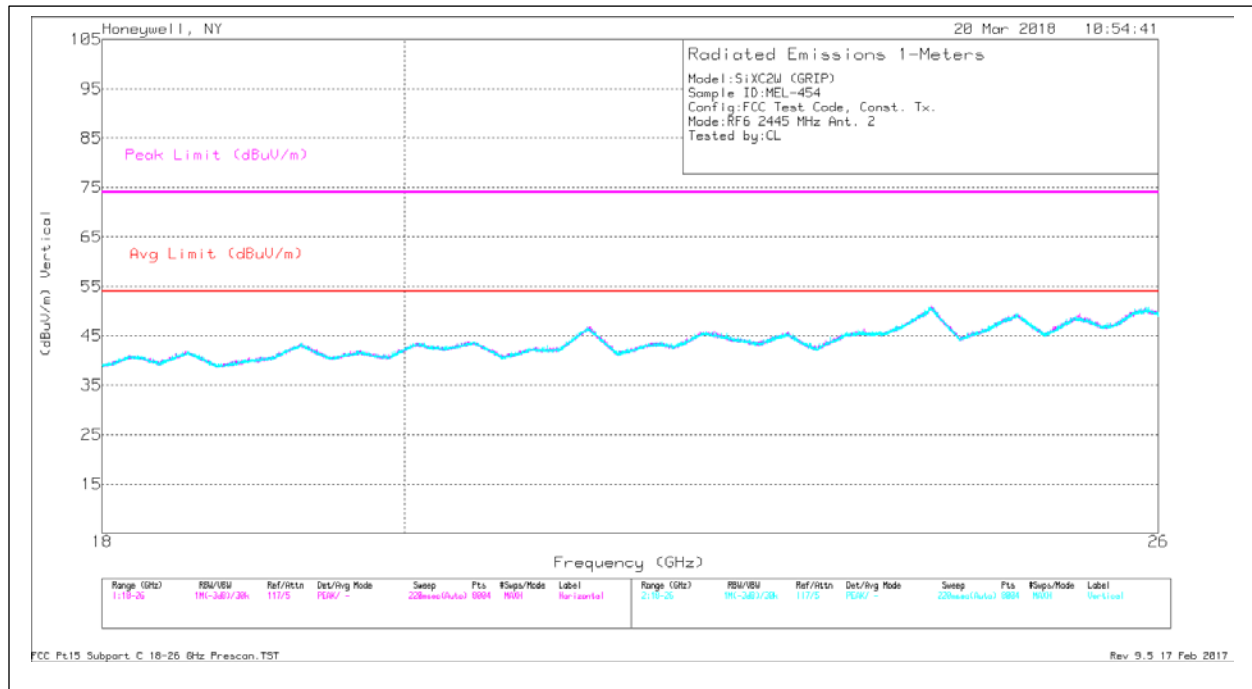


Antenna 2: Low Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn ACF [dB]	SMA 5 [dB]	18-26G Preamp [dB]	Distance Corr Factor [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
* 19.293	34.94	Pk	44.3	8	-34.3	-9.5	43.44	54	-10.56	74	-30.56	0-360	H
* 21.315	35.06	Pk	44.9	8.1	-31.9	-9.5	46.66	54	-7.34	74	-27.34	0-360	H
24.021	36.02	Pk	46.3	8.4	-30.3	-9.5	50.92	54	-3.08	74	-23.08	0-360	H
* 19.292	35.4	Pk	44.3	8	-34.3	-9.5	43.9	54	-10.1	74	-30.1	0-360	V
* 21.322	34.87	Pk	44.9	8.1	-32	-9.5	46.37	54	-7.63	74	-27.63	0-360	V
24.023	35.8	Pk	46.3	8.4	-30.3	-9.5	50.7	54	-3.3	74	-23.3	0-360	V

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

Antenna 2: Low Channel - Data



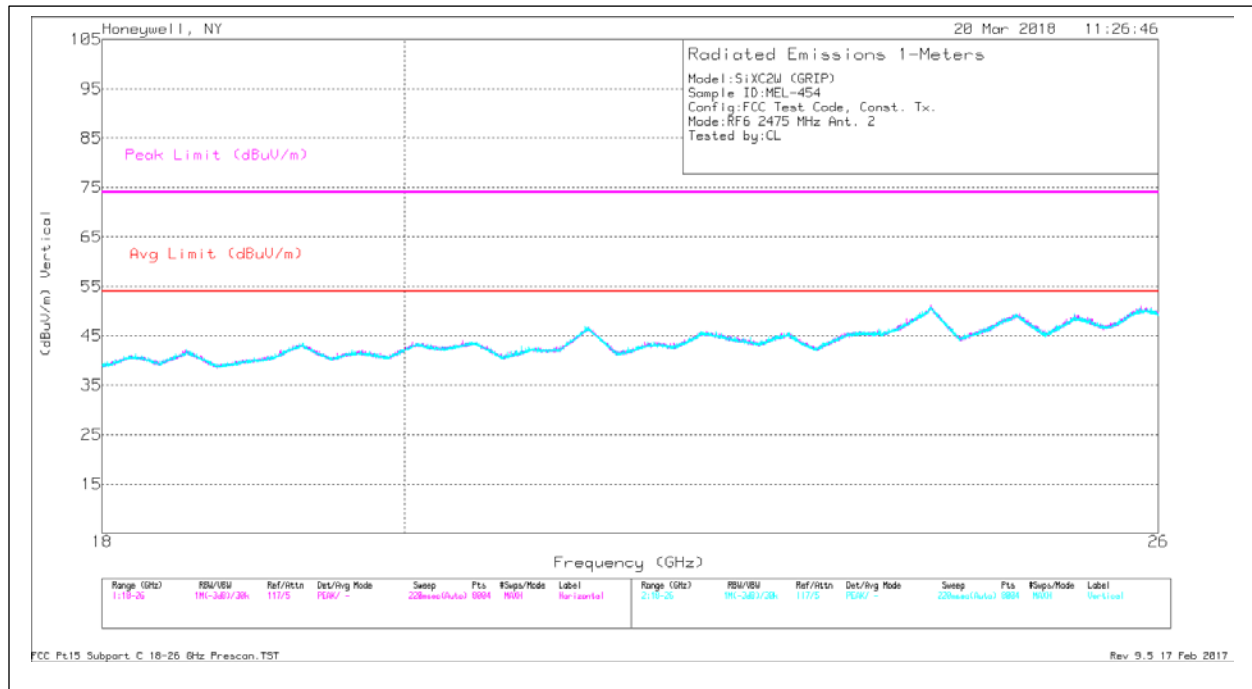
Antenna 2: Mid Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn ACF [dB]	SMA 5 [dB]	18-26G Preamp [dB]	Distance Corr Factor [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
* 19.301	34.58	Pk	44.3	8	-34.2	-9.5	43.18	54	-10.82	74	-30.82	0-360	H
* 21.328	35.23	Pk	44.9	8.1	-32.1	-9.5	46.63	54	-7.37	74	-27.37	0-360	H
24.034	36.15	Pk	46.3	8.4	-30.6	-9.5	50.75	54	-3.25	74	-23.25	0-360	H
* 19.292	34.76	Pk	44.3	8	-34.3	-9.5	43.26	54	-10.74	74	-30.74	0-360	V
* 21.32	35.04	Pk	44.9	8.1	-31.9	-9.5	46.64	54	-7.36	74	-27.36	0-360	V
24.021	35.84	Pk	46.3	8.4	-30.3	-9.5	50.74	54	-3.26	74	-23.26	0-360	V

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

Pk - Peak detector

Antenna 2: Mid Channel - Data



Antenna 2: High Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn ACF [dB]	SMA 5 [dB]	18-26G Preamp [dB]	Distance Corr Factor [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
* 19.294	34.74	Pk	44.3	8	-34.3	-9.5	43.24	54	-10.76	74	-30.76	0-360	H
* 21.322	35.04	Pk	44.9	8.1	-32	-9.5	46.54	54	-7.46	74	-27.46	0-360	H
24.032	36.02	Pk	46.3	8.4	-30.6	-9.5	50.62	54	-3.38	74	-23.38	0-360	H
* 19.282	34.95	Pk	44.3	8	-34.4	-9.5	43.35	54	-10.65	74	-30.65	0-360	V
* 21.333	35.03	Pk	44.9	8.1	-32.2	-9.5	46.33	54	-7.67	74	-27.67	0-360	V
24.036	35.83	Pk	46.3	8.4	-30.7	-9.5	50.33	54	-3.67	74	-23.67	0-360	V

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

Pk - Peak detector

Antenna 2: High Channel - Data

Conducted Emissions (Mains)

Test Description

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 / 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 recorder for both NEUTRAL and HOT lines.

Test Criteria

Reference	Limit (dBuV)		
	Frequency Range (MHz)	Quasi-Peak	Average
CFR 47 Subpart C, 15.207 RSS-GEN CFR 47 Subpart B, 15.107 ICES-003	0.15-0.5	66 to 56	56 to 46
	0.5-5	56	46
	5-30	60	50

Test Information

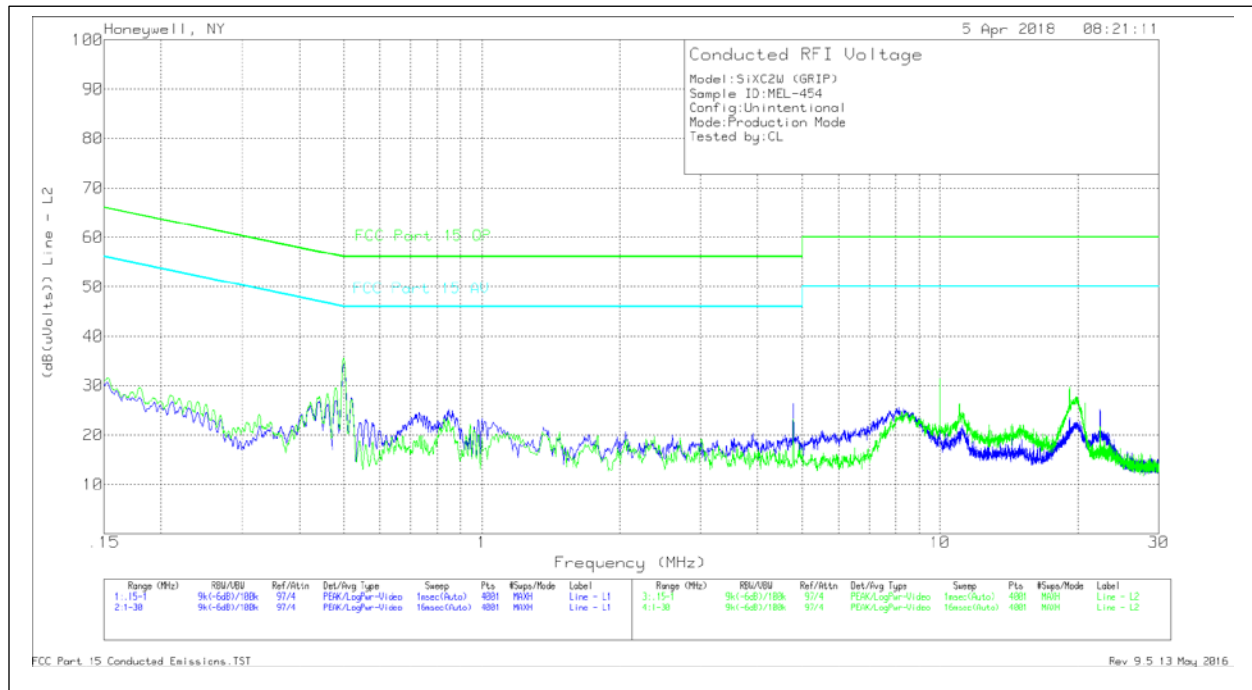
Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	4/5/18	22.6	8.8	1014	P

Equipment List

Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
Spectrum Analyzer	11556	MY49430802	Keysight	N9030A (PXA)	12/19/17	12/19/18
LISN	11527	241259	Com-Power	LIN-120A	01/10/17	01/10/18
Measurement Software	11543	Version 9.5	UL	UL EMC	N/A	N/A
Environmental Meter	11548	A078188	Extech Instruments	SD700	04/24/17	04/24/18

Test Results

Unintentional Mode



Plot

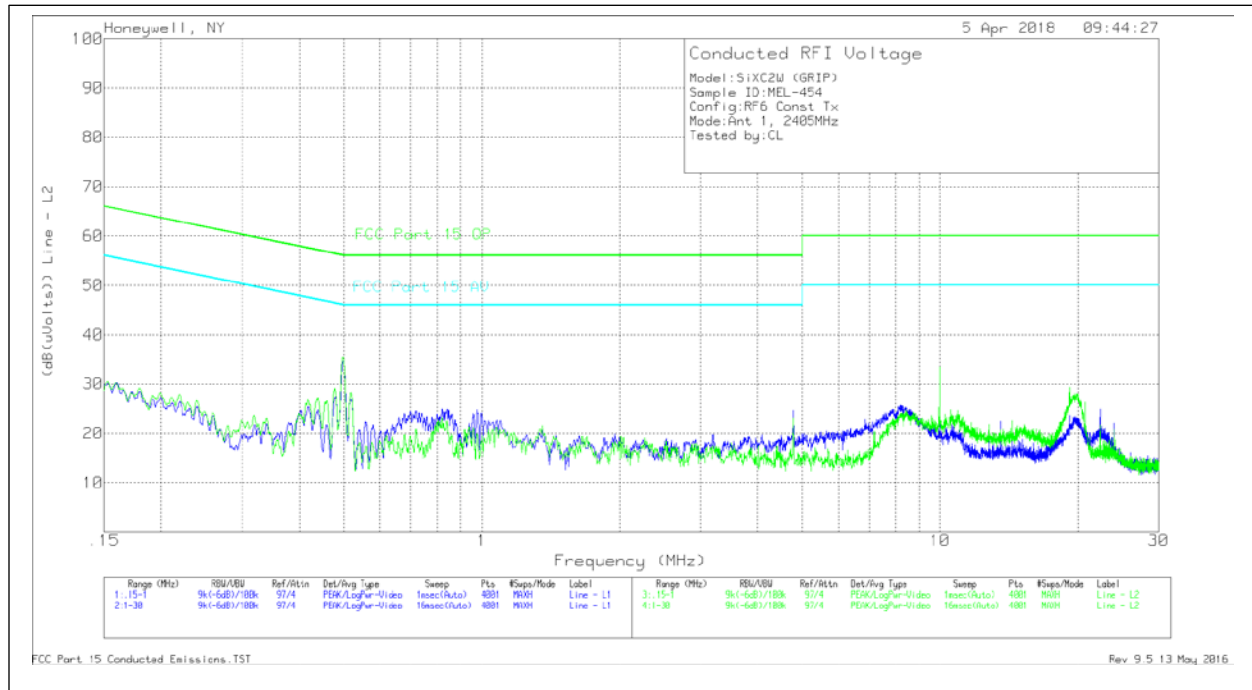
Line - L1									
Frequency (MHz)	Meter Reading (dBuV)	Det	Gain/Loss [dB] LISN1	CDE Cable #1	Corrected Reading (dB(uVolts))	FCC Part 15 QP	Margin (dB)	FCC Part 15 AV	Margin (dB)
.15362	19.51	Pk	10.6	0	30.11	65.8	-35.69	55.8	-25.69
.5007	24.3	Pk	10	0	34.3	56	-21.7	46	-11.7
.86153	14.97	Pk	9.9	0	24.87	56	-31.13	46	-21.13
4.79175	16.3	Pk	9.9	.1	26.3	56	-29.7	46	-19.7
9.99725	20.86	Pk	10	.2	31.06	60	-28.94	50	-18.94
22.344	14.34	Pk	10.5	.3	25.14	60	-34.86	50	-24.86

Line - L2									
Frequency (MHz)	Meter Reading (dBuV)	Det	Gain/Loss [dB] LISN1	CDE Cable #1	Corrected Reading (dB(uVolts))	FCC Part 15 QP	Margin (dB)	FCC Part 15 AV	Margin (dB)
.15288	20.93	Pk	10.6	0	31.53	65.84	-34.31	55.84	-24.31
.50007	25.71	Pk	9.9	0	35.61	56	-20.39	46	-10.39
.84193	13.57	Pk	9.9	0	23.47	56	-32.53	46	-22.53
4.7845	13.23	Pk	9.9	.1	23.23	56	-32.77	46	-22.77
9.99725	21.12	Pk	10	.2	31.32	60	-28.68	50	-18.68
19.154	19.07	Pk	10.3	.3	29.67	60	-30.33	50	-20.33

Pk - Peak detector

Data

Intentional Mode



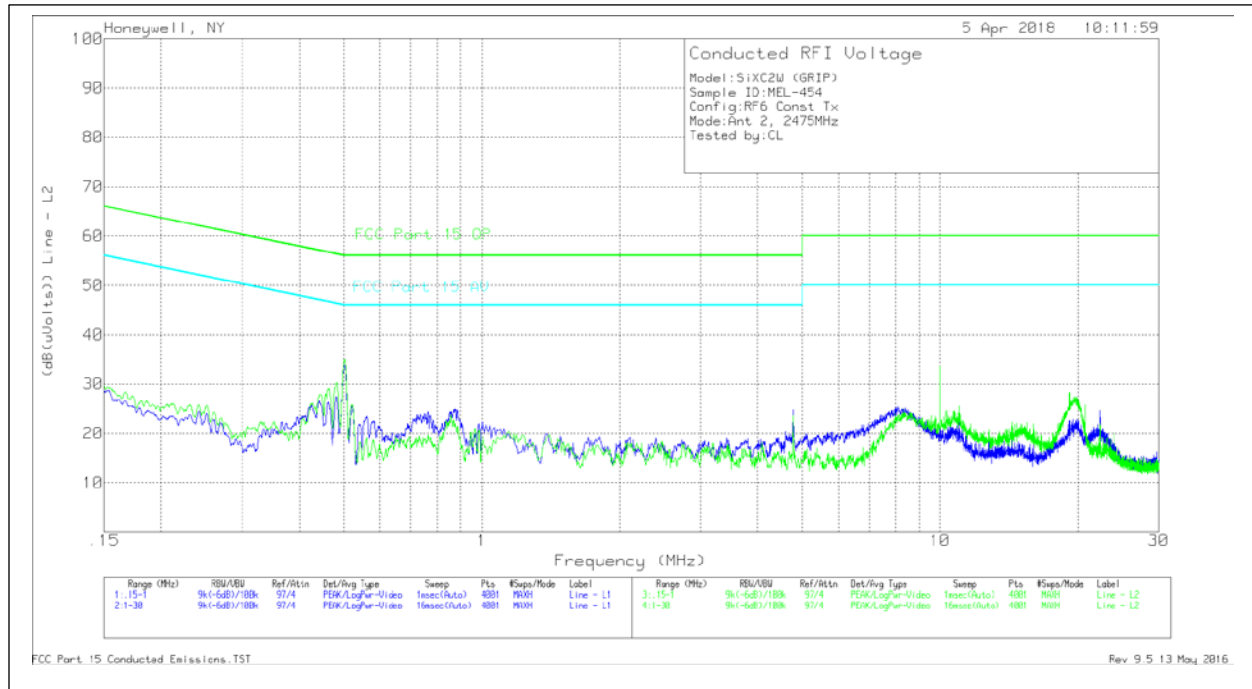
Antenna 1 - Plot

Line - L1									
Frequency (MHz)	Meter Reading (dBuV)	Det	Gain/Loss [dB] LISN1	CDE Cable #1	Corrected Reading (dB(uVolts))	FCC Part 15 QP	Margin (dB)	FCC Part 15 AV	Margin (dB)
.15969	19.6	Pk	10.6	0	30.2	65.48	-35.28	55.48	-25.28
.49868	24.64	Pk	10	0	34.64	56.02	-21.38	46.02	-11.38
.82702	14.46	Pk	9.9	0	24.36	56	-31.64	46	-21.64
4.79175	14.66	Pk	9.9	.1	24.66	56	-31.34	46	-21.34
9.99725	22.45	Pk	10	.2	32.65	60	-27.35	50	-17.35
22.35125	14.03	Pk	10.5	.3	24.83	60	-35.17	50	-25.17

Line - L2									
Frequency (MHz)	Meter Reading (dBuV)	Det	Gain/Loss [dB] LISN1	CDE Cable #1	Corrected Reading (dB(uVolts))	FCC Part 15 QP	Margin (dB)	FCC Part 15 AV	Margin (dB)
.15234	19.85	Pk	10.6	0	30.45	65.87	-35.42	55.87	-25.42
.49975	25.17	Pk	10	0	35.17	56	-20.83	46	-10.83
.81871	13.34	Pk	9.9	0	23.24	56	-32.76	46	-22.76
4.79175	13.06	Pk	9.9	.1	23.06	56	-32.94	46	-22.94
9.99725	23.36	Pk	10	.2	33.56	60	-26.44	50	-16.44
19.154	18.68	Pk	10.3	.3	29.28	60	-30.72	50	-20.72

Pk - Peak detector

Antenna 1 - Data



Antenna 2 - Plot

Line - L1									
Frequency (MHz)	Meter Reading (dBuV)	Det	Gain/Loss [dB] LISN1	CDE Cable #1	Corrected Reading (dB(uVolts))	FCC Part 15 QP	Margin (dB)	FCC Part 15 AV	Margin (dB)
.15298	18.11	Pk	10.6	0	28.71	65.84	-37.13	55.84	-27.13
.50198	23.86	Pk	10	0	33.86	56	-22.14	46	-12.14
.87771	15.01	Pk	9.9	0	24.91	56	-31.09	46	-21.09
4.7845	14.71	Pk	9.9	.1	24.71	56	-31.29	46	-21.29
9.99725	22.69	Pk	10	.2	32.89	60	-27.11	50	-17.11
22.344	13.85	Pk	10.5	.3	24.65	60	-35.35	50	-25.35

Line - L2									
Frequency (MHz)	Meter Reading (dBuV)	Det	Gain/Loss [dB] LISN1	CDE Cable #1	Corrected Reading (dB(uVolts))	FCC Part 15 QP	Margin (dB)	FCC Part 15 AV	Margin (dB)
.1532	18.73	Pk	10.6	0	29.33	65.82	-36.49	55.82	-26.49
.50124	25.07	Pk	9.9	0	34.97	56	-21.03	46	-11.03
.85631	13.72	Pk	9.9	0	23.62	56	-32.38	46	-22.38
4.7845	13.67	Pk	9.9	.1	23.67	56	-32.33	46	-22.33
9.99725	23.49	Pk	10	.2	33.69	60	-26.31	50	-16.31
19.154	17.76	Pk	10.3	.3	28.36	60	-31.64	50	-21.64

Pk - Peak detector

Antenna 2 - Data

END OF REPORT