

Honeywell Home

FCC / ISED Test Report

For

SiXSHOCK

Report #: 58791

FCC ID: CFS8DL6SHKA

IC ID: 573F-6SHKA

Report Completion Date: 2019-02-04

Prepared by and for:

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Testing

NVLAP Lab Code: 600110

Document Introduction

Ademco Inc. 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 Ademco 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.

This document is a record of the FCC/ISED Test Report for Ademco Inc. 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 Ademco Inc. and all revisions are duly noted in the revisions section. Any alterations of this document not carried out by Ademco 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.

Ademco Inc. is the legal entity name for Honeywell Home / Resideo. All three names can be used synonymously within this test report.

Test Report Revision History				
Revision	Prepared By	Reviewed By	Revision Detail	Release Date
---	M. Antola	A. Roussin	Original Release	2019-02-04

Report Authorization

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Applicable Test Standards/Limits

Test Standards/Limits	Result	Dates Tested
ANSI C63.4: 2014	Compliant	1/3/19 – 1/22/19
ANSI C63.10: 2013	Compliant	1/3/19 – 1/22/19
ICES-003 Issue 6: 2016	Compliant	1/3/19 – 1/22/19
RSS-247, Issue 2, Section 5	Compliant	1/3/19 – 1/22/19
RSS-GEN, Issue 4	Compliant	1/3/19 – 1/22/19
CFR 47 Pt 15 Subpart B, Section 15.107/109	Compliant	1/3/19 – 1/22/19
CFR 47 Pt 15 Subpart C, Section 15.207/209	Compliant	1/3/19 – 1/22/19
CFR 47 Pt 15 Subpart C, Section 15.247	Compliant	1/3/19 – 1/22/19

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. Ademco Inc. is accredited by NVLAP, Laboratory Code 600110-0. The full scope of accreditation can be viewed at the NVLAP website.

Test Item Description

The SiXSHOCK is a 3-zone wireless shock/door/window sensor intended for use with Ademco Inc. controls that support SiX™ series devices. It provides a reed switch/magnet zone, external wired contact zone, tamper switch, and built-in shock sensor zone. Typical shock protection area is 10 - 12 sq. ft. / 5 - 6 foot radius (3.05m – 3.66m / 1.52m – 1.83m radius). The coverage area can vary depending on the mounting surface

The SiXSHOCK is battery operated and wireless, employing a 2.4 GHz IEEE 802.15.4-compliant transceiver. The module uses the Ademco Inc. SiX™ RF protocol to send alert messages to an existing Ademco Inc. security system to alert to a shock event, door/window event, or zone event. In addition, the devices send a regular supervision or check-in RF message, no more often than once per hour.

The SiXSHOCK contains two (2) printed “F” antennas, each having a gain of 2.0 dBi.

Worse-Case Configuration & Mode

Radiated emissions was performed with the EUT set to transmit at the low/middle/high channels 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 Y axis orientation was the worst-case orientation. Therefore, all final radiated test was performed with the EUT in the Y axis orientation.

Test Sample Identification

Sample ID Number	Sample Serial Number	Date Received
MEL-650	Non-serialized production unit	12/20/18
MEL-651	Non-serialized production unit	12/20/18
MEL-652	Non-serialized production unit	12/20/18

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
1	99% Bandwidth	PASS
2	6 dB Occupied Bandwidth	PASS
3	Maximum Conducted Output Power	PASS
4	Maximum Power Spectral Density	PASS
5	Out-of-Band Emissions / Conducted Spurious Emissions	PASS
6	Radiated Emissions (Unintentional)	PASS
7	Radiated Emissions (Intentional)	PASS

Test & Measurement Equipment

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

Equipment List

Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
RF Lab (Power & Antenna Port Measurements)						
Spectrum Analyzer	11531	MY41000078	Agilent	E4440A	06/06/17	06/06/19
Attenuator	-	1624	Pasternack	PE7087-6	*	*
RF Chamber						
Spectrum Analyzer	11496	100303	Rohde & Schwarz	FSU26	04/11/18	04/11/19
Loop Antenna (9kHz-30MHz)	11535	121080	Com-Power	AL-130R	10/29/18	10/29/19
Bilog Antenna (30MHz-5GHz)	11311	A022406	Sunol	JB5	02/01/18	02/01/19
Horn Antenna (1-18GHz)	2319	2317	EMCO	3115	01/08/19	01/08/20
Horn Antenna (18-40GHz)	11472	151	EMCO	EM-6963	02/14/18	02/14/19
Preamp (10-4200MHz)	11537	1603006	Mini Circuits	TVA-11-422	*	*
Preamp (500MHz-18GHz)	11557	18040034	Com-Power	PAM-118A	*	*
Preamp (18-40GHz)	11541	160911	Amplical	AMP18G40-35	*	*
Band Reject Filter	11553	G041	Micro-tronics	BRM50702-01	*	*
RF Cable	-	-	Mini-Circuits	RDE#2	*	*
RF Cable	-	-	Insulated Wire	SMA#8	*	*
OATS						
Spectrum Analyzer	11545	103125	Rohde & Schwarz	FSW26	02/21/18	02/21/19
Bilog Antenna (30MHz-6GHz)	11534	A012816	Sunol	JB6	03/27/18	03/27/19
Horn Antenna (1-18GHz)	2973	3127	EMCO	RGA-60	01/22/18	01/22/19
Horn Antenna (18-40GHz)	11472	151	EMCO	EM-6963	02/14/18	02/14/19
Preamp (100kHz-1.3GHz)	11540	2443AUF555	HP	8447D	*	*
Preamp (1-18GHz)	11539	160362	Amplical	AMP1G18-35	*	*
Preamp (18-40GHz)	11541	160911	Amplical	AMP18G40-35	*	*
High Pass Filter	11552	G018	Micro-tronics	HPM50111-01	*	*

RF Cable	-	-	Pasternack	RDE#1	*	*
RF Cable	-	-	MegaPhase	EMC2-S1S1-360	*	*
Misc.						
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

*-Passive devices & Preamps are characterized in-house, not calibrated.

On Time and Duty Cycle

Test Description

Refer to KDB 558074 Zero-Span Analyzer Method.

Test Criteria

Reference	Limit
KDB 558074, Section 6 C63.10, Section 11	None, for reporting only

Test Information

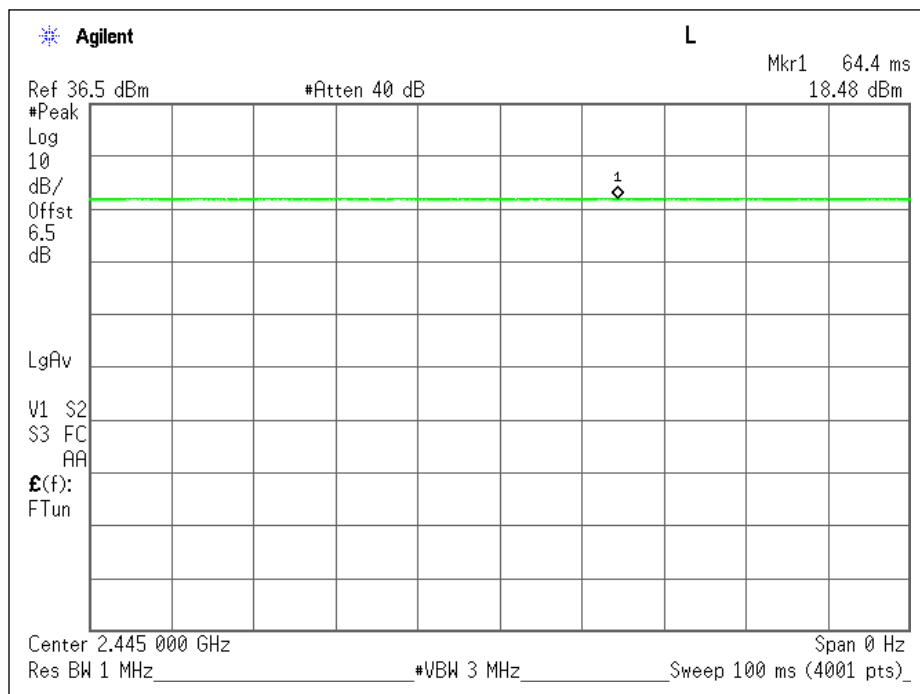
Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	01/18/19	22.6	20.5	1012	P

Test Results

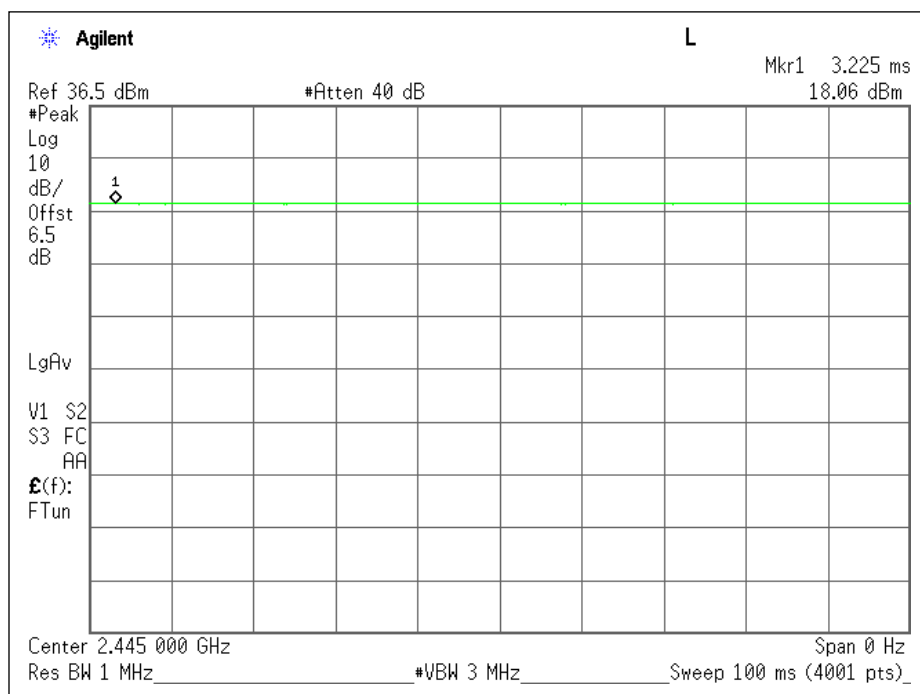
Antenna	On Time (msec)	Period (msec)	Duty Cycle	Duty Cycle (%)
1	64.4	64.4	1.00	100
2	3.225	3.225	1.00	100

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 KDB 558074/C63.10.

Duty Cycle Plot



Antenna 1 – Plot



Antenna 2 - Plot

6dB Occupied 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.

Test Criteria

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

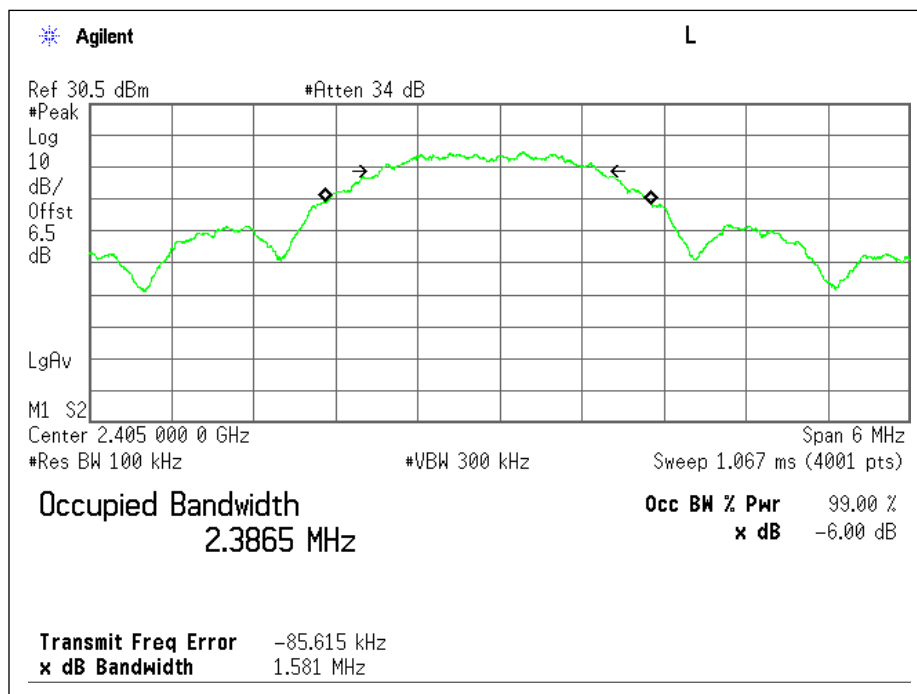
Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	01/18/19	22.6	20.5	1012	P

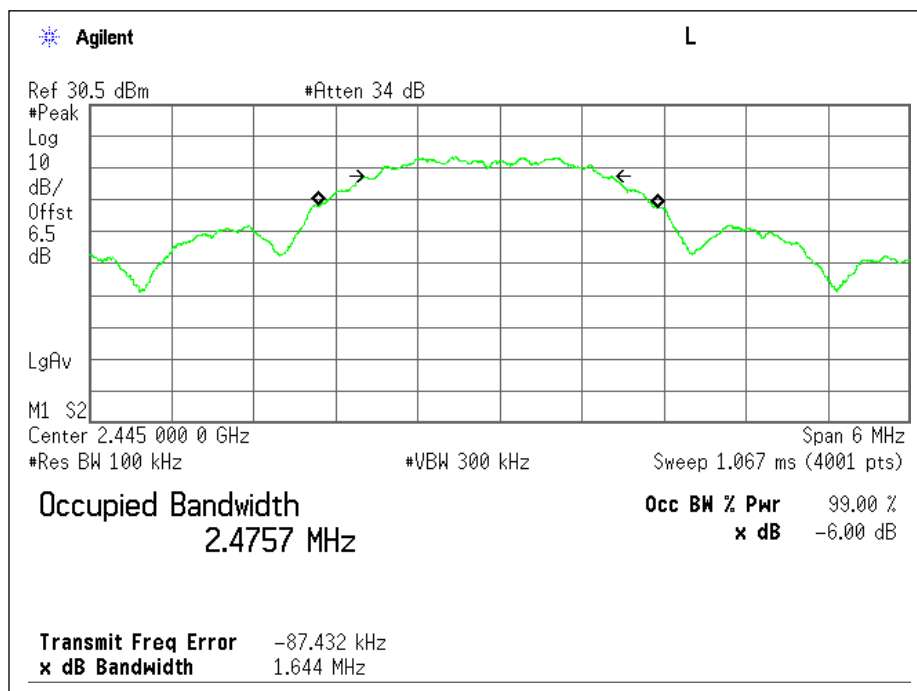
Test Results

Channel	Frequency (GHz)	6dB Bandwidth (in MHz)	
		Antenna 1	Antenna 2
Low	2405	1.581	1.592
Mid	2445	1.644	1.640
High	2475	1.836	1.836

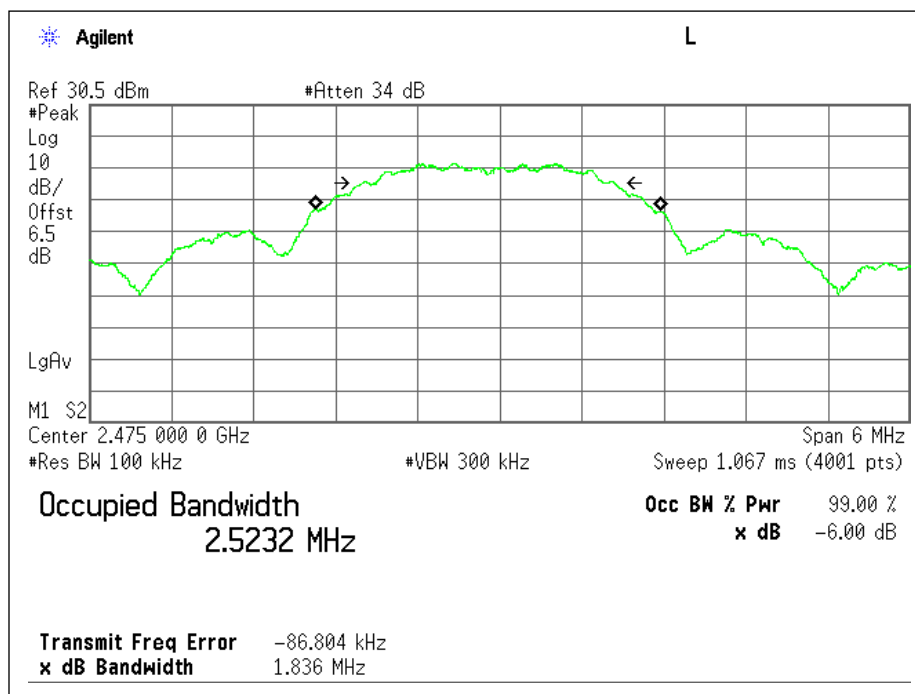
6dB Bandwidth



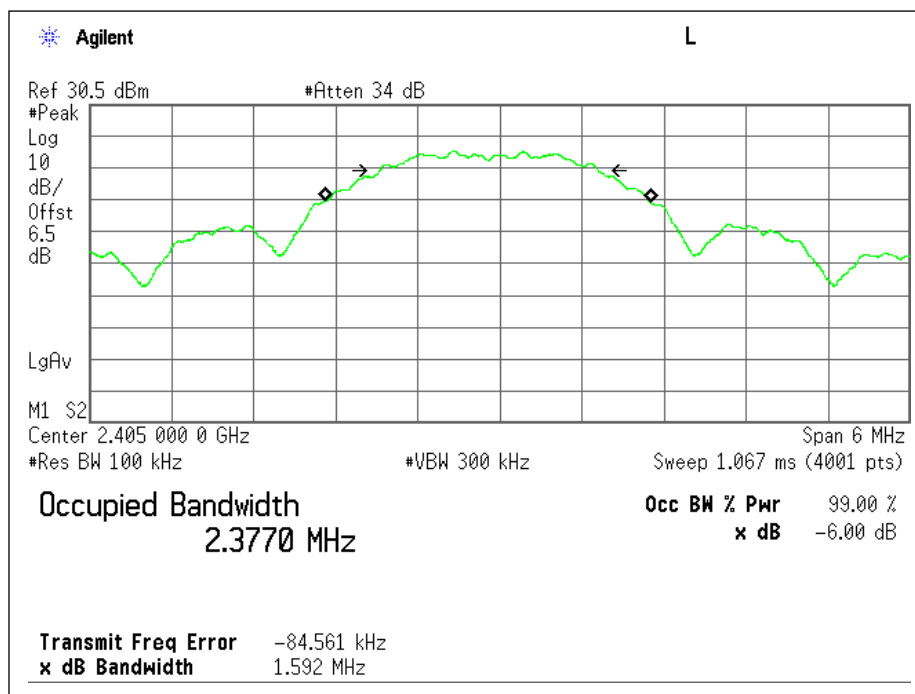
Antenna 1: Low Channel - Plot



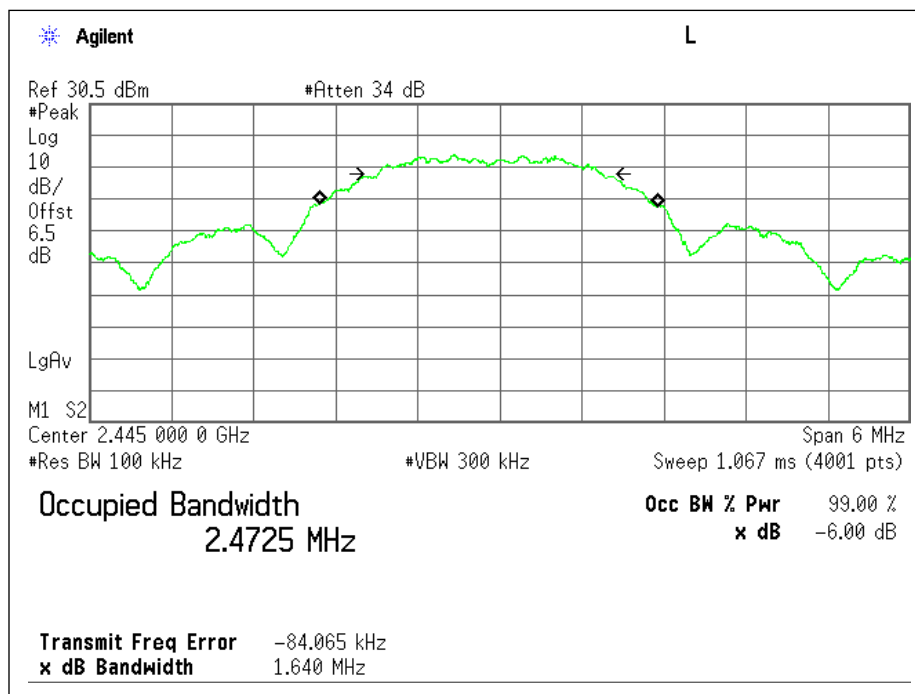
Antenna 1: Mid Channel - Plot



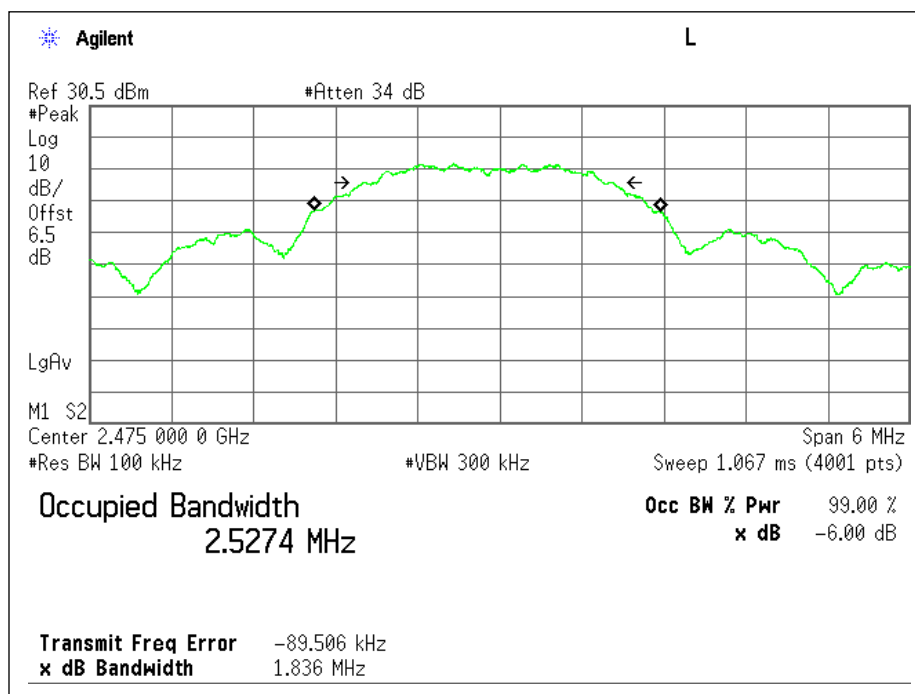
Antenna 1: High Channel – Plot



Antenna 2: Low Channel - Plot



Antenna 2: Mid Channel - Plot



Antenna 2: High Channel - Plot

99% 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

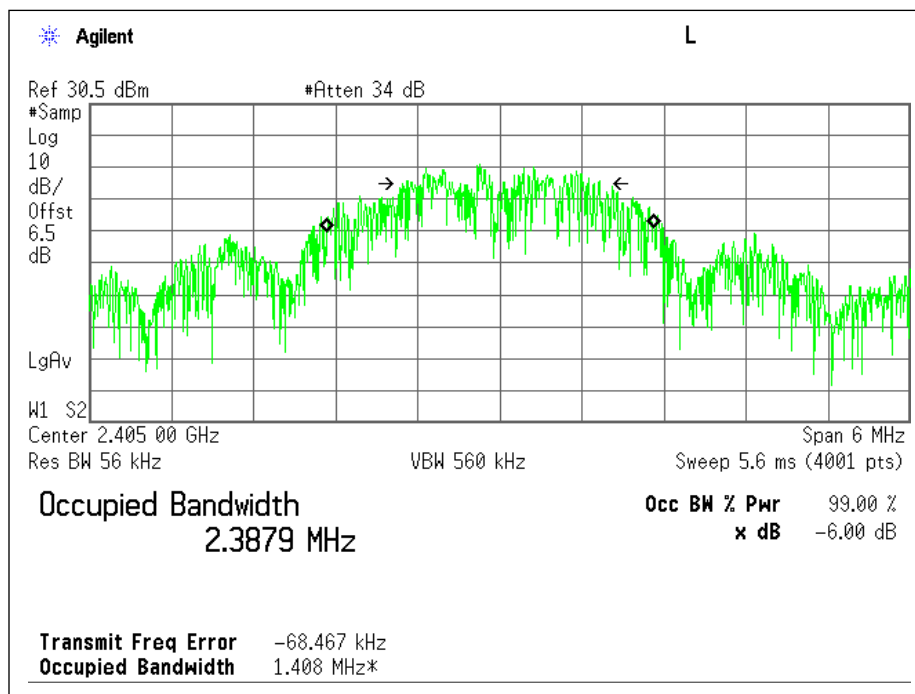
Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	01/18/19	22.6	20.5	1012	P

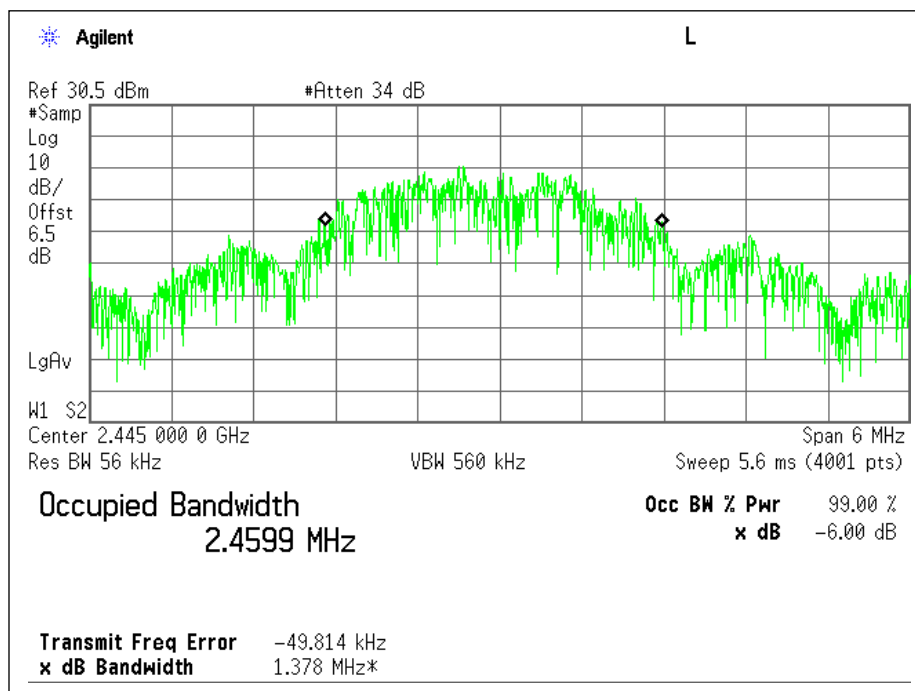
Test Results

Channel	Frequency (GHz)	99% Bandwidth (in MHz)	
		Antenna 1	Antenna 2
Low	2045	2.3879	2.4470
Mid	2445	2.4599	2.3782
High	2475	2.3447	2.4678

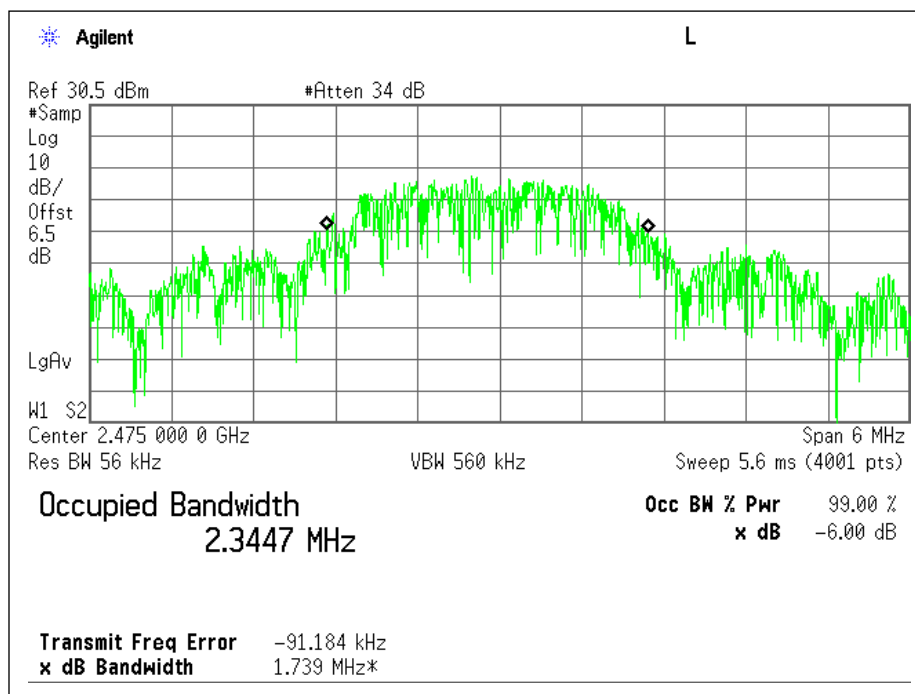
99% Occupied Bandwidth



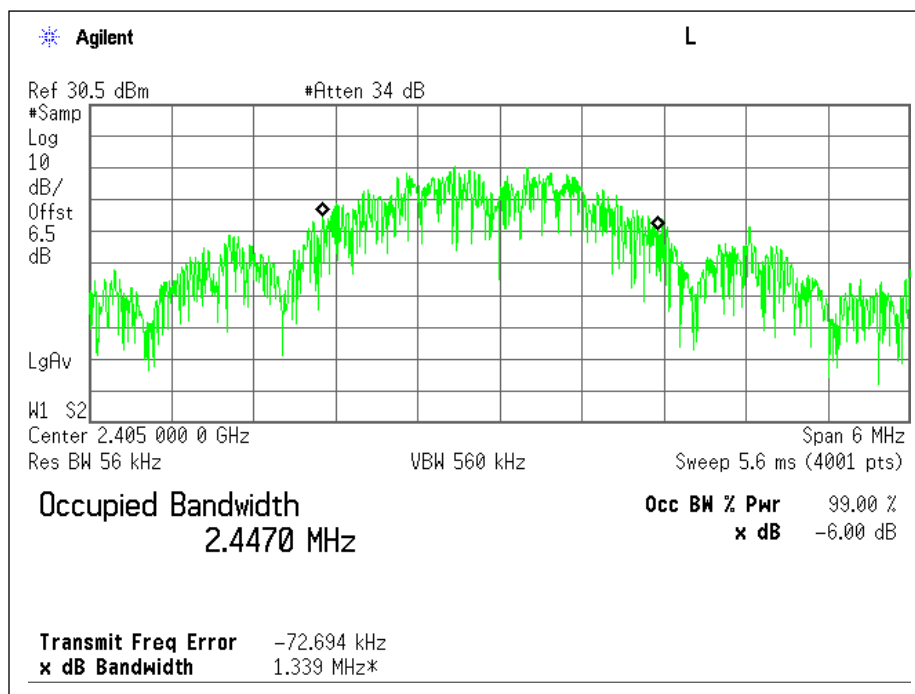
Antenna 1: Low Channel - Plot



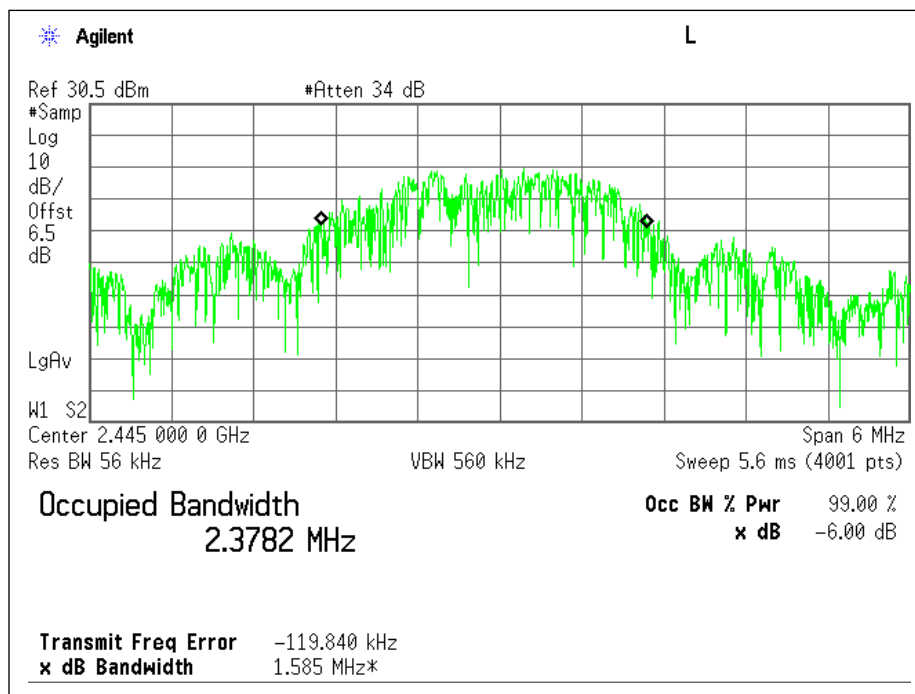
Antenna 1: Mid Channel - Plot



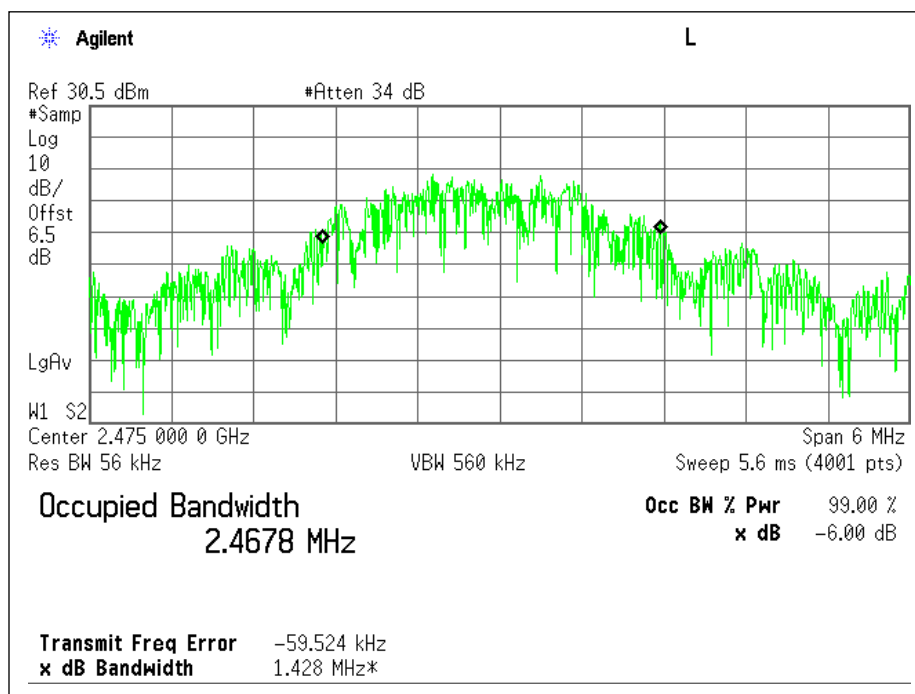
Antenna 1: High Channel – Plot



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)

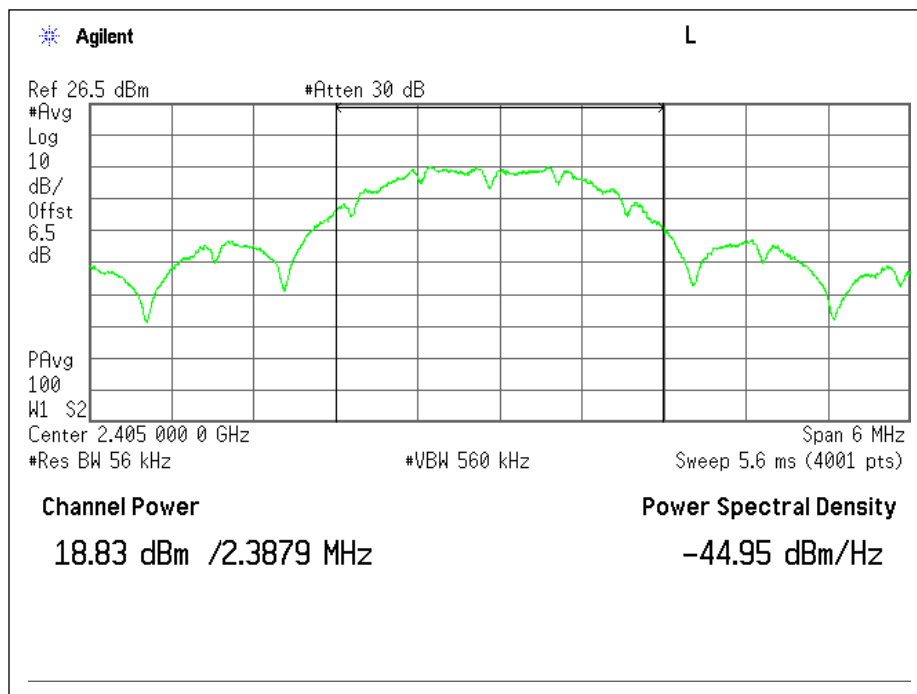
Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	01/18/19	22.6	20.5	1012	P

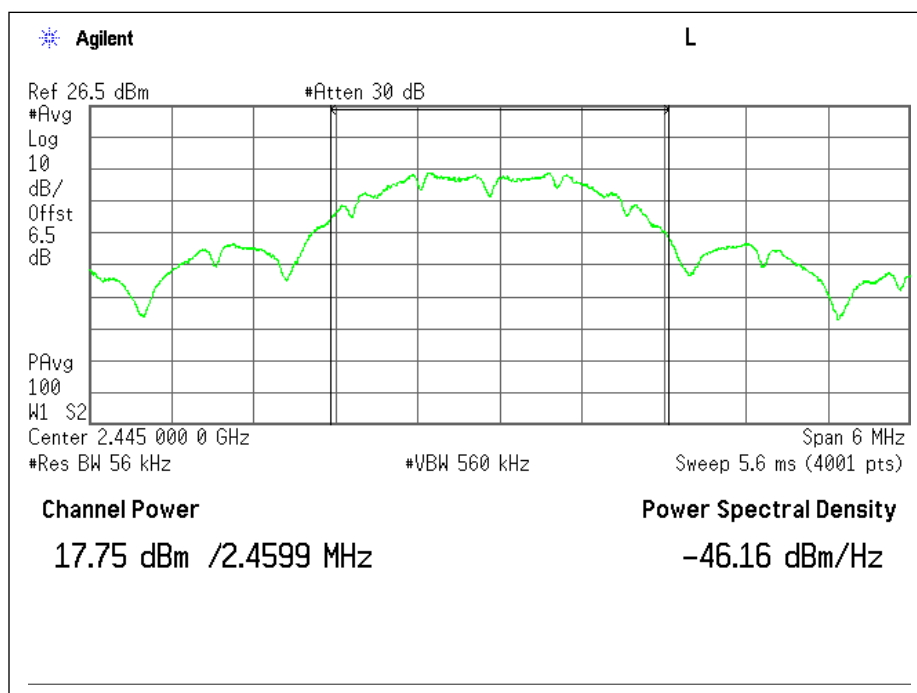
Test Results

Channel	Frequency (GHz)	Tx Channel Power (dBm)	
		Antenna 1	Antenna 2
Low	2405	18.83	19.00
Mid	2445	17.75	18.17
High	2475	15.80	16.11

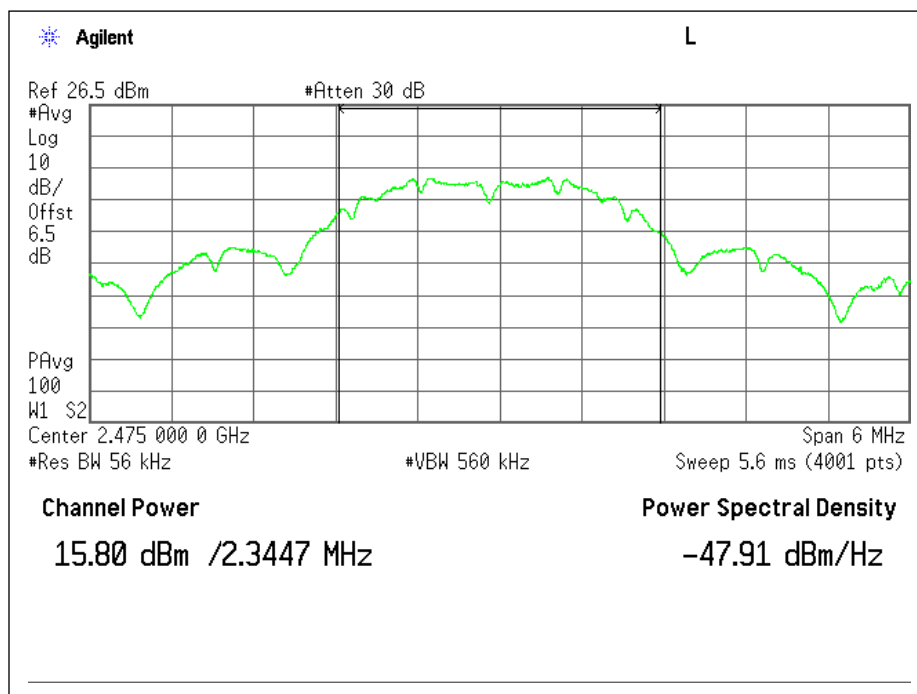
Output Power



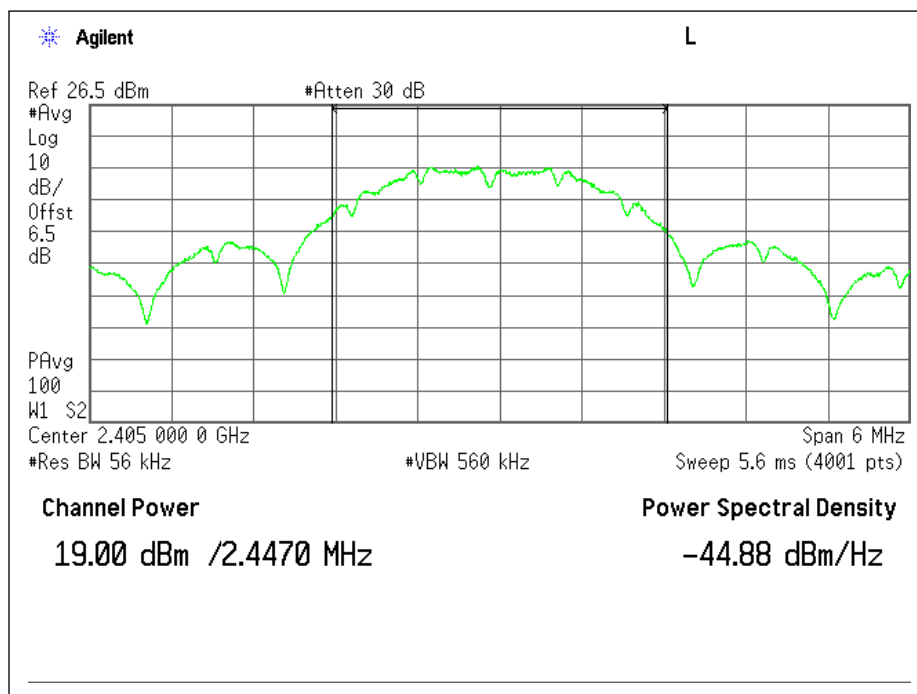
Antenna 1: Low Channel - Plot



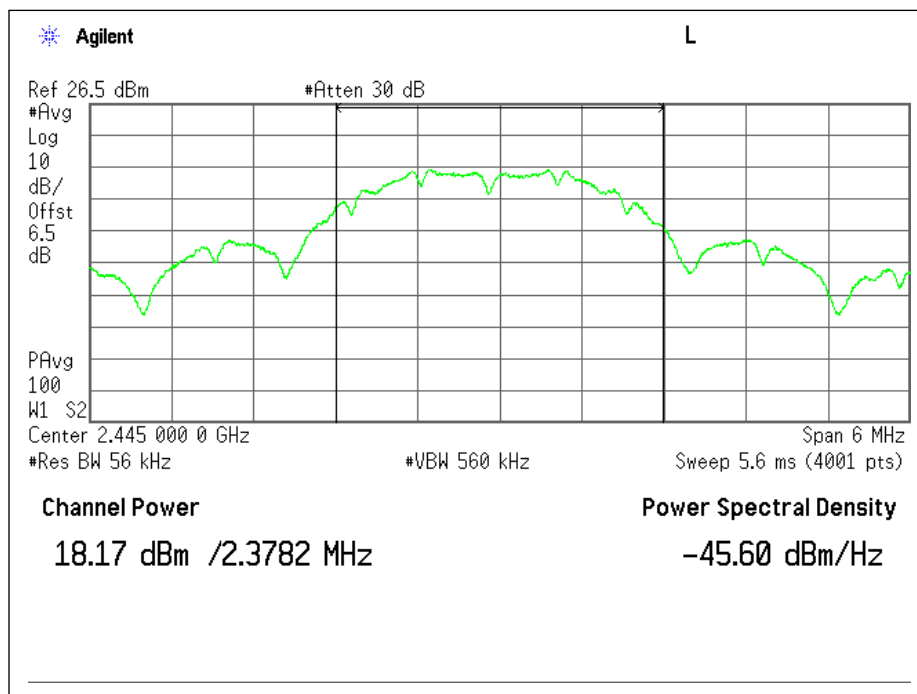
Antenna 1: Mid Channel - Plot



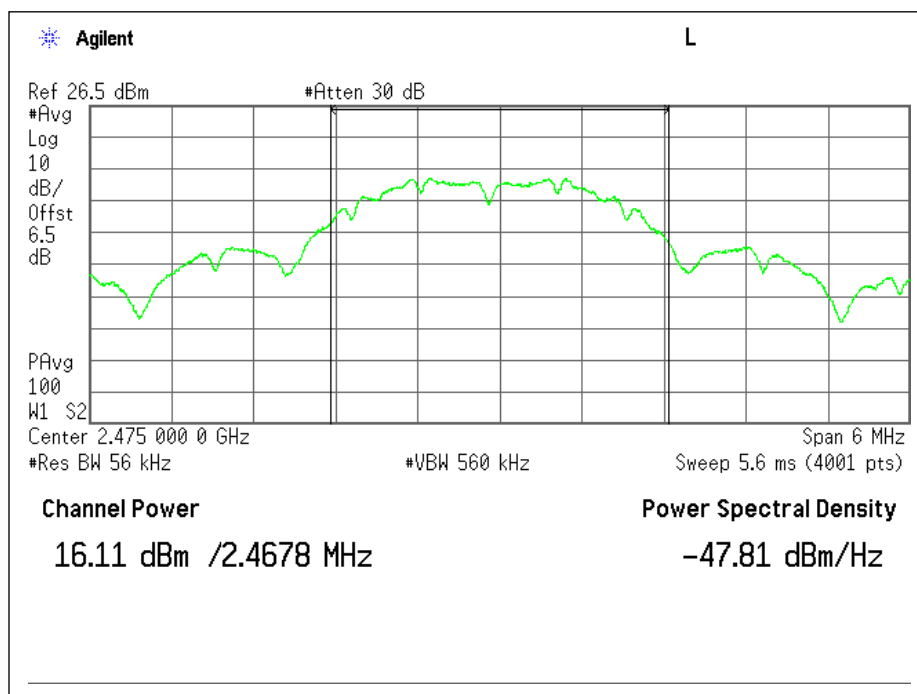
Antenna 1: High Channel – Plot



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 peak / 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

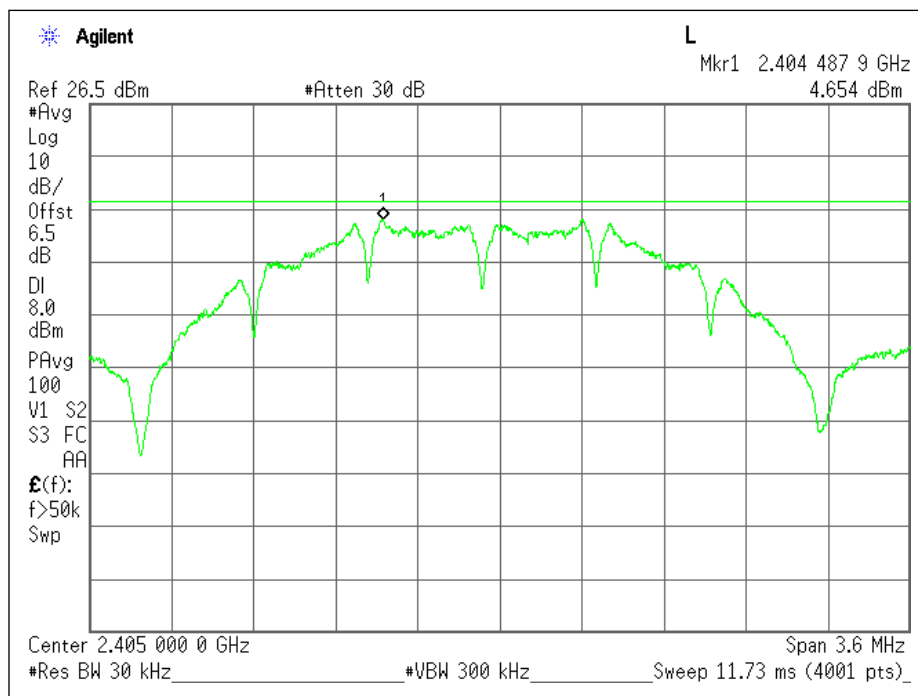
Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	01/18/19	22.6	20.5	1012	P

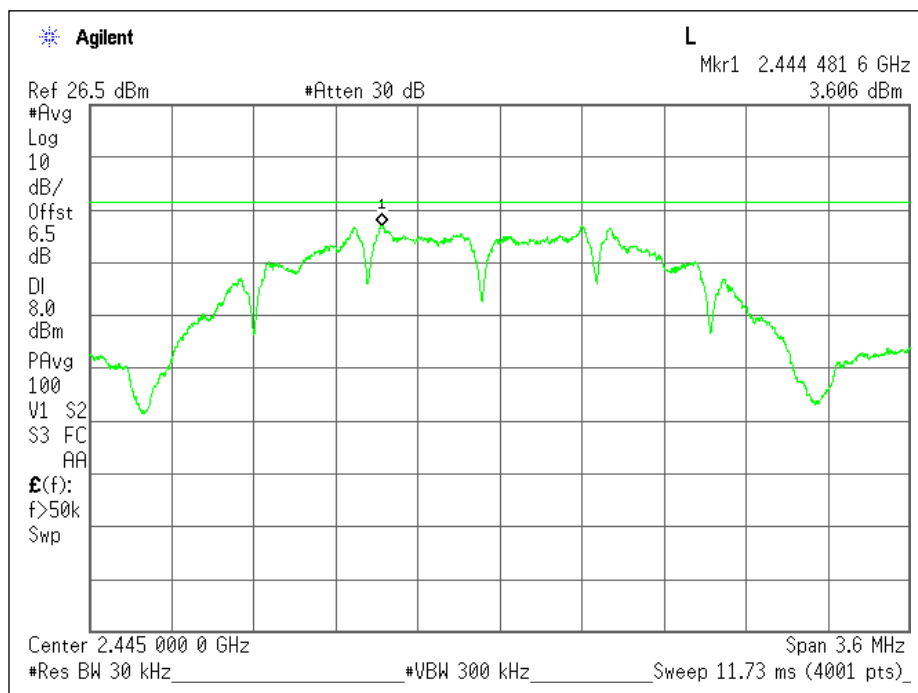
Test Results

Channel	Frequency (GHz)	Max Power (dBm)	
		Antenna 1	Antenna 2
Low	2405	4.654	4.812
Mid	2445	3.606	3.928
High	2475	1.528	1.823

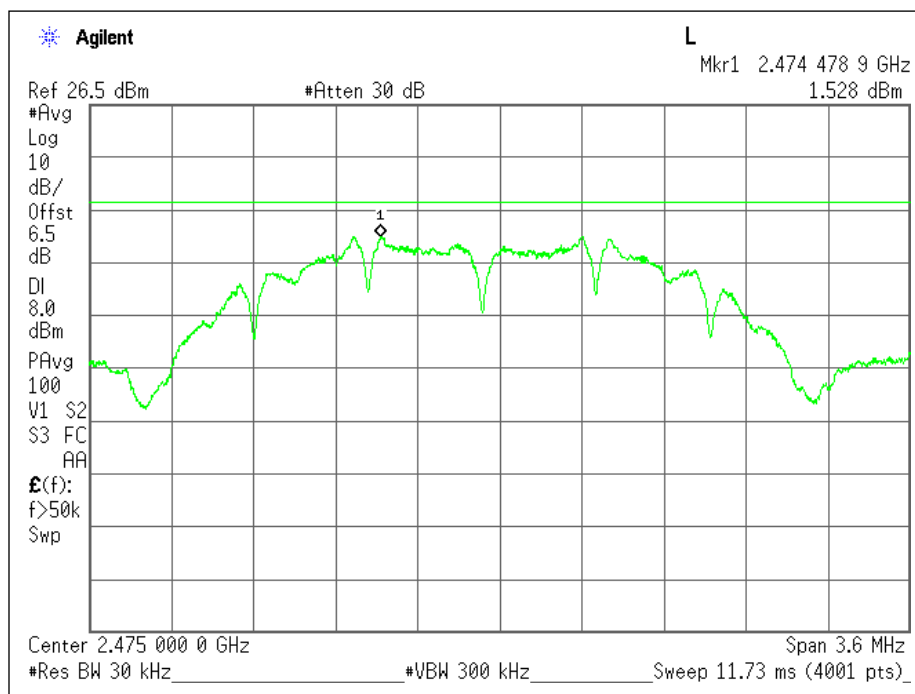
PSD



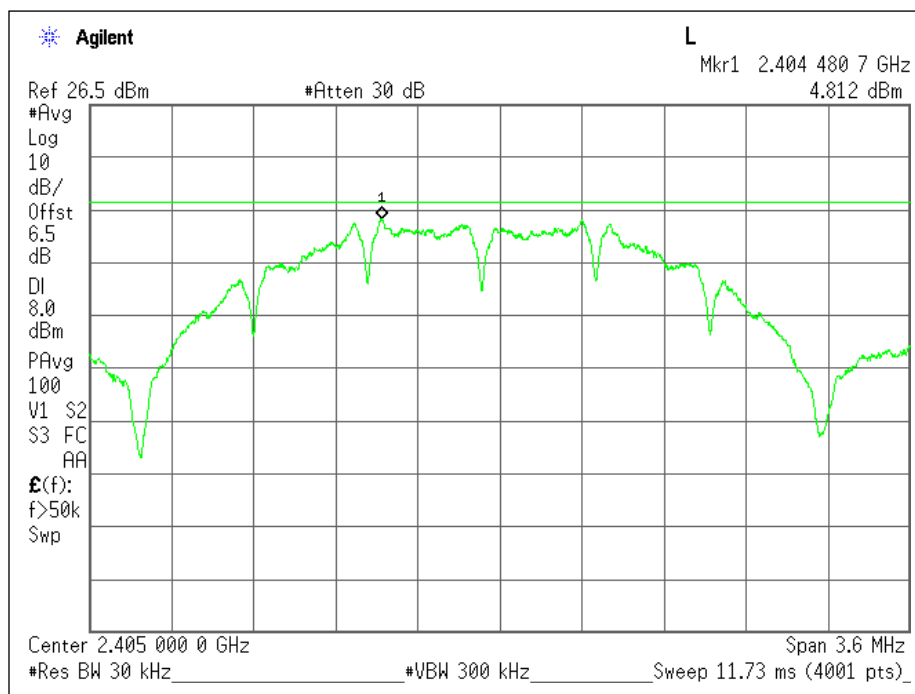
Antenna 1: Low Channel - Plot



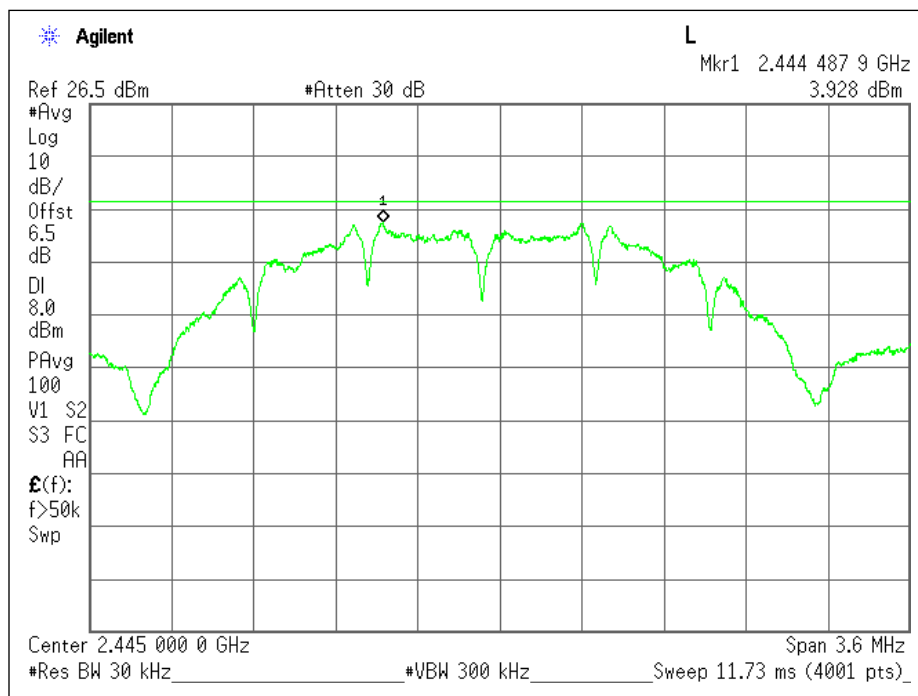
Antenna 1: Mid Channel - Plot



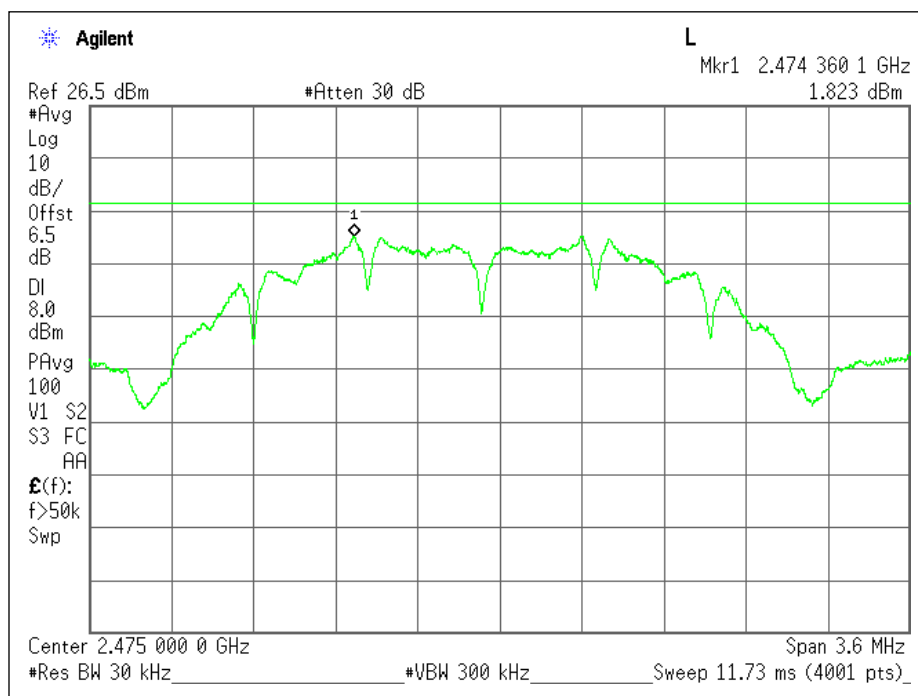
Antenna 1: High Channel – Plot



Antenna 2: Low Channel - Plot



Antenna 2: Mid Channel - Plot



Antenna 2: High Channel - Plot

Out-of-Band 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

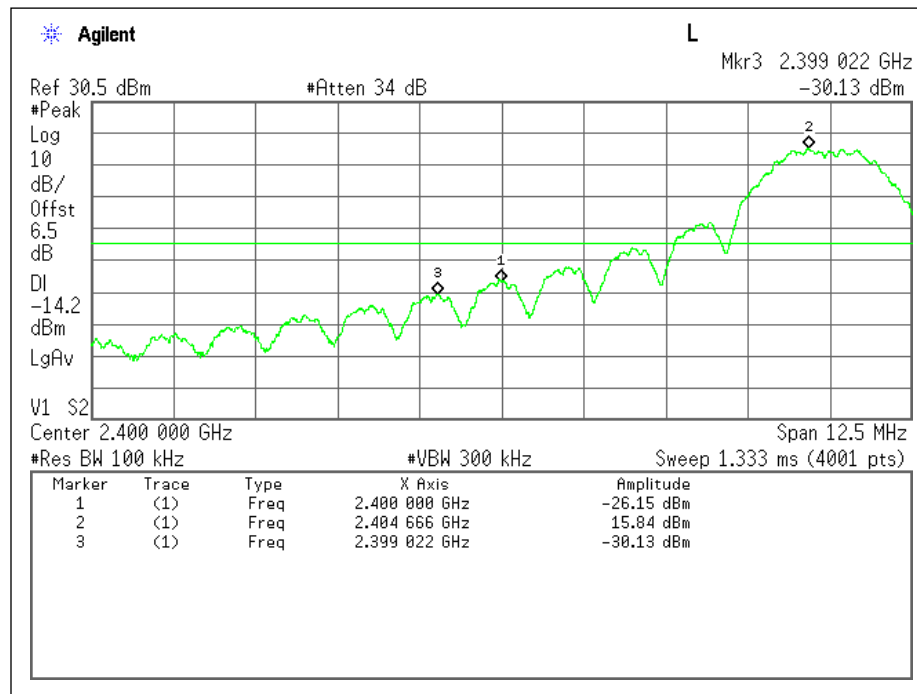
Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	01/18/19	22.6	20.5	1012	P

Test Results

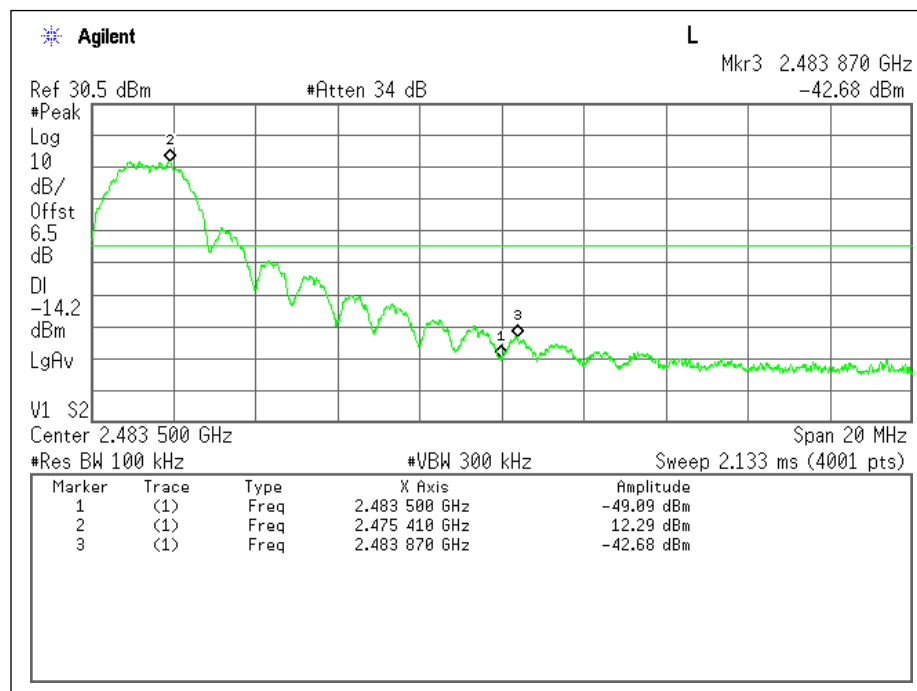
Authorized Band Edge					
Antenna	Channel	Frequency (GHz)	Delta from Peak to Bandedge (dB)	Limit (dB)	Margin (dB)
1	Low	2.405	41.99	30	-11.99
	High	2.475	61.38	30	-31.38
2	Low	2.405	41.65	30	-11.65
	High	2.475	62.13	30	-32.13

Conducted Spurious			
Channel	Frequency (GHz)	Highest Spurious Emission Delta from the -30dB down Limit (dB)	
		Antenna 1	Antenna 2
Low	2.405	-42.42	-44.40
Mid	2.445	-43.40	-43.41
High	2.475	-40.92	-43.88

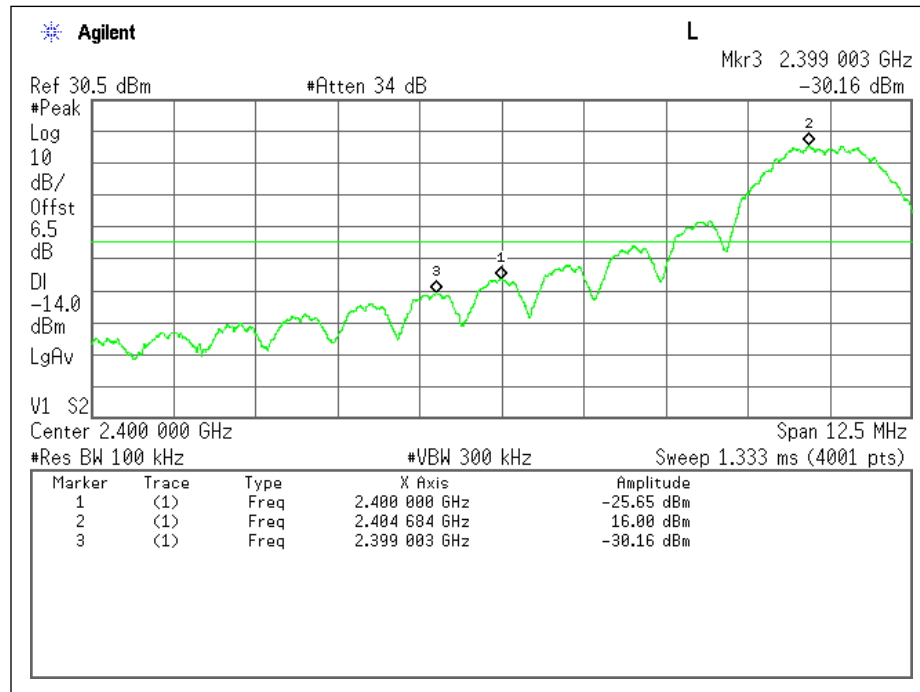
Band Edge



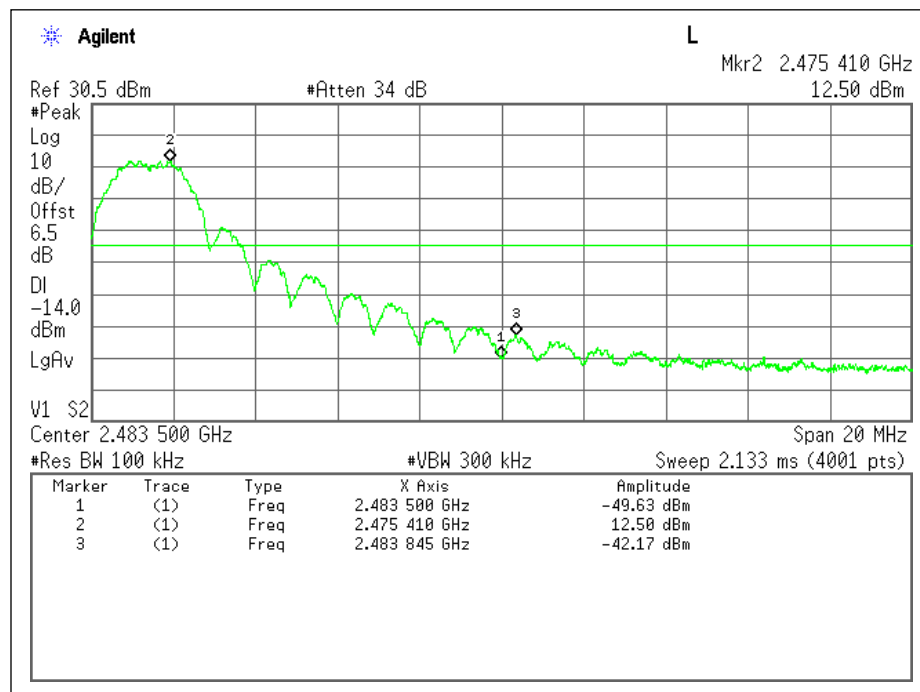
Antenna 1: Low Channel - Plot



Antenna 1: High Channel – Plot

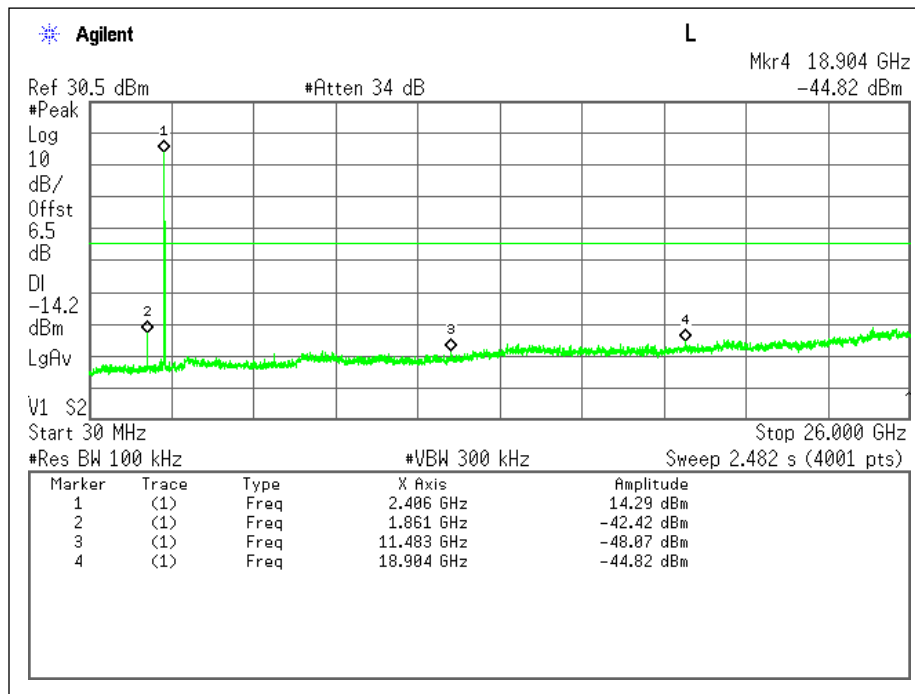


Antenna 2: Low Channel - Plot

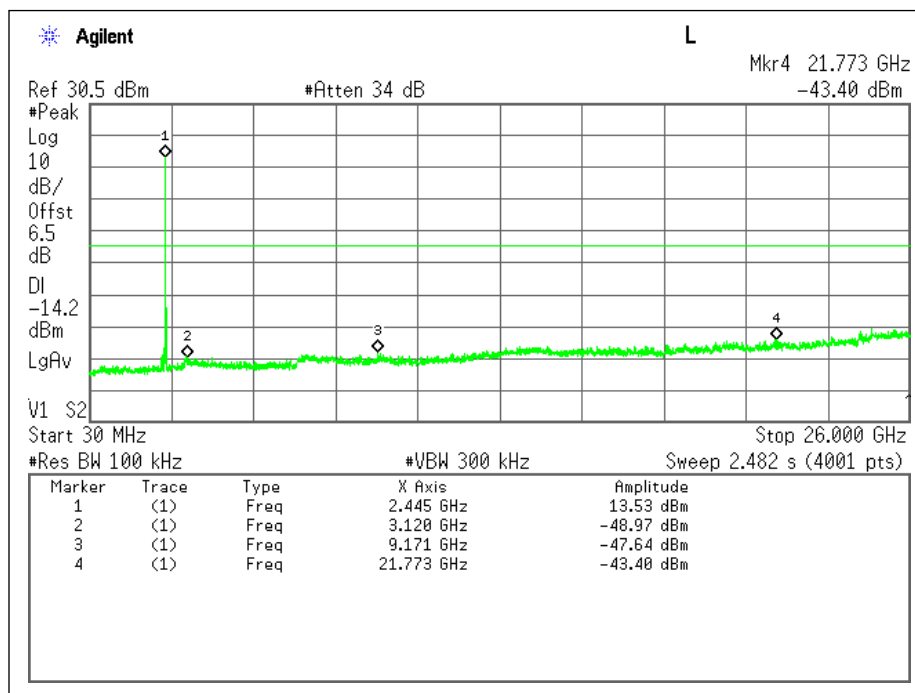


Antenna 2: High Channel - Plot

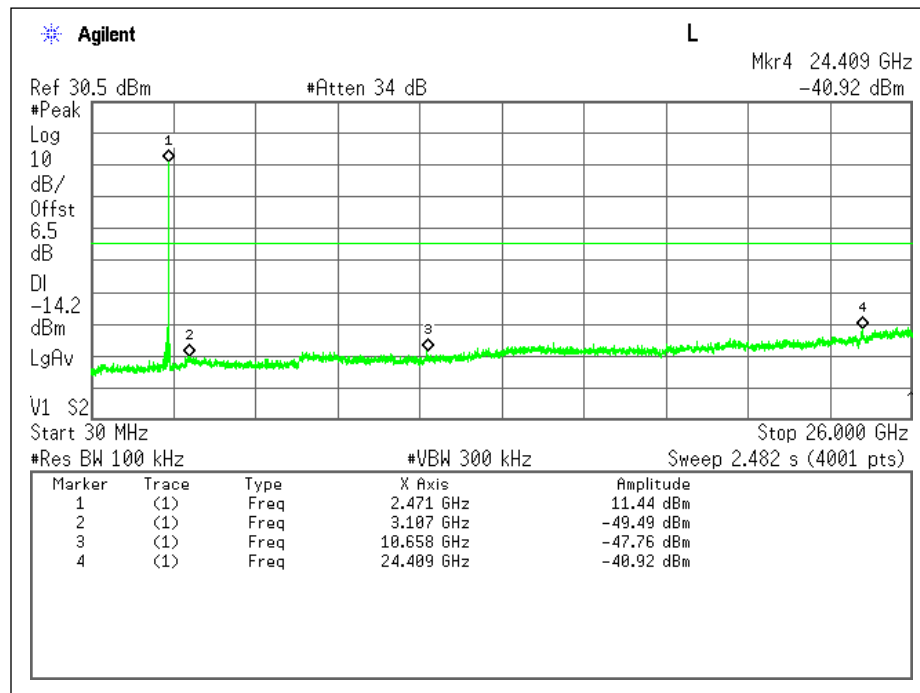
Conducted Spurious



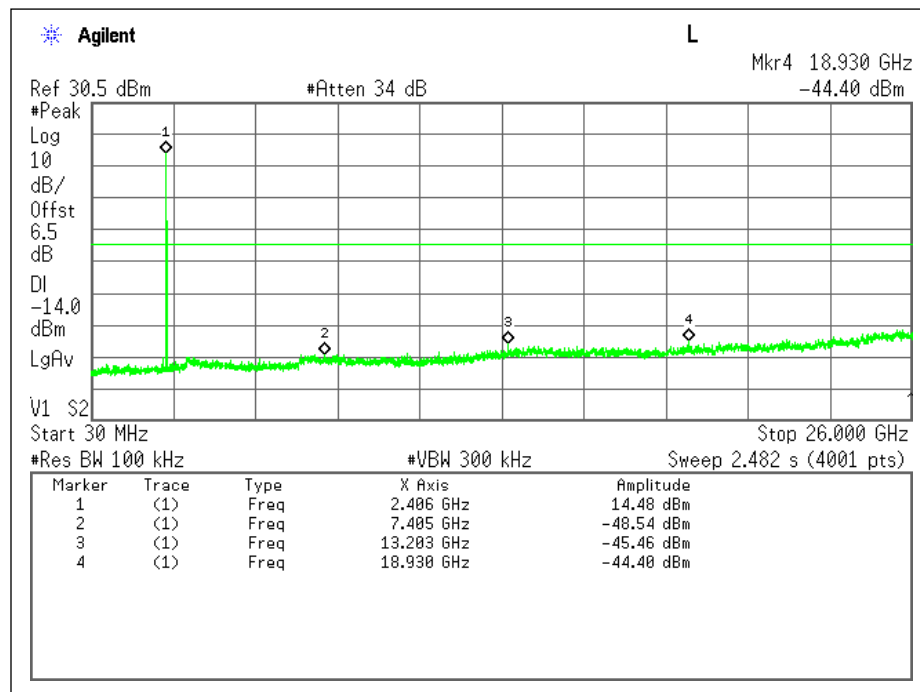
Antenna 1: Low Channel - Plot



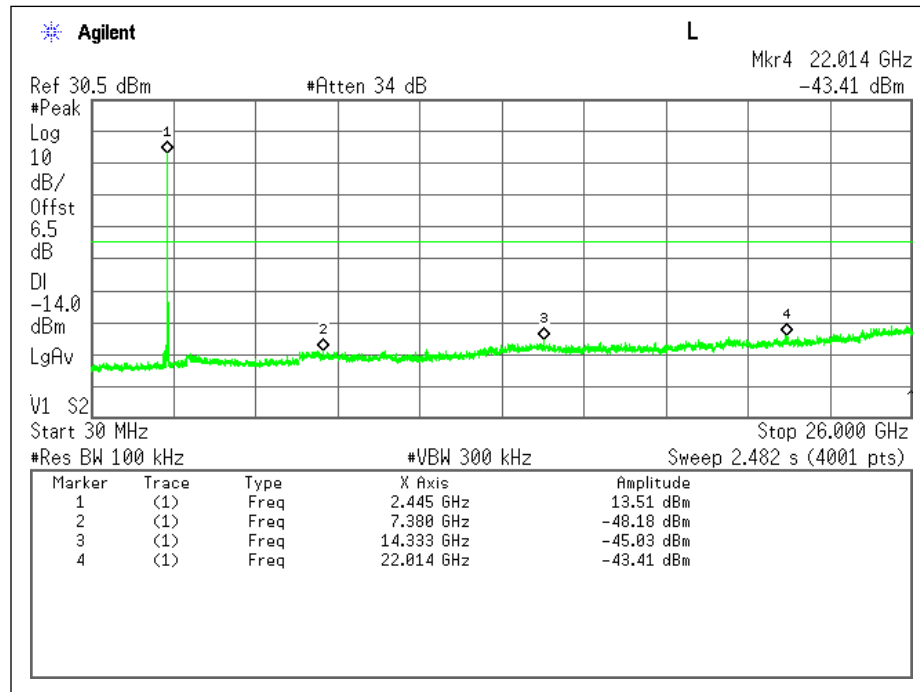
Antenna 1: Mid Channel - Plot



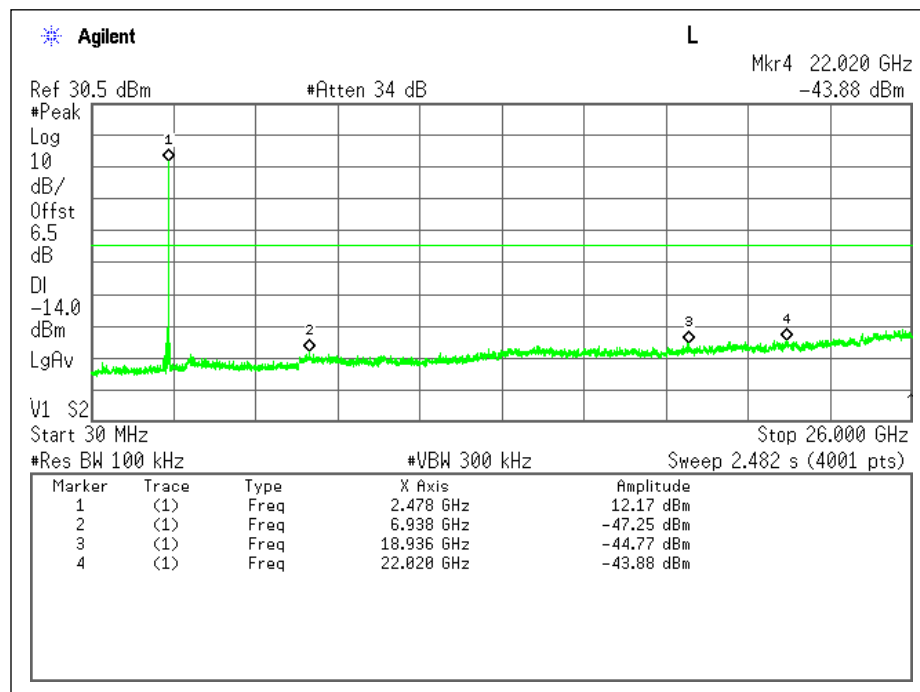
Antenna 1: High Channel – Plot



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

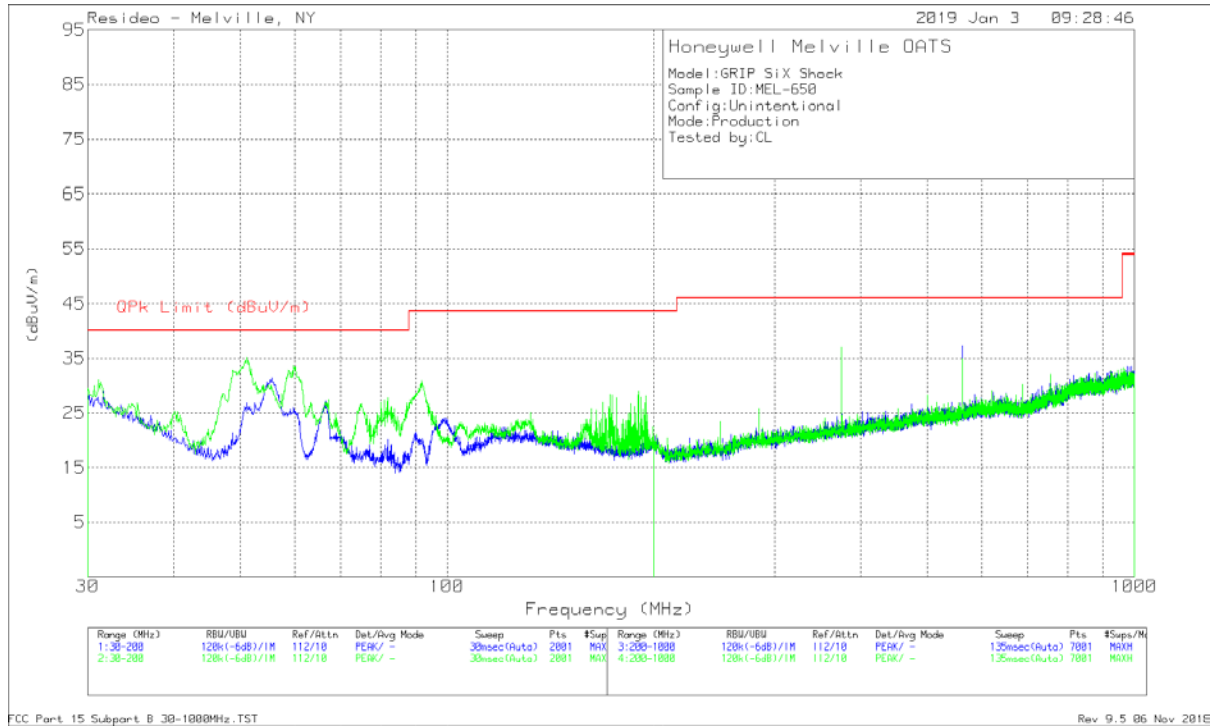
Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL/JB	RF Chamber/OATS	1/3/19-1/22/19	-9.7	16.2	1018	P

NOTE: Prescans performed in an anechoic chamber, final measurements performed on an OATS.

Test Results

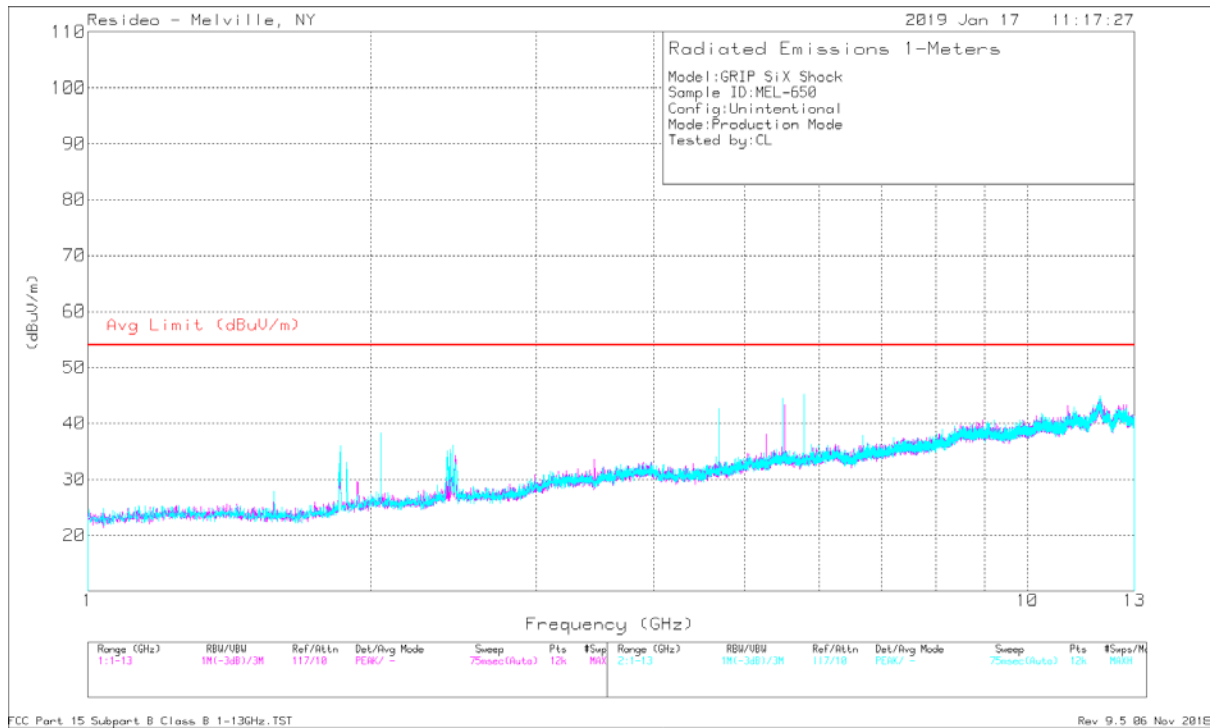
Below 1GHz



Frequency (MHz)	Meter Reading (dBuV)	Det	AF_JB6 [dB/m]	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
54.8635	16.51	Qp	12.1	1.1	29.71	40	-10.29	253	364	H
31.0206	11.16	Qp	24.1	.9	36.16	40	-3.84	234	235	V
50.6489	21.25	Qp	12.3	1.1	34.65	40	-5.35	168	107	V
59.0494	16.42	Qp	11.9	1.2	29.52	40	-10.48	144	153	V
562.9454	4.44	Qp	23	5.9	33.34	46.02	-12.68	252	223	H
374.7241	4.49	Qp	19.1	3.8	27.39	46.02	-18.63	34	145	V

Qp - Quasi-Peak detector

Above 1GHz



Frequency (GHz)	Meter Reading (dBUV)	Det	AF [dB/m]	Gain/Loss (dB)	Corrected Reading (dBUV/m)	Avg Limit (dBUV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.929	48.38	Av	28	-37.9	38.48	54	-15.52	355	372	H
3.463	30.2	Av	31.5	-36	25.7	54	-28.3	194	276	H
5.52	29.64	Av	34.4	-33.1	30.94	54	-23.06	359	263	H
2.052	36.31	Av	27.9	-38	26.21	54	-27.79	311	392	V
4.697	29.28	Av	32.8	-34.1	27.98	54	-26.02	344	175	V
5.791	27.65	Av	34.3	-32.5	29.45	54	-24.55	140	131	V

Av - Average detection

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.

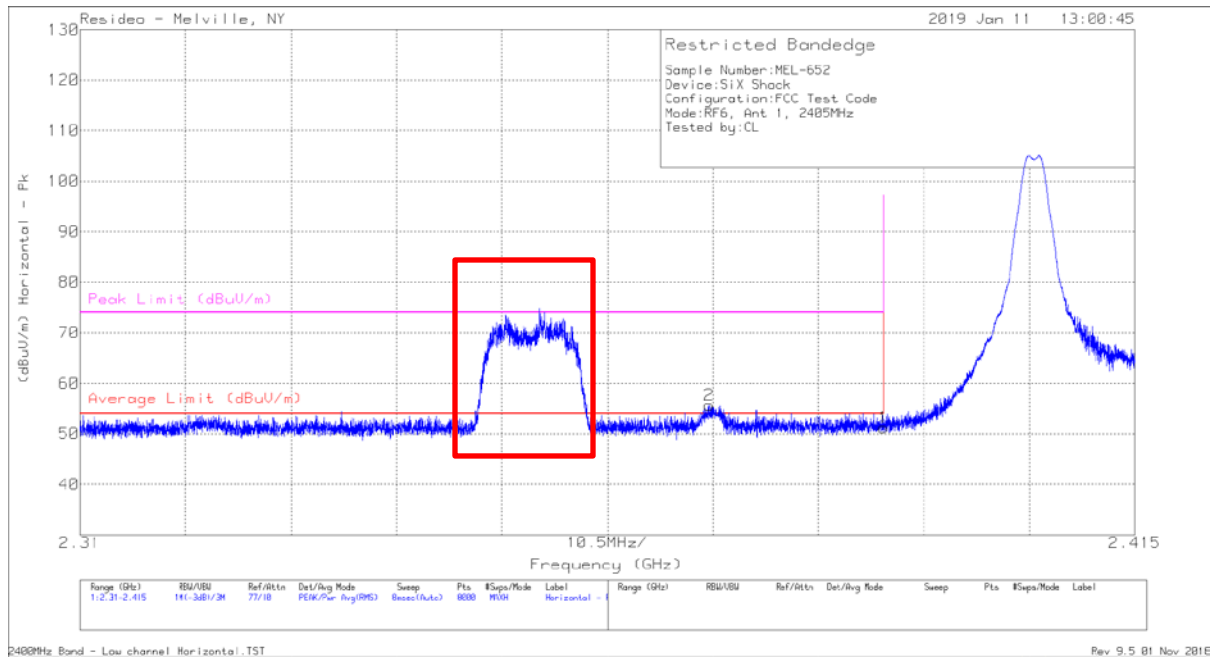
Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL/JB	RF Chamber/OATS	1/3/19-1/11/19	-4.4	20	1001	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. Prescans performed in an anechoic chamber, final measurements performed on an OATS.

Test Results

Restricted Band Edge



Antenna 1: Low Channel Horizontal – Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.39	16.9	Pk	28.5	5.8	-	51.2	74	-22.8	196	258	H
* 2.373	21.52	Pk	28.4	5.8	-	55.72	74	-18.28	196	258	H
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.39	16.9	Av	28.5	5.8	-23.1	28.1	54	-25.9	196	258	H
* 2.373	21.52	Av	28.4	5.8	-23.1	32.62	54	-21.38	196	258	H

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

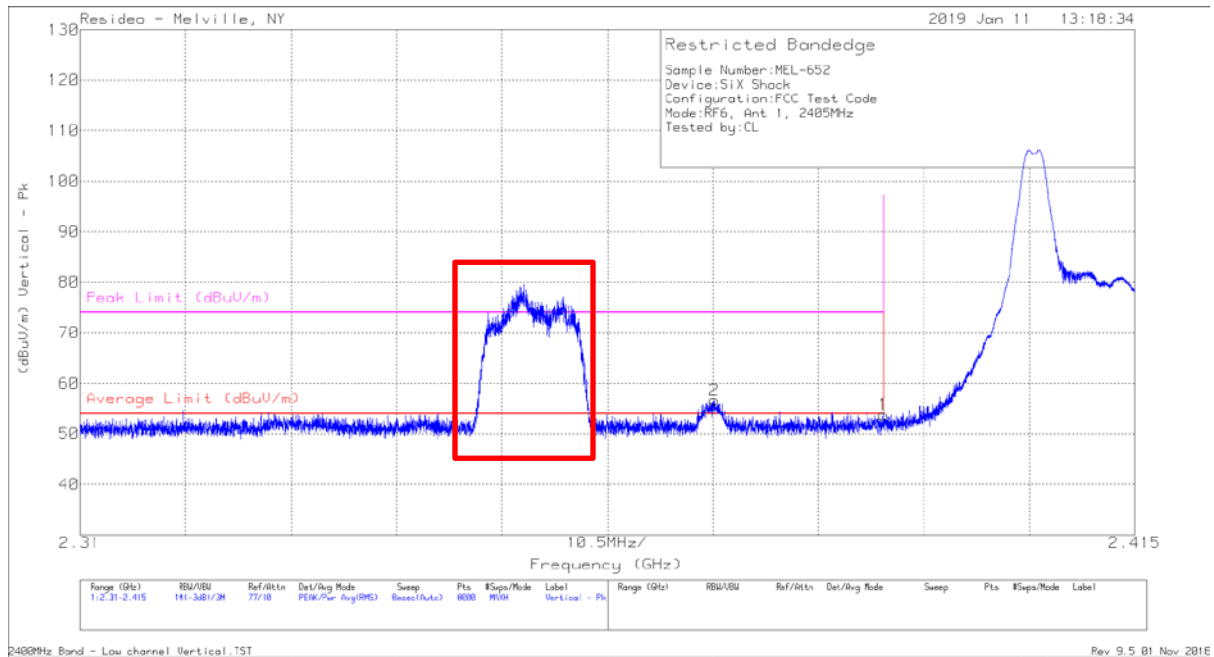
Pk - Peak detector

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

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

Antenna 1: Low Channel Horizontal – Data

NOTE: Emissions highlighted in the plot above is OATS ambient and not a product of the transmitter



Antenna 1: Low Channel Vertical – Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.39	19.52	Pk	28.5	5.8	-	53.82	74	-20.18	279	105	V
* 2.373	22.48	Pk	28.4	5.8	-	56.68	74	-17.32	279	105	V
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.39	19.52	Av	28.5	5.8	-23.1	30.72	54	-23.28	279	105	V
* 2.373	22.48	Av	28.4	5.8	-23.1	33.58	54	-20.42	279	105	V

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

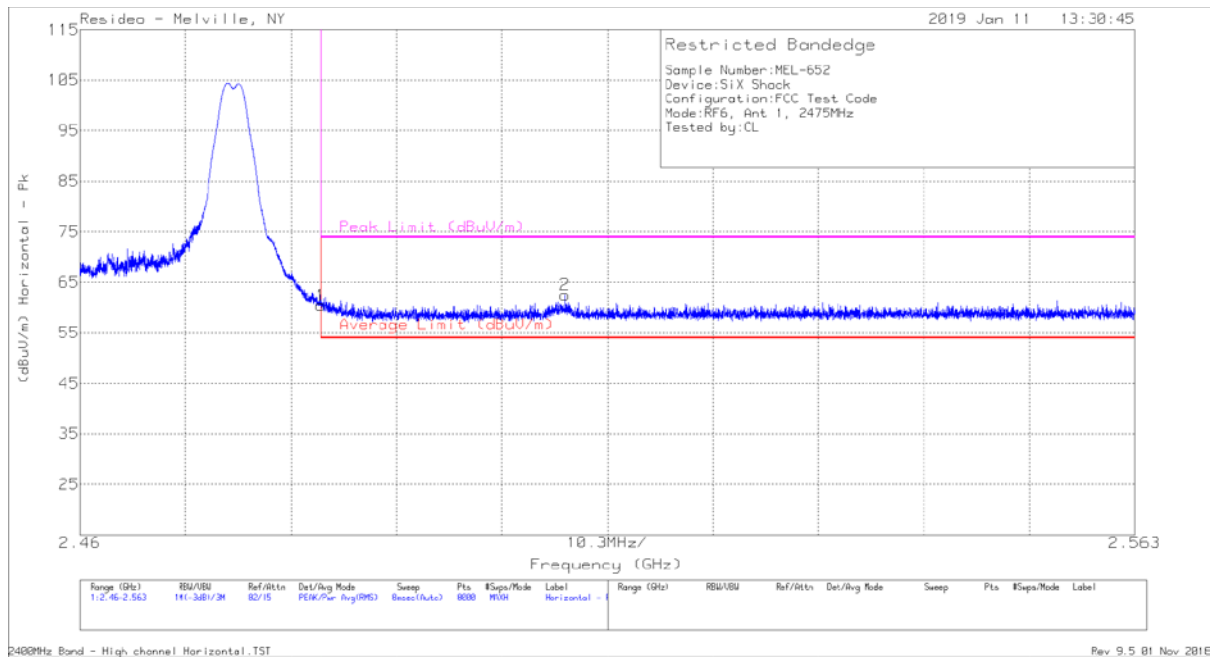
Pk - Peak detector

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

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

Antenna 1: Low Channel Vertical – Data

NOTE: Emissions highlighted in the plot above is OATS ambient and not a product of the transmitter



Antenna 1: High Channel Horizontal - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.484	25.83	Pk	28.7	5.9	-	60.43	74	-13.57	209	268	H
2.507	27.69	Pk	28.8	6	-	62.49	74	-11.51	209	268	H
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.484	25.83	Av	28.7	5.9	-23.1	37.33	54	-16.67	209	268	H
2.507	27.69	Av	28.8	6	-23.1	39.39	54	-14.61	209	268	H

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

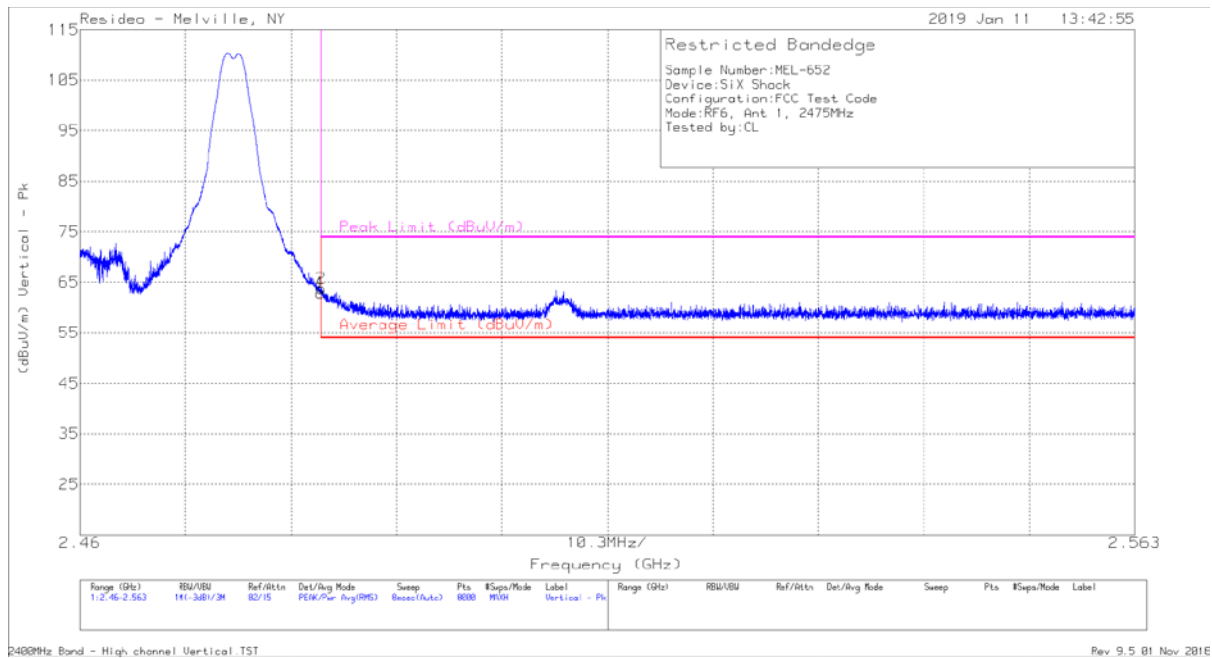
Pk - Peak detector

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

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

Antenna 1: High Channel Horizontal – Data

Note: Based on the peak levels and level of the DC Corr, all peak emissions in the restricted band will be below the average limit after the correction for duty cycle.



Antenna 1: High Channel Vertical - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.484	28.34	Pk	28.7	5.9	-	62.94	74	-11.06	92	98	V
* 2.484	29.11	Pk	28.7	5.9	-	63.71	74	-10.29	92	98	V
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.484	28.34	Av	28.7	5.9	-23.1	39.84	54	-14.16	92	98	V
* 2.484	29.11	Av	28.7	5.9	-23.1	40.61	54	-13.39	92	98	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 = $20\log(0.06976) = -23.1\text{dB}$

Antenna 1: High Channel Vertical – Data

Note: Based on the peak levels and level of the DC Corr, all peak emissions in the restricted band will be below the average limit after the correction for duty cycle.



Antenna 2: Low Channel Horizontal – Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.39	17.48	Pk	28.5	5.8	-	51.78	74	-22.22	289	293	H
* 2.372	20.72	Pk	28.3	5.8	-	54.82	74	-19.18	289	293	H
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.39	17.48	Av	28.5	5.8	-23.1	28.68	54	-25.32	289	293	H
* 2.372	20.72	Av	28.3	5.8	-23.1	31.72	54	-22.28	289	293	H

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

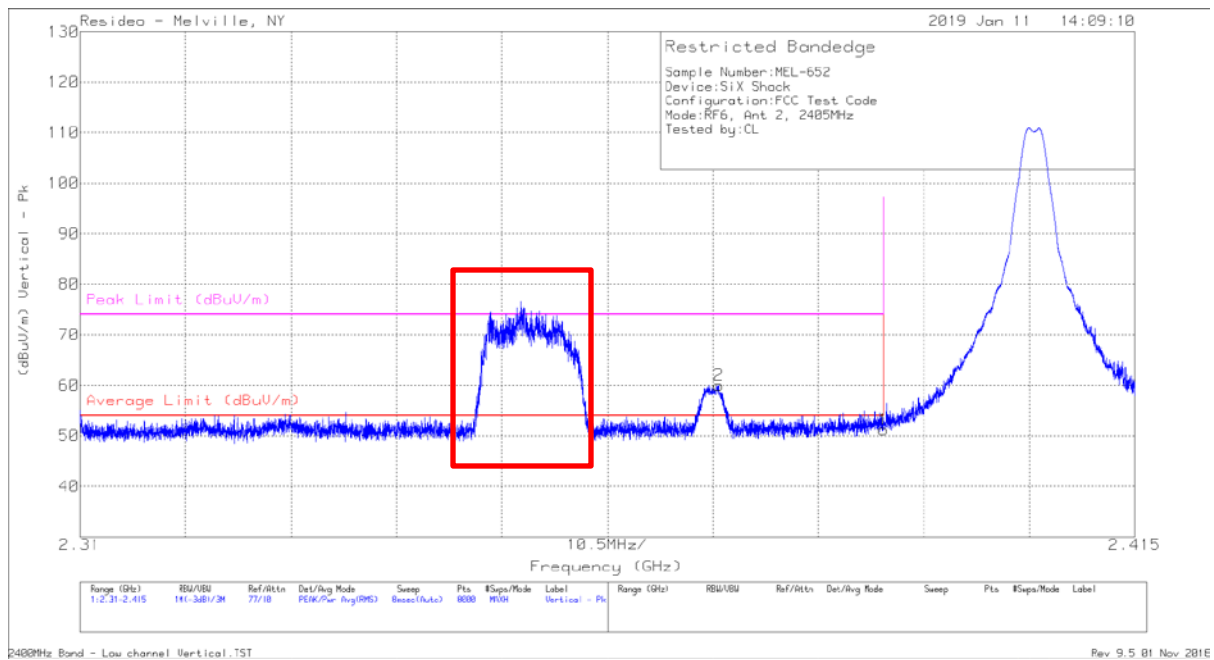
Pk - Peak detector

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

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

Antenna 2: Low Channel Horizontal – Data

NOTE: Emissions highlighted in the plot above is OATS ambient and not a product of the transmitter



Antenna 2: Low Channel Vertical - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.39	16.84	Pk	28.5	5.8	-	51.14	74	-22.86	289	103	V
* 2.374	25.76	Pk	28.4	5.8	-	59.96	74	-14.04	289	103	V
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.39	16.84	Av	28.5	5.8	-23.1	28.04	54	-25.96	289	103	V
* 2.374	25.76	Av	28.4	5.8	-23.1	36.86	54	-17.14	289	103	V

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

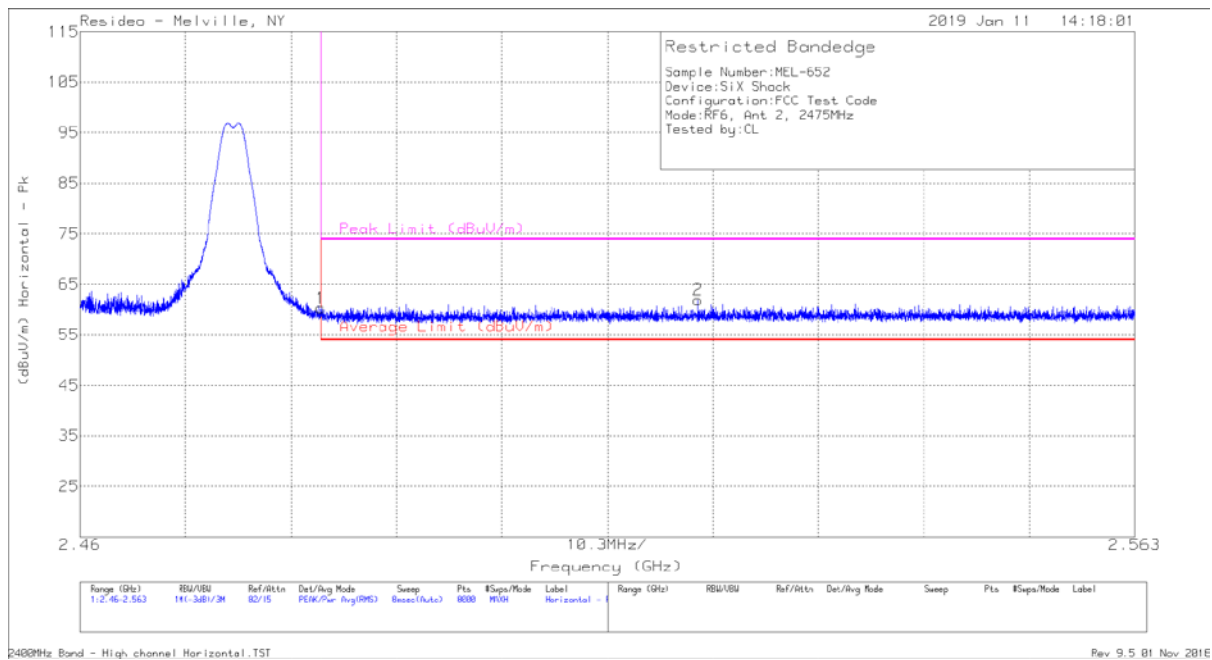
Pk - Peak detector

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

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

Antenna 2: Low Channel Vertical – Data

NOTE: Emissions highlighted in the plot above is OATS ambient and not a product of the transmitter



Antenna 2: High Channel Horizontal - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.484	25.69	Pk	28.7	5.9	-	60.29	74	-13.71	78	105	H
2.52	27.14	Pk	28.8	6	-	61.94	74	-12.06	78	105	H
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.484	25.69	Av	28.7	5.9	-23.1	37.19	54	-16.81	78	105	H
2.52	27.14	Av	28.8	6	-23.1	38.84	54	-15.16	78	105	H

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

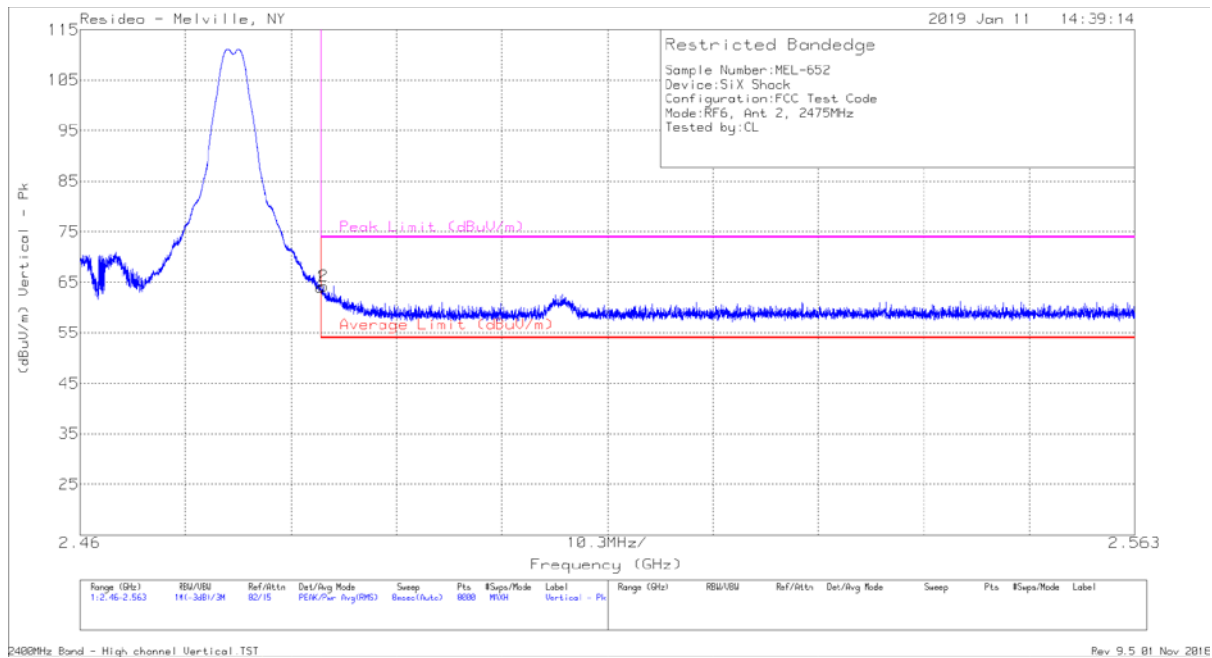
Pk - Peak detector

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

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

Antenna 2: High Channel Horizontal – Data

Note: Based on the peak levels and level of the DC Corr, all peak emissions in the restricted band will be below the average limit after the correction for duty cycle.



Antenna 2: High Channel Vertical - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.484	29.37	Pk	28.7	5.9	-	63.97	74	-10.03	83	103	V
* 2.484	29.7	Pk	28.7	5.9	-	64.3	74	-9.7	83	103	V
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.484	29.37	Av	28.7	5.9	-23.1	40.87	54	-13.13	83	103	V
* 2.484	29.7	Av	28.7	5.9	-23.1	41.2	54	-12.8	83	103	V

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

Pk - Peak detector

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

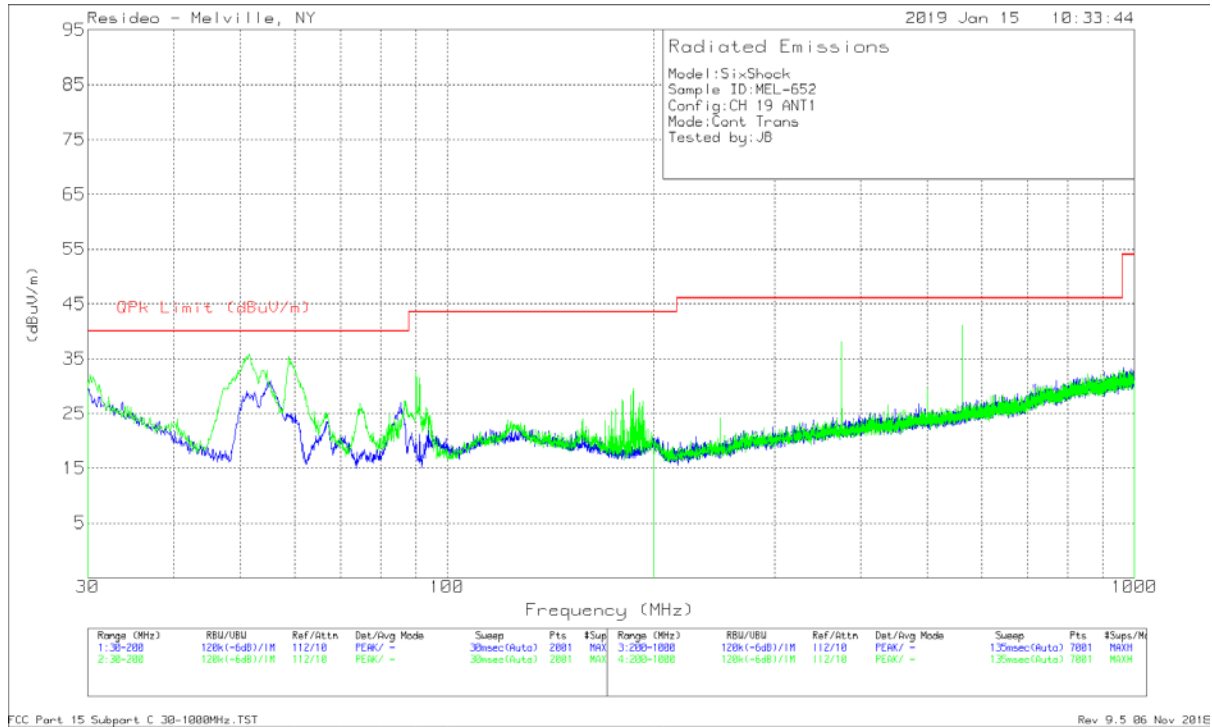
Duty Cycle = 6.976%, thus DC Corr = $20\log(0.06976) = -23.1\text{dB}$

Antenna 2: High Channel Vertical – Data

Note: Based on the peak levels and level of the DC Corr, all peak emissions in the restricted band will be below the average limit after the correction for duty cycle.

Spurious Emissions

Below 1GHz (Worse-case)



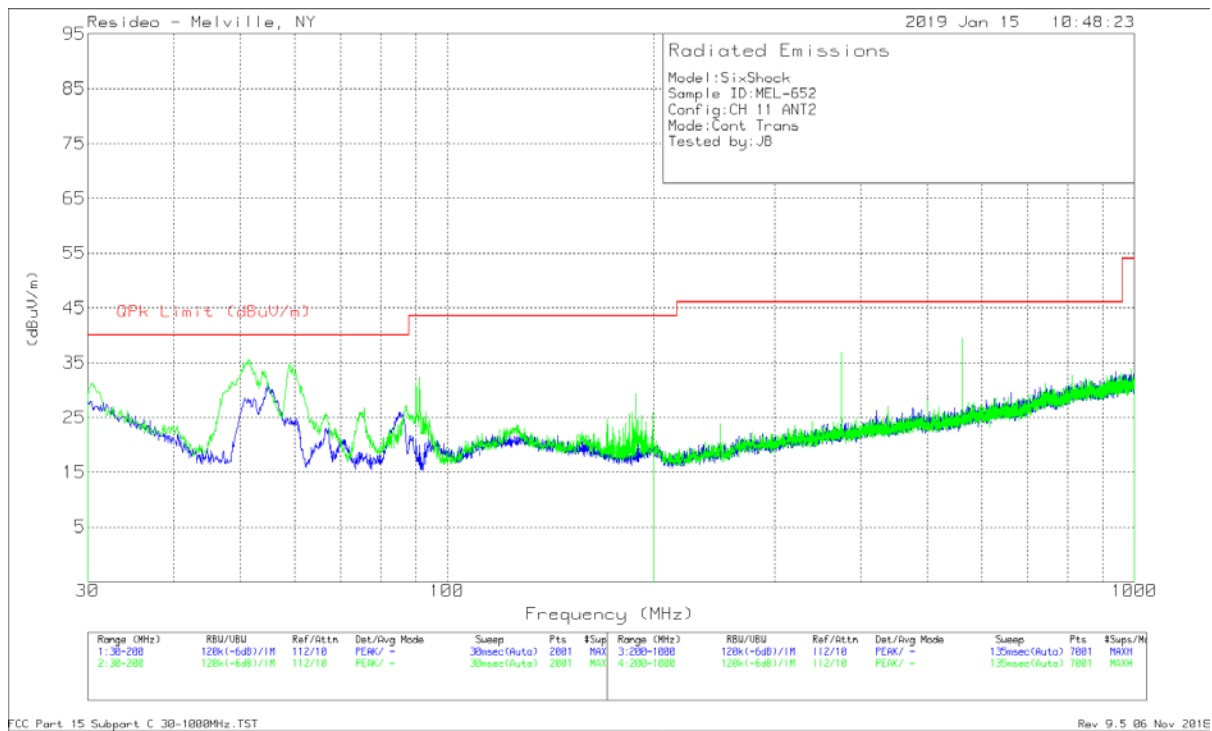
Antenna 1: Plot

Frequency (MHz)	Meter Reading (dBuV)	Det	AF_JB6 [dB/m]	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
55.2356	14.88	Qp	12	1.1	27.98	40	-12.02	303	351	H
51.475	19.94	Qp	12.2	1.1	33.24	40	-6.76	238	287	V
373.8964	4.38	Qp	19.1	3.8	27.28	46.02	-18.74	72	269	H
957.5807	4.29	Qp	27.7	9.2	41.19	46.02	-4.83	82	318	H
374.9934	7.2	Qp	19.1	3.8	30.1	46.02	-15.92	55	121	V
562.3998	4.29	Qp	23	5.8	33.09	46.02	-12.93	293	231	V

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

Qp - Quasi-Peak detector

Antenna 1: Data



Antenna 2: Plot

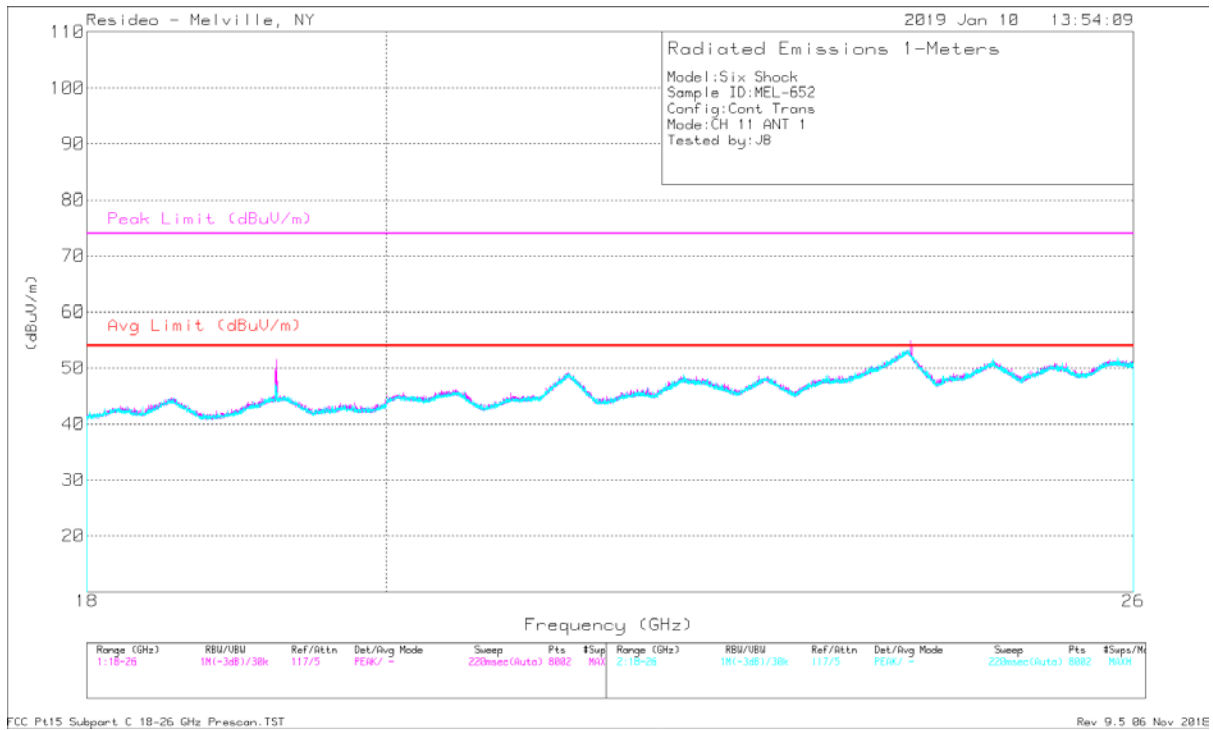
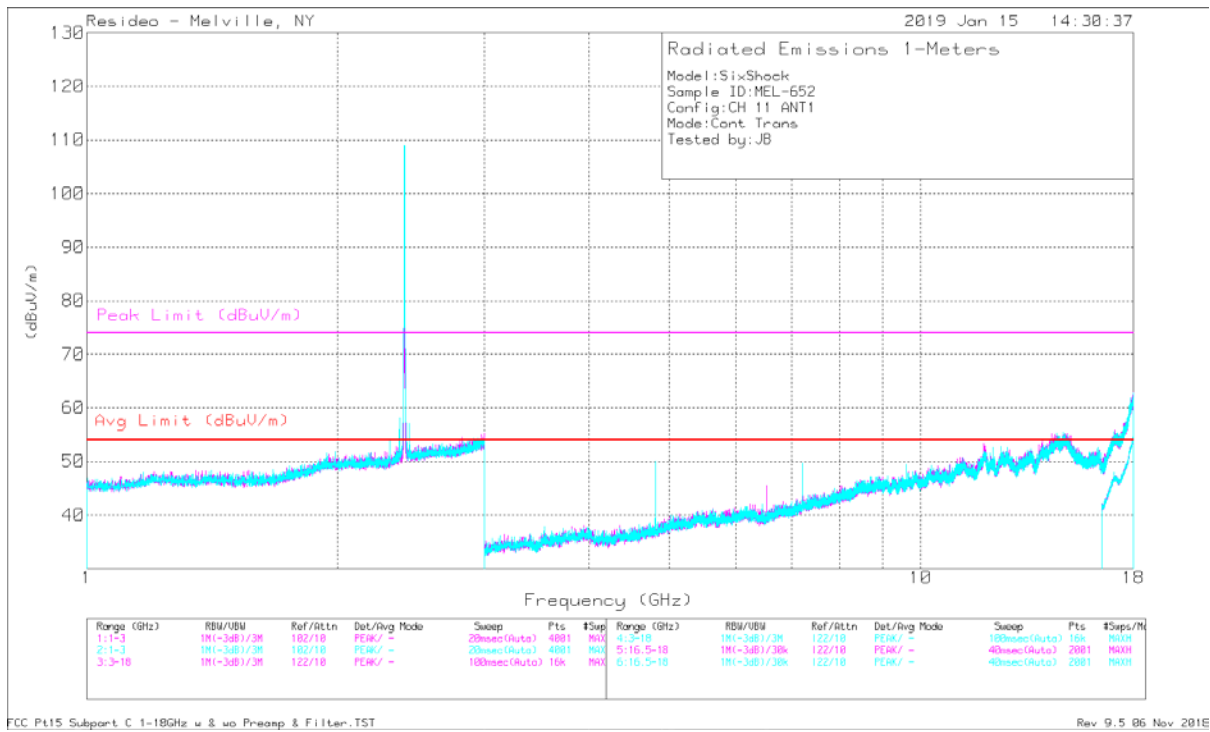
Frequency (MHz)	Meter Reading (dBuV)	Det	AF_JB6 [dB/m]	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
54.8205	15.28	Qp	12.1	1.1	28.48	40	-11.52	278	372	H
143.5149	5.4	Qp	17	1.9	24.3	43.52	-19.22	203	327	H
51.524	17.29	Qp	12.2	1.1	30.59	40	-9.41	259	233	V
926.5387	4.24	Qp	27.6	8.5	40.34	46.02	-5.68	262	230	H
374.9869	5.88	Qp	19.1	3.8	28.78	46.02	-17.24	155	337	V
562.6081	4.29	Qp	23	5.8	33.09	46.02	-12.93	164	287	V

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

Qp - Quasi-Peak detector

Antenna 2: Data

1-26GHz



Antenna 1: Low Channel - Plot

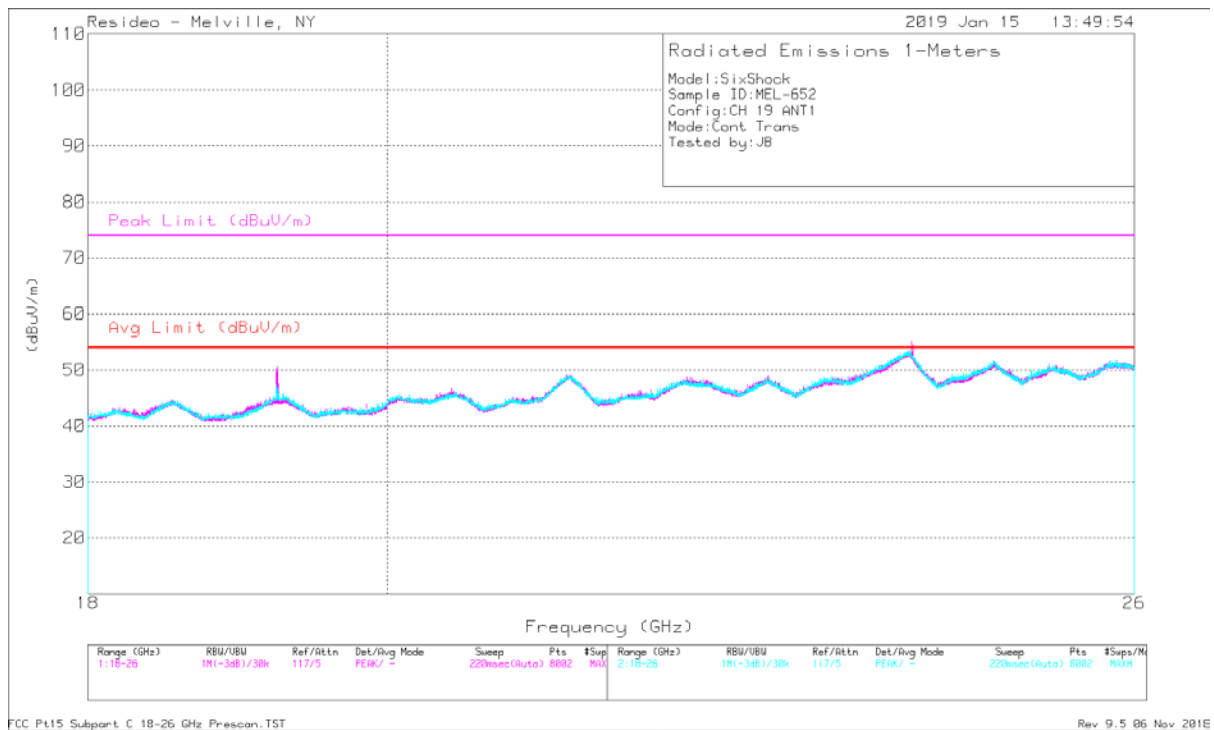
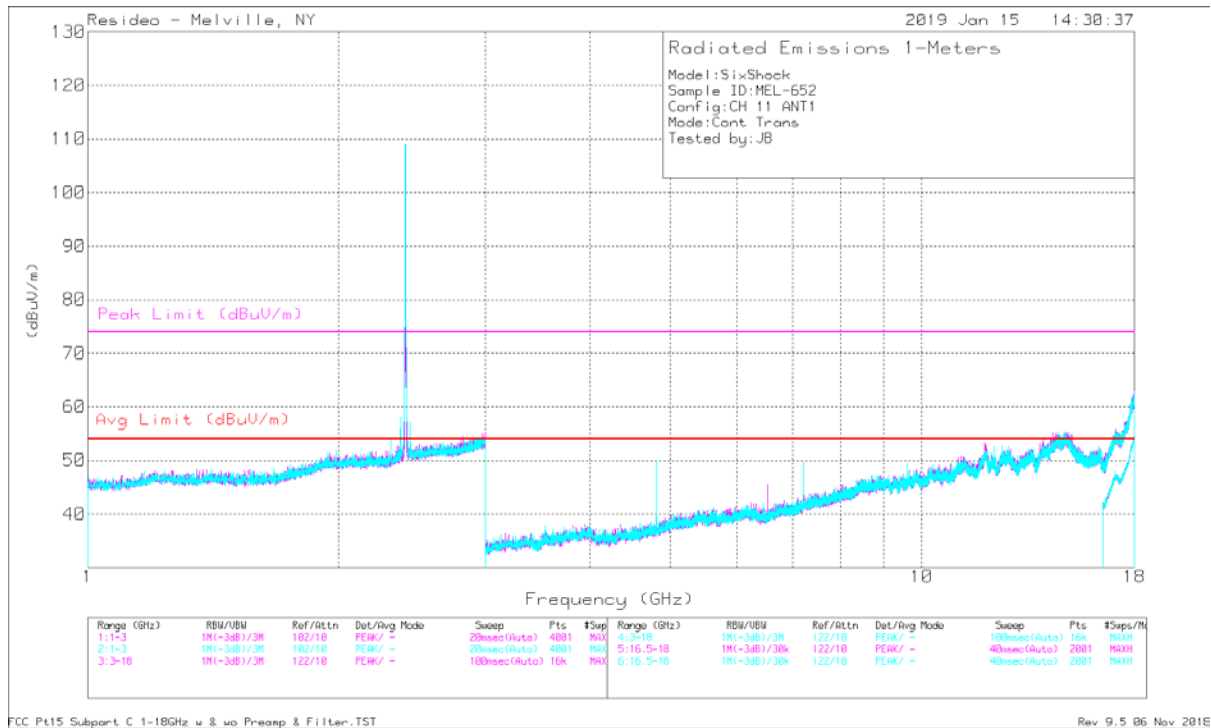
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.811	51.47	PK2	33.1	-33.8	50.77	74	-23.23	184	144	H
7.216	47.78	PK2	36.2	-30.3	53.68	74	-20.32	125	272	H
9.619	39.15	PK2	38	-28.2	48.95	74	-25.05	52	316	H
* 12.029	38.05	PK2	39.4	-25.2	52.25	74	-21.75	203	131	H
14.429	38.77	PK2	42.1	-23.7	57.17	74	-16.83	246	209	H
16.836	39.3	PK2	39.6	-23.6	55.3	74	-18.7	156	371	H
* 4.811	52.57	PK2	33.1	-33.8	51.87	74	-22.13	24	109	V
7.216	52.49	PK2	36.2	-30.3	58.39	74	-15.61	158	136	V
9.618	40.85	PK2	38	-28.2	50.65	74	-23.35	131	136	V
* 12.021	37.95	PK2	39.4	-25.2	52.15	74	-21.85	117	278	V
14.432	39.23	PK2	42.1	-23.7	57.63	74	-16.37	309	221	V
16.838	38.89	PK2	39.6	-23.5	54.99	74	-19.01	80	179	V
* 19.236	45.13	PK2	44.1	-28.6	60.63	74	-13.37	227	220	H
24.054	34.16	PK2	46.4	-23.4	57.16	74	-16.84	98	168	H
* 19.235	39.66	PK2	44.1	-28.6	55.16	74	-18.84	226	165	V
24.045	36.22	PK2	46.4	-23.2	59.42	74	-14.58	53	162	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.811	51.47	Av	33.1	-33.8	-23.1	27.67	54	-26.33	184	144	H
7.216	47.78	Av	36.2	-30.3	-23.1	30.58	54	-23.42	125	272	H
9.619	39.15	Av	38	-28.2	-23.1	25.85	54	-28.15	52	316	H
* 12.029	38.05	Av	39.4	-25.2	-23.1	29.15	54	-24.85	203	131	H
14.429	38.77	Av	42.1	-23.7	-23.1	34.07	54	-19.93	246	209	H
16.836	39.3	Av	39.6	-23.6	-23.1	32.2	54	-21.8	156	371	H
* 4.811	52.57	Av	33.1	-33.8	-23.1	28.77	54	-25.23	24	109	V
7.216	52.49	Av	36.2	-30.3	-23.1	35.29	54	-18.71	158	136	V
9.618	40.85	Av	38	-28.2	-23.1	27.55	54	-26.45	131	136	V
* 12.021	37.95	Av	39.4	-25.2	-23.1	29.05	54	-24.95	117	278	V
14.432	39.23	Av	42.1	-23.7	-23.1	34.53	54	-19.47	309	221	V
16.838	38.89	Av	39.6	-23.5	-23.1	31.89	54	-22.11	80	179	V
* 19.236	45.13	Av	44.1	-28.6	-23.1	37.53	54	-16.47	227	220	H
24.054	34.16	Av	46.4	-23.4	-23.1	34.06	54	-19.94	98	168	H
* 19.235	39.66	Av	44.1	-28.6	-23.1	32.06	54	-21.94	226	165	V
24.045	36.22	Av	46.4	-23.2	-23.1	36.32	54	-17.68	53	162	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - 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]	Gain/Loss [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.891	52.57	PK2	33.2	-34.1	51.67	74	-22.33	142	178	H
* 7.336	43.51	PK2	36.6	-30.6	49.51	74	-24.49	230	210	H
9.782	40.44	PK2	38.1	-28.3	50.24	74	-23.76	81	263	H
* 12.229	38.63	PK2	39.2	-24.8	53.03	74	-20.97	79	110	H
14.673	38.17	PK2	42.6	-23.9	56.87	74	-17.13	72	369	H
17.111	39.21	PK2	41.1	-23.6	56.71	74	-17.29	101	382	H
* 4.891	53.84	PK2	33.2	-34.1	52.94	74	-21.06	196	367	V
* 7.337	45.47	PK2	36.6	-30.6	51.47	74	-22.53	104	316	V
9.782	40.78	PK2	38.1	-28.3	50.58	74	-23.42	162	225	V
* 12.228	38.49	PK2	39.2	-24.8	52.89	74	-21.11	4	188	V
14.67	38.52	PK2	42.6	-23.8	57.32	74	-16.68	140	238	V
17.112	39.19	PK2	41.1	-23.6	56.69	74	-17.31	79	106	V
* 19.564	34.77	PK2	44.3	-29.9	49.17	74	-24.83	273	192	H
24.444	35.85	PK2	46.5	-27.4	54.95	74	-19.05	337	182	H
* 19.556	32.21	PK2	44.3	-29.9	46.61	74	-27.39	40	117	V
24.455	35.08	PK2	46.5	-27.3	54.28	74	-19.72	160	118	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.891	52.57	Av	33.2	-34.1	-23.1	28.57	54	-25.43	142	178	H
* 7.336	43.51	Av	36.6	-30.6	-23.1	26.41	54	-27.59	230	210	H
9.782	40.44	Av	38.1	-28.3	-23.1	27.14	54	-26.86	81	263	H
* 12.229	38.63	Av	39.2	-24.8	-23.1	29.93	54	-24.07	79	110	H
14.673	38.17	Av	42.6	-23.9	-23.1	33.77	54	-20.23	72	369	H
17.111	39.21	Av	41.1	-23.6	-23.1	33.61	54	-20.39	101	382	H
* 4.891	53.84	Av	33.2	-34.1	-23.1	29.84	54	-24.16	196	367	V
* 7.337	45.47	Av	36.6	-30.6	-23.1	28.37	54	-25.63	104	316	V
9.782	40.78	Av	38.1	-28.3	-23.1	27.48	54	-26.52	162	225	V
* 12.228	38.49	Av	39.2	-24.8	-23.1	29.79	54	-24.21	4	188	V
14.67	38.52	Av	42.6	-23.8	-23.1	34.22	54	-19.78	140	238	V
17.112	39.19	Av	41.1	-23.6	-23.1	33.59	54	-20.41	79	106	V
* 19.564	34.77	Av	44.3	-29.9	-23.1	26.07	54	-27.93	273	192	H
24.444	35.85	Av	46.5	-27.4	-23.1	31.85	54	-22.15	337	182	H
* 19.556	32.21	Av	44.3	-29.9	-23.1	23.51	54	-30.49	40	117	V
24.455	35.08	Av	46.5	-27.3	-23.1	31.18	54	-22.82	160	118	V

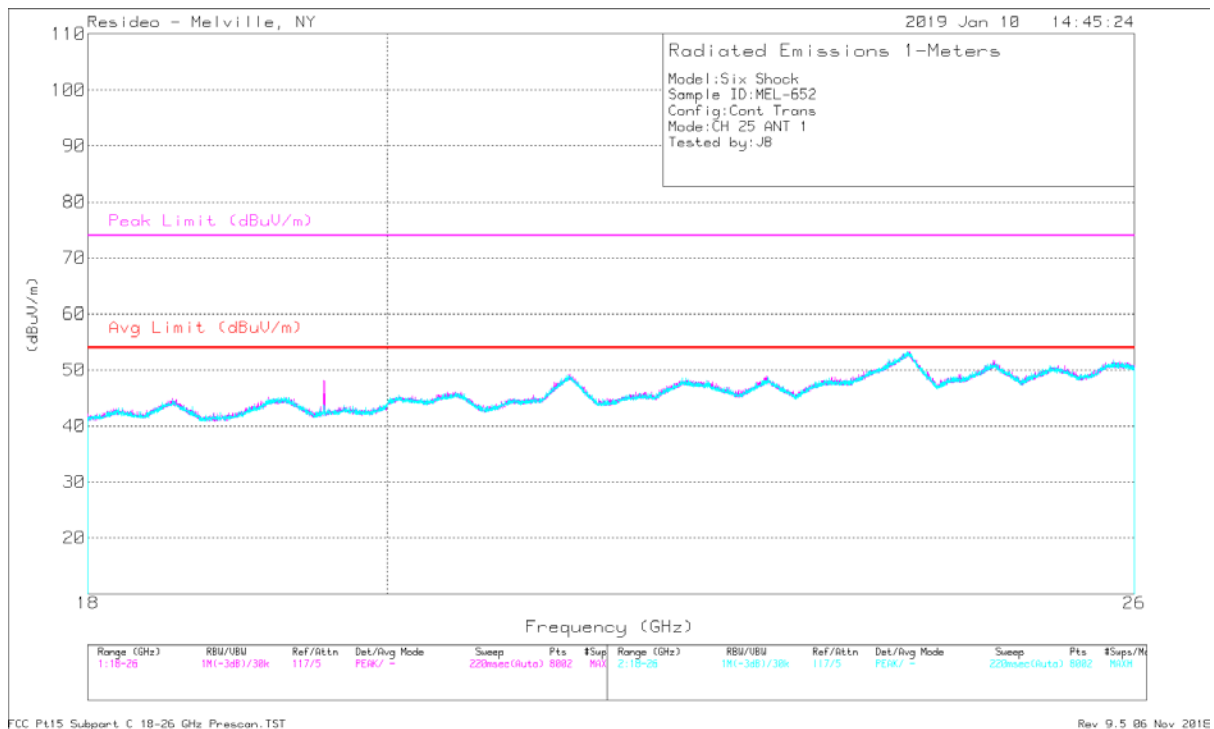
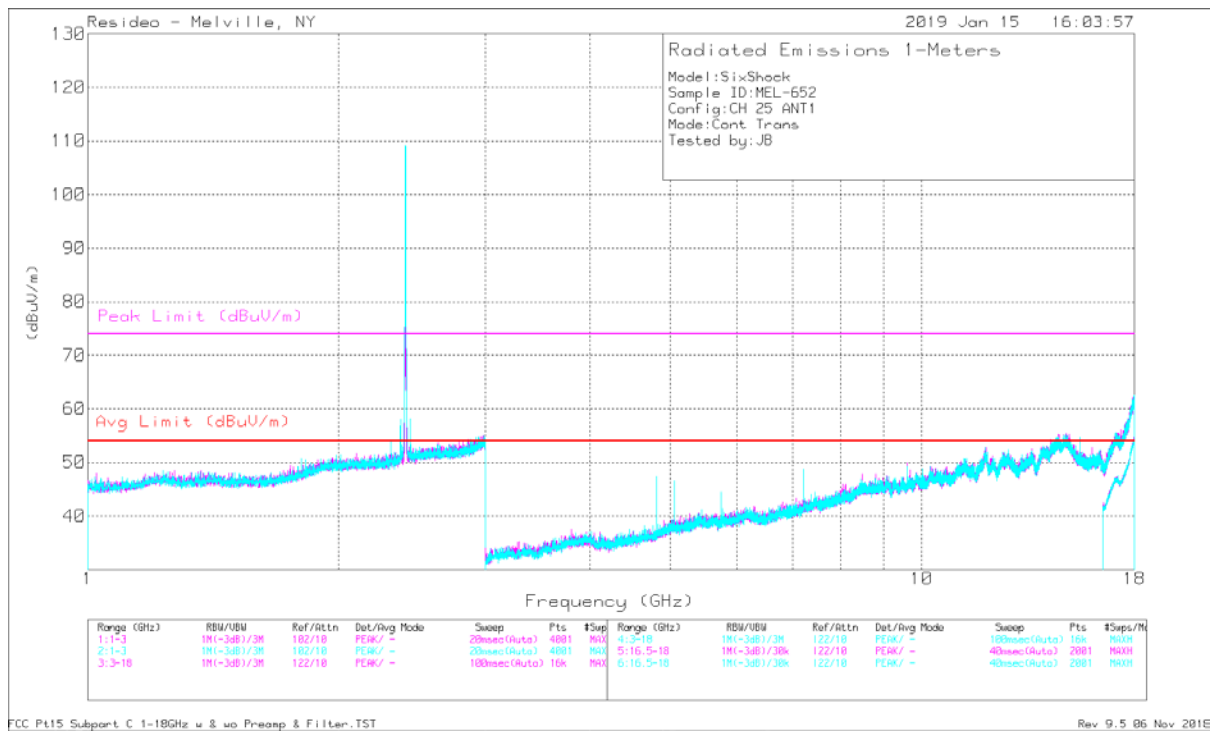
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - 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

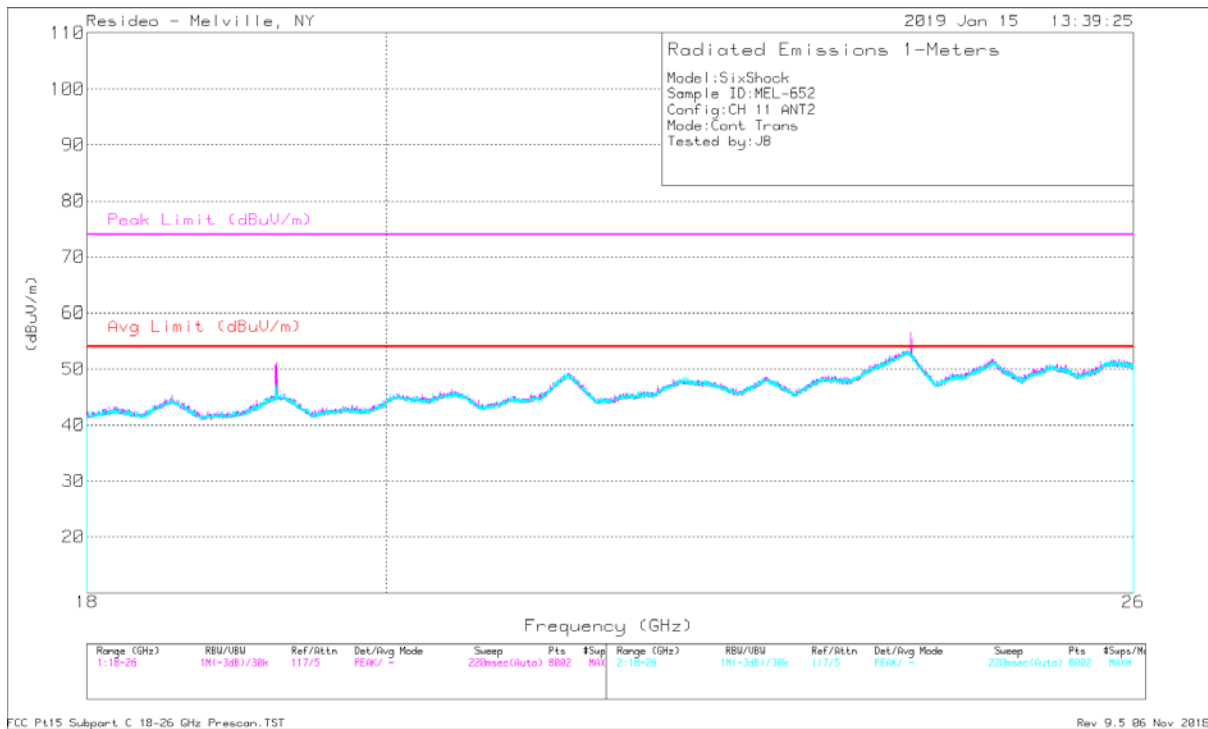
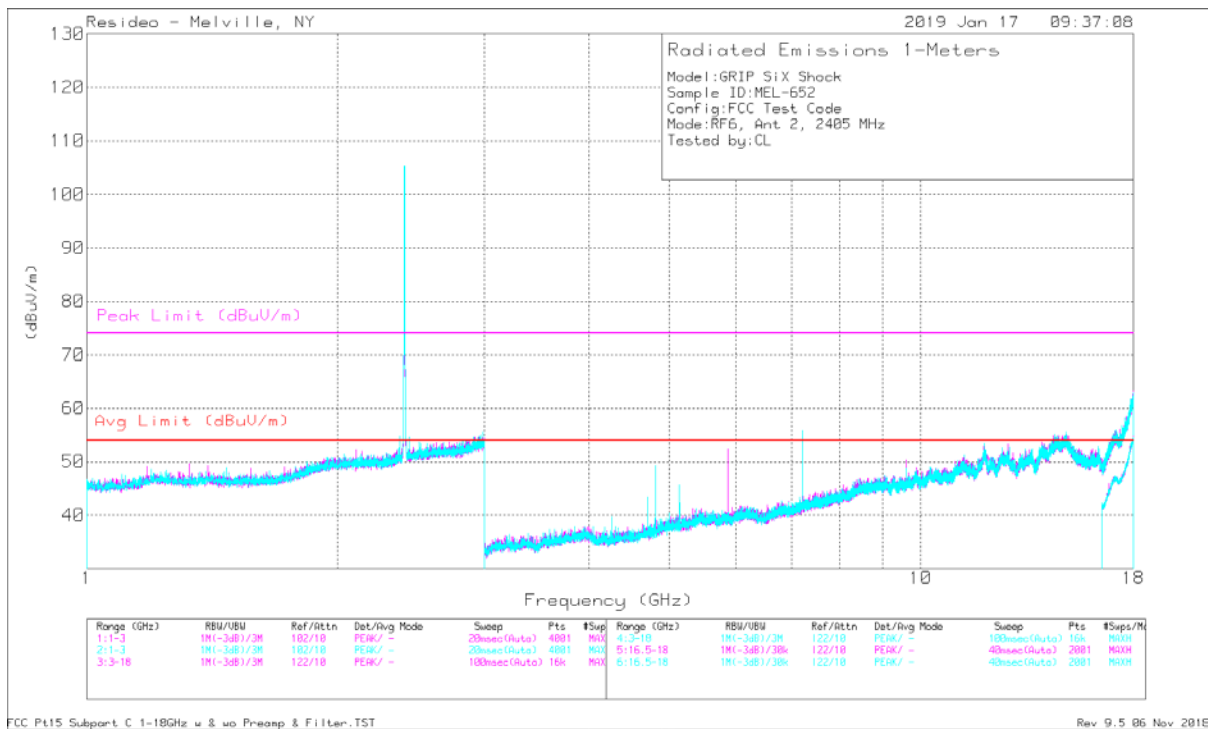
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.951	51.62	PK2	33.2	-34	50.82	74	-23.18	151	147	H
* 7.426	41.75	PK2	36.7	-30.4	48.05	74	-25.95	236	232	H
9.902	40.47	PK2	38.2	-28.4	50.27	74	-23.73	99	222	H
* 12.372	38.71	PK2	39	-24.7	53.01	74	-20.99	213	172	H
14.854	39.18	PK2	42	-23.6	57.58	74	-16.42	153	118	H
17.321	39.32	PK2	42.4	-23.6	58.12	74	-15.88	278	307	H
* 4.951	53.66	PK2	33.2	-34	52.86	74	-21.14	215	336	V
* 7.423	43.54	PK2	36.7	-30.4	49.84	74	-24.16	157	127	V
9.905	41.95	PK2	38.2	-28.4	51.75	74	-22.25	142	150	V
* 12.378	38.51	PK2	38.9	-24.7	52.71	74	-21.29	315	194	V
14.852	38.38	PK2	42	-23.6	56.78	74	-17.22	91	191	V
17.322	39.81	PK2	42.4	-23.6	58.61	74	-15.39	112	299	V
* 19.804	35.27	PK2	44.2	-29.7	49.77	74	-24.23	229	221	H
24.743	35.59	PK2	46.6	-24	58.19	74	-15.81	149	388	H
* 19.804	33.45	PK2	44.2	-29.7	47.95	74	-26.05	221	238	V
24.744	35.73	PK2	46.6	-24	58.33	74	-15.67	221	382	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.951	51.62	Av	33.2	-34	-23.1	27.72	54	-26.28	151	147	H
* 7.426	41.75	Av	36.7	-30.4	-23.1	24.95	54	-29.05	236	232	H
9.902	40.47	Av	38.2	-28.4	-23.1	27.17	54	-26.83	99	222	H
* 12.372	38.71	Av	39	-24.7	-23.1	29.91	54	-24.09	213	172	H
14.854	39.18	Av	42	-23.6	-23.1	34.48	54	-19.52	153	118	H
17.321	39.32	Av	42.4	-23.6	-23.1	35.02	54	-18.98	278	307	H
* 4.951	53.66	Av	33.2	-34	-23.1	29.76	54	-24.24	215	336	V
* 7.423	43.54	Av	36.7	-30.4	-23.1	26.74	54	-27.26	157	127	V
9.905	41.95	Av	38.2	-28.4	-23.1	28.65	54	-25.35	142	150	V
* 12.378	38.51	Av	38.9	-24.7	-23.1	29.61	54	-24.39	315	194	V
14.852	38.38	Av	42	-23.6	-23.1	33.68	54	-20.32	91	191	V
17.322	39.81	Av	42.4	-23.6	-23.1	35.51	54	-18.49	112	299	V
* 19.804	35.27	Av	44.2	-29.7	-23.1	26.67	54	-27.33	229	221	H
24.743	35.59	Av	46.6	-24	-23.1	35.09	54	-18.91	149	388	H
* 19.804	33.45	Av	44.2	-29.7	-23.1	24.85	54	-29.15	221	238	V
24.744	35.73	Av	46.6	-24	-23.1	35.23	54	-18.77	221	382	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - 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]	Gain/Loss [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.811	47.48	PK2	33.1	-33.8	46.78	74	-27.22	266	341	H
7.213	48.61	PK2	36.2	-30.3	54.51	74	-19.49	35	228	H
9.622	35.72	PK2	38	-28.2	45.52	74	-28.48	104	190	H
* 12.027	36.21	PK2	39.4	-25.2	50.41	74	-23.59	58	221	H
14.432	37.09	PK2	42.1	-23.7	55.49	74	-18.51	203	270	H
16.83	39.78	PK2	39.6	-23.6	55.78	74	-18.22	207	398	H
* 4.809	52.18	PK2	33.1	-33.8	51.48	74	-22.52	210	387	V
7.216	54.23	PK2	36.2	-30.3	60.13	74	-13.87	185	103	V
9.615	38.51	PK2	38	-28.2	48.31	74	-25.69	199	189	V
* 12.026	38.6	PK2	39.4	-25.2	52.8	74	-21.2	69	176	V
14.432	38.98	PK2	42.1	-23.7	57.38	74	-16.62	49	271	V
16.831	39.03	PK2	39.6	-23.6	55.03	74	-18.97	311	364	V
* 19.238	30.13	PK2	44.1	-28.5	45.73	74	-28.27	89	203	H
24.045	37.39	PK2	46.4	-23.2	60.59	74	-13.41	336	186	H
* 19.235	29.9	PK2	44.1	-28.6	45.4	74	-28.6	202	270	V
24.05	33.62	PK2	46.4	-23.3	56.72	74	-17.28	41	394	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.811	47.48	Av	33.1	-33.8	-23.1	23.68	54	-30.32	266	341	H
7.213	48.61	Av	36.2	-30.3	-23.1	31.41	54	-22.59	35	228	H
9.622	35.72	Av	38	-28.2	-23.1	22.42	54	-31.58	104	190	H
* 12.027	36.21	Av	39.4	-25.2	-23.1	27.31	54	-26.69	58	221	H
14.432	37.09	Av	42.1	-23.7	-23.1	32.39	54	-21.61	203	270	H
16.83	39.78	Av	39.6	-23.6	-23.1	32.68	54	-21.32	207	398	H
* 4.809	52.18	Av	33.1	-33.8	-23.1	28.38	54	-25.62	210	387	V
7.216	54.23	Av	36.2	-30.3	-23.1	37.03	54	-16.97	185	103	V
9.615	38.51	Av	38	-28.2	-23.1	25.21	54	-28.79	199	189	V
* 12.026	38.6	Av	39.4	-25.2	-23.1	29.7	54	-24.3	69	176	V
14.432	38.98	Av	42.1	-23.7	-23.1	34.28	54	-19.72	49	271	V
16.831	39.03	Av	39.6	-23.6	-23.1	31.93	54	-22.07	311	364	V
* 19.238	30.13	Av	44.1	-28.5	-23.1	22.63	54	-31.37	89	203	H
24.045	37.39	Av	46.4	-23.2	-23.1	37.49	54	-16.51	336	186	H
* 19.235	29.9	Av	44.1	-28.6	-23.1	22.3	54	-31.7	202	270	V
24.05	33.62	Av	46.4	-23.3	-23.1	33.62	54	-20.38	41	394	V

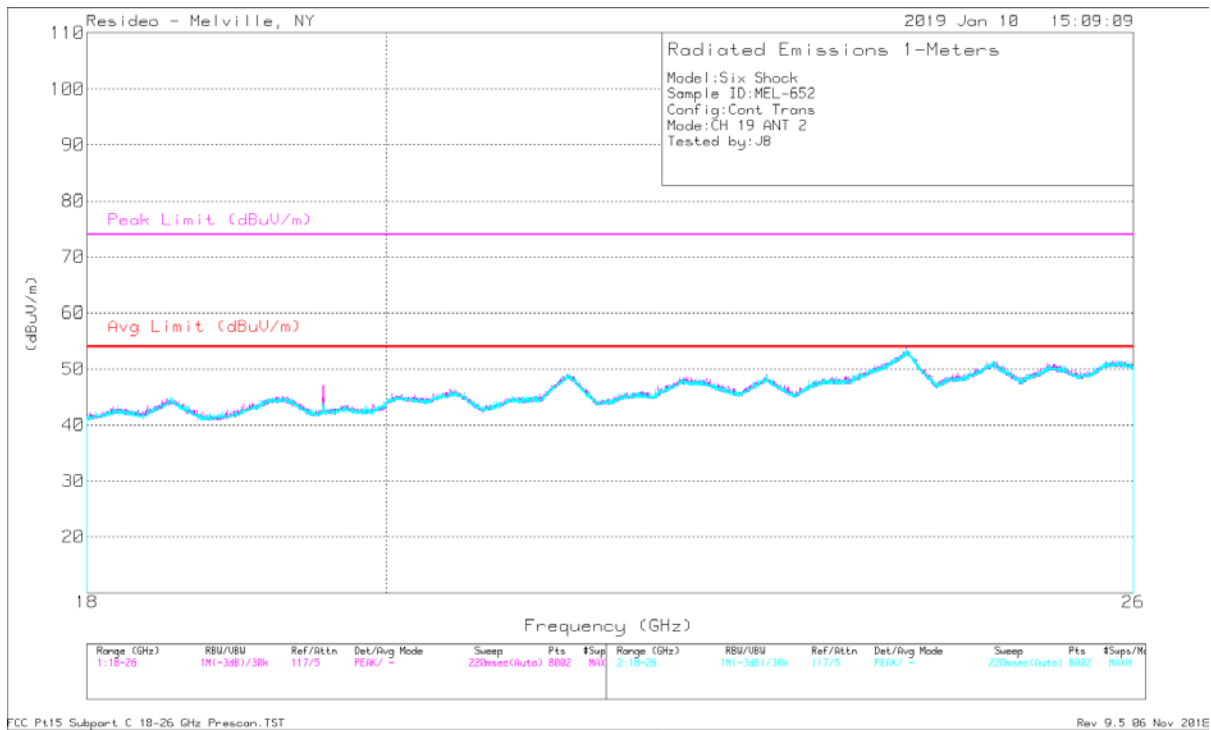
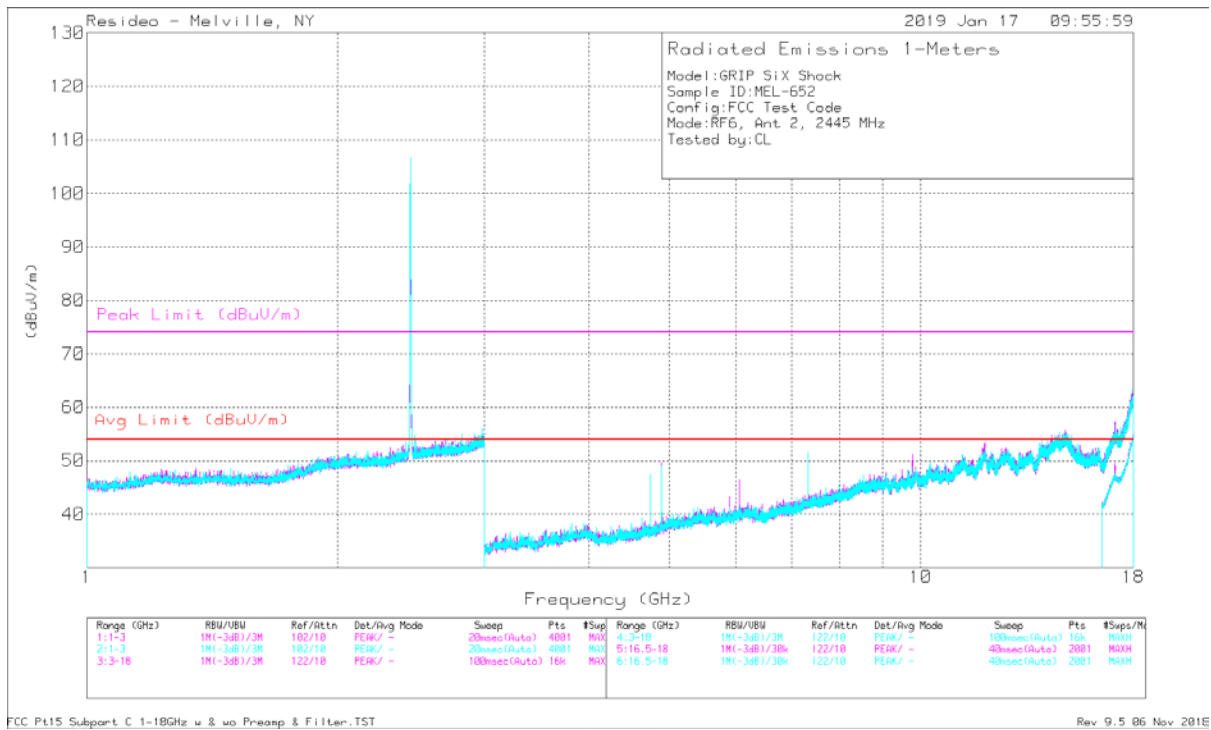
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - 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]	Gain/Loss [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.891	52	PK2	33.2	-34.1	51.1	74	-22.9	161	138	H
* 7.333	50.14	PK2	36.6	-30.6	56.14	74	-17.86	117	195	H
9.775	42.47	PK2	38.1	-28.3	52.27	74	-21.73	118	268	H
* 12.228	38.59	PK2	39.2	-24.8	52.99	74	-21.01	138	293	H
14.673	39.8	PK2	42.6	-23.9	58.5	74	-15.5	137	311	H
17.111	39.68	PK2	41.1	-23.6	57.18	74	-16.82	119	356	H
* 4.891	52.36	PK2	33.2	-34.1	51.46	74	-22.54	344	151	V
* 7.333	55.67	PK2	36.6	-30.6	61.67	74	-12.33	160	143	V
9.785	38.43	PK2	38.1	-28.3	48.23	74	-25.77	202	226	V
* 12.222	38.29	PK2	39.2	-24.8	52.69	74	-21.31	109	357	V
14.673	38.72	PK2	42.6	-23.9	57.42	74	-16.58	187	137	V
17.113	38.99	PK2	41.1	-23.6	56.49	74	-17.51	166	127	V
* 19.556	35.37	PK2	44.3	-29.9	49.77	74	-24.23	288	378	H
24.444	33.26	PK2	46.5	-27.4	52.36	74	-21.64	187	241	H
* 19.564	35.3	PK2	44.3	-29.9	49.7	74	-24.3	59	230	V
24.445	33.67	PK2	46.5	-27.4	52.77	74	-21.23	294	291	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.891	52	Av	33.2	-34.1	-23.1	28	54	-26	161	138	H
* 7.333	50.14	Av	36.6	-30.6	-23.1	33.04	54	-20.96	117	195	H
9.775	42.47	Av	38.1	-28.3	-23.1	29.17	54	-24.83	118	268	H
* 12.228	38.59	Av	39.2	-24.8	-23.1	29.89	54	-24.11	138	293	H
14.673	39.8	Av	42.6	-23.9	-23.1	35.4	54	-18.6	137	311	H
17.111	39.68	Av	41.1	-23.6	-23.1	34.08	54	-19.92	119	356	H
* 4.891	52.36	Av	33.2	-34.1	-23.1	28.36	54	-25.64	344	151	V
* 7.333	55.67	Av	36.6	-30.6	-23.1	38.57	54	-15.43	160	143	V
9.785	38.43	Av	38.1	-28.3	-23.1	25.13	54	-28.87	202	226	V
* 12.222	38.29	Av	39.2	-24.8	-23.1	29.59	54	-24.41	109	357	V
14.673	38.72	Av	42.6	-23.9	-23.1	34.32	54	-19.68	187	137	V
17.113	38.99	Av	41.1	-23.6	-23.1	33.39	54	-20.61	166	127	V
* 19.556	35.37	Av	44.3	-29.9	-23.1	26.67	54	-27.33	288	378	H
24.444	33.26	Av	46.5	-27.4	-23.1	29.26	54	-24.74	187	241	H
* 19.564	35.3	Av	44.3	-29.9	-23.1	26.6	54	-27.4	59	230	V
24.445	33.67	Av	46.5	-27.4	-23.1	29.67	54	-24.33	294	291	V

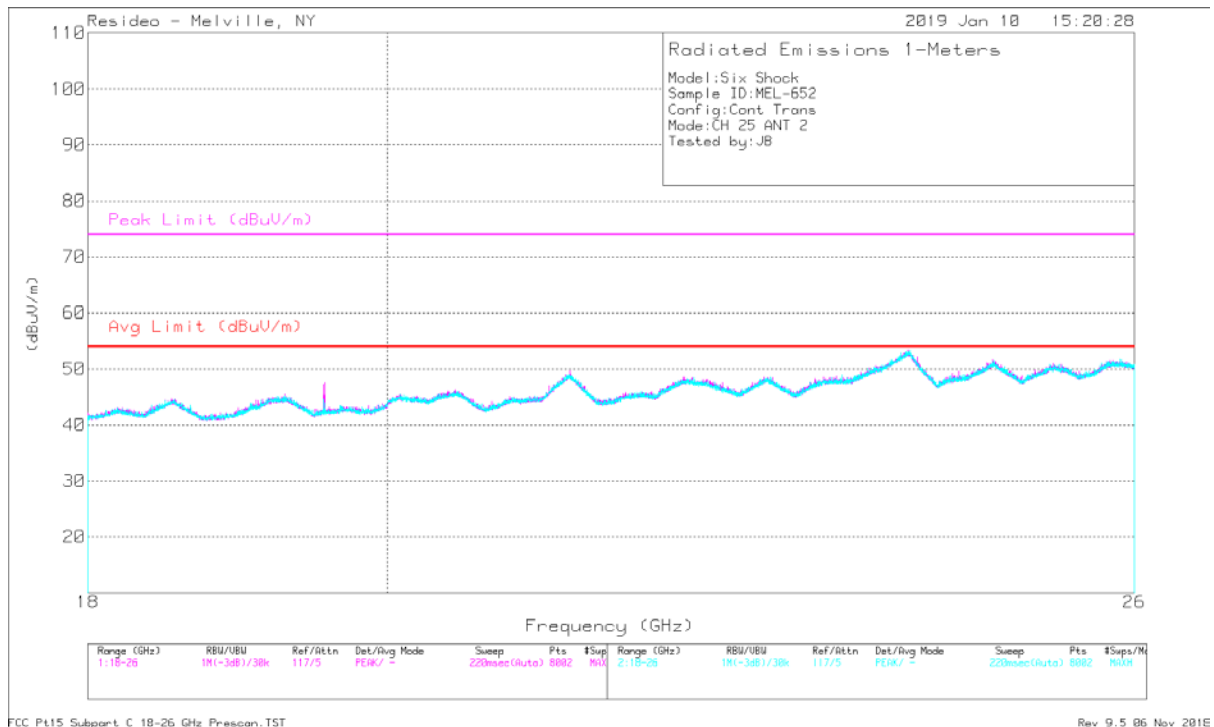
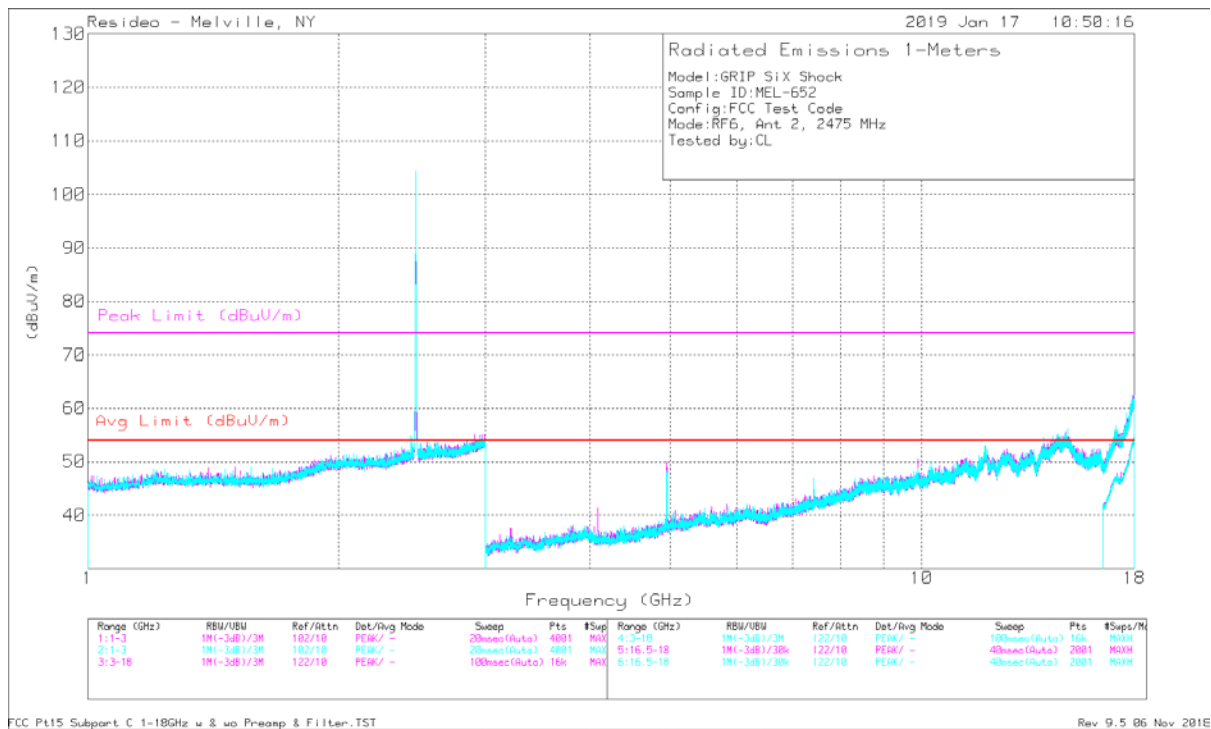
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - 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]	Gain/Loss [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.951	50.94	PK2	33.2	-34	50.14	74	-23.86	165	139	H
* 7.423	44.52	PK2	36.7	-30.4	50.82	74	-23.18	92	222	H
9.901	40.65	PK2	38.2	-28.4	50.45	74	-23.55	83	220	H
* 12.37	38.19	PK2	39	-24.7	52.49	74	-21.51	173	305	H
14.853	38.83	PK2	42	-23.6	57.23	74	-16.77	106	348	H
17.322	39.64	PK2	42.4	-23.6	58.44	74	-15.56	181	171	H
* 4.951	53.29	PK2	33.2	-34	52.49	74	-21.51	9	140	V
* 7.427	46.85	PK2	36.7	-30.4	53.15	74	-20.85	177	125	V
9.902	39.16	PK2	38.2	-28.4	48.96	74	-25.04	214	179	V
* 12.377	38.35	PK2	38.9	-24.7	52.55	74	-21.45	83	297	V
14.855	38.28	PK2	42	-23.6	56.68	74	-17.32	192	361	V
17.321	39.47	PK2	42.4	-23.6	58.27	74	-15.73	121	361	V
* 19.804	36.52	PK2	44.2	-29.7	51.02	74	-22.98	52	184	H
24.74	35.86	PK2	46.6	-24	58.46	74	-15.54	221	279	H
* 19.795	33.41	PK2	44.2	-29.7	47.91	74	-26.09	149	284	V
24.741	36.26	PK2	46.6	-24	58.86	74	-15.14	161	100	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Gain/Loss [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.951	50.94	Av	33.2	-34	-23.1	27.04	54	-26.96	165	139	H
* 7.423	44.52	Av	36.7	-30.4	-23.1	27.72	54	-26.28	92	222	H
9.901	40.65	Av	38.2	-28.4	-23.1	27.35	54	-26.65	83	220	H
* 12.37	38.19	Av	39	-24.7	-23.1	29.39	54	-24.61	173	305	H
14.853	38.83	Av	42	-23.6	-23.1	34.13	54	-19.87	106	348	H
17.322	39.64	Av	42.4	-23.6	-23.1	35.34	54	-18.66	181	171	H
* 4.951	53.29	Av	33.2	-34	-23.1	29.39	54	-24.61	9	140	V
* 7.427	46.85	Av	36.7	-30.4	-23.1	30.05	54	-23.95	177	125	V
9.902	39.16	Av	38.2	-28.4	-23.1	25.86	54	-28.14	214	179	V
* 12.377	38.35	Av	38.9	-24.7	-23.1	29.45	54	-24.55	83	297	V
14.855	38.28	Av	42	-23.6	-23.1	33.58	54	-20.42	192	361	V
17.321	39.47	Av	42.4	-23.6	-23.1	35.17	54	-18.83	121	361	V
* 19.804	36.52	Av	44.2	-29.7	-23.1	27.92	54	-26.08	52	184	H
24.74	35.86	Av	46.6	-24	-23.1	35.36	54	-18.64	221	279	H
* 19.795	33.41	Av	44.2	-29.7	-23.1	24.81	54	-29.19	149	284	V
24.741	36.26	Av	46.6	-24	-23.1	35.76	54	-18.24	161	100	V

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

PK2 - 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

END OF REPORT