

Honeywell Home

FCC / ISED Test Report

For

GRIP 5” AIO Panel

Report #: 50346-A5

FCC ID: CFS8DL-GRIPAI05

IC ID: 573F-GRIPAI05

Report Completion Date: 2018-12-07

Prepared by and for:

Ademco Inc.

2 Corporate Center Dr.

Suite 100 PO Box 9040

Melville, NY 11747



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.

Test Report Revision History

Revision	Prepared By	Reviewed By	Revision Detail	Release Date
---	M. Antola	A. Roussin	Original Release	2018-12-07

Report Authorization

Report Prepared By:



Michael Antola
Hardware Engineer II
Honeywell Home
Ademco Inc.

Reviewed & Approved By:



Andrew Roussin
Hardware Engineer II
Honeywell Home
Ademco Inc.

Contents

Applicable Test Standards/Limits.....	5
Deviations from Test Methods	5
Facilities and Accreditation	5
Test Item Description	5
Worse-Case Configuration & Mode.....	6
Calibration & Measurement Uncertainty.....	7
Opinions / Interpretations	7
Test Summary.....	8
On Time and Duty Cycle.....	9
Radiated Emissions (Intentional)	13
Conducted Emissions (Mains).....	39
END OF REPORT.....	41

Applicable Test Standards/Limits

Test Standards/Limits	Result	Dates Tested
ANSI C63.10: 2013	Compliant	11/01/2018 – 12/05/2018
RSS-247, Issue 2, Section 5	Compliant	11/01/2018 – 12/05/2018
RSS-GEN, Issue 4	Compliant	11/01/2018 – 12/05/2018
CFR 47 Pt 15 Subpart C, Section 15.207/209	Compliant	11/01/2018 – 12/05/2018
CFR 47 Pt 15 Subpart C, Section 15.247	Compliant	11/01/2018 – 12/05/2018

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 Global Residential Intrusion Platform (GRIP) 5" All-In-One (AIO) solution consists of a panel with a built-in touch screen display. The panel consists of a main PCB board that contains components (Display, camera, microphones, speaker) to support features such as video and audio, interfaces to external devices/sensors (sensors, devices, and cameras) and wireless communicators. The EUT is AC powered with a battery back-up.

There are three (3) on-board radios - Bluetooth (LE), RF6 and Wiselink. Plug-in modules can support Wi-Fi, Z-Wave and cellular communications. This report will cover the RF6 portion of the EUT only, which is a 2.4GHz Zigbee-based transmitter. This report contains only radiated (spurious emissions, Bandedge, etc.) and conducted emissions (mains) data. Conducted antenna port data is being leveraged from a previous certification (FCC ID: CFS8DL-GRIPAI07, IC: 573F-GRIPAI07) based on similarities. See test report exhibit titled "AIO 7-INCH EXHIBIT 5-2A FCC_ISED Test Report RF6" for specific data.

It contains two (2) integral PCB antennas with gains of 6.6dBi & 4.7dBi.

Worse-Case Configuration & Mode

Radiated emissions was performed with the EUT set to transmit at the low/mid/high channels with the highest output power as worst-case scenario. The EUT has a typical installation orientation of vertical (i.e. wall-mounted or standing upright on desktop). Therefore, all final radiated test was performed with the EUT in the vertical orientation. See setup photos for details. The AC powered configuration proved to be the worse-case configuration and was tested as such.

Test Sample Identification

Sample ID Number	Sample Serial Number	Date Received
MEL-576	Non-serialized production unit	10/08/2018

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	Radiated Emissions (Intentional)	PASS
2	Conducted Emissions (Mains)	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 (RF power Measurements)						
Power Sensor	11568	105317	Rohde & Schwarz	NRP-Z81	10/02/18	10/02/19
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	01/10/18	01/10/19
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	11552	G018	Micro-tronics	HPM50111-01	*	*

Filter						
RF Cable	-	-	Pasternack	RDE#1	*	*
RF Cable	-	-	MegaPhase	EMC2-S1S1-360	*	*
Shield Room						
EMI Receiver	11566	102484	Rohde & Schwarz	ESR3	09/19/18	09/19/19
LISN	11527	241259	Com-Power	LIN-120A	01/10/18	01/10/19
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	None, for reporting only

Test Information

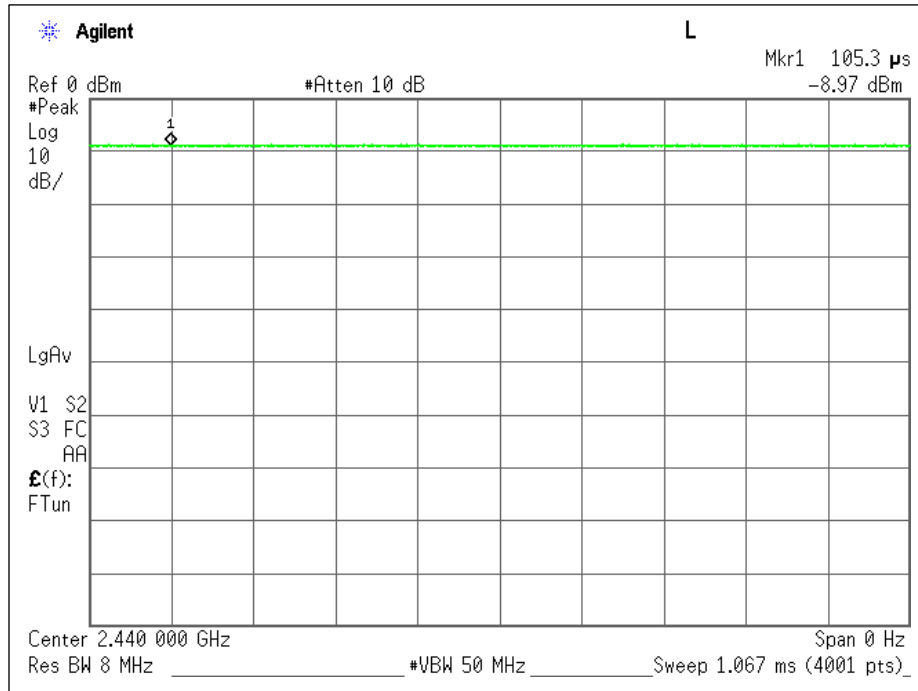
Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
MA	RF Lab	12/10/18	22.6	37.2	1014	P

Test Results

On Time (usec)	Period (usec)	Duty Cycle	Duty Cycle (%)
105.3	105.3	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 6.75% (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 Plot



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

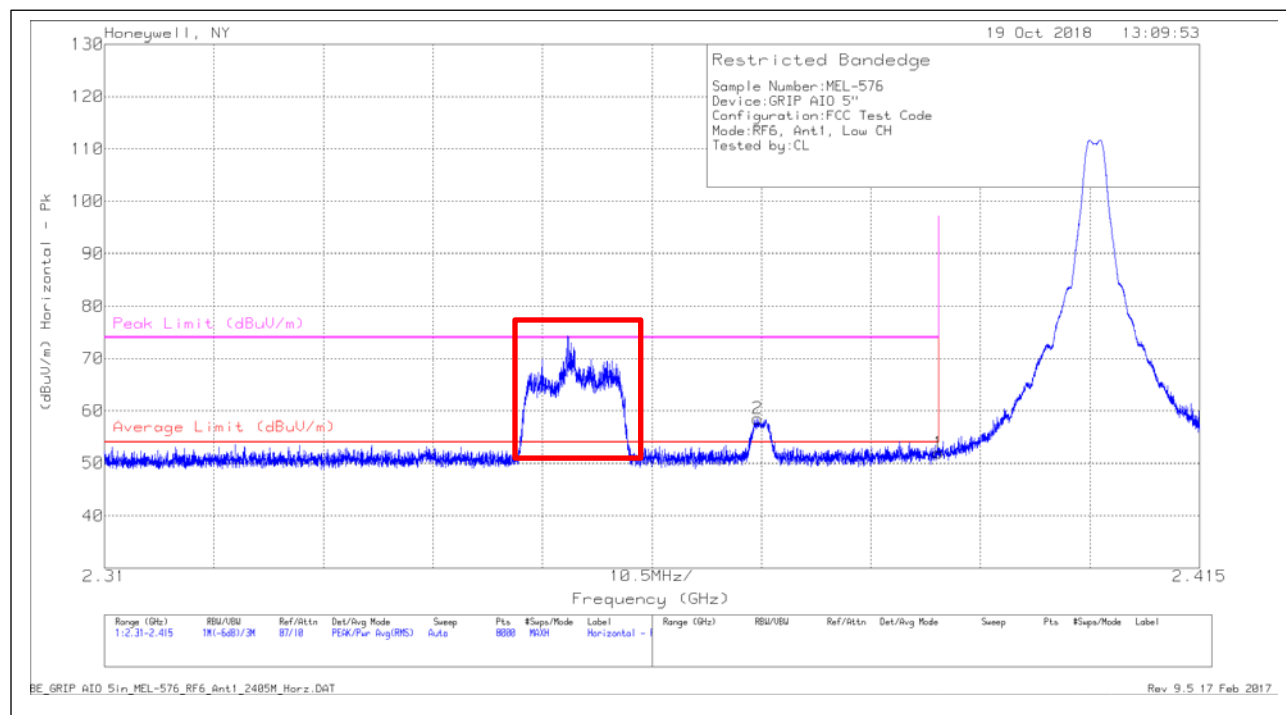
Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL/JB	RF Chamber/OATS	10/22/18-12/05/18	2.7	40	1013	P

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 and above 18GHz. Prescans performed in an anechoic chamber, final measurements performed on an OATS.

Since Wiselink/RF6/Bluetooth radios can transmit simultaneously, additional spurious scans are provided with all radios on and transmitting in their worse-case state.

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	17.62	Pk	28.5	.7	2.6	2.5	-	51.92	74	-22.08	168	107	H
2	* 2.373	24.33	Pk	28.4	.7	2.6	2.5	-	58.53	74	-15.47	168	107	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	17.62	Av	28.5	.7	2.6	2.5	-23.4	28.52	54	-25.48	168	107	H
2	* 2.373	24.33	Av	28.4	.7	2.6	2.5	-23.4	35.13	54	-18.87	168	107	H

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

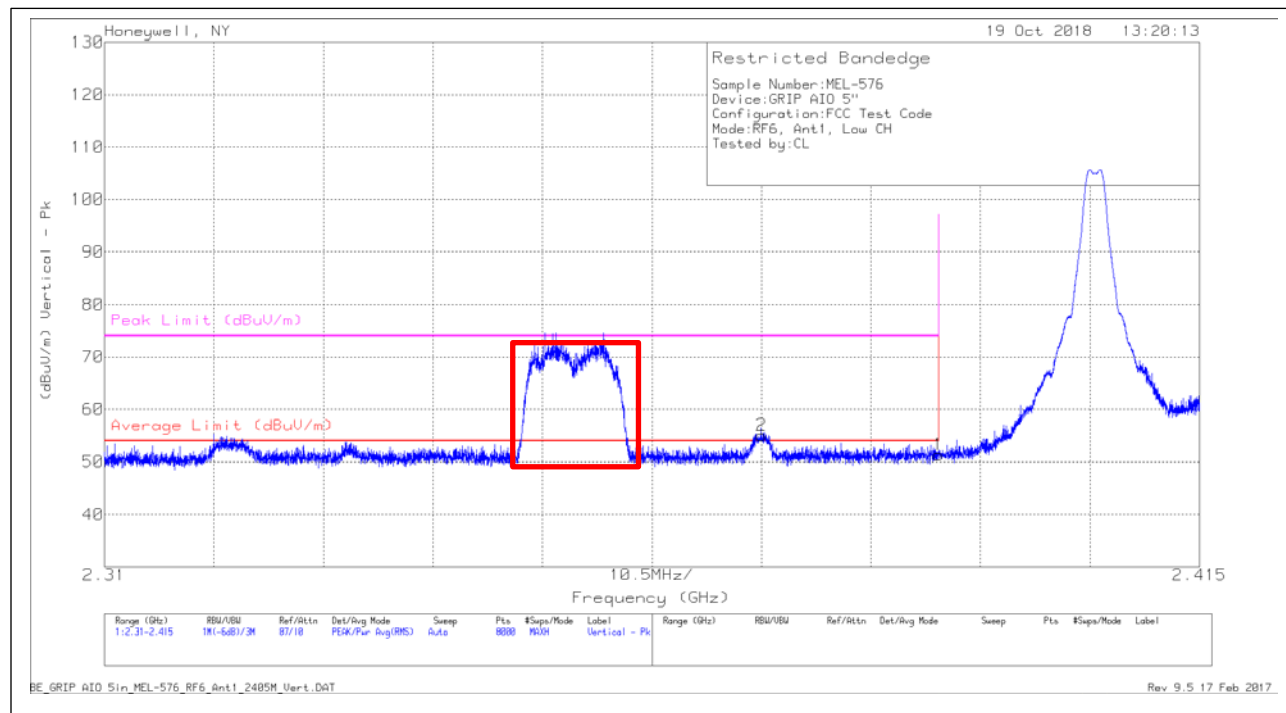
Pk - Peak detector

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.06752) = -23.4\text{dB}$

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

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	17.03	Pk	28.5	.7	2.6	2.5	-	51.33	74	-22.67	316	264	V
2	* 2.373	20.84	Pk	28.4	.7	2.6	2.5	-	55.04	74	-18.96	316	264	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	17.03	Av	28.5	.7	2.6	2.5	-23.4	27.93	54	-26.07	316	264	V
2	* 2.373	20.84	Av	28.4	.7	2.6	2.5	-23.4	31.64	54	-22.36	316	264	V

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

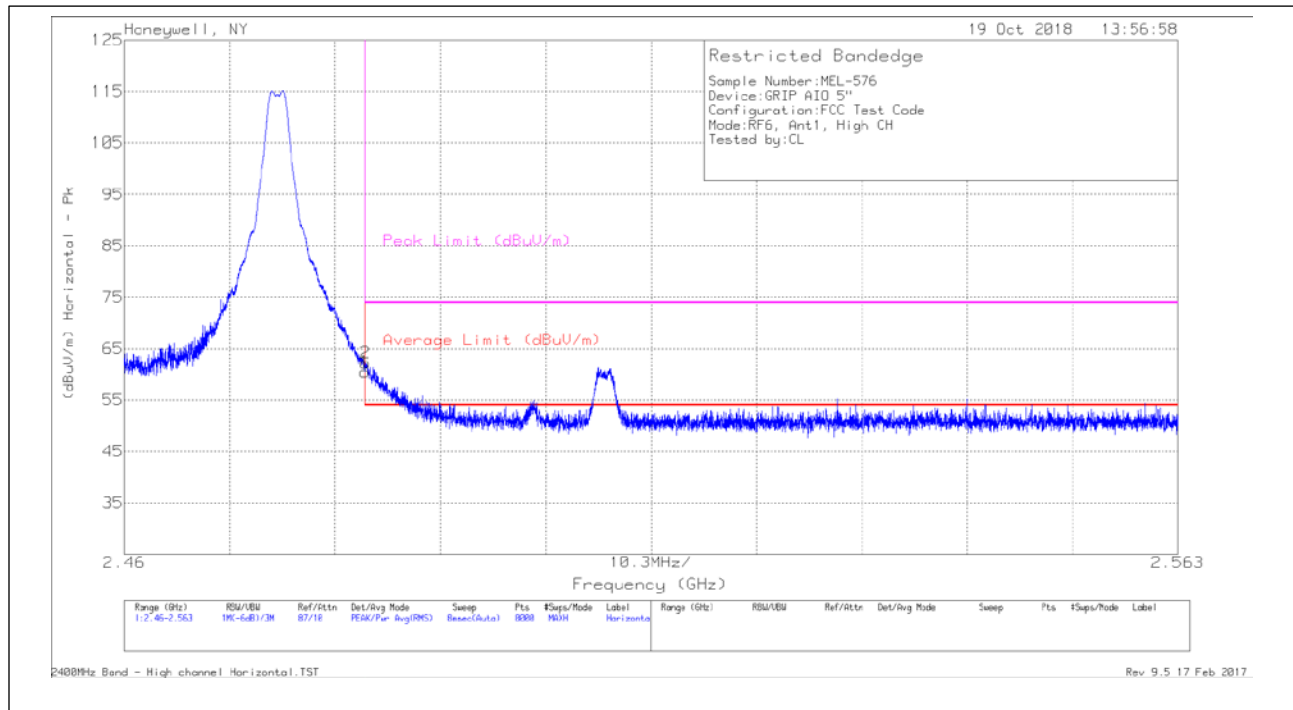
Pk - Peak detector

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.06752) = -23.4\text{dB}$

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

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	25.85	Pk	28.7	.7	2.6	2.6	-	60.45	74	-13.55	133	118	H
2	* 2.484	27.6	Pk	28.7	.7	2.6	2.6	-	62.2	74	-11.8	133	118	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	25.85	Av	28.7	.7	2.6	2.6	-23.4	37.05	54	-16.95	133	118	H
2	* 2.484	27.6	Av	28.7	.7	2.6	2.6	-23.4	38.8	54	-15.2	133	118	H

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

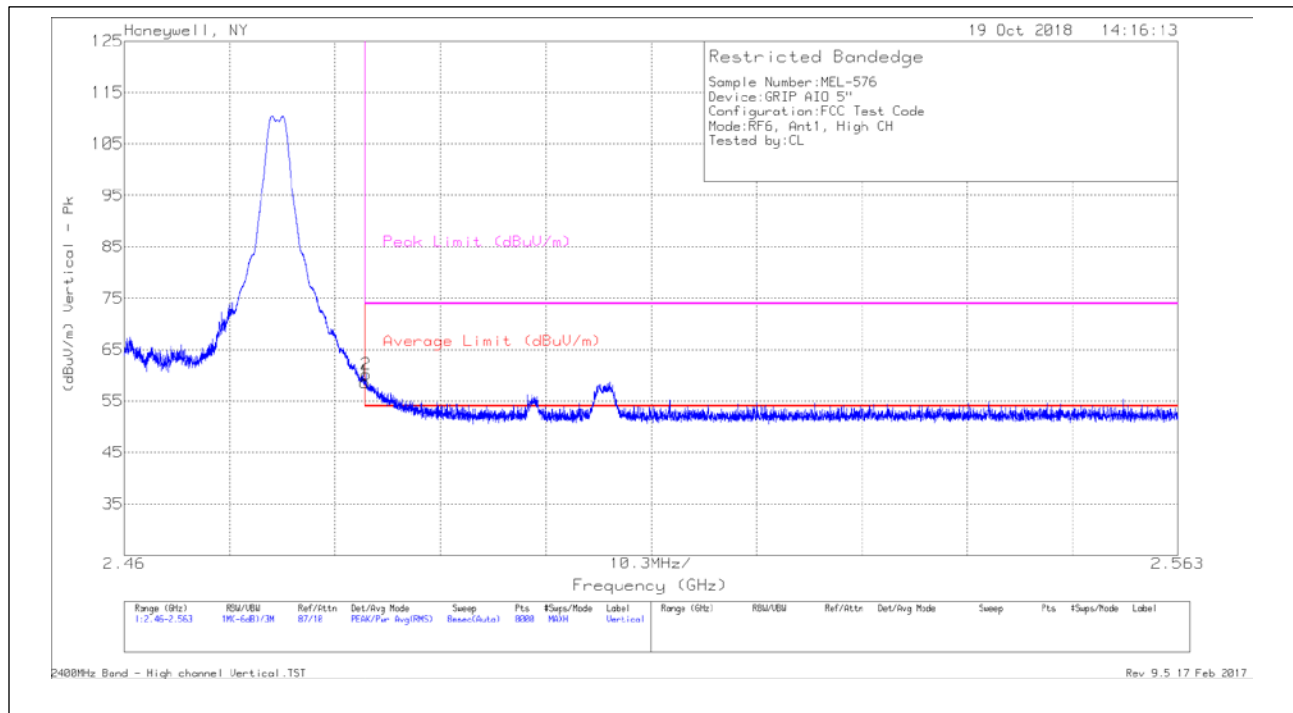
Pk - Peak detector

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.06752) = -23.4\text{dB}$

NOTE: Worse-case emissions are reported 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	24.08	Pk	28.7	.7	2.6	2.6	-	58.68	74	-15.32	149	205	V
2	* 2.484	25.59	Pk	28.7	.7	2.6	2.6	-	60.19	74	-13.81	149	205	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	24.08	Av	28.7	.7	2.6	2.6	-23.4	35.28	54	-18.72	149	205	V
2	* 2.484	25.59	Av	28.7	.7	2.6	2.6	-23.4	36.79	54	-17.21	149	205	V

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

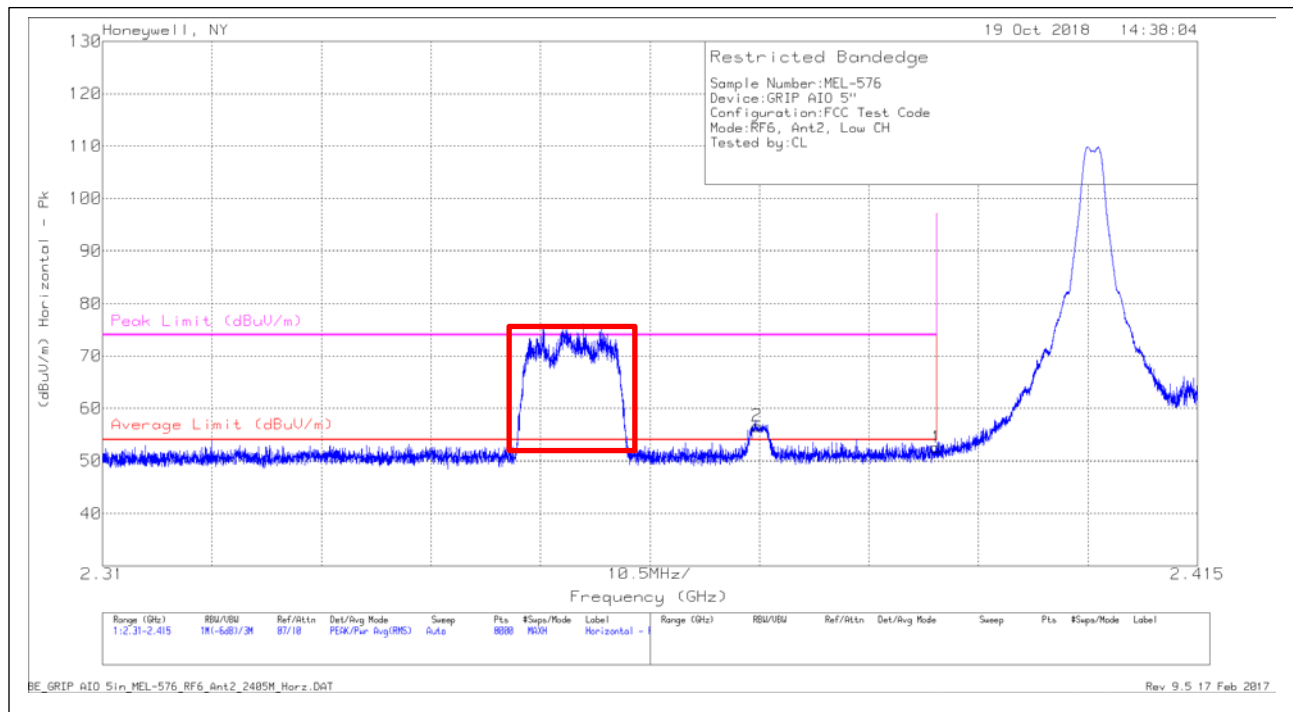
Pk - Peak detector

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.06752) = -23.4\text{dB}$

NOTE: Worse-case emissions are reported 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	18.28	Pk	28.5	.7	2.6	2.5	-	52.58	74	-21.42	202	288	H
2	* 2.373	22.45	Pk	28.4	.7	2.6	2.5	-	56.65	74	-17.35	202	288	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	18.28	Av	28.5	.7	2.6	2.5	-23.4	29.18	54	-24.82	202	288	H
2	* 2.373	22.45	Av	28.4	.7	2.6	2.5	-23.4	33.25	54	-20.75	202	288	H

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

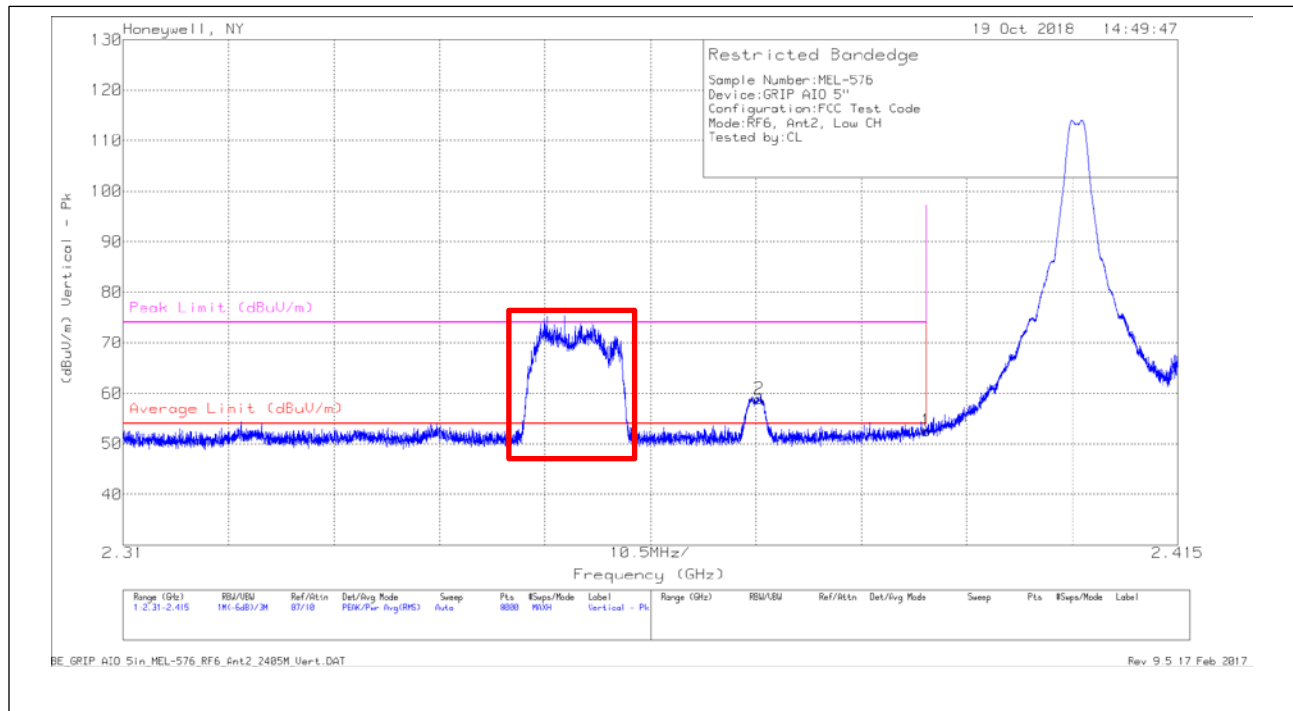
Pk - Peak detector

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.06752) = -23.4\text{dB}$

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

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	18.32	Pk	28.5	.7	2.6	2.5	-	52.62	74	-21.38	84	287	V
2	* 2.373	24.75	Pk	28.4	.7	2.6	2.5	-	58.95	74	-15.05	84	287	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	18.32	Av	28.5	.7	2.6	2.5	-23.4	29.22	54	-24.78	84	287	V
2	* 2.373	24.75	Av	28.4	.7	2.6	2.5	-23.4	35.55	54	-18.45	84	287	V

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

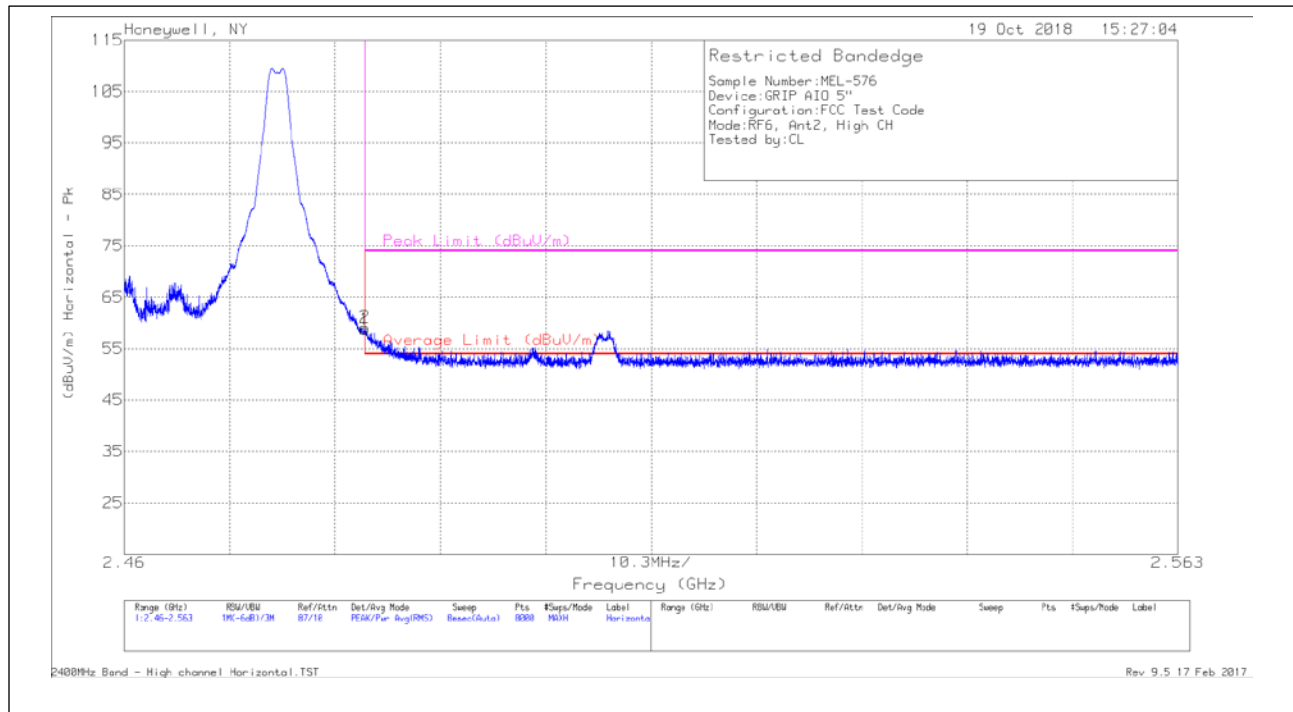
Pk - Peak detector

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.06752) = -23.4\text{dB}$

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

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	24.15	Pk	28.7	.7	2.6	2.6	-	58.75	74	-15.25	30	281	H
2	* 2.484	24.51	Pk	28.7	.7	2.6	2.6	-	59.11	74	-14.89	30	281	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	24.15	Av	28.7	.7	2.6	2.6	-23.4	35.35	54	-18.65	30	281	H
2	* 2.484	24.51	Av	28.7	.7	2.6	2.6	-23.4	35.71	54	-18.29	30	281	H

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

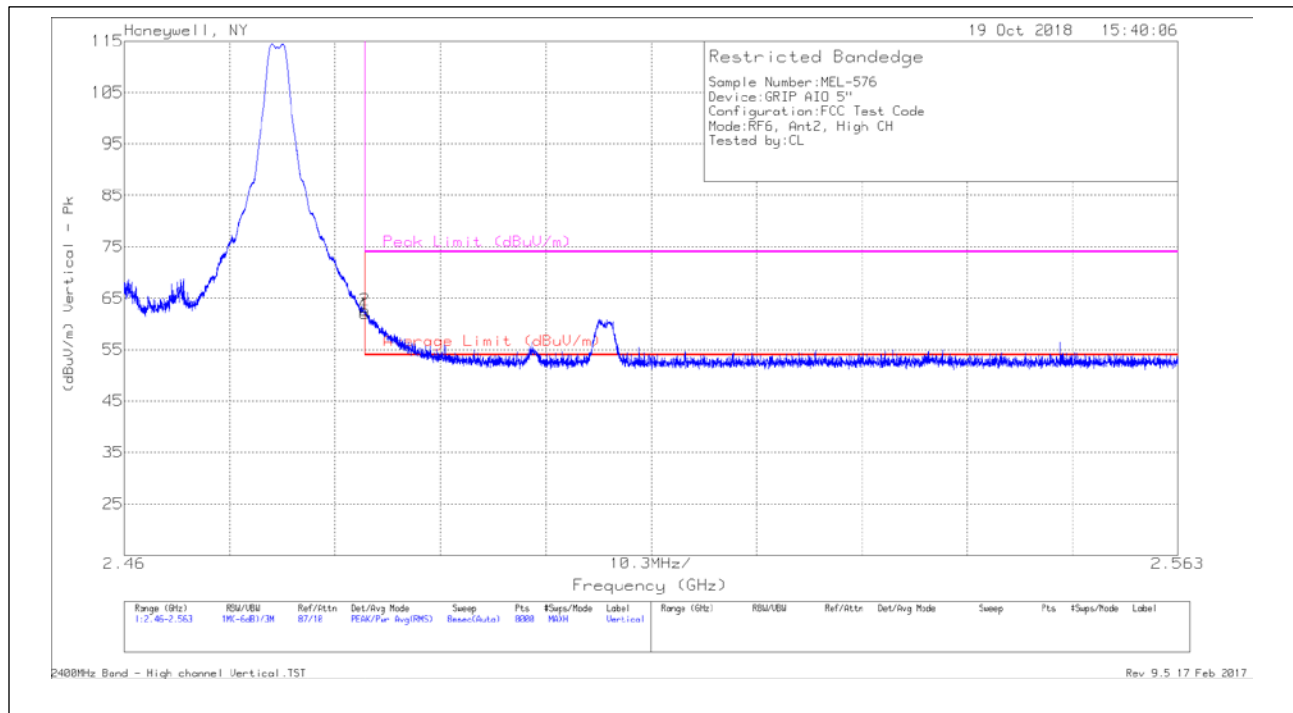
Pk - Peak detector

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.06752) = -23.4\text{dB}$

NOTE: Worse-case emissions are reported 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	* 2.484	27.38	Pk	28.7	.7	2.6	2.6	-	61.98	74	-12.02	80	253	V
2	* 2.484	28.06	Pk	28.7	.7	2.6	2.6	-	62.66	74	-11.34	80	253	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	27.38	Av	28.7	.7	2.6	2.6	-23.4	38.58	54	-15.42	80	253	V
2	* 2.484	28.06	Av	28.7	.7	2.6	2.6	-23.4	39.26	54	-14.74	80	253	V

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

Pk - Peak detector

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

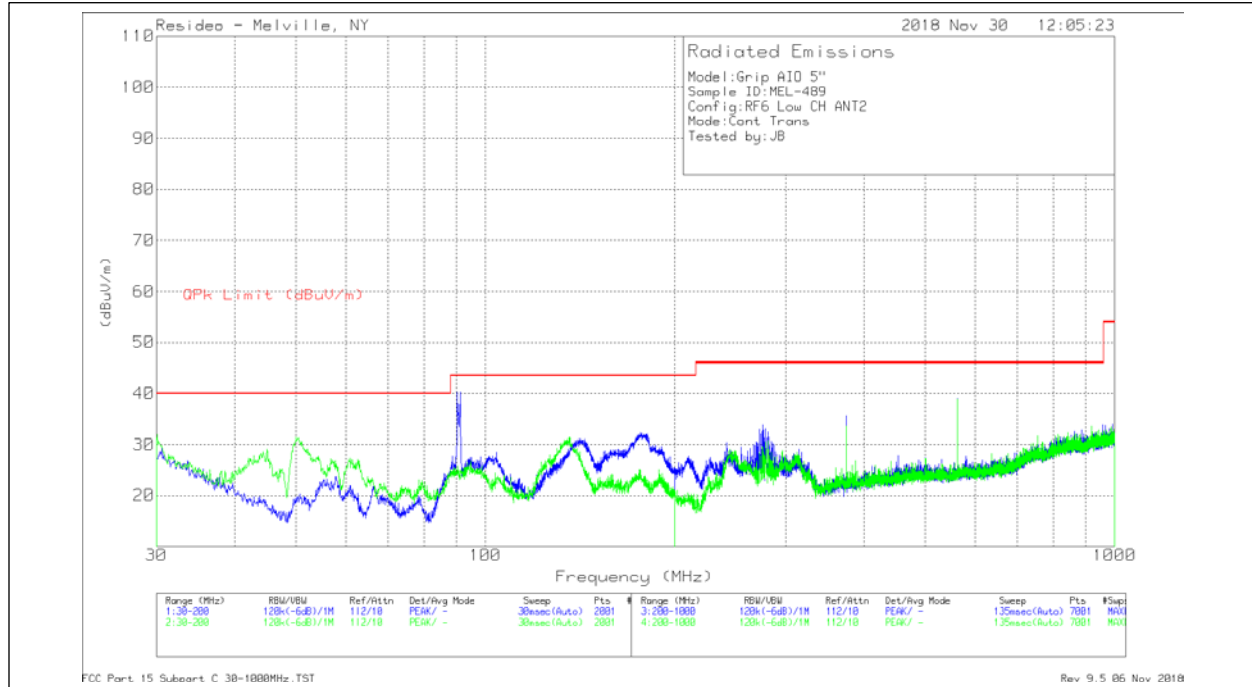
Duty Cycle = 6.75%, thus DC Corr = $20\log(0.06752) = -23.4\text{dB}$

NOTE: Worse-case emissions are reported 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 (Worse-case)



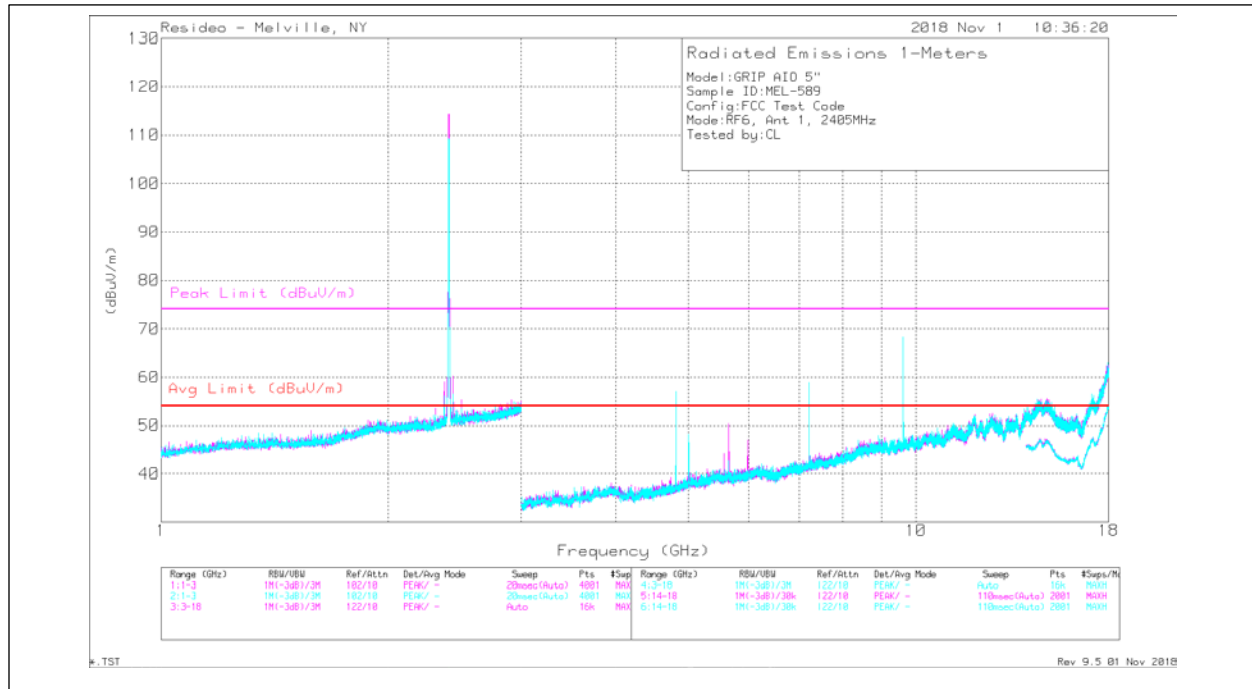
Antenna 2 Mid Channel - Plot

Frequency (MHz)	Meter Reading (dBuV)	Det	AF_JB6 [dB/m]	Cable 1 [dB]	Corrected Reading (dBuV/m)	QPK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
90.18	20.69	Qp	12	1.5	34.19	43.52	-9.33	84	387	H
30.5724	11.1	Qp	24.4	.9	36.4	40	-3.6	43	365	H
30.1	11.34	Qp	24.8	.9	37.04	40	-2.96	239	247	V
562.5552	4.38	Qp	23	5.8	33.18	46.02	-12.84	242	396	H
374.9887	6.15	Qp	19.1	3.8	29.05	46.02	-16.97	0	203	V
562.4009	4.36	Qp	23	5.8	33.16	46.02	-12.86	234	330	V

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

Antenna 2 Mid Channel - Data

1-18GHz



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
* 4.809	46.55	PK	33.1	-41.2	3.7	3.7	45.85	74	-28.15	55	213	H
7.216	48.61	PK	36.2	-39.5	4.7	4.5	54.51	74	-19.49	100	321	H
9.622	60.31	PK	38	-39	5.6	5.2	70.11	74	-3.89	75	273	H
* 12.027	38.83	PK	39.4	-37.3	6.5	5.6	53.03	74	-20.97	34	261	H
14.433	39.21	PK	42.1	-36.9	6.8	6.4	57.61	74	-16.39	143	237	H
16.84	39.22	PK	39.6	-38.1	7.5	7.1	55.32	74	-18.68	22	364	H
* 4.809	47.4	PK	33.1	-41.2	3.7	3.7	46.7	74	-27.3	29	287	V
7.213	49.58	PK	36.2	-39.5	4.7	4.5	55.48	74	-18.52	20	167	V
9.618	62.34	PK	38	-39	5.6	5.2	72.14	74	-1.86	2	337	V
* 12.028	38.36	PK	39.4	-37.3	6.5	5.6	52.56	74	-21.44	38	279	V
14.427	39.35	PK	42.1	-36.9	6.8	6.4	57.75	74	-16.25	332	364	V
16.834	39.09	PK	39.6	-38.1	7.4	7.1	55.09	74	-18.91	249	317	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.809	46.55	Av	33.1	-41.2	3.7	3.7	-23.4	22.45	54	-31.55	55	213	H
7.216	48.61	Av	36.2	-39.5	4.7	4.5	-23.4	31.11	54	-22.89	100	321	H
9.622	60.31	Av	38	-39	5.6	5.2	-23.4	46.71	54	-7.29	75	273	H
* 12.027	38.83	Av	39.4	-37.3	6.5	5.6	-23.4	29.63	54	-24.37	34	261	H
14.433	39.21	Av	42.1	-36.9	6.8	6.4	-23.4	34.21	54	-19.79	143	237	H
16.84	39.22	Av	39.6	-38.1	7.5	7.1	-23.4	31.92	54	-22.08	22	364	H
* 4.809	47.4	Av	33.1	-41.2	3.7	3.7	-23.4	23.3	54	-30.7	29	287	V
7.213	49.58	Av	36.2	-39.5	4.7	4.5	-23.4	32.08	54	-21.92	20	167	V
9.618	62.34	Av	38	-39	5.6	5.2	-23.4	48.74	54	-5.26	2	337	V
* 12.028	38.36	Av	39.4	-37.3	6.5	5.6	-23.4	29.16	54	-24.84	38	279	V
14.427	39.35	Av	42.1	-36.9	6.8	6.4	-23.4	34.35	54	-19.65	332	364	V
16.834	39.09	Av	39.6	-38.1	7.4	7.1	-23.4	31.69	54	-22.31	249	317	V

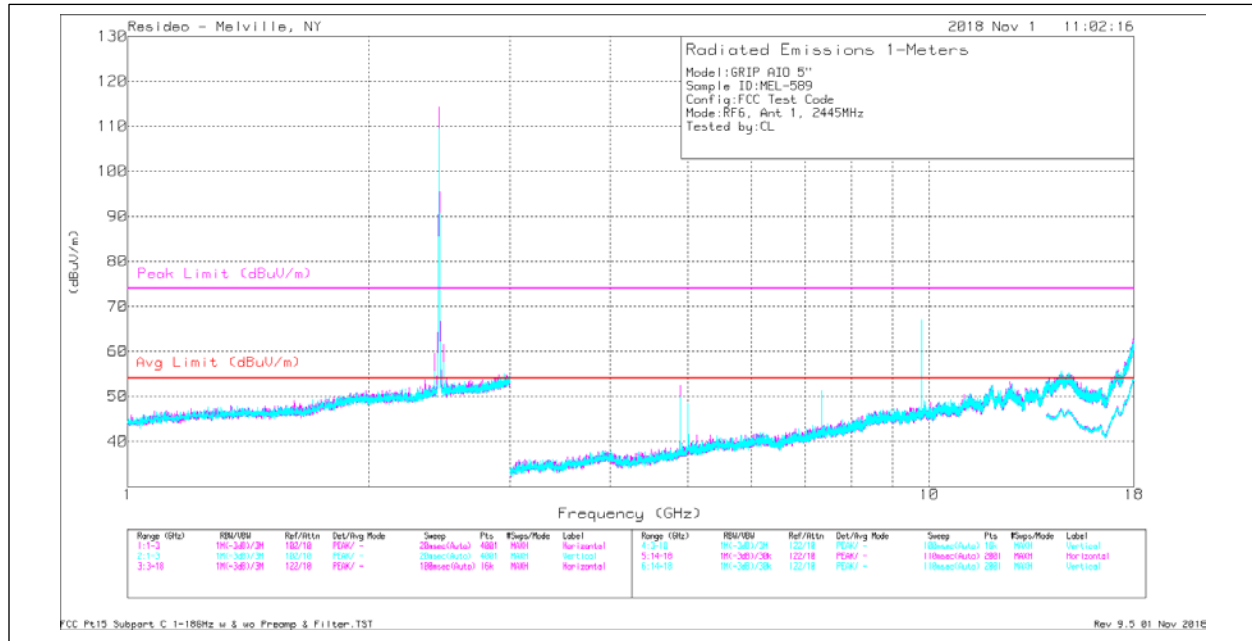
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.0675) = -23.4\text{dB}$

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
* 4.889	44.14	PK	33.2	-41.4	3.7	3.6	43.24	74	-30.76	145	134	H
* 7.333	44.55	PK	36.6	-39.7	4.6	4.5	50.55	74	-23.45	356	158	H
9.778	58.88	PK	38.1	-39.1	5.5	5.3	68.68	74	-5.32	106	181	H
* 12.227	40.99	PK	39.2	-37.2	6.5	5.9	55.39	74	-18.61	293	197	H
14.668	38.55	PK	42.6	-36.9	6.7	6.4	57.35	74	-16.65	207	254	H
17.112	39.35	PK	41.1	-38.1	7.5	7	56.85	74	-17.15	226	130	H
* 4.889	46.97	PK	33.2	-41.4	3.7	3.6	46.07	74	-27.93	129	117	V
* 7.336	44.66	PK	36.6	-39.7	4.6	4.5	50.66	74	-23.34	289	126	V
9.782	62.02	PK	38.1	-39.1	5.5	5.3	71.82	74	-2.18	14	333	V
* 12.227	40.16	PK	39.2	-37.2	6.5	5.9	54.56	74	-19.44	275	339	V
14.673	39.21	PK	42.6	-36.9	6.6	6.4	57.91	74	-16.09	347	322	V
17.112	39.2	PK	41.1	-38.1	7.5	7	56.7	74	-17.3	88	249	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.889	44.14	Av	33.2	-41.4	3.7	3.6	-23.4	19.84	54	-34.16	145	134	H
* 7.333	44.55	Av	36.6	-39.7	4.6	4.5	-23.4	27.15	54	-26.85	356	158	H
9.778	58.88	Av	38.1	-39.1	5.5	5.3	-23.4	45.28	54	-8.72	106	181	H
* 12.227	40.99	Av	39.2	-37.2	6.5	5.9	-23.4	31.99	54	-22.01	293	197	H
14.668	38.55	Av	42.6	-36.9	6.7	6.4	-23.4	33.95	54	-20.05	207	254	H
17.112	39.35	Av	41.1	-38.1	7.5	7	-23.4	33.45	54	-20.55	226	130	H
* 4.889	46.97	Av	33.2	-41.4	3.7	3.6	-23.4	22.67	54	-31.33	129	117	V
* 7.336	44.66	Av	36.6	-39.7	4.6	4.5	-23.4	27.26	54	-26.74	289	126	V
9.782	62.02	Av	38.1	-39.1	5.5	5.3	-23.4	48.42	54	-5.58	14	333	V
* 12.227	40.16	Av	39.2	-37.2	6.5	5.9	-23.4	31.16	54	-22.84	275	339	V
14.673	39.21	Av	42.6	-36.9	6.6	6.4	-23.4	34.51	54	-19.49	347	322	V
17.112	39.2	Av	41.1	-38.1	7.5	7	-23.4	33.3	54	-20.7	88	249	V

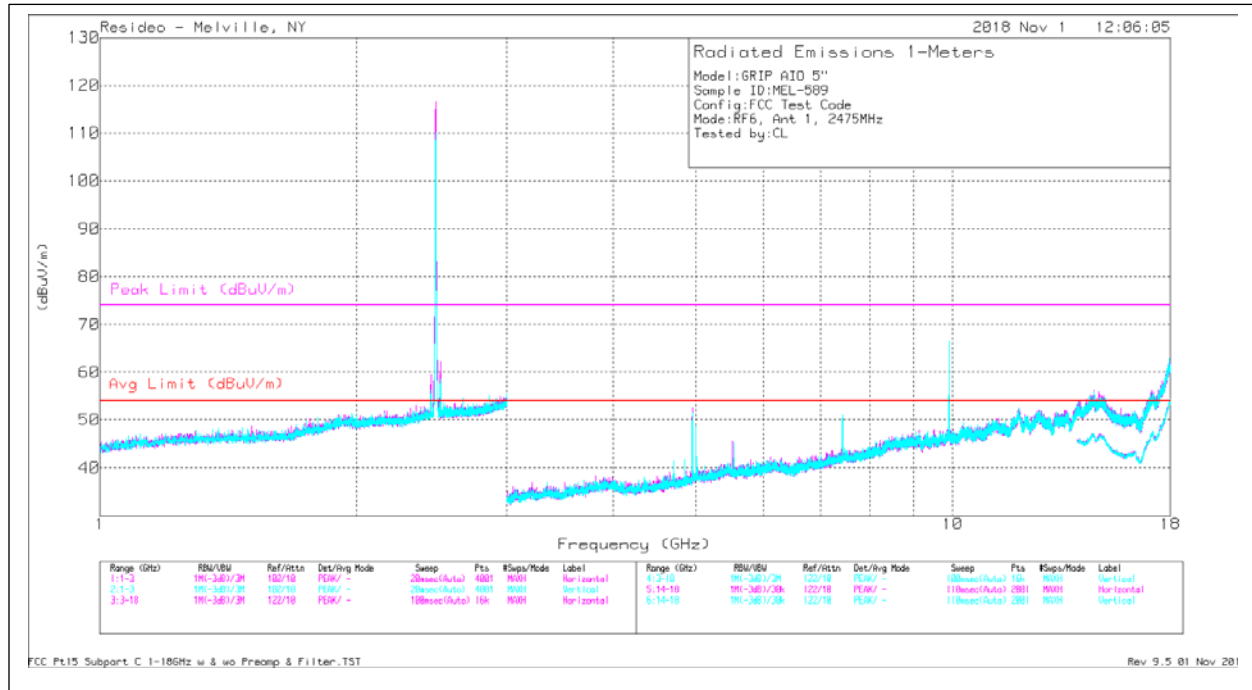
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.0675) = -23.4\text{dB}$

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	50.15	PK	33.2	-41.5	3.8	3.7	49.35	74	-24.65	214	161	H
* 7.426	53.23	PK	36.7	-39.7	4.7	4.6	59.53	74	-14.47	48	173	H
9.898	57.8	PK	38.2	-39.2	5.5	5.2	67.5	74	-6.5	102	193	H
* 12.377	38.91	PK	38.9	-37.1	6.5	5.9	53.11	74	-20.89	34	196	H
14.849	40.85	PK	42	-36.9	6.8	6.5	59.25	74	-14.75	15	394	H
17.322	42.34	PK	42.4	-38.2	7.5	7.1	61.14	74	-12.86	331	380	H
* 4.951	49.16	PK	33.2	-41.5	3.8	3.7	48.36	74	-25.64	75	180	V
* 7.423	48.64	PK	36.7	-39.7	4.7	4.6	54.94	74	-19.06	48	102	V
9.898	60.03	PK	38.2	-39.2	5.5	5.2	69.73	74	-4.27	22	316	V
* 12.377	40.83	PK	38.9	-37.1	6.5	5.9	55.03	74	-18.97	336	290	V
14.851	41.61	PK	42	-36.9	6.8	6.5	60.01	74	-13.99	332	234	V
17.326	40.33	PK	42.4	-38.2	7.5	7.1	59.13	74	-14.87	189	316	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.951	50.15	Av	33.2	-41.5	3.8	3.7	-23.4	25.95	54	-28.05	214	161	H
* 7.426	53.23	Av	36.7	-39.7	4.7	4.6	-23.4	36.13	54	-17.87	48	173	H
9.898	57.8	Av	38.2	-39.2	5.5	5.2	-23.4	44.1	54	-9.9	102	193	H
* 12.377	38.91	Av	38.9	-37.1	6.5	5.9	-23.4	29.71	54	-24.29	34	196	H
14.849	40.85	Av	42	-36.9	6.8	6.5	-23.4	35.85	54	-18.15	15	394	H
17.322	42.34	Av	42.4	-38.2	7.5	7.1	-23.4	37.74	54	-16.26	331	380	H
* 4.951	49.16	Av	33.2	-41.5	3.8	3.7	-23.4	24.96	54	-29.04	75	180	V
* 7.423	48.64	Av	36.7	-39.7	4.7	4.6	-23.4	31.54	54	-22.46	48	102	V
9.898	60.03	Av	38.2	-39.2	5.5	5.2	-23.4	46.33	54	-7.67	22	316	V
* 12.377	40.83	Av	38.9	-37.1	6.5	5.9	-23.4	31.63	54	-22.37	336	290	V
14.851	41.61	Av	42	-36.9	6.8	6.5	-23.4	36.61	54	-17.39	332	234	V
17.326	40.33	Av	42.4	-38.2	7.5	7.1	-23.4	35.73	54	-18.27	189	316	V

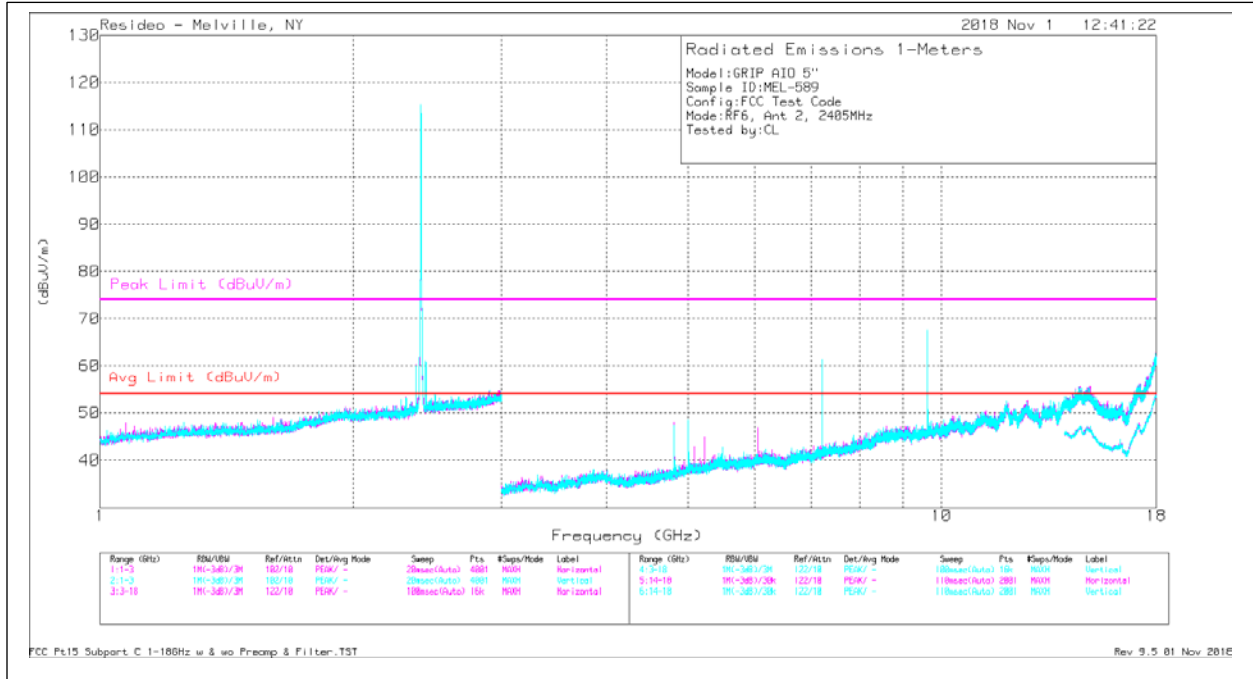
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.0675) = -23.4\text{dB}$

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
* 4.809	48.32	PK	33.1	-41.2	3.7	3.7	47.62	74	-26.38	131	147	H
7.214	53.67	PK	36.2	-39.5	4.7	4.5	59.57	74	-14.43	128	148	H
9.622	55.69	PK	38	-39	5.6	5.2	65.49	74	-8.51	65	264	H
* 12.022	39.87	PK	39.4	-37.3	6.5	5.6	54.07	74	-19.93	316	274	H
14.432	40.1	PK	42.1	-36.9	6.8	6.4	58.5	74	-15.5	122	207	H
16.835	41.1	PK	39.6	-38.1	7.4	7.1	57.1	74	-16.9	26	376	H
* 4.811	49.9	PK	33.1	-41.2	3.7	3.7	49.2	74	-24.8	82	342	V
7.213	57.45	PK	36.2	-39.5	4.7	4.5	63.35	74	-10.65	29	176	V
9.622	55.4	PK	38	-39	5.6	5.2	65.2	74	-8.8	274	173	V
* 12.027	40.55	PK	39.4	-37.3	6.5	5.6	54.75	74	-19.25	93	361	V
14.433	41.56	PK	42.1	-36.9	6.8	6.4	59.96	74	-14.04	208	165	V
16.837	40.82	PK	39.6	-38.1	7.5	7.1	56.92	74	-17.08	139	172	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.809	48.32	Av	33.1	-41.2	3.7	3.7	-23.4	24.22	54	-29.78	131	147	H
7.214	53.67	Av	36.2	-39.5	4.7	4.5	-23.4	36.17	54	-17.83	128	148	H
9.622	55.69	Av	38	-39	5.6	5.2	-23.4	42.09	54	-11.91	65	264	H
* 12.022	39.87	Av	39.4	-37.3	6.5	5.6	-23.4	30.67	54	-23.33	316	274	H
14.432	40.1	Av	42.1	-36.9	6.8	6.4	-23.4	35.1	54	-18.9	122	207	H
16.835	41.1	Av	39.6	-38.1	7.4	7.1	-23.4	33.7	54	-20.3	26	376	H
* 4.811	49.9	Av	33.1	-41.2	3.7	3.7	-23.4	25.8	54	-28.2	82	342	V
7.213	57.45	Av	36.2	-39.5	4.7	4.5	-23.4	39.95	54	-14.05	29	176	V
9.622	55.4	Av	38	-39	5.6	5.2	-23.4	41.8	54	-12.2	274	173	V
* 12.027	40.55	Av	39.4	-37.3	6.5	5.6	-23.4	31.35	54	-22.65	93	361	V
14.433	41.56	Av	42.1	-36.9	6.8	6.4	-23.4	36.56	54	-17.44	208	165	V
16.837	40.82	Av	39.6	-38.1	7.5	7.1	-23.4	33.52	54	-20.48	139	172	V

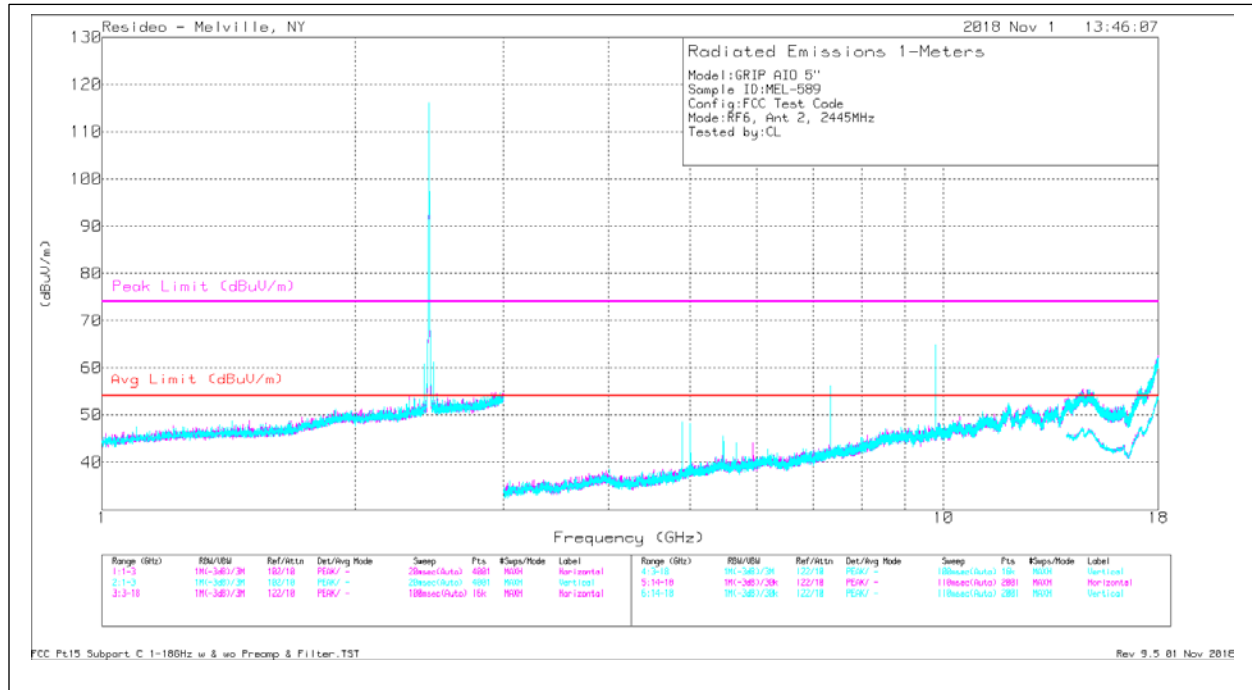
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.0675) = -23.4\text{dB}$

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
* 4.889	48.26	PK	33.2	-41.4	3.7	3.6	47.36	74	-26.64	131	133	H
* 7.333	51.2	PK	36.6	-39.7	4.6	4.5	57.2	74	-16.8	124	149	H
9.778	54.88	PK	38.1	-39.1	5.5	5.3	64.68	74	-9.32	61	261	H
* 12.227	40.52	PK	39.2	-37.2	6.5	5.9	54.92	74	-19.08	247	188	H
14.671	41.65	PK	42.6	-36.9	6.6	6.4	60.35	74	-13.65	173	142	H
17.118	40.87	PK	41.1	-38.1	7.5	7	58.37	74	-15.63	129	274	H
* 4.889	48.84	PK	33.2	-41.4	3.7	3.6	47.94	74	-26.06	51	188	V
* 7.336	55.18	PK	36.6	-39.7	4.6	4.5	61.18	74	-12.82	64	165	V
9.778	56.57	PK	38.1	-39.1	5.5	5.3	66.37	74	-7.63	14	343	V
* 12.228	40.29	PK	39.2	-37.2	6.5	5.9	54.69	74	-19.31	283	332	V
14.668	41.08	PK	42.6	-36.9	6.7	6.4	59.88	74	-14.12	331	188	V
17.115	41.65	PK	41.1	-38.1	7.5	7	59.15	74	-14.85	95	201	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.889	48.26	Av	33.2	-41.4	3.7	3.6	-23.4	23.96	54	-30.04	131	133	H
* 7.333	51.2	Av	36.6	-39.7	4.6	4.5	-23.4	33.8	54	-20.2	124	149	H
9.778	54.88	Av	38.1	-39.1	5.5	5.3	-23.4	41.28	54	-12.72	61	261	H
* 12.227	40.52	Av	39.2	-37.2	6.5	5.9	-23.4	31.52	54	-22.48	247	188	H
14.671	41.65	Av	42.6	-36.9	6.6	6.4	-23.4	36.95	54	-17.05	173	142	H
17.118	40.87	Av	41.1	-38.1	7.5	7	-23.4	34.97	54	-19.03	129	274	H
* 4.889	48.84	Av	33.2	-41.4	3.7	3.6	-23.4	24.54	54	-29.46	51	188	V
* 7.336	55.18	Av	36.6	-39.7	4.6	4.5	-23.4	37.78	54	-16.22	64	165	V
9.778	56.57	Av	38.1	-39.1	5.5	5.3	-23.4	42.97	54	-11.03	14	343	V
* 12.228	40.29	Av	39.2	-37.2	6.5	5.9	-23.4	31.29	54	-22.71	283	332	V
14.668	41.08	Av	42.6	-36.9	6.7	6.4	-23.4	36.48	54	-17.52	331	188	V
17.115	41.65	Av	41.1	-38.1	7.5	7	-23.4	35.75	54	-18.25	95	201	V

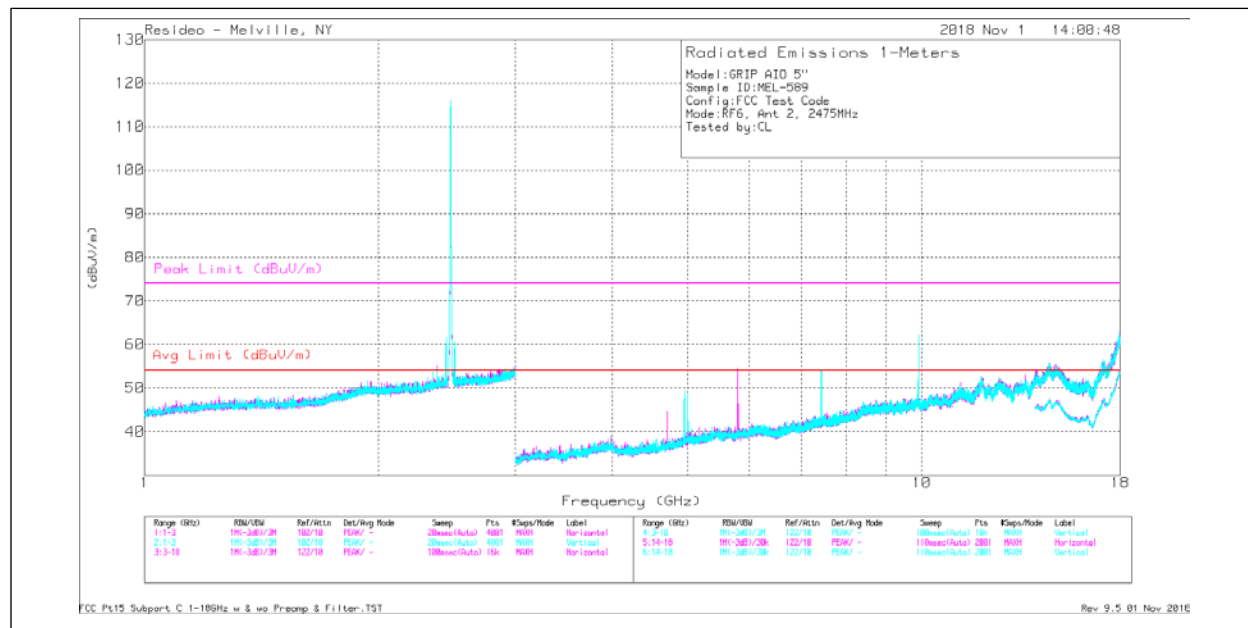
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - KDB558074 Method: Maximum Peak

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

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.0675) = -23.4\text{dB}$

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
* 4.949	47.64	PK	33.2	-41.5	3.8	3.7	46.84	74	-27.16	33	214	H
* 7.423	49.01	PK	36.7	-39.7	4.7	4.6	55.31	74	-18.69	287	225	H
9.898	51.07	PK	38.2	-39.2	5.5	5.2	60.77	74	-13.23	99	262	H
* 12.377	40.11	PK	38.9	-37.1	6.5	5.9	54.31	74	-19.69	270	210	H
14.849	41.02	PK	42	-36.9	6.8	6.5	59.42	74	-14.58	152	398	H
17.327	40.66	PK	42.4	-38.2	7.5	7.1	59.46	74	-14.54	98	216	H
* 4.951	47.48	PK	33.2	-41.5	3.8	3.7	46.68	74	-27.32	41	202	V
* 7.423	52.12	PK	36.7	-39.7	4.7	4.6	58.42	74	-15.58	14	251	V
9.898	54	PK	38.2	-39.2	5.5	5.2	63.7	74	-10.3	13	318	V
* 12.373	40.31	PK	38.9	-37.1	6.5	5.9	54.51	74	-19.49	227	170	V
14.847	40.65	PK	42	-36.9	6.8	6.5	59.05	74	-14.95	155	189	V
17.324	41.14	PK	42.4	-38.2	7.5	7.1	59.94	74	-14.06	175	256	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.949	47.64	Av	33.2	-41.5	3.8	3.7	-23.4	23.44	54	-30.56	33	214	H
* 7.423	49.01	Av	36.7	-39.7	4.7	4.6	-23.4	31.91	54	-22.09	287	225	H
9.898	51.07	Av	38.2	-39.2	5.5	5.2	-23.4	37.37	54	-16.63	99	262	H
* 12.377	40.11	Av	38.9	-37.1	6.5	5.9	-23.4	30.91	54	-23.09	270	210	H
14.849	41.02	Av	42	-36.9	6.8	6.5	-23.4	36.02	54	-17.98	152	398	H
17.327	40.66	Av	42.4	-38.2	7.5	7.1	-23.4	36.06	54	-17.94	98	216	H
* 4.951	47.48	Av	33.2	-41.5	3.8	3.7	-23.4	23.28	54	-30.72	41	202	V
* 7.423	52.12	Av	36.7	-39.7	4.7	4.6	-23.4	35.02	54	-18.98	14	251	V
9.898	54	Av	38.2	-39.2	5.5	5.2	-23.4	40.3	54	-13.7	13	318	V
* 12.373	40.31	Av	38.9	-37.1	6.5	5.9	-23.4	31.11	54	-22.89	227	170	V

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

PK - KDB558074 Method: Maximum Peak

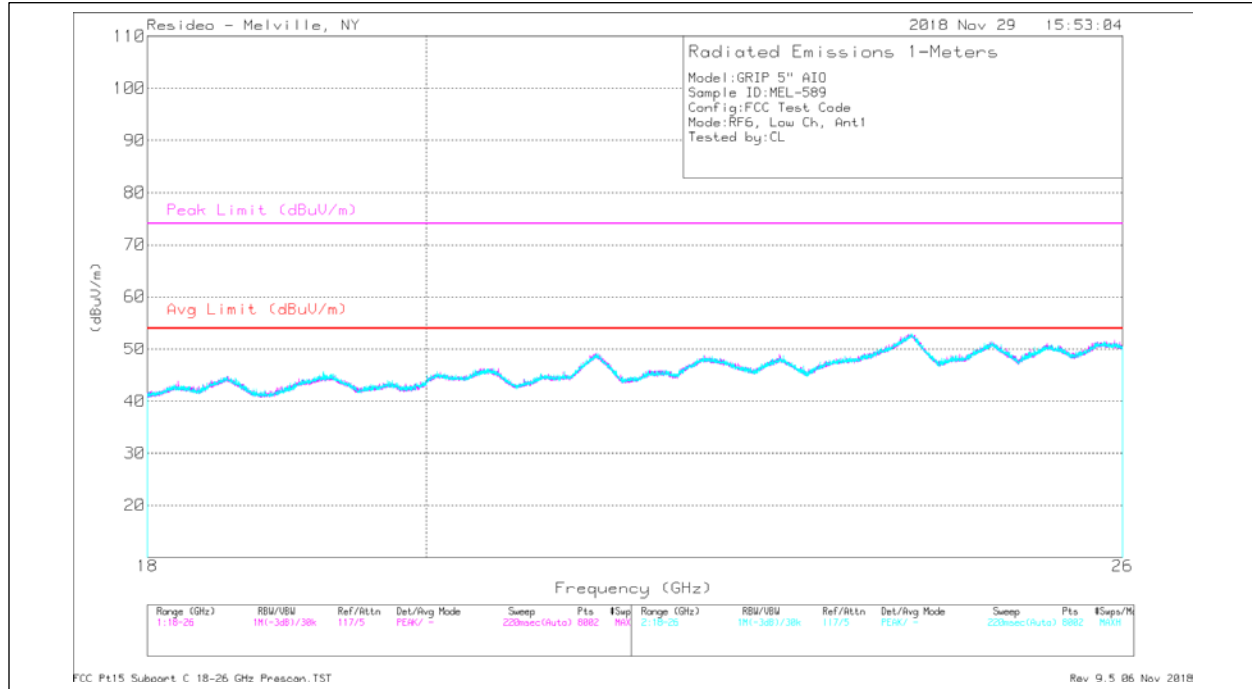
Av - KDB558074 Method: PK + DC Corr (Duty Cycle Correction Factor)

Duty Cycle = 6.75%, thus DC Corr = $20\log(0.0675) = -23.4\text{dB}$

Antenna 2: High Channel – Data

18-26GHz (Worse-case)

Note: No emissions detected above the system noise floor



Antenna 1: Low Channel - Plot

Frequency (GHz)	Meter Reading (dBuV)	Det	AF EM-6963 (dB/m)	Preamp [dB]	SMA7 [dB]	SMA5 [dB]	Dist Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 19.274	28.65	PK2	44.1	-34.5	7.9	8	-9.5	44.65	-	-	74	-29.35	0	100	H
* 19.276	20.91	MAv1	44.1	-34.5	7.9	8	-9.5	36.91	54	-17.09	-	-	0	100	H
* 21.319	33.99	PK2	44.5	-31.9	8.3	8.1	-9.5	53.49	-	-	74	-20.51	0	100	H
* 21.319	20.79	MAv1	44.5	-31.9	8.3	8.1	-9.5	40.29	54	-13.71	-	-	0	100	H
* 21.318	31.03	PK2	44.5	-31.9	8.3	8.1	-9.5	50.53	-	-	74	-23.47	193	166	H
* 21.318	20.71	MAv1	44.5	-31.9	8.3	8.1	-9.5	40.21	54	-13.79	-	-	193	166	H
24.027	30.98	PK2	46.4	-30.4	8.9	8.4	-9.5	54.78	-	-	74	-19.22	140	354	H
24.026	20.24	MAv1	46.4	-30.4	8.9	8.4	-9.5	44.04	54	-9.96	-	-	140	354	H
* 19.29	31	PK2	44.2	-34.3	7.9	8	-9.5	47.3	-	-	74	-26.7	277	321	V
* 19.29	21.1	MAv1	44.2	-34.3	7.9	8	-9.5	37.4	54	-16.6	-	-	277	321	V
* 21.323	31.14	PK2	44.5	-32	8.3	8.1	-9.5	50.54	-	-	74	-23.46	139	366	V
* 21.324	20.5	MAv1	44.5	-32	8.3	8.1	-9.5	39.9	54	-14.1	-	-	139	366	V
24.018	30.41	PK2	46.4	-30.3	8.9	8.4	-9.5	54.31	-	-	74	-19.69	272	380	V
24.019	20.61	MAv1	46.4	-30.3	8.9	8.4	-9.5	44.51	54	-9.49	-	-	272	380	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

Antenna 1: Low Channel - Data

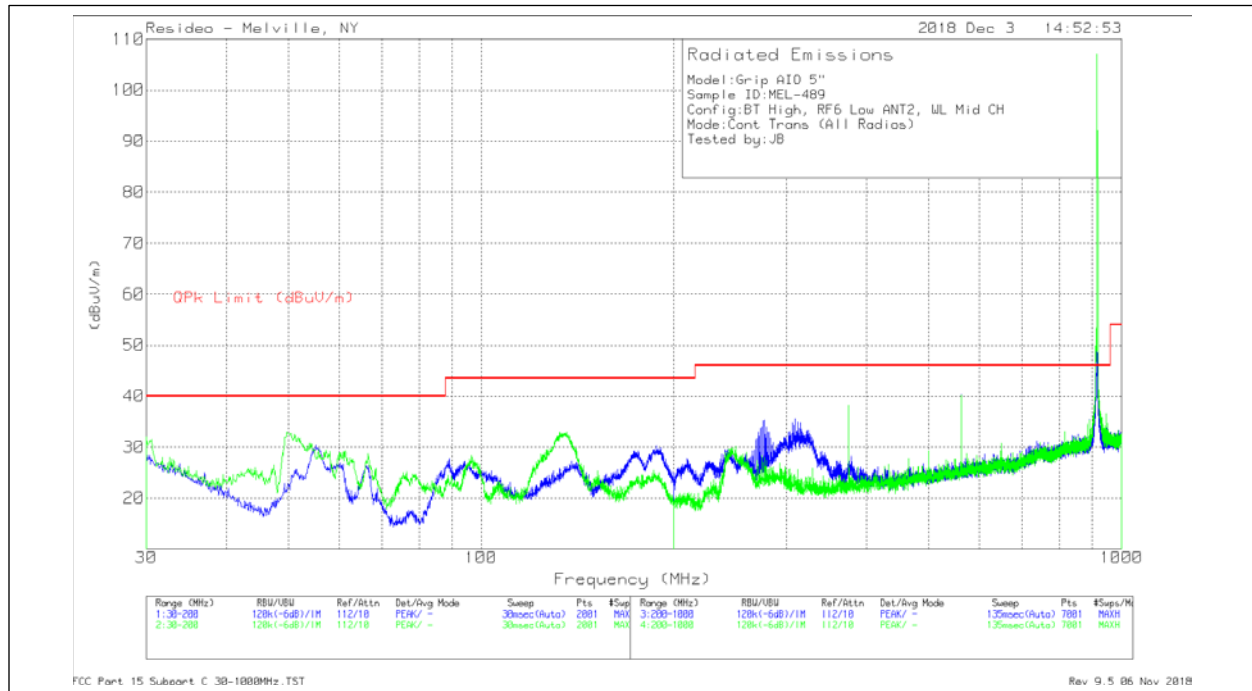
Simultaneous Transmission

Configuration (Worse-case):

RF6 – Antenna 2, Low Channel

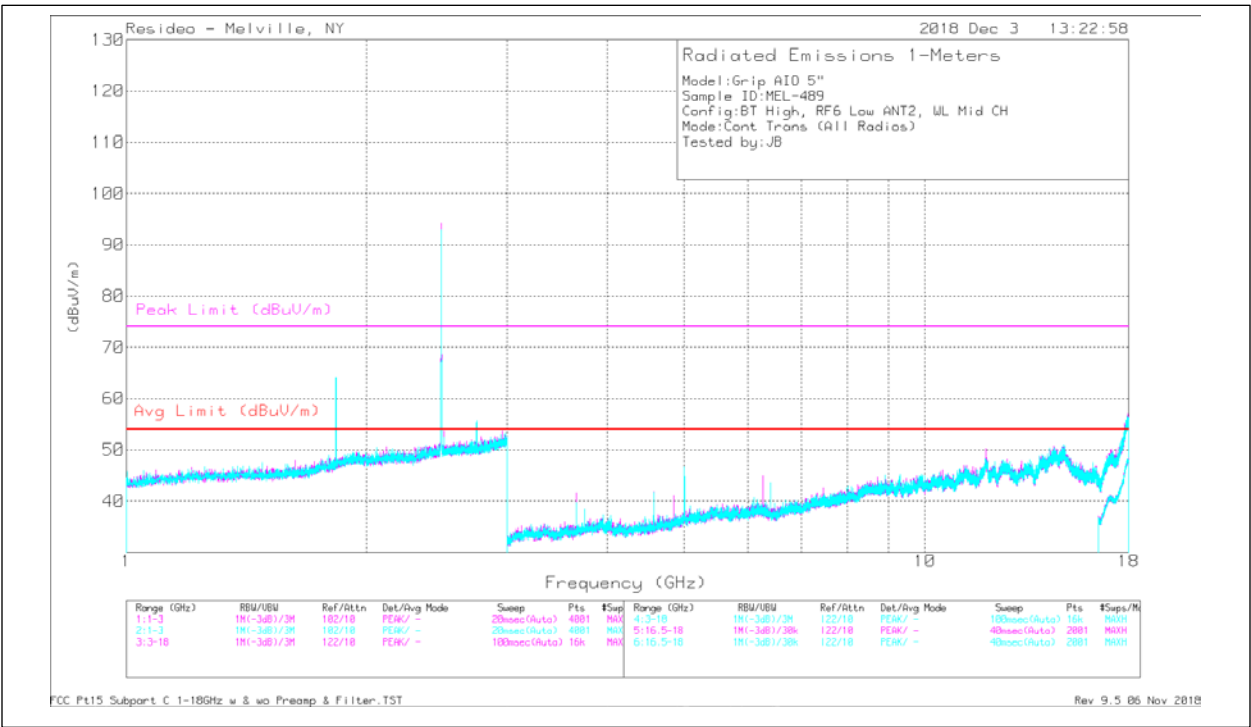
Wiselink – Mid Channel

Bluetooth (LE) – High Channel



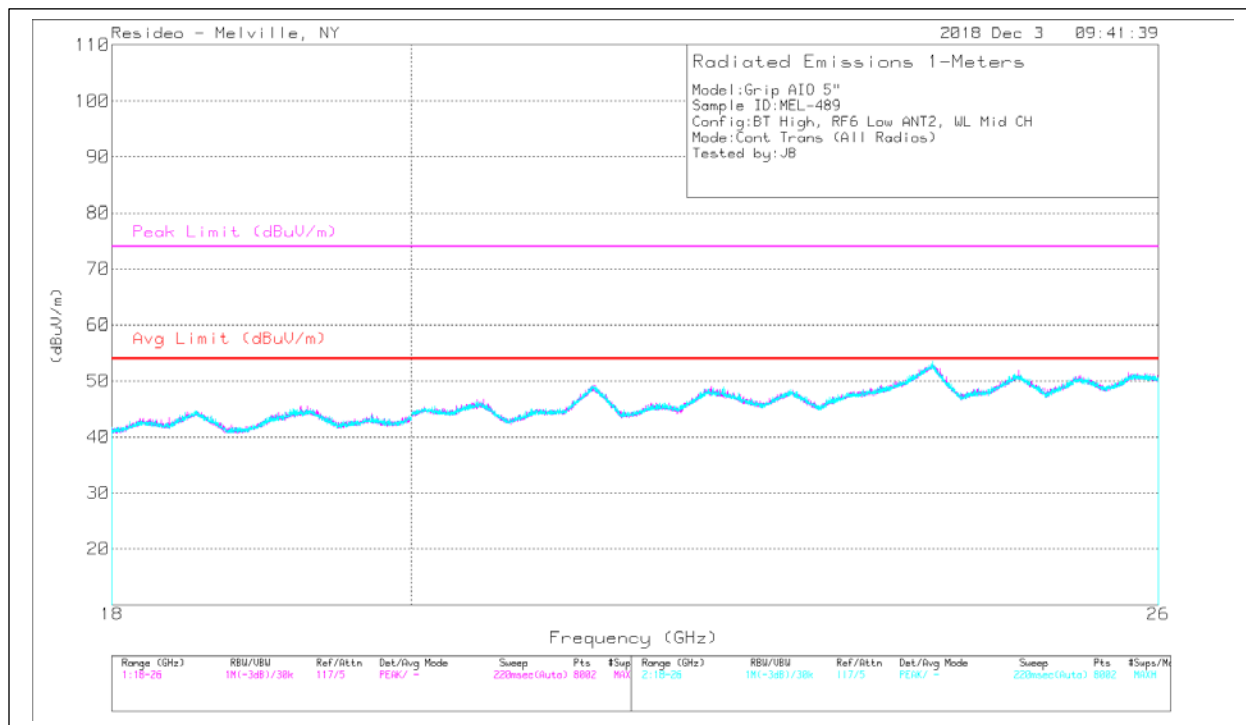
30-1000MHz – Plot

Note: No additional emissions detected because of simultaneous transmission



1-18GHz – Plot

Note: No additional emissions detected because of simultaneous transmission



18-26GHz – Plot

Note: No additional emissions detected because of simultaneous transmission

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.

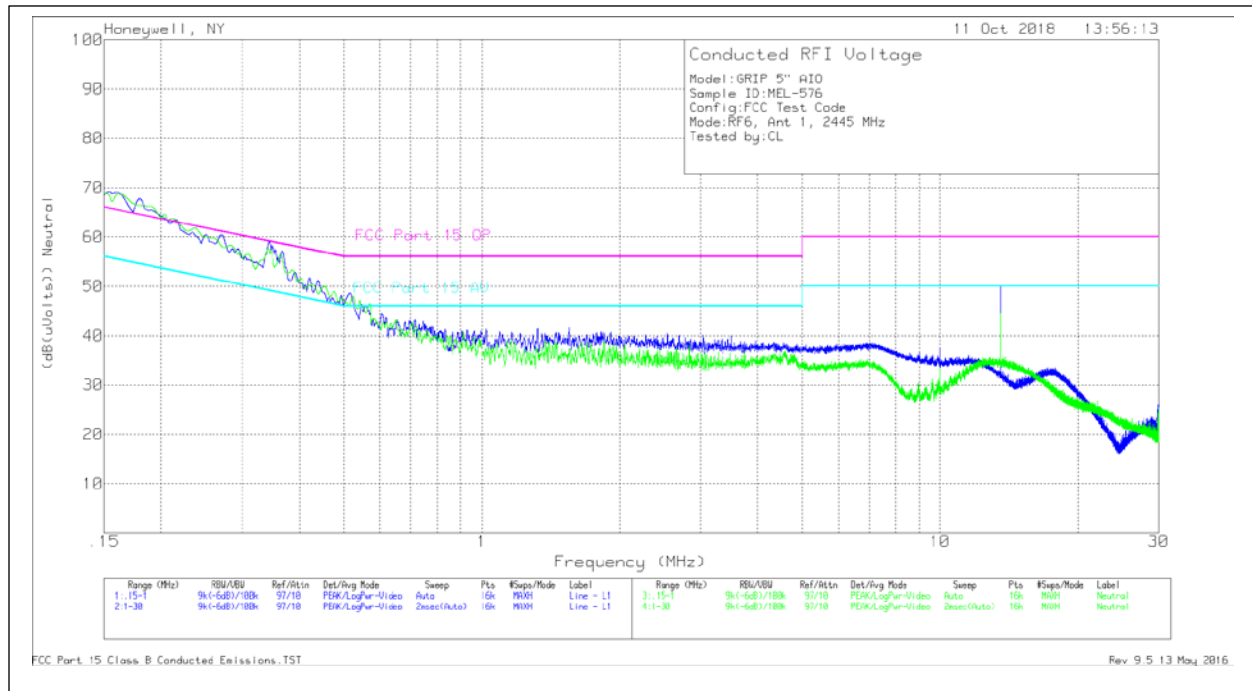
Test Criteria

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	8/15/18	22.6	70.6	1004	P

Test Results (Worse-case)



Plot

LINE 1									
Frequency (MHz)	Meter Reading (dBuV)	Det	LISN1 L1 [dB]	CDE Cable	Corrected Reading (dB(uVolts))	FCC Part 15 QP	Margin (dB)	FCC Part 15 AV	Margin (dB)
.1595	29.42	Ca	10.5	0	39.92	65.49	-25.57	55.49	-15.57
.26906	22.92	Ca	10.1	0	33.02	61.15	-28.13	51.15	-18.13
.3432	25.01	Ca	10	0	35.01	59.13	-24.12	49.13	-14.12
.51578	16.61	Ca	9.9	0	26.51	56	-29.49	46	-19.49
13.5605	19.13	Ca	10.1	.1	29.33	60	-30.67	50	-20.67
.15968	29.27	Qp	10.5	0	39.77	65.48	-25.71	55.48	-15.71

LINE 2									
Frequency (MHz)	Meter Reading (dBuV)	Det	LISN1 L2 [dB]	CDE Cable	Corrected Reading (dB(uVolts))	FCC Part 15 QP	Margin (dB)	FCC Part 15 AV	Margin (dB)
.16634	31.16	Ca	10.5	0	41.66	65.14	-23.48	55.14	-13.48
.21351	20.91	Ca	10.3	0	31.21	63.07	-31.86	53.07	-21.86
.34013	22.73	Ca	10.1	0	32.83	59.2	-26.37	49.2	-16.37
.52402	10.3	Ca	10	0	20.3	56	-35.7	46	-25.7
.16651	31.21	Qp	10.5	0	41.71	65.13	-23.42	55.13	-13.42
.21362	20.99	Qp	10.3	0	31.29	63.06	-31.77	53.06	-21.77

Ca - CISPR average detection

Qp - Quasi-Peak detector

Data

END OF REPORT