Honeywell Home

FCC / ISED Test Report

For

GRIP 5” AIO Panel

Report #: 50346-A4

FCC ID: CFS8DL-GRIPAIO5
IC ID: 573F-GRIPAIO5

Report Completion Date: 2019-01-03

Prepared by and for:

Ademco Inc.
2 Corporate Center Dr.
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NVLAP®

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
A	M. Antola	A. Roussin	Updated duty cycle correction factor and related data	2019-01-03

Report Authorization

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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 Bluetooth (LE) portion of the EUT only. 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-GRIPAIO7, IC: 573F-GRIPAIO7) based on similarities. See test report exhibit titled "AIO 7-INCH EXHIBIT 5-1A FCC_ISED Test Report BLE" for specific data.

The Bluetooth LE circuitry contains a single integral PCB antenna with a gain of 6dBi.

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

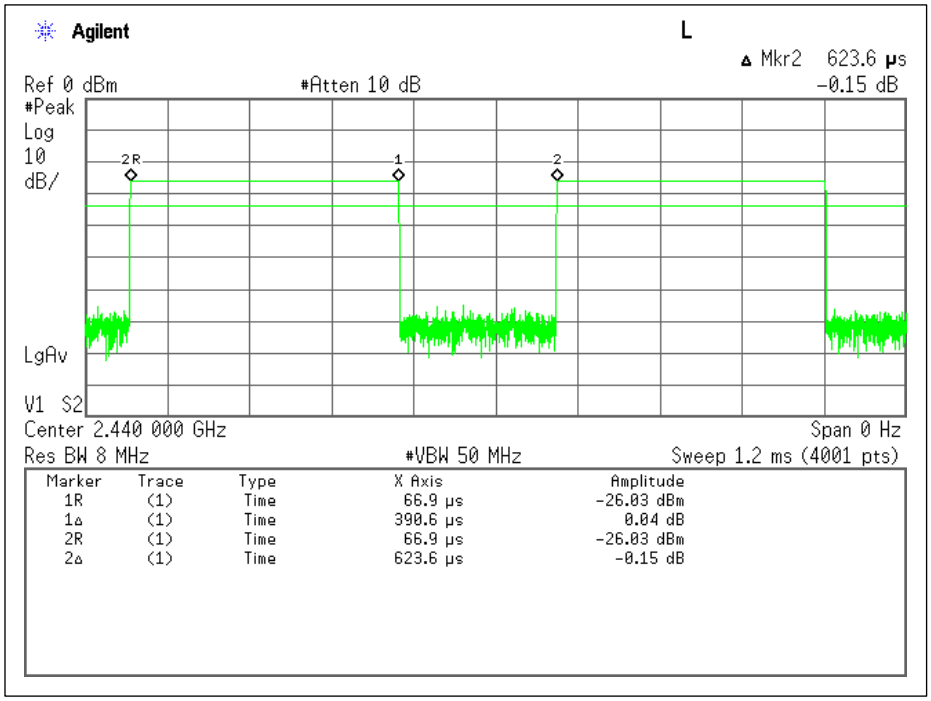
Test Information

Tester	Test Location	Date	Temperature (ºC)	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 (%)	Correction Factor [10log(1/D)]	Correction Factor [20log(1/D)]
390.6	623.6	0.626	62.6	2.03	4.06

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		
CFR 47 Subpart C, 15.205 CFR 47 Subpart C, 15.209 RSS-GEN	Frequency Range (MHz)	Field Strength Limit (uV/m)	Measurement distance (meters)
	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 (ºC)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL/JB	RF Chamber/OATS	11/01/18-12/05/18	7.5	24.2	1009	P

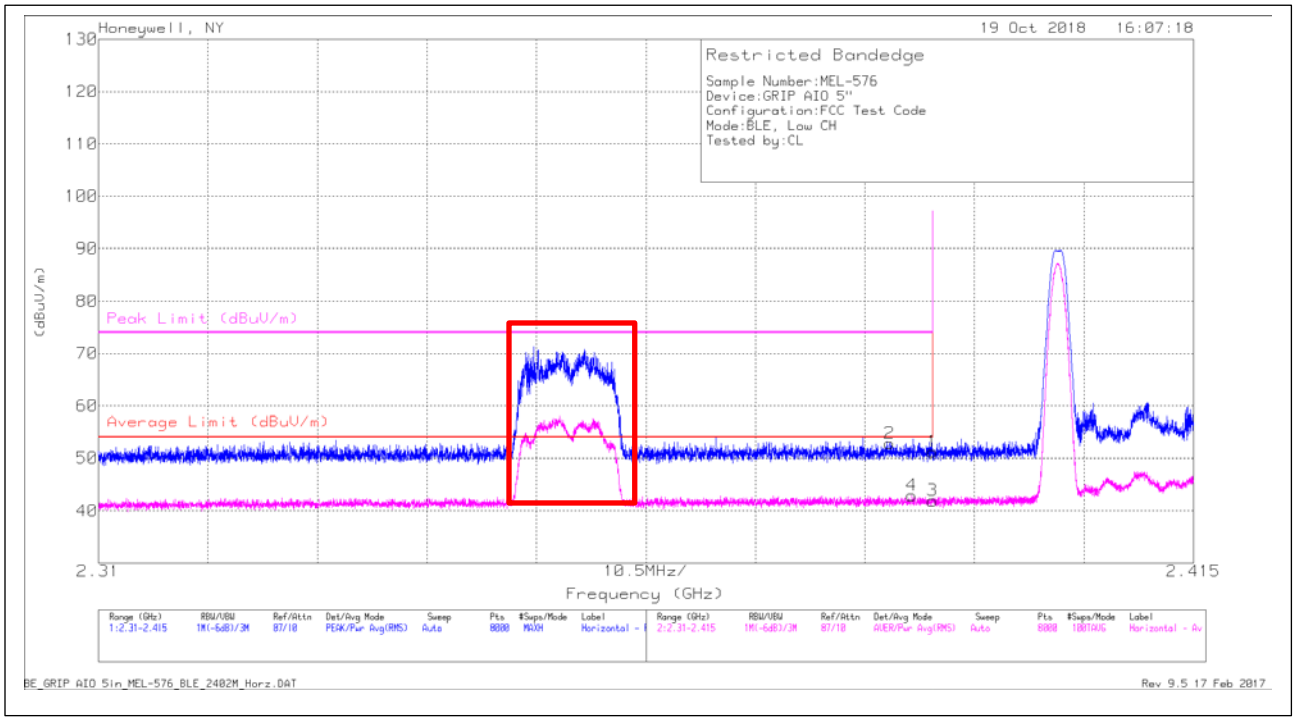
NOTE: Below 30MHz, pretesting showed that no emissions as a product of the EUT were detected within 20dB of the regulatory limit. Worse-case plot/data reported from 30MHz - 1GHz and above 18GHz. Prescans performed in an anechoic chamber, final measurements performed on an OATS.

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

Ademco Inc. **Document #: 800-23065, Revision A**
2 Corporate Center Dr., Melville, NY 11747 **TEL: (516) 577-2000**

Test Results

Restricted Band Edge



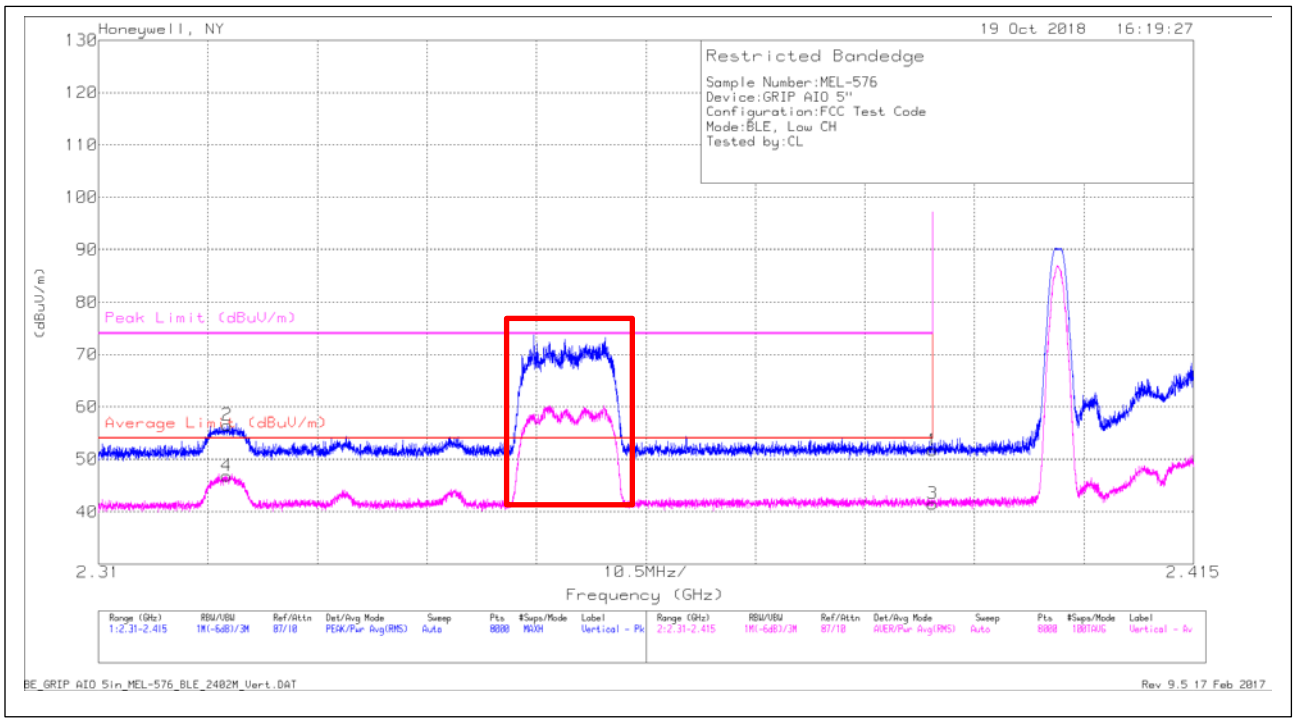
Low Channel Horizontal - Plot

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	16.88	Pk	28.5	.7	2.6	2.5	-	51.18	74	-22.82	190	138	H
2	* 2.386	18.65	Pk	28.4	.7	2.5	2.5	-	52.85	74	-21.15	190	138	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**
3	* 2.39	7.55	RMS	28.5	.7	2.6	2.5	4.06	45.91	54	-8.09	190	138	H
4	* 2.388	8.54	RMS	28.5	.7	2.6	2.5	4.06	46.9	54	-7.1	190	138	H

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

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

Low Channel Horizontal - Data



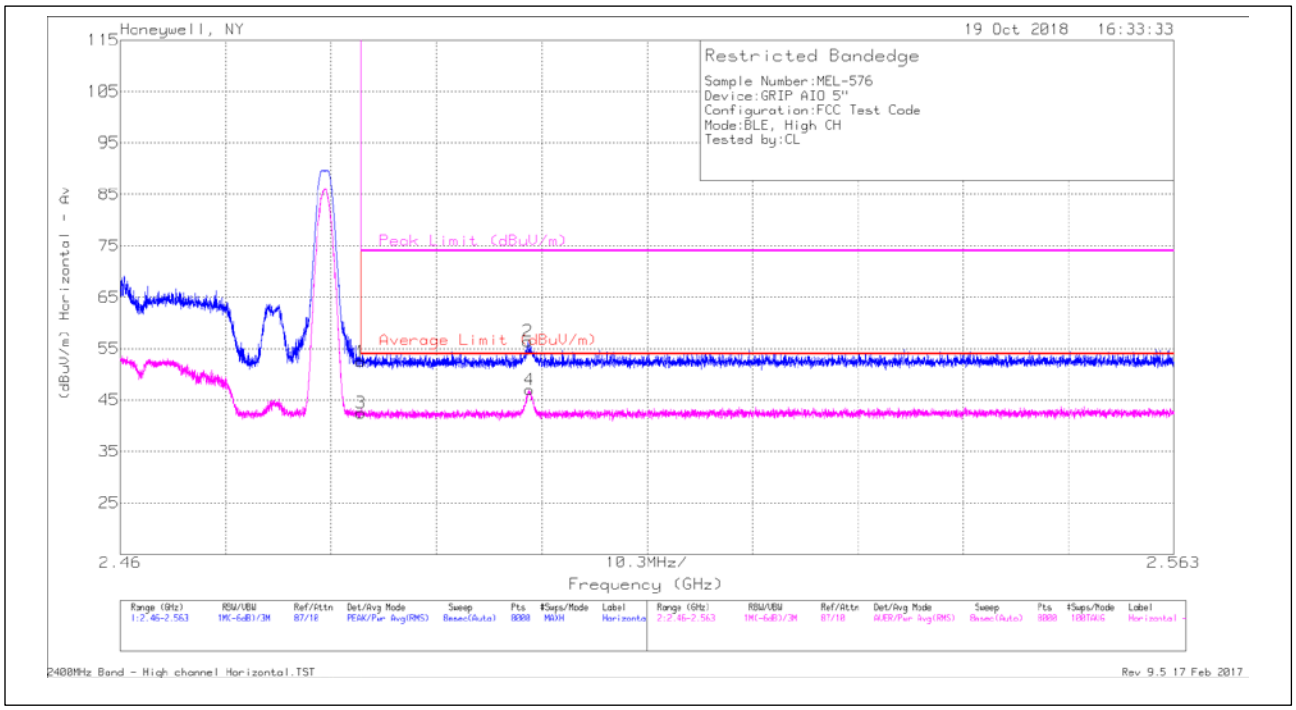
Low Channel Vertical - Plot

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	17.35	Pk	28.5	.7	2.6	2.5	-	51.65	74	-22.35	283	233	V
2	* 2.322	22.85	Pk	28	.7	2.5	2.5	-	56.55	74	-17.45	283	233	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**
3	* 2.39	7.22	RMS	28.5	.7	2.6	2.5	4.06	45.58	54	-8.42	283	233	V
4	* 2.322	13.13	RMS	28	.7	2.5	2.5	4.06	50.89	54	-3.11	283	233	V

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

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

Low Channel Vertical - Data

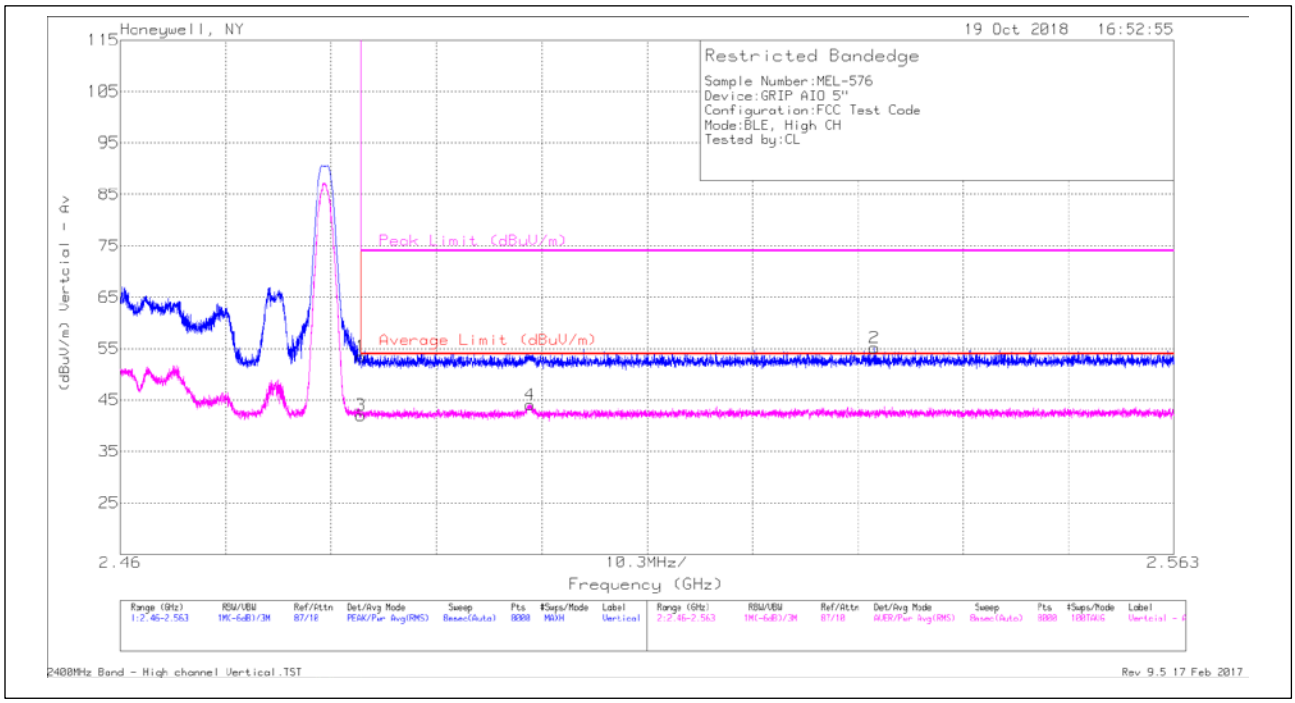


High Channel Horizontal – Plot

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	17.9	Pk	28.7	.7	2.6	2.6	-	54.74	74	-21.5	106	234	H
2	* 2.5	21.72	Pk	28.7	.7	2.6	2.6	-	58.43	74	-17.58	106	234	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**
3	* 2.484	7.9	RMS	28.7	.7	2.6	2.6	4.06	46.56	54	-7.44	106	234	H
4	2.5	12.29	RMS	28.7	.7	2.7	2.6	4.06	51.05	54	-2.95	106	234	H

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

High Channel Horizontal - Data



High Channel Vertical – Plot

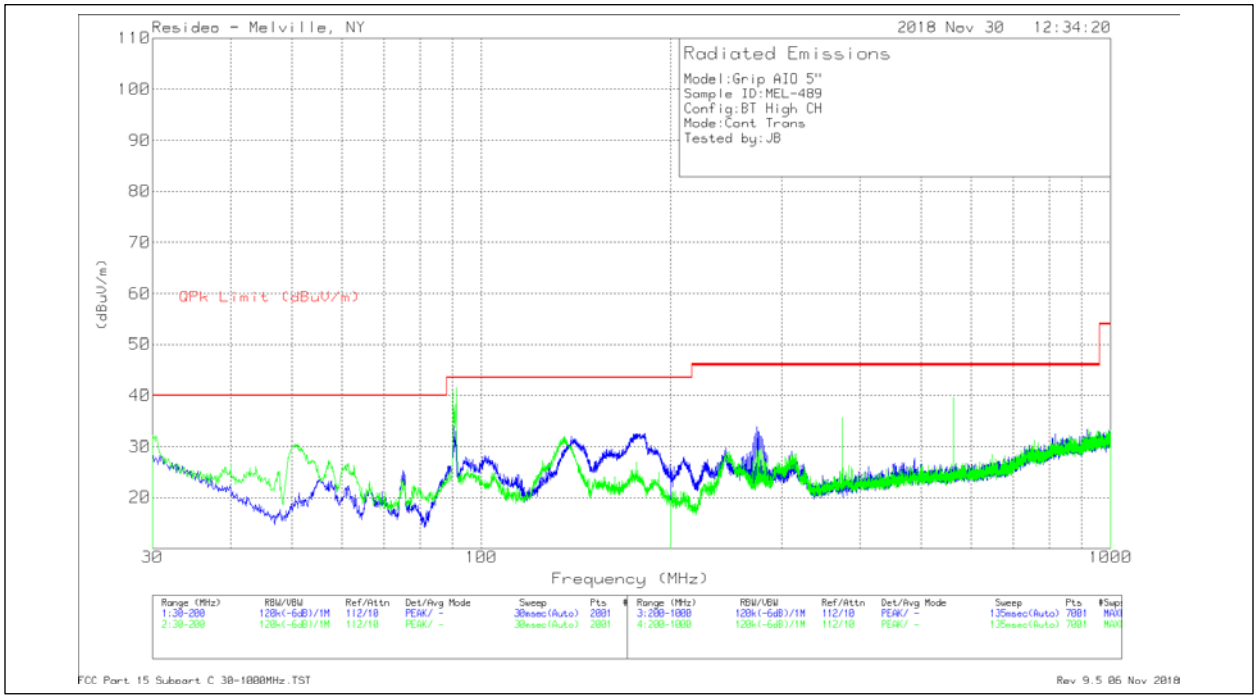
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX3 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	18.85	Pk	28.7	.7	2.6	2.6	-	54.32	74	-20.55	266	237	V
2	2.534	20.26	Pk	28.9	.7	2.7	2.6	-	56.11	74	-18.84	266	237	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**
3	* 2.484	7.38	RMS	28.7	.7	2.6	2.6	4.06	46.04	54	-7.96	266	237	V
4	2.5	9.37	RMS	28.7	.7	2.7	2.6	4.06	48.13	54	-5.87	266	237	V

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

High Channel Vertical - Data

Spurious Emissions

Below 1GHz (Worse-case)



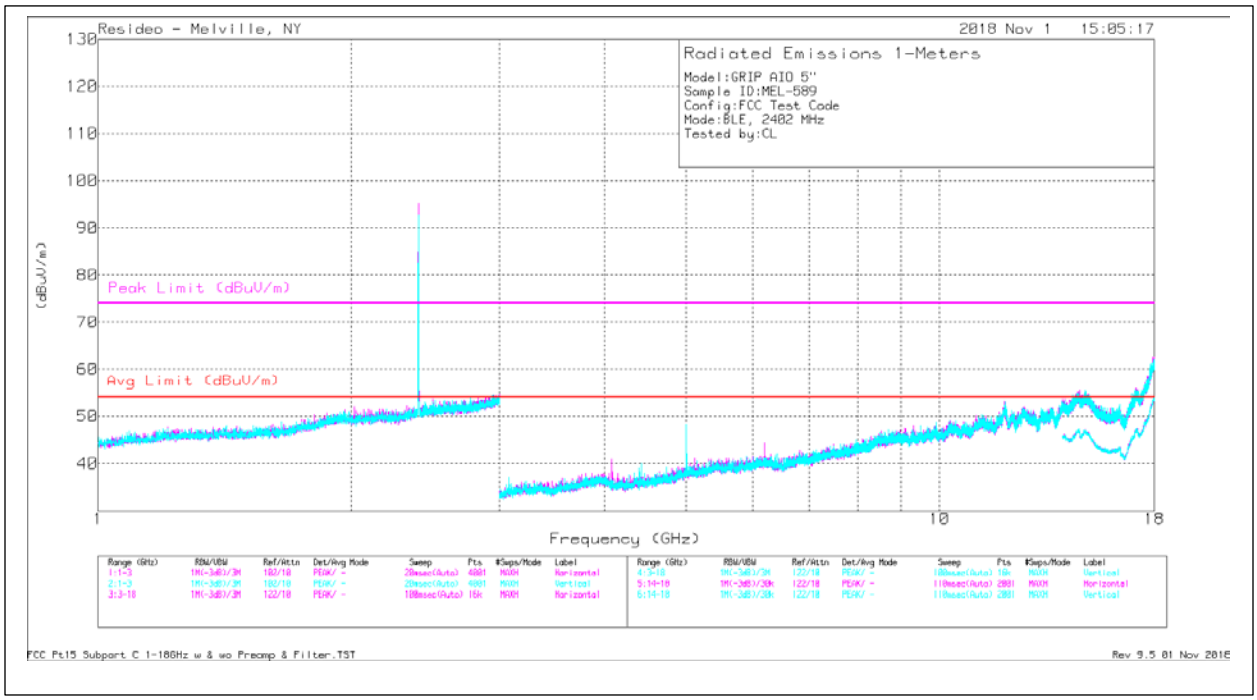
High Channel - Plot

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
90.2075	4.46	Qp	12	1.5	17.96	43.52	-25.56	17	393	H
31.021	11.02	Qp	24.1	.9	36.02	40	-3.98	140	120	H
30.453	11.29	Qp	24.5	.9	36.69	40	-3.31	346	225	V
91.2	9.88	Qp	12.3	1.5	23.68	43.52	-19.84	268	125	V
562.5152	4.35	Qp	23	5.8	33.15	46.02	-12.87	90	386	H
562.3334	4.35	Qp	23	5.8	33.15	46.02	-12.87	143	104	V

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

High Channel - Data

1-18GHz

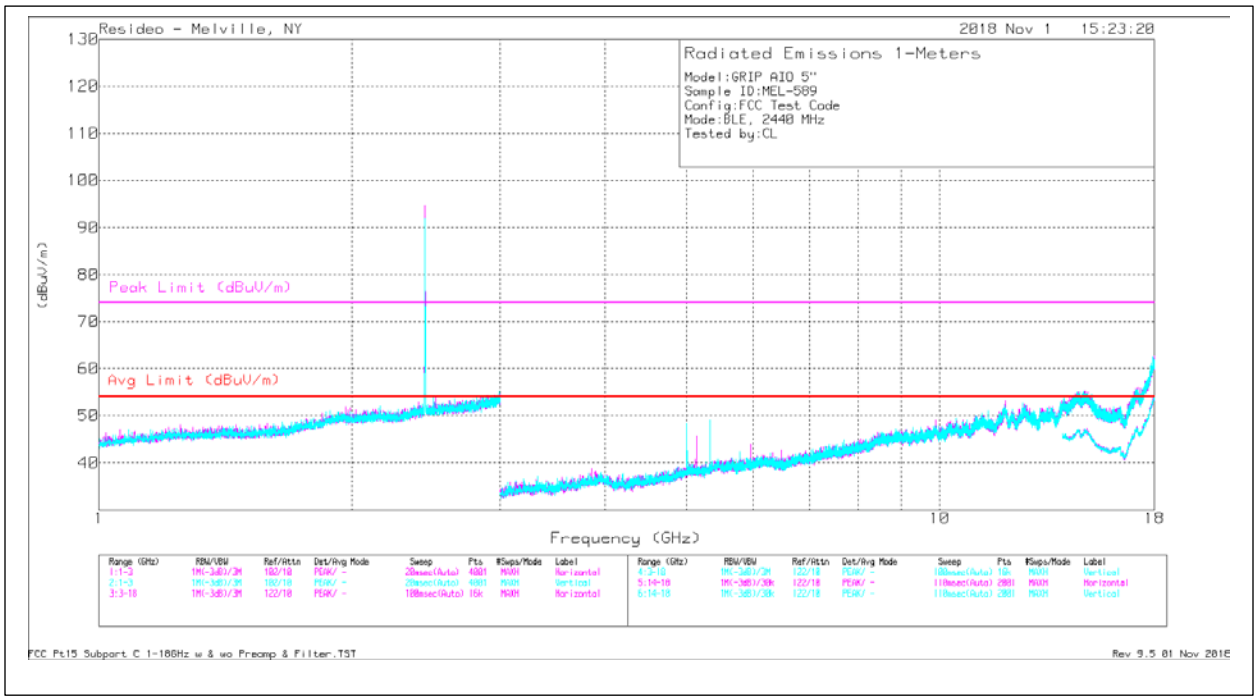


Low Channel - Plot

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)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.954	32.4	PK2	30	-42.2	2.9	2.8	-	25.9	-	-	74	-48.1	118	179	H
2.954	33.42	MAv1	30	-42.2	2.9	2.8	4.06	30.98	54	-23.02	-	-	118	179	H
* 4.08	33.4	PK2	32.6	-40.6	3.4	3.3	-	32.1	-	-	74	-41.9	29	239	H
* 4.083	31.25	MAv1	32.6	-40.6	3.4	3.3	4.06	34.01	54	-19.99	-	-	29	239	H
* 5	47.54	PK2	33.3	-41.6	3.8	3.7	-	46.74	-	-	74	-27.26	65	293	H
* 5	46.42	MAv1	33.3	-41.6	3.8	3.7	4.06	49.68	54	-4.32	-	-	65	293	H
6.193	30.06	PK2	34.9	-39.5	4.2	4.1	-	33.76	-	-	74	-40.24	307	267	H
6.197	29.91	MAv1	34.9	-39.5	4.2	4.1	4.06	37.67	54	-16.33	-	-	307	267	H
2.988	40.53	PK2	30.2	-42.4	2.9	2.8	-	34.03	-	-	74	-39.97	134	298	V
2.995	34.49	MAv1	30.3	-42.5	2.9	2.8	4.06	32.05	54	-21.95	-	-	134	298	V
* 5	53.84	PK2	33.3	-41.6	3.8	3.7	-	53.04	-	-	74	-20.96	216	173	V
* 5	50.38	MAv1	33.3	-41.6	3.8	3.7	4.06	53.64	54	-0.36	-	-	216	173	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

Low Channel - Data

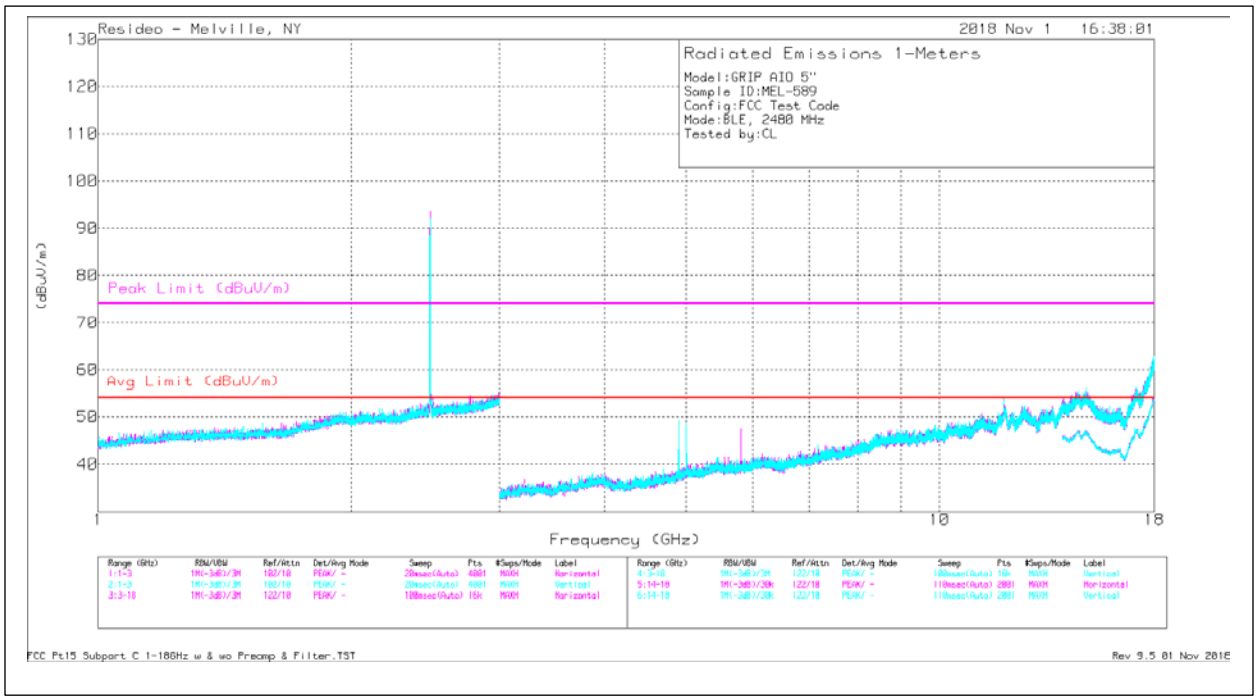


Mid Channel - Plot

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)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.991	47.45	PK2	30.2	-42.5	2.9	2.8	-	40.85	-	-	74	-33.15	142	262	H
2.995	34.3	MAv1	30.3	-42.5	2.9	2.8	4.06	31.86	54	-22.14	-	-	142	262	H
* 5	50.18	PK2	33.3	-41.6	3.8	3.7	-	49.38	-	-	74	-24.62	306	381	H
* 5	45.74	MAv1	33.3	-41.6	3.8	3.7	4.06	49	54	-5	-	-	306	381	H
* 5.135	42.06	PK2	33.9	-41.1	3.9	3.7	-	42.46	-	-	74	-31.54	239	294	H
* 5.142	30.54	MAv1	33.9	-41.1	3.9	3.8	4.06	35.1	54	-18.9	-	-	239	294	H
5.962	41.7	PK2	34.6	-40	4.2	4	-	44.5	-	-	74	-29.5	244	143	H
5.963	29.5	MAv1	34.6	-40	4.2	4	4.06	36.36	54	-17.64	-	-	244	143	H
2.998	45.79	PK2	30.3	-42.5	2.9	2.8	-	39.29	-	-	74	-34.71	299	271	V
2.998	34.32	MAv1	30.3	-42.5	2.9	2.8	4.06	31.88	54	-22.12	-	-	299	271	V
* 5	47.38	PK2	33.3	-41.6	3.8	3.7	-	46.58	-	-	74	-27.42	219	188	V
* 5	40.46	MAv1	33.3	-41.6	3.8	3.7	4.06	43.72	54	-10.28	-	-	219	188	V
5.321	51.36	PK2	34.2	-41.3	4	3.8	-	52.06	-	-	74	-21.94	299	394	V
5.321	31.71	MAv1	34.2	-41.3	4	3.8	4.06	36.47	54	-17.53	-	-	299	394	V
* 11.437	37.13	PK2	38.8	-37.7	6.6	5.7	-	50.53	-	-	74	-23.47	199	166	V
* 11.436	26.22	MAv1	38.8	-37.7	6.6	5.7	4.06	43.68	54	-10.32	-	-	199	166	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

Mid Channel - Data



High Channel - Plot

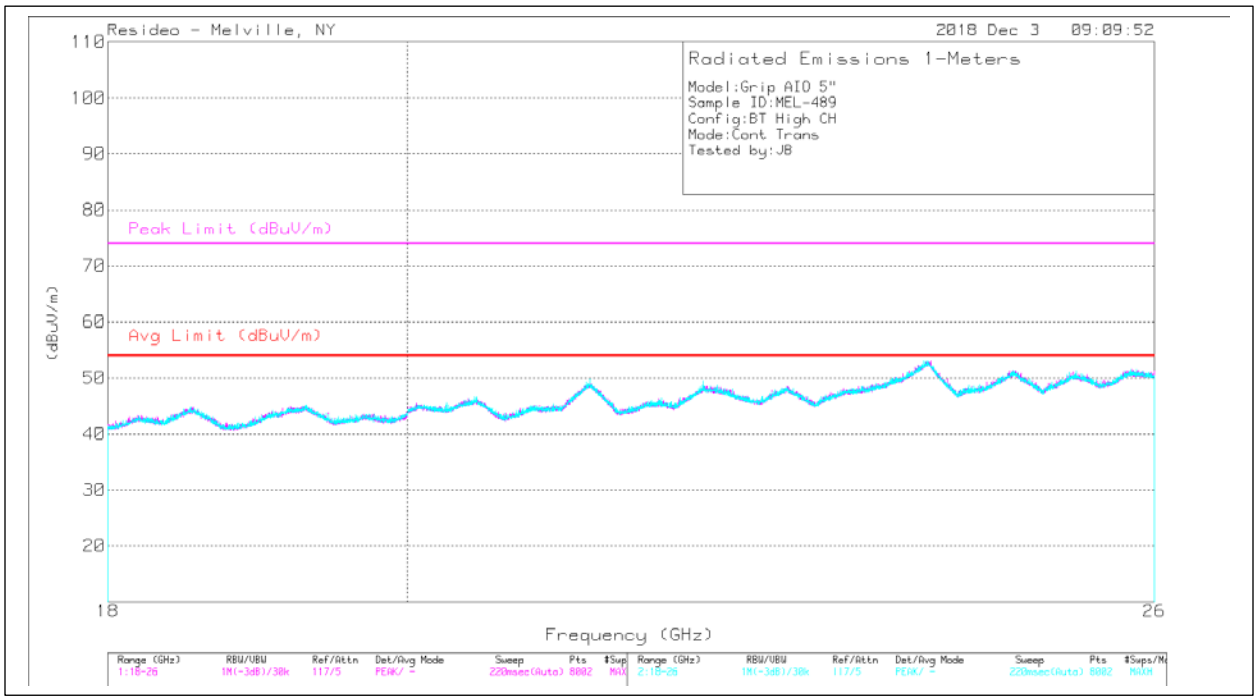
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	SWBOX2 [dB]	SMA7 [dB]	SMA5 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.993	32.78	PK2	30.2	-42.5	2.9	2.8	-	26.18	-	-	74	-47.82	81	159	H
2.993	24.35	MAv1	30.2	-42.5	2.9	2.8	4.06	21.81	54	-32.19	-	-	81	159	H
* 5	50.18	PK2	33.3	-41.6	3.8	3.7	-	49.38	-	-	74	-24.62	59	300	H
* 5	46.83	MAv1	33.3	-41.6	3.8	3.7	4.06	50.09	54	-3.91	-	-	59	300	H
5.813	65.92	PK2	34.3	-40	4.1	4	-	68.32	-	-	74	-5.68	63	319	H
5.808	33.89	MAv1	34.3	-40	4.1	4	4.06	40.35	54	-13.65	-	-	63	319	H
2.947	42.95	PK2	29.9	-42.1	2.9	2.8	-	36.45	-	-	74	-37.55	72	209	V
2.95	33.71	MAv1	29.9	-42.2	2.9	2.8	4.06	31.17	54	-22.83	-	-	72	209	V
* 4.904	43.51	PK2	33.2	-41.4	3.7	3.6	-	42.61	-	-	74	-31.39	32	195	V
* 4.902	31.76	MAv1	33.2	-41.4	3.7	3.6	4.06	34.92	54	-19.08	-	-	32	195	V
* 5	51.27	PK2	33.3	-41.6	3.8	3.7	-	50.47	-	-	74	-23.53	345	176	V
* 5	48.8	MAv1	33.3	-41.6	3.8	3.7	4.06	52.06	54	-1.94	-	-	345	176	V
* 11.917	34.98	PK2	39.5	-37.4	6.9	5.8	-	49.78	-	-	74	-24.22	269	147	V
* 11.917	25.61	MAv1	39.5	-37.4	6.9	5.8	4.06	44.47	54	-9.53	-	-	269	147	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

High Channel – Data

18-26GHz

Note: No emissions detected above the system noise floor



High 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

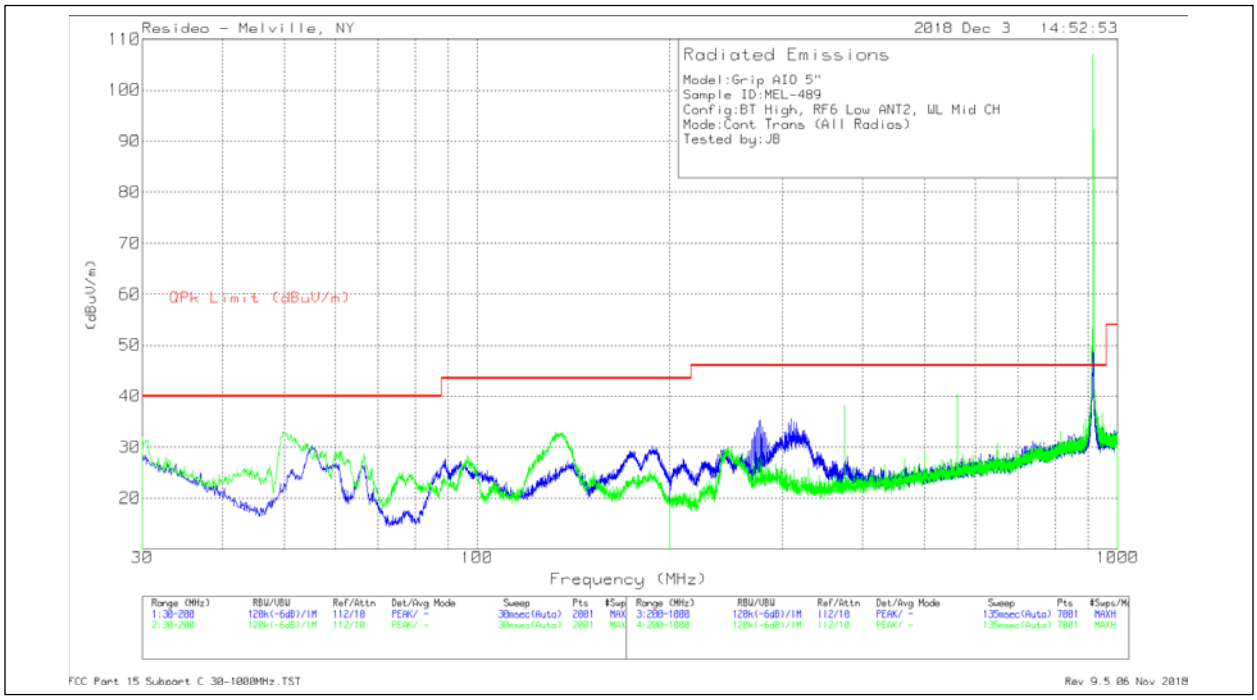
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

High Channel – Data

Simultaneous Transmission

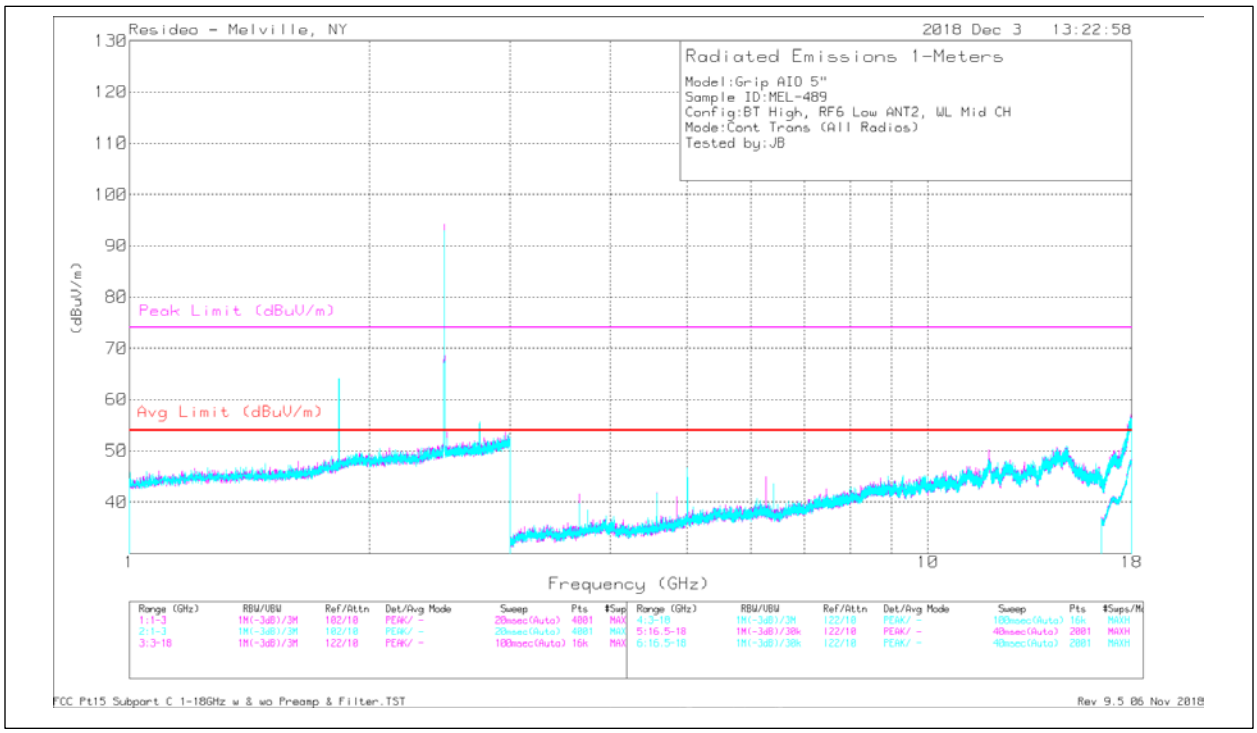
Configuration (Worse-case):

RF6 – Antenna 2, Low Channel
Wiselink – Mid Channel
Bluetooth (LE) – High Channel



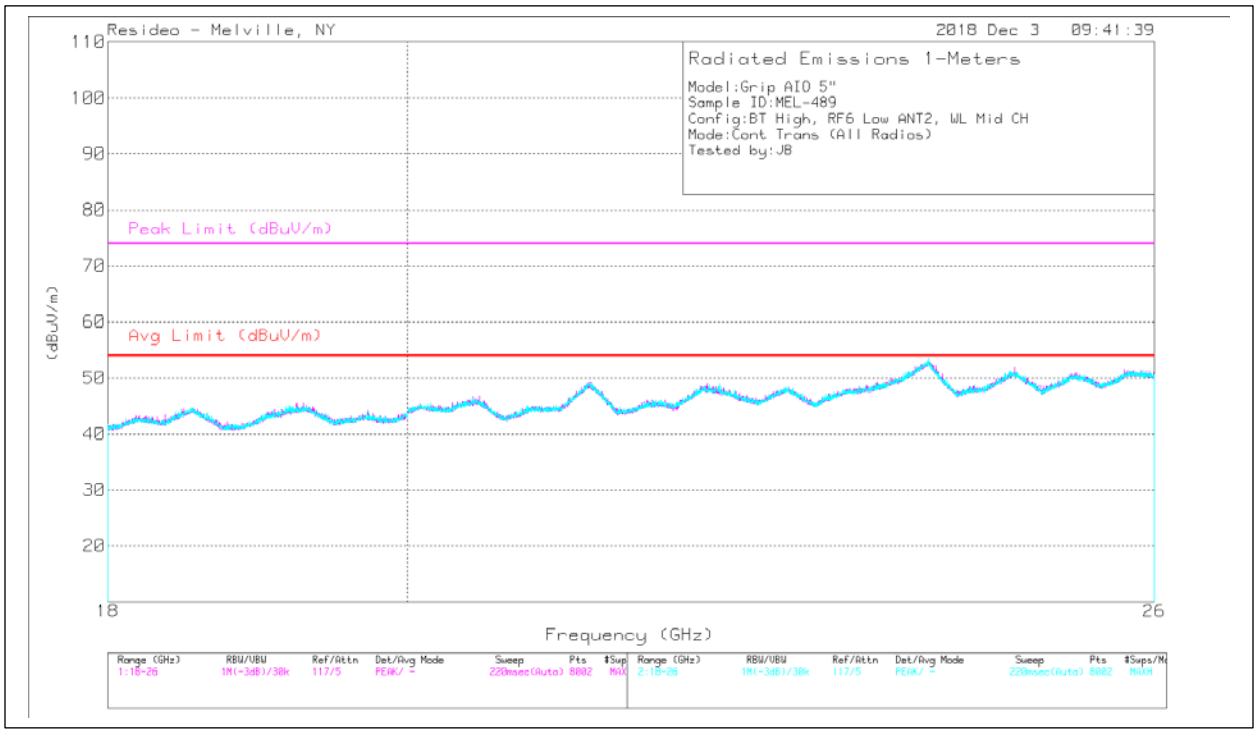
30-1000MHz – Plot

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 recorded for both NEUTRAL and HOT lines.

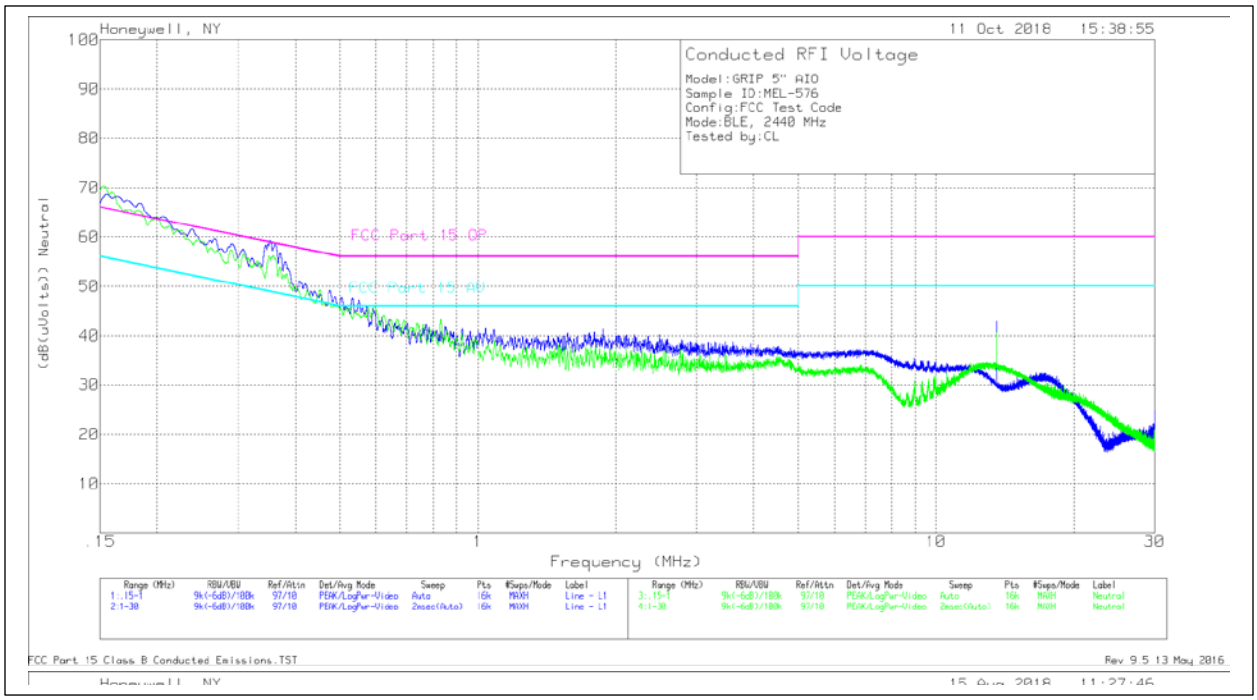
Test Criteria

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 (ºC)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
CL	RF Lab	10/11/18	21.9	69.6	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