Wireless Relay Module

Model No.: FW-RM

Date: 2017-06-16

Report Prepared By:

Christopher Locke

EMC Test Report

Report Number	20294-1
EUT Nomenclature	Wireless Relay Module
Sample Identification	Model No. : FW-RM Sl. No. : MEL-159 Software Version : 5.83 Hardware Version : Rev 2
Number of Samples	1
Date of receipt of Sample	2016-06-27
Condition of Sample on receipt	Good
Client name	Honeywell International Inc.
Client Address	System Sensor, 3825, Ohio Ave, St. Charles , IL, USA - 60174
Testing Laboratory	Honeywell Home & Building Technologies RF & EMC HWVA
Address	2 Corporate Center Dr. Suite 100 PO Box 9040 Melville, NY 11747 USA
Test Dates	2016-08-04 to 2017-04-24
Applicable Standard	FCC Part 15 Subpart C
Test Results	PASS

Prepared By: Name: Christopher Locke Signature: Date: 2017-06-16	Reviewed By: Name: Michael Antola Signature: Date: 2017-06-16
Authorized By: Name: Ted Ramos Signature: Date: 2017-06-16	

TEST SUMMARY						
#	Name	Specification	Test Method	Pass	Fail	NA
	FHSS					
1	20dB Bandwidth	FCC Part 15.247:2010	DA 00-705	√		
2	Maximum Peak Output Power	FCC Part 15.247:2010	DA 00-705	√		
3	Carrier Frequency Separation	FCC Part 15.247:2010	DA 00-705	√		
4	Number of Hopping Frequencies	FCC Part 15.247:2010	DA 00-705	√		
5	Band-edge Compliance	FCC Part 15.247:2010	DA 00-705	√		
6	Time of Occupancy (Dwell Time)	FCC Part 15.247:2010	DA 00-705	√		
7	Spurious RF Conducted Emissions	FCC Part 15.247:2010	DA 00-705	√		
8	Spurious Radiated Emissions	FCC Part 15.247 and 15.209	DA 00-705	√		
9	Effective Isotropic Radiated Power	FCC Part 15.247 : 2010 and 15.209 : 2010	KDB 412172	√		
	DTS					
1	DTS 6dB Bandwidth	FCC Part 15.247	KDB 558074	√		
2	Maximum Peak Output Power	FCC Part 15.247	KDB 558074	√		
3	Maximum Power Spectral Density	FCC Part 15.247	KDB 558074	√		
4	Band-edge Conducted Emissions	FCC Part 15.247	KDB 558074	√		
5	Radiated Spurious Emissions	FCC Part 15.247 and 15.209	KDB 558074	√		
6	Effective Isotropic Radiated Power	FCC Part 15.247 : 2010 and 15.209 : 2010	KDB 412172	√		

MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels has been estimated for tests performed on the EUT as specified in CISPR 16-4

The Expanded measurement uncertainty (K=2) is provided below

#	Name	Value
1	20dB and 6dB bandwidth	± 0.22 dB
2	Maximum Peak Output Power	± 0.22 dB
3	Maximum Power Spectral Density	± 0.22 dB
4	Band-edge Emissions	± 0.22 dB
5	Spurious RF Conducted Emissions	± 0.22 dB
6	Radiated Spurious Emissions <1GHz	± 10.92 dB
7	Radiated Spurious Emissions >1GHz	± 8.53 dB

1 PRODUCT DETAILS

PRODUCT OPERATION AND INTENDED USE

The wireless relay module is powered by four CR123A batteries. It is intended to use with wireless gateway /Fire Alarm Panel. The module has LED indication, controlled by the panel to indicate the status.

RATINGS AND SYSTEM DETAILS		
Operating Frequency	902MHz to 928MHz	
Number of Channels	DTS	:6
	FHSS	:55
Channel Bandwidth (20 dB)	DTS	:1MHz
	FHSS	:320kHz
Transmitted Power	DTS	:12dBm
	FHSS	:17dBm
Modulation Type	FSK	
Data Rate	DTS	:300Kbps
	FHSS	:150Kbps
Antenna Type	Inverter F Patch Antenna	
No. of Antenna	3	
Antenna Gain	ANT 1 ANT 2 ANT3	:0.65dBi :2dBi :1.3dBi
Supply Voltage and Current	3.3V, 21.5mA	
Dimensions (L x B x H)	4.263mm x 4.171mm x 1.465mm	
Environmental Conditions	Operating Temperature	:0°C to 49°C
	Storage Temperature	:-20°C to 60°C
	Humidity	:10% to 93%

TEST CONFIGURATION	
Config #	**Description**
Conducted Test	EUT is Powered by external 3.3V power supply. EUT Debug port (UART) is connected to Laptop through USB to UART converter cable. EUT is configured to the respective operating mode through HyperTerminal. Test is performed at Antenna 2 as this is the high gain antenna
Radiated Test	EUT is Powered from Battery. EUT Debug port (UART) is connected to Laptop through USB to UART converter cable. EUT is configured to the respective operating mode through HyperTerminal. Test is performed at all 3 antennas

OPERATING MODES	
Mode #	**Description**
DTS	Following DTS channels have been used for Conducted (Continuous Transmission) and Radiated (Continuous Transmission) Tests Channel 1 : 902.875MHz Channel 3 : 914.325MHz Channel 6 : 927.125MHz
FHSS	Following FHSS channels have been used for Conducted (Continuous Transmission) and Radiated (Continuous Transmission) Tests Channel 1 : 903.55MHz Channel 28 : 916.00MHz Channel 55 : 926.45MHz

INPUT AND OUTPUT CABLES

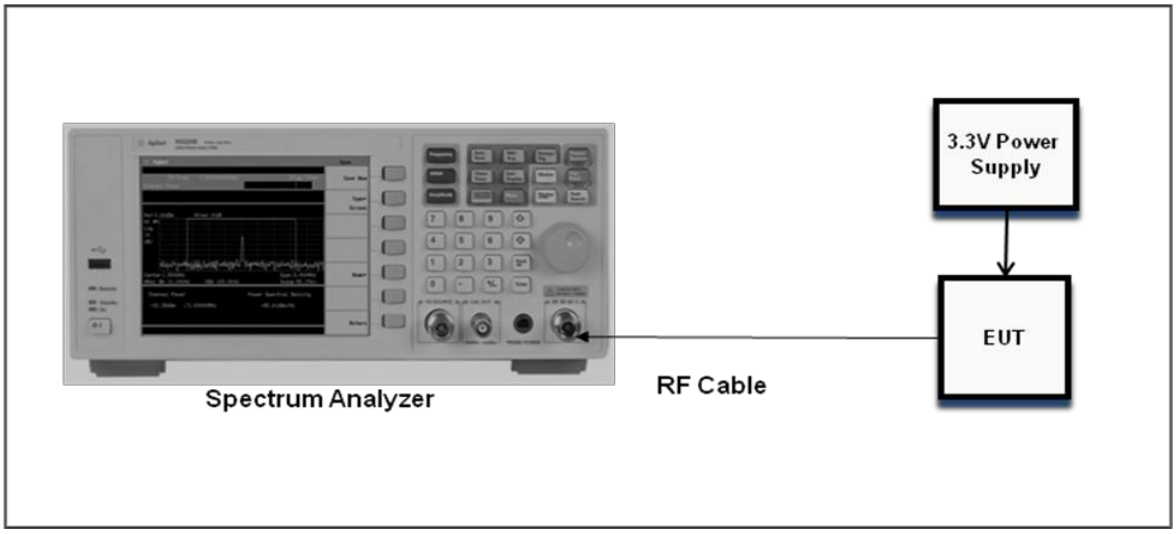
Port #	Name	Port Type	Cable Length	Cable type Shielded/ Unshielded	Comments
	Not Applicable				

*Note:	AC = AC Power Port TP = Telecommunication Ports (e.g. Ethernet) N/E = Non-Electrical	DC DI/ DO AI/	= DC Power Port = Digital Input/ Output = Analog Input/ Output

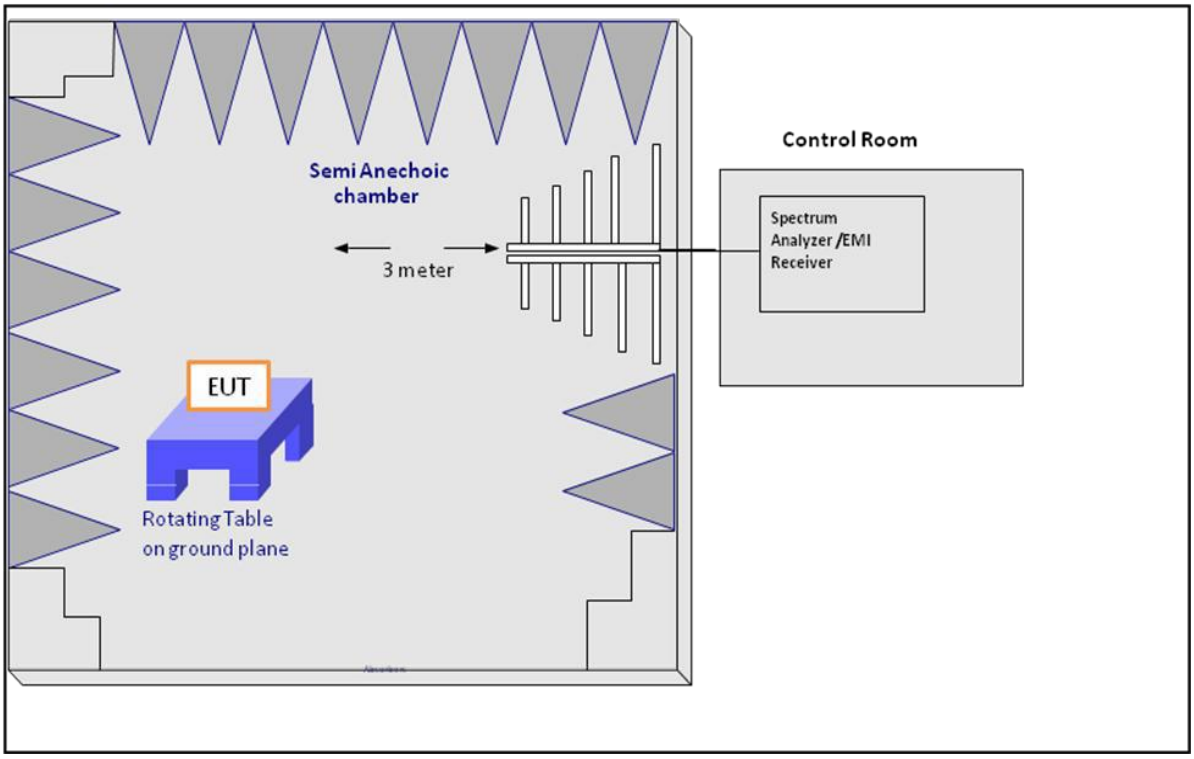
SUPPORT EQUIPMENTS AND ACCESSORIES USED

#	Item Description	Make	Model	Part No. / Sl. No	Cal Due Date
1	Laptop	Dell	CORPMDTW10X64IMAGEV2	339YSC2	NA
2	USB to UART Cable	FTDI	NA	TTL-232R-3V3	NA
3	DC Power Supply	HP	E3611A	KR83015320	NA

CONNECTION DIAGRAM AND SETUP DIAGRAM



Conducted RF Test Setup



Radiated Emission Test Setup

2 FHSS CHANNELS

2.1 20dB BANDWIDTH

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2016-08-24	**Temperature (˚C)**	23.6°C
Test End Date	2016-08-24	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia/Arnoldo Garcia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247:2010		
Test Method	DA 00-705		
Comment	NA		

TEST DETAILS

Method	Radiated ☐	Conducted ☒

TEST PARAMETERS

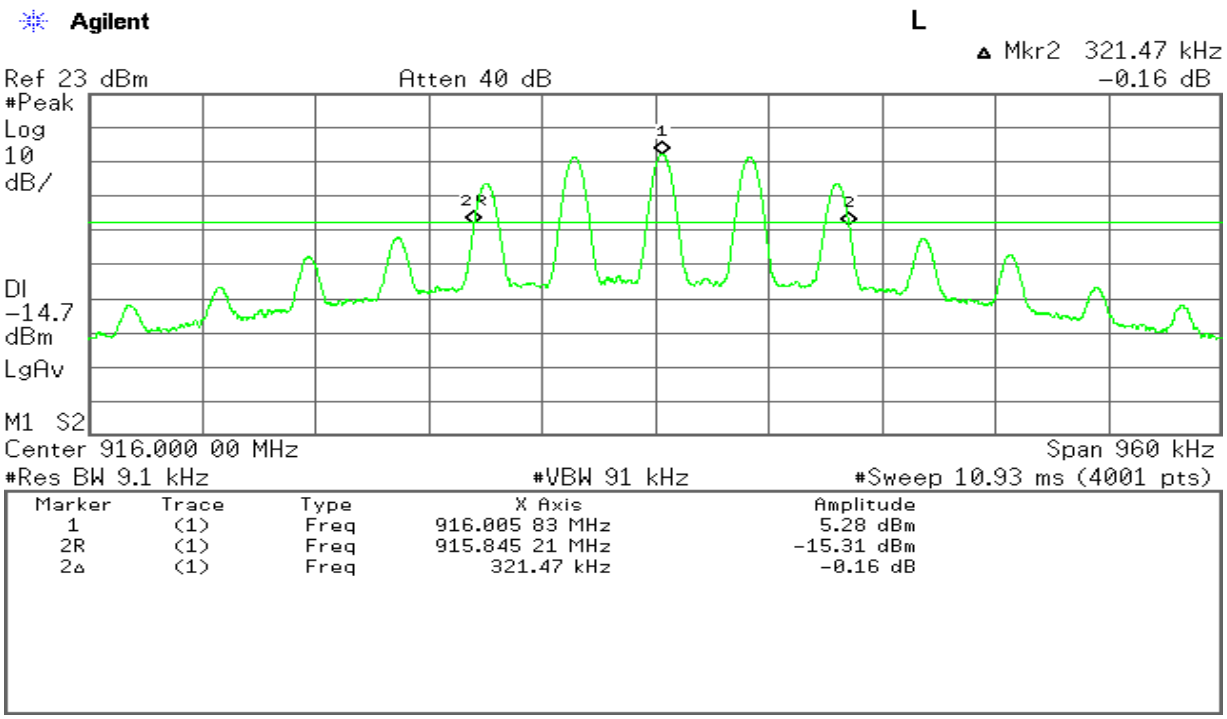
Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

TEST EQUIPMENT

Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA

TEST GRAPHS

Channel 28 (916 MHz)



TEST RESULT

Channel #	Frequency MHz	Measured Bandwidth KHz	Limit KHz	Result
28	916	321.47	≥250 & ≤500	PASS

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test setup

2.2 PEAK OUTPUT POWER

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2016-08-30	**Temperature (˚C)**	23.6°C
Test End Date	2016-08-30	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia/Arnoldo Garcia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247:2010		
Test Method	DA 00-705		
Comment	NA		

TEST DETAILS

Method	Radiated ☐	Conducted ☒

TEST PARAMETERS

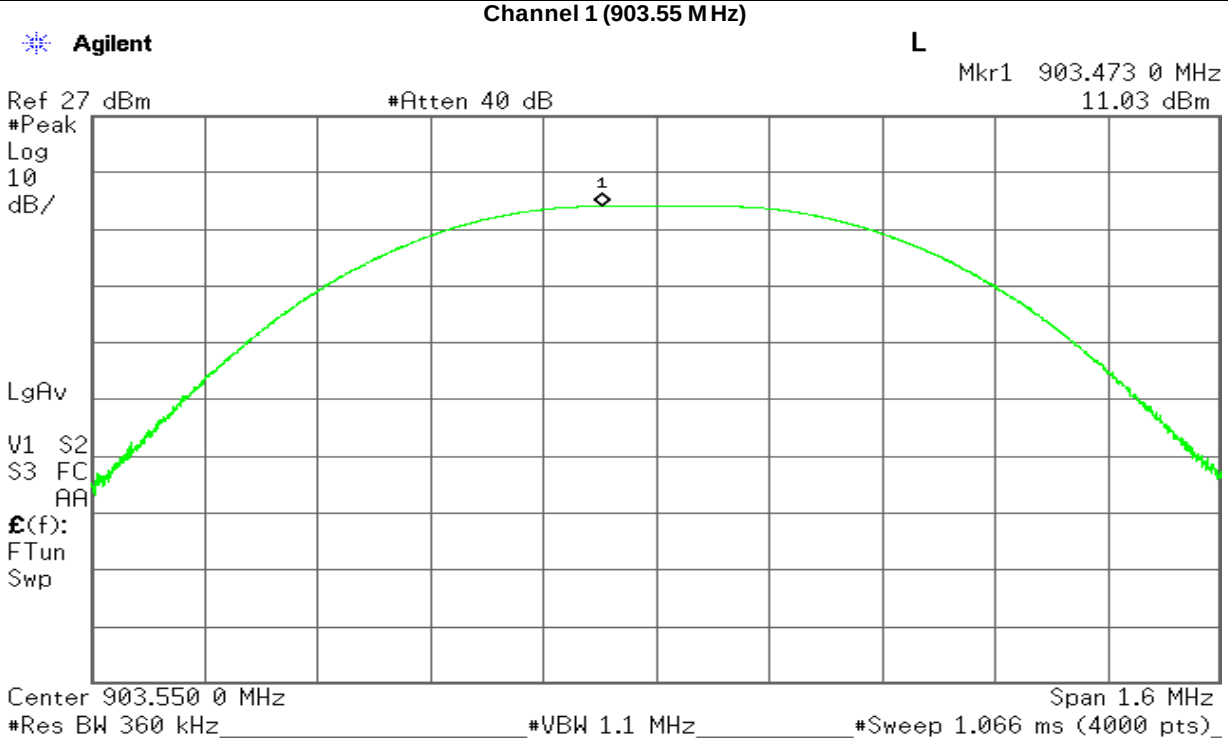
Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

TEST EQUIPMENT

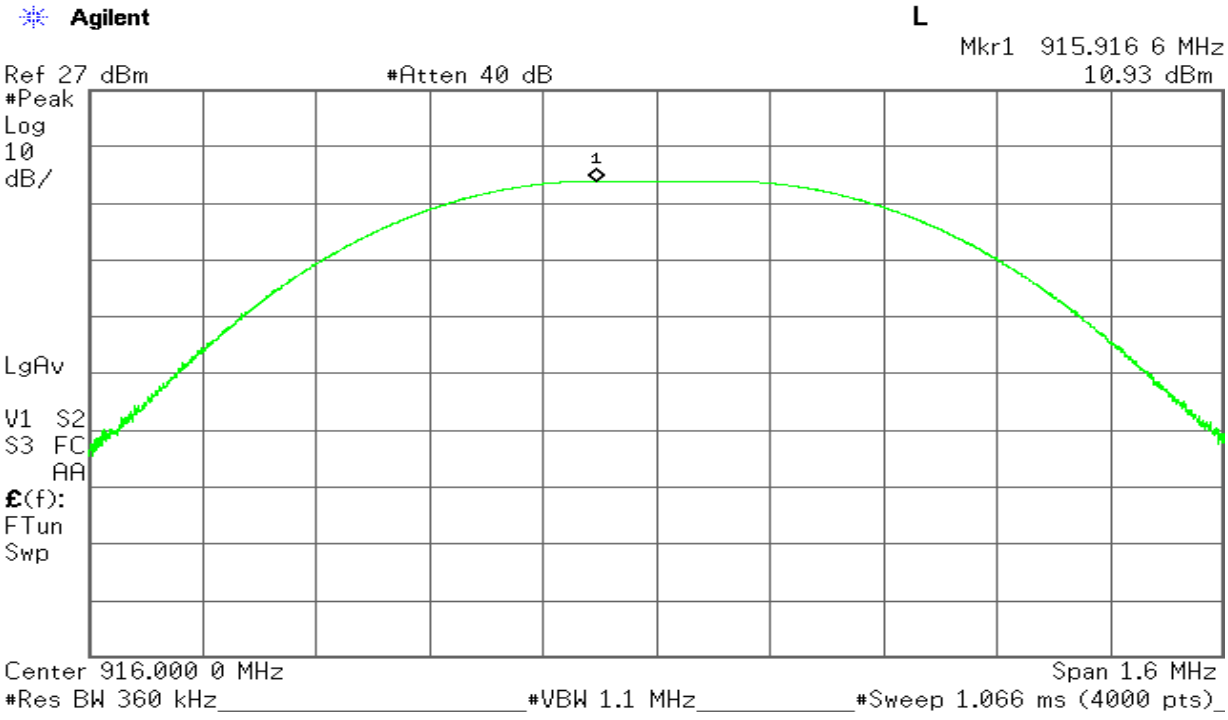
Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA

ANTENNA 1 TEST GRAPHS

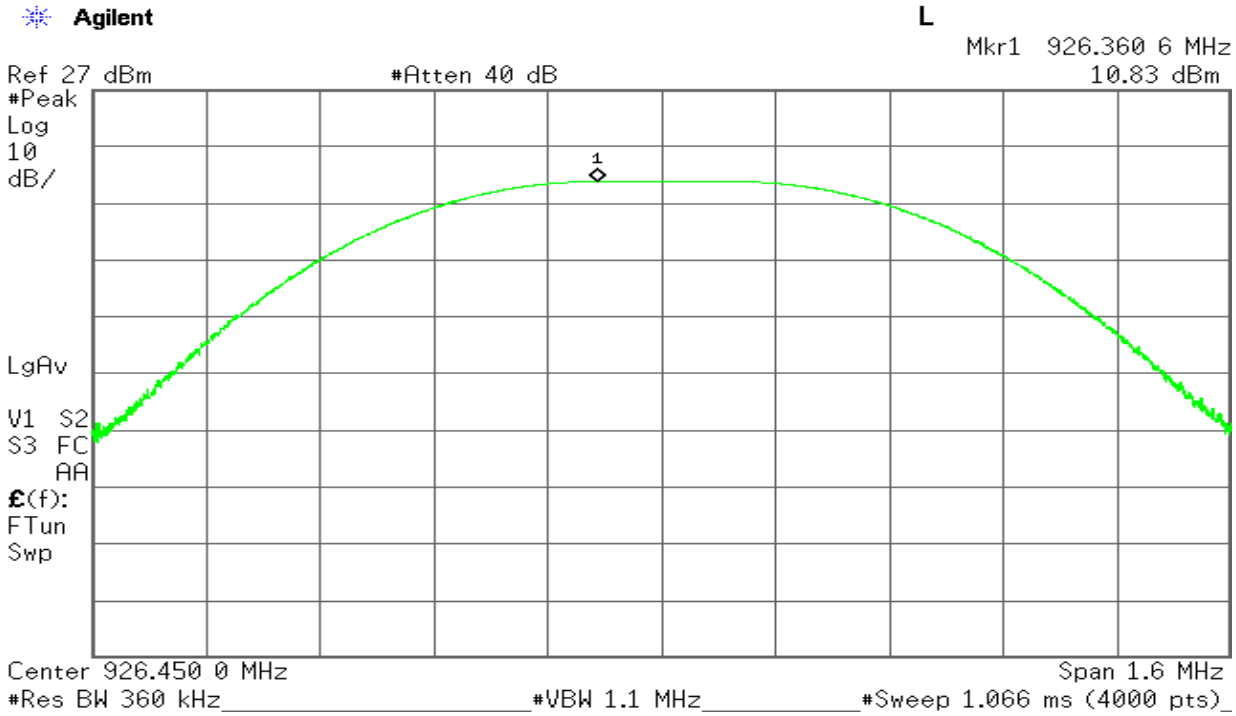
Channel 1 (903.55 MHz)



Channel 28 (916 MHz)

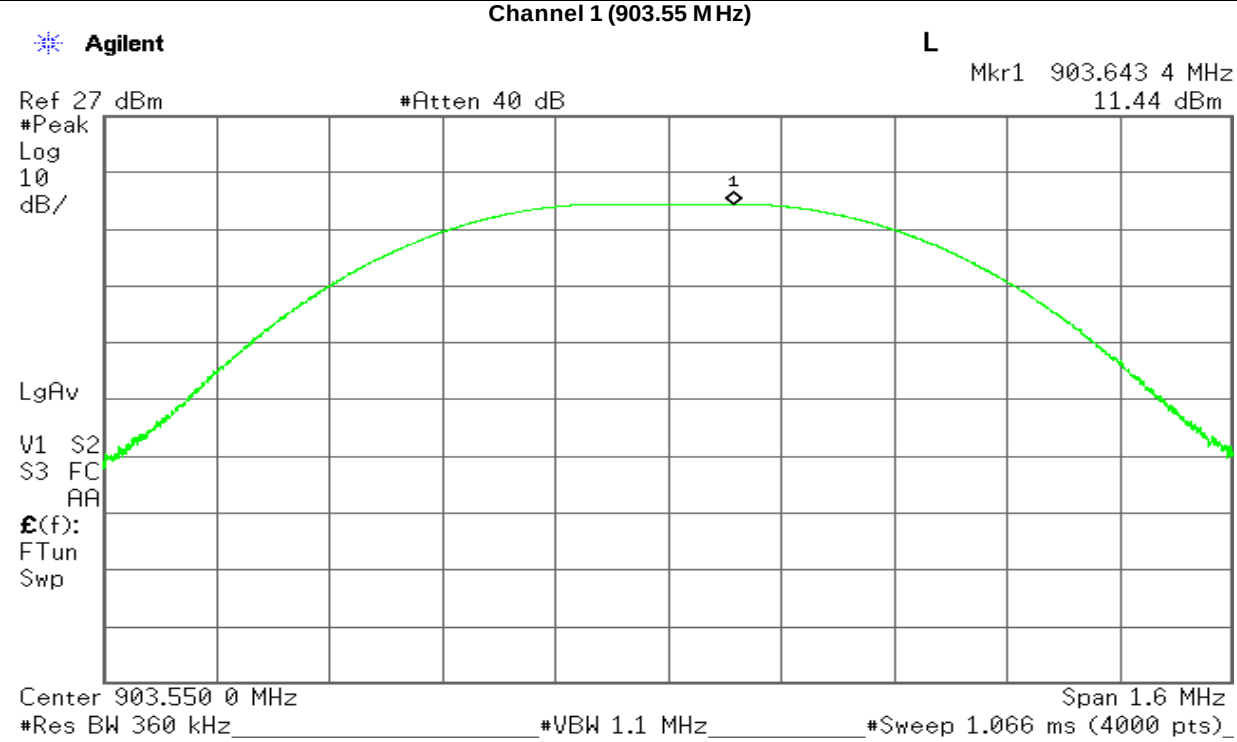


Channel 55 (926.45 MHz)

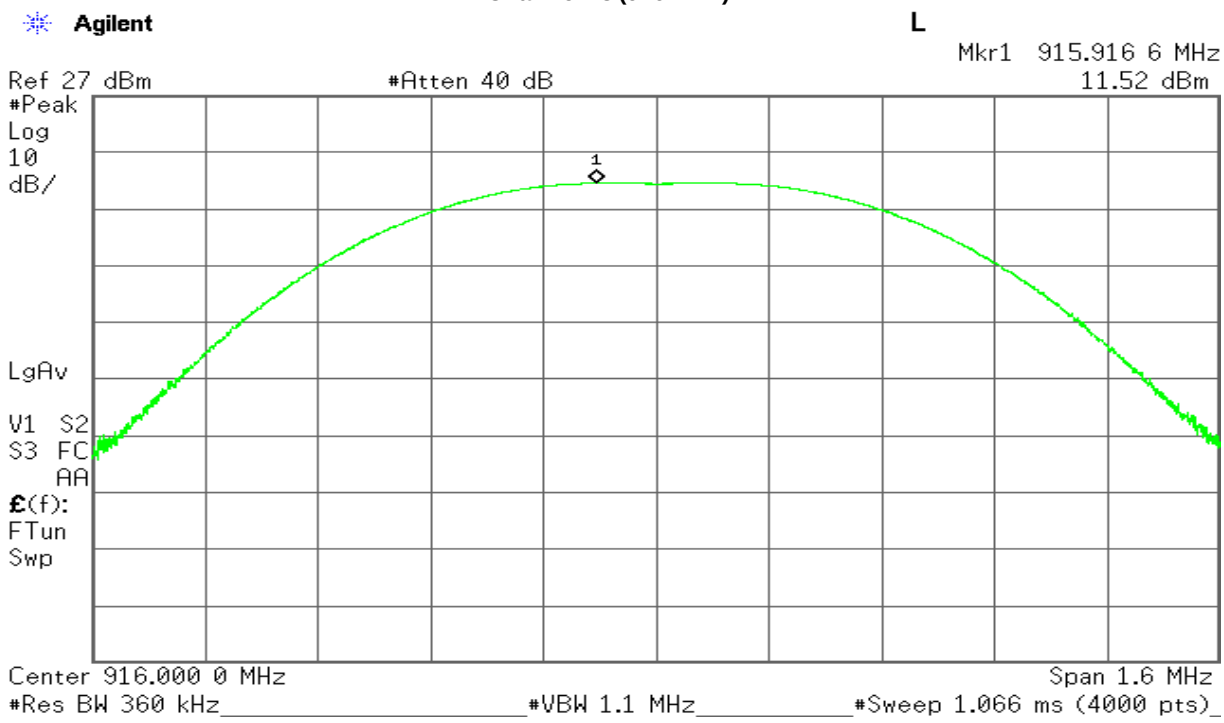


ANTENNA 2 TEST GRAPHS

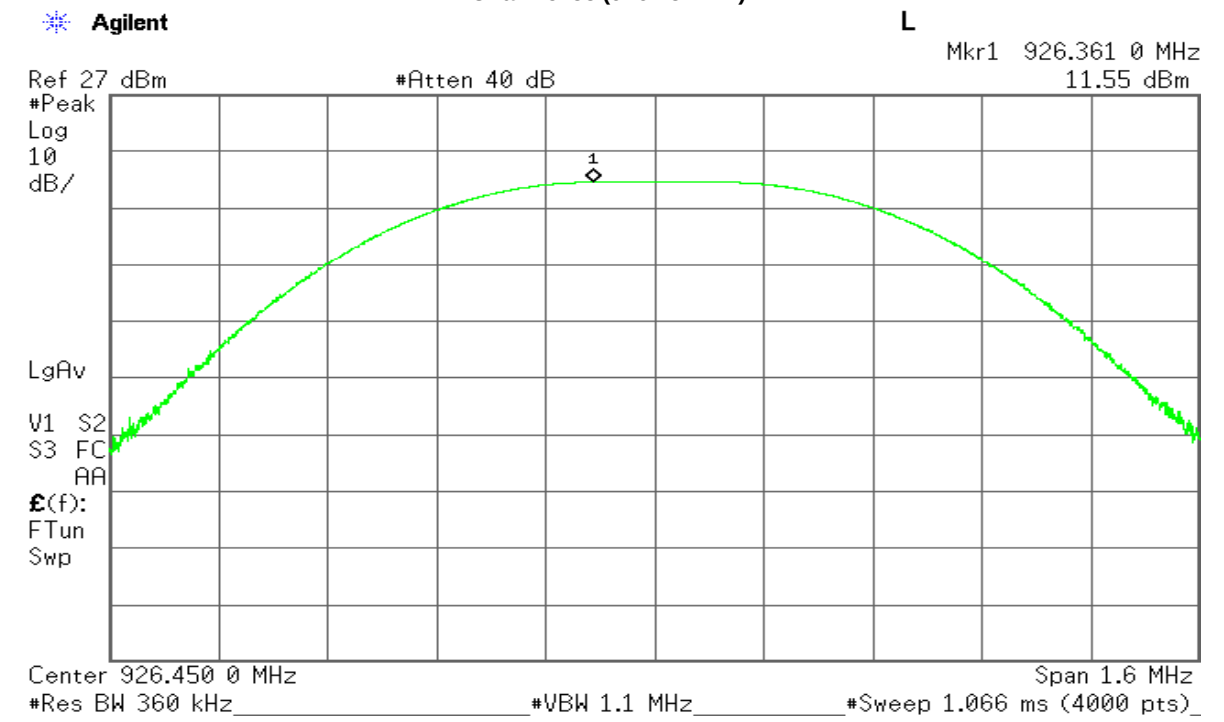
Channel 1 (903.55 MHz)



Channel 28 (916 MHz)

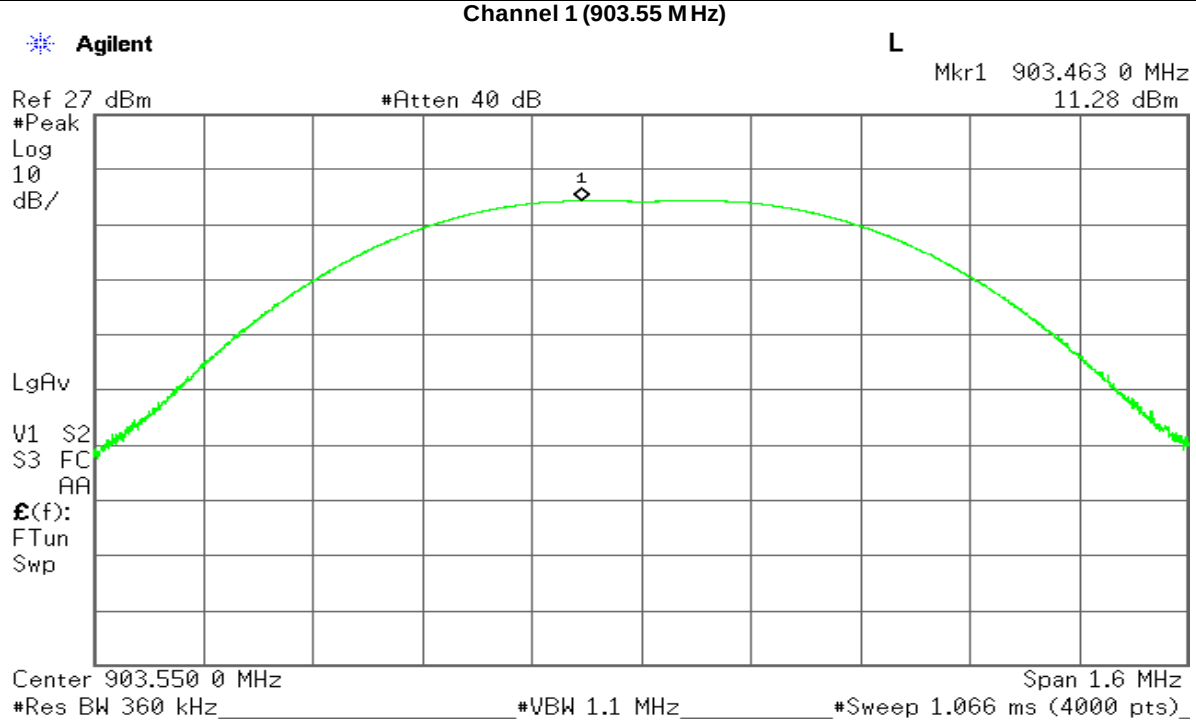


Channel 55 (926.45 MHz)

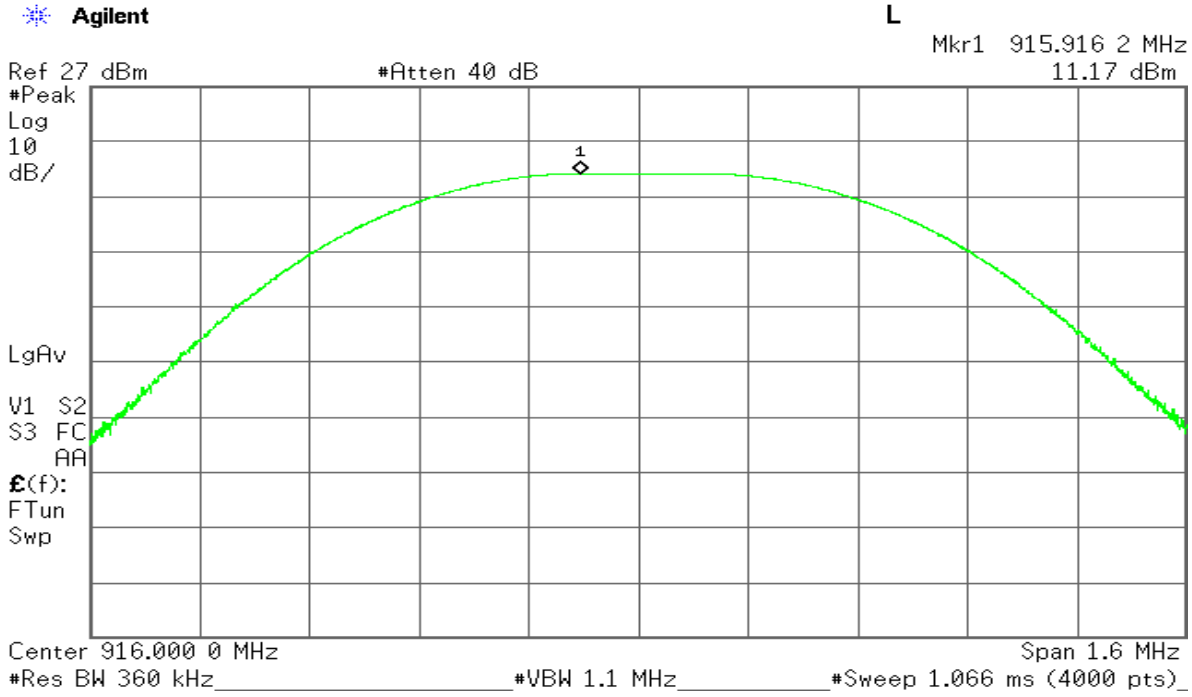


ANTENNA 3 TEST GRAPHS

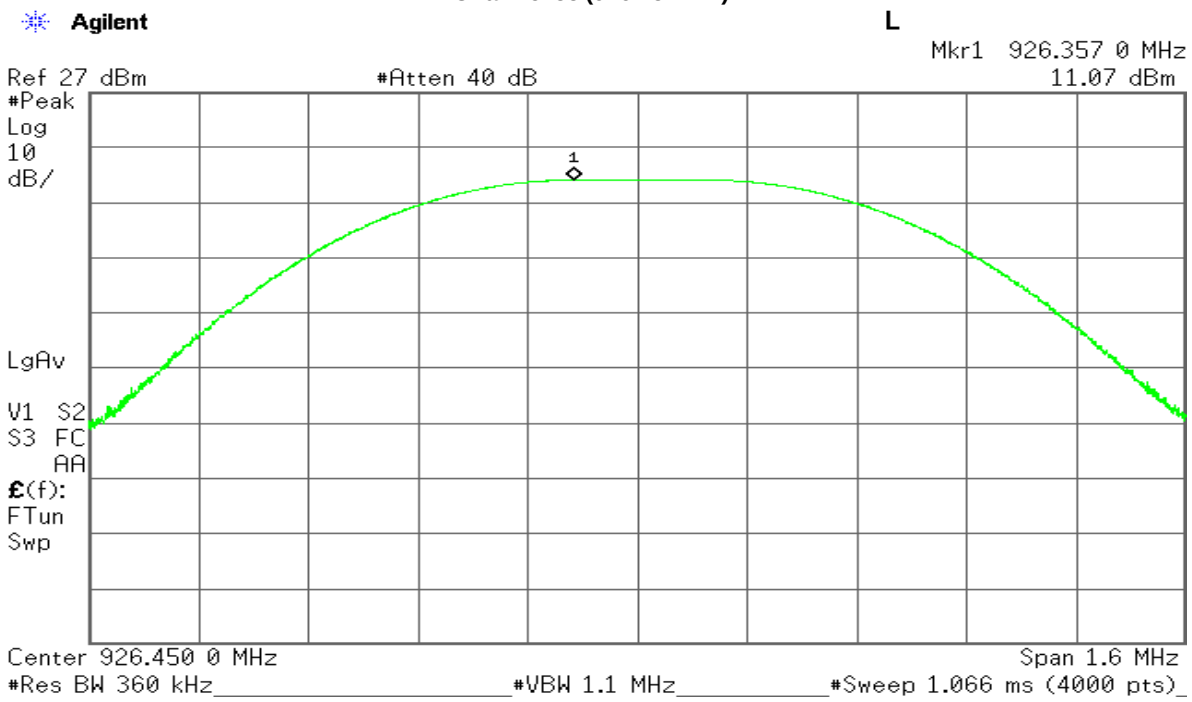
Channel 1 (903.55 MHz)



Channel 28 (916 MHz)



Channel 55 (926.45 MHz)



TEST RESULT							
Antenna	Channel	Frequency	Measured Power Level	Factor Loss	Transmitter Power Level	Limit	Result
#	#	MHz	dBm	dB	dBm	dBm	
1	1	903.55	11.03	5.11	16.14	≤23.979	PASS
	28	916	10.93	5.11	16.04	≤23.979	PASS
	55	926.45	10.83	5.11	15.94	≤23.979	PASS
2	1	903.55	11.44	5.11	16.55	≤23.979	PASS
	28	916	11.52	5.11	16.63	≤23.979	PASS
	55	926.45	11.55	5.11	16.66	≤23.979	PASS
3	1	903.55	11.28	5.11	16.39	≤23.979	PASS
	28	916	11.17	5.11	16.28	≤23.979	PASS
	55	926.45	11.07	5.11	16.18	≤23.979	PASS

Note: Transmitter Output Power = Measured Level (dBm) + Factor Loss (dB)
Factor Loss =Attenuator +Cable loss (dB)

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test setup

2.3 CARRIER FREQUENCY SEPARATION

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2017-04-19	**Temperature (˚C)**	23.6°C
Test End Date	2017-04-21	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247:2010		
Test Method	DA 00-705		
Comment	NA		

TEST DETAILS

Method	Radiated ☐	Conducted ☒

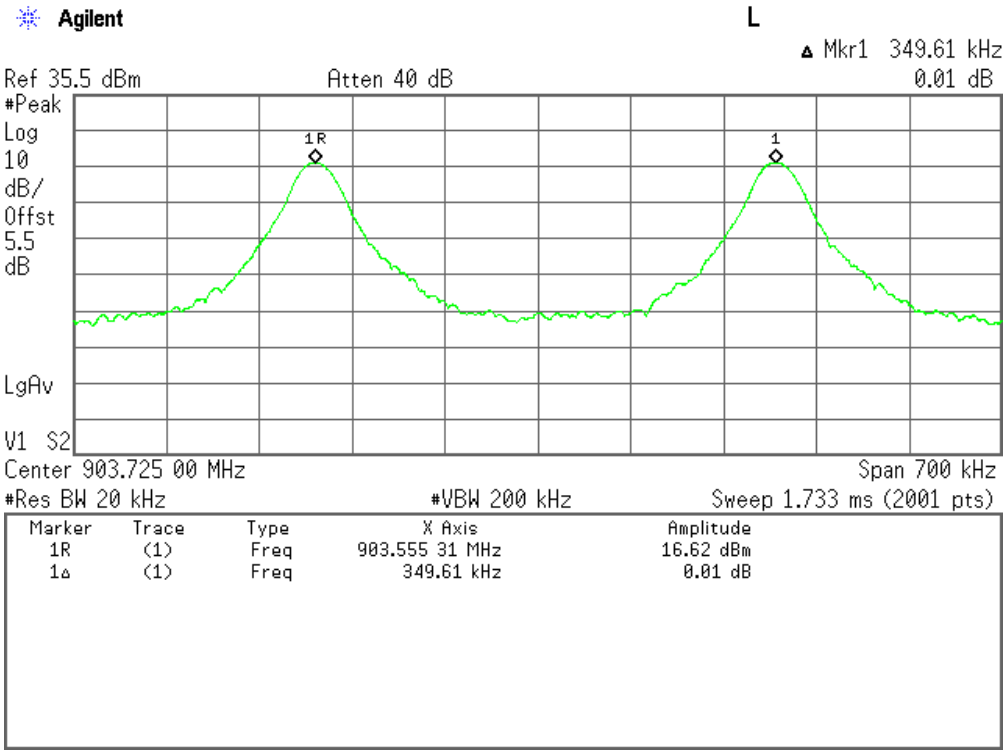
TEST PARAMETERS

Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

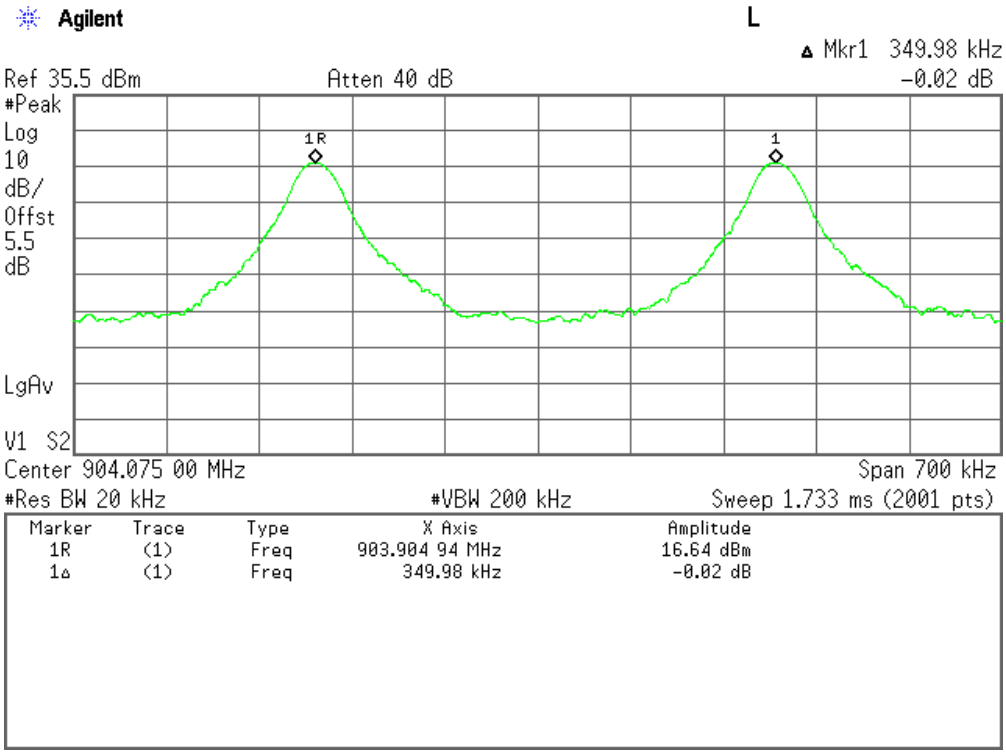
TEST EQUIPMENT

Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA

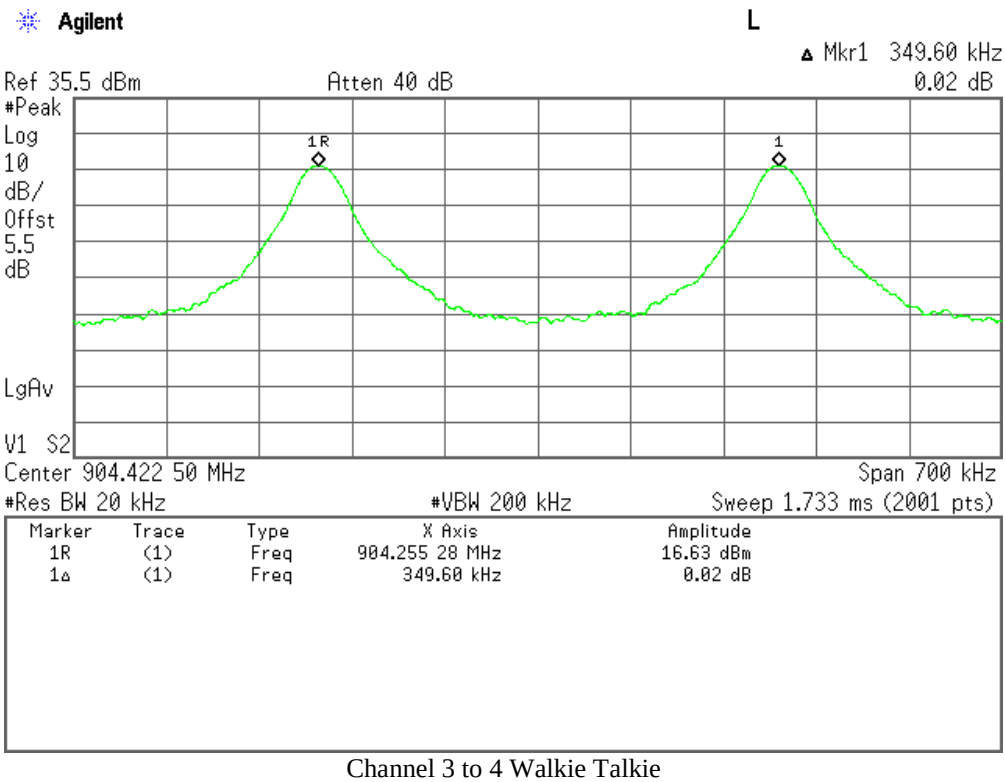
TEST GRAPHS



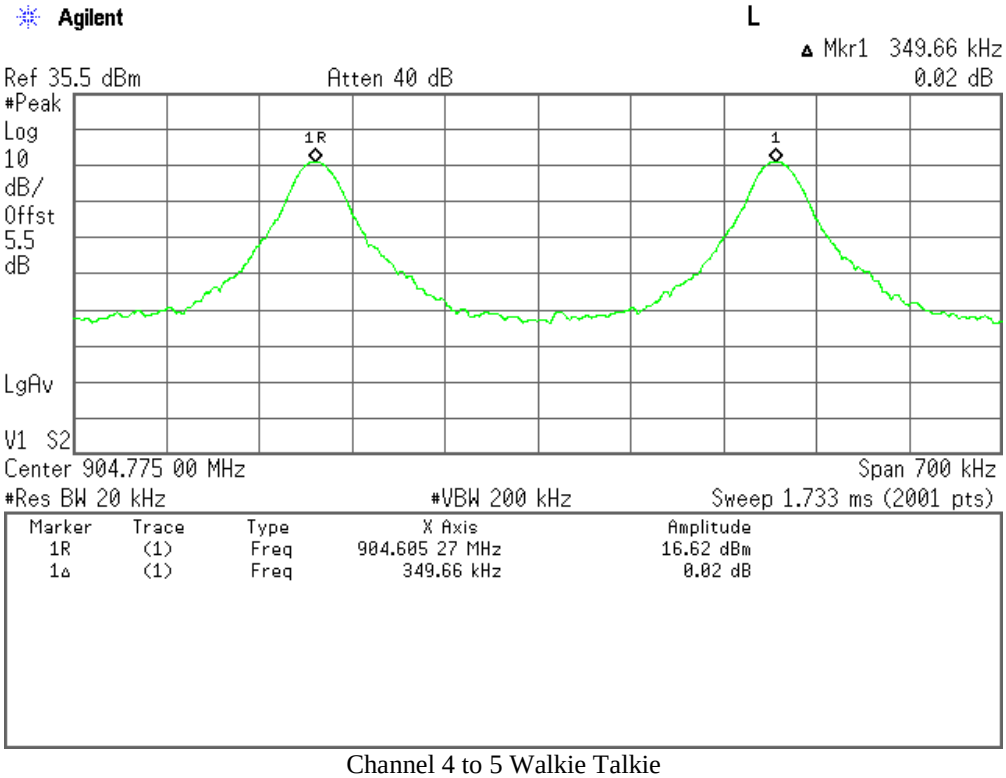
Channel 1 to 2 Walkie Talkie



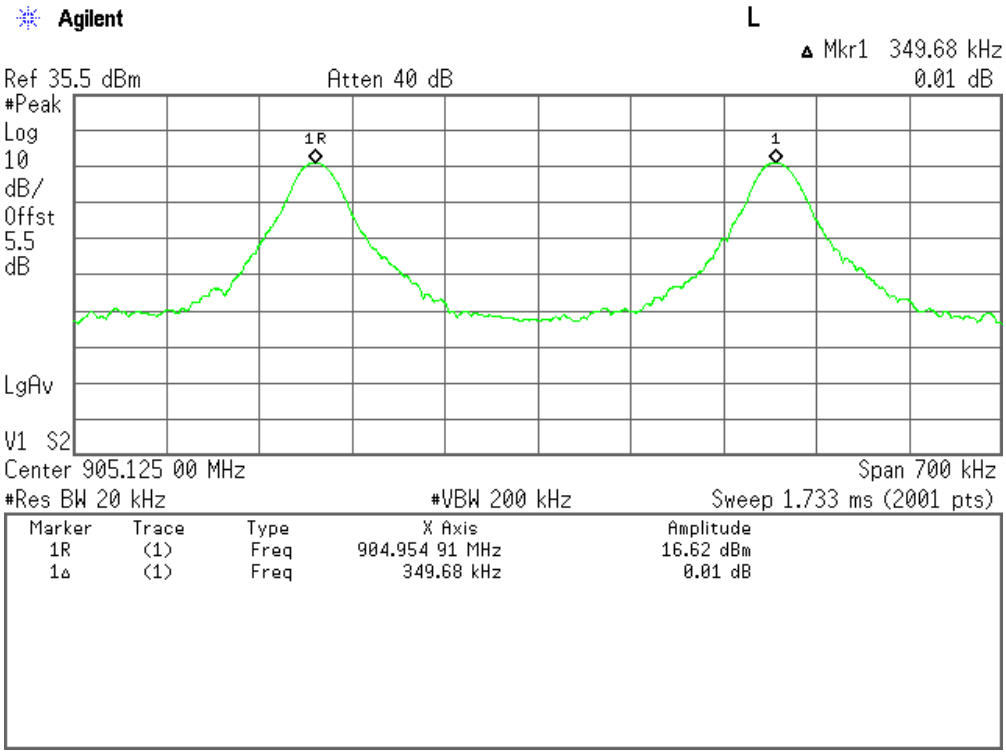
Channel 2 to 3 Walkie Talkie



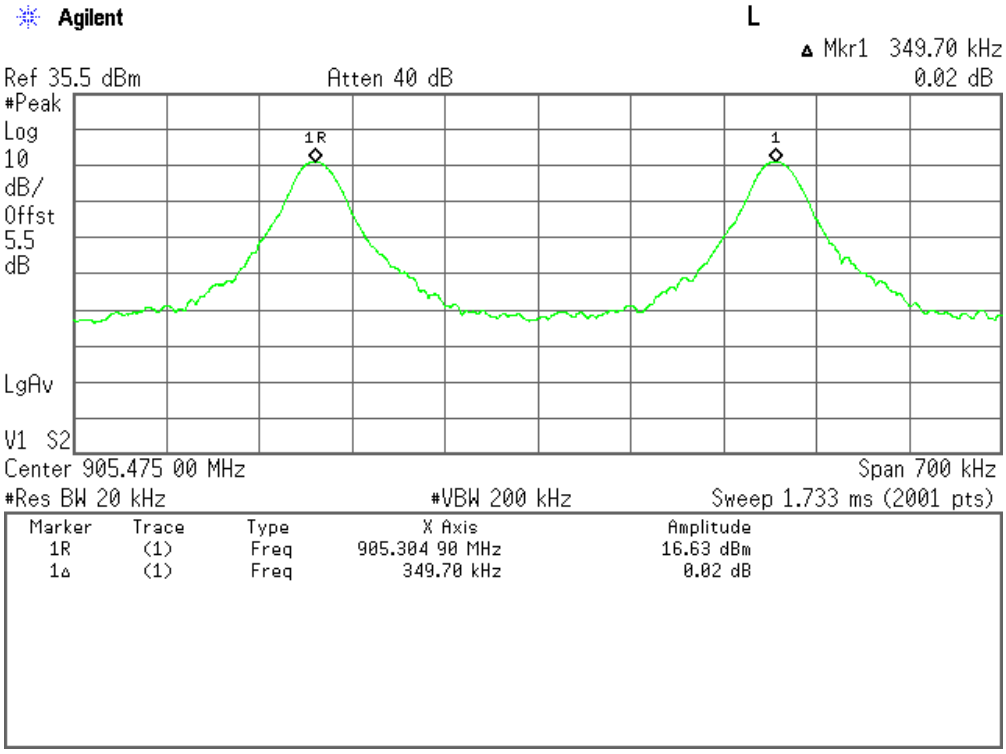
Channel 3 to 4 Walkie Talkie



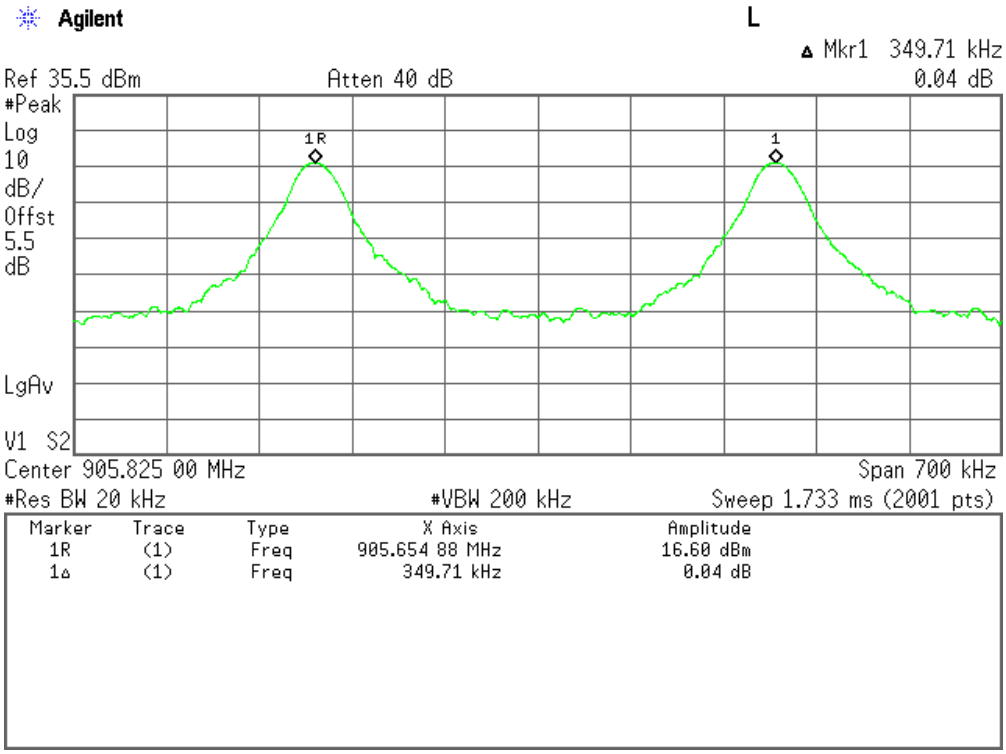
Channel 4 to 5 Walkie Talkie



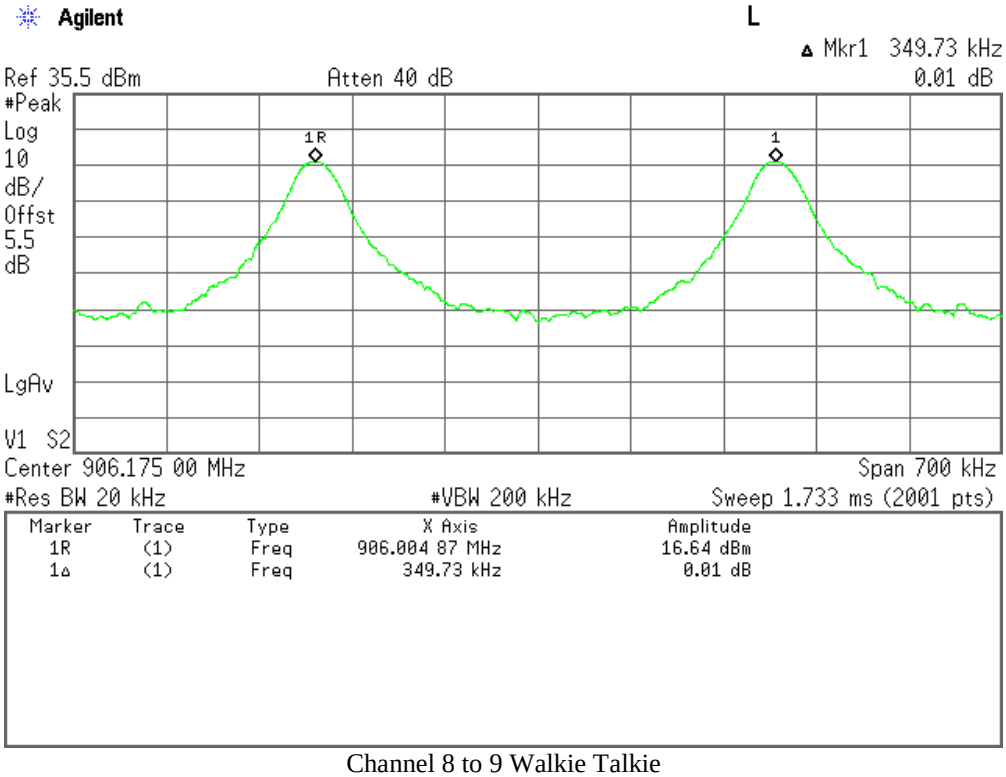
Channel 5 to 6 Walkie Talkie



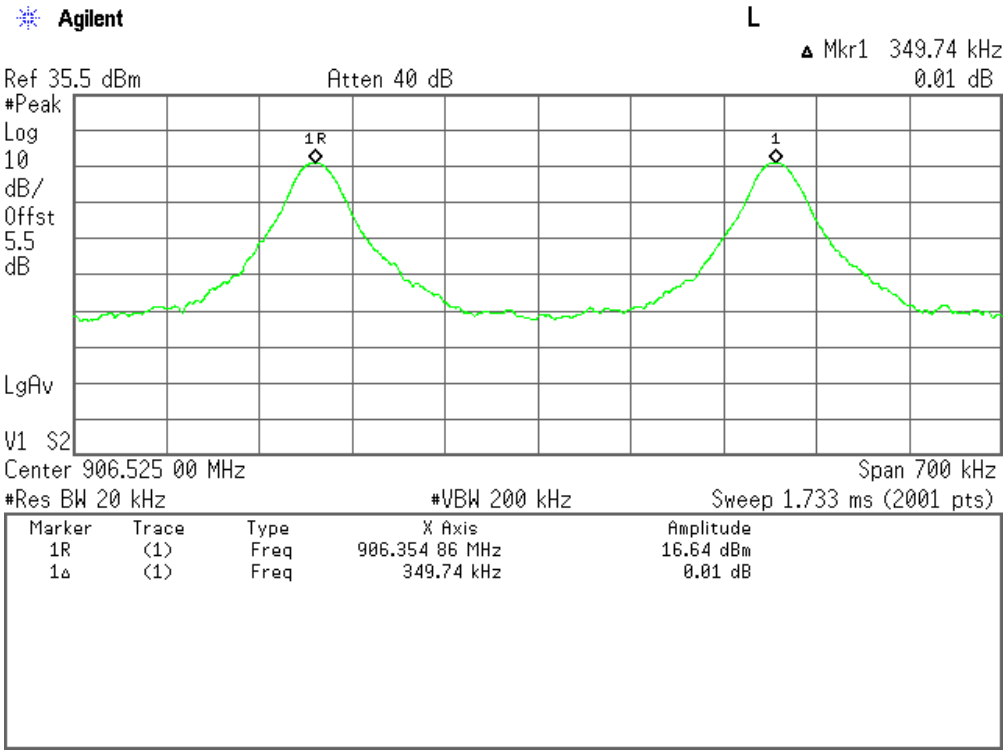
Channel 6 to 7 Walkie Talkie



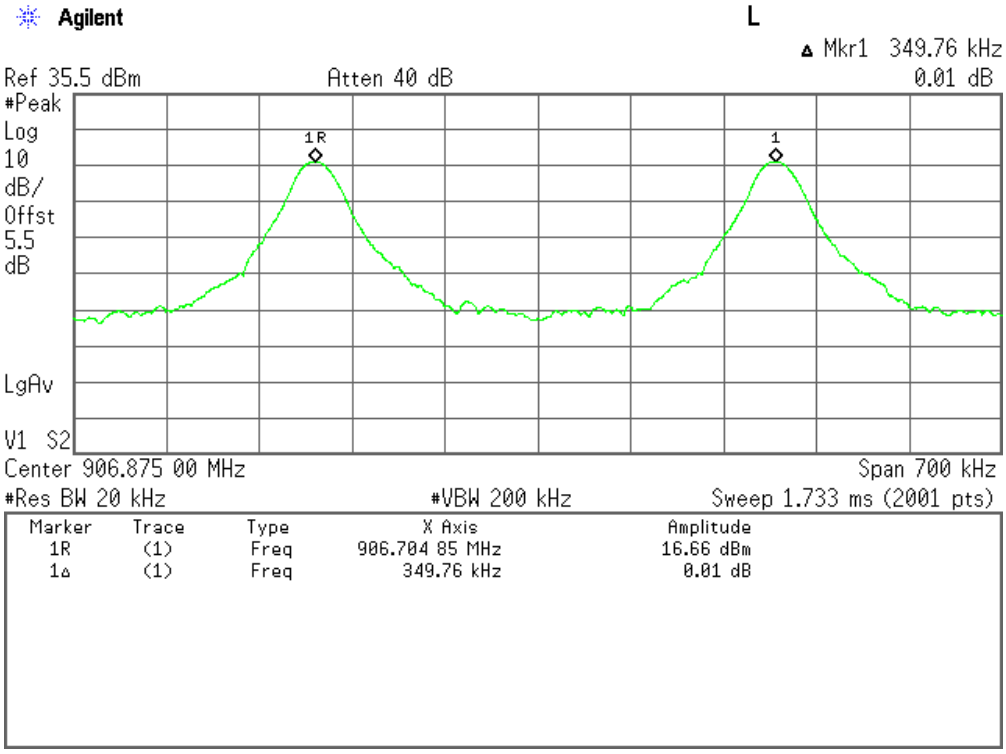
Channel 7 to 8 Walkie Talkie



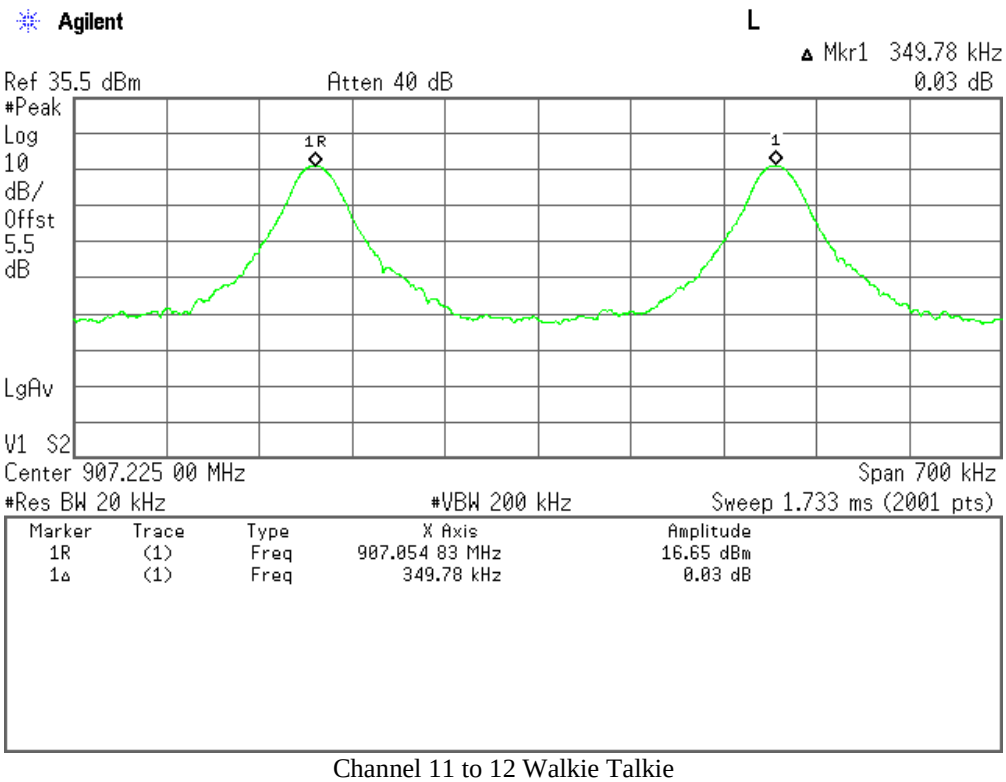
Channel 8 to 9 Walkie Talkie



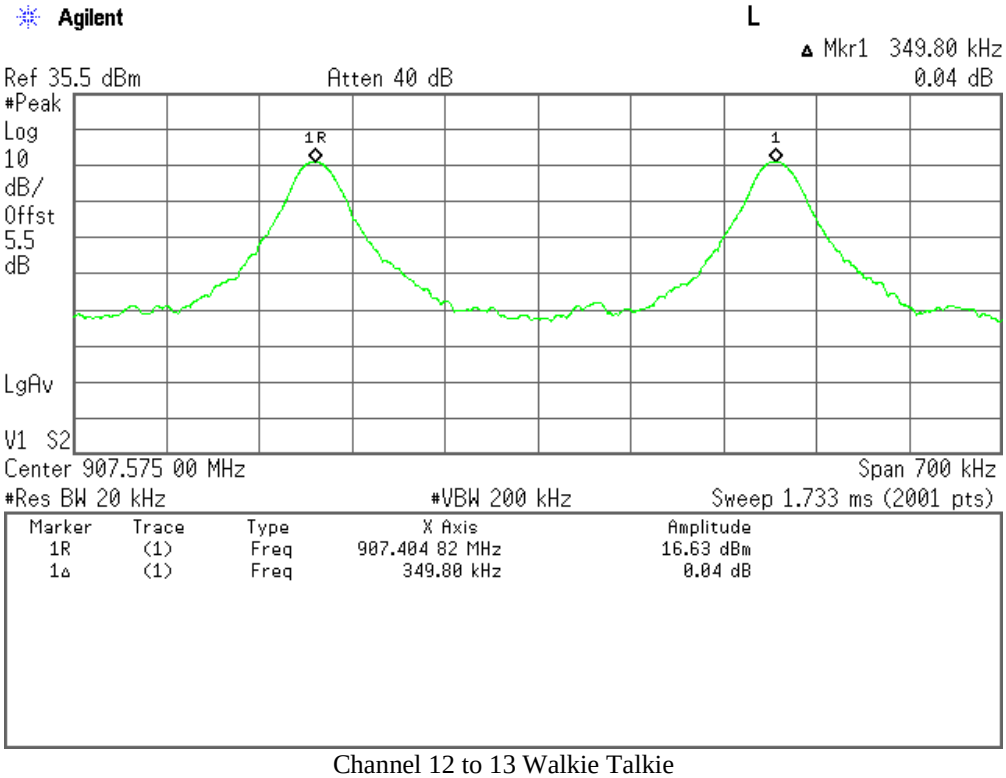
Channel 9 to 10 Walkie Talkie



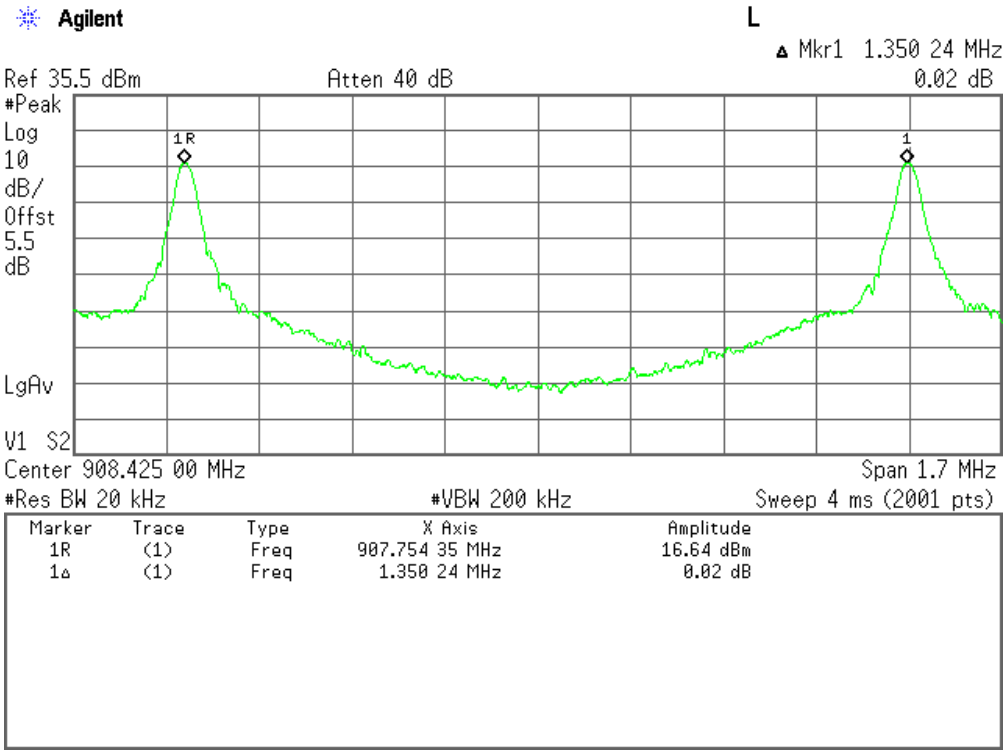
Channel 10 to 11 Walkie Talkie



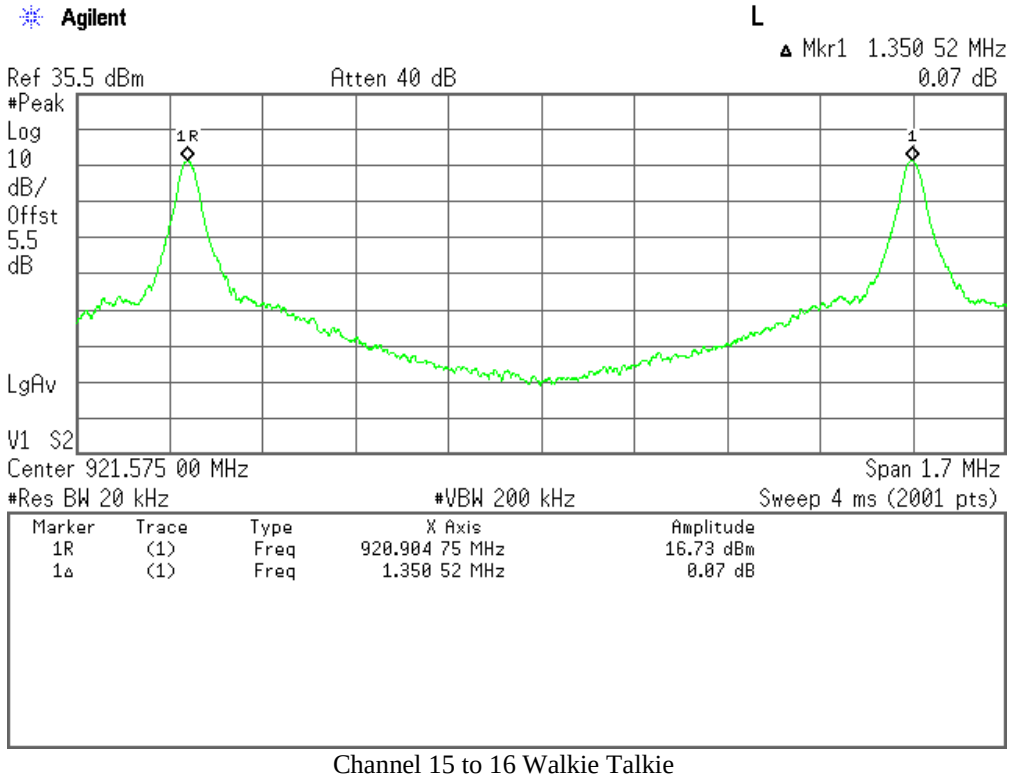
Channel 11 to 12 Walkie Talkie



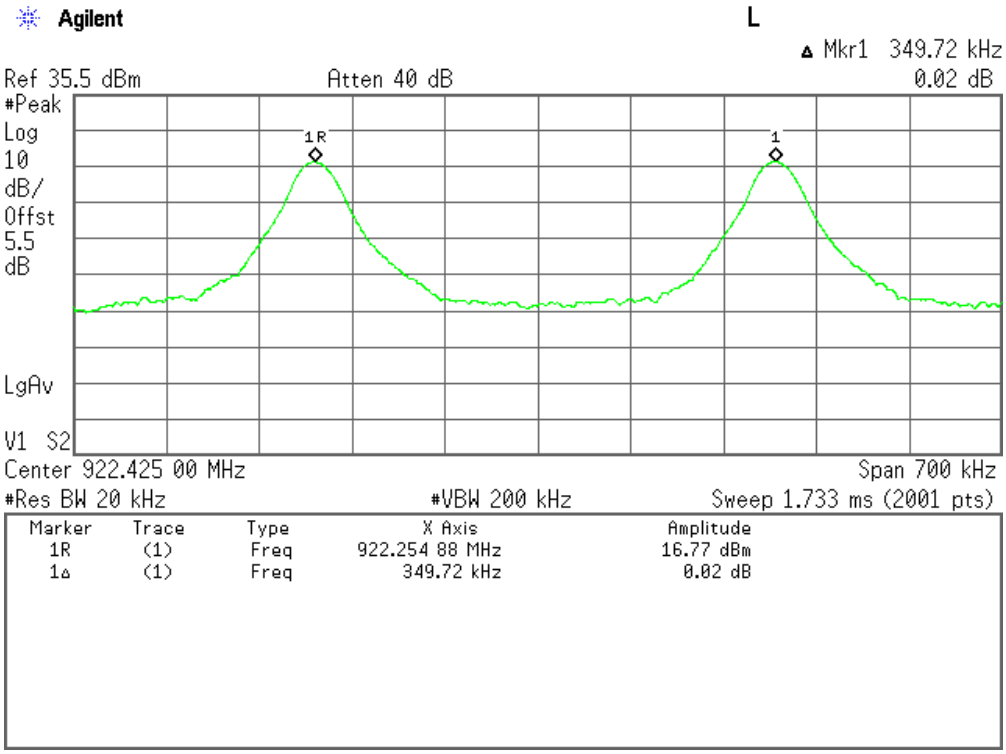
Channel 12 to 13 Walkie Talkie



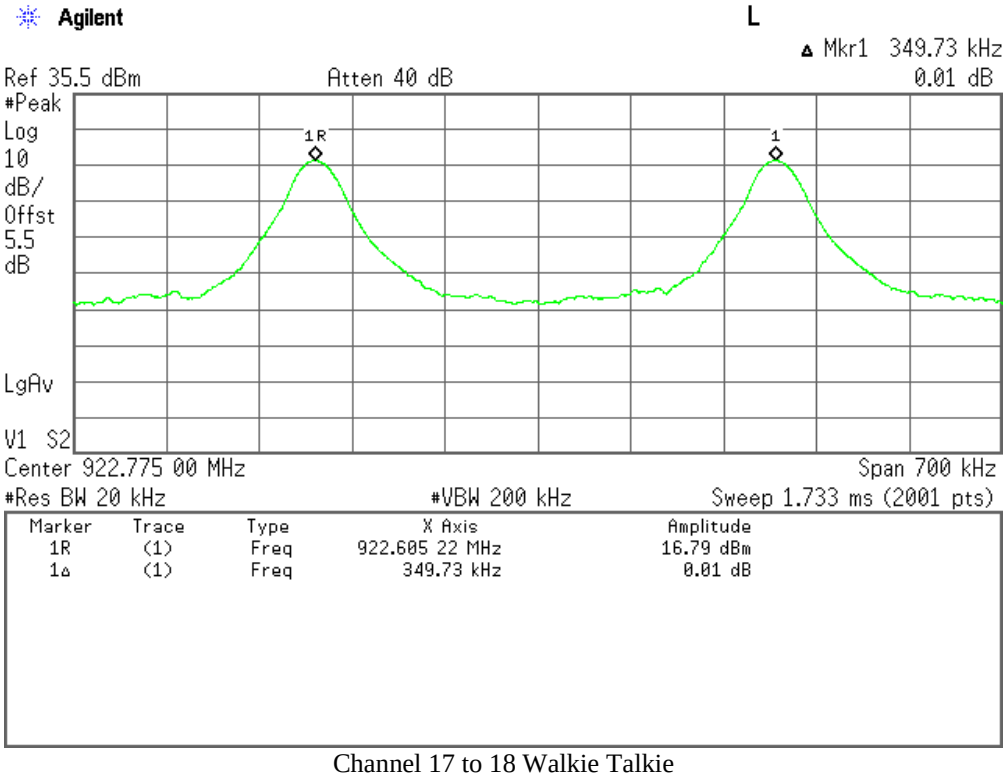
Channel 13 to 14 Walkie Talkie



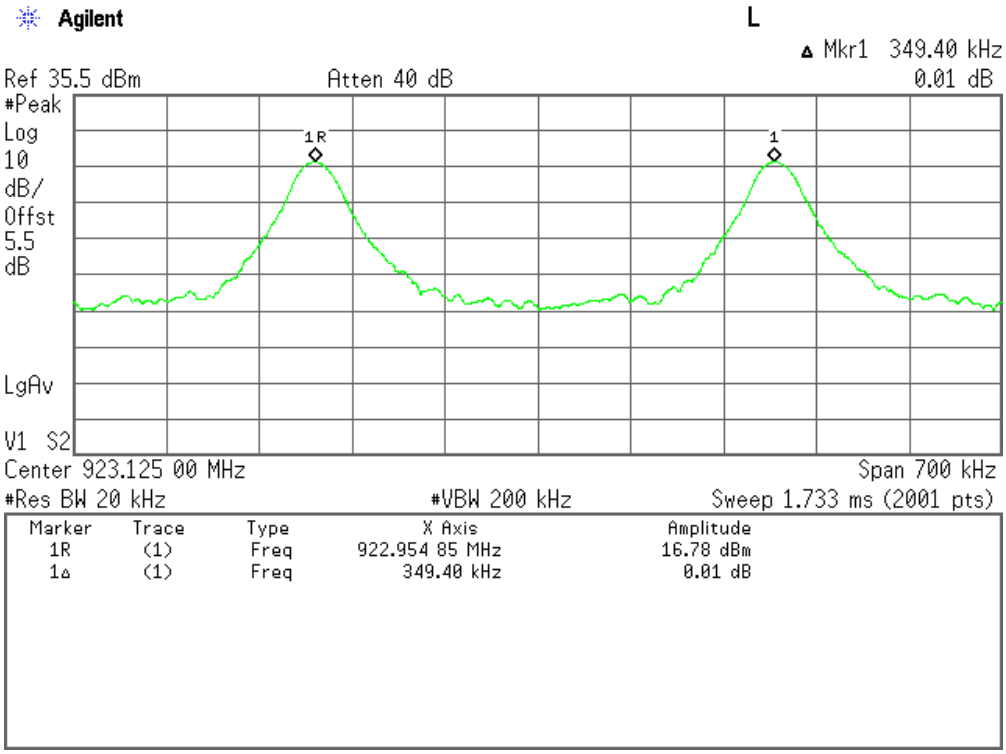
Channel 15 to 16 Walkie Talkie



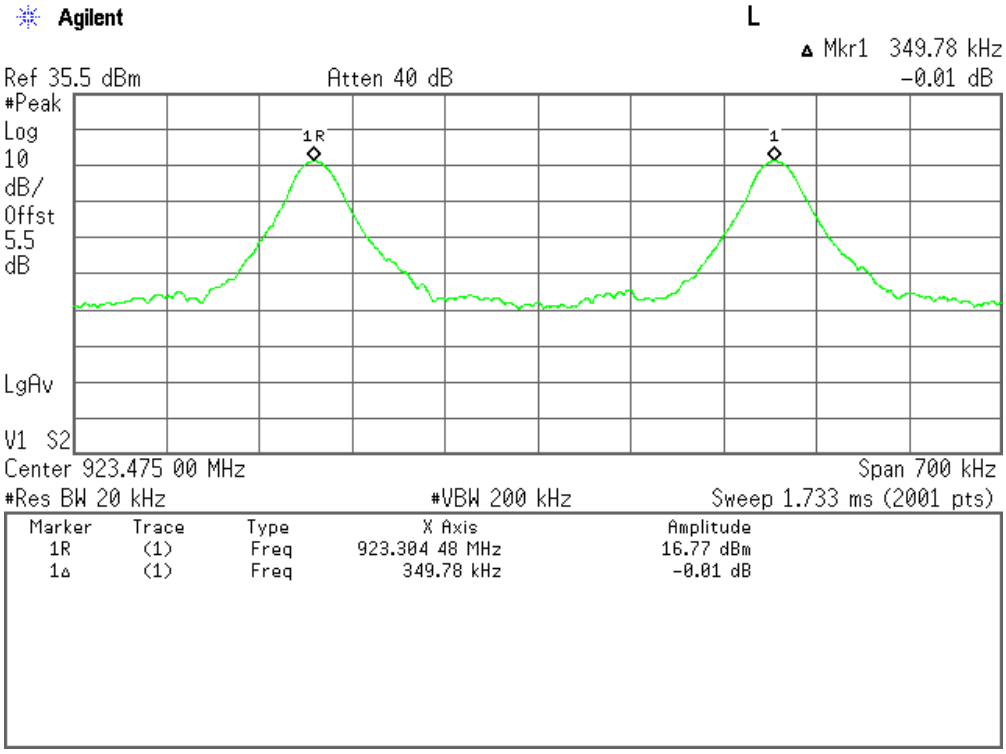
Channel 16 to 17 Walkie Talkie



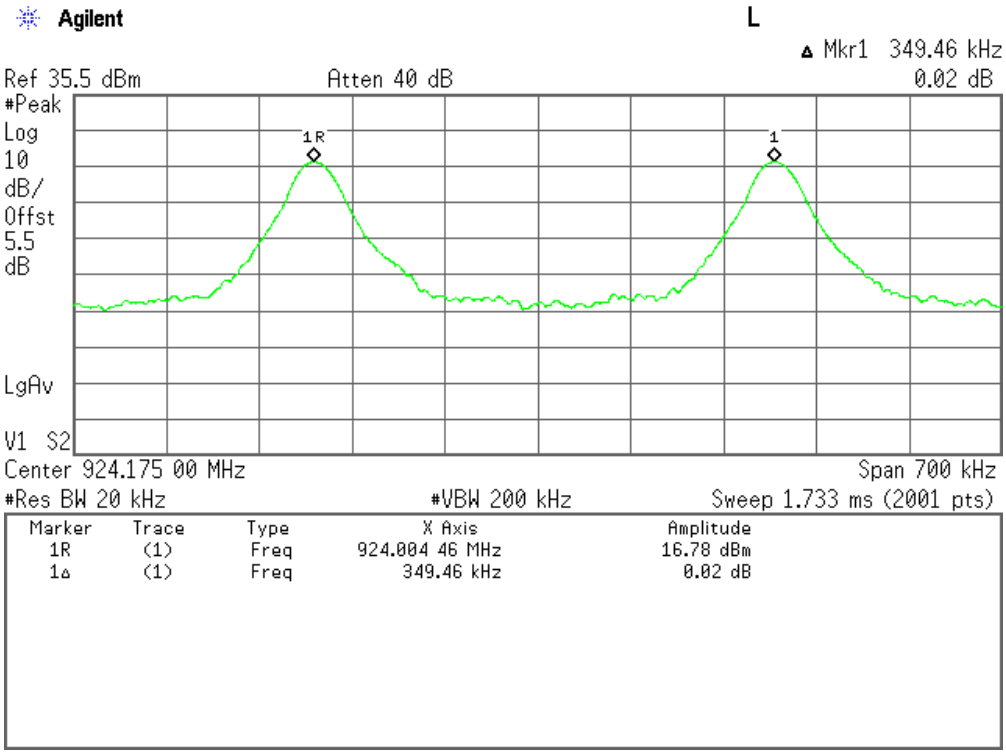
Channel 17 to 18 Walkie Talkie



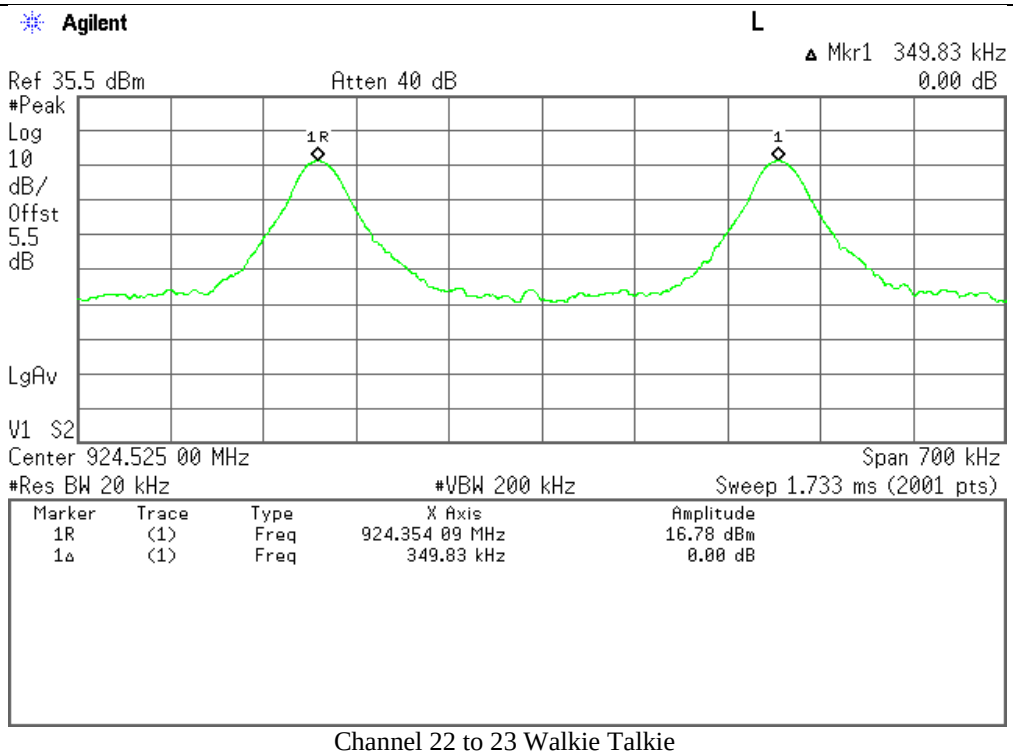
Channel 18 to 19 Walkie Talkie



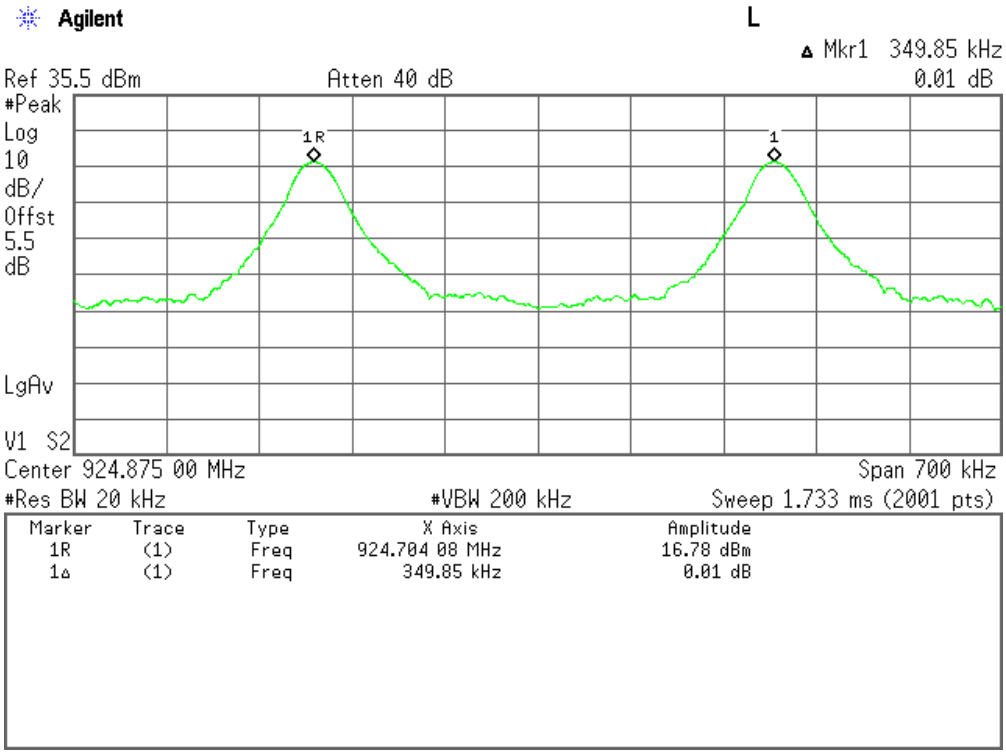
Channel 19 to 20 Walkie Talkie



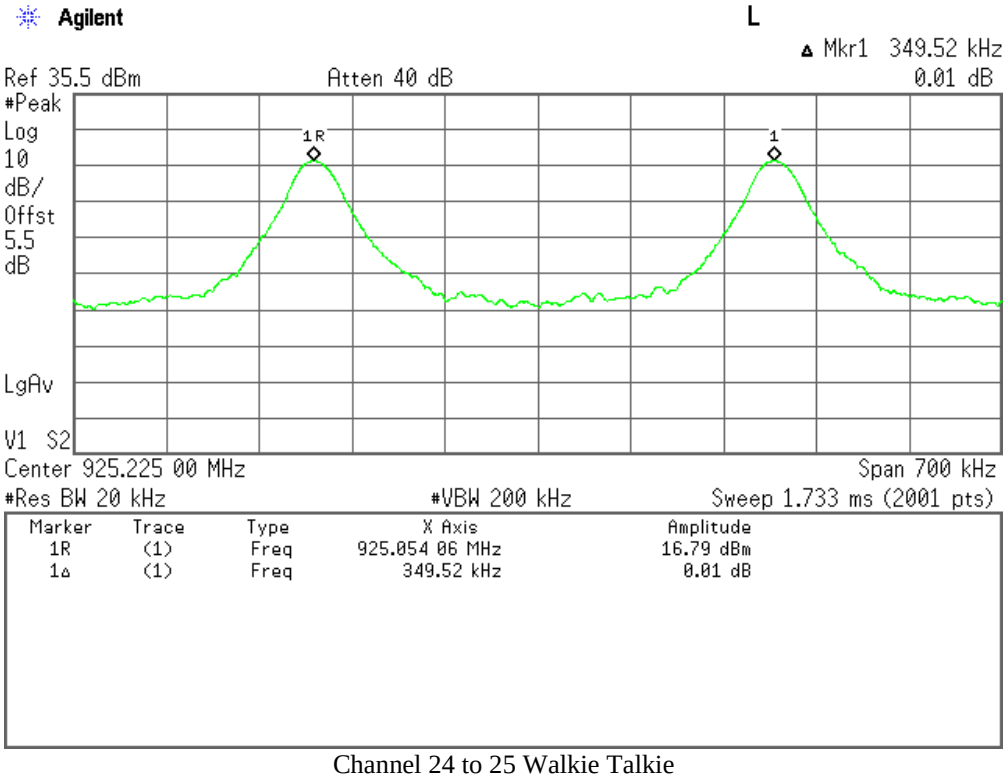
Channel 21 to 22 Walkie Talkie



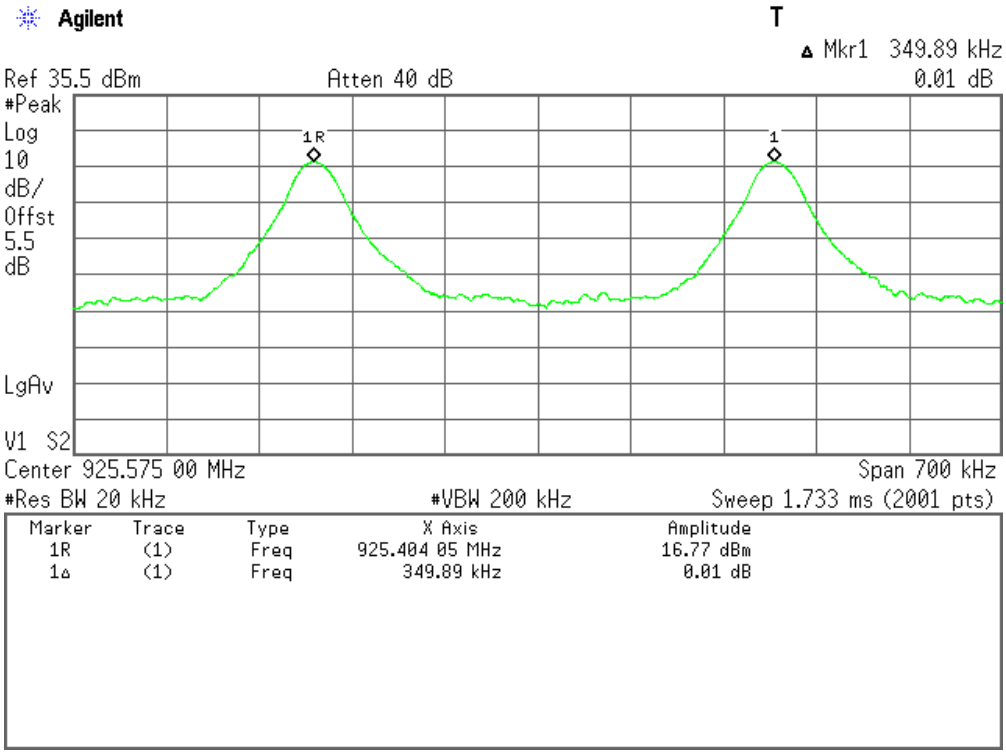
Channel 22 to 23 Walkie Talkie



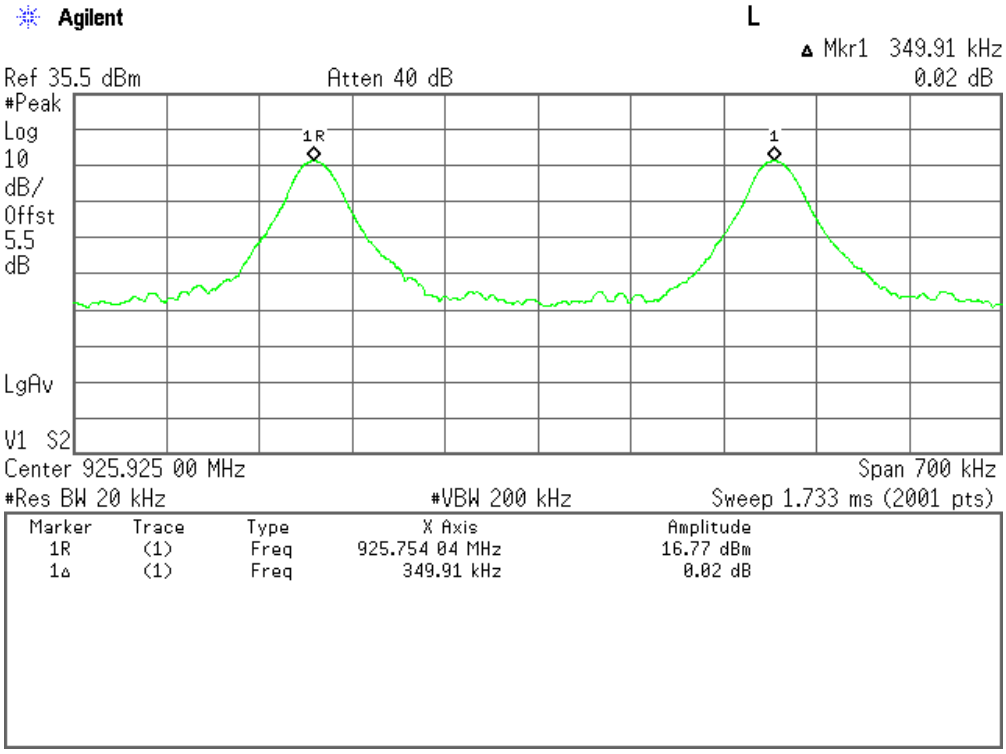
Channel 23 to 24 Walkie Talkie



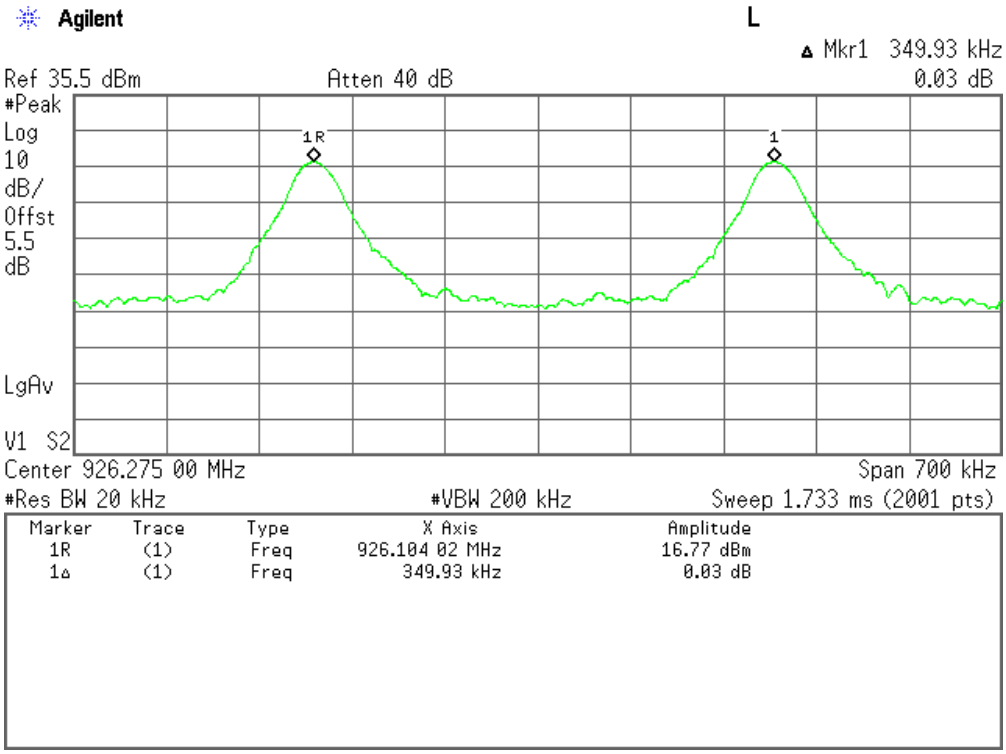
Channel 24 to 25 Walkie Talkie



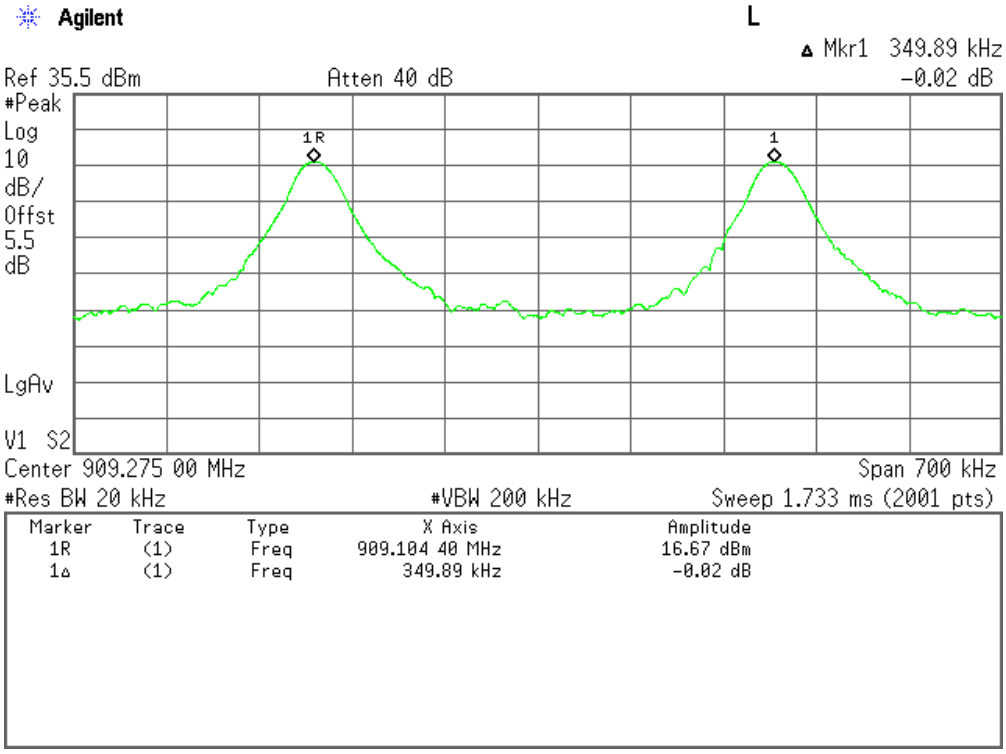
Channel 25 to 26 Walkie Talkie



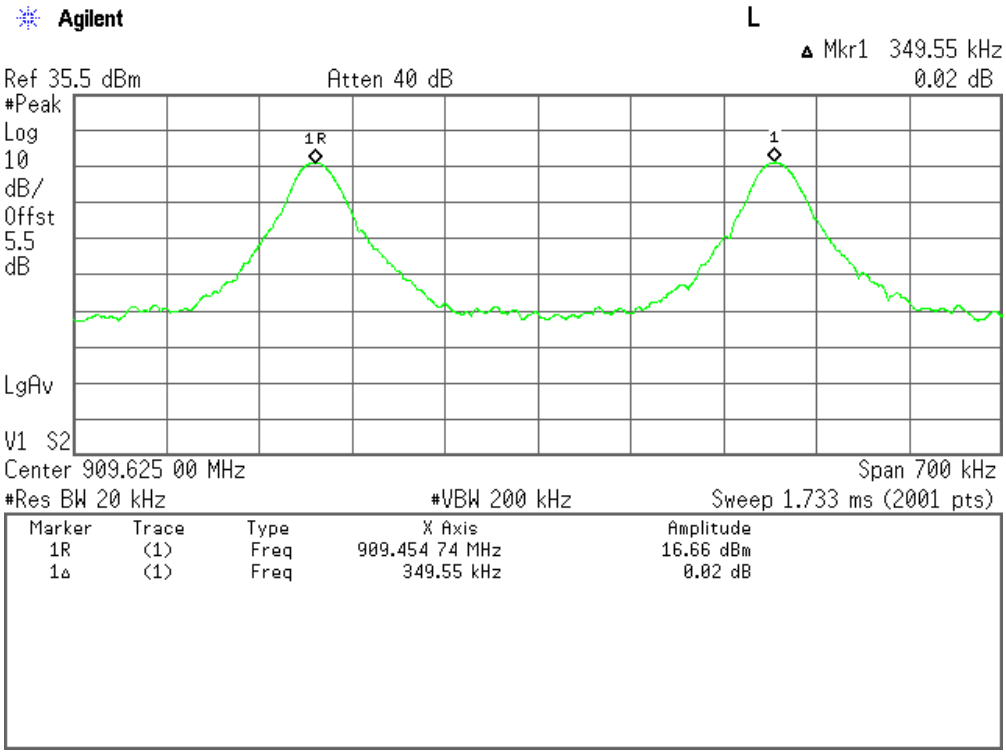
Channel 26 to 27 Walkie Talkie



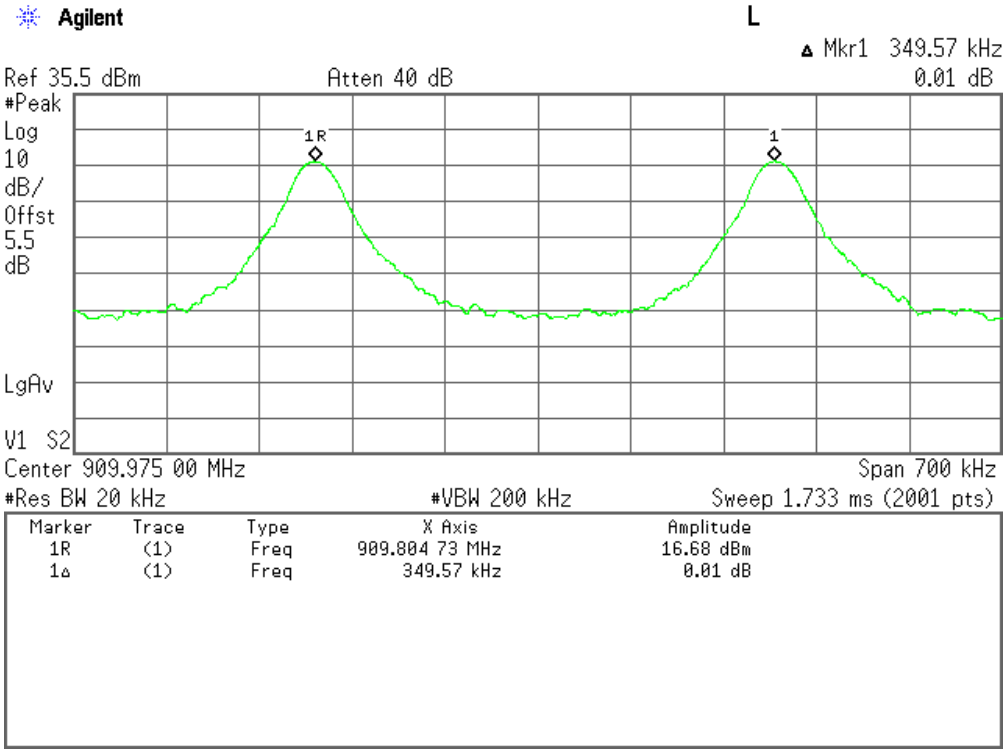
Channel 27 to 28 Walkie Talkie



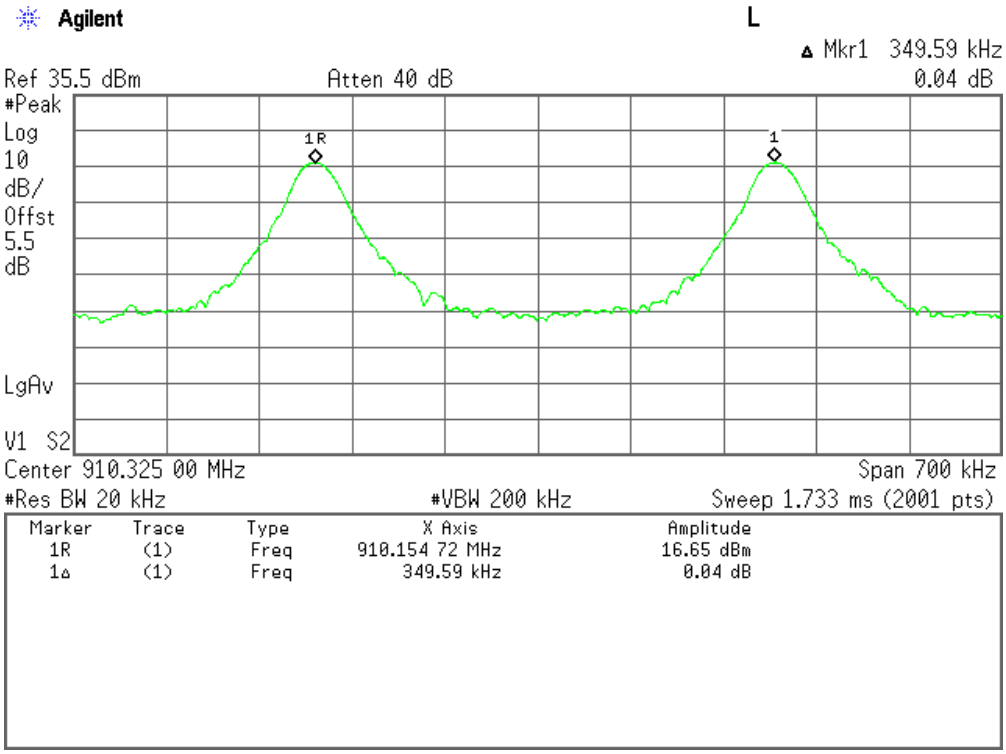
Channel 1 to 2 Normal



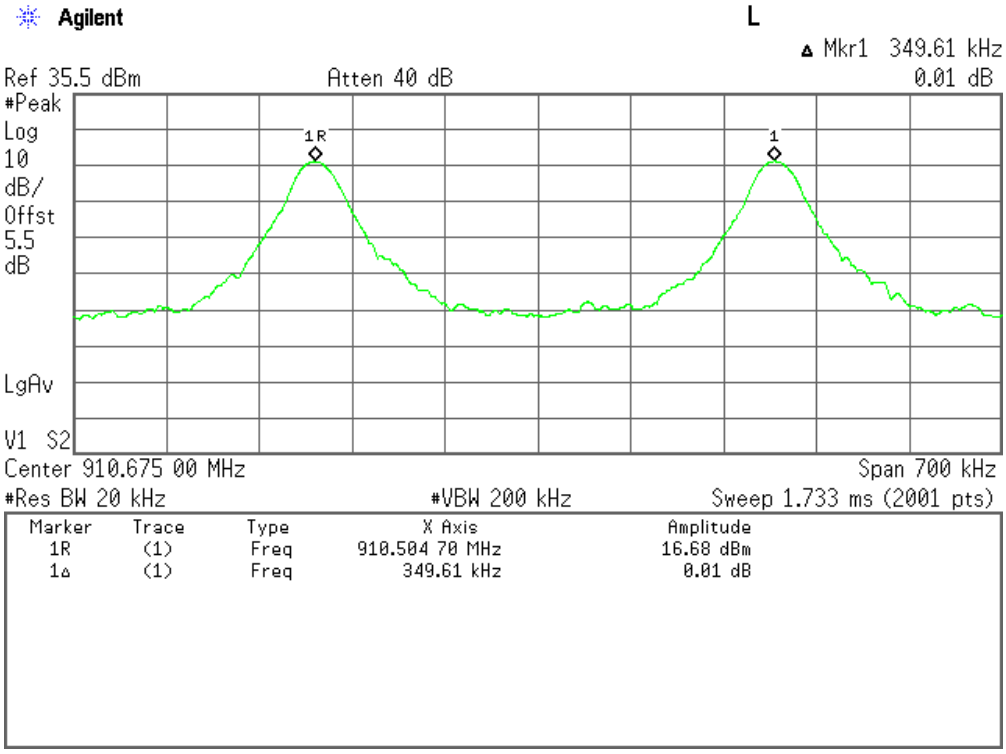
Channel 2 to 3 Normal



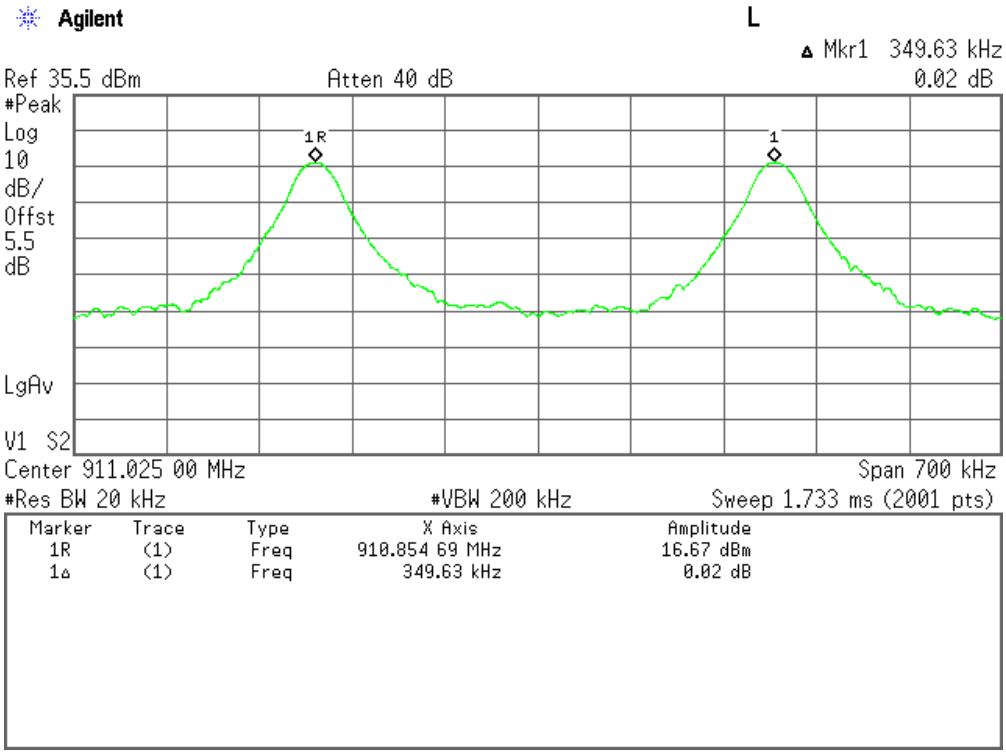
Channel 3 to 4 Normal



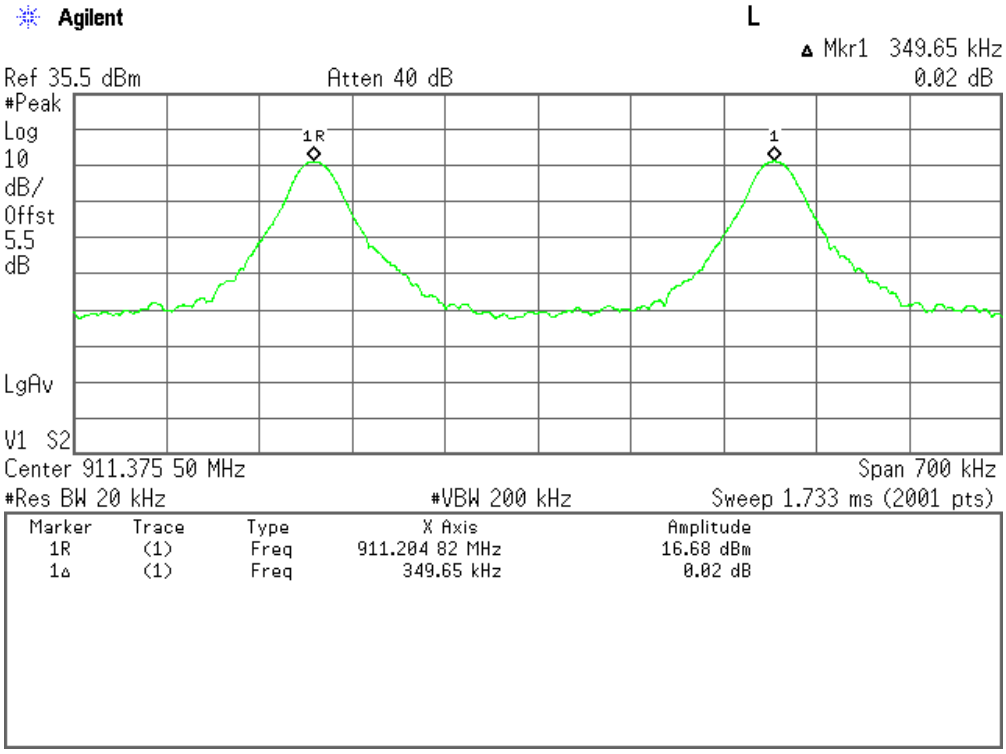
Channel 4 to 5 Normal



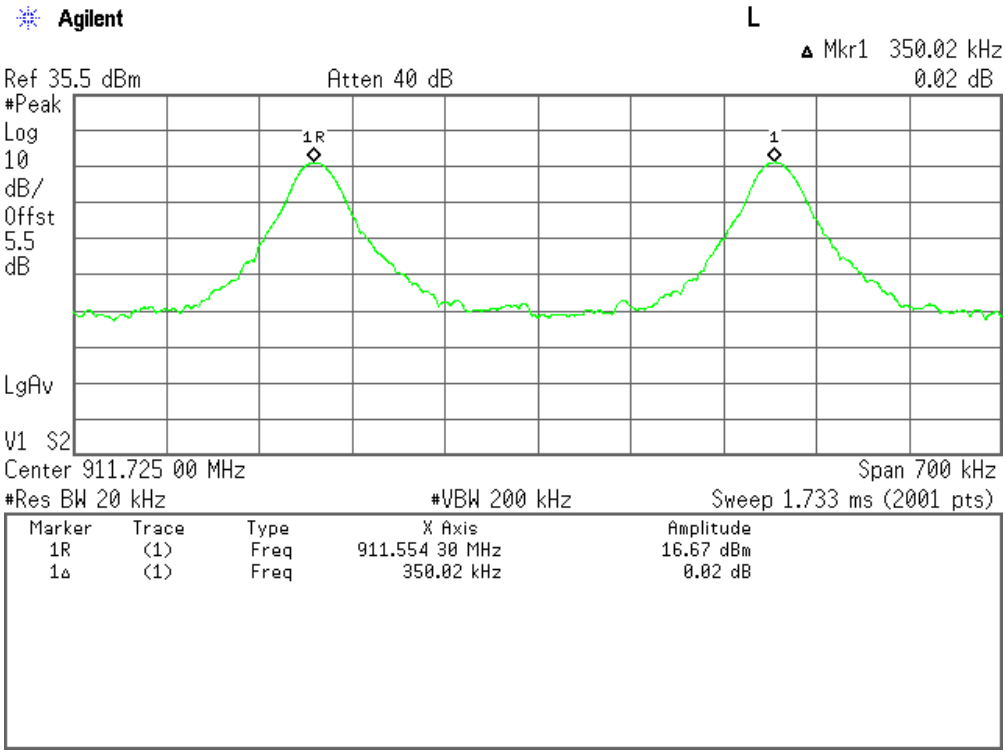
Channel 5 to 6 Normal



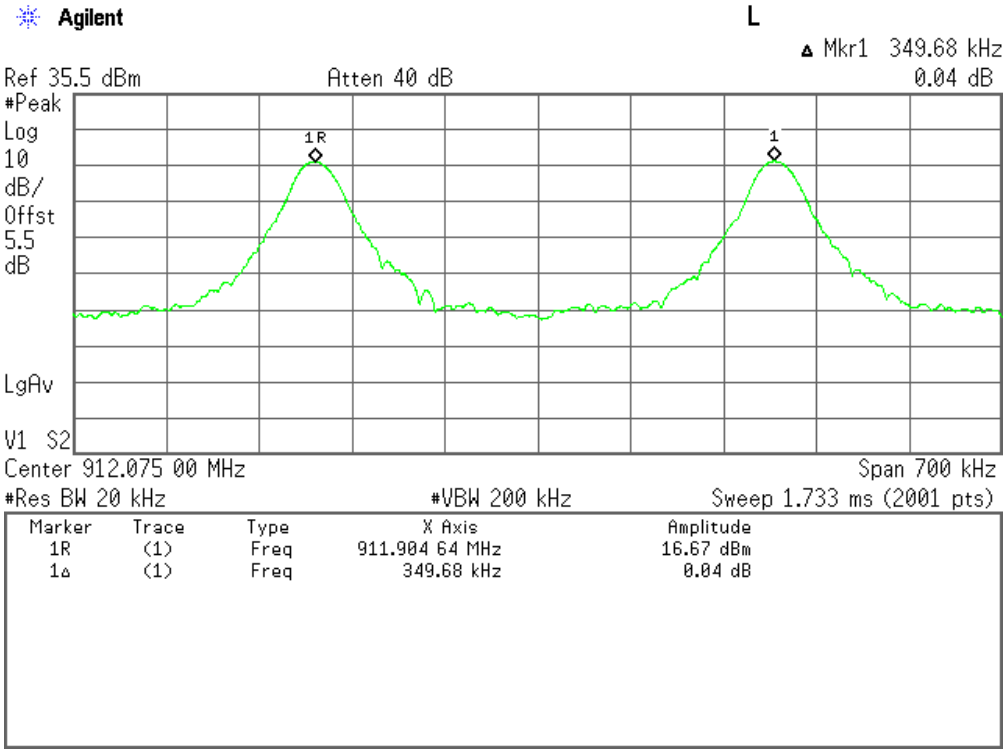
Channel 6 to 7 Normal



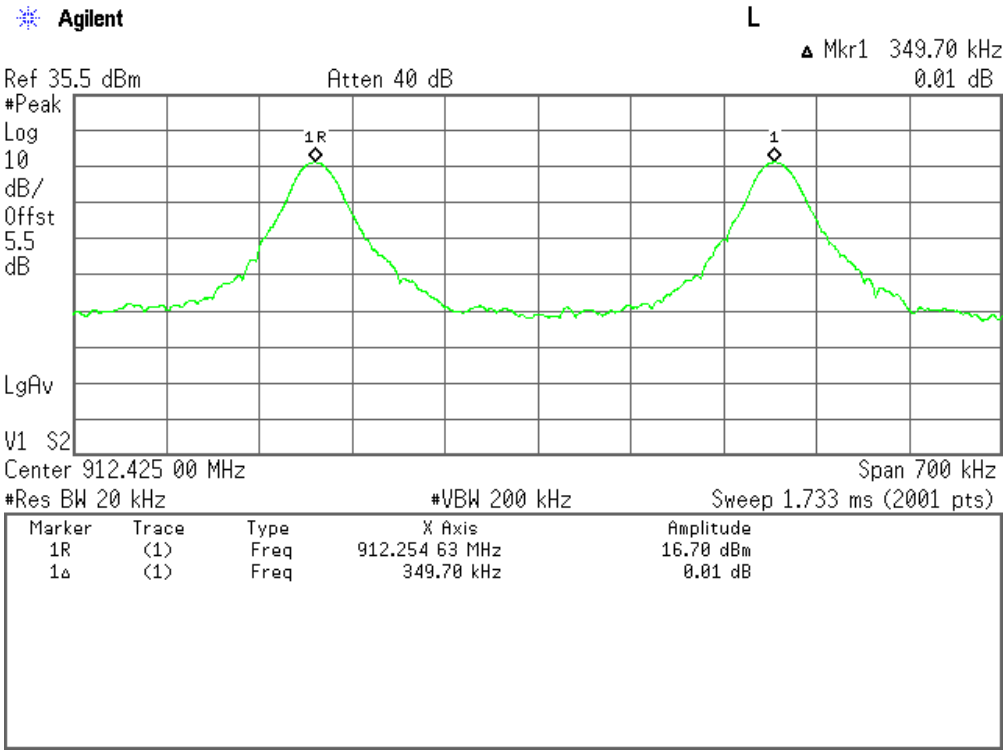
Channel 7 to 8 Normal



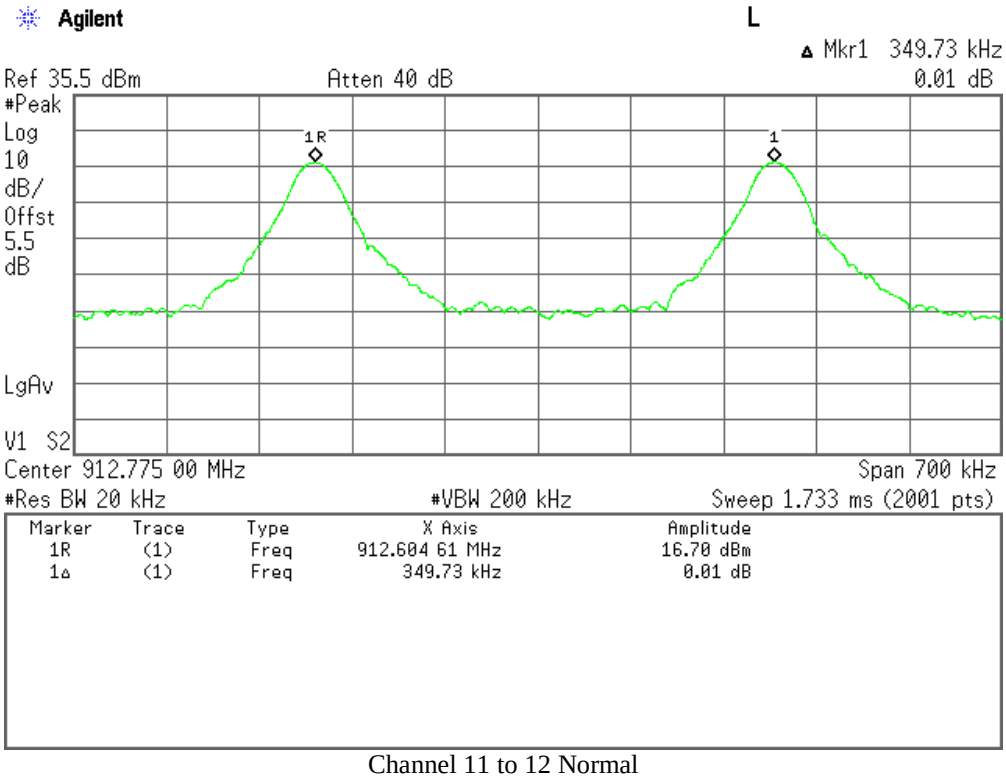
Channel 8 to 9 Normal



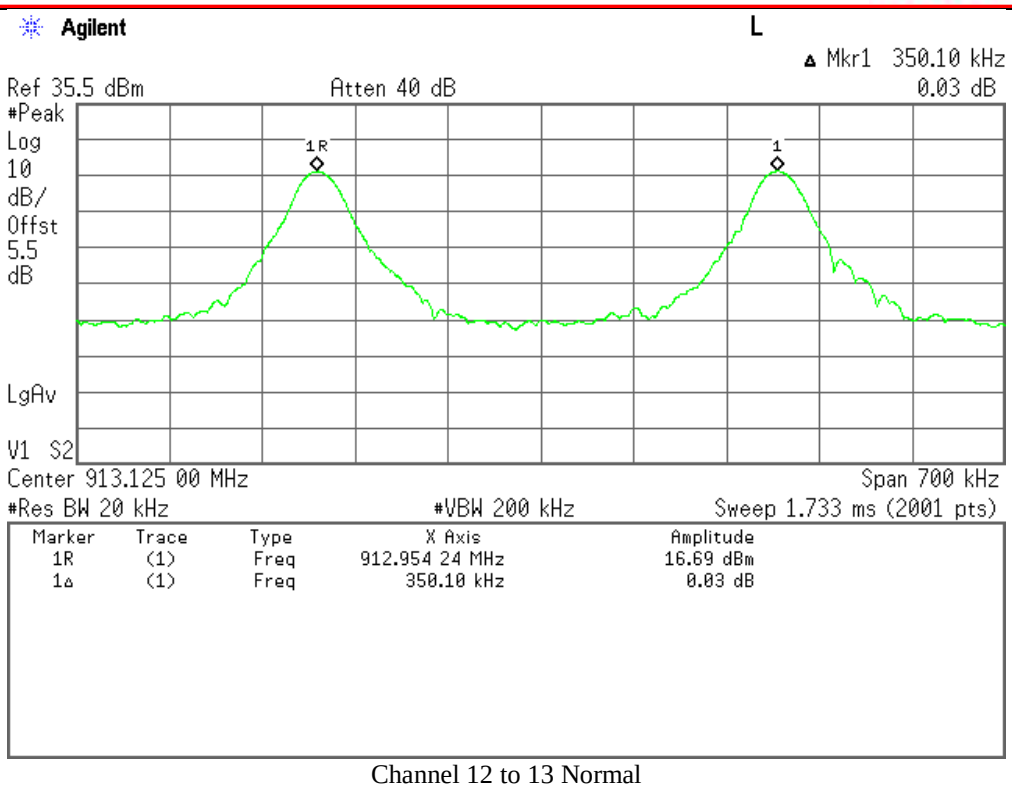
Channel 9 to 10 Normal



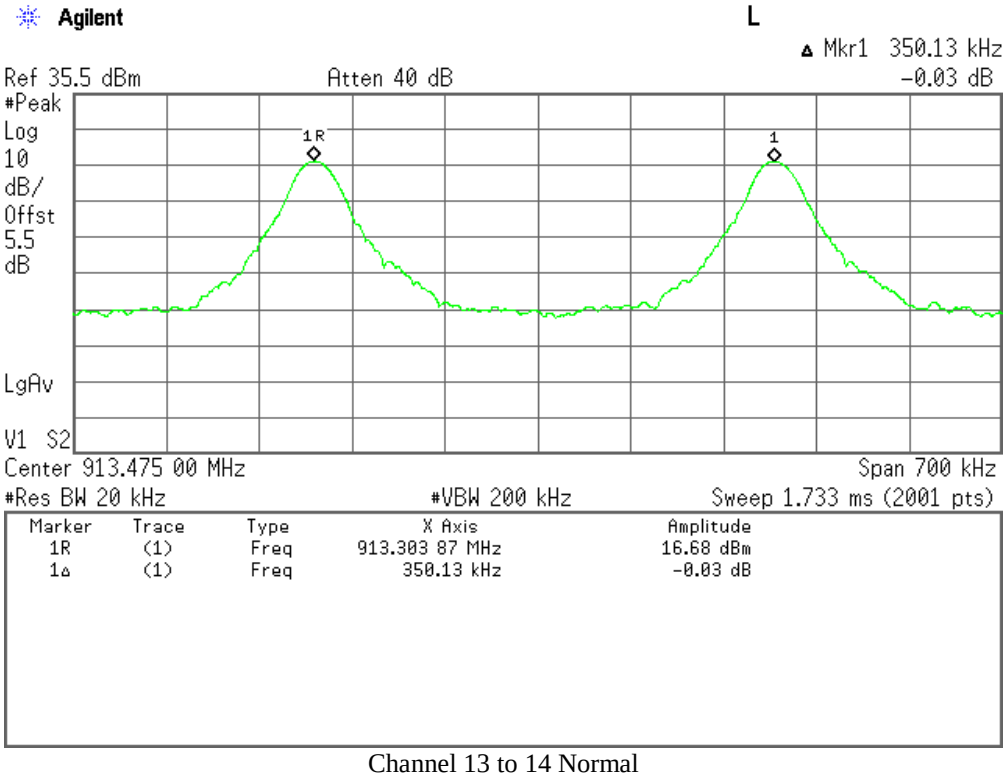
Channel 10 to 11 Normal



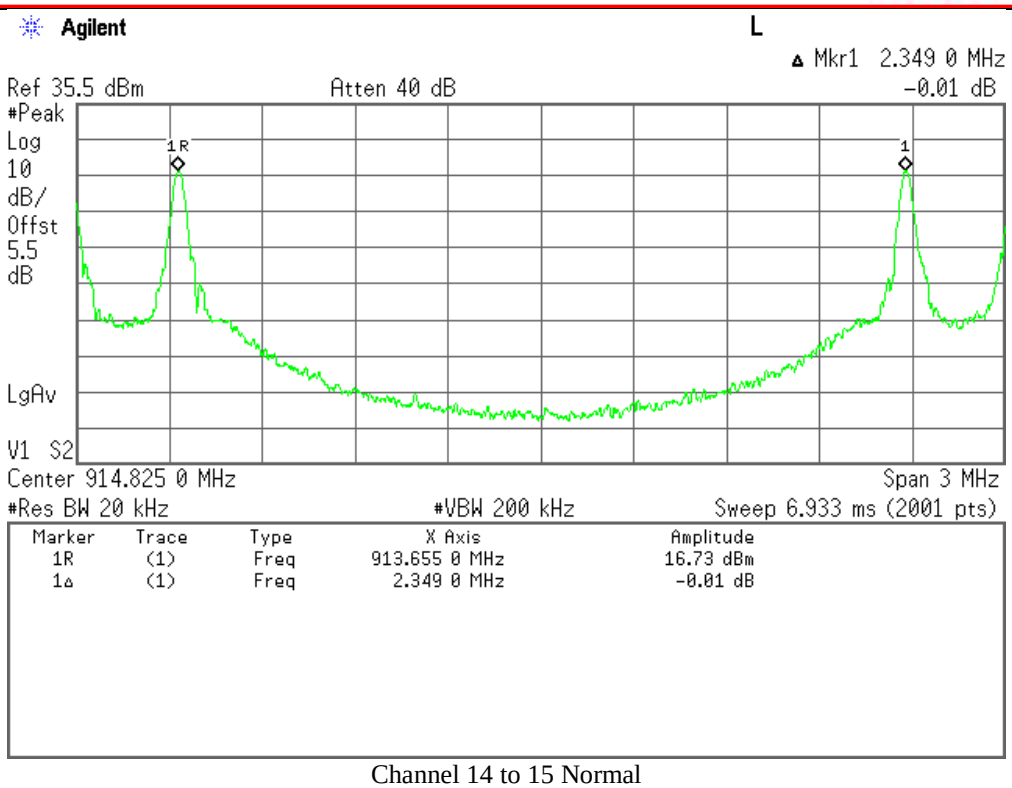
Channel 11 to 12 Normal



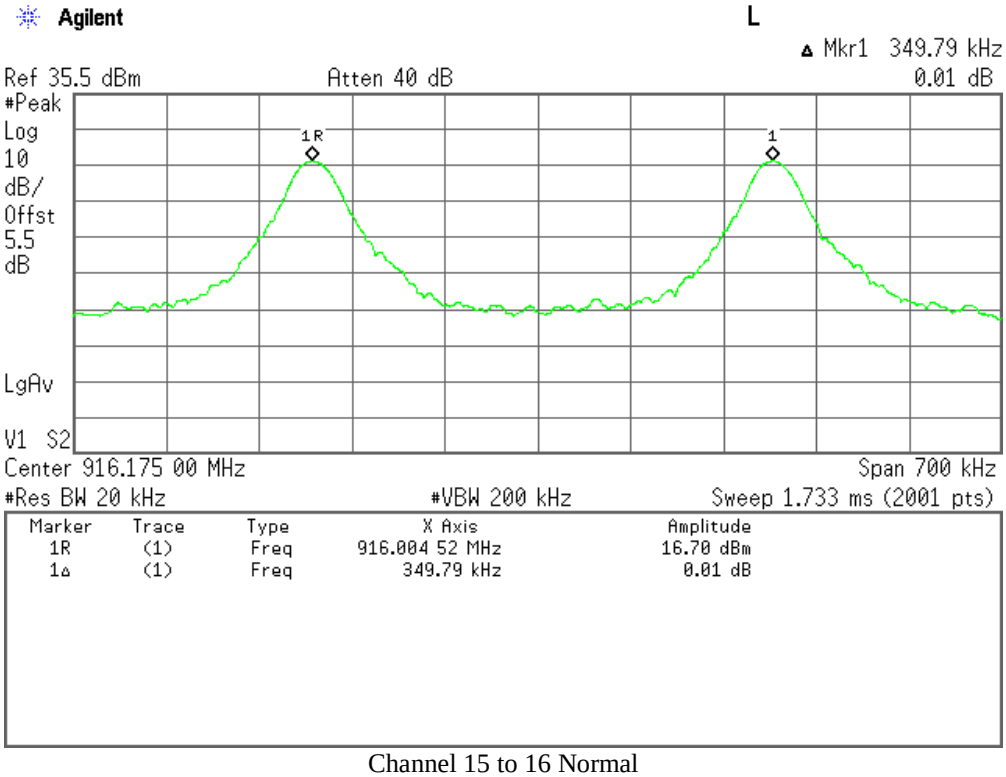
Channel 12 to 13 Normal



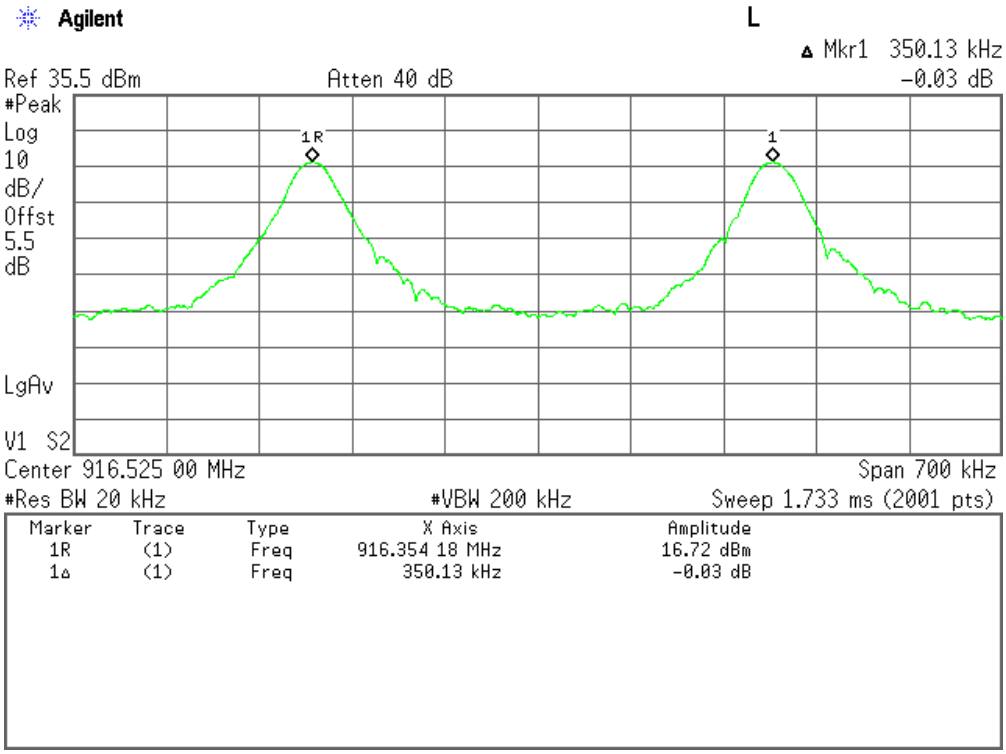
Channel 13 to 14 Normal



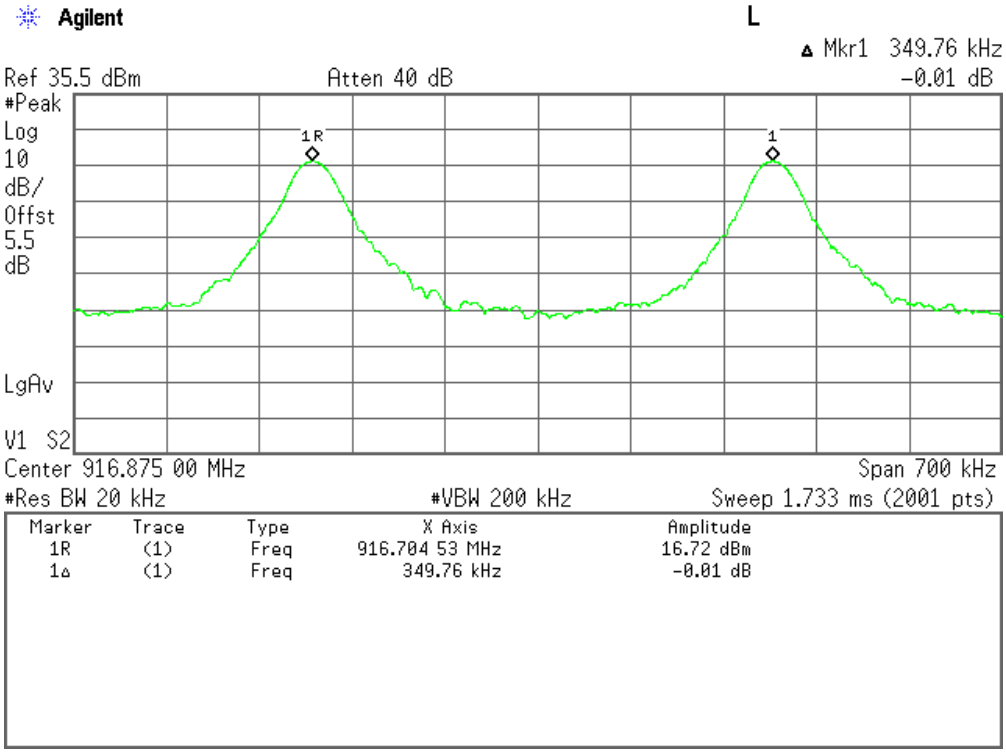
Channel 14 to 15 Normal



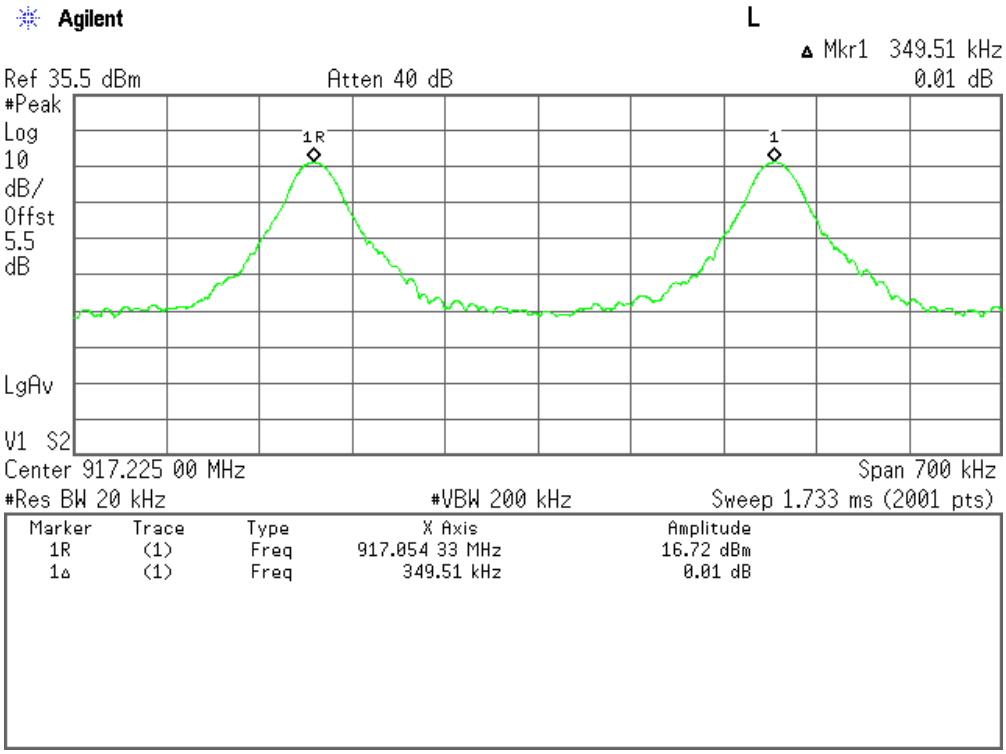
Channel 15 to 16 Normal



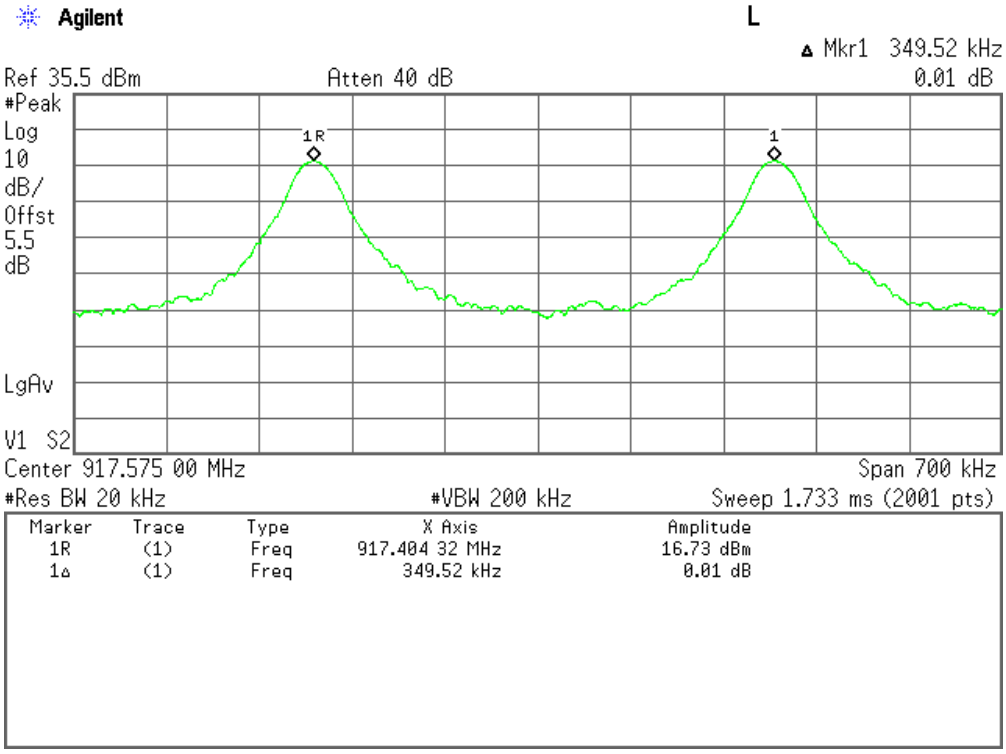
Channel 16 to 17 Normal



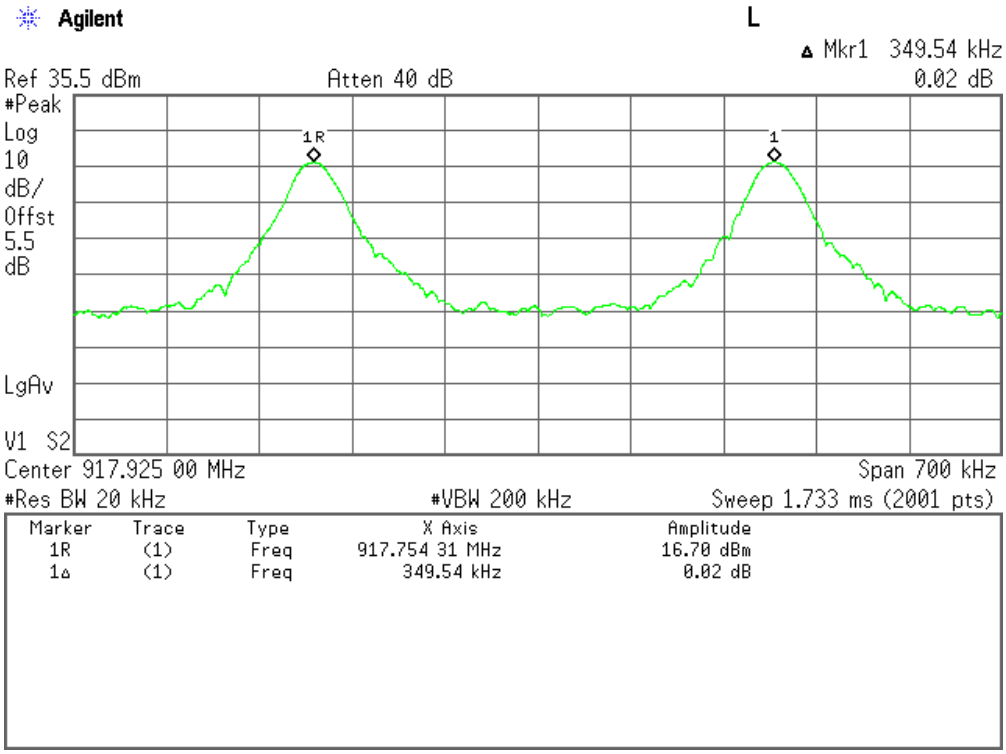
Channel 17 to 18 Normal



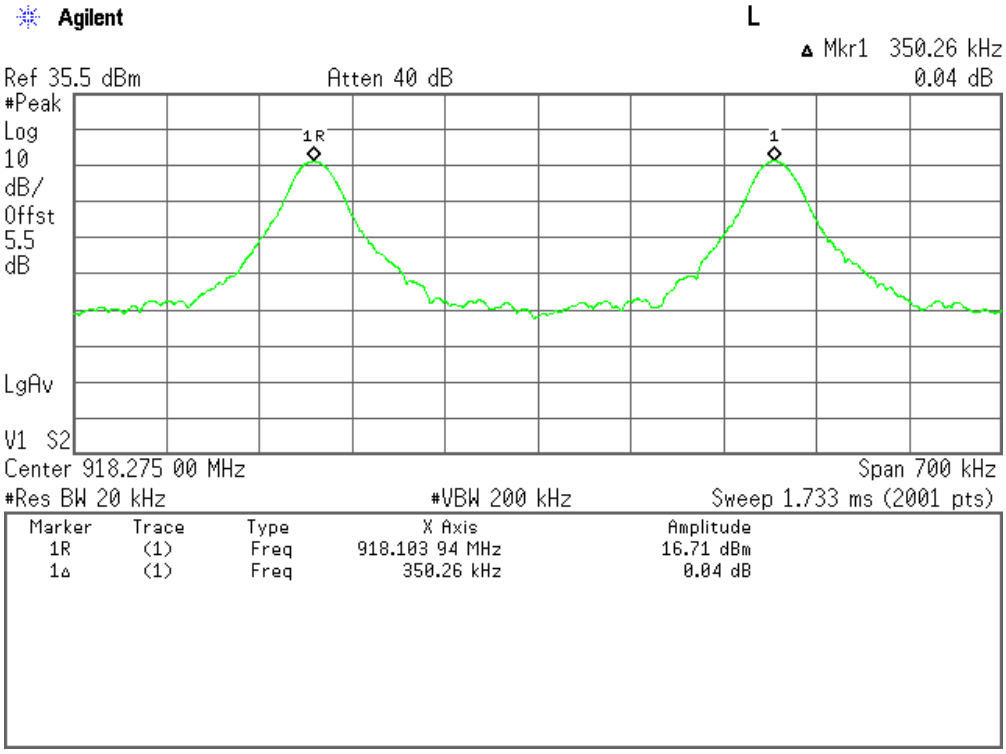
Channel 18 to 19 Normal



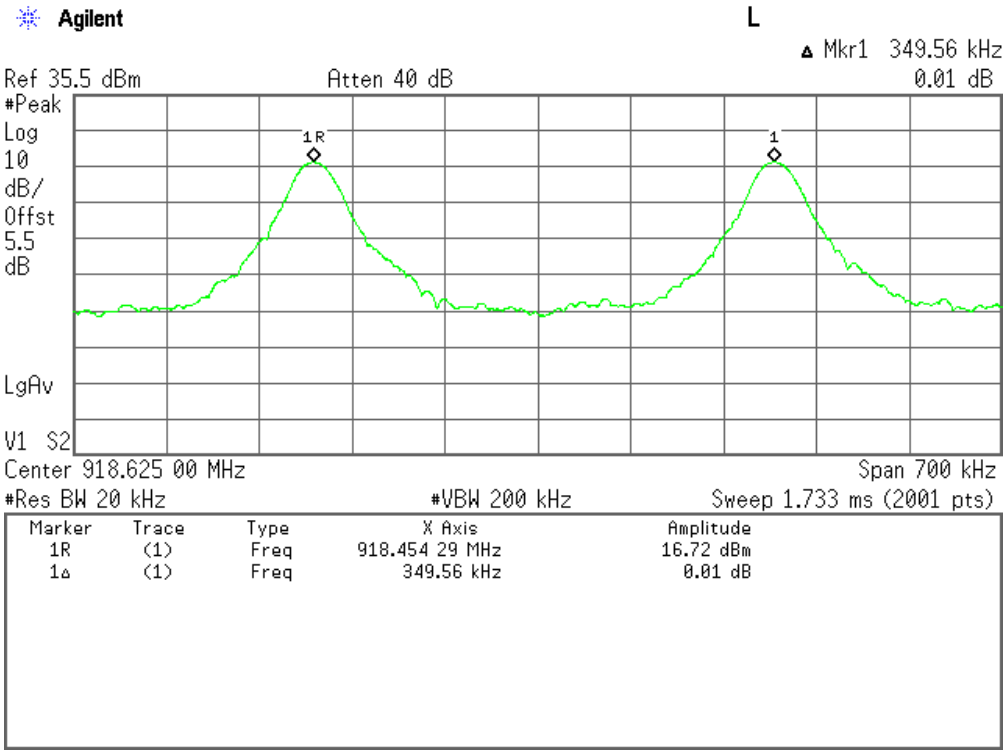
Channel 19 to 20 Normal



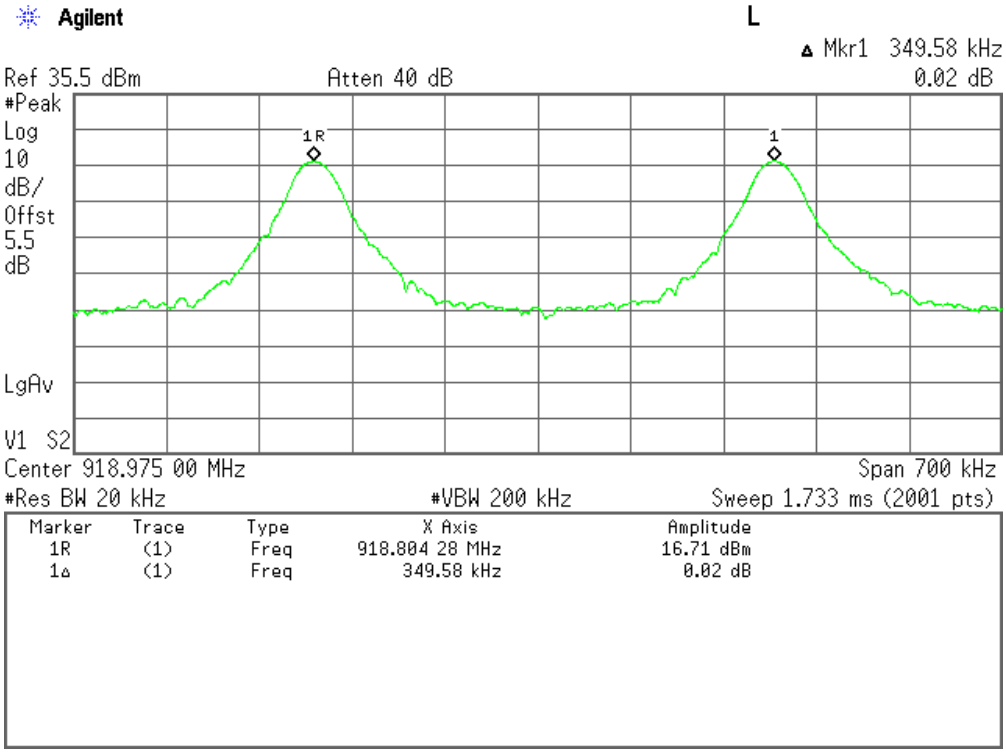
Channel 20 to 21 Normal



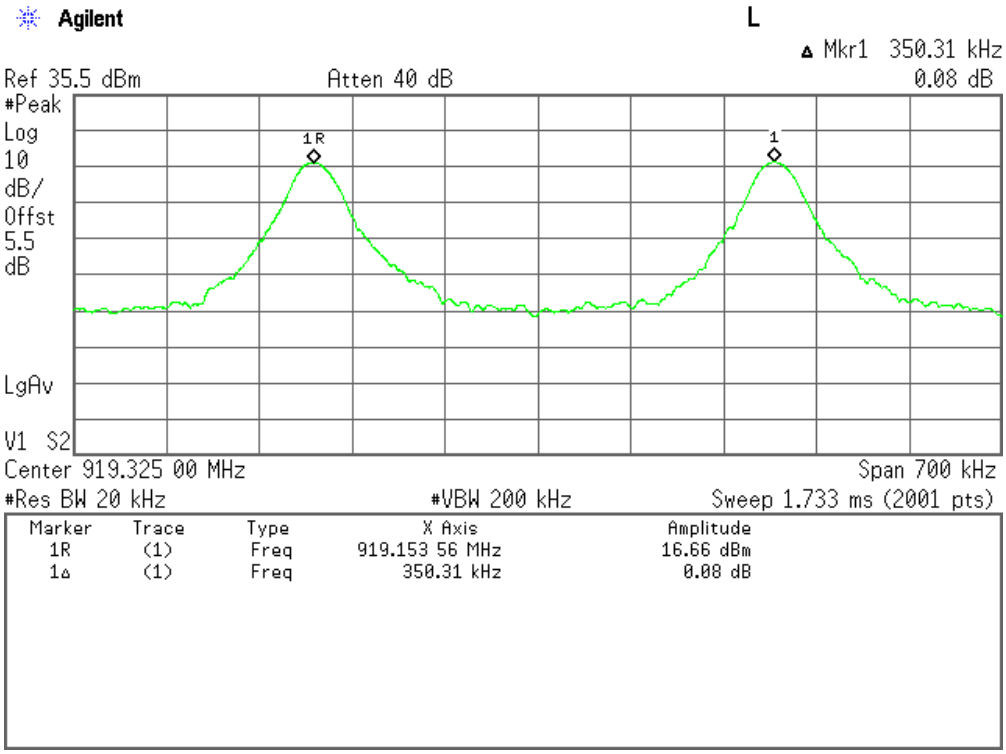
Channel 21 to 22 Normal



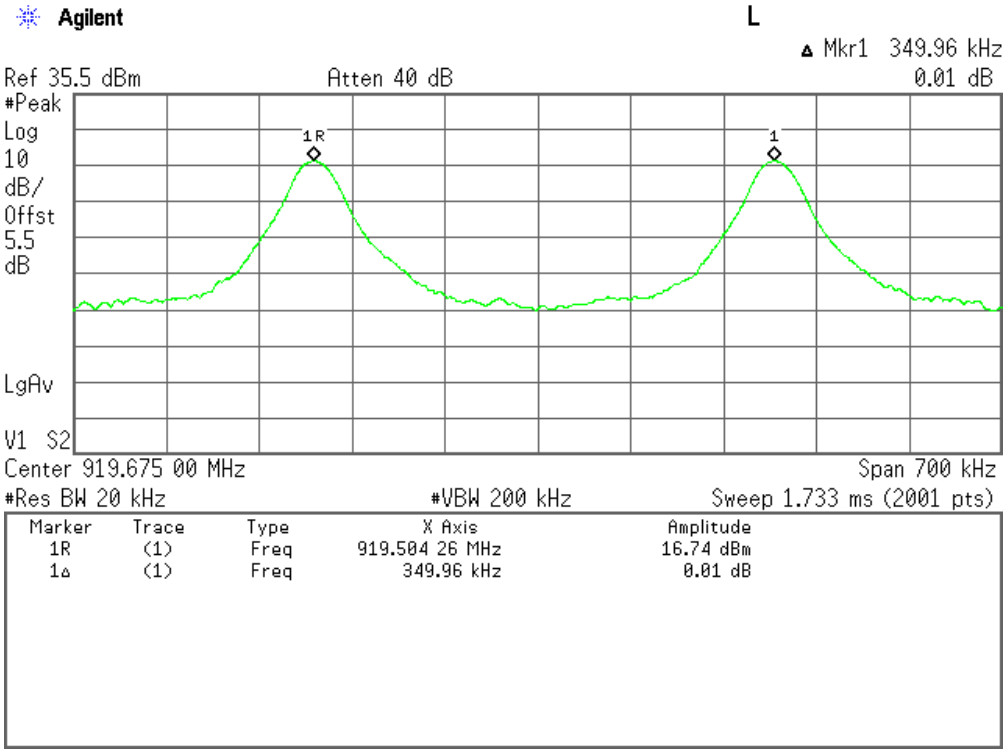
Channel 22 to 23 Normal



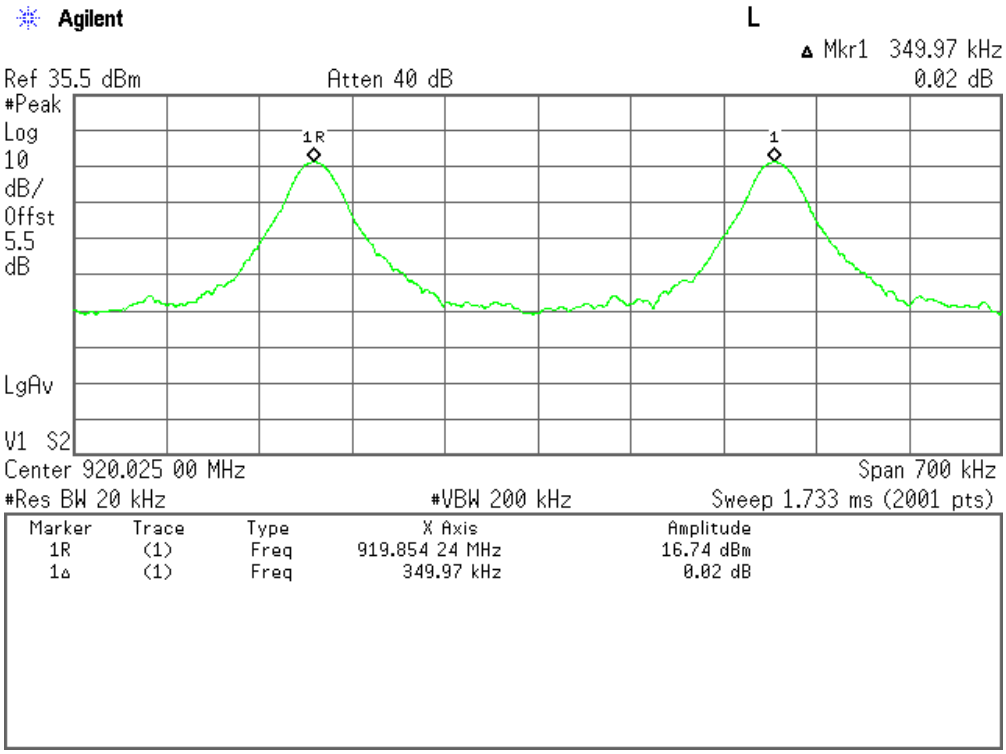
Channel 23 to 24 Normal



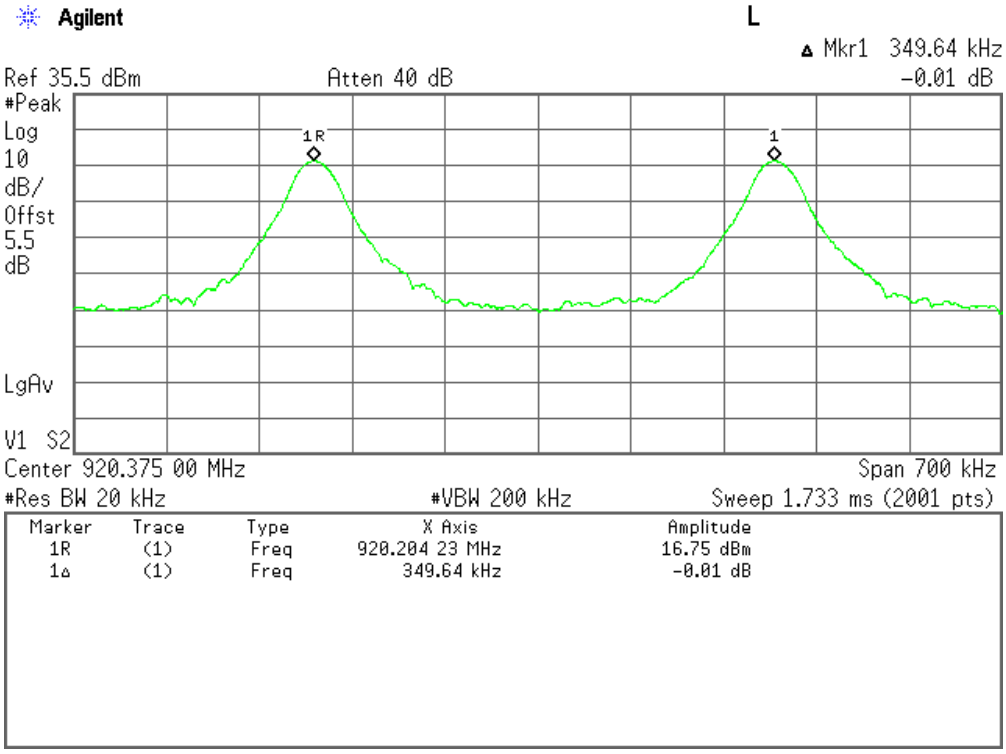
Channel 24 to 25 Normal



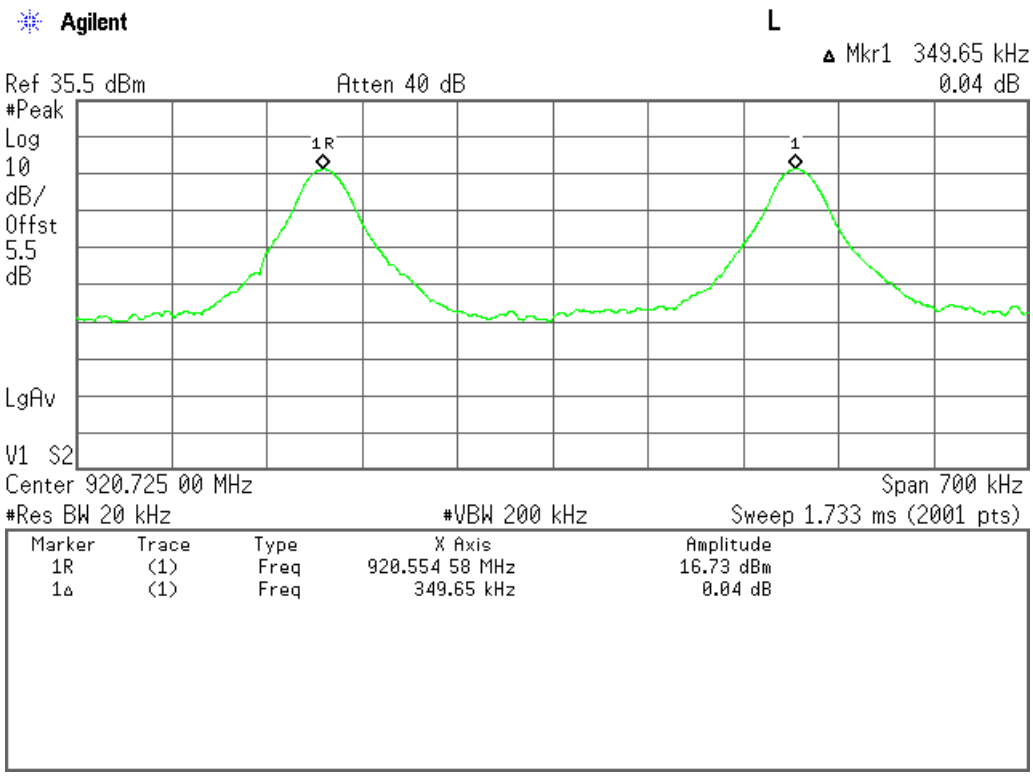
Channel 25 to 26 Normal



Channel 26 to 27 Normal



Channel 27 to 28 Normal



Channel 28 (Normal) to Channel 15 (Walkie Talkie)

TEST RESULT			
Channel (Walkie Talkie) #	Measured value KHz	Limit	Result
1 to 2	349.61	>20dB BW	Pass
2 to 3	349.98	>20dB BW	Pass
3 to 4	349.6	>20dB BW	Pass
4 to 5	349.66	>20dB BW	Pass
5 to 6	349.68	>20dB BW	Pass
6 to 7	349.7	>20dB BW	Pass
7 to 8	349.71	>20dB BW	Pass
8 to 9	349.73	>20dB BW	Pass
9 to 10	349.74	>20dB BW	Pass
10 to 11	349.76	>20dB BW	Pass
11 to 12	349.78	>20dB BW	Pass
12 to 13	349.8	>20dB BW	Pass
13 to 14	1350	>20dB BW	Pass
28 (Normal) to 15 (Walkie Talkie)	349.65	>20dB BW	Pass
15 to 16	1350	>20dB BW	Pass
16 to 17	349.72	>20dB BW	Pass
17 to 18	349.73	>20dB BW	Pass
18 to 19	349.4	>20dB BW	Pass
19 to 20	349.78	>20dB BW	Pass
20 to 21	349.79	>20dB BW	Pass
21 to 22	349.46	>20dB BW	Pass
22 to 23	349.83	>20dB BW	Pass
23 to 24	349.85	>20dB BW	Pass
24 to 25	349.52	>20dB BW	Pass
25 to 26	349.89	>20dB BW	Pass
26 to 27	349.91	>20dB BW	Pass
27 to 28	349.93	>20dB BW	Pass
Channel (Normal) #	Measured value KHz	Limit	Result
1 to 2	349.89	>20dB BW	Pass
2 to 3	349.55	>20dB BW	Pass
3 to 4	349.57	>20dB BW	Pass
4 to 5	349.59	>20dB BW	Pass
5 to 6	349.61	>20dB BW	Pass
6 to 7	349.63	>20dB BW	Pass
7 to 8	349.65	>20dB BW	Pass
8 to 9	350.02	>20dB BW	Pass
9 to 10	349.68	>20dB BW	Pass
10 to 11	349.70	>20dB BW	Pass
11 to 12	349.73	>20dB BW	Pass
12 to 13	350.10	>20dB BW	Pass
13 to 14	350.13	>20dB BW	Pass
14 to 15	2349	>20dB BW	Pass
15 to 16	349.79	>20dB BW	Pass
16 to 17	350.13	>20dB BW	Pass
17 to 18	349.76	>20dB BW	Pass
18 to 19	349.51	>20dB BW	Pass
19 to 20	349.52	>20dB BW	Pass
20 to 21	349.54	>20dB BW	Pass

21 to 22	350.26	>20dB BW	Pass
22 to 23	349.56	>20dB BW	Pass
23 to 24	349.58	>20dB BW	Pass
24 to 25	350.31	>20dB BW	Pass
25 to 26	349.96	>20dB BW	Pass
26 to 27	349.97	>20dB BW	Pass
27 to 28	349.64	>20dB BW	Pass

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test setup

2.4 NUMBER OF HOPPING FREQUENCIES

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2017-04-22	**Temperature (˚C)**	23.6°C
Test End Date	2017-04-24	**Humidity RH (%)**	51.9%RH
Tested By	Arnoldo Garcia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247:2010		
Test Method	DA 00-705		
Comment	NA		

TEST DETAILS

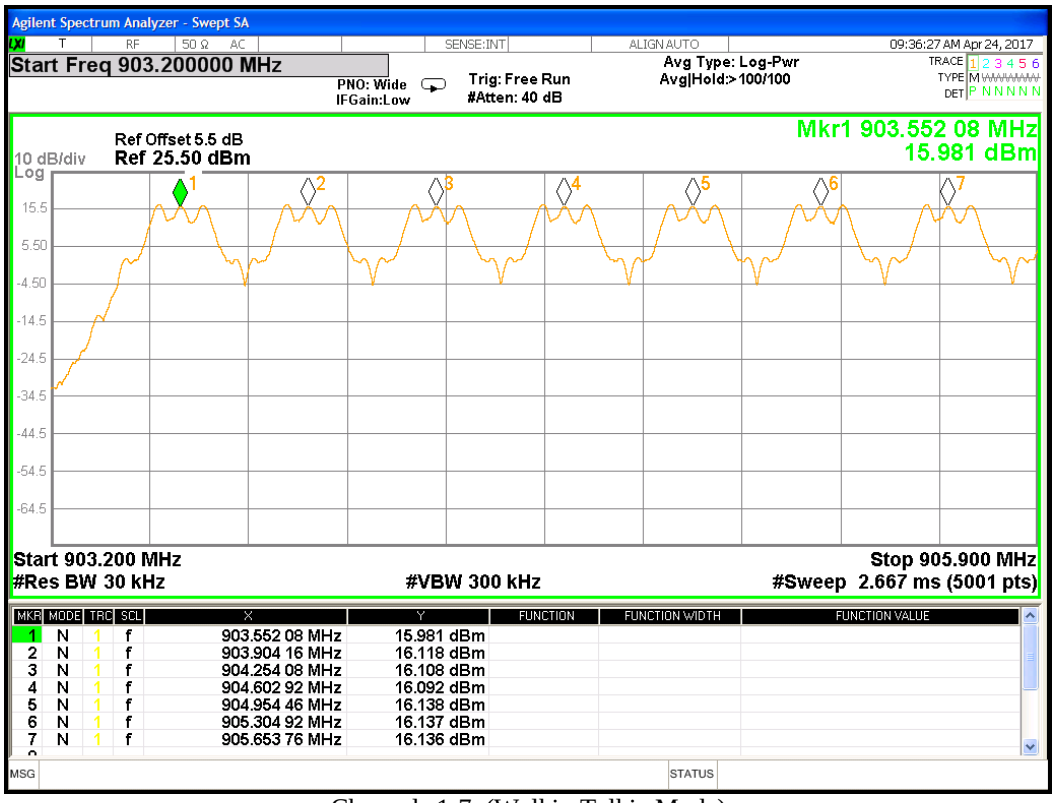
Method	Radiated ☐	Conducted ☒

TEST PARAMETERS

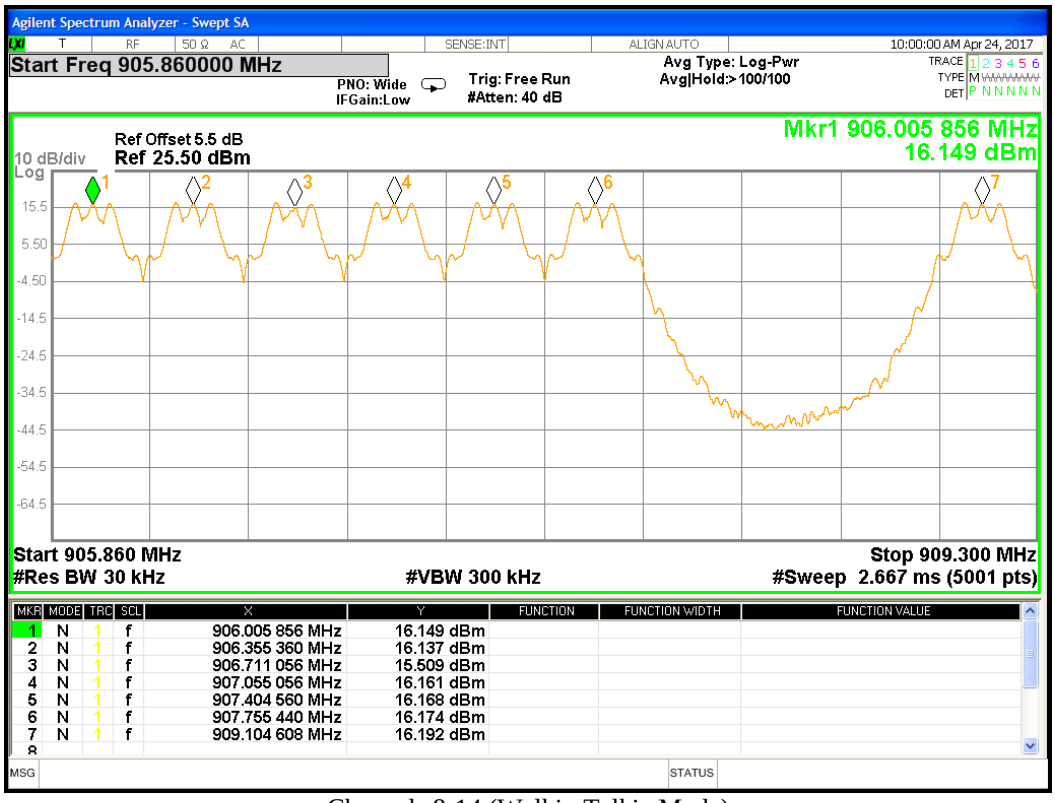
Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

TEST EQUIPMENT

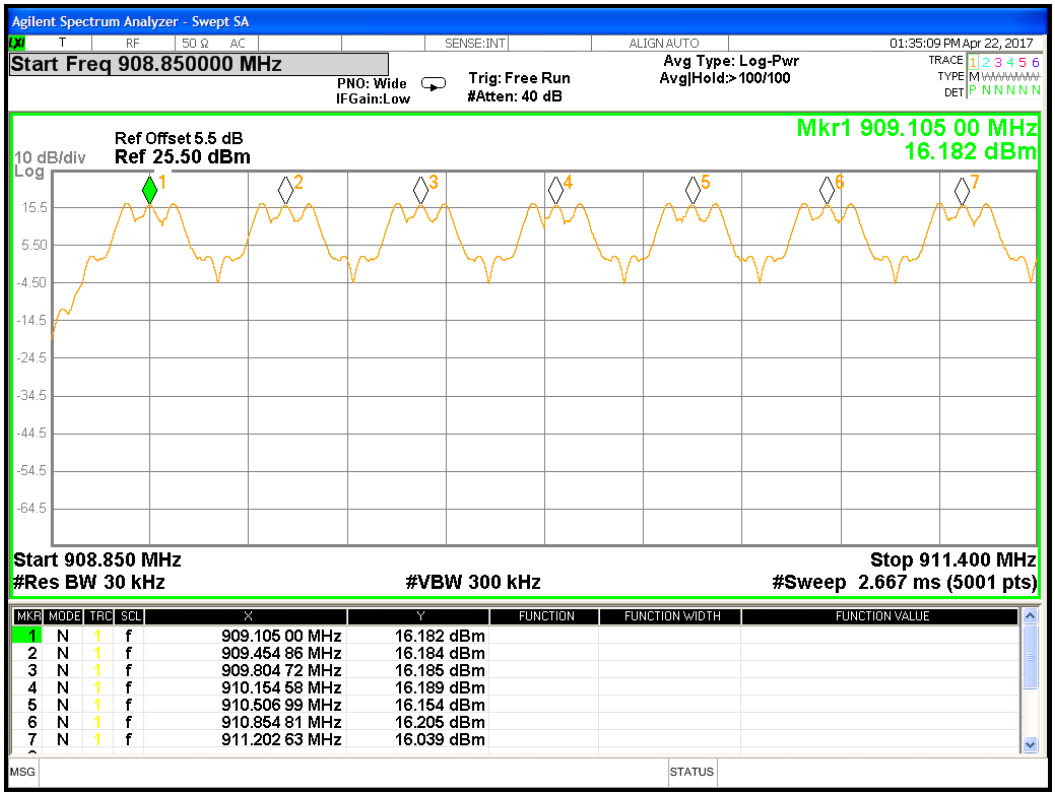
Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Keysight	N9030A (PXA)	MY49431595	2018-01-27
Y	RF Cable	Digikey	1	NA	NA



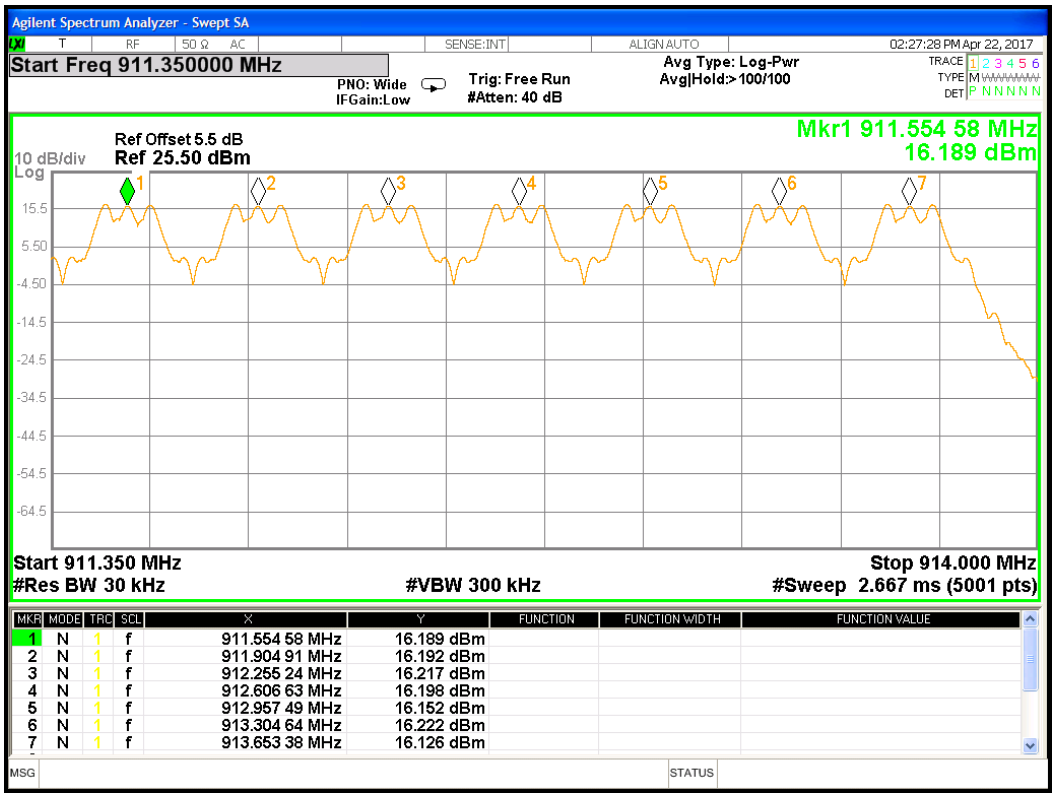
Channels 1-7 (Walkie-Talkie Mode)



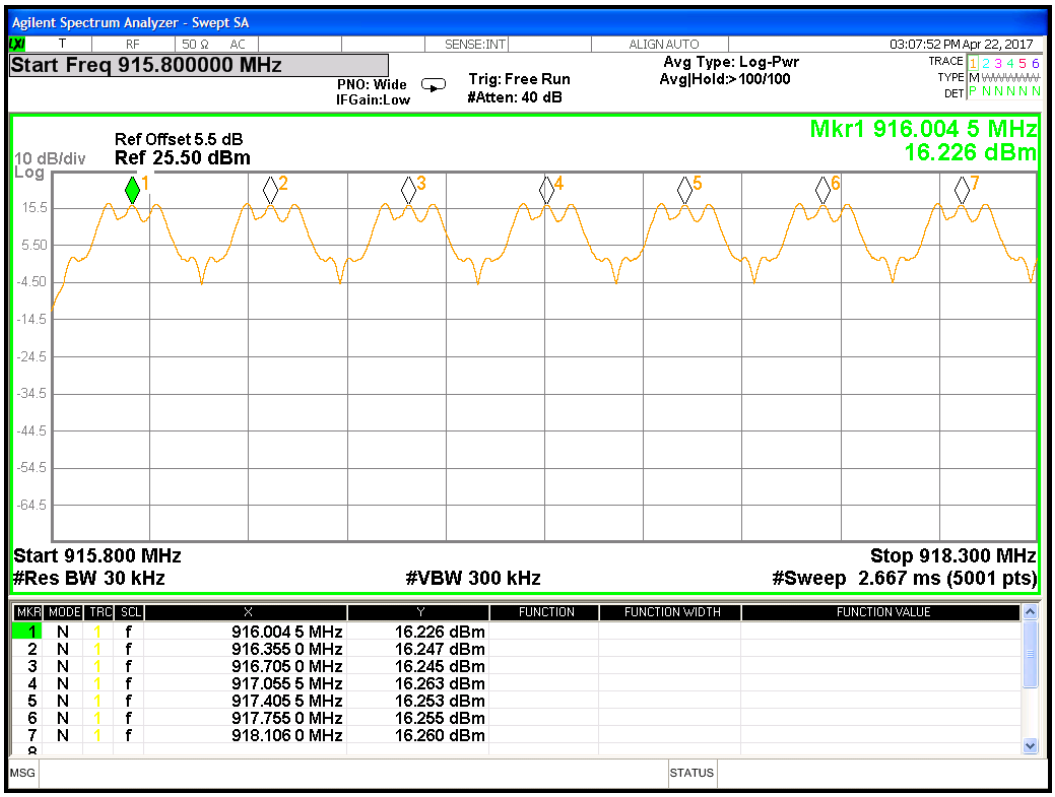
Channels 8-14 (Walkie-Talkie Mode)



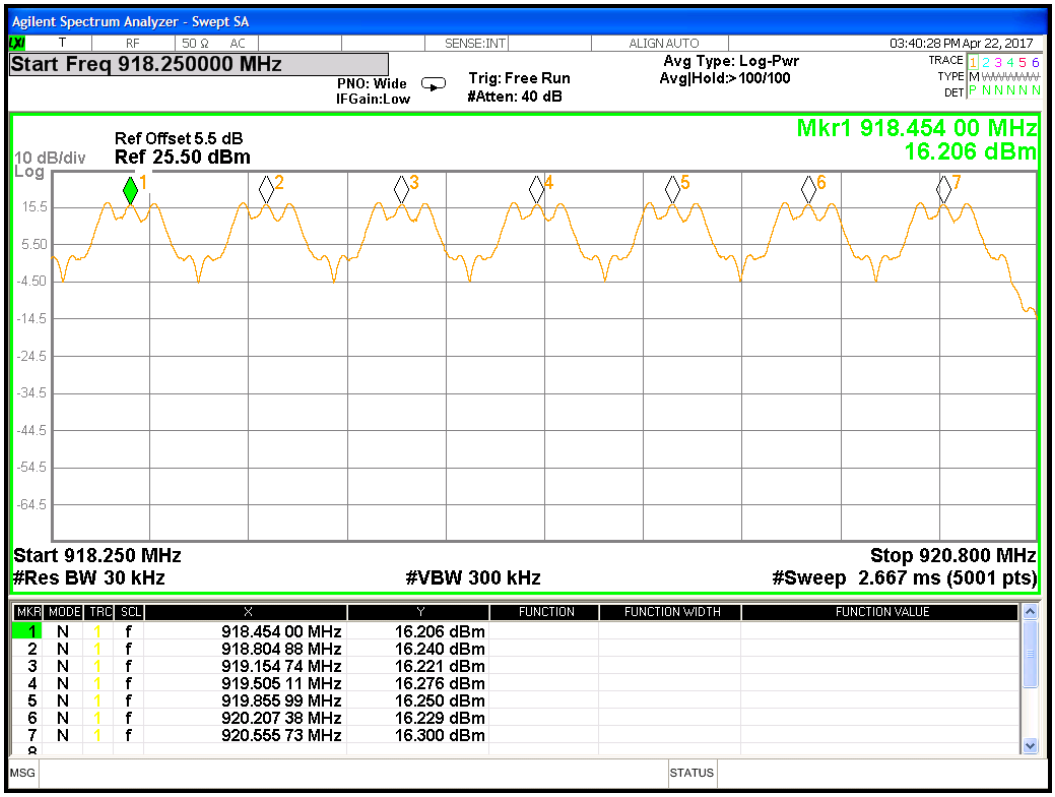
Channels 1-7 (Normal Mode)



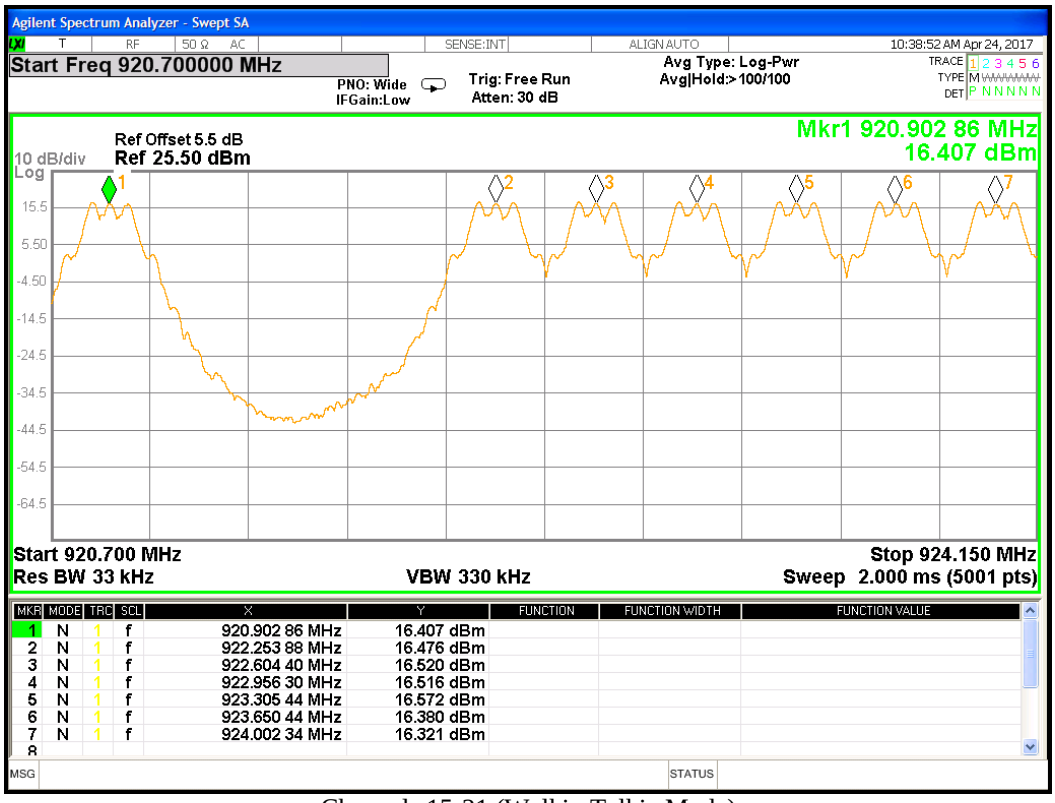
Channels 8-14 (Normal Mode)



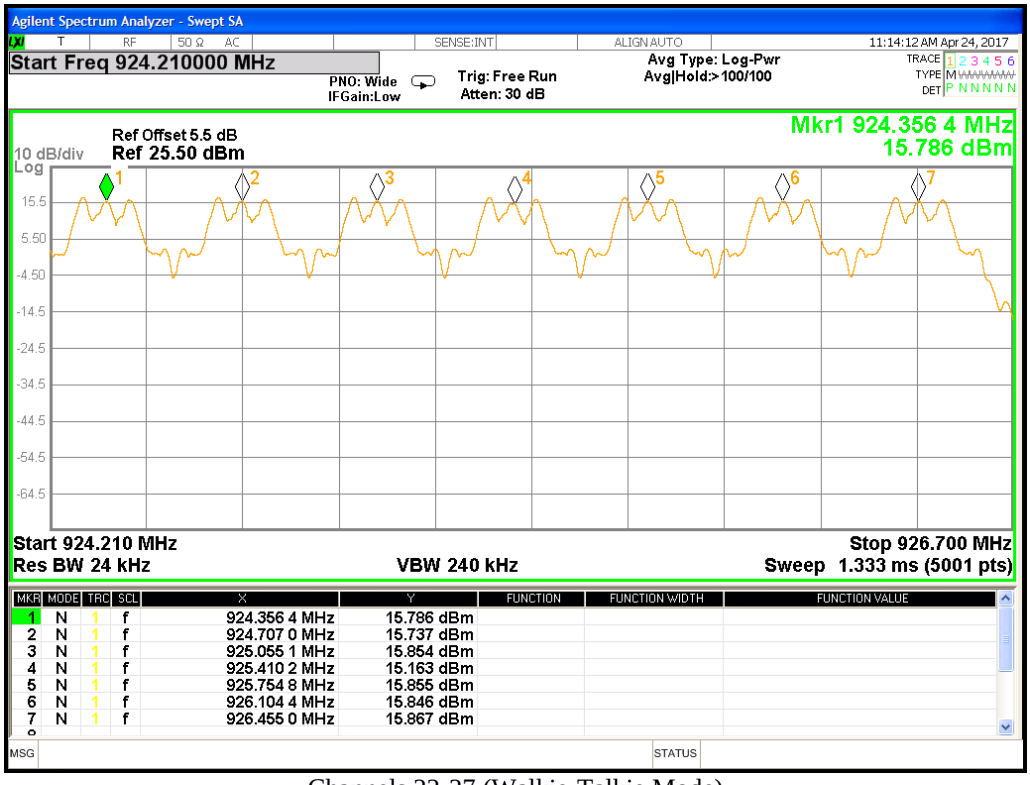
Channels 15-21 (Normal Mode)



Channels 22-28 (Normal Mode)



Channels 15-21 (Walkie-Talkie Mode)



Channels 22-27 (Walkie-Talkie Mode)

TEST RESULT			
Mode of Operation	**No. of Channels Measured**	**Limit (No. of Channels)**	**Test Results**
Normal Mode	28	≥25	PASS
Walkie-Talkie Mode	27	≥25	PASS

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test setup

2.5 BAND-EDGE COMPLIANCE

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2016-08-31	**Temperature (˚C)**	23.6°C
Test End Date	2016-09-06	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia/Arnoldo Garcia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247:2010		
Test Method	DA 00-705		
Comment	NA		

TEST DETAILS

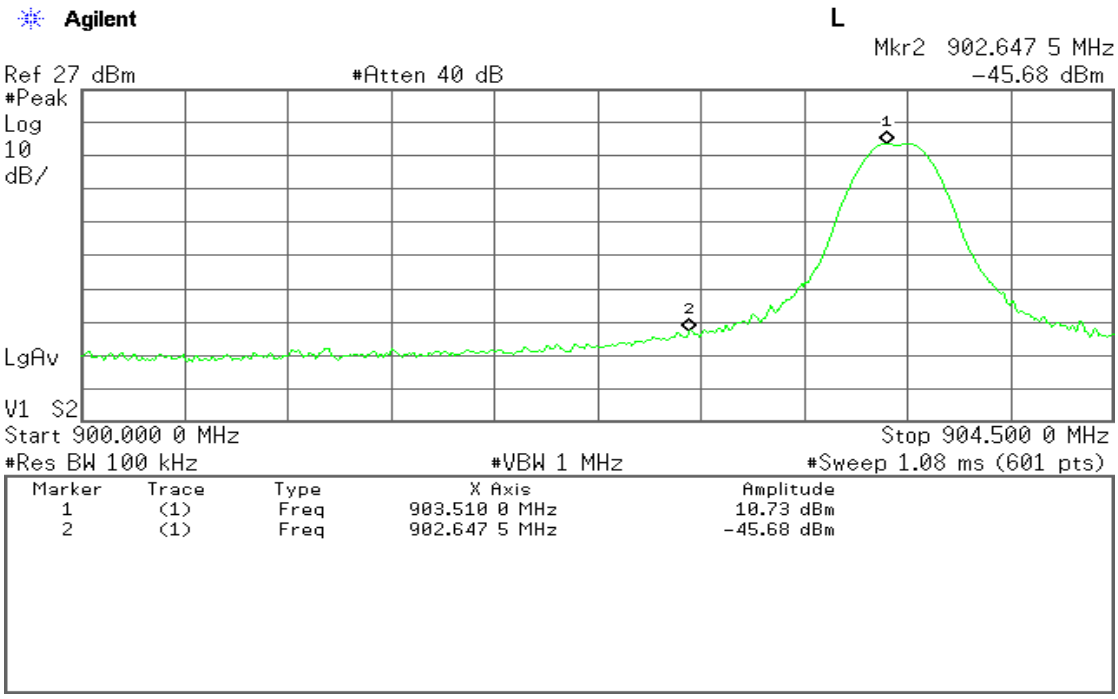
Method	Radiated ☐	Conducted ☒

TEST PARAMETERS

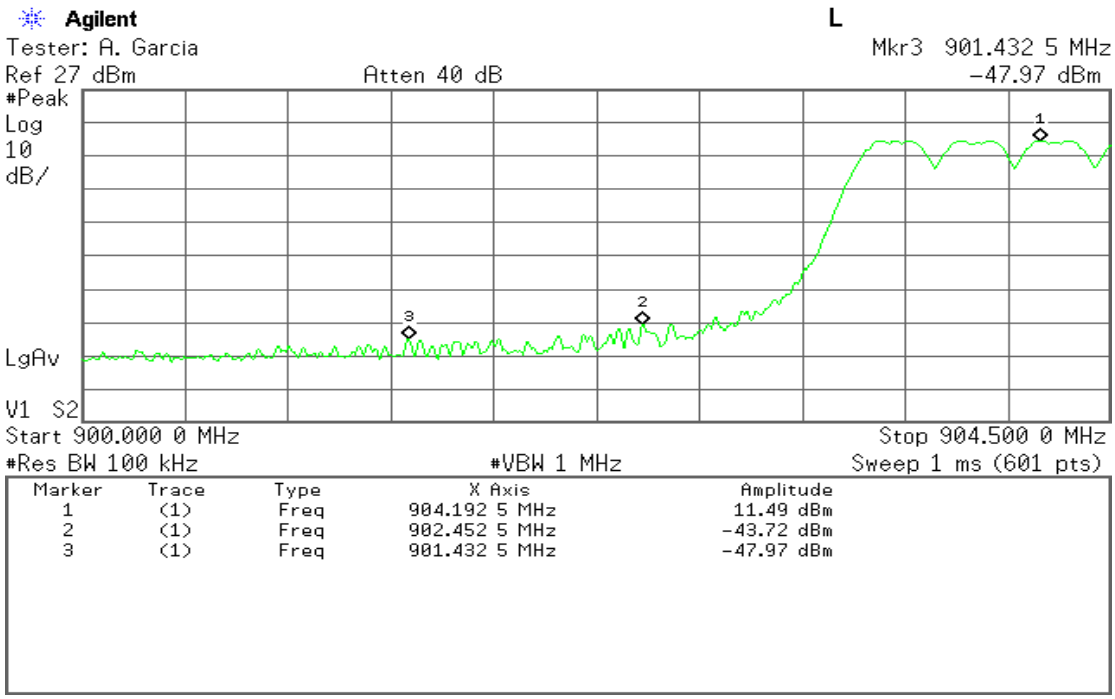
Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

TEST EQUIPMENT

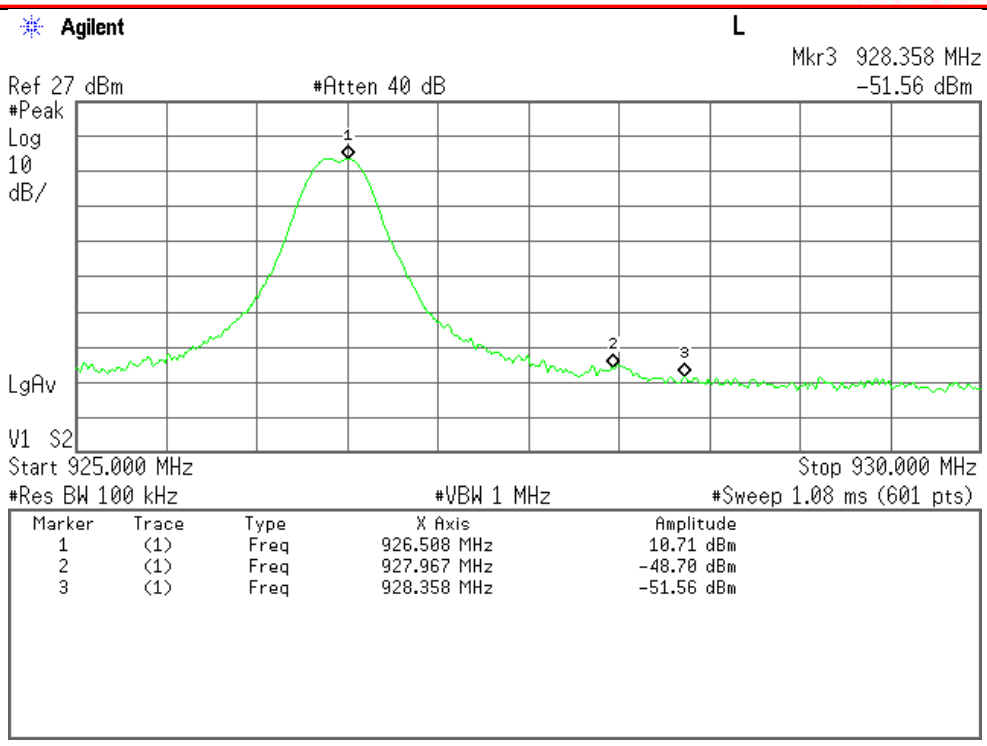
Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA



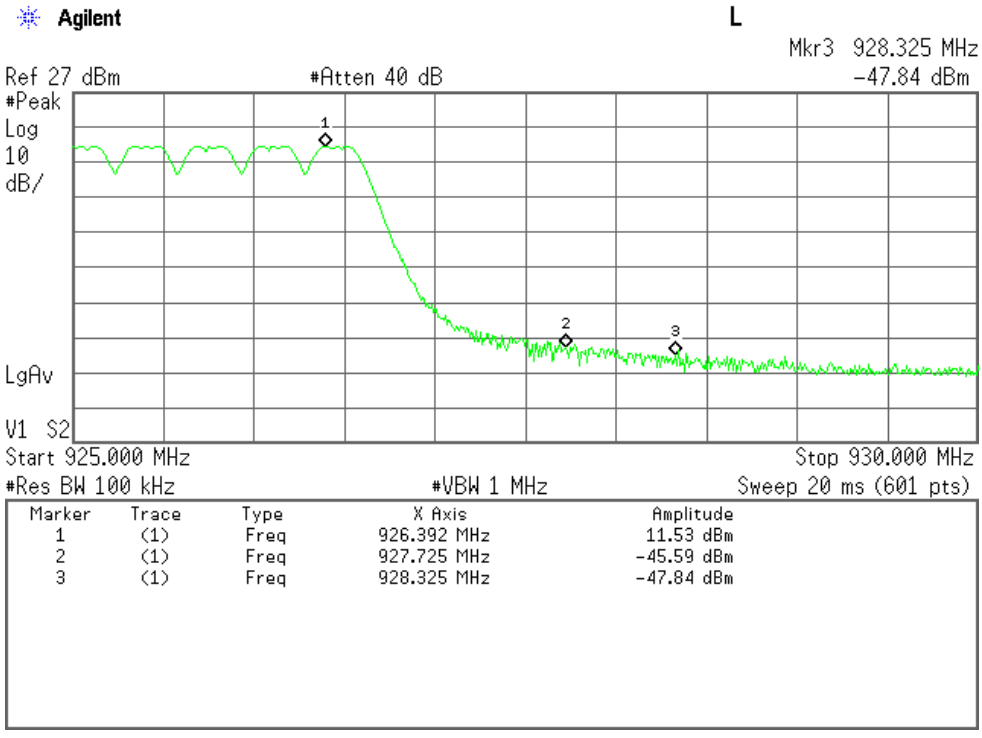
Channel 1 902MHz (903.55MHz)



Channel 1 902MHz (Hopping Enabled)



Channel 55 at 928MHz (926.45MHz)



Channel 55 928MHz (Hopping Enabled)

TEST RESULT					
Channel	Frequency	Measured difference		Limit	Test Results
#	MHz	SINGLE CHANNEL	FHSS ENABLED	dBc	
1	903.355	56.41	55.21	>20	PASS
55	926.45	59.41	57.12	>20	PASS

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test setup

2.6 TIME OF OCCUPANCY (DWELL TIME)

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2016-09-07	**Temperature (˚C)**	23.6°C
Test End Date	2016-09-07	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia/Arnoldo Garcia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247:2010		
Test Method	DA 00-705		
Comment	NA		

TEST DETAILS

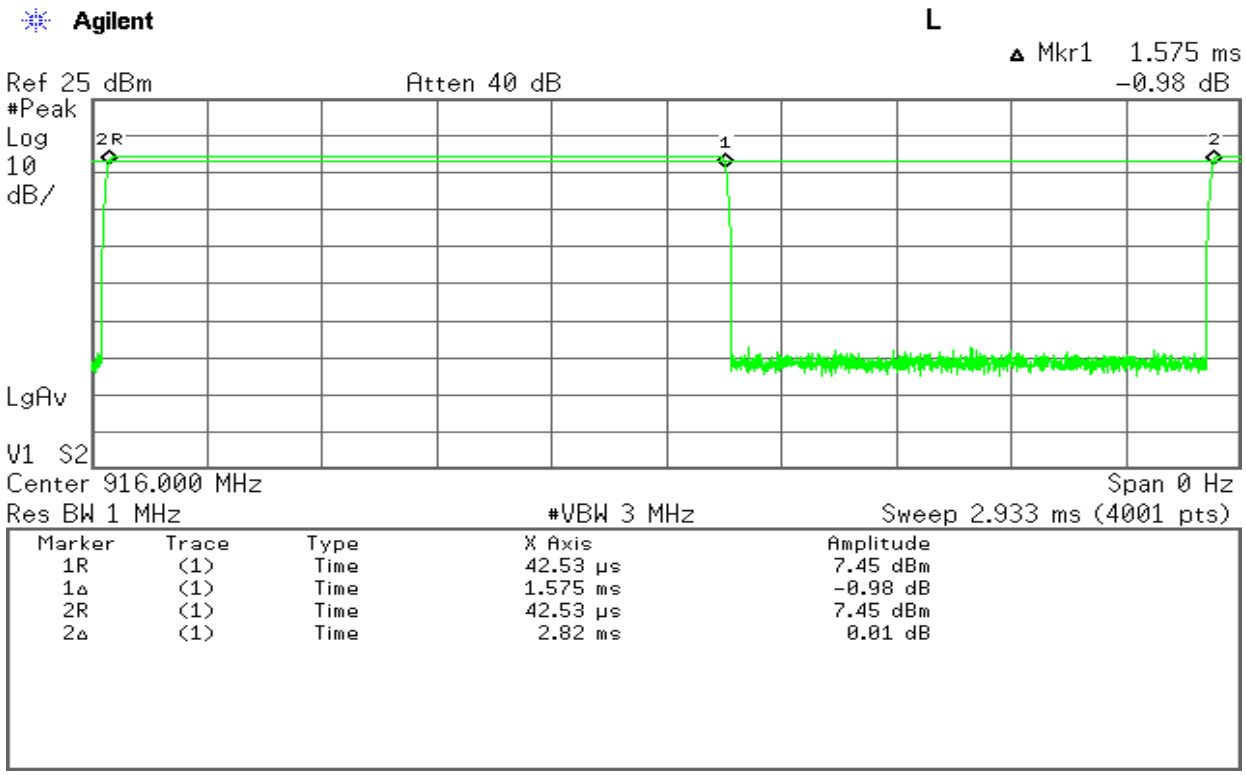
Method	Radiated ☐	Conducted ☒

TEST PARAMETERS

Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

TEST EQUIPMENT

Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA



Channel 28(916MHz)

TEST RESULT						
Channel	**Channel Frequency**	**Measured DwellTime**	**No. of Bursts**	**Time of Occupancy in 10sec**	**Limit in 10s period**	**Results**
#	**MHz**	**ms**	**#**	**ms**	**ms**	
28	916	1.575	15	23.625	≤ 400	PASS

TEST SETUP PHOTOGRAPHS

Refer Annexure -1

Conducted RF Test setup

2.7 SPURIOUS RF CONDUCTED EMISSIONS

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2017-04-19	**Temperature (˚C)**	23.6°C
Test End Date	2017-04-19	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247:2010		
Test Method	DA 00-705		
Comment	NA		

TEST DETAILS

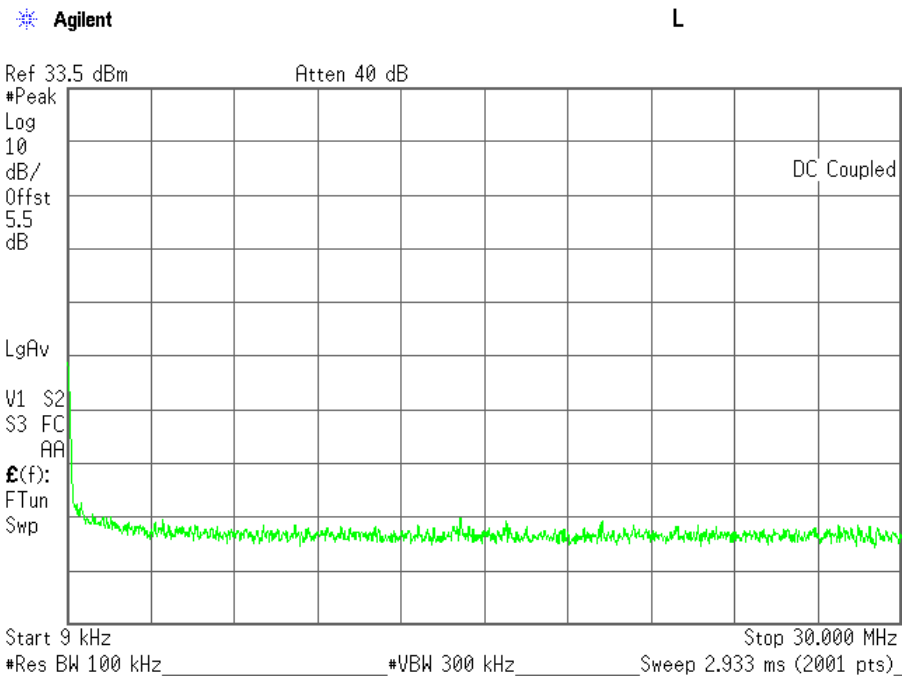
Method	Radiated ☐	Conducted ☒

TEST PARAMETERS

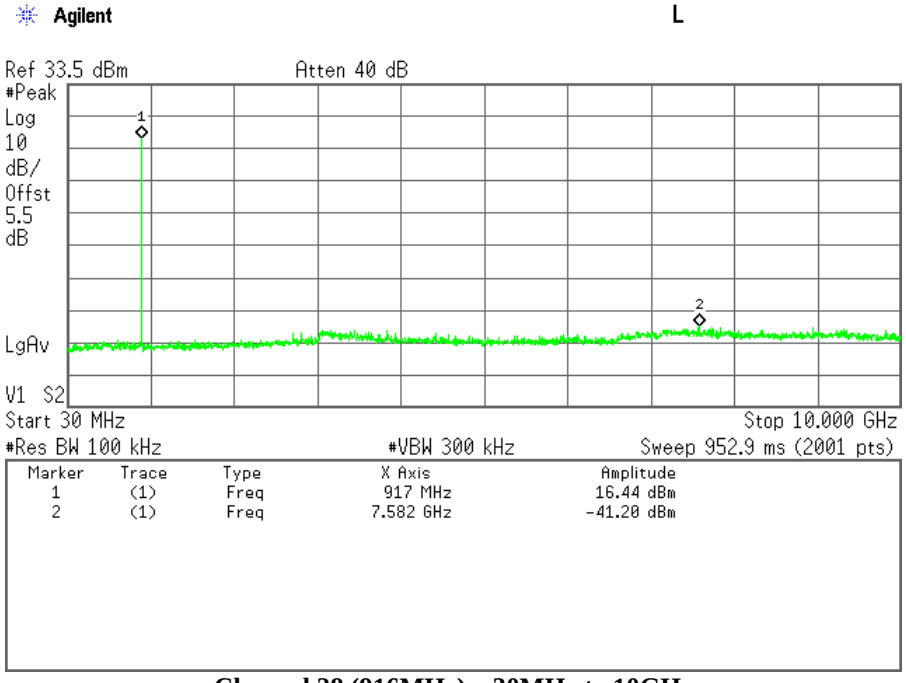
Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

TEST EQUIPMENT

Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA



Channel 28 (916MHz) – 9kHz to 30MHz



Channel 28 (916MHz) – 30MHz to 10GHz

TEST RESULT					
Channel	Channel Frequency	Measured Parameters		Limit	Result
#	MHz	Frequency (GHz)	Level (dBm)	dBc	
28	916	7.582	-41.2	>20	PASS

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test setup

2.8 SPURIOUS RADIATED EMISSIONS

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2016-09-22	**Temperature (˚C)**	0°C-35°C
Test End Date	2017-03-28	**Humidity RH (%)**	10%RH-90%RH
Tested By	Jose Badia/Arnoldo Garcia/Chris Locke	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247 : 2010 & 15.209 : 2010		
Test Method	ANSI 63.10 - 2013		
Comment	NA		

TEST DETAILS

Method	Radiated ☒	Conducted ☐

TEST PARAMETERS

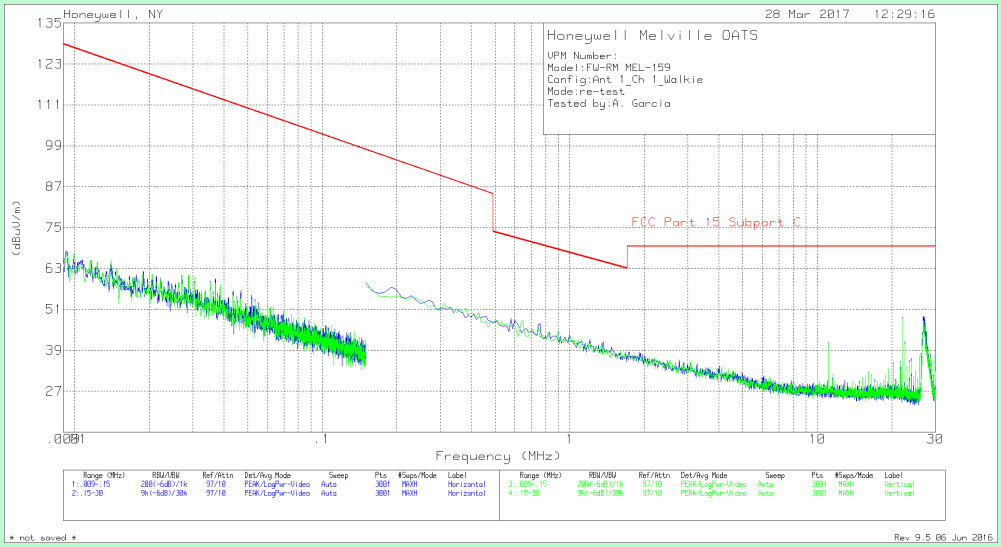
Antenna Height	1m to 4m	**Turntable Rotation**	0° to 360°
Equipment Class	NA	**Measurement Distance**	3m

TEST EQUIPMENT

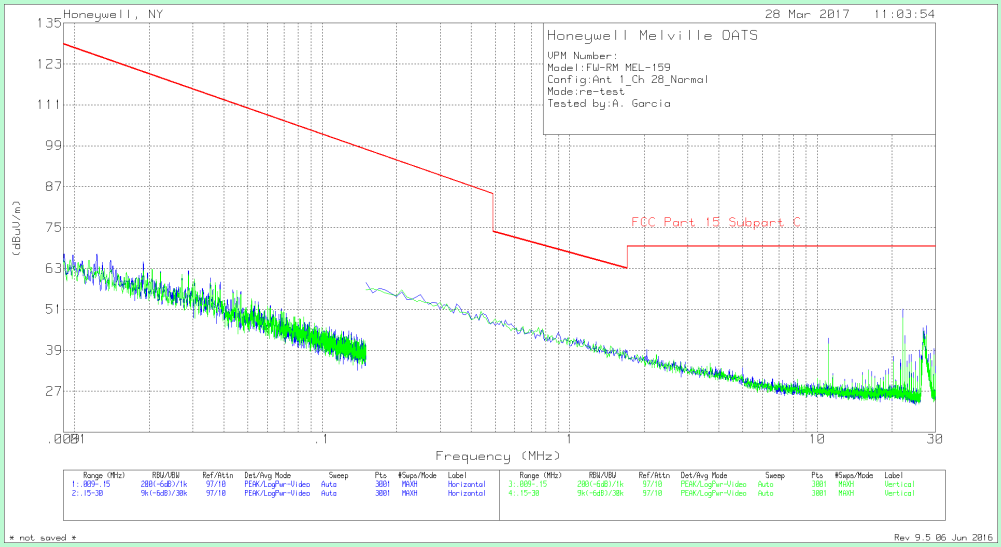
Y/N	Equipment	Make	Model	Sl. No.	Cal Due Date
Y	Spectrum Analyzer	Rohde & Schwarz	FSW26	103125	2018-02-14
Y	Spectrum Analyzer	Rohde & Schwarz	FSU26	100303	2017-03-31
Y	Bilog Antenna	Sunol	JB6	A012816	2018-03-09
Y	Bilog Antenna	Sunol	JB5	A022406	2017-12-18
Y	Horn Antenna	EMCO	RGA-60	3127	2017-02-03
Y	Preamplifier (Below 1GHz)	HP	8447D	2443AUF555	NA
Y	Preamplifier (Above 1GHz)	Amplical	AMP1G18-35	160362	NA
Y	Active Loop Antenna	Com-Power	AL-130R	121080	2017-08-15

Note: Switch ON /OFF the Internal Preamplifier based on carrier level and or noise floor without overloading the receiver

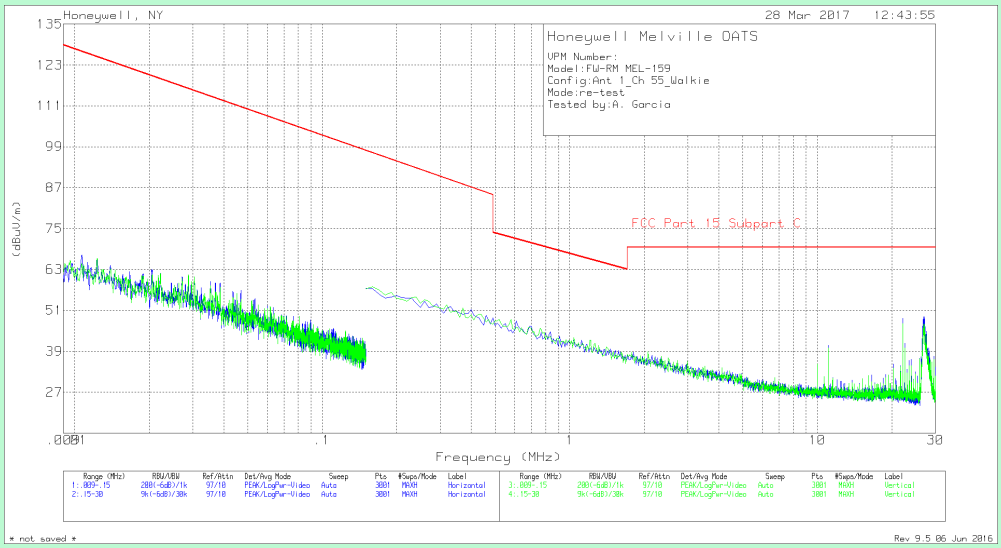
TEST GRAPHS – 9 KHz to 30 MHz (ANTENNA 1)



Channel 1 (903.55 MHz) – Antenna 1



Channel 28 (916.00 MHz) – Antenna 1

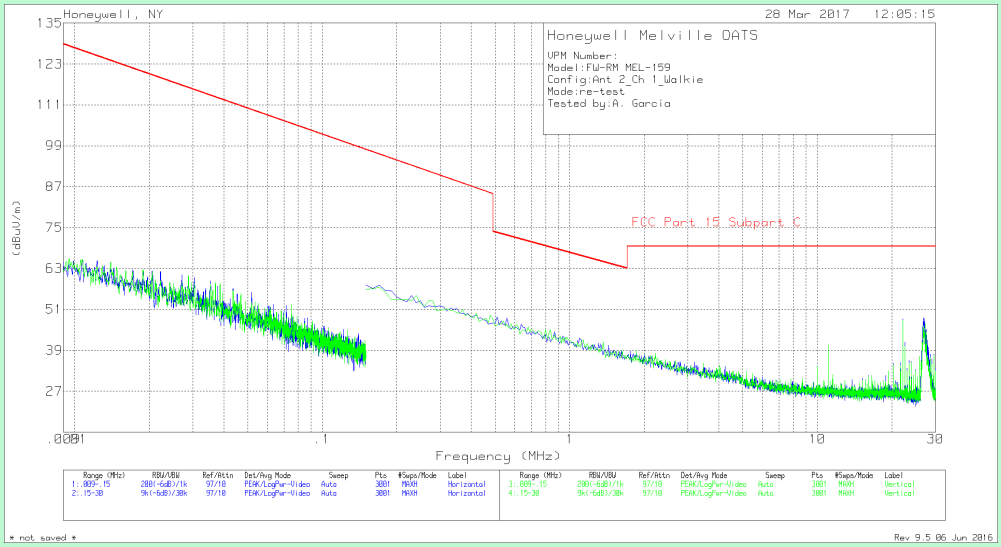


Channel 55 (926.45 MHz) – Antenna 1

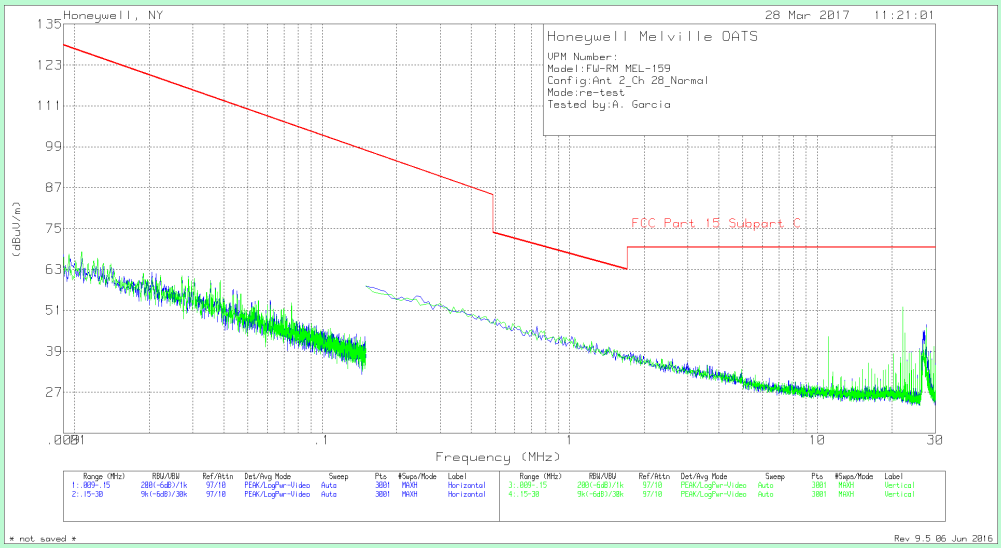
TEST RESULT – 9 KHz to 30 MHz									
Channel	Channel Frequency	Measured Spurious	Quasi Peak	Height	Ant Pol	Azimuth	Margin	Limit @ 3m Distance	Results
#	MHz	MHz	dBµV/m	cm	Parallel / Perpendicular	deg	dB	dBµV/m	
No emissions detected that are a product of the transmitter. Emissions shown in the plot are related to the chamber ambient									

Note : Measured Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB)

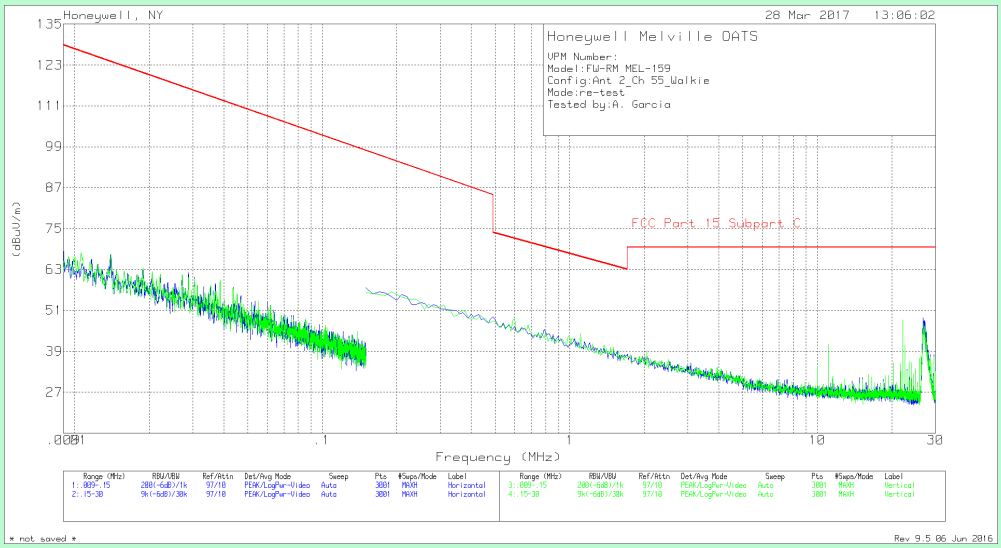
TEST GRAPHS – 9 KHz to 30 MHz (ANTENNA 2)



Channel 1 (903.55 MHz) – Antenna 2



Channel 28 (916.00 MHz) – Antenna 2

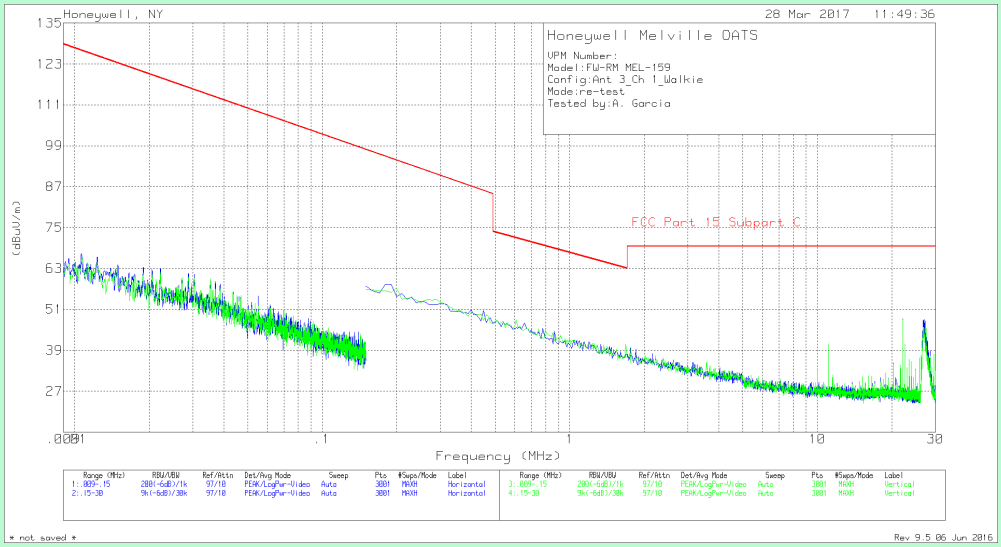


Channel 55 (926.45 MHz) – Antenna 2

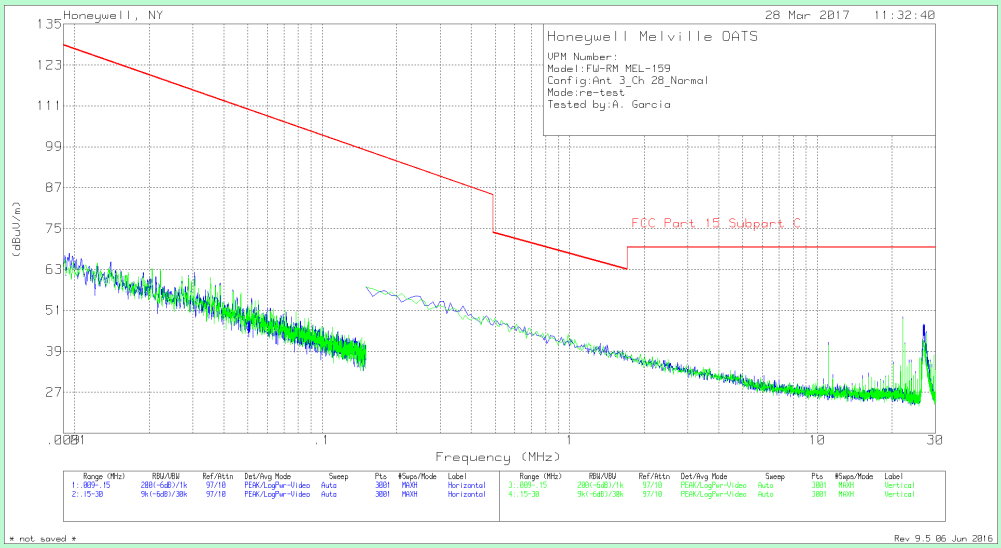
TEST RESULT – 9 KHz to 30 MHz									
Channel	Channel Frequency	Measured Spurious	Quasi Peak	Height	Ant Pol	Azimuth	Margin	Limit @ 3m Distance	Results
#	MHz	MHz	dBµV/m	cm	Parallel / Perpendicular	deg	dB	dBµV/m	
No emissions detected that are a product of the transmitter. Emissions shown in the plot are related to the chamber ambient									

Note : Measured Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB)

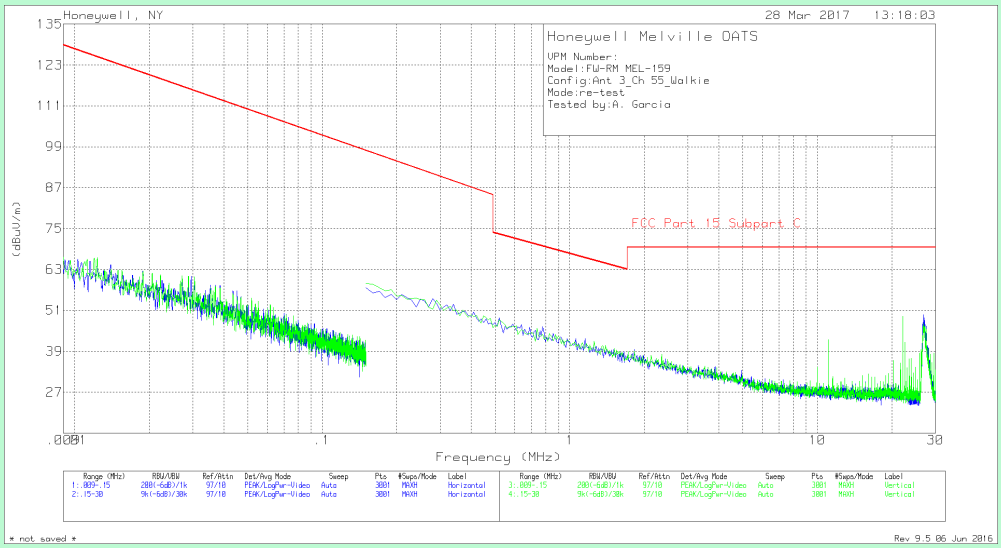
TEST GRAPHS – 9 KHz to 30 MHz (ANTENNA 3)



Channel 1 (903.55 MHz) – Antenna 3



Channel 28 (916.00 MHz) – Antenna 3

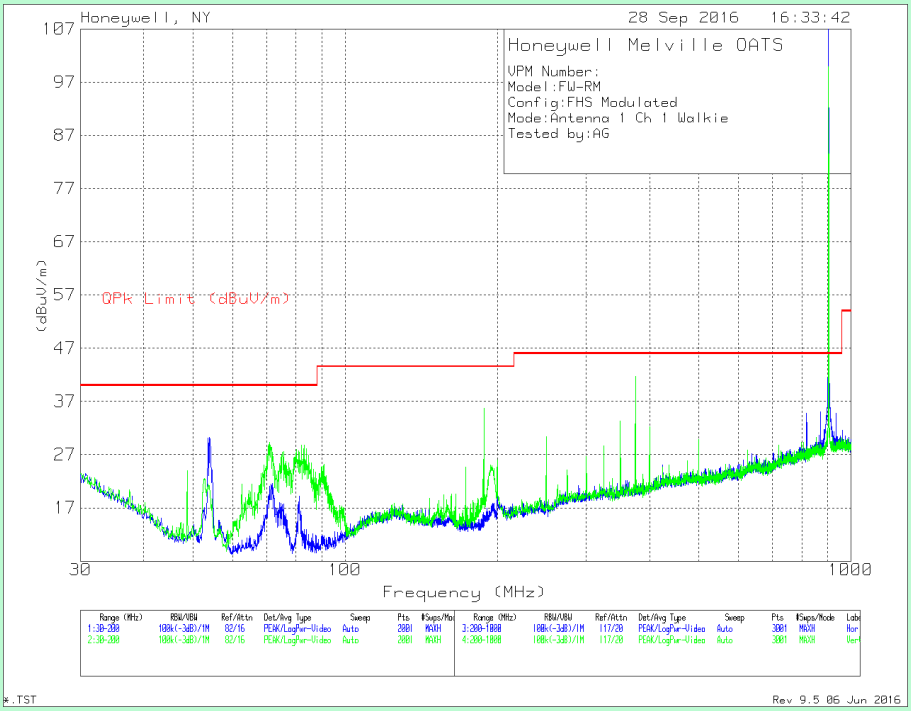


Channel 55 (926.45 MHz) – Antenna 3

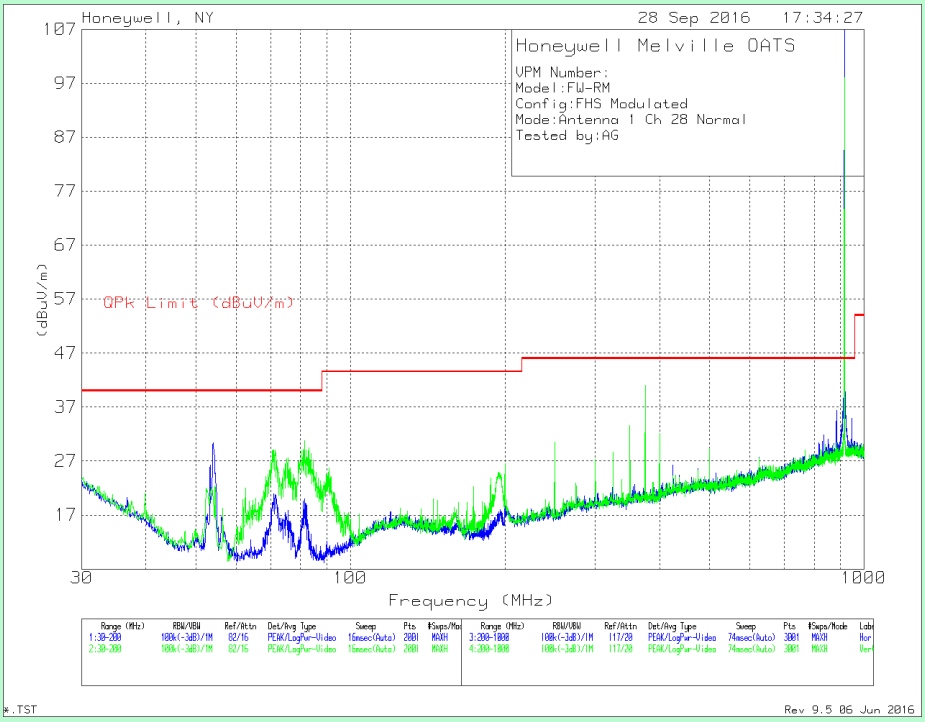
TEST RESULT – 9 KHz to 30 MHz									
Channel	Channel Frequency	Measured Spurious	Quasi Peak	Height	Ant Pol	Azimuth	Margin	Limit @ 3m Distance	Results
#	MHz	MHz	dBµV/m	cm	Parallel / Perpendicular	deg	dB	dBµV/m	
No emissions detected that are a product of the transmitter. Emissions shown in the plot are related to the chamber ambient									

Note : Measured Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB)

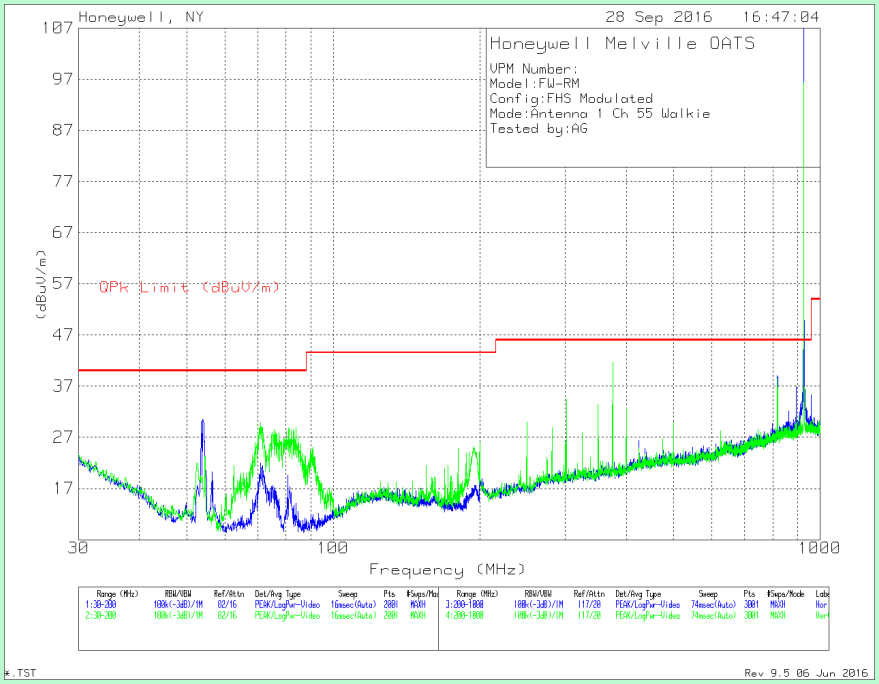
TEST GRAPHS –30 MHz to 1 GHz (ANTENNA 1)



Channel 1 (903.55 MHz) – Antenna 1



Channel 28 (916.00 MHz) – Antenna 1



Channel 55 (926.45 MHz) – Antenna 1

TEST RESULT – 30 MHz to 1 GHz

Channel 1											
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**AF [dB/m] JB6 w/4dB pad**	**Pre Amp #1**	**RDE #1**	**Corrected Reading (dBuV/m)**	**QPk Limit (dBuV/m)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
54.3206	45.63	Qp	12	-29	1.1	29.73	40	10.27	16	378	H
70.795	39.56	Qp	12.2	-28.9	1.2	24.06	40	15.94	142	335	V
84.0019	41.41	Qp	11.7	-28.9	1.3	25.51	40	14.49	205	130	V
188.005	30.65	Qp	15.8	-28.4	2	20.05	43.52	23.47	263	346	V
** 903.518	106.87	Pk	27	-27.6	5.5	111.77	-	-	59	100	H
375.0128	29.86	Qp	19.7	-28	3.1	24.66	46.02	21.36	128	351	H
** 903.602	95.03	Pk	27	-27.6	5.5	99.93	-	-	181	226	V
375.0102	30.03	Qp	19.7	-28	3.1	24.83	46.02	21.19	45	132	V
Channel 28											
53.8704	35.81	Qp	12	-29	1.1	19.91	40	20.09	335	385	H
70.7053	40.62	Qp	12.2	-28.9	1.2	25.12	40	14.88	48	153	V
81.2035	40.27	Qp	11.8	-28.9	1.3	24.47	40	15.53	114	125	V
** 916.048	104.97	Pk	27.3	-27.5	5.6	110.37	-	-	49	102	H
374.911	29.64	Qp	19.7	-28	3.1	24.44	46.02	21.58	68	108	H
** 915.968	93.66	Pk	27.3	-27.5	5.6	99.06	-	-	180	141	V
349.8549	29.58	Qp	19.4	-27.9	2.9	23.98	46.02	22.04	14	258	V
374.6358	29.69	Qp	19.7	-28	3.1	24.49	46.02	21.53	227	328	V
Channel 55											
53.97	33.38	Qp	12	-29	1.1	17.48	40	22.52	109	369	H
70.97	39.14	Qp	12.2	-28.9	1.2	23.64	40	16.36	230	233	V
** 926.418	102.36	Pk	27.3	-27.5	5.7	107.86	-	-	319	144	H
374.9336	29.59	Qp	19.7	-28	3.1	24.39	46.02	21.63	283	259	H
818.1341	24.12	Pk	26.3	-27.9	5.2	27.72	46.02	18.3	86	279	H
** 926.414	93.76	Pk	27.3	-27.5	5.7	99.26	-	-	141	217	V
374.8979	29.73	Qp	19.7	-28	3.1	24.53	46.02	21.49	81	285	V

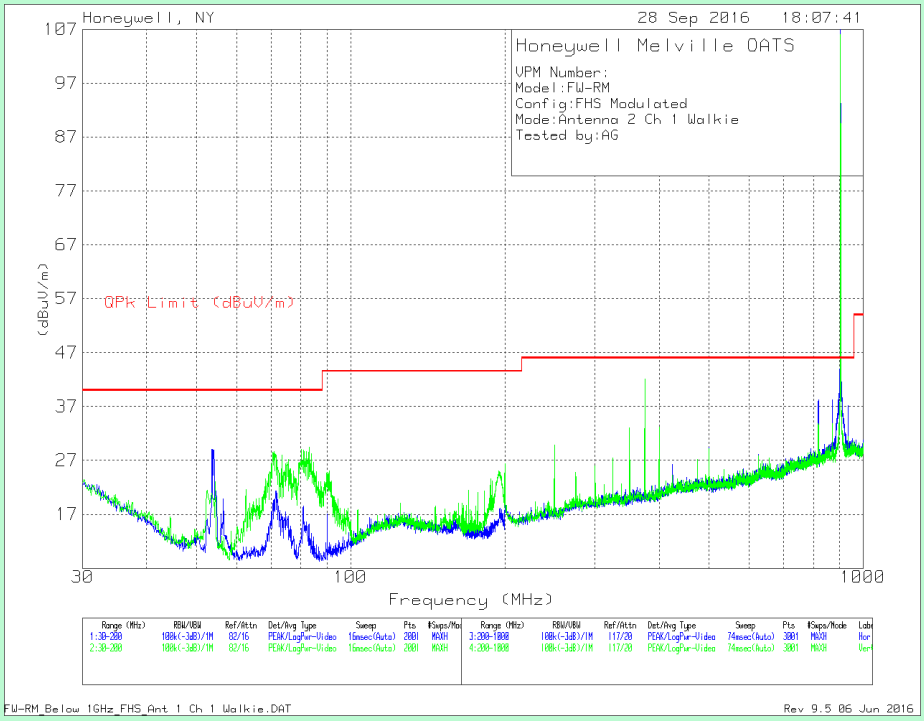
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates intended frequency
Pk - Peak detector
Qp - Quasi-Peak detector

NOTE: Measured Field Strength –dBuV/m (9 KHz to 1GHz) = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) - Preamp gain (dB)

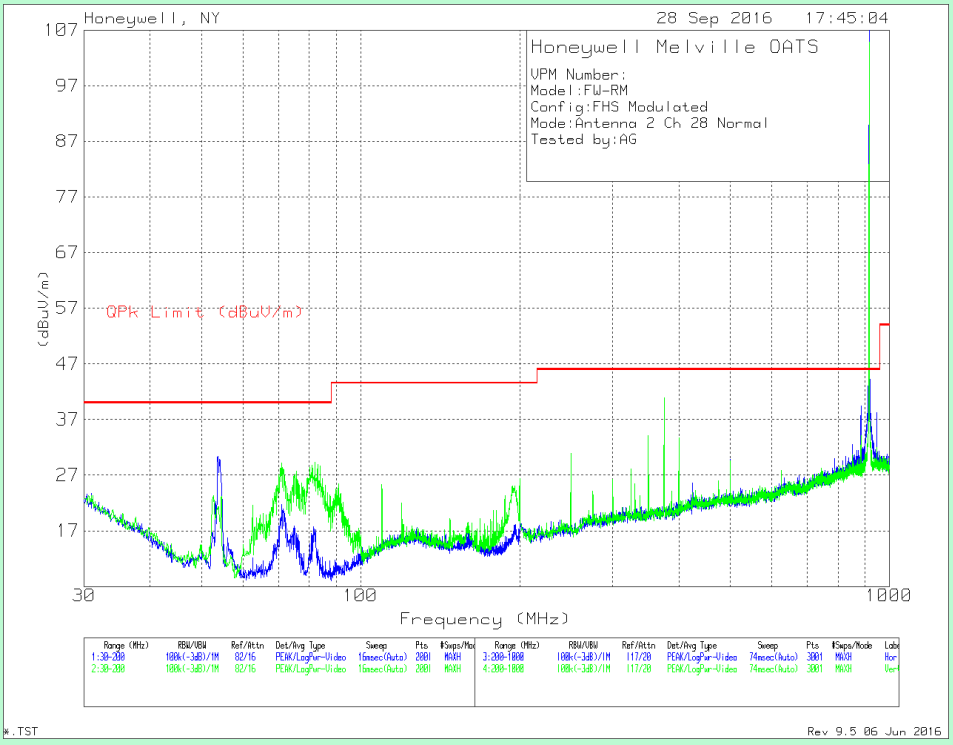
Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

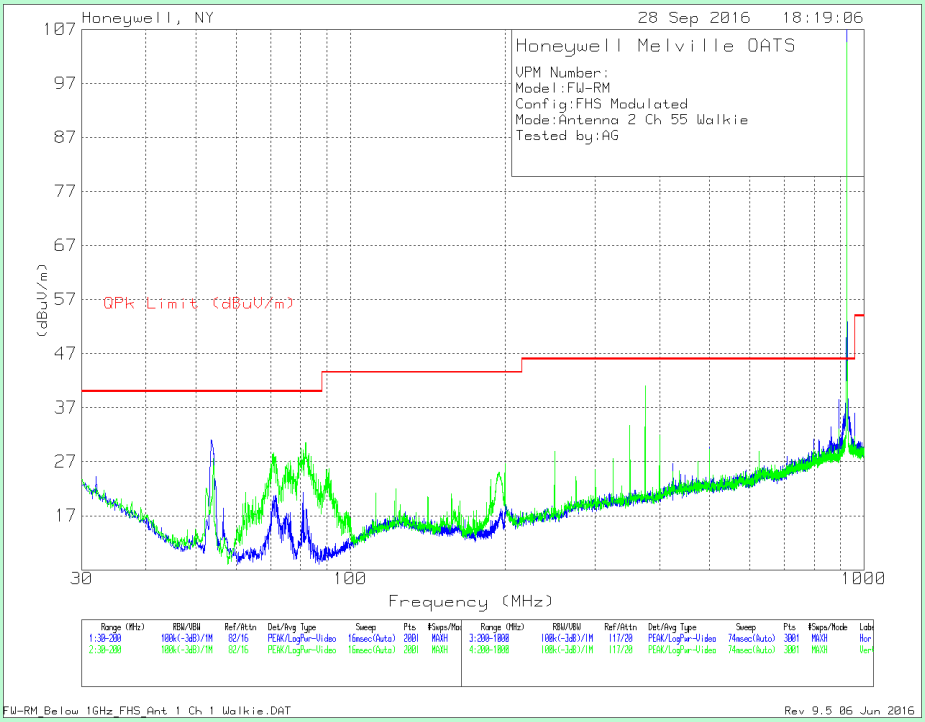
TEST GRAPHS –30 MHz to 1 GHz (ANTENNA 2)



Channel 1 (903.55 MHz) – Antenna 2



Channel 28 (916.00 MHz) – Antenna 2



Channel 55 (926.45 MHz) – Antenna 2

TEST RESULT – 30 MHz to 1 GHz

Channel 1											
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**AF [dB/m] JB6 w/4dB pad**	**Pre Amp #1**	**RDE #1**	**Corrected Reading (dBuV/m)**	**QPk Limit (dBuV/m)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
53.3996	33.63	Qp	12.1	-29	1.1	17.83	40	22.17	272	272	H
70.256	40.91	Qp	12.2	-28.9	1.2	25.41	40	14.59	333	207	V
82.7436	39.19	Qp	11.8	-28.9	1.3	23.39	40	16.61	248	198	V
** 903.51	107.56	Pk	27	-27.6	5.5	112.46	-	-	160	101	H
374.6259	29.68	Qp	19.7	-28	3.1	24.48	46.02	21.54	108	202	H
818.247	32.04	Qp	26.3	-27.9	5.2	35.64	46.02	10.38	245	222	H
** 903.51	99.42	Pk	27	-27.6	5.5	104.32	-	-	269	229	V
349.9861	29.67	Qp	19.4	-27.9	2.9	24.07	46.02	21.95	149	212	V
Channel 28											
53.4632	36.07	Qp	12.1	-29	1.1	20.27	40	19.73	352	398	H
70.8254	40.92	Qp	12.2	-28.9	1.2	25.42	40	14.58	352	101	V
81.7049	41.06	Qp	11.8	-28.9	1.3	25.26	40	14.74	139	186	V
** 915.956	104.87	Pk	27.3	-27.5	5.6	110.27	-	-	197	250	H
374.5978	29.63	Qp	19.7	-28	3.1	24.43	46.02	21.59	42	236	H
** 915.96	98.97	Pk	27.3	-27.5	5.6	104.37	-	-	290	223	V
350.0404	29.78	Qp	19.4	-27.9	2.9	24.18	46.02	21.84	281	351	V
374.613	29.68	Qp	19.7	-28	3.1	24.48	46.02	21.54	31	400	V
53.4632	36.07	Qp	12.1	-29	1.1	20.27	40	19.73	352	398	H
Channel 55											
53.63	33.63	Qp	12	-29	1.1	17.73	40	22.27	211	339	H
71.1413	39.25	Qp	12.2	-28.9	1.2	23.75	40	16.25	357	376	V
81.8433	40.43	Qp	11.8	-28.9	1.3	24.63	40	15.37	327	391	V
** 926.502	109.39	Pk	27.3	-27.5	5.7	114.89	-	-	209	101	H
375.0095	29.65	Qp	19.7	-28	3.1	24.45	46.02	21.57	92	176	H
** 926.502	96.27	Pk	27.3	-27.5	5.7	101.77	-	-	121	104	V
350.3368	29.65	Qp	19.4	-27.9	2.9	24.05	46.02	21.97	244	207	V
375.0133	29.93	Qp	19.7	-28	3.1	24.73	46.02	21.29	40	110	V
53.63	33.63	Qp	12	-29	1.1	17.73	40	-22.27	211	339	H

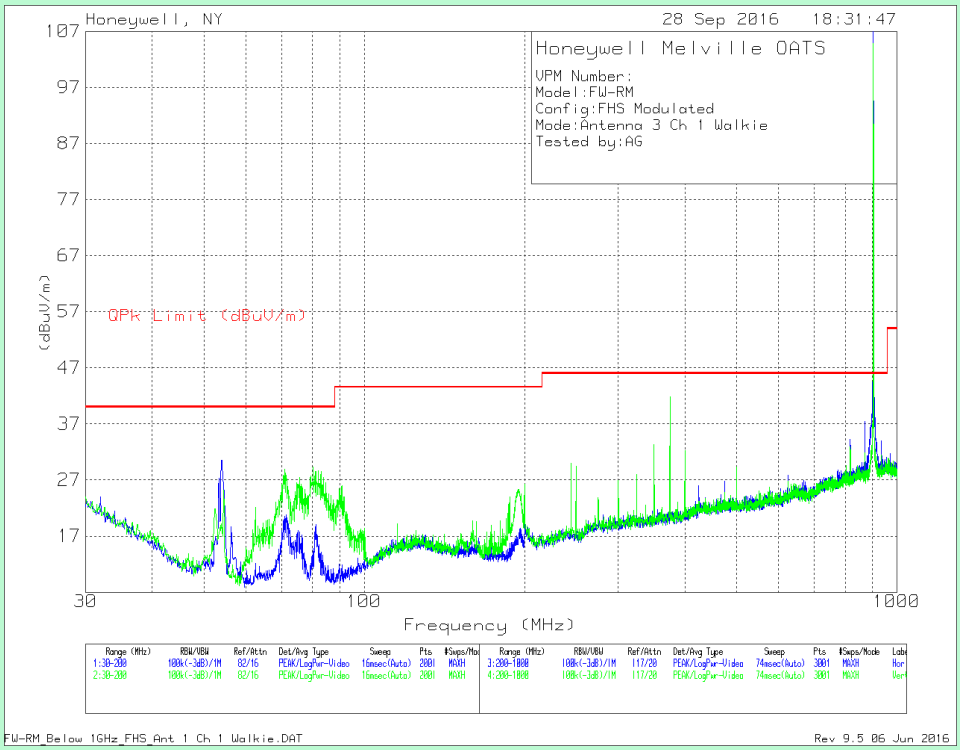
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates intended frequency
Pk - Peak detector
Qp - Quasi-Peak detector

NOTE: Measured Field Strength –dBuV/m (9 KHz to 1GHz) = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) - Preamp gain (dB)

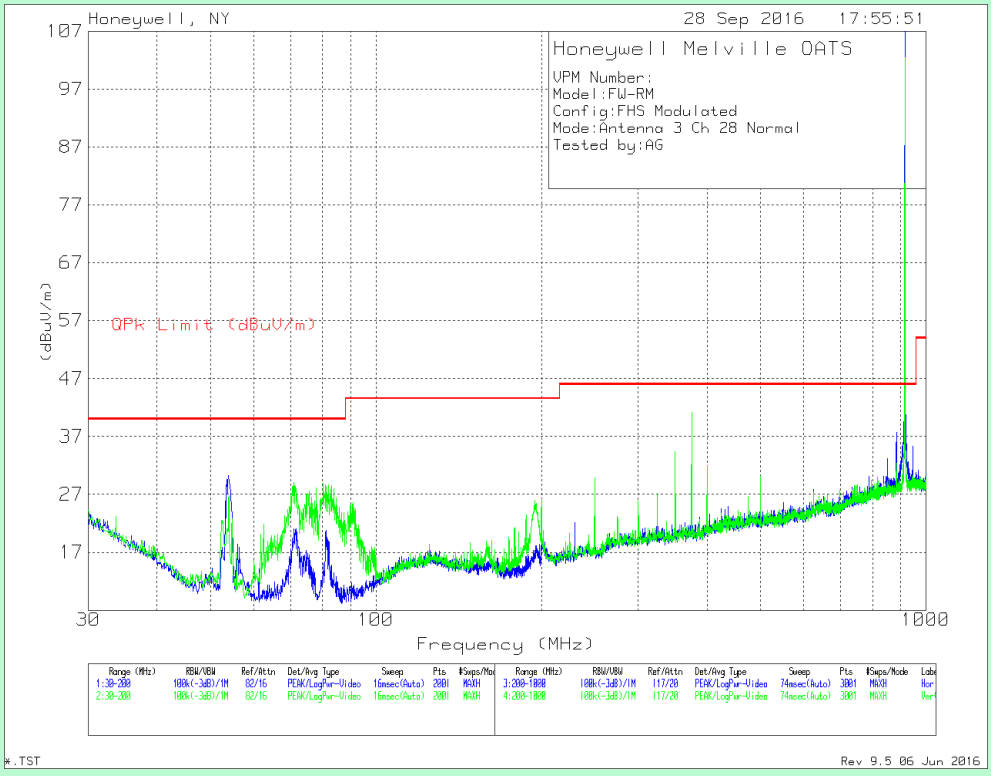
Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

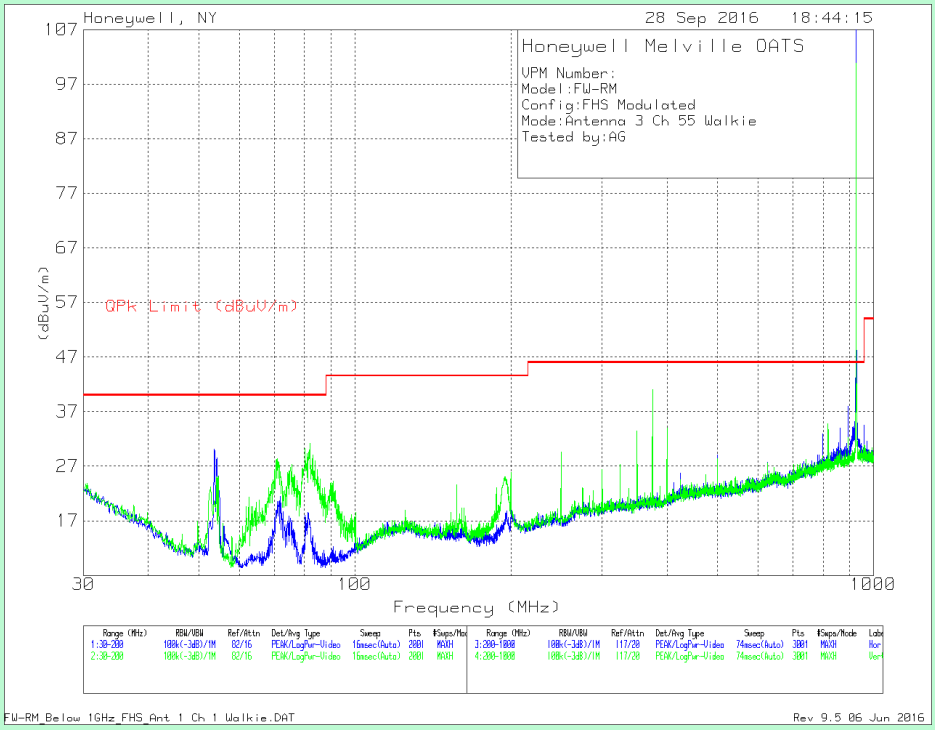
TEST GRAPHS –30 MHz to 1 GHz (ANTENNA 3)



Channel 1 (903.55 MHz) – Antenna 3



Channel 28 (916.00 MHz) – Antenna 3



Channel 55 (926.45 MHz) – Antenna 3

TEST RESULT – 30 MHz to 1 GHz

Channel 1											
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**AF [dB/m] JB6 w/4dB pad**	**Pre Amp #1**	**RDE #1**	**Corrected Reading (dBuV/m)**	**QPk Limit (dBuV/m)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
53.8894	34.55	Qp	12	-29	1.1	18.65	40	21.35	116	303	H
70.82	40.94	Qp	12.2	-28.9	1.2	25.44	40	14.56	317	104	V
80.0108	45.42	Qp	11.9	-28.9	1.3	29.72	40	10.28	22	148	V
** 903.506	107.64	Pk	27	-27.6	5.5	112.54	-	-	165	158	H
374.7697	29.71	Qp	19.7	-28	3.1	24.51	46.02	21.51	94	228	H
** 903.562	89.91	Pk	27	-27.6	5.5	94.81	-	-	222	191	V
349.9974	29.78	Qp	19.4	-27.9	2.9	24.18	46.02	21.84	303	110	V
374.7726	29.72	Qp	19.7	-28	3.1	24.52	46.02	21.5	10	264	V
Channel 28											
53.885	31.19	Qp	12	-29	1.1	15.29	40	24.71	46	225	H
71.565	33.01	Qp	12.2	-28.9	1.2	17.51	40	22.49	62	249	H
81.255	32.72	Qp	11.8	-28.9	1.3	16.92	40	23.08	121	400	H
70.97	38.58	Qp	12.2	-28.9	1.2	23.08	40	16.92	4	383	V
195.665	30.35	Qp	16.4	-28.3	2.1	20.55	43.52	22.97	87	375	V
** 916.048	107.99	Pk	27.3	-27.5	5.6	113.39	-	-	30	101	H
** 916.052	99.74	Pk	27.3	-27.5	5.6	105.14	-	-	267	117	V
* 250.1334	30.33	Qp	16.3	-28	2.4	21.03	46.02	24.99	341	332	V
Channel 55											
53.63	34.74	Qp	12	-29	1.1	18.84	40	21.16	198	385	H
70.779	40.87	Qp	12.2	-28.9	1.2	25.37	40	14.63	197	139	V
81.8633	42.33	Qp	11.8	-28.9	1.3	26.53	40	13.47	298	185	V
** 926.406	106.5	Pk	27.3	-27.5	5.7	112	-	-	189	103	H
374.6703	29.55	Qp	19.7	-28	3.1	24.35	46.02	21.67	168	156	H
** 926.51	94.52	Pk	27.3	-27.5	5.7	100.02	-	-	174	233	V
350.0271	29.6	Qp	19.4	-27.9	2.9	24	46.02	22.02	4	221	V
374.5815	29.74	Qp	19.7	-28	3.1	24.54	46.02	21.48	138	379	V
53.63	34.74	Qp	12	-29	1.1	18.84	40	21.16	198	385	H

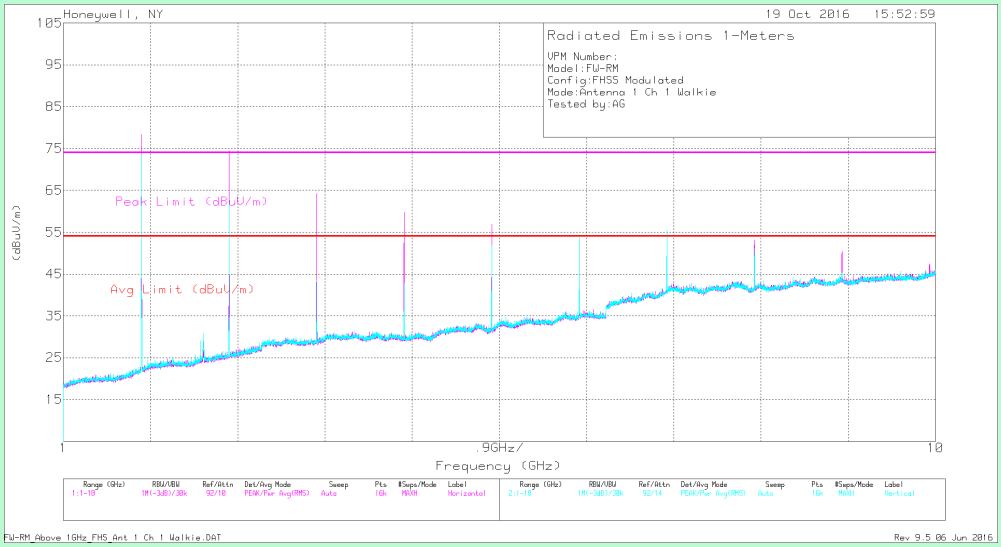
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates intended frequency
Pk - Peak detector
Qp - Quasi-Peak detector

NOTE: Measured Field Strength –dBuV/m (9 KHz to 1GHz) = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) - Preamp gain (dB)

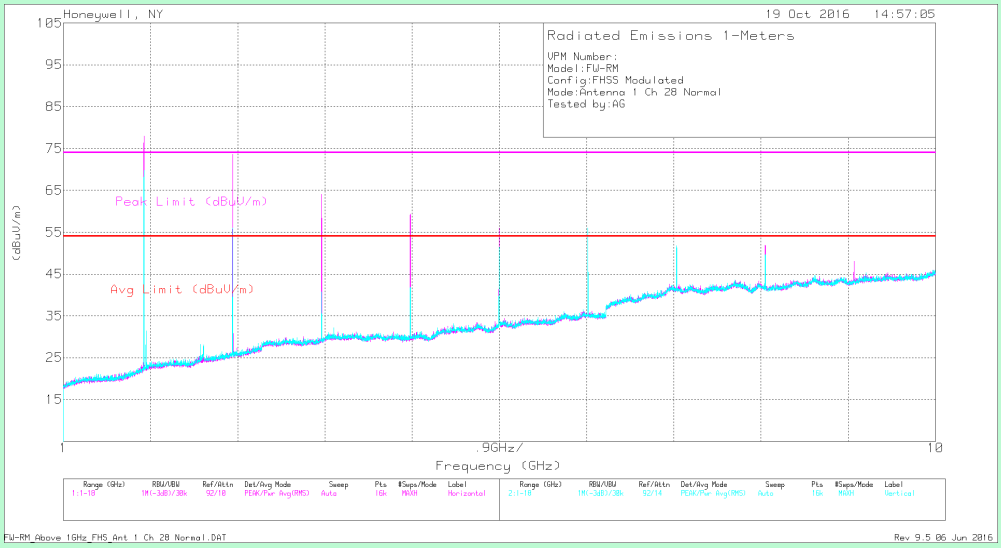
Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

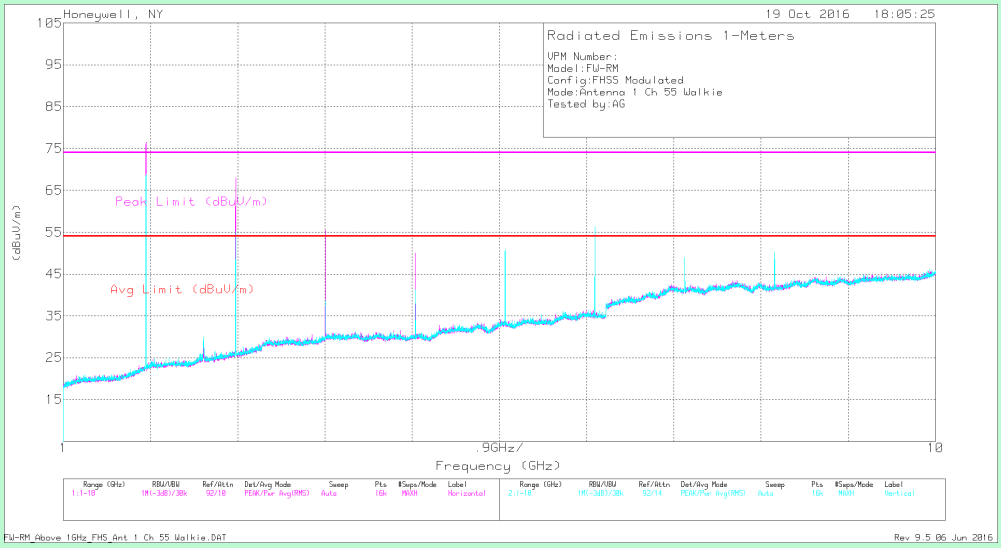
TEST GRAPHS –1 GHz to 10 GHz (ANTENNA 1)



Channel 1 (903.55 MHz) – Antenna 1



Channel 28 (916.00 MHz) – Antenna 1



Channel 55 (926.45 MHz) – Antenna 1

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 1

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.71	38.19	PKFH	29.3	-27.1	9	49.39	74	24.61	36	170	H
* 3.614	33.47	PKFH	31.6	-26.8	10.4	48.67	74	25.33	119	208	H
* 4.518	32.8	PKFH	32.2	-26.6	11.7	50.1	74	23.9	161	208	H
* 5.422	41.62	PKFH	34.3	-26.7	12.9	62.12	74	11.88	2	305	H
* 8.133	37.93	PKFH	37.1	-26.2	16	64.83	74	9.17	340	239	H
* 9.035	33.49	PKFH	37.6	-25.9	16.9	62.09	74	11.91	356	262	H
* 2.711	39.34	PKFH	29.3	-27.1	9	50.54	74	23.46	215	360	V
* 3.614	36.02	PKFH	31.6	-26.8	10.4	51.22	74	22.78	256	333	V
* 4.518	34.33	PKFH	32.2	-26.6	11.7	51.63	74	22.37	52	348	V
* 5.422	40.13	PKFH	34.3	-26.7	12.9	60.63	74	13.37	114	333	V
* 8.133	35.72	PKFH	37.1	-26.2	16	62.62	74	11.38	62	382	V
* 9.036	32.66	PKFH	37.6	-25.9	16.9	61.26	74	12.74	72	381	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.807	59.3	PKFH	27.1	-26.9	7.3	66.8	91.8	25	44	169	H
6.325	38.35	PKFH	34.9	-26.4	14	60.85	91.8	30.95	110	278	H
7.228	37.81	PKFH	36.3	-26.2	15	62.91	91.8	28.89	320	254	H
1.807	48.85	PKFH	27.1	-26.9	7.3	56.35	91.8	35.45	223	298	V
6.324	42.15	PKFH	34.9	-26.4	14	64.65	91.8	27.15	8	265	V
7.229	40.29	PKFH	36.3	-26.2	15	65.39	91.8	26.41	254	273	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.711	34.36	VA1	29.3	-27.1	9	-12.53	33.03	54	20.97	36	170	H
* 3.614	26.4	VA1	31.6	-26.8	10.4	-12.53	29.07	54	24.93	119	208	H
* 4.518	24.39	VA1	32.2	-26.6	11.7	-12.53	29.16	54	24.84	161	208	H
* 5.421	36.24	VA1	34.3	-26.7	12.9	-12.53	44.21	54	9.79	2	305	H
* 8.133	28.97	VA1	37.1	-26.2	16	-12.53	43.34	54	10.66	340	239	H
* 9.036	25.11	VA1	37.6	-25.9	16.9	-12.53	41.18	54	12.82	356	262	H
* 2.711	36.2	VA1	29.3	-27.1	9	-12.53	34.87	54	19.13	215	360	V
* 3.614	30.93	VA1	31.6	-26.8	10.4	-12.53	33.6	54	20.4	256	333	V
* 4.518	27.07	VA1	32.2	-26.6	11.7	-12.53	31.84	54	22.16	52	348	V
* 5.421	33.99	VA1	34.3	-26.7	12.9	-12.53	41.96	54	12.04	114	333	V
* 8.133	27.2	VA1	37.1	-26.2	16	-12.53	41.57	54	12.43	62	382	V
* 9.035	23.21	VA1	37.6	-25.9	16.9	-12.53	39.28	54	14.72	72	381	V

Note: * Indicates Frequency in CFR47 Pt 15 Restricted Band
PKFH –FHSS: RB=1MHz ,VB=3x RB ,Peak
VA1T-FHSS: Linear Voltage Average RB=1MHzVB=10Hz

Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) + Filter Insertion loss – Preamplifier Gain (dB)

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS

Duty Cycle Correction Factor is calculated using the guidelines provided in DA 00 -705

Duty Cycle Factor =20*log (Dwell time /100msec), Number of Transmission for 100msec: 8, Dwell time per Transmission: 1.575 msec
Duty Cycle correction Factor =20 log (1.575*8/100) = -17.99dB

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 28

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.748	39.75	PKFH	29.4	-27	9	51.15	74	22.85	263	115	H
* 3.664	34.44	PKFH	31.8	-26.9	10.4	49.74	74	24.26	186	387	H
* 4.58	35.79	PKFH	32.2	-26.7	11.8	53.09	74	20.91	339	321	H
* 7.328	36.89	PKFH	36.7	-26.2	15.1	62.49	74	11.51	306	267	H
* 8.245	37.41	PKFH	37.1	-26.1	16.2	64.61	74	9.39	336	249	H
* 9.161	31.27	PKFH	37.6	-25.9	17	59.97	74	14.03	116	188	H
* 2.748	41.66	PKFH	29.4	-27	9	53.06	74	20.94	212	291	V
* 3.664	35.26	PKFH	31.8	-26.9	10.4	50.56	74	23.44	262	335	V
* 4.581	35.6	PKFH	32.2	-26.7	11.8	52.9	74	21.1	54	310	V
* 7.329	39.65	PKFH	36.7	-26.2	15.1	65.25	74	8.75	249	255	V
* 8.244	34.74	PKFH	37.1	-26.1	16.2	61.94	74	12.06	58	271	V
* 9.161	33.77	PKFH	37.6	-25.9	17	62.47	74	11.53	321	242	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.832	55.94	PKFH	27.3	-26.9	7.3	63.64	80.4	16.76	41	163	H
5.496	42.9	PKFH	34.4	-26.6	13	63.7	80.4	16.7	0	290	H
6.413	39.42	PKFH	34.8	-26.3	14.1	62.02	80.4	18.38	298	279	H
1.832	47.88	PKFH	27.3	-26.9	7.3	55.58	80.4	24.82	228	191	V
5.497	41.66	PKFH	34.4	-26.6	13	62.46	80.4	17.94	352	278	V
6.412	44.34	PKFH	34.8	-26.3	14.1	66.94	80.4	13.46	6	258	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.748	36.65	VA1T	29.4	-27	9	-12.53	35.52	54	18.48	263	115	H
* 3.664	29.25	VA1T	31.8	-26.9	10.4	-12.53	32.02	54	21.98	186	387	H
* 4.58	28.27	VA1T	32.2	-26.7	11.8	-12.53	33.04	54	20.96	339	321	H
* 7.328	28.57	VA1T	36.7	-26.2	15.1	-12.53	41.64	54	12.36	306	267	H
* 8.244	29.27	VA1T	37.1	-26.1	16.2	-12.53	43.94	54	10.06	336	249	H
* 9.162	21.51	VA1T	37.6	-25.9	17	-12.53	37.68	54	16.32	116	188	H
* 2.748	39.03	VA1T	29.4	-27	9	-12.53	37.9	54	16.1	212	291	V
* 3.664	29.38	VA1T	31.8	-26.9	10.4	-12.53	32.15	54	21.85	262	335	V
* 4.58	28.12	VA1T	32.2	-26.7	11.8	-12.53	32.89	54	21.11	54	310	V
* 7.328	30.53	VA1T	36.7	-26.2	15.1	-12.53	43.6	54	10.4	249	255	V
* 8.244	26.7	VA1T	37.1	-26.1	16.2	-12.53	41.37	54	12.63	58	271	V
* 9.161	24.58	VA1T	37.6	-25.9	17	-12.53	40.75	54	13.25	321	242	V

Note: * Indicates Frequency in CFR47 Pt 15 Restricted Band
PKFH –FHSS: RB=1MHz ,VB=3x RB ,Peak
VA1T-FHSS: Linear Voltage Average RB=1MHzVB=10Hz

Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) + Filter Insertion loss – Preamplifier Gain (dB)

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS

Duty Cycle Correction Factor is calculated using the guidelines provided in DA 00 -705

Duty Cycle Factor =20*log (Dwell time /100msec), Number of Transmission for 100msec: 8, Dwell time per Transmission: 1.575 msec
Duty Cycle correction Factor =20 log (1.575*8/100) = -17.99dB

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 55

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.779	41.96	PKFH	29.5	-27.1	9.1	53.46	74	20.54	271	400	H
* 3.706	34.9	PKFH	32	-26.9	10.6	50.6	74	23.4	175	335	H
* 3.706	35.39	PKFH	32	-26.9	10.6	51.09	74	22.91	175	335	H
* 4.633	35.6	PKFH	32.4	-26.6	11.8	53.2	74	20.8	340	341	H
* 7.412	35.58	PKFH	36.8	-26.2	15.2	61.38	74	12.62	306	253	H
* 8.337	35.67	PKFH	37.3	-26.1	16.2	63.07	74	10.93	326	240	H
* 2.779	41.62	PKFH	29.5	-27.1	9.1	53.12	74	20.88	221	371	V
* 3.706	35.4	PKFH	32	-26.9	10.6	51.1	74	22.9	254	394	V
* 4.632	34.82	PKFH	32.3	-26.6	11.8	52.32	74	21.68	255	342	V
* 7.411	36.88	PKFH	36.8	-26.2	15.2	62.68	74	11.32	248	247	V
* 8.339	34.69	PKFH	37.3	-26.1	16.2	62.09	74	11.91	62	241	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.853	51.66	PKFH	27.5	-26.9	7.4	59.66	87.8	28.14	28	102	H
5.558	40.62	PKFH	34.4	-26.4	13.1	61.72	87.8	26.08	358	283	H
6.485	39.15	PKFH	34.8	-26.4	14.2	61.75	87.8	26.05	304	268	H
9.263	30.9	PKFH	37.8	-26	17.1	59.8	87.8	28	168	290	H
1.853	47.98	PKFH	27.5	-26.9	7.4	55.98	87.8	31.82	109	379	V
5.558	39.09	PKFH	34.4	-26.4	13.1	60.19	87.8	27.61	73	312	V
6.485	44.53	PKFH	34.8	-26.4	14.2	67.13	87.8	20.67	0	249	V
9.265	32.02	PKFH	37.8	-26	17.1	60.92	87.8	26.88	322	255	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.779	39.31	VA1T	29.5	-27.1	9.1	-12.53	38.28	54	15.72	271	400	H
* 3.706	29.79	VA1T	32	-26.9	10.6	-12.53	32.96	54	21.04	175	335	H
* 3.706	30.31	VA1T	32	-26.9	10.6	-12.53	33.48	54	20.52	175	335	H
* 4.632	28.28	VA1T	32.4	-26.6	11.8	-12.53	33.35	54	20.65	340	341	H
* 7.411	27.48	VA1T	36.8	-26.2	15.2	-12.53	40.75	54	13.25	306	253	H
* 8.339	27.68	VA1T	37.3	-26.1	16.2	-12.53	42.55	54	11.45	326	240	H
* 2.779	39.2	VA1T	29.5	-27.1	9.1	-12.53	38.17	54	15.83	221	371	V
* 3.706	30.61	VA1T	32	-26.9	10.6	-12.53	33.78	54	20.22	254	394	V
* 4.632	27.94	VA1T	32.3	-26.6	11.8	-12.53	32.91	54	21.09	255	342	V
* 7.412	29.19	VA1T	36.8	-26.2	15.2	-12.53	42.46	54	11.54	248	247	V
* 8.337	26.64	VA1T	37.3	-26.1	16.2	-12.53	41.51	54	12.49	62	241	V

Note: * Indicates Frequency in CFR47 Pt 15 Restricted Band
PKFH –FHSS: RB=1MHz ,VB=3x RB ,Peak
VA1T-FHSS: Linear Voltage Average RB=1MHzVB=10Hz

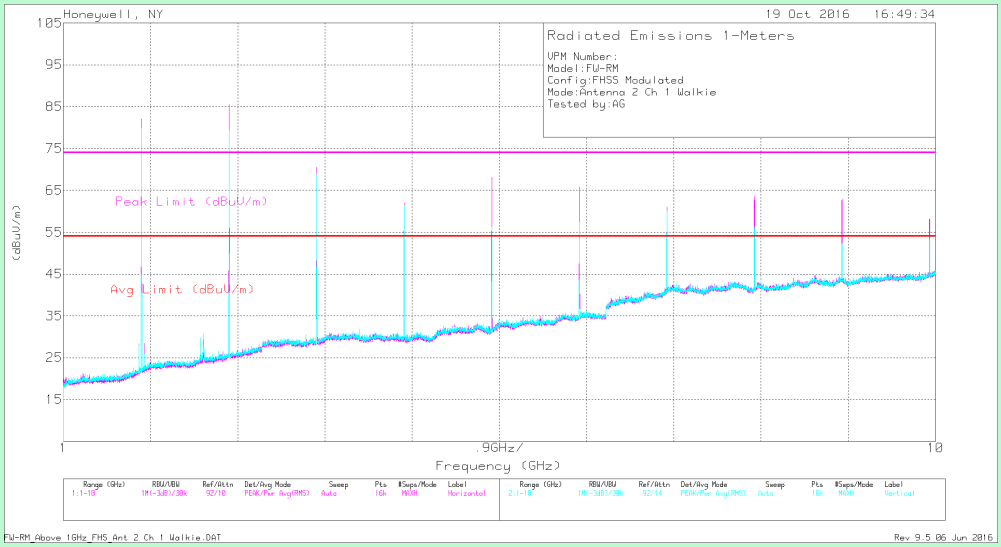
Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) + Filter Insertion loss – Preamplifier Gain (dB)

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS

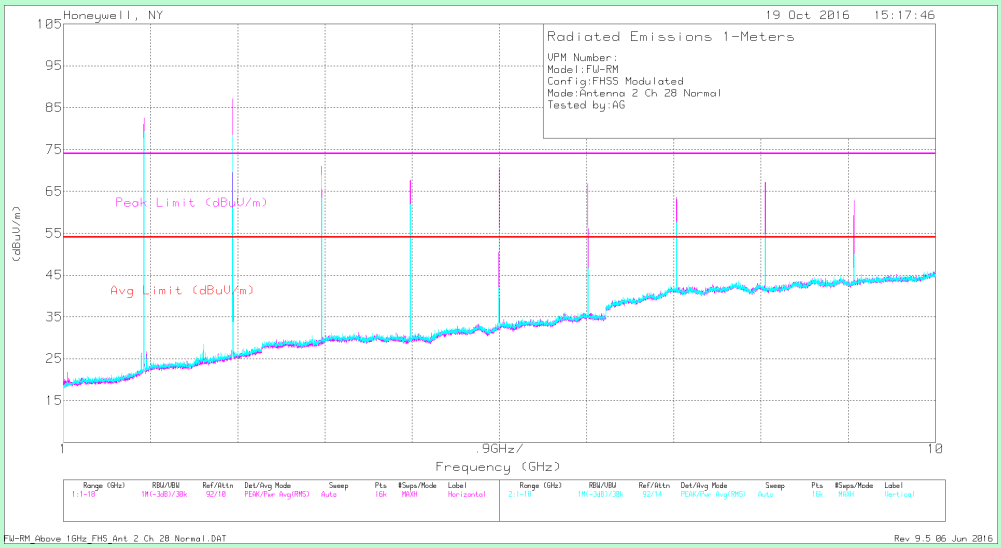
Duty Cycle Correction Factor is calculated using the guidelines provided in DA 00 -705

Duty Cycle Factor =20*log (Dwell time /100msec), Number of Transmission for 100msec: 8, Dwell time per Transmission: 1.575 msec
Duty Cycle correction Factor =20 log (1.575*8/100) = -17.99dB

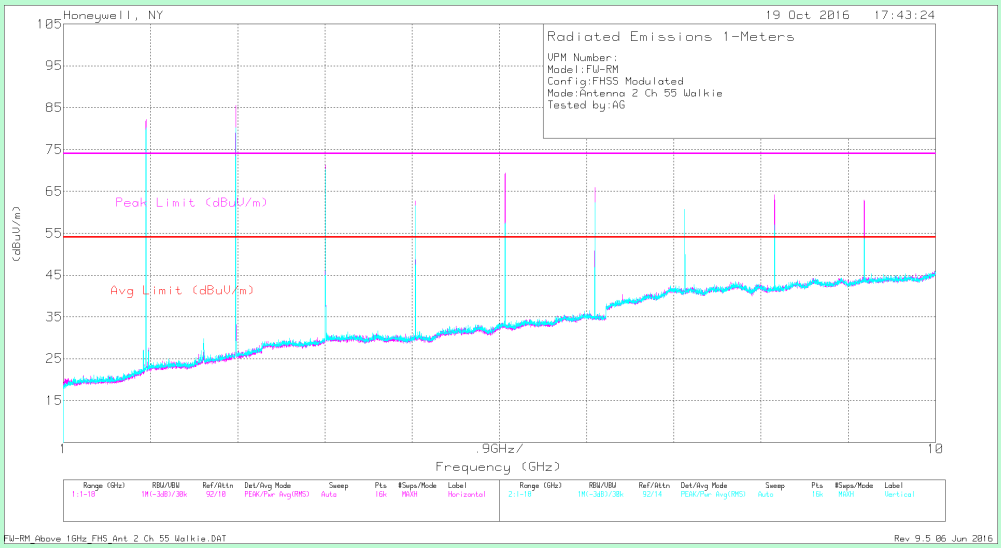
TEST GRAPHS –1 GHz to 10 GHz (ANTENNA 2)



Channel 1 (903.55 MHz) – Antenna 2



Channel 28 (916.00 MHz) – Antenna 2



Channel 55 (926.45 MHz) – Antenna 2

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 1

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.71	52.71	PKFH	29.3	-27.1	9	63.91	74	10.09	129	150	H
* 3.614	46.27	PKFH	31.6	-26.8	10.4	61.47	74	12.53	184	294	H
* 4.517	35.66	PKFH	32.2	-26.6	11.7	52.96	74	21.04	63	322	H
* 5.422	35.49	PKFH	34.3	-26.7	12.9	55.99	74	18.01	10	329	H
* 8.131	33.92	PKFH	37.1	-26.2	16	60.82	74	13.18	31	320	H
* 9.035	31.83	PKFH	37.6	-25.9	16.9	60.43	74	13.57	16	272	H
* 2.711	53.62	PKFH	29.3	-27.1	9	64.82	74	9.18	43	156	V
* 3.615	44.68	PKFH	31.6	-26.8	10.4	59.88	74	14.12	349	142	V
* 4.518	36.1	PKFH	32.2	-26.6	11.7	53.4	74	20.6	301	114	V
* 5.421	39.43	PKFH	34.3	-26.7	12.9	59.93	74	14.07	242	106	V
* 8.133	34.41	PKFH	37.1	-26.2	16	61.31	74	12.69	135	103	V
* 9.035	32.42	PKFH	37.6	-25.9	16.9	61.02	74	12.98	21	363	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.807	65.27	PKFH	27.1	-26.9	7.3	72.77	92.5	19.73	170	112	H
6.325	35.72	PKFH	34.9	-26.4	14	58.22	92.5	34.28	326	292	H
7.229	33.55	PKFH	36.3	-26.2	15	58.65	92.5	33.85	108	306	H
1.807	63.55	PKFH	27.1	-26.9	7.3	71.05	92.5	21.45	143	157	V
6.325	37.95	PKFH	34.9	-26.4	14	60.45	92.5	32.05	192	113	V
7.228	37.43	PKFH	36.3	-26.2	15	62.53	92.5	29.97	123	104	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.711	50.88	VA1T	29.3	-27.1	9	-12.53	49.55	54	4.45	129	150	H
* 3.614	43.32	VA1T	31.6	-26.8	10.4	-12.53	45.99	54	8.01	184	294	H
* 4.518	28.55	VA1T	32.2	-26.6	11.7	-12.53	33.32	54	20.68	63	322	H
* 5.421	28.95	VA1T	34.3	-26.7	12.9	-12.53	36.92	54	17.08	10	329	H
* 8.133	26.22	VA1T	37.1	-26.2	16	-12.53	40.59	54	13.41	31	320	H
* 9.035	22.79	VA1T	37.6	-25.9	16.9	-12.53	38.86	54	15.14	16	272	H
* 2.711	51.87	VA1T	29.3	-27.1	9	-12.53	50.54	54	3.46	43	156	V
* 3.614	41.31	VA1T	31.6	-26.8	10.4	-12.53	43.98	54	10.02	349	142	V
* 4.518	29.29	VA1T	32.2	-26.6	11.7	-12.53	34.06	54	19.94	301	114	V
* 5.421	33.42	VA1T	34.3	-26.7	12.9	-12.53	41.39	54	12.61	242	106	V
* 8.131	26.64	VA1T	37.1	-26.2	16	-12.53	41.01	54	12.99	135	103	V
* 9.035	22.2	VA1T	37.6	-25.9	16.9	-12.53	38.27	54	15.73	21	363	V

Note: * Indicates Frequency in CFR47 Pt 15 Restricted Band
PKFH –FHSS: RB=1MHz ,VB=3x RB ,Peak
VA1T-FHSS: Linear Voltage Average RB=1MHzVB=10Hz

Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) + Filter Insertion loss – Preamplifier Gain (dB)

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS

Duty Cycle Correction Factor is calculated using the guidelines provided in DA 00 -705

Duty Cycle Factor =20*log (Dwell time /100msec), Number of Transmission for 100msec: 8, Dwell time per Transmission: 1.575 msec
Duty Cycle correction Factor =20 log (1.575*8/100) = -17.99dB

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 28

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.748	51.89	PKFH	29.4	-27	9	63.29	74	10.71	103	157	H
* 3.664	37.69	PKFH	31.8	-26.9	10.4	52.99	74	21.01	93	174	H
* 4.58	34.32	PKFH	32.2	-26.7	11.8	51.62	74	22.38	179	390	H
* 7.327	35.75	PKFH	36.7	-26.2	15.1	61.35	74	12.65	40	251	H
* 8.245	35.65	PKFH	37.1	-26.1	16.2	62.85	74	11.15	49	242	H
* 9.159	31.87	PKFH	37.6	-25.9	17	60.57	74	13.43	319	248	H
* 2.748	46.76	PKFH	29.4	-27	9	58.16	74	15.84	29	136	V
* 3.664	38.45	PKFH	31.8	-26.9	10.4	53.75	74	20.25	1	143	V
* 4.58	38.02	PKFH	32.2	-26.7	11.8	55.32	74	18.68	69	112	V
* 7.327	38.24	PKFH	36.7	-26.2	15.1	63.84	74	10.16	35	248	V
* 8.245	35.69	PKFH	37.1	-26.1	16.2	62.89	74	11.11	33	242	V
* 9.16	33	PKFH	37.6	-25.9	17	61.7	74	12.3	223	211	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.832	65.2	PKFH	27.3	-26.9	7.3	72.9	90.3	17.4	101	161	H
5.496	41.38	PKFH	34.4	-26.6	13	62.18	90.3	28.12	267	318	H
6.412	41.12	PKFH	34.8	-26.3	14.1	63.72	90.3	26.58	16	267	H
1.832	52.96	PKFH	27.3	-26.9	7.3	60.66	90.3	29.64	127	386	V
5.496	39.37	PKFH	34.4	-26.6	13	60.17	90.3	30.13	270	325	V
6.413	44.67	PKFH	34.8	-26.3	14.1	67.27	90.3	23.03	273	277	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.748	50.31	VA1T	29.4	-27	9	-12.53	49.18	54	4.82	103	157	H
* 3.664	31.33	VA1T	31.8	-26.9	10.4	-12.53	34.1	54	19.9	93	174	H
* 4.58	25.82	VA1T	32.2	-26.7	11.8	-12.53	30.59	54	23.41	179	390	H
* 7.328	27.09	VA1T	36.7	-26.2	15.1	-12.53	40.16	54	13.84	40	251	H
* 8.245	26.98	VA1T	37.1	-26.1	16.2	-12.53	41.65	54	12.35	49	242	H
* 9.161	22.3	VA1T	37.6	-25.9	17	-12.53	38.47	54	15.53	319	248	H
* 2.748	44.68	VA1T	29.4	-27	9	-12.53	43.55	54	10.45	29	136	V
* 3.664	33.94	VA1T	31.8	-26.9	10.4	-12.53	36.71	54	17.29	1	143	V
* 4.58	32.18	VA1T	32.2	-26.7	11.8	-12.53	36.95	54	17.05	69	112	V
* 7.329	30.92	VA1T	36.7	-26.2	15.1	-12.53	43.99	54	10.01	35	248	V
* 8.245	27.74	VA1T	37.1	-26.1	16.2	-12.53	42.41	54	11.59	33	242	V
* 9.161	22.93	VA1T	37.6	-25.9	17	-12.53	39.1	54	14.9	223	211	V

Note: * Indicates Frequency in CFR47 Pt 15 Restricted Band
PKFH –FHSS: RB=1MHz ,VB=3x RB ,Peak
VA1T-FHSS: Linear Voltage Average RB=1MHzVB=10Hz

Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) + Filter Insertion loss – Preamplifier Gain (dB)

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS

Duty Cycle Correction Factor is calculated using the guidelines provided in DA 00 -705

Duty Cycle Factor =20*log (Dwell time /100msec), Number of Transmission for 100msec: 8, Dwell time per Transmission: 1.575 msec
Duty Cycle correction Factor =20 log (1.575*8/100) = -17.99dB

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 55

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.779	55.47	PKFH	29.5	-27.1	9.1	66.97	74	7.03	103	141	H
* 3.706	38.71	PKFH	32	-26.9	10.6	54.41	74	19.59	85	170	H
* 4.632	34.41	PKFH	32.4	-26.6	11.8	52.01	74	21.99	190	277	H
* 7.411	33.97	PKFH	36.8	-26.2	15.2	59.77	74	14.23	21	265	H
* 8.338	35.79	PKFH	37.3	-26.1	16.2	63.19	74	10.81	282	264	H
* 2.779	52.42	PKFH	29.5	-27.1	9.1	63.92	74	10.08	32	159	V
* 3.706	41.15	PKFH	32	-26.9	10.6	56.85	74	17.15	15	145	V
* 4.632	33.97	PKFH	32.3	-26.6	11.8	51.47	74	22.53	194	238	V
* 7.412	35.1	PKFH	36.8	-26.2	15.2	60.9	74	13.1	47	272	V
* 8.337	34.16	PKFH	37.3	-26.1	16.2	61.56	74	12.44	64	253	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.853	70.66	PKFH	27.5	-26.9	7.4	78.66	94.9	16.24	336	233	H
5.559	40.75	PKFH	34.4	-26.4	13.1	61.85	94.9	33.05	277	293	H
6.486	41.38	PKFH	34.8	-26.4	14.2	63.98	94.9	30.92	21	265	H
9.268	34.09	PKFH	37.8	-26	17.1	62.99	94.9	31.91	324	156	H
1.853	75.1	PKFH	27.5	-26.9	7.4	83.1	94.9	11.8	186	354	V
5.558	37.75	PKFH	34.4	-26.4	13.1	58.85	94.9	36.05	41	275	V
6.486	43.78	PKFH	34.8	-26.4	14.2	66.38	94.9	28.52	8	261	V
9.263	30.8	PKFH	37.8	-26	17.1	59.7	94.9	35.2	127	280	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.779	53.24	VA1T	29.5	-27.1	9.1	-12.53	52.21	54	1.79	103	141	H
* 3.706	33.9	VA1T	32	-26.9	10.6	-12.53	37.07	54	16.93	85	170	H
* 4.632	26.36	VA1T	32.3	-26.6	11.8	-12.53	31.33	54	22.67	190	277	H
* 7.411	23.1	VA1T	36.8	-26.2	15.2	-12.53	36.37	54	17.63	21	265	H
* 8.339	26.59	VA1T	37.3	-26.1	16.2	-12.53	41.46	54	12.54	282	264	H
* 2.779	50.98	VA1T	29.5	-27.1	9.1	-12.53	49.95	54	4.05	32	159	V
* 3.706	37.61	VA1T	32	-26.9	10.6	-12.53	40.78	54	13.22	15	145	V
* 4.632	25.49	VA1T	32.4	-26.6	11.8	-12.53	30.56	54	23.44	194	238	V
* 7.411	26.12	VA1T	36.8	-26.2	15.2	-12.53	39.39	54	14.61	47	272	V
* 8.339	26.73	VA1T	37.3	-26.1	16.2	-12.53	41.6	54	12.4	64	253	V

Note: * Indicates Frequency in CFR47 Pt 15 Restricted Band
PKFH –FHSS: RB=1MHz ,VB=3x RB ,Peak
VA1T-FHSS: Linear Voltage Average RB=1MHzVB=10Hz

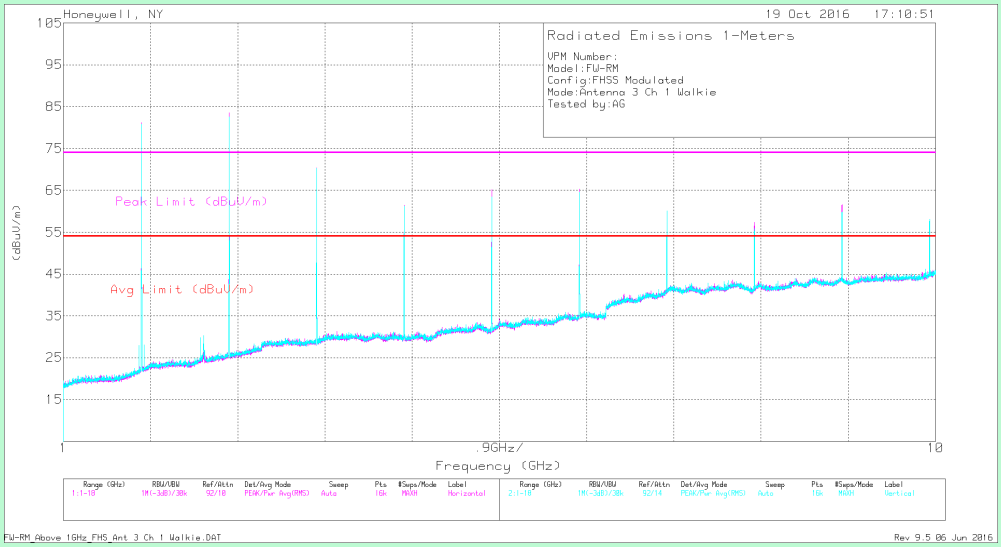
Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) + Filter Insertion loss – Preamplifier Gain (dB)

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS

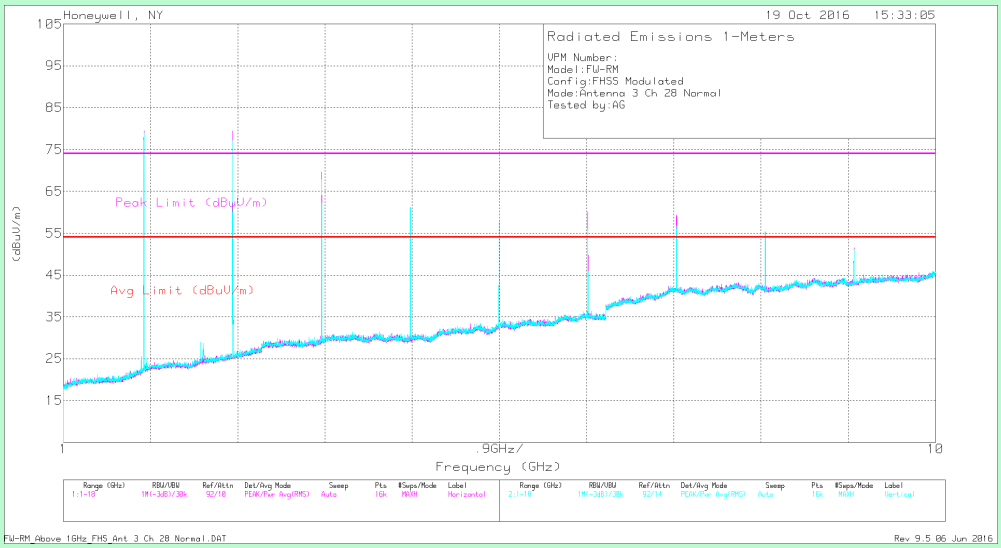
Duty Cycle Correction Factor is calculated using the guidelines provided in DA 00 -705

Duty Cycle Factor =20*log (Dwell time /100msec), Number of Transmission for 100msec: 8, Dwell time per Transmission: 1.575 msec
Duty Cycle correction Factor =20 log (1.575*8/100) = -17.99dB

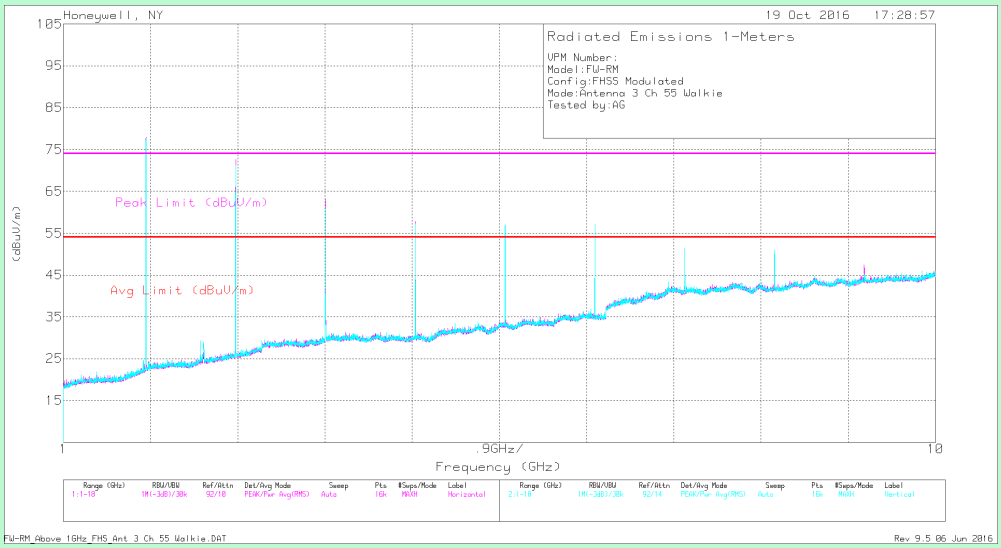
TEST GRAPHS –1 GHz to 10 GHz (ANTENNA 3)



Channel 1 (903.55 MHz) – Antenna 3



Channel 28 (916.00 MHz) – Antenna 3



Channel 55 (926.45 MHz) – Antenna 3

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 1

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.711	49.02	PKFH	29.3	-27.1	9	60.22	74	13.78	158	195	H
* 3.615	40.01	PKFH	31.6	-26.8	10.4	55.21	74	18.79	200	327	H
* 4.518	34.1	PKFH	32.2	-26.6	11.7	51.4	74	22.6	129	308	H
* 5.421	38.14	PKFH	34.3	-26.7	12.9	58.64	74	15.36	13	359	H
* 8.133	35.79	PKFH	37.1	-26.2	16	62.69	74	11.31	33	327	H
* 9.036	32.95	PKFH	37.6	-25.9	16.9	61.55	74	12.45	13	332	H
* 2.71	49.25	PKFH	29.3	-27.1	9	60.45	74	13.55	340	181	V
* 3.614	37.5	PKFH	31.6	-26.8	10.4	52.7	74	21.3	348	347	V
* 4.517	35.87	PKFH	32.2	-26.6	11.7	53.17	74	20.83	72	117	V
* 5.422	40.35	PKFH	34.3	-26.7	12.9	60.85	74	13.15	345	138	V
* 8.133	32.8	PKFH	37.1	-26.2	16	59.7	74	14.3	123	139	V
* 9.035	31.33	PKFH	37.6	-25.9	16.9	59.93	74	14.07	172	235	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.807	62.19	PKFH	27.1	-26.9	7.3	69.69	92.5	22.81	338	157	H
6.325	34	PKFH	34.9	-26.4	14	56.5	92.5	36	192	333	H
7.228	34.1	PKFH	36.3	-26.2	15	59.2	92.5	33.3	39	331	H
1.807	60.27	PKFH	27.1	-26.9	7.3	67.77	92.5	24.73	144	216	V
6.325	39.1	PKFH	34.9	-26.4	14	61.6	92.5	30.9	354	122	V
7.229	37.86	PKFH	36.3	-26.2	15	62.96	92.5	29.54	127	104	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.711	47.32	VA1T	29.3	-27.1	9	-12.53	45.99	54	8.01	158	195	H
* 3.614	36.39	VA1T	31.6	-26.8	10.4	-12.53	39.06	54	14.94	200	327	H
* 4.518	25.17	VA1T	32.2	-26.6	11.7	-12.53	29.94	54	24.06	129	308	H
* 5.421	32.47	VA1T	34.3	-26.7	12.9	-12.53	40.44	54	13.56	13	359	H
* 8.133	27.28	VA1T	37.1	-26.2	16	-12.53	41.65	54	12.35	33	327	H
* 9.036	23.83	VA1T	37.6	-25.9	16.9	-12.53	39.9	54	14.1	13	332	H
* 2.711	47.51	VA1T	29.3	-27.1	9	-12.53	46.18	54	7.82	340	181	V
* 3.614	33.88	VA1T	31.6	-26.8	10.4	-12.53	36.55	54	17.45	348	347	V
* 4.518	28.95	VA1T	32.2	-26.6	11.7	-12.53	33.72	54	20.28	72	117	V
* 5.421	34.61	VA1T	34.3	-26.7	12.9	-12.53	42.58	54	11.42	345	138	V
* 8.131	24.88	VA1T	37.1	-26.2	16	-12.53	39.25	54	14.75	123	139	V
* 9.037	21.46	VA1T	37.6	-25.9	16.9	-12.53	37.53	54	16.47	172	235	V

Note: * Indicates Frequency in CFR47 Pt 15 Restricted Band
PKFH –FHSS: RB=1MHz ,VB=3x RB ,Peak
VA1T-FHSS: Linear Voltage Average RB=1MHzVB=10Hz

Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) + Filter Insertion loss – Preamplifier Gain (dB)

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS

Duty Cycle Correction Factor is calculated using the guidelines provided in DA 00 -705

Duty Cycle Factor =20*log (Dwell time /100msec), Number of Transmission for 100msec: 8, Dwell time per Transmission: 1.575 msec
Duty Cycle correction Factor =20 log (1.575*8/100) = -17.99dB

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 28

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.748	53.72	PKFH	29.4	-27	9	65.12	74	8.88	152	262	H
* 2.748	53.76	PKFH	29.4	-27	9	65.16	74	8.84	152	262	H
* 3.664	42.92	PKFH	31.8	-26.9	10.4	58.22	74	15.78	200	320	H
* 4.58	34.08	PKFH	32.2	-26.7	11.8	51.38	74	22.62	143	363	H
* 7.328	32.65	PKFH	36.7	-26.2	15.1	58.25	74	15.75	103	349	H
* 8.245	33.99	PKFH	37.1	-26.1	16.2	61.19	74	12.81	357	351	H
* 9.16	32.49	PKFH	37.6	-25.9	17	61.19	74	12.81	11	343	H
* 2.748	54.83	PKFH	29.4	-27	9	66.23	74	7.77	13	166	V
* 3.664	44.44	PKFH	31.8	-26.9	10.4	59.74	74	14.26	347	146	V
* 4.58	35.75	PKFH	32.2	-26.7	11.8	53.05	74	20.95	24	148	V
* 7.329	37.27	PKFH	36.7	-26.2	15.1	62.87	74	11.13	123	119	V
* 8.243	33.93	PKFH	37.1	-26.1	16.2	61.13	74	12.87	128	105	V
* 9.161	32.93	PKFH	37.6	-25.9	17	61.63	74	12.37	31	247	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental -20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.832	60.76	PKFH	27.3	-26.9	7.3	68.46	93.4	24.94	336	377	H
5.496	36.95	PKFH	34.4	-26.6	13	57.75	93.4	35.65	9	357	H
6.412	36.87	PKFH	34.8	-26.3	14.1	59.47	93.4	33.93	295	300	H
1.832	62.14	PKFH	27.3	-26.9	7.3	69.84	93.4	23.56	100	194	V
5.496	39.34	PKFH	34.4	-26.6	13	60.14	93.4	33.26	291	115	V
6.411	39.35	PKFH	34.8	-26.3	14.1	61.95	93.4	31.45	357	135	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.748	52.32	VA1T	29.4	-27	9	-12.53	51.19	54	2.81	152	262	H
* 3.664	39.8	VA1T	31.8	-26.9	10.4	-12.53	42.57	54	11.43	200	320	H
* 4.58	27.3	VA1T	32.2	-26.7	11.8	-12.53	32.07	54	21.93	143	363	H
* 7.329	23.99	VA1T	36.7	-26.2	15.1	-12.53	37.06	54	16.94	103	349	H
* 8.243	26.41	VA1T	37.1	-26.1	16.2	-12.53	41.08	54	12.92	357	351	H
* 9.161	22.89	VA1T	37.6	-25.9	17	-12.53	39.06	54	14.94	11	343	H
* 2.748	53.24	VA1T	29.4	-27	9	-12.53	52.11	54	1.89	13	166	V
* 3.664	41.29	VA1T	31.8	-26.9	10.4	-12.53	44.06	54	9.94	347	146	V
* 4.58	29.6	VA1T	32.2	-26.7	11.8	-12.53	34.37	54	19.63	24	148	V
* 7.328	28.81	VA1T	36.7	-26.2	15.1	-12.53	41.88	54	12.12	123	119	V
* 8.245	26.13	VA1T	37.1	-26.1	16.2	-12.53	40.8	54	13.2	128	105	V
* 9.161	24.75	VA1T	37.6	-25.9	17	-12.53	40.92	54	13.08	31	247	V

Note: * Indicates Frequency in CFR47 Pt 15 Restricted Band
PKFH –FHSS: RB=1MHz ,VB=3x RB ,Peak
VA1T-FHSS: Linear Voltage Average RB=1MHzVB=10Hz

Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) + Filter Insertion loss – Preamplifier Gain (dB)

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS

Duty Cycle Correction Factor is calculated using the guidelines provided in DA 00 -705

Duty Cycle Factor =20*log (Dwell time /100msec), Number of Transmission for 100msec: 8, Dwell time per Transmission: 1.575 msec
Duty Cycle correction Factor =20 log (1.575*8/100) = -17.99dB

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 55

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.78	52.49	PKFH	29.5	-27.1	9.1	63.99	74	10.01	89	131	H
* 3.706	41.95	PKFH	32	-26.9	10.6	57.65	74	16.35	198	100	H
* 4.632	33.1	PKFH	32.4	-26.6	11.8	50.7	74	23.3	170	258	H
* 7.411	35.94	PKFH	36.8	-26.2	15.2	61.74	74	12.26	302	265	H
* 8.339	35.47	PKFH	37.3	-26.1	16.2	62.87	74	11.13	328	250	H
* 2.779	53.18	PKFH	29.5	-27.1	9.1	64.68	74	9.32	93	118	V
* 3.705	44.15	PKFH	32	-26.9	10.6	59.85	74	14.15	15	133	V
* 4.632	35.7	PKFH	32.4	-26.6	11.8	53.3	74	20.7	166	104	V
* 7.411	36.55	PKFH	36.8	-26.2	15.2	62.35	74	11.65	51	264	V
* 8.338	34.8	PKFH	37.3	-26.1	16.2	62.2	74	11.8	273	264	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.853	63.14	PKFH	27.5	-26.9	7.4	71.14	89.7	18.56	154	169	H
5.558	40	PKFH	34.4	-26.4	13.1	61.1	89.7	28.6	352	315	H
6.486	38.72	PKFH	34.8	-26.4	14.2	61.32	89.7	28.38	112	284	H
9.264	32.04	PKFH	37.8	-26	17.1	60.94	89.7	28.76	350	257	H
1.853	59.87	PKFH	27.5	-26.9	7.4	67.87	89.7	21.83	275	147	V
5.558	40.73	PKFH	34.4	-26.4	13.1	61.83	89.7	27.87	357	295	V
6.485	44.4	PKFH	34.8	-26.4	14.2	67	89.7	22.7	6	267	V
9.265	32.48	PKFH	37.8	-26	17.1	61.38	89.7	28.32	328	243	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.779	50.89	VA1T	29.5	-27.1	9.1	-12.53	49.86	54	4.14	89	131	H
* 3.706	38.88	VA1T	32	-26.9	10.6	-12.53	42.05	54	11.95	198	100	H
* 4.632	23.64	VA1T	32.3	-26.6	11.8	-12.53	28.61	54	25.39	170	258	H
* 7.411	28.31	VA1T	36.8	-26.2	15.2	-12.53	41.58	54	12.42	302	265	H
* 8.339	27.82	VA1T	37.3	-26.1	16.2	-12.53	42.69	54	11.31	328	250	H
* 2.779	51.48	VA1T	29.5	-27.1	9.1	-12.53	50.45	54	3.55	93	118	V
* 3.706	41.03	VA1T	32	-26.9	10.6	-12.53	44.2	54	9.8	15	133	V
* 4.632	28.86	VA1T	32.3	-26.6	11.8	-12.53	33.83	54	20.17	166	104	V
* 7.412	28.82	VA1T	36.8	-26.2	15.2	-12.53	42.09	54	11.91	51	264	V
* 8.339	27.22	VA1T	37.3	-26.1	16.2	-12.53	42.09	54	11.91	273	264	V

Note: * Indicates Frequency in CFR47 Pt 15 Restricted Band
PKFH –FHSS: RB=1MHz ,VB=3x RB ,Peak
VA1T-FHSS: Linear Voltage Average RB=1MHzVB=10Hz

Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB) + Filter Insertion loss – Preamplifier Gain (dB)

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS

Duty Cycle Correction Factor is calculated using the guidelines provided in DA 00 -705

Duty Cycle Factor =20*log (Dwell time /100msec), Number of Transmission for 100msec: 8, Dwell time per Transmission: 1.575 msec
Duty Cycle correction Factor =20 log (1.575*8/100) = -17.99dB

2.9 Effective Isotropic Radiated Power

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2017-04-17	**Temperature (˚C)**	0°C-35°C
Test End Date	2017-04-17	**Humidity RH (%)**	10%RH-90%RH
Tested By	Chris Locke	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Comment	NA		

MAXIMUM OPERATING FREQUENCY

902 MHz to 928 MHz

TEST PARAMETERS

Antenna Height	1m to 4m	**Turntable Rotation**	NA
Applicable Standard	ANSI C63.10 - 2013	**Test Method**	KDB 412172 v01r01
Equipment Class	NA	**Measurement Distance**	3m

TEST EQUIPMENT

Y/N	Equipment	Make	Model	Sl. No.	Cal Due Date
Y	Spectrum Analyzer	Rohde & Schwarz	FSW26	103125	2018-02-14
Y	Bilog Antenna	Sunol	JB6	A012816	2018-03-09
Y	Log Periodic Antenna	A.H.Systems	SAS-200	365TX	2018-02-02
Y	Preamplifier (Below 1GHz)	HP	8447D	2443AUF555	NA
Y	Signal Generator	Agilent	N5183A (MXG)	MY50140667	2018-06-02

Note: Switch ON /OFF the Internal Preamplifier based on carrier level and or noise floor without overloading the receiver

TEST RESULT – EIRP

ANTENNA	Frequency (MHz)	Polarity	Fundamental Target (dBuV/m)	Signal Generator Level (dBm)	EIRP (dBm)
1	903.55	H	106.87	15.5	16.320.9
1	903.55	V	95.03	4.3	5.1
1	916	H	104.97	14.2	15
1	916	V	93.66	3.3	5.1
1	926.45	H	102.36	12.9	13.7
1	926.45	V	93.76	5	5.8
2	903.55	H	107.56	16.2	17
2	903.55	V	99.42	8.7	9.5
2	916	H	104.87	14.1	14.9
2	916	V	98.97	8.65	9.45
2	926.45	H	109.39	20.1	20.9
2	926.45	V	96.27	7.5	8.3
3	903.55	H	107.64	16.3	17.1
3	903.55	V	89.91	-.09	-0.1
3	916	H	107.99	17.2	18
3	916	V	99.74	9.4	10.2
3	926.45	H	106.5	17.1	17.9
3	926.45	V	94.52	5.75	6.55

Note: EIRP=Signal Generator Level (dBm)+ Substitute Antenna Gain(dBi)+Cable loss(dB)
Substitute Antenna Gain =5.4dBi
Cable Loss =4.6dB

TEST SETUP PHOTOGRAPH

Refer Annexure -1

EIRP Test Setup

3 DTS CHANNELS

3.1 DTS 6dB BANDWIDTH

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2016-08-24	**Temperature (˚C)**	23.6°C
Test End Date	2016-08-24	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia/Arnoldo Garcia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247:2010		
Test Method	KDB 558074		
Comment	NA		

TEST DETAILS

Method	Radiated ☐	Conducted ☒

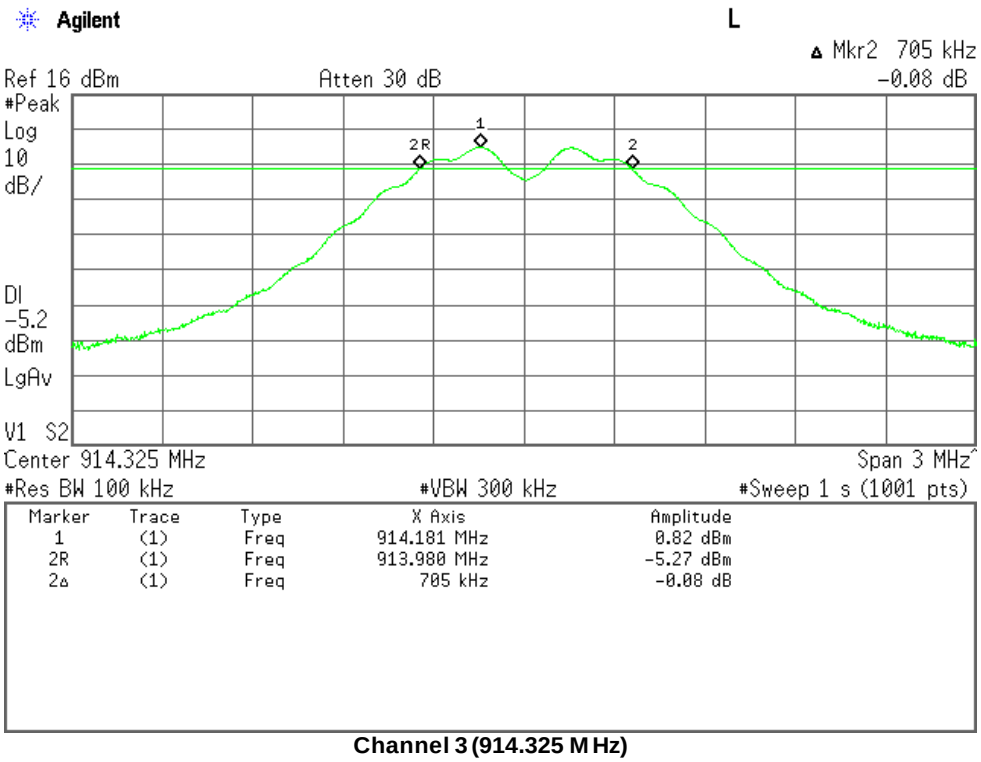
TEST PARAMETERS

Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

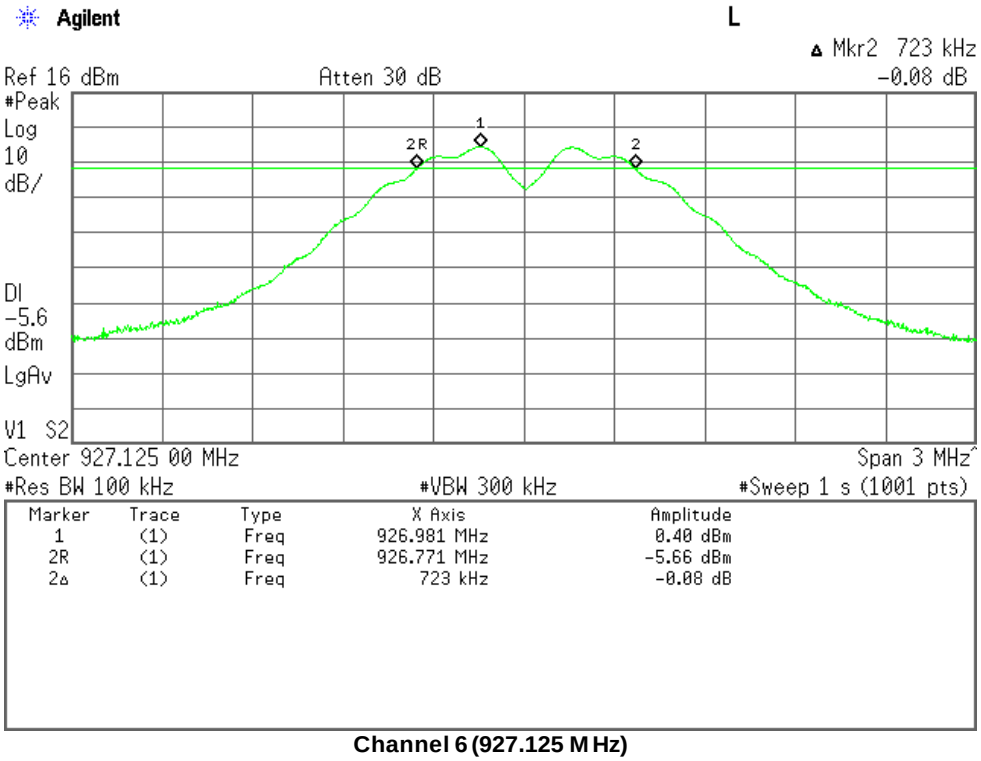
TEST EQUIPMENT

Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA

TEST GRAPHS



Channel 3 (914.325 MHz)



Channel 6 (927.125 MHz)

TEST RESULT				
Channel #	Frequency MHz	Measured Value KHz	Limit KHz	Result
3	914.325	705	>500	PASS
6	927.125	723	>500	PASS

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test Setup

3.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2016-08-30	**Temperature (˚C)**	23.6°C
Test End Date	2016-08-30	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia/Arnoldo Garcia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247:2010		
Test Method	KDB 558074		
Comment	NA		

TEST DETAILS

Method	Radiated ☐	Conducted ☒

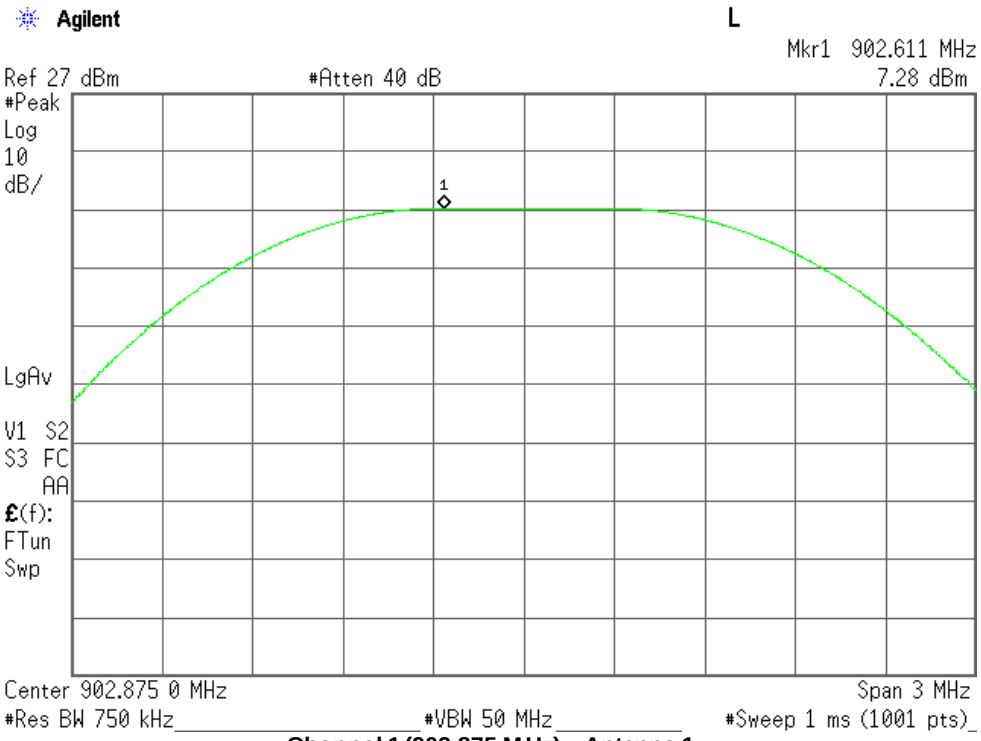
TEST PARAMETERS

Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

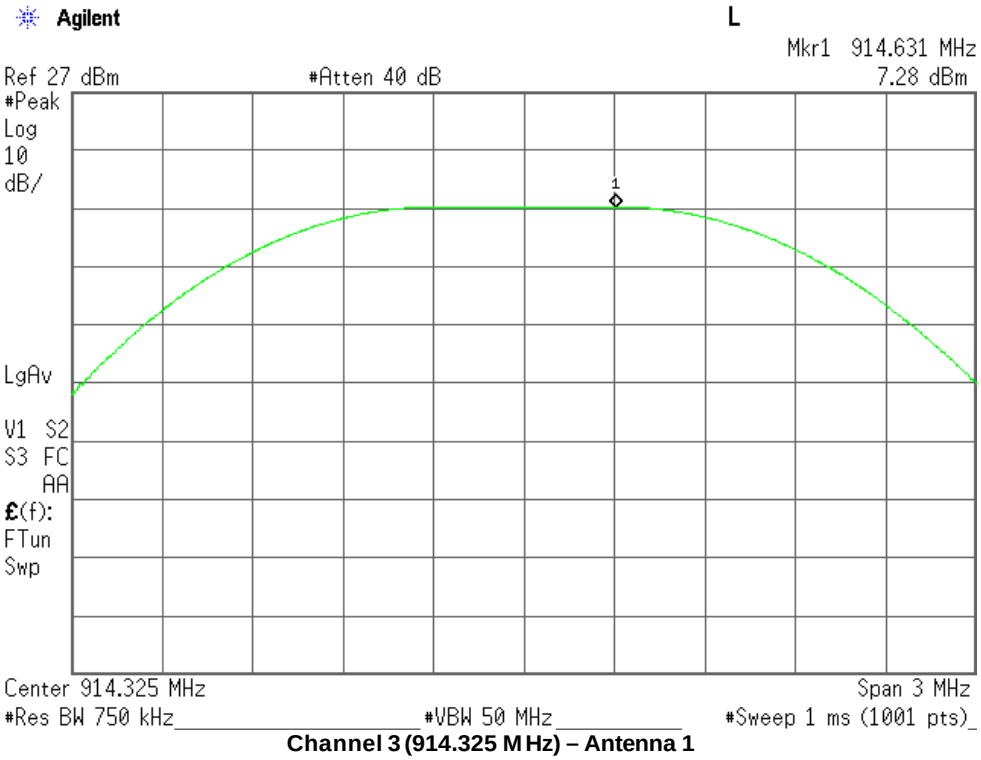
TEST EQUIPMENT

Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA

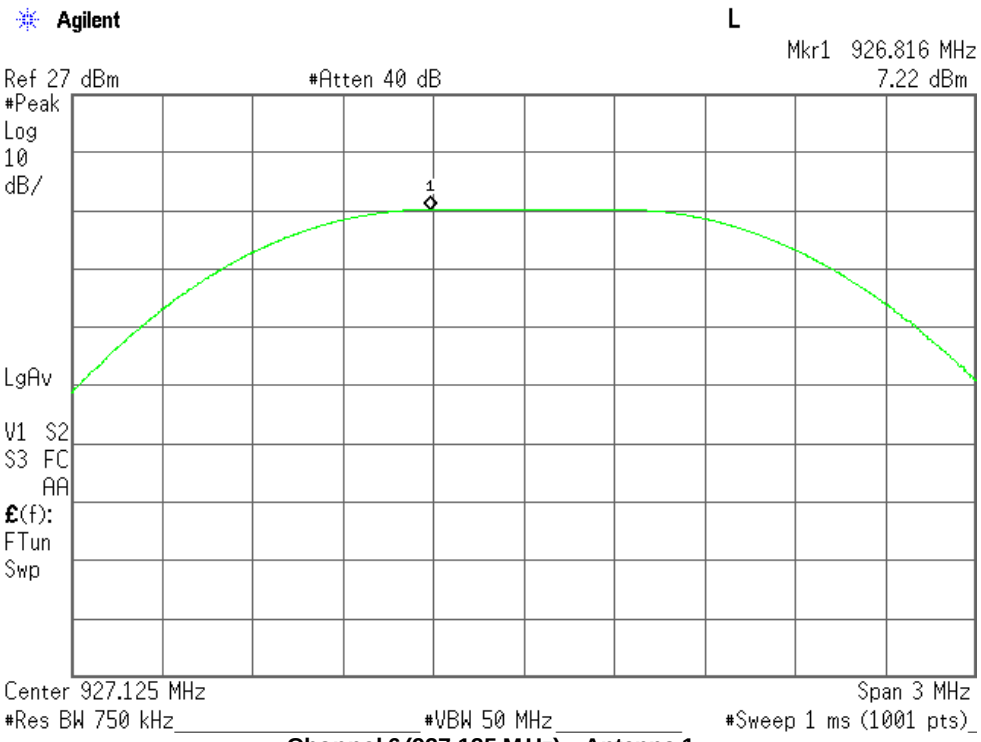
TEST GRAPHS



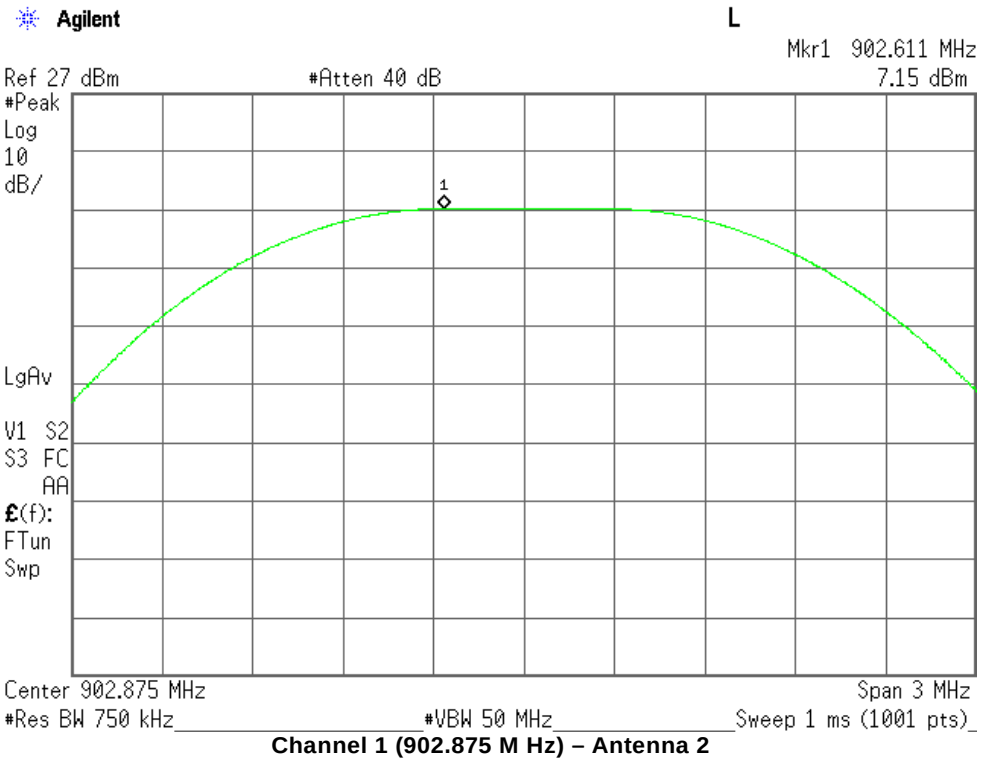
Channel 1 (902.875 MHz) – Antenna 1



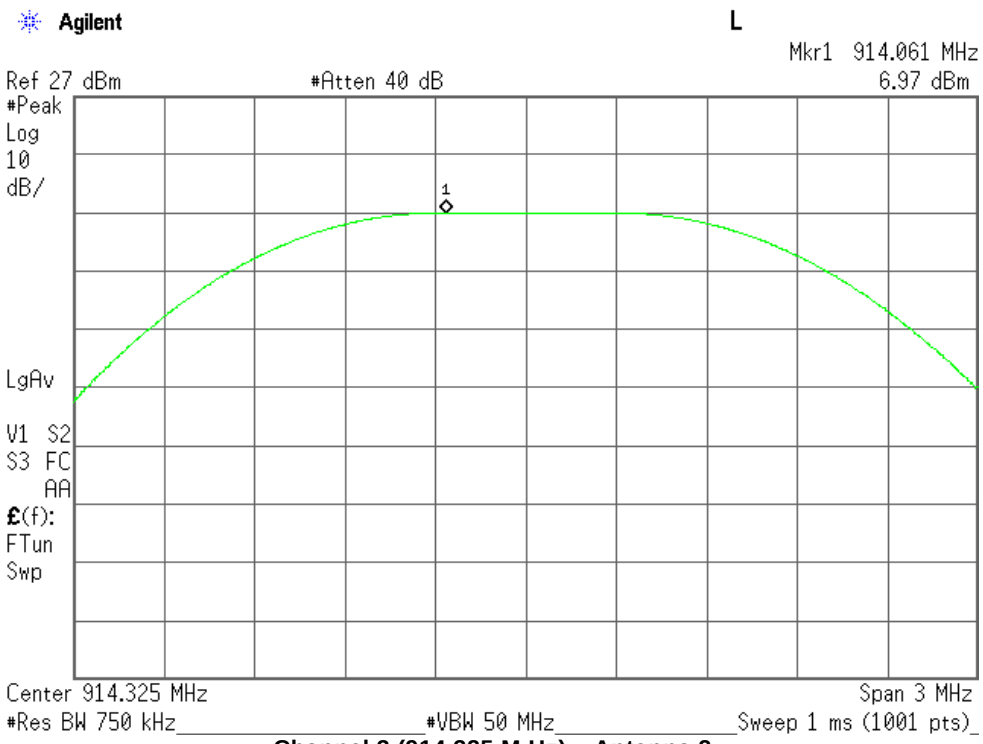
Channel 3 (914.325 MHz) – Antenna 1



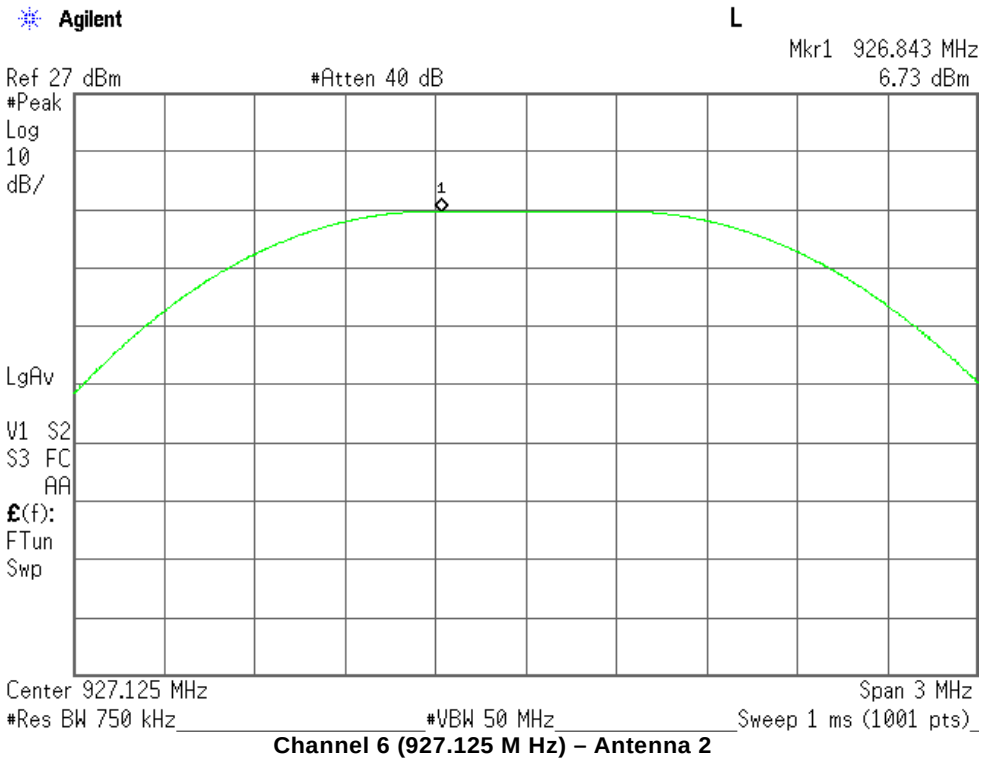
Channel 6 (927.125 MHz) – Antenna 1



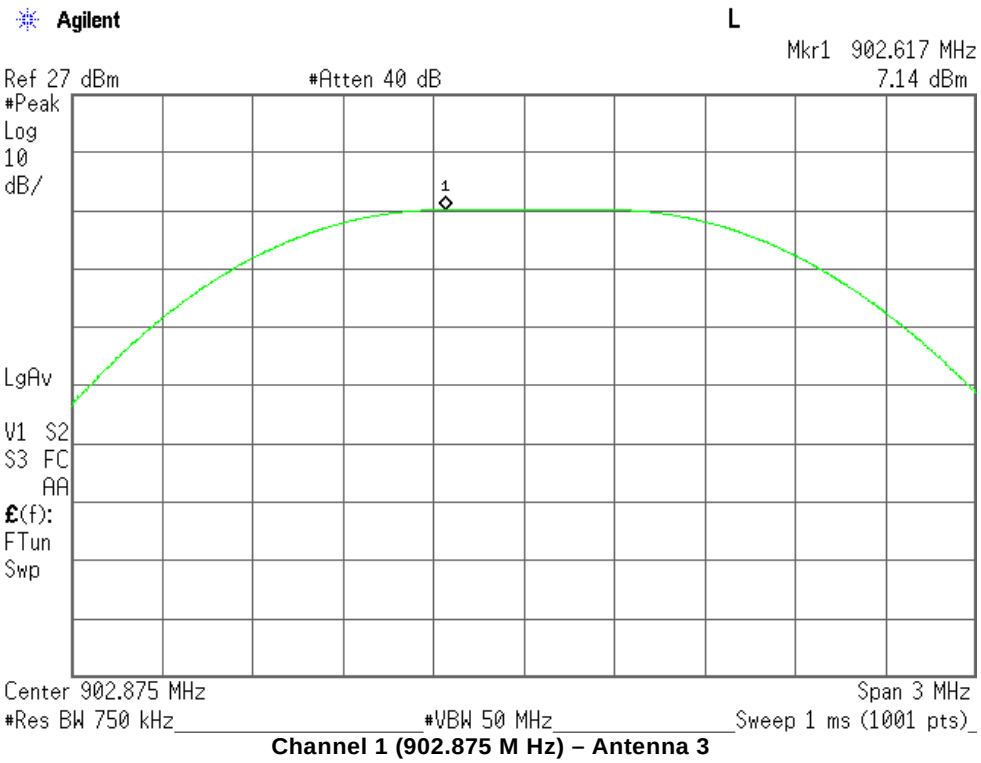
Channel 1 (902.875 M Hz) – Antenna 2



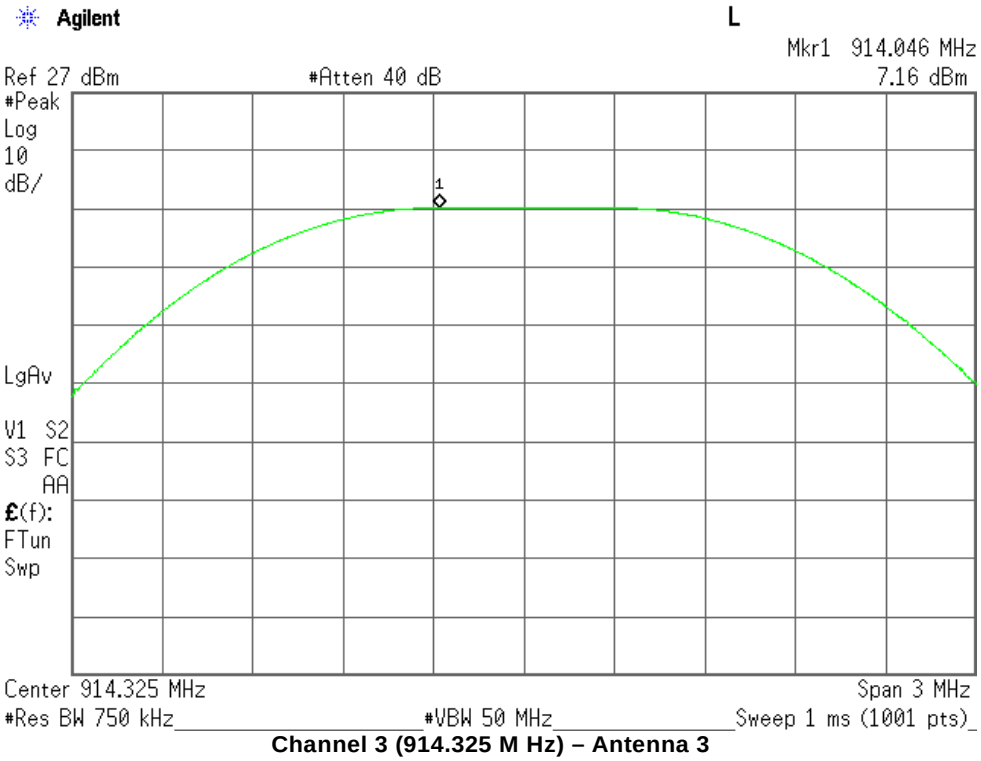
Channel 3 (914.325 M Hz) – Antenna 2



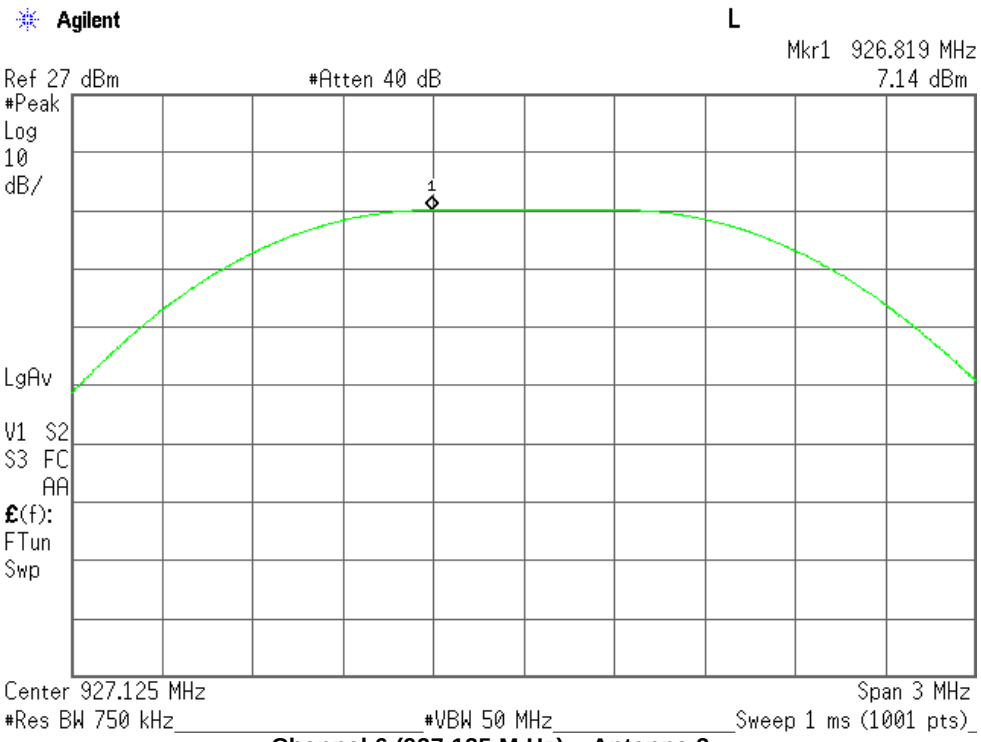
Channel 6 (927.125 M Hz) – Antenna 2



Channel 1 (902.875 M Hz) – Antenna 3



Channel 3 (914.325 M Hz) – Antenna 3



Channel 6 (927.125 M Hz) – Antenna 3

TEST RESULT						
Channel	Frequency	Measured Level	Cable Loss + Attenuator	Measured Level	Limit	Result
#	MHz	dBm	dB	KHz	dBm	
Antenna 1						
1	902.875	7.28	6.5	13.78	≤30	PASS
3	914.325	7.28	6.5	13.78	≤30	PASS
6	927.125	7.22	6.5	13.72	≤30	PASS
Antenna 2						
1	902.875	7.15	6.5	13.65	≤30	PASS
3	914.325	6.97	6.5	13.47	≤30	PASS
6	927.125	6.73	6.5	13.23	≤30	PASS
Antenna 3						
1	902.875	7.14	6.5	13.64	≤30	PASS
3	914.325	7.16	6.5	13.66	≤30	PASS
6	927.125	7.14	6.5	13.64	≤30	PASS

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test Setup

3.3 MAXIMUM POWER SPECTRAL DENSITY

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2017-04-21	**Temperature (˚C)**	23.6°C
Test End Date	2017-04-21	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247 :2010		
Test Method	KDB 558074		
Comment	NA		

TEST DETAILS

Method	Radiated ☐	Conducted ☒

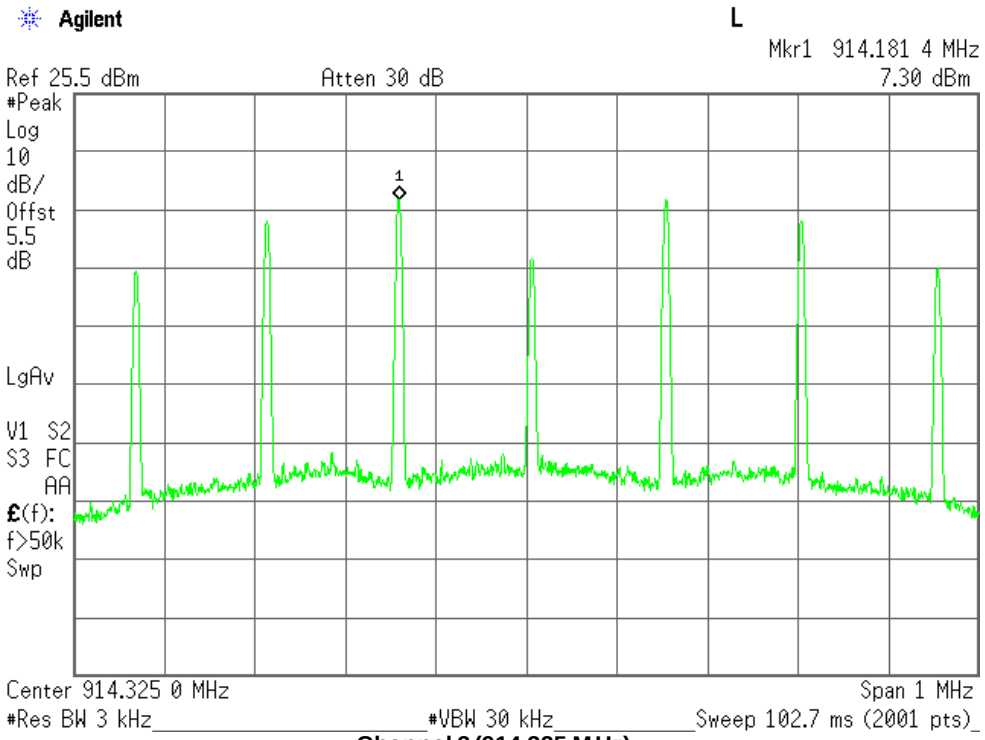
TEST PARAMETERS

Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

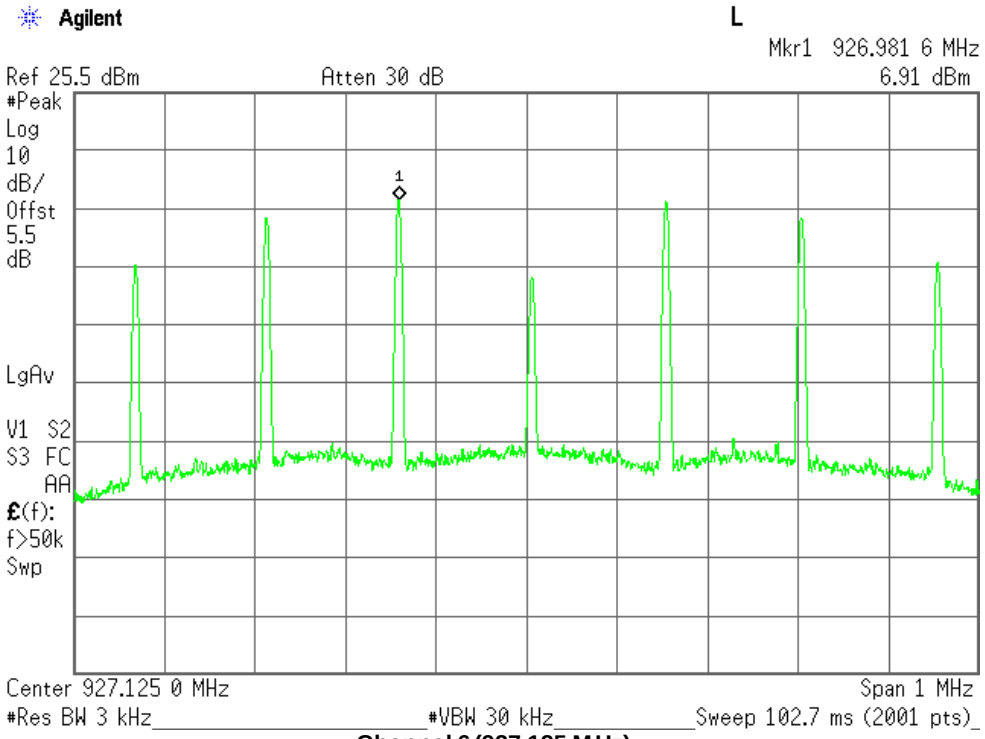
TEST EQUIPMENT

Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA

TEST GRAPHS



Channel 3 (914.325 MHz)



Channel 6 (927.125 MHz)

TEST RESULT				
Channel #	Freq MHz	Measured Level dBm/3KHz	Limit dBm/ 3KHz	Result
3	914.325	7.30	<8	PASS
6	927.125	6.91	<8	PASS
Note: Cable + Attenuator factor was added as an offset in the analyzer.				

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test Setup

3.4 BAND-EDGE MEASUREMENTS

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2016-08-24	**Temperature (°C)**	23.6°C
Test End Date	2016-08-24	**Humidity RH (%)**	51.9%RH
Tested By	Jose Badia/Arnoldo Garcia	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247 :2010		
Test Method	KDB 558074		
Comment	NA		

TEST DETAILS

Method	Radiated ☐	Conducted ☒

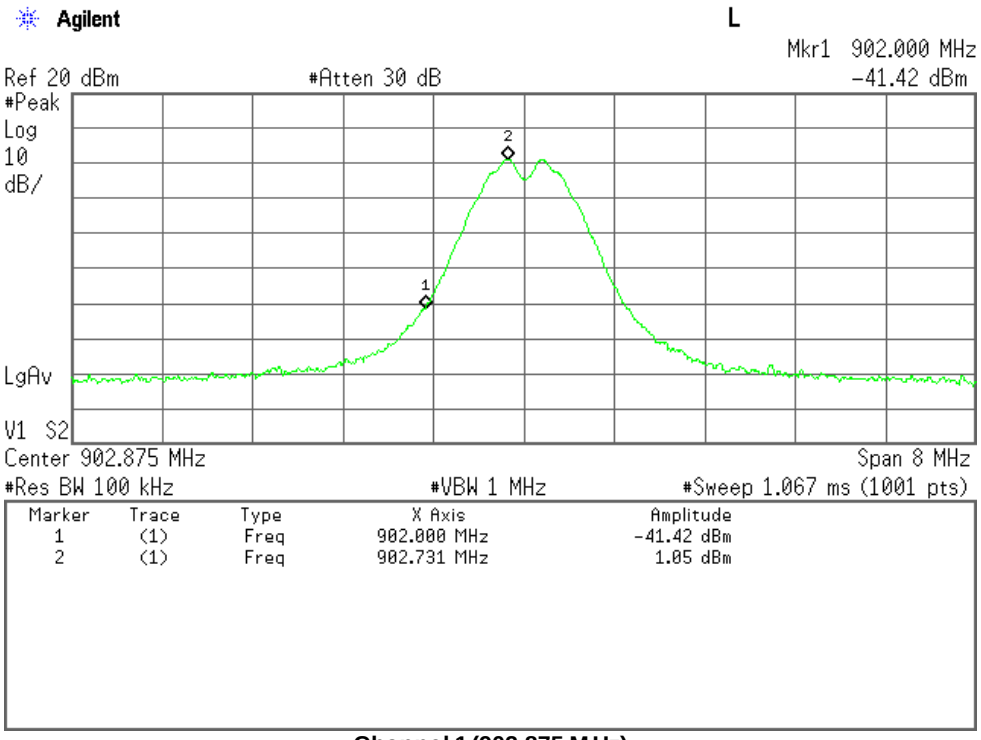
TEST PARAMETERS

Antenna Height	NA	**Turntable Rotation**	NA
Equipment Class	NA	**Measurement Distance**	NA

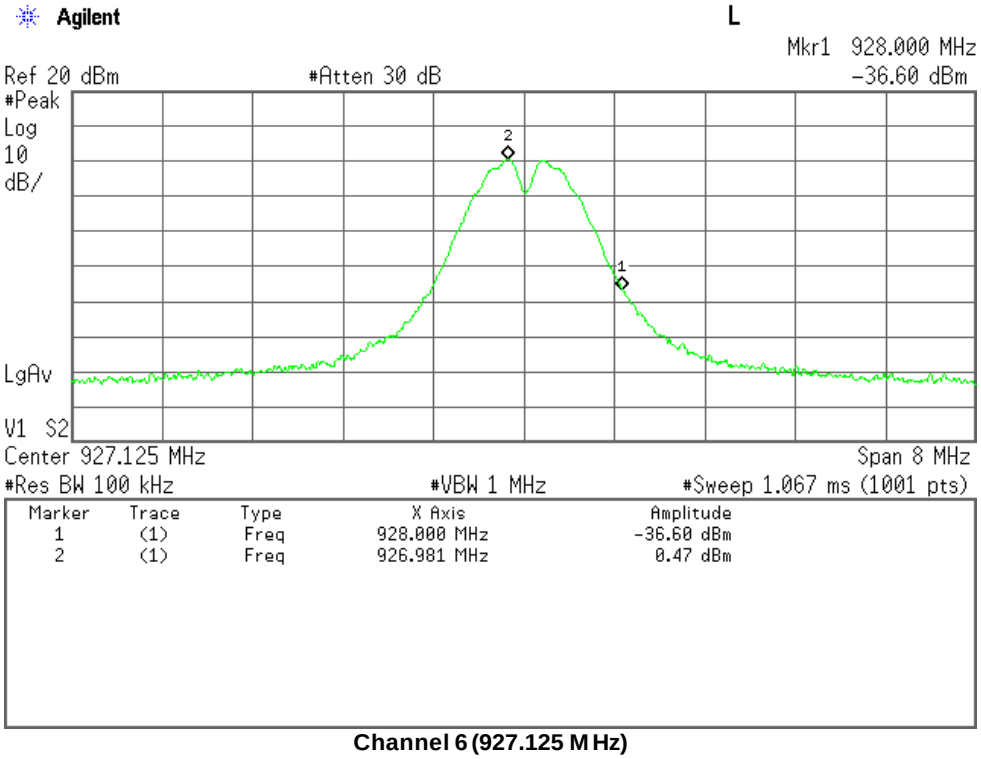
TEST EQUIPMENT

Y/N	Equipment	Make	Model	Serial Number	Cal Due Date
Y	Spectrum Analyzer	Agilent	E4440A	MY41000078	2017-05-18
Y	RF Cable	Digikey	1	NA	NA

TEST GRAPHS



Channel 1 (902.875 MHz)



Channel 6 (927.125 MHz)

TEST RESULT

Channel #	Frequency MHz	Measured Level dB	Limit dBc	Results
1	902.875	42.47	>20	PASS
6	927.125	37.07	>20	PASS

TEST SETUP PHOTOGRAPH

Refer Annexure -1

Conducted RF Test Setup

3.5 SPURIOUS RADIATED EMISSIONS

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2016-09-22	**Temperature (˚C)**	0°C-35°C
Test End Date	2017-03-28	**Humidity RH (%)**	10%RH-90%RH
Tested By	Jose Badia/Arnoldo Garcia/Chris Locke	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Applicable standard	FCC Part 15.247 : 2010 & 15.209 : 2010		
Test Method	ANSI 63.10 - 2013		
Comment	NA		

TEST FREQUENCY RANGE

Start Frequency	9kHz	**Stop Frequency**	10GHz

TEST PARAMETERS

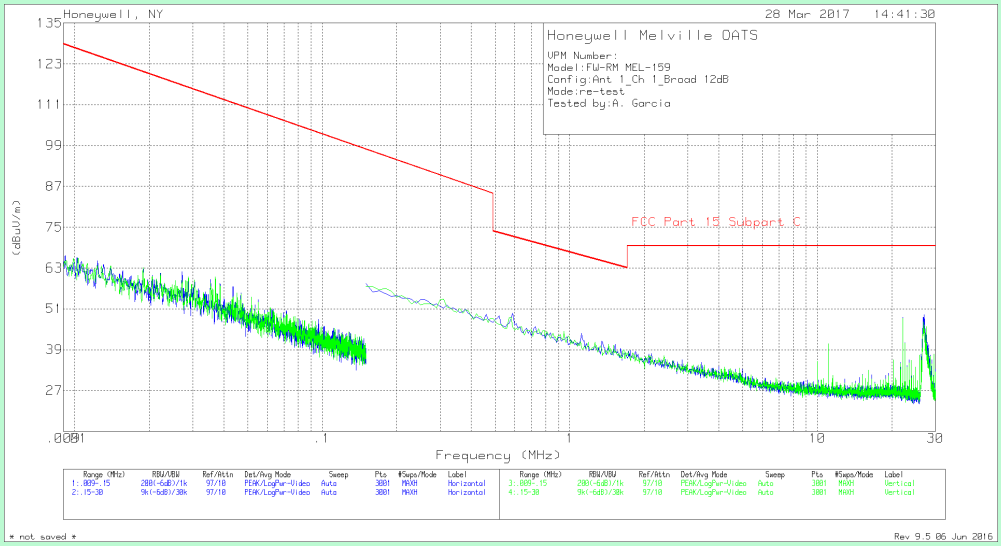
Antenna Height	1m to 4m	**Turntable Rotation**	0° to 360°
Equipment Class	NA	**Measurement Distance**	3m

TEST EQUIPMENT

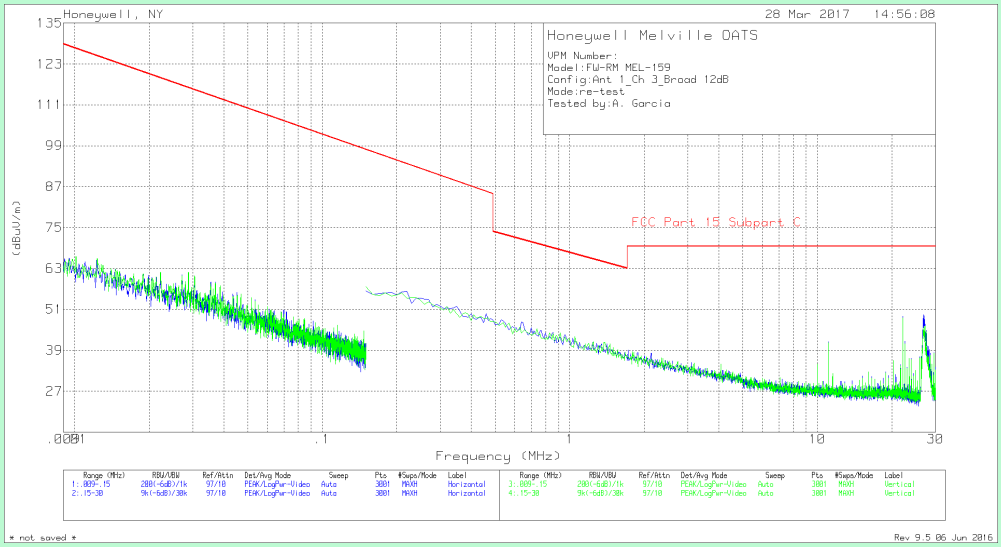
Y/N	Equipment	Make	Model	Sl. No.	Cal Due Date
Y	Spectrum Analyzer	Rohde & Schwarz	FSW26	103125	2018-02-14
Y	Spectrum Analyzer	Rohde & Schwarz	FSU26	100303	2017-03-31
Y	Bilog Antenna	Sunol	JB6	A012816	2018-03-09
Y	Bilog Antenna	Sunol	JB5	A022406	2017-12-18
Y	Horn Antenna	EMCO	RGA-60	3127	2017-02-03
Y	Preamplifier (Below 1GHz)	HP	8447D	2443AUF555	NA
Y	Preamplifier (Above 1GHz)	Amplical	AMP1G18-35	160362	NA
Y	Active Loop Antenna	Com-Power	AL-130R	121080	2017-08-15

Note: Switch ON /OFF the Internal Preamplifier based on carrier level and or noise floor without overloading the receiver

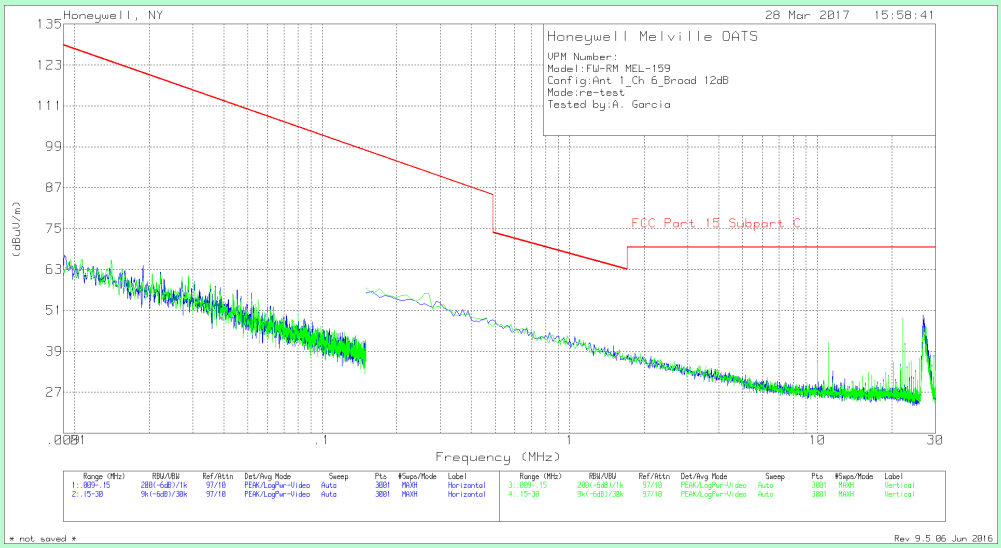
TEST GRAPHS – 9 KHz to 30 MHz (ANTENNA 1)



Channel 1 (902.875 MHz) – Antenna 1



Channel 3 (914.325 MHz) – Antenna 1

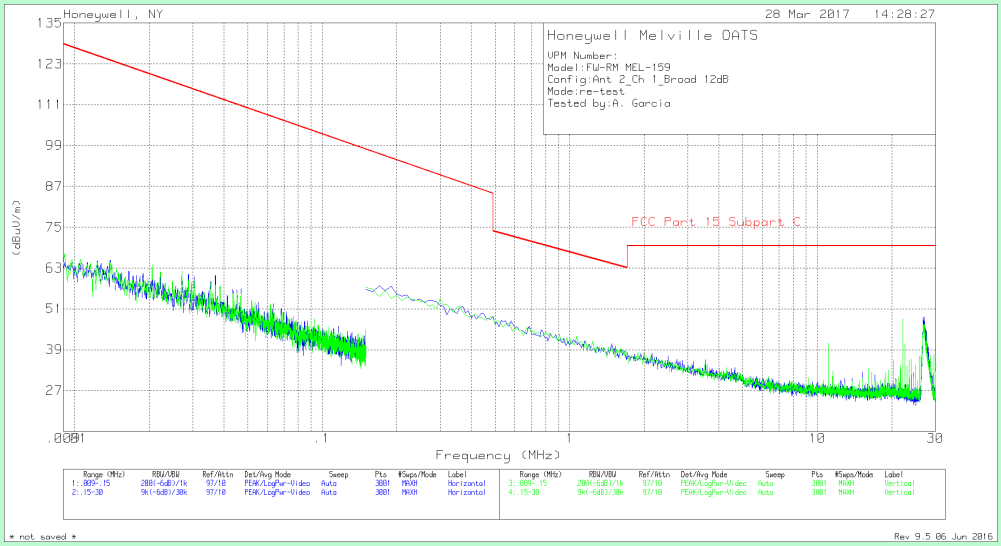


Channel 6 (927.125 MHz) – Antenna 1

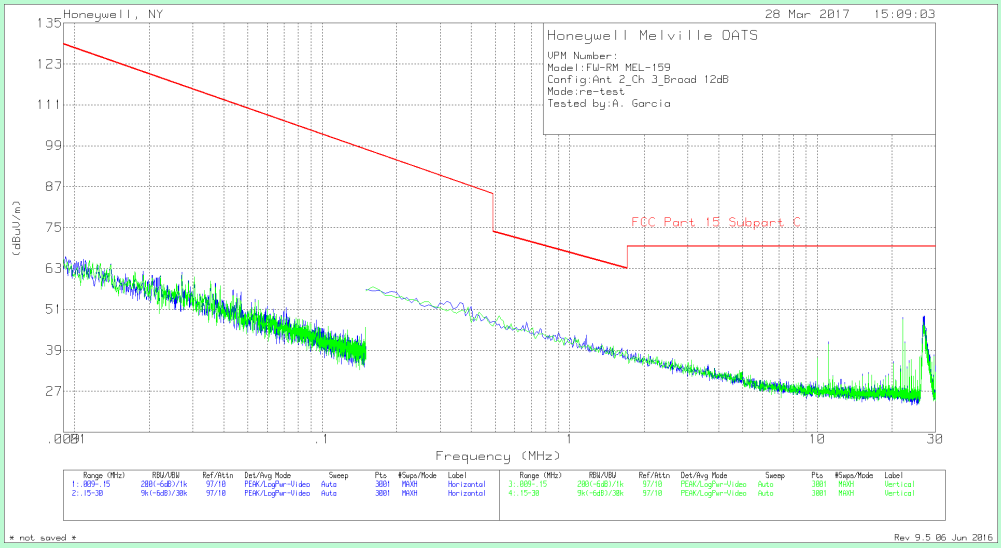
TEST RESULT – 9 KHz to 30 MHz									
Channel	Channel Frequency	Measured Spurious	Quasi Peak	Height	Ant Pol	Azimuth	Margin	Limit @ 3m Distance	Results
#	MHz	MHz	dBµV/m	cm	Parallel / Perpendicular	deg	dB	dBµV/m	
No emissions detected that are a product of the transmitter. Emissions shown in the plot are related to the chamber ambient									

Note : Measured Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB)

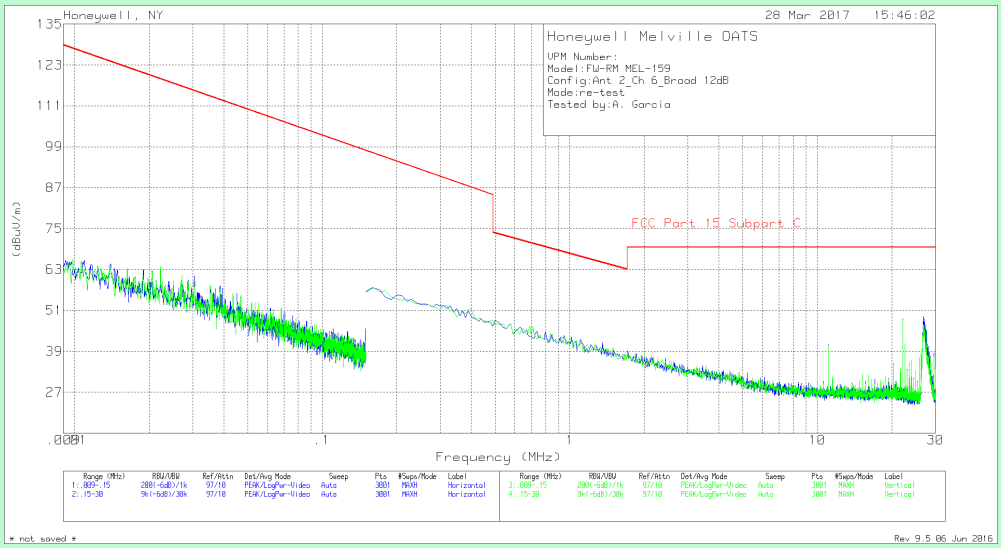
TEST GRAPHS – 9 KHz to 30 MHz (ANTENNA 2)



Channel 1 (902.875 MHz) – Antenna 2



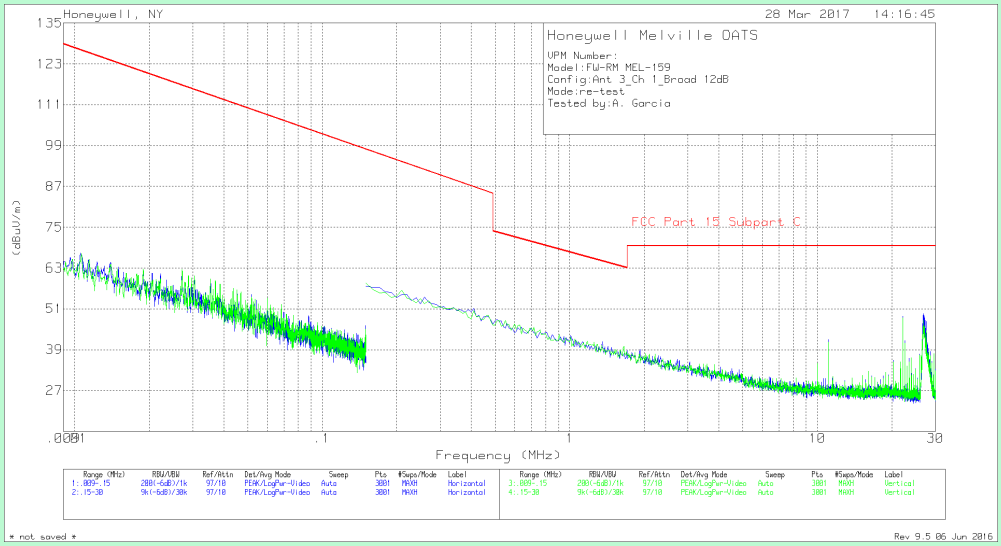
Channel 3 (914.325 MHz) – Antenna 2



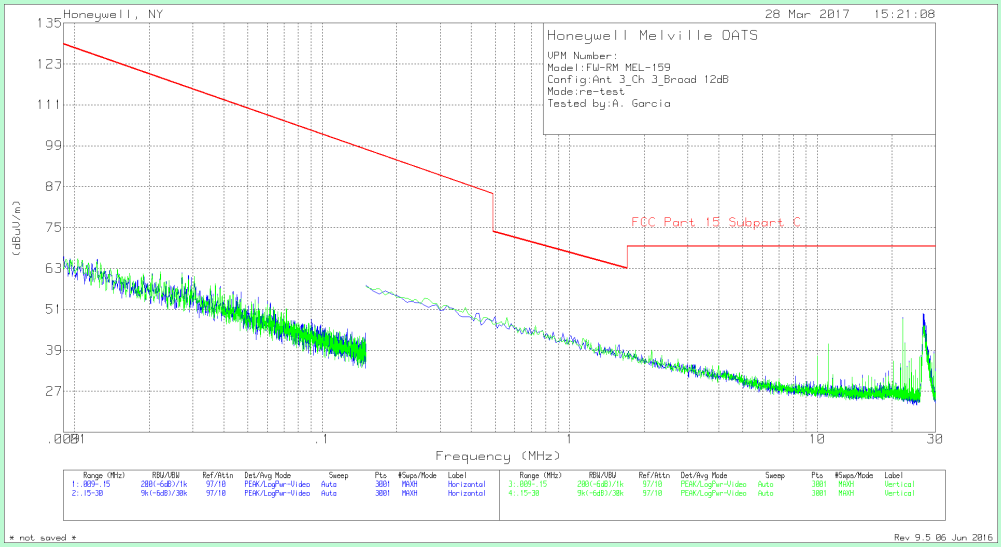
Channel 6 (927.125 MHz) – Antenna 2

TEST RESULT – 9 KHz to 30 MHz									
Channel	Channel Frequency	Measured Spurious	Quasi Peak	Height	Ant Pol	Azimuth	Margin	Limit @ 3m Distance	Results
#	MHz	MHz	dBµV/m	cm	Parallel / Perpendicular	deg	dB	dBµV/m	
No emissions detected that are a product of the transmitter. Emissions shown in the plot are related to the chamber ambient									
Note : Measured Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB)									

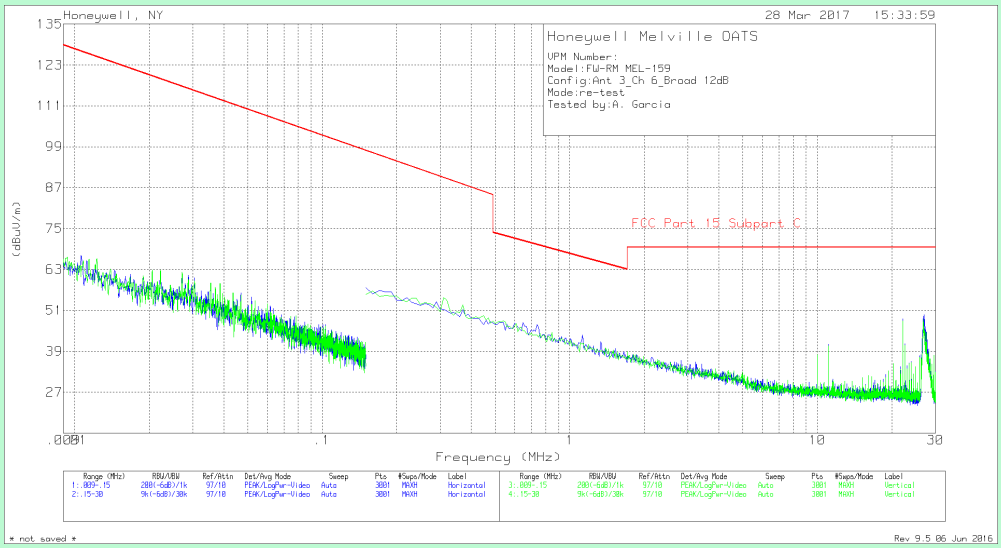
TEST GRAPHS – 9 KHz to 30 MHz (ANTENNA 3)



Channel 1 (902.875 MHz) – Antenna 3



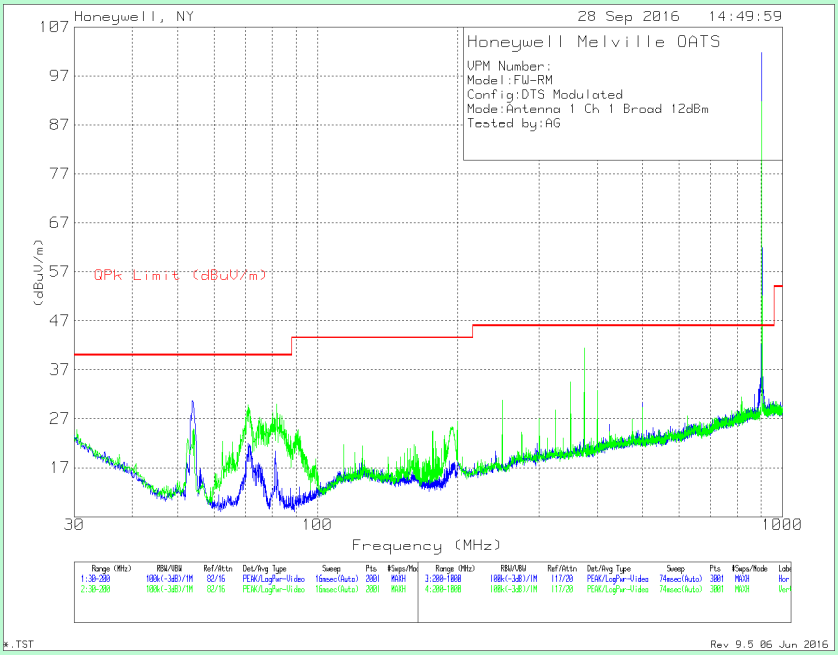
Channel 3 (914.325 MHz) – Antenna 3



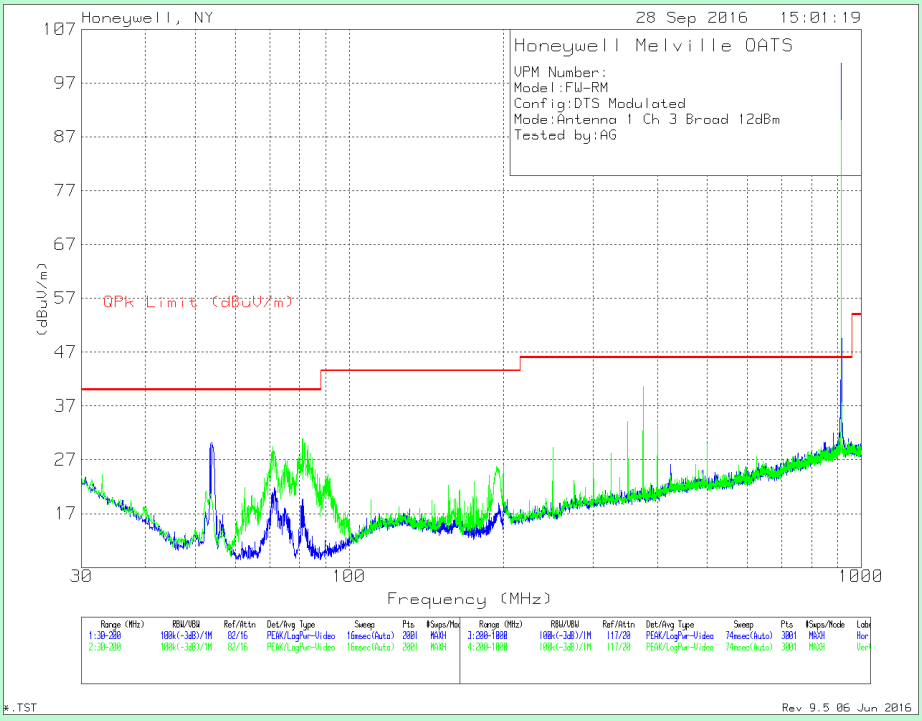
Channel 6 (927.125 MHz) – Antenna 3

TEST RESULT – 9 KHz to 30 MHz									
Channel	Channel Frequency	Measured Spurious	Quasi Peak	Height	Ant Pol	Azimuth	Margin	Limit @ 3m Distance	Results
#	MHz	MHz	dBµV/m	cm	Parallel / Perpendicular	deg	dB	dBµV/m	
No emissions detected that are a product of the transmitter. Emissions shown in the plot are related to the chamber ambient									
Note : Measured Field Strength –dBuV/m = Receiver Readings (dBuV) + Antenna Factor (dB/m) + Cable loss (dB)									

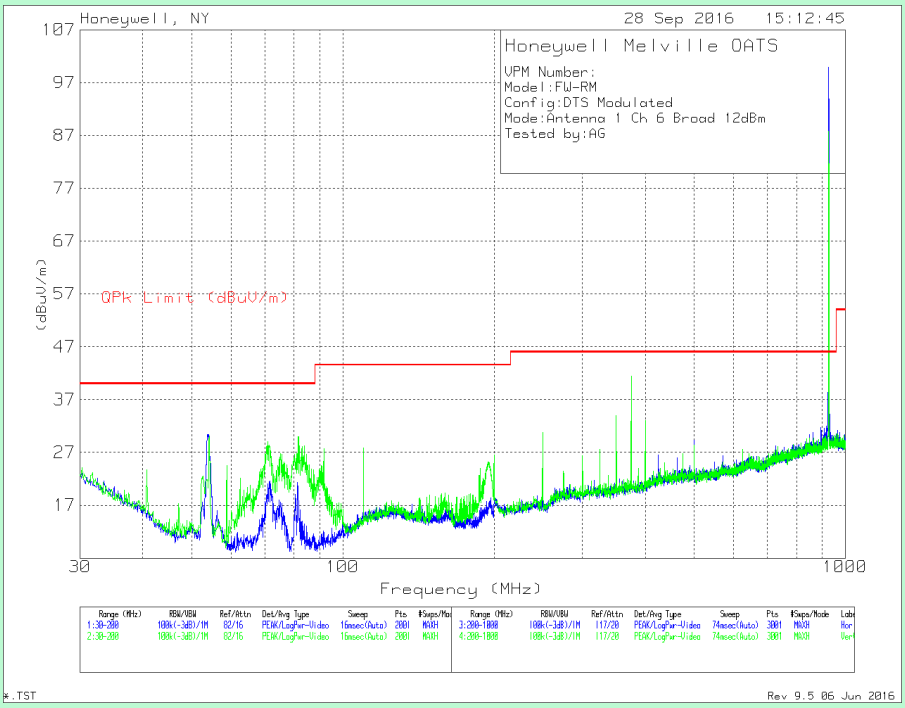
TEST GRAPHS – 30 MHz to 1GHz (ANTENNA 1)



Channel 1 (902.875 MHz) – Antenna 1



Channel 3 (914.325 MHz) – Antenna 1



Channel 6 (927.125 MHz) – Antenna 1

TEST RESULT – 30 MHz to 1 GHz

Channel 1

Frequency (MHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Pre Amp #1 [dB]	RDE #1 [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
51.9539	37.36	Qp	12.2	-29	1	21.56	40	18.44	256	382	H
70.867	44.71	Qp	12.2	-28.9	1.2	29.21	40	10.79	257	391	V
81.4502	46.63	Qp	11.8	-28.9	1.3	30.83	40	9.17	257	101	V
**902.731	85.17	Pk	27	-27.6	5.5	90.07	-	-	33	101	H
374.789	29.34	Qp	19.7	-28	3.1	24.14	46.02	21.88	71	107	H
** 902.735	72.46	Pk	27	-27.6	5.5	77.36	-	-	128	254	V
349.8543	29.24	Qp	19.4	-27.9	2.9	23.64	46.02	22.38	41	186	V
374.5424	29.46	Qp	19.7	-28	3.1	24.26	46.02	21.76	128	327	V

Channel 3

Frequency (MHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Pre Amp #1 [dB]	RDE #1 [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
53.97	41.48	Qp	12	-29	1.1	25.58	40	14.42	243	399	H
70.97	45	Qp	12.2	-28.9	1.2	29.5	40	10.5	0	399	V
80.9347	46.56	Qp	11.8	-28.9	1.3	30.76	40	9.24	299	134	V
** 914.181	82.85	Pk	27.3	-27.5	5.6	88.25	-	-	45	101	H
374.8996	32.28	Qp	19.7	-28	3.1	27.08	46.02	18.94	299	101	H
** 914.493	74.71	Pk	27.3	-27.5	5.6	80.11	-	-	269	113	V
350.1335	29.4	Qp	19.4	-27.9	2.9	23.8	46.02	22.22	348	314	V
374.9336	29.46	Qp	19.7	-28	3.1	24.26	46.02	21.76	303	361	V

Channel 6

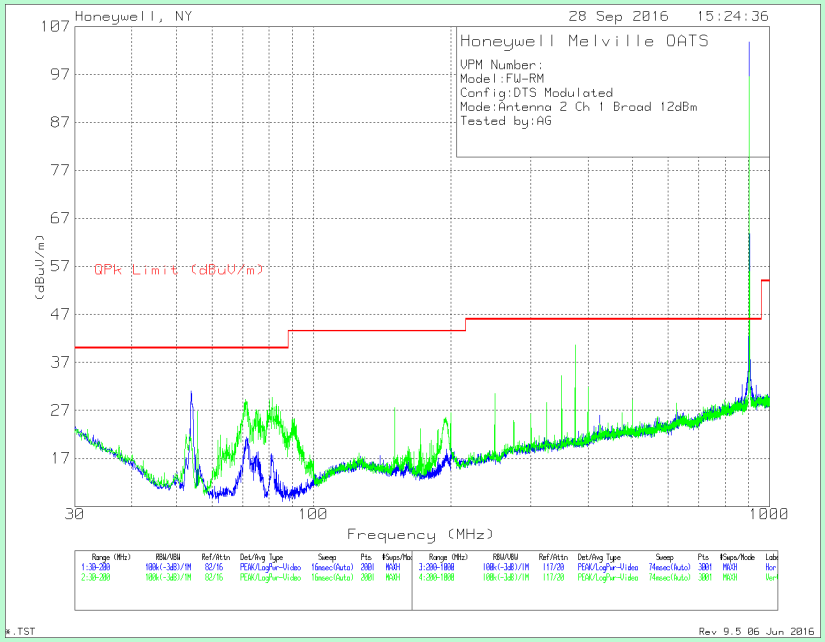
Frequency (MHz)	Meter Reading (dBuV)	Det	AF [dB/m] JB6 w/4dB pad	Pre Amp #1	RDE #1	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
54.086	36.4	Qp	12	-29	1.1	20.5	40	19.5	114	400	H
54.2999	47.82	Qp	12	-29	1.1	31.92	40	8.08	12	171	V
71.0891	43.65	Qp	12.2	-28.9	1.2	28.15	40	11.85	275	223	V
81.486	39.96	Qp	11.8	-28.9	1.3	24.16	40	15.84	104	159	V
** 926.985	96.05	Pk	27.3	-27.5	5.7	101.55	-	-	53	101	H
375.0107	29.9	Qp	19.7	-28	3.1	24.7	46.02	21.32	328	282	H
** 926.985	89.05	Pk	27.3	-27.5	5.7	94.55	-	-	326	111	V
375.0245	30.11	Qp	19.7	-28	3.1	24.91	46.02	21.11	6	307	V

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

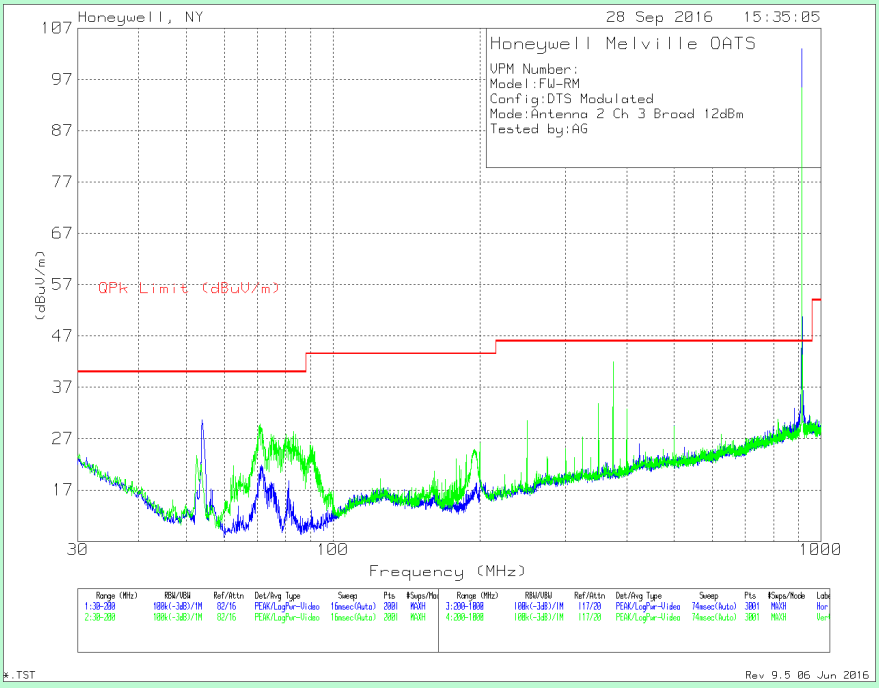
Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

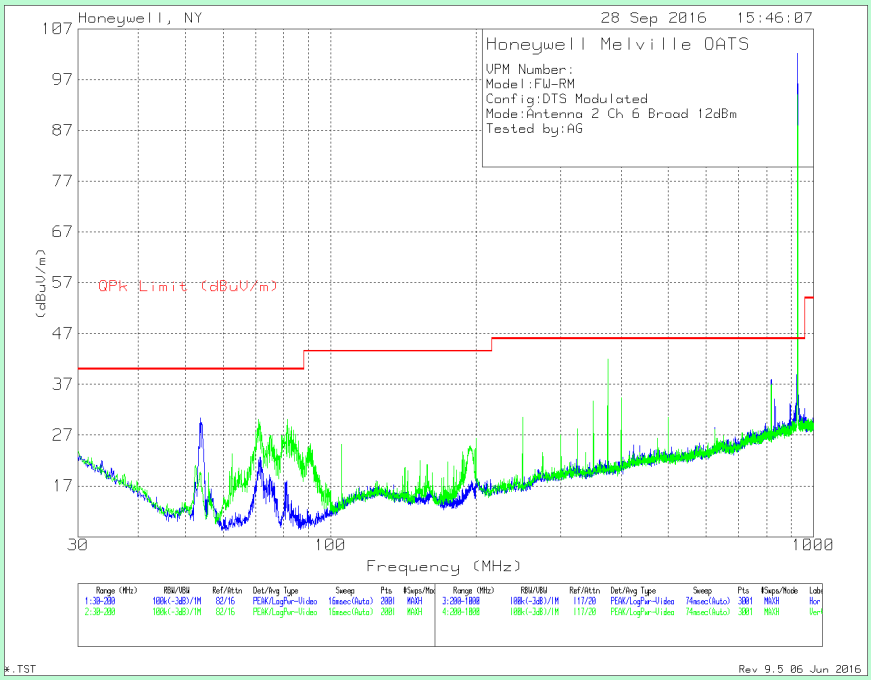
TEST GRAPHS – 30 MHz to 1GHz (ANTENNA 2)



Channel 1 (902.875 MHz) – Antenna 2



Channel 3 (914.325 MHz) – Antenna 2



Channel 6 (927.125 MHz) – Antenna 2

TEST RESULT – 30 MHz to 1 GHz

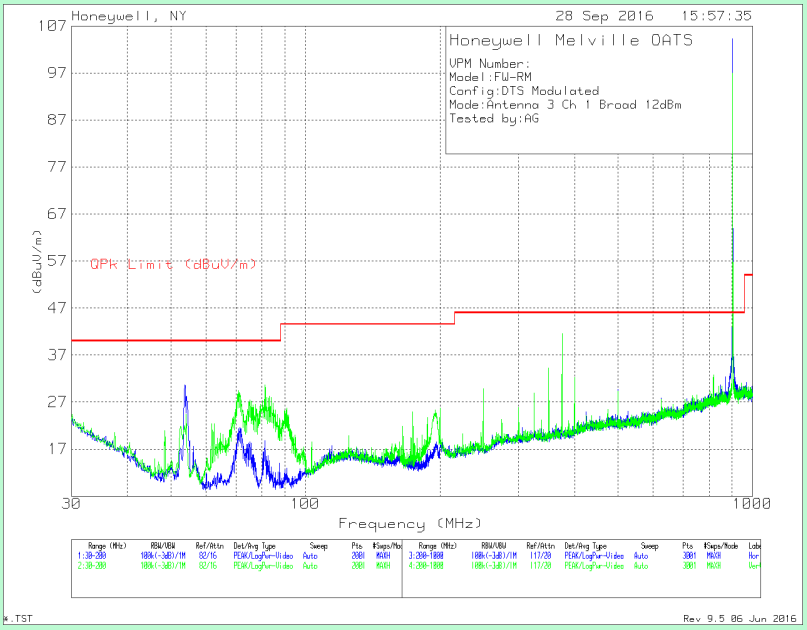
Channel 1											
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**AF [dB/m]**	**Pre Amp #1 [dB]**	**RDE #1 [dB]**	**Corrected Reading (dBuV/m)**	**QPk Limit (dBuV/m)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
53.97	36.77	Qp	12	-29	1.1	20.87	40	19.13	6	148	H
85.7998	40.53	Qp	11.7	-28.9	1.3	24.63	40	15.37	124	385	H
71.2422	39.73	Qp	12.2	-28.9	1.2	24.23	40	15.77	38	219	V
81.3707	46.74	Qp	11.8	-28.9	1.3	30.94	40	9.06	100	138	V
** 902.731	85.26	Pk	27	-27.6	5.5	90.16	-	-	198	157	H
374.6403	29.4	Qp	19.7	-28	3.1	24.2	46.02	21.82	72	382	H
** 902.731	75.03	Pk	27	-27.6	5.5	79.93	-	-	277	156	V
375.0356	29.45	Qp	19.7	-28	3.1	24.25	46.02	21.77	33	172	V
53.97	36.77	Qp	12	-29	1.1	20.87	40	19.13	6	148	H
Channel 3											
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**AF [dB/m]**	**Pre Amp #1 [dB]**	**RDE #1 [dB]**	**Corrected Reading (dBuV/m)**	**QPk Limit (dBuV/m)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
54.3367	47.17	Qp	12	-29	1.1	31.27	40	8.73	347	370	H
71.2487	43.43	Qp	12.2	-28.9	1.2	27.93	40	12.07	332	160	V
83.1919	47.23	Qp	11.8	-28.9	1.3	31.43	40	8.57	334	246	V
** 914.181	97.4	Pk	27.3	-27.5	5.6	102.8	-	-	34	101	H
375.016	30.05	Qp	19.7	-28	3.1	24.85	46.02	21.17	245	345	H
** 914.181	89.2	Pk	27.3	-27.5	5.6	94.6	-	-	314	112	V
349.9823	29.79	Qp	19.4	-27.9	2.9	24.19	46.02	21.83	337	306	V
375.0039	30.03	Qp	19.7	-28	3.1	24.83	46.02	21.19	203	254	V
54.3367	47.17	Qp	12	-29	1.1	31.27	40	8.73	347	370	H
Channel 6											
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**AF [dB/m]**	**Pre Amp #1 [dB]**	**RDE #1 [dB]**	**Corrected Reading (dBuV/m)**	**QPk Limit (dBuV/m)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
53.8876	36.24	Qp	12	-29	1.1	20.34	40	19.66	320	399	H
70.8236	39.46	Qp	12.2	-28.9	1.2	23.96	40	16.04	218	369	V
81.2049	41.91	Qp	11.8	-28.9	1.3	26.11	40	13.89	76	132	V
** 926.987	97.94	Pk	27.3	-27.5	5.7	103.44	-	-	351	100	H
375.0404	29.75	Qp	19.7	-28	3.1	24.55	46.02	21.47	91	183	H
817.9164	29.77	Qp	26.3	-27.9	5.2	33.37	46.02	12.65	337	385	H
** 926.985	86.47	Pk	27.3	-27.5	5.7	91.97	-	-	75	104	V
374.6014	32.49	Qp	19.7	-28	3.1	27.29	46.02	18.73	337	101	V

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

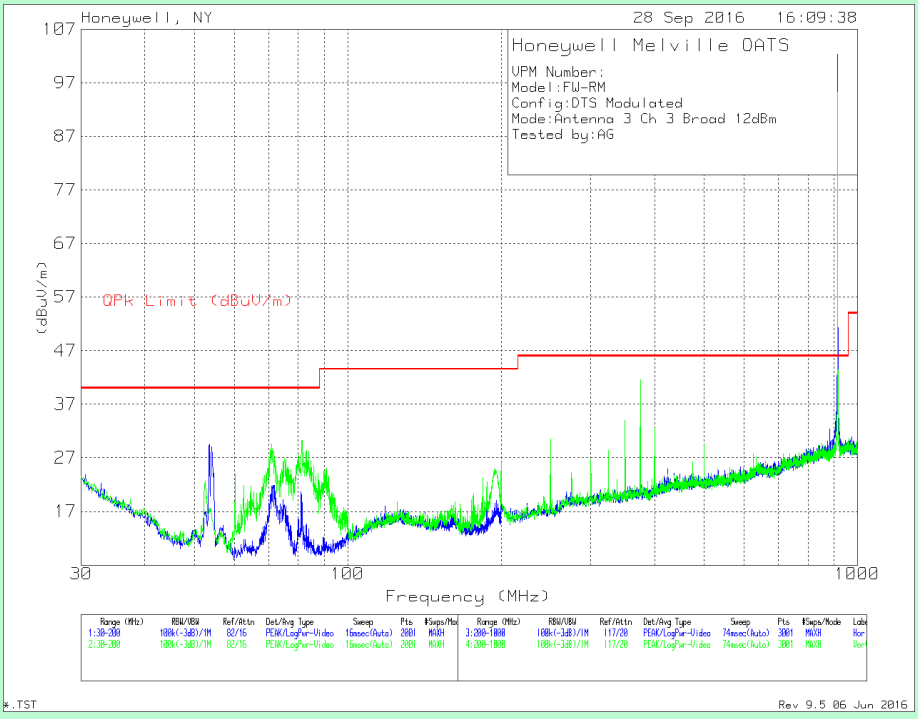
Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

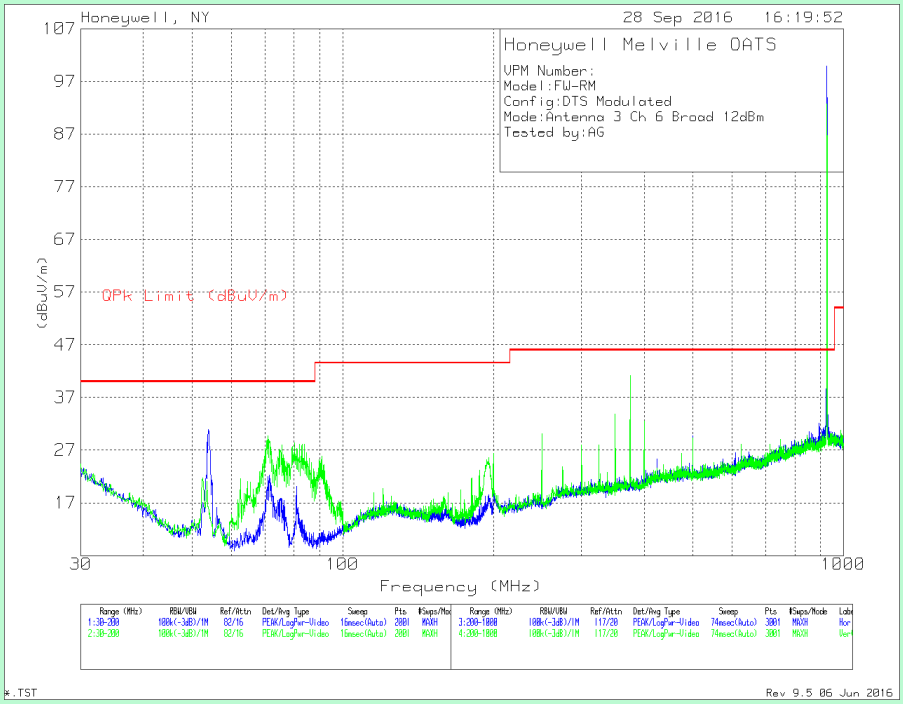
TEST GRAPHS – 30 MHz to 1GHz (ANTENNA 3)



Channel 1 (902.875 MHz) – Antenna 3



Channel 3 (914.325 MHz) – Antenna 3



Channel 6 (927.125 MHz) – Antenna 3

TEST RESULT – 30 MHz to 1 GHz

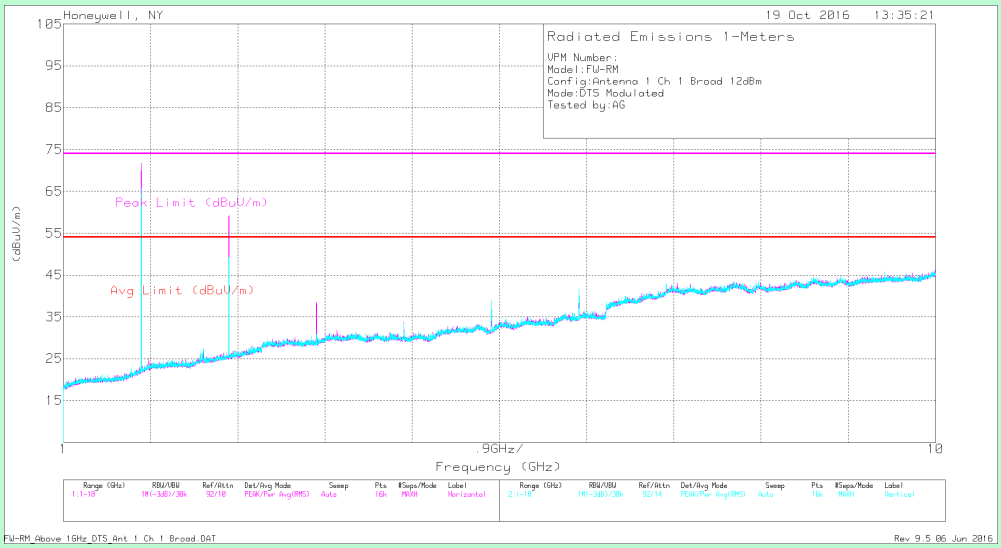
Channel 1											
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**AF [dB/m]**	**Pre Amp #1 [dB]**	**RDE #1 [dB]**	**Corrected Reading (dBuV/m)**	**QPk Limit (dBuV/m)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
54.0789	41.66	Qp	12	-29	1.1	25.76	40	14.24	286	384	H
70.5512	43.73	Qp	12.2	-28.9	1.2	28.23	40	11.77	286	101	V
81.2447	45.67	Qp	11.8	-28.9	1.3	29.87	40	10.13	0	124	V
** 902.731	85.83	Pk	27	-27.6	5.5	90.73	-	-	168	159	H
375.009	29.44	Qp	19.7	-28	3.1	24.24	46.02	21.78	10	274	H
349.8332	29.35	Qp	19.4	-27.9	2.9	23.75	46.02	22.27	195	357	V
375.151	29.48	Qp	19.7	-28	3.1	24.28	46.02	21.74	358	353	V
** 903.475	55.95	Pk	27	-27.6	5.5	60.85	-	-	95	207	V
Channel 3											
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**AF [dB/m]**	**Pre Amp #1 [dB]**	**RDE #1 [dB]**	**Corrected Reading (dBuV/m)**	**QPk Limit (dBuV/m)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
53.8892	42.54	Qp	12	-29	1.1	26.64	40	13.36	234	380	H
71.2369	43.63	Qp	12.2	-28.9	1.2	28.13	40	11.87	91	177	V
81.6168	49.54	Qp	11.8	-28.9	1.3	33.74	40	6.26	35	141	V
** 914.185	99.58	Pk	27.3	-27.5	5.6	104.98	-	-	157	155	H
374.7431	29.75	Qp	19.7	-28	3.1	24.55	46.02	21.47	84	290	H
** 914.181	92.29	Pk	27.3	-27.5	5.6	97.69	-	-	100	220	V
350.0188	29.83	Qp	19.4	-27.9	2.9	24.23	46.02	21.79	169	287	V
375.0161	30.12	Qp	19.7	-28	3.1	24.92	46.02	21.1	182	400	V
Channel 6											
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**AF [dB/m]**	**Pre Amp #1 [dB]**	**RDE #1 [dB]**	**Corrected Reading (dBuV/m)**	**QPk Limit (dBuV/m)**	**Margin (dB)**	**Azimuth (Degs)**	**Height (cm)**	**Polarity**
53.676	33.21	Qp	12	-29	1.1	17.31	40	22.69	185	287	H
70.9047	40.14	Qp	12.2	-28.9	1.2	24.64	40	15.36	91	179	V
82.6694	38.64	Qp	11.8	-28.9	1.3	22.84	40	17.16	318	360	V
** 926.9859	98.83	Pk	27.3	-27.5	5.7	104.33	-	-	39	101	H
374.6055	29.66	Qp	19.7	-28	3.1	24.46	46.02	21.56	341	363	H
** 926.985	80.82	Pk	27.3	-27.5	5.7	86.32	-	-	54	244	V
350.0193	29.65	Qp	19.4	-27.9	2.9	24.05	46.02	21.97	323	149	V
374.7442	29.69	Qp	19.7	-28	3.1	24.49	46.02	21.53	13	384	V

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

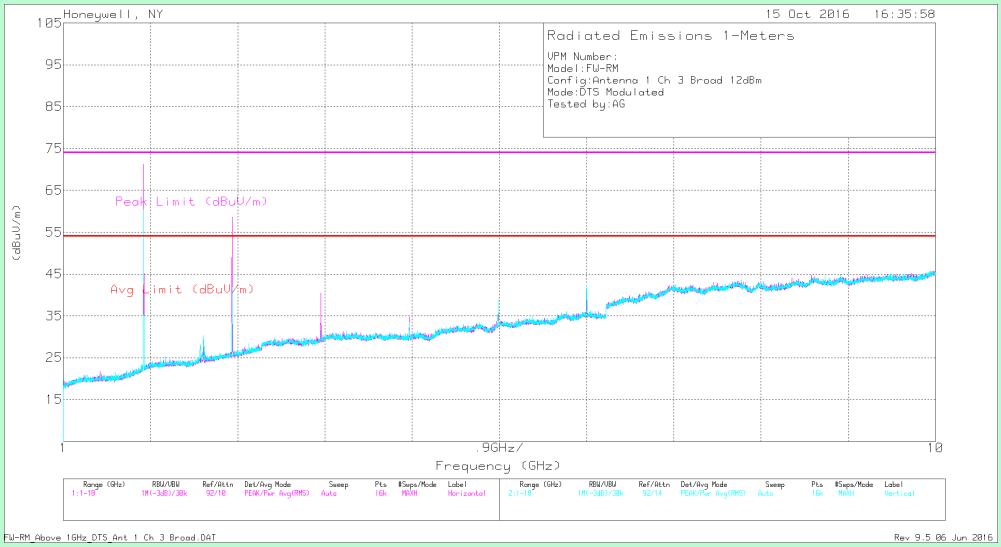
Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

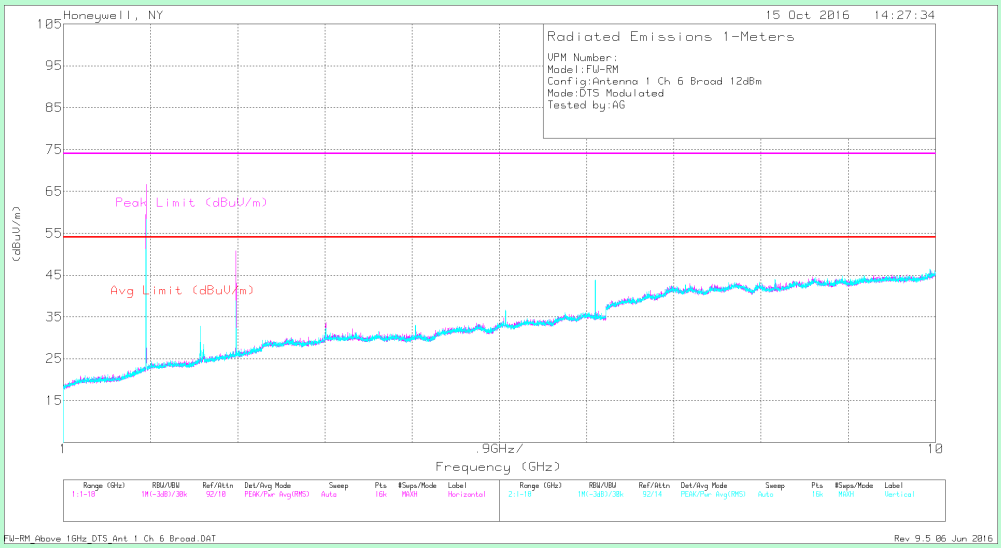
TEST GRAPHS – 1GHz to 10GHz (ANTENNA 1)



Channel 1 (902.875 MHz) – Antenna 1



Channel 3 (914.325 MHz) – Antenna 1



Channel 6 (927.125 MHz) – Antenna 1

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 1

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.71	44.64	PK2	29.3	-27.1	5	51.84	74	22.16	40	191	H
* 3.613	42.3	PK2	31.6	-26.8	5.4	52.5	74	21.5	150	316	H
* 4.515	41.69	PK2	32.2	-26.6	6	53.29	74	20.71	324	342	H
* 5.419	43.48	PK2	34.3	-26.7	6.4	57.48	74	16.52	5	301	H
* 8.125	41.99	PK2	37.1	-26.2	7.5	60.39	74	13.61	339	221	H
* 9.028	41.57	PK2	37.6	-25.9	7.3	60.57	74	13.43	67	390	H
* 2.71	46.11	PK2	29.3	-27.1	5	53.31	74	20.69	216	367	V
* 3.612	42.77	PK2	31.6	-26.8	5.4	52.97	74	21.03	261	340	V
* 4.513	41.29	PK2	32.2	-26.6	6	52.89	74	21.11	143	266	V
* 5.416	42.76	PK2	34.3	-26.7	6.4	56.76	74	17.24	5	276	V
* 8.124	41.02	PK2	37.1	-26.2	7.5	59.42	74	14.58	180	199	V
* 9.028	42.2	PK2	37.6	-25.9	7.3	61.2	74	12.8	205	267	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.805	63.25	PK2	27	-26.9	4.2	67.55	70.1	2.55	34	189	H
6.322	41.38	PK2	34.9	-26.4	7.1	56.98	70.1	13.12	124	308	H
7.225	41.48	PK2	36.3	-26.2	6.8	58.38	70.1	11.72	321	266	H
1.805	49.72	PK2	27	-26.9	4.2	54.02	70.1	16.08	244	276	V
6.322	43.72	PK2	34.9	-26.4	7.1	59.32	70.1	10.78	7	268	V
7.223	42.67	PK2	36.3	-26.2	6.8	59.57	70.1	10.53	246	209	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.708	36.17	MAv1	29.3	-27.1	5	43.37	54	10.63	40	191	H
* 3.611	30.48	MAv1	31.6	-26.8	5.4	40.68	54	13.32	150	316	H
* 4.516	29.91	MAv1	32.2	-26.6	6	41.51	54	12.49	324	342	H
* 5.416	32.27	MAv1	34.3	-26.7	6.4	46.27	54	7.73	5	301	H
* 8.124	29.24	MAv1	37.1	-26.2	7.5	47.64	54	6.36	339	221	H
* 9.03	28.86	MAv1	37.6	-25.9	7.3	47.86	54	6.14	67	390	H
* 2.708	38.53	MAv1	29.3	-27.1	5	45.73	54	8.27	216	367	V
* 3.612	30.46	MAv1	31.6	-26.8	5.4	40.66	54	13.34	261	340	V
* 4.516	28.88	MAv1	32.2	-26.6	6	40.48	54	13.52	143	266	V
* 5.419	31.13	MAv1	34.3	-26.7	6.4	45.13	54	8.87	5	276	V
* 8.125	28.45	MAv1	37.1	-26.2	7.5	46.85	54	7.15	180	199	V

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

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 3

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.744	46.38	PK2	29.4	-27	4.9	53.68	74	20.32	264	104	H
* 3.659	42.12	PK2	31.8	-26.9	5.4	52.42	74	21.58	241	107	H
* 4.572	41.65	PK2	32.2	-26.7	6	53.15	74	20.85	111	391	H
* 7.313	40.25	PK2	36.7	-26.2	6.2	56.95	74	17.05	202	374	H
* 8.228	40.17	PK2	37.1	-26.1	7.3	58.47	74	15.53	279	145	H
* 9.145	41.52	PK2	37.6	-25.9	7.4	60.62	74	13.38	6	398	H
* 2.744	48.54	PK2	29.4	-27	4.9	55.84	74	18.16	211	292	V
* 3.658	47.31	PK2	31.8	-26.9	5.5	57.71	74	16.29	223	317	V
* 4.572	46.08	PK2	32.2	-26.7	6	57.58	74	16.42	157	380	V
* 7.313	44.57	PK2	36.7	-26.2	6.2	61.27	74	12.73	4	133	V
* 8.229	45.86	PK2	37.1	-26.1	7.3	64.16	74	9.84	122	234	V
* 9.142	46.4	PK2	37.6	-25.9	7.4	65.5	74	8.5	102	323	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.828	59.57	PK2	27.2	-26.9	4.2	64.07	68.3	4.23	49	185	H
5.487	43.02	PK2	34.4	-26.6	6.7	57.52	68.3	10.78	343	325	H
6.399	42.2	PK2	34.8	-26.2	7.1	57.9	68.3	10.4	108	266	H
1.828	50.5	PK2	27.2	-26.9	4.2	55	68.3	13.3	124	301	V
5.487	46.61	PK2	34.4	-26.6	6.7	61.11	68.3	7.19	350	283	V
6.402	47.35	PK2	34.8	-26.2	7.1	63.05	68.3	5.25	1	261	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.744	38.86	MAv1	29.4	-27	4.9	46.16	54	7.84	264	104	H
* 3.656	29.71	MAv1	31.8	-26.9	5.5	40.11	54	13.89	241	107	H
* 4.57	29.64	MAv1	32.2	-26.7	6	41.14	54	12.86	111	391	H
* 7.317	27.8	MAv1	36.7	-26.2	6.2	44.5	54	9.5	202	374	H
* 8.23	28	MAv1	37.1	-26.1	7.3	46.3	54	7.7	279	145	H
* 9.145	28.96	MAv1	37.6	-25.9	7.4	48.06	54	5.94	6	398	H
* 2.742	39.24	MAv1	29.4	-27	4.9	46.54	54	7.46	211	292	V
* 3.657	34.5	MAv1	31.8	-26.9	5.5	44.9	54	9.1	223	317	V
* 4.57	33.63	MAv1	32.2	-26.7	6	45.13	54	8.87	157	380	V
* 7.314	32.72	MAv1	36.7	-26.2	6.2	49.42	54	4.58	4	133	V
* 8.231	33.08	MAv1	37.1	-26.1	7.3	51.38	54	2.62	122	234	V

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

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 6

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.782	45.15	PK2	29.5	-27.1	4.9	52.45	74	21.55	115	377	H
* 3.707	42.19	PK2	32	-26.9	5.6	52.89	74	21.11	316	230	H
* 4.637	40.45	PK2	32.4	-26.6	6.1	52.35	74	21.65	201	164	H
* 7.417	40.25	PK2	36.8	-26.2	7.1	57.95	74	16.05	171	229	H
* 8.345	40.72	PK2	37.3	-26.1	7.6	59.52	74	14.48	129	206	H
* 2.78	49.43	PK2	29.5	-27.1	4.8	56.63	74	17.37	13	389	V
* 3.71	46.63	PK2	32	-26.9	5.6	57.33	74	16.67	42	288	V
* 4.636	45.64	PK2	32.4	-26.6	6.1	57.54	74	16.46	223	133	V
* 7.417	45.58	PK2	36.8	-26.2	7.1	63.28	74	10.72	286	344	V
* 8.345	45.31	PK2	37.3	-26.1	7.6	64.11	74	9.89	255	116	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.855	58.34	PK2	27.5	-26.9	4.2	63.14	81.6	18.46	201	176	H
5.564	40.81	PK2	34.4	-26.4	6.7	55.51	81.6	26.09	260	336	H
6.488	41.7	PK2	34.8	-26.4	7.3	57.4	81.6	24.2	264	276	H
9.272	40.88	PK2	37.8	-26	7.5	60.18	81.6	22.06	156	189	H
1.856	60.77	PK2	27.5	-26.9	4.2	65.57	81.6	19.4	89	224	V
5.563	44.84	PK2	34.4	-26.4	6.7	59.54	81.6	18.46	320	285	V
6.488	46.6	PK2	34.8	-26.4	7.2	62.2	81.6	26.09	139	238	V
9.272	45.85	PK2	37.8	-26	7.5	65.15	81.6	24.2	351	220	V

AVERAGE DATA – RESTRICTED BAND

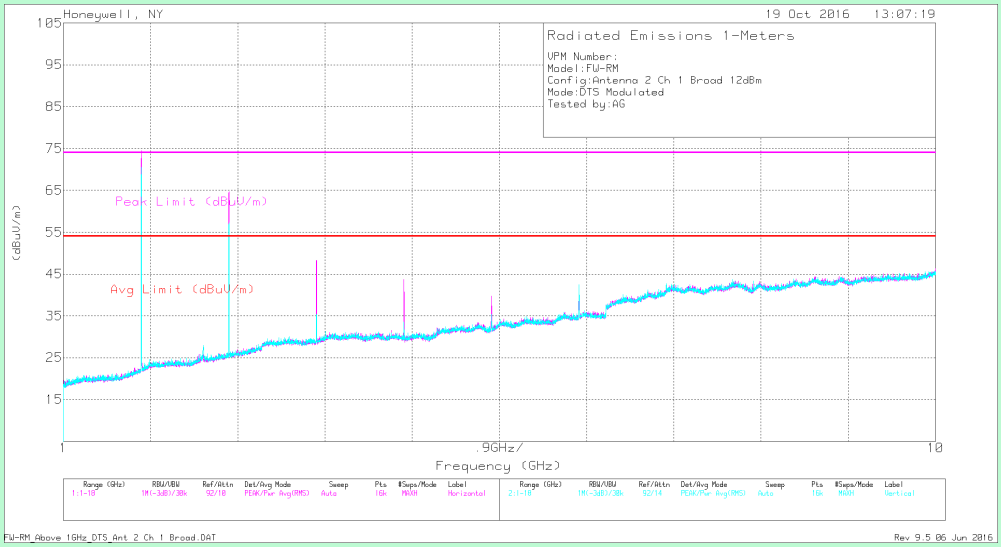
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.781	37.29	MAv1	29.5	-27.1	4.8	44.49	54	9.51	115	377	H
* 3.709	29.82	MAv1	32	-26.9	5.6	40.52	54	13.48	316	230	H
* 4.635	28.01	MAv1	32.4	-26.6	6.1	39.91	54	14.09	201	164	H
* 7.416	27.8	MAv1	36.8	-26.2	7.1	45.5	54	8.5	171	229	H
* 8.343	28.28	MAv1	37.3	-26.1	7.6	47.08	54	6.92	129	206	H
* 2.781	40.26	MAv1	29.5	-27.1	4.8	47.46	54	6.54	13	389	V
* 3.708	33.93	MAv1	32	-26.9	5.6	44.63	54	9.37	42	288	V
* 4.634	33.19	MAv1	32.4	-26.6	6.1	45.09	54	8.91	223	133	V
* 7.419	32.82	MAv1	36.8	-26.2	7.1	50.52	54	3.48	286	344	V
* 8.345	33.09	MAv1	37.3	-26.1	7.6	51.89	54	2.11	255	116	V

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

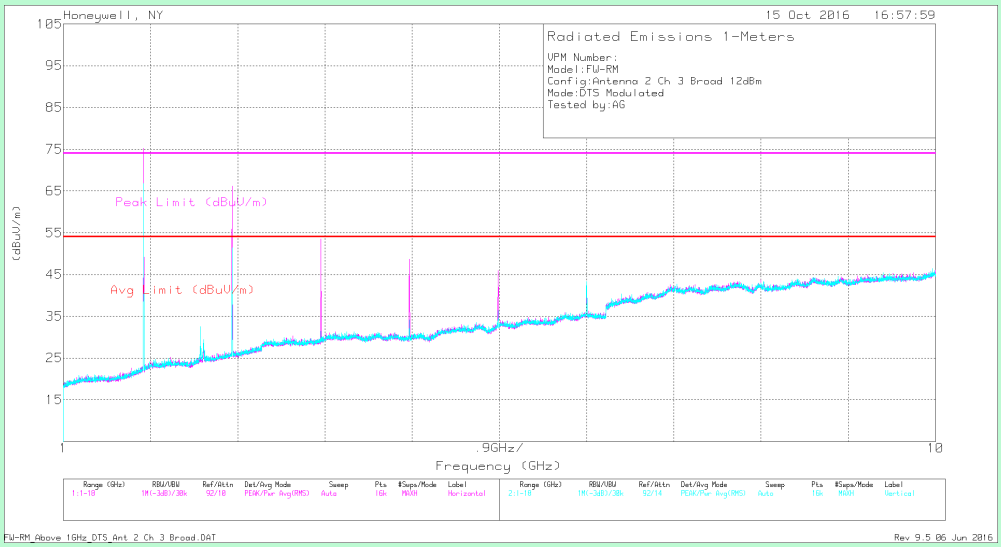
Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

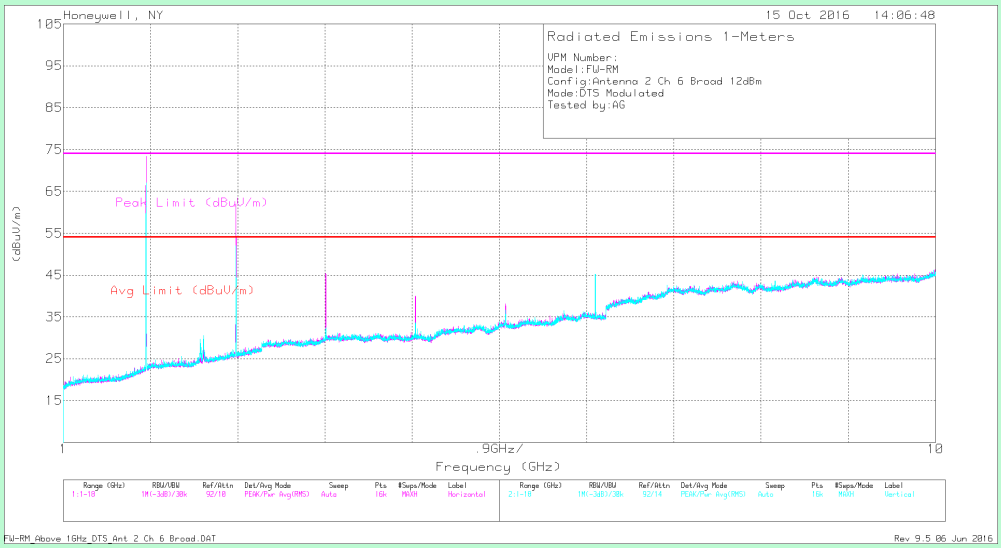
TEST GRAPHS – 1GHz to 10GHz (ANTENNA 2)



Channel 1 (902.875 MHz) – Antenna 2



Channel 3 (914.325 MHz) – Antenna 2



Channel 6 (927.125 MHz) – Antenna 2

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 1

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.71	51.42	PK2	29.3	-27.1	5	58.62	74	15.38	230	190	H
* 3.611	42.08	PK2	31.6	-26.8	5.4	52.28	74	21.72	318	180	H
* 4.513	40.7	PK2	32.2	-26.6	6	52.3	74	21.7	27	170	H
* 5.416	41.04	PK2	34.3	-26.7	6.4	55.04	74	18.96	329	306	H
* 8.128	40.68	PK2	37.1	-26.2	7.5	59.08	74	14.92	220	162	H
* 9.03	41.68	PK2	37.6	-25.9	7.3	60.68	74	13.32	203	212	H
* 2.709	50.71	PK2	29.3	-27.1	5	57.91	74	16.09	308	115	V
* 3.613	46.4	PK2	31.6	-26.8	5.4	56.6	74	17.4	358	334	V
* 4.514	45.76	PK2	32.2	-26.6	6	57.36	74	16.64	72	374	V
* 5.417	45.27	PK2	34.3	-26.7	6.4	59.27	74	14.73	237	103	V
* 8.127	45.55	PK2	37.1	-26.2	7.5	63.95	74	10.05	133	113	V
* 9.028	45.95	PK2	37.6	-25.9	7.3	64.95	74	9.05	336	290	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.805	64.64	PK2	27	-26.9	4.2	68.94	70.2	1.26	206	193	H
6.319	42.38	PK2	34.9	-26.4	7.1	57.98	70.2	12.22	95	294	H
7.221	40.94	PK2	36.3	-26.2	6.8	57.84	70.2	9.32	320	299	H
1.805	58.65	PK2	27	-26.9	4.2	62.95	70.2	7.84	219	164	V
6.319	45.28	PK2	34.9	-26.4	7.1	60.88	70.2	1.26	149	309	V
7.225	45.46	PK2	36.3	-26.2	6.8	62.36	70.2	12.22	175	247	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.708	46.25	MAv1	29.3	-27.1	5	53.45	54	0.55	230	190	H
* 3.611	29.73	MAv1	31.6	-26.8	5.4	39.93	54	14.07	318	180	H
* 4.516	28.53	MAv1	32.2	-26.6	6	40.13	54	13.87	27	170	H
* 5.419	28.87	MAv1	34.3	-26.7	6.4	42.87	54	11.13	329	306	H
* 8.126	28.48	MAv1	37.1	-26.2	7.5	46.88	54	7.12	220	162	H
* 9.027	28.89	MAv1	37.6	-25.9	7.3	47.89	54	6.11	203	212	H
* 2.708	43.61	MAv1	29.3	-27.1	5	50.81	54	3.19	308	115	V
* 3.61	34.02	MAv1	31.6	-26.8	5.4	44.22	54	9.78	358	334	V
* 4.513	33.73	MAv1	32.2	-26.6	6	45.33	54	8.67	72	374	V
* 5.417	33	MAv1	34.3	-26.7	6.4	47	54	7	237	103	V
* 8.127	33.12	MAv1	37.1	-26.2	7.5	51.52	54	2.48	133	113	V
* 9.031	33.69	MAv1	37.6	-25.9	7.3	52.69	54	1.31	336	290	V

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

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 3

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.742	50.13	PK2	29.4	-27	4.9	57.43	74	16.57	14	136	H
* 3.656	41.75	PK2	31.8	-26.9	5.5	52.15	74	21.85	164	392	H
* 4.573	41.45	PK2	32.2	-26.7	6	52.95	74	21.05	107	320	H
* 7.314	40.45	PK2	36.7	-26.2	6.2	57.15	74	16.85	92	314	H
* 8.227	40.77	PK2	37.1	-26.1	7.3	59.07	74	14.93	137	197	H
* 9.145	41.12	PK2	37.6	-25.9	7.4	60.22	74	13.78	44	105	H
* 2.742	48.64	PK2	29.4	-27	4.9	55.94	74	18.06	265	333	V
* 3.659	46.37	PK2	31.8	-26.9	5.4	56.67	74	17.33	186	350	V
* 4.572	45.57	PK2	32.2	-26.7	6	57.07	74	16.93	256	284	V
* 7.313	45.41	PK2	36.7	-26.2	6.2	62.11	74	11.89	91	294	V
* 8.231	45.39	PK2	37.1	-26.1	7.3	63.69	74	10.31	277	281	V
* 9.144	46.22	PK2	37.6	-25.9	7.4	65.32	74	8.68	285	365	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.828	63.33	PK2	27.2	-26.9	4.2	67.83	82.8	14.97	206	191	H
5.484	41.47	PK2	34.4	-26.6	6.7	55.97	82.8	26.83	151	319	H
6.4	41.86	PK2	34.8	-26.2	7.1	57.56	82.8	21.36	270	267	H
1.828	56.94	PK2	27.2	-26.9	4.2	61.44	82.8	22.7	268	338	V
5.487	45.6	PK2	34.4	-26.6	6.7	60.1	82.8	20.29	224	286	V
6.402	46.81	PK2	34.8	-26.2	7.1	62.51	82.8	14.97	149	226	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.742	44.65	MAv1	29.4	-27	4.9	51.95	54	2.05	14	136	H
* 3.657	29.03	MAv1	31.8	-26.9	5.5	39.43	54	14.57	164	392	H
* 4.57	29.23	MAv1	32.2	-26.7	6	40.73	54	13.27	107	320	H
* 7.317	27.72	MAv1	36.7	-26.2	6.2	44.42	54	9.58	92	314	H
* 8.229	28.04	MAv1	37.1	-26.1	7.3	46.34	54	7.66	137	197	H
* 9.145	28.89	MAv1	37.6	-25.9	7.4	47.99	54	6.01	44	105	H
* 2.743	40.02	MAv1	29.4	-27	4.9	47.32	54	6.68	265	333	V
* 3.658	33.78	MAv1	31.8	-26.9	5.5	44.18	54	9.82	186	350	V
* 4.573	33.31	MAv1	32.2	-26.7	6	44.81	54	9.19	256	284	V
* 7.314	32.66	MAv1	36.7	-26.2	6.2	49.36	54	4.64	91	294	V
* 8.227	32.94	MAv1	37.1	-26.1	7.3	51.24	54	2.76	277	281	V
* 9.145	33.81	MAv1	37.6	-25.9	7.4	52.91	54	1.09	285	365	V

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

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 6

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.78	47.09	PK2	29.5	-27.1	4.8	54.29	74	19.71	31	359	H
* 3.709	41.61	PK2	32	-26.9	5.6	52.31	74	21.69	136	239	H
* 4.637	41.71	PK2	32.4	-26.6	6.1	53.61	74	20.39	345	380	H
* 7.416	40.59	PK2	36.8	-26.2	7.1	58.29	74	15.71	282	239	H
* 8.344	40.81	PK2	37.3	-26.1	7.6	59.61	74	14.39	108	208	H
* 2.782	49.22	PK2	29.5	-27.1	4.9	56.52	74	17.48	223	383	V
* 3.707	41.72	PK2	32	-26.9	5.6	52.42	74	21.58	83	133	V
* 4.635	42.21	PK2	32.4	-26.6	6.1	54.11	74	19.89	137	290	V
* 7.418	40.27	PK2	36.8	-26.2	7.1	57.97	74	16.03	31	361	V
* 8.343	41	PK2	37.3	-26.1	7.6	59.8	74	14.2	301	239	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.854	62.28	PK2	27.5	-26.9	4.2	67.08	83.3	16.22	158	254	H
5.564	41.5	PK2	34.4	-26.4	6.7	56.2	83.3	27.1	352	291	H
6.492	41.95	PK2	34.8	-26.4	7.3	57.65	83.3	17.93	115	247	H
9.271	41	PK2	37.8	-26	7.5	60.3	83.3	27.42	225	137	H
1.853	60.57	PK2	27.5	-26.9	4.2	65.37	83.3	24.09	59	376	V
5.561	41.18	PK2	34.4	-26.4	6.7	55.88	83.3	16.22	65	279	V
6.491	43.51	PK2	34.8	-26.4	7.3	59.21	83.3	27.1	352	255	V
9.272	41.25	PK2	37.8	-26	7.5	60.55	83.3	17.93	87	383	V

AVERAGE DATA – RESTRICTED BAND

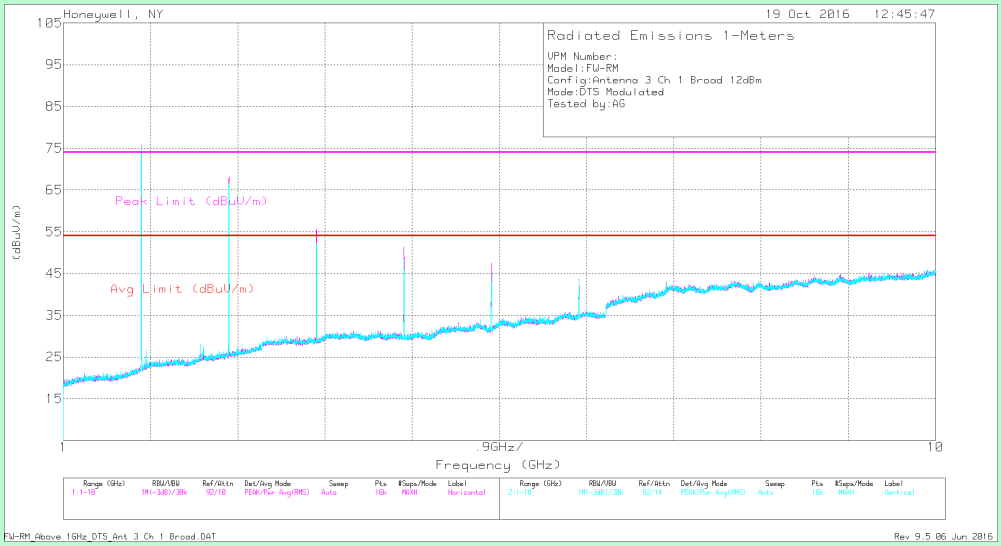
Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.782	40.04	MAv1	29.5	-27.1	4.8	47.24	54	6.76	31	359	H
* 3.708	29.51	MAv1	32	-26.9	5.6	40.21	54	13.79	136	239	H
* 4.634	29.28	MAv1	32.4	-26.6	6.1	41.18	54	12.82	345	380	H
* 7.417	28.08	MAv1	36.8	-26.2	7.1	45.78	54	8.22	282	239	H
* 8.346	28.48	MAv1	37.3	-26.1	7.6	47.28	54	6.72	108	208	H
* 2.782	43.03	MAv1	29.5	-27.1	4.8	50.23	54	3.77	223	383	V
* 3.708	29.47	MAv1	32	-26.9	5.6	40.17	54	13.83	83	133	V
* 4.635	29.5	MAv1	32.4	-26.6	6.1	41.4	54	12.6	137	290	V
* 7.417	28.25	MAv1	36.8	-26.2	7.1	45.95	54	8.05	31	361	V
* 8.344	28.77	MAv1	37.3	-26.1	7.6	47.57	54	6.43	301	239	V

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

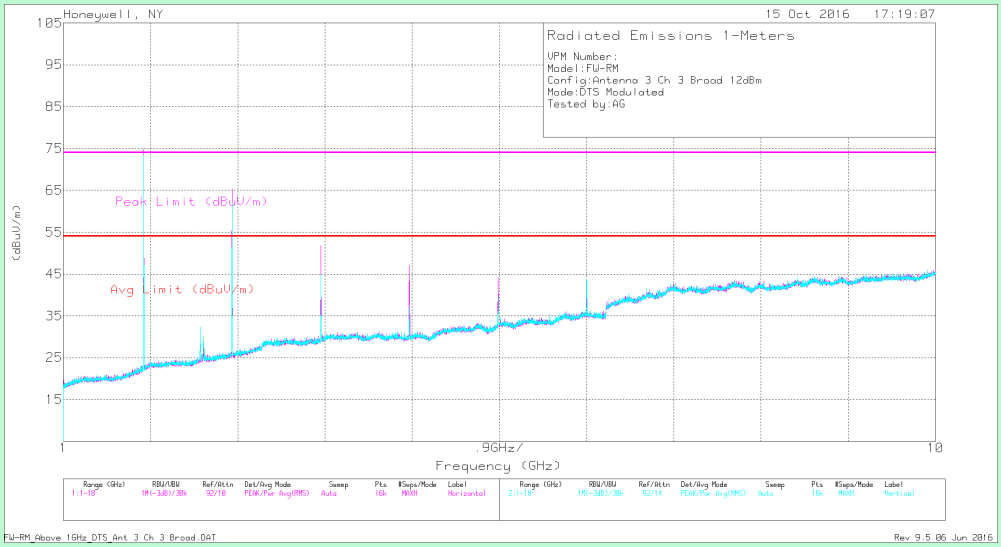
Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

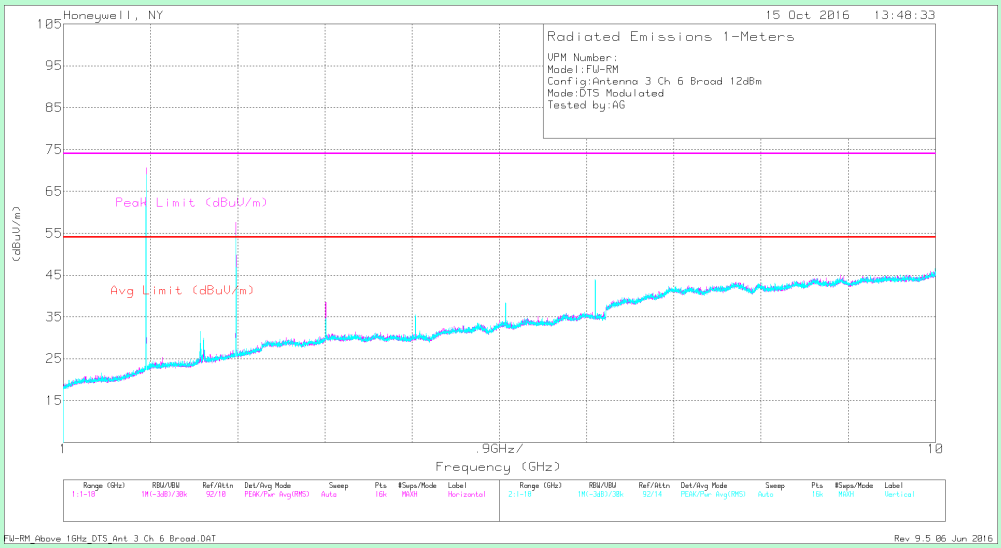
TEST GRAPHS – 1GHz to 10GHz (ANTENNA 3)



Channel 1 (902.875 MHz) – Antenna 3



Channel 3 (914.325 MHz) – Antenna 3



Channel 6 (927.125 MHz) – Antenna 3

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 1

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.71	50.87	PK2	29.3	-27.1	5	58.07	74	15.93	173	191	H
* 3.613	41.76	PK2	31.6	-26.8	5.4	51.96	74	22.04	185	357	H
* 4.514	41.99	PK2	32.2	-26.6	6	53.59	74	20.41	327	332	H
* 5.415	41.34	PK2	34.3	-26.7	6.4	55.34	74	18.66	348	287	H
* 8.124	41.48	PK2	37.1	-26.2	7.5	59.88	74	14.12	342	238	H
* 9.027	41.6	PK2	37.6	-25.9	7.3	60.6	74	13.4	321	114	H
* 2.708	50.7	PK2	29.3	-27.1	5	57.9	74	16.1	33	147	V
* 3.613	46.88	PK2	31.6	-26.8	5.4	57.08	74	16.92	33	147	V
* 4.516	46.2	PK2	32.2	-26.6	6	57.8	74	16.2	272	392	V
* 5.415	46.69	PK2	34.3	-26.7	6.4	60.69	74	13.31	96	307	V
* 8.127	45.63	PK2	37.1	-26.2	7.5	64.03	74	9.97	122	164	V
* 9.03	46.66	PK2	37.6	-25.9	7.3	65.66	74	8.34	134	156	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.805	65.64	PK2	27	-26.9	4.2	69.94	70.7	0.76	38	183	H
6.318	42.81	PK2	34.9	-26.4	7.1	58.41	70.7	12.29	111	276	H
7.222	41.43	PK2	36.3	-26.2	6.8	58.33	70.7	12.37	320	269	H
1.805	57.71	PK2	27	-26.9	4.2	62.01	70.7	8.69	264	111	V
6.321	46.8	PK2	34.9	-26.4	7.1	62.4	70.7	8.3	13	247	V
7.222	45.54	PK2	36.3	-26.2	6.8	62.44	70.7	8.26	275	235	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.708	45.65	MAv1	29.3	-27.1	5	52.85	54	1.15	173	191	H
* 3.612	29.65	MAv1	31.6	-26.8	5.4	39.85	54	14.15	185	357	H
* 4.513	30.03	MAv1	32.2	-26.6	6	41.63	54	12.37	327	332	H
* 5.416	29.29	MAv1	34.3	-26.7	6.4	43.29	54	10.71	348	287	H
* 8.124	29.36	MAv1	37.1	-26.2	7.5	47.76	54	6.24	342	238	H
* 9.031	28.85	MAv1	37.6	-25.9	7.3	47.85	54	6.15	321	114	H
* 2.708	42.62	MAv1	29.3	-27.1	5	49.82	54	4.18	33	147	V
* 3.61	33.92	MAv1	31.6	-26.8	5.4	44.12	54	9.88	33	147	V
* 4.516	33.58	MAv1	32.2	-26.6	6	45.18	54	8.82	272	392	V
* 5.419	33.67	MAv1	34.3	-26.7	6.4	47.67	54	6.33	96	307	V
* 8.125	33.17	MAv1	37.1	-26.2	7.5	51.57	54	2.43	122	164	V
* 9.03	33.68	MAv1	37.6	-25.9	7.3	52.68	54	1.32	134	156	V

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

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 3

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.742	52.68	PK2	29.4	-27	4.9	59.98	74	14.02	337	191	H
* 3.656	42.2	PK2	31.8	-26.9	5.5	52.6	74	21.4	0	185	H
* 4.574	40.84	PK2	32.2	-26.7	6	52.34	74	21.66	226	355	H
* 7.314	40.44	PK2	36.7	-26.2	6.2	57.14	74	16.86	21	344	H
* 8.227	40.98	PK2	37.1	-26.1	7.3	59.28	74	14.72	115	265	H
* 9.142	41.64	PK2	37.6	-25.9	7.4	60.74	74	13.26	48	343	H
* 2.744	49.72	PK2	29.4	-27	4.9	57.02	74	16.98	297	274	V
* 3.659	47.06	PK2	31.8	-26.9	5.5	57.46	74	16.54	12	186	V
* 4.573	47.45	PK2	32.2	-26.7	6	58.95	74	15.05	324	102	V
* 7.316	45	PK2	36.7	-26.2	6.2	61.7	74	12.3	215	212	V
* 8.23	45.16	PK2	37.1	-26.1	7.3	63.46	74	10.54	62	169	V
* 9.144	46.35	PK2	37.6	-25.9	7.4	65.45	74	8.55	300	227	V

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.828	64.78	PK2	27.2	-26.9	4.2	69.28	85	15.72	324	188	H
5.484	42.45	PK2	34.4	-26.6	6.7	56.95	85	28.05	148	324	H
6.402	41.84	PK2	34.8	-26.2	7.1	57.54	85	27.46	255	275	H
1.829	61.28	PK2	27.3	-26.9	4.2	65.88	85	19.12	249	331	V
5.487	45.93	PK2	34.4	-26.6	6.7	60.43	85	24.57	134	303	V
6.4	46.27	PK2	34.8	-26.2	7.1	61.97	85	23.03	348	385	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.743	10.69	MAv1	29.4	-27	9	22.09	54	31.91	360	347	H
* 3.658	30.3	MAv1	31.8	-26.9	5.5	40.7	54	13.3	0	185	H
* 4.57	28.68	MAv1	32.2	-26.7	6	40.18	54	13.82	226	355	H
* 7.313	27.56	MAv1	36.7	-26.2	6.2	44.26	54	9.74	21	344	H
* 8.227	28.56	MAv1	37.1	-26.1	7.3	46.86	54	7.14	115	265	H
* 9.142	28.85	MAv1	37.6	-25.9	7.4	47.95	54	6.05	48	343	H
* 2.742	41.69	MAv1	29.4	-27	4.9	48.99	54	5.01	297	274	V
* 3.659	34.14	MAv1	31.8	-26.9	5.4	44.44	54	9.56	12	186	V
* 4.573	33.82	MAv1	32.2	-26.7	6	45.32	54	8.68	324	102	V
* 7.315	32.49	MAv1	36.7	-26.2	6.2	49.19	54	4.81	215	212	V
* 8.23	32.76	MAv1	37.1	-26.1	7.3	51.06	54	2.94	62	169	V
* 9.143	33.84	MAv1	37.6	-25.9	7.4	52.94	54	1.06	300	227	V

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

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

TEST RESULT – 1 GHz to 10 GHz – CHANNEL 6

PEAK DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.781	48.66	PK2	29.5	-27.1	9.1	60.16	74	13.84	86	134	H
* 3.71	34.12	PK2	32	-26.9	10.6	49.82	74	24.18	202	113	H
* 4.635	32.05	PK2	32.4	-26.6	11.8	49.65	74	24.35	151	135	H
* 7.418	31.46	PK2	36.8	-26.2	15.2	57.26	74	16.74	358	139	H
* 8.344	30.47	PK2	37.3	-26.1	16.2	57.87	74	16.13	10	171	H
* 2.78	46.26	PK2	29.5	-27.1	9.1	57.76	74	16.24	327	110	V
* 3.71	37.29	PK2	32	-26.9	10.6	52.99	74	21.01	18	133	V
* 4.635	32.35	PK2	32.4	-26.6	11.8	49.95	74	24.05	43	311	V
* 7.416	31.9	PK2	36.8	-26.2	15.2	57.7	74	16.3	110	357	V
* 8.343	31.46	PK2	37.3	-26.1	16.2	58.86	74	15.14	18	298	V
* 2.781	48.66	PK2	29.5	-27.1	9.1	60.16	74	13.84	86	134	H

PEAK DATA – NON RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Peak Limit [Fundamental-20dBc] (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.855	51.06	PK2	27.5	-26.9	7.4	59.06	84.3	25.24	273	102	H
5.561	30.07	PK2	34.4	-26.4	13.1	51.17	84.3	33.13	223	156	H
6.488	33.82	PK2	34.8	-26.4	14.2	56.42	84.3	27.88	299	271	H
9.271	29.86	PK2	37.8	-26	17.1	58.76	84.3	25.54	177	364	H
1.854	54.99	PK2	27.5	-26.9	7.4	62.99	84.3	21.31	222	120	V
5.565	32.67	PK2	34.4	-26.4	13.1	53.77	84.3	30.53	350	293	V
6.488	36.84	PK2	34.8	-26.4	14.2	59.44	84.3	24.86	0	264	V
9.271	31.74	PK2	37.8	-26	17.1	60.64	84.3	23.66	195	164	V

AVERAGE DATA – RESTRICTED BAND

Frequency (GHz)	Meter Reading (dBuV)	Det	AF [dB/m]	Preamp [dB]	SMA1 [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.781	41.1	MAv1	29.5	-27.1	9.1	52.6	54	1.4	86	134	H
* 3.707	25.85	MAv1	32	-26.9	10.6	41.55	54	12.45	202	113	H
* 4.634	22.13	MAv1	32.4	-26.6	11.8	39.73	54	14.27	151	135	H
* 7.417	21.41	MAv1	36.8	-26.2	15.2	47.21	54	6.79	358	139	H
* 8.345	21.47	MAv1	37.3	-26.1	16.2	48.87	54	5.13	10	171	H
* 2.781	38.38	MAv1	29.5	-27.1	9.1	49.88	54	4.12	327	110	V
* 3.708	27.35	MAv1	32	-26.9	10.6	43.05	54	10.95	18	133	V
* 4.634	23.78	MAv1	32.4	-26.6	11.8	41.38	54	12.62	43	311	V
* 7.417	21.32	MAv1	36.8	-26.2	15.2	47.12	54	6.88	110	357	V
* 8.342	21.88	MAv1	37.3	-26.1	16.2	49.28	54	4.72	18	298	V

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

Prescans performed in a pre-compliance chamber. Final measurements performed on an OATS.

Emissions shown in the plot are related to the chamber ambient

3.6 Effective Isotropic Radiated Power

EUT Nomenclature	Wireless Relay Module	**Test Request No.**	20294-1
Model No.	FW-RM	**Serial No.**	MEL-159
Test Start Date	2017-05-30	**Temperature (˚C)**	0°C-35°C
Test End Date	2017-05-30	**Humidity RH (%)**	10%RH-90%RH
Tested By	Chris Locke	**Pressure (mbar)**	NR
Input Voltage / Freq.	3.3 Vdc		
Operating Mode	Refer Page 5 for Operating Mode Table		
Test configuration	Refer Page 5 for Test Configuration Table		
Deviation from Std.	NA		
Comment	NA		

MAXIMUM OPERATING FREQUENCY

902 MHz to 928 MHz

TEST PARAMETERS

Antenna Height	1m to 4m	**Turntable Rotation**	NA
Applicable Standard	ANSI C63.10 – 2013	**Test Method**	KDB 412172 v01r01
Equipment Class	NA	**Measurement Distance**	3m

TEST EQUIPMENT

Y/N	Equipment	Make	Model	Sl. No.	Cal Due Date
Y	Spectrum Analyzer	Rohde & Schwarz	FSW26	103125	2018-02-14
Y	Bilog Antenna	Sunol	JB6	A012816	2018-03-09
Y	Log Periodic Antenna	A.H.Systems	SAS-200	365TX	2018-02-02
Y	Preamplifier (Below 1GHz)	HP	8447D	2443AUF555	NA
Y	Signal Generator	Agilent	N5183A (MXG)	MY50140667	2018-06-02

Note: Switch ON /OFF the Internal Preamplifier based on carrier level and or noise floor without overloading the receiver

TEST RESULT – EIRP

ANTENNA	Frequency (MHz)	Polarity	Fundamental Target (dBuV/m)	Signal Generator Level (dBm)	EIRP (dBm)
1	902.875	H	85.17	-6.8	-6
1	902.875	V	72.46	-18.9	-18.1
1	914.325	H	82.85	-8	-7.2
1	914.325	V	74.71	-15.75	-14.95
1	927.125	H	96.05	6.4	7.2
1	927.125	V	89.05	0.1	0.9
2	902.875	H	85.26	-6.7	-5.9
2	902.875	V	75.03	-16.2	-15.4
2	914.325	H	97.4	6.6	7.4
2	914.325	V	89.2	-1.2	-0.4
2	927.125	H	97.94	8.3	9.1
2	927.125	V	86.47	-2.5	-1.7
3	902.875	H	85.83	-6.1	-5.3
3	902.875	V	78.02	-13.2	-12.4
3	914.325	H	99.58	8.8	9.6
3	914.325	V	92.29	1.9	2.7
3	927.125	H	98.83	9.2	10
3	927.125	V	80.82	-8.2	-7.4

Note: EIRP=Signal Generator Level (dBm)+ Substitute Antenna Gain(dBi)+Cable loss(dB)
Substitute Antenna Gain =5.4dBi
Cable Loss =4.6dB

TEST SETUP PHOTOGRAPH

Refer Annexure -1

EIRP Test Setup

Annexure – 1