

Model Tested: WICHAM01

Report Number: 22032 DLS Project: 8095

166 South Carter, Genoa City, WI 53128

Code of Federal Regulations 47 Part 15 – Radio Frequency Devices

Subpart C – Intentional Radiators
Section 15.247

Operation within the bands 902 - 928 MHz,
2400 - 2483.5 MHz, 5725 - 5875 MHz,
and 24.0 - 24.25 GHz.

For a Class II Permissive Change

THE FOLLOWING MEETS THE ABOVE TEST SPECIFICATION

Formal Name: Amber WiFi Module

Kind of Equipment: 802.11b/g/n Wi-Fi appliance module

Frequency Range: 2412-2462 MHz

Test Configuration: DC powered transceiver module

Model Number(s): WICHAM01

Model(s) Tested: WICHAM01

Serial Number(s): 15501X01D01160800025AK01 (with external connector),

Date of Tests: July 25th to July 27th 2016

Test Conducted For: Whirlpool Corporation

750 Monte Rd

Benton Harbor, MI 49022, USA

NOTICE: "This test report relates only to the items tested and must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government". Please see the "Description of Test Sample" page listed inside of this report.

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Company: Whirlpool Corporation Model Tested: WICHAM01

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SIGNATURE PAGE

Tested By:

Craig Brandt

Senior Test Engineer

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Reviewed By:

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Approved By:

Brian Mattson General Manager

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United States Department of Commerce National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

D.L.S. Electronic Systems, Inc.

Wheeling, IL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2015-09-25 through 2016-09-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

ELECTROMAGNETIC
COMPATIBILITY &
TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

Emissions

Designation

Description

Off-site test location

D.L.S. Electronics performs radiated emissions testing at an additional location, 166 South Carter Street, Genoa City, WI 53128.



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1.0 Summary of Test Report

It was determined that the Whirlpool Inc Amber WiFi Module model WICHAM01, complies with the requirements of CFR 47 Part 15 Subpart C Section 15.247 for a Class II Permissive Change to add an external flex dipole antenna option to the existing Single Modular Approval.

All RF Conducted data can be found in the test report for the original certification (Report Number 21823). No hardware changes were made to the existing certified module.

All testing for this Class II Permissive Change was performed using the same exact module that was tested in the original certification.

Subpart C Section 15.247 Applicable Technical Requirements Tested:

Section	Description	Procedure	Note	Compliant?
15.247(d)	Emissions in Restricted	ANSI C63.10-2013	1	Yes
15.205(a)	Frequency Bands – Radiated	Sections 11.12 & 11.12.1		
15.209(a)				
15.247(d)	Restricted Band-Edge	ANSI C63.10-2013	1	Yes
15.205(a)	Measurements - Radiated	Sections 11.12 & 11.12.1		
15.209(a)				
15.207	AC Line Conducted	ANSI C63.10-2013	2	Yes
	Emissions	Section 6.2		

Note 1: Radiated emission measurement.

Note 2: AC power line conducted measurement.

2.0 Introduction

From July 25th to July 27th, 2016, the Amber WiFi Module model WICHAM01, as provided from Whirlpool Corporation was tested to the requirements of CFR 47 Part 15 Subpart C Section 15.247 for a Class II Permissive Change to add an external flex dipole antenna option to the existing Single Modular Approval. To meet these requirements, the procedures contained within this report were performed by personnel of D.L.S Electronic Systems, Inc.



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3.0 Test Facilities

D.L.S. Electronic Systems, Inc. is a full service EMC/Safety Testing Laboratory accredited to ISO 17025. NVLAP Certificate and Scope can be viewed at http://www.dlsemc.com/certificate. Our facilities are registered with the FCC, Industry Canada, and VCCI.

Wisconsin Test Facility:

D.L.S. Electronic Systems, Inc. 166 S. Carter Street Genoa City, Wisconsin 53128 Wheeling Test Facility:
D.I. S. Flectronic System

D.L.S. Electronic Systems, Inc. 1250 Peterson Drive Wheeling, IL 60090

FCC Registration #90531

4.0 Description of Test Sample

The test sample consists of 1 AMber WiFi module. The 802.11b/g/n specification compliant transceiver is mounted on FR4 substrate which includes an integrated printed circuit board with two "on-board" or imbedded antennas and a shield covering the RF circuitry. Through software configuration the "off-board" or external antenna can be enabled depending on the geographic enivironment. Test tools are used to allow for different modulation types, power settings and frequency of operation to be set as needed. A 7.2V battery and mating connectors are used to power the device. USB is used to communicate with the DUT.

Type of Equipment / Frequency Range:

Mobile / 2412-2462 MHz

Physical Dimensions of Equipment Under Test:

Length: 90 mm, Width: 25 mm, Height: 11 mm

Power Source:

12 VDC ± 5% provided from the host appliance
7.2 VDC used for radiated testing
12 VDC wall adapter used for RF conducted testing
Stepped down to 3.3VDC for use by the transmitter
120V / 60Hz was used for AC Line Conducted Testing

Internal Frequencies:

38.4 MHz / Switching power supply frequency: 650 kHz



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Description of Test Sample (continued)

Transmit / Receive Frequencies Used For Test Purpose:

Low channel: 2412 MHz, Middle channel: 2437 MHz, High channel: 2462 MHz

20MHz channel bandwidth

Type of Modulation(s) / New Antenna Types:

802.11b/g/n Modulations

External Dipole Antenna Model W10886260 Rev B (3.0 dBi antenna gain)

Description of Circuit Board(s) / Part Number:

Basic PC Board (with onboard antennas)	W10856613
Extended PC Board (for external antenna)	W10856614

5.0 Test Equipment

A list of the equipment used can be found in the table below. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.

Radiated 30 – 1000 MHz

		Radiated 50	- IOOO MIIIZ			
		Model	Serial	Frequency	Cal	Cal Due
Description	Manufacturer	Number	Number	Range	Date	Date
Receiver	Rohde &	ESI 40	837808/006	20 Hz – 40 GHz	6-23-16	6-23-17
	Schwarz					
Low Pass Filter	Mini-Circuits	VLFX-1125	MUU9260	30 MHz –	6-3-16	6-3-17
				1 GHz		
Preamplifier	Rohde &	TS-PR10	032001/004	9 kHz – 1 GHz	12-3-15	12-3-16
	Schwarz					
Antenna	EMCO	3104C	00054892	20 MHz – 200	3-11-16	3-11-18
				MHz		
Antenna	EMCO	3146	1205	200 MHz – 1 GHz	3-23-16	3-23-18
Test Software	Rohde &	ESK-1	V1.7.1	N/A	N/A	N/A
	Schwarz					



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Test Equipment (continued)

Radiated 1-18 GHz

		Model	Serial	Frequency	Cal	Cal Due
Description	Manufacturer	Number	Number	Range	Date	Date
Receiver	Rohde &	ESI 26	837491/010	20 Hz – 26 GHz	6-23-16	6-23-17
	Schwarz					
Preamp	Ciao	CA118-4010	101	1GHz-18GHz	1-20-16	1-20-17
Horn Antenna	EMCO	3115	9502-4451	1-18GHz	6-1-15	6-1-17
Filter- High-Pass	Q-Microwave	100462	2	4.2GHz-18GHz	10-13-15	10-13-16
Test Software	Rohde & Schwarz	ESK-1	V1.7.1	N/A	N/A	N/A

Additional Radiated 18-26 GHz

		Model	Serial	Frequency	Cal	Cal Due
Description	Manufacturer	Number	Number	Range	Date	Date
Preamp	Miteq	AMF-8B-180265-	438727	18GHz-26GHz	6-6-16	6-6-17
		40-10P-H/S				
Horn Antenna	EMCO	3116	2549	18 – 40GHz	9-2-14	9-2-16
Filter- High Pass	K&L	50140-11SH10-	438727	18-40GHz	1-27-16	1-27-17
		18000/T40000-K-				
		K				
Test Software	Rohde &	ESK-1	V1.7.1	N/A	N/A	N/A
	Schwarz					

AC Line Conducted (Screen Room)

		Model	Serial	Frequency	Cal	Cal Due	
Description	Manufacturer	Number	Number	Range	Date	Dates	
Receiver	Narda PMM	9010F	020WW401	10Hz-50MHz	6-25-15	6-25-16	
			02				
LISN	Solar	9252-50-R-	961019	9 kHz –	5-21-15	5-21-16	
		24-BNC		30 MHz			
Filter- High-Pass	SOLAR	7930-120	090702	120 kHz –	12-3-15	12-3-16	
				30 MHz			
Limiter	Electro-Metrics	EM-7600	705	9 kHz –	12-3-15	12-3-16	
				30 MHz			
Test Software	Narda PMM	PMM	Rel.2.17	N/A	N/A	N/A	
		Emission					
		Suite					



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6.0 Test Arrangements

Measurement Arrangement:

All measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to ANSI C63.10-2013, unless otherwise noted. Description of procedures and measurements can be found in Appendix B – Measurement Data. See Appendix A for additional photos of the test set up. See Appendix C for measurement uncertainty.

Unless otherwise noted, the bandwidth of the measuring receiver / analyzer used during testing is shown below.

Frequency Range	Bandwidth (-6 dB)
10 to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

7.0 Test Conditions

Temperature and Humidity:

74°F at 49% RH unless otherwise noted on test data

Supply Voltage:

7.2 VDC used for radiated testing12 VDC wall adapter used for RF conducted testing (see original report)120V / 60Hz for AC Line Conducted Testing

8.0 Modifications Made To EUT For Compliance

The output power settings were set during testing. The output power setting is not related to the output power level in dBm.

This is intended to mean that an output power setting of 18 is unitless and does not imply that, at a setting of 18, the output power will be exactly 18 dBm. The power setting is, however, related to the output power to the extent that a lower setting will result in a lower output power level. The output power settings were reduced to facilitate bandedge compliance. These lower power settings did lower the actual output power level. However, the power level measured in dBm does not match exactly with the number of the power setting. Again, the power setting number is a unitless number and not a dBm power level declaration.



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9.0 Additional Descriptions

The EUT was powered with an AC to DC power adapter for RF conducted emissions, and with a rechargeable battery for radiated emissions.

The EUT was programmed for continuous transmission on Low, Mid, and High channels, using 802.11-b, g, and n modulation types with various data rates.

For radiated emissions, the EUT with was rotated through 3 orthogonal axis to find worst-case.

AC line conducted tested with HON-KWANG, model HK-CP12-A12 12V DC power supply.

10.0 Final Power Settings

	802.11b – with External Dipole												
Channel	1	2	3	4	5	6	7	8	9	10	11		
Power	17	18	18	18	18	18	18	18	18	18	17		
Setting													

	802.11g – with External Dipole												
Channel	1	2	3	4	5	6	7	8	9	10	11		
Power	11	15	16	17	17	17	17	15	14	13	10		
Setting													

	802.11n – with External Dipole												
Channel	1	2	3	4	5	6	7	8	9	10	11		
Power	10	14	14	14	14	14	14	14	14	12	8		
Setting													

11.0 Section 15.230 Antenna Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.... This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221.

Statement: This wireless device (Intentional Radiator) meets the requirements of FCC Part 15.203:

✓ This intentional radiator is professionally installed



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Model Tested: WICHAM01 Report Number: 22032

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12.0 Results

Measurements were performed in accordance with CFR 47 Part 15 Subpart C Section 15.247 and ANSI C63.10-2013. Graphical and tabular data can be found in Appendix B at the end of this report.

13.0 Conclusion

The Amber WiFi Module model WICHAM01, as provided from Whirlpool, tested from July 25th to July 27th, 2016 **meets** the requirements of CFR 47 Part 15 Subpart C Section 15.247 for a Class II Permissive Change to add an external flex dipole antenna option to the existing Single Modular Approval.



166 South Carter, Genoa City, WI 53128 Appendix A – Test Photos Company: Whirlpool Corporation

Model Tested: WICHAM01

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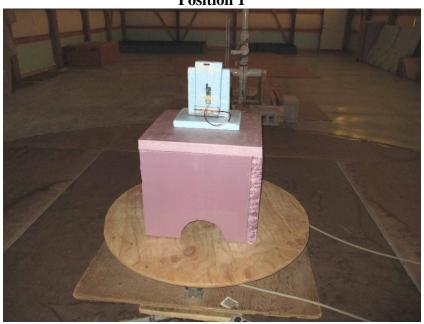
Photo Information and Test Setup:

Item: Whirlpool Corporation Model WICHAM01

Tested with battery pack (not part of the EUT)

Radiated Emissions Below 1 GHz – with External Dipole Antenna

Position 1



Position 2 Position 3







Company: Whirlpool Corporation Model Tested: WICHAM01

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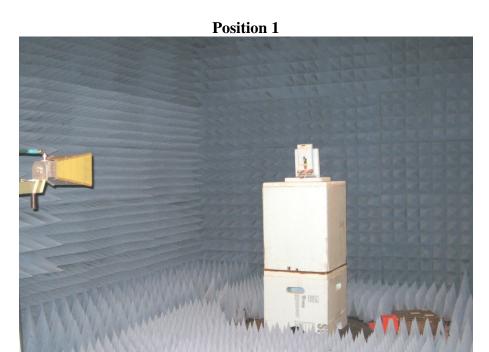
Model Tested: WICHAN Report Number: 22032

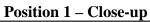
166 South Carter, Genoa City, WI 53128

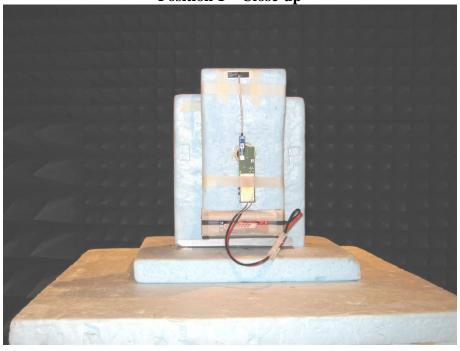
Appendix A (continued)

Radiated Emissions Above 1 GHz – with External Dipole Antenna

DLS Project:









Whirlpool Corporation Company: Model Tested: WICHAM01

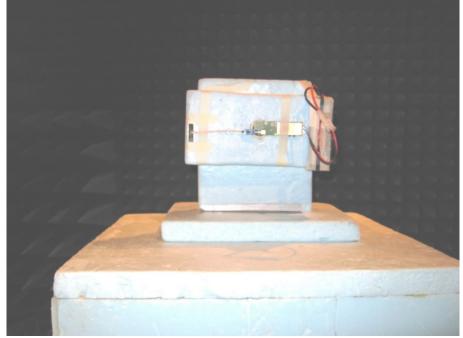
Report Number: 22032 DLS Project: 8095

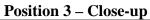
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Appendix A (continued)

Radiated Emissions Above 1 GHz – with External Dipole Antenna











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166 South Carter, Genoa City, WI 53128 Appendix B – Test Data

B1.0 Emissions in Restricted Frequency Bands – Radiated

Rule Part:

15.247(d), 15.205(a), 15.209(a)

Test Procedure:

ANSI C63.10-2013 11.12 Emissions in Restricted Frequency Bands 11.12.1 Radiated Emissions Measurements

Limit:

15.209(a)

Results:

Compliant

Notes:

Measurements were performed with the EUT transmitting from the external Dipole antenna. Testing was performed with 802.11-b 1 Mbps modulation (found to be worst-case) and output power setting 18. The EUT was tested at the low, middle, and high channels of operation.

FCC Pt.15.209

Electric Field Strength

EUT: Amber with external dipole antenna

Manufacturer: Whirlpool Corporation Operating Condition: 72 deg. F; 59% R.H.

Test Site: DLS Site 2

Operator: Craig B #8095

Test Specification: Transmitter spurious emissions in Restricted Bands

Comment: 802.11-b; L, M, H channels; power setting 18

Date: 07-27-2016

TEXT: "Vert 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Equations: Total Level($dB\mu V/m$) = Level($dB\mu V$) + System Loss(dB) + Antenna Factor($dB\mu V/m$)

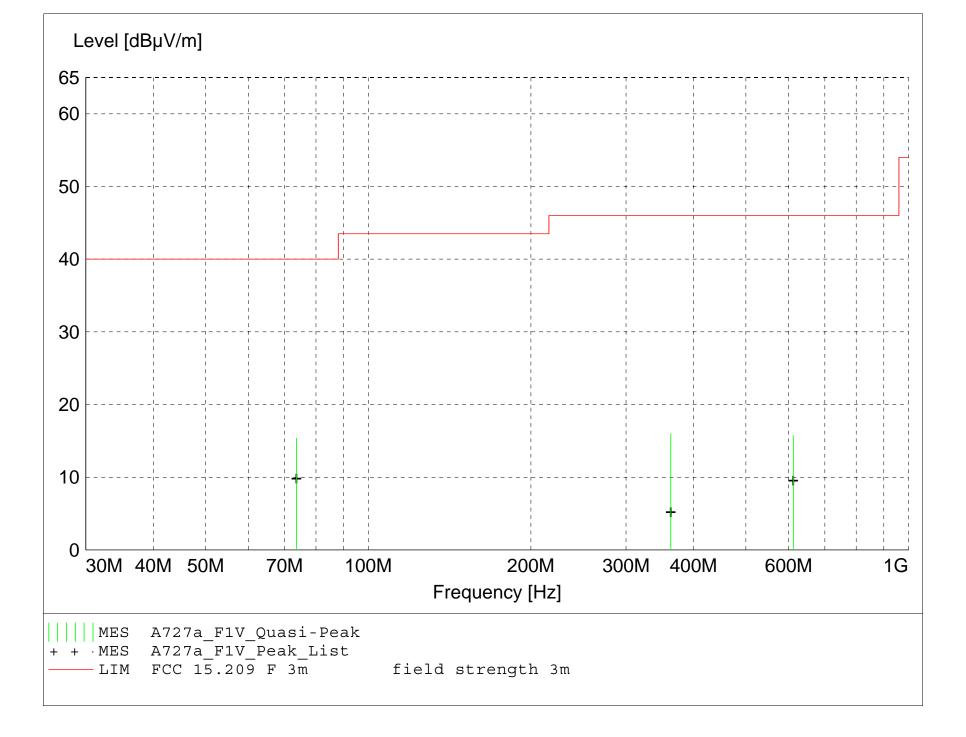
Margin (dB) = Limit (dB μ V/m) - Total Level (dB μ V/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector



MEASUREMENT RESULT: "A727a_F1V_Final"

7/27/2016	11:2	MAO									
Freque	ncy	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
			Factor	Loss	Level			Ant.	Angle	Detector	
	MHz	dΒμV	dBμV/m	dB	dBμV/m	dBμV/m	dB	m	deg		
73.630	000	32.86	6.34	-23.8	15.4	40.0	24.6	1.00	0	QUASI-PEAK	noise floor
362.980	000	22.94	14.96	-21.9	16.0	46.0	30.0	1.00	0	QUASI-PEAK	noise floor
612.040	000	16.82	19.48	-20.6	15.7	46.0	30.3	1.00	0	QUASI-PEAK	noise floor

FCC Pt.15.209

Electric Field Strength

EUT: Amber with external dipole antenna

Manufacturer: Whirlpool Corporation Operating Condition: 72 deg. F; 59% R.H.

Test Site: DLS Site 2

Operator: Craig B #8095

Test Specification: Transmitter spurious emissions in Restricted Bands

Comment: 802.11-b; L, M, H channels; power setting 18

Date: 07-27-2016

TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Equations: Total Level($dB\mu V/m$) = Level($dB\mu V$) + System Loss(dB) + Antenna Factor($dB\mu V/m$)

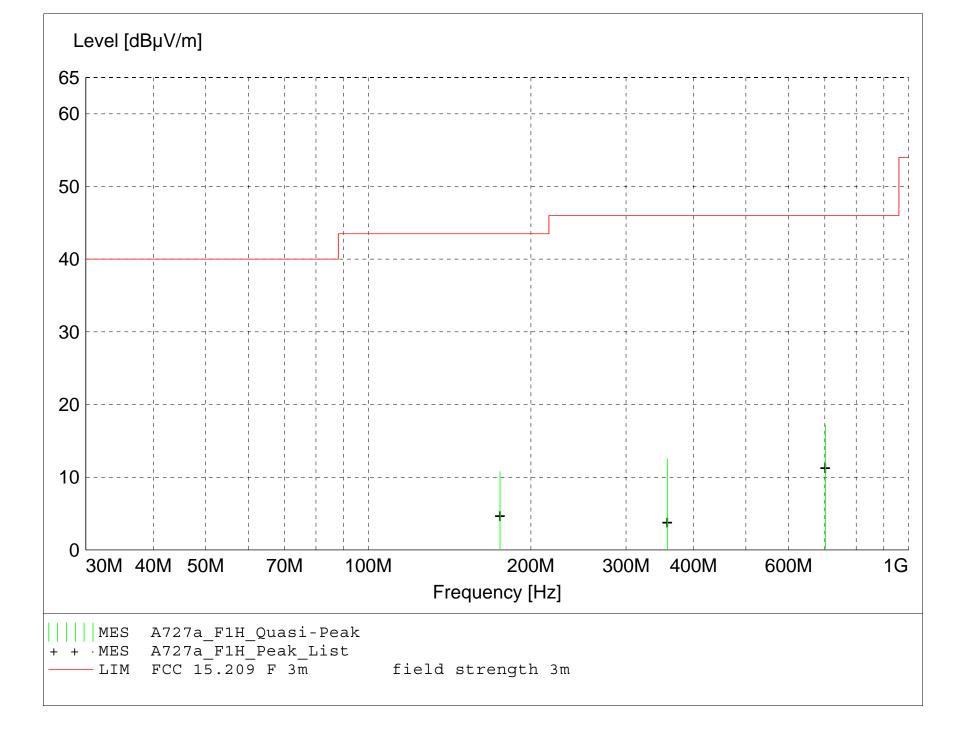
 $Margin(dB) = Limit(dB\mu V/m) - Total Level(dB\mu V/m)$

Graph Markers: + Frequency marker (Level of marker not related to final level)

Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector



MEASUREMENT RESULT: "A727a_F1H_Final"

7/2	7/2016 11:0	02AM									
	Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
			Factor	Loss	Level			Ant.	Angle	Detector	
	MHz	dΒμV	dBμV/m	dB	dBμV/m	dBμV/m	dB	m	deg		
7	01.680000	16.30	21.07	-20.2	17.2	46.0	28.8	1.40	0	QUASI-PEAK	noise floor
1	75.300000	18.36	15.26	-22.9	10.8	43.5	32.7	2.40	0	QUASI-PEAK	noise floor
3	57.630000	19.57	14.90	-21.9	12.5	46.0	33.5	2.00	0	QUASI-PEAK	noise floor

Radiated Emissions in Restricted Bands – 1 GHz to 26 GHz 1 GHz to 18 GHz Tested at a 3 Meter Distance 18 GHz to 26 GHz Tested at a 1 Meter Distance

EUT: Amber

Manufacturer: Whirlpool Corporation **Operating Condition:** 74 deg F; 49% R.H.

Test Site: 1-18 GHz, Site G1, 18-26 GHz Site 3

Operator: Craig B

Test Specification: FCC Part 15.247 and Part 15.205

Comment: Low channel: 2.412 GHz, 802.11-b, DSSS, 1 Mbps; with external dipole antenna

Date: 07-26-2016

Notes: All other emissions at least 20 dB under the limit.

Frequency	Measurement	Antenna	Level	Antenna	System	Total	Limit	Margin	Antenna	EUT	
(GHz)	Type	Polarization	(dBuV)	Factor	Loss	Level	(dBuV/m)	(dB)	Height	Angle	Comment
(GHZ)	Type	Folalization	(ubuv)	(dB/m)	(dB)	(dBuV/m)	(ubu v/III)	(ub)	(m)	(deg)	
4.824	Max Peak	Vert	55.48	32.88	-36.3	52.1	74	21.9	1.8	223	Restricted Band
4.824	Average	Vert	51.40	32.88	-36.3	48.0	54	6.0	1.8	223	Restricted Band
4.824	Max Peak	Horz	52.68	32.88	-36.3	49.3	74	24.7	1.8	319	Restricted Band
4.824	Average	Horz	46.39	32.88	-36.3	43.0	54	11.0	1.8	319	Restricted Band
12.060	Max Peak	Vert	49.80	38.90	-33.2	55.5	74	18.5	1.9	168	Restricted Band
12.060	Average	Vert	38.13	38.90	-33.2	43.8	54	10.2	1.9	168	Restricted Band
12.060	Max Peak	Horz	49.39	38.90	-33.2	55.1	74	18.9	2.0	218	Restricted Band
12.060	Average	Horz	38.46	38.90	-33.2	44.2	54	9.8	2.0	218	Restricted Band

Radiated Emissions in Restricted Bands – 1 GHz to 26 GHz 1 GHz to 18 GHz Tested at a 3 Meter Distance 18 GHz to 26 GHz Tested at a 1 Meter Distance

EUT: Amber

Manufacturer: Whirlpool Corporation **Operating Condition:** 74 deg F; 49% R.H.

Test Site: 1-18 GHz, Site G1, 18-26 GHz Site 3

Operator: Craig B

Test Specification: FCC Part 15.247 and Part 15.205

Comment: Mid channel: 2.437 GHz, 802.11-b, DSSS, 1 Mbps; with external dipole antenna

Date: 07-26-2016

Notes: All other emissions at least 20 dB under the limit.

Eraguanav	Measurement	Antenna	Level	Antenna	System	Total	Limit	Margin	Antenna	EUT	
Frequency				Factor	Loss	Level		_	Height	Angle	Comment
(GHz)	Type	Polarization	(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(m)	(deg)	
4.874	Max Peak	Vert	55.48	32.98	-36.4	52.1	74	21.9	1.7	227	Restricted Band
4.874	Average	Vert	51.02	32.98	-36.4	47.6	54	6.4	1.7	227	Restricted Band
4.874	Max Peak	Horz	53.46	32.98	-36.4	50.0	74	24.0	1.5	314	Restricted Band
4.874	Average	Horz	47.18	32.98	-36.4	43.8	54	10.2	1.5	314	Restricted Band
7.311	Max Peak	Vert	55.11	36.44	-33.4	58.2	74	15.9	1.8	181	Restricted Band
7.311	Average	Vert	50.69	36.44	-33.4	53.7	54	0.3	1.8	181	Restricted Band
7.311	Max Peak	Horz	55.22	36.44	-33.4	58.3	74	15.7	1.7	187	Restricted Band
7.311	Average	Horz	50.21	36.44	-33.4	53.3	54	0.7	1.7	187	Restricted Band
12.185	Max Peak	Vert	48.99	38.82	-33.4	54.4	74	19.6	1.9	178	Restricted Band
12.185	Average	Vert	36.91	38.82	-33.4	42.3	54	11.7	1.9	178	Restricted Band
12.185	Max Peak	Horz	49.26	38.82	-33.4	54.7	74	19.3	1.4	133	Restricted Band
12.185	Average	Horz	36.98	38.82	-33.4	42.4	54	11.6	1.4	133	Restricted Band

Radiated Emissions in Restricted Bands – 1 GHz to 26 GHz 1 GHz to 18 GHz Tested at a 3 Meter Distance 18 GHz to 26 GHz Tested at a 1 Meter Distance

EUT: Amber

Manufacturer: Whirlpool Corporation **Operating Condition:** 74 deg F; 49% R.H.

Test Site: 1-18 GHz, Site G1, 18-26 GHz Site 3

Operator: Craig B

Test Specification: FCC Part 15.247 and Part 15.205

Comment: High channel: 2.462 GHz, 802.11-b, DSSS, 1 Mbps; with external dipole antenna

Date: 07-26-2016

Notes: All other emissions at least 20 dB under the limit.

Frequency	Measurement	Antenna	Level	Antenna	System	Total	Limit	Margin	Antenna	EUT	
(GHz)		Polarization	(dBuV)	Factor	Loss	Level	(dBuV/m)	(dB)	Height	Angle	Comment
(GHZ)	Type	Polarization	(ubuv)	(dB/m)	(dB)	(dBuV/m)	(ubu v/III)	(ub)	(m)	(deg)	
4.924	Max Peak	Vert	53.73	33.05	-36.4	50.4	74	23.6	1.8	230	Restricted Band
4.924	Average	Vert	47.95	33.05	-36.4	44.6	54	9.4	1.8	230	Restricted Band
4.924	Max Peak	Horz	52.68	33.05	-36.4	49.3	74	24.7	1.5	333	Restricted Band
4.924	Average	Horz	46.12	33.05	-36.4	42.8	54	11.2	1.5	333	Restricted Band
7.386	Max Peak	Vert	54.13	36.60	-32.8	57.9	74	16.1	1.9	183	Restricted Band
7.386	Average	Vert	48.59	36.60	-32.8	52.4	54	1.6	1.9	183	Restricted Band
7.386	Max Peak	Horz	53.20	36.60	-32.8	57.0	74	17.0	1.6	201	Restricted Band
7.386	Average	Horz	46.50	36.60	-32.8	50.3	54	3.7	1.6	201	Restricted Band



Company: Whirlpool Corporation Model Tested: WICHAM01

Report Number: 22032 DLS Project: 8095

166 South Carter, Genoa City, WI 53128 Appendix B

B2.0 Restricted Band-Edge Measurements – Radiated

Measured at nearest restricted bands

Rule Part:

15.247(d), 15.205(a), 15.209(a)

Test Procedure:

ANSI C63.10-2013 11.12 Emissions in Restricted Frequency Bands 11.12.1 Radiated Emissions Measurements

Limit:

15.209(a)

Results:

Compliant

Notes:

Measurements were performed with the EUT transmitting from the external Dipole antenna. Testing was performed with all modulation types using the data rate that produced the widest signal. The EUT was tested at various channels of operation. The highest output power setting that resulted in a passing condition is noted on the data. Measurements were performed at the 2.39 GHz and 2.4835 GHz restricted band edges.

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

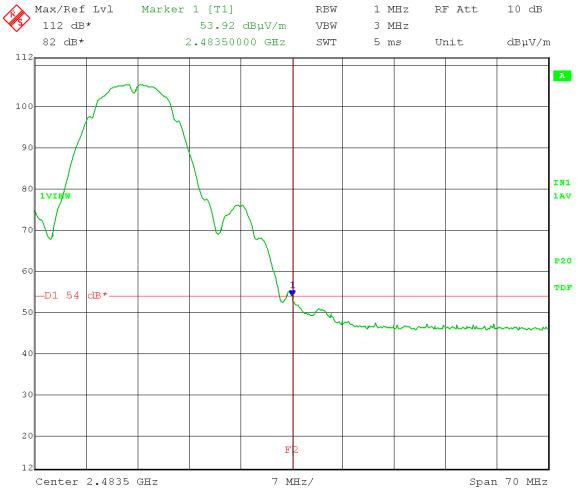
Antenna: External dipole antenna Channel: High, 2462 MHz, channel 11

Modulation: 802.11-b, 1 Mbps

Power setting: 17

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 12:35:43

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

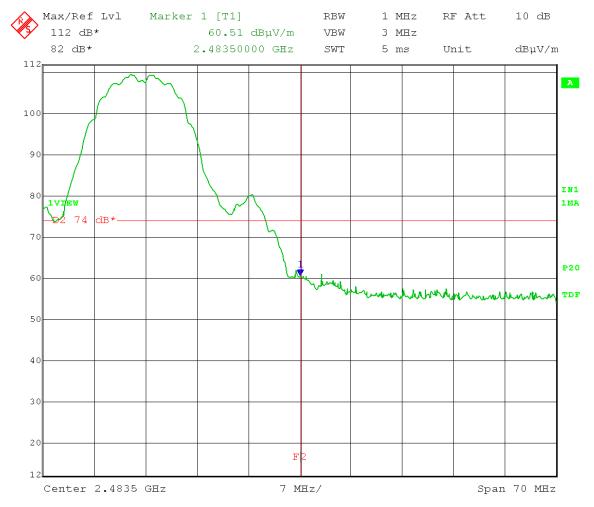
Antenna: External dipole antenna Channel: High, 2462 MHz, channel 11

Modulation: 802.11-b, 1 Mbps

Power setting: 17

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 12:36:21

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

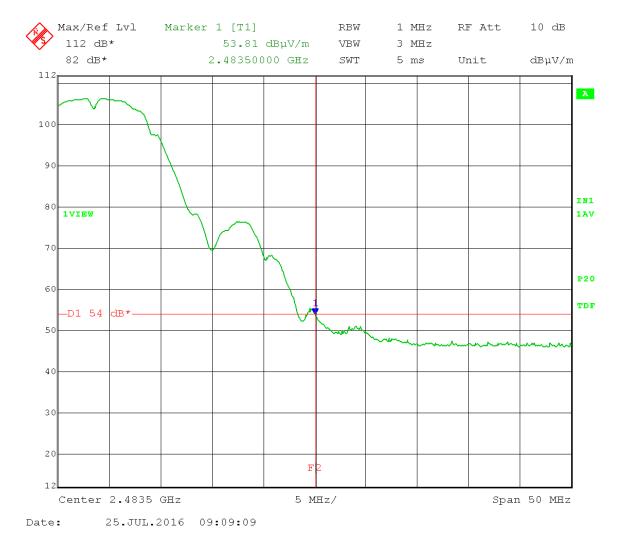
Antenna: External dipole antenna Channel: High, 2462 MHz, channel 11

Modulation: 802.11-b, 1 Mbps

Power setting: 17

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

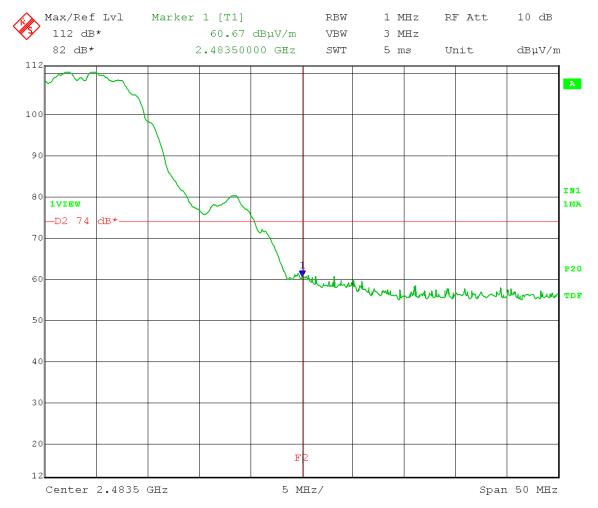
Antenna: External dipole antenna Channel: High, 2462 MHz, channel 11

Modulation: 802.11-b, 1 Mbps

Power setting: 17

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 09:10:23

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

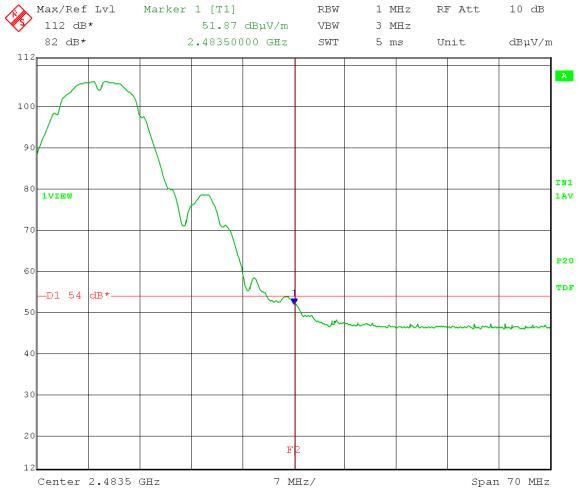
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-b, 1 Mbps

Power setting: 18

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 12:38:22

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

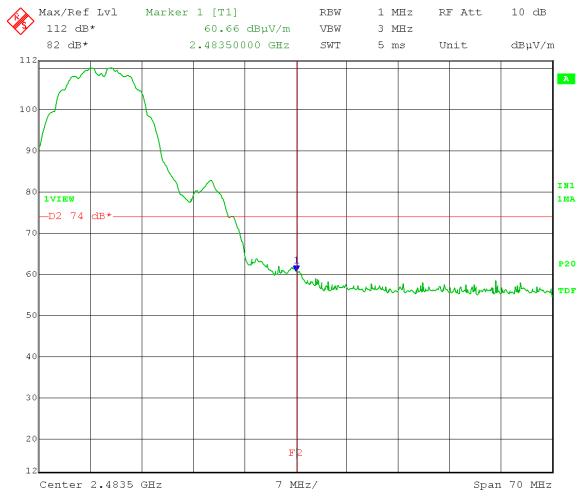
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-b, 1 Mbps

Power setting: 18

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 12:39:07

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

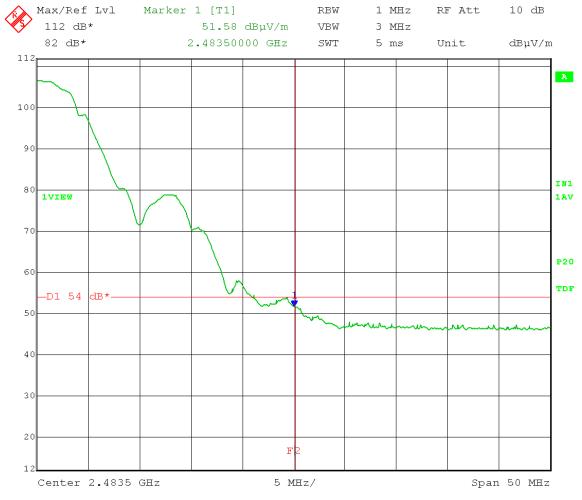
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-b, 1 Mbps

Power setting: 18

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 09:13:48

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

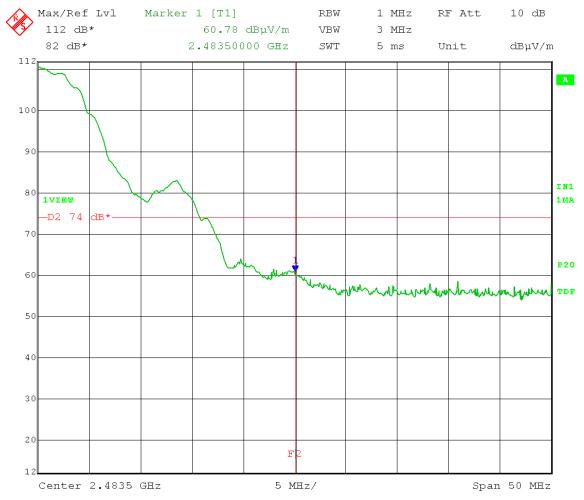
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-b, 1 Mbps

Power setting: 18

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 09:14:19

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

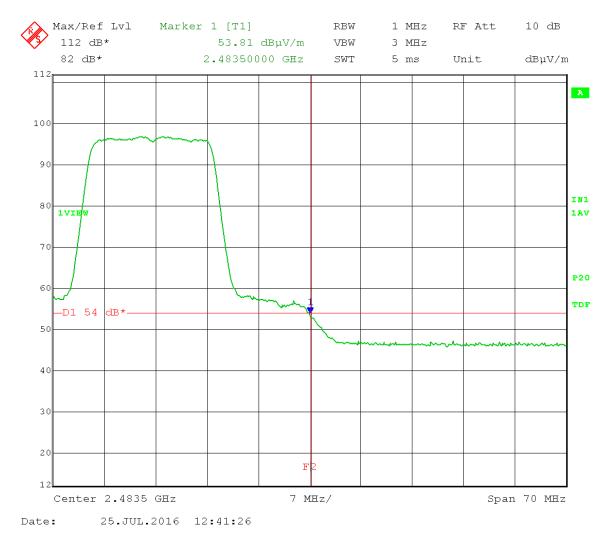
Antenna: External dipole antenna Channel: High, 2462 MHz, channel 11

Modulation: 802.11-g, 54 Mbps

Power setting: 10

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

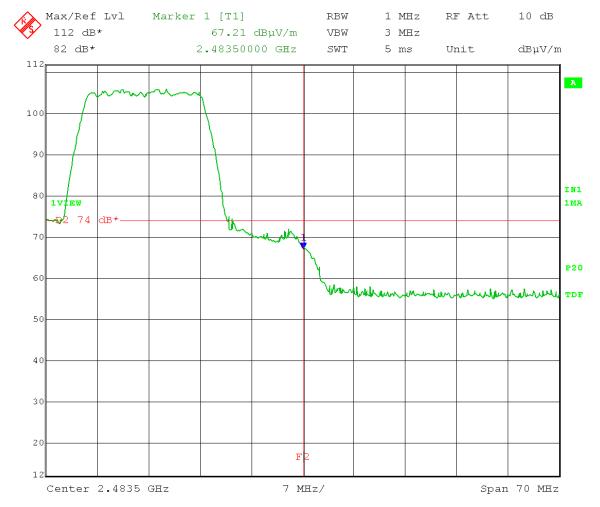
Antenna: External dipole antenna Channel: High, 2462 MHz, channel 11

Modulation: 802.11-g, 54 Mbps

Power setting: 10

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 12:42:11

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

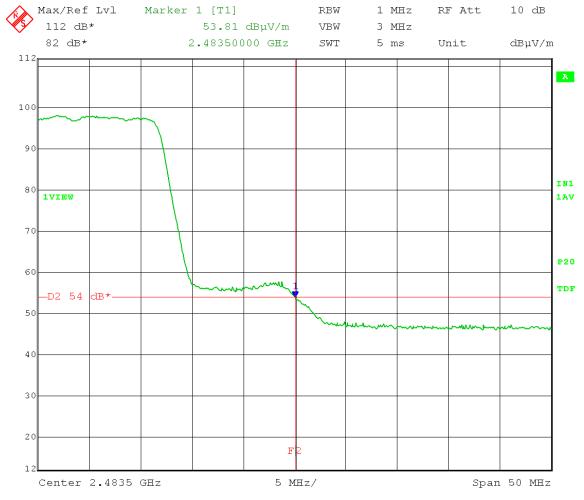
Antenna: External dipole antenna Channel: High, 2462 MHz, channel 11

Modulation: 802.11-g, 54 Mbps

Power setting: 10

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 09:30:11

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

Antenna: External dipole antenna

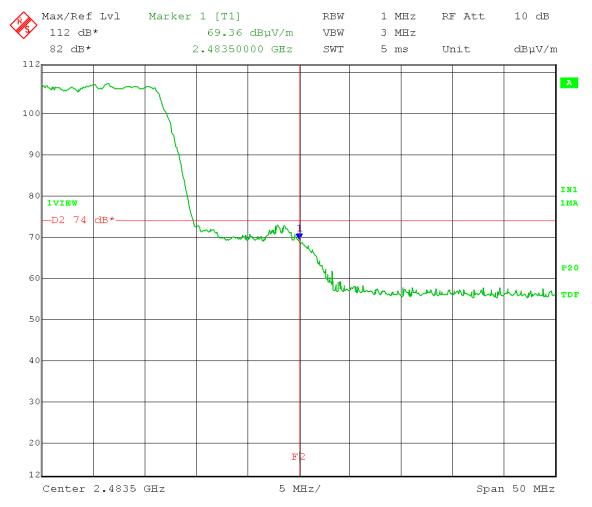
Channel: High, 2462 MHz, channel 11

Modulation: 802.11-g, 54 Mbps

Power setting: 10

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 09:31:39

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

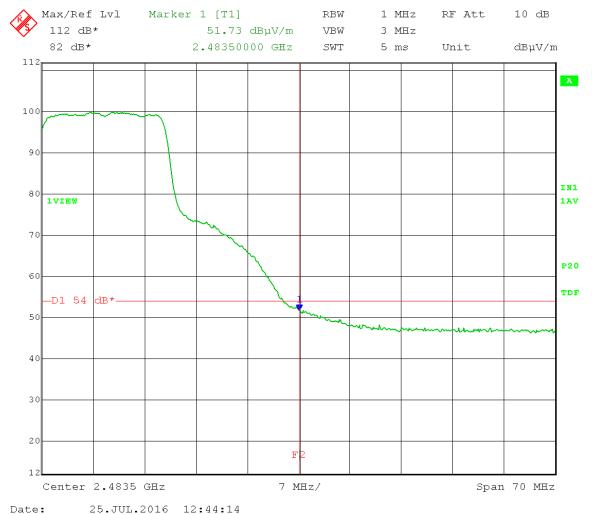
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-g, 54 Mbps

Power setting: 13

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.001.2016 12:44:14

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

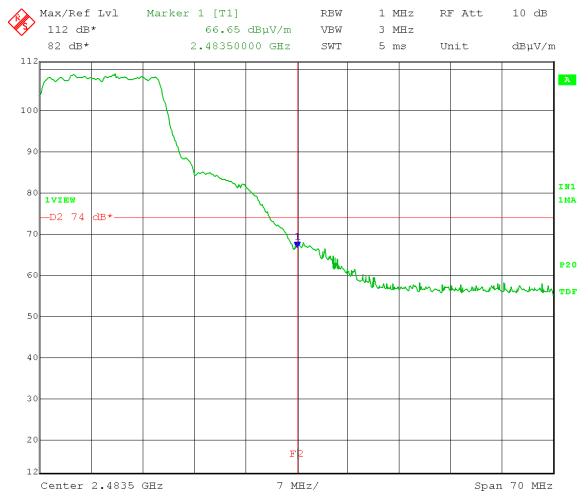
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-g, 54 Mbps

Power setting: 13

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 12:44:47

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

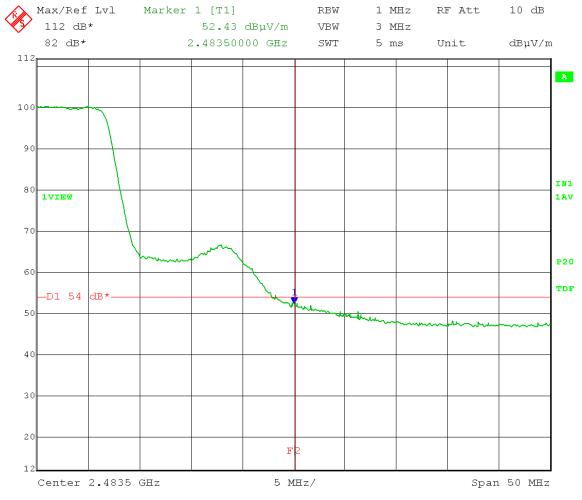
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-g, 54 Mbps

Power setting: 13

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 09:38:40

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

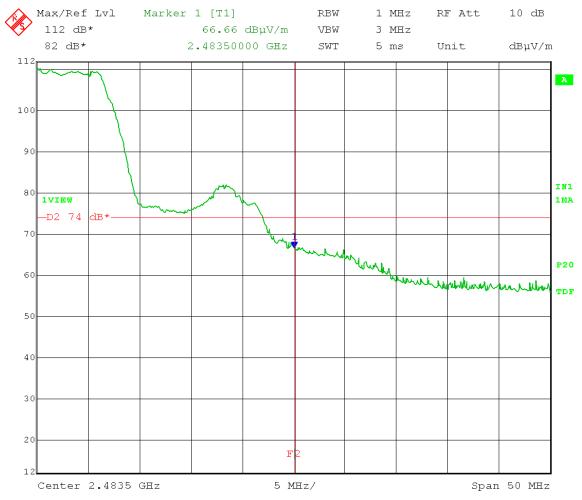
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-g, 54 Mbps

Power setting: 13

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 09:39:33

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

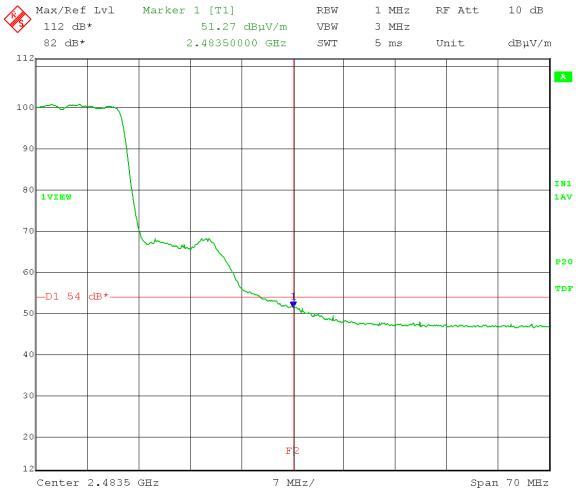
Operator: Craig B

Antenna: External dipole antenna Channel: 2452 MHz, channel 9 Modulation: 802.11-g, 54 Mbps

Power setting: 14

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 12:48:32

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

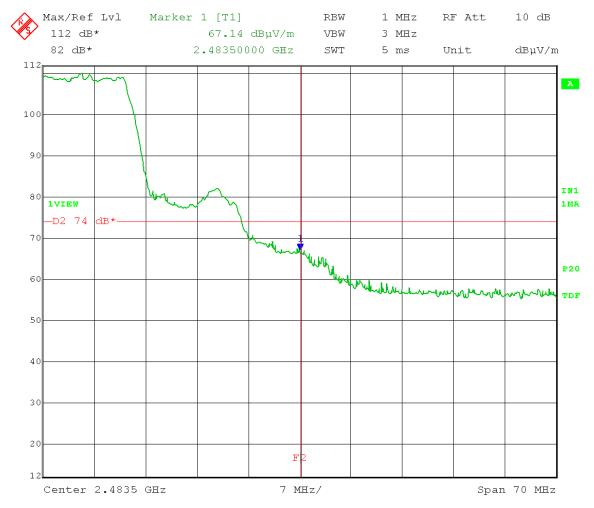
Operator: Craig B

Antenna: External dipole antenna Channel: 2452 MHz, channel 9 Modulation: 802.11-g, 54 Mbps

Power setting: 14

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 12:49:00

Company: Whirlpool Corporation

EUT: Amber

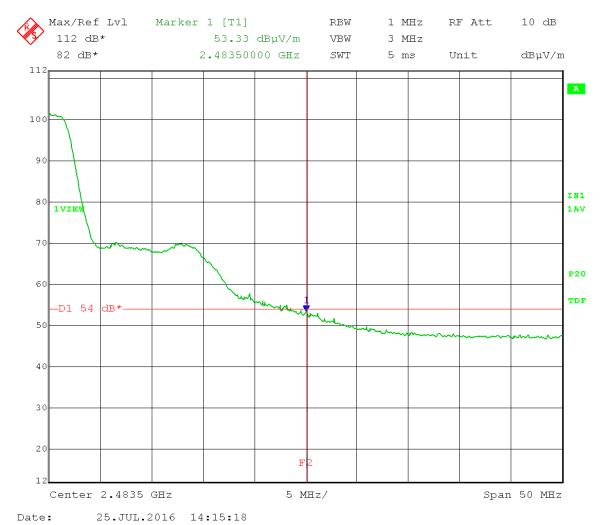
Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

Antenna: External dipole antenna Channel: 2452 MHz, channel 9 Modulation: 802.11-g, 54 Mbps

Power setting: 14

VERTICAL:



Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

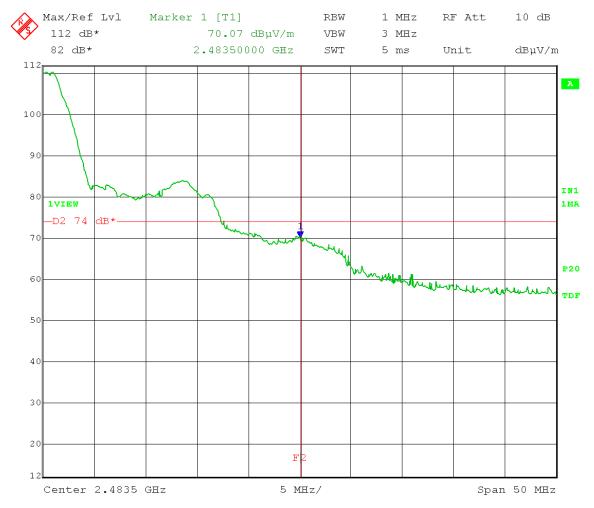
Operator: Craig B

Antenna: External dipole antenna Channel: 2452 MHz, channel 9 Modulation: 802.11-g, 54 Mbps

Power setting: 14

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 14:15:49

Company: Whirlpool Corporation

EUT: Amber

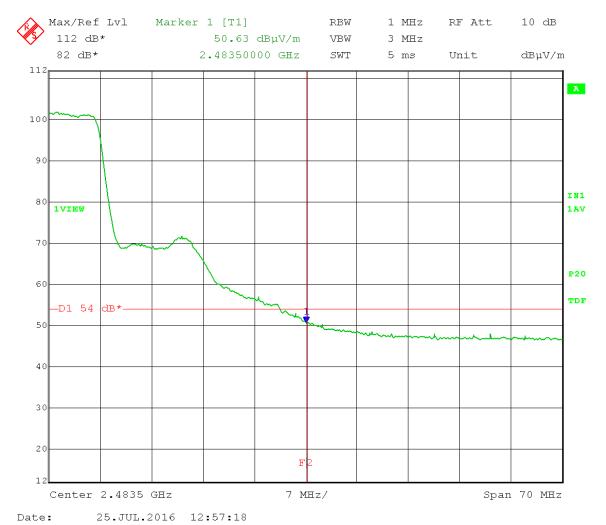
Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

Antenna: External dipole antenna Channel: 2447 MHz, channel 8 Modulation: 802.11-g, 54 Mbps

Power setting: 15

HORIZONTAL:



Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

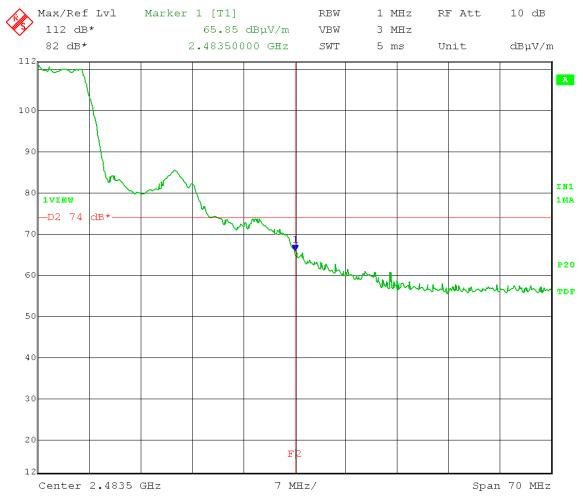
Operator: Craig B

Antenna: External dipole antenna Channel: 2447 MHz, channel 8 Modulation: 802.11-g, 54 Mbps

Power setting: 15

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 12:57:43

Company: Whirlpool Corporation

EUT: Amber

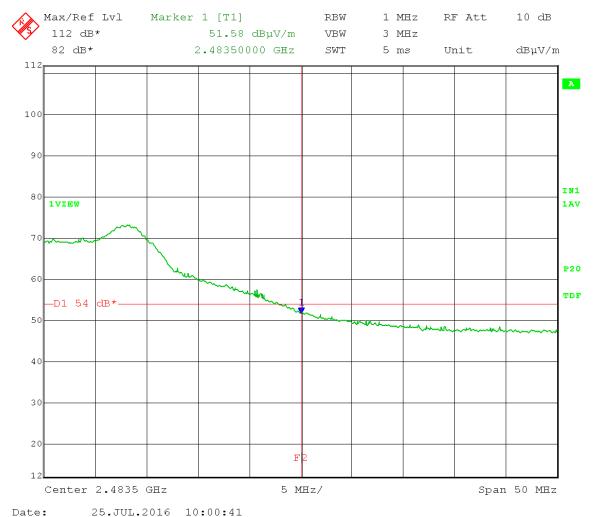
Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

Antenna: External dipole antenna Channel: 2447 MHz, channel 8 Modulation: 802.11-g, 54 Mbps

Power setting: 15

VERTICAL:



Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

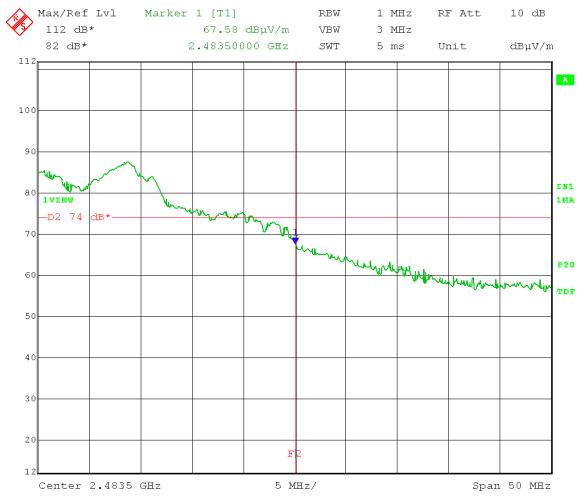
Operator: Craig B

Antenna: External dipole antenna Channel: 2447 MHz, channel 8 Modulation: 802.11-g, 54 Mbps

Power setting: 15

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:01:12

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

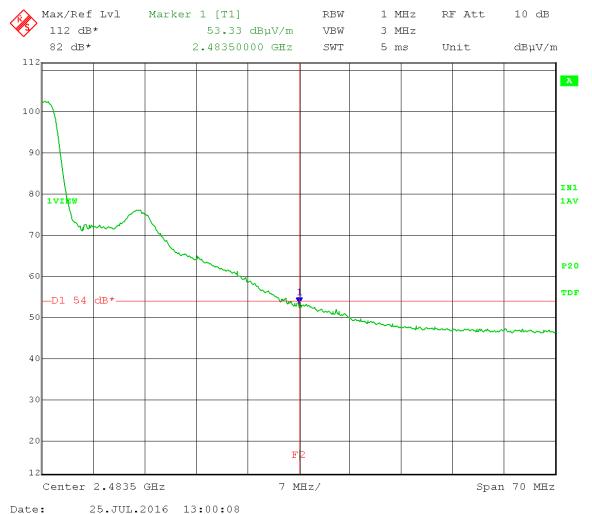
Operator: Craig B

Antenna: External dipole antenna Channel: 2442 MHz, channel 7 Modulation: 802.11-g, 54 Mbps

Power setting: 17

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.00L.2016 13:00:08

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

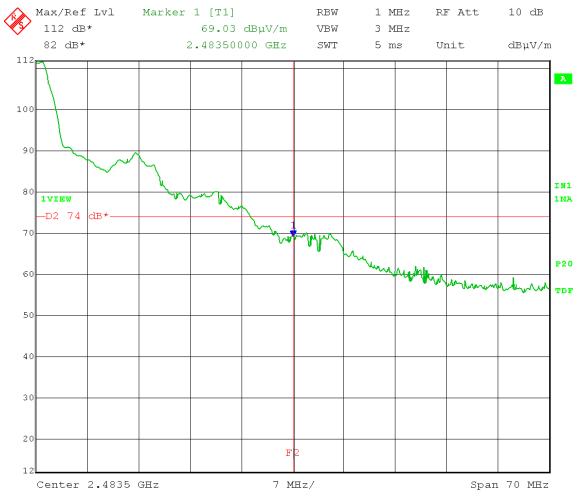
Operator: Craig B

Antenna: External dipole antenna Channel: 2442 MHz, channel 7 Modulation: 802.11-g, 54 Mbps

Power setting: 17

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:00:45

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

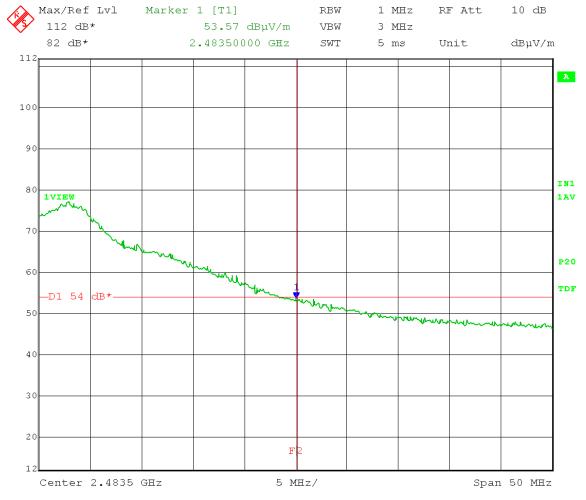
Operator: Craig B

Antenna: External dipole antenna Channel: 2442 MHz, channel 7 Modulation: 802.11-g, 54 Mbps

Power setting: 17

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:04:25

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

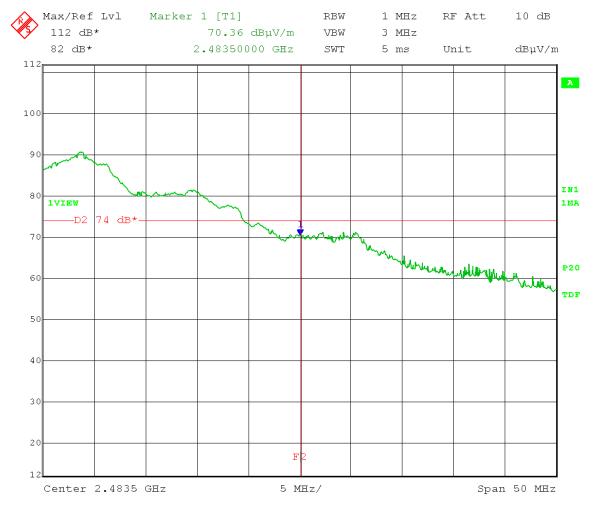
Operator: Craig B

Antenna: External dipole antenna Channel: 2442 MHz, channel 7 Modulation: 802.11-g, 54 Mbps

Power setting: 17

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:05:24

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

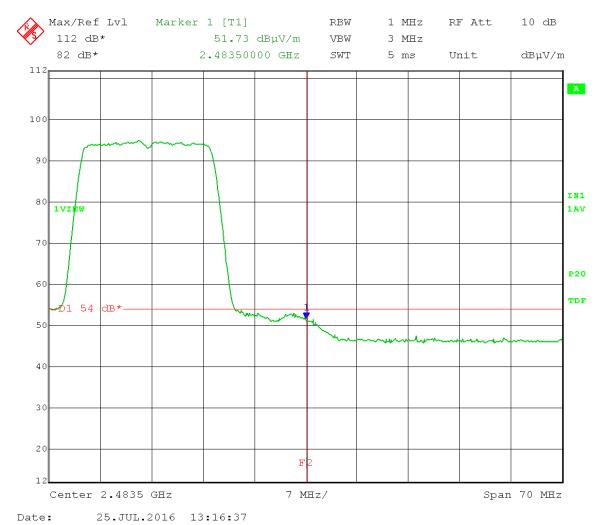
Operator: Craig B

Antenna: External dipole antenna Channel: High, 2462 MHz, channel 11

Modulation: 802.11-n, MCS7

Power setting: 8

HORIZONTAL:



Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

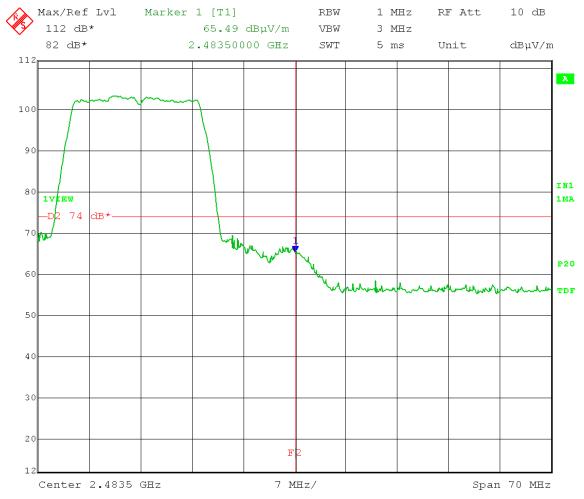
Antenna: External dipole antenna

Channel: High, 2462 MHz, channel 11

Modulation: 802.11-n, MCS7 Power setting: 8

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:17:08

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

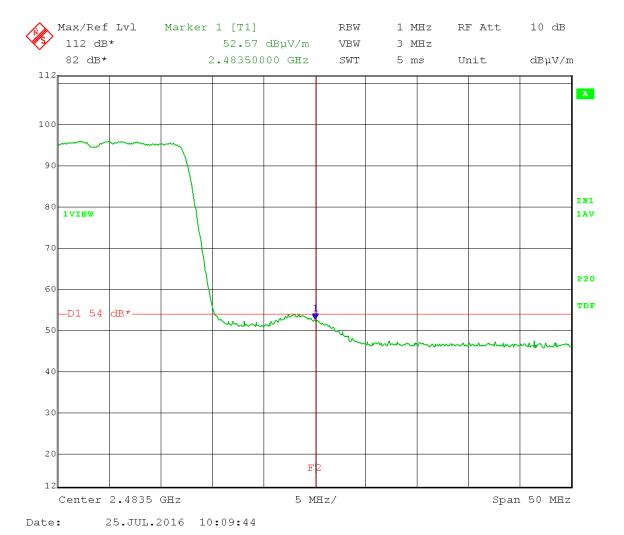
Operator: Craig B

Antenna: External dipole antenna

Channel: High, 2462 MHz, channel 11 Modulation: 802.11-n, MCS7

Power setting: 8

VERTICAL:



Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

Antenna: External dipole antenna

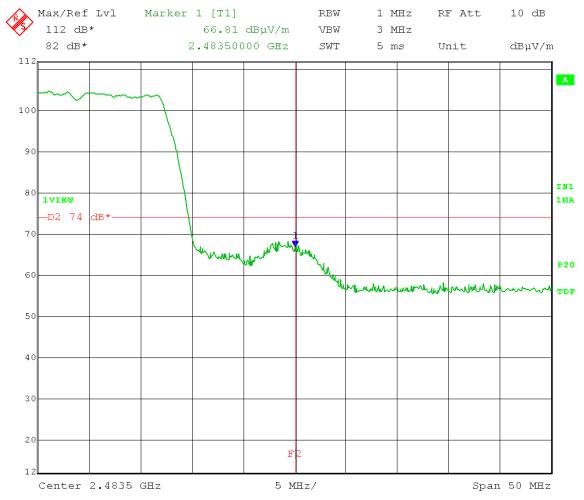
Channel: High, 2462 MHz, channel 11

Modulation: 802.11-n, MCS7

Power setting: 8

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:10:47

Company: Whirlpool Corporation

EUT: Amber

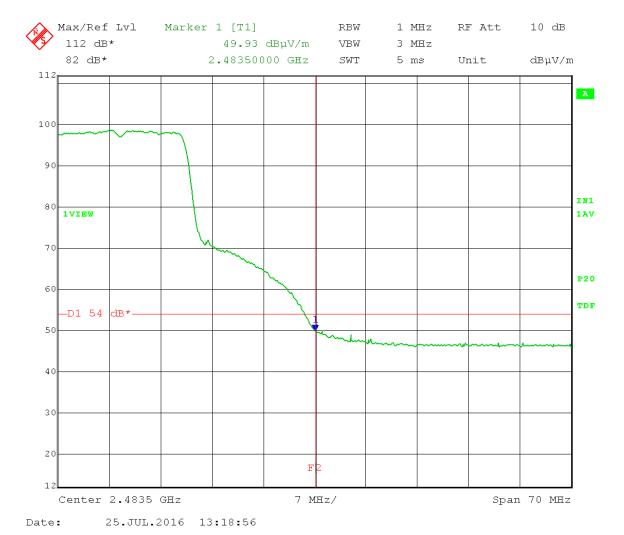
Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-n, MCS7

Power setting: 12

HORIZONTAL:



Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

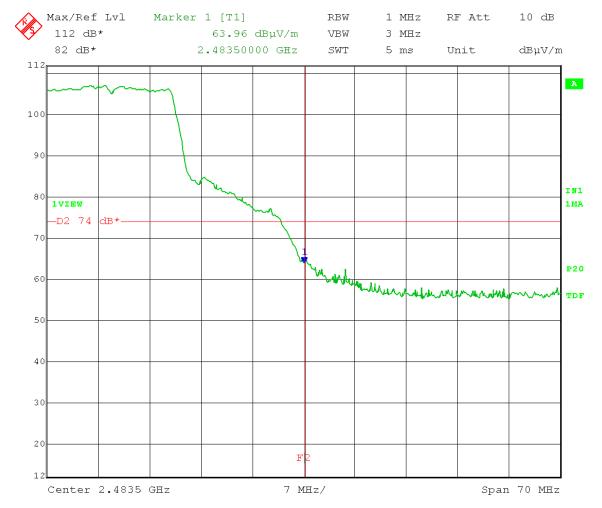
Antenna: External dipole antenna Channel: 2457 MHz, channel 10

Modulation: 802.11-n, MCS7

Power setting: 12

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:19:23

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Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

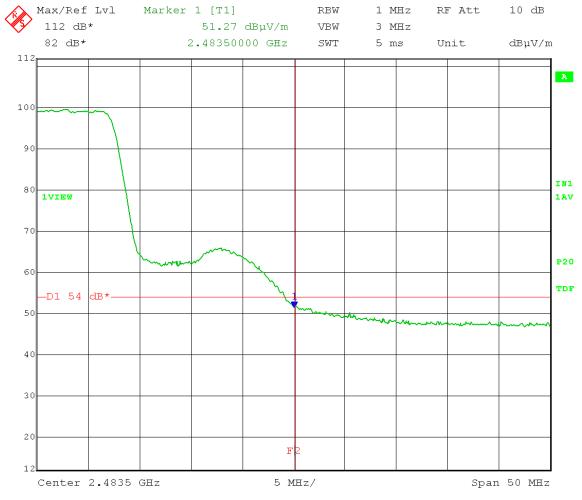
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-n, MCS7

Power setting: 12

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:14:54

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

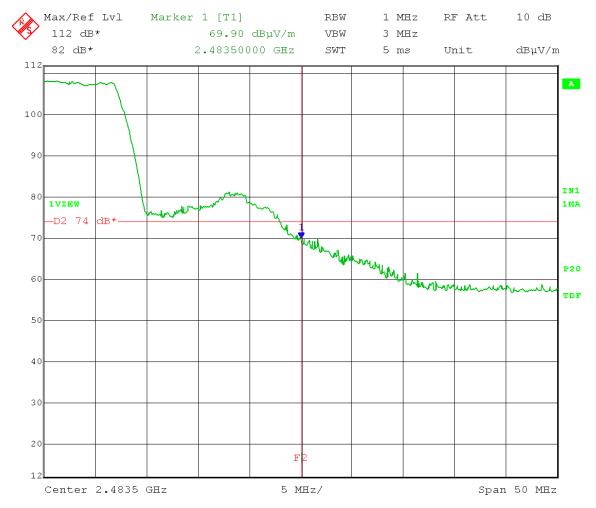
Operator: Craig B

Antenna: External dipole antenna Channel: 2457 MHz, channel 10 Modulation: 802.11-n, MCS7

Power setting: 12

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:16:19

Company: Whirlpool Corporation

EUT: Amber

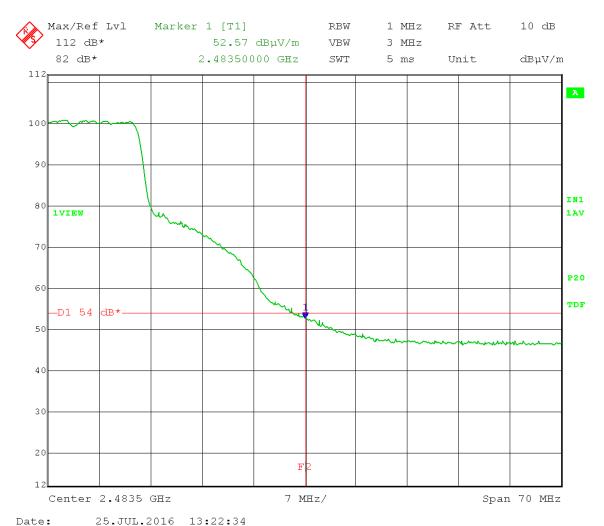
Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

Antenna: External dipole antenna Channel: 2452 MHz, channel 9 Modulation: 802.11-n, MCS7

Power setting: 14

HORIZONTAL:



Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

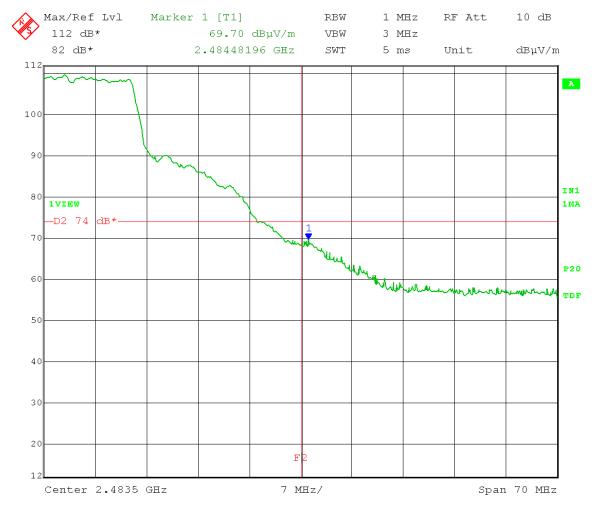
Operator: Craig B

Antenna: External dipole antenna Channel: 2452 MHz, channel 9 Modulation: 802.11-n, MCS7

Power setting: 14

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:23:14

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

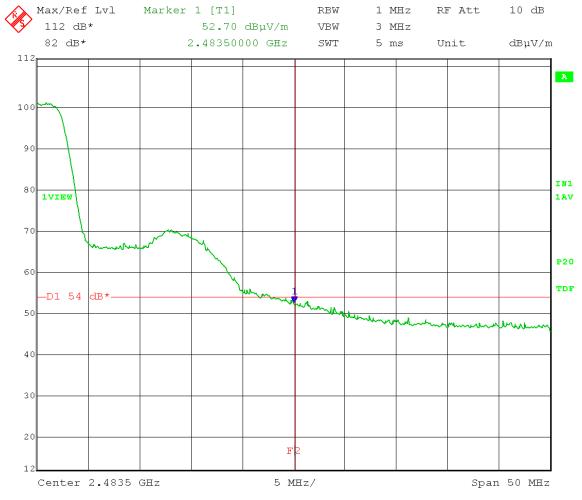
Operator: Craig B

Antenna: External dipole antenna Channel: 2452 MHz, channel 9 Modulation: 802.11-n, MCS7

Power setting: 14

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:20:33

Company: Whirlpool Corporation

EUT: Amber

Test: Upper Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

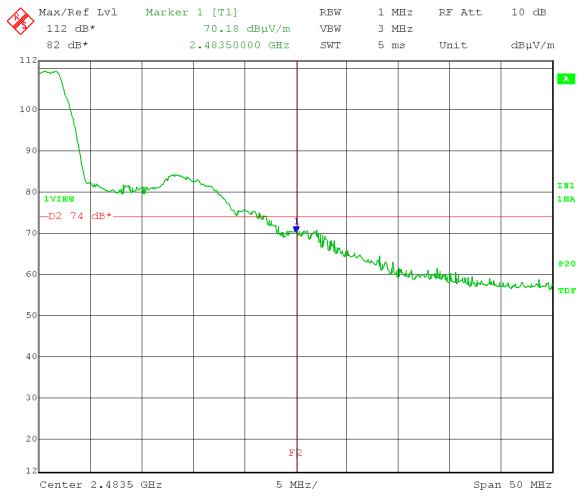
Operator: Craig B

Antenna: External dipole antenna Channel: 2452 MHz, channel 9 Modulation: 802.11-n, MCS7

Power setting: 14

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:21:36

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

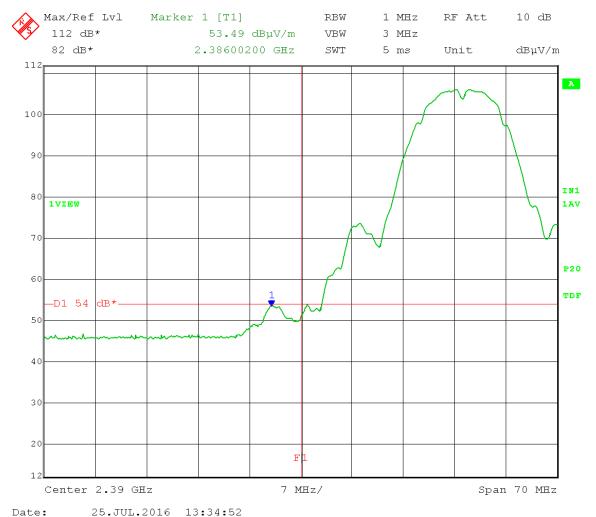
Operator: Craig B

Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-b, 1 Mbps

Power setting: 18

HORIZONTAL:



Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

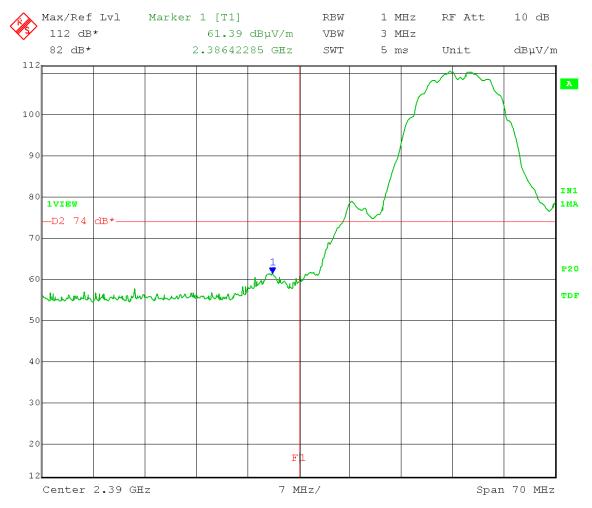
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-b, 1 Mbps

Power setting: 18

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:35:36

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

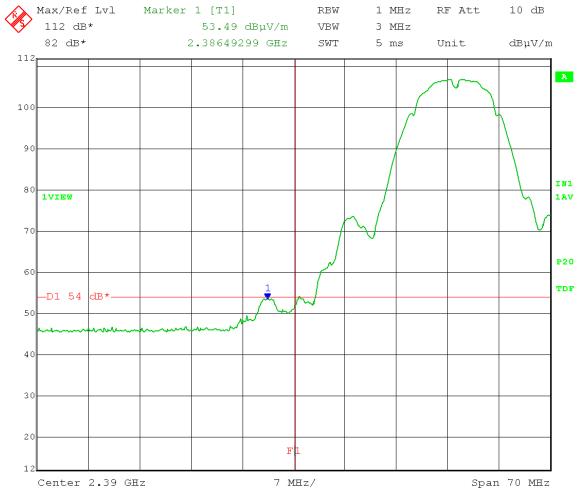
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-b, 1 Mbps

Power setting: 17

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:44:08

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

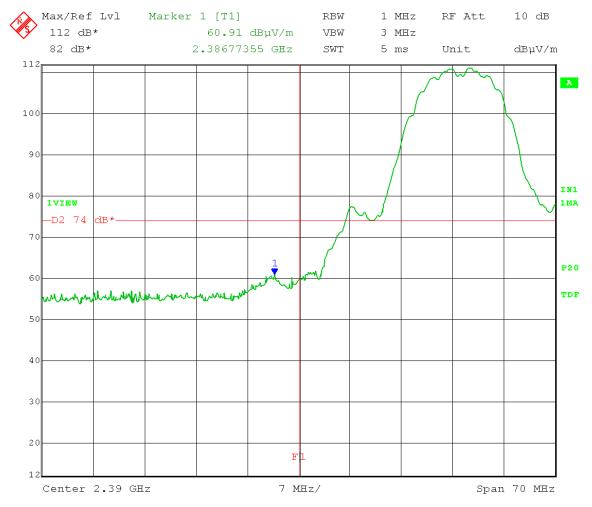
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-b, 1 Mbps

Power setting: 17

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:44:51

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

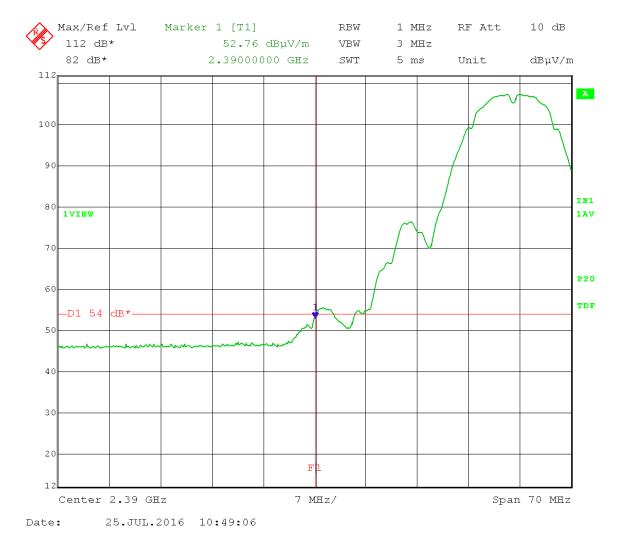
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-b, 1 Mbps

Power setting: 18

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



70 of 110

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

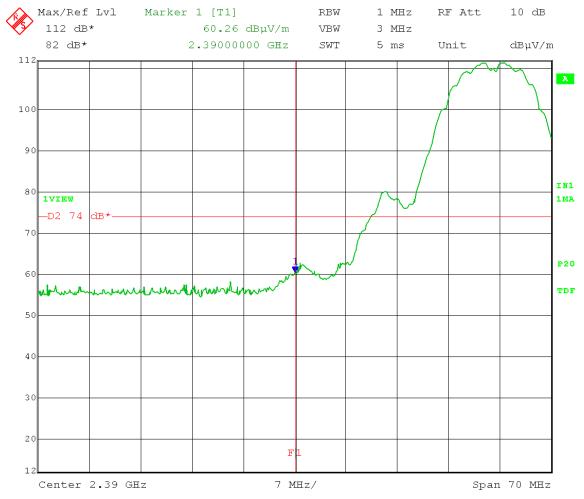
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-b, 1 Mbps

Power setting: 18

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:49:55

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

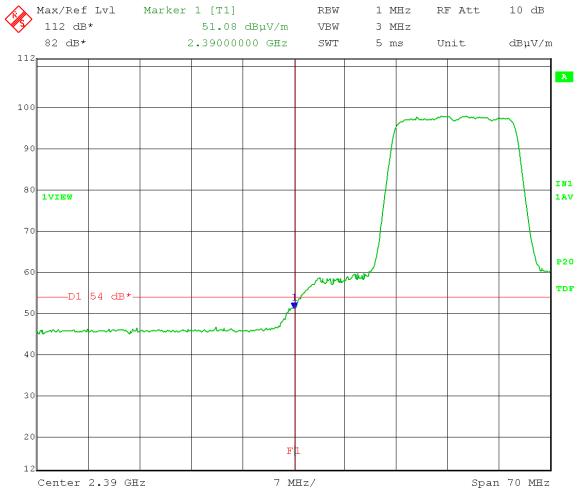
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-g, 54 Mbps

Power setting: 11

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:37:58

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

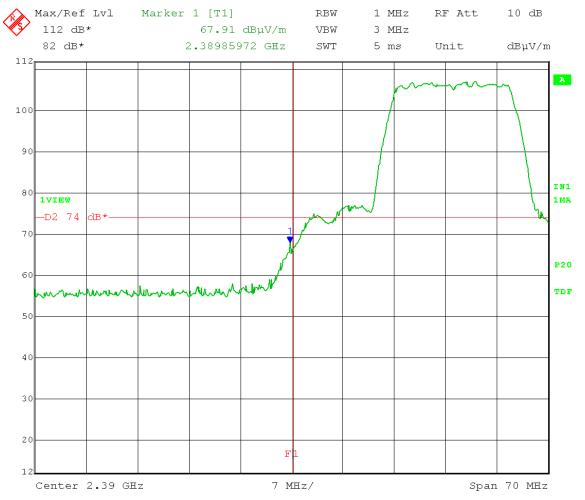
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-g, 54 Mbps

Power setting: 11

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:38:28

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

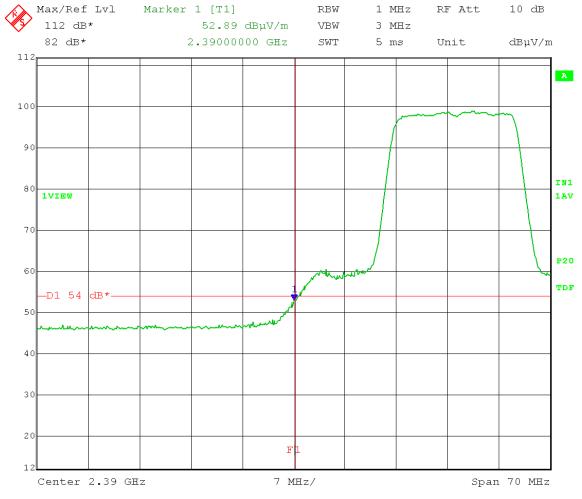
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-g, 54 Mbps

Power setting: 11

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:54:27

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

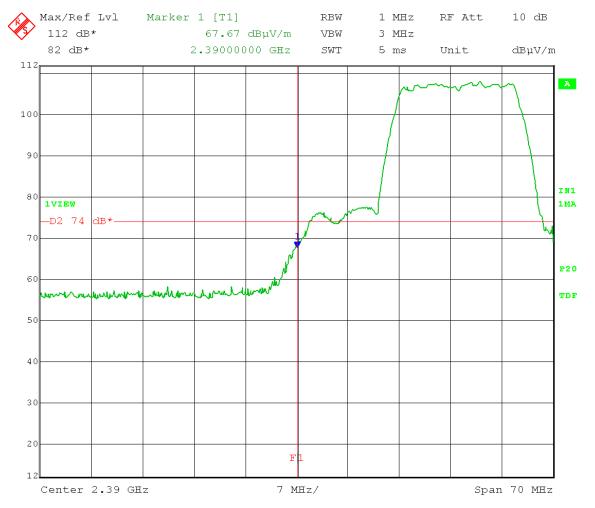
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-g, 54 Mbps

Power setting: 11

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:54:53

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

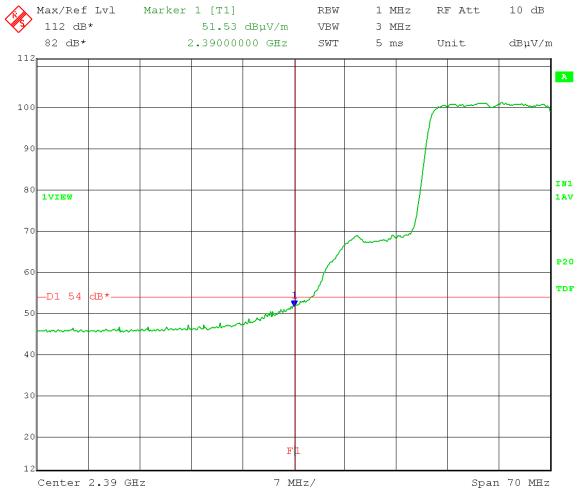
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-g, 54 Mbps

Power setting: 15

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:40:18

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

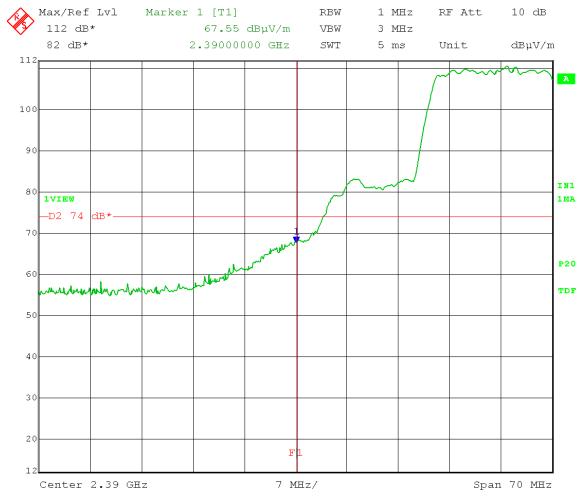
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-g, 54 Mbps

Power setting: 15

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:40:43

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

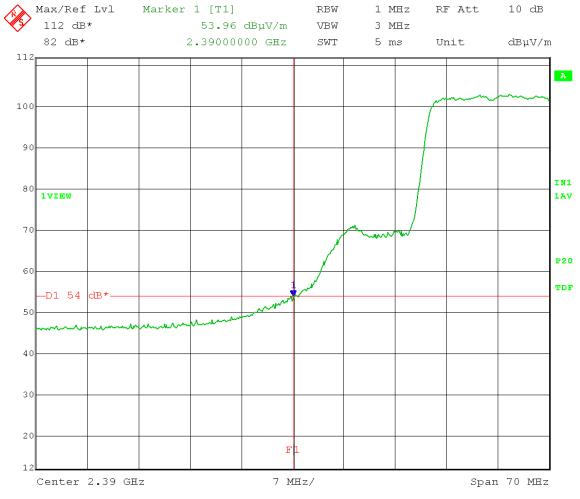
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-g, 54 Mbps

Power setting: 15

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:57:34

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

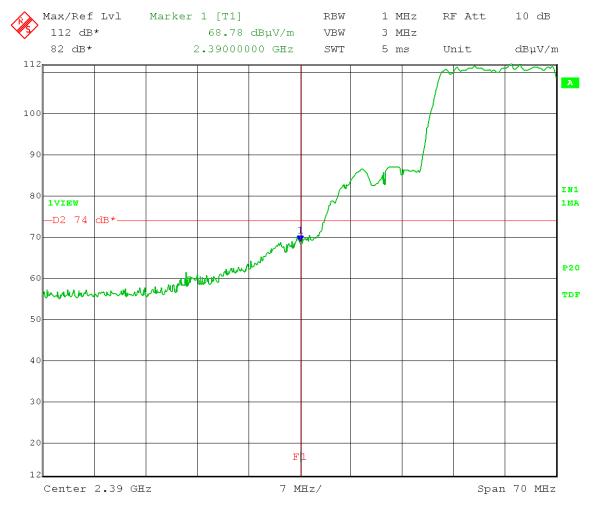
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-g, 54 Mbps

Power setting: 15

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 10:58:04

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

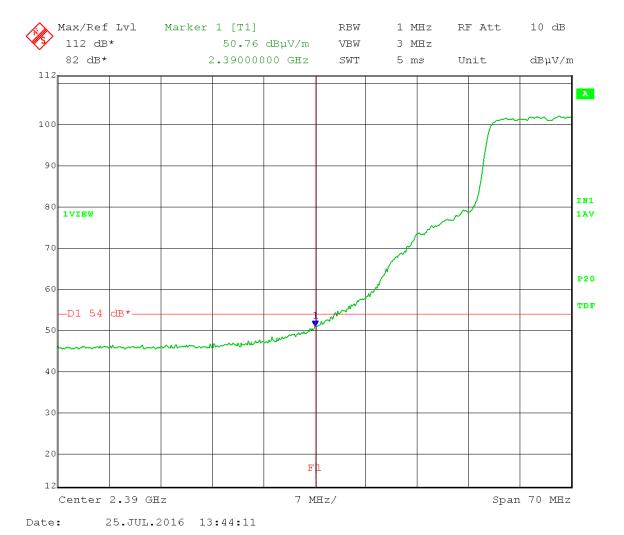
Operator: Craig B

Antenna: External dipole antenna Channel: 2422 MHz, channel 3 Modulation: 802.11-g, 54 Mbps

Power setting: 16

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



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Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

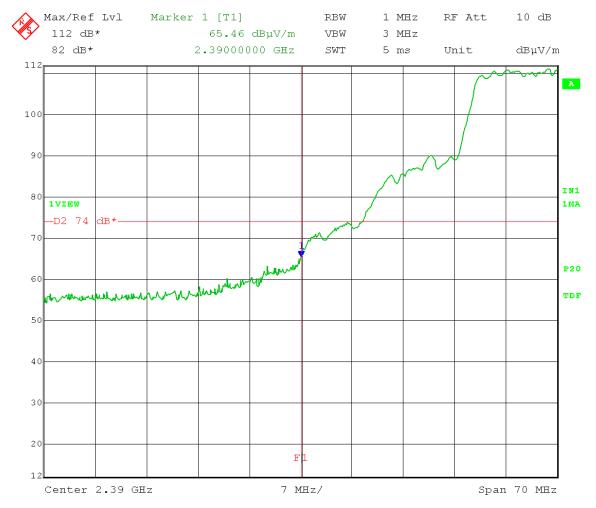
Operator: Craig B

Antenna: External dipole antenna Channel: 2422 MHz, channel 3 Modulation: 802.11-g, 54 Mbps

Power setting: 16

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:44:35

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

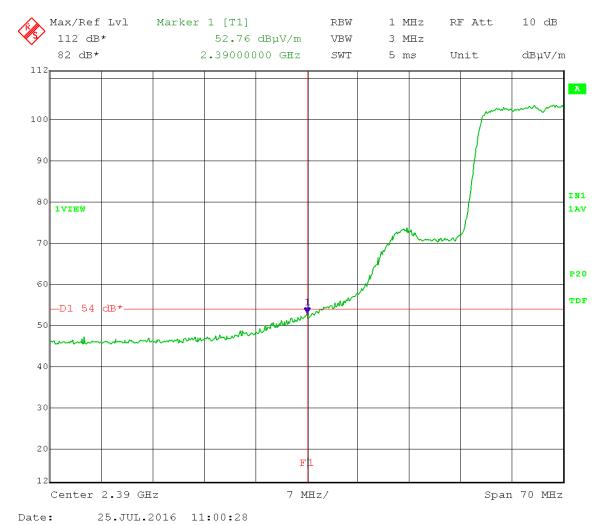
Operator: Craig B

Antenna: External dipole antenna Channel: 2422 MHz, channel 3 Modulation: 802.11-g, 54 Mbps

Power setting: 16

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

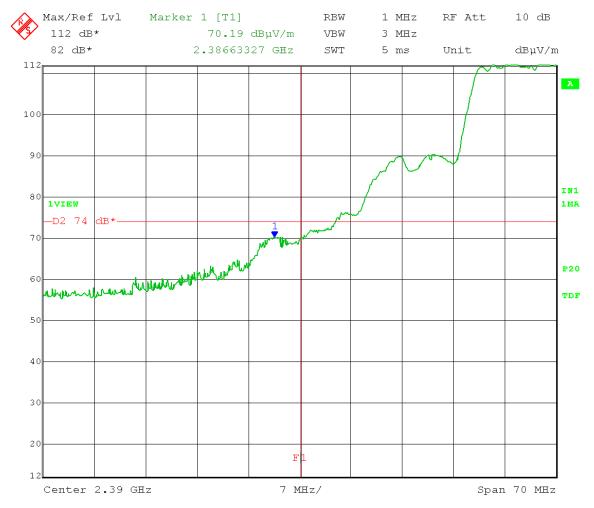
Operator: Craig B

Antenna: External dipole antenna Channel: 2422 MHz, channel 3 Modulation: 802.11-g, 54 Mbps

Power setting: 16

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 11:01:18

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

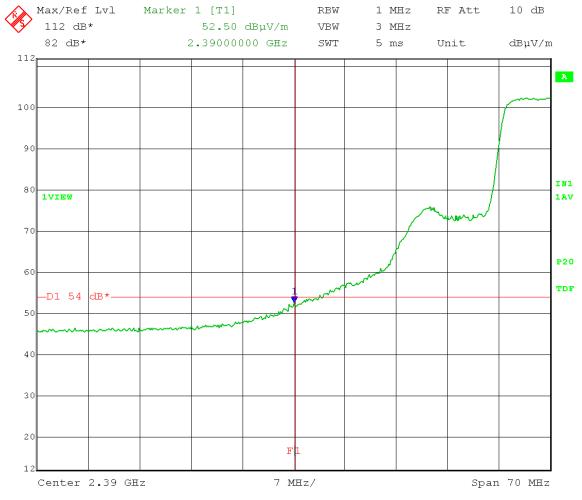
Operator: Craig B

Antenna: External dipole antenna Channel: 2427 MHz, channel 4 Modulation: 802.11-g, 54 Mbps

Power setting: 17

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:47:26

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

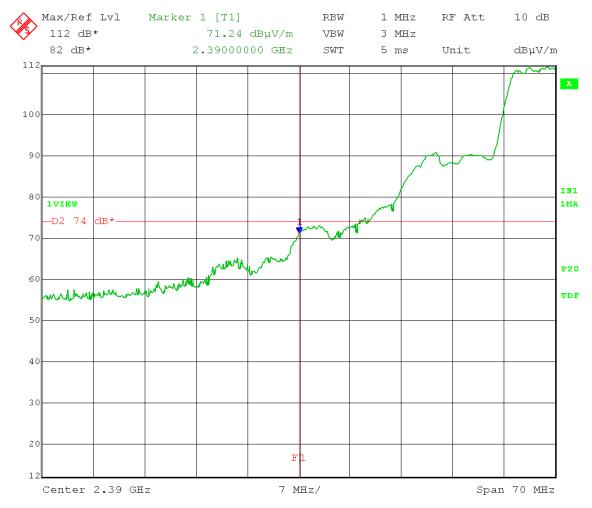
Operator: Craig B

Antenna: External dipole antenna Channel: 2427 MHz, channel 4 Modulation: 802.11-g, 54 Mbps

Power setting: 17

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:47:57

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

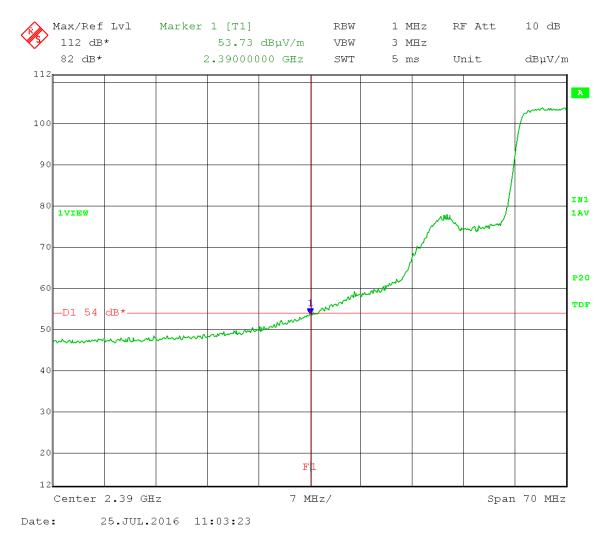
Operator: Craig B

Antenna: External dipole antenna Channel: 2427 MHz, channel 4 Modulation: 802.11-g, 54 Mbps

Power setting: 17

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

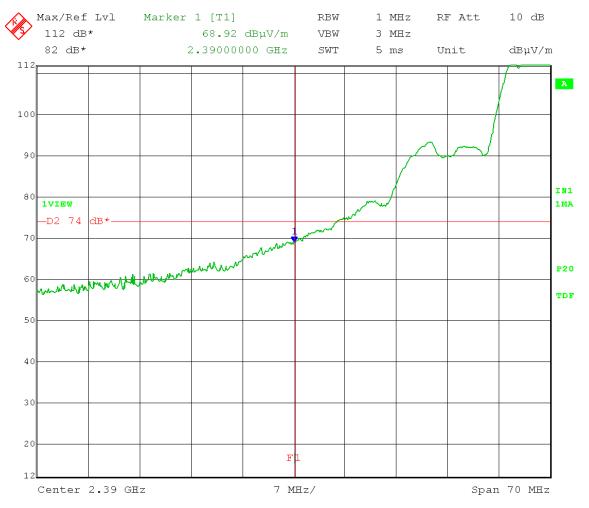
Operator: Craig B

Antenna: External dipole antenna Channel: 2427 MHz, channel 4 Modulation: 802.11-g, 54 Mbps

Power setting: 17

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 11:04:03

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

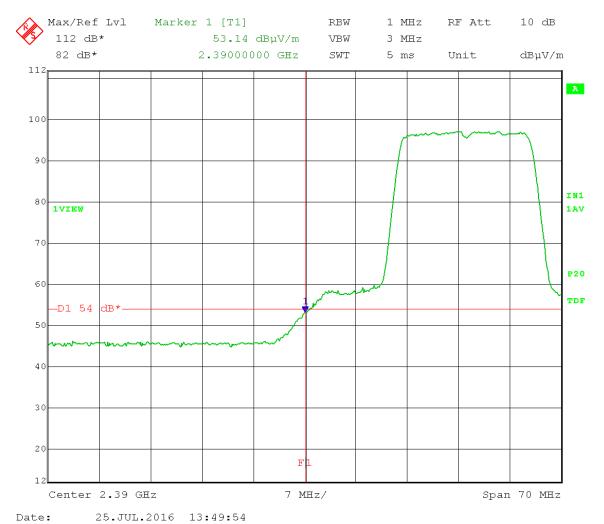
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-n, MCS7

Power setting: 10

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

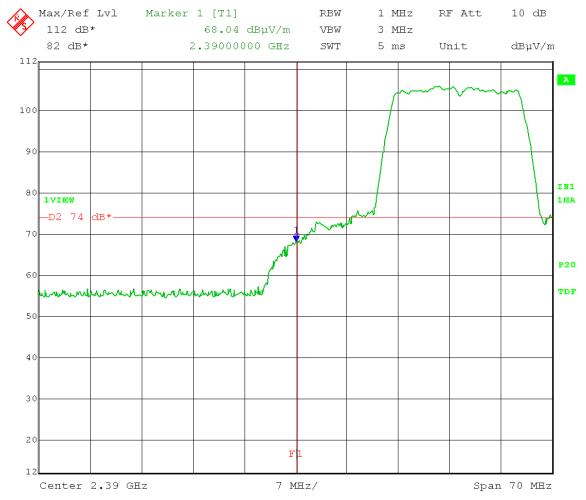
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-n, MCS7

Power setting: 10

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:50:23

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

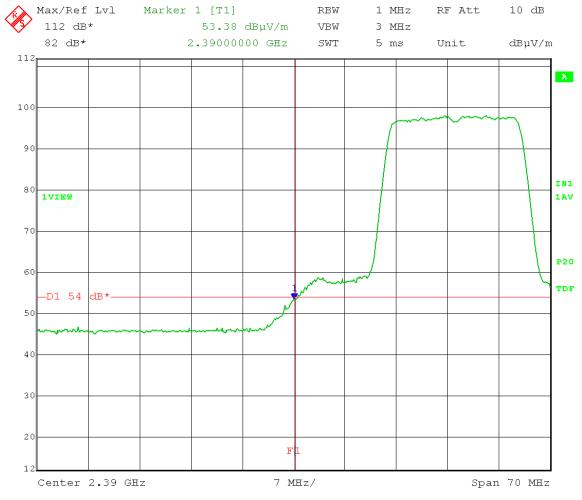
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-n, MCS7

Power setting: 10

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 11:06:51

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

Operator: Craig B

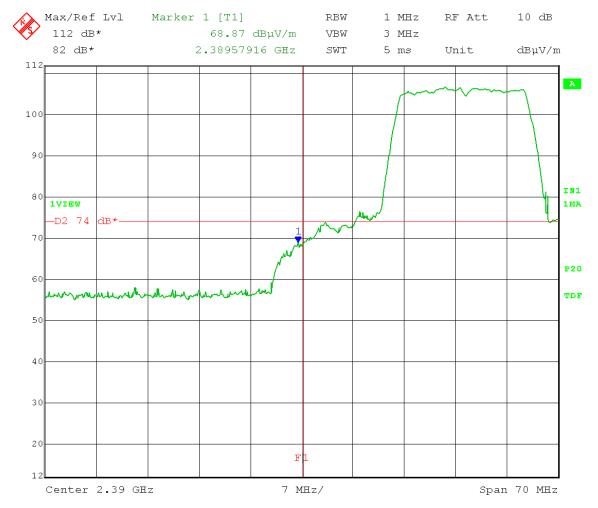
Antenna: External dipole antenna Channel: Low, 2412 MHz, channel 1

Modulation: 802.11-n, MCS7

Power setting: 10

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 11:07:36

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

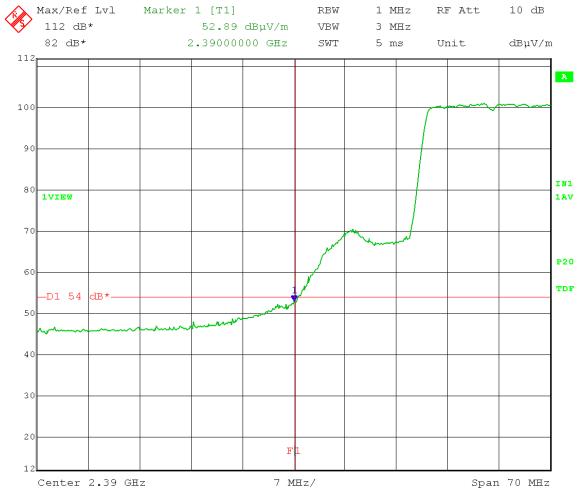
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-n, MCS7

Power setting: 14

HORIZONTAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:52:06

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

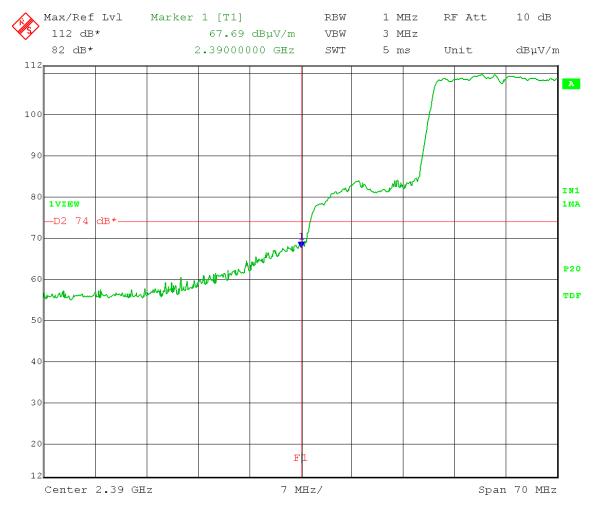
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-n, MCS7

Power setting: 14

HORIZONTAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 13:52:37

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

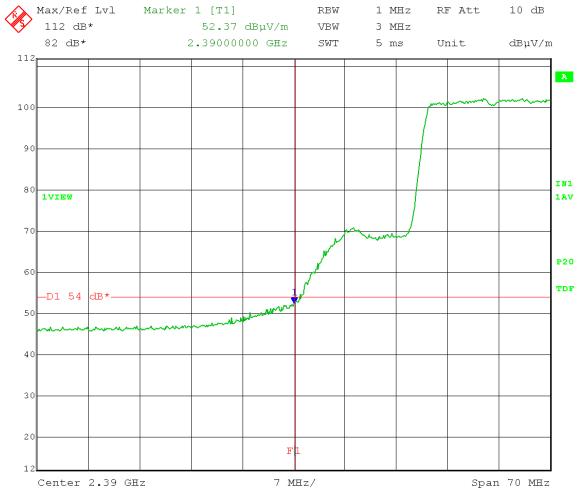
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-n, MCS7

Power setting: 14

VERTICAL:

AVERAGE: Limit = $54 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 11:10:14

Company: Whirlpool Corporation

EUT: Amber

Test: Lower Restricted Band-Edge Radiated Rule part: FCC Part 15.247(d) and FCC Part 15.205

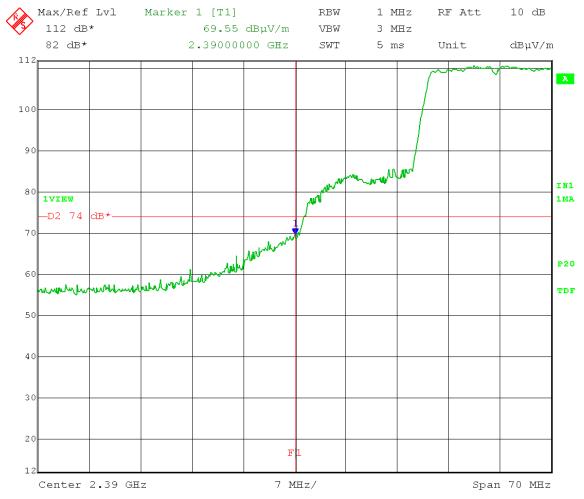
Operator: Craig B

Antenna: External dipole antenna Channel: 2417 MHz, channel 2 Modulation: 802.11-n, MCS7

Power setting: 14

VERTICAL:

PEAK: Limit = $74 \text{ dB}\mu\text{V/m}$ @ 3 meters



Date: 25.JUL.2016 11:10:54



Notes:

166 South Carter, Genoa City, WI 53128 Appendix B

Whirlpool Corporation Company: Model Tested:

WICHAM01

Report Number: 22032 DLS Project: 8095

B3.0 AC Line Conducted Emissions

Rule I	Part:
	FCC Part 15.207
Test P	Procedure:
	ANSI C63.10-2013 6.2 Standard test method for AC power-line conducted emissions from unlicensed wireless devices
Limit	•
	FCC Part 15.207(a)
Result	ts:
	Compliant

The EUT was powered with 12 V DC through an external AC/DC power supply (HON-KWANG, model HK-CP12-A12) that was connected to a Line Impedance Stabilization Network. The EUT was set to transmit at its maximum output power setting of 18 in 802.11b mode, a modulating signal representative of the worst-case signal encountered in a real system operation.

> 96 of 110 Report #22032

PMM NARDA REPORT: 8095 Whirlpool Amber 120V 60Hz L1



Report issuing date: 03-28-2016

Standard : FCC Part 15.207
Test Type : Voltage Mains

Test Site : DLS O.F. Screen Room

Temperature : 70°F Humidity : 32%

Test Specs : Line 1; Continuous transmit mode; Quasi-Peak

Operator : Craig B
DLS Project # : 8095
Result : Pass

EUT

Manufacturer : Whirlpool Corporation

Model : Amber

Product : WiFi module
Notes : 120 V 60 Hz

Testing Company : DLS Electronic Systems, Inc.

Telephone : 262-279-0210

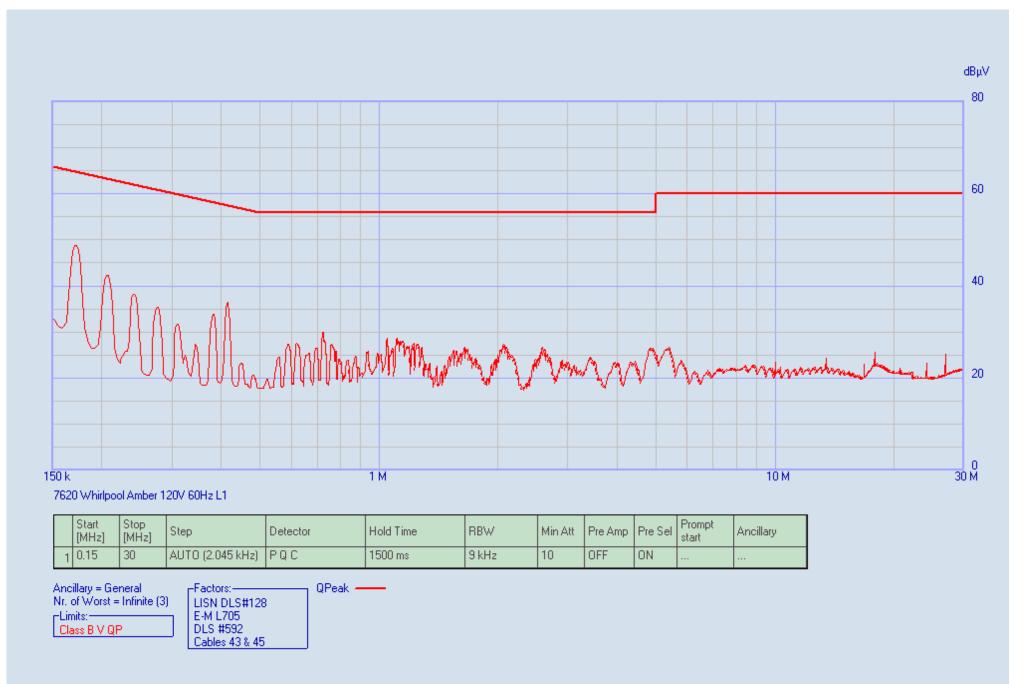
Web site : http://www.dlsemc.com

Receiver Details

Model : PMM 9010F Brand : Narda S/N : 020WW40102 Last Calibration : 06/25/2015

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.







8095 Whirlpool Amber 120V 60Hz L1 28/03/2016 09:50:32

Rel. SW 2.22 (August 2015)

Rel. FW 1.45 27/03/15

Margin: 22 dB

	_							
	Frequency	QPeak	Limit	Delta	Factor	Factor	Factor	Factor
			Class B V.		LISN DLS#.	. E-M L705	DLS #592	Cables 43
	[MHz]	[dBµV]	[dBµV]	[dB]	[dB]	[dB]	[dB]	[dB]
-	0.16626	42.01	65.14	01 02	1 46	0.00	1 01	0.05
1	0.16636	43.21	65.14	-21.93	1.46	9.83	1.91	0.07
2	0.168405	47.59	65.04	-17.45	1.43	9.83	1.89	0.07
3	0.17045	48.78	64.94	-16.16	1.40	9.82	1.88	0.08
4	0.172495	48.78	64.84	-16.06	1.38	9.82	1.86	0.08
5	0.17454	47.75	64.74	-16.99	1.36	9.81	1.85	0.08
6	0.176585	44.49	64.64	-20.15	1.34	9.81	1.83	0.09
7	0.205215	42.33	63.40	-21.07	1.09	9.84	1.66	0.10
8	0.20726	42.34	63.31	-20.97	1.08	9.84	1.65	0.10
9	0.209305	41.44	63.23	-21.79	1.06	9.84	1.64	0.10
10	0.41176	36.23	57.61	-21.38	0.52	9.96	1.08	0.03
11	0.413805	36.46	57.57	-21.11	0.51	9.96	1.08	0.03
12	0.41585	36.08	57.53	-21.45	0.51	9.96	1.07	0.03

PMM NARDA REPORT: 8095 Whirlpool Amber 120V 60Hz L1



Report issuing date: 03-28-2016

Standard : FCC Part 15.207
Test Type : Voltage Mains

Test Site : DLS O.F. Screen Room

Temperature : 70°F Humidity : 32%

Test Specs : Line 1; Continuous transmit mode; Average

Operator : Craig B
DLS Project # : 8095
Result : Pass

EUT

Manufacturer : Whirlpool Corporation

Model : Amber

Product : WiFi module
Notes : 120 V 60 Hz

Testing Company : DLS Electronic Systems, Inc.

Telephone : 262-279-0210

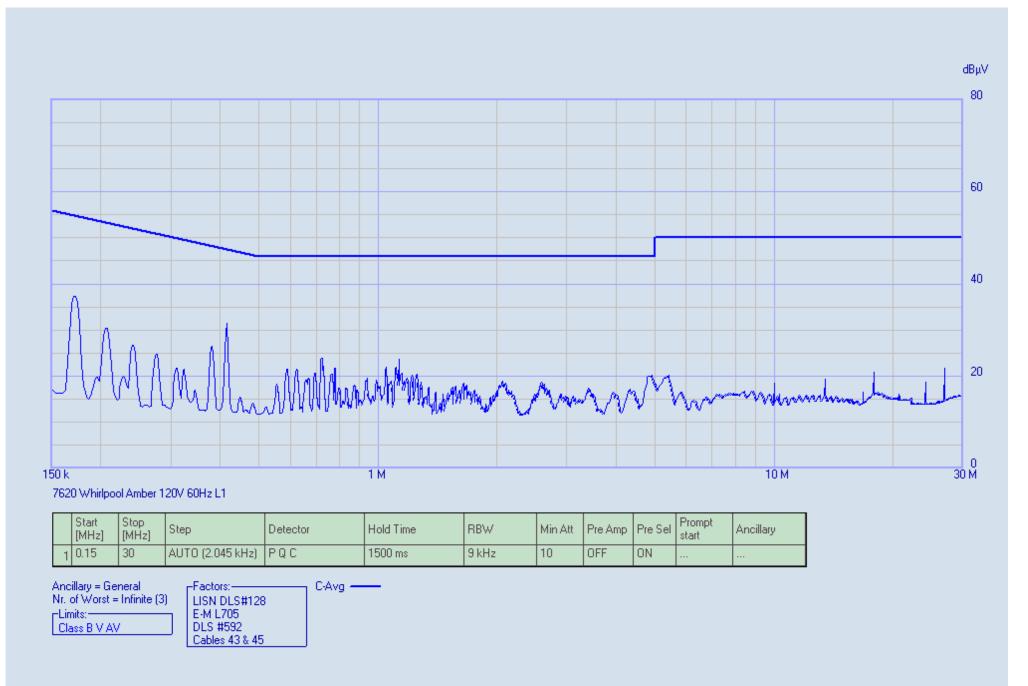
Web site : http://www.dlsemc.com

Receiver Details

Model : PMM 9010F Brand : Narda S/N : 020WW40102 Last Calibration : 06/25/2015

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.







8095 Whirlpool Amber 120V 60Hz L1 28/03/2016 09:50:32

Rel. SW 2.22 (August 2015)

Rel. FW 1.45 27/03/15

Margin: 22 dB

	Frequency	C-Avg	Limit	Delta	Factor	Factor	Factor	Factor
			Class B V.	•	LISN DLS#	E-M L705	DLS #592	Cables 43
	[MHz]	[dBµV]	[dBµV]	[dB]	[dB]	[dB]	[dB]	[dB]
1	0.168405	35.46	55.04	-19.58	1.43	9.83	1.89	0.07
2	0.17045	37.34	54.94	-17.60	1.40	9.82	1.88	0.08
3	0.172495	37.37	54.84	-17.47	1.38	9.82	1.86	0.08
4	0.17454	36.09	54.74	-18.65	1.36	9.81	1.85	0.08
5	0.381085	26.43	48.26	-21.83	0.55	9.97	1.14	0.06
6	0.41176	29.36	47.61	-18.25	0.52	9.96	1.08	0.03
7	0.413805	31.34	47.57	-16.23	0.51	9.96	1.08	0.03
8	0.41585	31.26	47.53	-16.27	0.51	9.96	1.07	0.03
9	0.417895	29.32	47.49	-18.17	0.51	9.96	1.07	0.03
10	0.41994	25.77	47.45	-21.68	0.51	9.96	1.06	0.03

PMM NARDA REPORT: 8095 Whirlpool Amber 120V 60Hz L2



Report issuing date: 03-28-2016

Standard : FCC Part 15.207
Test Type : Voltage Mains

Test Site : DLS O.F. Screen Room

Temperature : 70°F Humidity : 32%

Test Specs : Line 2; Continuous transmit mode; Quasi-Peak

Operator : Craig B
DLS Project # : 8095
Result : Pass

EUT

Manufacturer : Whirlpool Corporation

Model : Amber

Product : WiFi module
Notes : 120 V 60 Hz

Testing Company : DLS Electronic Systems, Inc.

Telephone : 262-279-0210

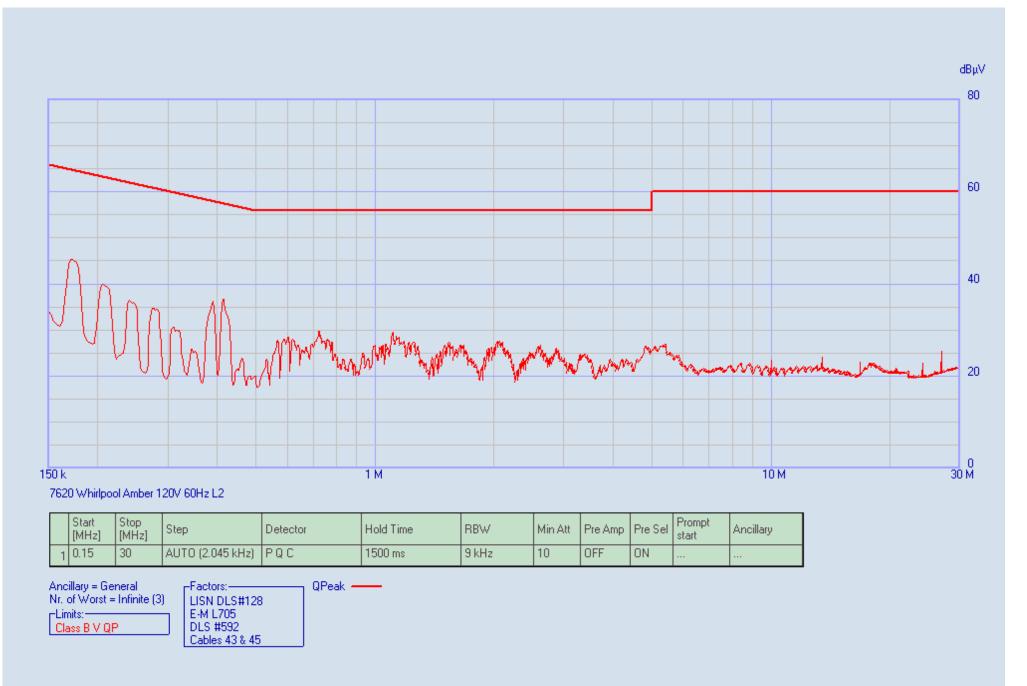
Web site : http://www.dlsemc.com

Receiver Details

Model : PMM 9010F Brand : Narda S/N : 020WW40102 Last Calibration : 06/25/2015

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.







8095 Whirlpool Amber 120V 60Hz L2 28/03/2016 09:59:38

Rel. SW 2.22 (August 2015)

Rel. FW 1.45 27/03/15

Margin: 22 dB

	Frequency	QPeak	Limit	Delta	Factor	Factor	Factor	Factor
			Class B V.	•	LISN DLS#	E-M L705	DLS #592	Cables 43
	[MHz]	[dBµV]	[dBµV]	[dB]	[dB]	[dB]	[dB]	[dB]
1	0.168405	44.32	65.04	-20.72	1.43	9.83	1.89	0.07
2	0.17045	45.34	64.94	-19.60	1.40	9.82	1.88	0.08
3	0.172495	45.29	64.84	-19.55	1.38	9.82	1.86	0.08
4	0.17454	44.99	64.74	-19.75	1.36	9.81	1.85	0.08
5	0.176585	44.60	64.64	-20.04	1.34	9.81	1.83	0.09
6	0.17863	43.35	64.55	-21.20	1.32	9.81	1.82	0.09
7	0.389265	36.16	58.08	-21.92	0.54	9.97	1.13	0.05
8	0.39131	36.07	58.04	-21.97	0.54	9.97	1.13	0.04
9	0.41176	36.58	57.61	-21.03	0.52	9.96	1.08	0.03
10	0.413805	36.73	57.57	-20.84	0.51	9.96	1.08	0.03
11	0.41585	36.27	57.53	-21.26	0.51	9.96	1.07	0.03
12	0.417895	35.55	57.49	-21.94	0.51	9.96	1.07	0.03

PMM NARDA REPORT: 8095 Whirlpool Amber 120V 60Hz L2



Report issuing date: 03-28-2016

Standard : FCC Part 15.207
Test Type : Voltage Mains

Test Site : DLS O.F. Screen Room

Temperature : 70°F Humidity : 32%

Test Specs : Line 2; Continuous transmit mode; Average

Operator : Craig B
DLS Project # : 8095
Result : Pass

EUT

Manufacturer : Whirlpool Corporation

Model : Amber

Product : WiFi module
Notes : 120 V 60 Hz

Testing Company : DLS Electronic Systems, Inc.

Telephone : 262-279-0210

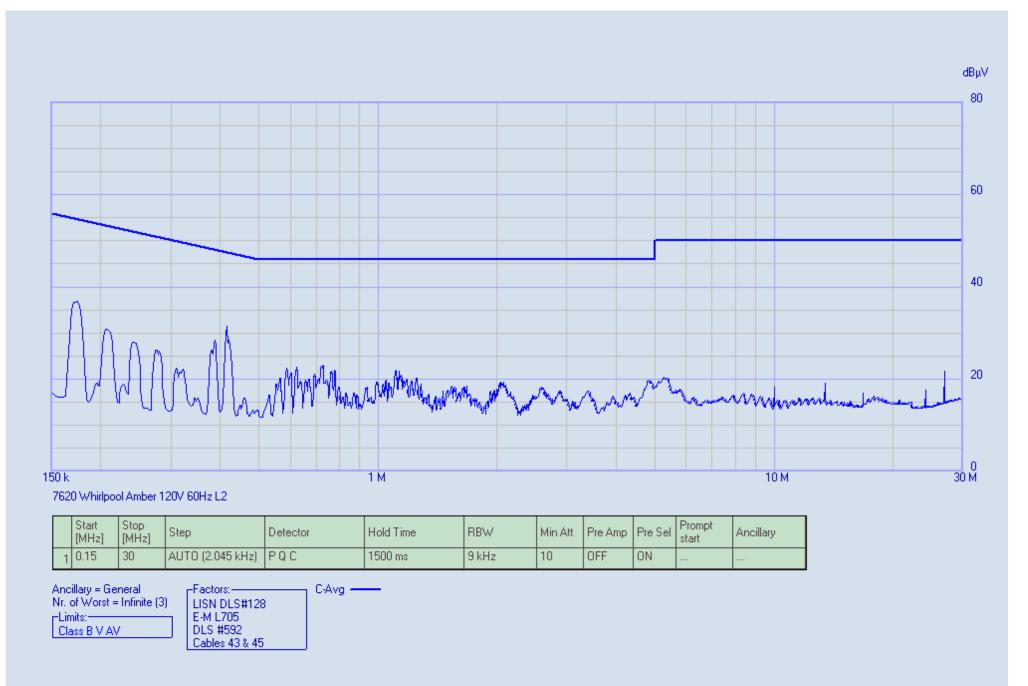
Web site : http://www.dlsemc.com

Receiver Details

Model : PMM 9010F Brand : Narda S/N : 020WW40102 Last Calibration : 06/25/2015

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.







8095 Whirlpool Amber 120V 60Hz L2 28/03/2016 09:59:38

Rel. SW 2.22 (August 2015)

Rel. FW 1.45 27/03/15

Margin: 20 dB

	Frequency	C-Avg	Limit	Delta	Factor	Factor	Factor	Factor
			Class B V.		LISN DLS#	E-M L705	DLS #592	Cables 43
	[MHz]	[dBµV]	[dBµV]	[dB]	[dB]	[dB]	[dB]	[dB]
1	0.168405	35.06	55.04	-19.98	1.43	9.83	1.89	0.07
2	0.17045	36.73	54.94	-18.21	1.40	9.82	1.88	0.08
3	0.172495	36.75	54.84	-18.09	1.38	9.82	1.86	0.08
4	0.17454	36.86	54.74	-17.88	1.36	9.81	1.85	0.08
5	0.176585	36.07	54.64	-18.57	1.34	9.81	1.83	0.09
6	0.38722	28.33	48.12	-19.79	0.54	9.97	1.13	0.05
7	0.41176	29.84	47.61	-17.77	0.52	9.96	1.08	0.03
8	0.413805	31.43	47.57	-16.14	0.51	9.96	1.08	0.03
9	0.41585	30.97	47.53	-16.56	0.51	9.96	1.07	0.03
10	0.417895	28.49	47.49	-19.00	0.51	9.96	1.07	0.03
11	0.41994	27.84	47.45	-19.61	0.51	9.96	1.06	0.03
12	0.421985	28.38	47.41	-19.03	0.51	9.96	1.06	0.03



Company: Whirlpool Corporation Model Tested: WICHAM01

8095

Report Number: 22032 DLS Project:

166 South Carter, Genoa City, WI 53128

Appendix C – Measurement Uncertainty

Compliance with the limits in this standard are based on the results of the compliance measurement. Our calculated measurement uncertainty including the measurement instrumentation, associated connections between the various instruments in the measurement chain, and other contributions, are provided in this section of the test report.

Radiated Emissions from 30 MHz to 18 GHz

			Uncertainty (+/-dB)	Uncertainty (+/-dB)	Uncertainty (+/-dB)	Uncertainty (+/-dB)	•		Uncertainty (+/-dB)	
		3M	3M	3M	3M	3M	3M	10M	10M	10M
Contribution	Probability Distribution	30- 100MHz.	100- 700MHz	700- 1000MHz.	1- 4.5Ghz	4.5 - 7Ghz	7 - 18Ghz	30- 100MHz.	100- 700MHz.	700- 1000MHz.
Combined Standard Uncertainty	Normal	1.70	1.62	1.66	2.13	2.48	2.85	1.64	1.58	1.66
Expanded Uncertainty	Normal (k=2)	3.40	3.23	3.33	4.26	4.95	5.69	3.29	3.16	3.31

AC Line Conducted Emissions

		Uncertainty (+/-dB)
Contribution	Probability Distribution	
		150 kHz - 30 MHz
Receiver specification	Rectangular	1.2
LISN coupling specifications	Rectangular	1.2
Cable and input attenuator calibration	Normal	0.25
Mismatch. Receiver VRC=0.09. LISN VRC = 0.05	U Shaped	0.039
System repeatability	Std Deviation	0.35
Repeatability of EUT		0
Combined Standard Uncertainty	Normal	1.05
Expanded Uncertainty	Normal (k=2)	2.10

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166 South Carter, Genoa City, WI 53128

Company: Whirlpool Corporation

Model Tested: WICHAM01

Report Number: 22032 DLS Project: 8095

END OF REPORT

Revision #	Date	Comments	By
1.0	July 28, 2016	Preliminary Release	CB
2.0	August 25, 2016	Removed data and references to external slot antenna	CB

110 of 110 Report #22032