



EMI TEST REPORT

Test Report No. : 11624379H-A-R2

Applicant : OMRON Automotive Electronics Co. Ltd.
Type of Equipment : Wireless Charger
Model No. : GFM-H002
FCC ID : OUCGFM-H002
Test regulation : FCC Part 18 : 2015
Test Result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by any agency of the Federal Government.
6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
7. This test report covers EMC technical requirements. It does not cover administrative issues such as Manual non-EMC test related Requirements. (if applicable)
8. This report is a revised version of 11624379H-A-R1. 11624379H-A-R1 is replaced with this report.

Date of test: January 30, 2017

Representative test engineer:

K. Yamamoto
Koji Yamamoto
Engineer
Consumer Technology Division

Approved by:

T. Hatakechi
Takahiro Hatakeda
Leader
Consumer Technology Division



- ☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".

UL Japan, Inc.
Ise EMC Lab.

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Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

13-EM-F0429

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SECTION 1: Customer information

Company Name : OMRON Automotive Electronics Co. Ltd.
Address : 6368 NENJOZAKA OKUSA KOMAKI AICHI, 485-0802
JAPAN
Telephone Number : +81-568-78-6159
Facsimile Number : +81-568-78-7659
Contact Person : Kanako Teramoto

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment : Wireless Charger
Model No. : GFM-H002
Serial No. : Refer to Section 4, Clause 4.2
Receipt Date of Sample : January 24, 2017
Country of Mass-production : Japan
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No Modification by the test lab

2.2 Product Description

Model: GFM-H002 (referred to as the EUT in this report) is a Wireless Charger.

The clock frequencies used in the EUT : 8 MHz

Operating Frequency : 111 kHz, 114.5 kHz

Rated Output Power : 5 W

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test Specification : FCC Part 18 2015
Title : FCC 47CFR Part18 Industrial, scientific, and medical equipment

3.2 Procedures and results

Item	Test Procedure & Limits	Deviation	Worst margin	Result
Radiated emission	Section 18.305 FCC/OST MP-5	N/A	4.1 dB *1) 2.10636 MHz, AV, 0 deg.	Complied
Conducted emission	Section 18.307 FCC/OST MP-5	N/A	N/A *2)	N/A

*Note: UL Japan, Inc.'s EMI Work Procedure 13-EM-W0420.
*1) The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*2) The test is not applicable since the EUT is not the device that is designed to be connected to the public utility (AC) power line.

3.3 Addition to standard

No addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

EMI

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor $k = 2$.

Test distance	Radiated emission (+/-)
	9 kHz - 30 MHz
3 m	3.8 dB
10 m	3.7 dB

*Measurement distance

Polarity	Radiated emission (Below 1 GHz)			
	(3 m*)(+/-)		(10 m*)(+/-)	
	30 MHz - 200 MHz	200 MHz - 1000 MHz	30 MHz - 200 MHz	200 MHz - 1000 MHz
Horizontal	5.0 dB	5.3 dB	5.0 dB	5.0 dB
Vertical	4.7 dB	5.9 dB	5.0 dB	5.1 dB

* Measurement distance

Radiated emission test(3 m and 10 m)

The data listed in this test report has enough margin, more than the site margin.

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3.5 Test Location

UL Japan, Inc. Ise EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999 Facsimile : +81 596 24 8124

	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	4.0 x 4.5 x 2.7m	4.0 x 4.5m	-
No.6 measurement room	-	4.75 x 5.4 x 3.0m	4.75 x 4.15m	-
No.7 shielded room	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	8.8 x 4.6 x 2.8m	2.4 x 2.4m	-
No.11 measurement room	-	6.2 x 4.7 x 3.0m	4.8 x 4.6m	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating mode(s)

The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use. Test configuration was adjusted maximum output power of EUT.

Test sequence is used: Charging (Operating Frequency: 111 kHz, 114.5 kHz)

Justification: The system was configured in typical fashion (as a customer would normally use it) for testing.

4.2 Configuration and peripherals



*Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remark
A	Wireless Charger	GFM-H002	0000095	OMRON Automotive Electronics Co. Ltd.	EUT
B	Wireless Receiver	SM-G930U	358512070649233	SAMSUNG	-

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	DC Cable	2.0	Unshielded	Unshielded	-

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SECTION 5: Radiated Emission

5.1 Operating environment

Test place	: No.1 semi anechoic chamber
Temperature	: See data
Humidity	: See data

5.2 Test configuration

EUT was placed on a urethane platform of nominal size, 0.5 m by 1.0 m, raised 1.0 m above the conducting ground plane.

The EUT was set on the center of the tabletop.

Test was made with the antenna positioned in 0 deg., 45 deg., 90 deg., and 180 deg..

The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

Photographs of the set up are shown in Appendix 3.

*Refer to Figure 1 about Direction of the Loop Antenna.

5.3 Test conditions

Frequency range	: 9 kHz - 30 MHz (Loop Antenna) 30 MHz - 400 MHz
Test distance	: 3 m / 10 m (9 kHz - 400 MHz)
EUT position	: Table top
EUT operation mode	: See Clause 4.1

5.4 Test procedure

Below 30 MHz

The height of antenna was fixed in 2 m.

EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed in 0 deg., 45 deg., 90 deg., and 180 deg. with the Test Receiver.

The test was made with the detector (RBW) in the following table.

Above 30 MHz

The measuring antenna height was varied between 1 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for vertical or horizontal antenna polarization or both as necessary.

Maximum electric field intensity was confirmed with the measurements at distances of 3 m and 10 m.

The electric field intensity at a distance of 300 m was calculated from the measurement results at distances of 3 m and 10 m.

The radiated emission measurements were made with the following detector function of the test receiver.

Frequency	9 kHz - 150 kHz	150 kHz - 30 MHz	30 MHz - 400 MHz
Instrument used	Test Receiver		
IF Bandwidth	AV: 200 Hz	AV: 9 kHz	AV: 120 kHz

The measurement result was calculated by the following formula:

Result = Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain

Extrapolation Factor = decade * Log (Test distance (3m) / Separate distance (300m))

decade = (10m reading - 3m reading) / (log 3m - log 10m)

*Refer to Part 18 Section 305 Notes 2 and KDB 629601.

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

5.5 Test result

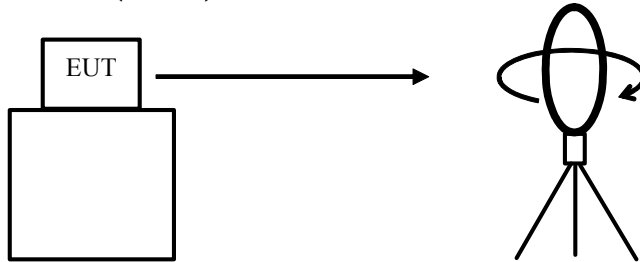
Summary of the test results: Pass

Date: January 30, 2017

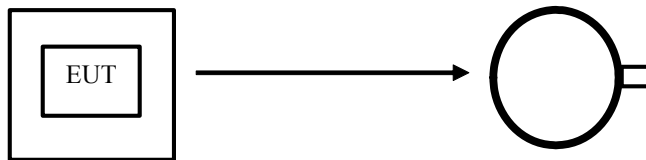
Test engineer: Koji Yamamoto

Figure 1: Direction of the Loop Antenna

Side View (Vertical)

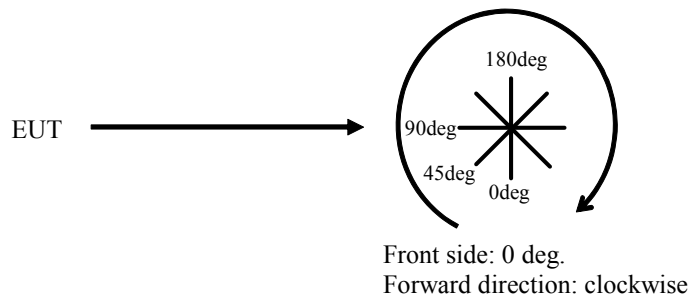


.....
Top View (Horizontal)



Antenna was not rotated.

.....
Top View (Vertical)



APPENDIX 1: Test data

Radiated Emission (Below 30MHz)

UL Japan, Inc.
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No.1 Semi Anechoic Chamber

Company : OMRON Automotive Electronics Co.,Ltd
Equipment : Wireless Charger
Model : GFM-H002
S/N : 95
Power : DC 12V
Mode : 1.Charging
Remark : Operating Frequency : 111kHz
Detector : Average

Report No : 11624379H
Regulation : FCC Part18
Data : 01/30/2017
Temperature : 22 deg.C.
Humidity : 36 % RH
Engineer : Koji Yamamoto

FREQ [MHz]	Reading (3m) [dBμV]	Reading (10m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna [deg]
0.1110	84.2	56.6	19.7	40.4	6.0	-105.6	-36.1	23.5	59.6	0
0.1110	83.7	NS	19.7	40.4	6.0	-105.6	-36.6	23.5	60.1	45
0.1110	81.9	NS	19.7	40.4	6.0	-105.6	-38.4	23.5	61.9	90
0.1110	84.1	NS	19.7	40.4	6.0	-105.6	-36.2	23.5	59.7	180
0.1110	80.5	NS	19.7	40.4	6.0	-105.6	-39.8	23.5	63.3	Horizontal
0.2220	48.0	43.5	19.6	40.3	6.0	-17.2	16.1	23.5	7.4	0
0.2220	45.1	NS	19.6	40.3	6.0	-17.2	13.2	23.5	10.3	45
0.2220	43.2	NS	19.6	40.3	6.0	-17.2	11.3	23.5	12.2	90
0.2220	47.7	NS	19.6	40.3	6.0	-17.2	15.8	23.5	7.7	180
0.2220	38.5	NS	19.6	40.3	6.0	-17.2	6.6	23.5	16.9	Horizontal
0.3330	58.1	43.5	19.6	40.2	6.1	-55.8	-12.2	23.5	35.7	0
0.3330	56.5	NS	19.6	40.2	6.1	-55.8	-13.8	23.5	37.3	45
0.3330	55.0	NS	19.6	40.2	6.1	-55.8	-15.3	25.5	40.8	90
0.3330	58.0	NS	19.6	40.2	6.1	-55.8	-12.3	23.5	35.8	180
0.3330	40.3	NS	19.6	40.2	6.1	-55.8	-30.0	23.5	53.5	Horizontal
1.6650	41.6	39.0	19.6	40.3	6.3	-9.9	17.3	23.5	6.2	0
1.6650	39.7	NS	19.6	40.3	6.3	-9.9	15.4	24.5	9.1	45
1.6650	38.7	NS	19.6	40.3	6.3	-9.9	14.4	25.5	11.1	90
1.6650	39.6	NS	19.6	40.3	6.3	-9.9	15.3	23.5	8.2	180
1.6650	33.5	NS	19.6	40.3	6.3	-9.9	9.2	23.5	14.3	Horizontal
1.8870	41.9	39.0	19.6	40.3	6.3	-11.1	16.4	23.5	7.1	0
1.8870	40.6	NS	19.6	40.3	6.3	-11.1	15.1	23.5	8.4	45
1.8870	39.4	NS	19.6	40.3	6.3	-11.1	13.9	23.5	9.6	90
1.8870	41.5	NS	19.6	40.3	6.3	-11.1	16.0	23.5	7.5	180
1.8870	33.2	NS	19.6	40.3	6.3	-11.1	7.7	23.5	15.8	Horizontal
2.1090	40.8	39.0	19.6	40.4	6.3	-6.9	19.4	23.5	4.1	0
2.1090	39.2	NS	19.6	40.4	6.3	-6.9	17.8	23.5	5.7	45
2.1090	39.9	NS	19.6	40.4	6.3	-6.9	18.5	23.5	5.0	90
2.1090	39.5	NS	19.6	40.4	6.3	-6.9	18.1	23.5	5.4	180
2.1090	33.1	NS	19.6	40.4	6.3	-6.9	11.7	23.5	11.8	Horizontal

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
decade = (10m reading - 3m reading) / (log 3m - log 10m)

NS : No-Signal

Except for the above table : adequate margin data below the limits.

10m Reading of Extrapolation Factor is used the value of 0 deg.

Worst direction of EUT was decided by test result performed on test distance at 3m, and test distance at 10m was performed worst direction.

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Radiated Emission (Below 30MHz)

UL Japan, Inc.
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No.1 Semi Anechoic Chamber

Company : OMRON Automotive Electronics Co.,Ltd
Equipment : Wireless Charger
Model : GFM-H002
S/N : 95
Power : DC 12V
Mode : 1.Charging
Remark : Operating Frequency : 114.5kHz
Detector : Average

Report No : 11624379H
Regulation : FCC Part18
Data : 01/30/2017
Temperature : 22 deg.C.
Humidity : 36 % RH
Engineer : Koji Yamamoto

FREQ [MHz]	Reading (3m) [dBμV]	Reading (10m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna [deg]
0.1145	84.7	56.4	19.7	40.4	6.0	-108.2	-38.2	23.5	61.7	0
0.1145	83.8	NS	19.7	40.4	6.0	-108.2	-39.1	23.5	62.6	45
0.1145	82.5	NS	19.7	40.4	6.0	-108.2	-40.4	23.5	63.9	90
0.1145	84.3	NS	19.7	40.4	6.0	-108.2	-38.6	23.5	62.1	180
0.1145	79.5	NS	19.7	40.4	6.0	-108.2	-43.4	23.5	66.9	Horizontal
0.2290	47.4	42.5	19.6	40.3	6.0	-18.7	14.0	23.5	9.5	0
0.2290	45.3	NS	19.6	40.3	6.0	-18.7	11.9	23.5	11.6	45
0.2290	45.7	NS	19.6	40.3	6.0	-18.7	12.3	23.5	11.2	90
0.2290	46.1	NS	19.6	40.3	6.0	-18.7	12.7	23.5	10.8	180
0.2290	37.6	NS	19.6	40.3	6.0	-18.7	4.2	23.5	19.3	Horizontal
0.3435	58.4	43.3	19.6	40.2	6.1	-57.8	-13.9	23.5	37.4	0
0.3435	56.8	NS	19.6	40.2	6.1	-57.8	-15.5	23.5	39.0	45
0.3435	55.2	NS	19.6	40.2	6.1	-57.8	-17.1	25.5	42.6	90
0.3435	58.3	NS	19.6	40.2	6.1	-57.8	-14.0	23.5	37.5	180
0.3435	40.3	NS	19.6	40.2	6.1	-57.8	-32.0	23.5	55.5	Horizontal
0.4580	45.1	40.8	19.5	40.1	6.1	-16.4	14.2	23.5	9.3	0
0.4580	43.6	NS	19.5	40.1	6.1	-16.4	12.7	24.5	11.8	45
0.4580	44.1	NS	19.5	40.1	6.1	-16.4	13.2	25.5	12.3	90
0.4580	44.9	NS	19.5	40.1	6.1	-16.4	14.0	23.5	9.5	180
0.4580	33.2	NS	19.5	40.1	6.1	-16.4	2.3	23.5	21.2	Horizontal
1.9465	41.7	39.1	19.6	40.4	6.3	-9.9	17.3	23.5	6.2	0
1.9465	39.5	NS	19.6	40.4	6.3	-9.9	15.1	23.5	8.4	45
1.9465	38.4	NS	19.6	40.4	6.3	-9.9	14.0	23.5	9.5	90
1.9465	41.3	NS	19.6	40.4	6.3	-9.9	16.9	23.5	6.6	180
1.9465	32.9	NS	19.6	40.4	6.3	-9.9	8.5	23.5	15.0	Horizontal
2.0610	41.2	39.1	19.6	40.4	6.3	-8.0	18.7	23.5	4.8	0
2.0610	39.0	NS	19.6	40.4	6.3	-8.0	16.5	23.5	7.0	45
2.0610	39.3	NS	19.6	40.4	6.3	-8.0	16.8	23.5	6.7	90
2.0610	39.8	NS	19.6	40.4	6.3	-8.0	17.3	23.5	6.2	180
2.0610	32.6	NS	19.6	40.4	6.3	-8.0	10.1	23.5	13.4	Horizontal

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
decade = (10m reading - 3m reading) / (log 3m - log 10m)

NS : No-Signal

Except for the above table : adequate margin data below the limits.

10m Reading of Extrapolation Factor is used the value of 0 deg.

Worst direction of EUT was decided by test result performed on test distance at 3m, and test distance at 10m was performed worst direction.

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Radiated Emission (Above 30MHz)

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No.1 Semi Anechoic Chamber

Company : OMRON Automotive Electronics Co.,Ltd
Equipment : Wireless Charger
Model : GFM-H002
S/N : 95
Power : DC 12V
Mode : 1.Charging
Remark : Operating Frequency : 111kHz
Detector : Average

Report No : 11624379H
Regulation : FCC Part18
Test Distance : 3m
Data : 01/30/2017
Temperature : 22 deg.C.
Humidity : 36 % RH
Engineer : Koji Yamamoto

FREQ [MHz]	Reading (3m) [dBμV]	Reading (10m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna Polarization	Remarks
49.173	25.3	24.6	10.9	38.9	7.6	-2.7	2.2	23.5	21.3	Horizontal	
57.387	24.6	23.5	8.2	39.0	7.8	-4.2	-2.6	23.5	26.1	Horizontal	
65.490	28.2	27.6	6.7	39.1	7.9	-2.3	1.4	23.5	22.1	Horizontal	
88.118	24.8	24.1	8.1	39.2	8.3	-2.7	-0.7	23.5	24.2	Horizontal	
196.914	22.5	22.3	16.2	39.2	9.5	-0.8	-	23.5	-	Horizontal	NS
306.804	21.6	21.4	13.6	38.8	10.5	-0.8	-	23.5	-	Horizontal	NS
49.173	28.4	23.5	10.9	38.9	7.6	-18.7	-10.7	23.5	34.2	Vertical	
57.387	43.8	34.4	8.2	39.0	7.8	-36.0	-15.2	23.5	38.7	Vertical	
65.490	33.3	29.5	6.7	39.1	7.9	-14.5	-5.7	23.5	29.2	Vertical	
88.118	31.1	25.6	8.1	39.2	8.3	-21.0	-12.7	23.5	36.2	Vertical	
196.914	22.3	22.0	16.2	39.2	9.5	-1.1	-	23.5	-	Vertical	NS
306.804	21.6	21.5	13.6	38.8	10.5	-0.4	-	23.5	-	Vertical	NS

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
decade = (10m reading - 3m reading) / (log 3m - log 10m)

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Radiated Emission (Above 30MHz)

UL Japan, Inc.
Ise EMC Lab.
No.1 Semi Anechoic Chamber

Company : OMRON Automotive Electronics Co.,Ltd
Equipment : Wireless Charger
Model : GFM-H002
S/N : 95
Power : DC 12V
Mode : 1.Charging
Remark : Operating Frequency : 114.5kHz
Detector : Average

Report No : 11624379H
Regulation : FCC Part18
Test Distance : 3m
Data : 01/30/2017
Temperature : 22 deg.C.
Humidity : 36 % RH
Engineer : Koji Yamamoto

FREQ [MHz]	Reading (3m) [dBμV]	Reading (10m) [dBμV]	ANT Factor [dB/m]	AMP gain [dB]	Atten + Cable loss [dB]	Extrapolation Factor [dB]	Result (300 m) [dBμV/m]	Limit (300 m) [dBμV/m]	Margin [dB]	Antenna Polarization	Remarks
49.235	25.5	24.8	10.9	38.9	7.6	-2.7	2.4	23.5	21.1	Horizontal	
57.364	24.1	22.9	8.2	39.0	7.8	-4.6	-3.5	23.5	27.0	Horizontal	
65.494	27.7	26.9	6.7	39.1	7.9	-3.1	0.1	23.5	23.4	Horizontal	
88.509	25.3	24.1	8.1	39.2	8.3	-4.6	-2.1	23.5	25.6	Horizontal	
196.826	22.0	22.0	16.2	39.2	9.5	0.0	-	23.5	-	Horizontal	NS
306.631	21.8	21.8	13.6	38.8	10.5	0.0	-	23.5	-	Horizontal	NS
49.235	27.4	23.2	10.9	38.9	7.6	-16.1	-9.1	23.5	32.6	Vertical	
57.364	43.5	35.2	8.2	39.0	7.8	-31.7	-11.2	23.5	34.7	Vertical	
65.494	33.4	28.8	6.7	39.1	7.9	-17.6	-8.7	23.5	32.2	Vertical	
88.509	30.7	25.2	8.1	39.2	8.3	-21.0	-13.1	23.5	36.6	Vertical	
196.826	22.1	22.1	16.2	39.2	9.5	0.0	-	23.5	-	Vertical	NS
306.631	21.7	21.7	13.6	38.8	10.5	0.0	-	23.5	-	Vertical	NS

CALCULATION(Result) : Reading + ANT Factor + Cable loss + Atten loss + Extrapolation Factor - AMP gain
Extrapolation Factor = decade * Log (Test distance(3m) / Separate distance(300m))
decade = (10m reading - 3m reading) / (log 3m - log 10m)

NS : No-Signal

Except for the above table : adequate margin data below the limits.

UL Japan, Inc.

Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

APPENDIX 2: Test instruments

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE	2016/09/30 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE	2017/01/20 * 12
MJM-25	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MTR-09	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	RE	2016/06/25 * 12
MLPA-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	836553/009	RE	2016/11/02 * 12
MCC-219	Coaxial Cable	UL Japan	-	-	RE	2016/11/10 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/ 3D-2W(7.5m)/ RG400u(1.5m)/ RFM-E421(Switcher)	-/01068 (Switcher)	RE	2016/06/29 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2016/03/24 * 12
MPA-20	Pre Amplifier	Elena	EPA-4020YA	030801	RE	2016/03/18 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2016/11/28 * 12
MMM-03	Digital Tester	Fluke	FLUKE 26-3	78030621	RE	2016/08/23 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2016/11/23 * 12
MLA-21	Logperiodic Antenna(200-1000MHz)	Schwarzbeck	VUSLP9111B	911B-190	RE	2017/01/05 * 12
MCC-02	Coaxial Cable	Suhner/storm/Agilent /TSJ	-	-	RE	2016/09/09 * 12
MPA-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2016/02/25 * 12

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item:

RE: Radiated emission

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