RADIO TEST REPORT

Test Report No. : 11990777H-A-R2

Applicant	:	**OMRON Automotive Electronics Co. Ltd.**
Type of Equipment	:	**Immobilizer and Alarm system**
Model No.	:	**K56R0**
FCC ID	:	**OUCK56R0**
Test regulation	:	**FCC Part 15 Subpart C: 2018**
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 above regulation.
4. The test results in this report are traceable to the national or international standards.
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6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 11990777H-A-R1. 11990777H-A-R1 is replaced with this report.

Date of test: October 14, 2017 to January 23, 2018

Representative test engineer:
Koji Yamamoto
Engineer
Consumer Technology Division

Approved by:
Shinichi Miyazono
Engineer
Consumer Technology Division

NVLAP TESTING
NVLAP LAB CODE: 200572-0

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REVISION HISTORY

Original Test Report No.: 11990777H-A

Revision	Test report No.	Date	Page revised	Contents
- (Original)	11990777H-A	November 22, 2017	-	-
1	11990777H-A-R1	January 25, 2018	P. 1	Correction of “Date of test” and “engineer name”
1	11990777H-A-R1	January 25, 2018	P. 1, 5	Update to FCC version
1	11990777H-A-R1	January 25, 2018	P. 5	Correction of worst margin in Clause 3.2; - Electric Field Strength of Fundamental Emission test From 7.7 dB to 4.4 dB -Electric Field Strength of Spurious Emission test From 8.1 dB to 8.9 dB
1	11990777H-A-R1	January 25, 2018	P. 5	Correction of “FCC 15.31 (e)” in Clause 3.2.
1	11990777H-A-R1	January 25, 2018	P. 8	Correction of test mode in Clause 4.1.
1	11990777H-A-R1	January 25, 2018	P. 8	Addition of note sentences in Clause 4.1 and 4.2.
1	11990777H-A-R1	January 25, 2018	P. 8, 9	Correction of Configuration and peripherals in Clause 4.2.
1	11990777H-A-R1	January 25, 2018	P.10, 13, 14, 15	Retesting of Radiated emission (Fundamental and Spurious Emission) test
1	11990777H-A-R1	January 25, 2018	P. 12	Deletion of note *1) in SECTION 7.
1	11990777H-A-R1	January 25, 2018	P. 17	Correction of test equipment by retesting in APPENDIX 2.
1	11990777H-A-R1	January 25, 2018	P. 18, 19	Correction of Photographs of test setup by retesting in APPENDIX 3.
2	11990777H-A-R2	January 26, 2018	P. 8	Correction of note sentences in Clause 4.1 and 4.2.

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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	:	Takashi Betsui

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

2.1 Identification of E.U.T.

Type of Equipment	:	Immobilizer and Alarm system
Model No.	:	K56R0
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC 12.0 V
Receipt Date of Sample	:	October 5, 2017
Country of Mass-production	:	Japan and India
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 No: K56R0 (referred to as the EUT in this report) is the Immobilizer and Alarm system.

General Specification

Clock frequency(ies) in the system	:	8 MHz (CPU)

Radio Specification

[Transmitter part]

Radio Type	:	Transceiver
Frequency of Operation	:	125 kHz
Modulation	:	ASK
Power Supply (inner)	:	DC 12 V (Typ), DC 36 V (Max)
Antenna type	:	External Antenna

[Receiver part] *1)

Equipment Type	:	Receiver
Frequency of Operation	:	433.92 MHz
Local clock frequency	:	21.948717 MHz
Antenna Type	:	Pattern Antenna
Type of Modulation	:	FSK
Method of Frequency Generation	:	Crystal resonator

*1) The test of receiver part was performed separately from this test report, and the conformability is confirmed.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part 15 Subpart C FCC Part 15 final revised on January 2, 2018 and effective February 1, 2018
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.209 Radiated emission limits; general requirements.

* The revision on January 2, 2018, does not affect the test specification applied to the EUT.

* Also the EUT complies with FCC Part 15 Subpart B.

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted Emission	<FCC> ANSI C63.10:2013 6 Standard test methods <IC> RSS-Gen 8.8	<FCC> Section 15.207 <IC> RSS-Gen 8.8	-	N/A *1)	N/A	N/A
2	Electric Field Strength of Fundamental Emission	<FCC> ANSI C63.10:2013 6 Standard test methods <IC> RSS-Gen 6.4, 6.12	<FCC> Section 15.209 <IC> RSS-210 4.4 RSS-Gen 8.9	Radiated	N/A	4.4 dB 0.12500 MHz 0 deg., PK with Duty factor	Complied
3	Electric Field Strength of Spurious Emission	<FCC> ANSI C63.10:2013 6 Standard test methods <IC> RSS-Gen 6.4, 6.13	<FCC> Section 15.209 <IC> RSS-210 4.4 RSS-Gen 8.9	Radiated	N/A	8.9 dB 32.128 MHz, Vertical, QP	Complied
4	-26dB Bandwidth	<FCC> ANSI C63.10:2013 6 Standard test methods <IC> -	<FCC> Reference data <IC> -	Radiated	N/A	N/A	N/A

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.
*1) 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.

FCC 15.31 (e)
The EUT provides stable voltage (DC 36 V) constantly to the wireless transmitter regardless of input voltage.
Instead of a new battery, DC power supply was used for the test.
That does not affect the test result, therefore the EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
It is impossible for end users to replace the antenna, because the antenna is mounted inside of the vehicle. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.3 Addition to standard

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99 % Occupied Band Width	RSS-Gen 6.6	-	Radiated	N/A	N/A	N/A

Other than above, 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

Radiated emission test(3 m)
The data listed in this test report has enough margin, more than the site margin.

3.5 Test Location

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
NVLAP Lab. code: 200572-0 / FCC Test Firm Registration Number: 199967

Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	2973C-1	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	2973C-2	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	2973C-3	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	-	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	2973C-4	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	-	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	-	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.6 shielded room	-	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	-	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	-	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	-	3.1 x 5.0 x 2.7	N/A	-	-
No.9 measurement room	-	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.11 measurement room	-	6.2 x 4.7 x 3.0	4.8 x 4.6	-	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 m 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 Modes

Test mode	Remarks
Transmitting mode (Tx) 125kHz	-

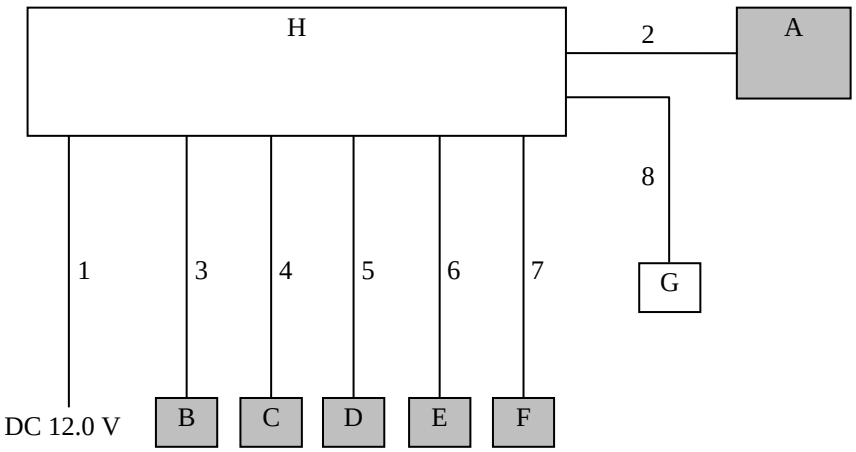
Justification : The system was configured in typical fashion (as a user would normally use it) for testing.

The EUT has 5 types of LF Antennas and 2 Systems.

[System 1]	[System 2]
- LF Antenna-1 (INF)	- LF Antenna-3 (INF)
- LF Antenna-1 (INR)	- LF Antenna-3 (INR)
- LF Antenna-1 (T/G)	- LF Antenna-3 (T/G)
- LF Antenna-2 (Dr)	- LF Antenna-2 (Dr)
- LF Antenna-2 (As)	- LF Antenna-2 (As)

* LF Antenna-1 (INF, INR, T/G) has variation of appearance difference (LF Antenna-3 (INF, INR, T/G)).
* It was confirmed that there was no difference in RF characteristics between LF Antenna-1 (INF, INR, T/G) and LF Antenna-3 (INF, INR, T/G).
* The test was performed with System 1 as representative.

4.2 Configuration and peripherals



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

* The EUT does not transmit simultaneously from multiple antennas.
* Antenna was evaluated with the worst duty respectively.
* The EUT was set to transmit the data continuously from one antenna as a worst case, not to transmit it randomly from each antenna.
* According to the result of pre-check to five antennas, it was confirmed that there was no difference in RF characteristics among antennas. So the test was performed with one antenna B (LF Antenna-1 (INF)) as a representative.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remark
A	Immobilizer and Alarm system	K56R0	No.008	OMRON Automotive Electronics Co. Ltd.	EUT
B	LF Antenna-1 (INF)	CGF-S002-D01	1	OMRON Automotive Electronics Co. Ltd.	EUT
C	LF Antenna-1 (INR)	CGF-S002-D01	2	OMRON Automotive Electronics Co. Ltd.	EUT
D	LF Antenna-1 (T/G)	CGF-S002-D01	3	OMRON Automotive Electronics Co. Ltd.	EUT
E	LF Antenna-2 (Dr)	CGF-S002-D02	261	OMRON Automotive Electronics Co. Ltd.	EUT
F	LF Antenna-2 (As)	CGF-S002-D02	267	OMRON Automotive Electronics Co. Ltd.	EUT
G	Push Start Switch	P55R0	No.013	OMRON Automotive Electronics Co. Ltd.	-
H	Switch BOX	RV494	No.002	OMRON Automotive Electronics Co. Ltd.	-

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	DC Cable	2.0	Unshielded	Unshielded	-
2	Signal & DC Cable	2.0	Unshielded	Unshielded	-
3	Antenna Cable	2.4	Unshielded	Unshielded	-
4	Antenna Cable	2.4	Unshielded	Unshielded	-
5	Antenna Cable	2.4	Unshielded	Unshielded	-
6	Antenna Cable	2.4	Unshielded	Unshielded	-
7	Antenna Cable	2.4	Unshielded	Unshielded	-
8	Signal & DC Cable	2.0	Unshielded	Unshielded	-

SECTION 5: Radiated emission (Fundamental and Spurious Emission)

Test Procedure

EUT was placed on a urethane platform of nominal size, 0.5 m by 1.0 m, raised 0.8 m above the conducting ground plane.
The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

Frequency : From 9 kHz to 30 MHz
The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for vertical polarization (antenna angle: 0 deg., 45 deg., 90 deg., and 135 deg.) and horizontal polarization.
*Refer to Figure 1 about Direction of the Loop Antenna.

Frequency: From 30 MHz to 1 GHz
The measuring antenna height varied between 1 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 both vertical and horizontal antenna polarization.

The test was made with the detector (RBW / VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Test Antennas are used as below;

Frequency	Below 30 MHz	30 MHz to 200 MHz	200 MHz to 1 GHz
Antenna Type	Loop	Biconical	Logperiodic

Frequency	From 9 kHz to 90 kHz and From 110 kHz to 150 kHz	From 90 kHz to 110 kHz	From 150 kHz to 490 kHz	From 490 kHz to 30 MHz	From 30 MHz to 1 GHz
Instrument used	Test Receiver				
Detector	PK / AV	QP	PK / AV	QP	QP
IF Bandwidth	200 Hz	200 Hz	9 kHz	9 kHz	120 kHz
Test Distance	3 m *1)	3 m *1)	3 m *1)	3 m *2)	3 m

*1) Distance Factor: 40 x log (3 m / 300 m) = -80 dB
*2) Distance Factor: 40 x log (3 m / 30 m) = -40 dB

Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open field test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

These tests were performed in semi anechoic chamber. Therefore the measured level of emissions may be higher than if measurements were made without a ground plane.
However test results were confirmed to pass against standard limit.

- 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.

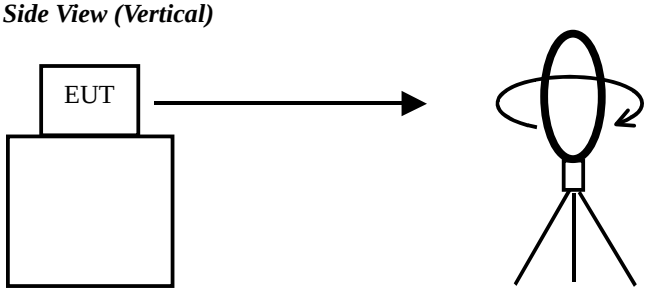
The test results and limit are rounded off to one decimal place, so some differences might be observed.

Measurement range : 9 kHz - 1 GHz
Test data : APPENDIX 1
Test result : Pass

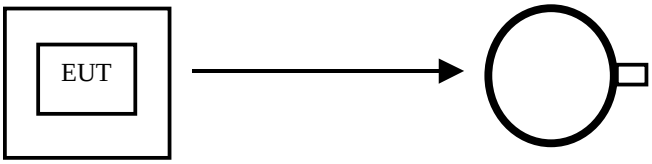
Date: January 22 and 23, 2018 Test engineer: Koji Yamamoto

Figure 1: Direction of the Loop Antenna

Side View (Vertical)

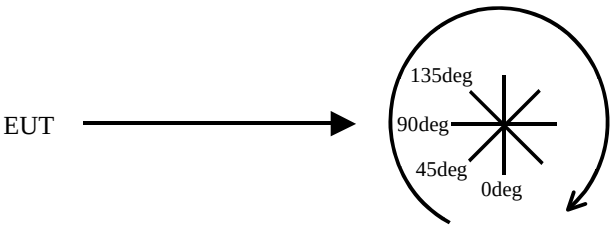


Top View (Horizontal)



Antenna was not rotated.

Top View (Vertical)



Front side: 0 deg.
Forward direction: clockwise

SECTION 6: -26dB Bandwidth

Test Procedure

The test was measured with a spectrum analyzer using a test fixture.

Test	Span	RBW	VBW	Sweep	Detector	Trace	Instrument used
-26 dB Bandwidth	100 kHz	1 kHz	3 kHz	Auto	Peak	Max Hold	Spectrum Analyzer

Test data : APPENDIX 1
Test result : Pass

SECTION 7: 99% Occupied Bandwidth

Test Procedure

The test was measured with a spectrum analyzer using a test fixture.

Test	Span	RBW	VBW	Sweep	Detector	Trace	Instrument used
99 % Occupied Bandwidth	Enough width to display emission skirts	1 to 5 % of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
Peak hold was applied as Worst-case measurement.							

Test data : APPENDIX 1
Test result : Pass

APPENDIX 1: Test data

Radiated Emission below 30 MHz (Fundamental and Spurious Emission)

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Order No.	11990777H
Date	01/22/2018
Temperature/ Humidity	23 deg. C / 32 % RH
Engineer	Koji Yamamoto
Mode	Tx 125 kHz

PK or QP

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0	0.12500	PK	107.5	19.8	-73.9	32.2	-	21.2	45.6	24.4	Fundamental
0	0.25000	PK	77.5	19.7	-73.9	32.2	-	-8.9	39.6	48.5	
0	0.37500	PK	61.7	19.7	-73.9	32.2	-	-24.7	36.1	60.8	
0	0.50000	QP	40.3	19.7	-33.8	32.1	-	-5.9	33.6	39.5	
0	0.62500	QP	34.9	19.7	-33.8	32.2	-	-11.4	31.7	43.1	
0	0.75000	QP	32.5	19.7	-33.8	32.2	-	-13.8	30.1	43.9	
0	0.87500	QP	32.3	19.7	-33.8	32.2	-	-14.0	28.7	42.7	
0	1.00000	QP	32.0	19.7	-33.8	32.2	-	-14.3	27.6	41.9	
0	1.12500	QP	31.6	19.7	-33.8	32.2	-	-14.7	26.5	41.2	
0	1.25000	QP	31.5	19.7	-33.8	32.2	-	-14.8	25.6	40.4	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amprifier)

PK with Duty factor

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0	0.125	PK	107.5	19.8	-73.9	32.2	0.0	21.2	25.6	4.4	
0	0.250	PK	77.5	19.7	-73.9	32.2	0.0	-8.9	19.6	28.5	
0	0.375	PK	61.7	19.7	-73.9	32.2	0.0	-24.7	16.1	40.8	

Result = Reading + Ant Factor + Loss (Cable + Attenuator + D.Factor) - Gain(Amprifier) + Duty factor *

* Since the peak emission result satisfied the average limit, duty factor was omitted.

Result of the fundamental emission at 3m without Distance factor

PK

Ant Deg [deg]	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
0	0.12500	PK	107.5	19.8	6.1	32.2	-	101.2	-	-	Fundamental

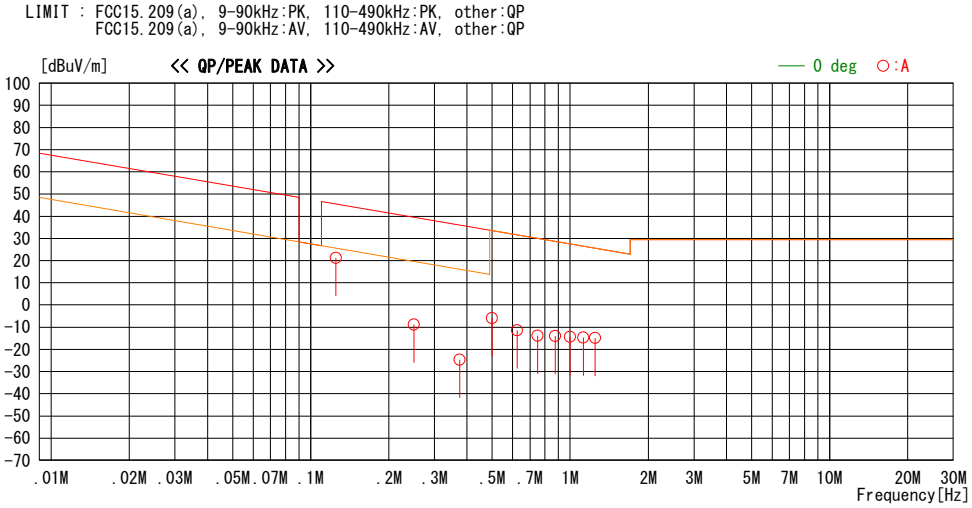
Result = Reading + Ant Factor + Loss (Cable + Attenuator) - Gain(Amprifier)

* All spurious emissions lower than this result.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30 MHz (Fundamental and Spurious Emission)
(Plot data, Worst case)

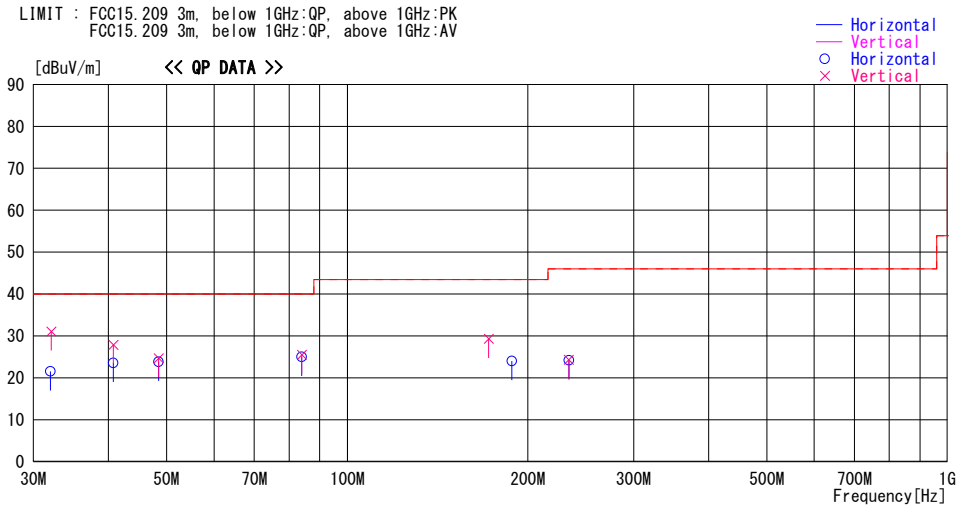
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Order No.	11990777H
Date	01/22/2018
Temperature/ Humidity	23 deg. C / 32 % RH
Engineer	Koji Yamamoto
Mode	Tx 125 kHz



*These plots data contains sufficient number to show the trend of characteristic features for EUT.

Radiated Emission above 30MHz (Spurious Emission)

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Order No.	11990777H
Date	01/23/2018
Temperature/ Humidity	22 deg. C / 34 % RH
Engineer	Koji Yamamoto
Mode	Tx 125kHz



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
32.048	28.4	QP	17.0	-23.8	21.6	328	216	Hori.	40.0	18.4	
32.128	37.9	QP	17.0	-23.8	31.1	260	100	Vert.	40.0	8.9	
40.778	33.0	QP	14.2	-23.6	23.6	177	315	Hori.	40.0	16.4	
40.761	37.3	QP	14.2	-23.6	27.9	278	100	Vert.	40.0	12.1	
48.493	35.9	QP	11.4	-23.5	23.8	2	344	Hori.	40.0	16.2	
48.523	36.8	QP	11.4	-23.5	24.7	128	100	Vert.	40.0	15.3	
84.029	41.0	QP	7.0	-23.0	25.0	359	217	Hori.	40.0	15.0	
84.029	41.5	QP	7.0	-23.0	25.5	282	100	Vert.	40.0	14.5	
172.063	35.3	QP	15.8	-21.8	29.3	359	100	Vert.	43.5	14.2	
188.074	29.3	QP	16.3	-21.6	24.0	37	198	Hori.	43.5	19.5	
234.078	33.6	QP	11.6	-21.0	24.2	289	117	Hori.	46.0	21.8	
234.090	33.7	QP	11.6	-21.0	24.3	346	100	Vert.	46.0	21.7	

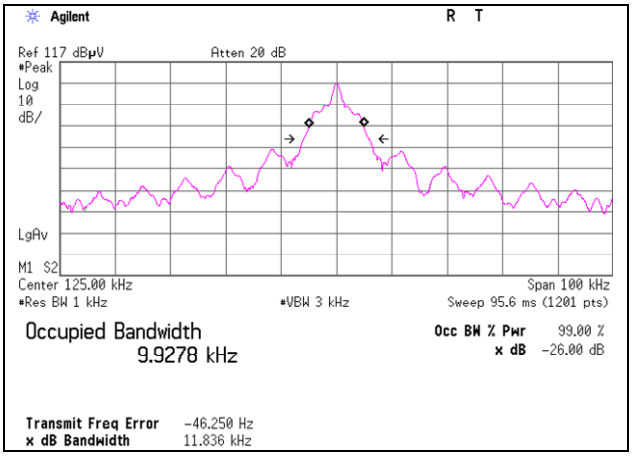
CHART: WITH FACTOR
ANT TYPE: - 30 MHz: LOOP, 30 MHz - 200 MHz: BICONICAL, 200 MHz - 1000 MHz: LOGPERIODIC, 1000 MHz -: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS & GAIN (CABLE + ATT – GAIN (AMP))

*The test result is rounded off to one or two decimal places, so some differences might be observed.

-26dB Bandwidth and 99% Occupied Bandwidth

Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Order No.	11990777H
Date	10/14/2017
Temperature/ Humidity	25 deg. C / 56 % RH
Engineer	Hiroyuki Furutaka
Mode	Tx 125kHz

Frequency [kHz]	-26dB Bandwidth [kHz]	99% Occupied Bandwidth [kHz]
125	11.836	9.9278



APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2017/10/30 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	1501	RE	2017/01/20 * 12
MJM-26	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MTR-10	EMI Test Receiver	Rohde & Schwarz	ESR26	101408	RE	2017/01/12 * 12
MLPA-01	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100017	RE	2017/10/11 * 12
MCC-113	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/SFM141(5m)/421-010(1m)/sucoform141-PE(1m)/RFM-E121(Switcher)	-/04178	RE	2017/07/26 * 12
MCC-143	Coaxial Cable	UL Japan	-	-	RE	2017/06/12 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2017/03/27 * 12
MMM-10	DIGITAL HiTESTER	Hioki	3805	051201148	RE	2018/01/09 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2017/08/31 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2017/12/21 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
MBA-08	Biconical Antenna	Schwarzbeck	VHA9103B	08031	RE	2017/09/13 * 12
MLA-21	Logperiodic Antenna(200-1000MHz)	Schwarzbeck	VUSLP9111B	911B-190	RE	2017/12/10 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2017/02/24 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2017/11/14 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2017/09/27 * 12
MMM-01	Digital Tester	Fluke	FLUKE 26-3	78030611	RE	2017/08/07 * 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: Spurious emission