



RADIO TEST REPORT

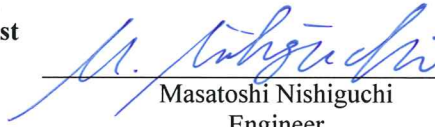
Test Report No. : 10828763H-B

Applicant : Honda Lock Mfg. Co., Ltd.
Type of Equipment : 2R Smart Key system (FOB)
Model No. : HLSS-3
Test regulation : FCC Part 15 Subpart C: 2015
FCC ID : MLBHLSS-3B
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.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
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)

Date of test: June 6 and 19, 2015

Representative test engineer:


Masatoshi Nishiguchi

Engineer
Consumer Technology Division

Approved by:


Motoya Imura

Engineer
Consumer Technology Division


NVLAP LAB CODE: 200572-0

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*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
<http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap>

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Ise EMC Lab.

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SECTION 1: Customer information

Company Name : Honda Lock Mfg. Co., Ltd.
Address : 535-14 Oaza-Ishizue, Takanezawamachi, Shioya-Gun, Tochigi,
329-1225 Japan
Telephone Number : +81-50-3757-5700
Facsimile Number : +81-28-680-1045
Contact Person : Sadanori Watarai

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

2.1 Identification of E.U.T.

Type of Equipment : 2R Smart Key system (FOB)
Model No. : HLSS-3
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC 3.0 V (CR2032 x 1)
Receipt Date of Sample : April 18, 2015
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 No: HLSS-3 (referred to as the EUT in this report) is the 2R Smart Key system (FOB).

General Specification

Clock frequencies in the system : 5 MHz

Radio Specification

[Transmitter]

Radio Type : Transceiver
Frequency of Operation : 433.92 MHz
Modulation : ASK
Antenna type : Pattern antenna
Method of Frequency Generation : SAW Resonator
Operating voltage (Radio part) : DC 2.0 V to 3.3 V
Operating temperature range : -20 to +60 deg. C

[Receiver] *1)

Radio Type : Receiver
Frequency of Operation : 133.3 kHz
Operating temperature range : -20 to +60 deg. C
Receiver Bandwidth : 120 kHz

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

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C: 2015, final revised on January 21, 2015

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.231 Periodic operation in the band 40.66 - 40.70MHz
and above 70MHz

* The EUT complies with FCC Part 15 Subpart B: 2015, final revised on January 21, 2015.

3.2 Procedures and results

| Item | Test Procedure | Specification | Worst margin | Results | Remarks |
|--|---|--|--|----------------|----------------|
| Conducted emission | FCC: ANSI C63.4:2009 7. AC powerline conducted emission measurements ----- IC: RSS-Gen 8.8 | FCC: Section 15.207 ----- IC: RSS-Gen 8.8 | N/A | N/A*1) | - |
| Automatically Deactivate | FCC: ANSI C63.4:2009 13. Measurement of intentional radiators ----- IC: - | FCC: Section 15.231(a)(1) ----- IC: RSS-210 A1.1.1 | N/A | Complied | Radiated |
| Electric Field Strength of Fundamental Emission | FCC: ANSI C63.4:2009 13. Measurement of intentional radiators ----- IC: RSS-Gen 6.12 | FCC: Section 15.231(b) ----- IC: RSS-210 A1.1.2 | 24.2 dB 433.920 MHz Horizontal / Vertical | Complied | Radiated |
| Electric Field Strength of Spurious Emission | FCC: ANSI C63.4:2009 13. Measurement of intentional radiators ----- IC: RSS-Gen 6.13 | FCC: Section 15.205 Section 15.209 Section 15.231(b) ----- IC: RSS-210 A1.1.2, 2.5.1 RSS-Gen 8.9 | 3.2 dB 1301.760 MHz Vertical | Complied | Radiated |
| -20dB Bandwidth | FCC: ANSI C63.4:2009 13. Measurement of intentional radiators ----- IC: - | FCC: Section 15.231(c) ----- IC: Reference data | N/A | Complied | Radiated |

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 does not have AC Mains.

FCC Part 15.31 (e)

This test was performed with the New Battery (DC 3.0V) and the constant voltage was supplied to the EUT during the tests. 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 EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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3.3 Addition to standard

| Item | Test Procedure | Specification | Worst margin | Results | Remarks |
|------------------------|-----------------|--------------------|--------------|----------|----------|
| 99% Occupied Bandwidth | IC: RSS-Gen 6.6 | IC: RSS-210 A1.1.3 | N/A | Complied | Radiated |

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 room (semi-anechoic chamber) | Radiated emission | | | | | | |
|--------------------------------------|-------------------|------------------|-----------------|----------------|-----------------|-------------------|-------------------|
| | (3m*)(+dB) | | | | (1m*)(+dB) | | (0.5m*)(+dB) |
| | 9kHz -30MHz | 30MHz -300MHz | 300MHz -1GHz | 1GHz -10GHz | 10GHz -18GHz | 18GHz -26.5GHz | 26.5GHz -40GHz |
| No.1 | 4.3dB | 5.5dB | 6.3dB | 5.5dB | 5.8dB | 5.8dB | 4.3dB |
| No.2 | 4.2dB | 5.4dB | 6.3dB | 5.4dB | 5.7dB | 5.9dB | 5.6dB |
| No.3 | 4.4dB | 5.4dB | 6.4dB | 5.2dB | 5.5dB | 5.8dB | 5.5dB |
| No.4 | 4.7dB | 5.6dB | 6.4dB | 5.3dB | 5.7dB | 5.9dB | 5.5dB |

*3m/1m/0.5m = Measurement distance

Radiated emission test (3m)

[Electric Field Strength of Fundamental Emission]

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

[Electric Field Strength of Spurious Emission]

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

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3.5 Test Location

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| | 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 7.7 | 7.0 x 6.0 | No.1 Power source room |
| No.2 semi-anechoic chamber | 2973C-2 | 7.5 x 5.8 x 5.2 | 4.0 x 4.0 | - |
| No.3 semi-anechoic chamber | 2973C-3 | 12.0 x 8.5 x 5.9 | 6.8 x 5.75 | No.3 Preparation room |
| 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 |
| 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 | - | 8.0 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 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.

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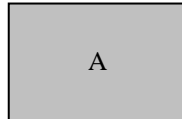
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SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

| Test Item* | Mode |
|---|---------------------------------------|
| Automatically Deactivate | Normal use mode |
| Electric Field Strength of Fundamental Emission Electric Field Strength of Spurious Emission -20dB & 99% Occupied Bandwidth Duty Cycle | Continuous Transmitting mode (Tx) *1) |
| <p>* The system was configured in typical fashion (as a user would normally use it) for testing. *1) The software of this mode is the same as one of normal product, except that EUT continues to transmit when transmitter button is being pressed (For Normal use mode, EUT stops to transmit in a given time, even if transceiver button is being pressed.) End users cannot change the settings of the output power of the product.</p> | |

4.2 Configuration and peripherals



*Setup was 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 | 2R Smart Key system (FOB) | HLSS-3 | 4 | Honda Lock Mfg. Co., Ltd. | EUT |

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SECTION 5: Radiated emission (Electric Field Strength of Fundamental and Spurious Emission)

Test Procedure and conditions

EUT was placed on a urethane platform of nominal size, 0.5m by 1.0m, raised 0.8m above the conducting ground plane. The EUT was set on the center of the tabletop.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. 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.

[Transmitting mode]

(Below 30MHz)

The noise level was checked by moving a search-coil (Loop Antenna) close to the EUT.

(Above 30MHz)

The Radiated Electric Field Strength has been measured on Semi anechoic chamber with a ground plane and at a distance of 3m.

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

The measurements were performed for both vertical and horizontal antenna polarization.

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

Test Antennas are used as below;

| | | | | |
|--------------|-------------|-----------------|----------------|------------|
| Frequency | Below 30MHz | 30MHz to 300MHz | 300MHz to 1GHz | Above 1GHz |
| Antenna Type | Loop | Biconical | Logperiodic | Horn |

| | | | | | | |
|---------------|--|----------------------|-----------------------|----------------------|--------------------------------|--------------------------------|
| | From 9kHz to 90kHz and From 110kHz to 150kHz | From 90kHz to 110kHz | From 150kHz to 490kHz | From 490kHz to 30MHz | From 30MHz to 1GHz | Above 1GHz |
| Detector Type | Peak | Peak | Peak | Peak | Peak and Peak with Duty factor | Peak and Peak with Duty factor |
| IF Bandwidth | 200Hz | 200Hz | 9.1kHz | 9.1kHz | 120kHz | PK: S/A:RBW 1MHz, VBW:3MHz |

- The carrier level (or, noise levels) was (or were) measured at each position of all three axes X, Y and Z, and the position that has the maximum noise was determined.

Noise levels of all the frequencies were measured at the position.

This EUT has four modes. After the worst case was confirmed with four modes, the test was performed with the worst one.

Please refer to Worst case position of "APPENDIX 3: Photographs of test setup".

*The result is rounded off to the second decimal place, so some differences might be observed.

Measurement range : 9 kHz - 4.4 GHz
Test data : APPENDIX
Test result : Pass

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SECTION 6: Automatically deactivate

Test Procedure

The measurement was performed with Electric field strength using a spectrum analyzer.

Test data : APPENDIX
Test result : Pass

SECTION 7: -20dB and 99% Occupied Bandwidth

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

| Test | Span | RBW | VBW | Sweep | Detector | Trace | Instrument used |
|------------------------|---|----------------|--------------------|-------|----------|--------------|-------------------|
| 20dB Bandwidth | 400 kHz | 1.3 kHz | 3.9 kHz | Auto | Peak | Max Hold | Spectrum Analyzer |
| 99% Occupied Bandwidth | Enough width to display emission skirts | 1 to 5% of OBW | Three times of RBW | Auto | Peak *1) | Max Hold *1) | Spectrum Analyzer |

*1) The measurement was performed with Peak detector, Max Hold since the duty cycle was not 100%.
Peak hold was applied as Worst-case measurement.

Test data : APPENDIX
Test result : Pass

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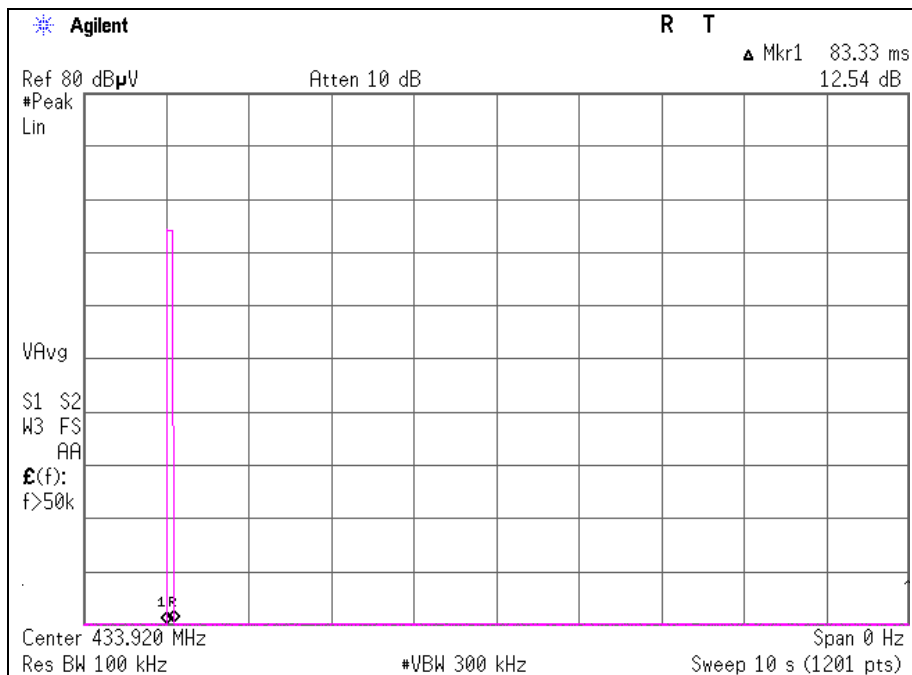
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APPENDIX 1: Test data

Automatically deactivate

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber
 Report No. : 10828763H
 Date : 06/19/2015
 Temperature/ Humidity : 22 deg. C / 65% RH
 Engineer : Masatoshi Nishiguchi
 Mode : Normal use mode 433.92 MHz

| Time of Transmitting [sec] | Limit [sec] | Result |
|----------------------------|-------------|--------|
| 0.083 | 5.00 | Pass |



Radiated Emission (Electric Field Strength of Fundamental and Spurious Emission)

| | |
|-----------------------|---|
| Test place | Ise EMC Lab. No.4 Semi Anechoic Chamber |
| Report No. | 10828763H |
| Date | 06/05/2015 |
| Temperature/ Humidity | 23 deg. C / 68% RH |
| Engineer | Satofumi Matsuyama |
| Mode | Continuous Transmitting mode 433.92MHz |

PK

| 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 Inside or Outside of Restricted Bands |
|--------------------|----------|-------------------|------|-------------------------|--------------|--------------|------------------------|--------------------|------|-------------------|----------------|------|--|
| | | Hor | Ver | | | | | Hor | Ver | | Hor | Ver | |
| 433.920 | PK | 67.0 | 67.0 | 18.6 | 10.8 | 32.1 | - | 64.3 | 64.3 | 100.8 | 36.5 | 36.5 | Carrier |
| 867.840 | PK | 41.8 | 42.3 | 24.1 | 13.1 | 31.2 | - | 47.8 | 48.3 | 80.8 | 33.0 | 32.5 | Outside |
| 1301.760 | PK | 65.2 | 65.4 | 25.1 | 1.9 | 34.0 | - | 58.2 | 58.4 | 73.9 | 15.7 | 15.5 | Inside |
| 1735.680 | PK | 52.2 | 57.4 | 26.2 | 2.2 | 33.0 | - | 47.6 | 52.8 | 80.8 | 33.2 | 28.0 | Outside |
| 2169.600 | PK | 54.0 | 51.7 | 26.9 | 2.4 | 32.4 | - | 50.9 | 48.6 | 80.8 | 29.9 | 32.2 | Outside |
| 2603.520 | PK | 65.6 | 61.7 | 27.8 | 2.6 | 32.2 | - | 63.8 | 59.9 | 80.8 | 17.0 | 20.9 | Outside |
| 3037.440 | PK | 60.4 | 57.2 | 28.4 | 2.8 | 32.1 | - | 59.5 | 56.3 | 80.8 | 21.3 | 24.5 | Outside |
| 3471.360 | PK | 49.3 | 46.3 | 29.2 | 3.1 | 32.0 | - | 49.6 | 46.6 | 80.8 | 31.2 | 34.2 | Outside |
| 3905.280 | PK | 51.8 | 49.2 | 29.9 | 3.3 | 31.8 | - | 53.2 | 50.6 | 73.9 | 20.7 | 23.3 | Inside |
| 4339.200 | PK | 50.5 | 50.0 | 30.3 | 3.4 | 31.7 | - | 52.5 | 52.0 | 73.9 | 21.4 | 21.9 | Inside |

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

PK with Duty factor

| 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 |
|--------------------|----------|-------------------|------|-------------------------|--------------|--------------|------------------------|--------------------|------|-------------------|----------------|------|---------|
| | | Hor | Ver | | | | | Hor | Ver | | Hor | Ver | |
| 433.920 | PK | 67.0 | 67.0 | 18.6 | 10.8 | 32.1 | -7.7 | 56.6 | 56.6 | 80.8 | 24.2 | 24.2 | Carrier |
| 867.840 | PK | 41.8 | 42.3 | 24.1 | 13.1 | 31.2 | -7.7 | 40.1 | 40.6 | 60.8 | 20.7 | 20.2 | Outside |
| 1301.760 | PK | 65.2 | 65.4 | 25.1 | 1.9 | 34.0 | -7.7 | 50.5 | 50.7 | 53.9 | 3.4 | 3.2 | Inside |
| 1735.680 | PK | 52.2 | 57.4 | 26.2 | 2.2 | 33.0 | -7.7 | 39.9 | 45.1 | 60.8 | 20.9 | 15.7 | Outside |
| 2169.600 | PK | 54.0 | 51.7 | 26.9 | 2.4 | 32.4 | -7.7 | 43.2 | 40.9 | 60.8 | 17.6 | 19.9 | Outside |
| 2603.520 | PK | 65.6 | 61.7 | 27.8 | 2.6 | 32.2 | -7.7 | 56.1 | 52.2 | 60.8 | 4.7 | 8.6 | Outside |
| 3037.440 | PK | 60.4 | 57.2 | 28.4 | 2.8 | 32.1 | -7.7 | 51.8 | 48.6 | 60.8 | 9.0 | 12.2 | Outside |
| 3471.360 | PK | 49.3 | 46.3 | 29.2 | 3.1 | 32.0 | -7.7 | 41.9 | 38.9 | 60.8 | 18.9 | 21.9 | Outside |
| 3905.280 | PK | 51.8 | 49.2 | 29.9 | 3.3 | 31.8 | -7.7 | 45.5 | 42.9 | 53.9 | 8.4 | 11.0 | Inside |
| 4339.200 | PK | 50.5 | 50.0 | 30.3 | 3.4 | 31.7 | -7.7 | 44.8 | 44.3 | 53.9 | 9.1 | 9.6 | Inside |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier) + Duty factor (Refer to Duty factor data sheet)

*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

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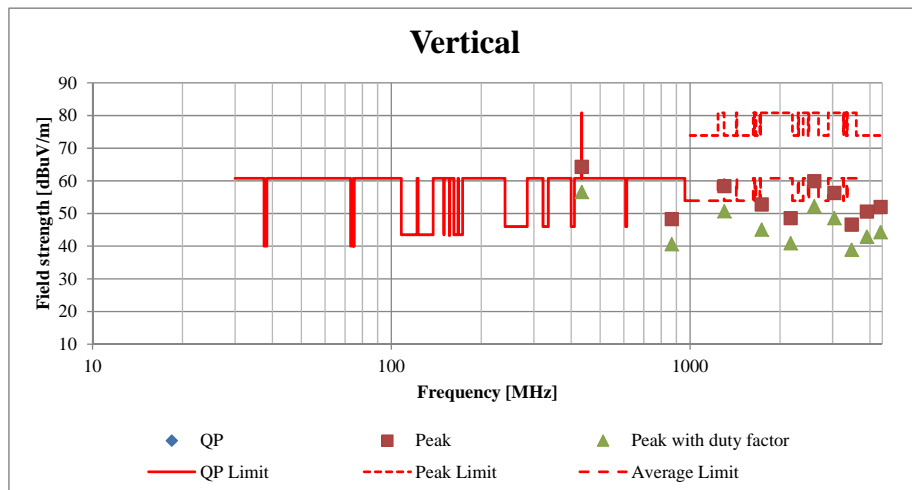
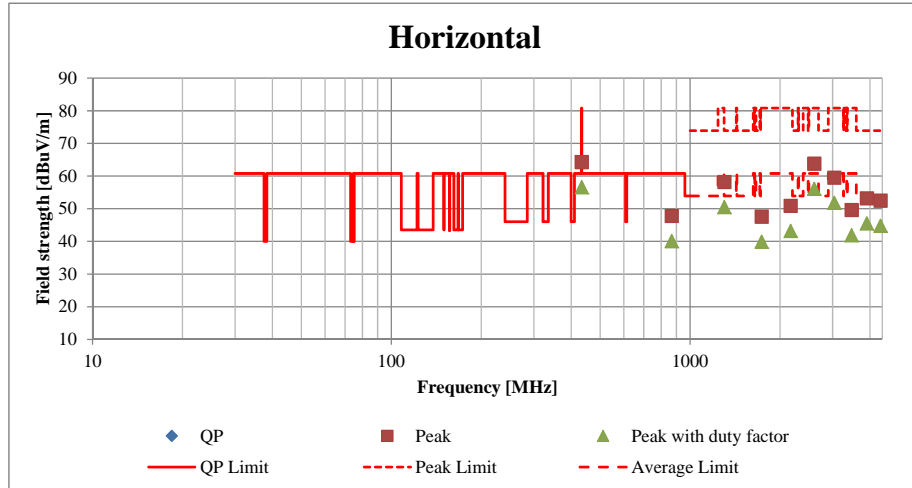
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Radiated Spurious Emission (Plot data, Worst case)

Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No. : 10828763H
Date : 06/05/2015
Temperature/ Humidity : 23 deg. C / 68% RH
Engineer : Satofumi Matsuyama
Mode : Continuous Transmitting mode 433.92 MHz



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

-20dB and 99% Occupied Bandwidth

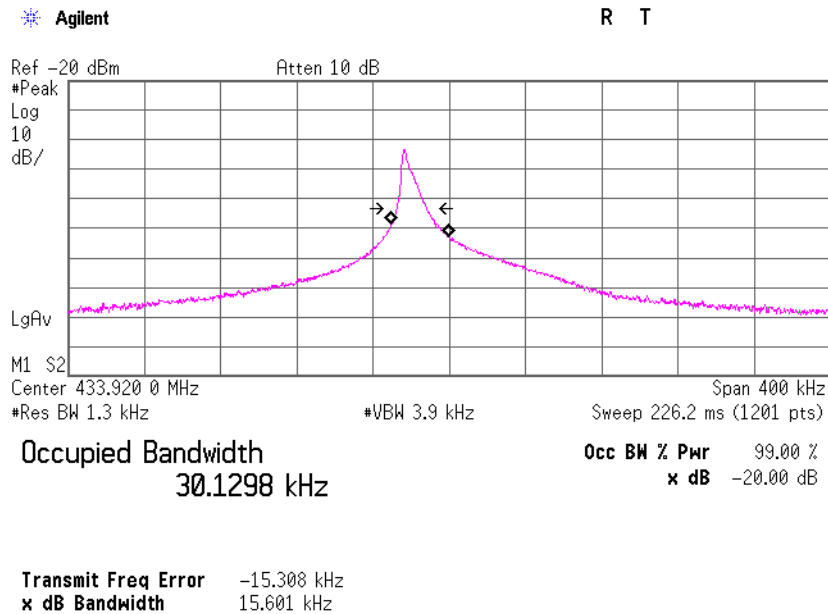
Test place : Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No. : 10828763H
Date : 06/05/2015
Temperature/ Humidity : 23 deg. C / 68% RH
Engineer : Satofumi Matsuyama
Mode : Continuous Transmitting mode 433.92MHz

Bandwidth Limit : Fundamental Frequency **433.92** MHz x 0.25% = 1084.80 kHz

* The above limit was calculated from more stringent nominal frequency.

| -20dB Bandwidth [kHz] | Bandwidth Limit [kHz] | Result |
|-----------------------|-----------------------|--------|
| 15.6010 | 1084.80 | Pass |

| 99% Occupied Bandwidth [kHz] | Bandwidth Limit [kHz] | Result |
|------------------------------|-----------------------|--------|
| 30.1298 | 1084.80 | Pass |



Duty Cycle

Test place Ise EMC Lab. No.4 Semi Anechoic Chamber
Report No. 10828763H
Date 06/05/2015
Temperature/ Humidity 23 deg. C / 68% RH
Engineer Satofumi Matsuyama
Mode Continuous Transmitting mode 433.92 MHz

| Type | Times | ON time(One pulse) [ms] | ON time(in One Cycle) [ms] |
|------|-------|----------------------------|-------------------------------|
| A | 14 | 1.009 | 14.126 |
| B | 40 | 0.493 | 19.720 |

*1)ON time(in One Cycle) = Times * ON time(One pulse)

(Total)

| ON time [ms] | Cycle [ms] | Duty (On time/Cycle) | Duty [dB] |
|-----------------|---------------|-------------------------|--------------|
| 33.85 | 81.67 | 0.41 | -7.7 |

*3)ON time = Type A's ON time (in One Cycle) + Type B's ON time (in One Cycle)

*4)Duty = $20\log_{10}(\text{ON time/Cycle})$

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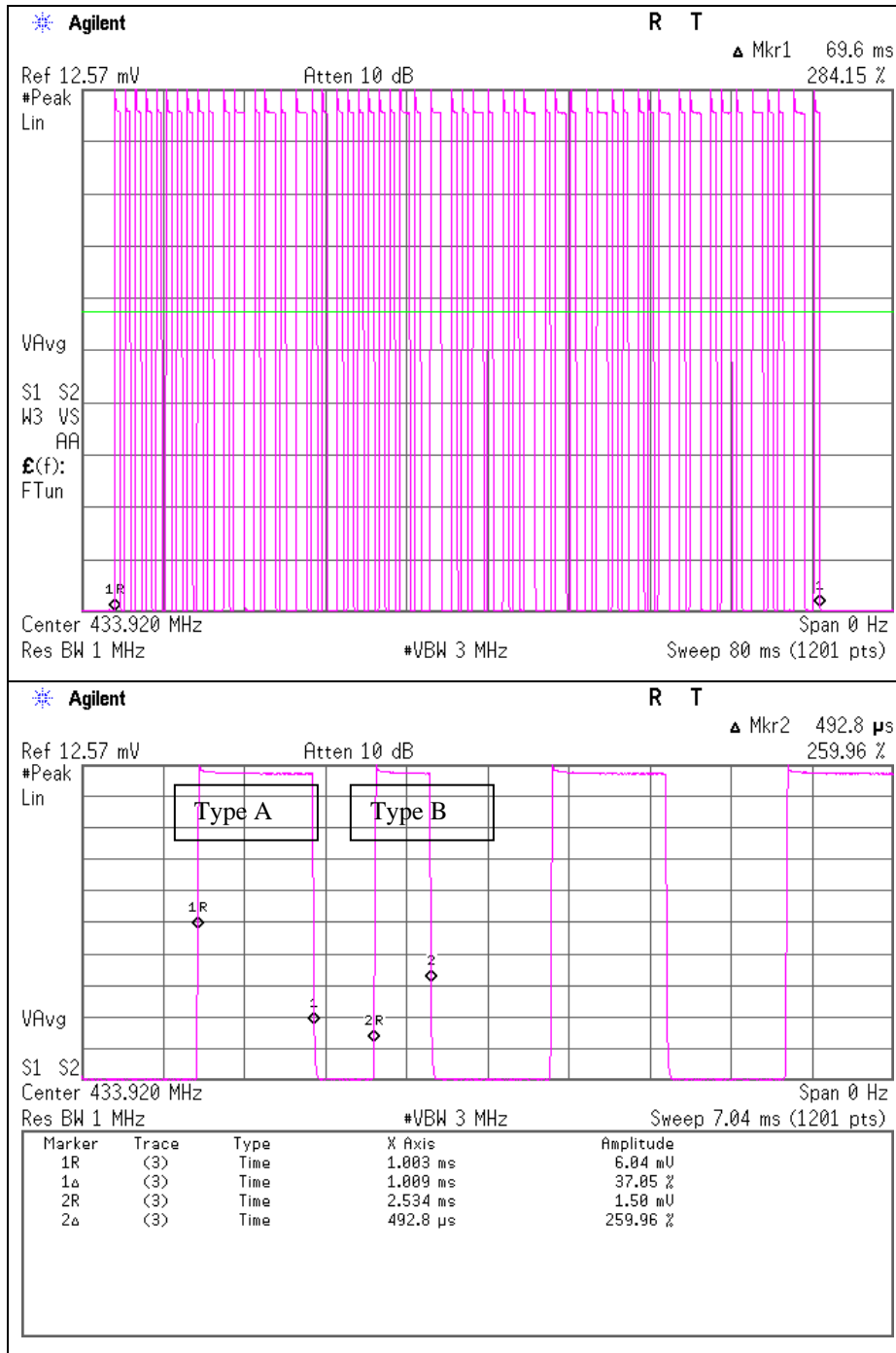
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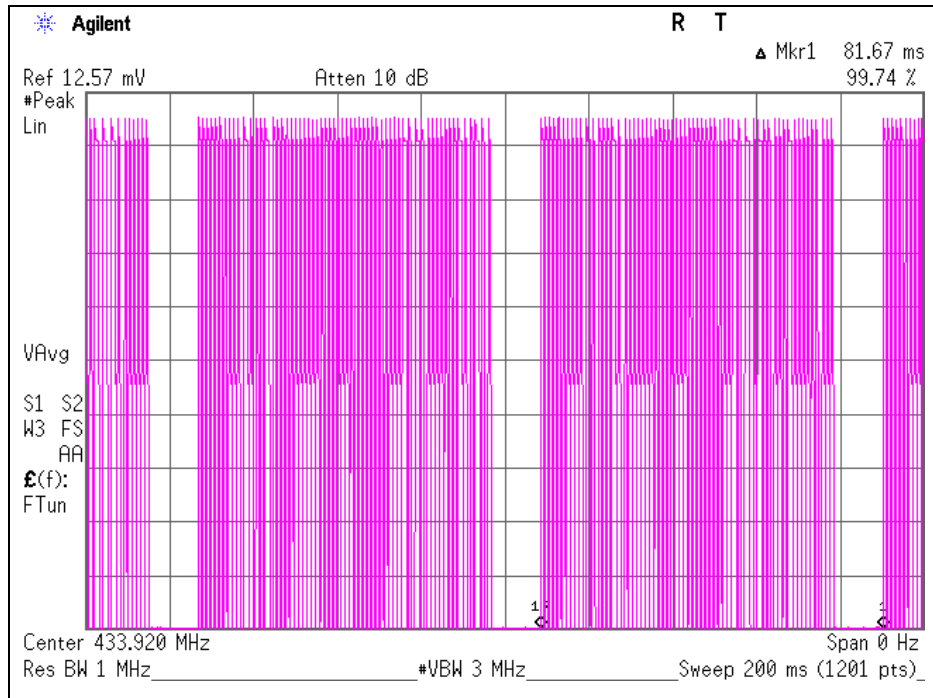
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Duty Cycle



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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 | 2015/02/26 * 12 |
| MOS-15 | Thermo-Hygrometer | Custom | CTH-180 | 1501 | RE | 2015/01/13 * 12 |
| MJM-23 | Measure | ASKUL | - | - | RE | - |
| COTS-MEMI | EMI measurement program | TSJ | TEPTO-DV | - | RE | - |
| MTR-01 | Test Receiver | Rohde & Schwarz | ESI40 | 100084 | RE | 2014/11/10 * 12 |
| MBA-05 | Biconical Antenna | Schwarzbeck | BBA9106 | 1302 | RE | 2014/11/22 * 12 |
| MLA-08 | Logperiodic Antenna | Schwarzbeck | UKLP9140-A | N/A | RE | 2014/11/22 * 12 |
| MCC-50 | Coaxial Cable | UL Japan | - | - | RE | 2014/06/02 * 12 |
| MAT-68 | Attenuator | Anritsu | MP721B | 6200961025 | RE | 2014/11/11 * 12 |
| MPA-13 | Pre Amplifier | SONOMA INSTRUMENT | 310 | 260833 | RE | 2015/03/09 * 12 |
| MSA-03 | Spectrum Analyzer | Advantest | R3131A | 101000368 | RE | Pre Check |
| MHA-21 | Horn Antenna 1-18GHz | Schwarzbeck | BBHA9120D | 9120D-557 | RE | 2014/08/12 * 12 |
| MCC-141 | Microwave Cable | Junkosha | MWX221 | 1305S002R(1m) / 1405S146(5m) | RE | 2014/06/11 * 12 |
| MPA-12 | MicroWave System Amplifier | Agilent | 83017A | MY39500780 | RE | 2015/03/12 * 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, 99% Occupied Bandwidth, -20dB bandwidth, Automatically deactivate and Duty cycle tests

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