



Test report No. : 10229869S-A  
Page : 1 of 57  
Issued date : April 25, 2014  
Revised date : June 19, 2014  
FCC ID : OCS-MT1000A

# **RADIO TEST REPORT**

**Test Report No.: 10229869S-A**

**Applicant** : Anritsu Corporation  
**Type of Equipment** : Network Master Pro  
**Model No.** : MT1000A  
**FCC ID** : OCS-MT1000A  
**Test regulation** : FCC Part15 Subpart C: 2014  
**Test result** : Complied

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2. The results in this report apply only to the sample tested.
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**Date of test:** March 27 to April 1, 2014

**Tested by:**

*S. Takano*

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**Approved by :**

*T. Imamura*

Toyokazu Imamura  
Leader  
Consumer Technology Division



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Testing  
RTL02610

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

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13-EM-F0429

## REVISION HISTORY

**Original Test Report No.: 10229869S-A**

[illegible]

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## **SECTION 1: Customer information**

Company Name : Anritsu Corporation  
Address : 5-1-1 Onna, Atsugi-shi, Kanagawa, 243-8555 Japan  
Telephone Number : +81-46-296-6669  
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Contact Person : Yasuyuki Oishi

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

### **2.1 Identification of E.U.T.**

Type of Equipment : Network Master Pro  
Model Number : MT1000A  
Serial Number : 708230036  
Rating : Mains adapter: Input: AC 100 - 240V 50/60Hz, Output: DC18V 3.62A  
Battery: DC 10.8V  
Country of Mass-production : Denmark  
Condition of EUT : Production prototype  
(Not for Sale: This sample is equivalent to mass-produced items.)  
Receipt Date of Sample : February 24, 2014  
Modification of EUT : No modification by the test lab.

### **2.2 Product description**

Model: MT1000A (referred to as the EUT in this report) is Network Master Pro.

Clock frequency(ies) in the system : 20 MHz, 200 MHz, 625 MHz

#### **<Bluetooth part>**

Equipment type : Transceiver  
Frequency of operation : 2402-2480MHz  
Bandwidth & channel spacing : 79MHz & 1MHz  
Type of modulation : GFSK,  $\pi/4$ DQPSK, 8DPSK  
Antenna type : Dipole  
Antenna gain : 3.0dBi  
Antenna connector type : IPEX MHF Connector (U.FL compatible)  
Operation temperature range : 0 to +50 deg.C.

#### **<Wireless LAN part>**

Equipment type : Transceiver  
Frequency of operation : 2412-2462MHz  
Bandwidth & channel spacing : 20MHz & 5MHz  
Type of modulation : CCK, OFDM  
Antenna type : Dipole  
Antenna gain : 3.0dBi  
Antenna connector type : IPEX MHF Connector (U.FL compatible)  
Operation temperature range : 0 to +50 deg.C.

\* For Wireless LAN part, refer to the test report: 10229869S-B.

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FCC 15.31 (e)

The stable voltage (DC3.3V and DC1.8V) is provided constantly to RF part via regulator. Therefore, the EUT complies with the requirement.

FCC 15.203

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore the EUT complies with the requirement.

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### **SECTION 3: Test specification, procedures & results**

#### **3.1 Test specification**

Test specification : FCC Part 15 Subpart C: 2014, final revised on March 6, 2014 and effective April 7, 2014  
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators  
Section 15.207 Conducted limits  
Section 15.209 Radiated emission limits, general requirements  
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz,  
and 5725-5850MHz

\* The revision on March 6, 2014 does not affect the test specification applied to the EUT.

#### **3.2 Procedures & Results**

| Item                                                             | Test Procedure                                                                            | Specification            | Remarks                | Deviation | Worst Margin                                                                                               | Results  |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------|------------------------|-----------|------------------------------------------------------------------------------------------------------------|----------|
| Conducted emission                                               | ANSI C63.4:2009<br>7. AC powerline conducted emission measurements                        | FCC 15.207               | -                      | N/A       | 14.1dB<br>Freq.: 0.15855MHz<br>Detection: Quasi-Peak<br>Phase: L1<br>Mode: Tx 2480MHz, DH5                 | Complied |
| Carrier frequency separation                                     | FCC Public Notice DA 00-705 & ANSI C63.4:2009<br>13. Measurement of intentional radiators | FCC 15.247 (a)(1)        | Conducted              | N/A       | *See data.                                                                                                 | Complied |
| 20dB bandwidth                                                   | FCC Public Notice DA 00-705 & ANSI C63.4:2009<br>13. Measurement of intentional radiators | FCC 15.247 (a)(1)        | Conducted              | N/A       |                                                                                                            | -        |
| Number of hopping frequency                                      | FCC Public Notice DA 00-705 & ANSI C63.4:2009<br>13. Measurement of intentional radiators | FCC 15.247 (a)(1)(iii)   | Conducted              | N/A       |                                                                                                            | Complied |
| Dwell time                                                       | FCC Public Notice DA 00-705 & ANSI C63.4:2009<br>13. Measurement of intentional radiators | FCC 15.247 (a)(1)(iii)   | Conducted              | N/A       |                                                                                                            | Complied |
| Maximum peak output power                                        | FCC Public Notice DA 00-705 & ANSI C63.4:2009<br>13. Measurement of intentional radiators | FCC 15.247 (b)(1)        | Conducted              | N/A       |                                                                                                            | Complied |
| Band edge compliance & Spurious emission                         | FCC Public Notice DA 00-705 & ANSI C63.4:2009<br>13. Measurement of intentional radiators | FCC 15.247 (d)<br>15.209 | Conducted/<br>Radiated | N/A       | 0.3dB<br>Freq.: 400.001MHz<br>Polarization: Horizontal<br>Detection: Quasi-Peak<br>Mode: Tx 2480MHz, 3-DH5 | Complied |
| Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422 |                                                                                           |                          |                        |           |                                                                                                            |          |

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### 3.3 Addition to standard

| Item                                                             | Test Procedure                                                             | Specification | Remarks   | Worst Margin | Results |
|------------------------------------------------------------------|----------------------------------------------------------------------------|---------------|-----------|--------------|---------|
| Occupied Bandwidth (99%)                                         | ANSI C63.4:2009<br>13. Measurement of intentional radiators, RSS-Gen 4.6.1 | -             | Conducted | -            | -       |
| Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422 |                                                                            |               |           |              |         |

\* Other than above, no addition, exclusion nor deviation has been made from the standard.

### 3.4 Uncertainty

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

| Item                                            | Frequency range | No.1 SAC <sup>*1</sup> /SR <sup>*2</sup><br>(±) | No.2 SAC/SR<br>(±) | No.3 SAC/SR<br>(±) |
|-------------------------------------------------|-----------------|-------------------------------------------------|--------------------|--------------------|
| Conducted emission<br>(AC Mains) LISN           | 150kHz-30MHz    | 3.6 dB                                          | 3.6 dB             | 3.5 dB             |
| Radiated emission<br>(Measurement distance: 3m) | 9kHz-30MHz      | 3.7 dB                                          | 3.7 dB             | 3.6 dB             |
|                                                 | 30MHz-300MHz    | 4.8 dB                                          | 5.0 dB             | 4.8 dB             |
|                                                 | 300MHz-1GHz     | 5.0 dB                                          | 5.0 dB             | 4.8 dB             |
|                                                 | 1GHz-15GHz      | 4.9 dB                                          | 4.9 dB             | 4.9 dB             |
| Radiated emission<br>(Measurement distance: 1m) | 15GHz-18GHz     | 5.7 dB                                          | 5.6 dB             | 5.6 dB             |
|                                                 | 18GHz-40GHz     | 5.2 dB                                          | 4.3 dB             | 4.3 dB             |

\*1: SAC=Semi-Anechoic Chamber

\*2: SR= Shielded Room is applied besides radiated emission

#### Conducted emission test

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

#### Radiated emission test

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

#### Antenna port conducted test

Power measurement uncertainty above 1GHz for this test was: (±) 1.5dB

Spurious emission (Conducted) measurement (below 1GHz) uncertainty for this test was: (±) 1.6dB

Spurious emission (Conducted) measurement (1G-3GHz) uncertainty for this test was: (±) 1.4dB

Spurious emission (Conducted) measurement (3G-18GHz) uncertainty for this test was: (±) 2.8dB

Spurious emission (Conducted) measurement (18G-26.5GHz) uncertainty for this test was: (±) 2.5dB

Bandwidth measurement uncertainty for this test was: (±) 5.4%

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### 3.5 Test location

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JAB Accreditation No. : RTL02610

|                                                                | FCC<br>Registration<br>No. | IC<br>Registration<br>No. | Width x Depth x<br>Height (m) | Size of reference<br>ground plane<br>(m) / horizontal<br>conducting plane | Maximum<br>measurement<br>distance |
|----------------------------------------------------------------|----------------------------|---------------------------|-------------------------------|---------------------------------------------------------------------------|------------------------------------|
| <input checked="" type="checkbox"/> No.1 semi-anechoic chamber | 697847                     | 2973D-1                   | 20.6 x 11.3 x 7.65            | 20.6 x 11.3                                                               | 10m                                |
| <input type="checkbox"/> No.2 semi-anechoic chamber            | 697847                     | 2973D-2                   | 20.6 x 11.3 x 7.65            | 20.6 x 11.3                                                               | 10m                                |
| <input checked="" type="checkbox"/> No.3 semi-anechoic chamber | 697847                     | 2973D-3                   | 12.7 x 7.7 x 5.35             | 12.7 x 7.7                                                                | 5m                                 |
| <input type="checkbox"/> No.4 semi-anechoic chamber            | -                          | -                         | 8.1 x 5.1 x 3.55              | 8.1 x 5.1                                                                 | -                                  |
| <input checked="" type="checkbox"/> No.1 shielded room         | -                          | -                         | 6.8 x 4.1 x 2.7               | 6.8 x 4.1                                                                 | -                                  |
| <input type="checkbox"/> No.2 shielded room                    | -                          | -                         | 6.8 x 4.1 x 2.7               | 6.8 x 4.1                                                                 | -                                  |
| <input type="checkbox"/> No.3 shielded room                    | -                          | -                         | 6.3 x 4.7 x 2.7               | 6.3 x 4.7                                                                 | -                                  |
| <input type="checkbox"/> No.4 shielded room                    | -                          | -                         | 4.4 x 4.7 x 2.7               | 4.4 x 4.7                                                                 | -                                  |
| <input checked="" type="checkbox"/> No.5 shielded room         | -                          | -                         | 7.8 x 6.4 x 2.7               | 7.8 x 6.4                                                                 | -                                  |
| <input type="checkbox"/> No.6 shielded room                    | -                          | -                         | 7.8 x 6.4 x 2.7               | 7.8 x 6.4                                                                 | -                                  |
| <input checked="" type="checkbox"/> No.1 measurement room      | -                          | -                         | 2.55 x 4.1 x 2.5              | -                                                                         | -                                  |

### 3.6 Test setup, Data of test & Test instruments

Refer to APPENDIX 1 to 3.

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

### 4.1 Operating mode

| Test item                                                                         | Operating mode                                                                                                                                   | Tested frequency                                                                                    |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Conducted emission                                                                | Transmitting Hopping OFF (DH5 / 3-DH5),<br>Payload: PRBS9                                                                                        | 2402MHz, 2441MHz,<br>2480MHz                                                                        |
| Carrier frequency separation                                                      | Transmitting Hopping ON (DH5 / 3-DH5) / Inquiry,<br>Payload: PRBS9                                                                               | -                                                                                                   |
| 20dB bandwidth                                                                    | Transmitting Hopping OFF (DH5 / 3-DH5) / Inquiry,<br>Payload: PRBS9                                                                              | 2402MHz, 2441MHz,<br>2480MHz                                                                        |
| Number of hopping frequency                                                       | Transmitting Hopping ON (DH5 / 3-DH5) / Inquiry,<br>Payload: PRBS9                                                                               | -                                                                                                   |
| Dwell time                                                                        | Transmitting (Hopping ON), Payload: PRBS9<br>- DH1, - DH3, - DH5<br>- 3-DH1, - 3-DH3, - 3-DH5<br>-Inquiry                                        | -                                                                                                   |
| Maximum peak output power                                                         | Transmitting Hopping OFF, Payload: PRBS9<br>- DH5, - 2-DH5, - 3-DH5                                                                              | 2402MHz, 2441MHz,<br>2480MHz                                                                        |
| Band edge compliance &<br>Spurious emission<br>(Conducted)<br>-----<br>(Radiated) | Transmitting (DH5 / 3-DH5), Payload: PRBS9<br>-Hopping ON<br>-Hopping OFF<br>-----<br>Transmitting (DH5 / 3-DH5), Payload: PRBS9<br>-Hopping OFF | Band edge compliance:<br>2402MHz, 2480MHz<br><br>Spurious emission:<br>2402MHz, 2441MHz,<br>2480MHz |
| 99% occupied bandwidth                                                            | Transmitting (DH5 / 3-DH5), Payload: PRBS9 / Inquiry<br>-Hopping ON<br>-Hopping OFF                                                              | 2402MHz, 2441MHz,<br>2480MHz                                                                        |

\*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload (except Dwell time test).

\*Remarks: Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not affect the output power and bandwidth of the EUT.

The carrier separation may be less than 20 dB bandwidth, therefore 125mW power limit was applied to it.

Software : Tera Term version 4.80  
Power Settings : 15 (maximum value)

We removed 2-DH mode (2 Mb/s EDR: pi/4DQPSK) except power measurement by using 3-DH mode (3 Mb/s EDR: 8DPSK) as a representative.

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

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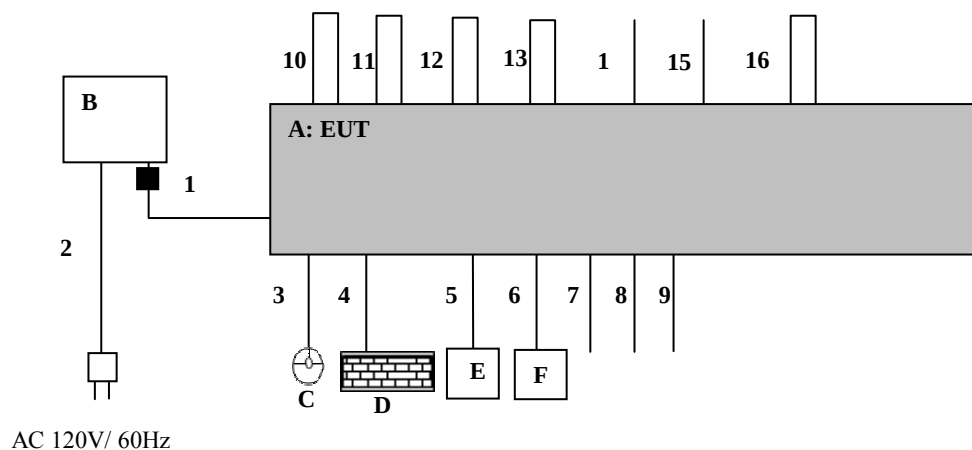
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## 4.2 Configuration and peripherals

■ : Standard ferrite core



\* Test data was taken under worse case conditions.

### Description of EUT and support equipment

| No. | Item               | Model number | Serial number | Manufacturer | Remarks |
|-----|--------------------|--------------|---------------|--------------|---------|
| A   | Network Master Pro | MT1000A      | 708230036     | Anritu       | EUT     |
| B   | AC Adaptor         | ATS065-A180  | 132800002     | TECH         | -       |
| C   | Mouse              | M-UAE96      | -             | HP           | -       |
| D   | Keyboard           | BSKBU02      | A01213        | BUFFALO      | -       |
| E   | Head Set           | HL-108       | -             | DELTACO      | -       |
| F   | GPS Receiver       | CAN 310      | 19S093144     | GARMIN       | -       |

### List of cables used

| No. | Item         | Length (m) | Shield     | Remarks |
|-----|--------------|------------|------------|---------|
| 1   | DC           | 1.5        | Unshielded | -       |
| 2   | AC           | 2.0        | Unshielded | -       |
| 3   | Mouse        | 1.8        | Unshielded | -       |
| 4   | Keyboard     | 1.4        | Unshielded | -       |
| 5   | Head Set     | 1.8        | Unshielded | -       |
| 6   | GPS Receiver | 5.0        | Shielded   | -       |
| 7   | USB          | 2.0        | Shielded   | -       |
| 8   | Coaxial      | 3.0        | Shielded   | -       |
| 9   | Ethernet     | 1.65       | Unshielded | Cat.5   |
| 10  | Bantam       | 1.9        | Unshielded | -       |
| 11  | Coaxial      | 2.1        | Shielded   | -       |
| 12  | Bantam       | 1.9        | Unshielded | -       |
| 13  | Coaxial      | 2.1        | Shielded   | -       |
| 14  | Balanced     | 2.0        | Unshielded | -       |
| 15  | Balanced     | 2.0        | Unshielded | -       |
| 16  | Ethernet     | 2.1        | Unshielded | Cat.5e  |

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## **SECTION 5: Conducted emission**

### **5.1 Operating environment**

Test place : See test data (APPENDIX 1)  
Temperature : See test data (APPENDIX 1)  
Humidity : See test data (APPENDIX 1)

### **5.2 Test configuration**

EUT was placed on a platform of nominal size, 1m by 2.0m, raised 0.8m above the conducting ground plane. The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of peripheral was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from LISN.  
Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. All unused 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.  
Photographs of the set up are shown in APPENDIX 3.

### **5.3 Test conditions**

Frequency range : 0.15 - 30MHz  
EUT position : Table top

### **5.4 Test procedure**

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT within a Shielded room. The EUT was connected to a Line Impedance Stabilization Network (LISN).  
An overview sweep with peak detection has been performed.  
The measurements had been performed with a quasi-peak detector and if required, a CISPR average detector.  
The conducted emission measurements were made with the following detection of the test receiver.

Detection Type : Quasi-Peak/ CISPR Average  
IF Bandwidth : 9kHz

### **5.5 Results**

Summary of the test results : Pass  
Refer to APPENDIX 1

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## **SECTION 6: Carrier frequency separation**

### **Test procedure**

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass  
Refer to APPENDIX 1.

## **SECTION 7: 20dB bandwidth & Occupied bandwidth (99%)**

### **Test procedure**

The bandwidth was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass  
Refer to APPENDIX 1.

## **SECTION 8: Number of hopping frequency**

### **Test procedure**

The Number of Hopping Frequency was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass  
Refer to APPENDIX 1.

## **SECTION 9: Dwell time**

### **Test procedure**

The Dwell time was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass  
Refer to APPENDIX 1.

## **SECTION 10: Maximum peak output power**

### **Test procedure**

The Maximum Peak Output Power was measured with a power meter connected to the antenna port.

Summary of the test results: Pass  
Refer to APPENDIX 1.

## **SECTION 11: Spurious emissions (Antenna port conducted)**

### **Test procedure**

The Out of Band Emissions was measured with a spectrum analyzer connected to the antenna port.

The radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement. In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.

Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart. (9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=10kHz)

Summary of the test results: Pass  
Refer to APPENDIX 1.

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## **SECTION 12: Radiated emission**

### **12.1 Operating environment**

Test room : See test data (APPENDIX 1)  
Temperature : See test data (APPENDIX 1)  
Humidity : See test data (APPENDIX 1)

### **12.2 Test configuration**

EUT was placed on a platform of nominal size, 1.0m by 1.5m (30-1000MHz) or 1.0m by 2.0m (1-25GHz), raised 0.8m above the conducting ground plane. The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity. The rear of EUT, including its peripherals was aligned and flushed with rear of tabletop. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. Photographs of the set up are shown in APPENDIX 3.

### **12.3 Test conditions**

Frequency range : 30MHz - 25GHz  
EUT position : Table top

### **12.4 Test procedure**

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3m (below 15GHz) / 1m (above 15GHz) (Refer to Figure 1). Measurements were performed with quasi-peak, peak and average detector. 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 intensity. The measurements were performed for both vertical and horizontal antenna polarization.

The radiated emission measurements were made with the following detection.

| Frequency      | 30 - 1000MHz | 1 - 25GHz            |                      | 20dBc                       |
|----------------|--------------|----------------------|----------------------|-----------------------------|
| Detection Type | : Quasi-Peak | Peak                 | Average *1)          | Peak                        |
| IF Bandwidth   | : 120kHz     | RBW:1MHz<br>VBW:3MHz | RBW:1MHz<br>VBW:10Hz | RBW: 100kHz,<br>VBW: 300kHz |

\*1) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold. Although 00-705 accepts VBW=10Hz for AV measurements, confirmed that superfluous smoothing was not performed.

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

| Antenna polarization | Carrier | Spurious (Below 1GHz) | Spurious (1-15GHz) | Spurious (15-18GHz) | Spurious (18-25GHz) |
|----------------------|---------|-----------------------|--------------------|---------------------|---------------------|
| Horizontal           | X       | X                     | X                  | X                   | X                   |
| Vertical             | Y       | X                     | Y                  | Y                   | Y                   |

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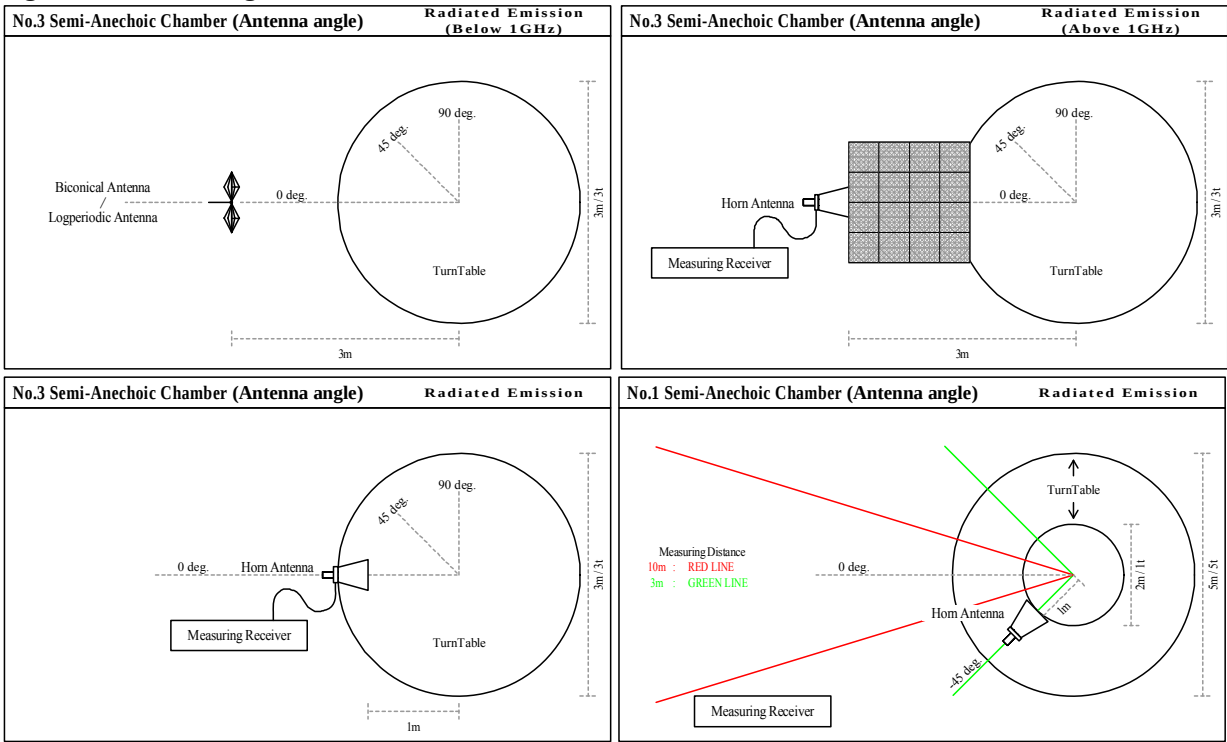
**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone: +81 463 50 6400

Facsimile: +81 463 50 6401

Figure 1. Antenna angle



12.5 Band edge

Band edge level is below the limits of FCC 15.209. Refer to the data.

12.6 Results

Summary of the test results: Pass  
\*No noise was detected above the 4<sup>th</sup> order harmonics.

Refer to APPENDIX 1.

## **Contents of APPENDIXES**

### **APPENDIX 1: Data of Radio tests**

Conducted emission  
20dB bandwidth and Carrier frequency separation  
Number of hopping frequency  
Dwell time  
Maximum peak output power  
Radiated emission  
Spurious emission (Antenna port conducted)  
Occupied bandwidth

### **APPENDIX 2: Test instruments**

Test instruments

### **APPENDIX 3: Photographs of test setup**

Conducted emission  
Radiated emission  
Pre-check of the worst position

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**UL Japan, Inc.**

**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone: +81 463 50 6400

Facsimile: +81 463 50 6401

# DATA OF CONDUCTED EMISSION TEST

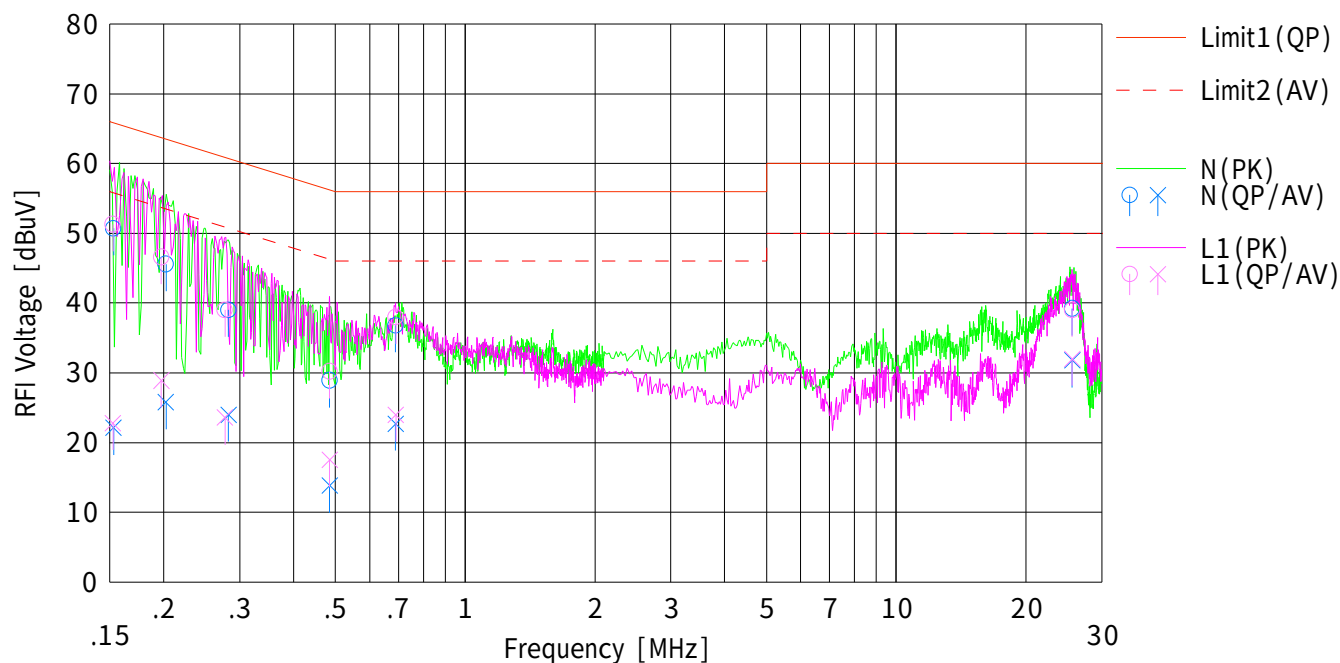
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2014/03/30

Company : Anritu Corporation  
Kind of EUT : Network Master Pro  
Model No. : MT1000A  
Serial No. : 708230036  
Remarks : -

Mode : Tx DH5 2402MHz  
Order No. : 10229869S  
Power : AC120V / 60Hz  
Temp./Humi. : 22deg.C./38%RH

Limit1 : FCC 15C(15.207) QP  
Limit2 : FCC 15C(15.207) AV

Engineer : Tomochika Sato



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|-------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |       | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.15286        | 38.2           | 9.6            | 12.5  | 50.7           | 22.1           | 65.8           | 55.8           | 15.1         | 33.7         | N     |         |
| 2   | 0.20231        | 33.2           | 13.4           | 12.4  | 45.6           | 25.8           | 63.5           | 53.5           | 17.9         | 27.7         | N     |         |
| 3   | 0.28273        | 26.5           | 11.5           | 12.5  | 39.0           | 24.0           | 60.7           | 50.7           | 21.7         | 26.7         | N     |         |
| 4   | 0.48514        | 16.5           | 1.4            | 12.4  | 28.9           | 13.8           | 56.2           | 46.2           | 27.3         | 32.4         | N     |         |
| 5   | 0.69044        | 24.3           | 10.2           | 12.5  | 36.8           | 22.7           | 56.0           | 46.0           | 19.2         | 23.3         | N     |         |
| 6   | 25.62156       | 25.6           | 18.2           | 13.6  | 39.2           | 31.8           | 60.0           | 50.0           | 20.8         | 18.2         | N     |         |
| 7   | 0.15256        | 38.8           | 10.3           | 12.5  | 51.3           | 22.8           | 65.8           | 55.8           | 14.5         | 33.0         | L1    |         |
| 8   | 0.19735        | 34.2           | 16.5           | 12.4  | 46.6           | 28.9           | 63.7           | 53.7           | 17.1         | 24.8         | L1    |         |
| 9   | 0.27742        | 26.5           | 11.1           | 12.5  | 39.0           | 23.6           | 60.8           | 50.8           | 21.8         | 27.2         | L1    |         |
| 10  | 0.48514        | 17.8           | 5.1            | 12.4  | 30.2           | 17.5           | 56.2           | 46.2           | 26.0         | 28.7         | L1    |         |
| 11  | 0.69088        | 25.5           | 11.5           | 12.5  | 38.0           | 24.0           | 56.0           | 46.0           | 18.0         | 22.0         | L1    |         |
| 12  | 25.62462       | 25.4           | 18.4           | 13.6  | 39.0           | 32.0           | 60.0           | 50.0           | 21.0         | 18.0         | L1    |         |

# DATA OF CONDUCTED EMISSION TEST

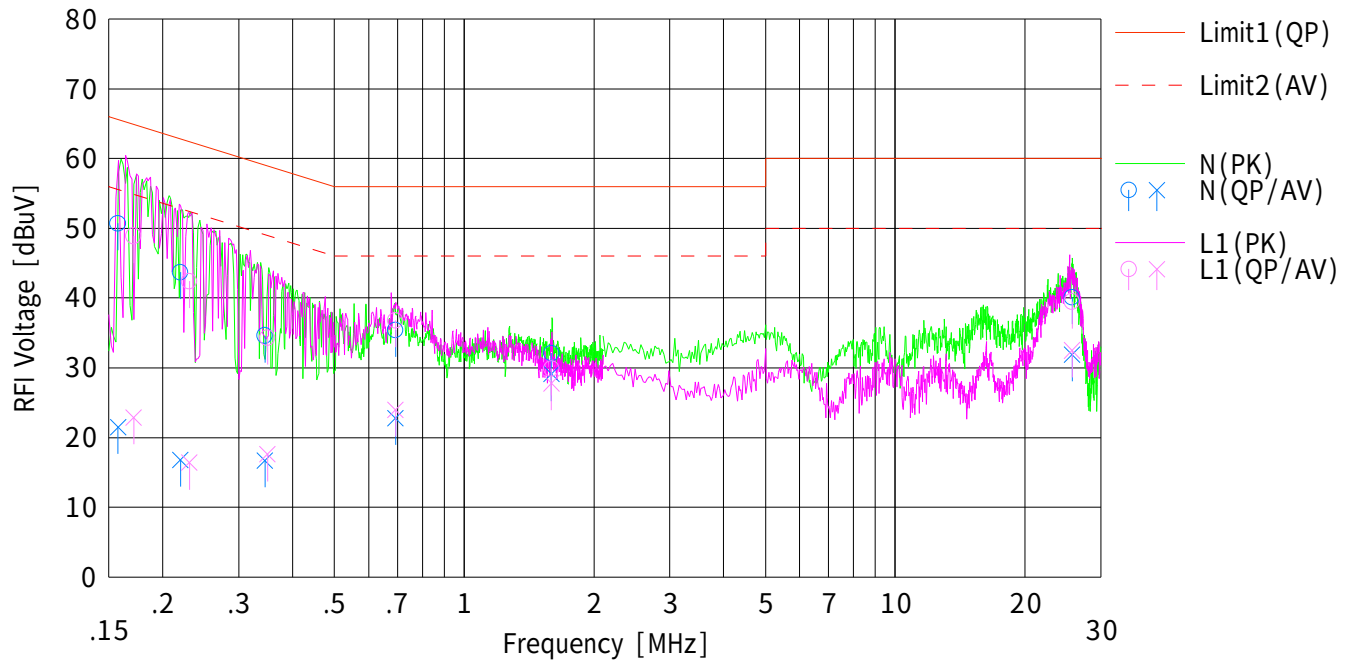
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2014/03/30

Company : Anritu Corporation  
Kind of EUT : Network Master Pro  
Model No. : MT1000A  
Serial No. : 708230036  
Remarks : -

Mode : Tx DH5 2441MHz  
Order No. : 10229869S  
Power : AC120V / 60Hz  
Temp./Humi. : 22deg.C./38%RH

Limit1 : FCC 15C(15.207) QP  
Limit2 : FCC 15C(15.207) AV

Engineer : Tomochika Sato



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|-------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |       | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.15741        | 38.2           | 9.0            | 12.5  | 50.7           | 21.5           | 65.5           | 55.5           | 14.8         | 34.0         | N     |         |
| 2   | 0.21957        | 31.2           | 4.3            | 12.5  | 43.7           | 16.8           | 62.8           | 52.8           | 19.1         | 36.0         | N     |         |
| 3   | 0.34523        | 22.2           | 4.3            | 12.4  | 34.6           | 16.7           | 59.0           | 49.0           | 24.4         | 32.3         | N     |         |
| 4   | 0.69350        | 22.9           | 10.3           | 12.5  | 35.4           | 22.8           | 56.0           | 46.0           | 20.6         | 23.2         | N     |         |
| 5   | 1.59474        | 19.5           | 16.5           | 12.6  | 32.1           | 29.1           | 56.0           | 46.0           | 23.9         | 16.9         | N     |         |
| 6   | 25.72175       | 26.5           | 18.3           | 13.6  | 40.1           | 31.9           | 60.0           | 50.0           | 19.9         | 18.1         | N     |         |
| 7   | 0.17106        | 36.5           | 10.5           | 12.4  | 48.9           | 22.9           | 64.9           | 54.9           | 16.0         | 32.0         | L1    |         |
| 8   | 0.23027        | 29.9           | 3.9            | 12.5  | 42.4           | 16.4           | 62.4           | 52.4           | 20.0         | 36.0         | L1    |         |
| 9   | 0.35015        | 21.9           | 5.2            | 12.4  | 34.3           | 17.6           | 58.9           | 48.9           | 24.6         | 31.3         | L1    |         |
| 10  | 0.69270        | 24.3           | 11.5           | 12.5  | 36.8           | 24.0           | 56.0           | 46.0           | 19.2         | 22.0         | L1    |         |
| 11  | 1.59488        | 17.3           | 15.2           | 12.6  | 29.9           | 27.8           | 56.0           | 46.0           | 26.1         | 18.2         | L1    |         |
| 12  | 25.73110       | 25.9           | 18.9           | 13.6  | 39.5           | 32.5           | 60.0           | 50.0           | 20.5         | 17.5         | L1    |         |

# DATA OF CONDUCTED EMISSION TEST

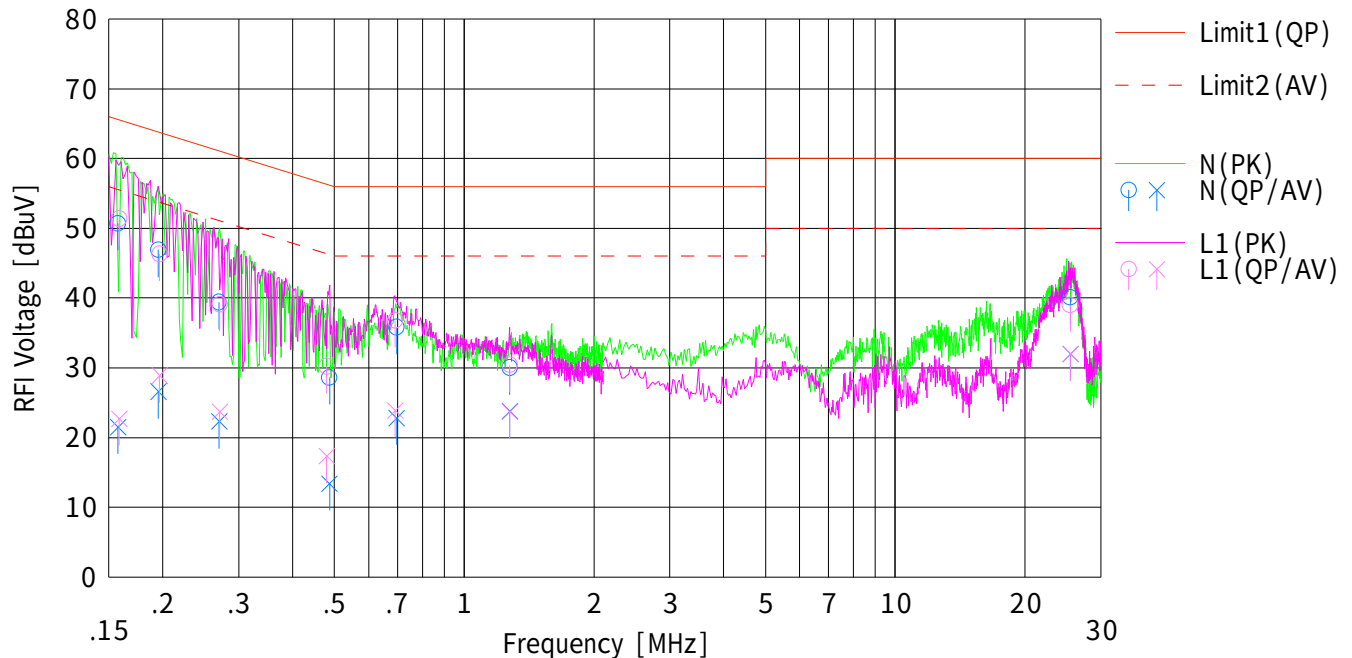
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2014/03/30

Company : Anritu Corporation  
Kind of EUT : Network Master Pro  
Model No. : MT1000A  
Serial No. : 708230036  
Remarks : -

Mode : Tx DH5 2480MHz  
Order No. : 10229869S  
Power : AC120V / 60Hz  
Temp./Humi. : 22deg.C./38%RH

Limit1 : FCC 15C(15.207) QP  
Limit2 : FCC 15C(15.207) AV

Engineer : Tomochika Sato



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|-------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |       | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.15739        | 38.2           | 9.0            | 12.5  | 50.7           | 21.5           | 65.6           | 55.6           | 14.9         | 34.1         | N     |         |
| 2   | 0.19516        | 34.5           | 14.2           | 12.4  | 46.9           | 26.6           | 63.8           | 53.8           | 16.9         | 27.2         | N     |         |
| 3   | 0.26998        | 26.9           | 9.8            | 12.5  | 39.4           | 22.3           | 61.1           | 51.1           | 21.7         | 28.8         | N     |         |
| 4   | 0.48757        | 16.2           | 1.0            | 12.4  | 28.6           | 13.4           | 56.2           | 46.2           | 27.6         | 32.8         | N     |         |
| 5   | 0.69836        | 23.3           | 10.3           | 12.5  | 35.8           | 22.8           | 56.0           | 46.0           | 20.2         | 23.2         | N     |         |
| 6   | 1.27746        | 17.4           | 11.2           | 12.6  | 30.0           | 23.8           | 56.0           | 46.0           | 26.0         | 22.2         | N     |         |
| 7   | 25.51229       | 26.5           | 18.4           | 13.6  | 40.1           | 32.0           | 60.0           | 50.0           | 19.9         | 18.0         | N     |         |
| 8   | 0.15855        | 38.9           | 10.2           | 12.5  | 51.4           | 22.7           | 65.5           | 55.5           | 14.1         | 32.8         | L1    |         |
| 9   | 0.19682        | 33.9           | 16.5           | 12.4  | 46.3           | 28.9           | 63.7           | 53.7           | 17.4         | 24.8         | L1    |         |
| 10  | 0.27146        | 26.6           | 11.2           | 12.5  | 39.1           | 23.7           | 61.0           | 51.0           | 21.9         | 27.3         | L1    |         |
| 11  | 0.47998        | 17.8           | 4.9            | 12.4  | 30.2           | 17.3           | 56.3           | 46.3           | 26.1         | 29.0         | L1    |         |
| 12  | 0.69216        | 24.3           | 11.4           | 12.5  | 36.8           | 23.9           | 56.0           | 46.0           | 19.2         | 22.1         | L1    |         |
| 13  | 1.27641        | 17.8           | 11.1           | 12.6  | 30.4           | 23.7           | 56.0           | 46.0           | 25.6         | 22.3         | L1    |         |
| 14  | 25.50711       | 25.4           | 18.4           | 13.6  | 39.0           | 32.0           | 60.0           | 50.0           | 21.0         | 18.0         | L1    |         |

# DATA OF CONDUCTED EMISSION TEST

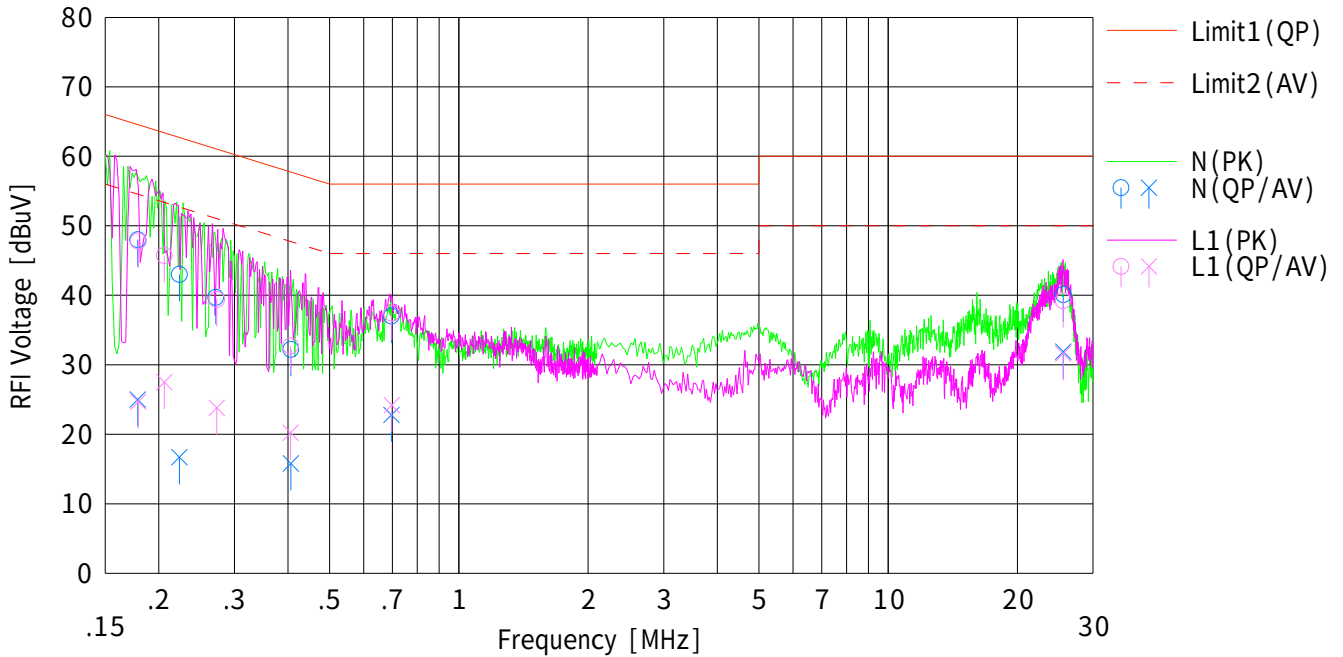
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2014/03/30

Company : Anritsu Corporation  
Kind of EUT : Network Master Pro  
Model No. : MT1000A  
Serial No. : 708230036  
Remarks : -

Mode : Tx 3 - DH5 2402MHz  
Order No. : 10229869S  
Power : AC120V / 60Hz  
Temp./Humi. : 22deg.C./38%RH

Limit1 : FCC 15C(15.207) QP  
Limit2 : FCC 15C(15.207) AV

Engineer : Tomochika Sato



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac<br>[dB] | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |               | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.17883        | 35.6           | 12.6           | 12.4          | 48.0           | 25.0           | 64.5           | 54.5           | 16.5         | 29.5         | N     |         |
| 2   | 0.22346        | 30.5           | 4.2            | 12.5          | 43.0           | 16.7           | 62.6           | 52.6           | 19.6         | 35.9         | N     |         |
| 3   | 0.27161        | 27.2           | ---            | 12.5          | 39.7           | ---            | 61.0           | 51.0           | 21.3         | ---          | N     |         |
| 4   | 0.40596        | 19.8           | 3.4            | 12.4          | 32.2           | 15.8           | 57.7           | 47.7           | 25.5         | 31.9         | N     |         |
| 5   | 0.69679        | 24.5           | 10.3           | 12.5          | 37.0           | 22.8           | 56.0           | 46.0           | 19.0         | 23.2         | N     |         |
| 6   | 25.57824       | 26.5           | 18.3           | 13.6          | 40.1           | 31.9           | 60.0           | 50.0           | 19.9         | 18.1         | N     |         |
| 7   | 0.17919        | 35.4           | 12.3           | 12.4          | 47.8           | 24.7           | 64.5           | 54.5           | 16.7         | 29.8         | L1    |         |
| 8   | 0.20611        | 33.2           | 15.0           | 12.5          | 45.7           | 27.5           | 63.3           | 53.3           | 17.6         | 25.8         | L1    |         |
| 9   | 0.27286        | 26.9           | 11.3           | 12.5          | 39.4           | 23.8           | 61.0           | 51.0           | 21.6         | 27.2         | L1    |         |
| 10  | 0.40560        | 20.3           | 7.8            | 12.4          | 32.7           | 20.2           | 57.7           | 47.7           | 25.0         | 27.5         | L1    |         |
| 11  | 0.69783        | 24.9           | 11.7           | 12.5          | 37.4           | 24.2           | 56.0           | 46.0           | 18.6         | 21.8         | L1    |         |
| 12  | 25.56850       | 25.6           | 18.0           | 13.6          | 39.2           | 31.6           | 60.0           | 50.0           | 20.8         | 18.4         | L1    |         |

# DATA OF CONDUCTED EMISSION TEST

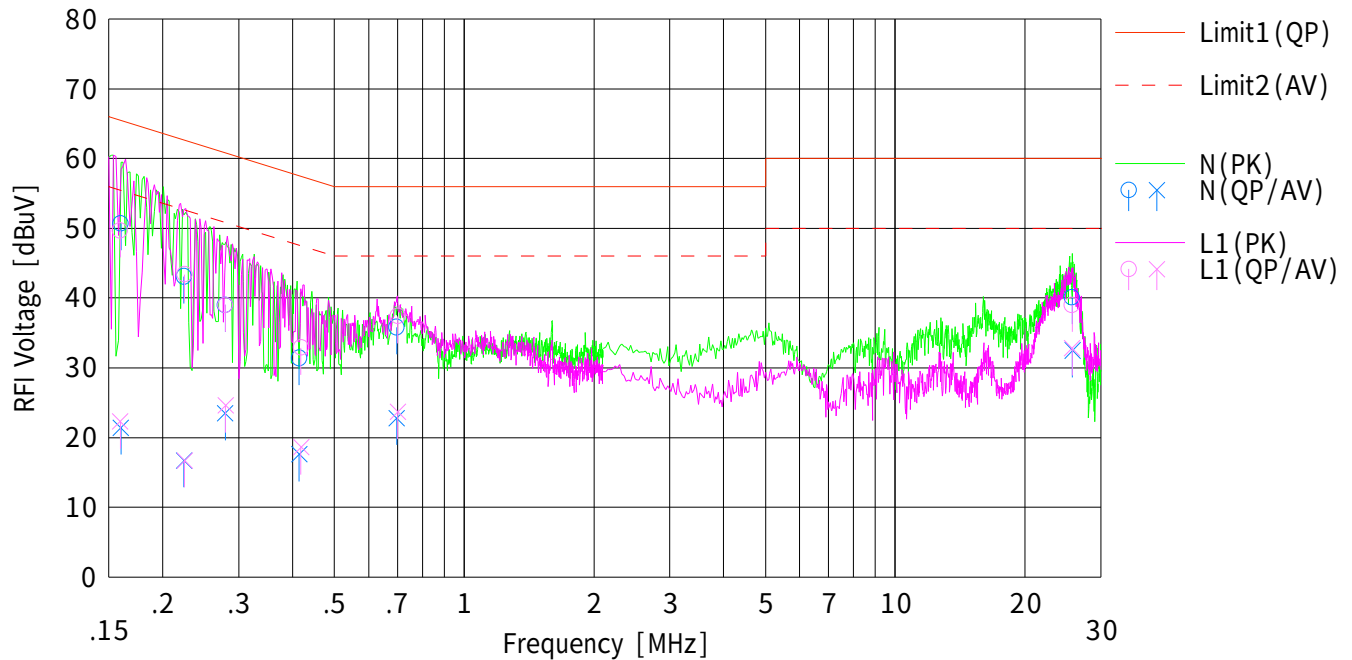
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2014/03/30

Company : Anritu Corporation  
Kind of EUT : Network Master Pro  
Model No. : MT1000A  
Serial No. : 708230036  
Remarks : -

Mode : Tx 3-DH5 2441MHz  
Order No. : 10229869S  
Power : AC120V / 60Hz  
Temp./Humi. : 22deg.C./38%RH

Limit1 : FCC 15C(15.207) QP  
Limit2 : FCC 15C(15.207) AV

Engineer : Tomochika Sato



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac<br>[dB] | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |               | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.16002        | 38.2           | 8.9            | 12.5          | 50.7           | 21.4           | 65.4           | 55.4           | 14.7         | 34.0         | N     |         |
| 2   | 0.22400        | 30.6           | 4.2            | 12.5          | 43.1           | 16.7           | 62.6           | 52.6           | 19.5         | 35.9         | N     |         |
| 3   | 0.27909        | 26.5           | 11.0           | 12.5          | 39.0           | 23.5           | 60.8           | 50.8           | 21.8         | 27.3         | N     |         |
| 4   | 0.41462        | 19.0           | 5.2            | 12.4          | 31.4           | 17.6           | 57.5           | 47.5           | 26.1         | 29.9         | N     |         |
| 5   | 0.69771        | 23.3           | 10.3           | 12.5          | 35.8           | 22.8           | 56.0           | 46.0           | 20.2         | 23.2         | N     |         |
| 6   | 25.75492       | 26.5           | 18.9           | 13.6          | 40.1           | 32.5           | 60.0           | 50.0           | 19.9         | 17.5         | N     |         |
| 7   | 0.15936        | 37.2           | 9.8            | 12.5          | 49.7           | 22.3           | 65.4           | 55.4           | 15.7         | 33.1         | L1    |         |
| 8   | 0.22468        | 30.9           | 4.2            | 12.5          | 43.4           | 16.7           | 62.6           | 52.6           | 19.2         | 35.9         | L1    |         |
| 9   | 0.27952        | 26.5           | 12.1           | 12.5          | 39.0           | 24.6           | 60.8           | 50.8           | 21.8         | 26.2         | L1    |         |
| 10  | 0.41841        | 20.5           | 6.2            | 12.4          | 32.9           | 18.6           | 57.4           | 47.4           | 24.5         | 28.8         | L1    |         |
| 11  | 0.70173        | 24.9           | 11.2           | 12.5          | 37.4           | 23.7           | 56.0           | 46.0           | 18.6         | 22.3         | L1    |         |
| 12  | 25.74967       | 25.4           | 19.2           | 13.6          | 39.0           | 32.8           | 60.0           | 50.0           | 21.0         | 17.2         | L1    |         |

# DATA OF CONDUCTED EMISSION TEST

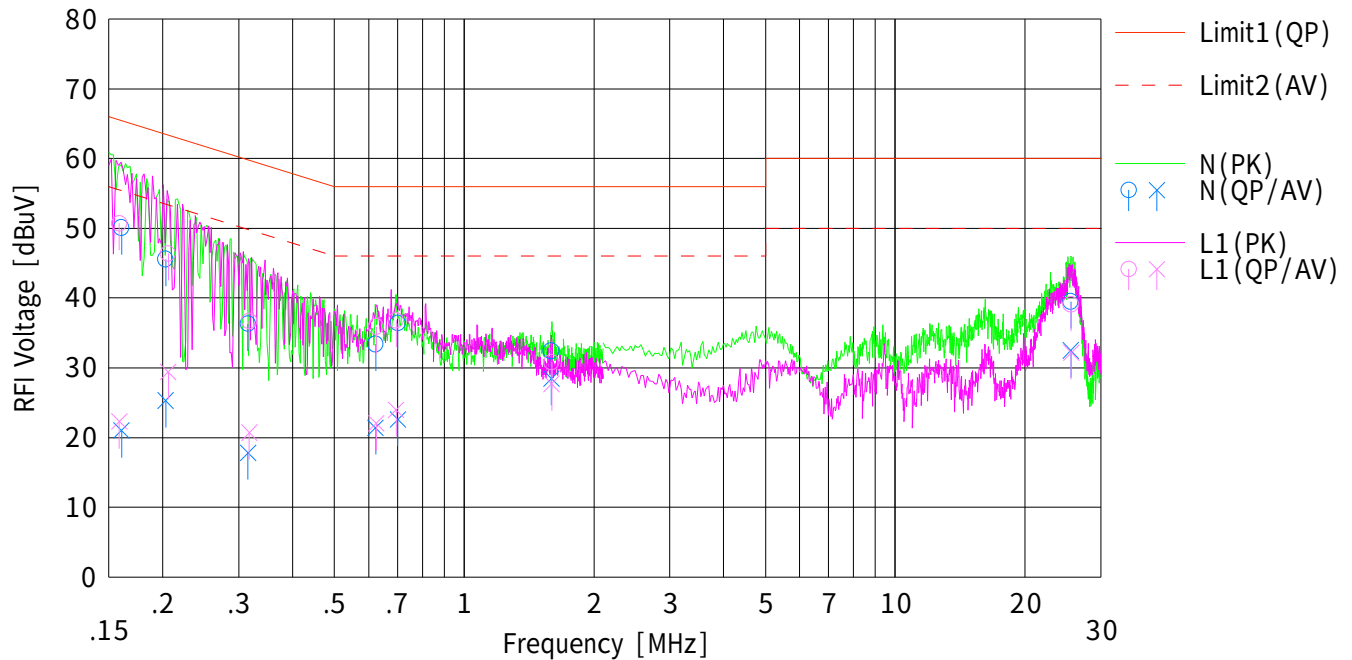
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2014/03/30

Company : Anritu Corporation  
Kind of EUT : Network Master Pro  
Model No. : MT1000A  
Serial No. : 708230036  
Remarks : -

Mode : Tx 3-DH5 2480MHz  
Order No. : 10229869S  
Power : AC120V / 60Hz  
Temp./Humi. : 22deg.C./38%RH

Limit1 : FCC 15C(15.207) QP  
Limit2 : FCC 15C(15.207) AV

Engineer : Tomochika Sato



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|-------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |       | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.16033        | 37.6           | 8.5            | 12.5  | 50.1           | 21.0           | 65.4           | 55.4           | 15.3         | 34.4         | N     |         |
| 2   | 0.20308        | 33.2           | 12.9           | 12.4  | 45.6           | 25.3           | 63.4           | 53.4           | 17.8         | 28.1         | N     |         |
| 3   | 0.31537        | 23.9           | 5.4            | 12.4  | 36.3           | 17.8           | 59.8           | 49.8           | 23.5         | 32.0         | N     |         |
| 4   | 0.62361        | 20.9           | 8.9            | 12.5  | 33.4           | 21.4           | 56.0           | 46.0           | 22.6         | 24.6         | N     |         |
| 5   | 0.70125        | 23.9           | 10.1           | 12.5  | 36.4           | 22.6           | 56.0           | 46.0           | 19.6         | 23.4         | N     |         |
| 6   | 1.59372        | 19.8           | 15.9           | 12.6  | 32.4           | 28.5           | 56.0           | 46.0           | 23.6         | 17.5         | N     |         |
| 7   | 25.58680       | 25.9           | 18.9           | 13.6  | 39.5           | 32.5           | 60.0           | 50.0           | 20.5         | 17.5         | N     |         |
| 8   | 0.15859        | 38.2           | 9.8            | 12.5  | 50.7           | 22.3           | 65.5           | 55.5           | 14.8         | 33.2         | L1    |         |
| 9   | 0.20606        | 33.9           | 16.9           | 12.5  | 46.4           | 29.4           | 63.3           | 53.3           | 16.9         | 23.9         | L1    |         |
| 10  | 0.31749        | 24.3           | 8.3            | 12.4  | 36.7           | 20.7           | 59.7           | 49.7           | 23.0         | 29.0         | L1    |         |
| 11  | 0.62579        | 23.4           | 9.5            | 12.5  | 35.9           | 22.0           | 56.0           | 46.0           | 20.1         | 24.0         | L1    |         |
| 12  | 0.69552        | 24.3           | 11.5           | 12.5  | 36.8           | 24.0           | 56.0           | 46.0           | 19.2         | 22.0         | L1    |         |
| 13  | 1.59512        | 18.2           | 15.1           | 12.6  | 30.8           | 27.7           | 56.0           | 46.0           | 25.2         | 18.3         | L1    |         |
| 14  | 25.58939       | 25.5           | 18.6           | 13.6  | 39.1           | 32.2           | 60.0           | 50.0           | 20.9         | 17.8         | L1    |         |

20dB Bandwidth and Carrier Frequency Separation

Test place

UL Japan, Inc. Shonan EMC Lab.

No.1 Measurement Room

Date

March 27, 2014

Temperature / Humidity

25 deg.C , 45 %RH

Engineer

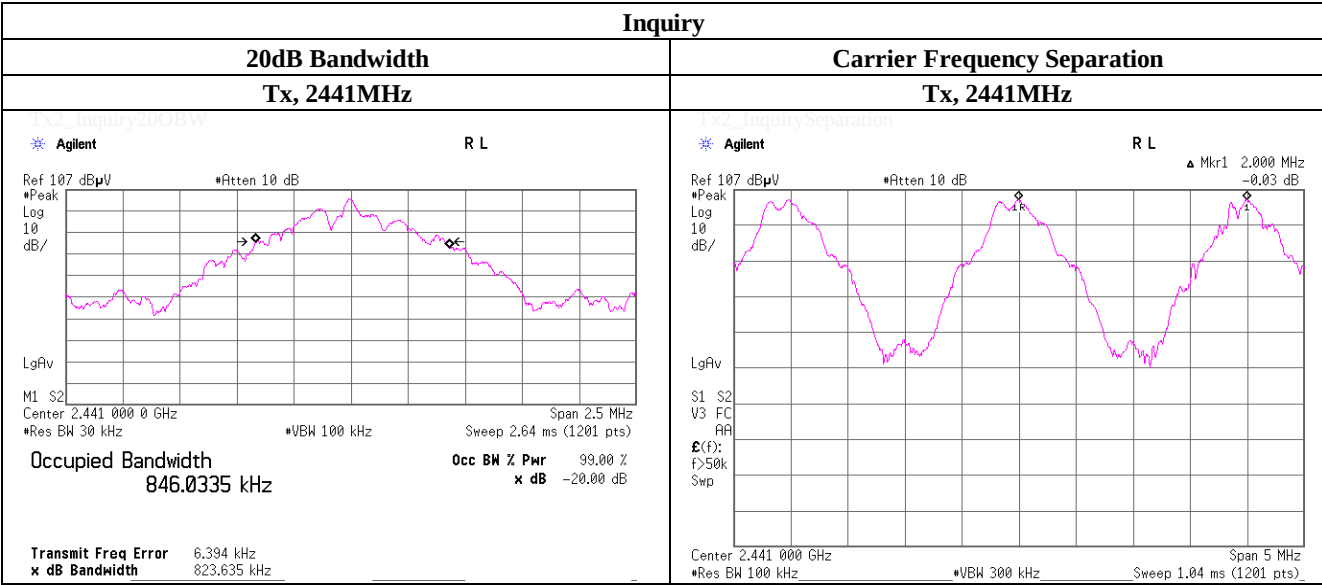
Shinichi Takano

Mode

Tx, Bluetooth, BDR, PRBS9

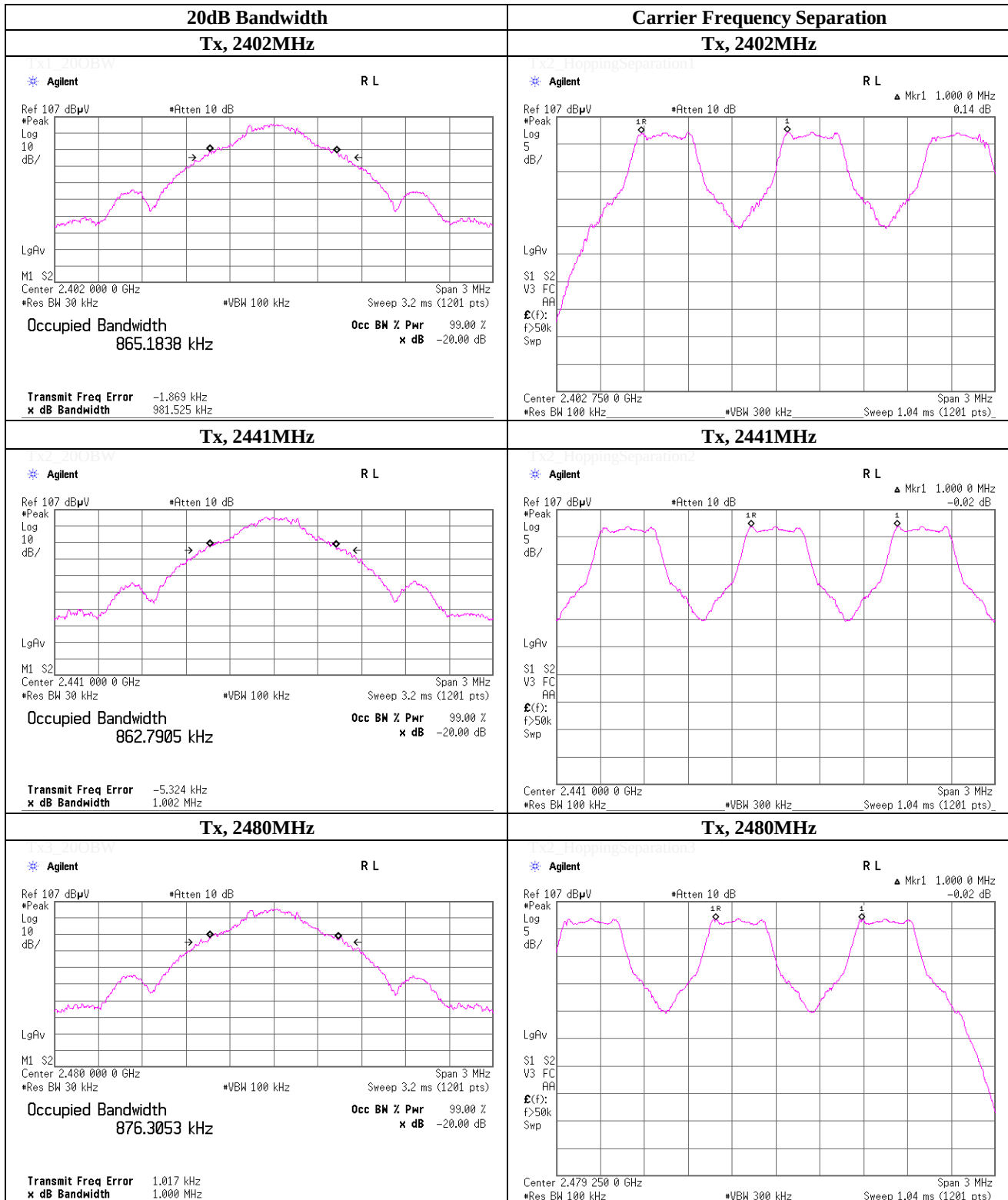
| Mode    | Freq.<br>[MHz] | 20dB<br>Bandwidth<br>[MHz] | Carrier<br>Frequency<br>Separation<br>[MHz] | Limit for<br>Carrier<br>Frequency<br>Separation<br>[MHz] |
|---------|----------------|----------------------------|---------------------------------------------|----------------------------------------------------------|
| DH5     | 2402.0         | 0.982                      | 1.000                                       | >= 0.654                                                 |
| DH5     | 2441.0         | 1.002                      | 1.000                                       | >= 0.668                                                 |
| DH5     | 2480.0         | 1.000                      | 1.000                                       | >= 0.667                                                 |
| Inquiry | 2441.0         | 0.824                      | 2.000                                       | >= 0.549                                                 |

Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).  
No limit applies to 20dB Bandwidth.



## 20dB Bandwidth and Carrier Frequency Separation

Tx, Bluetooth, BDR, PRBS9



**UL Japan, Inc.**

**Shonan EMC Lab.**

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## **20dB Bandwidth and Carrier Frequency Separation**

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.5 Shielded Room  
Date                              March 27, 2014  
Temperature / Humidity      25 deg.C                      , 45 %RH  
Engineer                        Shinichi Takano  
Mode                              Tx, Bluetooth, EDR, PRBS9

| Mode  | Freq.<br>[MHz] | 20dB<br>Bandwidth<br>[MHz] | Carrier<br>Frequency<br>Separation<br>[MHz] | Limit for<br>Carrier<br>Frequency<br>Separation<br>[MHz] |
|-------|----------------|----------------------------|---------------------------------------------|----------------------------------------------------------|
| 3-DH5 | 2402.0         | 1.339                      | 1.000                                       | >= 0.893                                                 |
| 3-DH5 | 2441.0         | 1.335                      | 1.000                                       | >= 0.890                                                 |
| 3-DH5 | 2480.0         | 1.331                      | 1.000                                       | >= 0.887                                                 |
|       |                |                            |                                             |                                                          |

Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).

No limit applies to 20dB Bandwidth.

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**UL Japan, Inc.**

**Shonan EMC Lab.**

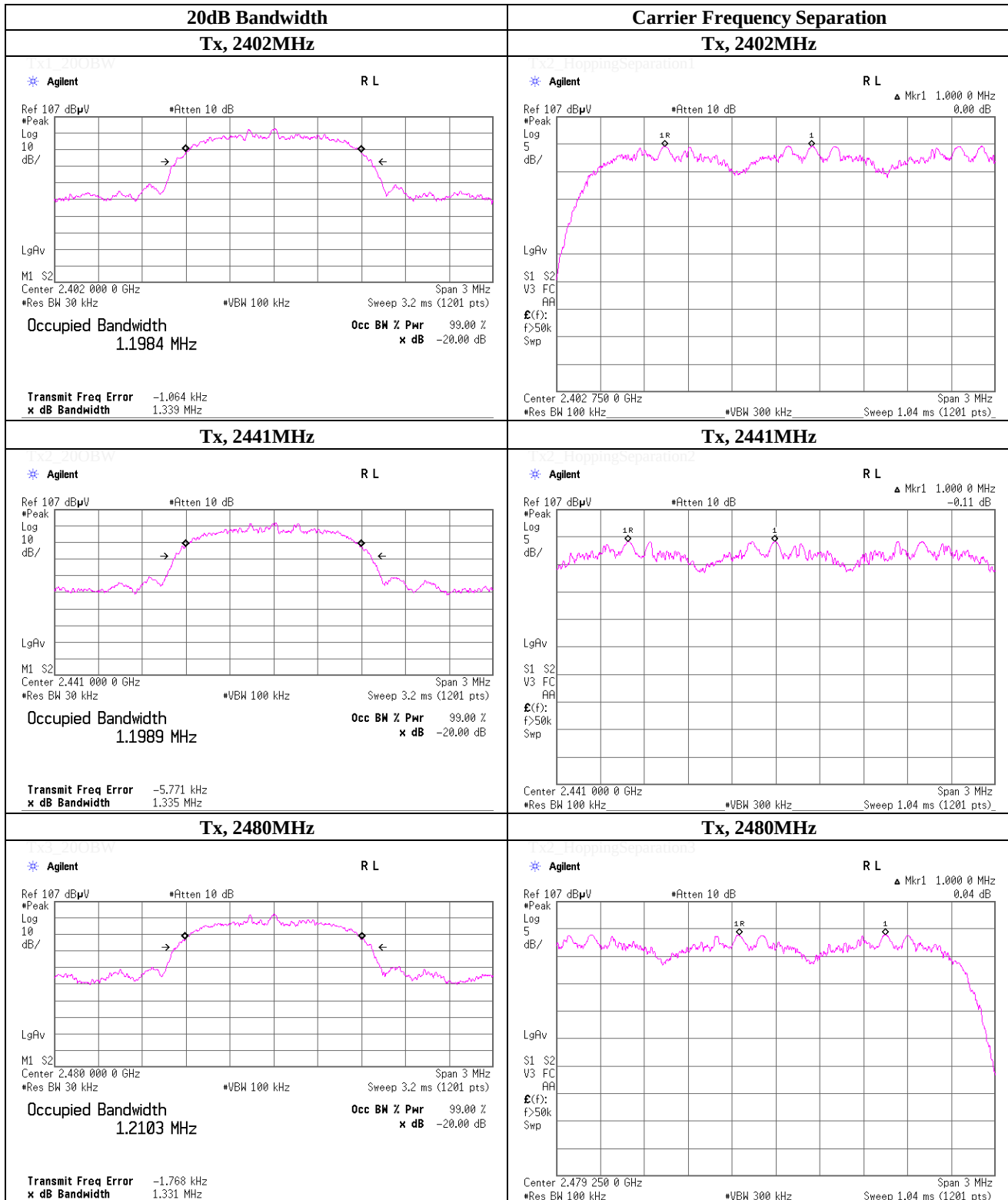
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

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## 20dB Bandwidth and Carrier Frequency Separation

Tx, Bluetooth, EDR, PRBS9



**UL Japan, Inc.**

**Shonan EMC Lab.**

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Number of Hopping Frequency

Test place

UL Japan, Inc. Shonan EMC Lab.

No.1 Measurement Room

Date

March 27, 2014

Temperature / Humidity

25 deg.C , 45 %RH

Engineer

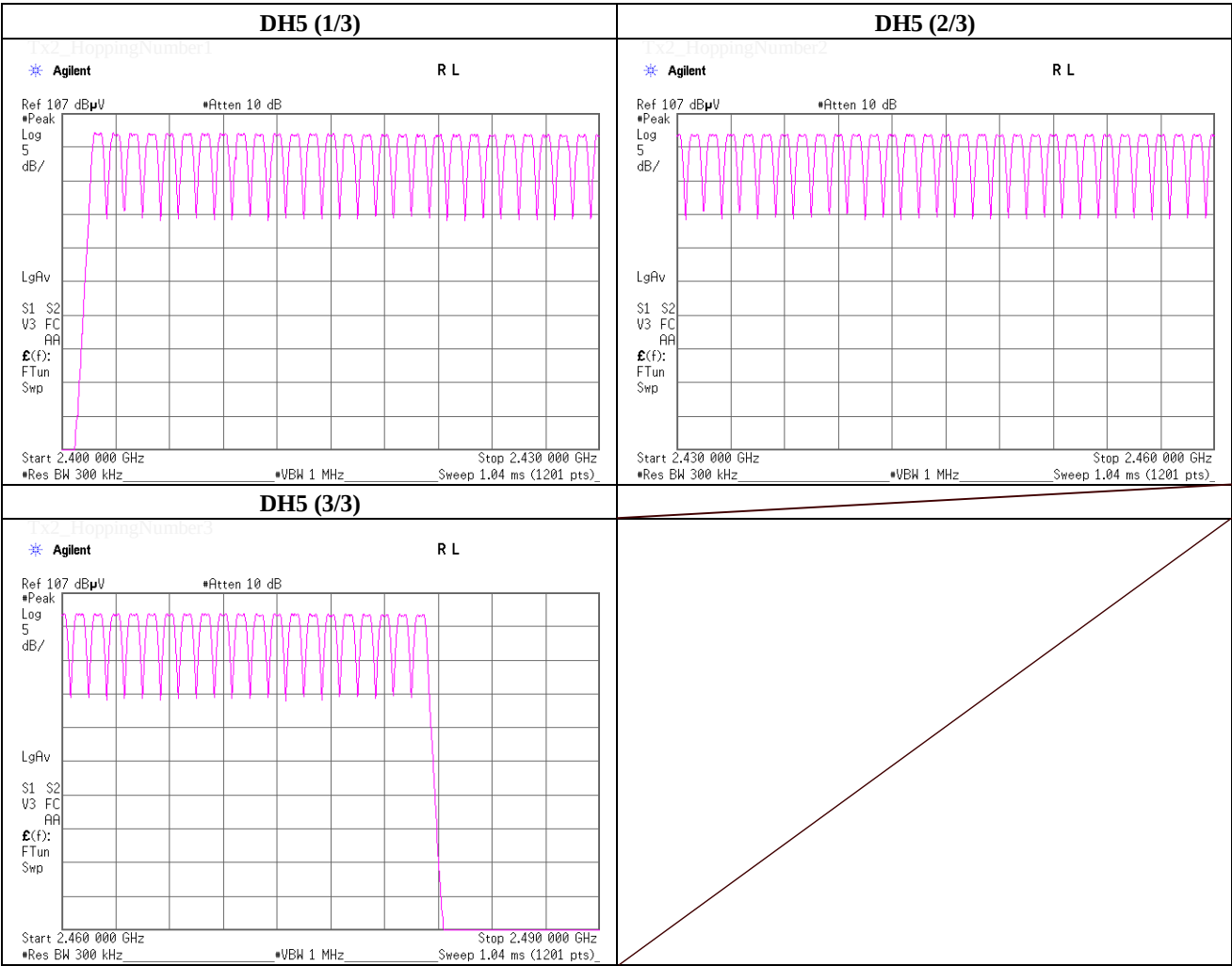
Shinichi Takano

Mode

Tx, Bluetooth, BDR, PRBS9

| Mode | Number of Channel [times] | Limit [times] |
|------|---------------------------|---------------|
| DH5  | 79                        | >= 15         |

\* Test was not performed at AFH mode whose number of hopping channel is 20 channels because this Bluetooth radio is in compliance of Bluetooth Specification.



Number of Hopping Frequency

Test place

UL Japan, Inc. Shonan EMC Lab.

No.5 Shielded Room

Date

March 27, 2014

Temperature / Humidity

25 deg.C , 45 %RH

Engineer

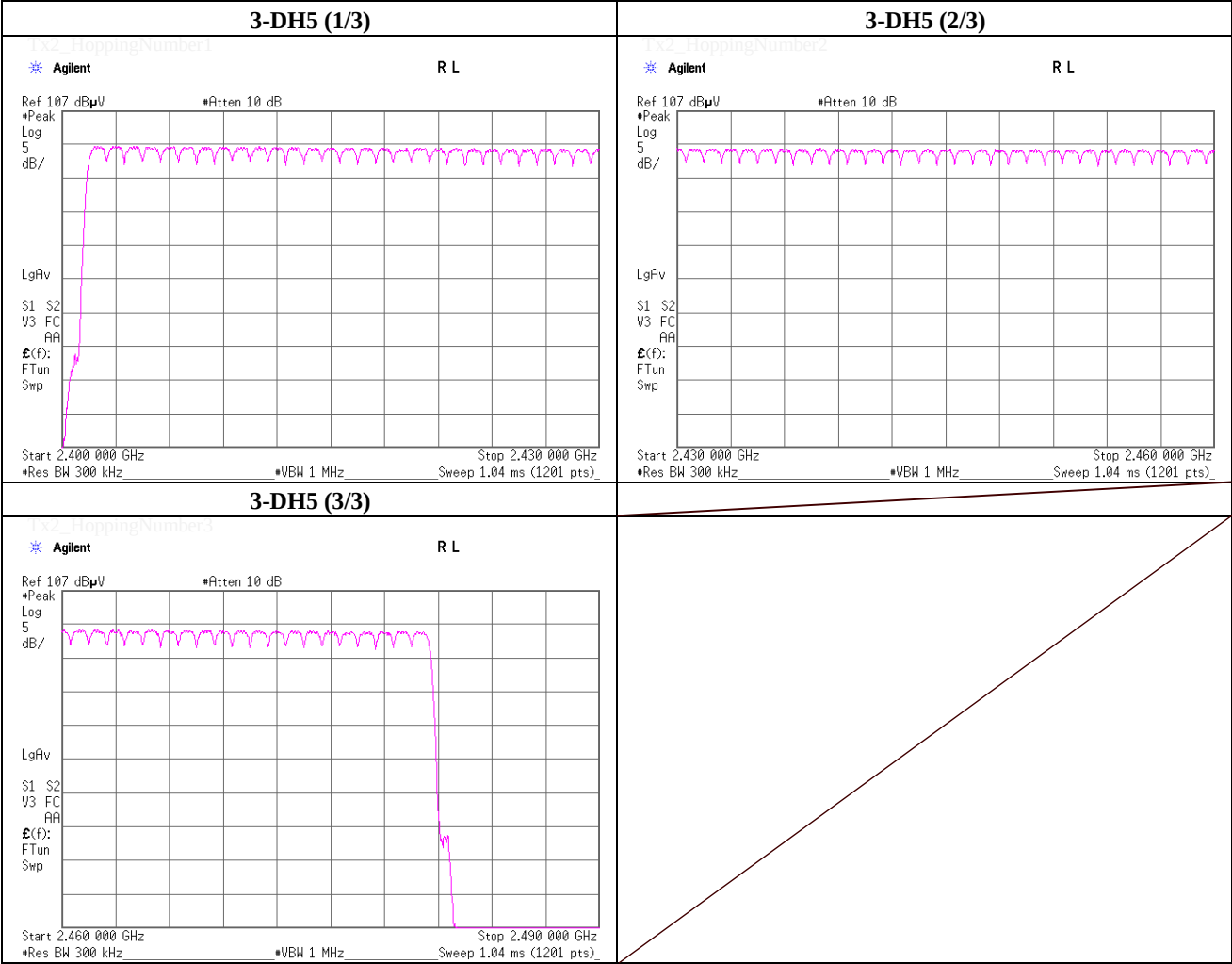
Shinichi Takano

Mode

Tx, Bluetooth, EDR, PRBS9

| Mode  | Number of Channel [times] | Limit [times] |
|-------|---------------------------|---------------|
| 3-DH5 | 79                        | >= 15         |

\* Test was not performed at AFH mode whose number of hopping channel is 20 channels because this Bluetooth radio is in compliance of Bluetooth Specification.



Number of Hopping Frequency

Test place

UL Japan, Inc. Shonan EMC Lab.

No.1 Measurement Room

Date

March 27, 2014

Temperature / Humidity

25 deg.C , 45 %RH

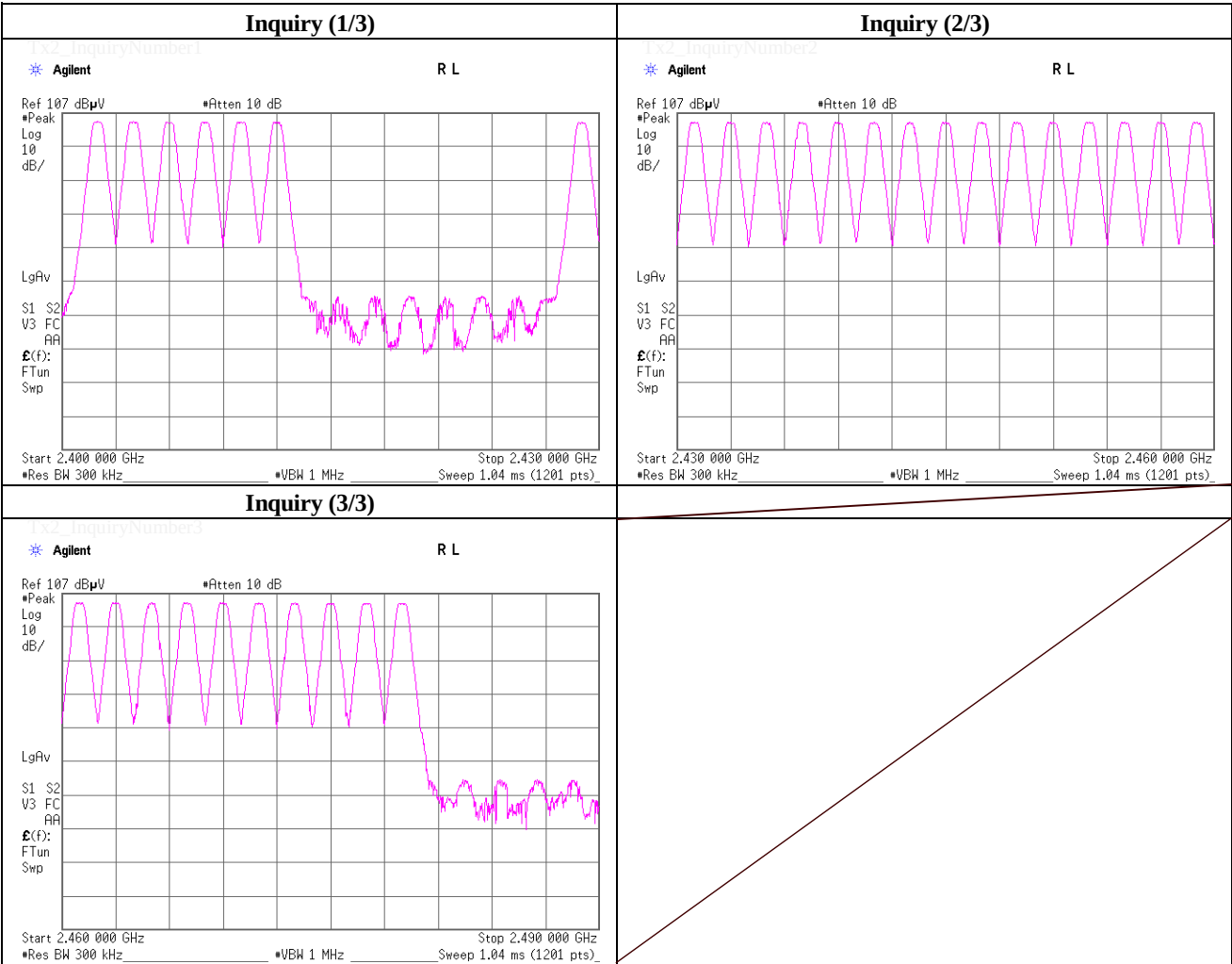
Engineer

Shinichi Takano

Mode

Tx, Bluetooth, Inquiry

|         |                           |               |
|---------|---------------------------|---------------|
| Mode    | Number of Channel [times] | Limit [times] |
| Inquiry | 32                        | >= 15         |



## Dwell Time

|                        |                                |                       |
|------------------------|--------------------------------|-----------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date                   | March 27, 2014                 |                       |
| Temperature / Humidity | 25 deg.C , 45 %RH              |                       |
| Engineer               | Shinichi Takano                |                       |
| Mode                   | Tx, Bluetooth, BDR, PRBS9      |                       |

| Mode    | Number of transmission<br>in a 31.6 (79 Hopping x 0.4)<br>/ 12.8 (32 Hopping x 0.4) second period |            |                          | Length of<br>transmission<br>time [msec] | Result<br>[msec] | Limit<br>[msec] |
|---------|---------------------------------------------------------------------------------------------------|------------|--------------------------|------------------------------------------|------------------|-----------------|
| DH1     | 49.6                                                                                              | / 5.0 sec. | x 31.6 sec. = 314 times  | 0.422                                    | 132              | 400             |
| DH3     | 27.0                                                                                              | / 5.0 sec. | x 31.6 sec. = 171 times  | 1.684                                    | 288              | 400             |
| DH5     | 18.6                                                                                              | / 5.0 sec. | x 31.6 sec. = 118 times  | 2.934                                    | 346              | 400             |
| Inquiry | 100.0                                                                                             | / 1.0 sec. | x 12.8 sec. = 1280 times | 0.130                                    | 166              | 400             |

Sample Calculation

Result = Number of transmission x Length of transmission time

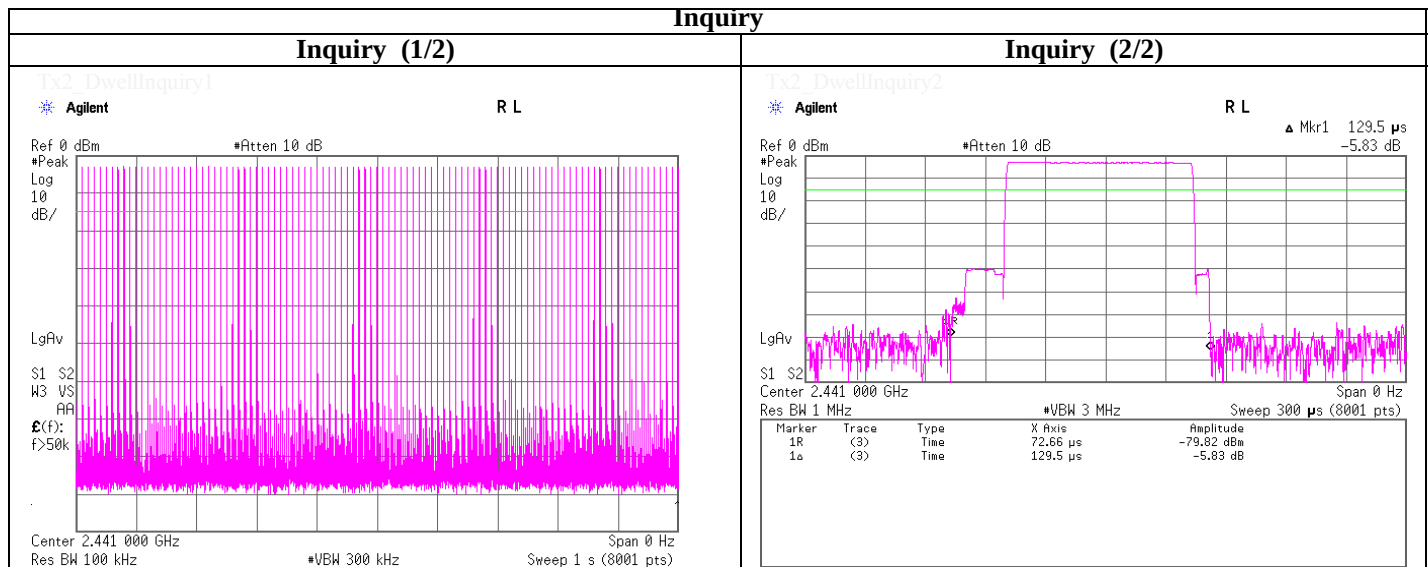
\*Average data of 5 tests.(except Inquiry)

| Mode    | Sampling [times] |     |     |     |     | Average<br>[times] |
|---------|------------------|-----|-----|-----|-----|--------------------|
|         | 1                | 2   | 3   | 4   | 5   |                    |
| DH1     | 50               | 49  | 48  | 50  | 51  | 49.6               |
| DH3     | 29               | 27  | 28  | 25  | 26  | 27.0               |
| DH5     | 15               | 19  | 22  | 17  | 20  | 18.6               |
| Inquiry | 100              | 100 | 100 | 100 | 100 | 100.0              |

Sample Calculation

Average= Summation(Sampling 1 to 5) / 5

\* This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in  $N \times 0.4s$ , where  $N$  is the number of channels being used in the hopping sequence ( $20 \leq N \leq 79$ ), is always less than 0.4s regardless of packet size (DH1, DH3 or DH5). This is confirmed in the test report for  $N=79$ .



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**Shonan EMC Lab.**

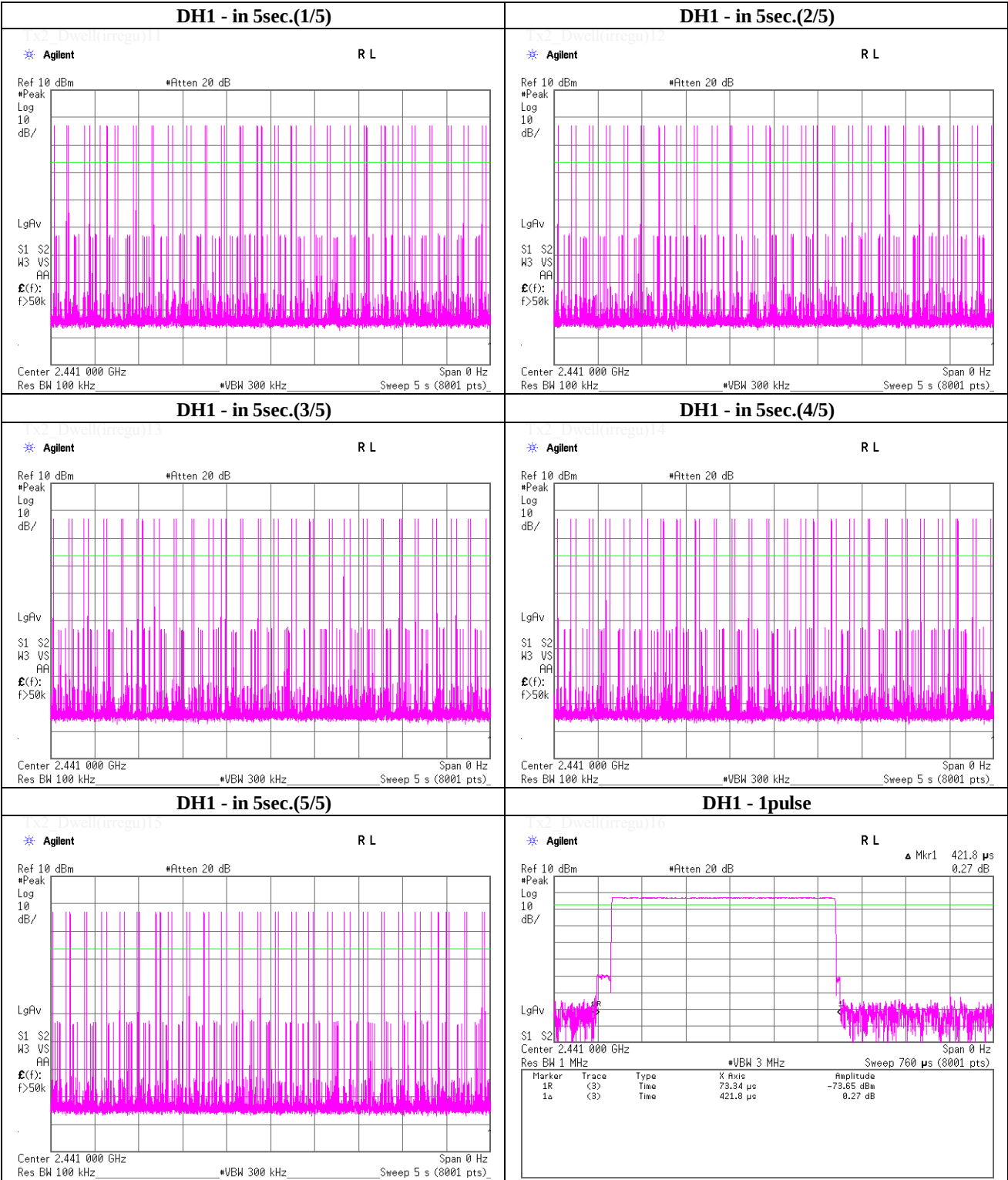
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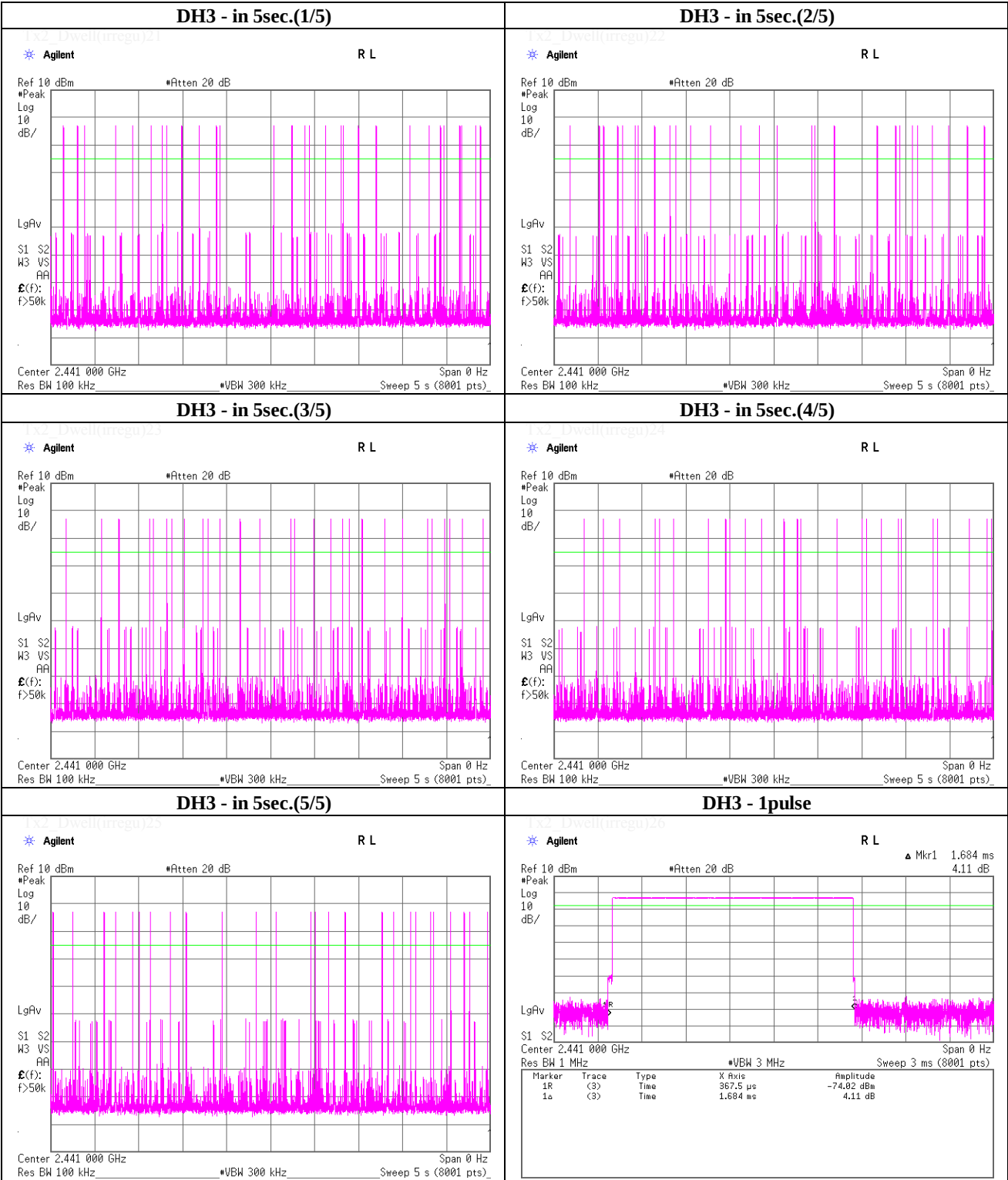
Dwell time

Tx, Bluetooth, BDR, PRBS9



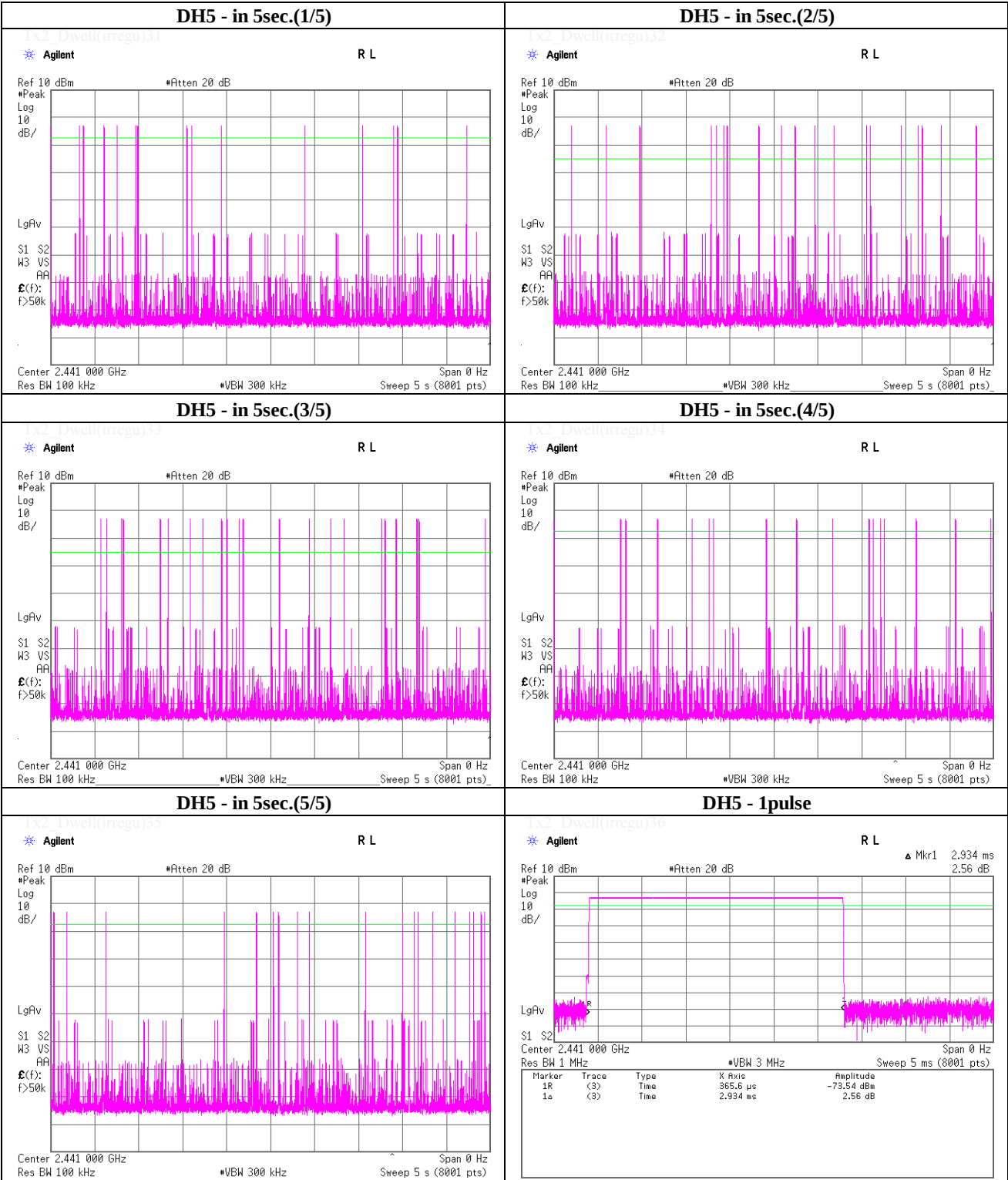
Dwell time

Tx, Bluetooth, BDR, PRBS9



Dwell time

Tx, Bluetooth, BDR, PRBS9



## Dwell Time

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.5 Shielded Room  
 Date                              March 27, 2014  
 Temperature / Humidity    25 deg.C    , 45 %RH  
 Engineer                        Shinichi Takano  
 Mode                              Tx, Bluetooth, EDR, PRBS9

| Mode  | Number of transmission<br>in a 31.6 (79 Hopping x 0.4) second | Length of<br>transmission<br>time [msec] | Result<br>[msec] | Limit<br>[msec] |
|-------|---------------------------------------------------------------|------------------------------------------|------------------|-----------------|
| 3-DH1 | 49.6 / 5.0 sec. x 31.6 sec. = 314 times                       | 0.429                                    | 135              | 400             |
| 3-DH3 | 25.8 / 5.0 sec. x 31.6 sec. = 164 times                       | 1.680                                    | 276              | 400             |
| 3-DH5 | 19.0 / 5.0 sec. x 31.6 sec. = 121 times                       | 2.931                                    | 355              | 400             |
|       |                                                               |                                          |                  |                 |

Sample Calculation

Result = Number of transmission x Length of transmission time

\*Average data of 5 tests.(except Inquiry)

| Mode  | Sampling [times] |    |    |    |    | Average<br>[times] |
|-------|------------------|----|----|----|----|--------------------|
|       | 1                | 2  | 3  | 4  | 5  |                    |
| 3-DH1 | 48               | 51 | 51 | 49 | 49 | 49.6               |
| 3-DH3 | 25               | 23 | 27 | 29 | 25 | 25.8               |
| 3-DH5 | 21               | 18 | 16 | 20 | 20 | 19.0               |
|       |                  |    |    |    |    |                    |

Sample Calculation

Average= Summation(Sampling 1 to 5) / 5

\* This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in  $N \times 0.4s$ , where  $N$  is the number of channels being used in the hopping sequence ( $20 \leq N \leq 79$ ), is always less than 0.4s regardless of packet size (3-DH1, 3-DH3 or 3-DH5). This is confirmed in the test report for  $N=79$ .

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**Shonan EMC Lab.**

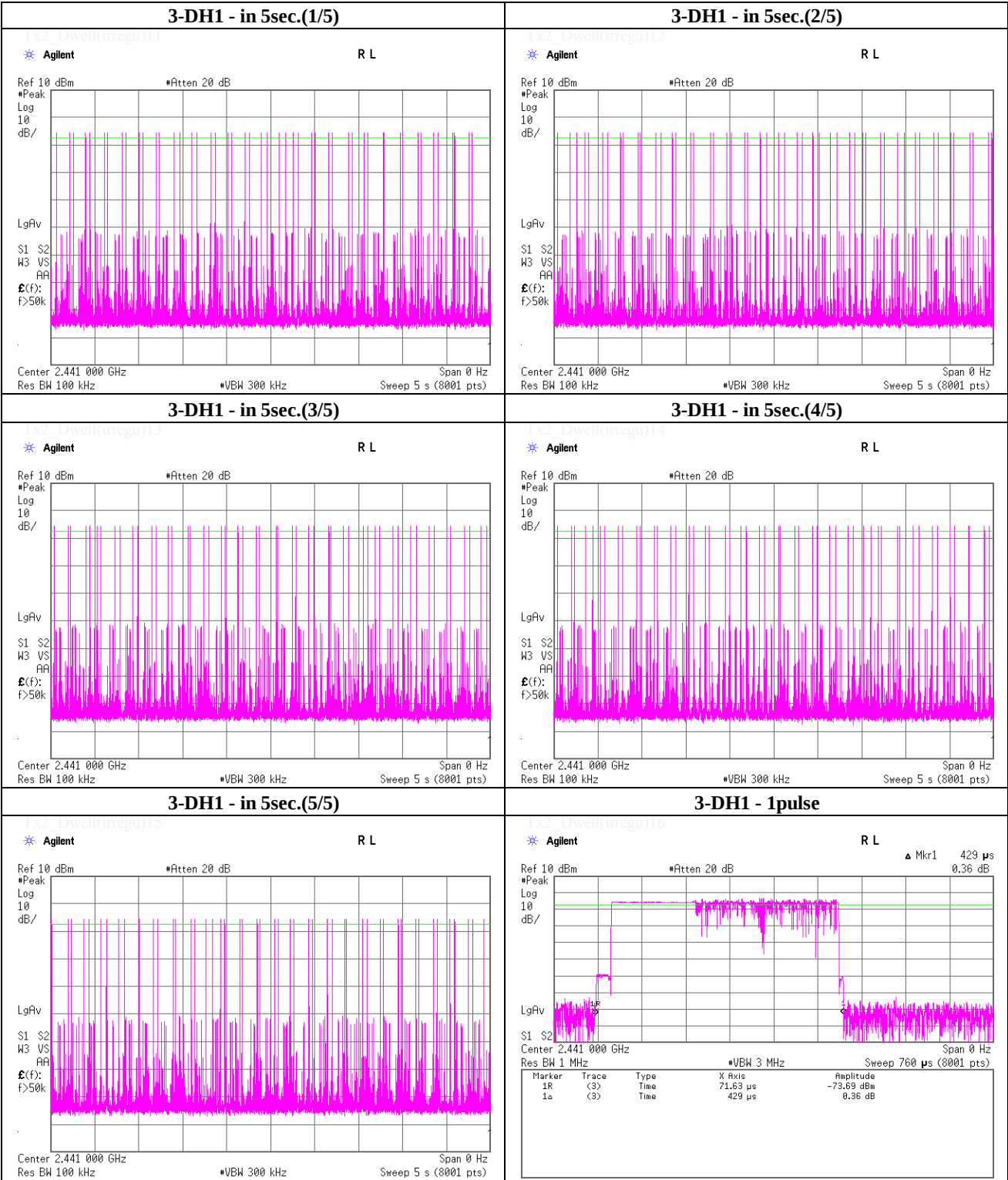
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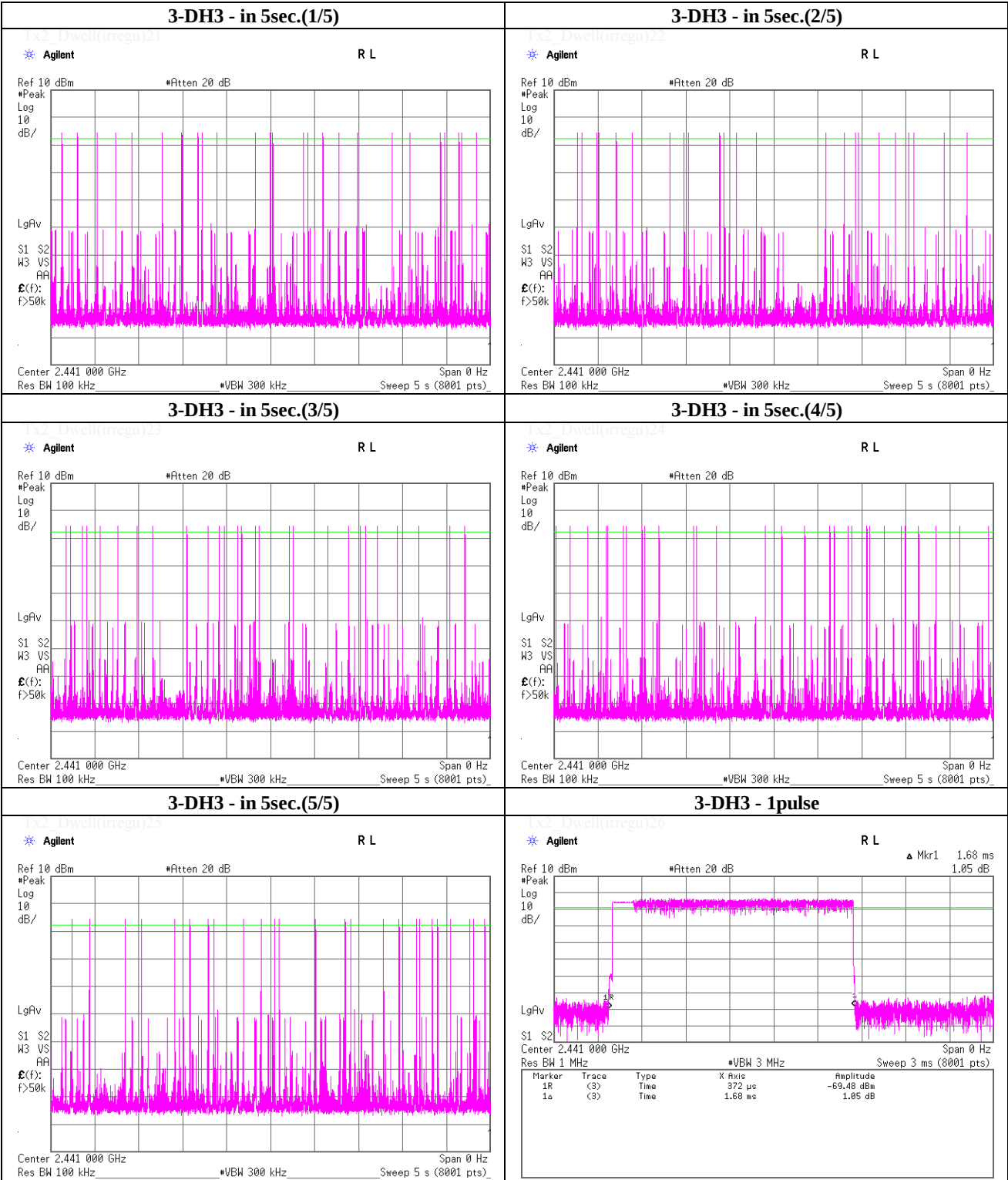
Dwell time

Tx, Bluetooth, EDR, PRBS9



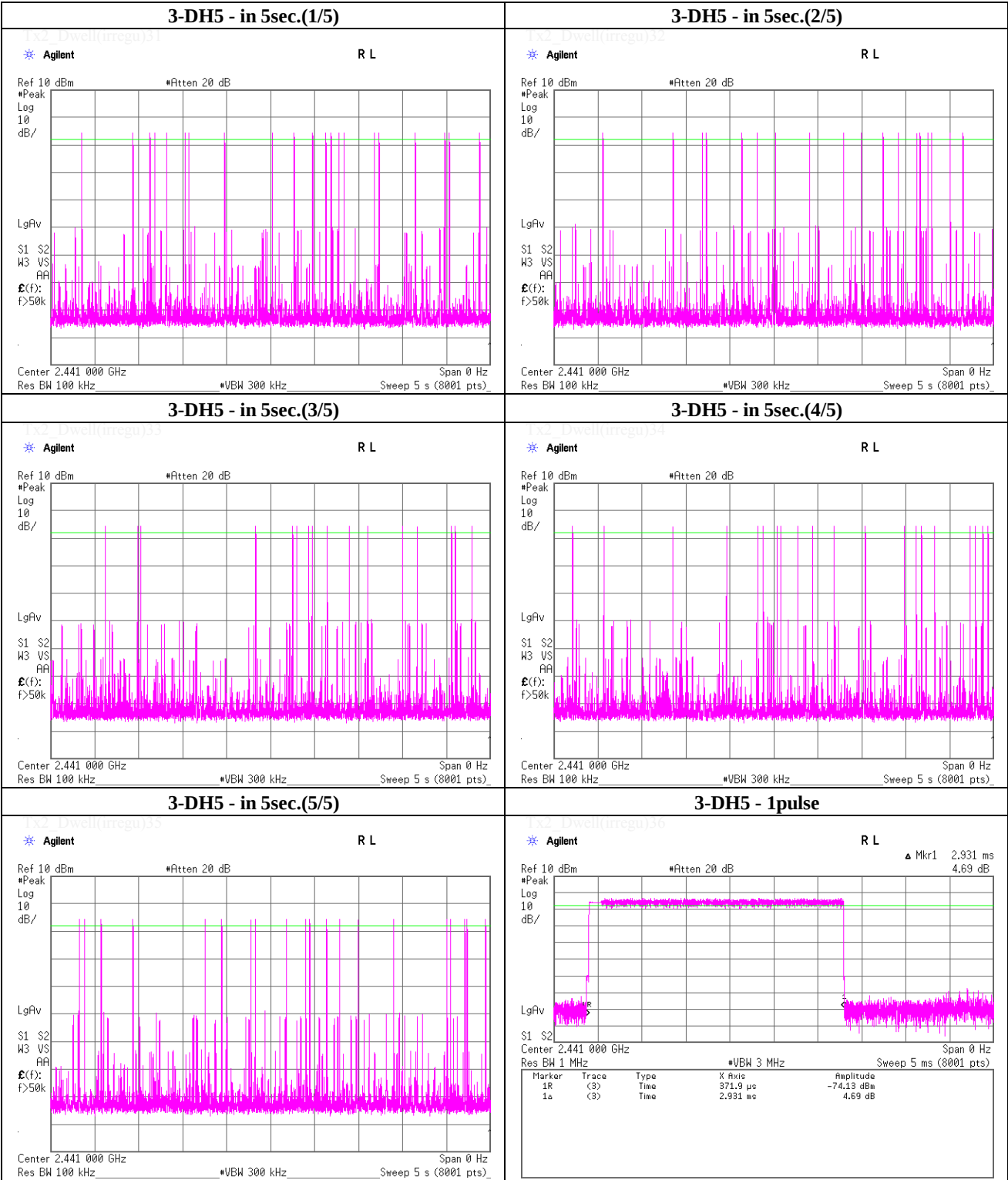
Dwell time

Tx, Bluetooth, EDR, PRBS9



Dwell time

Tx, Bluetooth, EDR, PRBS9



## Maximum Peak Conducted Output Power (Conducted)

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.1 Measurement Room  
 Date                              March 27, 2014  
 Temperature / Humidity       25 deg.C       , 45 %RH  
 Engineer                        Shinichi Takano  
 Mode                              Tx, Bluetooth

(\* P/M: Power Meter with power sensor)

|       | Freq.<br>[MHz] | P/M (Peak)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |      | Limit |      | Margin<br>[dB] |
|-------|----------------|--------------------------------|-----------------------|------------------------|--------|------|-------|------|----------------|
|       |                |                                |                       |                        | [dBm]  | [mW] | [dBm] | [mW] |                |
| DH5   | 2402.0         | -2.79                          | 1.55                  | 10.04                  | 8.80   | 7.59 | 20.97 | 125  | 12.17          |
| DH5   | 2441.0         | -3.01                          | 1.56                  | 10.04                  | 8.59   | 7.23 | 20.97 | 125  | 12.38          |
| DH5   | 2480.0         | -3.08                          | 1.57                  | 10.04                  | 8.53   | 7.13 | 20.97 | 125  | 12.44          |
| 2-DH5 | 2402.0         | -3.09                          | 1.55                  | 10.04                  | 8.50   | 7.08 | 20.97 | 125  | 12.47          |
| 2-DH5 | 2441.0         | -3.32                          | 1.56                  | 10.04                  | 8.28   | 6.73 | 20.97 | 125  | 12.69          |
| 2-DH5 | 2480.0         | -3.41                          | 1.57                  | 10.04                  | 8.20   | 6.61 | 20.97 | 125  | 12.77          |
| 3-DH5 | 2402.0         | -2.66                          | 1.55                  | 10.04                  | 8.93   | 7.82 | 20.97 | 125  | 12.04          |
| 3-DH5 | 2441.0         | -2.83                          | 1.56                  | 10.04                  | 8.77   | 7.53 | 20.97 | 125  | 12.20          |
| 3-DH5 | 2480.0         | -2.88                          | 1.57                  | 10.04                  | 8.73   | 7.46 | 20.97 | 125  | 12.24          |

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

**Reference data for SAR testing**

(\* AV: Average)

|       | Freq.<br>[MHz] | P/M (AV)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |      |
|-------|----------------|------------------------------|-----------------------|------------------------|--------|------|
|       |                |                              |                       |                        | [dBm]  | [mW] |
| DH5   | 2402.0         | -4.04                        | 1.55                  | 10.04                  | 7.55   | 5.69 |
| DH5   | 2441.0         | -4.25                        | 1.56                  | 10.04                  | 7.35   | 5.43 |
| DH5   | 2480.0         | -4.32                        | 1.57                  | 10.04                  | 7.29   | 5.36 |
| 2-DH5 | 2402.0         | -5.91                        | 1.55                  | 10.04                  | 5.68   | 3.70 |
| 2-DH5 | 2441.0         | -5.81                        | 1.56                  | 10.04                  | 5.79   | 3.79 |
| 2-DH5 | 2480.0         | -7.18                        | 1.57                  | 10.04                  | 4.43   | 2.77 |
| 3-DH5 | 2402.0         | -6.70                        | 1.55                  | 10.04                  | 4.89   | 3.08 |
| 3-DH5 | 2441.0         | -7.10                        | 1.56                  | 10.04                  | 4.50   | 2.82 |
| 3-DH5 | 2480.0         | -7.36                        | 1.57                  | 10.04                  | 4.25   | 2.66 |

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

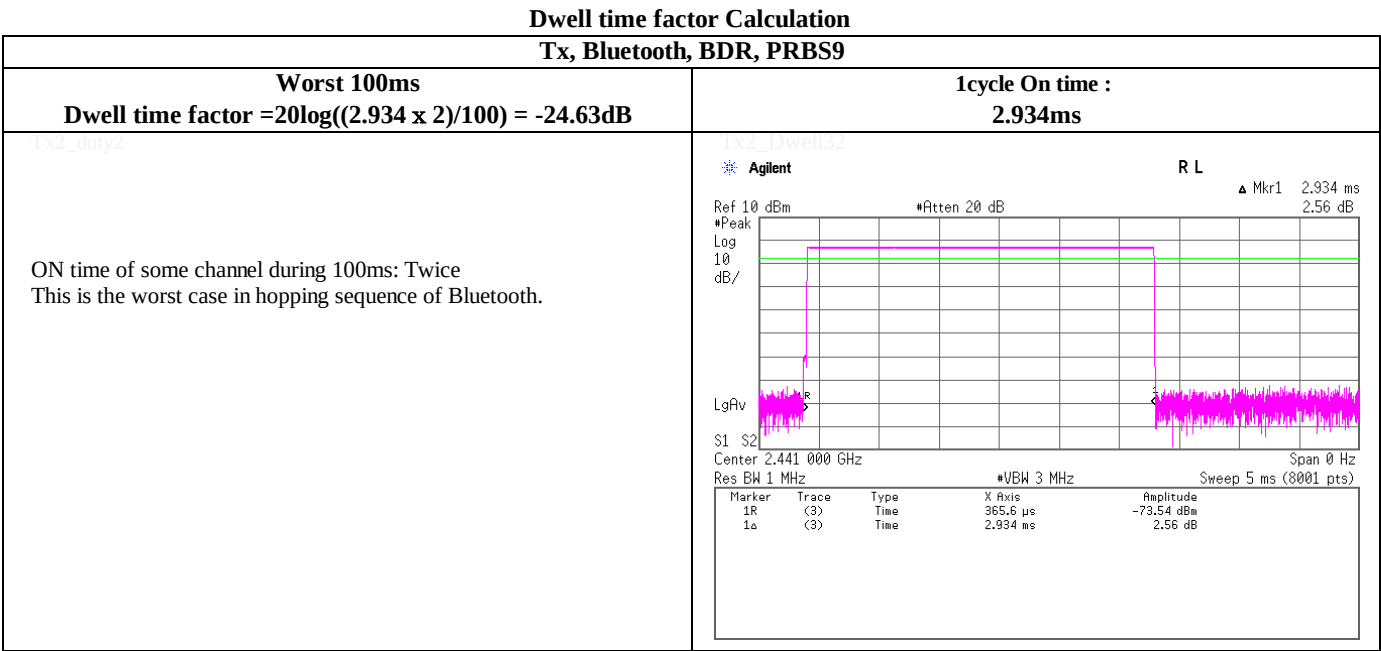
**UL Japan, Inc.**  
**Shonan EMC Lab.**

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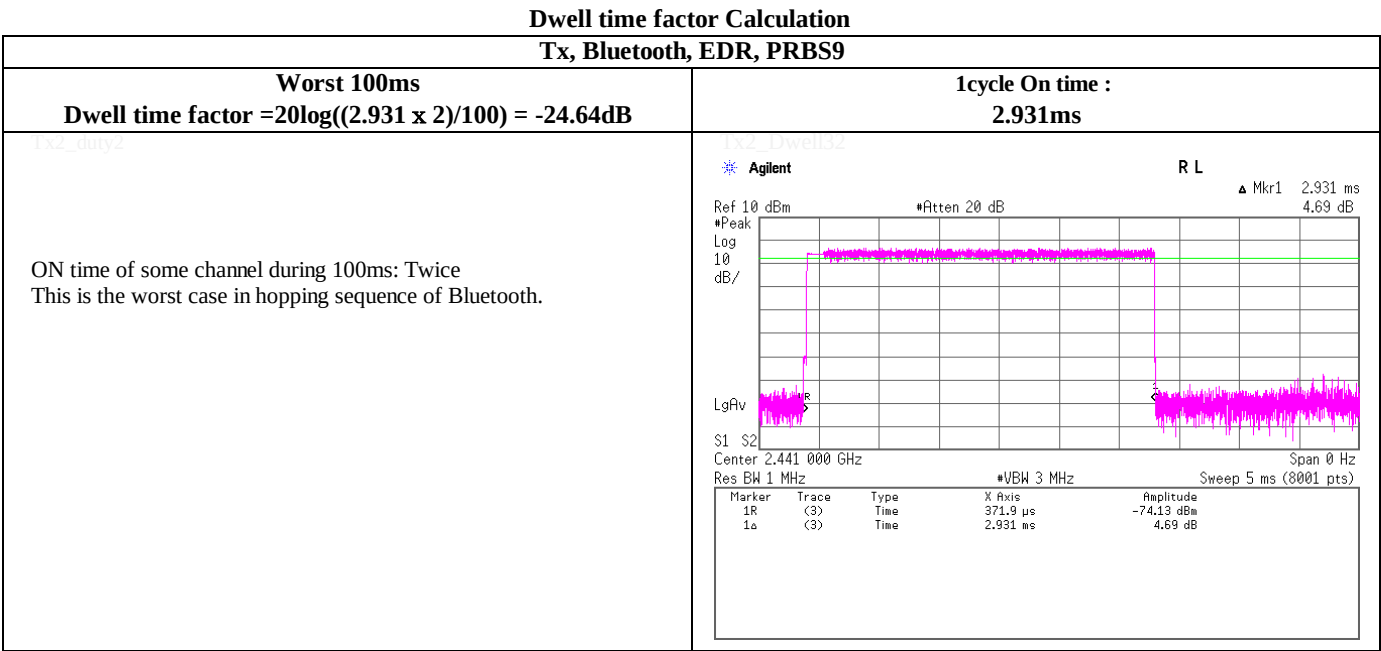
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## Dwell time factor Calculation chart



Dwell time factor Calculation chart



VBW (Average) setting

\*Although 00-705 accepts VBW=10Hz for AV measurements, confirmed that superfluous smoothing was not performed.

## Radiated Emission

Test place                      No.1 and No.3 Semi Anechoic Chamber  
 Date                              March 29, 2014                      March 31, 2014                      April 1, 2014  
 Temperature / Humidity      20 deg.C, 35 %RH                      25 deg.C, 36 %RH                      24 deg.C, 31 %RH  
 Engineer                        Wataru Kojima                      Kenichi Adachi                      Wataru Kojima  
 Mode                              Tx,                      2402 MHz  
                                          Tx, Bluetooth, BDR

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg] | Remark      |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|----------------|-------------|
| Hori.    | 83.939             | QP       | 49.0              | 7.0                | 7.5          | 32.1         | 31.4               | 40.0              | 8.6            | 233            | 340            |             |
| Hori.    | 271.527            | QP       | 46.4              | 17.8               | 8.4          | 32.0         | 40.6               | 46.0              | 5.4            | 184            | 118            |             |
| Hori.    | 400.001            | QP       | 52.2              | 16.3               | 9.0          | 32.0         | 45.5               | 46.0              | <b>0.5</b>     | 156            | 210            |             |
| Hori.    | 1750.006           | PK       | 48.8              | 26.1               | 14.0         | 38.6         | 50.3               | 73.9              | 23.6           | 100            | 297            |             |
| Hori.    | 1858.103           | PK       | 43.0              | 26.3               | 14.1         | 38.7         | 44.7               | 73.9              | 29.2           | 100            | 0              |             |
| Hori.    | 2390.000           | PK       | 43.7              | 26.8               | 14.7         | 38.2         | 47.0               | 73.9              | 26.9           | 116            | 183            |             |
| Hori.    | 2400.000           | PK       | 47.1              | 26.8               | 14.7         | 38.2         | 50.4               | 73.9              | 23.5           | 116            | 183            |             |
| Hori.    | 3202.650           | PK       | 51.7              | 28.2               | 6.7          | 38.1         | 48.5               | 73.9              | 25.4           | 100            | 202            |             |
| Hori.    | 4804.000           | PK       | 54.2              | 30.9               | 7.9          | 37.1         | 55.9               | 73.9              | 18.0           | 100            | 191            |             |
| Hori.    | 7206.000           | PK       | 43.5              | 37.1               | 9.1          | 39.4         | 50.3               | 73.9              | 23.6           | 100            | 0              | Floor noise |
| Hori.    | 9608.000           | PK       | 42.5              | 38.6               | 10.2         | 37.6         | 53.7               | 73.9              | 20.2           | 100            | 0              | Floor noise |
| Hori.    | 12010.000          | PK       | 41.1              | 39.6               | 11.2         | 38.5         | 53.4               | 73.9              | 20.5           | 100            | 0              | Floor noise |
| Hori.    | 1750.006           | AV       | 42.1              | 26.1               | 14.0         | 38.6         | 43.6               | 53.9              | 10.3           | 100            | 297            |             |
| Hori.    | 1858.103           | AV       | 32.2              | 26.3               | 14.1         | 38.7         | 33.9               | 53.9              | 20.0           | 100            | 0              |             |
| Hori.    | 2390.000           | AV       | 32.0              | 26.8               | 14.7         | 38.2         | 35.3               | 53.9              | 18.6           | 116            | 183            |             |
| Hori.    | 2400.000           | AV       | 34.7              | 26.8               | 14.7         | 38.2         | 38.0               | 53.9              | 15.9           | 116            | 183            |             |
| Hori.    | 3202.650           | AV       | 46.9              | 28.2               | 6.7          | 38.1         | 43.7               | 53.9              | 10.2           | 100            | 202            |             |
| Hori.    | 7206.000           | AV       | 33.1              | 37.1               | 9.1          | 39.4         | 39.9               | 53.9              | 14.0           | 100            | 0              | Floor noise |
| Hori.    | 9608.000           | AV       | 30.1              | 38.6               | 10.2         | 37.6         | 41.3               | 53.9              | 12.6           | 100            | 0              | Floor noise |
| Hori.    | 12010.000          | AV       | 30.3              | 39.6               | 11.2         | 38.5         | 42.6               | 53.9              | 11.3           | 100            | 0              | Floor noise |
| Vert.    | 271.527            | QP       | 47.3              | 17.8               | 8.4          | 32.0         | 41.5               | 46.0              | 4.5            | 201            | 183            |             |
| Vert.    | 400.001            | QP       | 51.0              | 16.3               | 9.0          | 32.0         | 44.3               | 46.0              | 1.7            | 151            | 183            |             |
| Vert.    | 1750.006           | PK       | 45.8              | 26.1               | 14.0         | 38.6         | 47.3               | 73.9              | 26.6           | 100            | 329            |             |
| Vert.    | 1849.970           | PK       | 44.5              | 26.3               | 14.1         | 38.7         | 46.2               | 73.9              | 27.7           | 100            | 278            |             |
| Vert.    | 2390.000           | PK       | 44.2              | 26.8               | 14.7         | 38.2         | 47.5               | 73.9              | 26.4           | 100            | 187            |             |
| Vert.    | 2400.000           | PK       | 46.3              | 26.8               | 14.7         | 38.2         | 49.6               | 73.9              | 24.3           | 100            | 187            |             |
| Vert.    | 3202.650           | PK       | 52.2              | 28.2               | 6.7          | 38.1         | 49.0               | 73.9              | 24.9           | 126            | 162            |             |
| Vert.    | 4804.000           | PK       | 55.1              | 30.9               | 7.9          | 37.1         | 56.8               | 73.9              | 17.1           | 100            | 173            |             |
| Vert.    | 7206.000           | PK       | 45.1              | 37.1               | 9.1          | 39.4         | 51.9               | 73.9              | 22.0           | 100            | 0              | Floor noise |
| Vert.    | 9608.000           | PK       | 42.2              | 38.6               | 10.2         | 37.6         | 53.4               | 73.9              | 20.5           | 100            | 0              | Floor noise |
| Vert.    | 12010.000          | PK       | 42.1              | 39.6               | 11.2         | 38.5         | 54.4               | 73.9              | 19.5           | 100            | 0              | Floor noise |
| Vert.    | 1750.006           | AV       | 39.0              | 26.1               | 14.0         | 38.6         | 40.5               | 53.9              | 13.4           | 100            | 329            |             |
| Vert.    | 1849.970           | AV       | 33.9              | 26.3               | 14.1         | 38.7         | 35.6               | 53.9              | 18.3           | 100            | 278            |             |
| Vert.    | 2390.000           | AV       | 32.1              | 26.8               | 14.7         | 38.2         | 35.4               | 53.9              | 18.5           | 100            | 187            |             |
| Vert.    | 2400.000           | AV       | 34.2              | 26.8               | 14.7         | 38.2         | 37.5               | 53.9              | 16.4           | 100            | 187            |             |
| Vert.    | 3202.650           | AV       | 47.3              | 28.2               | 6.7          | 38.1         | 44.1               | 53.9              | 9.8            | 126            | 162            |             |
| Vert.    | 7206.000           | AV       | 33.1              | 37.1               | 9.1          | 39.4         | 39.9               | 53.9              | 14.0           | 100            | 0              | Floor noise |
| Vert.    | 9608.000           | AV       | 30.1              | 38.6               | 10.2         | 37.6         | 41.3               | 53.9              | 12.6           | 100            | 0              | Floor noise |
| Vert.    | 12010.000          | AV       | 30.1              | 39.6               | 11.2         | 38.5         | 42.4               | 53.9              | 11.5           | 100            | 0              | Floor noise |

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**Dwell time factor relaxation**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Dwell<br>Factor<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|--------|
| Hori.    | 4804.000           | AV       | 49.8              | 30.9               | 7.9          | 37.1         | -24.6                   | 26.9               | 53.9              | 27.0           |        |
| Vert.    | 4804.000           | AV       | 50.5              | 30.9               | 7.9          | 37.1         | -24.6                   | 27.6               | 53.9              | <b>26.3</b>    |        |

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier) + Dwell(time)factor

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**20dBc Data Sheet (RBW 100kHz, VBW 300kHz)**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|--------|
| Hori.    | 2402.000           | PK       | 93.8              | 26.8               | 14.7         | 38.2         | 97.1               | -                 | -              |        |
| Hori.    | 193.944            | QP       | 46.3              | 16.3               | 7.8          | 32.1         | 38.3               | 77.1              | 38.8           |        |
| Hori.    | 300.001            | QP       | 50.5              | 13.8               | 8.5          | 32.0         | 40.8               | 77.1              | 36.3           |        |
| Hori.    | 892.166            | QP       | 40.6              | 21.5               | 10.8         | 31.1         | 41.8               | 77.1              | 35.3           |        |
| Vert.    | 2402.000           | PK       | 92.9              | 26.8               | 14.7         | 38.2         | 96.2               | -                 | -              |        |
| Vert.    | 193.944            | QP       | 48.3              | 16.3               | 7.8          | 32.1         | 40.3               | 76.2              | 35.9           |        |
| Vert.    | 300.001            | QP       | 41.4              | 13.8               | 8.5          | 32.0         | 31.7               | 76.2              | 44.5           |        |
| Vert.    | 892.166            | QP       | 43.6              | 21.5               | 10.8         | 31.1         | 44.8               | 76.2              | 31.4           |        |

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

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## Radiated Emission

Test place                      No.1 and No.3 Semi Anechoic Chamber  
Date                              March 29, 2014                      March 31, 2014                      April 1, 2014  
Temperature / Humidity      20 deg.C, 35 %RH                      25 deg.C, 36 %RH                      24 deg.C, 31 %RH  
Engineer                        Wataru Kojima                      Kenichi Adachi                      Wataru Kojima  
Mode                              Tx,                      2441 MHz  
                                         Tx, Bluetooth, BDR

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg] | Remark      |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|----------------|-------------|
| Hori.    | 83.941             | QP       | 48.8              | 7.0                | 7.5          | 32.1         | 31.2               | 40.0              | 8.8            | 231            | 338            |             |
| Hori.    | 271.529            | QP       | 46.0              | 17.8               | 8.4          | 32.0         | 40.2               | 46.0              | 5.8            | 187            | 114            |             |
| Hori.    | 400.001            | QP       | 52.3              | 16.3               | 9.0          | 32.0         | 45.6               | 46.0              | <b>0.4</b>     | 158            | 208            |             |
| Hori.    | 1750.164           | PK       | 48.2              | 26.1               | 14.0         | 38.6         | 49.7               | 73.9              | 24.2           | 100            | 173            |             |
| Hori.    | 1845.583           | PK       | 50.4              | 26.3               | 14.1         | 38.7         | 52.1               | 73.9              | 21.8           | 100            | 15             |             |
| Hori.    | 3000.000           | PK       | 46.1              | 28.3               | 6.6          | 38.1         | 42.9               | 73.9              | 31.0           | 100            | 307            |             |
| Hori.    | 4882.000           | PK       | 54.4              | 31.4               | 7.9          | 37.0         | 56.7               | 73.9              | 17.2           | 100            | 188            |             |
| Hori.    | 7323.000           | PK       | 44.1              | 37.2               | 9.1          | 39.4         | 51.0               | 73.9              | 22.9           | 100            | 0              | Floor noise |
| Hori.    | 9764.000           | PK       | 40.4              | 38.8               | 10.1         | 37.5         | 51.8               | 73.9              | 22.1           | 100            | 0              | Floor noise |
| Hori.    | 12205.000          | PK       | 42.0              | 39.6               | 11.3         | 38.3         | 54.6               | 73.9              | 19.3           | 100            | 0              | Floor noise |
| Hori.    | 1750.164           | AV       | 41.2              | 26.1               | 14.0         | 38.6         | 42.7               | 53.9              | 11.2           | 100            | 173            |             |
| Hori.    | 1845.583           | AV       | 39.9              | 26.3               | 14.1         | 38.7         | 41.6               | 53.9              | 12.3           | 100            | 15             |             |
| Hori.    | 3000.000           | AV       | 39.8              | 28.3               | 6.6          | 38.1         | 36.6               | 53.9              | 17.3           | 100            | 307            |             |
| Hori.    | 7323.000           | AV       | 32.9              | 37.2               | 9.1          | 39.4         | 39.8               | 53.9              | 14.1           | 100            | 0              | Floor noise |
| Hori.    | 9764.000           | AV       | 30.2              | 38.8               | 10.1         | 37.5         | 41.6               | 53.9              | 12.3           | 100            | 0              | Floor noise |
| Hori.    | 12205.000          | AV       | 30.4              | 39.6               | 11.3         | 38.3         | 43.0               | 53.9              | 10.9           | 100            | 0              | Floor noise |
| Vert.    | 271.529            | QP       | 46.8              | 17.8               | 8.4          | 32.0         | 41.0               | 46.0              | 5.0            | 100            | 186            |             |
| Vert.    | 400.001            | QP       | 50.8              | 16.3               | 9.0          | 32.0         | 44.1               | 46.0              | 1.9            | 153            | 184            |             |
| Vert.    | 1750.005           | PK       | 46.9              | 26.1               | 14.0         | 38.6         | 48.4               | 73.9              | 25.5           | 100            | 233            |             |
| Vert.    | 1850.500           | PK       | 49.4              | 26.3               | 14.1         | 38.7         | 51.1               | 73.9              | 22.8           | 100            | 51             |             |
| Vert.    | 2200.004           | PK       | 45.9              | 26.7               | 14.5         | 38.5         | 48.6               | 73.9              | 25.3           | 100            | 256            |             |
| Vert.    | 3000.000           | PK       | 48.5              | 28.3               | 6.6          | 38.1         | 45.3               | 73.9              | 28.6           | 121            | 285            |             |
| Vert.    | 4882.000           | PK       | 56.5              | 31.4               | 7.9          | 37.0         | 58.8               | 73.9              | 15.1           | 100            | 177            |             |
| Vert.    | 7323.000           | PK       | 44.7              | 37.2               | 9.1          | 39.4         | 51.6               | 73.9              | 22.3           | 100            | 0              | Floor noise |
| Vert.    | 9764.000           | PK       | 42.2              | 38.8               | 10.1         | 37.5         | 53.6               | 73.9              | 20.3           | 100            | 0              | Floor noise |
| Vert.    | 12205.000          | PK       | 43.2              | 39.6               | 11.3         | 38.3         | 55.8               | 73.9              | 18.1           | 100            | 0              | Floor noise |
| Vert.    | 1750.005           | AV       | 39.7              | 26.1               | 14.0         | 38.6         | 41.2               | 53.9              | 12.7           | 100            | 233            |             |
| Vert.    | 1850.500           | AV       | 38.5              | 26.3               | 14.1         | 38.7         | 40.2               | 53.9              | 13.7           | 100            | 51             |             |
| Vert.    | 2200.004           | AV       | 37.1              | 26.7               | 14.5         | 38.5         | 39.8               | 53.9              | 14.1           | 100            | 256            |             |
| Vert.    | 3000.000           | AV       | 42.5              | 28.3               | 6.6          | 38.1         | 39.3               | 53.9              | 14.6           | 121            | 285            |             |
| Vert.    | 7323.000           | AV       | 33.2              | 37.2               | 9.1          | 39.4         | 40.1               | 53.9              | 13.8           | 100            | 0              | Floor noise |
| Vert.    | 9764.000           | AV       | 30.7              | 38.8               | 10.1         | 37.5         | 42.1               | 53.9              | 11.8           | 100            | 0              | Floor noise |
| Vert.    | 12205.000          | AV       | 30.6              | 39.6               | 11.3         | 38.3         | 43.2               | 53.9              | 10.7           | 100            | 0              | Floor noise |

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**Dwell time factor relaxation**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Dwell<br>Factor<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|--------|
| Hori.    | 4882.000           | AV       | 49.7              | 31.4               | 7.9          | 37.0         | -24.6                   | 27.4               | 53.9              | 26.5           |        |
| Vert.    | 4882.000           | AV       | 51.9              | 31.4               | 7.9          | 37.0         | -24.6                   | 29.6               | 53.9              | <b>24.3</b>    |        |

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier) + Dwell(time)factor

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**20dBc Data Sheet (RBW 100kHz, VBW 300kHz)**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|--------|
| Hori.    | 2441.000           | PK       | 97.1              | 26.8               | 14.7         | 38.2         | 100.4              | -                 | -              |        |
| Hori.    | 193.943            | QP       | 46.0              | 16.3               | 7.8          | 32.1         | 38.0               | 80.4              | 42.4           |        |
| Hori.    | 300.002            | QP       | 50.0              | 13.8               | 8.5          | 32.0         | 40.3               | 80.4              | 40.1           |        |
| Hori.    | 892.167            | QP       | 40.0              | 21.5               | 10.8         | 31.1         | 41.2               | 80.4              | 39.2           |        |
| Vert.    | 2441.000           | PK       | 93.8              | 26.8               | 14.7         | 38.2         | 97.1               | -                 | -              |        |
| Vert.    | 193.943            | QP       | 48.0              | 16.3               | 7.8          | 32.1         | 40.0               | 77.1              | 37.1           |        |
| Vert.    | 300.002            | QP       | 40.8              | 13.8               | 8.5          | 32.0         | 31.1               | 77.1              | 46.0           |        |
| Vert.    | 892.167            | QP       | 43.1              | 21.5               | 10.8         | 31.1         | 44.3               | 77.1              | 32.8           |        |

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

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## Radiated Emission

|                        |                                     |                  |                  |
|------------------------|-------------------------------------|------------------|------------------|
| Test place             | No.1 and No.3 Semi Anechoic Chamber |                  |                  |
| Date                   | March 29, 2014                      | March 31, 2014   | April 1, 2014    |
| Temperature / Humidity | 20 deg.C, 35 %RH                    | 25 deg.C, 36 %RH | 24 deg.C, 31 %RH |
| Engineer               | Wataru Kojima                       | Kenichi Adachi   | Wataru Kojima    |
| Mode                   | Tx, 2480 MHz                        |                  |                  |
|                        | Tx, Bluetooth, BDR                  |                  |                  |

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg] | Remark      |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|----------------|-------------|
| Hori.    | 83.940             | QP       | 48.9              | 7.0                | 7.5          | 32.1         | 31.3               | 40.0              | 8.7            | 236            | 339            |             |
| Hori.    | 271.526            | QP       | 46.2              | 17.8               | 8.4          | 32.0         | 40.4               | 46.0              | 5.6            | 106            | 113            |             |
| Hori.    | 400.001            | QP       | 52.3              | 16.3               | 9.0          | 32.0         | 45.6               | 46.0              | <b>0.4</b>     | 158            | 209            |             |
| Hori.    | 1750.000           | PK       | 47.1              | 26.1               | 14.0         | 38.6         | 48.6               | 73.9              | 25.3           | 100            | 307            |             |
| Hori.    | 1848.239           | PK       | 52.8              | 26.3               | 14.1         | 38.7         | 54.5               | 73.9              | 19.4           | 100            | 23             |             |
| Hori.    | 2483.500           | PK       | 47.6              | 26.9               | 14.8         | 38.1         | 51.2               | 73.9              | 22.7           | 110            | 190            |             |
| Hori.    | 3000.000           | PK       | 47.0              | 28.3               | 6.6          | 38.1         | 43.8               | 73.9              | 30.1           | 100            | 282            |             |
| Hori.    | 4960.000           | PK       | 51.2              | 31.8               | 7.8          | 37.0         | 53.8               | 73.9              | 20.1           | 100            | 191            |             |
| Hori.    | 7440.000           | PK       | 44.9              | 37.4               | 9.3          | 39.4         | 52.2               | 73.9              | 21.7           | 100            | 0              | Floor noise |
| Hori.    | 9920.000           | PK       | 40.3              | 38.9               | 10.1         | 37.5         | 51.8               | 73.9              | 22.1           | 100            | 0              | Floor noise |
| Hori.    | 12400.000          | PK       | 42.2              | 39.7               | 11.4         | 38.2         | 55.1               | 73.9              | 18.8           | 100            | 0              | Floor noise |
| Hori.    | 1750.000           | AV       | 40.3              | 26.1               | 14.0         | 38.6         | 41.8               | 53.9              | 12.1           | 100            | 307            |             |
| Hori.    | 1848.239           | AV       | 40.4              | 26.3               | 14.1         | 38.7         | 42.1               | 53.9              | 11.8           | 100            | 23             |             |
| Hori.    | 2483.500           | AV       | 34.6              | 26.9               | 14.8         | 38.1         | 38.2               | 53.9              | 15.7           | 110            | 190            |             |
| Hori.    | 3000.000           | AV       | 39.8              | 28.3               | 6.6          | 38.1         | 36.6               | 53.9              | 17.3           | 100            | 282            |             |
| Hori.    | 7440.000           | AV       | 33.4              | 37.4               | 9.3          | 39.4         | 40.7               | 53.9              | 13.2           | 100            | 0              | Floor noise |
| Hori.    | 9920.000           | AV       | 31.5              | 38.9               | 10.1         | 37.5         | 43.0               | 53.9              | 10.9           | 100            | 0              | Floor noise |
| Hori.    | 12400.000          | AV       | 30.9              | 39.7               | 11.4         | 38.2         | 43.8               | 53.9              | 10.1           | 100            | 0              | Floor noise |
| Vert.    | 271.526            | QP       | 47.0              | 17.8               | 8.4          | 32.0         | 41.2               | 46.0              | 4.8            | 189            | 179            |             |
| Vert.    | 400.001            | QP       | 50.9              | 16.3               | 9.0          | 32.0         | 44.2               | 46.0              | 1.8            | 154            | 186            |             |
| Vert.    | 1653.352           | PK       | 47.3              | 25.9               | 13.9         | 38.6         | 48.5               | 73.9              | 25.4           | 120            | 1              |             |
| Vert.    | 1750.155           | PK       | 48.6              | 26.1               | 14.0         | 38.6         | 50.1               | 73.9              | 23.8           | 138            | 111            |             |
| Vert.    | 2363.980           | PK       | 46.8              | 26.8               | 14.7         | 38.3         | 50.0               | 73.9              | 23.9           | 100            | 0              |             |
| Vert.    | 2483.500           | PK       | 46.4              | 26.9               | 14.8         | 38.1         | 50.0               | 73.9              | 23.9           | 100            | 0              |             |
| Vert.    | 3000.000           | PK       | 46.5              | 28.3               | 6.6          | 38.1         | 43.3               | 73.9              | 30.6           | 100            | 256            |             |
| Vert.    | 4960.000           | PK       | 52.8              | 31.8               | 7.8          | 37.0         | 55.4               | 73.9              | 18.5           | 100            | 243            |             |
| Vert.    | 7440.000           | PK       | 44.8              | 37.4               | 9.3          | 39.4         | 52.1               | 73.9              | 21.8           | 100            | 0              | Floor noise |
| Vert.    | 9920.000           | PK       | 42.6              | 38.9               | 10.1         | 37.5         | 54.1               | 73.9              | 19.8           | 100            | 0              | Floor noise |
| Vert.    | 12400.000          | PK       | 43.8              | 39.7               | 11.4         | 38.2         | 56.7               | 73.9              | 17.2           | 100            | 0              | Floor noise |
| Vert.    | 1653.352           | AV       | 38.5              | 25.9               | 13.9         | 38.6         | 39.7               | 53.9              | 14.2           | 120            | 1              |             |
| Vert.    | 1750.155           | AV       | 43.1              | 26.1               | 14.0         | 38.6         | 44.6               | 53.9              | 9.3            | 138            | 111            |             |
| Vert.    | 2363.980           | AV       | 32.1              | 26.8               | 14.7         | 38.3         | 35.3               | 53.9              | 18.6           | 100            | 0              |             |
| Vert.    | 2483.500           | AV       | 34.0              | 26.9               | 14.8         | 38.1         | 37.6               | 53.9              | 16.3           | 100            | 0              |             |
| Vert.    | 3000.000           | AV       | 40.7              | 28.3               | 6.6          | 38.1         | 37.5               | 53.9              | 16.4           | 100            | 256            |             |
| Vert.    | 7440.000           | AV       | 34.3              | 37.4               | 9.3          | 39.4         | 41.6               | 53.9              | 12.3           | 100            | 0              | Floor noise |
| Vert.    | 9920.000           | AV       | 31.6              | 38.9               | 10.1         | 37.5         | 43.1               | 53.9              | 10.8           | 100            | 0              | Floor noise |
| Vert.    | 12400.000          | AV       | 30.9              | 39.7               | 11.4         | 38.2         | 43.8               | 53.9              | 10.1           | 100            | 0              | Floor noise |

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**Dwell time factor relaxation**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Dwell<br>Factor<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|--------|
| Hori.    | 4960.000           | AV       | 48.0              | 31.8               | 7.8          | 37.0         | -24.6                   | 26.0               | 53.9              | <b>27.9</b>    |        |
| Vert.    | 4960.000           | AV       | 47.7              | 31.8               | 7.8          | 37.0         | -24.6                   | 25.7               | 53.9              | 28.2           |        |

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier) + Dwell(time)factor

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**20dBc Data Sheet (RBW 100kHz, VBW 300kHz)**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|--------|
| Hori.    | 2480.000           | PK       | 98.2              | 26.9               | 14.8         | 38.2         | 101.7              | -                 | -              |        |
| Hori.    | 193.945            | QP       | 46.8              | 16.3               | 7.8          | 32.1         | 38.8               | 81.7              | 42.9           |        |
| Hori.    | 300.001            | QP       | 50.7              | 13.8               | 8.5          | 32.0         | 41.0               | 81.7              | 40.7           |        |
| Hori.    | 892.168            | QP       | 40.3              | 21.5               | 10.8         | 31.1         | 41.5               | 81.7              | 40.2           |        |
| Vert.    | 2480.000           | PK       | 95.4              | 26.9               | 14.8         | 38.2         | 98.9               | -                 | -              |        |
| Vert.    | 193.945            | QP       | 47.9              | 16.3               | 7.8          | 32.1         | 39.9               | 78.9              | 39.0           |        |
| Vert.    | 300.001            | QP       | 41.1              | 13.8               | 8.5          | 32.0         | 31.4               | 78.9              | 47.5           |        |
| Vert.    | 892.168            | QP       | 43.4              | 21.5               | 10.8         | 31.1         | 44.6               | 78.9              | 34.3           |        |

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

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## Radiated Emission

Test place                      No.1 and No.3 Semi Anechoic Chamber  
Date                              March 29, 2014                      March 31, 2014                      April 1, 2014  
Temperature / Humidity      20 deg.C, 35 %RH                      25 deg.C, 36 %RH                      24 deg.C, 31 %RH  
Engineer                        Wataru Kojima                      Kenichi Adachi                      Wataru Kojima  
Mode                              Tx,                      2402 MHz  
                                         Tx, Bluetooth, BDR

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg] | Remark      |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|----------------|-------------|
| Hori.    | 83.934             | QP       | 49.3              | 7.0                | 7.5          | 32.1         | 31.7               | 40.0              | 8.3            | 235            | 342            |             |
| Hori.    | 271.528            | QP       | 46.0              | 17.8               | 8.4          | 32.0         | 40.2               | 46.0              | 5.8            | 182            | 119            |             |
| Hori.    | 400.001            | QP       | 52.3              | 16.3               | 9.0          | 32.0         | 45.6               | 46.0              | <b>0.4</b>     | 155            | 206            |             |
| Hori.    | 1750.134           | PK       | 46.7              | 26.1               | 14.0         | 38.6         | 48.2               | 73.9              | 25.7           | 117            | 326            |             |
| Hori.    | 2390.000           | PK       | 44.0              | 26.8               | 14.7         | 38.2         | 47.3               | 73.9              | 26.6           | 117            | 211            |             |
| Hori.    | 2400.000           | PK       | 60.2              | 26.8               | 14.7         | 38.2         | 63.5               | 73.9              | 10.4           | 117            | 211            |             |
| Hori.    | 3202.660           | PK       | 49.5              | 28.2               | 6.7          | 38.1         | 46.3               | 73.9              | 27.6           | 100            | 180            |             |
| Hori.    | 4804.000           | PK       | 53.2              | 30.9               | 7.9          | 37.1         | 54.9               | 73.9              | 19.0           | 100            | 197            |             |
| Hori.    | 7206.000           | PK       | 44.5              | 37.1               | 9.1          | 39.4         | 51.3               | 73.9              | 22.6           | 100            | 0              | Floor noise |
| Hori.    | 9608.000           | PK       | 41.6              | 38.6               | 10.2         | 37.6         | 52.8               | 73.9              | 21.1           | 100            | 0              | Floor noise |
| Hori.    | 12010.000          | PK       | 41.3              | 39.6               | 11.2         | 38.5         | 53.6               | 73.9              | 20.3           | 100            | 0              | Floor noise |
| Hori.    | 1750.134           | AV       | 40.1              | 26.1               | 14.0         | 38.6         | 41.6               | 53.9              | 12.3           | 117            | 326            |             |
| Hori.    | 2390.000           | AV       | 31.7              | 26.8               | 14.7         | 38.2         | 35.0               | 53.9              | 18.9           | 117            | 211            |             |
| Hori.    | 2400.000           | AV       | 45.9              | 26.8               | 14.7         | 38.2         | 49.2               | 53.9              | 4.7            | 117            | 211            |             |
| Hori.    | 3202.660           | AV       | 43.1              | 28.2               | 6.7          | 38.1         | 39.9               | 53.9              | 14.0           | 100            | 180            |             |
| Hori.    | 7206.000           | AV       | 33.3              | 37.1               | 9.1          | 39.4         | 40.1               | 53.9              | 13.8           | 100            | 0              | Floor noise |
| Hori.    | 9608.000           | AV       | 30.3              | 38.6               | 10.2         | 37.6         | 41.5               | 53.9              | 12.4           | 100            | 0              | Floor noise |
| Hori.    | 12010.000          | AV       | 30.1              | 39.6               | 11.2         | 38.5         | 42.4               | 53.9              | 11.5           | 100            | 0              | Floor noise |
| Vert.    | 271.528            | QP       | 46.9              | 17.8               | 8.4          | 32.0         | 41.1               | 46.0              | 4.9            | 195            | 189            |             |
| Vert.    | 400.001            | QP       | 51.1              | 16.3               | 9.0          | 32.0         | 44.4               | 46.0              | 1.6            | 153            | 186            |             |
| Vert.    | 1085.941           | PK       | 47.8              | 23.9               | 13.1         | 38.9         | 45.9               | 73.9              | 28.0           | 117            | 241            |             |
| Vert.    | 1750.000           | PK       | 47.7              | 26.1               | 14.0         | 38.6         | 49.2               | 73.9              | 24.7           | 100            | 89             |             |
| Vert.    | 2390.000           | PK       | 43.6              | 26.8               | 14.7         | 38.2         | 46.9               | 73.9              | 27.0           | 100            | 223            |             |
| Vert.    | 2400.000           | PK       | 59.2              | 26.8               | 14.7         | 38.2         | 62.5               | 73.9              | 11.4           | 100            | 223            |             |
| Vert.    | 3202.646           | PK       | 51.2              | 28.2               | 6.7          | 38.1         | 48.0               | 73.9              | 25.9           | 100            | 222            |             |
| Vert.    | 4804.000           | PK       | 51.1              | 30.9               | 7.9          | 37.1         | 52.8               | 73.9              | 21.1           | 100            | 249            |             |
| Vert.    | 7206.000           | PK       | 42.8              | 37.1               | 9.1          | 39.4         | 49.6               | 73.9              | 24.3           | 100            | 0              | Floor noise |
| Vert.    | 9608.000           | PK       | 42.3              | 38.6               | 10.2         | 37.6         | 53.5               | 73.9              | 20.4           | 100            | 0              | Floor noise |
| Vert.    | 12010.000          | PK       | 41.0              | 39.6               | 11.2         | 38.5         | 53.3               | 73.9              | 20.6           | 100            | 0              | Floor noise |
| Vert.    | 1085.941           | AV       | 38.2              | 23.9               | 13.1         | 38.9         | 36.3               | 53.9              | 17.6           | 117            | 241            |             |
| Vert.    | 1750.000           | AV       | 41.5              | 26.1               | 14.0         | 38.6         | 43.0               | 53.9              | 10.9           | 100            | 89             |             |
| Vert.    | 2390.000           | AV       | 31.7              | 26.8               | 14.7         | 38.2         | 35.0               | 53.9              | 18.9           | 100            | 223            |             |
| Vert.    | 2400.000           | AV       | 44.8              | 26.8               | 14.7         | 38.2         | 48.1               | 53.9              | 5.8            | 100            | 223            |             |
| Vert.    | 3202.646           | AV       | 43.4              | 28.2               | 6.7          | 38.1         | 40.2               | 53.9              | 13.7           | 100            | 222            |             |
| Vert.    | 7206.000           | AV       | 33.2              | 37.1               | 9.1          | 39.4         | 40.0               | 53.9              | 13.9           | 100            | 0              | Floor noise |
| Vert.    | 9608.000           | AV       | 30.1              | 38.6               | 10.2         | 37.6         | 41.3               | 53.9              | 12.6           | 100            | 0              | Floor noise |
| Vert.    | 12010.000          | AV       | 29.9              | 39.6               | 11.2         | 38.5         | 42.2               | 53.9              | 11.7           | 100            | 0              | Floor noise |

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**Dwell time factor relaxation**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Dwell<br>Factor<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|--------|
| Hori.    | 4804.000           | AV       | 46.0              | 30.9               | 7.9          | 37.1         | -24.6                   | 23.1               | 53.9              | <b>30.8</b>    |        |
| Vert.    | 4804.000           | AV       | 43.3              | 30.9               | 7.9          | 37.1         | -24.6                   | 20.4               | 53.9              | 33.5           |        |

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier) + Dwell(time)factor

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**20dBc Data Sheet (RBW 100kHz, VBW 300kHz)**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|--------|
| Hori.    | 2402.000           | PK       | 91.2              | 26.8               | 14.7         | 38.2         | 94.5               | -                 | -              |        |
| Hori.    | 193.946            | QP       | 46.1              | 16.3               | 7.8          | 32.1         | 38.1               | 74.5              | 36.4           |        |
| Hori.    | 300.001            | QP       | 49.7              | 13.8               | 8.5          | 32.0         | 40.0               | 74.5              | 34.5           |        |
| Hori.    | 892.169            | QP       | 38.4              | 21.5               | 10.8         | 31.1         | 39.6               | 74.5              | 34.9           |        |
| Vert.    | 2402.000           | PK       | 88.3              | 26.8               | 14.7         | 38.2         | 91.6               | -                 | -              |        |
| Vert.    | 193.946            | QP       | 47.8              | 16.3               | 7.8          | 32.1         | 39.8               | 71.6              | 31.8           |        |
| Vert.    | 300.001            | QP       | 41.9              | 13.8               | 8.5          | 32.0         | 32.2               | 71.6              | 39.4           |        |
| Vert.    | 892.169            | QP       | 41.4              | 21.5               | 10.8         | 31.1         | 42.6               | 71.6              | 29.0           |        |

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

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## Radiated Emission

Test place                      No.1 and No.3 Semi Anechoic Chamber  
 Date                            March 29, 2014                      March 31, 2014                      April 1, 2014  
 Temperature / Humidity    20 deg.C, 35 %RH                      25 deg.C, 36 %RH                      24 deg.C, 31 %RH  
 Engineer                      Wataru Kojima                      Kenichi Adachi                      Wataru Kojima  
 Mode                            Tx,                      2441 MHz  
                                      Tx, Bluetooth, BDR

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg] | Remark      |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|----------------|-------------|
| Hori.    | 83.941             | QP       | 49.5              | 7.0                | 7.5          | 32.1         | 31.9               | 40.0              | 8.1            | 234            | 341            |             |
| Hori.    | 271.526            | QP       | 46.6              | 17.8               | 8.4          | 32.0         | 40.8               | 46.0              | 5.2            | 178            | 110            |             |
| Hori.    | 400.001            | QP       | 52.2              | 16.3               | 9.0          | 32.0         | 45.5               | 46.0              | <b>0.5</b>     | 152            | 209            |             |
| Hori.    | 1750.000           | PK       | 46.8              | 26.1               | 14.0         | 38.6         | 48.3               | 73.9              | 25.6           | 112            | 77             |             |
| Hori.    | 4882.000           | PK       | 53.1              | 31.4               | 7.9          | 37.0         | 55.4               | 73.9              | 18.5           | 100            | 193            |             |
| Hori.    | 7323.000           | PK       | 46.6              | 37.2               | 9.1          | 39.4         | 53.5               | 73.9              | 20.4           | 100            | 0              | Floor noise |
| Hori.    | 9764.000           | PK       | 41.9              | 38.8               | 10.1         | 37.5         | 53.3               | 73.9              | 20.6           | 100            | 0              | Floor noise |
| Hori.    | 12205.000          | PK       | 42.0              | 39.6               | 11.3         | 38.3         | 54.6               | 73.9              | 19.3           | 100            | 0              | Floor noise |
| Hori.    | 1750.000           | AV       | 39.5              | 26.1               | 14.0         | 38.6         | 41.0               | 53.9              | 12.9           | 112            | 77             |             |
| Hori.    | 7323.000           | AV       | 33.5              | 37.2               | 9.1          | 39.4         | 40.4               | 53.9              | 13.5           | 100            | 0              | Floor noise |
| Hori.    | 9764.000           | AV       | 30.8              | 38.8               | 10.1         | 37.5         | 42.2               | 53.9              | 11.7           | 100            | 0              | Floor noise |
| Hori.    | 12205.000          | AV       | 30.7              | 39.6               | 11.3         | 38.3         | 43.3               | 53.9              | 10.6           | 100            | 0              | Floor noise |
| Vert.    | 271.526            | QP       | 47.5              | 17.8               | 8.4          | 32.0         | 41.7               | 46.0              | 4.3            | 199            | 179            |             |
| Vert.    | 400.001            | QP       | 50.8              | 16.3               | 9.0          | 32.0         | 44.1               | 46.0              | 1.9            | 100            | 187            |             |
| Vert.    | 1750.000           | PK       | 45.6              | 26.1               | 14.0         | 38.6         | 47.1               | 73.9              | 26.8           | 100            | 150            |             |
| Vert.    | 3000.000           | PK       | 47.8              | 28.3               | 6.6          | 38.1         | 44.6               | 73.9              | 29.3           | 100            | 286            |             |
| Vert.    | 4882.000           | PK       | 52.8              | 31.4               | 7.9          | 37.0         | 55.1               | 73.9              | 18.8           | 100            | 177            |             |
| Vert.    | 7323.000           | PK       | 45.4              | 37.2               | 9.1          | 39.4         | 52.3               | 73.9              | 21.6           | 100            | 0              | Floor noise |
| Vert.    | 9764.000           | PK       | 43.1              | 38.8               | 10.1         | 37.5         | 54.5               | 73.9              | 19.4           | 100            | 0              | Floor noise |
| Vert.    | 12205.000          | PK       | 42.8              | 39.6               | 11.3         | 38.3         | 55.4               | 73.9              | 18.5           | 100            | 0              | Floor noise |
| Vert.    | 1750.000           | AV       | 37.5              | 26.1               | 14.0         | 38.6         | 39.0               | 53.9              | 14.9           | 100            | 150            |             |
| Vert.    | 3000.000           | AV       | 42.2              | 28.3               | 6.6          | 38.1         | 39.0               | 53.9              | 14.9           | 100            | 286            |             |
| Vert.    | 7323.000           | AV       | 33.7              | 37.2               | 9.1          | 39.4         | 40.6               | 53.9              | 13.3           | 100            | 0              | Floor noise |
| Vert.    | 9764.000           | AV       | 30.9              | 38.8               | 10.1         | 37.5         | 42.3               | 53.9              | 11.6           | 100            | 0              | Floor noise |
| Vert.    | 12205.000          | AV       | 30.8              | 39.6               | 11.3         | 38.3         | 43.4               | 53.9              | 10.5           | 100            | 0              | Floor noise |

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**Dwell time factor relaxation**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Dwell<br>Factor<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|--------|
| Hori.    | 4882.000           | AV       | 45.5              | 31.4               | 7.9          | 37.0         | -24.6                   | 23.2               | 53.9              | 30.7           |        |
| Vert.    | 4882.000           | AV       | 45.6              | 31.4               | 7.9          | 37.0         | -24.6                   | 23.3               | 53.9              | <b>30.6</b>    |        |

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier) + Dwell(time)factor

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**20dBc Data Sheet (RBW 100kHz, VBW 300kHz)**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|--------|
| Hori.    | 2441.000           | PK       | 92.6              | 26.8               | 14.7         | 38.2         | 95.9               | -                 | -              |        |
| Hori.    | 193.948            | QP       | 45.8              | 16.3               | 7.8          | 32.1         | 37.8               | 75.9              | 38.1           |        |
| Hori.    | 300.002            | QP       | 49.9              | 13.8               | 8.5          | 32.0         | 40.2               | 75.9              | 35.7           |        |
| Hori.    | 892.163            | QP       | 40.7              | 21.5               | 10.8         | 31.1         | 41.9               | 75.9              | 34.0           |        |
| Vert.    | 2441.000           | PK       | 94.1              | 26.8               | 14.7         | 38.2         | 97.4               | -                 | -              |        |
| Vert.    | 193.948            | QP       | 48.5              | 16.3               | 7.8          | 32.1         | 40.5               | 77.4              | 36.9           |        |
| Vert.    | 300.002            | QP       | 40.8              | 13.8               | 8.5          | 32.0         | 31.1               | 77.4              | 46.3           |        |
| Vert.    | 892.163            | QP       | 41.6              | 21.5               | 10.8         | 31.1         | 42.8               | 77.4              | 34.6           |        |

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

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## Radiated Emission

Test place                      No.1 and No.3 Semi Anechoic Chamber  
 Date                              March 29, 2014                      March 31, 2014                      April 1, 2014  
 Temperature / Humidity      20 deg.C, 35 %RH                      25 deg.C, 36 %RH                      24 deg.C, 31 %RH  
 Engineer                        Wataru Kojima                      Kenichi Adachi                      Wataru Kojima  
 Mode                              Tx,                      2480 MHz  
                                          Tx, Bluetooth, EDR

(\* PK: Peak, AV: Average, QP: Quasi-Peak)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg] | Remark      |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|----------------|-------------|
| Hori.    | 83.947             | QP       | 49.0              | 7.0                | 7.5          | 32.1         | 31.4               | 40.0              | 8.6            | 237            | 337            |             |
| Hori.    | 271.525            | QP       | 45.4              | 17.8               | 8.4          | 32.0         | 39.6               | 46.0              | 6.4            | 182            | 116            |             |
| Hori.    | 400.001            | QP       | 52.4              | 16.3               | 9.0          | 32.0         | 45.7               | 46.0              | <b>0.3</b>     | 152            | 207            |             |
| Hori.    | 1750.000           | PK       | 45.7              | 26.1               | 14.0         | 38.6         | 47.2               | 73.9              | 26.7           | 100            | 193            |             |
| Hori.    | 2000.000           | PK       | 44.8              | 26.6               | 14.3         | 38.7         | 47.0               | 73.9              | 26.9           | 108            | 48             |             |
| Hori.    | 2483.500           | PK       | 48.0              | 26.9               | 14.8         | 38.1         | 51.6               | 73.9              | 22.3           | 100            | 173            |             |
| Hori.    | 3000.000           | PK       | 46.0              | 28.3               | 6.6          | 38.1         | 42.8               | 73.9              | 31.1           | 100            | 326            |             |
| Hori.    | 4960.000           | PK       | 51.8              | 31.8               | 7.8          | 37.0         | 54.4               | 73.9              | 19.5           | 100            | 199            |             |
| Hori.    | 7440.000           | PK       | 45.3              | 37.4               | 9.3          | 39.4         | 52.6               | 73.9              | 21.3           | 100            | 0              | Floor noise |
| Hori.    | 9920.000           | PK       | 43.1              | 38.9               | 10.1         | 37.5         | 54.6               | 73.9              | 19.3           | 100            | 0              | Floor noise |
| Hori.    | 12400.000          | PK       | 43.3              | 39.7               | 11.4         | 38.2         | 56.2               | 73.9              | 17.7           | 100            | 0              | Floor noise |
| Hori.    | 1750.000           | AV       | 38.1              | 26.1               | 14.0         | 38.6         | 39.6               | 53.9              | 14.3           | 100            | 193            |             |
| Hori.    | 2000.000           | AV       | 35.5              | 26.6               | 14.3         | 38.7         | 37.7               | 53.9              | 16.2           | 108            | 48             |             |
| Hori.    | 2483.500           | AV       | 35.2              | 26.9               | 14.8         | 38.1         | 38.8               | 53.9              | 15.1           | 100            | 173            |             |
| Hori.    | 3000.000           | AV       | 40.8              | 28.3               | 6.6          | 38.1         | 37.6               | 53.9              | 16.3           | 100            | 326            |             |
| Hori.    | 7440.000           | AV       | 33.6              | 37.4               | 9.3          | 39.4         | 40.9               | 53.9              | 13.0           | 100            | 0              | Floor noise |
| Hori.    | 9920.000           | AV       | 31.6              | 38.9               | 10.1         | 37.5         | 43.1               | 53.9              | 10.8           | 100            | 0              | Floor noise |
| Hori.    | 12400.000          | AV       | 30.3              | 39.7               | 11.4         | 38.2         | 43.2               | 53.9              | 10.7           | 100            | 0              | Floor noise |
| Vert.    | 271.525            | QP       | 46.0              | 17.8               | 8.4          | 32.0         | 40.2               | 46.0              | 5.8            | 195            | 179            |             |
| Vert.    | 400.001            | QP       | 50.4              | 16.3               | 9.0          | 32.0         | 43.7               | 46.0              | 2.3            | 154            | 182            |             |
| Vert.    | 1750.000           | PK       | 45.3              | 26.1               | 14.0         | 38.6         | 46.8               | 73.9              | 27.1           | 100            | 149            |             |
| Vert.    | 2000.000           | PK       | 45.4              | 26.6               | 14.3         | 38.7         | 47.6               | 73.9              | 26.3           | 100            | 246            |             |
| Vert.    | 2483.500           | PK       | 49.8              | 26.9               | 14.8         | 38.1         | 53.4               | 73.9              | 20.5           | 100            | 178            |             |
| Vert.    | 3000.000           | PK       | 48.0              | 28.3               | 6.6          | 38.1         | 44.8               | 73.9              | 29.1           | 100            | 281            |             |
| Vert.    | 4960.000           | PK       | 51.5              | 31.8               | 7.8          | 37.0         | 54.1               | 73.9              | 19.8           | 100            | 174            |             |
| Vert.    | 7440.000           | PK       | 45.1              | 37.4               | 9.3          | 39.4         | 52.4               | 73.9              | 21.5           | 100            | 0              | Floor noise |
| Vert.    | 9920.000           | PK       | 42.3              | 38.9               | 10.1         | 37.5         | 53.8               | 73.9              | 20.1           | 100            | 0              | Floor noise |
| Vert.    | 12400.000          | PK       | 42.8              | 39.7               | 11.4         | 38.2         | 55.7               | 73.9              | 18.2           | 100            | 0              | Floor noise |
| Vert.    | 1750.000           | AV       | 37.5              | 26.1               | 14.0         | 38.6         | 39.0               | 53.9              | 14.9           | 100            | 149            |             |
| Vert.    | 2000.000           | AV       | 37.8              | 26.6               | 14.3         | 38.7         | 40.0               | 53.9              | 13.9           | 100            | 246            |             |
| Vert.    | 2483.500           | AV       | 36.5              | 26.9               | 14.8         | 38.1         | 40.1               | 53.9              | 13.8           | 100            | 178            |             |
| Vert.    | 3000.000           | AV       | 42.2              | 28.3               | 6.6          | 38.1         | 39.0               | 53.9              | 14.9           | 100            | 281            |             |
| Vert.    | 7440.000           | AV       | 33.5              | 37.4               | 9.3          | 39.4         | 40.8               | 53.9              | 13.1           | 100            | 0              | Floor noise |
| Vert.    | 9920.000           | AV       | 31.3              | 38.9               | 10.1         | 37.5         | 42.8               | 53.9              | 11.1           | 100            | 0              | Floor noise |
| Vert.    | 12400.000          | AV       | 31.6              | 39.7               | 11.4         | 38.2         | 44.5               | 53.9              | 9.4            | 100            | 0              | Floor noise |

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**Dwell time factor relaxation**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Dwell<br>Factor<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|--------|
| Hori.    | 4960.000           | AV       | 44.5              | 31.8               | 7.8          | 37.0         | -24.6                   | 22.5               | 53.9              | <b>31.4</b>    |        |
| Vert.    | 4960.000           | AV       | 44.4              | 31.8               | 7.8          | 37.0         | -24.6                   | 22.4               | 53.9              | <b>31.5</b>    |        |

Result = Reading + Ant.Fac. + Loss(Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier) + Dwell(time)factor

Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

**20dBc Data Sheet (RBW 100kHz, VBW 300kHz)**

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|--------|
| Hori.    | 2480.000           | PK       | 92.0              | 26.9               | 14.8         | 38.2         | 95.5               | -                 | -              |        |
| Hori.    | 193.947            | QP       | 46.0              | 16.3               | 7.8          | 32.1         | 38.0               | 75.5              | 37.5           |        |
| Hori.    | 300.001            | QP       | 49.3              | 13.8               | 8.5          | 32.0         | 39.6               | 75.5              | 35.9           |        |
| Hori.    | 892.165            | QP       | 39.3              | 21.5               | 10.8         | 31.1         | 40.5               | 75.5              | 35.0           |        |
| Vert.    | 2480.000           | PK       | 95.2              | 26.9               | 14.8         | 38.2         | 98.7               | -                 | -              |        |
| Vert.    | 193.947            | QP       | 48.0              | 16.3               | 7.8          | 32.1         | 40.0               | 78.7              | 38.7           |        |
| Vert.    | 300.001            | QP       | 39.8              | 13.8               | 8.5          | 32.0         | 30.1               | 78.7              | 48.6           |        |
| Vert.    | 892.165            | QP       | 40.8              | 21.5               | 10.8         | 31.1         | 42.0               | 78.7              | 36.7           |        |

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

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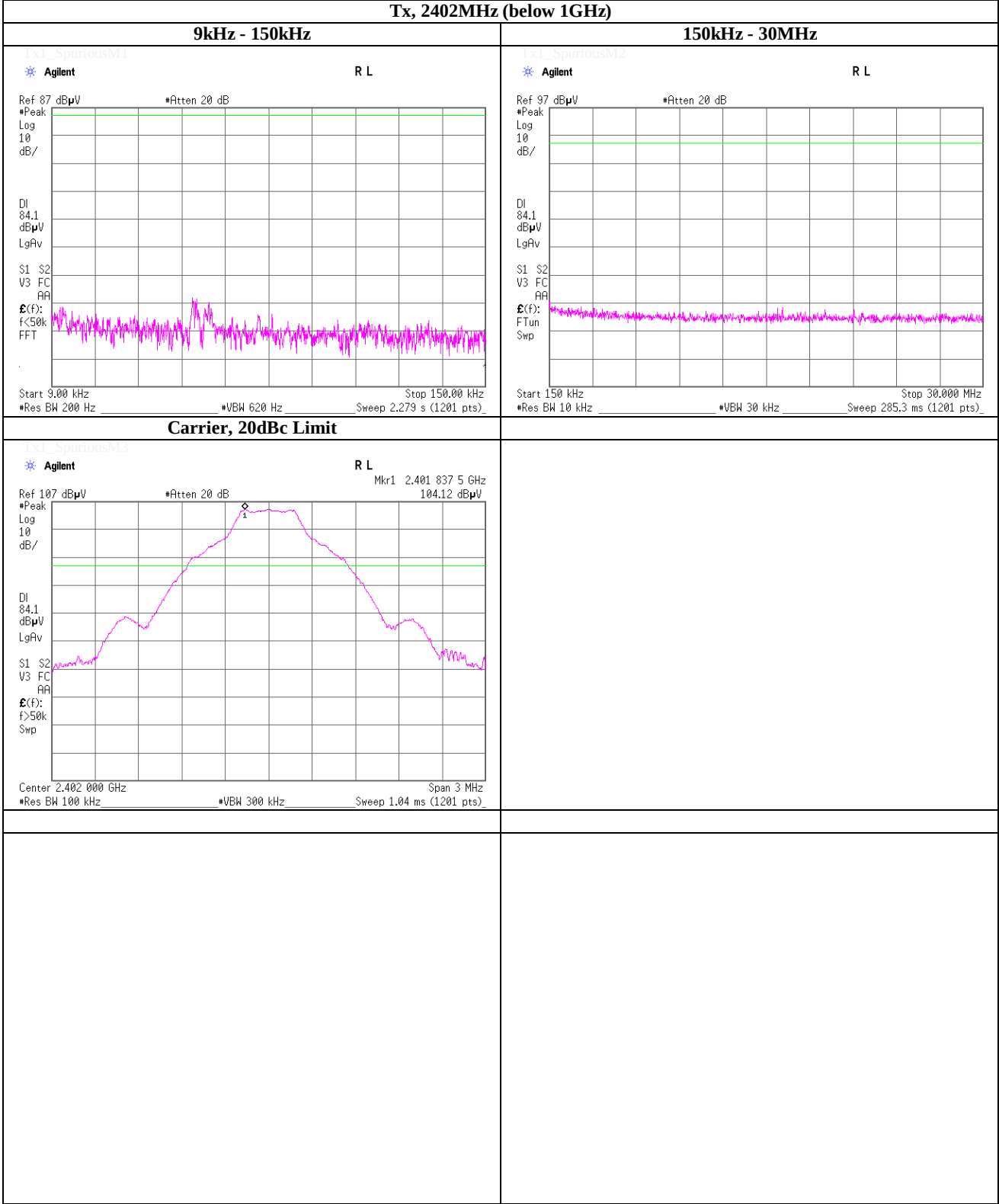
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Spurious emission (Conducted)

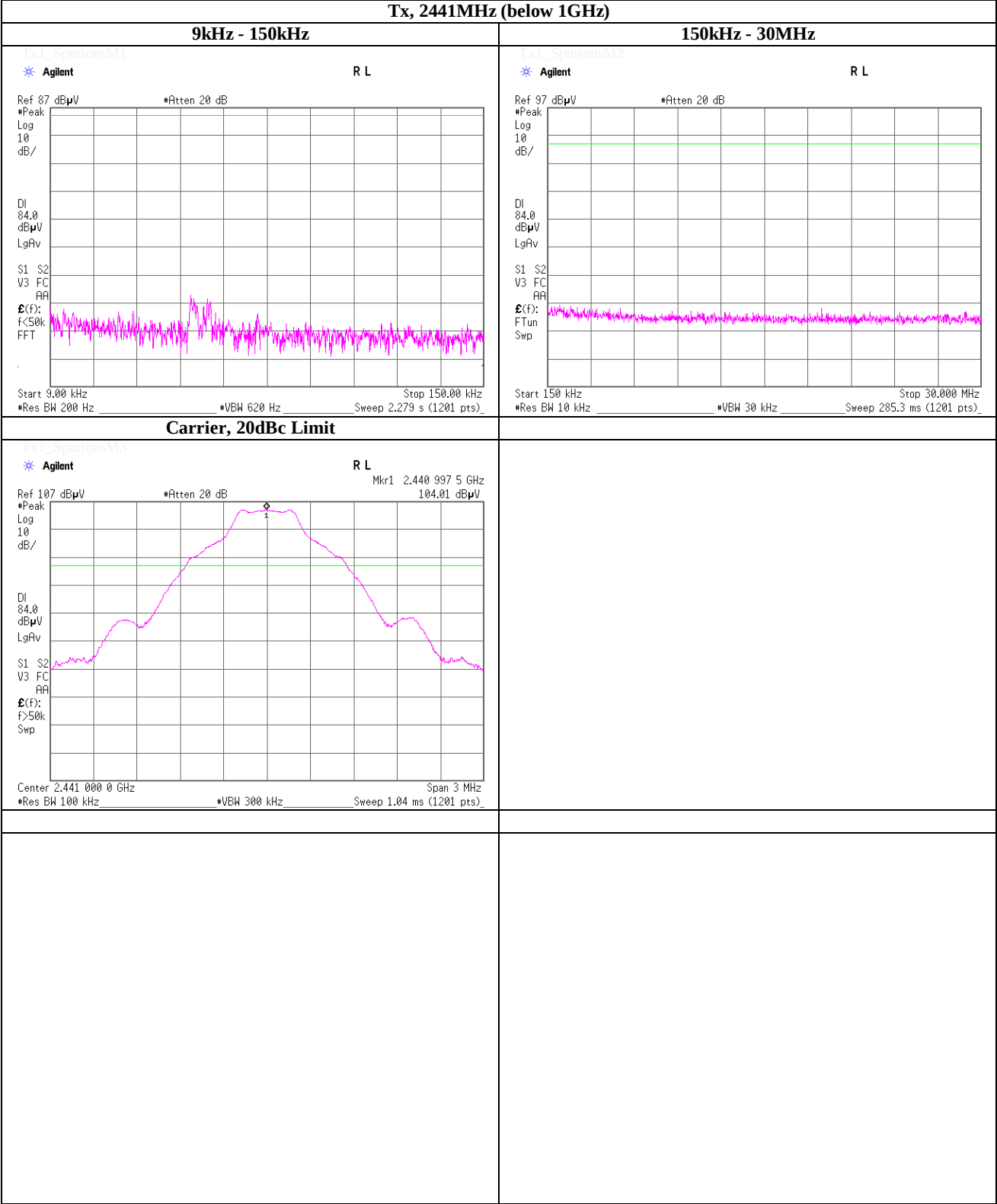
Tx, Bluetooth, BDR, PRBS9

Tx, 2402MHz (below 1GHz)



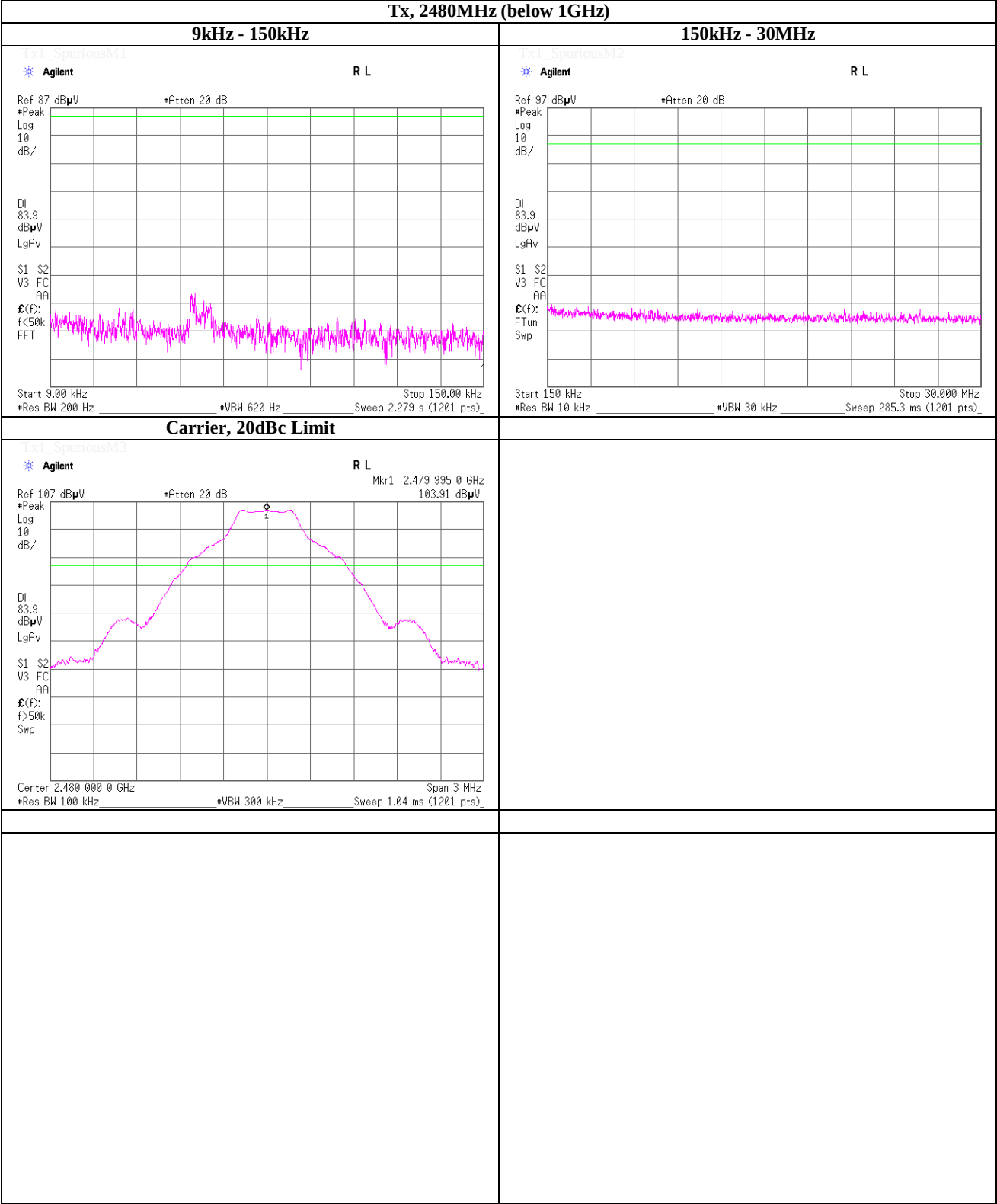
Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9  
Tx, 2441MHz (below 1GHz)



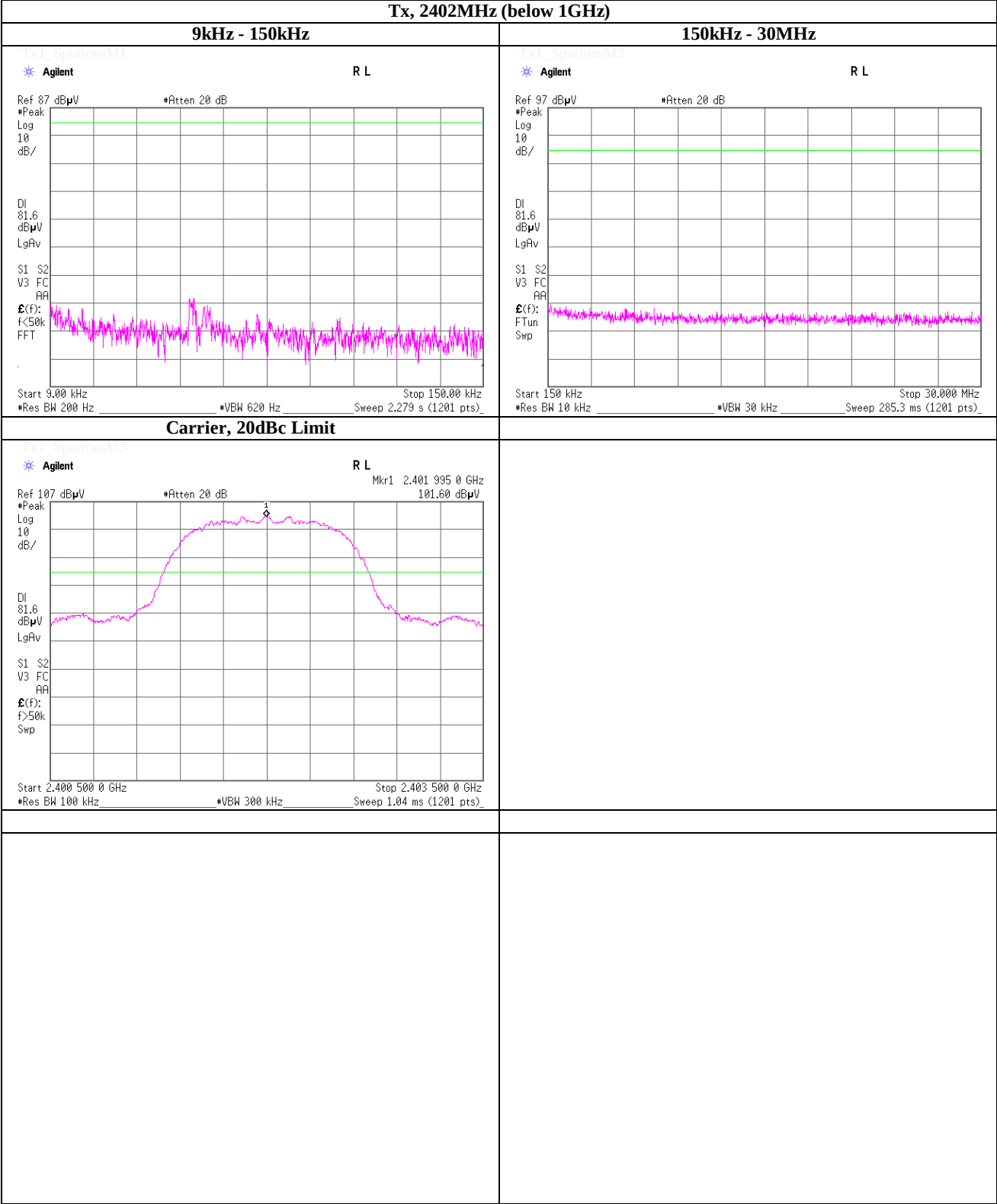
Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9  
Tx, 2480MHz (below 1GHz)



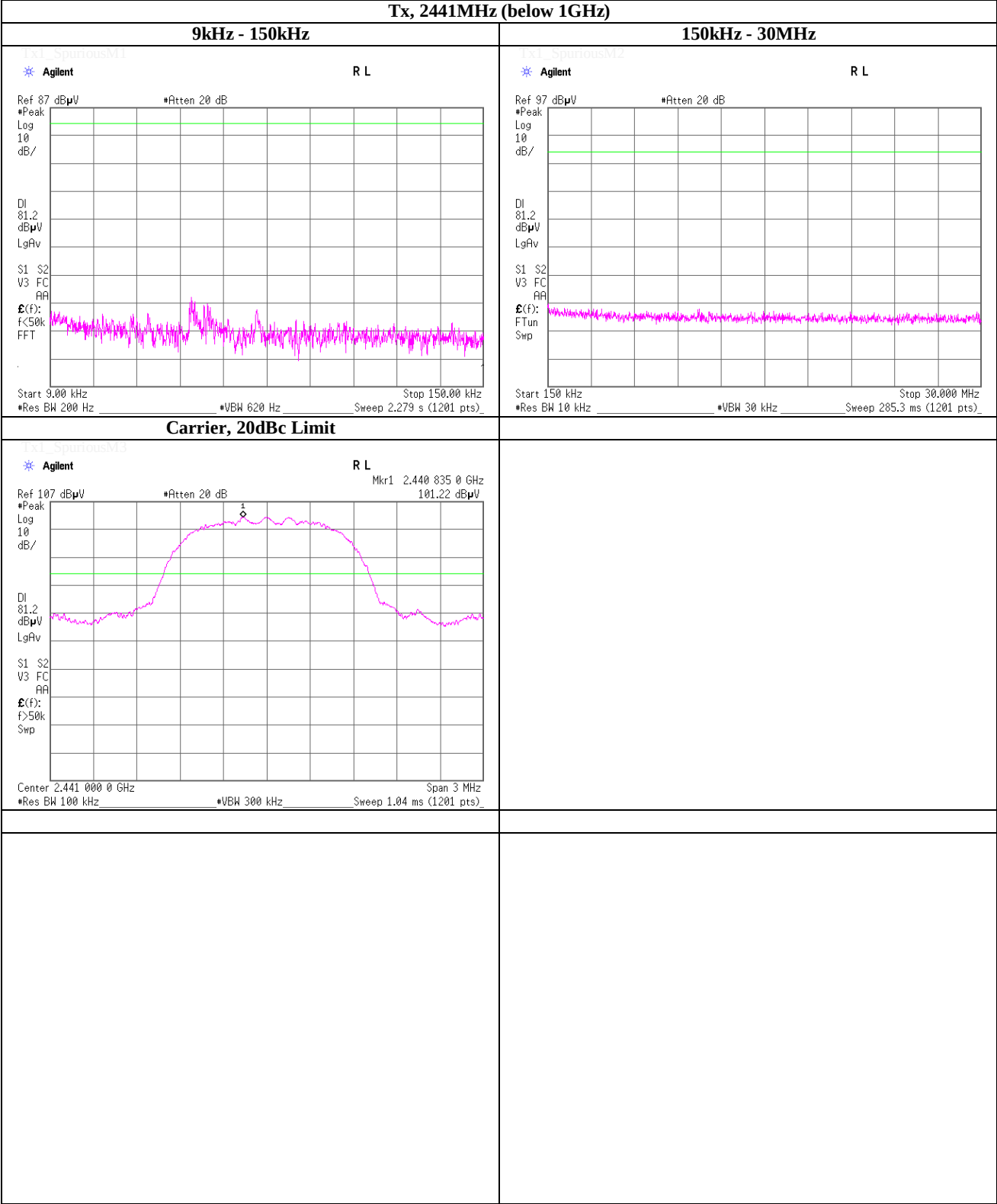
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9  
Tx, 2402MHz (below 1GHz)



Spurious emission (Conducted)

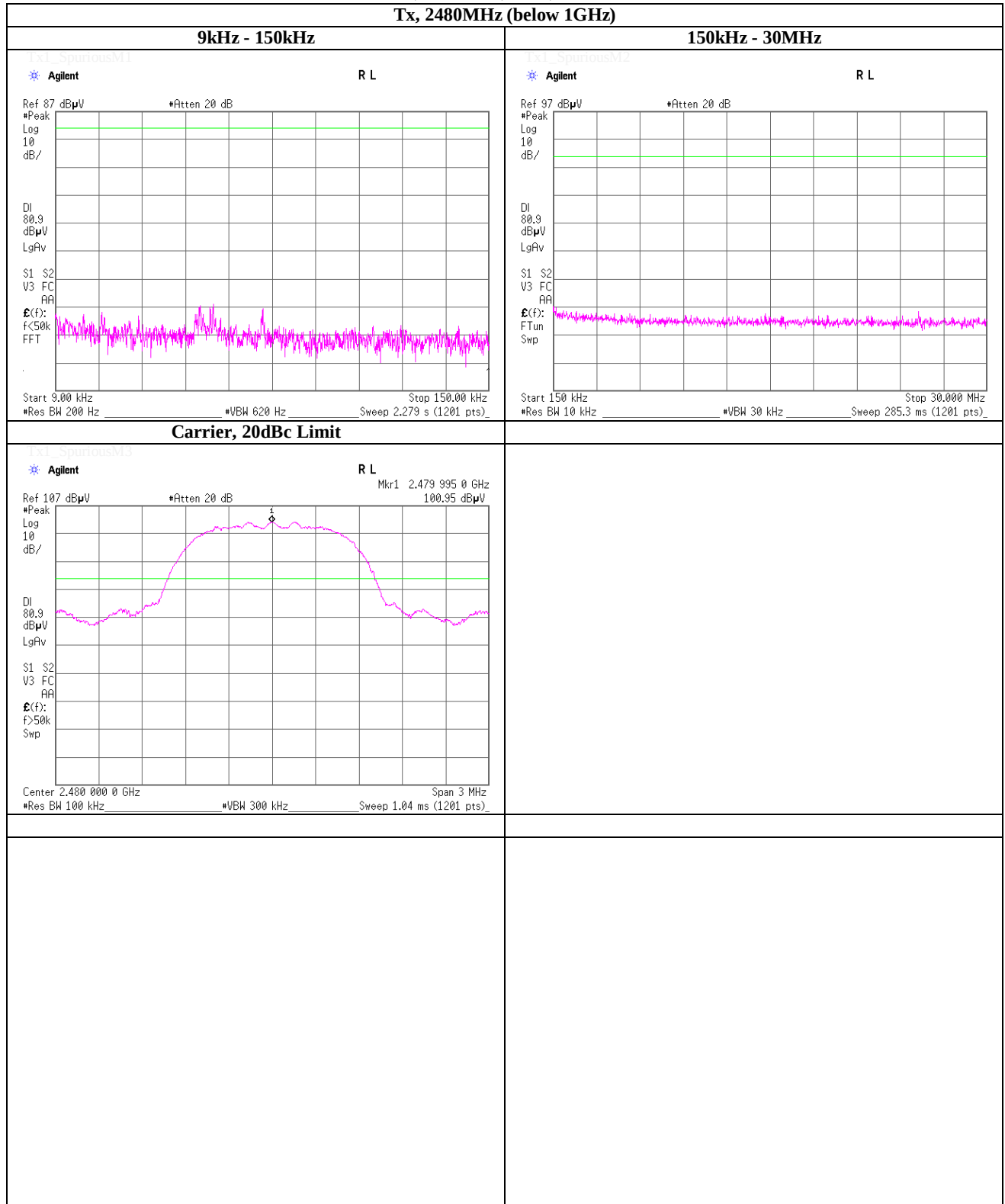
Tx, Bluetooth, EDR, PRBS9  
Tx, 2441MHz (below 1GHz)



## Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

Tx, 2480MHz (below 1GHz)



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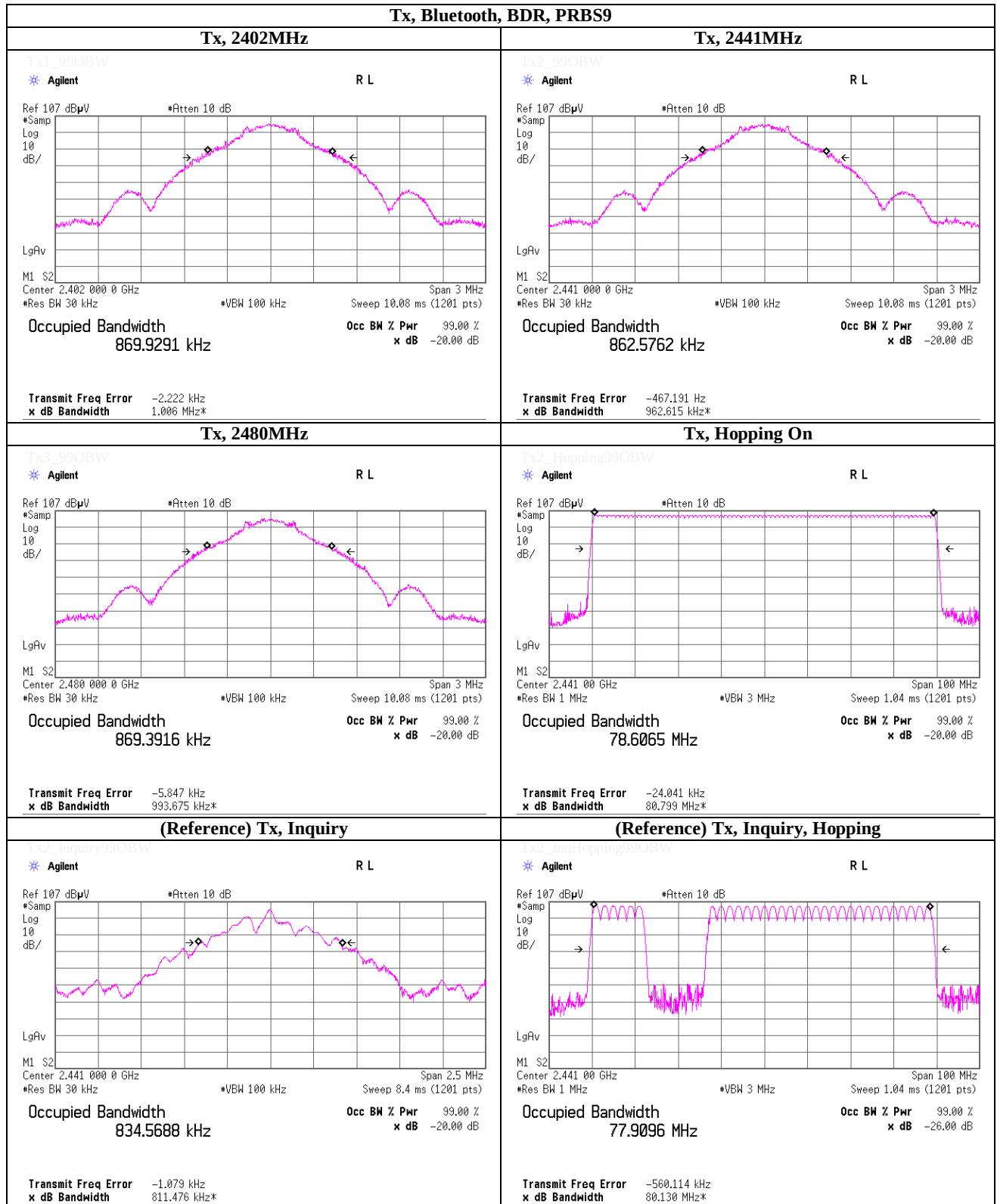
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## 99% Occupied Bandwidth



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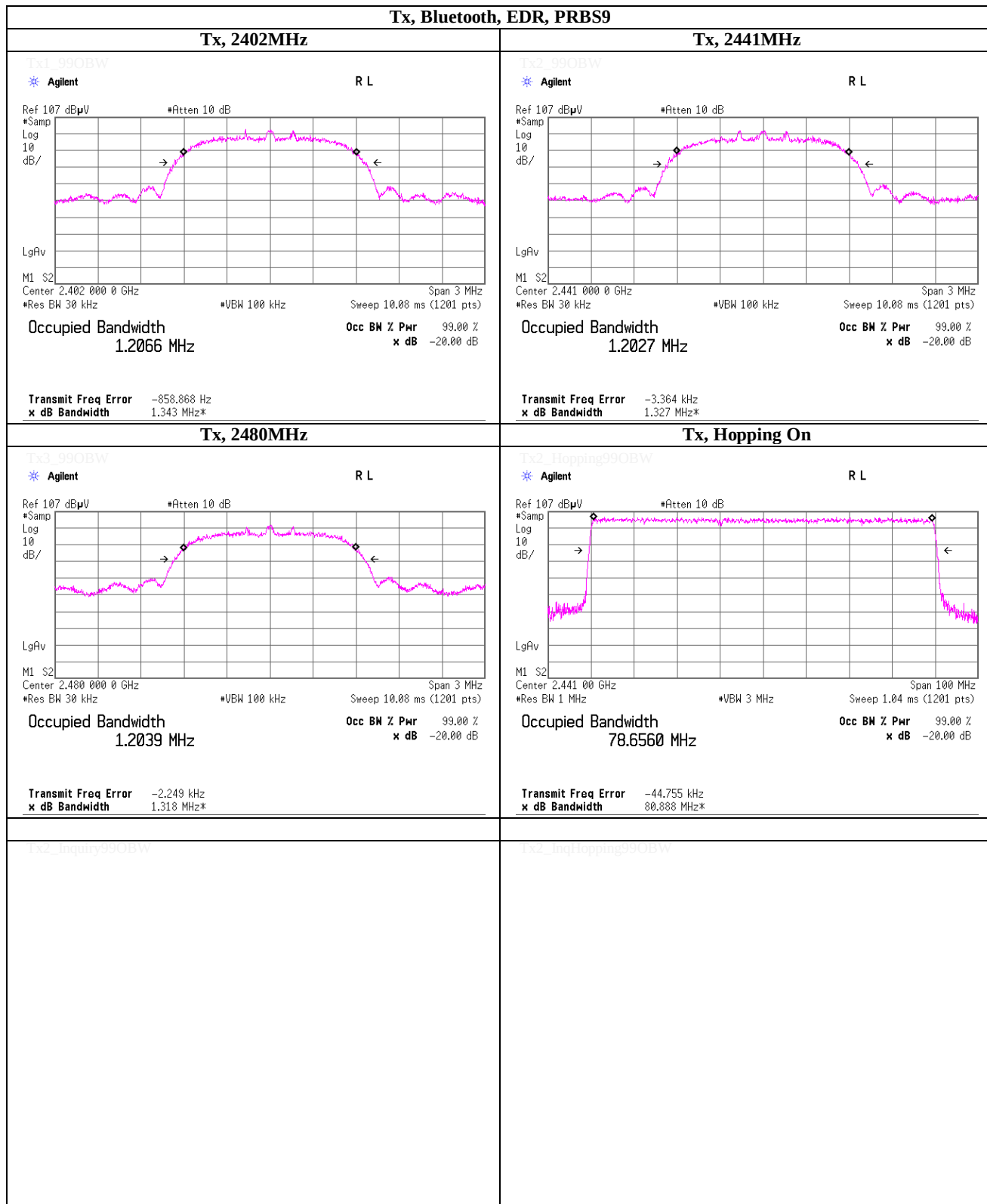
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## APPENDIX 2

### Test Instruments

#### EMI test equipment

| Control No.             | Instrument                   | Manufacturer       | Model No                   | Serial No                  | Test Item | Calibration Date<br>* Interval(month) |
|-------------------------|------------------------------|--------------------|----------------------------|----------------------------|-----------|---------------------------------------|
| SOS-13                  | Humidity Indicator           | Custom             | CTH-202                    | Q.C.17                     | AT        | 2013/04/25 * 12                       |
| KSA-08                  | Spectrum Analyzer            | Agilent            | E4446A                     | MY46180525                 | AT        | 2014/03/04 * 12                       |
| SCC-G12                 | Coaxial Cable                | Suhner             | SUCOFLEX 102               | 30790/2                    | AT        | 2014/03/13 * 12                       |
| SAT10-11                | Attenuator                   | Weinschel Corp.    | 54A-10                     | 37588                      | AT        | 2013/04/09 * 12                       |
| SPM-06                  | Power Meter                  | Anritsu            | ML2495A                    | 0850009                    | AT        | 2013/04/09 * 12                       |
| SPSS-03                 | Power sensor                 | Anritsu            | MA2411B                    | 0917063                    | AT        | 2013/04/09 * 12                       |
| SAEC-03(NSA)            | Semi-Anechoic Chamber        | TDK                | SAEC-03(NSA)               | 3                          | RE        | 2013/07/09 * 12                       |
| SAF-06                  | Pre Amplifier                | TOYO Corporation   | TPA0118-36                 | 1440491                    | RE        | 2013/07/22 * 12                       |
| SCC-G03                 | Coaxial Cable                | Suhner             | SUCOFLEX 104A              | 46499/4A                   | RE        | 2013/04/11 * 12                       |
| SCC-G23                 | Coaxial Cable                | Suhner             | SUCOFLEX 104               | 297342/4                   | RE        | 2013/05/22 * 12                       |
| SHA-03                  | Horn Antenna                 | Schwarzbeck        | BBHA9120D                  | 9120D-739                  | RE        | 2013/08/19 * 12                       |
| SOS-05                  | Humidity Indicator           | A&D                | AD-5681                    | 4062518                    | RE        | 2014/02/21 * 12                       |
| KSA-08                  | Spectrum Analyzer            | Agilent            | E4446A                     | MY46180525                 | RE        | 2014/03/04 * 12                       |
| SJM-11                  | Measure                      | PROMART            | SEN1935                    | -                          | RE        | -                                     |
| COTS-SEMI-1             | EMI Software                 | TSJ                | TEPTO-DV(RE,CE,<br>RFI,MF) | -                          | RE, CE    | -                                     |
| SAT10-06                | Attenuator                   | Agilent            | 8493C-010                  | 74865                      | RE        | 2013/11/22 * 12                       |
| SFL-02                  | Highpass Filter              | MICRO-TRONICS      | HPM50111                   | 051                        | Re        | 2013/11/22 * 12                       |
| SCC-A12/A13/<br>SRSE-01 | Coaxial Cable&RF<br>Selector | Suhner/Suhner/TOYO | RG223U/141PE/N<br>S4906    | -/0901-269(RF<br>Selector) | CE        | 2013/04/04 * 12                       |
| SLS-01                  | LISN                         | Rohde & Schwarz    | ENV216                     | 100511                     | CE        | 2014/02/14 * 12                       |
| SLS-02                  | LISN                         | Rohde & Schwarz    | ENV216                     | 100512                     | CE(AE)    | 2014/03/05 * 12                       |
| SAT3-07                 | Attenuator                   | JFW                | 50HF-003N                  | -                          | CE        | 2013/09/04 * 12                       |
| SOS-02                  | Humidity Indicator           | A&D                | AD-5681                    | 4063343                    | CE        | 2014/03/07 * 12                       |
| STM-01                  | Terminator                   | TME                | CT-01 BP                   | -                          | CE        | 2013/12/26 * 12                       |
| STR-01                  | Test Receiver                | Rohde & Schwarz    | ESU40                      | 100093                     | CE        | 2013/11/20 * 12                       |
| SJM-08                  | Measure                      | PROMART            | SEN1935                    | -                          | CE        | -                                     |
|                         |                              |                    |                            |                            |           |                                       |
|                         |                              |                    |                            |                            |           |                                       |

The expiration date of the calibration is the end of the expired month .  
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

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

Test Item :

CE: Conducted emission,  
RE: Radiated emission,  
AT: Antenna terminal conducted test