



# **RADIO TEST REPORT**

**Test Report No. : 32GE0273-HO-01-F**

**Applicant** : NEC Corporation of America  
**Type of Equipment** : Digital Portable Cellular Telephone  
**Model No.** : KMP7R4E1-2A  
**FCC ID** : A98-ROV0164  
**Test regulation** : FCC Part 15 Subpart C: 2012  
**Test Result** : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

**Date of test:** March 27 to April 18, 2012

**Representative test engineer:**

  
Yutaka Yoshida  
Engineer of WiSE Japan,  
UL Verification Service

**Approved by:**

  
Takahiro Hatakeda  
Leader of WiSE Japan,  
UL Verification Service



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.  
\*As for the range of Accreditation in NVLAP, you may refer to the WEB address,  
<http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap>

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## **SECTION 1: Customer information**

Company Name : NEC Corporation of America  
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Contact Person : Sanjay Wadhwa

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

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

Type of Equipment : Digital Portable Cellular Telephone  
Model No. : KMP7R4E1-2A  
Serial No. : Refer to Section 4, Clause 4.2  
Rating : DC 3.8V  
Receipt Date of Sample : March 27, 2012  
Country of Mass-production : Japan  
Condition of EUT : Production prototype  
Modification of EUT : No Modification by the test lab

### **2.2 Product description**

Model No: KMP7R4E1-2A, (referred to as the EUT in this report), is the Digital Portable Cellular Telephone.

### **Radio Specification [1/2]**

#### **Bluetooth (Ver.2.1 + EDR)**

|                             |                    |
|-----------------------------|--------------------|
| Equipment Type              | Transceiver        |
| Frequency of Operation      | 2402-2480MHz       |
| Other Clock Frequency       | 48MHz              |
| Type of Modulation          | FHSS               |
| Bandwidth & Channel spacing | 1MHz & 1MHz        |
| Antenna Connector Type      | Integrated antenna |

#### **Low Energy (Ver.4.0)**

|                             |                    |
|-----------------------------|--------------------|
| Equipment Type              | Transceiver        |
| Frequency of Operation      | 2402-2480MHz       |
| Other Clock Frequency       | 48MHz              |
| Bandwidth & Channel spacing | 1MHz & 2MHz        |
| Antenna Connector Type      | Integrated antenna |

#### **WLAN (IEEE802.11b/g/n (SISO/HT20))**

|                        |                    |
|------------------------|--------------------|
| Equipment Type         | Transceiver        |
| Frequency of Operation | 2412-2462MHz       |
| Other Clock Frequency  | 48MHz              |
| Type of Modulation     | DSSS, OFDM         |
| Antenna Connector Type | Integrated antenna |

#### **GSM**

|                        |                                                                                                                        |
|------------------------|------------------------------------------------------------------------------------------------------------------------|
| Equipment Type         | Transceiver                                                                                                            |
| Frequency of Operation | [Up Link]<br>GSM850: 824 – 849MHz<br>PCS: 1850 – 1910MHz<br>[Down Link]<br>GSM850: 869 – 894MHz<br>PCS: 1930 – 1990MHz |
| Other Clock Frequency  | 19.2MHz                                                                                                                |
| Type of Modulation     | GMSK                                                                                                                   |
| Channel spacing        | 200kHz                                                                                                                 |
| Antenna Connector Type | Integrated antenna                                                                                                     |

### **Radio Specification [2/2]**

#### **WCDMA**

|                        |                                                                          |
|------------------------|--------------------------------------------------------------------------|
| Equipment Type         | Transceiver                                                              |
| Frequency of Operation | [Up Link]<br>Band V: 824 – 849MHz<br>[Down Link]<br>Band V: 869 – 894MHz |
| Other Clock Frequency  | 19.2MHz                                                                  |
| Type of Modulation     | HPSK                                                                     |
| Channel spacing        | 5MHz                                                                     |
| Antenna Connector Type | Integrated antenna                                                       |

#### **GPS**

|                        |                       |
|------------------------|-----------------------|
| Equipment Type         | Receiver              |
| Receiver Type          | Direct Downconversion |
| Frequency of Operation | 1575.42MHz            |
| Other Clock Frequency  | 57.6MHz               |
| Antenna Connector Type | Integrated antenna    |

#### **RFID**

|                        |                    |
|------------------------|--------------------|
| Equipment Type         | Transceiver        |
| Frequency of Operation | 13.56MHz           |
| Type of Modulation     | ASK                |
| Antenna Connector Type | Integrated antenna |

\*This test report applies for Bluetooth (Ver.2.1 + EDR).

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

### **3.1 Test Specification**

Test Specification : FCC Part 15 Subpart C: 2012, final revised on February 1, 2012

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators  
Section 15.207 Conducted limits  
Section 15.247 Operation within the bands 902-928MHz,  
2400-2483.5MHz, and 5725-5850MHz

### **3.2 Procedures and results**

| Item                                     | Test Procedure                                                                               | Specification                                                    | Worst Margin                                               | Results  | Remarks                |
|------------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------|----------|------------------------|
| Conducted Emission                       | FCC: ANSI C63.4:2003<br>7. AC powerline conducted emission measurements<br>IC: RSS-Gen 7.2.4 | FCC: Section 15.207<br>IC: RSS-Gen 7.2.4                         | QP<br>27.2dB, 0.15174MHz, N<br>AV<br>24.7dB, 2.01605MHz, N | Complied | -                      |
| Carrier Frequency Separation             | FCC: FCC Public Notice DA 00-705<br>IC: -                                                    | FCC: Section15.247(a)(1)<br>IC: RSS-210 A8.1 (b)                 | See data.                                                  | Complied | Conducted              |
| 20dB Bandwidth                           | FCC: FCC Public Notice DA 00-705<br>IC: -                                                    | FCC: Section15.247(a)(1)<br>IC: RSS-210 A8.1 (a)                 |                                                            | -        | Conducted              |
| Number of Hopping Frequency              | FCC: FCC Public Notice DA 00-705<br>IC: -                                                    | FCC: Section15.247(a)(1)(iii)<br>IC: RSS-210 A8.1 (d)            |                                                            | Complied | Conducted              |
| Dwell time                               | FCC: FCC Public Notice DA 00-705<br>IC: -                                                    | FCC: Section15.247(a)(1)(iii)<br>IC: RSS-210 A8.1 (d)            |                                                            | Complied | Conducted              |
| Maximum Peak Output Power                | FCC: FCC Public Notice DA 00-705<br>IC: RSS-Gen 4.8                                          | FCC: Section15.247(a)(b)(1)<br>IC: RSS-210 A8.4 (2)              |                                                            | Complied | Conducted              |
| Spurious Emission & Band Edge Compliance | FCC: FCC Public Notice DA 00-705<br>IC: RSS-Gen 4.9                                          | FCC: Section15.247(d)<br>IC: RSS-210 A8.5<br>RSS-Gen 6 and 7.2.3 | 9.2dB<br>422.397MHz, QP, Vert.                             | Complied | Conducted/<br>Radiated |

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

\* In case any questions arise about test procedure, ANSI C63.4: 2003 is also referred.

#### **FCC 15.31 (e)**

This EUT provides stable voltage (DC1.3, 1.8, 3.0V) constantly to RF Part regardless of input voltage. Therefore, this EUT complies with the requirement.

#### **FCC Part 15.203 Antenna requirement**

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

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### 3.3 Addition to standard

| Item                   | Test Procedure    | Specification     | Worst margin | Results | Remarks   |
|------------------------|-------------------|-------------------|--------------|---------|-----------|
| 99% Occupied Bandwidth | IC: RSS-Gen 4.6.1 | IC: RSS-Gen 4.6.1 | N/A          | -       | Conducted |

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

### 3.4 Uncertainty

#### EMI

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

| Test room<br>(semi-anechoic chamber) | Conducted emission<br>(+dB) |
|--------------------------------------|-----------------------------|
|                                      | 150kHz-30MHz                |
| No.1                                 | 3.5dB                       |
| No.2                                 | 3.6dB                       |
| No.3                                 | 3.6dB                       |
| No.4                                 | 3.6dB                       |

| Test room<br>(semi-anechoic chamber) | Radiated emission |                  |                 |                |                 |                   |                   |
|--------------------------------------|-------------------|------------------|-----------------|----------------|-----------------|-------------------|-------------------|
|                                      | (3m*)(+dB)        |                  |                 |                | (1m*)(+dB)      |                   | (0.5m*)(+dB)      |
|                                      | 9kHz<br>-30MHz    | 30MHz<br>-300MHz | 300MHz<br>-1GHz | 1GHz<br>-10GHz | 10GHz<br>-18GHz | 18GHz<br>-26.5GHz | 26.5GHz<br>-40GHz |
| No.1                                 | 4.2dB             | 5.0dB            | 5.1dB           | 4.7dB          | 5.7dB           | 4.4dB             | 4.3dB             |
| No.2                                 | 4.1dB             | 5.2dB            | 5.1dB           | 4.8dB          | 5.6dB           | 4.3dB             | 4.2dB             |
| No.3                                 | 4.5dB             | 5.0dB            | 5.2dB           | 4.8dB          | 5.6dB           | 4.5dB             | 4.2dB             |
| No.4                                 | 4.7dB             | 5.2dB            | 5.2dB           | 4.8dB          | 5.6dB           | 5.1dB             | 4.2dB             |

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

| Power meter (+dB) |            |
|-------------------|------------|
| Below 1GHz        | Above 1GHz |
| 1.0dB             | 1.0dB      |

| Antenna terminal conducted emission<br>and Power density (+dB) |           |            | Antenna terminal conducted emission<br>(+dB) |               | Channel power<br>(+dB) |
|----------------------------------------------------------------|-----------|------------|----------------------------------------------|---------------|------------------------|
| Below 1GHz                                                     | 1GHz-3GHz | 3GHz-18GHz | 18GHz-26.5GHz                                | 26.5GHz-40GHz |                        |
| 1.0dB                                                          | 1.1dB     | 2.7dB      | 3.2dB                                        | 3.3dB         | 1.5dB                  |

#### Conducted Emission test

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

#### Radiated emission test(3m)

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

### 3.5 Test Location

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|                            | FCC Registration Number | IC Registration Number | Width x Depth x Height (m) | Size of reference ground plane (m) / horizontal conducting plane | Other rooms            |
|----------------------------|-------------------------|------------------------|----------------------------|------------------------------------------------------------------|------------------------|
| No.1 semi-anechoic chamber | 313583                  | 2973C-1                | 19.2 x 11.2 x 7.7m         | 7.0 x 6.0m                                                       | No.1 Power source room |
| No.2 semi-anechoic chamber | 655103                  | 2973C-2                | 7.5 x 5.8 x 5.2m           | 4.0 x 4.0m                                                       | -                      |
| No.3 semi-anechoic chamber | 148738                  | 2973C-3                | 12.0 x 8.5 x 5.9m          | 6.8 x 5.75m                                                      | No.3 Preparation room  |
| No.3 shielded room         | -                       | -                      | 4.0 x 6.0 x 2.7m           | N/A                                                              | -                      |
| No.4 semi-anechoic chamber | 134570                  | 2973C-4                | 12.0 x 8.5 x 5.9m          | 6.8 x 5.75m                                                      | No.4 Preparation room  |
| No.4 shielded room         | -                       | -                      | 4.0 x 6.0 x 2.7m           | N/A                                                              | -                      |
| No.5 semi-anechoic chamber | -                       | -                      | 6.0 x 6.0 x 3.9m           | 6.0 x 6.0m                                                       | -                      |
| No.6 shielded room         | -                       | -                      | 4.0 x 4.5 x 2.7m           | 4.75 x 5.4 m                                                     | -                      |
| No.6 measurement room      | -                       | -                      | 4.75 x 5.4 x 3.0m          | 4.75 x 4.15 m                                                    | -                      |
| No.7 shielded room         | -                       | -                      | 4.7 x 7.5 x 2.7m           | 4.7 x 7.5m                                                       | -                      |
| No.8 measurement room      | -                       | -                      | 3.1 x 5.0 x 2.7m           | N/A                                                              | -                      |
| No.9 measurement room      | -                       | -                      | 8.0 x 4.5 x 2.8m           | 2.0 x 2.0m                                                       | -                      |
| No.10 measurement room     | -                       | -                      | 2.6 x 2.8 x 2.5m           | 2.4 x 2.4m                                                       | -                      |
| No.11 measurement room     | -                       | -                      | 3.1 x 3.4 x 3.0m           | 2.4 x 3.4m                                                       | -                      |

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

### 3.6 Data of EMI, Test instruments, and Test set up

Refer to APPENDIX.

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

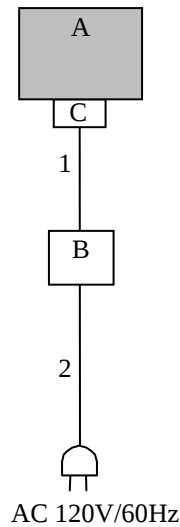
### **4.1 Operating Mode(s)**

Bluetooth (BT): Transmitting (Tx), Payload: PRBS9  
Inquiry

Details of Operating Mode(s)

| <b>Test Item</b>                                                 | <b>Mode</b>                                   | <b>Tested frequency</b>       |
|------------------------------------------------------------------|-----------------------------------------------|-------------------------------|
| Conducted Emission,<br>Spurious Emission<br>(Conducted/Radiated) | Tx (Hopping off) DH5, 3DH5                    | 2402MHz<br>2441MHz<br>2480MHz |
| Carrier Frequency Separation,<br>20dB Bandwidth                  | Tx (Hopping on) DH5, 3DH5<br>Inquiry          | 2402MHz<br>2441MHz<br>2480MHz |
| Maximum Peak Output Power                                        | Tx (Hopping off) DH5, 3DH5<br>Inquiry         | 2402MHz<br>2441MHz<br>2480MHz |
| Number of Hopping Frequency                                      | Tx (Hopping on) DH5, 3DH5<br>Inquiry          | -                             |
| Dwell time                                                       | Tx (Hopping on),<br>- DH5<br>-3DH5<br>Inquiry | -                             |
| Band Edge Compliance<br>(Conducted)                              | Tx DH5, 3DH5<br>-Hopping on<br>-Hopping off   | 2402MHz<br>2480MHz            |
| 99% Occupied Bandwidth                                           | Tx DH5, 3DH5<br>-Hopping off                  | 2402MHz<br>2441MHz<br>2480MHz |
|                                                                  | Tx DH5, 3DH5<br>-Hopping on                   | -                             |
|                                                                  | Inquiry                                       | -                             |

## 4.2 Configuration and peripherals



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

### Description of EUT and Support equipment

| No. | Item                                | Model number                       | Serial number                              | Manufacturer               | Remark |
|-----|-------------------------------------|------------------------------------|--------------------------------------------|----------------------------|--------|
| A   | Digital Portable Cellular Telephone | KMP7R4E1-2A                        | 004401200900021 *1)<br>004401200900054 *2) | NEC Corporation of America | EUT    |
| B   | AC Adaptor                          | MAS-BH0008-A002                    | -                                          | MITSUMI                    | -      |
| C   | Micro USB                           | FOMA charging microUSB adapter N01 | -                                          | NEC Corporation of America | -      |

\*1) Used for Antenna Terminal Conducted test

\*2) Used for Conducted Emission and Radiated Emission tests

### List of cables used

| No. | Name     | Length (m) | Shield     |            | Remark |
|-----|----------|------------|------------|------------|--------|
|     |          |            | Cable      | Connector  |        |
| 1   | DC Cable | 1.6        | Shielded   | Shielded   | -      |
| 2   | AC Cable | 0.6        | Unshielded | Unshielded | -      |

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## **SECTION 5: Conducted Emission**

### **Test Procedure and conditions**

EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, raised 0.8m above the conducting ground plane.

The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and 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 a Line Impedance Stabilization Network (LISN)/ Artificial mains Network (AMN) and excess AC cable was bundled in center.

#### **For the tests on EUT with other peripherals (as a whole system)**

I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. All unused 50ohm connectors of the LISN(AMN) were resistivity terminated in 50ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber .

The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

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

|                          |                     |
|--------------------------|---------------------|
| <b>Detector</b>          | <b>: QP and AV</b>  |
| <b>Measurement range</b> | <b>: 0.15-30MHz</b> |
| <b>Test data</b>         | <b>: APPENDIX</b>   |
| <b>Test result</b>       | <b>: Pass</b>       |

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## **SECTION 6: Radiated Spurious Emission**

### **Test Procedure**

EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, raised 0.8m above the conducting ground plane.

The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

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

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

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

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

### **Test Antennas are used as below;**

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

|                 |                |                                          |                             |
|-----------------|----------------|------------------------------------------|-----------------------------|
| Frequency       | Below 1GHz     | Above 1GHz                               |                             |
| Instrument used | Test Receiver  | Spectrum Analyzer                        |                             |
| Detector        | QP             | PK                                       | AV                          |
| IF Bandwidth    | BW 120kHz(T/R) | RBW: 1MHz<br>VBW: 3MHz                   | RBW: 1MHz<br>VBW: 270Hz *1) |
| Test Distance   | 3m             | 3m (below 10GHz),<br>1m*2) (above 10GHz) |                             |

\*1) Used for the band edge of the carrier and the harmonics that can be measured. The VBW is based on the inverse of the duty cycle (see Appendix). 270Hz was used for DH5 and 3DH5.

\*2) Distance Factor:  $20 \times \log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

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

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

**Measurement range** : 30M-25GHz

**Test data** : APPENDIX

**Test result** : Pass

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## **SECTION 7: Antenna Terminal Conducted Tests**

### **Test Procedure**

The tests were made with below setting connected to the antenna port.

| Test                                             | Span                                   | RBW             | VBW                | Sweep time                                                     | Detector | Trace    | Instrument used                |
|--------------------------------------------------|----------------------------------------|-----------------|--------------------|----------------------------------------------------------------|----------|----------|--------------------------------|
| 20dB Bandwidth                                   | 3MHz                                   | 30kHz           | 100kHz             | Auto                                                           | Peak     | Max Hold | Spectrum Analyzer              |
| 99% Occupied Bandwidth                           | Enough width to display 20dB Bandwidth | 1 to 3% of Span | Three times of RBW | Auto                                                           | Peak     | Max Hold | Spectrum Analyzer              |
| Maximum Peak Output Power                        | -                                      | -               | -                  | Auto                                                           | Peak     | -        | Power Meter (Sensor: 50MHz BW) |
| Carrier Frequency Separation                     | 3MHz/5MHz                              | 30kHz/100kHz    | 100kHz/300kHz      | Auto                                                           | Peak     | Max Hold | Spectrum Analyzer              |
| Number of Hopping Frequency                      | 30MHz                                  | 300kHz          | 1MHz               | Auto                                                           | Peak     | Max Hold | Spectrum Analyzer              |
| Dwell Time                                       | Zero Span                              | 100kHz, 1MHz    | 300kHz, 3MHz       | As necessary capture the entire dwell time per hopping channel | Peak     | Max Hold | Spectrum Analyzer              |
| Conducted Spurious Emission *1)                  | 9kHz to 150kHz                         | 200Hz           | 620Hz              | Auto                                                           | Peak     | Max Hold | Spectrum Analyzer              |
|                                                  | 150kHz to 30MHz                        | 9.1kHz          | 27kHz              |                                                                |          |          |                                |
|                                                  | 30MHz to 25GHz (Less or equal to 5GHz) | 100kHz          | 300kHz             |                                                                |          |          |                                |
| Conducted Spurious Emission Band Edge compliance | 10MHz                                  | 100kHz          | 300kHz             | Auto                                                           | Peak     | Max Hold | Spectrum Analyzer              |

\*1) 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=9.1kHz)

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

Test data : APPENDIX  
Test result : Pass

## APPENDIX 1: Data of EMI test

### Conducted Emission

#### DATA OF CONDUCTED EMISSION TEST

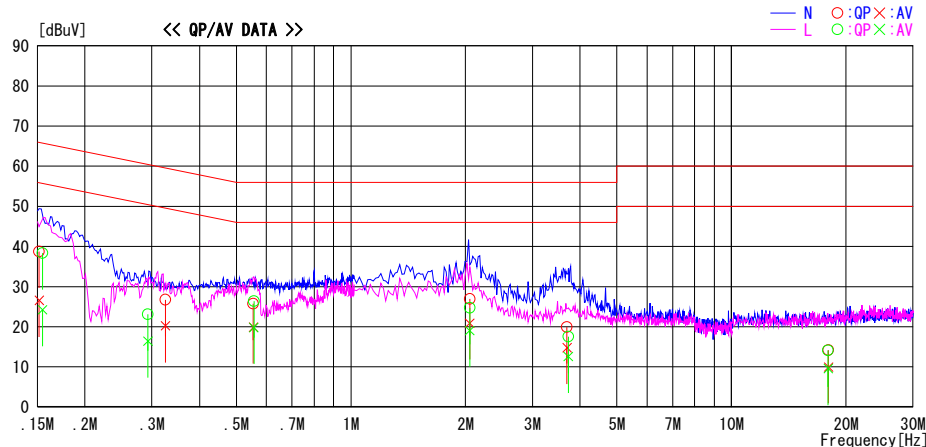
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber  
Date : 2012/04/02

Report No. : 32GE0273-HO-01

Temp./Humi. : 22deg. C / 35% RH  
Engineer : Tomohisa Nakagawa

Mode / Remarks : BT Tx DH5 2441MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV



| Frequency<br>[MHz] | Reading Level |              | Corr.<br>Factor | 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] |       |         |
| 0.15174            | 25.5          | 13.4         | 13.2            | 38.7         | 26.6         | 65.9         | 55.9         | 27.2       | 29.3       | N     |         |
| 0.32551            | 13.5          | 7.0          | 13.2            | 26.7         | 20.2         | 59.6         | 49.6         | 32.9       | 29.4       | N     |         |
| 0.55426            | 12.5          | 6.7          | 13.2            | 25.7         | 19.9         | 56.0         | 46.0         | 30.3       | 26.1       | N     |         |
| 2.05333            | 13.5          | 7.5          | 13.4            | 26.9         | 20.9         | 56.0         | 46.0         | 29.1       | 25.1       | N     |         |
| 3.69662            | 6.2           | 1.1          | 13.7            | 19.9         | 14.8         | 56.0         | 46.0         | 36.1       | 31.2       | N     |         |
| 17.98604           | -0.8          | -5.0         | 15.0            | 14.2         | 10.0         | 60.0         | 50.0         | 45.8       | 40.0       | N     |         |
| 0.15470            | 25.2          | 11.0         | 13.2            | 38.4         | 24.2         | 65.7         | 55.7         | 27.3       | 31.5       | L     |         |
| 0.29274            | 9.9           | 3.2          | 13.2            | 23.1         | 16.4         | 60.4         | 50.4         | 37.3       | 34.0       | L     |         |
| 0.55604            | 13.2          | 6.6          | 13.2            | 26.4         | 19.8         | 56.0         | 46.0         | 29.6       | 26.2       | L     |         |
| 2.05240            | 11.3          | 5.7          | 13.4            | 24.7         | 19.1         | 56.0         | 46.0         | 31.3       | 26.9       | L     |         |
| 3.72462            | 3.9           | -1.1         | 13.7            | 17.6         | 12.6         | 56.0         | 46.0         | 38.4       | 33.4       | L     |         |
| 17.94586           | -0.9          | -5.4         | 15.0            | 14.1         | 9.6          | 60.0         | 50.0         | 45.9       | 40.4       | L     |         |

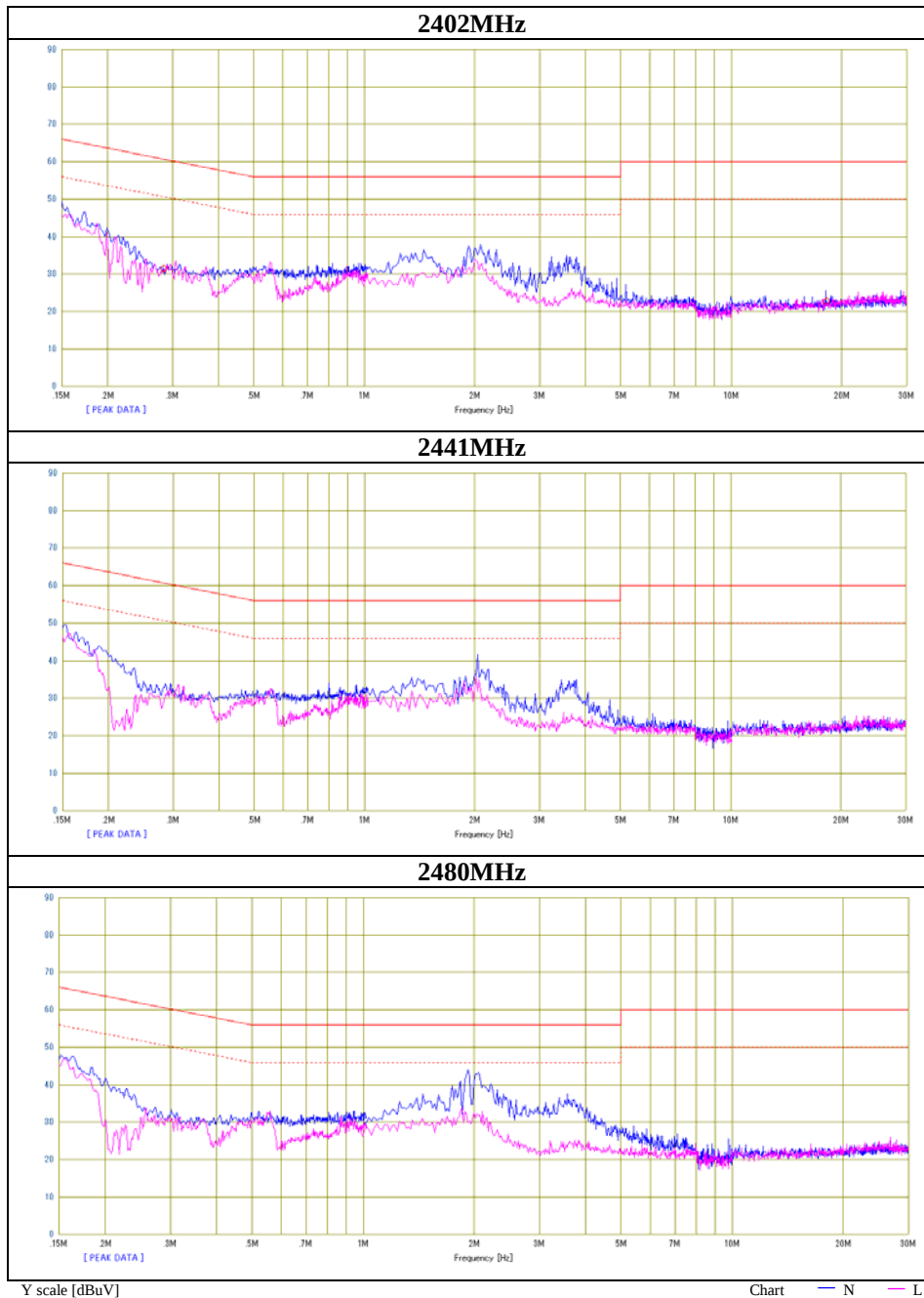
CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT=READING+C.F (LISN LOSS+ATT LOSS +CABLE LOSS)  
Except for the above table : adequate margin data below the limits.

\*The limit is rounded down to one decimal place.

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

## Conducted Emission

|                       |                                                 |
|-----------------------|-------------------------------------------------|
| Test place            | Head Office EMC Lab. No.2 Semi Anechoic Chamber |
| Report No.            | 32GE0273-HO-01                                  |
| Date                  | 04/02/2012                                      |
| Temperature/ Humidity | 21 deg. C / 32% RH                              |
| Engineer              | Tomohisa Nakagawa                               |
| Mode                  | Tx DH5                                          |



## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

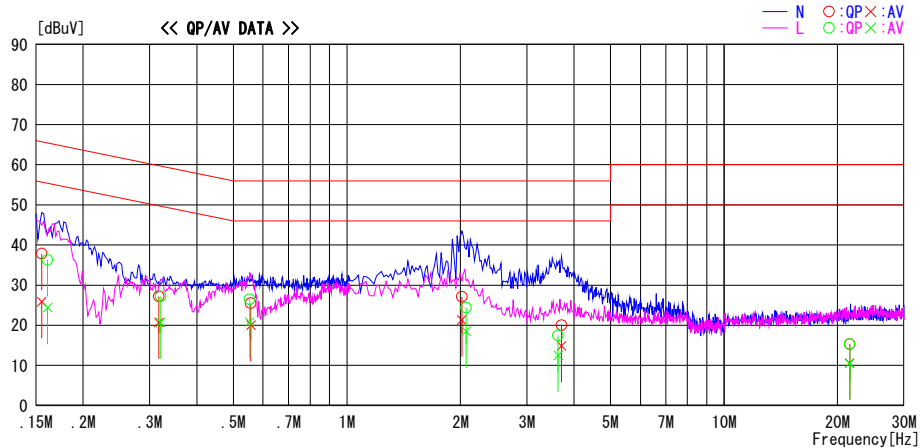
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber  
Date : 2012/04/02

Report No. : 32GE0273-HO-01

Temp./Humi. : 22deg. C / 35% RH  
Engineer : Tomohisa Nakagawa

Mode / Remarks : BT Tx 3DH5 2441MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV



| Frequency<br>[MHz] | Reading Level |              | Corr.<br>Factor<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] |       |         |
| 0.15530            | 24.6          | 12.7         | 13.2                    | 37.8         | 25.9         | 65.7         | 55.7         | 27.9       | 29.8       | N     |         |
| 0.31738            | 14.0          | 7.5          | 13.2                    | 27.2         | 20.7         | 59.8         | 49.8         | 32.6       | 29.1       | N     |         |
| 0.55623            | 12.3          | 6.9          | 13.2                    | 25.5         | 20.1         | 56.0         | 46.0         | 30.5       | 25.9       | N     |         |
| 2.01605            | 13.7          | 7.9          | 13.4                    | 27.1         | 21.3         | 56.0         | 46.0         | 28.9       | 24.7       | N     |         |
| 3.70645            | 6.3           | 1.2          | 13.7                    | 20.0         | 14.9         | 56.0         | 46.0         | 36.0       | 31.1       | N     |         |
| 21.52190           | 0.0           | -4.7         | 15.3                    | 15.3         | 10.6         | 60.0         | 50.0         | 44.7       | 39.4       | N     |         |
| 0.16108            | 23.1          | 11.2         | 13.2                    | 36.3         | 24.4         | 65.4         | 55.4         | 29.1       | 31.0       | L     |         |
| 0.32087            | 14.0          | 7.5          | 13.2                    | 27.2         | 20.7         | 59.7         | 49.7         | 32.5       | 29.0       | L     |         |
| 0.55209            | 13.3          | 7.6          | 13.2                    | 26.5         | 20.8         | 56.0         | 46.0         | 29.5       | 25.2       | L     |         |
| 2.07130            | 11.0          | 5.1          | 13.4                    | 24.4         | 18.5         | 56.0         | 46.0         | 31.6       | 27.5       | L     |         |
| 3.63276            | 3.8           | -1.2         | 13.7                    | 17.5         | 12.5         | 56.0         | 46.0         | 38.5       | 33.5       | L     |         |
| 21.52206           | 0.0           | -4.8         | 15.3                    | 15.3         | 10.5         | 60.0         | 50.0         | 44.7       | 39.5       | L     |         |

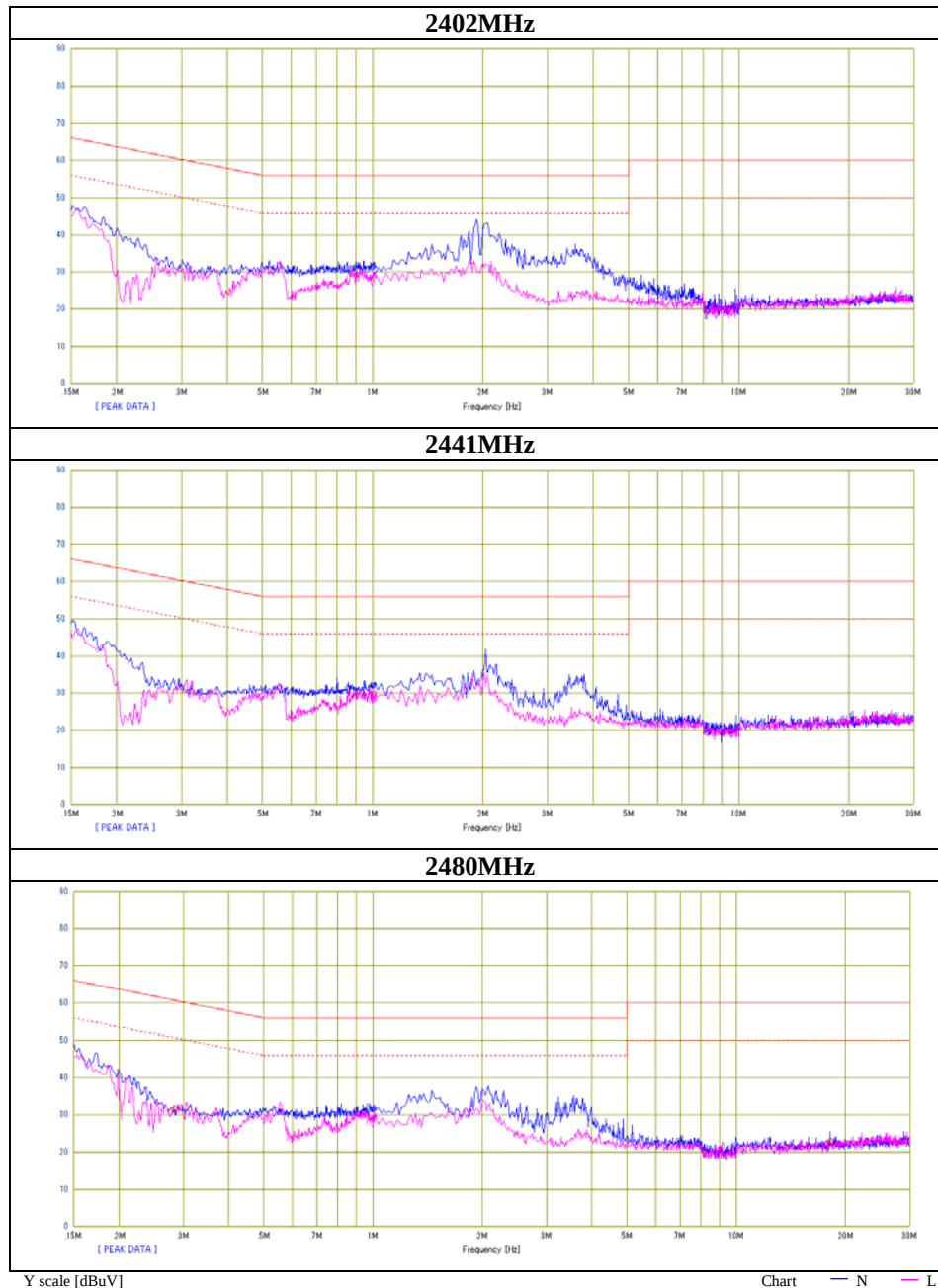
CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT=READING+C. F (LISN LOSS+ATT LOSS +CABLE LOSS)  
Except for the above table : adequate margin data below the limits.

\*The limit is rounded down to one decimal place.

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

## Conducted Emission

|                       |                                                 |
|-----------------------|-------------------------------------------------|
| Test place            | Head Office EMC Lab. No.2 Semi Anechoic Chamber |
| Report No.            | 32GE0273-HO-01                                  |
| Date                  | 04/02/2012                                      |
| Temperature/ Humidity | 21 deg. C / 32% RH                              |
| Engineer              | Tomohisa Nakagawa                               |
| Mode                  | Tx 3DH5                                         |



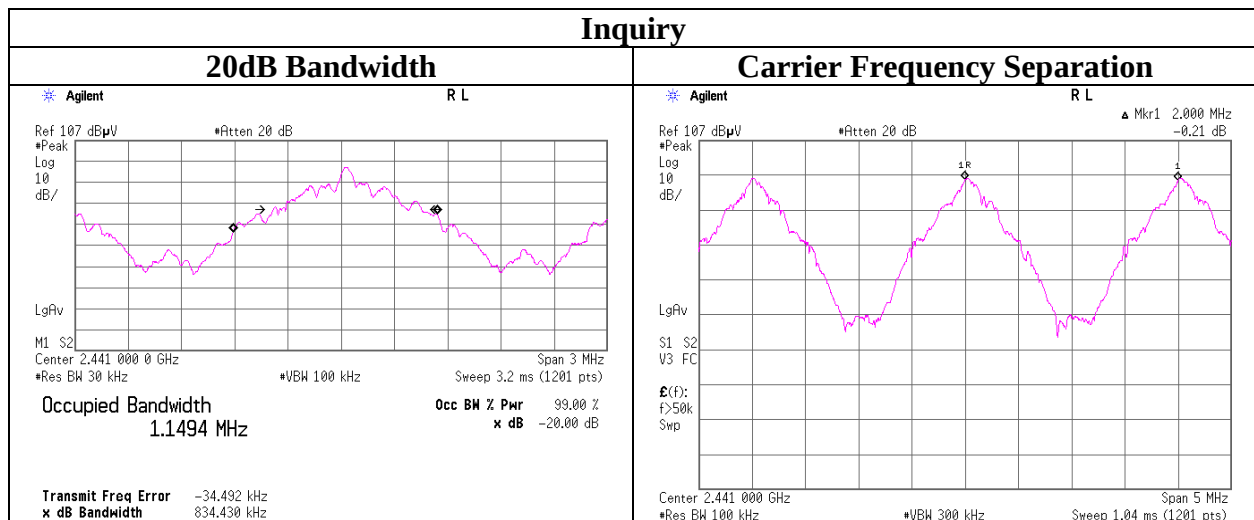
## 20dB Bandwidth and Carrier Frequency Separation

Test place Head Office EMC Lab. No.6 Measurement Room  
Report No. 32GE0273-HO-01  
Date 03/28/2012  
Temperature/ Humidity 23deg.C / 51% RH  
Engineer Yutaka Yoshida  
Mode Tx (Hopping on) DH5/3DH5/Inquiry

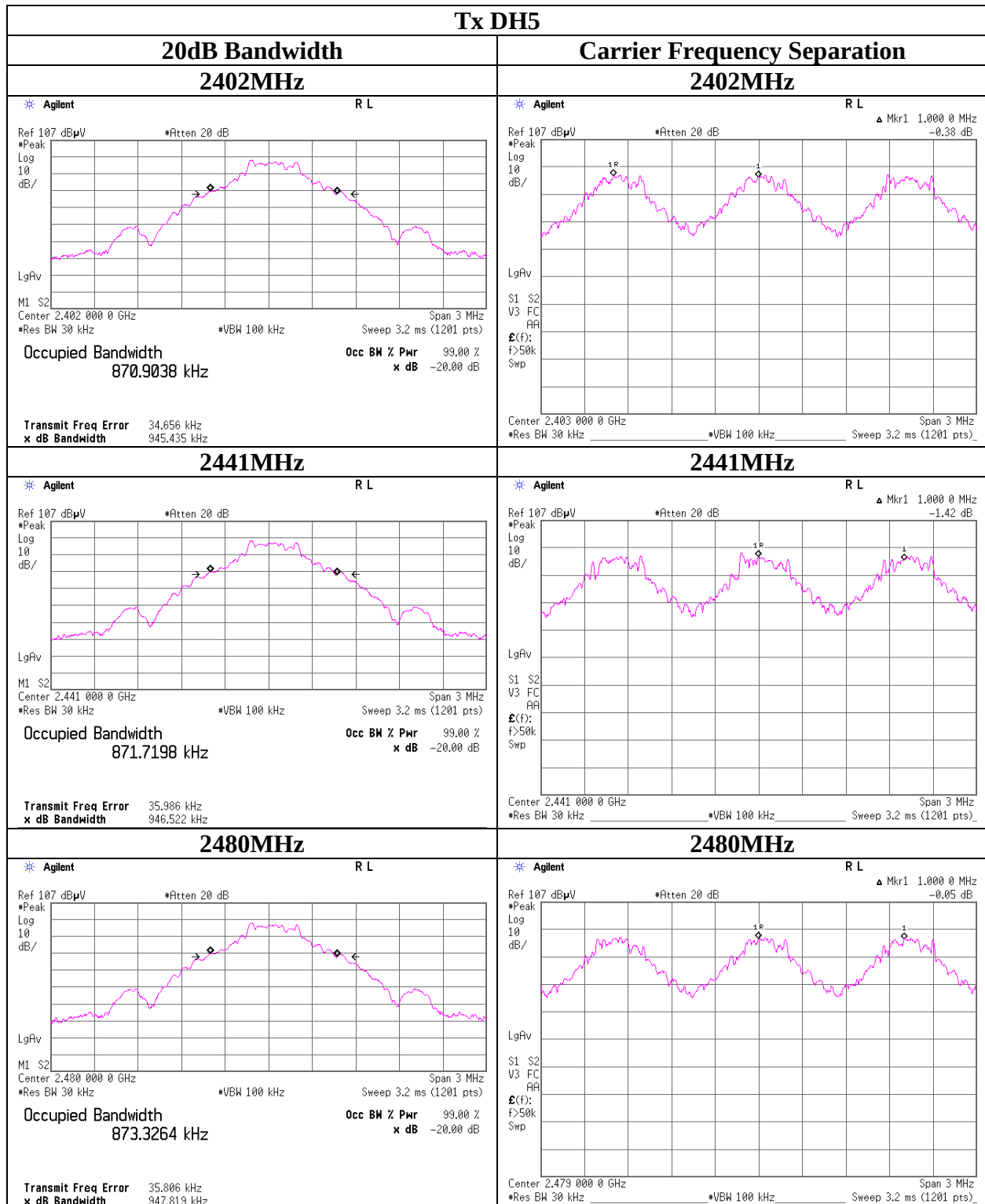
| Mode    | Freq.<br>[MHz] | 20dB Bandwidth<br>[MHz] | Carrier Frequency<br>Separation<br>[MHz] | Limit for Carrier<br>Frequency separation<br>[MHz] |
|---------|----------------|-------------------------|------------------------------------------|----------------------------------------------------|
| DH5     | 2402.0         | 0.945                   | 1.000                                    | >= 0.630                                           |
| DH5     | 2441.0         | 0.947                   | 1.000                                    | >= 0.631                                           |
| DH5     | 2480.0         | 0.948                   | 1.000                                    | >= 0.632                                           |
| 3DH5    | 2402.0         | 1.286                   | 1.000                                    | >= 0.857                                           |
| 3DH5    | 2441.0         | 1.297                   | 1.000                                    | >= 0.865                                           |
| 3DH5    | 2480.0         | 1.288                   | 1.000                                    | >= 0.859                                           |
| Inquiry | 2441.0         | 0.834                   | 2.000                                    | >= 0.556                                           |

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

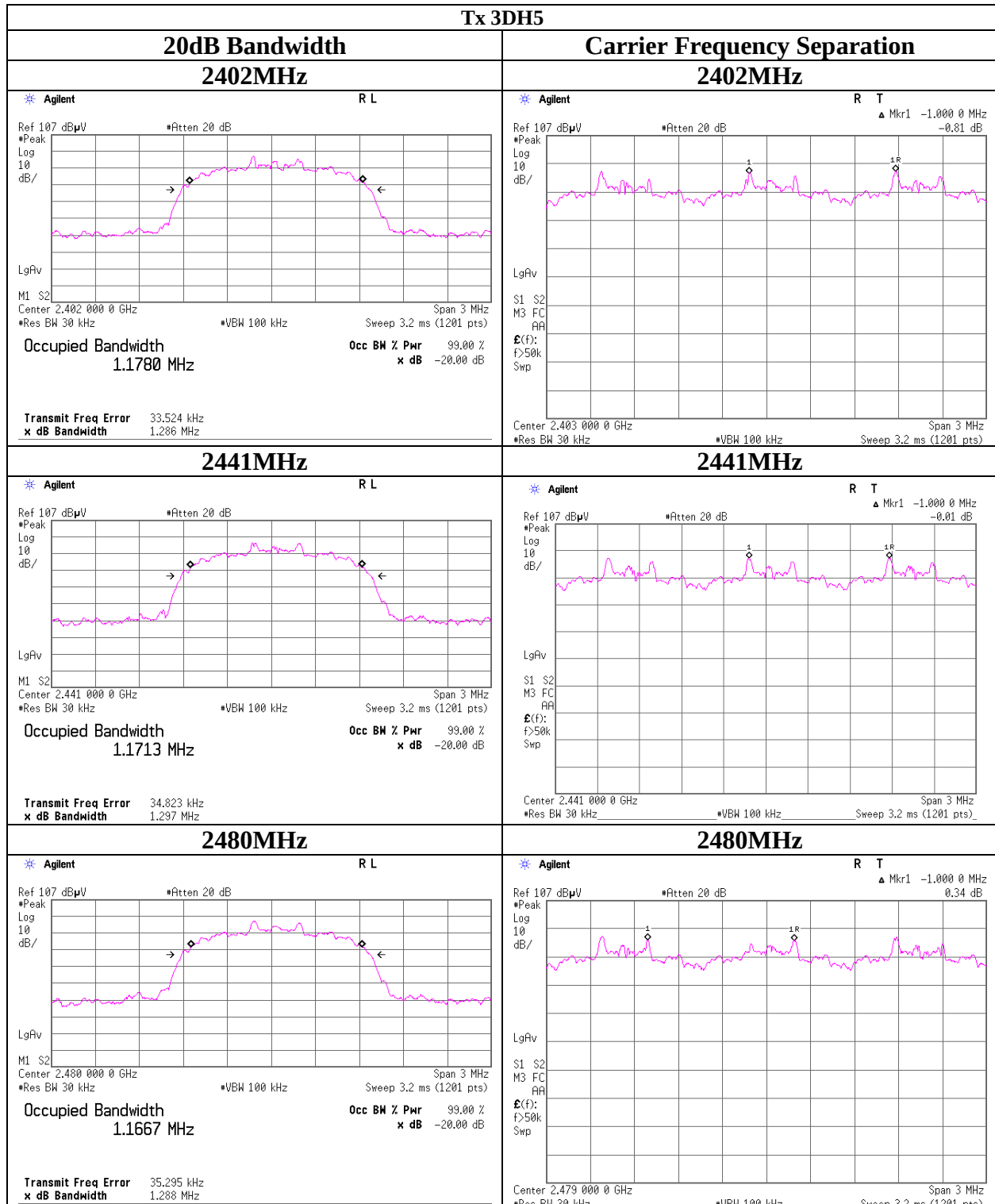
No limit applies to 20dB Bandwidth.



## 20dB Bandwidth



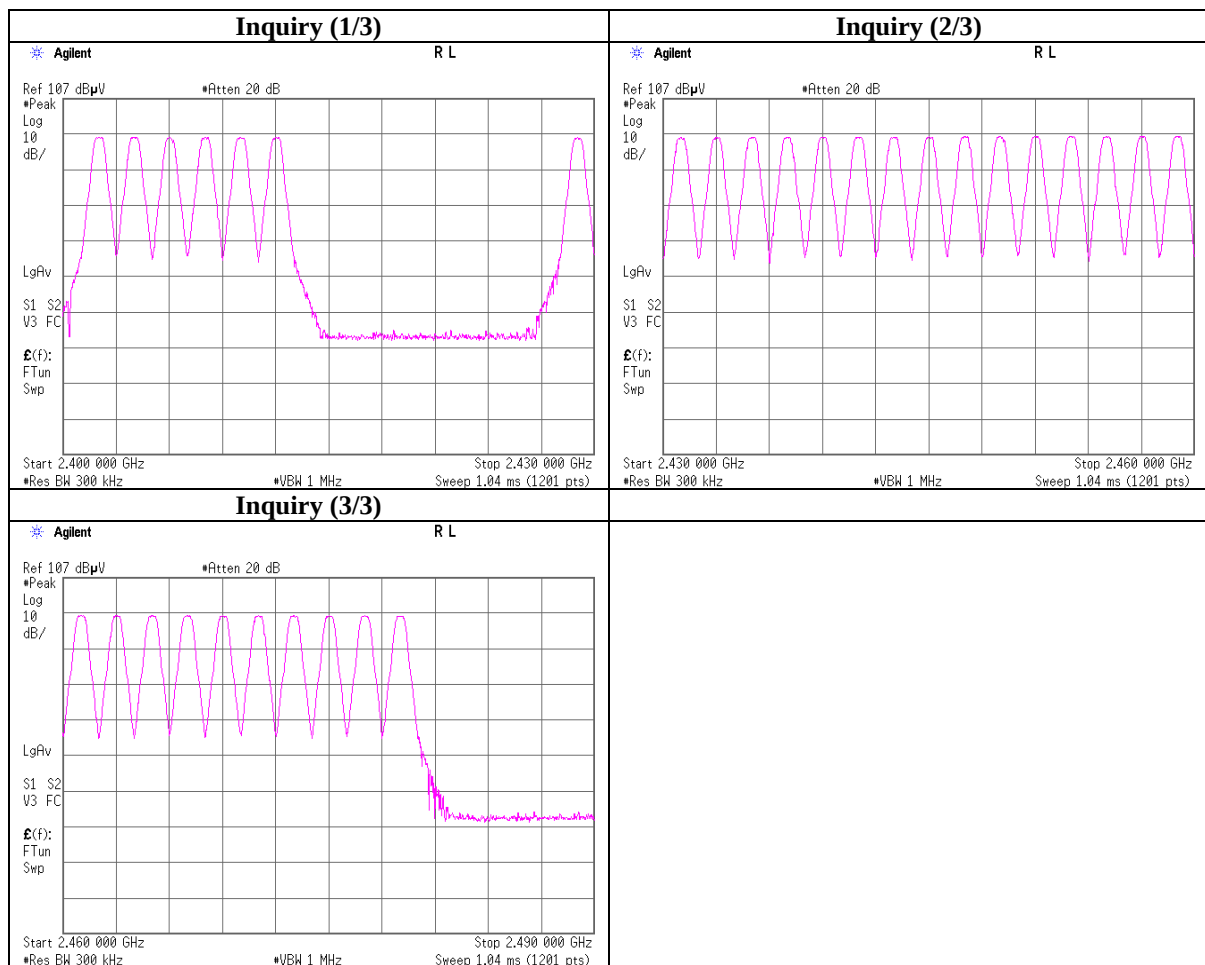
## 20dB Bandwidth



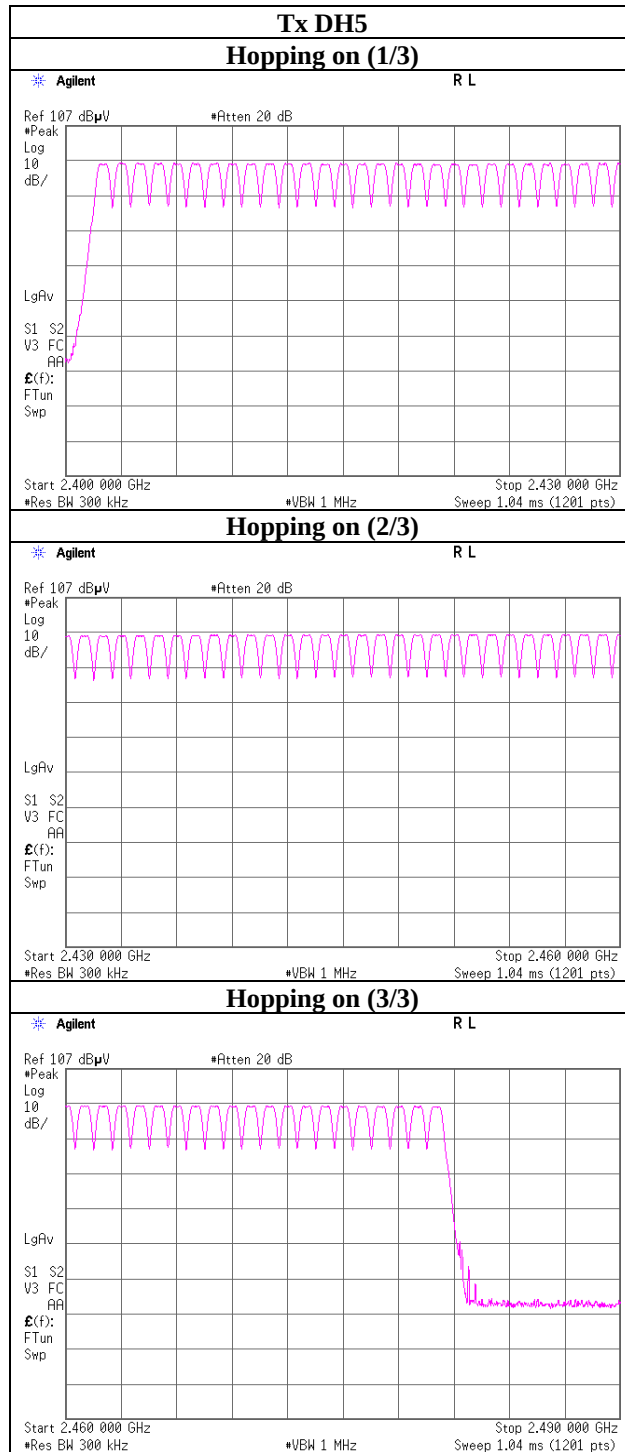
## Number of Hopping Frequency

|                       |                                            |
|-----------------------|--------------------------------------------|
| Test place            | Head Office EMC Lab. No.6 Measurement Room |
| Report No.            | 32GE0273-HO-01                             |
| Date                  | 03/28/2012                                 |
| Temperature/ Humidity | 23deg. C / 51% RH                          |
| Engineer              | Yutaka Yoshida                             |
| Mode                  | Tx (Hopping on) DH5/3DH5/Inquiry           |

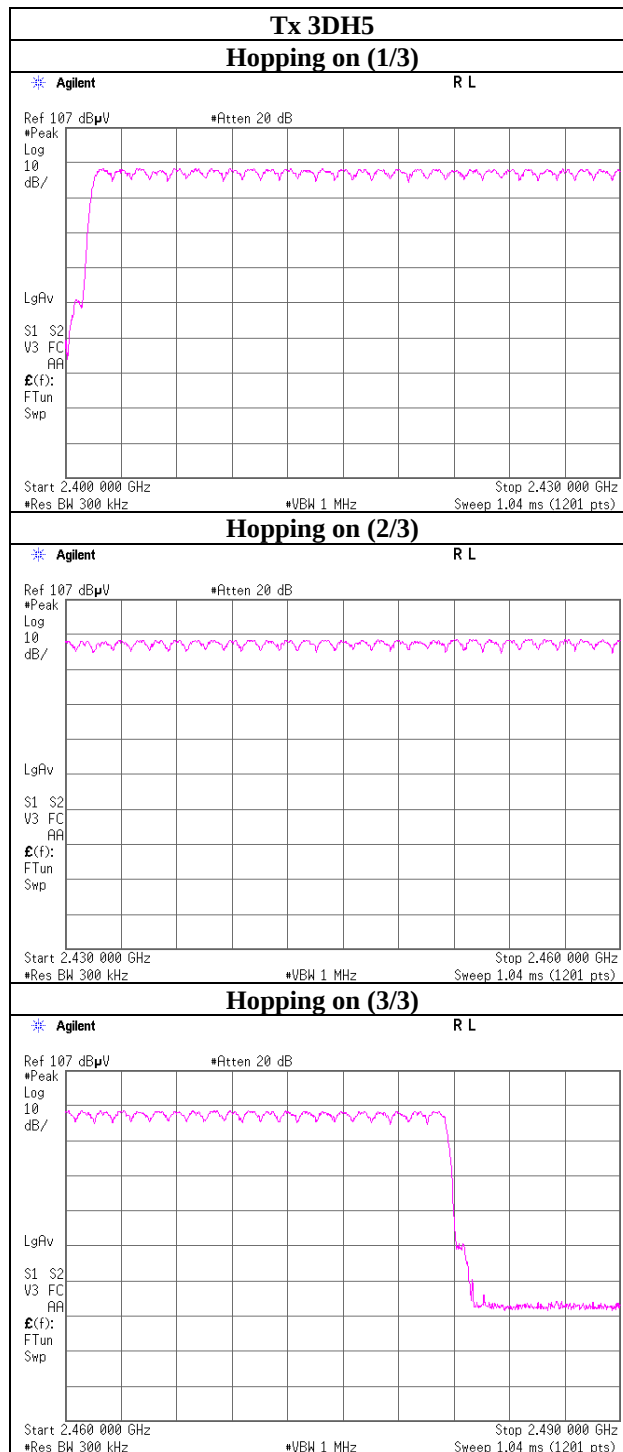
| Mode    | Number of channel<br>[times] | Limit<br>[times] |
|---------|------------------------------|------------------|
| DH5     | 79                           | >= 15            |
| 3DH5    | 79                           | >= 15            |
| Inquiry | 32                           | >= 15            |



## Number of Hopping Frequency



## Number of Hopping Frequency



## Dwell time

Test place Head Office EMC Lab. No.6 Measurement Room  
Report No. 32GE0273-HO-01  
Date 03/28/2012  
Temperature/ Humidity 23deg. C / 51% RH  
Engineer Yutaka Yoshida  
Mode Tx (Hopping on) DH5/3DH5/Inquiry

| 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 time<br>[msec] | Result<br>[msec] | Limit<br>[msec] |     |
|---------|------------------------------------------------------------------------------------------------|---|--------|---|-------------|------------------------------------------|------------------|-----------------|-----|
| DH1     | 49.2 times                                                                                     | / | 5 sec. | x | 31.6 sec. = | 311 times                                | 0.402            | 125             | 400 |
| DH3     | 25.4 times                                                                                     | / | 5 sec. | x | 31.6 sec. = | 161 times                                | 1.660            | 267             | 400 |
| DH5     | 20.2 times                                                                                     | / | 5 sec. | x | 31.6 sec. = | 128 times                                | 2.916            | 373             | 400 |
| 3DH1    | 49.6 times                                                                                     | / | 5 sec. | x | 31.6 sec. = | 314 times                                | 0.410            | 129             | 400 |
| 3DH3    | 26.4 times                                                                                     | / | 5 sec. | x | 31.6 sec. = | 167 times                                | 1.676            | 280             | 400 |
| 3DH5    | 20.0 times                                                                                     | / | 5 sec. | x | 31.6 sec. = | 127 times                                | 2.928            | 372             | 400 |
| Inquiry | 99.0 times                                                                                     | / | 1 sec. | x | 12.8 sec. = | 1268 times                               | 0.103            | 131             | 400 |

Sample Calculation

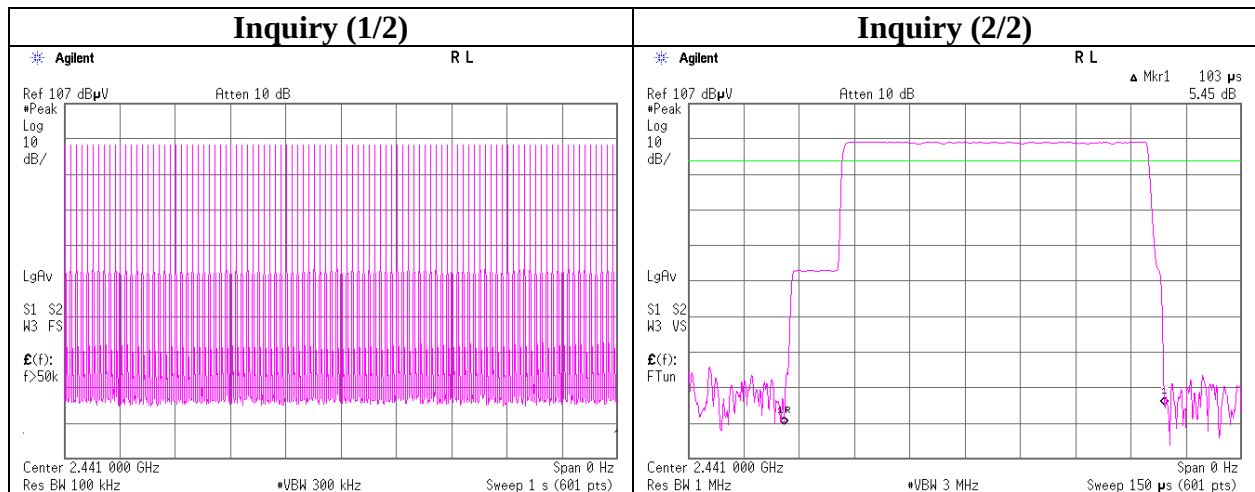
Result = Number of transmission x Length of transmission time

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

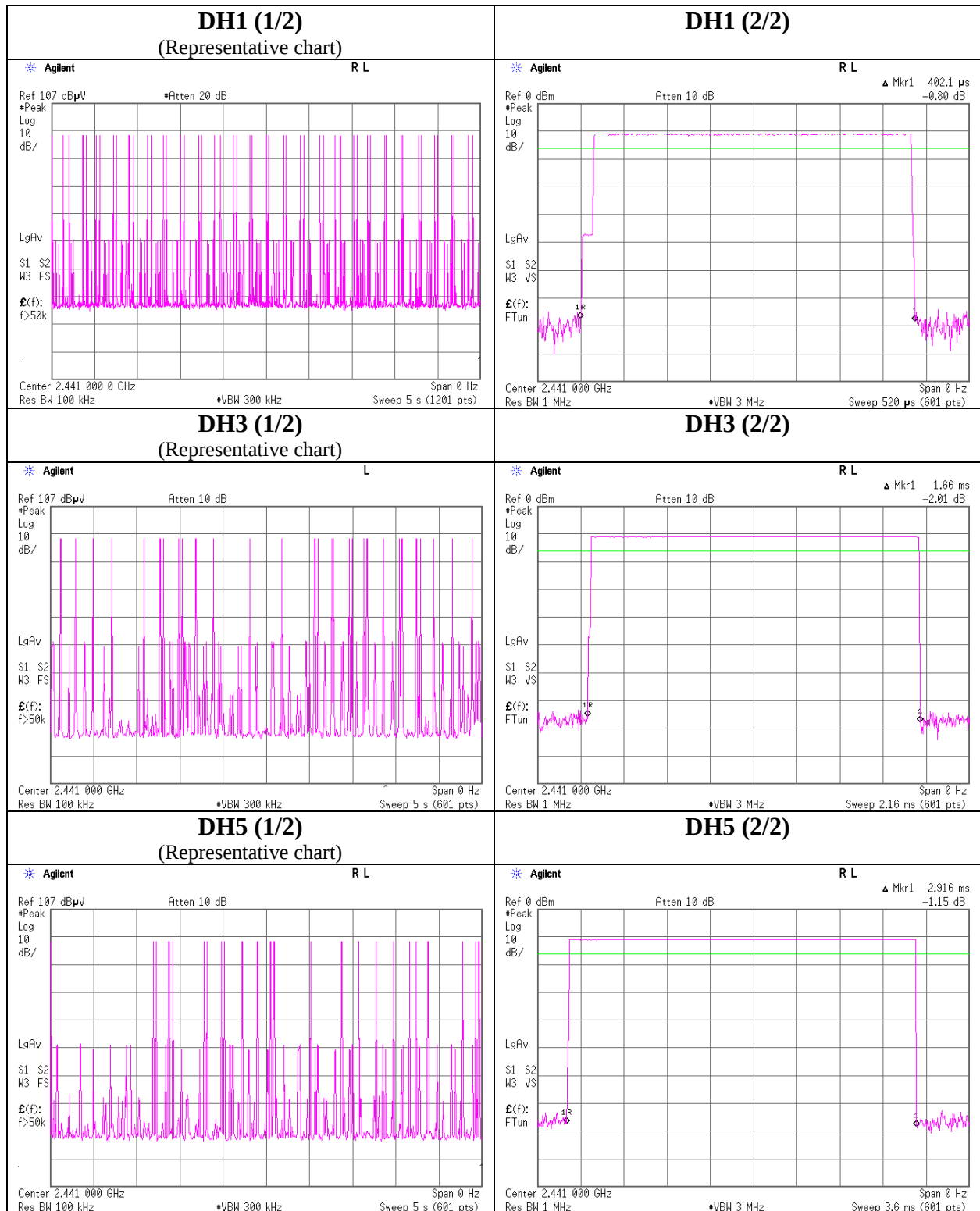
| Mode | Sampling [times] |    |    |    |    | Average<br>[times] |
|------|------------------|----|----|----|----|--------------------|
|      | 1                | 2  | 3  | 4  | 5  |                    |
| DH1  | 50               | 49 | 51 | 50 | 46 | 49.2               |
| DH3  | 21               | 26 | 29 | 26 | 25 | 25.4               |
| DH5  | 22               | 20 | 19 | 24 | 16 | 20.2               |
| 3DH1 | 50               | 49 | 49 | 52 | 48 | 49.6               |
| 3DH3 | 27               | 25 | 26 | 27 | 27 | 26.4               |
| 3DH5 | 25               | 23 | 16 | 19 | 17 | 20                 |

Sample Calculation

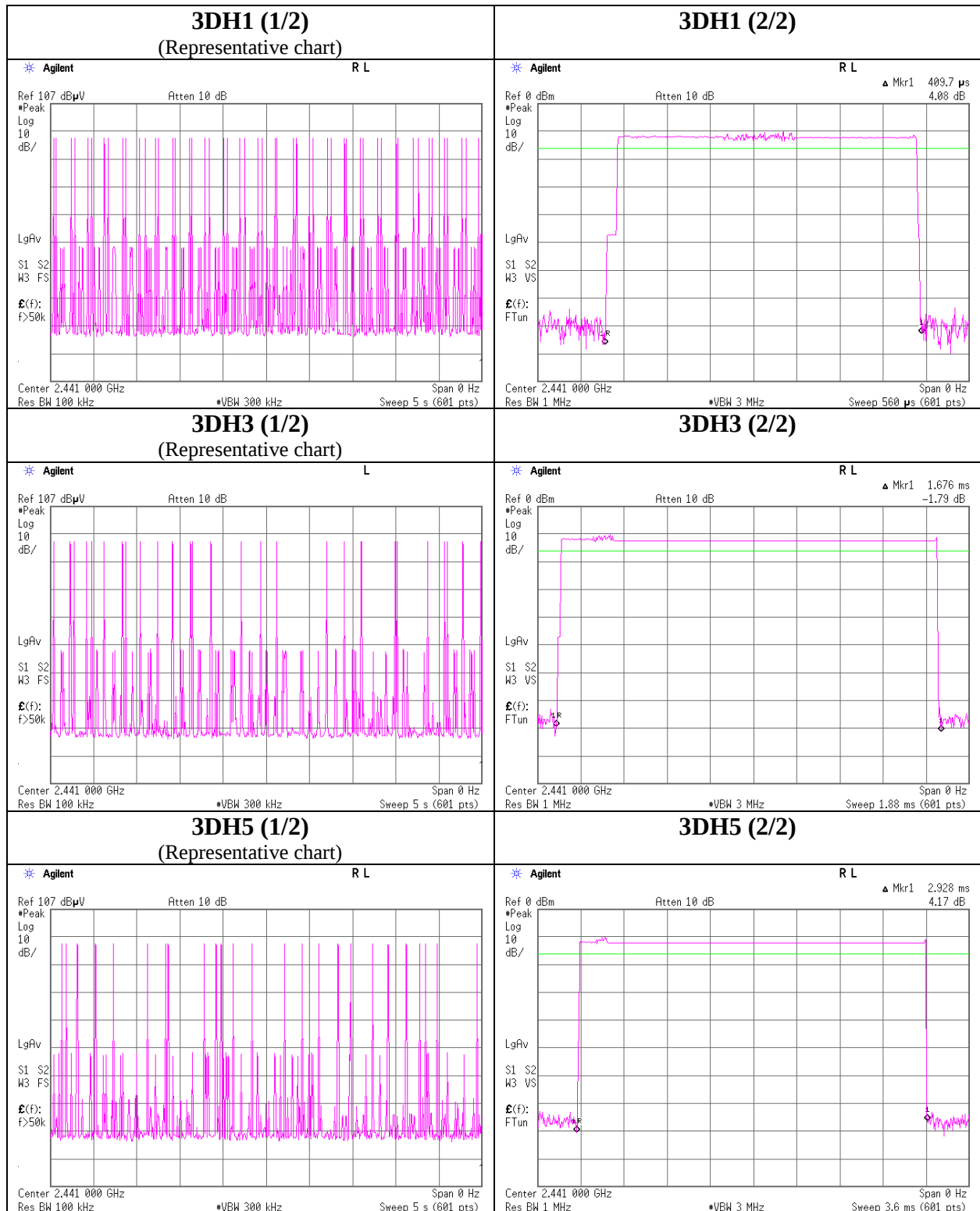
Average= Summation(Sampling 1 to 5) / 5



## Dwell time



## Dwell time



## Maximum Peak Output Power

Test place : Head Office EMC Lab. No.6 Measurement Room  
Report No. : 32GE0273-HO-01  
Date : 03/28/2012  
Temperature/ Humidity : 23deg. C / 51% RH  
Engineer : Yutaka Yoshida  
Mode : Tx (Hopping off) DH5/3DH5/Inquiry

| Mode    | Freq.<br>[MHz] | Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>[dB] | Result |      | Limit |      | Margin<br>[dB] |
|---------|----------------|------------------|-----------------------|----------------|--------|------|-------|------|----------------|
|         |                |                  |                       |                | [dBm]  | [mW] | [dBm] | [mW] |                |
| DH5     | 2402.0         | -10.64           | 1.38                  | 10.07          | 0.81   | 1.21 | 20.97 | 125  | 20.16          |
| DH5     | 2441.0         | -10.62           | 1.39                  | 10.07          | 0.84   | 1.21 | 20.97 | 125  | 20.13          |
| DH5     | 2480.0         | -10.66           | 1.40                  | 10.07          | 0.81   | 1.21 | 20.97 | 125  | 20.16          |
| 3DH5    | 2402.0         | -9.65            | 1.38                  | 10.07          | 1.80   | 1.51 | 20.97 | 125  | 19.17          |
| 3DH5    | 2441.0         | -9.56            | 1.39                  | 10.07          | 1.90   | 1.55 | 20.97 | 125  | 19.07          |
| 3DH5    | 2480.0         | -9.58            | 1.40                  | 10.07          | 1.89   | 1.55 | 20.97 | 125  | 19.08          |
| Inquiry | 2441.0         | -10.63           | 1.39                  | 10.07          | 0.83   | 1.21 | 20.97 | 125  | 20.14          |

Sample Calculation:

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

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

As this device had AFH mode and frequency separation could not meet the requirement of over 20dB BW without 2/3 relaxation, 125mW power limit was applied to it.

## Radiated Spurious Emission

|                       |                                                 |                |                   |
|-----------------------|-------------------------------------------------|----------------|-------------------|
| Test place            | Head Office EMC Lab. No.2 Semi Anechoic Chamber |                |                   |
| Report No.            | 32GE0273-HO-01                                  |                |                   |
| Date                  | 03/27/2012                                      | 03/28/2012     | 03/28/2012        |
| Temperature/ Humidity | 23 deg.C./ 38%                                  | 22deg.C./ 40%  | 22deg.C./ 32%     |
| Engineer              | Tomohisa Nakagawa                               | Katsunori Okai | Tomohisa Nakagawa |
|                       | (1-10GHz)                                       | (10-26.5GHz)   | Below 1GHz        |
| Mode                  | Tx, DH5 2402MHz                                 |                |                   |

| 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     | 49.152             | QP       | 26.7              | 11.4               | 7.0          | 28.6         | 16.5               | 40.0              | 23.5           |        |
| Hori     | 65.533             | QP       | 32.5              | 7.4                | 7.2          | 28.5         | 18.6               | 40.0              | 21.4           |        |
| Hori     | 72.092             | QP       | 30.9              | 6.6                | 7.2          | 28.5         | 16.2               | 40.0              | 23.8           |        |
| Hori     | 371.198            | QP       | 31.6              | 16.6               | 9.3          | 28.1         | 29.4               | 46.0              | 16.6           |        |
| Hori     | 448.002            | QP       | 28.7              | 17.8               | 9.6          | 28.5         | 27.6               | 46.0              | 18.4           |        |
| Hori     | 544.000            | QP       | 28.5              | 19.0               | 10.0         | 28.8         | 28.7               | 46.0              | 17.3           |        |
| Hori     | 2390.000           | PK       | 45.2              | 27.4               | 2.2          | 34.8         | 40.0               | 73.9              | 33.9           |        |
| Hori     | 2400.000           | PK       | 59.6              | 27.5               | 2.2          | 34.8         | 54.5               | 73.9              | 19.4           |        |
| Hori     | 4804.000           | PK       | 44.5              | 31.2               | 4.4          | 34.0         | 46.1               | 73.9              | 27.8           |        |
| Hori     | 7206.000           | PK       | 43.7              | 35.9               | 5.3          | 34.2         | 50.7               | 73.9              | 23.2           |        |
| Hori     | 9608.000           | PK       | 43.9              | 38.8               | 6.1          | 34.7         | 54.1               | 73.9              | 19.9           |        |
| Hori     | 24020.000          | PK       | 45.6              | 40.5               | -1.8         | 31.7         | 52.6               | 73.9              | 21.3           |        |
| Hori     | 2390.000           | AV       | 34.3              | 27.4               | 2.2          | 34.8         | 29.1               | 53.9              | 24.8           |        |
| Hori     | 2400.000           | AV       | 37.5              | 27.5               | 2.2          | 34.8         | 32.4               | 53.9              | 21.5           |        |
| Hori     | 4804.000           | AV       | 31.5              | 31.2               | 4.4          | 34.0         | 33.1               | 53.9              | 20.8           |        |
| Hori     | 7206.000           | AV       | 31.3              | 35.9               | 5.3          | 34.2         | 38.3               | 53.9              | 15.6           |        |
| Hori     | 9608.000           | AV       | 31.6              | 38.8               | 6.1          | 34.7         | 41.8               | 53.9              | 12.1           |        |
| Hori     | 24020.000          | AV       | 33.2              | 40.5               | -1.8         | 31.7         | 40.2               | 53.9              | 13.7           |        |
| Vert     | 49.149             | QP       | 34.1              | 11.4               | 7.0          | 28.6         | 23.9               | 40.0              | 16.1           |        |
| Vert     | 65.533             | QP       | 43.0              | 7.4                | 7.2          | 28.5         | 28.6               | 40.0              | 11.4           |        |
| Vert     | 72.091             | QP       | 42.0              | 6.6                | 7.2          | 28.5         | 27.2               | 40.0              | 12.8           |        |
| Vert     | 371.198            | QP       | 30.9              | 16.6               | 9.3          | 28.1         | 28.7               | 46.0              | 17.3           |        |
| Vert     | 448.002            | QP       | 29.2              | 17.8               | 9.6          | 28.5         | 28.1               | 46.0              | 17.9           |        |
| Vert     | 544.000            | QP       | 32.4              | 19.0               | 10.0         | 28.8         | 32.6               | 46.0              | 13.4           |        |
| Vert     | 2390.000           | PK       | 44.9              | 27.4               | 2.2          | 34.8         | 39.7               | 73.9              | 34.2           |        |
| Vert     | 2400.000           | PK       | 57.3              | 27.5               | 2.2          | 34.8         | 52.2               | 73.9              | 21.7           |        |
| Vert     | 4804.000           | PK       | 43.1              | 31.2               | 4.4          | 34.0         | 44.7               | 73.9              | 29.2           |        |
| Vert     | 7206.000           | PK       | 42.8              | 35.9               | 5.3          | 34.2         | 49.8               | 73.9              | 24.1           |        |
| Vert     | 9608.000           | PK       | 43.9              | 38.8               | 6.1          | 34.7         | 54.1               | 73.9              | 19.8           |        |
| Vert     | 24020.000          | PK       | 44.9              | 40.5               | -1.8         | 31.7         | 51.9               | 73.9              | 22.0           |        |
| Vert     | 2390.000           | AV       | 32.6              | 27.4               | 2.2          | 34.8         | 27.4               | 53.9              | 26.5           |        |
| Vert     | 2400.000           | AV       | 36.0              | 27.5               | 2.2          | 34.8         | 30.9               | 53.9              | 23.0           |        |
| Vert     | 4804.000           | AV       | 31.8              | 31.2               | 4.4          | 34.0         | 33.4               | 53.9              | 20.5           |        |
| Vert     | 7206.000           | AV       | 31.3              | 35.9               | 5.3          | 34.2         | 38.3               | 53.9              | 15.6           |        |
| Vert     | 9608.000           | AV       | 31.6              | 38.8               | 6.1          | 34.7         | 41.8               | 53.9              | 12.1           |        |
| Vert     | 24020.000          | AV       | 33.3              | 40.5               | -1.8         | 31.7         | 40.3               | 53.9              | 13.6           |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

## Radiated Spurious Emission

|                       |                                                 |                       |
|-----------------------|-------------------------------------------------|-----------------------|
| Test place            | Head Office EMC Lab. No.2 Semi Anechoic Chamber |                       |
| Report No.            | 32GE0273-HO-01                                  |                       |
| Date                  | 03/27/2012                                      | 03/28/2012            |
| Temperature/ Humidity | 23 deg.C./ 38%                                  | 22deg.C./ 40%         |
| Engineer              | Tomohisa Nakagawa                               | Katsunori Okai        |
|                       | (1-10GHz)                                       | (The other Frequency) |
| Mode                  | Tx, DH5 2441MHz                                 |                       |

| 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     | 49.150             | QP       | 26.6              | 11.4               | 7.0          | 28.6         | 16.4               | 40.0              | 23.6           |        |
| Hori     | 65.534             | QP       | 32.6              | 7.4                | 7.2          | 28.5         | 18.7               | 40.0              | 21.3           |        |
| Hori     | 72.090             | QP       | 31.8              | 6.6                | 7.2          | 28.5         | 17.1               | 40.0              | 22.9           |        |
| Hori     | 361.599            | QP       | 28.0              | 16.3               | 9.2          | 28.0         | 24.8               | 46.0              | 20.5           |        |
| Hori     | 422.399            | QP       | 30.9              | 17.6               | 9.5          | 28.4         | 24.8               | 46.0              | 16.4           |        |
| Hori     | 502.401            | QP       | 25.8              | 18.3               | 9.8          | 28.8         | 24.8               | 46.0              | 20.9           |        |
| Hori     | 4882.000           | PK       | 43.1              | 31.4               | 4.4          | 34.0         | 44.9               | 73.9              | 29.0           |        |
| Hori     | 7323.000           | PK       | 44.3              | 36.0               | 5.4          | 34.2         | 51.5               | 73.9              | 22.4           |        |
| Hori     | 9764.000           | PK       | 44.8              | 39.0               | 6.2          | 34.7         | 55.3               | 73.9              | 18.6           |        |
| Hori     | 24410.000          | PK       | 44.8              | 40.5               | -1.7         | 32.2         | 51.4               | 73.9              | 22.5           |        |
| Hori     | 4882.000           | AV       | 30.8              | 31.4               | 4.4          | 34.0         | 32.6               | 53.9              | 21.3           |        |
| Hori     | 7323.000           | AV       | 32.5              | 36.0               | 5.4          | 34.2         | 39.7               | 53.9              | 14.2           |        |
| Hori     | 9764.000           | AV       | 32.1              | 39.0               | 6.2          | 34.7         | 42.6               | 53.9              | 11.3           |        |
| Hori     | 24410.000          | AV       | 33.2              | 40.5               | -1.7         | 32.2         | 39.8               | 53.9              | 14.1           |        |
| Vert     | 49.152             | QP       | 34.7              | 11.4               | 7.0          | 28.6         | 24.5               | 40.0              | 15.5           |        |
| Vert     | 65.533             | QP       | 43.2              | 7.4                | 7.2          | 28.5         | 28.8               | 40.0              | 11.2           |        |
| Vert     | 72.093             | QP       | 39.6              | 6.6                | 7.2          | 28.5         | 24.8               | 40.0              | 15.2           |        |
| Vert     | 361.599            | QP       | 31.2              | 16.3               | 9.2          | 28.0         | 24.8               | 46.0              | 17.3           |        |
| Vert     | 422.397            | QP       | 35.6              | 17.6               | 9.5          | 28.4         | 24.8               | 46.0              | 11.7           |        |
| Vert     | 502.399            | QP       | 31.2              | 18.3               | 9.8          | 28.8         | 24.8               | 46.0              | 15.5           |        |
| Vert     | 4882.000           | PK       | 42.1              | 31.4               | 4.4          | 34.0         | 43.9               | 73.9              | 30.0           |        |
| Vert     | 7323.000           | PK       | 42.9              | 36.0               | 5.4          | 34.2         | 50.1               | 73.9              | 23.8           |        |
| Vert     | 9764.000           | PK       | 43.9              | 39.0               | 6.2          | 34.7         | 54.4               | 73.9              | 19.5           |        |
| Vert     | 24410.000          | PK       | 45.1              | 40.5               | -1.7         | 32.2         | 51.7               | 73.9              | 22.2           |        |
| Vert     | 4882.000           | AV       | 30.6              | 31.4               | 4.4          | 34.0         | 32.4               | 53.9              | 21.5           |        |
| Vert     | 7323.000           | AV       | 31.3              | 36.0               | 5.4          | 34.2         | 38.5               | 53.9              | 15.4           |        |
| Vert     | 9764.000           | AV       | 32.1              | 39.0               | 6.2          | 34.7         | 42.6               | 53.9              | 11.3           |        |
| Vert     | 24410.000          | AV       | 33.2              | 40.5               | -1.7         | 32.2         | 39.8               | 53.9              | 14.1           |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB  
20log(3.0m/0.5m)=15.6dB

## Radiated Spurious Emission

|                       |                                                 |                       |
|-----------------------|-------------------------------------------------|-----------------------|
| Test place            | Head Office EMC Lab. No.2 Semi Anechoic Chamber |                       |
| Report No.            | 32GE0273-HO-01                                  |                       |
| Date                  | 03/27/2012                                      | 03/28/2012            |
| Temperature/ Humidity | 23 deg.C./ 38%                                  | 22deg.C./ 40%         |
| Engineer              | Tomohisa Nakagawa                               | Katsunori Okai        |
|                       | (1-10GHz)                                       | (The other Frequency) |
| Mode                  | Tx, DH5 2480MHz                                 |                       |

| 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     | 49.149             | QP       | 26.5              | 11.4               | 7.0          | 28.6         | 16.3               | 40.0              | 23.7           |        |
| Hori     | 65.533             | QP       | 32.0              | 7.4                | 7.2          | 28.5         | 18.1               | 40.0              | 21.9           |        |
| Hori     | 72.091             | QP       | 30.5              | 6.6                | 7.2          | 28.5         | 15.8               | 40.0              | 24.2           |        |
| Hori     | 361.598            | QP       | 28.0              | 16.3               | 9.2          | 28.0         | 25.5               | 46.0              | 20.5           |        |
| Hori     | 422.400            | QP       | 30.9              | 17.6               | 9.5          | 28.4         | 29.6               | 46.0              | 16.4           |        |
| Hori     | 508.800            | QP       | 26.2              | 18.4               | 9.8          | 28.8         | 25.6               | 46.0              | 20.4           |        |
| Hori     | 2483.500           | PK       | 47.0              | 27.5               | 2.2          | 34.8         | 41.9               | 73.9              | 32.0           |        |
| Hori     | 4960.000           | PK       | 43.2              | 31.6               | 4.5          | 34.0         | 45.3               | 73.9              | 28.6           |        |
| Hori     | 7440.000           | PK       | 44.2              | 36.2               | 5.6          | 34.3         | 51.7               | 73.9              | 22.2           |        |
| Hori     | 9920.000           | PK       | 43.9              | 39.1               | 6.3          | 34.7         | 54.6               | 73.9              | 19.3           |        |
| Hori     | 24020.000          | PK       | 45.3              | 40.5               | -1.8         | 31.7         | 52.3               | 73.9              | 21.6           |        |
| Hori     | 2483.500           | AV       | 33.5              | 27.5               | 2.2          | 34.8         | 28.4               | 73.9              | 45.5           |        |
| Hori     | 4960.000           | AV       | 38.8              | 31.6               | 4.5          | 34.0         | 40.9               | 53.9              | 13.0           |        |
| Hori     | 7440.000           | AV       | 31.7              | 36.2               | 5.6          | 34.3         | 39.2               | 53.9              | 14.7           |        |
| Hori     | 9920.000           | AV       | 31.8              | 39.1               | 6.3          | 34.7         | 42.5               | 53.9              | 11.4           |        |
| Hori     | 24020.000          | AV       | 33.6              | 40.5               | -1.8         | 31.7         | 40.6               | 53.9              | 13.3           |        |
| Vert     | 49.153             | QP       | 34.1              | 11.4               | 7.0          | 28.6         | 23.9               | 40.0              | 16.1           |        |
| Vert     | 65.532             | QP       | 42.8              | 7.4                | 7.2          | 28.5         | 28.4               | 40.0              | 11.6           |        |
| Vert     | 72.091             | QP       | 39.5              | 6.6                | 7.2          | 28.5         | 24.7               | 40.0              | 15.3           |        |
| Vert     | 361.599            | QP       | 34.7              | 16.3               | 9.2          | 28.0         | 32.2               | 46.0              | 13.8           |        |
| Vert     | 422.397            | QP       | 38.1              | 17.6               | 9.5          | 28.4         | 36.8               | 46.0              | 9.2            |        |
| Vert     | 508.799            | QP       | 34.3              | 18.4               | 9.8          | 28.8         | 33.7               | 46.0              | 12.3           |        |
| Vert     | 2483.500           | PK       | 45.5              | 27.5               | 2.2          | 34.8         | 40.4               | 73.9              | 33.5           |        |
| Vert     | 4960.000           | PK       | 42.9              | 31.6               | 4.5          | 34.0         | 45.0               | 73.9              | 28.9           |        |
| Vert     | 7440.000           | PK       | 43.9              | 36.2               | 5.6          | 34.3         | 51.4               | 73.9              | 22.5           |        |
| Vert     | 9920.000           | PK       | 44.1              | 39.1               | 6.3          | 34.7         | 54.8               | 73.9              | 19.1           |        |
| Vert     | 24020.000          | PK       | 45.1              | 40.5               | -1.8         | 31.7         | 52.1               | 73.9              | 21.8           |        |
| Vert     | 2483.500           | AV       | 33.0              | 27.5               | 2.2          | 34.8         | 27.9               | 53.9              | 26.0           |        |
| Vert     | 4960.000           | AV       | 31.9              | 31.6               | 4.5          | 34.0         | 34.0               | 53.9              | 19.9           |        |
| Vert     | 7440.000           | AV       | 31.3              | 36.2               | 5.6          | 34.3         | 38.8               | 53.9              | 15.1           |        |
| Vert     | 9920.000           | AV       | 31.9              | 39.1               | 6.3          | 34.7         | 42.6               | 53.9              | 11.3           |        |
| Vert     | 24020.000          | AV       | 33.6              | 40.5               | -1.8         | 31.7         | 40.6               | 53.9              | 13.3           |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

## Radiated Spurious Emission

|                       |                                                 |                       |
|-----------------------|-------------------------------------------------|-----------------------|
| Test place            | Head Office EMC Lab. No.1 Semi Anechoic Chamber |                       |
| Report No.            | 32GE0273-HO-01                                  |                       |
| Date                  | 03/27/2012                                      | 03/28/2012            |
| Temperature/ Humidity | 23 deg.C./ 38%                                  | 22deg.C./ 40%         |
| Engineer              | Tomohisa Nakagawa                               | Katsunori Okai        |
|                       | (1-10GHz)                                       | (The other Frequency) |
| Mode                  | Tx, 3DH5 2402MHz                                |                       |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|-----------------|----------------|-------------|--------|
| Hori     | 56.040          | QP       | 23.1           | 9.4             | 7.1       | 28.6      | 11.0            | 40.0           | 29.0        |        |
| Hori     | 65.530          | QP       | 23.8           | 7.4             | 7.2       | 28.5      | 9.9             | 40.0           | 30.1        |        |
| Hori     | 204.800         | QP       | 21.7           | 16.4            | 8.2       | 28.0      | 18.3            | 43.5           | 25.2        |        |
| Hori     | 364.796         | QP       | 25.9           | 16.4            | 9.2       | 28.1      | 23.4            | 46.0           | 22.6        |        |
| Hori     | 422.409         | QP       | 27.4           | 17.6            | 9.5       | 28.4      | 26.1            | 46.0           | 19.9        |        |
| Hori     | 502.397         | QP       | 25.1           | 18.3            | 9.8       | 28.8      | 24.4            | 46.0           | 21.6        |        |
| Hori     | 2390.000        | PK       | 44.9           | 27.4            | 2.2       | 34.8      | 39.7            | 73.9           | 34.2        |        |
| Hori     | 2399.800        | PK       | 49.8           | 27.5            | 2.2       | 34.8      | 44.7            | 73.9           | 29.2        |        |
| Hori     | 2400.000        | PK       | 57.6           | 27.5            | 2.2       | 34.8      | 52.5            | 73.9           | 21.4        |        |
| Hori     | 4804.000        | PK       | 43.0           | 31.2            | 4.4       | 34.0      | 44.6            | 73.9           | 29.3        |        |
| Hori     | 7206.000        | PK       | 43.0           | 35.9            | 5.3       | 34.2      | 50.0            | 73.9           | 23.9        |        |
| Hori     | 9608.000        | PK       | 44.1           | 38.8            | 6.1       | 34.7      | 54.3            | 73.9           | 19.6        |        |
| Hori     | 24020.000       | PK       | 45.4           | 40.5            | -1.8      | 31.7      | 52.4            | 73.9           | 21.5        |        |
| Hori     | 2390.000        | AV       | 35.5           | 27.4            | 2.2       | 34.8      | 30.3            | 53.9           | 23.6        |        |
| Hori     | 2399.800        | AV       | 33.0           | 27.5            | 2.2       | 34.8      | 27.9            | 53.9           | 26.0        |        |
| Hori     | 2400.000        | AV       | 38.8           | 27.5            | 2.2       | 34.8      | 33.7            | 53.9           | 20.2        |        |
| Hori     | 4804.000        | AV       | 31.2           | 31.2            | 4.4       | 34.0      | 32.8            | 53.9           | 21.1        |        |
| Hori     | 7206.000        | AV       | 31.1           | 35.9            | 5.3       | 34.2      | 38.1            | 53.9           | 15.8        |        |
| Hori     | 9608.000        | AV       | 31.6           | 38.8            | 6.1       | 34.7      | 41.8            | 53.9           | 12.1        |        |
| Hori     | 24020.000       | AV       | 33.6           | 40.5            | -1.8      | 31.7      | 40.6            | 53.9           | 13.3        |        |
| Vert     | 56.040          | QP       | 41.2           | 9.4             | 7.1       | 28.6      | 28.9            | 40.0           | 11.1        |        |
| Vert     | 65.530          | QP       | 30.5           | 7.4             | 7.2       | 28.5      | 16.1            | 40.0           | 23.9        |        |
| Vert     | 204.800         | QP       | 30.1           | 16.4            | 8.2       | 28.0      | 26.7            | 43.5           | 16.8        |        |
| Vert     | 364.796         | QP       | 29.7           | 16.4            | 9.2       | 28.1      | 27.2            | 46.0           | 18.8        |        |
| Vert     | 422.409         | QP       | 30.8           | 17.6            | 9.5       | 28.4      | 29.5            | 46.0           | 16.5        |        |
| Vert     | 502.397         | QP       | 27.3           | 18.3            | 9.8       | 28.8      | 26.6            | 46.0           | 19.4        |        |
| Vert     | 2390.000        | PK       | 45.1           | 27.4            | 2.2       | 34.8      | 39.9            | 73.9           | 34.0        |        |
| Vert     | 2399.800        | PK       | 54.7           | 27.5            | 2.2       | 34.8      | 49.6            | 73.9           | 24.3        |        |
| Vert     | 2400.000        | PK       | 55.8           | 27.5            | 2.2       | 34.8      | 50.7            | 73.9           | 23.2        |        |
| Vert     | 4804.000        | PK       | 42.8           | 31.2            | 4.4       | 34.0      | 44.4            | 73.9           | 29.5        |        |
| Vert     | 7206.000        | PK       | 43.3           | 35.9            | 5.3       | 34.2      | 50.3            | 73.9           | 23.6        |        |
| Vert     | 9608.000        | PK       | 43.5           | 38.8            | 6.1       | 34.7      | 53.7            | 73.9           | 20.2        |        |
| Vert     | 24020.000       | PK       | 44.7           | 40.5            | -1.8      | 31.7      | 51.7            | 73.9           | 22.2        |        |
| Vert     | 2390.000        | AV       | 32.6           | 27.4            | 2.2       | 34.8      | 27.4            | 53.9           | 26.5        |        |
| Vert     | 2399.800        | AV       | 35.5           | 27.5            | 2.2       | 34.8      | 30.4            | 53.9           | 23.5        |        |
| Vert     | 2400.000        | AV       | 37.4           | 27.5            | 2.2       | 34.8      | 32.3            | 53.9           | 21.6        |        |
| Vert     | 4804.000        | AV       | 31.0           | 31.2            | 4.4       | 34.0      | 32.6            | 53.9           | 21.3        |        |
| Vert     | 7206.000        | AV       | 31.0           | 35.9            | 5.3       | 34.2      | 38.0            | 53.9           | 15.9        |        |
| Vert     | 9608.000        | AV       | 31.5           | 38.8            | 6.1       | 34.7      | 41.7            | 53.9           | 12.2        |        |
| Vert     | 24020.000       | AV       | 33.6           | 40.5            | -1.8      | 31.7      | 40.6            | 53.9           | 13.3        |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.  
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

## Radiated Spurious Emission

|                       |                                                 |                       |
|-----------------------|-------------------------------------------------|-----------------------|
| Test place            | Head Office EMC Lab. No.1 Semi Anechoic Chamber |                       |
| Report No.            | 32GE0273-HO-01                                  |                       |
| Date                  | 03/27/2012                                      | 03/28/2012            |
| Temperature/ Humidity | 23 deg.C./ 38%                                  | 22deg.C./ 40%         |
| Engineer              | Tomohisa Nakagawa                               | Katsunori Okai        |
|                       | (1-10GHz)                                       | (The other Frequency) |
| Mode                  | Tx, 3DH5 2441MHz                                |                       |

| 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     | 49.152             | QP       | 27.2              | 11.4               | 7.0          | 28.6         | 17.0               | 40.0              | 23.0           |        |
| Hori     | 65.531             | QP       | 29.5              | 7.4                | 7.2          | 28.5         | 15.6               | 40.0              | 24.4           |        |
| Hori     | 72.090             | QP       | 22.9              | 6.6                | 7.2          | 28.5         | 8.2                | 40.0              | 31.8           |        |
| Hori     | 361.598            | QP       | 27.1              | 16.3               | 9.2          | 28.0         | 24.6               | 46.0              | 21.4           |        |
| Hori     | 412.798            | QP       | 30.2              | 17.5               | 9.4          | 28.3         | 28.8               | 46.0              | 17.2           |        |
| Hori     | 502.398            | QP       | 26.2              | 18.3               | 9.8          | 28.8         | 25.5               | 46.0              | 20.5           |        |
| Hori     | 4882.000           | PK       | 41.9              | 31.4               | 4.4          | 34.0         | 43.7               | 73.9              | 30.2           |        |
| Hori     | 7323.000           | PK       | 42.6              | 36.0               | 5.4          | 34.2         | 49.8               | 73.9              | 24.1           |        |
| Hori     | 9764.000           | PK       | 43.9              | 39.0               | 6.2          | 34.7         | 54.4               | 73.9              | 19.5           |        |
| Hori     | 24410.000          | PK       | 45.0              | 40.5               | -1.7         | 32.2         | 51.6               | 73.9              | 22.3           |        |
| Hori     | 4882.000           | AV       | 30.7              | 31.4               | 4.4          | 34.0         | 32.5               | 53.9              | 21.4           |        |
| Hori     | 7323.000           | AV       | 31.4              | 36.0               | 5.4          | 34.2         | 38.6               | 53.9              | 15.3           |        |
| Hori     | 9764.000           | AV       | 31.8              | 39.0               | 6.2          | 34.7         | 42.3               | 53.9              | 11.6           |        |
| Hori     | 24410.000          | AV       | 33.2              | 40.5               | -1.7         | 32.2         | 39.8               | 53.9              | 14.1           |        |
| Vert     | 49.151             | QP       | 34.0              | 11.4               | 7.0          | 28.6         | 23.8               | 40.0              | 16.2           |        |
| Vert     | 65.531             | QP       | 37.2              | 7.4                | 7.2          | 28.5         | 22.8               | 40.0              | 17.2           |        |
| Vert     | 72.091             | QP       | 28.3              | 6.6                | 7.2          | 28.5         | 13.5               | 40.0              | 26.5           |        |
| Vert     | 361.597            | QP       | 30.4              | 16.3               | 9.2          | 28.0         | 27.9               | 46.0              | 18.1           |        |
| Vert     | 415.999            | QP       | 32.5              | 17.5               | 9.5          | 28.4         | 31.1               | 46.0              | 14.9           |        |
| Vert     | 502.399            | QP       | 33.0              | 18.3               | 9.8          | 28.8         | 32.3               | 46.0              | 13.7           |        |
| Vert     | 4882.000           | PK       | 42.2              | 31.4               | 4.4          | 34.0         | 44.0               | 73.9              | 29.9           |        |
| Vert     | 7323.000           | PK       | 43.0              | 36.0               | 5.4          | 34.2         | 50.2               | 73.9              | 23.7           |        |
| Vert     | 9764.000           | PK       | 43.5              | 39.0               | 6.2          | 34.7         | 54.0               | 73.9              | 19.9           |        |
| Vert     | 24410.000          | PK       | 45.1              | 40.5               | -1.7         | 32.2         | 51.7               | 73.9              | 22.2           |        |
| Vert     | 4882.000           | AV       | 30.8              | 31.4               | 4.4          | 34.0         | 32.6               | 53.9              | 21.3           |        |
| Vert     | 7323.000           | AV       | 31.4              | 36.0               | 5.4          | 34.2         | 38.6               | 53.9              | 15.3           |        |
| Vert     | 9764.000           | AV       | 31.8              | 39.0               | 6.2          | 34.7         | 42.3               | 53.9              | 11.6           |        |
| Vert     | 24410.000          | AV       | 33.2              | 40.5               | -1.7         | 32.2         | 39.8               | 53.9              | 14.1           |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

## Radiated Spurious Emission

Test place Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Report No. 32GE0273-HO-01  
Date 03/27/2012 03/28/2012  
Temperature/ Humidity 23 deg.C./ 38% 22deg.C./ 40%  
Engineer Tomohisa Nakagawa Katsunori Okai  
(1-10GHz) (The other Frequency)  
Mode Tx, 3DH5 2480MHz

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|-----------------|----------------|-------------|--------|
| Hori     | 49.151          | QP       | 23.7           | 11.4            | 7.0       | 28.6      | 13.5            | 40.0           | 26.5        |        |
| Hori     | 65.532          | QP       | 26.4           | 7.4             | 7.2       | 28.5      | 12.5            | 40.0           | 27.5        |        |
| Hori     | 72.090          | QP       | 30.8           | 6.6             | 7.2       | 28.5      | 16.1            | 40.0           | 23.9        |        |
| Hori     | 361.598         | QP       | 26.5           | 16.3            | 9.2       | 28.0      | 24.0            | 46.0           | 22.0        |        |
| Hori     | 403.200         | QP       | 28.1           | 17.4            | 9.4       | 28.3      | 26.6            | 46.0           | 19.4        |        |
| Hori     | 502.401         | QP       | 26.2           | 18.3            | 9.8       | 28.8      | 25.5            | 46.0           | 20.5        |        |
| Hori     | 2483.500        | PK       | 46.8           | 27.5            | 2.2       | 34.8      | 41.7            | 73.9           | 32.2        |        |
| Hori     | 4960.000        | PK       | 42.7           | 31.6            | 4.5       | 34.0      | 44.8            | 73.9           | 29.1        |        |
| Hori     | 7440.000        | PK       | 42.2           | 36.2            | 5.6       | 34.3      | 49.7            | 73.9           | 24.2        |        |
| Hori     | 9920.000        | PK       | 42.9           | 39.1            | 6.3       | 34.7      | 53.6            | 73.9           | 20.3        |        |
| Hori     | 24800.000       | PK       | 45.2           | 40.6            | -1.6      | 32.7      | 51.5            | 73.9           | 22.4        |        |
| Hori     | 2483.500        | AV       | 33.3           | 27.5            | 2.2       | 34.8      | 28.2            | 53.9           | 25.7        |        |
| Hori     | 4960.000        | AV       | 30.6           | 31.6            | 4.5       | 34.0      | 32.7            | 53.9           | 21.2        |        |
| Hori     | 7440.000        | AV       | 31.4           | 36.2            | 5.6       | 34.3      | 38.9            | 53.9           | 15.0        |        |
| Hori     | 9920.000        | AV       | 31.5           | 39.1            | 6.3       | 34.7      | 42.2            | 53.9           | 11.7        |        |
| Hori     | 24800.000       | AV       | 34.4           | 40.6            | -1.6      | 32.7      | 40.7            | 53.9           | 13.2        |        |
| Vert     | 49.151          | QP       | 28.3           | 11.4            | 7.0       | 28.6      | 18.1            | 40.0           | 21.9        |        |
| Vert     | 65.531          | QP       | 33.2           | 7.4             | 7.2       | 28.5      | 18.8            | 40.0           | 21.2        |        |
| Vert     | 72.090          | QP       | 29.7           | 6.6             | 7.2       | 28.5      | 14.9            | 40.0           | 25.1        |        |
| Vert     | 361.600         | QP       | 30.2           | 16.3            | 9.2       | 28.0      | 27.7            | 46.0           | 18.3        |        |
| Vert     | 415.998         | QP       | 32.0           | 17.5            | 9.5       | 28.4      | 30.6            | 46.0           | 15.4        |        |
| Vert     | 502.398         | QP       | 32.8           | 18.3            | 9.8       | 28.8      | 32.1            | 46.0           | 13.9        |        |
| Vert     | 2483.500        | PK       | 45.5           | 27.5            | 2.2       | 34.8      | 40.4            | 73.9           | 33.5        |        |
| Vert     | 4960.000        | PK       | 41.6           | 31.6            | 4.5       | 34.0      | 43.7            | 73.9           | 30.2        |        |
| Vert     | 7440.000        | PK       | 42.3           | 36.2            | 5.6       | 34.3      | 49.8            | 73.9           | 24.1        |        |
| Vert     | 9920.000        | PK       | 42.3           | 39.1            | 6.3       | 34.7      | 53.0            | 73.9           | 20.9        |        |
| Vert     | 24800.000       | PK       | 45.4           | 40.6            | -1.6      | 32.7      | 51.7            | 73.9           | 22.2        |        |
| Vert     | 2483.500        | AV       | 32.8           | 27.5            | 2.2       | 34.8      | 27.7            | 53.9           | 26.2        |        |
| Vert     | 4960.000        | AV       | 30.6           | 31.6            | 4.5       | 34.0      | 32.7            | 53.9           | 21.2        |        |
| Vert     | 7440.000        | AV       | 31.3           | 36.2            | 5.6       | 34.3      | 38.8            | 53.9           | 15.1        |        |
| Vert     | 9920.000        | AV       | 31.7           | 39.1            | 6.3       | 34.7      | 42.4            | 53.9           | 11.6        |        |
| Vert     | 24800.000       | AV       | 34.4           | 40.6            | -1.6      | 32.7      | 40.7            | 53.9           | 13.2        |        |

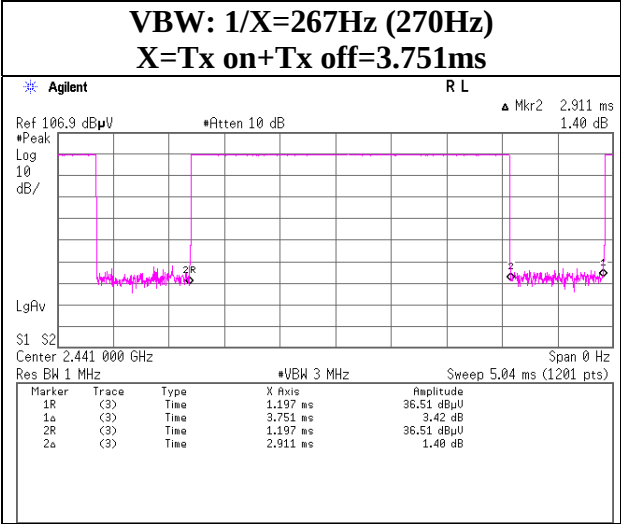
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

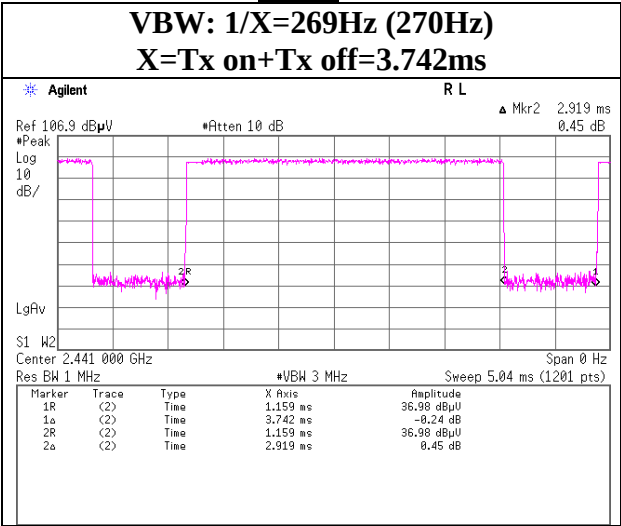
\*The 10th harmonic was not seen so the result was its base noise level.  
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

VBW Calculation

DH5

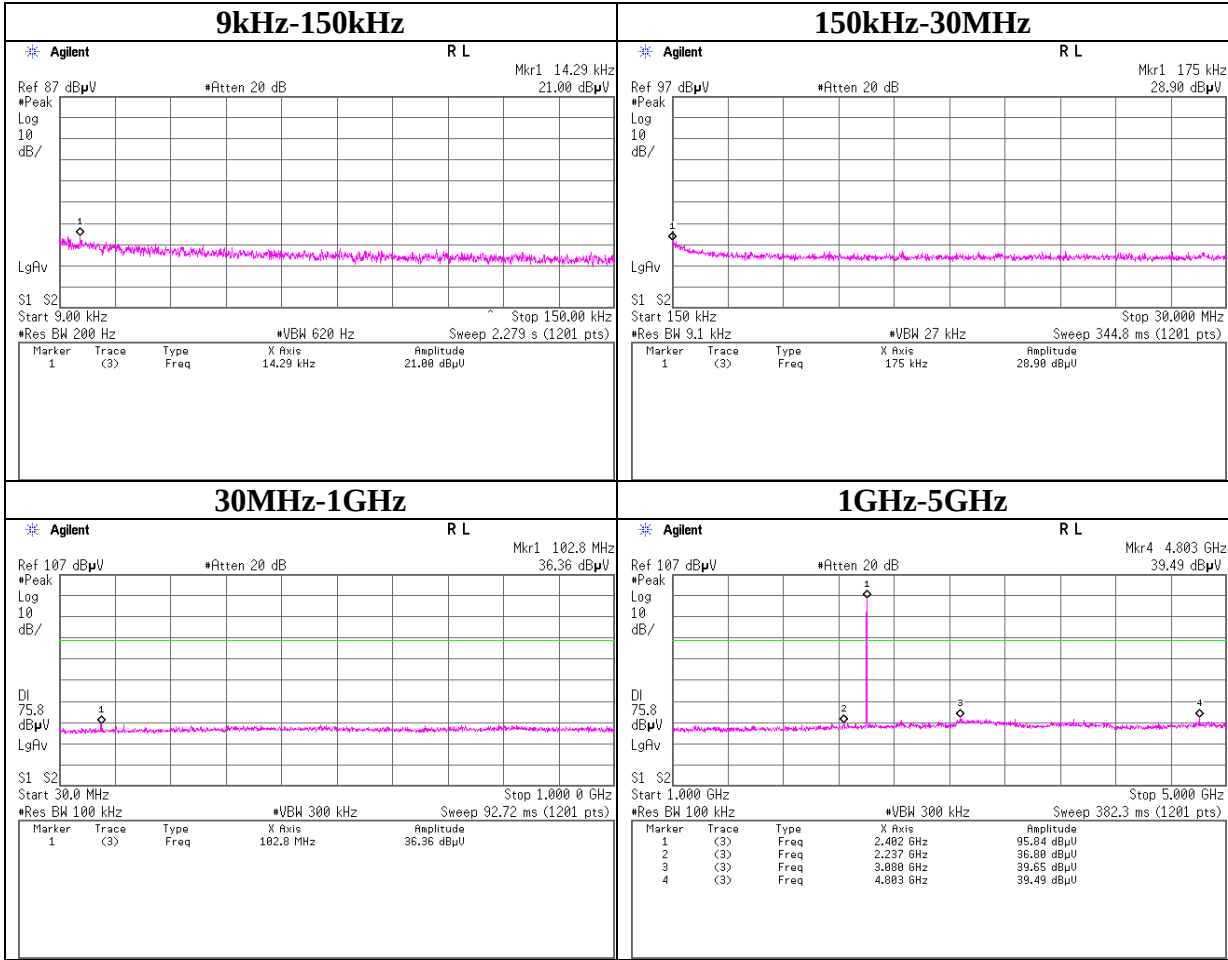


3DH5



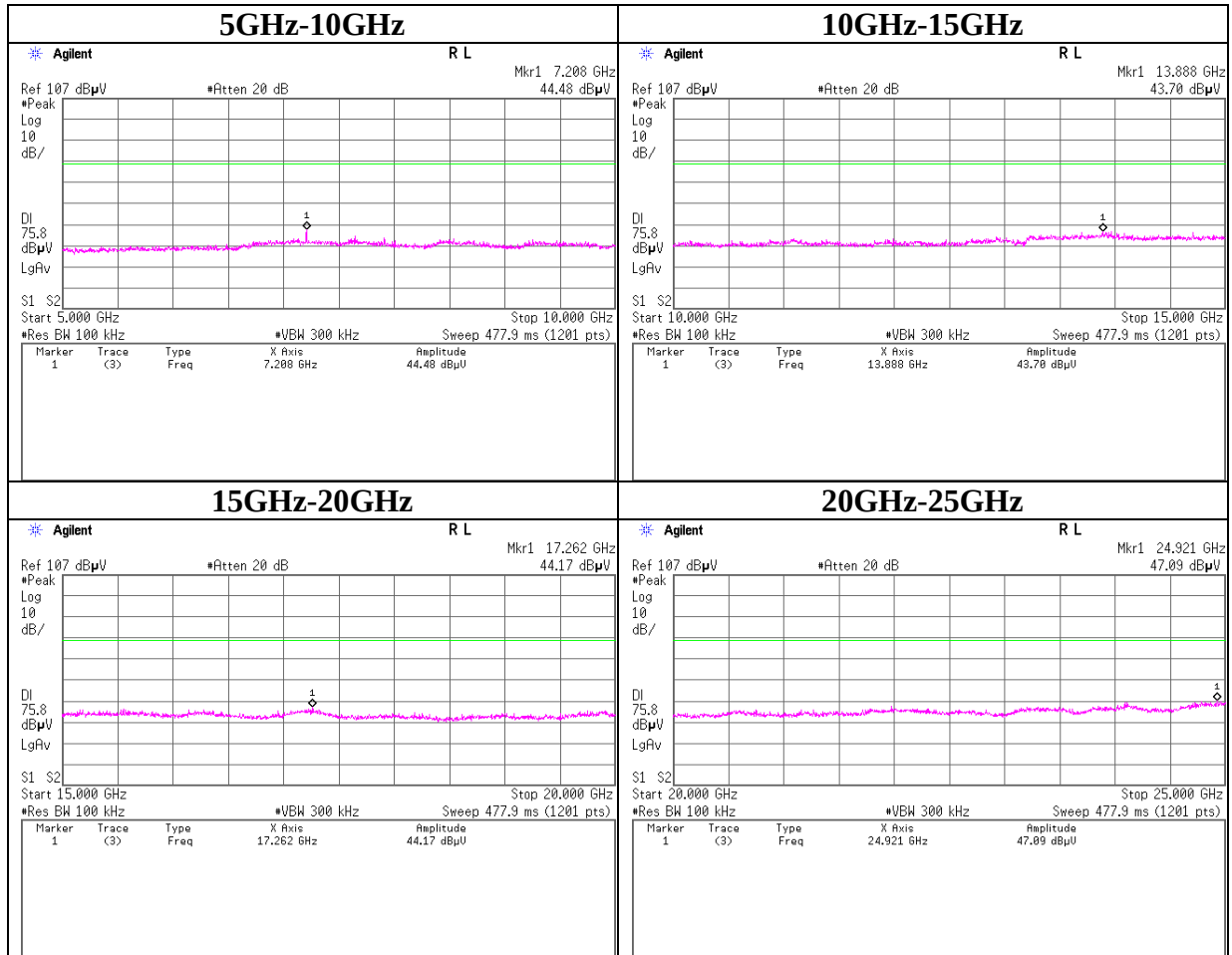
Conducted Spurious Emission

Tx DH5 2402MHz



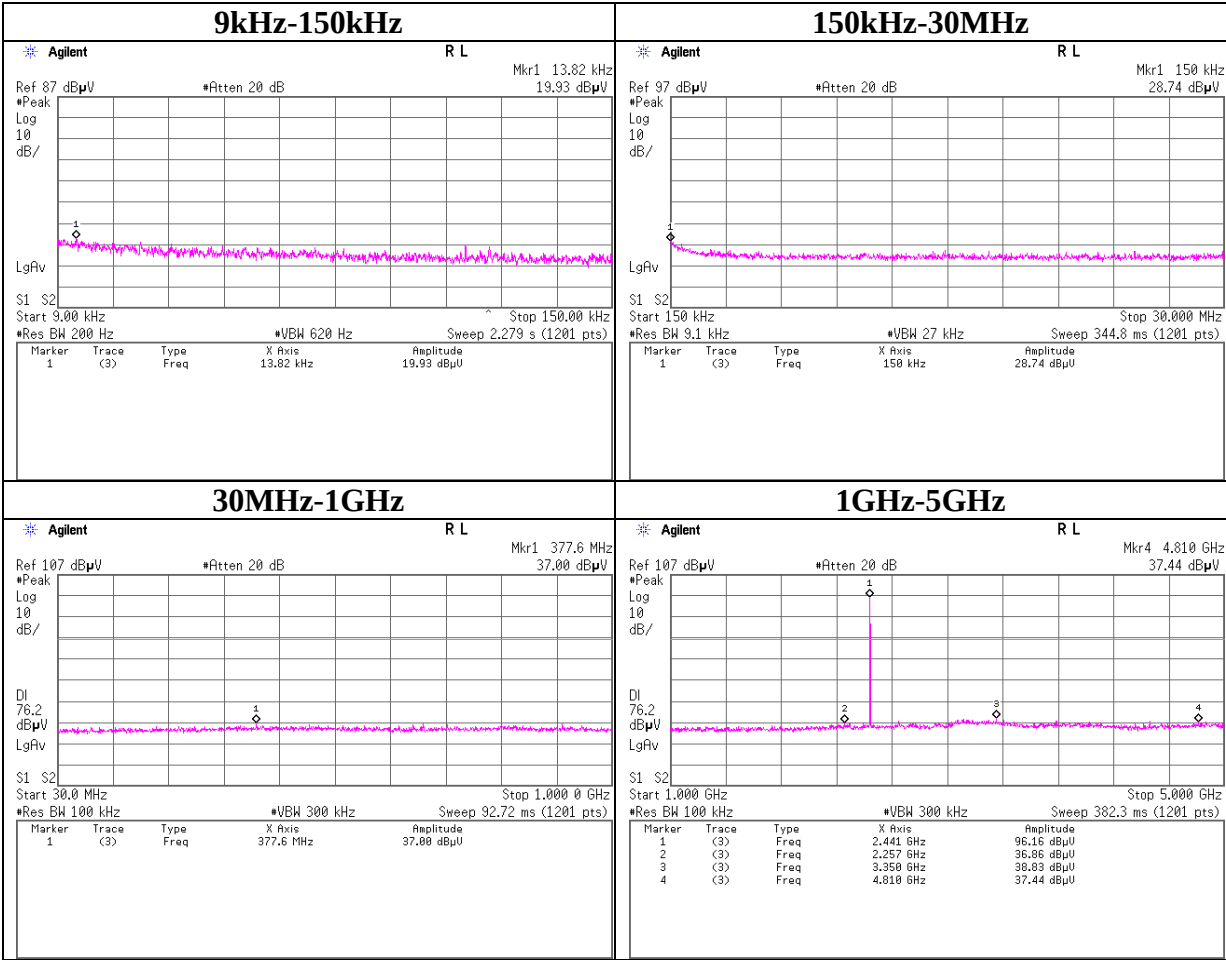
## Conducted Spurious Emission

### Tx DH5 2402MHz



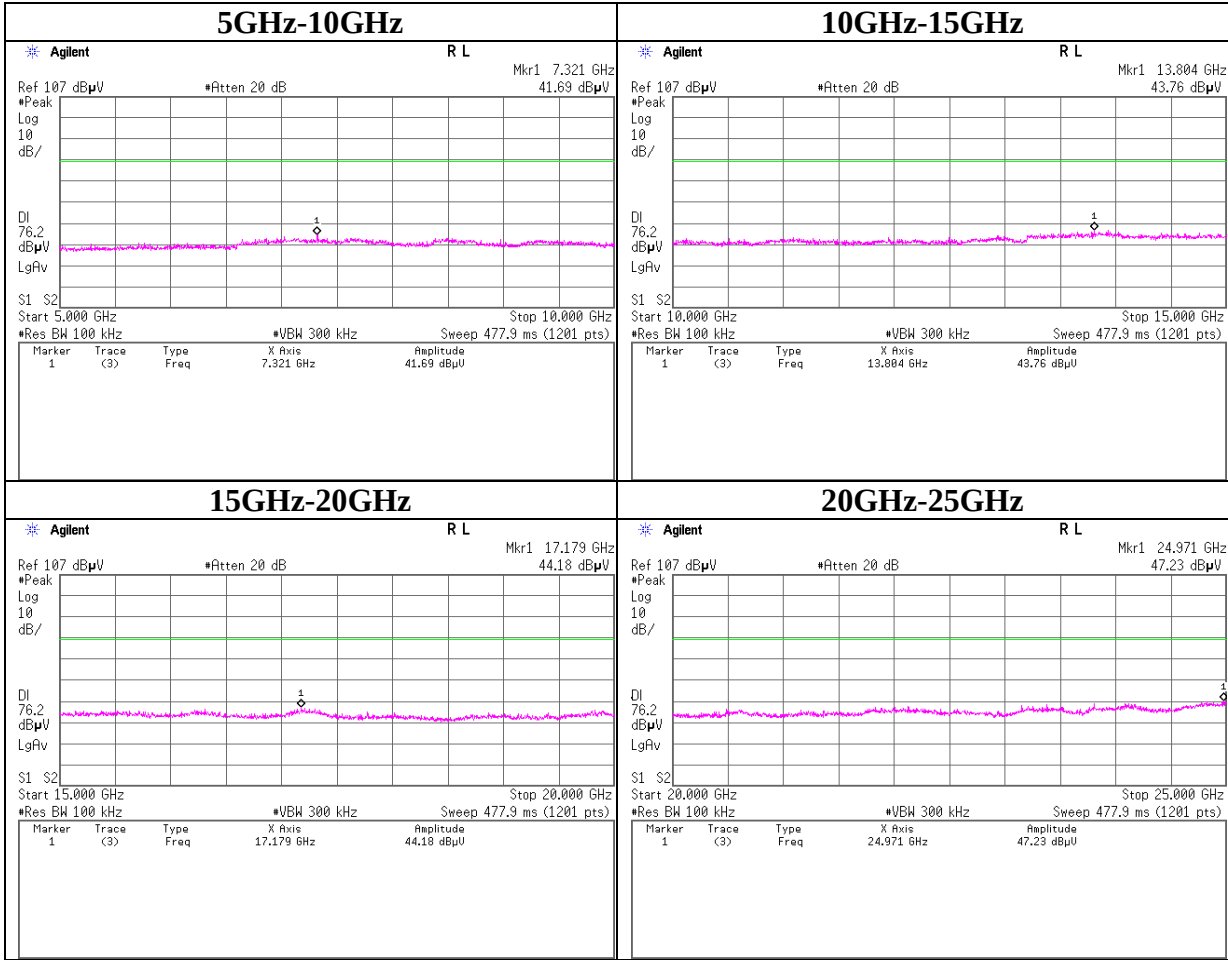
Conducted Spurious Emission

Tx DH5 2441MHz



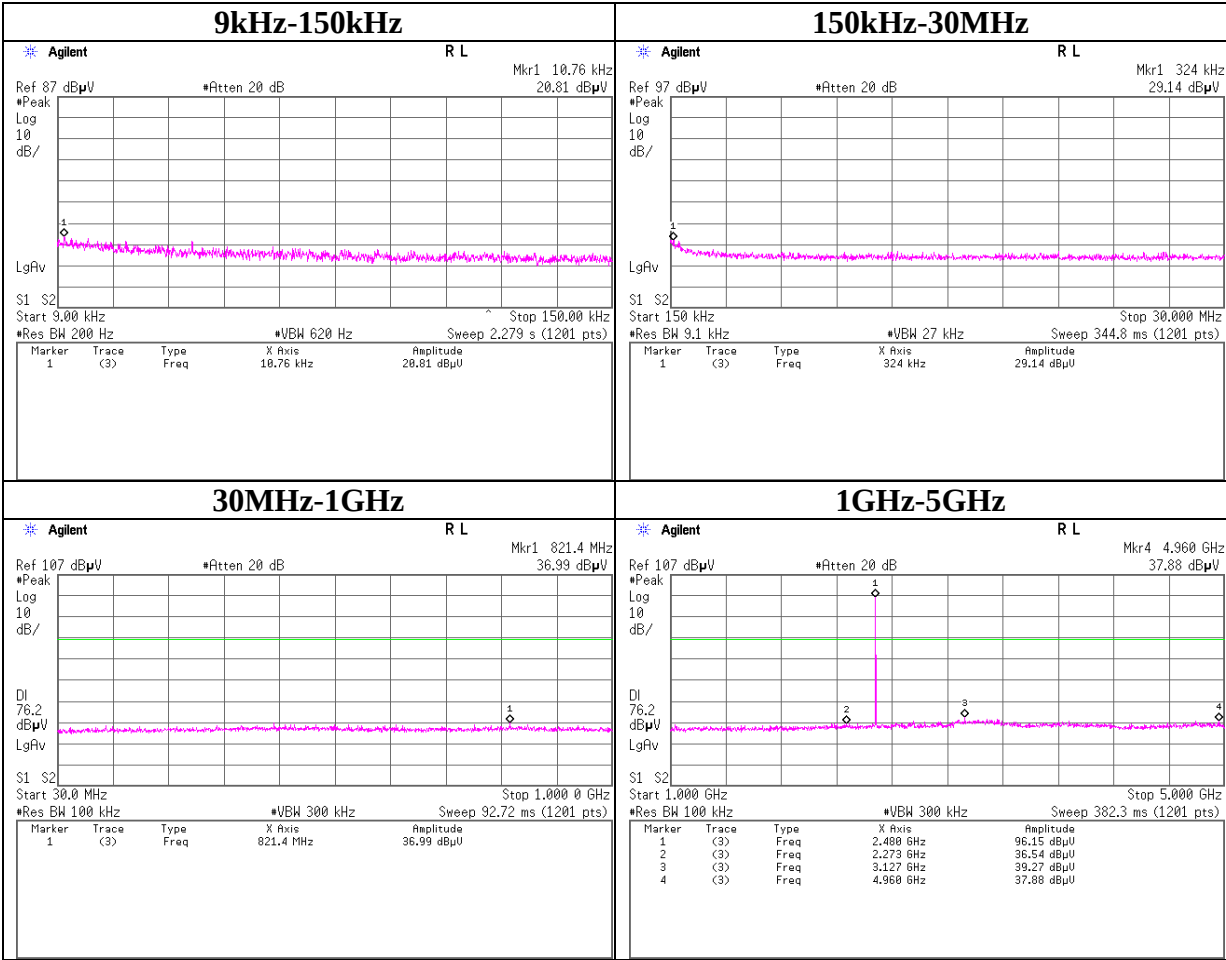
Conducted Spurious Emission

Tx DH5 2441MHz



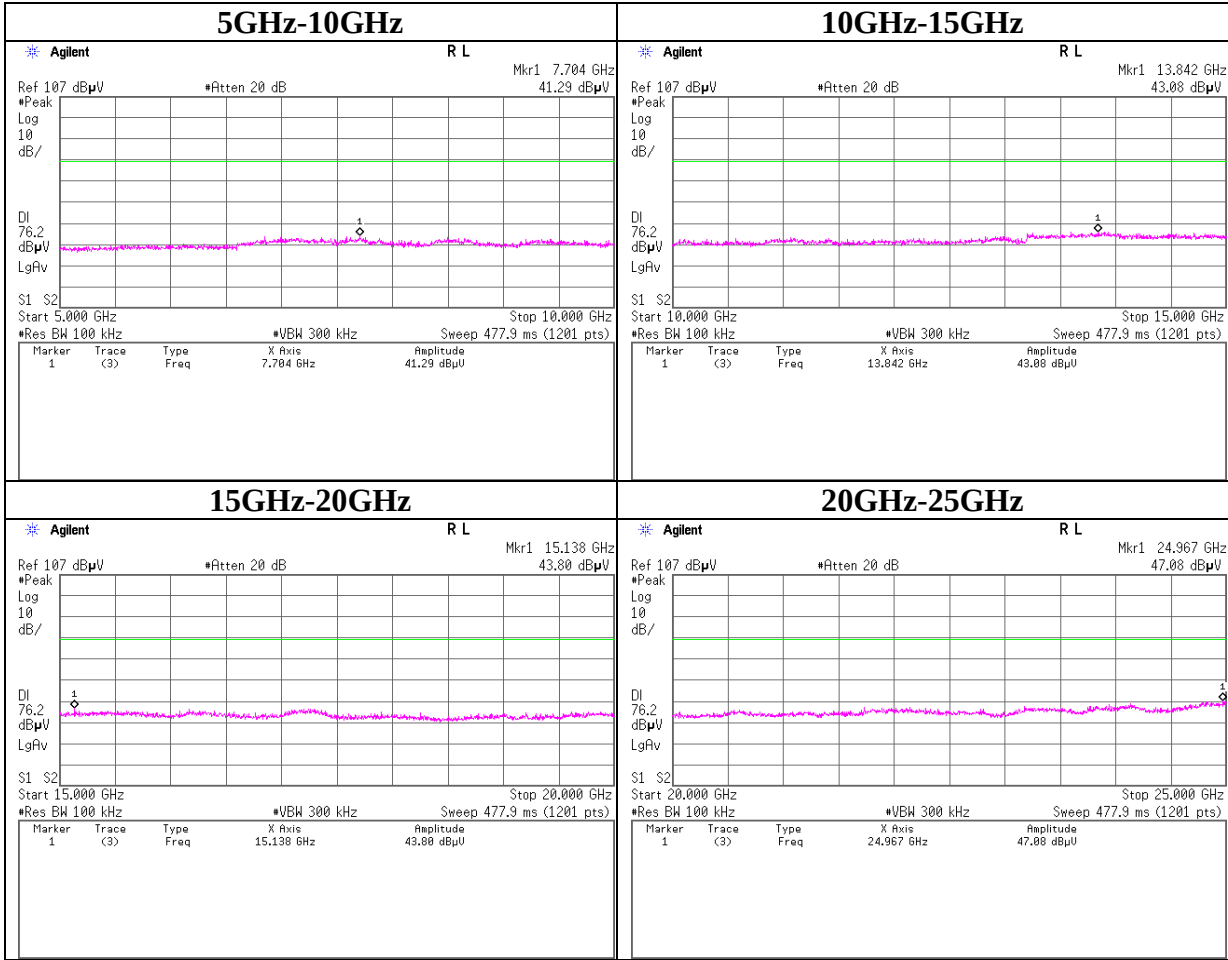
Conducted Spurious Emission

Tx DH5 2480MHz



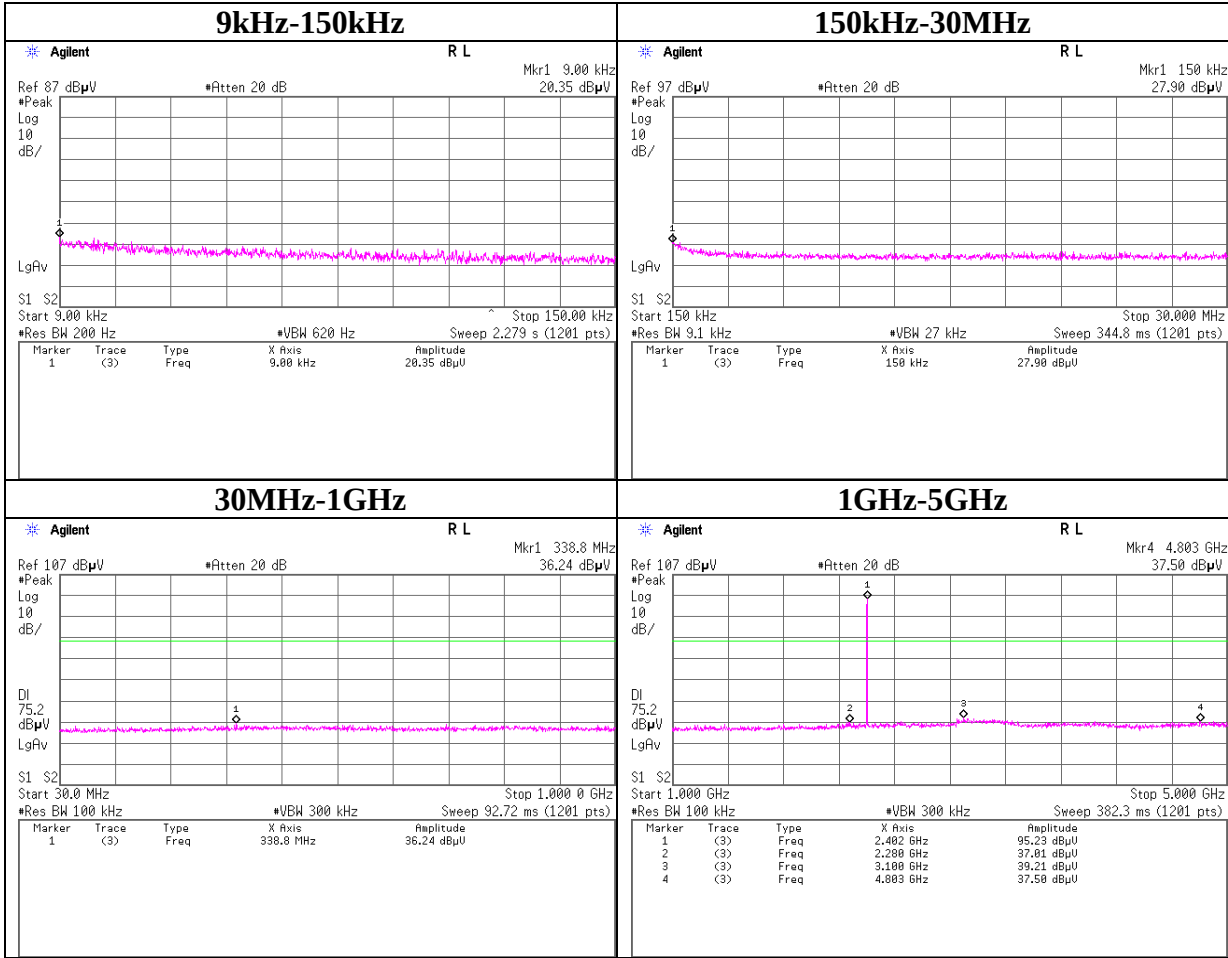
Conducted Spurious Emission

Tx DH5 2480MHz



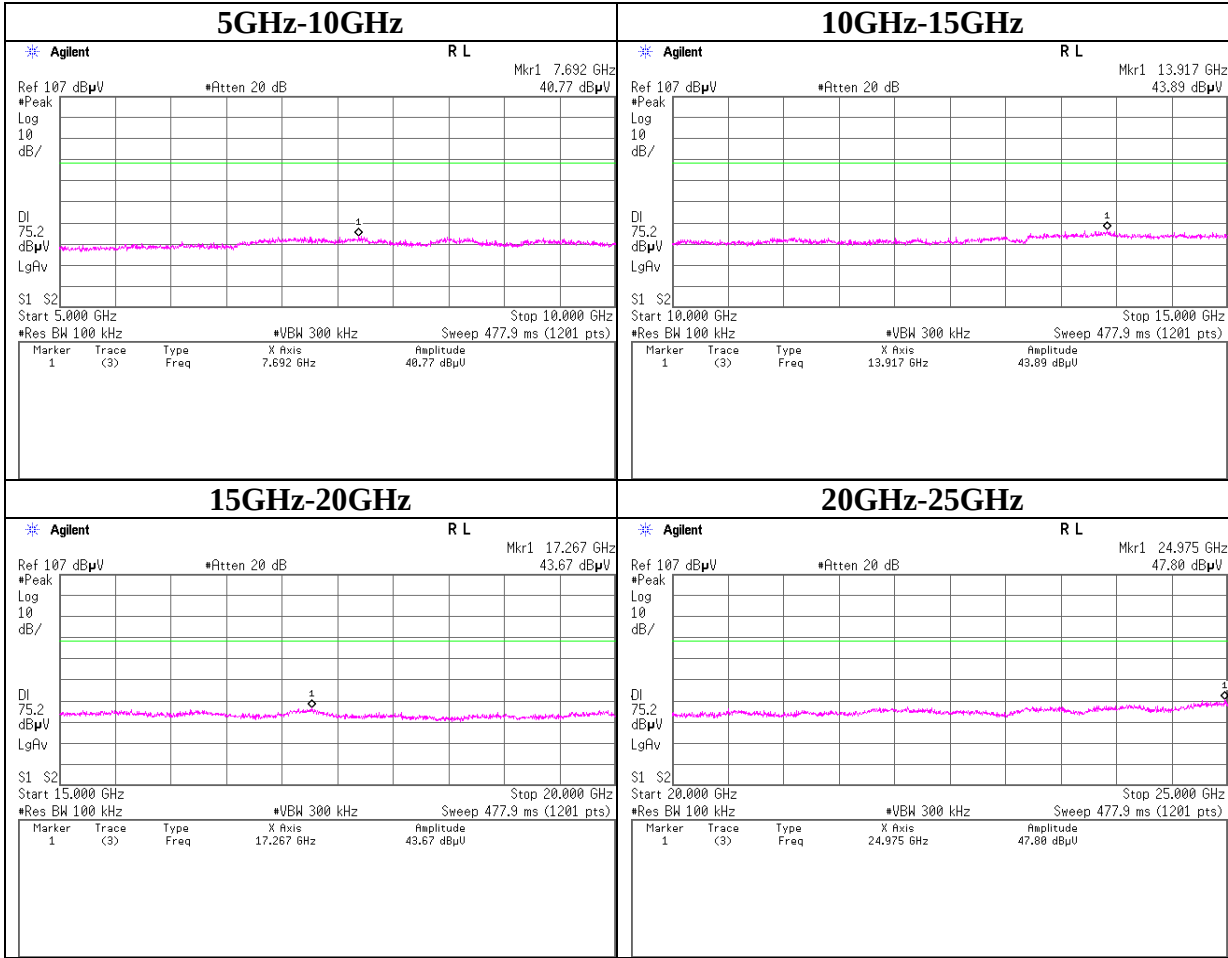
Conducted Spurious Emission

Tx 3DH5 2402MHz



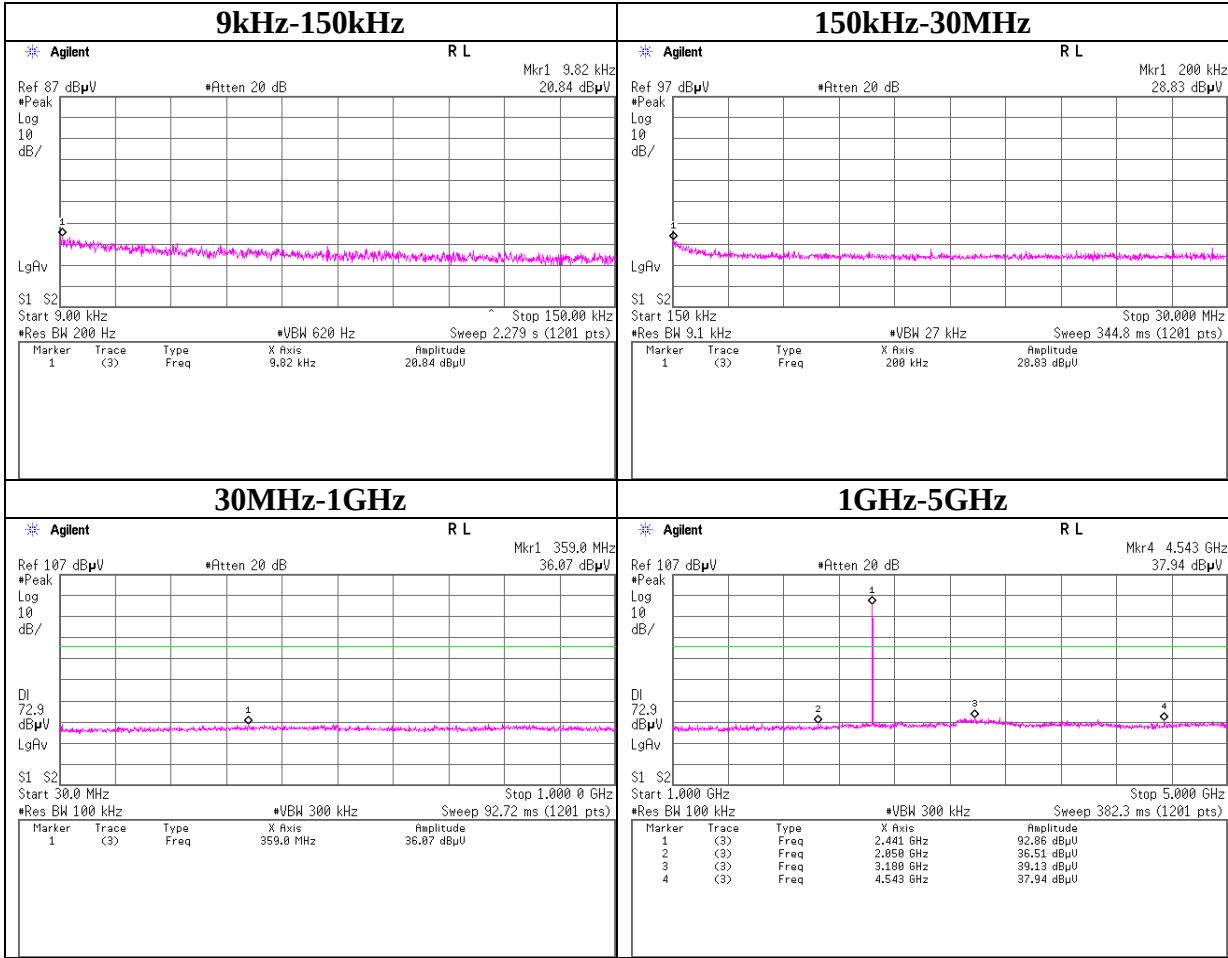
Conducted Spurious Emission

Tx 3DH5 2402MHz



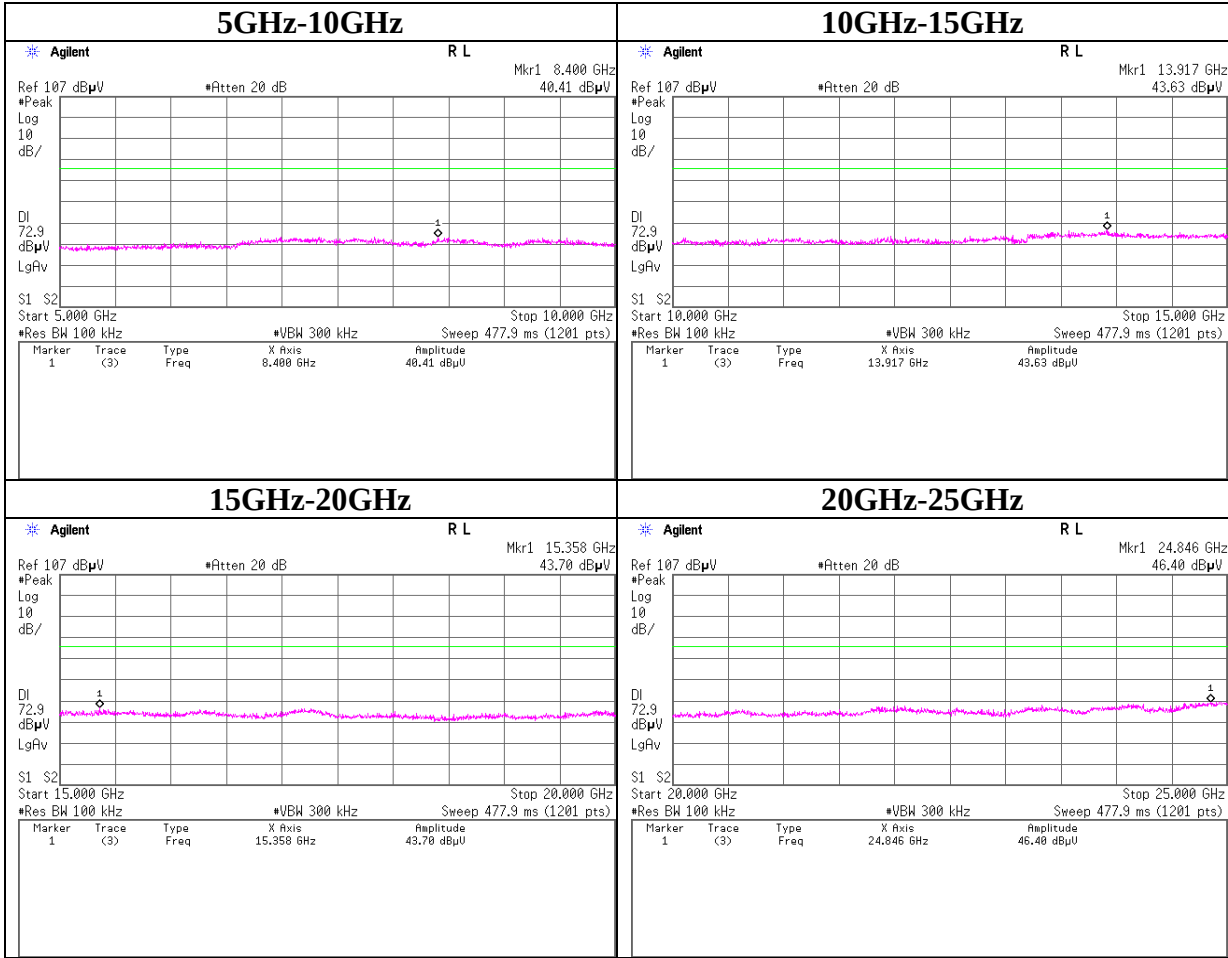
Conducted Spurious Emission

Tx 3DH5 2441MHz



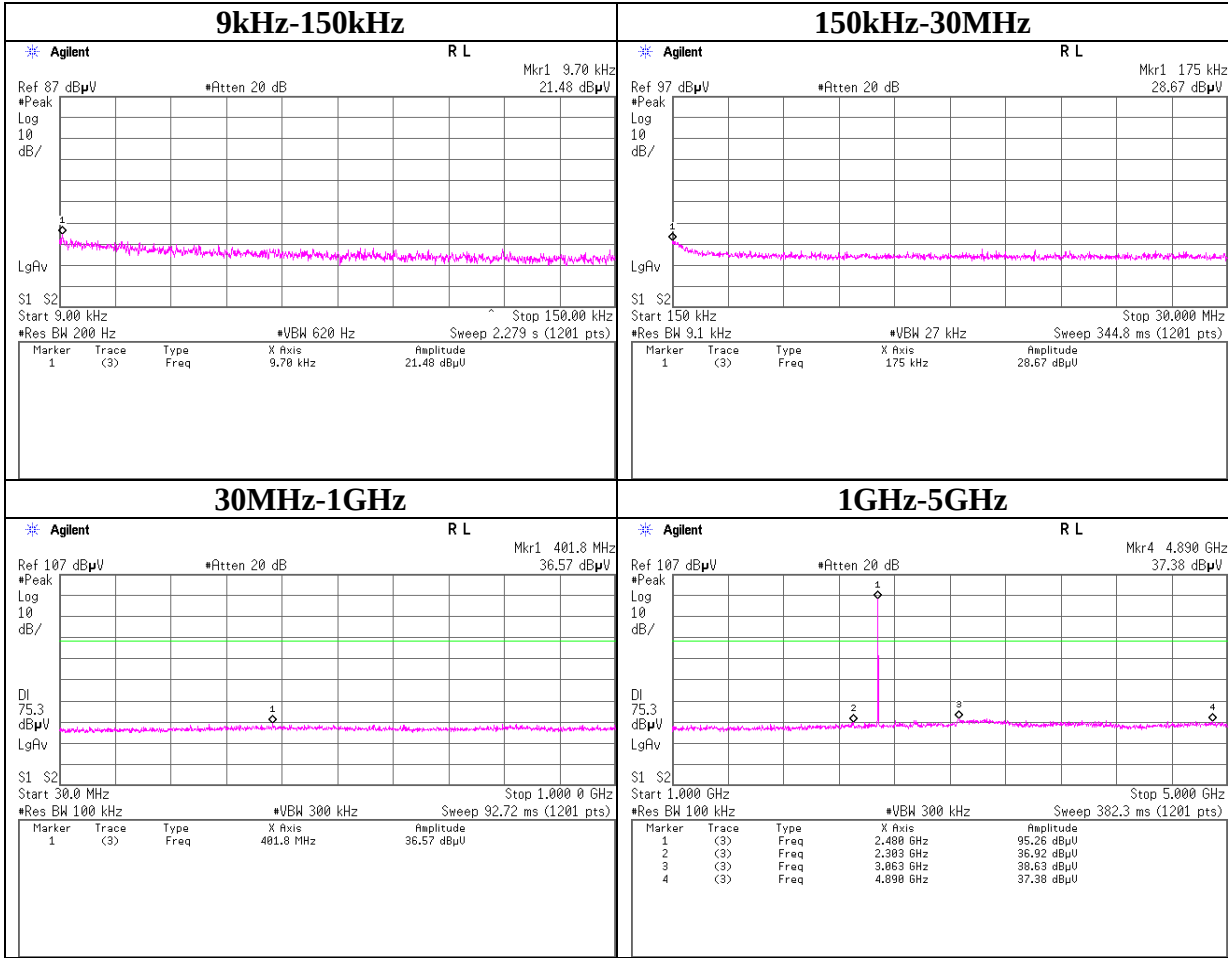
Conducted Spurious Emission

Tx 3DH5 2441MHz



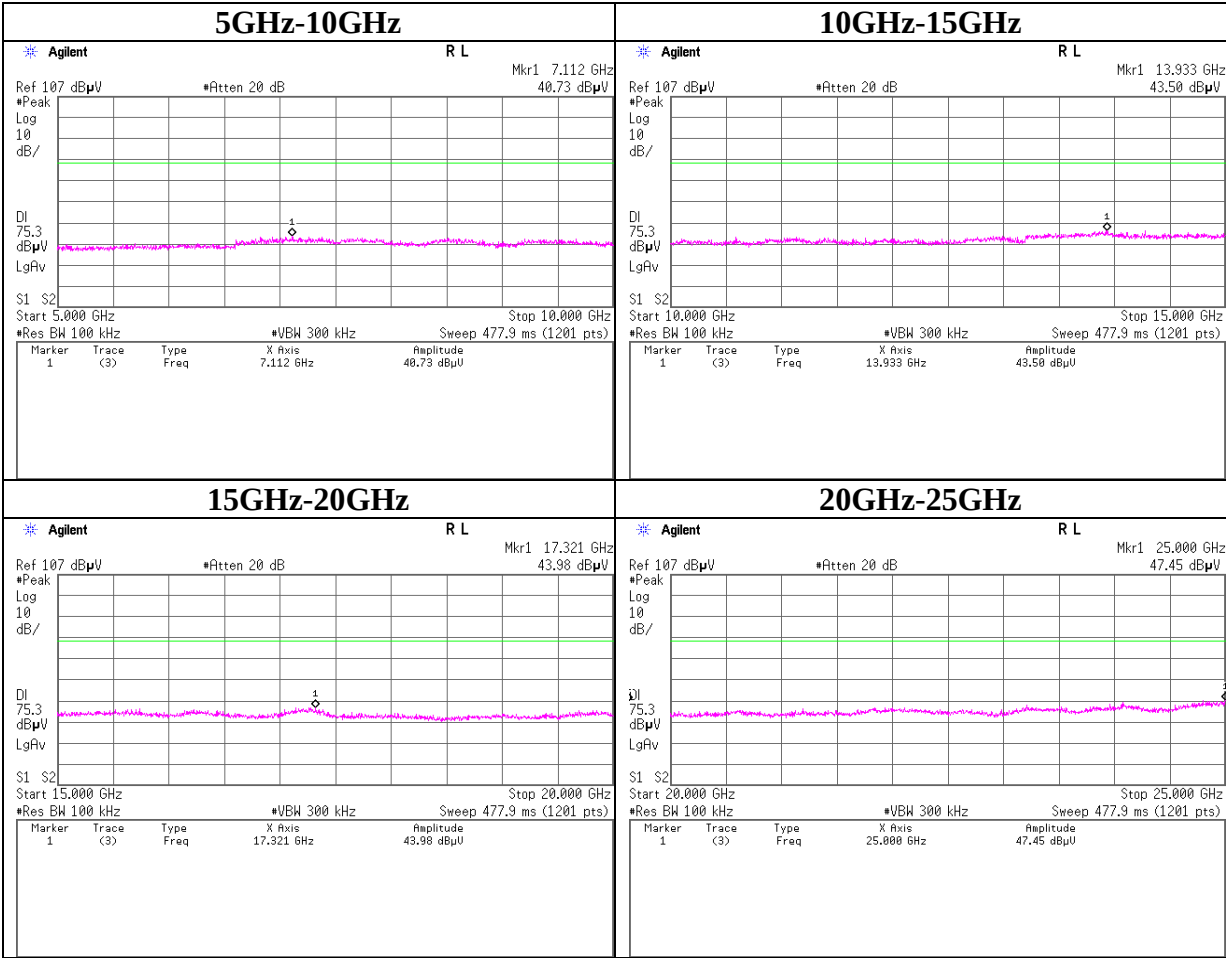
Conducted Spurious Emission

Tx 3DH5 2480MHz



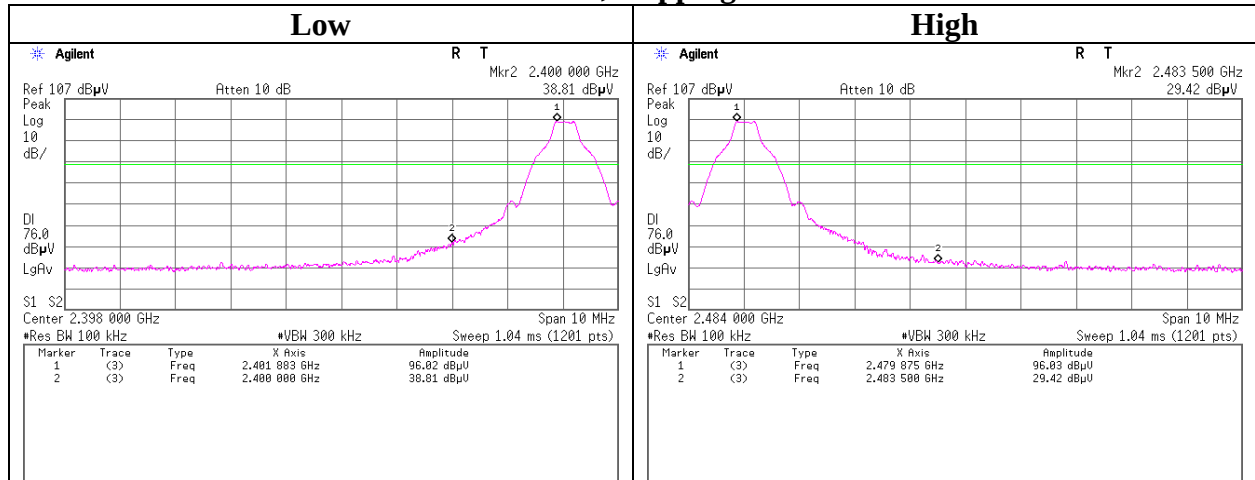
Conducted Spurious Emission

Tx 3DH5 2480MHz

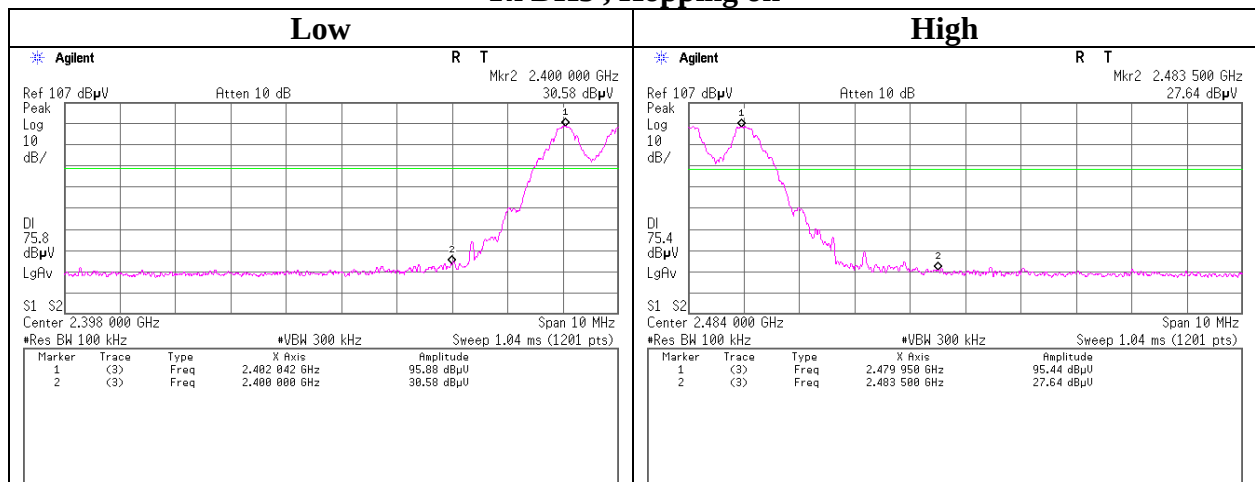


## Conducted Emission Band Edge compliance

### Tx DH5 , Hopping off

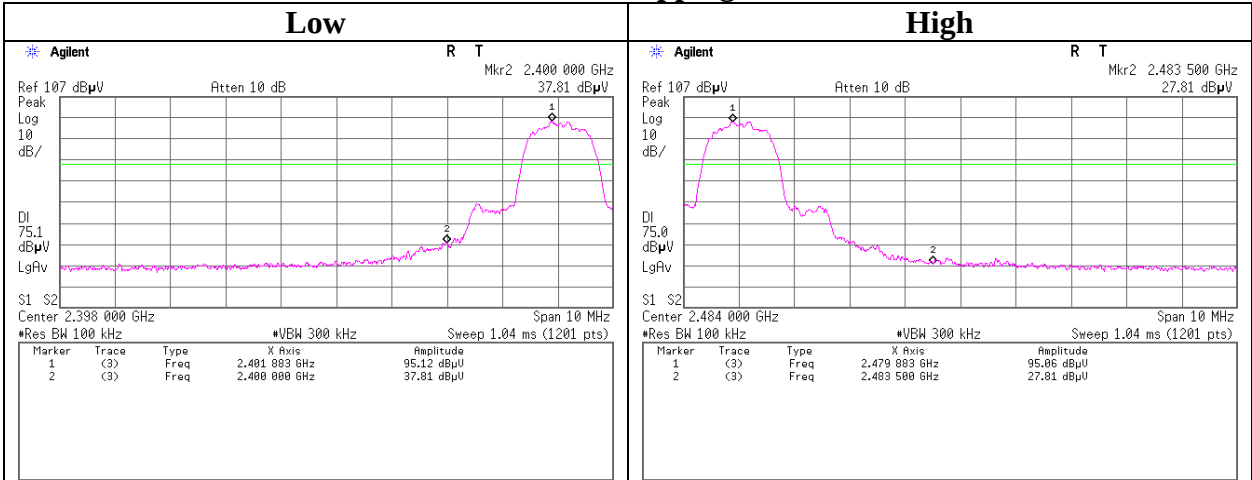


### Tx DH5 , Hopping on

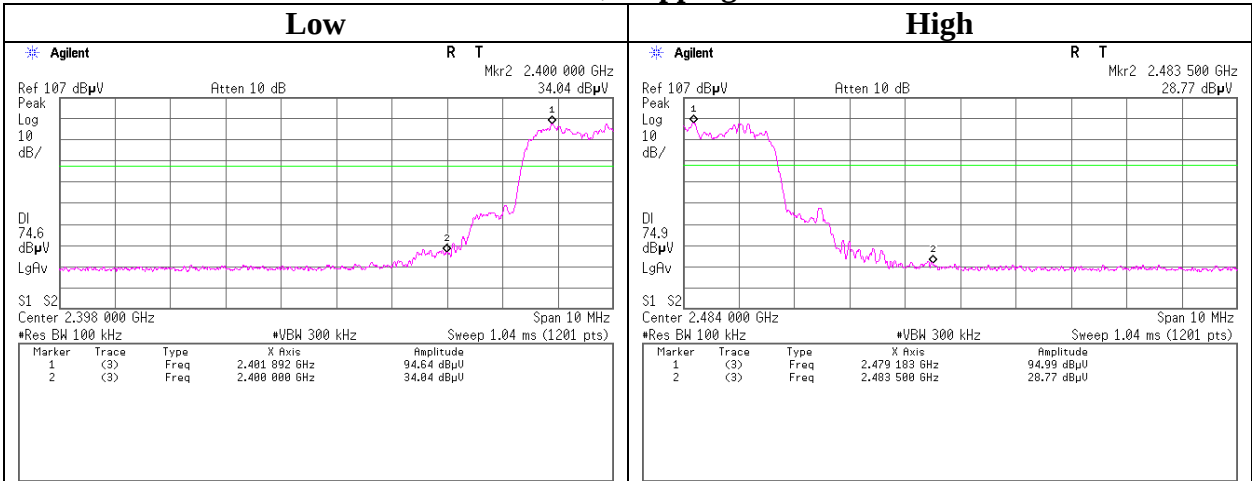


Conducted Emission Band Edge compliance

Tx 3DH5, Hopping off



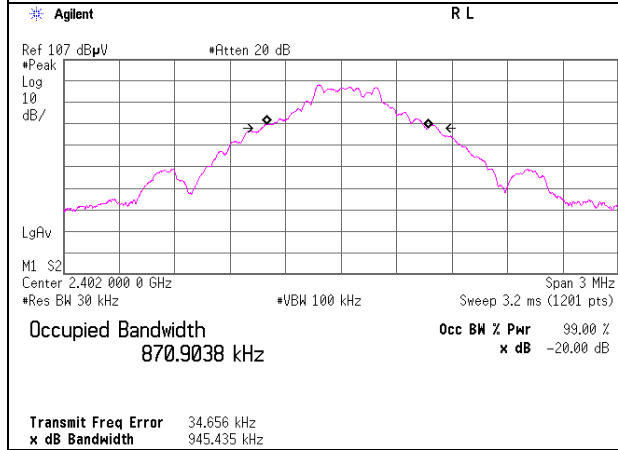
Tx 3DH5, Hopping on



### 99%Occupied Bandwidth

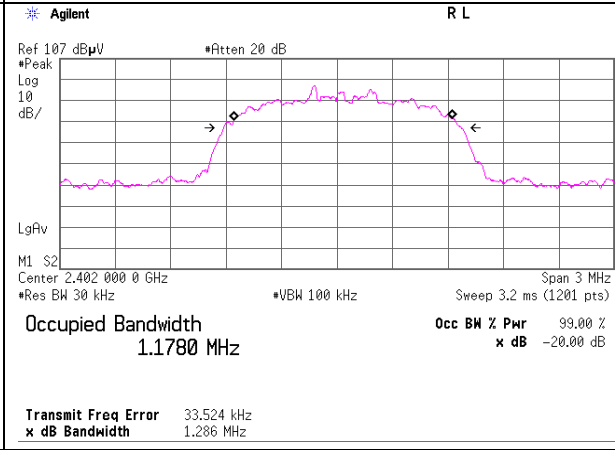
#### Tx DH5, Hopping off

2402MHz

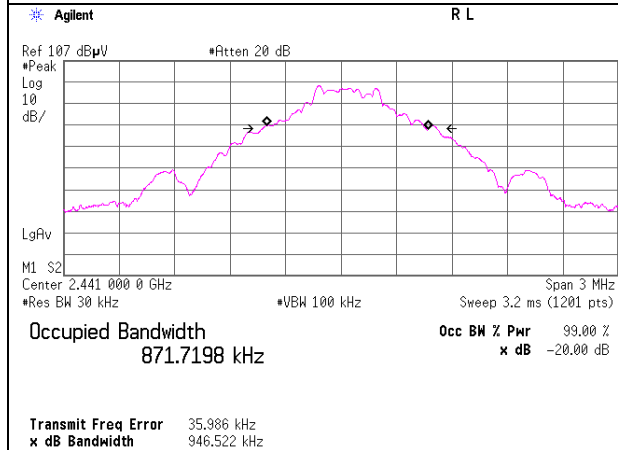


#### Tx 3DH5, Hopping off

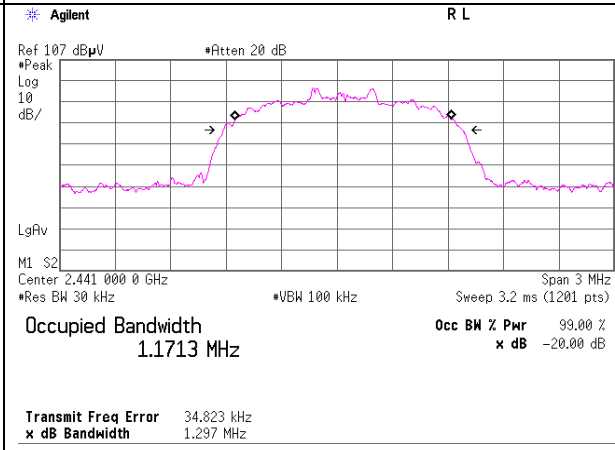
2402MHz



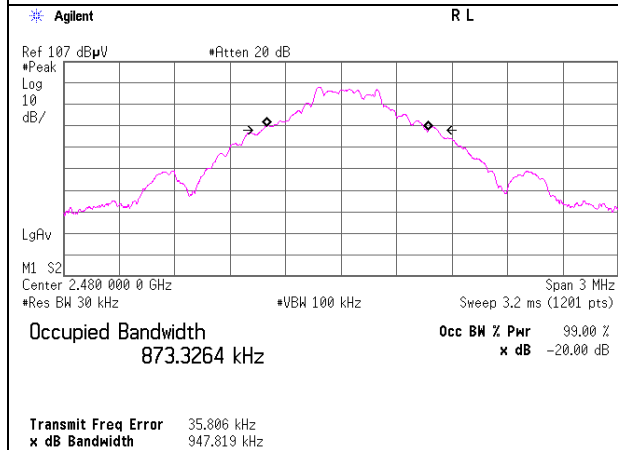
2441MHz



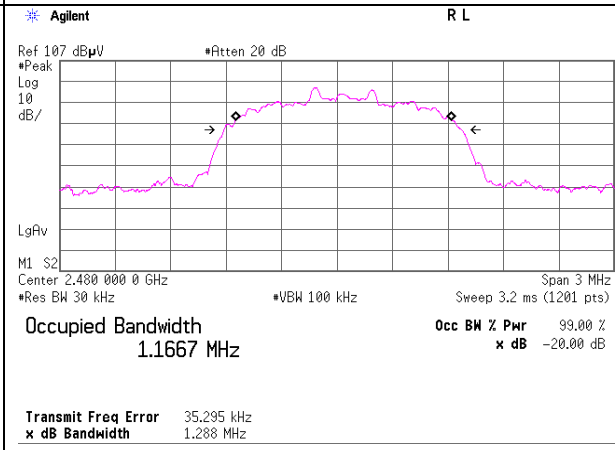
2441MHz



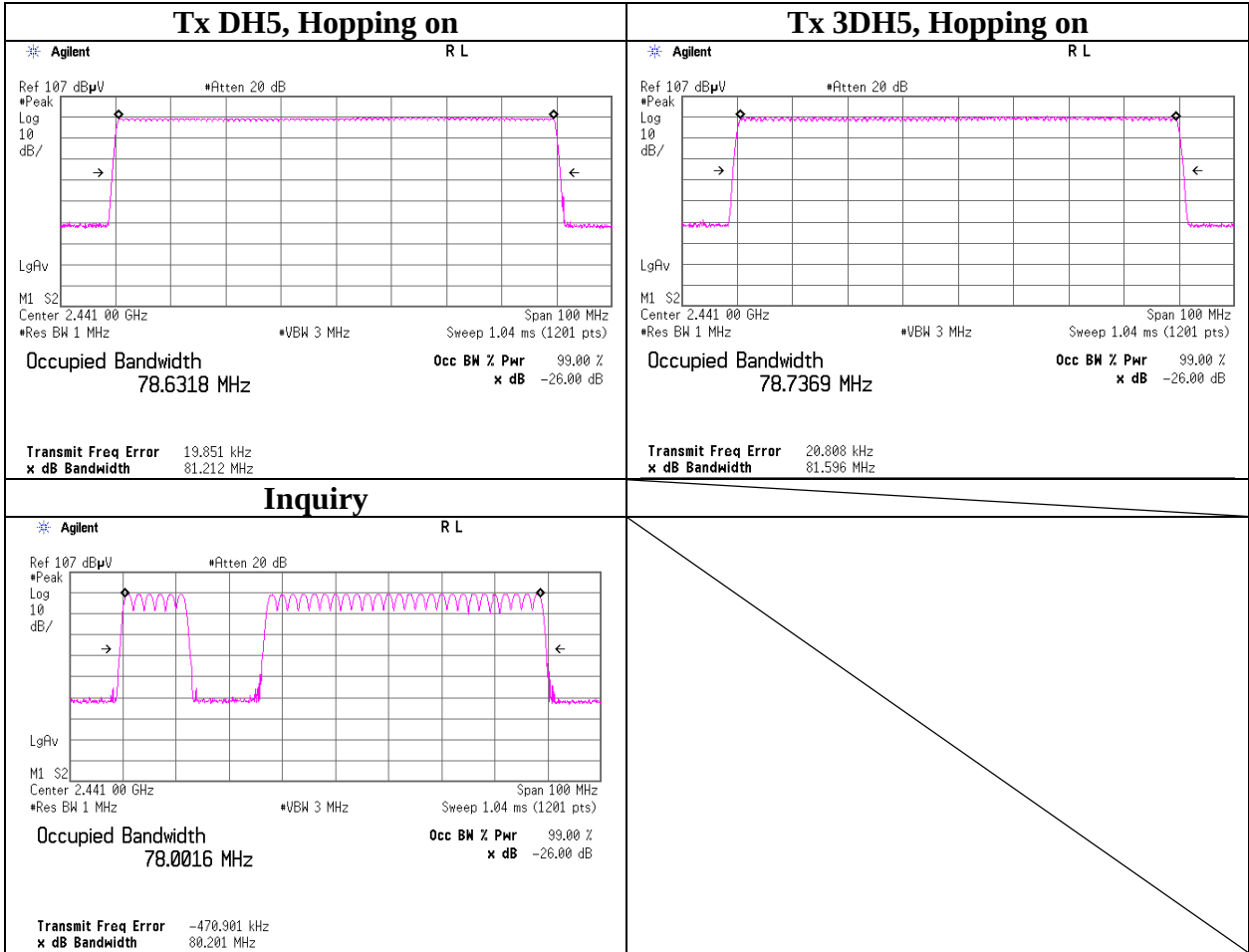
2480MHz



2480MHz



99% Occupied Bandwidth



## APPENDIX 2: Test instruments

### EMI test equipment

| Control No. | Instrument                 | Manufacturer         | Model No                                   | Serial No                 | Test Item | Calibration Date | Expiration date of the calibration |
|-------------|----------------------------|----------------------|--------------------------------------------|---------------------------|-----------|------------------|------------------------------------|
| MAEC-02     | Semi Anechoic Chamber(NSA) | TDK                  | Semi Anechoic Chamber 3m                   | DA-06902                  | RE/CE     | 2011/06/21       | 2012/06/30                         |
| MOS-22      | Thermo-Hygrometer          | Custom               | CTH-201                                    | 0003                      | RE/CE     | 2012/02/06       | 2013/02/28                         |
| MJM-14      | Measure                    | KOMELON              | KMC-36                                     | -                         | RE/CE     | -                | -                                  |
| COTS-MEMI   | EMI measurement program    | TSJ                  | TEPTO-DV                                   | -                         | RE/CE     | -                | -                                  |
| MRENT-95    | Spectrum Analyzer          | Agilent              | E4440A                                     | MY46185823                | RE/CE     | 2011/06/30       | 2012/06/30                         |
| MHA-06      | Horn Antenna 1-18GHz       | Schwarzbeck          | BBHA9120D                                  | 254                       | RE        | 2012/02/22       | 2013/02/28                         |
| MPA-10      | Pre Amplifier              | Agilent              | 8449B                                      | 3008A02142                | RE        | 2012/01/25       | 2013/01/31                         |
| MCC-133     | Microwave Cable            | HUBER+SUHNER         | SUCOFLEX104                                | 336164/4(1m) / 340640(5m) | RE        | 2011/09/07       | 2012/09/30                         |
| MSA-10      | Spectrum Analyzer          | Agilent              | E4448A                                     | MY46180655                | AT        | 2012/02/03       | 2013/02/28                         |
| MPM-12      | Power Meter                | Anritsu              | ML2495A                                    | 0825002                   | AT        | 2011/08/09       | 2012/08/31                         |
| MPSE-17     | Power sensor               | Anritsu              | MA2411B                                    | 0738285                   | AT        | 2011/08/09       | 2012/08/31                         |
| MCC-67      | Microwave Cable 1G-40GHz   | Suhner               | SUCOFLEX102                                | 28635/2                   | AT        | 2011/04/22       | 2012/04/30                         |
| MAT-23      | Attenuator(10dB) 1-18GHz   | Orient Microwave     | BX10-0476-00                               | -                         | AT        | 2012/03/27       | 2013/03/31                         |
| MOS-14      | Thermo-Hygrometer          | Custom               | CTH-201                                    | -                         | AT        | 2012/02/06       | 2013/02/28                         |
| MBA-02      | Biconical Antenna          | Schwarzbeck          | BBA9106                                    | VHA91032008               | RE        | 2011/10/23       | 2012/10/31                         |
| MLA-02      | Logperiodic Antenna        | Schwarzbeck          | USLP9143                                   | 201                       | RE        | 2011/10/23       | 2012/10/31                         |
| MCC-12      | Coaxial Cable              | Fujikura/Agilent     | -                                          | -                         | RE        | 2012/02/16       | 2013/02/28                         |
| MAT-07      | Attenuator(6dB)            | Weinschel Corp       | 2                                          | BK7970                    | RE        | 2011/11/02       | 2012/11/30                         |
| MPA-09      | Pre Amplifier              | Agilent              | 8447D                                      | 2944A10845                | RE        | 2011/09/26       | 2012/09/30                         |
| MHA-02      | Horn Antenna 18-26.5GHz    | EMCO                 | 3160-09                                    | 1265                      | RE        | 2012/02/22       | 2013/02/28                         |
| APRCV05     | Test Receiver              | Rohde & Schwarz      | ESS                                        | 840456/008                | RE        | 2012/01/16       | 2013/01/31                         |
| MSA-04      | Spectrum Analyzer          | Agilent              | E4448A                                     | US44300523                | CE        | 2011/04/08       | 2012/04/30                         |
| MTR-03      | Test Receiver              | Rohde & Schwarz      | ESCI                                       | 100300                    | CE        | 2011/04/15       | 2012/04/30                         |
| MLS-07      | LISN(AMN)                  | Schwarzbeck          | NSLK8127                                   | 8127364                   | CE        | 2012/02/09       | 2013/02/28                         |
| MTA-31      | Terminator                 | TME                  | CT-01                                      | -                         | CE        | 2012/01/11       | 2013/01/31                         |
| MCC-13      | Coaxial Cable              | Fujikura             | 3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m) | -                         | CE        | 2012/02/16       | 2013/02/28                         |
| MAT-65      | Attenuator(13dB)           | JFW Industries, Inc. | 50FP-013H2 N                               | -                         | CE        | 2012/01/28       | 2013/01/31                         |

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

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

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

Test Item: CE: Conducted Emission  
RE: Radiated Emission  
AT: Antenna Terminal Conducted test

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