

## TEST REPORT

**APPLICANT** : Kenwood Corporation

**ADDRESS** : 2967-3 Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525, Japan

**PRODUCTS** : GPS NAVIGATION SYSTEM

**MODEL No.** : DNX9960

**SERIAL No.** : --

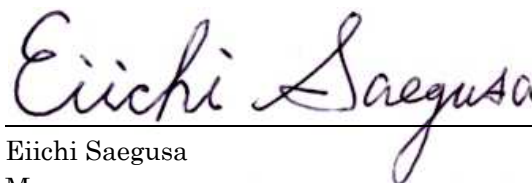
**FCC ID** : IOM39622A  
**IC** : 282C-39622A

**TEST STANDARD** : CFR 47 FCC Rules and Regulations Part 15 Subpart A, B and C  
: Industry Canada RSS-210(Issue 7) and RSS-Gen(Issue 2)

**TESTING LOCATION** : Japan Quality Assurance Organization  
SAFETY & EMC CENTER  
EMC Engineering Department Testing Division  
1-21-25, Kinuta, Setagaya-ku, Tokyo 157-8573, Japan

**TEST RESULTS** : Passed

**DATE OF TEST** : December 26, 2009 - February 1, 2010



Eiichi Saegusa

Manager

Japan Quality Assurance Organization

SAFETY &amp; EMC CENTER

EMC Engineering Dept. Testing Division

1-21-25, Kinuta, Setagaya-ku, Tokyo 157-8573, Japan

- 
- The measurement values stated in Test Report was made with traceable to National Institute of Advanced Industrial Science and Technology (AIST) of Japan and National Institute of Information and Communications Technology (NICT) of Japan.
  - The applicable standard, testing condition and testing method which were used for the tests are based on the request of the applicant.
  - The test results presented in this report relate only to the offered test sample.
  - The contents of this test report cannot be used for the purposes, such as advertisement for consumers.
  - This test report shall not be reproduced except in full without the written approval of JQA.

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**Definitions for Abbreviation and Symbols Used In This Test Report**

“EUT” means Equipment Under the Test.

“AE” means Associated Equipment.

“N/A” means that Not Applicable.

“N/T” means that Not Tested.

☒ indicates that the listed condition, standard or equipment is applicable for this report.

☐ indicates that the listed condition, standard or equipment is not applicable for this report.

**Documentation****1 Test Regulation**

Applied Standard : CFR 47 FCC Rules and Regulations Part 15 Subpart A, B and C  
Industry Canada RSS-210(Issue 7) and RSS-Gen(Issue 2)

Test Procedure : The tests were performed with reference to the FCC Public Notice DA 00-705, released March 30, 2000. The test set-up was made in accordance to the general provisions of ANSI C63.4-2003.

**2 Test Location**

Japan Quality Assurance Organization  
SAFETY & EMC CENTER  
EMC Engineering Department Testing Division  
1-21-25, Kinuta, Setagaya-ku, Tokyo 157-8573, Japan

**3 Recognition of Test Laboratory**

Japan Quality Assurance Organization  
SAFETY & EMC CENTER  
EMC Engineering Department Testing Division  
is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility of Testing Division is registered by the following bodies .

VLAC Code : VLAC-001-1 (Effective through : April 3, 2010)  
NVLAP Lab Code : 200189-0 (Effective through : June 30, 2010)  
VCCI Registration Number : R-002, R-003, C-002, C-966 (Effective through : April 3, 2010)  
FCC Registration Number : 349652 (Date of Listing : April 1, 2010)  
IC Registration Number : 2079-7, 2079-8 (Effective through : August 29, 2011)  
Accredited as conformity assessment body for Japan electrical appliances and material law by METI. (Effective through : February 22, 2010)

**4 Description of the Equipment Under Test**

- |    |                                                    |                                                                                                                                                               |
|----|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Manufacturer                                       | : Kenwood Corporation<br>2967-3 Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525, Japan                                                                          |
| 2  | Products                                           | : GPS NAVIGATION SYSTEM                                                                                                                                       |
| 3  | Trade Name                                         | : KENWOOD                                                                                                                                                     |
| 4  | Model No.                                          | : DNX9960                                                                                                                                                     |
| 5  | Serial No.                                         | : --                                                                                                                                                          |
| 6  | FCC ID                                             | : IOM39622A                                                                                                                                                   |
| 7  | IC                                                 | : 282C-39622A                                                                                                                                                 |
| 8  | Product Type                                       | : Pre-Production                                                                                                                                              |
| 9  | Date of Manufacture                                | : December 2009                                                                                                                                               |
| 10 | Power Rating                                       | : 12.0VDC                                                                                                                                                     |
| 11 | EUT Grounding                                      | : None                                                                                                                                                        |
| 12 | Category                                           | : Transceiver(Spread Spectrum Transmitter(FHSS))                                                                                                              |
| 13 | Modulation Type                                    | : Bluetooth 2.0 + EDR (GFSK, $\pi/4$ DQPSK, 8DPSK)                                                                                                            |
| 14 | Received Date of EUT                               | : December 18, 2009                                                                                                                                           |
| 15 | EUT Authorization                                  | : Certification                                                                                                                                               |
| 16 | Fundamental Frequency<br>Generated/used in the EUT | : 32.768 kHz, 4.3320 MHz, 10.250 MHz, 11.0592 MHz,<br>11.2896 MHz, 12.00 MHz, 13.1072 MHz, 14.31818 MHz,<br>15.6672 MHz, 16.368 MHz, 26.0 MHz and 27.0000 MHz |
| 17 | Operating Frequency Range                          | : 2402 MHz - 2480 MHz                                                                                                                                         |
| 18 | EUT Highest Frequency<br>Used/Generated            | : 2480 MHz                                                                                                                                                    |
| 19 | RF Output Power                                    | : 1.47 dBm(measured value)                                                                                                                                    |
| 20 | Antenna Type                                       | : Film Antenna<br>(Integral Internal antenna : not accessible to the user)                                                                                    |
| 21 | Antenna Gain                                       | : -1.9 dBi                                                                                                                                                    |

## 5 Test Condition

### 5.1 Channel Separation

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments :

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 3                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Antenna           | --                                                      |
| Cable             | 48                                                      |
| Attenuator        | 80                                                      |
| Thermo-Hygrometer | 202                                                     |

### 5.2 Minimum Hopping Channel

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments :

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 3                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Antenna           | --                                                      |
| Cable             | 48                                                      |
| Attenuator        | 80                                                      |
| Thermo-Hygrometer | 202                                                     |

### 5.3 Occupied Bandwidth

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments :

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 3                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Antenna           | --                                                      |
| Cable             | 48                                                      |
| Attenuator        | 80                                                      |
| Thermo-Hygrometer | 202                                                     |

**5.4 Dwell Time**

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments :

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 3                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Antenna           | --                                                      |
| Cable             | 48                                                      |
| Attenuator        | 80                                                      |
| Thermo-Hygrometer | 202                                                     |

**5.5 Peak Output Power (Conduction)**

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments :

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 3                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Cable             | 48                                                      |
| Attenuator        | --                                                      |
| Power Meter       | 210                                                     |
| Power Sensor      | 212                                                     |
| Signal Generator  | --                                                      |
| Thermo-Hygrometer | 202                                                     |

## 5.6 Peak Output Power (Radiation)

The requirements are ☐-Applicable ☐-Tested ☐-Not tested by applicant request.]  
☒-Not Applicable

Test site & instruments :

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | --                                                      |
| Test Receiver     | --                                                      |
| Spectrum Analyzer | --                                                      |
| Antenna           | --                                                      |
| Cable             | --                                                      |
| Attenuator        | --                                                      |
| Power Meter       | --                                                      |
| Power Sensor      | --                                                      |
| Signal Generator  | --                                                      |
| Thermo-Hygrometer | --                                                      |

## 5.7 Peak Power Density (Conduction)

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments :

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 3                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Cable             | 48                                                      |
| Attenuator        | 80                                                      |
| Thermo-Hygrometer | 202                                                     |

### 5.8 Peak Power Density (Radiation)

The requirements are ☐-Applicable ☐-Tested ☐-Not tested by applicant request.]  
☒-Not Applicable

Test site & instruments :

| Type                    | Number of test site & instruments (Refer to Appendix C) |
|-------------------------|---------------------------------------------------------|
| Test Site               | --                                                      |
| Test Receiver           | --                                                      |
| Spectrum Analyzer       | --                                                      |
| Antenna                 | --                                                      |
| Cable                   | --                                                      |
| Attenuator              | --                                                      |
| Digitizing Oscilloscope | --                                                      |
| RF Detector             | --                                                      |
| Signal Generator        | --                                                      |
| Thermo-Hygrometer       | --                                                      |

### 5.9 Spurious Emission (Conduction)

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments :

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 3                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Cable             | 48                                                      |
| Attenuator        | 80                                                      |
| Thermo-Hygrometer | 202                                                     |

### 5.10 Spurious Emissions for Transmitter (Radiation)

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments : (for 9 kHz – 30 MHz)

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 1                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Antenna           | 21                                                      |
| Cable             | 43                                                      |
| Thermo-Hygrometer | 204                                                     |

Test site & instruments : (for 30 MHz – 1000 MHz)

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 1                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Antenna           | 167 168                                                 |
| Cable             | 38                                                      |
| Thermo-Hygrometer | 204                                                     |

Test site & instruments : (for above 1 GHz)

| Type               | Number of test site & instruments (Refer to Appendix C) |
|--------------------|---------------------------------------------------------|
| Test Site          | 1                                                       |
| Test Receiver      | 13                                                      |
| Spectrum Analyzer  | --                                                      |
| Antenna            | 31 32                                                   |
| Cable              | 48 49 195                                               |
| RF Amplifier       | 57                                                      |
| Band Reject Filter | 78                                                      |
| High Pass Filter   | 79                                                      |
| Thermo-Hygrometer  | 204                                                     |

### 5.11 AC Power Line Conducted Emissions for Transmitter

The requirements are ☐-Applicable ☐-Tested ☐-Not tested by applicant request.]  
☒-Not Applicable

Test site & instruments :

| Type                | Number of test site & instruments (Refer to Appendix C) |
|---------------------|---------------------------------------------------------|
| Test Site           | --                                                      |
| Test Receiver       | --                                                      |
| Spectrum Analyzer   | --                                                      |
| Cable               | --                                                      |
| AMN(for EUT)        | --                                                      |
| AMN(for Peripheral) | --                                                      |
| Termination         | --                                                      |
| Thermo-Hygrometer   | --                                                      |

### 5.12 RF Exposure Compliance

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments :

| Type | Number of test site & instruments (Refer to Appendix C) |
|------|---------------------------------------------------------|
| --   | --                                                      |

### 5.13 Spurious Emissions for Receiver (Radiation)

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

Test site & instruments : (for 9 kHz – 30 MHz)

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 1                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Antenna           | 21                                                      |
| Cable             | 43                                                      |
| Thermo-Hygrometer | 204                                                     |

Test site & instruments : (for 30 MHz – 1000 MHz)

| Type              | Number of test site & instruments (Refer to Appendix C) |
|-------------------|---------------------------------------------------------|
| Test Site         | 1                                                       |
| Test Receiver     | 13                                                      |
| Spectrum Analyzer | --                                                      |
| Antenna           | 167 168                                                 |
| Cable             | 38                                                      |
| Thermo-Hygrometer | 204                                                     |

Test site & instruments : (for above 1 GHz)

| Type               | Number of test site & instruments (Refer to Appendix C) |
|--------------------|---------------------------------------------------------|
| Test Site          | 1                                                       |
| Test Receiver      | 13                                                      |
| Spectrum Analyzer  | --                                                      |
| Antenna            | 31 32                                                   |
| Cable              | 48 49 195                                               |
| RF Amplifier       | 57                                                      |
| Band Reject Filter | --                                                      |
| High Pass Filter   | --                                                      |
| Thermo-Hygrometer  | 204                                                     |

**5.14 AC Power Line Conducted Emissions for Receiver**

The requirements are ☐-Applicable ☐-Tested ☐-Not tested by applicant request.]  
☒-Not Applicable

Test site & instruments :

| Type                | Number of test site & instruments (Refer to Appendix C) |
|---------------------|---------------------------------------------------------|
| Test Site           | --                                                      |
| Test Receiver       | --                                                      |
| Spectrum Analyzer   | --                                                      |
| Cable               | --                                                      |
| AMN(for EUT)        | --                                                      |
| AMN(for Peripheral) | --                                                      |
| Termination         | --                                                      |
| Thermo-Hygrometer   | --                                                      |

## 6 Preliminary Test and Test Setup

### 6.1 Channel Separation

The EUT have its hopping function enabled.

Use the following spectrum analyzer settings:

Span = wide enough to capture the peaks of two adjacent channels

Resolution (or IF) Bandwidth (RBW)  $\geq 1\%$  of the span

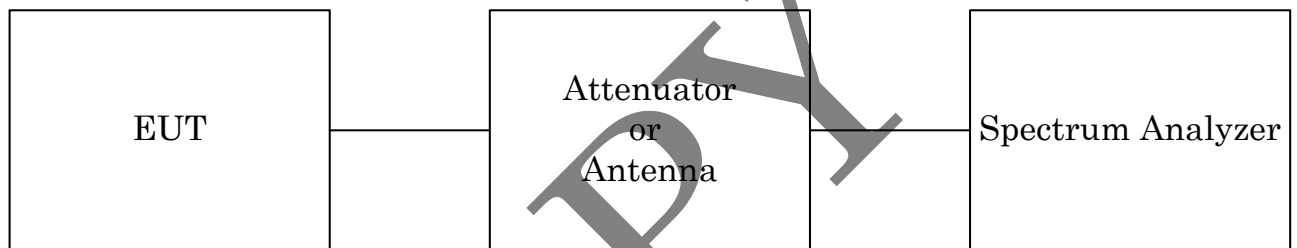
Video (or Average) Bandwidth (VBW)  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.



### 6.2 Minimum Hopping Channel

The EUT have its hopping function enabled.

Use the following spectrum analyzer settings:

Span = the frequency band of operation

RBW  $\geq 1\%$  of the span

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. It may prove necessary to break the span up to sections, in order to clearly show all of the hopping frequencies.

Measurement setup is same as sub-clause 6.1.

### 6.3 Occupied Bandwidth

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 6 dB or 20 dB bandwidth, centered on a channel

RBW  $\geq$  1% of the 6 dB or 20 dB bandwidth

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 6 dB or 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 6 dB or 20 dB bandwidth of the emission. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation.

Measurement setup is same as sub-clause 6.1.

### 6.4 Dwell Time

The EUT must have its hopping function enabled.

Use the following spectrum analyzer settings:

Span = zero span, centered on a hopping channel

RBW  $\leq$  Channel Separation

VBW  $\geq$  RBW

Sweep = as necessary to capture the entire dwell time per hopping channel

Detector function = peak

Trace = max hold

If possible, use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation.

Measurement setup is same as sub-clause 6.1.

## 6.5 Peak Output Power (Conduction)

In case of conducted measurements, the transmitter shall be connected to the measuring equipment via a suitable attenuator.

The measurement shall be performed using normal operation of the equipment with the test modulation applied.

It is measured the Peak Power Analyzer, that have had the RBW greater than 6 dB bandwidth of the emission.

The test procedure shall be as follows;

- using a suitable means, the output of the transmitter shall be connected to the peak power analyzer;
- the peak power analyzer is made into a suitable condition for the measurement;
- The observed value shall be recorded;

The measurement shall be repeated at the lowest, the middle, and the highest frequency of the stated frequency range.



## 6.6 Peak Power Density (Conduction)

Use the following spectrum analyzer settings:

Span = approximately 5 times the 20 dB bandwidth, centered on a channel

RBW = Specified Value

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.

Measurement setup is same as sub-clause 6.1.

## 6.7 Peak Output Power and Peak Power Density (Radiation)

The radiated power output and the field strength of the transmitter radiation were measured at the distance at 3 meters away from the transmitter under test which was placed on a turntable 0.8 meter in height. The receiving antenna was oriented for vertical polarization and raised or lowered through 1 to 4 meters until the maximum signal level was detected on the measuring instrument. The transmitter under test was rotated through 360° until the maximum signal was received. The measurement was repeated with the receiving antenna in the horizontal polarization.

The transmitter was removed and replaced with the antenna. The center of the antenna was placed approximately at the same location as the center of the transmitter. The antenna was fed with a signal generator, and the output level of the signal generator was adjusted to obtain the previously recorded maximum reading at the particular frequency and recorded. This procedure was repeated with the receiving antenna and the antenna in the orthogonal polarization.

The input power into the antenna was measured using the power meter. The level of the emissions in dBm(EIRP) were calculated from the following formula:

$$\text{Transmitter Power[dBm]}(\text{EIRP}) = (\text{Meter Reading of Power Meter}) + (\text{Antenna Gain[dBi]})$$

Use the following spectrum analyzer settings:

Span = approximately 5 times the 20 dB bandwidth, centered on a channel

RBW : Greater than the 20 dB bandwidth of the emission being measured or Specified Value

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.

## 6.8 Spurious Emission (Conduction)

### Band-edge Compliance of RF Conducted Emissions

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation

RBW  $\geq$  1% of the span

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. Set the marker on the emission at the band edge, or on the highest modulation product outside of the band, if this level is greater than that at the band edge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission.

Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

### Spurious RF Conducted Emissions

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

RBW = 100 kHz

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.

Measurement setup is same as sub-clause 6.1.

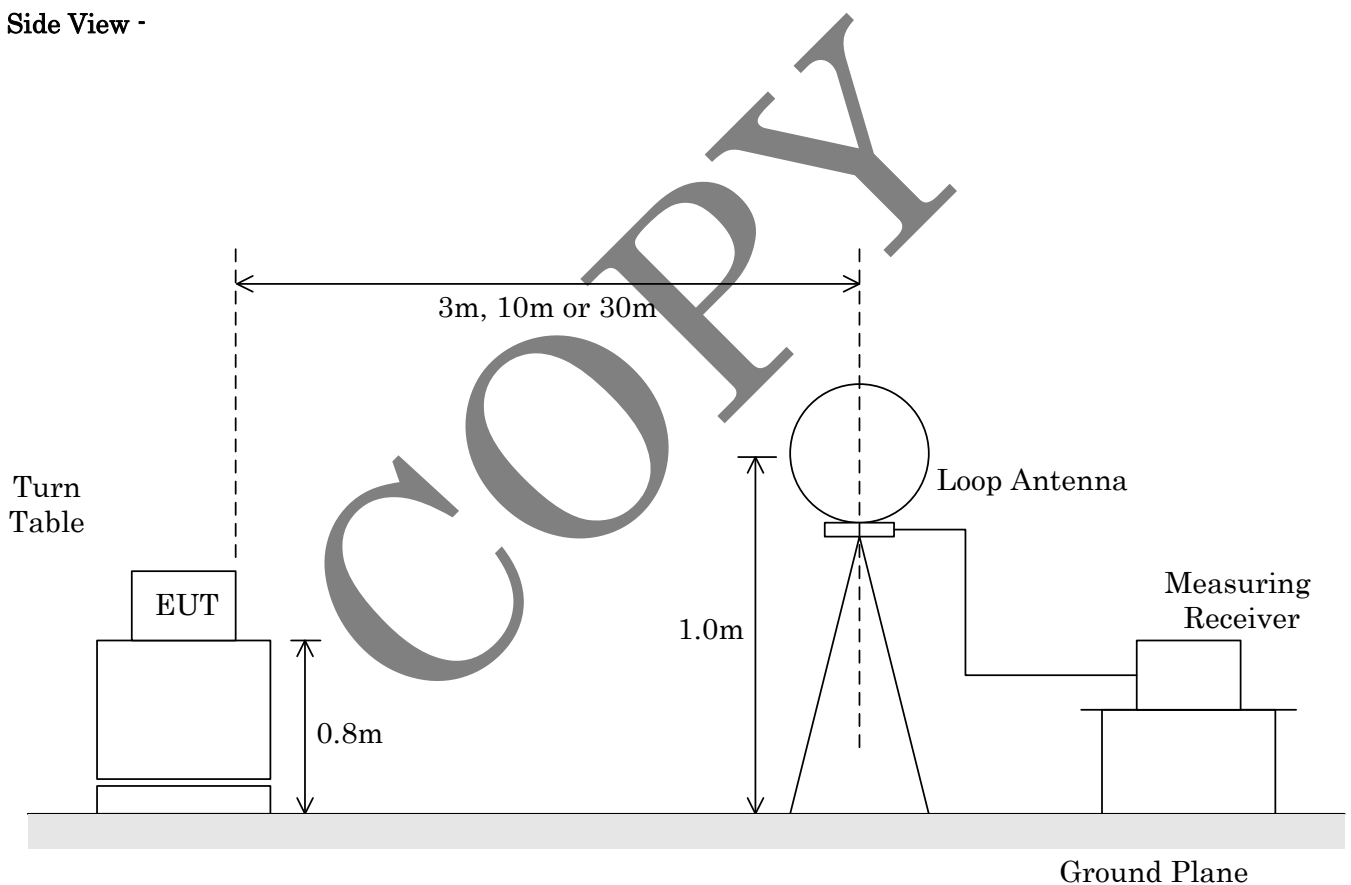
## 6.9 Spurious Emissions (Radiation)

### 6.9.1 Radiated Emission ( 9 kHz – 30 MHz)

According to description of ANSI C63.4-2003 sec.13.1.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

- Side View -

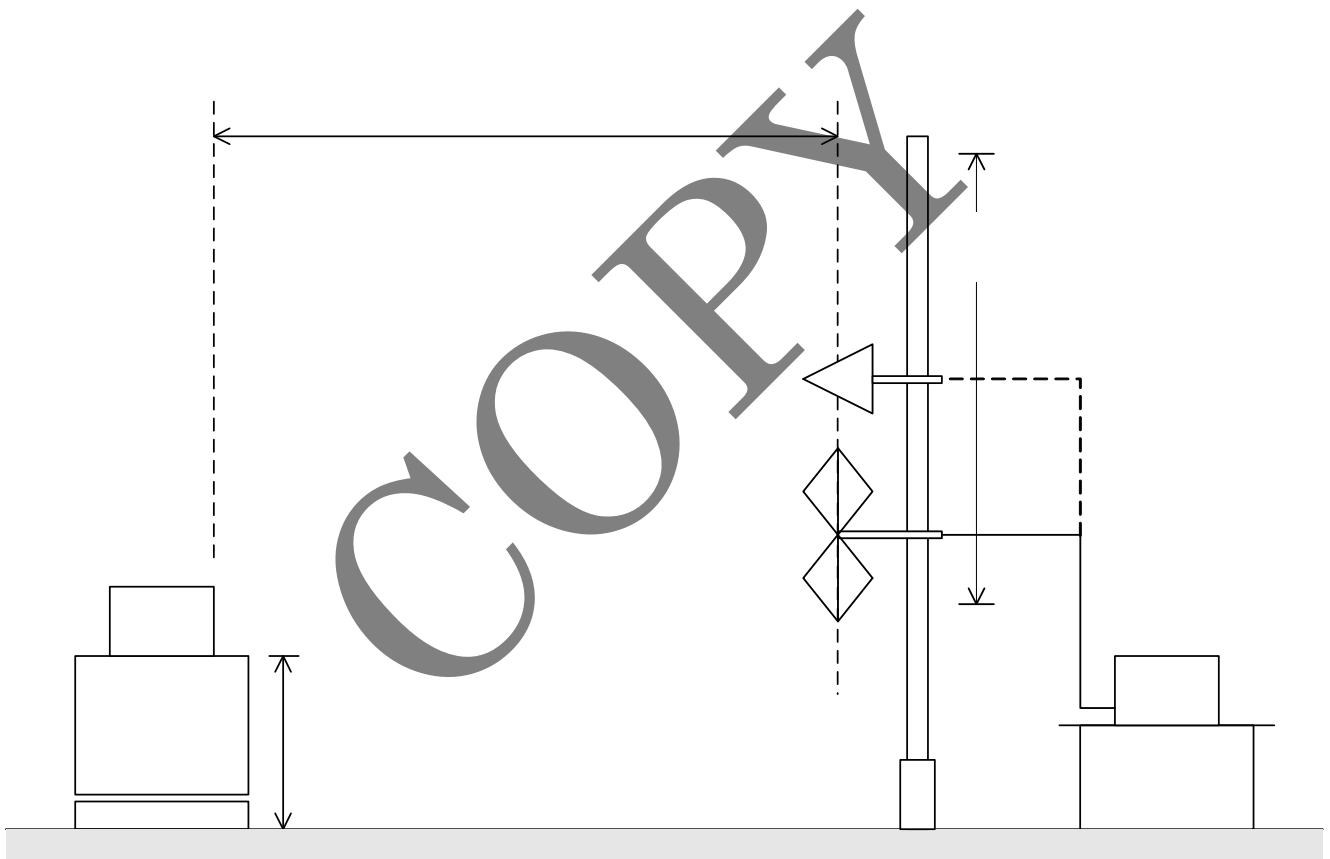


## 6.9.2 Radiated Emission (30 MHz – 1000 MHz)

According to description of ANSI C63.4-2003 sec.13.1.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

- Side View -

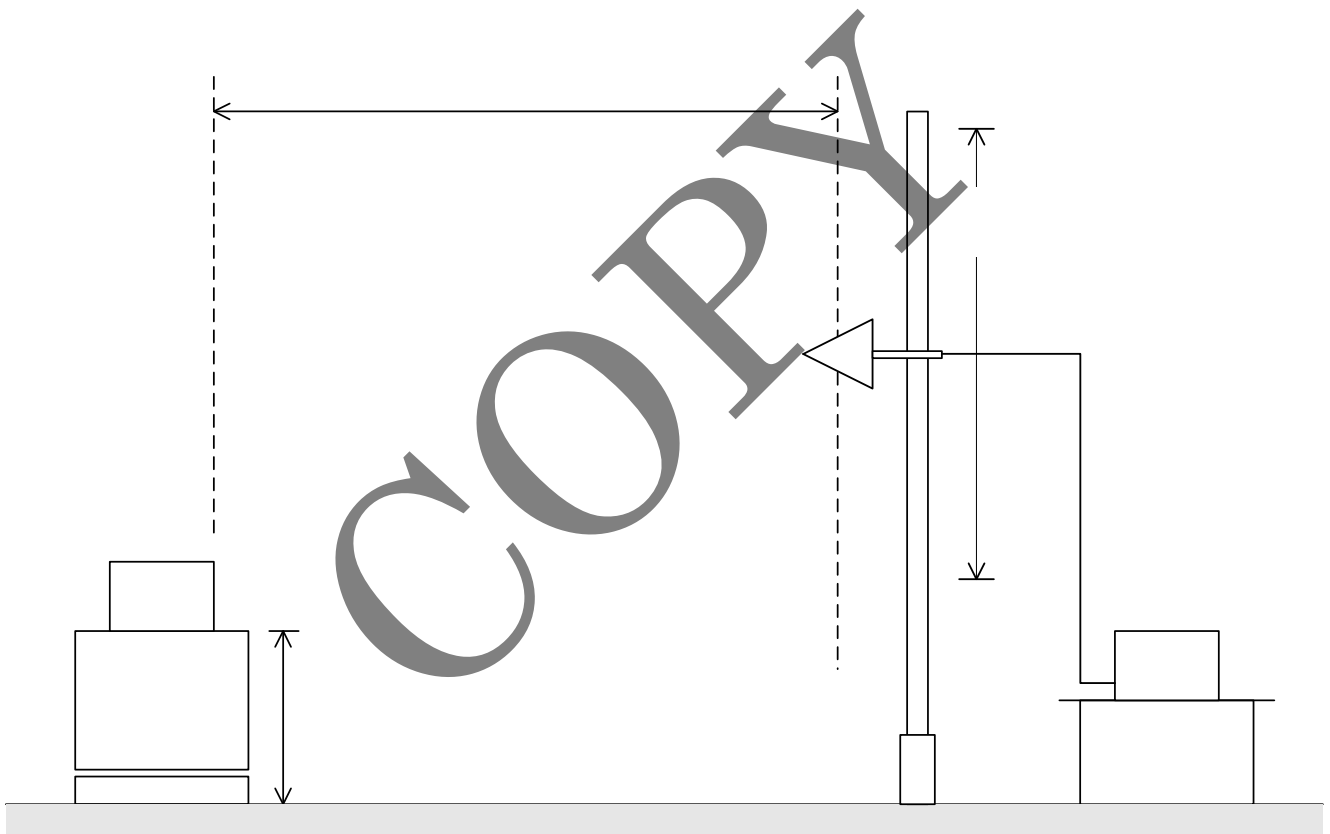


### 6.9.3 Radiated Emission (above 1 GHz)

According to description of ANSI C63.4-2003 sec.13.1.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

- Side View -



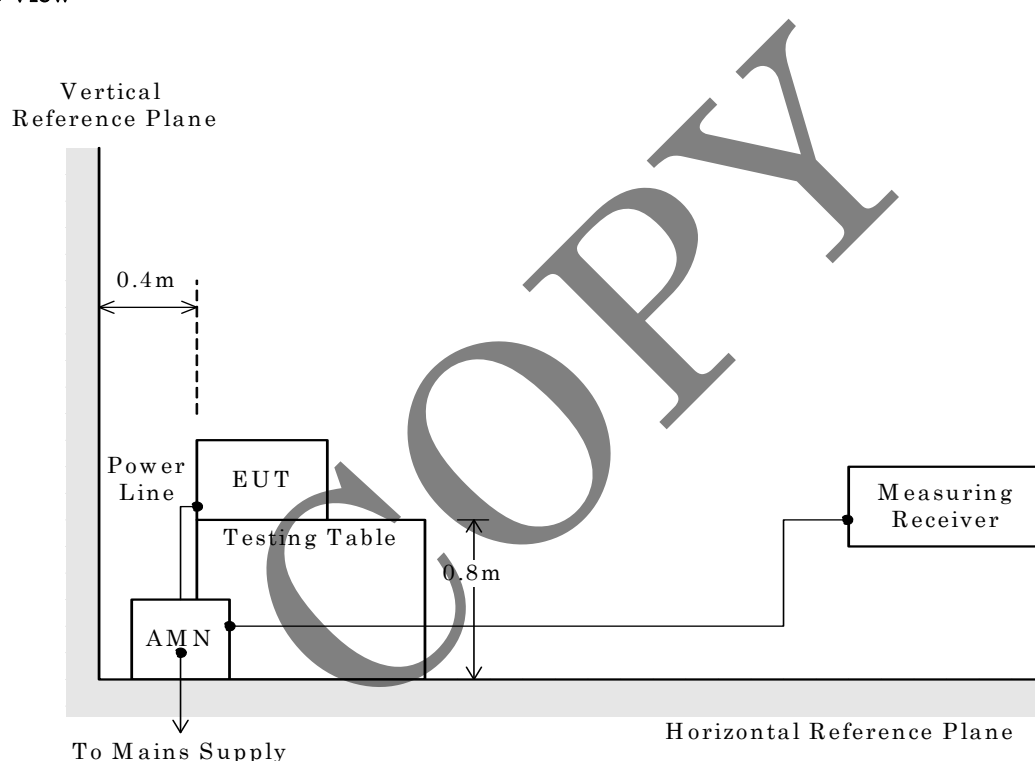
## 6.10 AC Power Line Conducted Emissions (150 kHz – 30 MHz)

According to description of ANSI C63.4-2003 sec.13.1.3, the AC power line preliminary conducted emissions measurements were carried out.

The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements.

### - Side View -



\* AMN : Artificial Mains Network

## 6.11 RF Exposure Compliance

According to description of FCC/OET Bulletin 65 Appendix A, the MPE was demonstrated.

or

According to description of FCC/OET Bulletin 65 Supplement C (2001), the measurement of SAR were carried out.

**7 Equipment Under Test Modification**

- ☒ No modifications were conducted by JQA to achieve compliance to the limitations.  
☐ To achieve compliance to the limitations, the following changes were made by JQA during the compliance test.

The modifications will be implemented in all production models of this equipment.

Applicant : Not Applicable

Date : Not Applicable

Typed Name : Not Applicable

Position : Not Applicable

Signatory : Not Applicable

**8 Responsible Party**Responsible Party of Test Item (Product)

Responsible Party :

Contact Person :

\_\_\_\_\_  
Signatory

**9 Deviation from Standard**

- ☒ No deviations from the standard described in clause 1.  
☐ The following deviations were employed from the standard described in clause 1.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**10 Test Results****10.1 Channel Separation [§15.247(a)(1), RSS-210 A8.1(b)]**

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Uncertainty of measurement results

± 0.9 %(2σ)Remarks : \_\_\_\_\_  
\_\_\_\_\_**10.2 Minimum Hopping Channel [§15.247(a)(1)(iii), RSS-210 A8.1(d)]**

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Remarks : \_\_\_\_\_  
\_\_\_\_\_**10.3 Occupied Bandwidth [§15.247(a)(2), RSS-210 A8.2(a)]**

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Uncertainty of measurement results

± 0.9 %(2σ)Remarks : \_\_\_\_\_  
\_\_\_\_\_

#### 10.4 Dwell Time [§15.247(a)(1)(iii) / (g), RSS-210 A8.1(d)]

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable  
☒-Passed ☐-Failed ☐-Not judged

Uncertainty of measurement results

± 0.9 %(2σ)

Remarks : \_\_\_\_\_  
 \_\_\_\_\_

#### 10.5 Peak Output Power (Conduction) [§15.247(b)(3), RSS-210 A8.4(4)]

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable  
☒-Passed ☐-Failed ☐-Not judged

Uncertainty of measurement results

|          |     |              |        |
|----------|-----|--------------|--------|
| 0.1-1000 | MHz | <u>± 0.6</u> | dB(2σ) |
| 1-18     | GHz | <u>± 0.7</u> | dB(2σ) |
| 18-40    | GHz | <u>± 1.3</u> | dB(2σ) |

Remarks : \_\_\_\_\_  
 \_\_\_\_\_

#### 10.6 Peak Output Power (Radiation) [§15.247(b)(1), RSS-210 A8.4.(2)]

The requirements are ☐-Applicable ☐-Tested ☐-Not tested by applicant request.]  
☒-Not Applicable  
☐-Passed ☐-Failed ☐-Not judged

Uncertainty of measurement results

|         |     |              |        |
|---------|-----|--------------|--------|
| 30-1000 | MHz | <u>± 1.2</u> | dB(2σ) |
| 1-18    | GHz | <u>± 2.0</u> | dB(2σ) |

Remarks : \_\_\_\_\_  
 \_\_\_\_\_

### 10.7 Peak Power Density (Conduction) [§15.247(d), RSS-210 A8.2(b)]

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Uncertainty of measurement results

|          |     |              |        |
|----------|-----|--------------|--------|
| 0.1-1000 | MHz | <u>± 1.7</u> | dB(2σ) |
| 1-18     | GHz | <u>± 1.7</u> | dB(2σ) |
| 18-40    | GHz | <u>± 2.1</u> | dB(2σ) |

Remarks :

### 10.8 Peak Power Density (Radiation) [§15.247(d), RSS-210 A8.2(b)]

The requirements are ☐-Applicable ☐-Tested ☐-Not tested by applicant request.]  
☒-Not Applicable

☐-Passed ☐-Failed ☐-Not judged

Uncertainty of measurement results

|         |     |              |        |
|---------|-----|--------------|--------|
| 30-1000 | MHz | <u>± 1.2</u> | dB(2σ) |
| 1-18    | GHz | <u>± 2.0</u> | dB(2σ) |

Remarks :

### 10.9 Spurious Emissions (Conduction) [§15.247(c), RSS-210 A8.5]

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Uncertainty of measurement results

|          |     |              |        |
|----------|-----|--------------|--------|
| 0.1-1000 | MHz | <u>± 1.7</u> | dB(2σ) |
| 1-18     | GHz | <u>± 1.7</u> | dB(2σ) |
| 18-40    | GHz | <u>± 2.1</u> | dB(2σ) |

Remarks :

**10.10 Spurious Emissions for Transmitter (Radiation) [§15.247(c) / §15.35(b) / §15.209(a), RSS-210 A8.5]**The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]☐-Not Applicable☒-Passed☐-Failed☐- Not judged

For the Frequency Range below 1000 MHz

Min. Limit Margin 3.1 dB at 324.01 MHzMax. Limit Excess -- dB at -- MHz

For the Frequency Range above 1000 MHz

Min. Limit Margin(Average) > 13.7 dB at 7440.00 MHzMin. Limit Margin(Peak) > 20.7 dB at 7440.00 MHzMax. Limit Excess -- dB at -- MHz

Uncertainty of measurement results

|          |     |              |               |
|----------|-----|--------------|---------------|
| 30-300   | MHz | <u>± 4.6</u> | <u>dB(2σ)</u> |
| 300-1000 | MHz | <u>± 4.5</u> | <u>dB(2σ)</u> |
| 1-18     | GHz | <u>± 5.0</u> | <u>dB(2σ)</u> |
| 18-40    | GHz | <u>± 5.3</u> | <u>dB(2σ)</u> |

Remarks : The measurement results is within the range of measurement uncertainty.

### 10.11 AC Power Line Conducted Emissions for Transmitter [§15.207(a), RSS-Gen 7.2.2]

The requirements are ☐-Applicable ☐-Tested ☐-Not tested by applicant request.]  
☒-Not Applicable

☐-Passed ☐-Failed ☐- Not judged

Min. Limit Margin (QP)     --     dB at     --     MHz

Min. Limit Margin (AVE)     --     dB at     --     MHz

Max. Limit Exceeding (QP)     --     dB at     --     MHz

Max. Limit Exceeding (AVE)     --     dB at     --     MHz

Uncertainty of measurement results

    ± 2.9     dB(2σ)

Remarks : The EUT does not have AC power port.

### 10.12 RF Exposure Compliance [§15.247(b)(5), RSS-Gen 5.5]

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Remarks :

## 10.13 Spurious Emissions for Receiver (Radiation) [§15.109(a), RSS-Gen 6(a)]

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]  
☐-Not Applicable

☒-Passed ☐-Failed ☐- Not judged

For the Frequency Range below 1000 MHz

Min. Limit Margin 3.2 dB at 324.01 MHz

Max. Limit Excess -- dB at -- MHz

For the Frequency Range above 1000 MHz

Min. Limit Margin(Average) > 20.3 dB at 2800.00 MHz

Min. Limit Margin(Peak) > 29.5 dB at 2800.00 MHz

Max. Limit Excess -- dB at -- MHz

Uncertainty of measurement results

|          |     |              |        |
|----------|-----|--------------|--------|
| 30-300   | MHz | <u>± 4.6</u> | dB(2σ) |
| 300-1000 | MHz | <u>± 4.5</u> | dB(2σ) |
| 1-18     | GHz | <u>± 5.0</u> | dB(2σ) |
| 18-40    | GHz | <u>± 5.3</u> | dB(2σ) |

Remarks : The measurement results is within the range of measurement uncertainty.

#### 10.14 AC Power Line Conducted Emissions for Receiver [15.107(a), RSS-Gen 7.2.2]

The requirements are ☐-Applicable ☐-Tested ☐-Not tested by applicant request.]  
☒-Not Applicable

☐-Passed ☐-Failed ☐- Not judged

Min. Limit Margin (QP)     --     dB at     --     MHz

Min. Limit Margin (AVE)     --     dB at     --     MHz

Max. Limit Exceeding (QP)     --     dB at     --     MHz

Max. Limit Exceeding (AVE)     --     dB at     --     MHz

Uncertainty of measurement results

    ± 2.9     dB(2σ)

Remarks : The EUT does not have AC power port.

**11 Summary****General Remarks**

The EUT was tested according to the requirements of CFR 47 FCC Rules and Regulations Part 15 and RSS-210 under the test configuration, as shown in clause 12 to 14.

The conclusion for the test items of which are required by the applied regulation is indicated under the test result.

**Test Result :**

The "as received" sample;

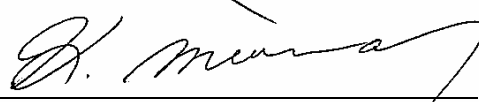
- ☒-fulfill the test requirements of the regulation mentioned on clause 1.  
☐-doesn't fulfill the test requirements of the regulation mentioned on clause 1.

Reviewed by:

Tested by:



Shigeru Osawa  
Deputy Manager  
SAFETY & EMC CENTER  
EMC Engineering Dept. Testing Division



Katsunori Miura  
Assistant Manager  
SAFETY & EMC CENTER  
EMC Engineering Dept. Testing Division

## 12 Operating Condition

Power Supply Voltage : 12.0 VDC operate with Car Battery  
This operational condition is mentioned by applicant.

### Operation Mode

The EUT is set with the test mode, the specification of the test mode is as following.

- (1) TX Mode ( 0ch : 2402MHz)
- (2) TX Mode (39ch : 2441MHz)
- (3) TX Mode (78ch : 2480MHz)
- (4) TX Mode (Hopping)
- (5) RX Mode

Used application to controlled and support equipment :

The operation of the EUT is carried out by directions of a client.

The detail is as following.

Frequency : 2402 MHz, 2441 MHz, 2480 MHz and Hopping

Packet Condition : DH1, DH3, DH5, 2-DH5 and 3-DH5

DH1, DH3, and DH5 : GFSK

2-DH5 :  $\pi/4$ DQPSK

3-DH5 : 8DPSK

**13 Test Configuration**

The equipment under test consists of :

| Sign | Item                  | Manufacturer        | Model No. | Serial No. | FCC ID / IC             |
|------|-----------------------|---------------------|-----------|------------|-------------------------|
| A    | GPS NAVIGATION SYSTEM | Kenwood Corporation | DNX9960   | None       | IOM39622A / 282C-39622A |

The auxiliary equipment used for testing :

| Sign | Item                             | Manufacturer        | Model No.  | Serial No. | FCC ID / IC |
|------|----------------------------------|---------------------|------------|------------|-------------|
| B    | GPS Antenna                      | Kenwood Corporation | --         | --         | None        |
| C    | XM Satellite Radio Interface BOX | Kenwood Corporation | KCA-XM100V | 80400099   | None        |
| D    | Microphone                       | Kenwood Corporation | --         | --         | None        |
| E    | Remote Controller                | Kenwood Corporation | RC-DV340   | --         | None        |
| F    | Remote Switch                    | --                  | --         | --         | None        |

Type of Cable:

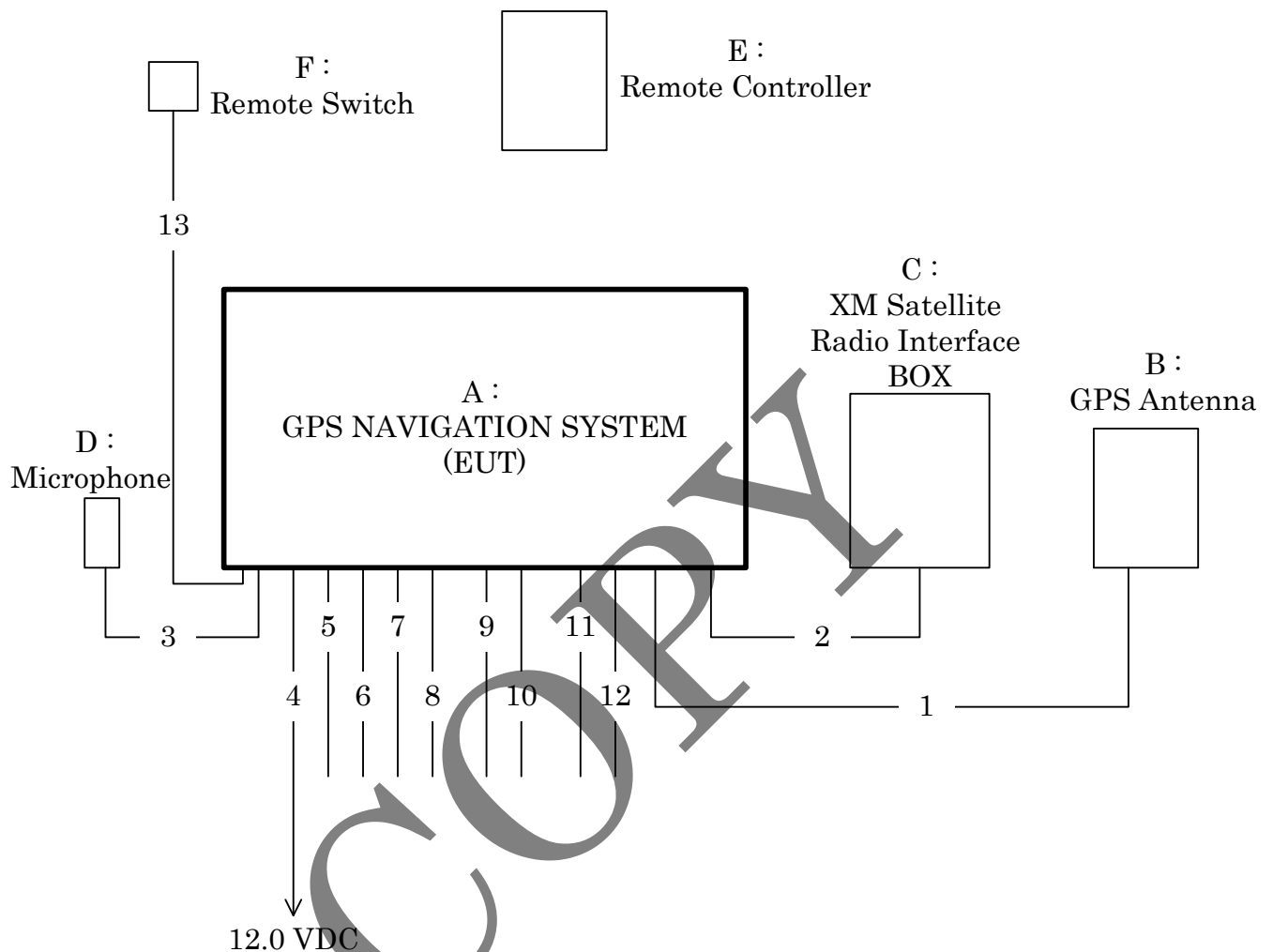
| No. | Description                      | Identification (Manu. Etc.) | Connector Shielded | Cable Shielded | Ferrite Core | Length (m) |
|-----|----------------------------------|-----------------------------|--------------------|----------------|--------------|------------|
| 1   | GPS Antenna cable                | --                          | No                 | No             | No           | 1.50       |
| 2   | XM Satellite Radio Antenna cable | --                          | Yes                | Yes            | No           | 1.50       |
| 3   | Microphone cable                 | --                          | No                 | No             | No           | 3.00       |
| 4   | ACC+BATT+Ground cable            | --                          | No                 | No             | No           | 0.20(*1)   |
| 5   | PPK cable                        | --                          | No                 | No             | No           | 1.90       |
| 6   | Reverse cable                    | --                          | No                 | No             | No           | 10.00      |
| 7   | FM/AM Antenna cable              | --                          | No                 | No             | No           | 0.20       |
| 8   | BUS Control cable                | --                          | No                 | No             | No           | 0.20(*2)   |
| 9   | AUDIO cable                      | --                          | No                 | No             | No           | 0.20(*3)   |
| 10  | AV cable                         | --                          | No                 | No             | No           | 0.20(*3)   |
| 11  | USB cable                        | --                          | Yes                | Yes            | No           | 1.20       |
| 12  | Connection cable                 | --                          | Yes                | Yes            | No           | 3.00       |
| 13  | Remote Switch cable              | --                          | No                 | No             | No           | 3.00       |

Note : (\*1) These cables were connected to the extension cables.

(\*2) The cables consist of several cables.

(\*3) The cables consist of several cables. And, these cables were connected to the extension cables.

## 14 Equipment Under Test Arrangement (Drawings)



## Appendix A : Test Data

### A.1 Channel Separation

Date : January 5, 2010

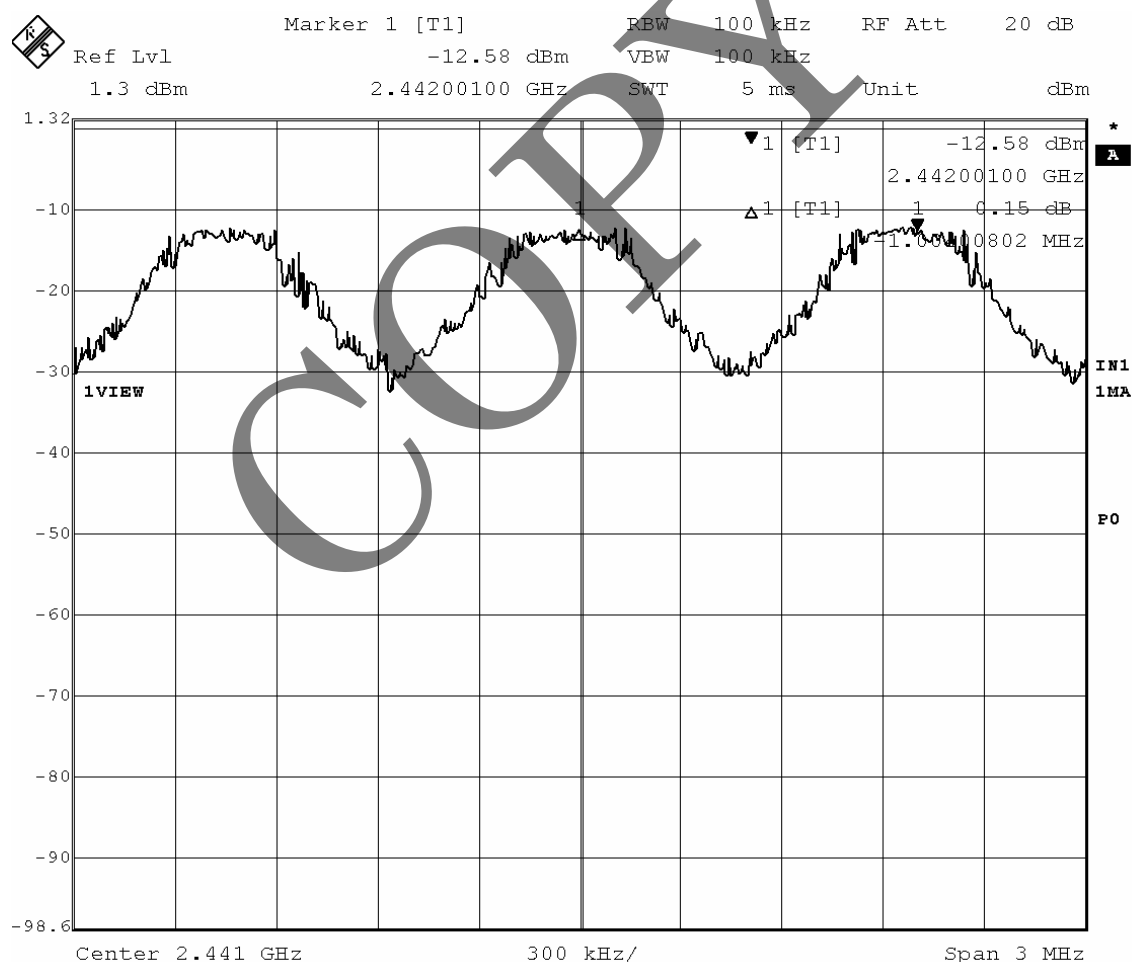
Temp. : 15 °C Humi. : 32 %

Mode of EUT : TX Mode (Hopping)

Test Port : Temporary antenna connector

| Channel Separation<br>(kHz) | Limit                                                         |
|-----------------------------|---------------------------------------------------------------|
| 1004.008                    | 25 kHz or two-thirds of 20 dB bandwidth of hopping channel(*) |

Note : (\*) It means that there is an alternative limit, in the case of frequency hopping systems operating in the 2400 - 2483.5 MHz band with an output power no greater than 125mW.



## A.2 Minimum Hopping Channel

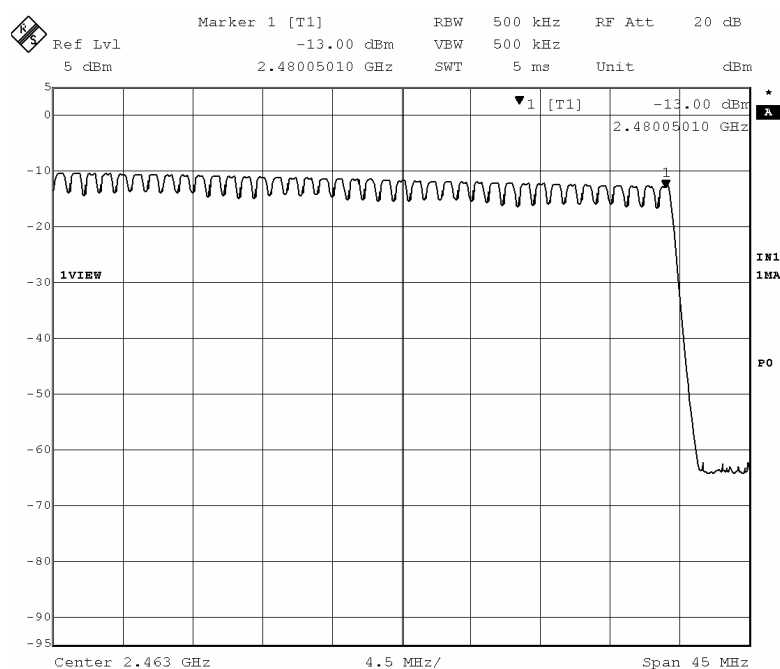
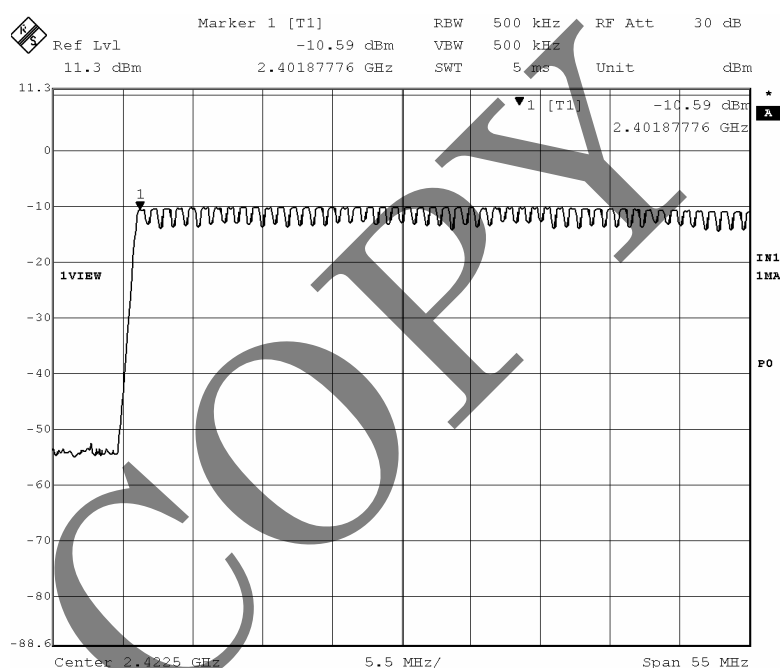
Date : January 5, 2010

Temp. : 15 °C Humi. : 32 %

Mode of EUT : TX Mode (Hopping)

Test Port : Temporary antenna connector

| Hopping Channel | Limit |
|-----------------|-------|
| 79              | 15    |



## A.3 Occupied Bandwidth

Date : January 5, 2010  
 Temp. : 15 °C Humi. : 32 %

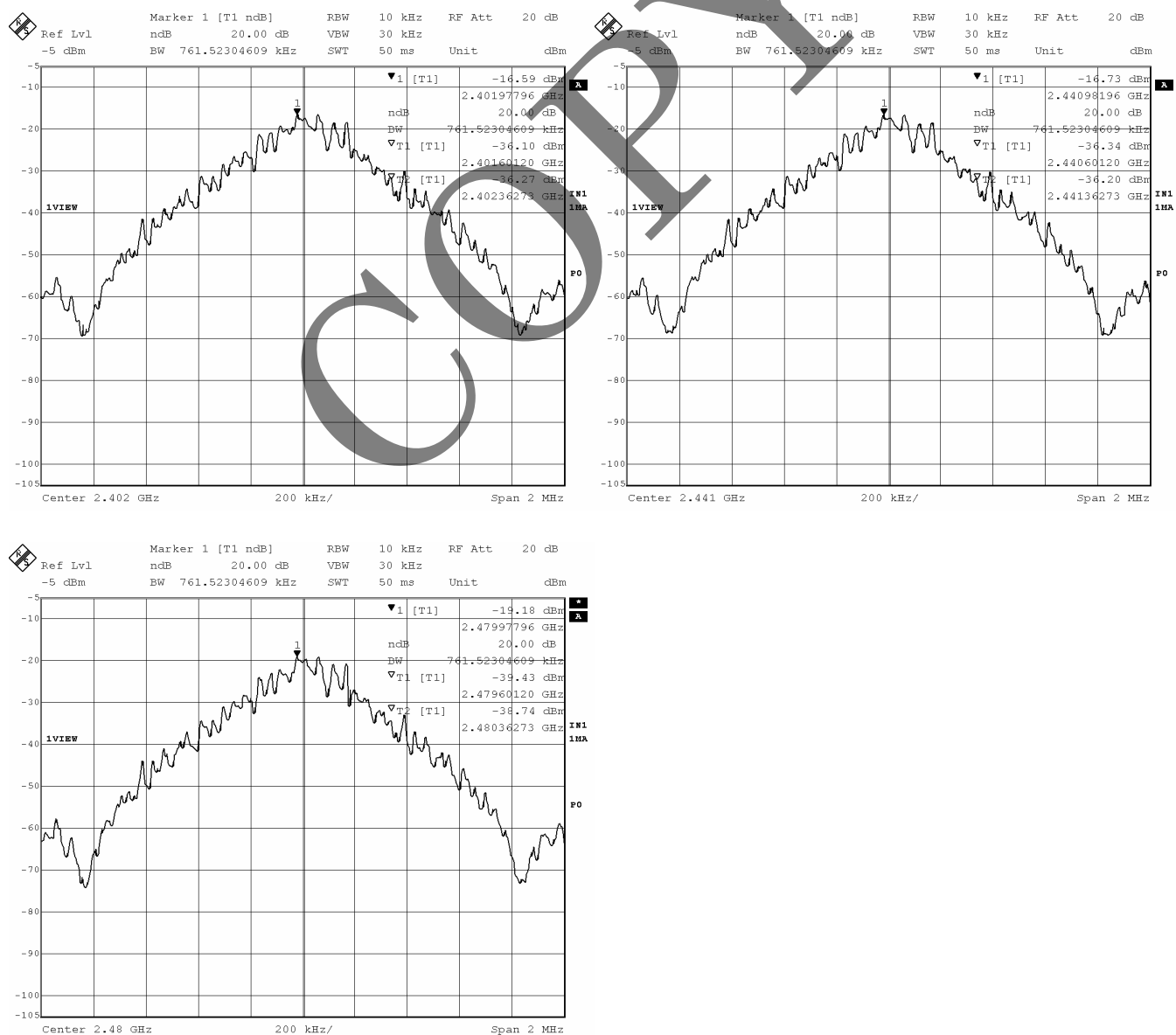
### A.3.1 Packet Setting : DH5(GFSK)

#### (1) 20dB Bandwidth

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Bandwidth(kHz) | Limit(kHz) |
|-----------------|----------------|------------|
| 2402            | 761.52         | N/A        |
| 2441            | 761.52         | N/A        |
| 2480            | 761.52         | N/A        |

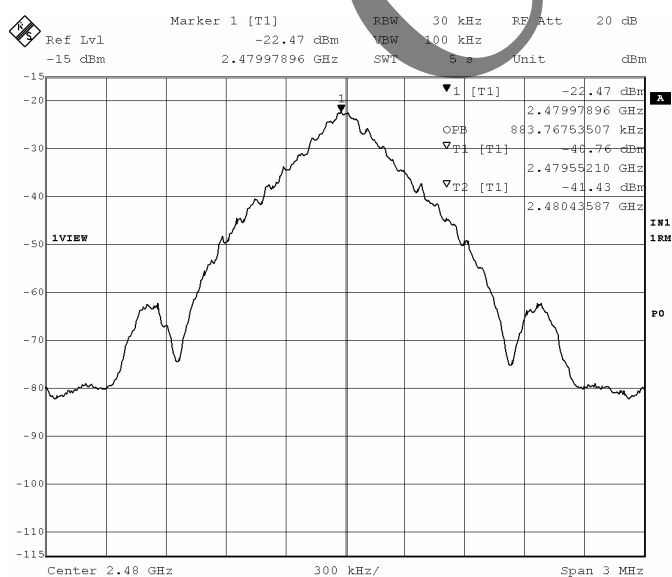
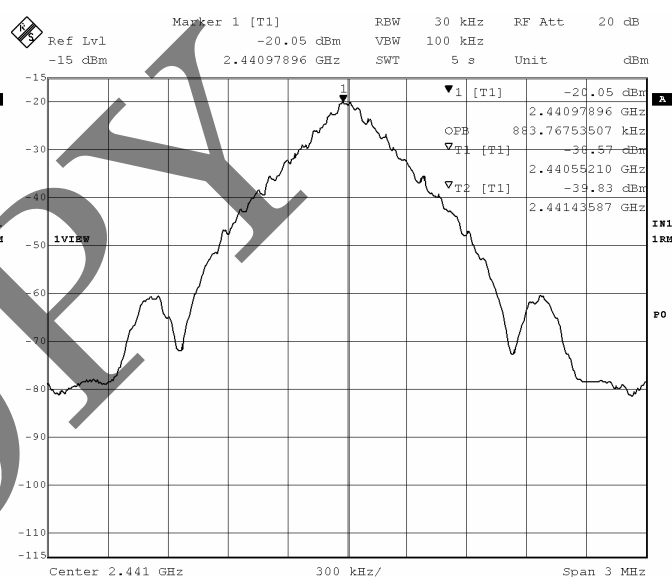
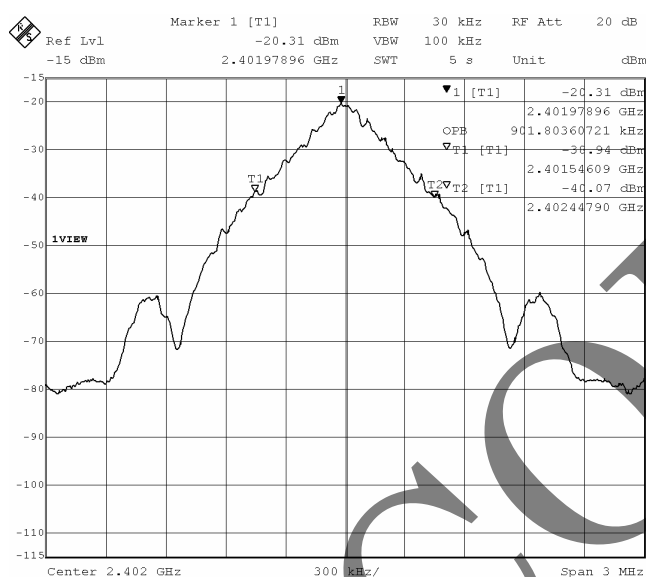


## (2) 99% Bandwidth

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Bandwidth(kHz) | Limit(kHz) |
|-----------------|----------------|------------|
| 2402            | 901.80         | N/A        |
| 2441            | 883.77         | N/A        |
| 2480            | 883.77         | N/A        |



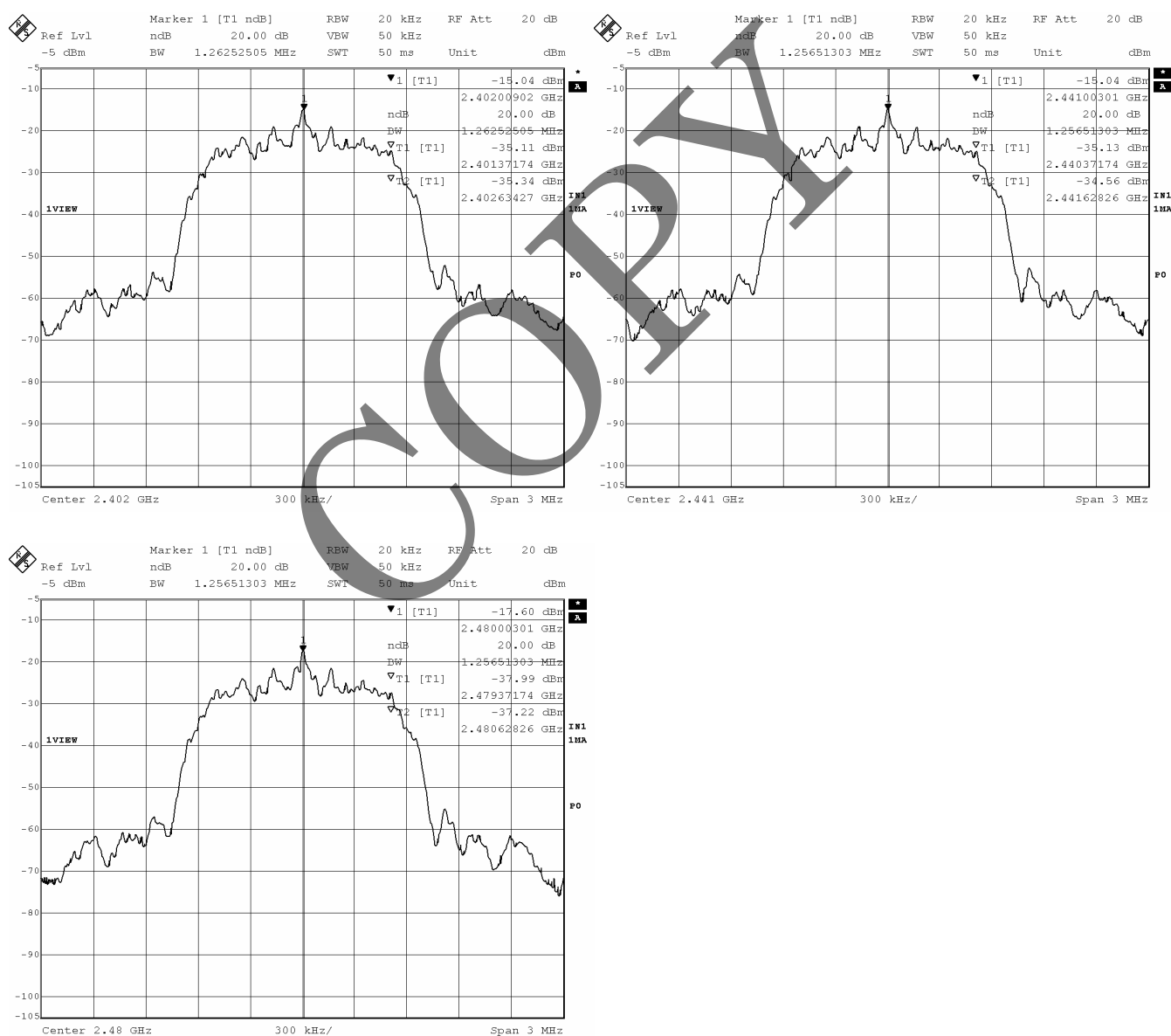
## A.3.2 Packet Setting : 2-DH5( $\pi$ /4DQPSK)

### (1) 20dB Bandwidth

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Bandwidth(kHz) | Limit(kHz) |
|-----------------|----------------|------------|
| 2402            | 1262.53        | N/A        |
| 2441            | 1256.51        | N/A        |
| 2480            | 1256.51        | N/A        |

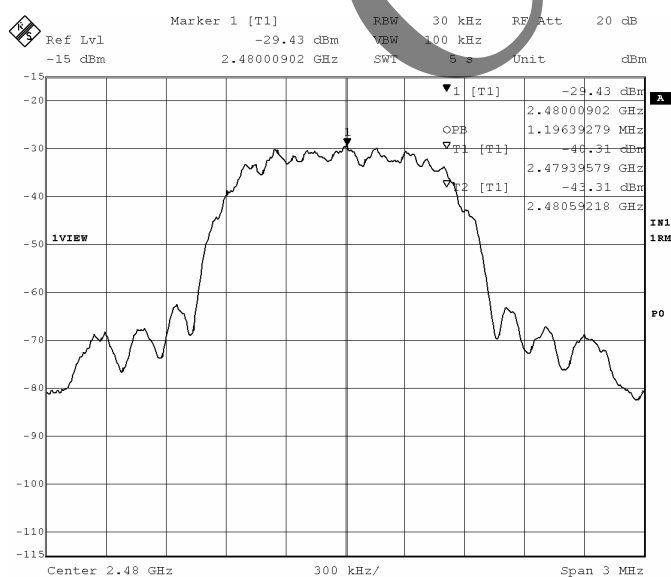
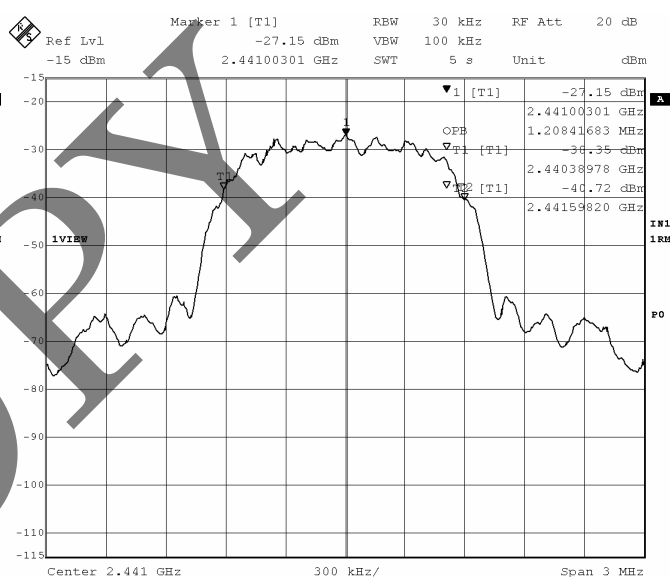
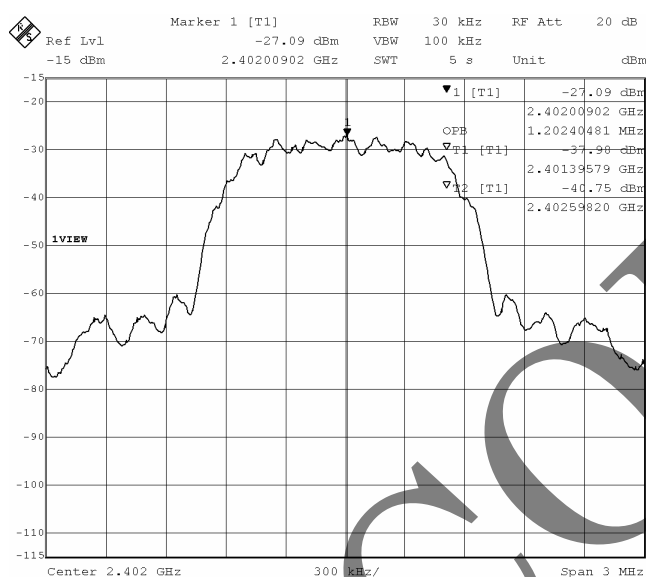


## (2) 99% Bandwidth

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Bandwidth(kHz) | Limit(kHz) |
|-----------------|----------------|------------|
| 2402            | 1202.40        | N/A        |
| 2441            | 1208.42        | N/A        |
| 2480            | 1196.39        | N/A        |



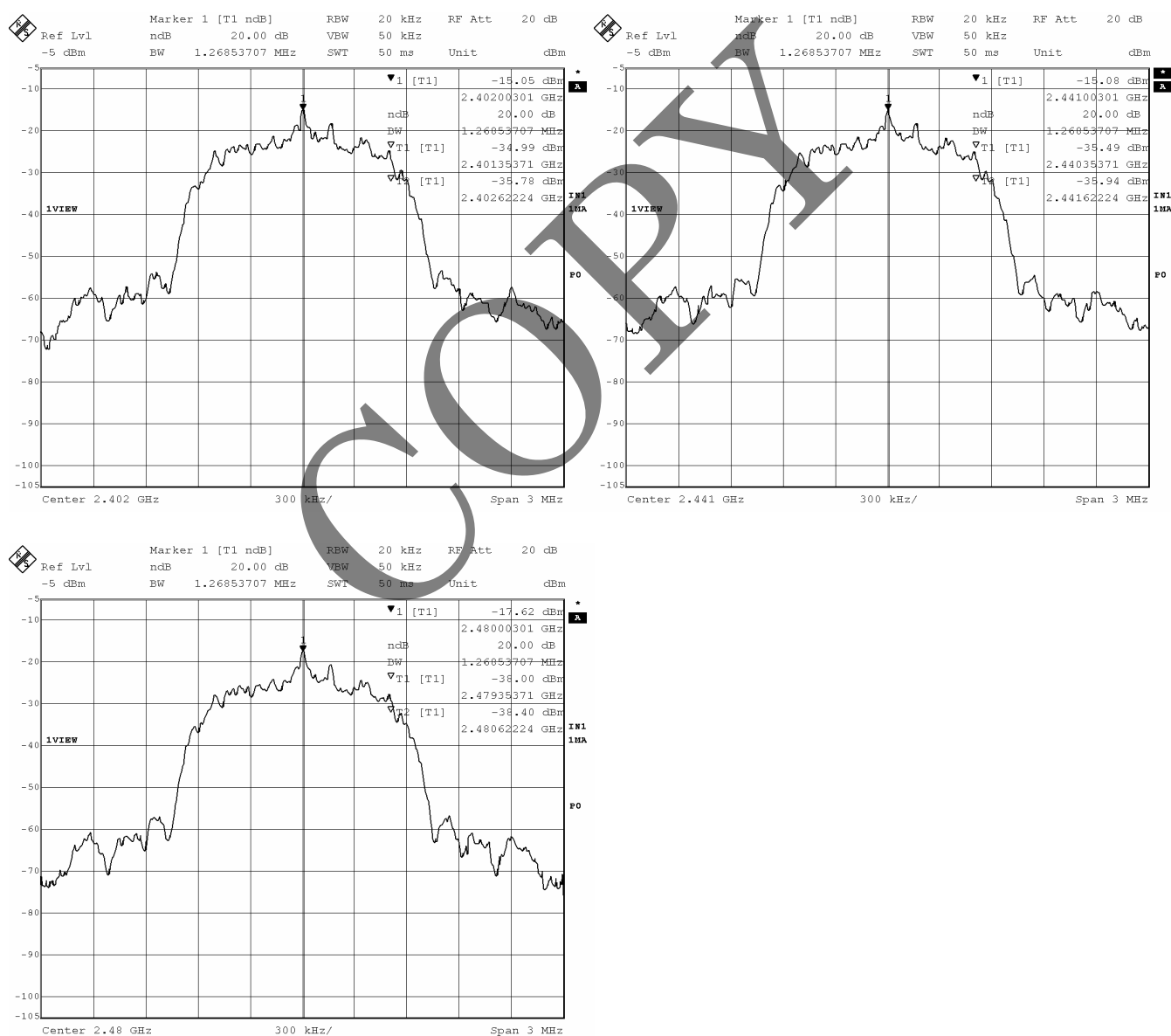
## A.3.3 Packet Setting : 3-DH5(8DPSK)

### (1) 20dB Bandwidth

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Bandwidth(kHz) | Limit(kHz) |
|-----------------|----------------|------------|
| 2402            | 1268.54        | N/A        |
| 2441            | 1268.54        | N/A        |
| 2480            | 1268.54        | N/A        |

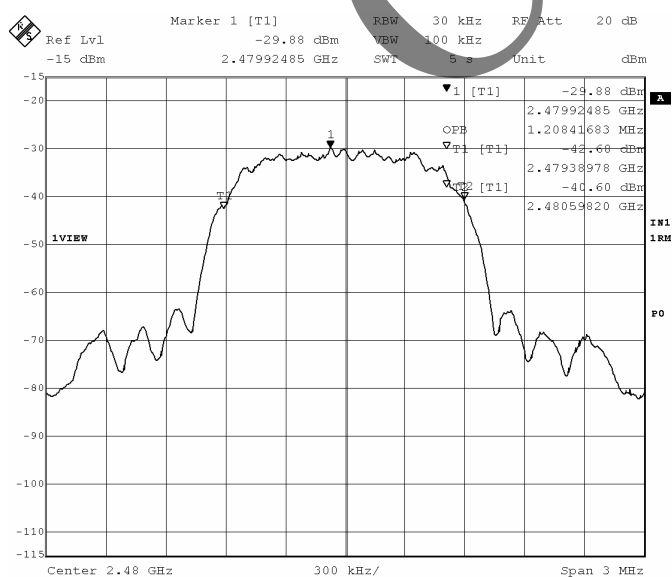
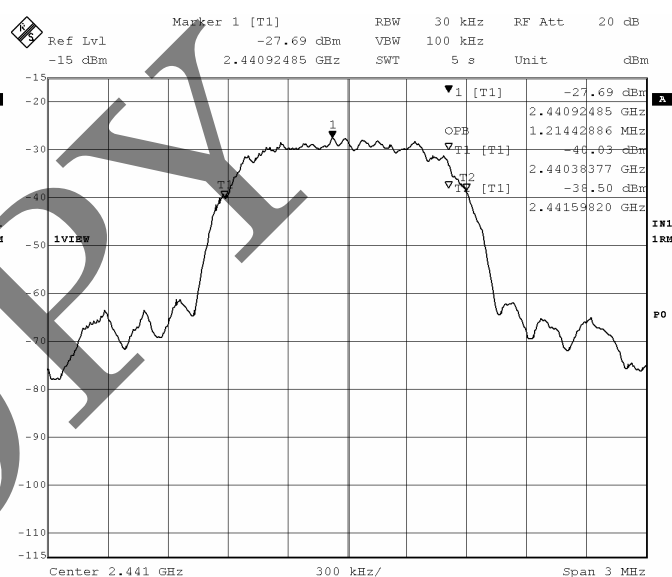
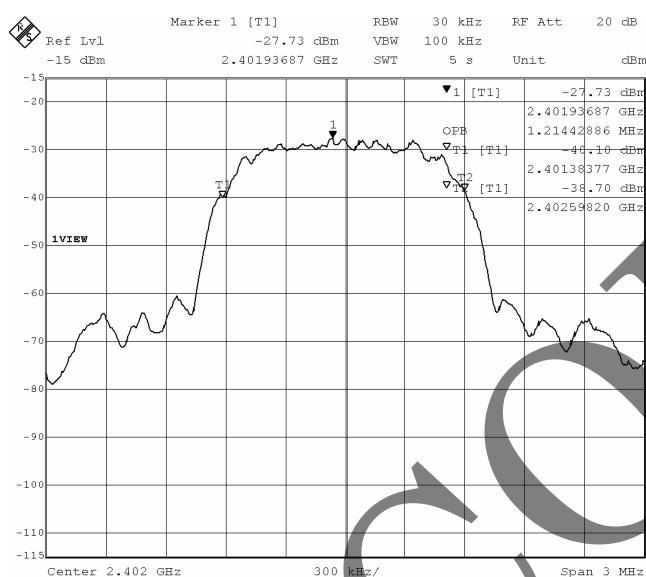


## (2) 99% Bandwidth

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Bandwidth(kHz) | Limit(kHz) |
|-----------------|----------------|------------|
| 2402            | 1214.43        | N/A        |
| 2441            | 1214.43        | N/A        |
| 2480            | 1208.42        | N/A        |



## A.4 Dwell Time

Date : January 5, 2010

Temp. : 15 °C Humi. : 32 %

Mode of EUT : TX Mode (Hopping)

Packet Setting : DH1

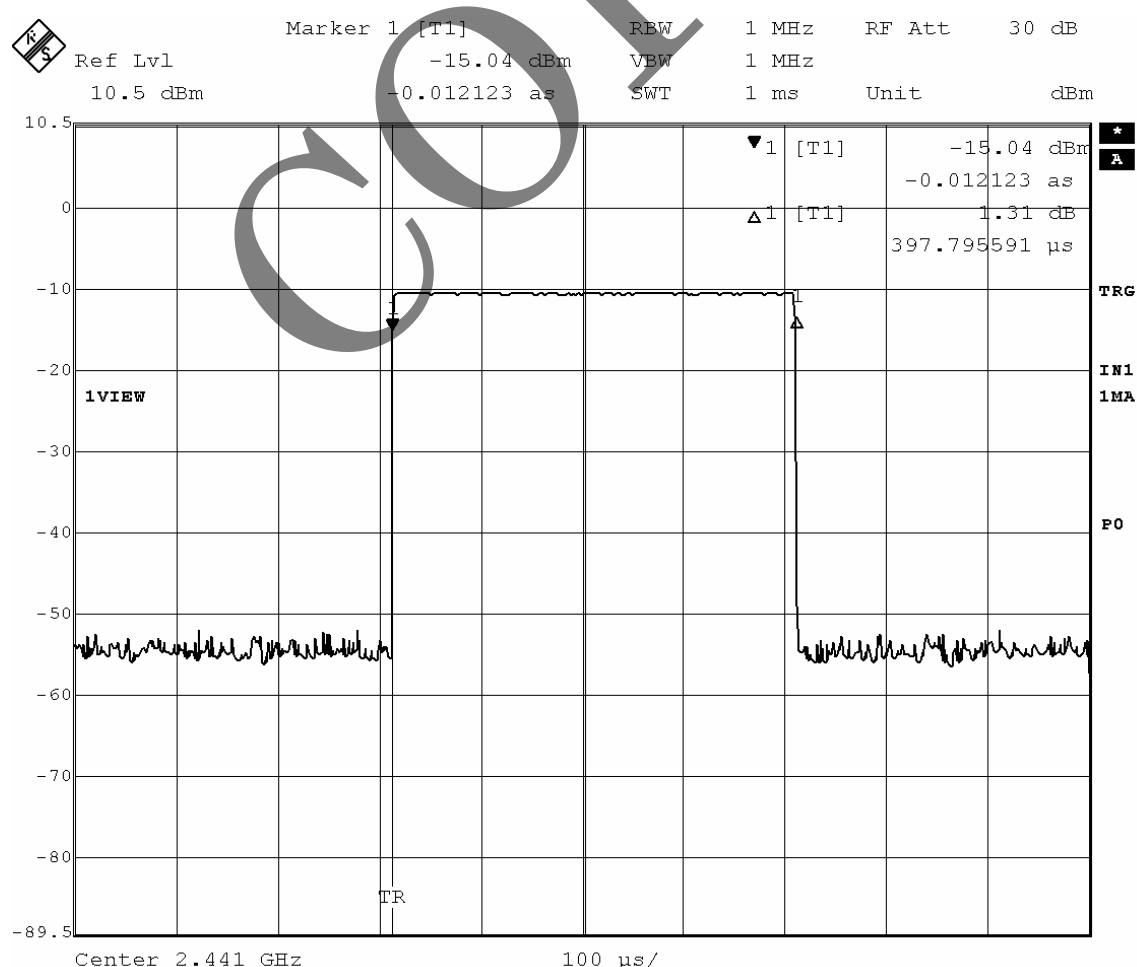
Test Port : Temporary antenna connector

| Dwell Time<br>(ms) | Limit                   |
|--------------------|-------------------------|
| 127.3              | 400 ms per 31.6 seconds |

Note : The system makes worst case 1600 hops per second or 1 time slot has a length of 625  $\mu$ s with 79 channels. A DH1 Packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 800 hops per second with 79 channels. So the system has each channel 10.1266 times per second and so for 31.6 seconds the system have 320.0 times of appearance.

Each tx-time per appearance is 0.3978 ms.

Dwell time = 320.0 \* 0.3978 = 127.3 ms



Mode of EUT : TX Mode (Hopping)

Packet Setting : DH3

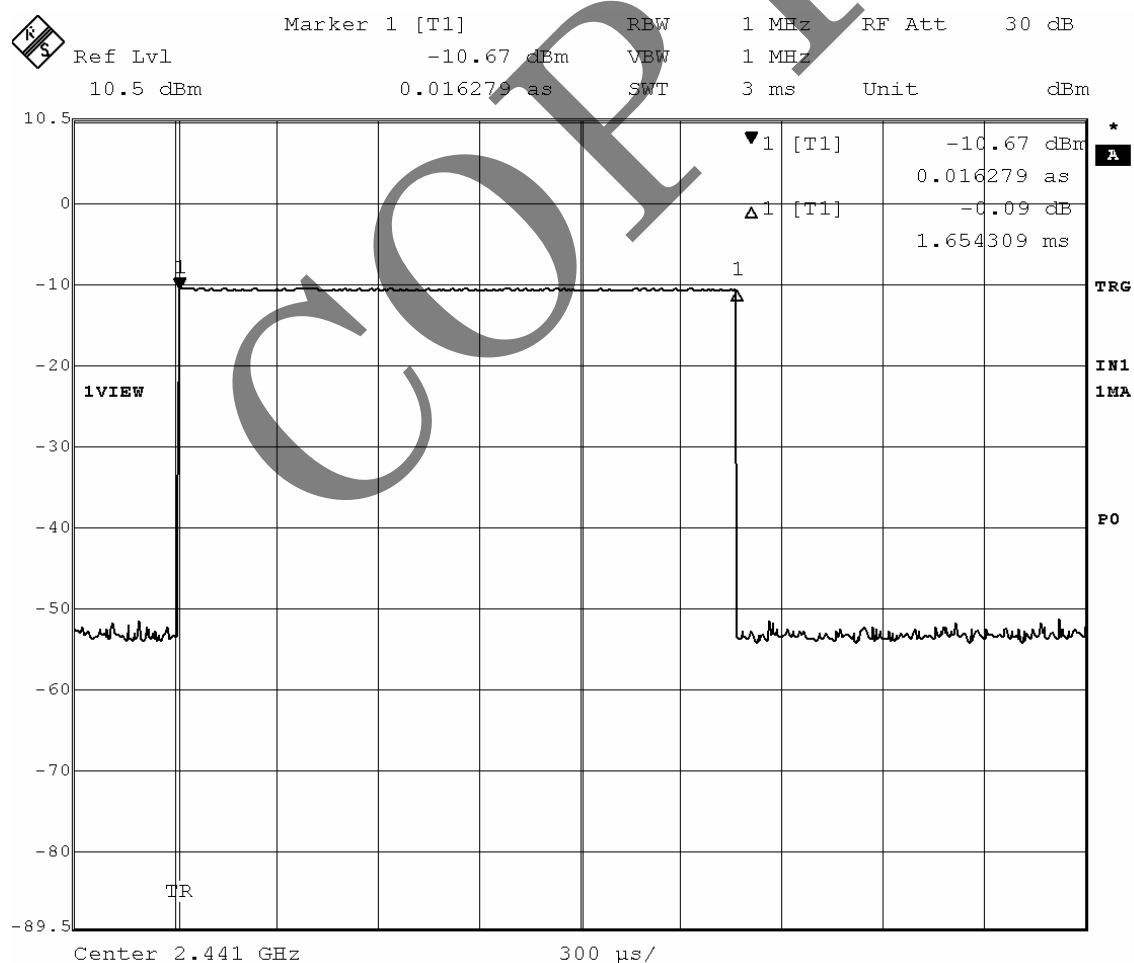
Test Port : Temporary antenna connector

| Dwell Time<br>(ms) | Limit                   |
|--------------------|-------------------------|
| 264.6              | 400 ms per 31.6 seconds |

Note : A DH3 Packet need 3 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 400 hops per second with 79 channels. So the system have each channel 5.063 times per second and so for 31.6 seconds the system have 160.0 times of appearance.

Each tx-time per appearance is 1.654 ms.

Dwell time = 160.0 \* 1.654 = 264.6 ms



Mode of EUT : TX Mode (Hopping)

Packet Setting : DH5

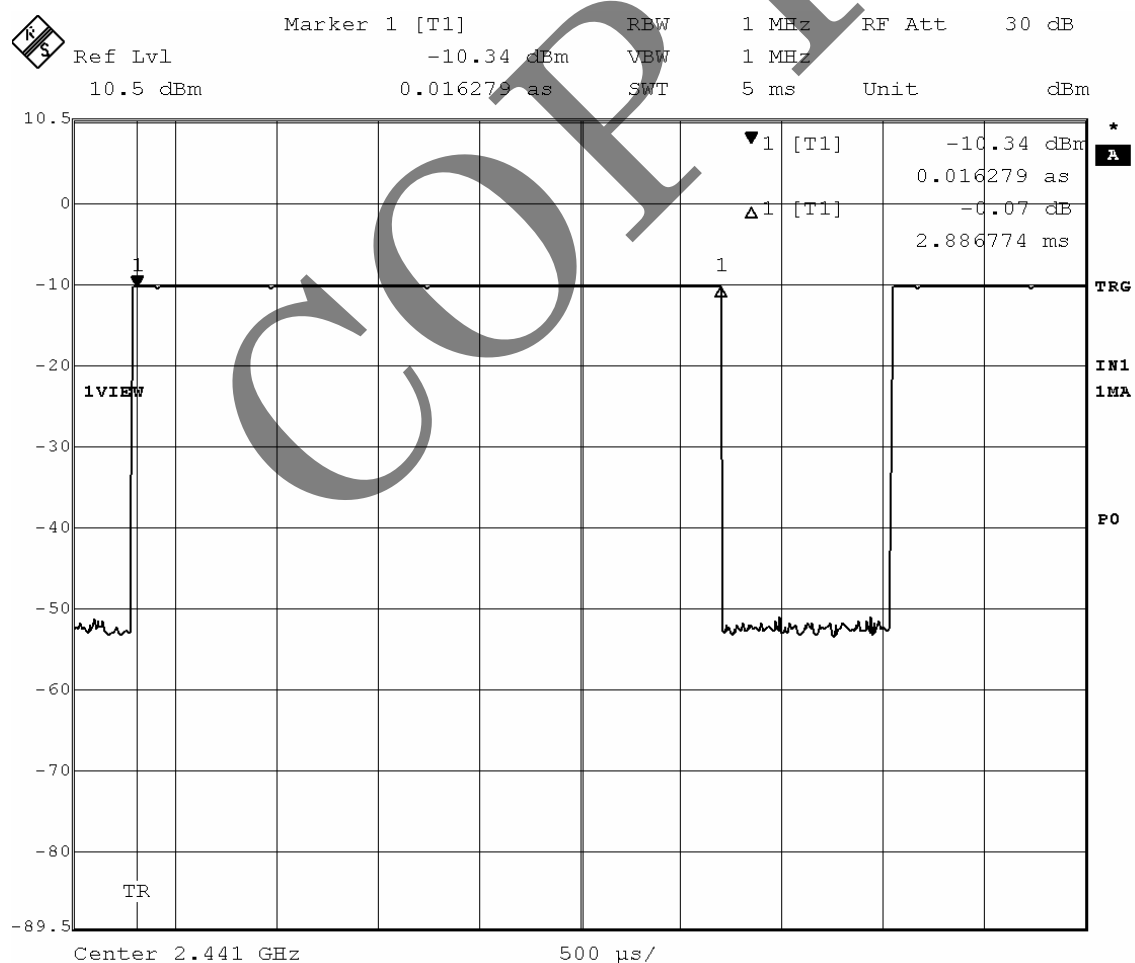
Test Port : Temporary antenna connector

| Dwell Time<br>(ms) | Limit                   |
|--------------------|-------------------------|
| 308.0              | 400 ms per 31.6 seconds |

Note : A DH5 Packet need 5 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 266.667 hops per second with 79 channels. So the system have each channel 3.3755 times per second and so for 31.6 seconds the system have 106.7 times of appearance.

Each tx-time per appearance is 2.887 ms.

Dwell time = 106.7 \* 2.887 = 308.0 ms



**A.5 Peak Output Power (Conduction)**Date : January 5, 2010Temp. : 15 °C Humi. : 32 %**A.5.1 Packet Setting : DH5(GFSK)**

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2402            | 1.40            | 10.06                | -9.99               | 1.47             | 21          |
| 2441            | 1.40            | 10.06                | -10.45              | 1.01             | 21          |
| 2480            | 1.40            | 10.06                | -12.73              | -1.27            | 21          |

**A.5.2 Packet Setting : 2-DH5(π/4DQPSK)**

| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2402            | 1.40            | 10.06                | -11.03              | 0.43             | 21          |
| 2441            | 1.40            | 10.06                | -11.05              | 0.41             | 21          |
| 2480            | 1.40            | 10.06                | -12.78              | -1.32            | 21          |

**A.5.3 Packet Setting : 3-DH5(8DPSK)**

| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2402            | 1.40            | 10.06                | -10.54              | 0.92             | 21          |
| 2441            | 1.40            | 10.06                | -10.53              | 0.93             | 21          |
| 2480            | 1.40            | 10.06                | -12.87              | -1.41            | 21          |

Note : 1) Rated Supply Voltage : 12.0 VDC

2) A sample calculation was made at 2402 MHz(Packet Setting : DH5(GFSK)).

$$CL + AL + MR = 1.40 + 10.06 + (-9.99) = 1.47 \text{ (dBm)}$$

CL : Cable Loss

AL : Attenuator Loss

MR : Meter Reading

**A.6 Peak Output Power (Radiation)**

Not Applicable

## A.7 Peak Power Density (Conduction)

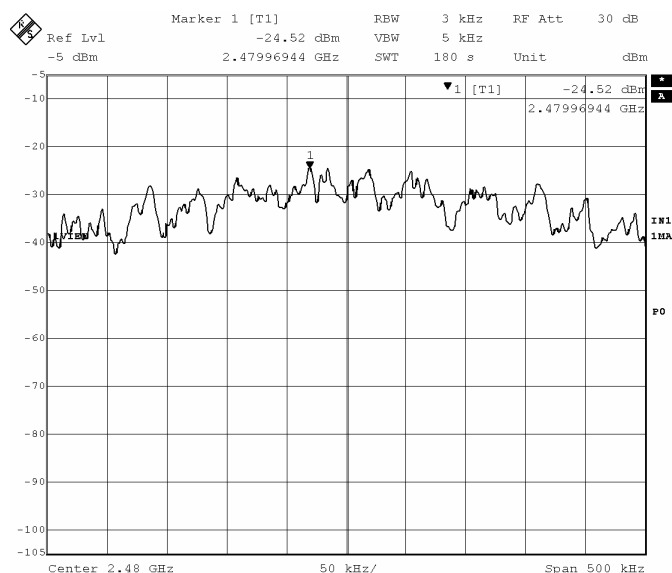
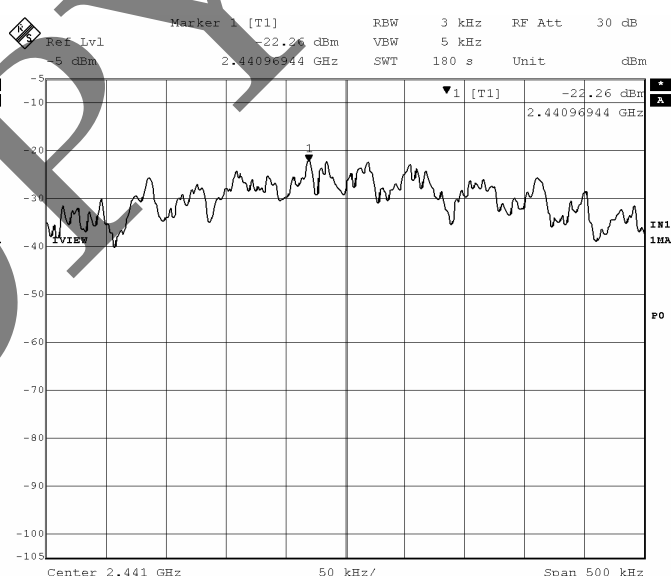
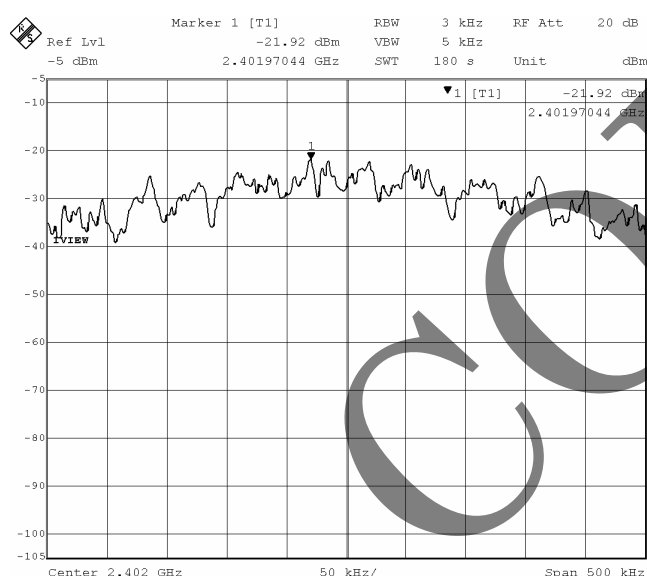
Date : January 5, 2010  
 Temp. : 15 °C Humi. : 32 %

### A.7.1 Packet Setting : DH5(GFSK)

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2402            | 1.40            | 10.06                | -21.92              | -10.46           | 8           |
| 2441            | 1.40            | 10.06                | -22.26              | -10.80           | 8           |
| 2480            | 1.40            | 10.06                | -24.52              | -13.06           | 8           |

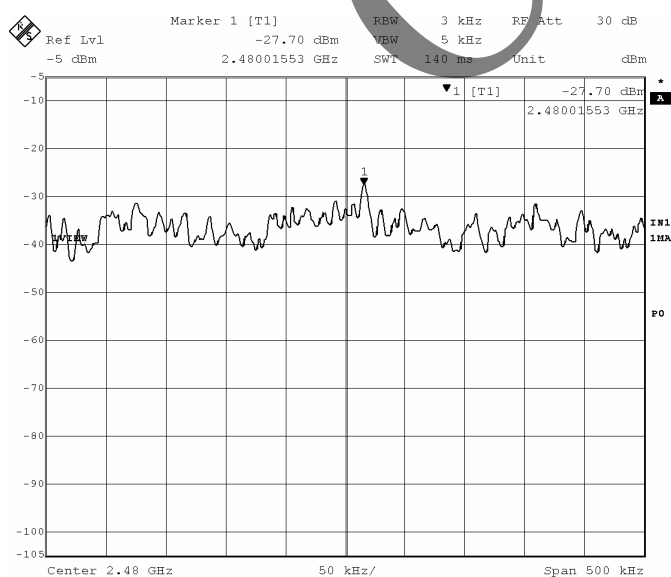
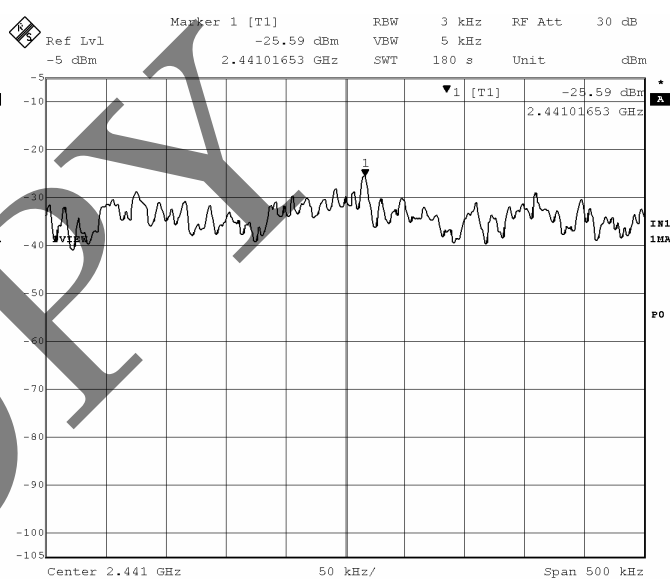
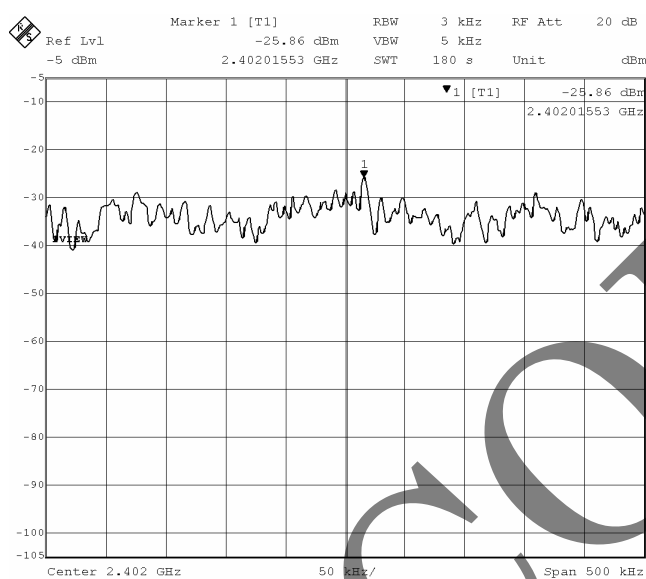


## A.7.2 Packet Setting : 2-DH5( $\pi$ /4DQPSK)

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2402            | 1.40            | 10.06                | -25.86              | -14.40           | 8           |
| 2441            | 1.40            | 10.06                | -25.59              | -14.13           | 8           |
| 2480            | 1.40            | 10.06                | -27.70              | -16.24           | 8           |

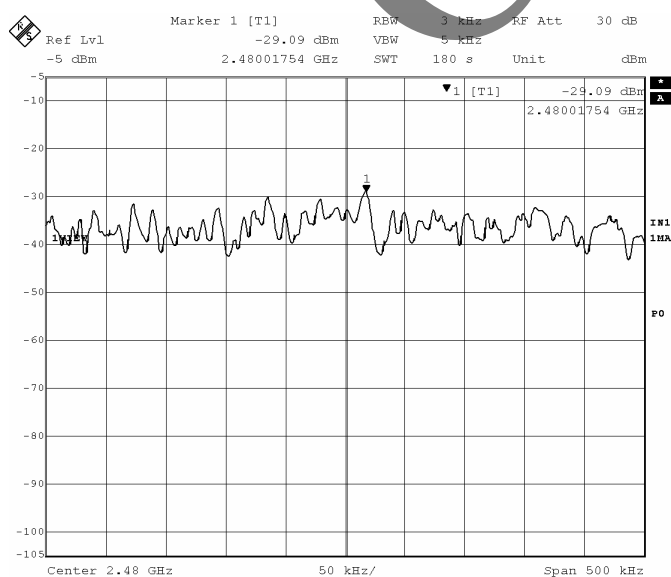
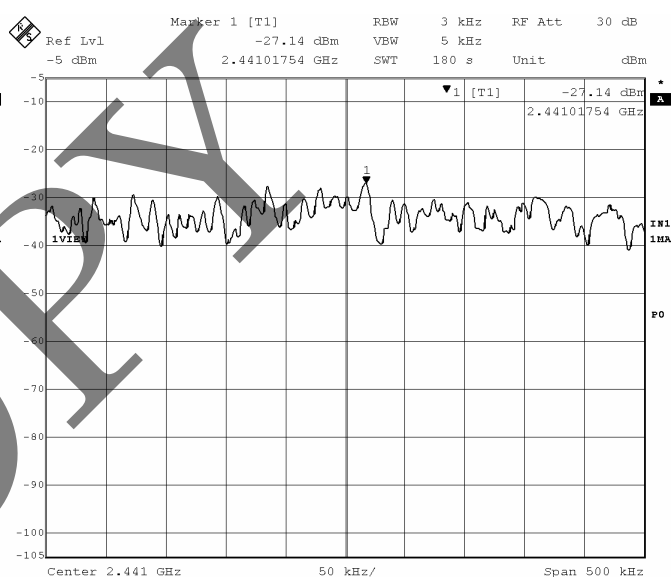
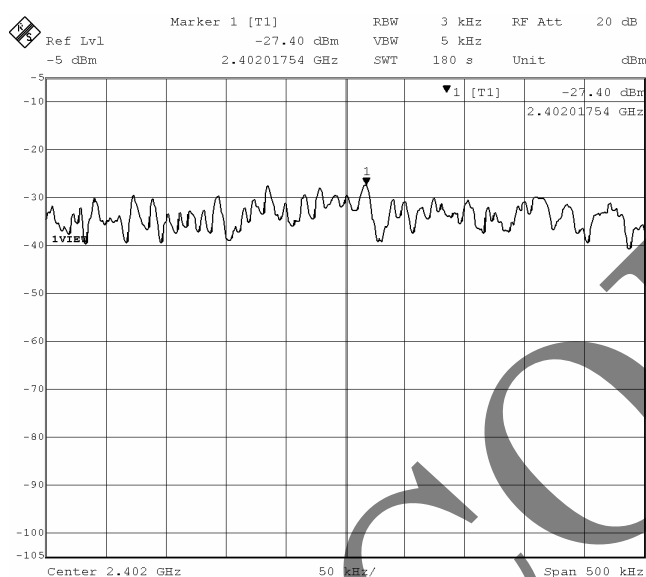


## A.7.3 Packet Setting : 3-DH5(8DPSK)

Mode of EUT : TX Mode

Test Port : Temporary antenna connector

| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2402            | 1.40            | 10.06                | -27.40              | -15.94           | 8           |
| 2441            | 1.40            | 10.06                | -27.14              | -15.68           | 8           |
| 2480            | 1.40            | 10.06                | -29.09              | -17.63           | 8           |



Note : 1) A sample calculation was made at 2402 MHz(Packet Setting : DH5(GFSK)).

$$CL + AL + MR = 1.40 + 10.06 + (-23.68) = -12.22 \text{ (dBm)}$$

CL : Cable Loss      AL : Attenuator Loss      MR : Meter Reading

2) Measuring Instruments Setting :

Detector Function  
Peak

Resolution Bandwidth  
3 kHz

#### A.8 Peak Power Density (Radiation)

Not Applicable

COPY

## A.9 Spurious Emissions (Conduction)

### A.9.1 Band Edge Compliance

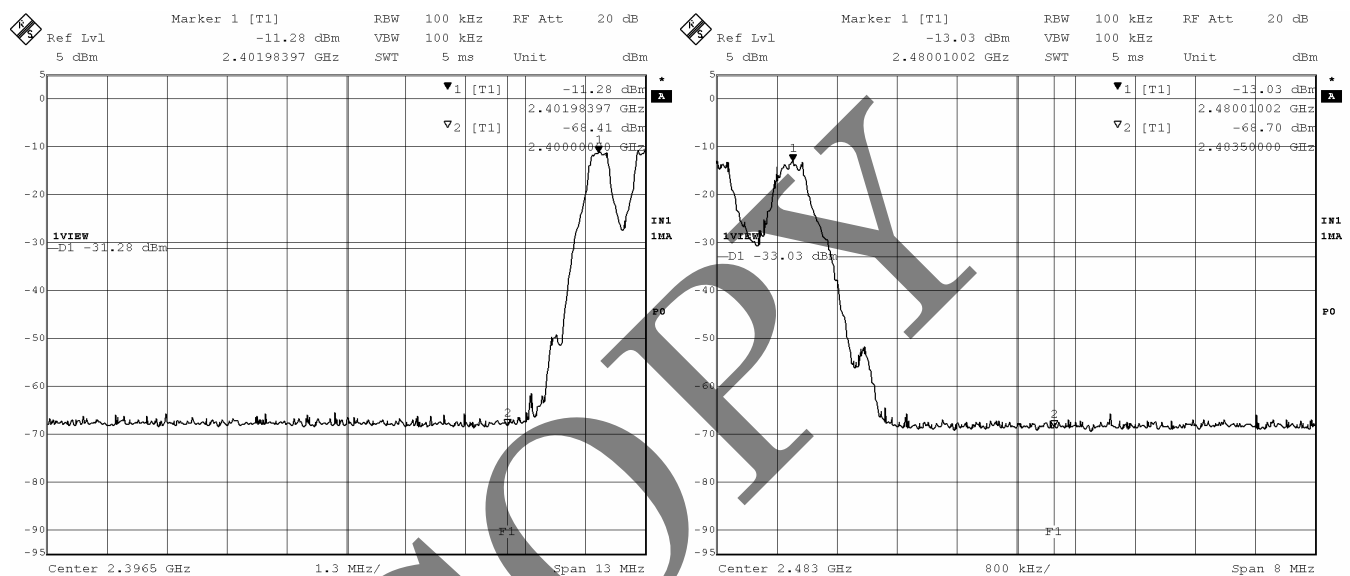
Date : January 5, 2010

Temp. : 15 °C Humi. : 32 %

#### A.9.1.1 Packet Setting : DH5(GFSK)

Mode of EUT : TX Mode (Hopping)

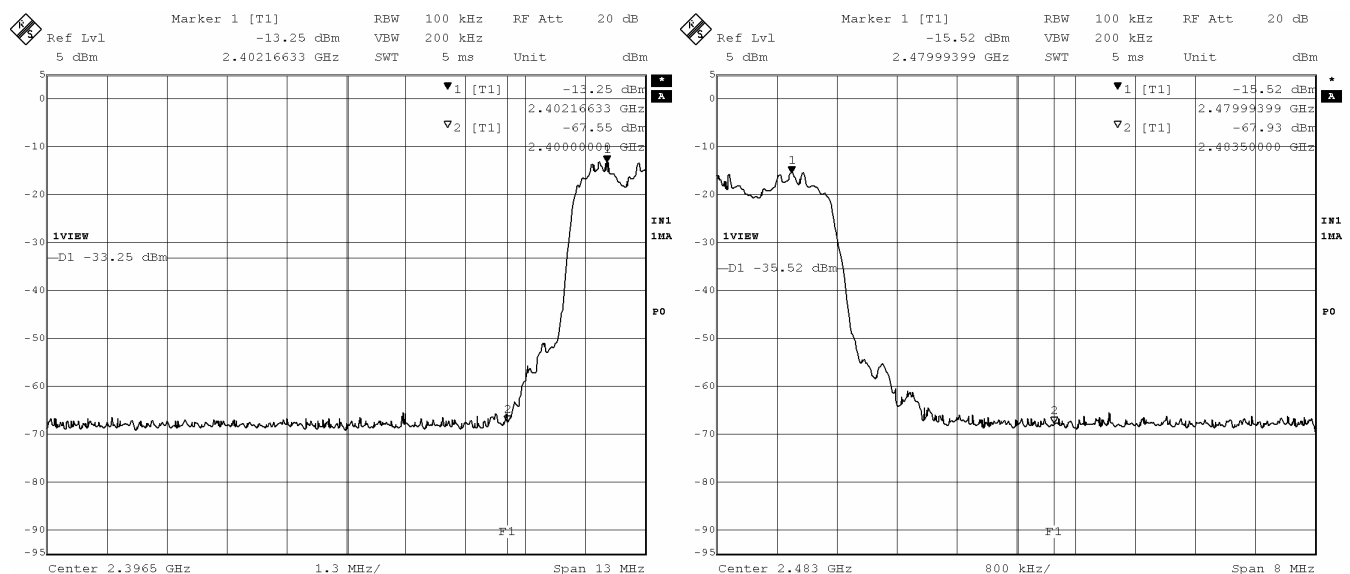
Test Port : Temporary antenna connector



#### A.9.1.2 Packet Setting : 2-DH5( $\pi$ /4DQPSK)

Mode of EUT : TX Mode (Hopping)

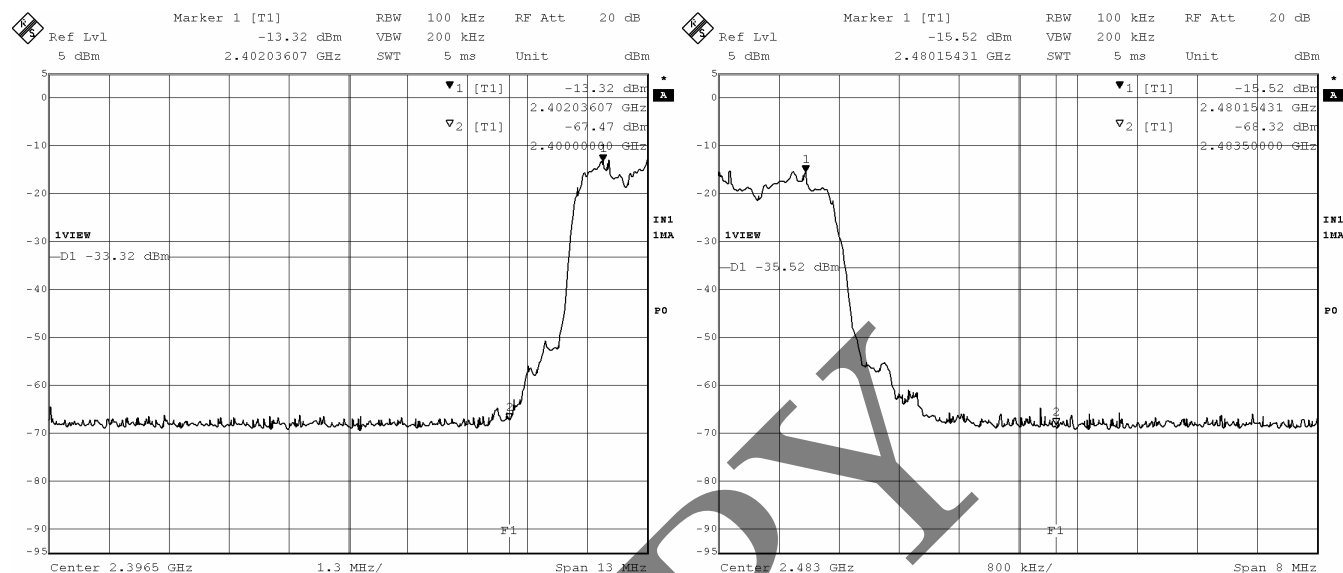
Test Port : Temporary antenna connector



## A.9.1.3 Packet Setting : 3-DH5(8DPSK)

Mode of EUT : TX Mode (Hopping)

Test Port : Temporary antenna connector



## A.9.2 Other Spurious Emissions

Date : January 5, 2010

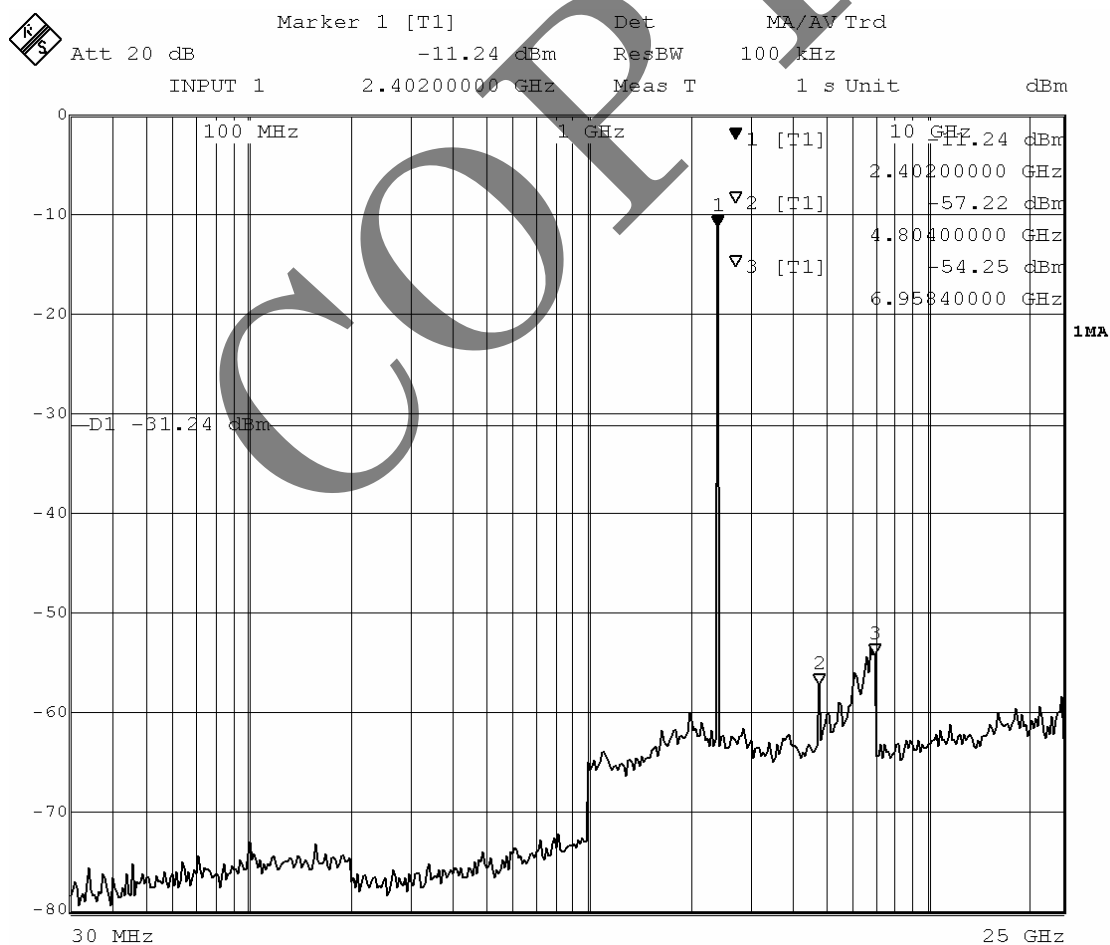
Temp. : 15 °C Humi. : 32 %

### A.9.2.1 Packet Setting : DH5(GFSK)

Mode of EUT : TX Mode (Och : 2402MHz)

Test Port : Temporary antenna connector

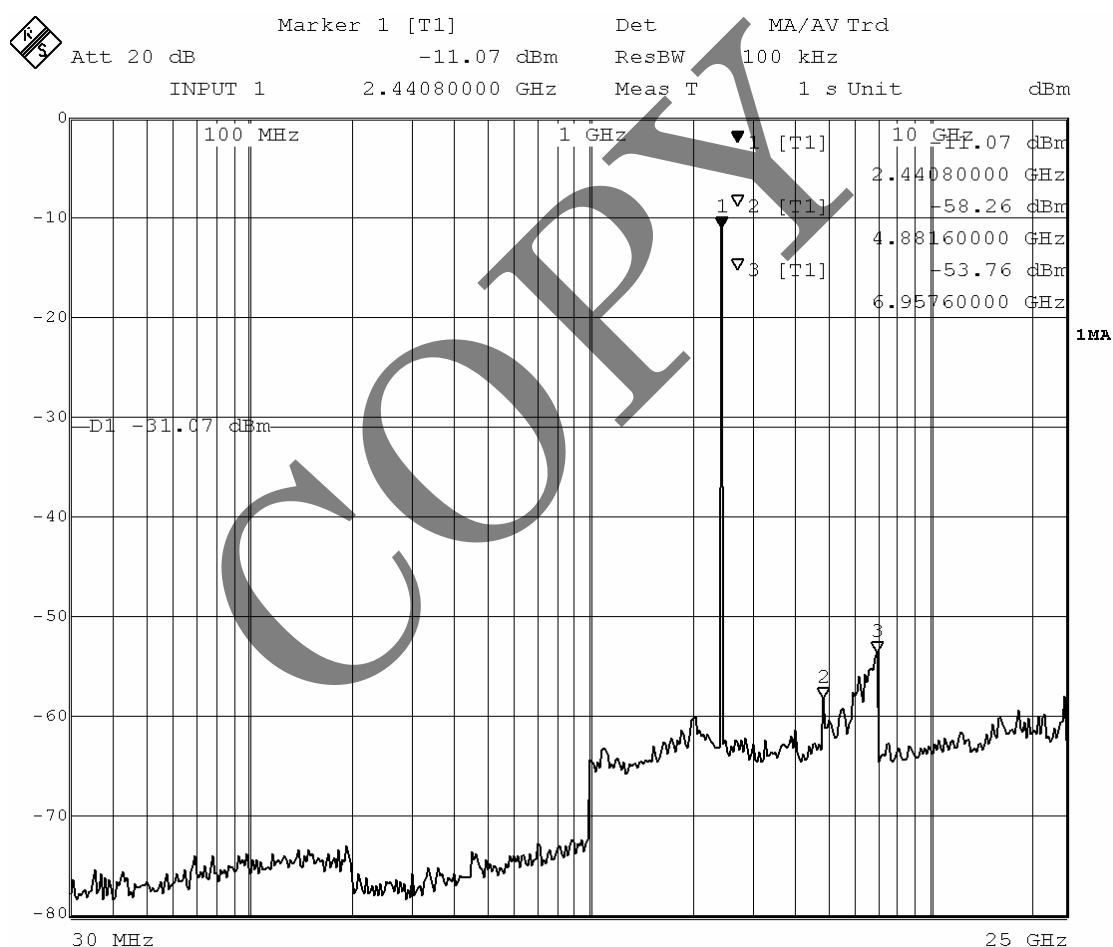
| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2402            | 1.40            | 10.06                | -10.66              | 0.80             | --          |
| 5552            | 1.40            | 10.06                | -51.53              | -40.07           | -19.20      |
| 6952            | 1.40            | 10.06                | -48.50              | -37.04           | -19.20      |



Mode of EUT : TX Mode (39ch : 2441MHz)

Test Port : Temporary antenna connector

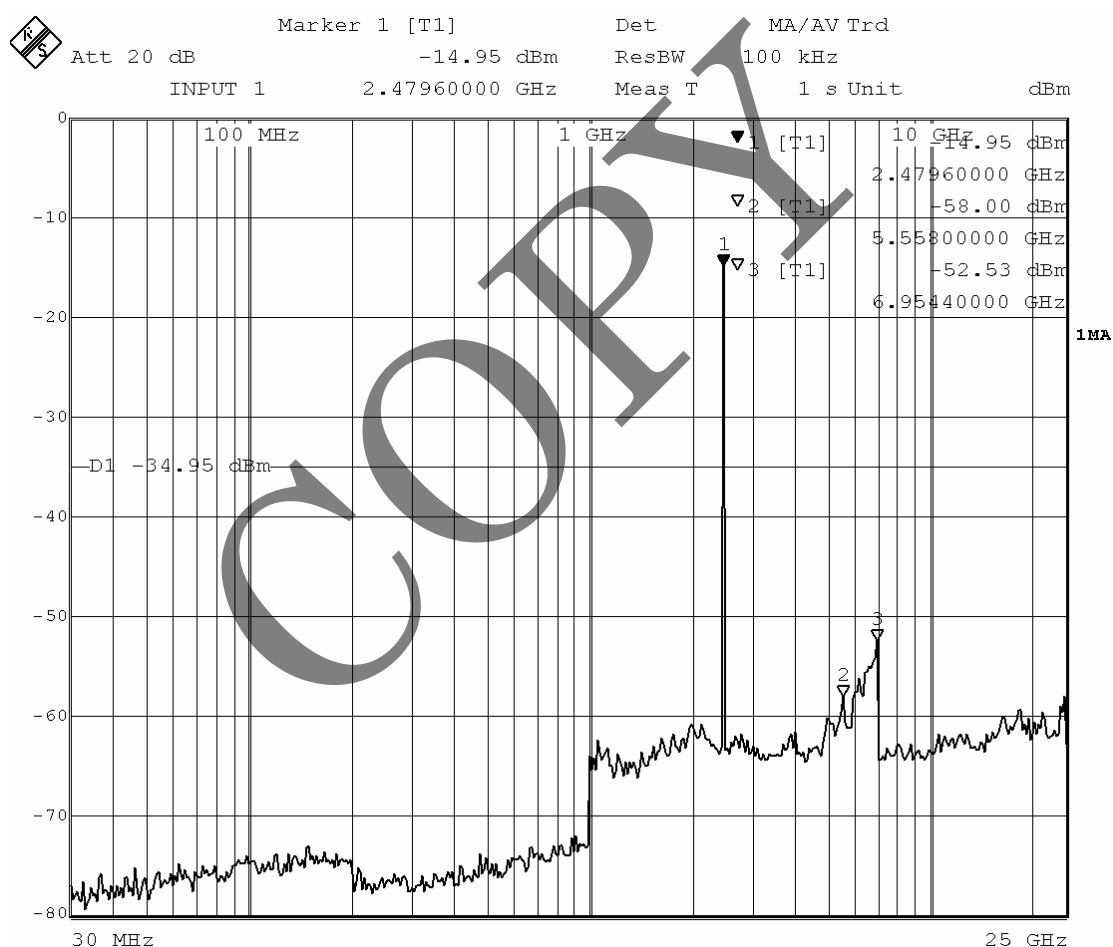
| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2441            | 1.40            | 10.06                | -10.85              | 0.61             | --          |
| 5577            | 1.40            | 10.06                | -52.03              | -40.57           | -19.39      |
| 6962            | 1.40            | 10.06                | -50.34              | -38.88           | -19.39      |



Mode of EUT : TX Mode (78ch : 2480MHz)

Test Port : Temporary antenna connector

| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2480            | 1.40            | 10.06                | -12.98              | -1.52            | --          |
| 5570            | 1.40            | 10.06                | -51.47              | -40.01           | -21.52      |
| 6965            | 1.40            | 10.06                | -49.16              | -37.70           | -21.52      |

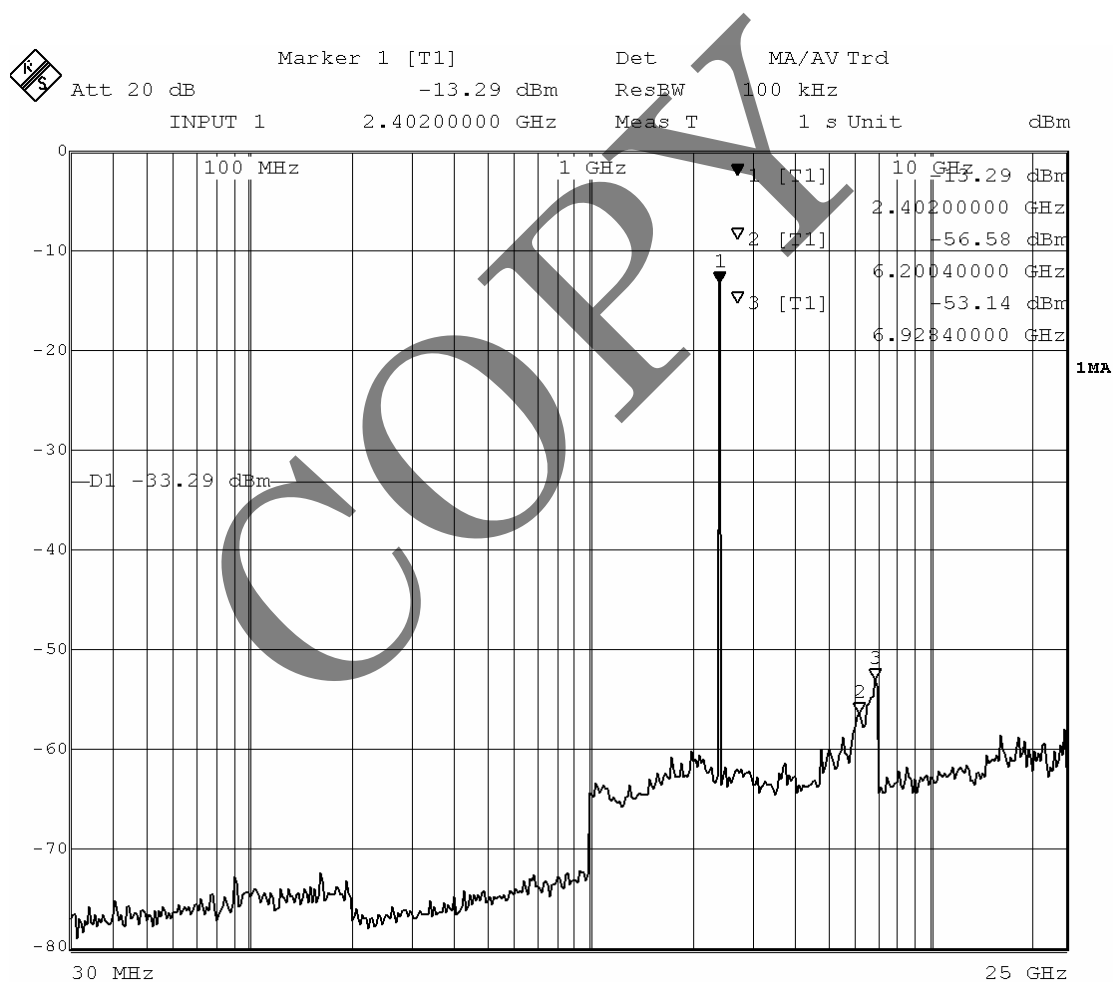


## A.9.2.2 Packet Setting : 2-DH5( $\pi$ /4DQPSK)

Mode of EUT : TX Mode (0ch : 2402MHz)

Test Port : Temporary antenna connector

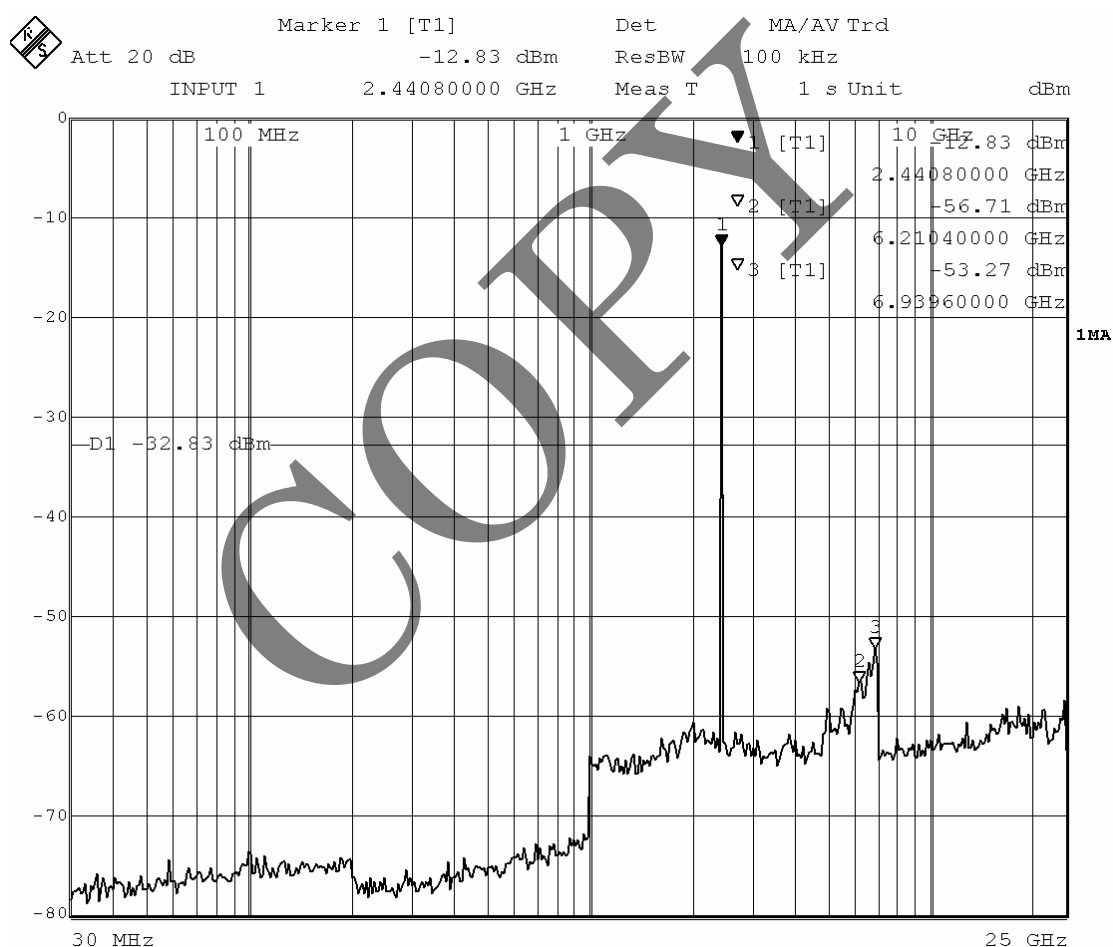
| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2402            | 1.40            | 10.06                | -13.29              | -1.89            | --          |
| 6303            | 1.40            | 10.06                | -52.41              | -44.68           | -21.89      |
| 6950            | 1.40            | 10.06                | -49.31              | -41.89           | -21.89      |



Mode of EUT : TX Mode (39ch : 2441MHz)

Test Port : Temporary antenna connector

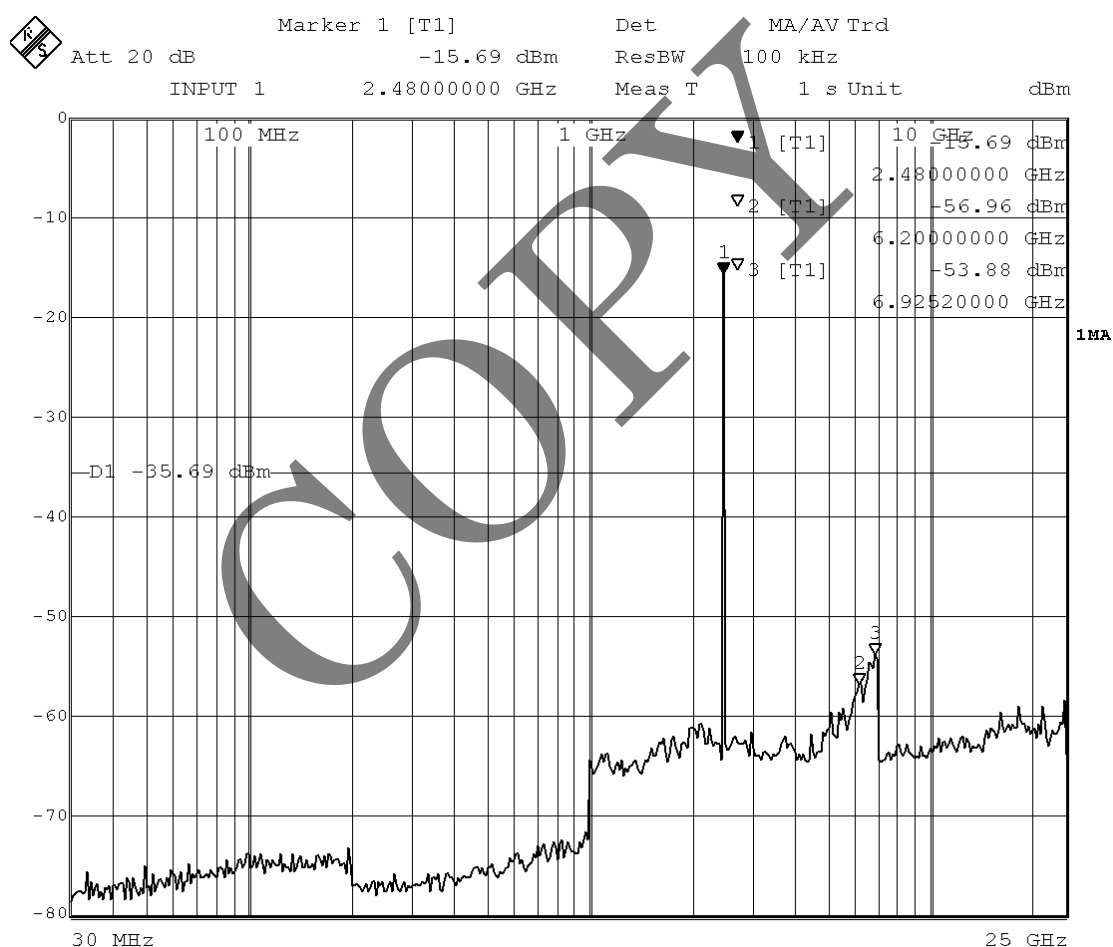
| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2441            | 1.40            | 10.06                | -13.70              | -2.24            | --          |
| 6210            | 1.40            | 10.06                | -53.53              | -42.07           | -22.24      |
| 6940            | 1.40            | 10.06                | -49.50              | -38.04           | -22.24      |



Mode of EUT : TX Mode (78ch : 2480MHz)

Test Port : Temporary antenna connector

| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2480            | 1.40            | 10.06                | -16.00              | -4.54            | --          |
| 6200            | 1.40            | 10.06                | -52.48              | -41.02           | -24.54      |
| 6925            | 1.40            | 10.06                | -50.54              | -39.08           | -24.54      |

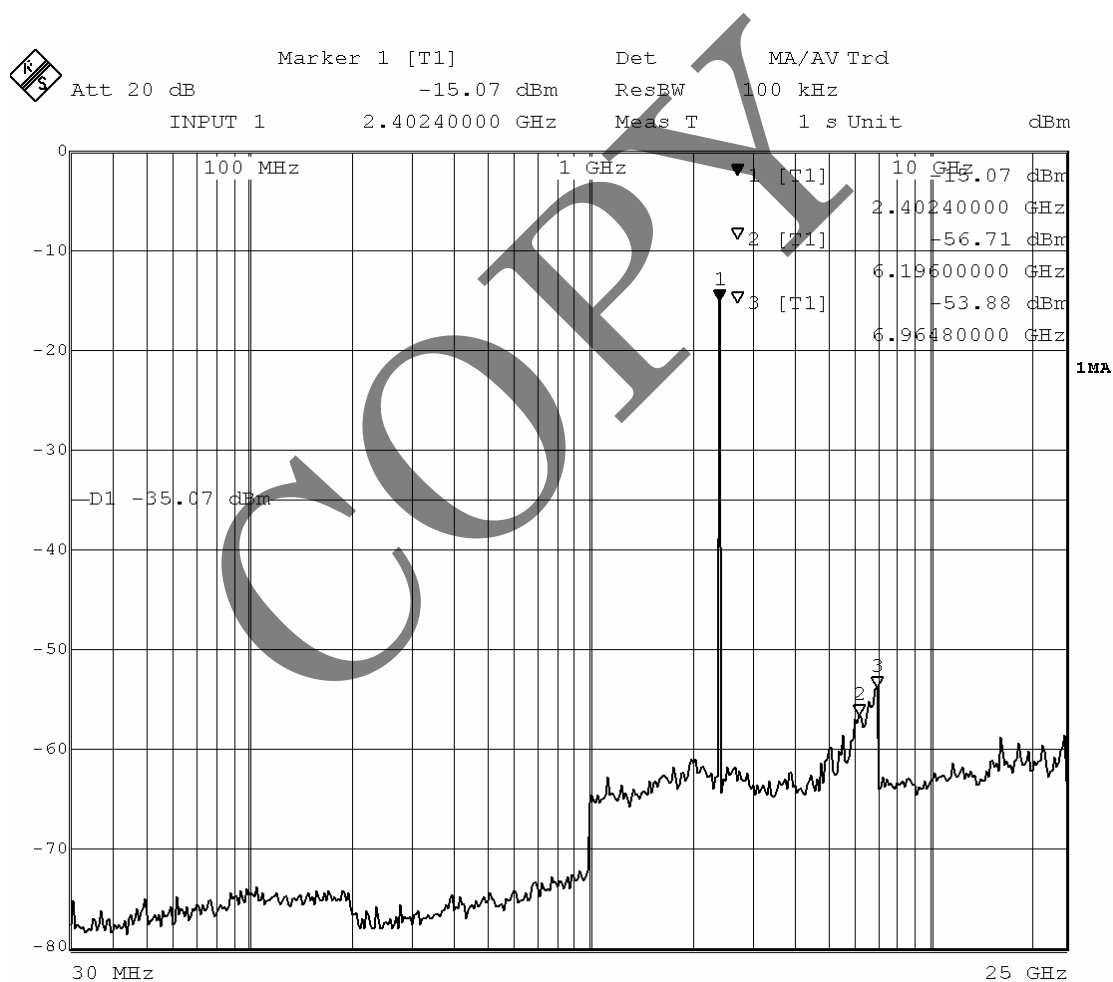


### A.9.2.3 Packet Setting : 3-DH5(8DPSK)

Mode of EUT : TX Mode (0ch : 2402MHz)

Test Port : Temporary antenna connector

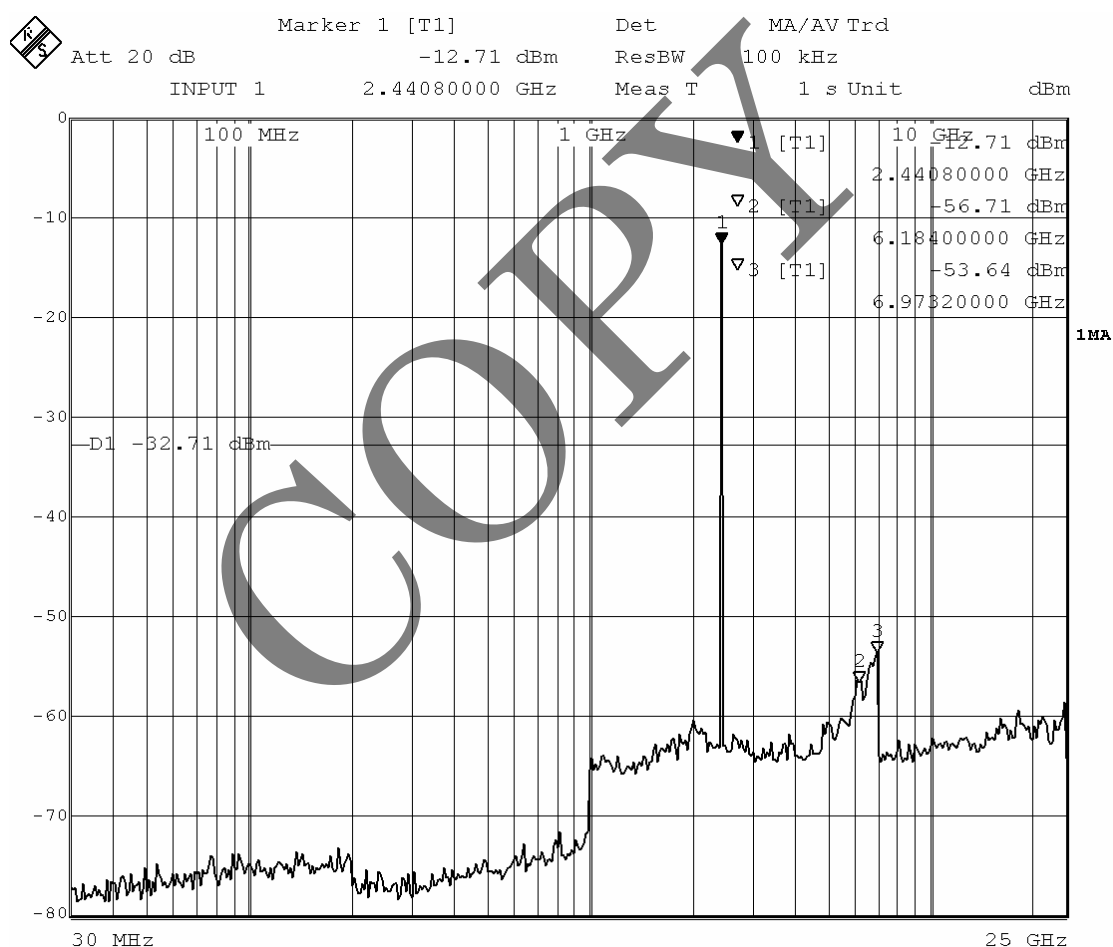
| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2402            | 1.40            | 10.06                | -13.59              | -2.13            | --          |
| 6196            | 1.40            | 10.06                | -52.37              | -40.91           | -22.13      |
| 6965            | 1.40            | 10.06                | -49.58              | -38.12           | -22.13      |



Mode of EUT : TX Mode (39ch : 2441MHz)

Test Port : Temporary antenna connector

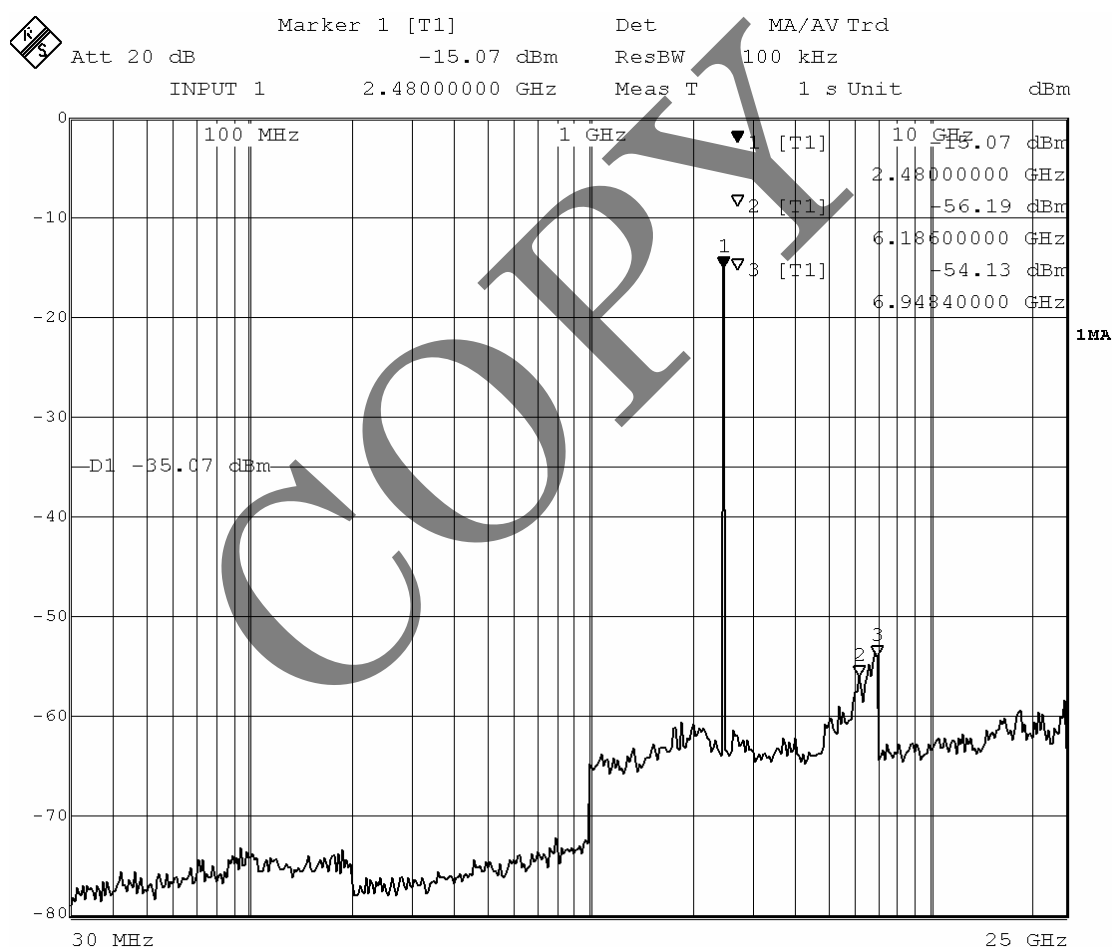
| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2441            | 1.40            | 10.06                | -13.56              | -2.10            | --          |
| 6184            | 1.40            | 10.06                | -52.20              | -40.74           | -22.10      |
| 6973            | 1.40            | 10.06                | -49.73              | -38.27           | -22.10      |



Mode of EUT : TX Mode (78ch : 2480MHz)

Test Port : Temporary antenna connector

| Frequency (MHz) | Cable Loss (dB) | Attenuator Loss (dB) | Meter Reading (dBm) | Peak Power (dBm) | Limit (dBm) |
|-----------------|-----------------|----------------------|---------------------|------------------|-------------|
| 2480            | 1.40            | 10.06                | -15.05              | -3.59            | --          |
| 6186            | 1.40            | 10.06                | -51.78              | -40.32           | -23.59      |
| 6948            | 1.40            | 10.06                | -49.35              | -37.89           | -23.59      |



Note : 1) A sample calculation was made at 2402 MHz(Packet Setting : DH5(GFSK)).

$$CL + AL + MR = 1.40 + 10.06 + (-9.99) = 1.47 \text{ (dBm)}$$

CL : Cable Loss

AL : Attenuator Loss

MR : Meter Reading

2) Measuring Instruments Setting :

Detector Function

Resolution Bandwidth

Peak

100 kHz

## A.10 Spurious Emissions for Transmitter (Radiation)

### A.10.1 Band Edge Compliance

Date : December 28, 2009

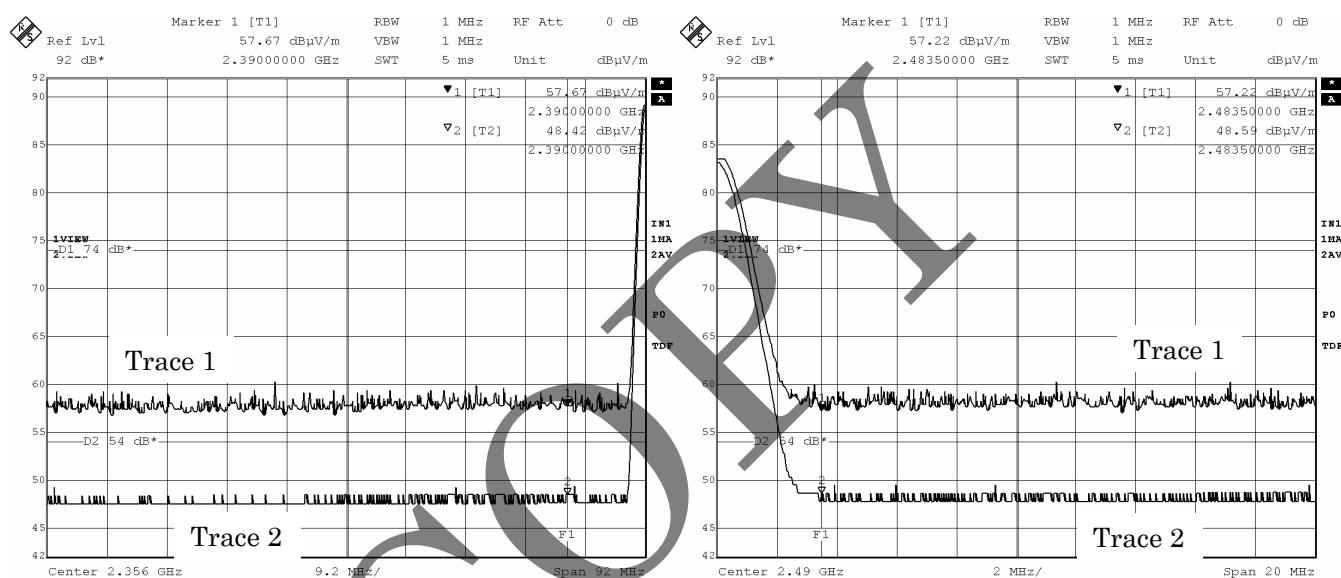
Temp. : 16 °C Humi. : 37 %

#### A.10.1.1 Packet Setting : DH5(GFSK)

Mode of EUT : TX Mode (Hopping)

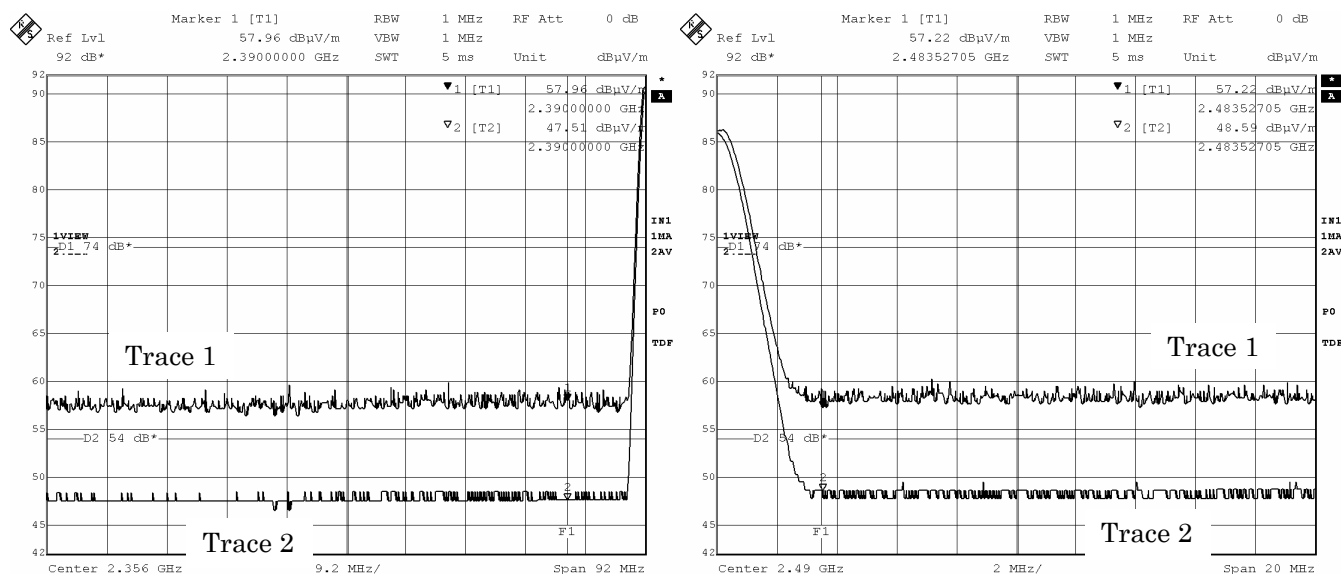
Test Port : Enclosure

Antenna Polarization : Horizontal



Note : The trace 1 is Peak detection. The Trace 2 is Average detection.

Antenna Polarization : Vertical



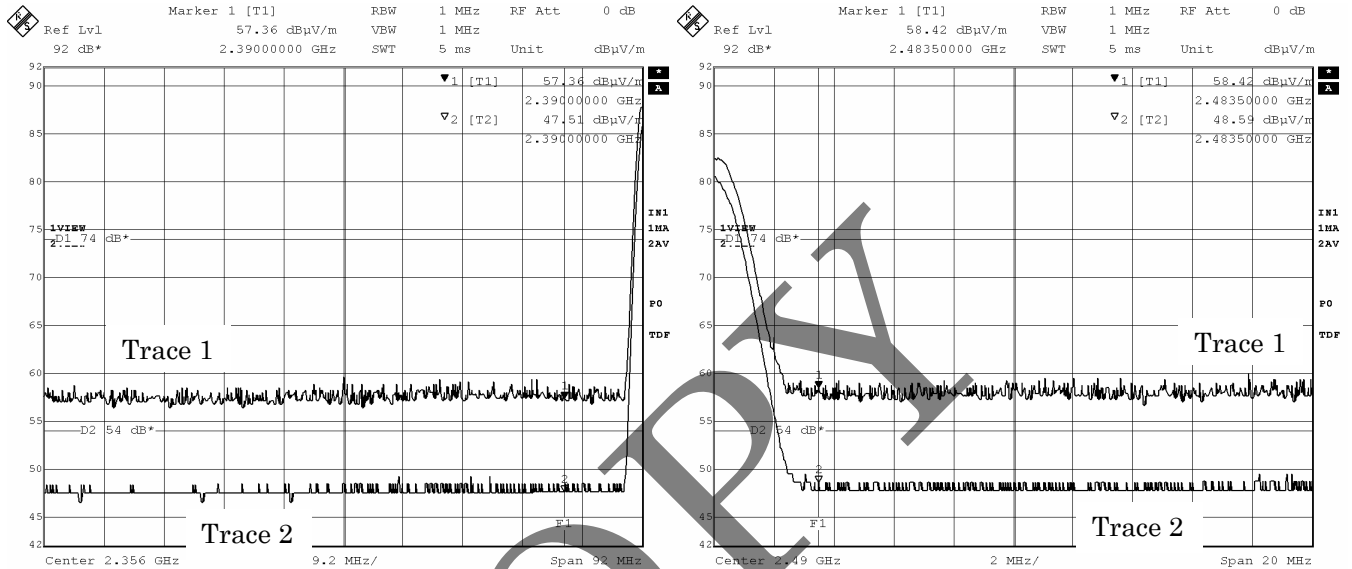
Note : The trace 1 is Peak detection. The Trace 2 is Average detection.

### A.10.1.2 Packet Setting : 2-DH5( $\pi$ /4DQPSK)

Mode of EUT : TX Mode (Hopping)

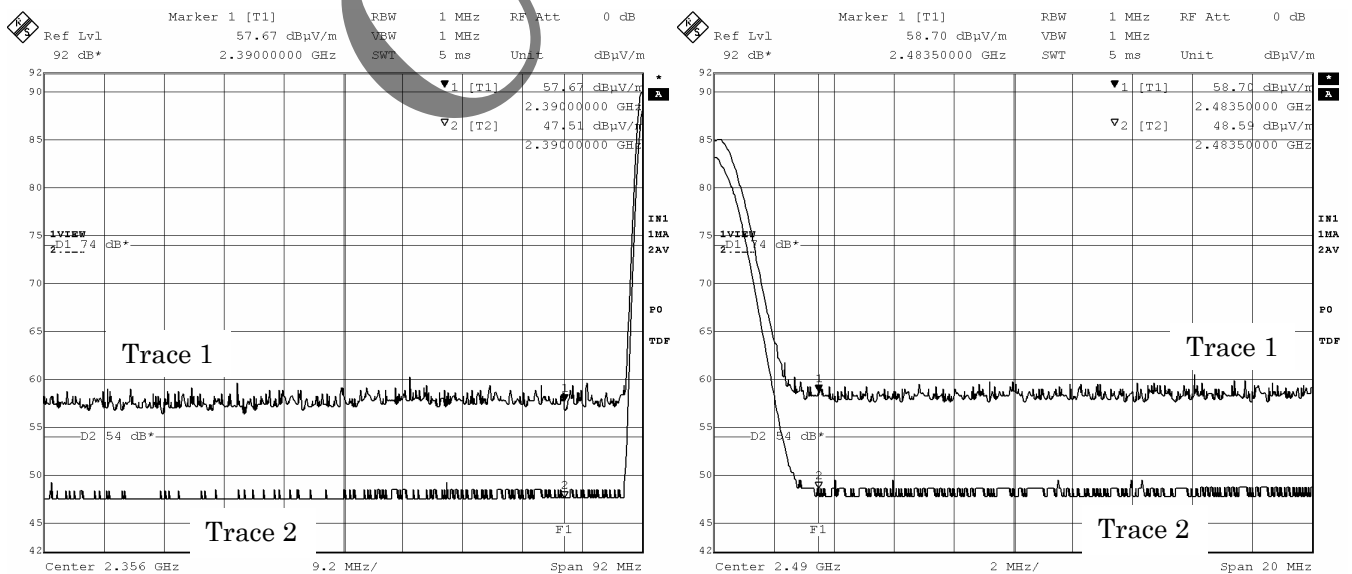
Test Port : Enclosure

Antenna Polarization : Horizontal



Note : The trace 1 is Peak detection. The Trace 2 is Average detection.

Antenna Polarization : Vertical



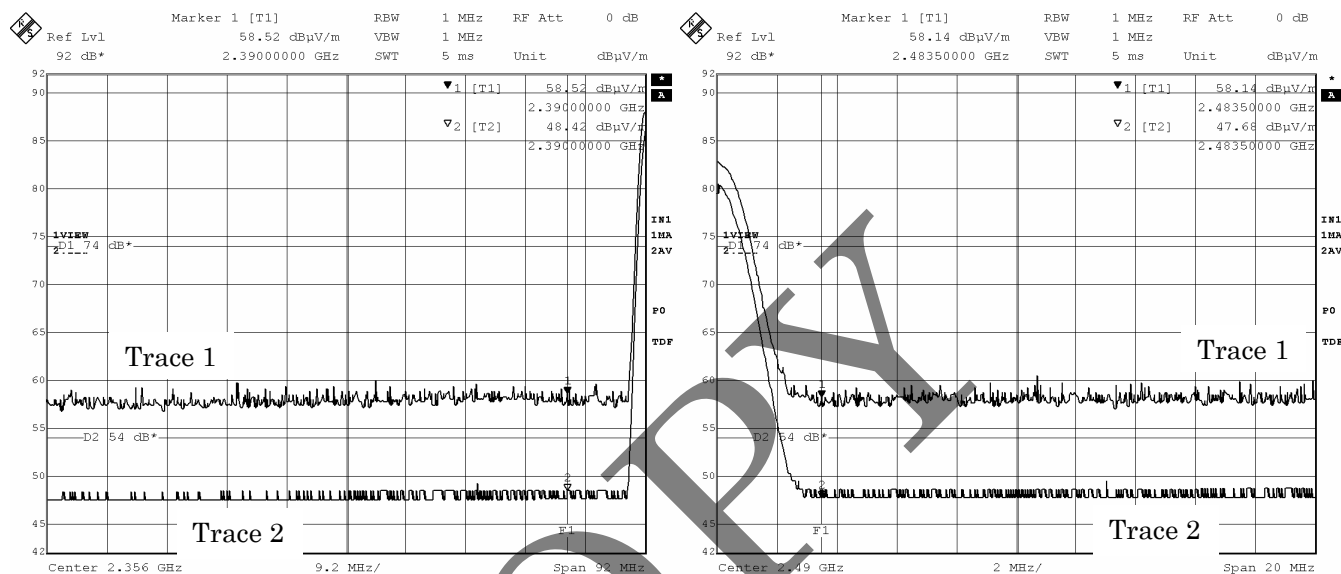
Note : The trace 1 is Peak detection. The Trace 2 is Average detection.

## A.10.1.3 Packet Setting : 3-DH5(8DPSK)

Mode of EUT : TX Mode (Hopping)

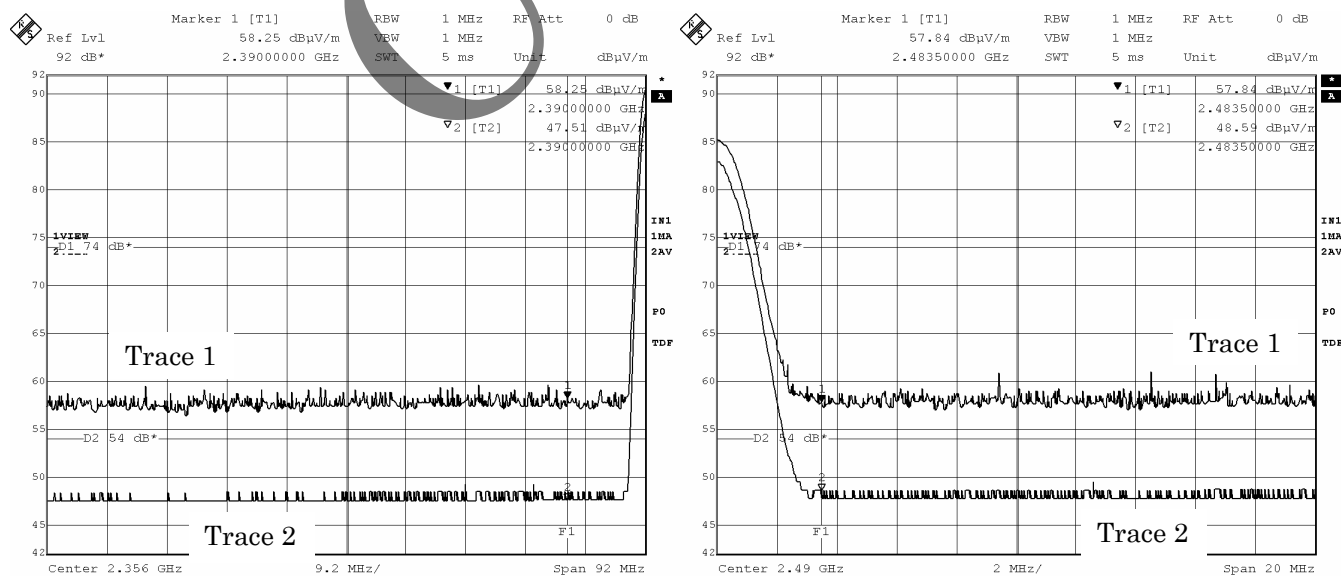
Test Port : Enclosure

Antenna Polarization : Horizontal



Note : The trace 1 is Peak detection. The Trace 2 is Average detection.

Antenna Polarization : Vertical



Note : The trace 1 is Peak detection. The Trace 2 is Average detection.

**A.10.2 Other Spurious Emissions****A.10.2.1 Spurious Emissions in the frequency range from 9 kHz to 30 MHz**Date : December 28, 2009Temp. : 16 °C Humi. : 37 %

Mode of EUT : All modes have been investigated and worst case mode for Channel (0ch : 2402 MHz,  
Packet Setting : DH5(GFSK)) has been listed.

Test Port : Enclosure

The spurious emissions of the EUT were less than 20dB from the limit.

COPY

**A.10.2.2 Spurious Emissions in the frequency range from 30 MHz to 1000 MHz**

Date : December 28, 2009

Temp. : 16 °C Humi. : 37 %

Mode of EUT : All modes have been investigated and worst case mode for Channel (0ch : 2402 MHz,  
Packet Setting : DH5(GFSK)) has been listed.

Test Port : Enclosure

| Frequency<br>(MHz) | P-A<br>Factor<br>(dB) | Correction<br>Factor<br>(dB) | Polarization | Meter Reading<br>(dBuV) |    |      | Limits<br>(dBuV/m) |      | Emission Levels<br>(dBuV/m) |      | Margins<br>(dB) |      |
|--------------------|-----------------------|------------------------------|--------------|-------------------------|----|------|--------------------|------|-----------------------------|------|-----------------|------|
|                    |                       |                              |              | QP                      | AV | Peak | QP/AV              | Peak | QP/AV                       | Peak | QP/AV           | Peak |
| 54.00              | 0.0                   | 13.7                         | V            | 4.0                     | -  | -    | 40.0               | -    | 17.7                        | -    | 22.3            | -    |
| 62.12              | 0.0                   | 11.6                         | V            | 11.8                    | -  | -    | 40.0               | -    | 23.4                        | -    | 16.6            | -    |
| 84.67              | 0.0                   | 11.0                         | V            | 8.5                     | -  | -    | 40.0               | -    | 19.5                        | -    | 20.5            | -    |
| 93.83              | 0.0                   | 12.9                         | V            | 12.7                    | -  | -    | 43.5               | -    | 25.6                        | -    | 17.9            | -    |
| 108.00             | 0.0                   | 15.6                         | V            | 13.7                    | -  | -    | 43.5               | -    | 29.3                        | -    | 14.2            | -    |
| 124.19             | 0.0                   | 17.6                         | V            | 13.1                    | -  | -    | 43.5               | -    | 30.7                        | -    | 12.8            | -    |
| 135.47             | 0.0                   | 18.5                         | H            | 9.6                     | -  | -    | 43.5               | -    | 28.1                        | -    | 15.4            | -    |
| 191.93             | 0.0                   | 21.1                         | H            | 9.0                     | -  | -    | 43.5               | -    | 30.1                        | -    | 13.4            | -    |
| 297.02             | 0.0                   | 24.4                         | V            | 4.9                     | -  | -    | 46.0               | -    | 29.3                        | -    | 16.7            | -    |
| 324.01             | 0.0                   | 19.0                         | H            | 23.9                    | -  | -    | 46.0               | -    | 42.9                        | -    | 3.1             | -    |
| 348.00             | 0.0                   | 19.6                         | H            | 8.9                     | -  | -    | 46.0               | -    | 28.5                        | -    | 17.5            | -    |
| 360.00             | 0.0                   | 20.0                         | V            | 12.4                    | -  | -    | 46.0               | -    | 32.4                        | -    | 13.6            | -    |
| 396.00             | 0.0                   | 21.2                         | H            | 14.8                    | -  | -    | 46.0               | -    | 36.0                        | -    | 10.0            | -    |
| 462.88             | 0.0                   | 22.6                         | V            | 13.4                    | -  | -    | 46.0               | -    | 36.0                        | -    | 10.0            | -    |
| 540.00             | 0.0                   | 24.0                         | V            | 17.2                    | -  | -    | 46.0               | -    | 41.2                        | -    | 4.8             | -    |
| 648.00             | 0.0                   | 25.7                         | V            | 12.9                    | -  | -    | 46.0               | -    | 38.6                        | -    | 7.4             | -    |
| 756.00             | 0.0                   | 26.9                         | H            | 10.2                    | -  | -    | 46.0               | -    | 37.1                        | -    | 8.9             | -    |
| 828.00             | 0.0                   | 28.1                         | H            | 10.5                    | -  | -    | 46.0               | -    | 38.6                        | -    | 7.4             | -    |
| 859.09             | 0.0                   | 28.7                         | H            | 9.2                     | -  | -    | 46.0               | -    | 37.9                        | -    | 8.1             | -    |
| 977.28             | 0.0                   | 29.5                         | H            | 7.8                     | -  | -    | 54.0               | -    | 37.3                        | -    | 16.7            | -    |

Note : 1) The spectrum was checked from 30 MHz to 1000 MHz.

2) The cable loss, amp. gain and antenna factor are included in the correction factor.

3) The symbol of "&lt;" means "or less".

4) The symbol of "&gt;" means "or greater".

5) A sample calculation(QP/AV) was made at 54.00 MHz.

$$PA + CF + MR = 0.0 + 13.7 + 4.0 = 17.7 \text{ (dBuV/m)}$$

PA : Peak to Average Factor (P-A Factor)

CF : Correction Factor

MR : Meter Reading

6) Measuring Instruments Setting :

Detector Function

Resolution Bandwidth

Video Bandwidth

Quasi-peak (QP)

120 kHz

--

**A.10.2.3 Spurious Emissions in the frequency range above 1 GHz**

Date : December 28, 2009

Temp. : 16 °C Humi. : 37 %

Mode of EUT : All modulation modes of the same carrier frequency have been investigated and worst modulation mode for Channel(0ch : 2402 MHz, Packet Setting : DH5(GFSK)) has been listed.

Test Port : Enclosure

| Frequency<br>(GHz) | P-A<br>Factor<br>(dB) | Correction<br>Factor<br>(dB) | Polarization | Meter Reading<br>(dBuV) |        | Limits<br>(dBuV/m) |      | Emission Levels<br>(dBuV/m) |        | Margins<br>(dB) |        |
|--------------------|-----------------------|------------------------------|--------------|-------------------------|--------|--------------------|------|-----------------------------|--------|-----------------|--------|
|                    |                       |                              |              | AV                      | Peak   | AV                 | Peak | AV                          | Peak   | AV              | Peak   |
| 1.0800             | 0.0                   | -2.7                         | V            | 36.4                    | 49.4   | 54.0               | 74.0 | 33.7                        | 46.7   | 20.3            | 27.3   |
| 1.2000             | 0.0                   | -2.1                         | V            | 31.2                    | 41.4   | 54.0               | 74.0 | 29.1                        | 39.3   | 24.9            | 34.7   |
| 1.5034             | 0.0                   | -0.7                         | V            | 37.4                    | 43.4   | 54.0               | 74.0 | 36.7                        | 42.7   | 17.3            | 31.3   |
| 1.6020             | 0.0                   | -0.3                         | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 27.7                      | < 40.7 | > 26.3          | > 33.3 |
| 1.9330             | 0.0                   | 1.4                          | V            | 32.3                    | 41.2   | 54.0               | 74.0 | 33.7                        | 42.6   | 20.3            | 31.4   |
| 4.8040             | 0.0                   | 8.4                          | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 36.4                      | < 49.4 | > 17.6          | > 24.6 |
| 7.2060             | 0.0                   | 12.0                         | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 40.0                      | < 53.0 | > 14.0          | > 21.0 |

Mode of EUT : All modulation modes of the same carrier frequency have been investigated and worst modulation mode for Channel(39ch : 2441 MHz, Packet Setting : DH5(GFSK)) has been listed.

Test Port : Enclosure

| Frequency<br>(GHz) | P-A<br>Factor<br>(dB) | Correction<br>Factor<br>(dB) | Polarization | Meter Reading<br>(dBuV) |        | Limits<br>(dBuV/m) |      | Emission Levels<br>(dBuV/m) |        | Margins<br>(dB) |        |
|--------------------|-----------------------|------------------------------|--------------|-------------------------|--------|--------------------|------|-----------------------------|--------|-----------------|--------|
|                    |                       |                              |              | AV                      | Peak   | AV                 | Peak | AV                          | Peak   | AV              | Peak   |
| 1.0800             | 0.0                   | -2.7                         | V            | 36.4                    | 49.4   | 54.0               | 74.0 | 33.7                        | 46.7   | 20.3            | 27.3   |
| 1.2000             | 0.0                   | -2.1                         | V            | 31.2                    | 41.4   | 54.0               | 74.0 | 29.1                        | 39.3   | 24.9            | 34.7   |
| 1.5034             | 0.0                   | -0.7                         | V            | 37.4                    | 43.4   | 54.0               | 74.0 | 36.7                        | 42.7   | 17.3            | 31.3   |
| 1.6267             | 0.0                   | -0.2                         | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 27.8                      | < 40.8 | > 26.2          | > 33.2 |
| 1.9330             | 0.0                   | 1.4                          | V            | 32.3                    | 41.2   | 54.0               | 74.0 | 33.7                        | 42.6   | 20.3            | 31.4   |
| 4.8820             | 0.0                   | 8.5                          | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 36.5                      | < 49.5 | > 17.5          | > 24.5 |
| 7.3230             | 0.0                   | 12.1                         | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 40.1                      | < 53.1 | > 13.9          | > 20.9 |

Mode of EUT : All modulation modes of the same carrier frequency have been investigated and worst modulation mode for Channel(78ch : 2480 MHz, Packet Setting : DH5(GFSK)) has been listed.

Test Port : Enclosure

| Frequency<br>(GHz) | P-A<br>Factor<br>(dB) | Correction<br>Factor<br>(dB) | Polar-<br>ization | Meter Reading<br>(dBuV) |        | Limits<br>(dBuV/m) |      | Emission Levels<br>(dBuV/m) |        | Margins<br>(dB) |        |
|--------------------|-----------------------|------------------------------|-------------------|-------------------------|--------|--------------------|------|-----------------------------|--------|-----------------|--------|
|                    |                       |                              |                   | AV                      | Peak   | AV                 | Peak | AV                          | Peak   | AV              | Peak   |
| 1.0800             | 0.0                   | -2.7                         | V                 | 36.4                    | 49.4   | 54.0               | 74.0 | 33.7                        | 46.7   | 20.3            | 27.3   |
| 1.2000             | 0.0                   | -2.1                         | V                 | 31.2                    | 41.4   | 54.0               | 74.0 | 29.1                        | 39.3   | 24.9            | 34.7   |
| 1.5034             | 0.0                   | -0.7                         | V                 | 37.4                    | 43.4   | 54.0               | 74.0 | 36.7                        | 42.7   | 17.3            | 31.3   |
| 1.6527             | 0.0                   | -0.1                         | V                 | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 27.9                      | < 40.9 | > 26.1          | > 33.1 |
| 1.9330             | 0.0                   | 1.4                          | V                 | 32.3                    | 41.2   | 54.0               | 74.0 | 33.7                        | 42.6   | 20.3            | 31.4   |
| 4.9600             | 0.0                   | 8.6                          | V                 | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 36.6                      | < 49.6 | > 17.4          | > 24.4 |
| 7.4400             | 0.0                   | 12.3                         | V                 | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 40.3                      | < 53.3 | > 13.7          | > 20.7 |

Note : 1) The spectrum was checked from 1.0 GHz to 26.5 GHz.

2) The cable loss, amp. gain and antenna factor are included in the correction factor.

3) The symbol of "<" means "or less".

4) The symbol of ">" means "or greater".

5) A sample calculation(Peak) was made at 1.080 GHz of the carrier frequency : 2402 MHz.

$$PA + CF + MR = 0.0 + (-2.7) + 49.4 = 46.7 \text{ (dBuV/m)}$$

PA : Peak to Average Factor (P-A Factor)

CF : Correction Factor

MR : Meter Reading

6) Measuring Instruments Setting :

| Detector Function | Resolution Bandwidth | Video Bandwidth |
|-------------------|----------------------|-----------------|
| Average (AV)      | 1 MHz                | 10 Hz           |
| Peak              | 1 MHz                | 1 MHz           |

**A.11 AC Power Line Conducted Emissions for Transmitter**

Not Applicable

**A.12 RF Exposure Compliance**

The following minimum separation distance between the EUT's antenna and the human body was calculated in accordance with FCC OET65 Appendix A Table(B) "Limit for General Population / Uncontrolled Exposure".

The maximum permissible exposure level is defined with 1mW/cm<sup>2</sup>.

The minimum separation distance where the exposure level reaches the permitted level can be calculated as bellow:

$$S = P * G / 4\pi R^2$$

Where:

R = 20.0 cm (Separation distance)

P = 1.403 mW (= 1.47 dBm Max. conducted output power at antenna terminal)

G = 0.646(numeric gain) (= -1.9 dBi Max. antenna Gain)

S = Calculated Value

(S<sub>Limit</sub> = 1.0 mW/cm<sup>2</sup> for 2.4 GHz (Max. permissible exposure level))

Then **S = 0.000180 mW/cm<sup>2</sup>**.

**A.13 Spurious Emissions for Receiver (Radiation)****A.13.1 Spurious Emissions in the frequency range from 30 MHz to 1000 MHz**

Date : December 28, 2009

Temp. : 16 °C Humi. : 37 %

Mode of EUT : All modes have been investigated and worst case mode for Channel (0ch : 2402 MHz)  
has been listed.

Test Port : Enclosure

| Frequency<br>(MHz) | P-A<br>Factor<br>(dB) | Correction<br>Factor<br>(dB) | Polarization | Meter Reading<br>(dBuV) |    |      | Limits<br>(dBuV/m) |      | Emission Levels<br>(dBuV/m) |      | Margins<br>(dB) |      |
|--------------------|-----------------------|------------------------------|--------------|-------------------------|----|------|--------------------|------|-----------------------------|------|-----------------|------|
|                    |                       |                              |              | QP                      | AV | Peak | QP/AV              | Peak | QP/AV                       | Peak | QP/AV           | Peak |
| 54.00              | 0.0                   | 13.7                         | V            | 3.9                     | -  | -    | 40.0               | -    | 17.6                        | -    | 22.4            | -    |
| 62.12              | 0.0                   | 11.6                         | V            | 11.8                    | -  | -    | 40.0               | -    | 23.4                        | -    | 16.6            | -    |
| 84.67              | 0.0                   | 11.0                         | H            | 8.6                     | -  | -    | 40.0               | -    | 19.6                        | -    | 20.4            | -    |
| 93.83              | 0.0                   | 12.9                         | V            | 12.5                    | -  | -    | 43.5               | -    | 25.4                        | -    | 18.1            | -    |
| 108.00             | 0.0                   | 15.6                         | V            | 16.4                    | -  | -    | 43.5               | -    | 32.0                        | -    | 11.5            | -    |
| 124.19             | 0.0                   | 17.6                         | V            | 13.6                    | -  | -    | 43.5               | -    | 31.2                        | -    | 12.3            | -    |
| 135.47             | 0.0                   | 18.5                         | H            | 9.6                     | -  | -    | 43.5               | -    | 28.1                        | -    | 15.4            | -    |
| 191.93             | 0.0                   | 21.1                         | H            | 8.8                     | -  | -    | 43.5               | -    | 29.9                        | -    | 13.6            | -    |
| 297.02             | 0.0                   | 24.4                         | V            | 5.3                     | -  | -    | 46.0               | -    | 29.7                        | -    | 16.3            | -    |
| 324.01             | 0.0                   | 19.0                         | H            | 23.8                    | -  | -    | 46.0               | -    | 42.8                        | -    | 3.2             | -    |
| 348.00             | 0.0                   | 19.6                         | H            | 8.9                     | -  | -    | 46.0               | -    | 28.5                        | -    | 17.5            | -    |
| 360.00             | 0.0                   | 20.0                         | H            | 14.1                    | -  | -    | 46.0               | -    | 34.1                        | -    | 11.9            | -    |
| 396.00             | 0.0                   | 21.2                         | H            | 14.7                    | -  | -    | 46.0               | -    | 35.9                        | -    | 10.1            | -    |
| 462.88             | 0.0                   | 22.6                         | V            | 13.7                    | -  | -    | 46.0               | -    | 36.3                        | -    | 9.7             | -    |
| 540.00             | 0.0                   | 24.0                         | V            | 17.2                    | -  | -    | 46.0               | -    | 41.2                        | -    | 4.8             | -    |
| 648.00             | 0.0                   | 25.7                         | V            | 13.1                    | -  | -    | 46.0               | -    | 38.8                        | -    | 7.2             | -    |
| 756.00             | 0.0                   | 26.9                         | H            | 10.3                    | -  | -    | 46.0               | -    | 37.2                        | -    | 8.8             | -    |
| 828.00             | 0.0                   | 28.1                         | H            | 9.9                     | -  | -    | 46.0               | -    | 38.0                        | -    | 8.0             | -    |
| 859.09             | 0.0                   | 28.7                         | H            | 9.5                     | -  | -    | 46.0               | -    | 38.2                        | -    | 7.8             | -    |
| 977.28             | 0.0                   | 29.5                         | H            | 7.8                     | -  | -    | 54.0               | -    | 37.3                        | -    | 16.7            | -    |

Note : 1) The spectrum was checked from 30 MHz to 1000 MHz.

2) The cable loss, amp. gain and antenna factor are included in the correction factor.

3) The symbol of "<" means "or less".

4) The symbol of ">" means "or greater".

5) A sample calculation(QP/AV) was made at 54.00 MHz.

$$PA + CF + MR = 0.0 + 13.7 + 3.9 = 17.6 \text{ (dBuV/m)}$$

PA : Peak to Average Factor (P-A Factor)

CF : Correction Factor

MR : Meter Reading

6) Measuring Instruments Setting :

Detector Function

Resolution Bandwidth

Video Bandwidth

Quasi-peak (QP)

120 kHz

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**A.13.2 Spurious Emissions in the frequency range above 1 GHz**Date : December 28, 2009Temp. : 16 °C Humi. : 37 %

Mode of EUT : RX Mode (0ch : 2402MHz)

Test Port : Enclosure

| Frequency<br>(GHz) | P-A<br>Factor<br>(dB) | Correction<br>Factor<br>(dB) | Polarization | Meter Reading<br>(dBuV) |        | Limits<br>(dBuV/m) |      | Emission Levels<br>(dBuV/m) |        | Margins<br>(dB) |        |
|--------------------|-----------------------|------------------------------|--------------|-------------------------|--------|--------------------|------|-----------------------------|--------|-----------------|--------|
|                    |                       |                              |              | AV                      | Peak   | AV                 | Peak | AV                          | Peak   | AV              | Peak   |
| 1.0800             | 0.0                   | -2.7                         | V            | 36.2                    | 49.5   | 54.0               | 74.0 | 33.5                        | 46.8   | 20.5            | 27.2   |
| 1.2000             | 0.0                   | -2.1                         | V            | 31.3                    | 41.3   | 54.0               | 74.0 | 29.2                        | 39.2   | 24.8            | 34.8   |
| 1.5034             | 0.0                   | -0.7                         | V            | 37.3                    | 43.2   | 54.0               | 74.0 | 36.6                        | 42.5   | 17.4            | 31.5   |
| 1.6023             | 0.0                   | -0.3                         | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 27.7                      | < 40.7 | > 26.3          | > 33.3 |
| 1.9330             | 0.0                   | 1.4                          | V            | 32.8                    | 41.3   | 54.0               | 74.0 | 34.2                        | 42.7   | 19.8            | 31.3   |
| 2.3625             | 0.0                   | 1.9                          | V            | 28.9                    | < 41.0 | 54.0               | 74.0 | 30.8                        | < 42.9 | 23.2            | > 31.1 |
| 2.4035             | 0.0                   | 2.0                          | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 30.0                      | < 43.0 | > 24.0          | > 31.0 |
| 2.8000             | 0.0                   | 3.3                          | H            | 30.4                    | 41.2   | 54.0               | 74.0 | 33.7                        | 44.5   | 20.3            | 29.5   |

Mode of EUT : RX Mode (39ch : 2441MHz)

Test Port : Enclosure

| Frequency<br>(GHz) | P-A<br>Factor<br>(dB) | Correction<br>Factor<br>(dB) | Polarization | Meter Reading<br>(dBuV) |        | Limits<br>(dBuV/m) |      | Emission Levels<br>(dBuV/m) |        | Margins<br>(dB) |        |
|--------------------|-----------------------|------------------------------|--------------|-------------------------|--------|--------------------|------|-----------------------------|--------|-----------------|--------|
|                    |                       |                              |              | AV                      | Peak   | AV                 | Peak | AV                          | Peak   | AV              | Peak   |
| 1.0800             | 0.0                   | -2.7                         | V            | 36.2                    | 49.5   | 54.0               | 74.0 | 33.5                        | 46.8   | 20.5            | 27.2   |
| 1.2000             | 0.0                   | -2.1                         | V            | 31.3                    | 41.3   | 54.0               | 74.0 | 29.2                        | 39.2   | 24.8            | 34.8   |
| 1.5034             | 0.0                   | -0.7                         | V            | 37.3                    | 43.2   | 54.0               | 74.0 | 36.6                        | 42.5   | 17.4            | 31.5   |
| 1.6283             | 0.0                   | -0.3                         | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 27.7                      | < 40.7 | > 26.3          | > 33.3 |
| 1.9330             | 0.0                   | 1.4                          | V            | 32.8                    | 41.3   | 54.0               | 74.0 | 34.2                        | 42.7   | 19.8            | 31.3   |
| 2.3625             | 0.0                   | 1.9                          | V            | 28.9                    | < 41.0 | 54.0               | 74.0 | 30.8                        | < 42.9 | 23.2            | > 31.1 |
| 2.4425             | 0.0                   | 2.2                          | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 30.2                      | < 43.2 | > 23.8          | > 30.8 |
| 2.8000             | 0.0                   | 3.3                          | H            | 30.4                    | 41.2   | 54.0               | 74.0 | 33.7                        | 44.5   | 20.3            | 29.5   |

Mode of EUT : RX Mode (78ch : 2480MHz)

Test Port : Enclosure

| Frequency<br>(GHz) | P-A<br>Factor<br>(dB) | Correction<br>Factor<br>(dB) | Polarization | Meter Reading<br>(dBuV) |        | Limits<br>(dBuV/m) |      | Emission Levels<br>(dBuV/m) |        | Margins<br>(dB) |        |
|--------------------|-----------------------|------------------------------|--------------|-------------------------|--------|--------------------|------|-----------------------------|--------|-----------------|--------|
|                    |                       |                              |              | AV                      | Peak   | AV                 | Peak | AV                          | Peak   | AV              | Peak   |
| 1.0800             | 0.0                   | -2.7                         | V            | 36.2                    | 49.5   | 54.0               | 74.0 | 33.5                        | 46.8   | 20.5            | 27.2   |
| 1.2000             | 0.0                   | -2.1                         | V            | 31.3                    | 41.3   | 54.0               | 74.0 | 29.2                        | 39.2   | 24.8            | 34.8   |
| 1.5034             | 0.0                   | -0.7                         | V            | 37.3                    | 43.2   | 54.0               | 74.0 | 36.6                        | 42.5   | 17.4            | 31.5   |
| 1.6543             | 0.0                   | -0.3                         | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 27.7                      | < 40.7 | > 26.3          | > 33.3 |
| 1.9330             | 0.0                   | 1.4                          | V            | 32.8                    | 41.3   | 54.0               | 74.0 | 34.2                        | 42.7   | 19.8            | 31.3   |
| 2.3625             | 0.0                   | 1.9                          | V            | 28.9                    | < 41.0 | 54.0               | 74.0 | 30.8                        | < 42.9 | 23.2            | > 31.1 |
| 2.4815             | 0.0                   | 2.3                          | V            | < 28.0                  | < 41.0 | 54.0               | 74.0 | < 30.3                      | < 43.3 | > 23.7          | > 30.7 |
| 2.8000             | 0.0                   | 3.3                          | H            | 30.4                    | 41.2   | 54.0               | 74.0 | 33.7                        | 44.5   | 20.3            | 29.5   |

Note : 1) The spectrum was checked from 1.0 GHz to 26.5 GHz.

2) The cable loss, amp. gain and antenna factor are included in the correction factor.

3) The symbol of "<" means "or less".

4) The symbol of ">" means "or greater".

5) A sample calculation(Peak) was made at 1.080 GHz of the carrier frequency : 2402 MHz.

PA + CF + MR = 0.0 + (-2.7) + 49.5 = 46.8 (dBuV/m)

PA : Peak to Average Factor (P-A Factor)

CF : Correction Factor

MR : Meter Reading

6) Measuring Instruments Setting :

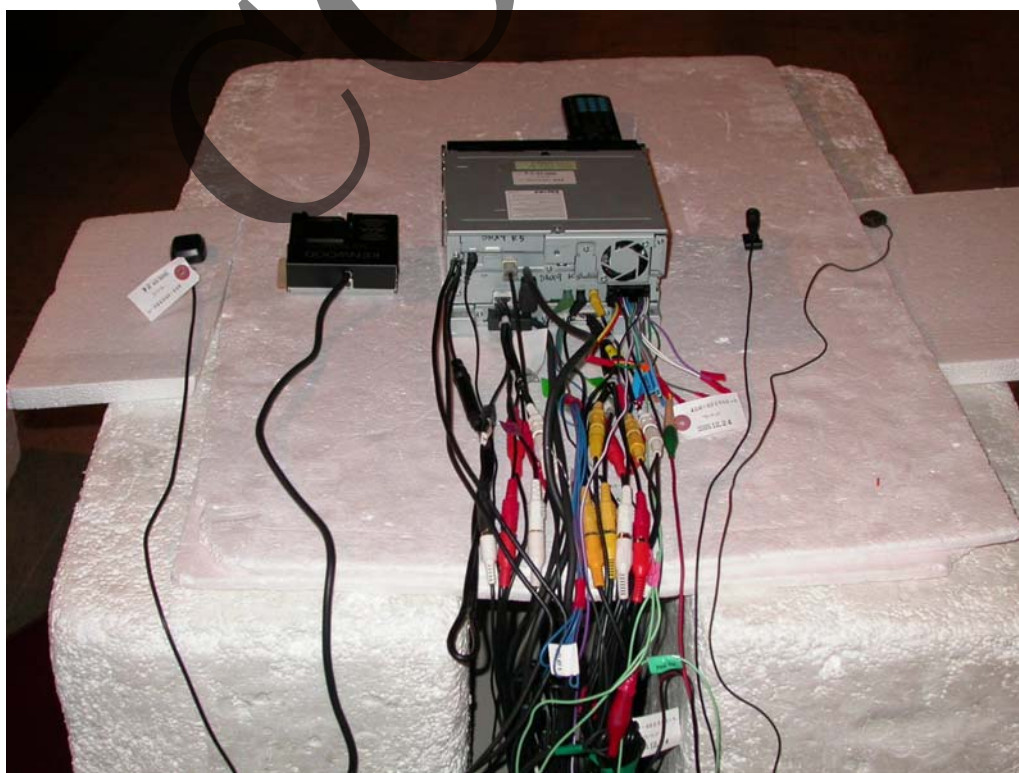
| Detector Function | Resolution Bandwidth | Video Bandwidth |
|-------------------|----------------------|-----------------|
| Average (AV)      | 1 MHz                | 10 Hz           |
| Peak              | 1 MHz                | 1 MHz           |

#### A.14 AC Power Line Conducted Emissions for Receiver

Not Applicable

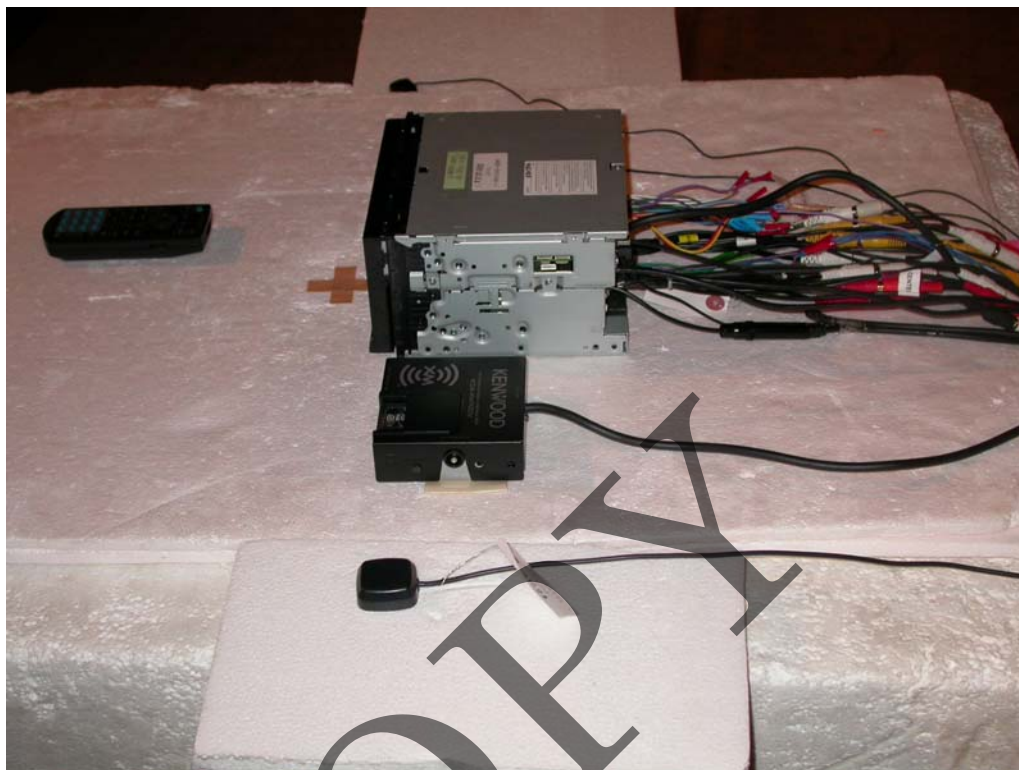
**Appendix B : Test Arrangement (Photographs)****B.1 Radiated Emissions**

- Front View -

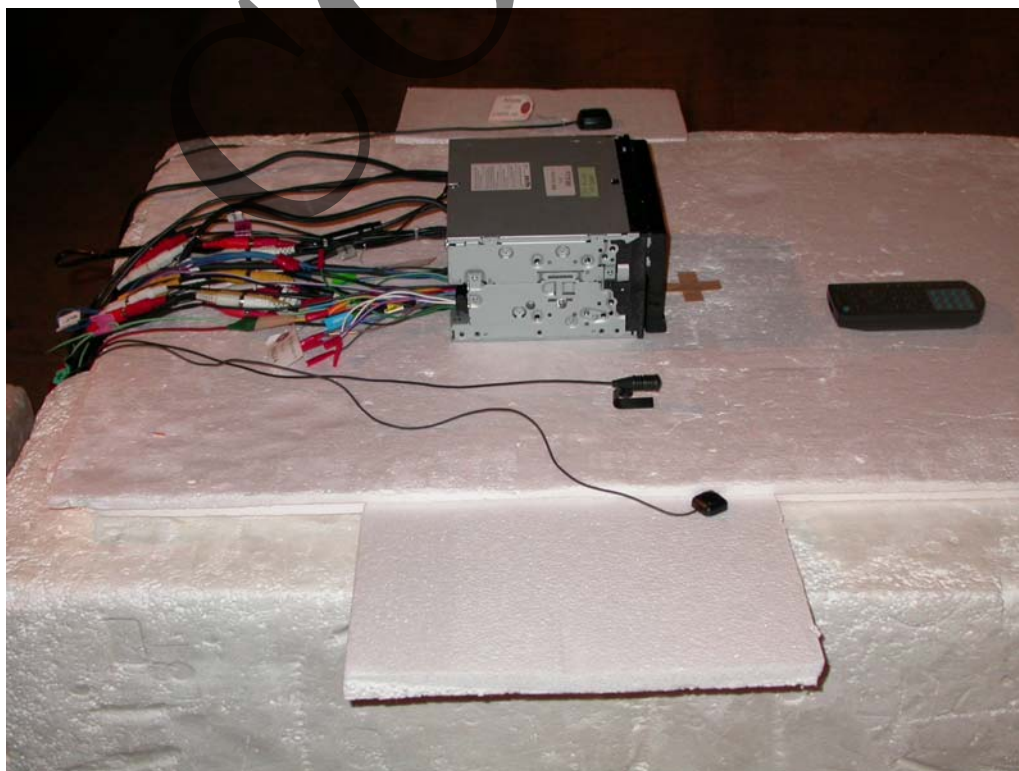


- Rear View -

Photograph present configuration with maximum emission



- Right Side View -



- Left Side View -

Photograph present configuration with maximum emission

**B.2 AC Power Line Conducted Emissions**

Not Applicable

COPY

## Appendix C : Test Instruments

02-Feb-2010

| No                      | Type               | Model | Manufacturer | Serial | ID           | Last Cal. | Interval |
|-------------------------|--------------------|-------|--------------|--------|--------------|-----------|----------|
| <b>Test Facilities:</b> |                    |       |              |        |              |           |          |
| 1                       | Anechoic Chamber A | -     | TDK          | -      | 800-01-502E0 | Apr 2009  | 1 Year   |
| 2                       | Anechoic Chamber B | -     | TDK          | -      | 800-01-503E0 | Apr 2009  | 1 Year   |
| 3                       | Shield Room A      | -     | TDK          | -      | 800-01-501E0 | -         | -        |
| 4                       | Shield Room B      | -     | Ray Proof    | -      | 800-01-010E0 | -         | -        |
| 5                       | Shield Room C      | -     | TDK          | -      | 800-01-504E0 | -         | -        |
| 6                       | Shield Room D      | -     | Emerson      | -      | 800-01-022E0 | -         | -        |
| 7                       | Shield Room E      | -     | TDK          | -      | 800-01-505E0 | -         | -        |

## Measuring Instruments:

|     |                      |          |                 |            |              |          |        |
|-----|----------------------|----------|-----------------|------------|--------------|----------|--------|
| 10  | Test Receiver        | ESHS10   | Rohde & Schwarz | 835871/004 | 119-01-505E0 | May 2009 | 1 Year |
| 11  | Test Receiver        | ESVS10   | Rohde & Schwarz | 826148/002 | 119-03-504E0 | Jun 2009 | 1 Year |
| 12  | Test Receiver        | ESVS10   | Rohde & Schwarz | 832699/001 | 119-03-506E0 | Sep 2009 | 1 Year |
| 13  | Test Receiver        | ESI26    | Rohde & Schwarz | 100043     | 119-04-511E0 | Oct 2009 | 1 Year |
| 14  | Spectrum Analyzer    | R3182    | Advantest       | 120600581  | 122-02-521E0 | Mar 2009 | 1 Year |
| 19  | Spectrum Analyzer    | R3132    | Advantest       | 120500072  | 122-02-520E0 | May 2009 | 1 Year |
| 20  | Spectrum Analyzer    | R3132    | Advantest       | 150400998  | 122-02-523E0 | Jul 2009 | 1 Year |
| 65  | Power Meter          | 436A     | Hewlett Packard | 1725A01930 | 100-02-501E0 | Apr 2009 | 1 Year |
| 66  | Power Sensor         | 8482A    | Hewlett Packard | 1551A01013 | 100-02-501E0 | Apr 2009 | 1 Year |
| 68  | FM Linear Detector   | MS61A    | Anritsu         | M77486     | 123-02-008E0 | Oct 2009 | 1 Year |
| 69  | Level Meter          | ML422C   | Anritsu         | M87571     | 114-02-501E0 | Jun 2009 | 1 Year |
| 70  | Measuring Amplifier  | 2636     | B & K           | 1614851    | 082-01-502E0 | May 2009 | 1 Year |
| 75  | Frequency Counter    | 53131A   | Hewlett Packard | 3546A11807 | 102-02-075E0 | May 2009 | 1 Year |
| 83  | FFT Analyzer         | R9211C   | Advantest       | 02020253   | 122-02-506E0 | Jun 2009 | 1 Year |
| 84  | Noise Meter          | MN-446   | Meguro          | 53030478   | 082-01-144E0 | Apr 2009 | 1 Year |
| 163 | Digital Oscilloscope | 54502A   | Hewlett Packard | 2934A05573 | 121-02-502E0 | May 2009 | 1 Year |
| 165 | Multimeter           | VOAC7413 | Iwatsu Electric | 0267973    | 114-02-502E0 | Apr 2009 | 1 Year |
| 172 | Test Receiver        | ESCI     | Rohde & Schwarz | 100408     | 119-04-512E0 | Oct 2009 | 1 Year |
| 210 | Peak Power Meter     | ML2495A  | Anritsu         | 0836023    | 100-02-507E0 | Nov 2009 | 1 Year |
| 211 | Power Sensor         | MA2491A  | Anritsu         | 0811206    | 100-02-507E0 | Nov 2009 | 1 Year |
| 212 | Power Sensor         | MA2411B  | Anritsu         | 0738312    | 100-02-507E0 | Nov 2009 | 1 Year |
| 230 | Spectrum Analyzer    | U3751    | Advantest       | 150800116  | 122-02-003T  | Feb 2009 | 1 Year |
| 232 | Digital Oscilloscope | TDS3052C | Tektronix, Inc. | C010708    | 121-02-504E0 | Jun 2009 | 1 Year |

## Antennas:

|     |                            |                |                  |             |              |          |        |
|-----|----------------------------|----------------|------------------|-------------|--------------|----------|--------|
| 21  | Loop Antenna               | HFH2-Z2        | Rohde & Schwarz  | 881058/62   | 119-05-033E0 | Jul 2009 | 1 Year |
| 234 | Dipole Antenna             | KBA-511A       | Kyoritsu         | 0-316-5     | 119-05-123E0 | Nov 2009 | 2 Year |
| 235 | Dipole Antenna             | KBA-611        | Kyoritsu         | 0-317-3     | 119-05-124E0 | Nov 2009 | 2 Year |
| 27  | Biconical Antenna          | BBA9106        | Schwarzbeck      | -           | 119-05-078E0 | Nov 2008 | 1 Year |
| 28  | Log-periodic Antenna       | UHALP9107      | Schwarzbeck      | -           | 119-05-079E0 | Nov 2008 | 1 Year |
| 31  | Horn Antenna               | 3115           | EMC Test Systems | 6442        | 119-05-514E0 | Jan 2010 | 2 Year |
| 32  | Horn Antenna               | 3116           | EMC Test Systems | 2547        | 119-05-515E0 | Jun 2009 | 2 Year |
| 167 | Biconical Antenna          | BBA9106        | Schwarzbeck      | VHA91032325 | 119-05-520E0 | Jun 2009 | 1 Year |
| 168 | Log-periodic Antenna       | UHALP9108A     | Schwarzbeck      | 0666        | 119-05-521E0 | Jun 2009 | 1 Year |
| 169 | Biconical Antenna          | BBA9106        | Schwarzbeck      | VHA91032399 | 119-05-522E0 | Jun 2009 | 1 Year |
| 170 | Log-periodic Antenna       | UHALP9108A     | Schwarzbeck      | 0724        | 119-05-523E0 | Jun 2009 | 1 Year |
| 198 | Log-periodic Antenna       | HL050          | Rohde & Schwarz  | 100251      | 119-05-524E0 | Sep 2009 | 1 Year |
| 225 | Loop Sensor/Radiating Loop | F55103-2-0.13M | FCC              | 03018       | 119-05-516E0 | -        | -      |
| 236 | Horn Antenna               | 3160-03        | EMC Test Systems | 00078687    | 119-05-525E0 | Oct 2008 | 2 Year |
| 237 | Horn Antenna               | 3160-08        | EMC Test Systems | 00026081    | 119-05-517E0 | Jan 2008 | 2 Year |
| 238 | Horn Antenna               | 3160-09        | EMC Test Systems | 00023883    | 119-05-518E0 | May 2009 | 2 Year |
| 239 | Horn Antenna               | 3160-10        | EMC Test Systems | 00026026    | 119-05-519E0 | Jul 2009 | 2 Year |

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| No                        | Type                   | Model              | Manufacturer        | Serial         | ID           | Last Cal. | Interval |
|---------------------------|------------------------|--------------------|---------------------|----------------|--------------|-----------|----------|
| <b><u>Cables:</u></b>     |                        |                    |                     |                |              |           |          |
| 38                        | RF Cable               | 5D-2W              | Fujikura            | -              | 155-21-001E0 | Feb 2009  | 1 Year   |
| 39                        | RF Cable               | 5D-2W              | Fujikura            | -              | 155-21-002E0 | Feb 2009  | 1 Year   |
| 40                        | RF Cable               | 3D-2W              | Fujikura            | -              | 155-21-005E0 | Apr 2009  | 1 Year   |
| 41                        | RF Cable               | 3D-2W              | Fujikura            | -              | 155-21-006E0 | Apr 2009  | 1 Year   |
| 42                        | RF Cable               | 3D-2W              | Fujikura            | -              | 155-21-007E0 | Apr 2009  | 1 Year   |
| 43                        | RF Cable               | RG213/U            | Rohde & Schwarz     | -              | 155-21-010E0 | Apr 2009  | 1 Year   |
| 44                        | RF Cable(10m)          | S 04272B           | Suhner              | -              | 155-21-011E0 | May 2009  | 1 Year   |
| 45                        | RF Cable(1.5m 18GHz)   | S 04272B           | Suhner              | -              | 155-21-012E0 | May 2009  | 1 Year   |
| 46                        | RF Cable(1m 18GHz)     | SUCOFLEX10         | Suhner              | -              | 155-21-013E0 | May 2009  | 1 Year   |
| 47                        | RF Cable(1m N)         | S 04272B           | Suhner              | -              | 155-21-015E0 | Jun 2009  | 1 Year   |
| 48                        | RF Cable(1m 26GHz)     | SUCOFLEX 104E      | Suhner              | 14543/4E       | 155-21-016E0 | Dec 2009  | 1 Year   |
| 49                        | RF Cable(4m 26GHz)     | SUCOFLEX10         | Suhner              | 190630         | 155-21-017E0 | Dec 2009  | 1 Year   |
| 50                        | RF Cable(10m)          | F130-S1S1-394      | MEGA PHASE          | 10510          | 155-21-018E0 | Dec 2009  | 1 Year   |
| 51                        | RF Cable(5m)           | 3D-2W              | Fujikura            | -              | 155-21-009E0 | Apr 2009  | 1 Year   |
| 52                        | RF Cable(7m)           | RG223/U            | Suhner              | -              | 155-21-021E0 | May 2009  | 1 Year   |
| 195                       | RF Cable(10m)          | F130-S1S1-394      | MEGA PHASE          | 20051          | 155-21-020E0 | Apr 2009  | 1 Year   |
| 240                       | RF Cable(3m 40GHz)     | KPS-1501-1181-KPS  | Insulated Wire Inc. | 11292001       | 155-21-019E0 | Jan 2010  | 1 Year   |
| 241                       | RF Cable(6m 40GHz)     | SUCOFLEX 102E      | Suhner              | 6257/2E        | 155-21-024E0 | Oct 2009  | 1 Year   |
| <b><u>Networks:</u></b>   |                        |                    |                     |                |              |           |          |
| 33                        | LISN                   | KNW-407            | Kyoritsu            | 8-833-6        | 149-04-052E0 | Nov 2009  | 1 Year   |
| 34                        | LISN                   | KNW-407            | Kyoritsu            | 8-855-2        | 149-04-055E0 | May 2009  | 1 Year   |
| 35                        | LISN                   | KNW-407            | Kyoritsu            | 8-1130-6       | 149-04-062E0 | May 2009  | 1 Year   |
| 36                        | LISN                   | KNW-242C           | Kyoritsu            | 8-837-13       | 149-04-054E0 | Apr 2009  | 1 Year   |
| 37                        | Absorbing Clamp        | MDS21              | Luthi               | 03293          | 119-06-506E0 | Aug 2009  | 1 Year   |
| 164                       | LISN                   | KNW-403D           | Kyoritsu            | 8-1474-3       | 149-04-059E0 | Apr 2009  | 1 Year   |
| 173                       | Pulse Limiter          | ESH3-Z2            | Rohde & Schwarz     | -              | 156-01-501E0 | Apr 2009  | 1 Year   |
| 174                       | Pulse Limiter          | ESH3-Z2            | Rohde & Schwarz     | -              | 156-01-502E0 | Apr 2009  | 1 Year   |
| 175                       | Pulse Limiter          | ESH3-Z2            | Rohde & Schwarz     | -              | 156-01-503E0 | Apr 2009  | 1 Year   |
| 194                       | High Impedance Probe   | HP-2               | JQA                 | 001            | 149-06-503E0 | Oct 2009  | 1 Year   |
| 248                       | High Impedance Probe   | KNW-411            | Kyoritsu            | 8-2071-2       | 149-06-504E0 | Feb 2010  | 1 Year   |
| <b><u>Amplifiers:</u></b> |                        |                    |                     |                |              |           |          |
| 53                        | AF Amplifier           | P-500L             | Accuphase           | BOY806         | 127-01-501E0 | Feb 2009  | 1 Year   |
| 54                        | RF Amplifier           | WJ-6882-814        | Watkins-Johnson     | 0414           | 127-04-017E0 | Jun 2009  | 1 Year   |
| 55                        | RF Amplifier           | WJ-5315-556        | Watkins-Johnson     | 106            | 127-04-006E0 | Jun 2009  | 1 Year   |
| 56                        | RF Amplifier           | WJ-5320-307        | Watkins-Johnson     | 645            | 127-04-005E0 | Jun 2009  | 1 Year   |
| 57                        | RF Amplifier           | JS4-00102600-28-5A | MITEQ               | 669167         | 127-04-502E0 | Apr 2009  | 1 Year   |
| 226                       | Differential Amplifier | 5303               | NF                  | 155726-5305046 | 127-01-502E0 | Apr 2009  | 1 Year   |

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| No                 | Type               | Model          | Manufacturer             | Serial     | ID           | Last Cal. | Interval |
|--------------------|--------------------|----------------|--------------------------|------------|--------------|-----------|----------|
| <b>Generators:</b> |                    |                |                          |            |              |           |          |
| 58                 | Function Generator | 3325B          | Hewlett Packard          | 2847A03284 | 118-08-124E0 | Jul 2009  | 1 Year   |
| 59                 | Function Generator | VP-7422A       | Matsushita Communication | 050351E122 | 118-08-503E0 | Jul 2009  | 1 Year   |
| 60                 | Signal Generator   | 8664A          | Hewlett Packard          | 3035A00140 | 118-03-014E0 | May 2009  | 1 Year   |
| 61                 | Signal Generator   | 8664A          | Hewlett Packard          | 3438A00756 | 118-04-502E0 | May 2009  | 1 Year   |
| 62                 | Signal Generator   | 6061A          | Gigatronics              | 5130593    | 118-04-024E0 | Mar 2009  | 1 Year   |
| 171                | Signal Generator   | SML03          | Rohde & Schwarz          | 102651     | 118-04-509E0 | Feb 2009  | 1 Year   |
| 222                | Signal Generator   | 8673D          | Hewlett Packard          | 2938A00988 | 118-04-015E0 | Jul 2009  | 2 Year   |
| <b>Others:</b>     |                    |                |                          |            |              |           |          |
| 63                 | Termination(50)    | -              | Suhner                   | -          | 154-06-501E0 | Jan 2010  | 1 Year   |
| 64                 | Termination(50)    | -              | Suhner                   | -          | 154-06-502E0 | Jan 2010  | 1 Year   |
| 71                 | Microphone         | 4134           | B & K                    | 1253497    | 147-01-502E0 | May 2009  | 1 Year   |
| 72                 | Preamplifier       | 2639           | B & K                    | 1268763    | 127-01-504E0 | -         | -        |
| 73                 | Pistonphone        | 4220           | B & K                    | 1165008    | 147-02-501E0 | Mar 2009  | 1 Year   |
| 74                 | Artificial Mouth   | 4227           | B & K                    | 1274869    | -            | -         | -        |
| 76                 | Oven               | -              | Ohnishi                  | -          | 023-02-018E0 | -         | -        |
| 77                 | DC Power Supply    | 6628A          | Hewlett Packard          | 3224A00284 | 072-05-503E0 | Jun 2009  | 1 Year   |
| 78                 | Band Reject Filter | BRM12294       | Micro-tronics            | 003        | 149-01-501E0 | Jan 2010  | 1 Year   |
| 79                 | High Pass Filter   | F-100-4000-5-R | RLC Electronics          | 0149       | 149-01-502E0 | Feb 2009  | 1 Year   |
| 80                 | Attenuator         | 43KC-10        | Anritsu                  | -          | 148-03-506E0 | Feb 2009  | 1 Year   |
| 81                 | Attenuator         | 43KC-20        | Anritsu                  | -          | 148-03-507E0 | Feb 2009  | 1 Year   |
| 82                 | Attenuator         | 355D           | Hewlett Packard          | 219-10782  | 148-03-065E0 | Apr 2009  | 1 Year   |
| 85                 | RF Detector        | 75KC-50        | Anritsu                  | 305002     | 100-02-506E0 | Jul 2009  | 1 Year   |
| 200                | Artificial Hand    | AH-1           | ES Factory               | 001        | 155-07-561E0 | Jul 2009  | 1 Year   |
| 201                | Barometer          | TYPE6          | Yanagi                   | 16076      | 209-02-014E0 | Feb 2008  | 2 Year   |
| 202                | Thermo-Hygrometer  | -              | Empex                    | -          | 141-01-504E0 | Mar 2008  | 2 Year   |
| 203                | Thermo-Hygrometer  | EX-2727        | Empex                    | -          | 141-01-505E0 | Mar 2008  | 2 Year   |
| 204                | Thermo-Hygrometer  | EX-2727        | Empex                    | -          | 141-01-506E0 | Mar 2008  | 2 Year   |
| 205                | Thermo-Hygrometer  | EX-2727        | Empex                    | -          | 141-01-507E0 | Mar 2008  | 2 Year   |
| 206                | Low Pass Filter    | LPM13323       | Micro-tronics            | 001        | 149-01-505E0 | Jul 2009  | 1 Year   |
| 207                | High Pass Filter   | HPM13321       | Micro-tronics            | 001        | 149-01-506E0 | Jul 2009  | 1 Year   |
| 208                | High Pass Filter   | HPM13322       | Micro-tronics            | 001        | 149-01-507E0 | Jul 2009  | 1 Year   |
| 242                | Power Divider      | 1575           | Aeroflex Weischel        | 1153       | 086-02-501E0 | Oct 2009  | 1 Year   |
| 243                | Power Divider      | 1575           | Aeroflex Weischel        | 1157       | 086-02-502E0 | Oct 2009  | 1 Year   |
| 244                | Power Divider      | 1575           | Aeroflex Weischel        | 1161       | 086-02-503E0 | Oct 2009  | 1 Year   |