

# TEST REPORT

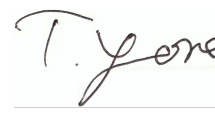
**REGULATIONS :** FCC Part15 C §15.247  
RSS-247 Issue 1

| Applicant                                                                                                                                            | Testing Laboratory                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|                            |                                                                         |
|----------------------------|-------------------------------------------------------------------------|
| <b>Equipment Type</b>      | Bluetooth Module                                                        |
| <b>Trademark</b>           | KENWOOD                                                                 |
| <b>Model(s)</b>            | J7C-0037                                                                |
| <b>Serial No.</b>          | 100 (for Radiated testing)<br>106 (for Antenna Port Conductive testing) |
| <b>FCC ID</b>              | K44479250                                                               |
| <b>IC CN and UPN</b>       | 282F-479250                                                             |
| <b>Test Result</b>         | Complied                                                                |
| <b>Report Number</b>       | 1611055JMA-001                                                          |
| <b>Original Issue Date</b> | December 5, 2016                                                        |

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Approved by   
Hideaki Kosemura  
[ Reviewer ]

Tested by   
Tomochika Yonemura  
[ Engineer ]



Responsible Party of Test Item (Product)

|                   |   |
|-------------------|---|
| Responsible Party | : |
| Add.              | : |
| Tel.              | : |
| Fax.              | : |
| Contact Person    | : |

## **TABLE OF CONTENTS**

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|                                                                | Page      |
|----------------------------------------------------------------|-----------|
| <b>SECTION 1. GENERAL INFORMATION</b>                          | <b>3</b>  |
| <b>SECTION 2. SUMMARY OF TEST RESULTS</b>                      | <b>4</b>  |
| <b>SECTION 3. EQUIPMENT UNDER TEST</b>                         | <b>5</b>  |
| <b>SECTION 4. SUPPORT EQUIPMENT</b>                            | <b>6</b>  |
| <b>SECTION 5. USED CABLE(S)</b>                                | <b>7</b>  |
| <b>SECTION 6. TEST CONFIGURATION</b>                           | <b>8</b>  |
| <b>SECTION 7. OPERATING CONDITION</b>                          | <b>9</b>  |
| <b>SECTION 8. UNCERTAINTY</b>                                  | <b>10</b> |
| <b>SECTION 9. TEST DATA</b>                                    | <b>11</b> |
| 9.1 20 dB Bandwidth and 99 % Occupied Bandwidth                | 11        |
| 9.2 Maximum Peak Output Power                                  | 12        |
| 9.3 Carrier Frequency Separation                               | 14        |
| 9.4 Number of Hopping Frequency                                | 15        |
| 9.5 Time of Occupancy                                          | 16        |
| 9.6 Radiated Spurious Emissions and Band Edge of Restrict Band | 18        |
| 9.7 Band Edge of Authorized Frequency Band                     | 28        |
| 9.8 Spurious RF Conducted Emissions                            | 31        |
| 9.9 AC Conducted Emissions                                     | 32        |
| 9.10 Receiver Spurious Emissions                               | 35        |
| <b>SECTION 10. LIST AND DIAGRAM OF MEASURING INSTRUMENTS</b>   | <b>36</b> |
| ANNEX                                                          | 41        |
| A. HARD COPY OF SPECTRUM PLOTS                                 | 42        |
| B. PHOTOGRAPHS OF EMISSION SET-UP                              | 80        |
| C. PHOTOGRAPHS OF EUT Axis                                     | 84        |

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## SECTION 1. GENERAL INFORMATION

### Test Performed

|                                   |                                             |                                     |
|-----------------------------------|---------------------------------------------|-------------------------------------|
| <b>EUT Received</b>               | November 11, 2016                           |                                     |
| <b>Date of Test</b>               | From November 16, 2016 to November 22, 2016 |                                     |
| <b>Standard Applied</b>           | FCC                                         | IC                                  |
|                                   | FCC Part15 C §15.247                        | RSS-247 Issue 1                     |
| <b>Test methods</b>               | ANSI C63.10-2013                            | RSS-Gen Issue 4<br>ANSI C63.10-2013 |
| <b>Deviation from Standard(s)</b> | None                                        |                                     |

### Qualifications of Testing Laboratory (Matsuda Lab.)

| Accreditation | Scope       | Lab. Code                   | Remarks |
|---------------|-------------|-----------------------------|---------|
| VLAC          | EMC Testing | VLAC-008-3                  | JAPAN   |
| BSMI          | EMC Testing | SL2-IN-E-6009               | TAIWAN  |
| <b>Filing</b> |             |                             |         |
| VCCI          | EMC Testing | A-0127                      | JAPAN   |
| FCC           | EMC Testing | Designation Number : JP0009 | USA     |
| IC            | EMC Testing | 2042S-1, 2042S-2, 2042S-3   | Canada  |
| CB-Scheme     | EMC Testing | TL223                       | IECEE   |
| SAUDI ARABIA  | EMC Testing | N/A                         |         |

### Qualifications of Testing Laboratory (Nagano Lab.)

| Accreditation | Scope       | Lab. Code                   | Remarks |
|---------------|-------------|-----------------------------|---------|
| VLAC          | EMC Testing | VLAC-008-4                  | JAPAN   |
| BSMI          | EMC Testing | SL2-IN-E-6007               | TAIWAN  |
| <b>Filing</b> |             |                             |         |
| VCCI          | EMC Testing | A-0128                      | JAPAN   |
| FCC           | EMC Testing | Designation Number : JP0010 | USA     |
| IC            | EMC Testing | 2042O-1                     | Canada  |
| CB-Scheme     | EMC Testing | TL223                       | IECEE   |
| SAUDI ARABIA  | EMC Testing | N/A                         |         |

### Abbreviations

|      |                                      |      |                                      |
|------|--------------------------------------|------|--------------------------------------|
| EUT  | Equipment Under Test                 | DoC  | Declaration of Conformity            |
| AMN  | Artificial Mains Network             | ISN  | Impedance Stabilization Network      |
| LISN | Line Impedance Stabilization Network | Q-P  | Quasi-peak                           |
| AMP  | Amplifier                            | AVG  | Average                              |
| ATT  | Attenuator                           | PK   | Peak                                 |
| ANT  | Antenna                              | Cal  | Calibration                          |
| BBA  | Broadband Antenna                    | N/A  | Not applicable or Not available      |
| DIP  | Dipole Antenna                       | LCD  | Liquid-Crystal Display               |
| AE   | Associated Equipment                 | HDMI | High-Definition Multimedia Interface |
| AFH  | Adaptive Hopping Frequency           |      |                                      |

### Revision Summary

| Revised Date     | Section | Description of Changes |
|------------------|---------|------------------------|
| December 5, 2016 | -       | First issue.           |
| -                | -       | -                      |

## SECTION 2. SUMMARY OF TEST RESULTS

| Test Item                                             | Specification                                                 | Results | Detail       |
|-------------------------------------------------------|---------------------------------------------------------------|---------|--------------|
| 20 dB Bandwidth and<br>99 % Occupied Bandwidth        | FCC Part15C §15.247 (a) (1)<br>RSS-247 5.1 (1)<br>RSS-Gen 6.6 | N/A     | Section 9.1  |
| Maximum Peak Output Power                             | FCC Part15C §15.247 (b) (1)<br>RSS-247 5.4 (2)                | PASS    | Section 9.2  |
| Carrier Frequency Separation                          | FCC Part15C §15.247 (a) (1)<br>RSS-247 5.1 (2)                | PASS    | Section 9.3  |
| Number of Hopping Frequency                           | FCC Part15C §15.247 (a) (1) (iii)<br>RSS-247 5.1 (4)          | PASS    | Section 9.4  |
| Time of occupancy                                     | FCC Part15C §15.247 (a) (1) (iii)<br>RSS-247 5.1 (4)          | PASS    | Section 9.5  |
| Radiated Spurious Emissions and<br>Restrict Band edge | FCC Part15C §15.209, §15.205<br>RSS-247 5.5<br>RSS-Gen 8.9    | PASS    | Section 9.6  |
| Band Edge of Authorized Frequency<br>Band             | FCC Part15C §15.247 (d)<br>RSS-247 5.5                        | PASS    | Section 9.7  |
| Spurious RF Conducted Emissions                       | FCC Part15C §15.247 (d)<br>RSS-247 5.5                        | PASS    | Section 9.8  |
| AC Conducted Emissions                                | FCC Part15C §15.207<br>RSS-Gen 7.2.2                          | PASS    | Section 9.9  |
| Receiver Spurious Emissions                           | RSS-Gen 7.1                                                   | PASS    | Section 9.10 |

### Limitation on Results

The test result of this report is effective equipment under test itself and under the test configuration described on the report.

This test report does not assure that whether the test result taken in other testing laboratory is compatible or reproducible to the test result on this report or not.

### SECTION 3. EQUIPMENT UNDER TEST

The equipment under test (EUT) consisted of the following apparatus.

#### 3.1 System Configuration

| Symbol                                                                | Item             | Model No.                                                  | Serial No.                                                              | Manufacturer            |
|-----------------------------------------------------------------------|------------------|------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------|
| A                                                                     | Bluetooth Module | J7C-0037                                                   | 100 (for Radiated testing)<br>106 (for Antenna Port Conductive testing) | JVC KENWOOD Corporation |
| <b>Rated Power</b> : DC 5.4V $\pm$ 10%(Supply from Support Equipment) |                  |                                                            |                                                                         |                         |
| <b>Supplied Power</b> : DC 13.6 V (for Support Equipment)             |                  |                                                            |                                                                         |                         |
| <b>Condition of Equipment</b>                                         |                  | Prototype                                                  |                                                                         |                         |
| <b>Type</b>                                                           |                  | Built-in type                                              |                                                                         |                         |
| <b>Suppression Devices</b>                                            |                  | No Modifications by the laboratory were made to the device |                                                                         |                         |

#### 3.2 Port(s)/Connector(s)

| Port Name | Connector Type | Connector Pin | Remarks |
|-----------|----------------|---------------|---------|
| -         | -              | -             | -       |

#### 3.3 Highest Frequency Generated / Used

| Operating Frequency | Board Name            | Remarks |
|---------------------|-----------------------|---------|
| 4960 MHz            | Generated / Bluetooth | -       |

#### 3.4 Over View of EUT

|                                     |                                                               |
|-------------------------------------|---------------------------------------------------------------|
| <b>Access method</b>                | Bluetooth Version 3.0                                         |
| <b>Rated Output Power</b>           | 2.5 mW                                                        |
| <b>Frequency Range of Operating</b> | 2402 – 2480 MHz                                               |
| <b>Number of Channels</b>           | Max: 79 ch, 1 MHz step (Normal mode)<br>Min: 20 ch (AFH mode) |
| <b>Modulation Method</b>            | FHSS ( GFSK, $\pi$ /4DQPSK, 8DPSK)                            |
| <b>Antenna Type and Gain</b>        | Integrated Printed Antenna, 1.43 dBi See Note 1               |
| <b>Antenna Connector</b>            | None                                                          |

Note:

- The EUT comply with the requirement of FCC Part15C §15.203, because
  - (1) The Bluetooth antenna was built in the EUT and permanently attached.
  - (2) There were no other Bluetooth antenna connectors.

## SECTION 4. SUPPORT EQUIPMENT

The EUT was supported by the following equipment during the test.

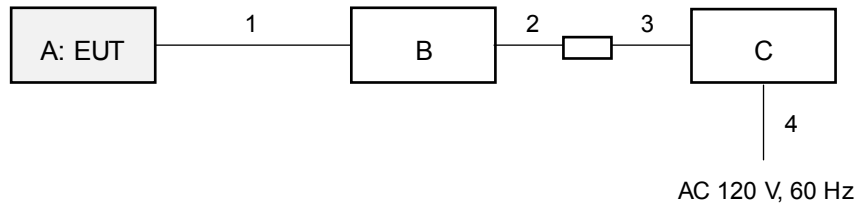
| Symbol                 | Item                                | Model No. | Serial No. | Manufacturer | Remarks | FCC ID    |
|------------------------|-------------------------------------|-----------|------------|--------------|---------|-----------|
| B                      | 700/800MHz<br>DIGITAL<br>TRANSCIVER | NX-5900-K | B5900020   | JVC KENWOOD  |         | K44478500 |
| C                      | DC Power<br>Supply                  | PAN60-3A  | ND001658   | KIKUSUI      |         | N/A       |
| <b>Supplied Power:</b> |                                     |           |            |              |         |           |
| B                      | DC 13.6 V                           |           |            |              |         |           |
| C                      | AC 120 V, 60 Hz                     |           |            |              |         |           |

## SECTION 5. USED CABLE(S)

The following cable(s) was used for the test.

| No. | Name                            | Length<br>(m) | Shield | Metal<br>Connector | Ferrite Core |
|-----|---------------------------------|---------------|--------|--------------------|--------------|
| 1   | FLEXIBLE PRINTED CIRCUITS CABLE | 0.20          | No     | No                 |              |
| 2   | DC CABLE                        | 0.25          | No     | No                 |              |
| 3   | DC CABLE                        | 3.4           | No     | No                 |              |
| 4   | AC CABLE                        | 1.80          | No     | No                 |              |

## SECTION 6. TEST CONFIGURATION



The symbols and numbers assigned to the equipment and cables on this diagram correspond to the ones in Sections 3 to 5.

## SECTION 7. OPERATING CONDITION

The test was carried out under the following mode.

Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

### 7.1 Test Channel

In accordance with Section 15.31 (m), all test items was conducted in the following three channels:

| Test Channel | Frequency [MHz] |
|--------------|-----------------|
| Low          | 2402            |
| Middle       | 2441            |
| High         | 2480            |

### 7.2 Test modes

| Test Item                                          | Operating modes                                                            |
|----------------------------------------------------|----------------------------------------------------------------------------|
| Maximum Peak Output Power                          | Hopping OFF<br>DH1, DH3, DH5<br>2-DH1, 2-DH3, 2-DH5<br>3-DH1, 3-DH3, 3-DH5 |
| Carrier Frequency Separation                       | Hopping ON<br>DH5, 2-DH5, 3-DH5                                            |
| Number of Hopping Frequency                        | Hopping ON<br>DH5, 2-DH5, 3-DH5                                            |
| Time of occupancy                                  | Hopping OFF<br>DH1, DH3, DH5<br>2-DH1, 2-DH3, 2-DH5<br>3-DH1, 3-DH3, 3-DH5 |
| Radiated Spurious Emissions and Restrict Band edge | Hopping OFF<br>DH5, 2-DH5, 3-DH5                                           |
| Band Edge of Authorized Frequency Band             | Hopping OFF/ON<br>DH5, 2-DH5, 3-DH5                                        |
| Spurious RF Conducted Emissions                    | Hopping OFF<br>DH5, 2-DH5, 3-DH5                                           |
| AC Conducted Emissions                             | Hopping ON<br>DH5, 2-DH5, 3-DH5                                            |
| Receiver Spurious Emissions                        | Transmit OFF, Receive mode                                                 |

Note: The Test modes were configured in typical fashion as a customer would normally use it.

## SECTION 8. UNCERTAINTY

The following uncertainty represents the expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

Traceability to national standard in SI units is ensured with these values.

Compliance with the limits in this standard are determined without in consideration of the measurement uncertainty of the measurement instrumentation.

### 8.1 Emission tests

| Test items                               | $U_{lab} [k = 2]$ | $U_{cisp}$ |
|------------------------------------------|-------------------|------------|
| <b>Radiated Spurious Emissions at 3m</b> |                   |            |
| 30 MHz – 1000 MHz                        | +/- 3.96 dB       | 6.3 dB     |
| Above 1 GHz                              | +/- 4.91 dB       | 5.2 dB     |
| <b>AC Conducted Emissions</b>            |                   |            |
| 150 kHz – 30 MHz                         | +/- 2.80 dB       | 3.4 dB     |

The above expanded instrumentation uncertainty,  $U_{lab}$ , is estimated in accordance with CISPR 16-4-2:2011.

### 8.2 RF Conducted tests

| Test Items           | $U_{lab} [k = 2]$ |
|----------------------|-------------------|
| Bandwidth            | +/- 1.42 %        |
| Maximum Output Power | +/- 1.96 dB       |
| Conducted Emissions  | +/- 1.82 dB       |

## SECTION 9. TEST DATA

### 9.1 20 dB Bandwidth and 99 % Occupied Bandwidth

|                          |                                                               |
|--------------------------|---------------------------------------------------------------|
| <b>Regulations</b>       | FCC Part15C §15.247 (a) (1)<br>RSS-247 5.1 (1)<br>RSS-Gen 6.6 |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 6.9.2                                 |

#### Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:

|            |   |                                           |
|------------|---|-------------------------------------------|
| RBW        | : | 1 to 5 % of the 20 dB bandwidth           |
| VBW        | : | approximately 3 times RBW                 |
| Span       | : | approximately 3 times the 20 dB bandwidth |
| Detector   | : | Peak                                      |
| Sweep Time | : | Auto                                      |
| Trace mode | : | Max Hold                                  |
3. Allow trace to fully stabilize.
4. Use "Occupied Bandwidth Measurement" function to measure the 20 dB bandwidth.

#### Test Result

|                           |                                  |
|---------------------------|----------------------------------|
| <b>Location</b>           | Nagano Laboratory No.2 Test Site |
| <b>Test date</b>          | November 16, 2016                |
| <b>Temperature</b>        | 19.0 [degree C]                  |
| <b>Humidity variation</b> | 45.0 [%RH]                       |
| <b>Test Engineer</b>      | Tomochika Yonemura               |

| Operating modes | Frequency [MHz] | 20 dB Bandwidth [MHz] | 99 % Bandwidth [MHz] |
|-----------------|-----------------|-----------------------|----------------------|
| DH5             | 2402            | 0.953                 | 0.853                |
|                 | 2441            | 0.952                 | 0.848                |
|                 | 2480            | 0.954                 | 0.851                |
| 2-DH5           | 2402            | 1.399                 | 1.224                |
|                 | 2441            | 1.401                 | 1.223                |
|                 | 2480            | 1.399                 | 1.223                |
| 3-DH5           | 2402            | 1.394                 | 1.235                |
|                 | 2441            | 1.393                 | 1.236                |
|                 | 2480            | 1.393                 | 1.235                |

#### Spectrum Plots

See ANNEX A.1.

## 9.2 Maximum Peak Output Power

|                          |                                                |
|--------------------------|------------------------------------------------|
| <b>Regulations</b>       | FCC Part15C §15.247 (b) (1)<br>RSS-247 5.4 (2) |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 7.8.5                  |

### Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:

|            |   |                                           |
|------------|---|-------------------------------------------|
| RBW        | : | ≥ the 20 dB bandwidth                     |
| VBW        | : | ≥ RBW                                     |
| Span       | : | approximately 5 times the 20 dB bandwidth |
| Detector   | : | Peak                                      |
| Sweep Time | : | Auto                                      |
| Trace mode | : | Max Hold                                  |

Note: The value of the “20 dB bandwidth”, from the result of section 9.1.

3. Allow trace to fully stabilize.
4. Use the peak search function to measure the peak of the emission.
5. Measurement data correction;

Measured Value [dBm] = Reading [dBm] + Factor [dB]

\*Factor = Cable Loss [dB] + Attenuator [dB]

Margin [dB] = Limit [dBm] - Measured Value [dBm]

# Test Result

|                    |                                  |
|--------------------|----------------------------------|
| Location           | Nagano Laboratory No.2 Test Site |
| Test date          | November 16, 2016                |
| Temperature        | 19.0 [degree C]                  |
| Humidity variation | 45.0 [%]                         |
| Test Engineer      | Tomochika Yonemura               |

| Operating modes | Freq. [MHz] | Reading [dBm] | Factor [dB] | Measured Value [dBm] | Limit |       | Margin [dB] |
|-----------------|-------------|---------------|-------------|----------------------|-------|-------|-------------|
|                 |             |               |             |                      | [mW]  | [dBm] |             |
| DH1             | 2402        | -20.587       | 21.290      | 0.703                | 125   | 20.97 | 20.267      |
|                 | 2441        | -21.083       | 21.300      | 0.217                |       |       | 20.753      |
|                 | 2480        | -20.969       | 21.300      | 0.331                |       |       | 20.639      |
| DH3             | 2402        | -20.586       | 21.290      | 0.704                |       |       | 20.266      |
|                 | 2441        | -21.084       | 21.300      | 0.216                |       |       | 20.754      |
|                 | 2480        | -20.951       | 21.300      | 0.349                |       |       | 20.621      |
| DH5             | 2402        | -20.575       | 21.290      | 0.715                |       |       | 20.255      |
|                 | 2441        | -21.076       | 21.300      | 0.224                |       |       | 20.746      |
|                 | 2480        | -20.974       | 21.300      | 0.326                |       |       | 20.644      |
| 2-DH1           | 2402        | -19.980       | 21.290      | 1.310                |       |       | 19.660      |
|                 | 2441        | -20.452       | 21.300      | 0.848                |       |       | 20.122      |
|                 | 2480        | -20.332       | 21.300      | 0.968                |       |       | 20.002      |
| 2-DH3           | 2402        | -20.003       | 21.290      | 1.287                |       |       | 19.683      |
|                 | 2441        | -20.487       | 21.300      | 0.813                |       |       | 20.157      |
|                 | 2480        | -20.361       | 21.300      | 0.939                |       |       | 20.031      |
| 2-DH5           | 2402        | -20.027       | 21.290      | 1.263                |       |       | 19.707      |
|                 | 2441        | -20.519       | 21.300      | 0.781                |       |       | 20.189      |
|                 | 2480        | -20.408       | 21.300      | 0.892                |       |       | 20.078      |
| 3-DH1           | 2402        | -19.449       | 21.290      | 1.841                |       |       | 19.129      |
|                 | 2441        | -19.935       | 21.300      | 1.365                |       |       | 19.605      |
|                 | 2480        | -19.790       | 21.300      | 1.510                |       |       | 19.460      |
| 3-DH3           | 2402        | -19.487       | 21.290      | 1.803                |       |       | 19.167      |
|                 | 2441        | -19.914       | 21.300      | 1.386                |       |       | 19.584      |
|                 | 2480        | -19.826       | 21.300      | 1.474                |       |       | 19.496      |
| 3-DH5           | 2402        | -19.514       | 21.290      | 1.776                |       |       | 19.194      |
|                 | 2441        | -19.976       | 21.300      | 1.324                |       |       | 19.646      |
|                 | 2480        | -19.843       | 21.300      | 1.457                |       |       | 19.513      |

## Spectrum Plots

See ANNEX A.2

### 9.3 Carrier Frequency Separation

|                          |                                                |
|--------------------------|------------------------------------------------|
| <b>Regulations</b>       | FCC Part15C §15.247 (a) (1)<br>RSS-247 5.1 (2) |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 7.8.2                  |

#### Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:

|            |   |                                          |
|------------|---|------------------------------------------|
| RBW        | : | approximately 30% of the channel spacing |
| VBW        | : | ≥ RBW                                    |
| Span       | : | Including emission band                  |
| Detector   | : | Peak                                     |
| Sweep Time | : | Auto                                     |
| Trace mode | : | Max Hold                                 |
3. Allow trace to fully stabilize.
4. Use delta marker function to measure the separation between the two channels.

#### Test Result

|                           |                                  |
|---------------------------|----------------------------------|
| <b>Location</b>           | Nagano Laboratory No.2 Test Site |
| <b>Test date</b>          | November 16, 2016                |
| <b>Temperature</b>        | 19.0 [degree C]                  |
| <b>Humidity variation</b> | 45.0 [%]                         |
| <b>Test Engineer</b>      | Tomochika Yonemura               |

| Operating modes | Frequency [MHz] | Measured Value [MHz] | Limit [MHz] |
|-----------------|-----------------|----------------------|-------------|
| DH5             | 2402            | 1.000                | ≥ 0.635     |
|                 | 2441            | 1.000                | ≥ 0.635     |
|                 | 2480            | 1.000                | ≥ 0.636     |
| 2-DH5           | 2402            | 1.000                | ≥ 0.933     |
|                 | 2441            | 1.000                | ≥ 0.934     |
|                 | 2480            | 1.000                | ≥ 0.933     |
| 3-DH5           | 2402            | 1.000                | ≥ 0.933     |
|                 | 2441            | 1.000                | ≥ 0.929     |
|                 | 2480            | 1.000                | ≥ 0.928     |

Note: Limits were applied to two-thirds of 20 dB bandwidth.  
The value of the "20 dB bandwidth", from the result of section 9.1.

#### Spectrum Plots

See ANNEX A.3

#### 9.4 Number of Hopping Frequency

|                          |                                                      |
|--------------------------|------------------------------------------------------|
| <b>Regulations</b>       | FCC Part15C §15.247 (a) (1) (iii)<br>RSS-247 5.1 (4) |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 7.8.3                        |

#### Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:

|            |   |                              |
|------------|---|------------------------------|
| RBW        | : | < 30% of the channel spacing |
| VBW        | : | ≥ RBW                        |
| Span       | : | Including emission band      |
| Detector   | : | Peak                         |
| Sweep Time | : | Auto                         |
| Trace mode | : | Max Hold                     |
3. Allow trace to fully stabilize.
4. Count the peaks.

#### Test Result

|                           |                                  |
|---------------------------|----------------------------------|
| <b>Location</b>           | Nagano Laboratory No.2 Test Site |
| <b>Test date</b>          | November 16, 2016                |
| <b>Temperature</b>        | 19.0 [degree C]                  |
| <b>Humidity variation</b> | 45.0 [%]                         |
| <b>Test Engineer</b>      | Tomochika Yonemura               |

| Operating modes | Measured Value | Limit |
|-----------------|----------------|-------|
| DH5             | 79             | ≥ 15  |
| 2-DH5           | 79             |       |
| 3-DH5           | 79             |       |

#### Spectrum Plots

See ANNEX A.4

## 9.5 Time of Occupancy

|                          |                                                      |
|--------------------------|------------------------------------------------------|
| <b>Regulations</b>       | FCC Part15C §15.247 (a) (1) (iii)<br>RSS-247 5.1 (4) |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 7.8.4                        |

### Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:
 

|            |   |                                                                   |
|------------|---|-------------------------------------------------------------------|
| RBW        | : | $\leq$ channel spacing                                            |
| VBW        | : | $\geq$ RBW                                                        |
| Span       | : | 0 Hz                                                              |
| Detector   | : | Peak                                                              |
| Sweep Time | : | As necessary to capture the entire dwell time per hopping channel |
| Trace mode | : | Single, Use Video Trigger                                         |
3. Use delta marker function to measure the transmit time as per hop.
4. By the following method, calculated time of occupancy;
  - (1) Number of hops per sec  
 = Hopping rate / 1 time slots / 1 [sec].
 

\* 1 time slots : 2 for DH1 packet  
 4 for DH3 packet  
 6 for DH5 packet

\* Hopping rate : 1600 for Normal mode  
 800 for AFH mode
  - (2) Number of hops per sec in each channel  
 = Number of hops per sec / number of hopping channel.
 

\* number of hopping channel: 79 for Normal mode  
 20 for AFH mode
  - (3) Specified periods [sec]  
 = 0.4 [sec] x number of hopping channels.
  - (4) Number of hops per specified periods in each channel  
 = Number of hops per sec in each channel x Specified periods [sec].
  - (5) Time of occupancy [ms]  
 = Number of hops per specified periods in each channel x the transmit time as per hop [ms].

### Test Result

|                           |                                  |
|---------------------------|----------------------------------|
| <b>Location</b>           | Nagano Laboratory No.2 Test Site |
| <b>Test date</b>          | November 16, 2016                |
| <b>Temperature</b>        | 19.0 [degree C]                  |
| <b>Humidity variation</b> | 45.0 [%]                         |
| <b>Test Engineer</b>      | Tomochika Yonemura               |

### Normal mode

| Operating modes | Transmit Time per Hop [ms] | Number of hops per channel in specified period | Time of Occupancy [ms] | Limit [ms] |
|-----------------|----------------------------|------------------------------------------------|------------------------|------------|
| DH1             | 0.3975                     | 320.00                                         | 127.20                 | 400        |
| DH3             | 1.6534                     | 160.00                                         | 264.54                 |            |
| DH5             | 2.9005                     | 106.67                                         | 309.39                 |            |
| 2-DH1           | 0.4267                     | 320.00                                         | 91.03                  |            |
| 2-DH3           | 1.6788                     | 160.00                                         | 268.61                 |            |
| 2-DH5           | 2.9230                     | 106.67                                         | 311.79                 |            |
| 3-DH1           | 0.4268                     | 320.00                                         | 136.56                 |            |
| 3-DH3           | 1.6754                     | 160.00                                         | 268.06                 |            |
| 3-DH5           | 2.9265                     | 106.67                                         | 312.16                 |            |

### AFH mode

| Operating modes | Transmit Time per Hop [ms] | Number of hops per channel in specified period | Time of Occupancy [ms] | Limit [ms] |
|-----------------|----------------------------|------------------------------------------------|------------------------|------------|
| DH1             | 0.3975                     | 160.00                                         | 63.60                  | 400        |
| DH3             | 1.6534                     | 80.00                                          | 132.27                 |            |
| DH5             | 2.9005                     | 53.33                                          | 154.69                 |            |
| 2-DH1           | 0.4267                     | 160.00                                         | 68.27                  |            |
| 2-DH3           | 1.6788                     | 80.00                                          | 134.30                 |            |
| 2-DH5           | 2.9230                     | 53.33                                          | 155.89                 |            |
| 3-DH1           | 0.4268                     | 160.00                                         | 68.28                  |            |
| 3-DH3           | 1.6754                     | 80.00                                          | 134.03                 |            |
| 3-DH5           | 2.9265                     | 53.33                                          | 156.08                 |            |

### Spectrum Chart

See ANNEX A.5

## 9.6 Radiated Spurious Emissions and Band Edge of Restrict Band

|                          |                                                            |
|--------------------------|------------------------------------------------------------|
| <b>Regulations</b>       | FCC Part15C §15.209, §15.205<br>RSS-247 5.5<br>RSS-Gen 8.9 |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 6.5 and 6.6                        |

### Test Procedure

- The EUT and test instrument were set up as shown on section 10.2.
- The measurement antenna was placed at a distance of 3 m from the EUT.
- The turntable azimuth (EUT direction) and antenna height are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured.  
The equipment and cables are arranged or manipulated within the range of the test standard in the above condition. At least six highest spectrums are measured by the test receiver (below 1 GHz) and spectrum analyzer (above 1 GHz).

- Adjust the test instrument for the following setting:

| Frequency      | Instruments       | Detector | RBW     | VBW   | Remarks     |
|----------------|-------------------|----------|---------|-------|-------------|
| 30 – 1000 MHz  | CISPR Receiver    | QP       | 120 kHz | N/A   | -           |
| Above 1000 MHz | Spectrum Analyzer | Peak     | 1 MHz   | 1 MHz | for Peak    |
|                |                   |          |         | 10 Hz | for Average |

- Measurement data correction;

$$\text{Emission Level [dBuV/m]} = \text{Reading [dBuV]} + \text{Factor [dB/m]}$$

$$\text{Margin [dB]} = \text{Limit [dBuV/m]} - \text{Emission Level [dBuV/m]}$$

$$\begin{aligned} * \text{Factor} = & \text{Antenna Factor} + \text{Amplifier gain} + \text{Cable loss} + \text{Attenuator (+ Filter)} \\ & (+ \text{Distance Conversion Factor})^* \end{aligned}$$

\* For other than Standard distance:

$$\text{Distance Conversion Factor} = 20 \log (\text{Measurement distance} / \text{Standard distance})$$

Note: Did not carried out the fainal measurement about frequency range of 9 kHz to 30 MHz, because result of pre-check in shield room, spurious emissions was not detected.

# Test Result

|                    |                                     |                                     |                      |
|--------------------|-------------------------------------|-------------------------------------|----------------------|
| Operating mode     | DH5, 2402 MHz, EUT axis: X          |                                     |                      |
| Location           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.1 Test Site |                      |
| Frequency          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| Test date          | November 18, 2016,                  | November 19,<br>2016                | November 19,<br>2016 |
| Temperature        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| Humidity variation | 40.0                                | 40.0                                | 40.0 [%]             |
| Test Engineer      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] |     | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|-----|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  | Hor               | Ver | Hor            | Ver  |
| 1   | 280.250        | QuasiPeak | 34.15             | 34.23 | -3.0          | 0.0             | 31.2               | 31.3 | 40.0              |     | 8.8            | 8.7  |
| 2   | 625.390        | QuasiPeak | 27.49             | 27.51 | 5.7           | 0.0             | 33.2               | 33.2 | 46.0              |     | 12.8           | 12.8 |
| 3   | 2390.000       | Peak      | 39.17             | 39.04 | 3.8           | 0.0             | 42.9               | 42.8 | 74.0              |     | 31.1           | 31.2 |
| 4   | 2390.000       | Average   | 29.13             | 29.19 | 3.8           | 0.0             | 32.9               | 32.9 | 54.0              |     | 21.1           | 21.1 |
| 5   | 4804.000       | Peak      | 37.67             | 38.53 | 9.6           | 0.0             | 47.2               | 48.1 | 74.0              |     | 26.8           | 25.9 |
| 6   | 4804.000       | Average   | 29.66             | 29.67 | 9.6           | 0.0             | 39.2               | 39.2 | 54.0              |     | 14.8           | 14.8 |
| 7   | 7206.000       | Peak      | 38.48             | 33.40 | 15.0          | 0.0             | 53.4               | 48.4 | 74.0              |     | 20.6           | 25.6 |
| 8   | 7206.000       | Average   | 28.2114           | 28.01 | 15.0          | 0.0             | 43.2               | 43.0 | 54.0              |     | 10.8           | 11.0 |
| 9   | 9608.000       | Peak      | 32.38             | 34.83 | 17.3          | 0.0             | 49.7               | 52.1 | 74.0              |     | 24.3           | 21.9 |
| 10  | 9608.000       | Average   | 26.56             | 26.39 | 17.3          | 0.0             | 43.9               | 43.7 | 54.0              |     | 10.1           | 10.3 |
| 11  | 12010.000      | Peak      | 34.30             | 34.95 | 21.7          | 0.0             | 56.0               | 56.7 | 74.0              |     | 18.0           | 17.3 |
| 12  | 12010.000      | Average   | 26.63             | 26.55 | 21.7          | 0.0             | 48.4               | 48.3 | 54.0              |     | 5.6            | 5.7  |

| No. | Freq.<br>[MHz] | Detector | Reading<br>[dBuV] |         | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] |      | Margin<br>[dB] |      |
|-----|----------------|----------|-------------------|---------|---------------|-----------------|--------------------|------|-------------------|------|----------------|------|
|     |                |          | Hor               | Ver     | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  | Hor               | Ver  | Hor            | Ver  |
| 1*  | 2402.000       | Peak     | 82.587            | 80.0467 | 3.8           | 0.0             | 86.4               | 83.9 | -                 | -    | -              | -    |
| 2*  | 2400.000       | Peak     | 27.484            | 30.071  | 3.8           | 0.0             | 31.3               | 33.9 | 66.4              | 63.9 | 35.1           | 30.0 |

## Note.

- \* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

|                           |                                     |                                     |                      |
|---------------------------|-------------------------------------|-------------------------------------|----------------------|
| <b>Operating mode</b>     | DH5, 2441 MHz, EUT axis: X          |                                     |                      |
| <b>Location</b>           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.1 Test Site |                      |
| <b>Frequency</b>          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| <b>Test date</b>          | November 18, 2016,                  | November 19,<br>2016                | November 19,<br>2016 |
| <b>Temperature</b>        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| <b>Humidity variation</b> | 40.0                                | 40.0                                | 40.0 [%]             |
| <b>Test Engineer</b>      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  |                   | Hor            | Ver  |
| 1   | 280.380        | QuasiPeak | 34.41             | 34.57 | -3.0          | 0.0             | 31.4               | 31.6 | 40.0              | 8.6            | 8.4  |
| 2   | 625.500        | QuasiPeak | 27.60             | 27.86 | 5.7           | 0.0             | 33.3               | 33.5 | 46.0              | 12.7           | 12.5 |
| 3   | 4882.000       | Peak      | 37.78             | 38.83 | 9.6           | 0.0             | 47.4               | 48.4 | 74.0              | 26.6           | 25.6 |
| 4   | 4882.000       | Average   | 29.81             | 29.93 | 9.6           | 0.0             | 39.4               | 39.5 | 54.0              | 14.6           | 14.5 |
| 5   | 7323.000       | Peak      | 38.70             | 33.67 | 15.0          | 0.0             | 53.7               | 48.6 | 74.0              | 20.3           | 25.4 |
| 6   | 7323.000       | Average   | 28.50             | 28.39 | 15.0          | 0.0             | 43.5               | 43.3 | 54.0              | 10.5           | 10.7 |
| 7   | 9764.000       | Peak      | 32.48             | 35.16 | 17.3          | 0.0             | 49.8               | 52.5 | 74.0              | 24.2           | 21.5 |
| 8   | 9764.000       | Average   | 26.91             | 26.62 | 17.3          | 0.0             | 44.2               | 43.9 | 54.0              | 9.8            | 10.1 |
| 9   | 12205.000      | Peak      | 34.55             | 35.13 | 21.7          | 0.0             | 56.3               | 56.9 | 74.0              | 17.7           | 17.1 |
| 10  | 12205.000      | Average   | 26.93             | 26.65 | 21.7          | 0.0             | 48.7               | 48.4 | 54.0              | 5.3            | 5.6  |

Note.

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

|                           |                                     |                                     |                      |
|---------------------------|-------------------------------------|-------------------------------------|----------------------|
| <b>Operating mode</b>     | DH5, 2480 MHz, EUT axis: X          |                                     |                      |
| <b>Location</b>           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.1 Test Site |                      |
| <b>Frequency</b>          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| <b>Test date</b>          | November 18, 2016,                  | November 19,<br>2016                | November 19,<br>2016 |
| <b>Temperature</b>        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| <b>Humidity variation</b> | 40.0                                | 40.0                                | 40.0 [%]             |
| <b>Test Engineer</b>      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  |                   | Hor            | Ver  |
| 1   | 280.330        | QuasiPeak | 34.40             | 34.56 | -3.0          | 0.0             | 31.4               | 31.6 | 40.0              | 8.6            | 8.4  |
| 2   | 625.420        | QuasiPeak | 27.59             | 27.83 | 5.7           | 0.0             | 33.3               | 33.5 | 46.0              | 12.7           | 12.5 |
| 3   | 2483.500       | Peak      | 39.29             | 39.36 | 3.6           | 0.0             | 42.9               | 43.0 | 74.0              | 31.1           | 31.0 |
| 4   | 2483.500       | Average   | 29.29             | 29.47 | 3.6           | 0.0             | 32.9               | 33.1 | 54.0              | 21.1           | 20.9 |
| 5   | 4960.000       | Peak      | 37.91             | 38.82 | 9.9           | 0.0             | 47.8               | 48.7 | 74.0              | 26.2           | 25.3 |
| 6   | 4960.000       | Average   | 29.93             | 30.02 | 9.9           | 0.0             | 39.8               | 39.9 | 54.0              | 14.2           | 14.1 |
| 7   | 7440.000       | Peak      | 38.59             | 33.77 | 15.7          | 0.0             | 54.3               | 49.5 | 74.0              | 19.7           | 24.5 |
| 8   | 7440.000       | Average   | 28.52             | 28.22 | 15.7          | 0.0             | 44.2               | 43.9 | 54.0              | 9.8            | 10.1 |
| 9   | 9920.000       | Peak      | 32.67             | 35.04 | 18.4          | 0.0             | 51.1               | 53.5 | 74.0              | 22.9           | 20.5 |
| 10  | 9920.000       | Average   | 26.85             | 26.48 | 18.4          | 0.0             | 45.3               | 44.9 | 54.0              | 8.7            | 9.1  |
| 11  | 12400.000      | Peak      | 34.99             | 35.17 | 21.6          | 0.0             | 56.6               | 56.8 | 74.0              | 17.4           | 17.2 |
| 12  | 12400.000      | Average   | 26.95             | 26.79 | 21.6          | 0.0             | 48.5               | 48.4 | 54.0              | 5.5            | 5.6  |

**Note.**

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

|                           |                                     |                                     |                      |
|---------------------------|-------------------------------------|-------------------------------------|----------------------|
| <b>Operating mode</b>     | 2DH5, 2402 MHz, EUT axis: X         |                                     |                      |
| <b>Location</b>           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.1 Test Site |                      |
| <b>Frequency</b>          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| <b>Test date</b>          | November 18, 2016,                  | November 19,<br>2016                | November 19,<br>2016 |
| <b>Temperature</b>        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| <b>Humidity variation</b> | 40.0                                | 40.0                                | 40.0 [%]             |
| <b>Test Engineer</b>      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] |     | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|-----|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  | Hor               | Ver | Hor            | Ver  |
| 1   | 280.280        | QuasiPeak | 34.16             | 34.24 | -3.0          | 0.0             | 31.2               | 31.3 | 40.0              |     | 8.8            | 8.7  |
| 2   | 625.450        | QuasiPeak | 27.50             | 27.52 | 5.7           | 0.0             | 33.2               | 33.2 | 46.0              |     | 12.8           | 12.8 |
| 3   | 2390.000       | Peak      | 39.17             | 39.03 | 3.8           | 0.0             | 42.9               | 42.8 | 74.0              |     | 31.1           | 31.2 |
| 4   | 2390.000       | Average   | 29.12             | 29.17 | 3.8           | 0.0             | 32.9               | 32.9 | 54.0              |     | 21.1           | 21.1 |
| 5   | 4804.000       | Peak      | 37.64             | 38.50 | 9.6           | 0.0             | 47.2               | 48.1 | 74.0              |     | 26.8           | 25.9 |
| 6   | 4804.000       | Average   | 29.66             | 29.67 | 9.6           | 0.0             | 39.2               | 39.2 | 54.0              |     | 14.8           | 14.8 |
| 7   | 7206.000       | Peak      | 38.47             | 33.38 | 15.0          | 0.0             | 53.4               | 48.3 | 74.0              |     | 20.6           | 25.7 |
| 8   | 7206.000       | Average   | 28.2672           | 28.05 | 15.0          | 0.0             | 43.2               | 43.0 | 54.0              |     | 10.8           | 11.0 |
| 9   | 9608.000       | Peak      | 32.39             | 34.84 | 17.3          | 0.0             | 49.7               | 52.2 | 74.0              |     | 24.3           | 21.8 |
| 10  | 9608.000       | Average   | 26.57             | 26.39 | 17.3          | 0.0             | 43.9               | 43.7 | 54.0              |     | 10.1           | 10.3 |
| 11  | 12010.000      | Peak      | 34.25             | 34.94 | 21.7          | 0.0             | 56.0               | 56.7 | 74.0              |     | 18.0           | 17.3 |
| 12  | 12010.000      | Average   | 26.61             | 26.53 | 21.7          | 0.0             | 48.3               | 48.3 | 54.0              |     | 5.7            | 5.7  |

| No. | Freq.<br>[MHz] | Detector | Reading<br>[dBuV] |         | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] |      | Margin<br>[dB] |      |
|-----|----------------|----------|-------------------|---------|---------------|-----------------|--------------------|------|-------------------|------|----------------|------|
|     |                |          | Hor               | Ver     | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  | Hor               | Ver  | Hor            | Ver  |
| 1*  | 2402.000       | Peak     | 82.587            | 80.0467 | 3.8           | 0.0             | 86.4               | 83.9 | -                 | -    | -              | -    |
| 2*  | 2400.000       | Peak     | 27.484            | 30.071  | 3.8           | 0.0             | 31.3               | 33.9 | 66.4              | 63.9 | 35.1           | 30.0 |

Note.

- \* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

|                           |                                     |                                     |                      |
|---------------------------|-------------------------------------|-------------------------------------|----------------------|
| <b>Operating mode</b>     | 2DH5, 2441 MHz, EUT axis: X         |                                     |                      |
| <b>Location</b>           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.1 Test Site |                      |
| <b>Frequency</b>          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| <b>Test date</b>          | November 18, 2016,                  | November 19,<br>2016                | November 19,<br>2016 |
| <b>Temperature</b>        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| <b>Humidity variation</b> | 40.0                                | 40.0                                | 40.0 [%]             |
| <b>Test Engineer</b>      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  |                   | Hor            | Ver  |
| 1   | 280.470        | QuasiPeak | 34.42             | 34.58 | -3.0          | 0.0             | 31.4               | 31.6 | 40.0              | 8.6            | 8.4  |
| 2   | 625.390        | QuasiPeak | 27.60             | 27.84 | 5.7           | 0.0             | 33.3               | 33.5 | 46.0              | 12.7           | 12.5 |
| 3   | 4882.000       | Peak      | 37.85             | 38.76 | 9.6           | 0.0             | 47.4               | 48.3 | 74.0              | 26.6           | 25.7 |
| 4   | 4882.000       | Average   | 29.92             | 30.01 | 9.6           | 0.0             | 39.5               | 39.6 | 54.0              | 14.5           | 14.4 |
| 5   | 7323.000       | Peak      | 38.57             | 33.72 | 15.0          | 0.0             | 53.5               | 48.7 | 74.0              | 20.5           | 25.3 |
| 6   | 7323.000       | Average   | 28.61             | 28.29 | 15.0          | 0.0             | 43.6               | 43.2 | 54.0              | 10.4           | 10.8 |
| 7   | 9764.000       | Peak      | 32.65             | 35.03 | 17.3          | 0.0             | 50.0               | 52.3 | 74.0              | 24.0           | 21.7 |
| 8   | 9764.000       | Average   | 26.91             | 26.50 | 17.3          | 0.0             | 44.2               | 43.8 | 54.0              | 9.8            | 10.2 |
| 9   | 12205.000      | Peak      | 34.92             | 35.16 | 21.7          | 0.0             | 56.7               | 56.9 | 74.0              | 17.3           | 17.1 |
| 10  | 12205.000      | Average   | 26.91             | 26.76 | 21.7          | 0.0             | 48.6               | 48.5 | 54.0              | 5.4            | 5.5  |

Note.

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

|                           |                                     |                                     |                      |
|---------------------------|-------------------------------------|-------------------------------------|----------------------|
| <b>Operating mode</b>     | 2DH5, 2480 MHz, EUT axis: X         |                                     |                      |
| <b>Location</b>           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.1 Test Site |                      |
| <b>Frequency</b>          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| <b>Test date</b>          | November 18, 2016,                  | November 19,<br>2016                | November 19,<br>2016 |
| <b>Temperature</b>        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| <b>Humidity variation</b> | 40.0                                | 40.0                                | 40.0 [%]             |
| <b>Test Engineer</b>      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  |                   | Hor            | Ver  |
| 1   | 280.400        | QuasiPeak | 34.42             | 34.58 | -3.0          | 0.0             | 31.4               | 31.6 | 40.0              | 8.6            | 8.4  |
| 2   | 625.470        | QuasiPeak | 27.60             | 27.85 | 5.7           | 0.0             | 33.3               | 33.5 | 46.0              | 12.7           | 12.5 |
| 3   | 2483.500       | Peak      | 39.29             | 39.33 | 3.6           | 0.0             | 42.9               | 43.0 | 74.0              | 31.1           | 31.0 |
| 4   | 2483.500       | Average   | 29.28             | 29.45 | 3.6           | 0.0             | 32.9               | 33.1 | 54.0              | 21.1           | 20.9 |
| 5   | 4960.000       | Peak      | 37.86             | 38.77 | 9.9           | 0.0             | 47.7               | 48.6 | 74.0              | 26.3           | 25.4 |
| 6   | 4960.000       | Average   | 29.92             | 30.01 | 9.9           | 0.0             | 39.8               | 39.9 | 54.0              | 14.2           | 14.1 |
| 7   | 7440.000       | Peak      | 38.57             | 33.70 | 15.7          | 0.0             | 54.3               | 49.4 | 74.0              | 19.7           | 24.6 |
| 8   | 7440.000       | Average   | 28.59             | 28.27 | 15.7          | 0.0             | 44.3               | 44.0 | 54.0              | 9.7            | 10.0 |
| 9   | 9920.000       | Peak      | 32.68             | 35.05 | 18.4          | 0.0             | 51.1               | 53.5 | 74.0              | 22.9           | 20.5 |
| 10  | 9920.000       | Average   | 26.88             | 26.49 | 18.4          | 0.0             | 45.3               | 44.9 | 54.0              | 8.7            | 9.1  |
| 11  | 12400.000      | Peak      | 35.03             | 35.19 | 21.6          | 0.0             | 56.6               | 56.8 | 74.0              | 17.4           | 17.2 |
| 12  | 12400.000      | Average   | 26.90             | 26.76 | 21.6          | 0.0             | 48.5               | 48.4 | 54.0              | 5.5            | 5.6  |

**Note.**

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

|                           |                                     |                                     |                      |
|---------------------------|-------------------------------------|-------------------------------------|----------------------|
| <b>Operating mode</b>     | 3DH5, 2402 MHz, EUT axis: X         |                                     |                      |
| <b>Location</b>           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.1 Test Site |                      |
| <b>Frequency</b>          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| <b>Test date</b>          | November 18, 2016,                  | November 19,<br>2016                | November 19,<br>2016 |
| <b>Temperature</b>        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| <b>Humidity variation</b> | 40.0                                | 40.0                                | 40.0 [%]             |
| <b>Test Engineer</b>      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] |     | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|-----|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  | Hor               | Ver | Hor            | Ver  |
| 1   | 280.410        | QuasiPeak | 34.18             | 34.27 | -3.0          | 0.0             | 31.2               | 31.3 | 40.0              |     | 8.8            | 8.7  |
| 2   | 625.460        | QuasiPeak | 27.51             | 27.55 | 5.7           | 0.0             | 33.2               | 33.2 | 46.0              |     | 12.8           | 12.8 |
| 3   | 2390.000       | Peak      | 39.18             | 39.06 | 3.8           | 0.0             | 42.9               | 42.8 | 74.0              |     | 31.1           | 31.2 |
| 4   | 2390.000       | Average   | 29.11             | 29.17 | 3.8           | 0.0             | 32.9               | 32.9 | 54.0              |     | 21.1           | 21.1 |
| 5   | 4804.000       | Peak      | 37.64             | 38.49 | 9.6           | 0.0             | 47.2               | 48.1 | 74.0              |     | 26.8           | 25.9 |
| 6   | 4804.000       | Average   | 29.64             | 29.64 | 9.6           | 0.0             | 39.2               | 39.2 | 54.0              |     | 14.8           | 14.8 |
| 7   | 7206.000       | Peak      | 38.46             | 33.35 | 15.0          | 0.0             | 53.4               | 48.3 | 74.0              |     | 20.6           | 25.7 |
| 8   | 7206.000       | Average   | 28.261            | 28.04 | 15.0          | 0.0             | 43.2               | 43.0 | 54.0              |     | 10.8           | 11.0 |
| 9   | 9608.000       | Peak      | 32.38             | 34.83 | 17.3          | 0.0             | 49.7               | 52.1 | 74.0              |     | 24.3           | 21.9 |
| 10  | 9608.000       | Average   | 26.53             | 26.38 | 17.3          | 0.0             | 43.8               | 43.7 | 54.0              |     | 10.2           | 10.3 |
| 11  | 12010.000      | Peak      | 34.30             | 34.95 | 21.7          | 0.0             | 56.0               | 56.7 | 74.0              |     | 18.0           | 17.3 |
| 12  | 12010.000      | Average   | 26.65             | 26.56 | 21.7          | 0.0             | 48.4               | 48.3 | 54.0              |     | 5.6            | 5.7  |

| No. | Freq.<br>[MHz] | Detector | Reading<br>[dBuV] |         | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] |      | Margin<br>[dB] |      |
|-----|----------------|----------|-------------------|---------|---------------|-----------------|--------------------|------|-------------------|------|----------------|------|
|     |                |          | Hor               | Ver     | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  | Hor               | Ver  | Hor            | Ver  |
| 1*  | 2402.000       | Peak     | 82.585            | 80.0401 | 3.8           | 0.0             | 86.4               | 83.9 | -                 | -    | -              | -    |
| 2*  | 2400.000       | Peak     | 27.4437           | 30.0437 | 3.8           | 0.0             | 31.3               | 33.9 | 66.4              | 63.9 | 35.1           | 30.0 |

Note.

- \* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

|                           |                                     |                                     |                      |
|---------------------------|-------------------------------------|-------------------------------------|----------------------|
| <b>Operating mode</b>     | 3DH5, 2441 MHz, EUT axis: X         |                                     |                      |
| <b>Location</b>           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.1 Test Site |                      |
| <b>Frequency</b>          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| <b>Test date</b>          | November 18, 2016,                  | November 19,<br>2016                | November 19,<br>2016 |
| <b>Temperature</b>        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| <b>Humidity variation</b> | 40.0                                | 40.0                                | 40.0 [%]             |
| <b>Test Engineer</b>      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  |                   | Hor            | Ver  |
| 1   | 280.430        | QuasiPeak | 34.43             | 34.60 | -3.0          | 0.0             | 31.5               | 31.6 | 40.0              | 8.5            | 8.4  |
| 2   | 625.500        | QuasiPeak | 27.61             | 27.88 | 5.7           | 0.0             | 33.3               | 33.6 | 46.0              | 12.7           | 12.4 |
| 3   | 4882.000       | Peak      | 37.86             | 38.76 | 9.6           | 0.0             | 47.4               | 48.3 | 74.0              | 26.6           | 25.7 |
| 4   | 4882.000       | Average   | 29.89             | 29.97 | 9.6           | 0.0             | 39.5               | 39.6 | 54.0              | 14.5           | 14.4 |
| 5   | 7323.000       | Peak      | 38.55             | 33.66 | 15.0          | 0.0             | 53.5               | 48.6 | 74.0              | 20.5           | 25.4 |
| 6   | 7323.000       | Average   | 28.59             | 28.26 | 15.0          | 0.0             | 43.5               | 43.2 | 54.0              | 10.5           | 10.8 |
| 7   | 9764.000       | Peak      | 32.65             | 35.03 | 17.3          | 0.0             | 50.0               | 52.3 | 74.0              | 24.0           | 21.7 |
| 8   | 9764.000       | Average   | 26.86             | 26.49 | 17.3          | 0.0             | 44.2               | 43.8 | 54.0              | 9.8            | 10.2 |
| 9   | 12205.000      | Peak      | 35.08             | 35.20 | 21.7          | 0.0             | 56.8               | 56.9 | 74.0              | 17.2           | 17.1 |
| 10  | 12205.000      | Average   | 26.97             | 26.81 | 21.7          | 0.0             | 48.7               | 48.5 | 54.0              | 5.3            | 5.5  |

Note.

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

|                           |                                     |                                     |                      |
|---------------------------|-------------------------------------|-------------------------------------|----------------------|
| <b>Operating mode</b>     | 3DH5, 2480 MHz, EUT axis: X         |                                     |                      |
| <b>Location</b>           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.1 Test Site |                      |
| <b>Frequency</b>          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| <b>Test date</b>          | November 18, 2016,                  | November 19,<br>2016                | November 19,<br>2016 |
| <b>Temperature</b>        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| <b>Humidity variation</b> | 40.0                                | 40.0                                | 40.0 [%]             |
| <b>Test Engineer</b>      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  |                   | Hor            | Ver  |
| 1   | 280.360        | QuasiPeak | 34.45             | 34.63 | -3.0          | 0.0             | 31.5               | 31.7 | 40.0              | 8.5            | 8.3  |
| 2   | 625.520        | QuasiPeak | 27.62             | 27.90 | 5.7           | 0.0             | 33.3               | 33.6 | 46.0              | 12.7           | 12.4 |
| 3   | 2483.500       | Peak      | 40.42             | 42.25 | 3.6           | 0.0             | 44.0               | 45.9 | 74.0              | 30.0           | 28.1 |
| 4   | 2483.500       | Average   | 29.28             | 29.48 | 3.6           | 0.0             | 32.9               | 33.1 | 54.0              | 21.1           | 20.9 |
| 5   | 4960.000       | Peak      | 37.87             | 38.78 | 9.9           | 0.0             | 47.7               | 48.6 | 74.0              | 26.3           | 25.4 |
| 6   | 4960.000       | Average   | 29.93             | 30.01 | 9.9           | 0.0             | 39.8               | 39.9 | 54.0              | 14.2           | 14.1 |
| 7   | 7440.000       | Peak      | 38.59             | 33.78 | 15.7          | 0.0             | 54.3               | 49.5 | 74.0              | 19.7           | 24.5 |
| 8   | 7440.000       | Average   | 28.64             | 28.29 | 15.7          | 0.0             | 44.3               | 44.0 | 54.0              | 9.7            | 10.0 |
| 9   | 9920.000       | Peak      | 32.61             | 35.00 | 18.4          | 0.0             | 51.0               | 53.4 | 74.0              | 23.0           | 20.6 |
| 10  | 9920.000       | Average   | 26.80             | 26.47 | 18.4          | 0.0             | 45.2               | 44.9 | 54.0              | 8.8            | 9.1  |
| 11  | 12400.000      | Peak      | 34.95             | 35.16 | 21.6          | 0.0             | 56.5               | 56.8 | 74.0              | 17.5           | 17.2 |
| 12  | 12400.000      | Average   | 26.93             | 26.78 | 21.6          | 0.0             | 48.5               | 48.4 | 54.0              | 5.5            | 5.6  |

**Note.**

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

### 9.7 Band Edge of Authorized Frequency Band

|                          |                                        |
|--------------------------|----------------------------------------|
| <b>Regulations</b>       | FCC Part15C §15.247 (d)<br>RSS-247 5.5 |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 6.10.4         |

#### Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the measurement instrument for the following setting:

|            |   |          |
|------------|---|----------|
| RBW        | : | 100 kHz  |
| VBW        | : | 300 kHz  |
| Span       | : | 20 MHz   |
| Detector   | : | Peak     |
| Sweep Time | : | Auto     |
| Trace mode | : | Max Hold |
3. Allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within in-band emission.
5. Use the marker function to ensure that the band edge level of the authorized frequency band was attenuated by at least the minimum requirements specified.
6. Band Edge Measurement data correction;  
 $\text{Limit [dBm]} = \text{Peak level within in-band emission [dBm]} + \text{Factor [dB]} - 20 \text{ [dB]}$   
 $\text{Margin [dB]} = \text{Limit [dBm]} - (\text{Band edge Level [dBm]} + \text{Factor [dB]})$

# Test Result

|                           |                                  |
|---------------------------|----------------------------------|
| <b>Location</b>           | Nagano Laboratory No.2 Test Site |
| <b>Test date</b>          | November 16, 2016                |
| <b>Temperature</b>        | 19.0 [degree C]                  |
| <b>Humidity variation</b> | 45.0 [%RH]                       |
| <b>Test Engineer</b>      | Tomochika Yonemura               |

|                       |                                                 |                    |                              |                    |
|-----------------------|-------------------------------------------------|--------------------|------------------------------|--------------------|
| <b>Operating mode</b> | <b>DH5, Hopping OFF</b>                         |                    |                              |                    |
| <b>Freq. [MHz]</b>    | <b>Peak level within in-band emission [dBm]</b> | <b>Limit [dBm]</b> | <b>Band edge level [dBm]</b> | <b>Margin [dB]</b> |
| 2400                  | -0.536                                          | -20.536            | -61.465                      | 40.929             |
| 2483.5                | -0.563                                          | -20.563            | -62.456                      | 41.893             |

|                       |                                                 |                    |                              |                    |
|-----------------------|-------------------------------------------------|--------------------|------------------------------|--------------------|
| <b>Operating mode</b> | <b>DH5, Hopping ON</b>                          |                    |                              |                    |
| <b>Freq. [MHz]</b>    | <b>Peak level within in-band emission [dBm]</b> | <b>Limit [dBm]</b> | <b>Band edge level [dBm]</b> | <b>Margin [dB]</b> |
| 2400                  | -0.675                                          | -20.675            | -61.726                      | 41.051             |
| 2483.5                | -0.854                                          | -20.854            | -63.462                      | 42.608             |

|                       |                                                 |                    |                              |                    |
|-----------------------|-------------------------------------------------|--------------------|------------------------------|--------------------|
| <b>Operating mode</b> | <b>2-DH5, Hopping OFF</b>                       |                    |                              |                    |
| <b>Freq. [MHz]</b>    | <b>Peak level within in-band emission [dBm]</b> | <b>Limit [dBm]</b> | <b>Band edge level [dBm]</b> | <b>Margin [dB]</b> |
| 2400                  | -1.744                                          | -21.744            | -55.801                      | 34.057             |
| 2483.5                | -2.953                                          | -22.953            | -61.362                      | 38.409             |

|                       |                                                 |                    |                              |                    |
|-----------------------|-------------------------------------------------|--------------------|------------------------------|--------------------|
| <b>Operating mode</b> | <b>2-DH5, Hopping ON</b>                        |                    |                              |                    |
| <b>Freq. [MHz]</b>    | <b>Peak level within in-band emission [dBm]</b> | <b>Limit [dBm]</b> | <b>Band edge level [dBm]</b> | <b>Margin [dB]</b> |
| 2400                  | -1.792                                          | -21.792            | -57.622                      | 35.830             |
| 2483.5                | -2.192                                          | -22.192            | -62.819                      | 40.627             |

| Operating mode | 3-DH5, Hopping OFF                             |                |                             |                |
|----------------|------------------------------------------------|----------------|-----------------------------|----------------|
| Freq.<br>[MHz] | Peak level<br>within in-band emission<br>[dBm] | Limit<br>[dBm] | Band edge<br>level<br>[dBm] | Margin<br>[dB] |
| 2400           | -1.969                                         | -21.969        | -55.280                     | 33.311         |
| 2483.5         | -2.567                                         | -22.567        | -61.426                     | 38.859         |

| Operating mode | 3-DH5, Hopping ON                              |                |                             |                |
|----------------|------------------------------------------------|----------------|-----------------------------|----------------|
| Freq.<br>[MHz] | Peak level<br>within in-band emission<br>[dBm] | Limit<br>[dBm] | Band edge<br>level<br>[dBm] | Margin<br>[dB] |
| 2400           | -3.073                                         | -23.073        | -61.965                     | 38.892         |
| 2483.5         | -4.729                                         | -24.729        | -63.967                     | 39.238         |

**Spectrum Plots**  
See ANNEX A.6

## 9.8 Spurious RF Conducted Emissions

|                          |                                        |
|--------------------------|----------------------------------------|
| <b>Regulations</b>       | FCC Part15C §15.247 (d)<br>RSS-247 5.5 |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 7.8.8          |

### Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the measurement instrument for the following setting:

|                   |   |                                                   |
|-------------------|---|---------------------------------------------------|
| RBW               | : | 100 kHz                                           |
| VBW               | : | 300 kHz                                           |
| Span              | : | Set span to encompass the spectrum to be examined |
| Detector          | : | Peak                                              |
| Sweep Time        | : | Auto                                              |
| Correction Factor | : | Input Cable loss and Attenuator                   |
| Trace mode        | : | Max Hold, Allow trace to fully stabilize.         |
3. Use the marker function to ensure that the amplitude of all unwanted emissions outside of the authorized frequency band is attenuated by at least the minimum requirements specified.

### Spectrum Plots

See ANNEX A.7

|                           |                                  |
|---------------------------|----------------------------------|
| <b>Location</b>           | Nagano Laboratory No.2 Test Site |
| <b>Test date</b>          | November 16, 2016                |
| <b>Temperature</b>        | 19.0 [degree C]                  |
| <b>Humidity variation</b> | 45.0 [%]                         |
| <b>Test Engineer</b>      | Tomochika Yonemura               |

## 9.9 AC Conducted Emissions

|                          |                                      |
|--------------------------|--------------------------------------|
| <b>Regulations</b>       | FCC Part15C §15.207<br>RSS-Gen 7.2.2 |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 6.2          |

### Test Procedure

1. The EUT and test instrument were set up as shown on section 10.3.
2. The spectrum analyzer is controlled by the computer program to sweep the frequency range to be measured, then spectrum chart is plotted out to find the worst emission.

At least six highest spectrum are measured in quasi-peak and average (if necessary) using the CISPR Receiver.

3. Adjust the test instrument for the following setting:

| Frequency     | Instruments    | Detector | RBW   | VBW |
|---------------|----------------|----------|-------|-----|
| 0.15 – 30 MHz | CISPR Receiver | QP       | 9 kHz | N/A |
|               |                | AVG      |       |     |

6. Measurement data correction;

Emission Level [dBuV] = Reading [dBuV] + Factor [dB]

Margin [dB] = Limit [dBuV] – Emission Level [dBuV]

\* Factor = LISN Factor + Cable loss + Attenuator

# Test Result

|                    |                                   |
|--------------------|-----------------------------------|
| Test date          | November 22, 2016                 |
| Location           | Matsuda Laboratory No.1 Test Site |
| Temperature        | 22.0 [degree C]                   |
| Humidity variation | 55.0 [%]                          |
| Test Engineer      | Tomochika Yonemura                |

| Operating mode |                |           | DH5, Hopping ON   |       |                |       |                             |       |                 |                |       |
|----------------|----------------|-----------|-------------------|-------|----------------|-------|-----------------------------|-------|-----------------|----------------|-------|
| No.            | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor<br>[dB] |       | Emission<br>Level<br>[dBuV] |       | Limit<br>[dBuV] | Margin<br>[dB] |       |
|                |                |           | L1                | L2    | L1             | L2    | L1                          | L2    |                 | L1             | L2    |
| 1              | 0.24           | QuasiPeak | 27.79             | 30.40 | 10.40          | 10.40 | 38.19                       | 40.80 | 62.40           | 24.21          | 21.60 |
| 2              | 0.26           | Average   | 22.32             | 25.48 | 10.40          | 10.40 | 32.72                       | 35.88 | 52.40           | 19.68          | 16.52 |
| 3              | 0.41           | QuasiPeak | 19.38             | 23.99 | 10.50          | 10.50 | 29.88                       | 34.49 | 58.90           | 29.02          | 24.41 |
| 4              | 0.37           | Average   | 14.62             | 18.07 | 10.50          | 10.50 | 25.12                       | 28.57 | 48.90           | 23.78          | 20.33 |
| 5              | 0.64           | QuasiPeak | 8.25              | 10.58 | 10.50          | 10.50 | 18.75                       | 21.08 | 56.00           | 37.25          | 34.92 |
| 6              | 0.67           | Average   | 6.94              | 7.21  | 10.50          | 10.50 | 17.44                       | 17.71 | 46.00           | 28.56          | 28.29 |
| 7              | 14.55          | QuasiPeak | 23.37             | 23.51 | 11.30          | 11.30 | 34.67                       | 34.81 | 60.00           | 25.33          | 25.19 |
| 8              | 15.42          | Average   | 9.22              | 9.43  | 11.30          | 11.30 | 20.52                       | 20.73 | 50.00           | 29.48          | 29.27 |
| 9              | 17.48          | QuasiPeak | 21.25             | 21.73 | 11.30          | 11.30 | 32.55                       | 33.03 | 60.00           | 27.45          | 26.97 |
| 10             | 15.60          | Average   | 9.51              | 9.60  | 11.30          | 11.30 | 20.81                       | 20.90 | 50.00           | 29.19          | 29.10 |
| 11             | 17.18          | QuasiPeak | 25.10             | 24.77 | 11.30          | 11.30 | 36.40                       | 36.07 | 60.00           | 23.60          | 23.93 |
| 12             | 18.17          | Average   | 10.58             | 10.67 | 11.30          | 11.30 | 21.88                       | 21.97 | 50.00           | 28.12          | 28.03 |

| Operating mode |             |           | 2DH5, Hopping ON |       |             |       |                       |       |              |             |       |
|----------------|-------------|-----------|------------------|-------|-------------|-------|-----------------------|-------|--------------|-------------|-------|
| No.            | Freq. [MHz] | Detector  | Reading [dBuV]   |       | Factor [dB] |       | Emission Level [dBuV] |       | Limit [dBuV] | Margin [dB] |       |
|                |             |           | L1               | L2    | L1          | L2    | L1                    | L2    |              | L1          | L2    |
| 1              | 0.24        | QuasiPeak | 27.77            | 30.38 | 10.40       | 10.40 | 38.17                 | 40.78 | 62.40        | 24.23       | 21.62 |
| 2              | 0.25        | Average   | 22.21            | 25.37 | 10.40       | 10.40 | 32.61                 | 35.77 | 52.40        | 19.79       | 16.63 |
| 3              | 0.37        | QuasiPeak | 19.31            | 23.92 | 10.50       | 10.50 | 29.81                 | 34.42 | 58.90        | 29.09       | 24.48 |
| 4              | 0.36        | Average   | 14.62            | 18.07 | 10.50       | 10.50 | 25.12                 | 28.57 | 48.90        | 23.78       | 20.33 |
| 5              | 0.61        | QuasiPeak | 8.23             | 10.56 | 10.50       | 10.50 | 18.73                 | 21.06 | 56.00        | 37.27       | 34.94 |
| 6              | 0.61        | Average   | 6.87             | 7.14  | 10.50       | 10.50 | 17.37                 | 17.64 | 46.00        | 28.63       | 28.36 |
| 7              | 14.41       | QuasiPeak | 23.37            | 23.51 | 11.30       | 11.30 | 34.67                 | 34.81 | 60.00        | 25.33       | 25.19 |
| 8              | 14.83       | Average   | 9.21             | 9.42  | 11.30       | 11.30 | 20.51                 | 20.72 | 50.00        | 29.49       | 29.28 |
| 9              | 15.70       | QuasiPeak | 21.24            | 21.72 | 11.30       | 11.30 | 32.54                 | 33.02 | 60.00        | 27.46       | 26.98 |
| 10             | 15.44       | Average   | 9.51             | 9.60  | 11.30       | 11.30 | 20.81                 | 20.90 | 50.00        | 29.19       | 29.10 |
| 11             | 16.52       | QuasiPeak | 25.09            | 24.76 | 11.30       | 11.30 | 36.39                 | 36.06 | 60.00        | 23.61       | 23.94 |
| 12             | 16.32       | Average   | 10.57            | 10.66 | 11.30       | 11.30 | 21.87                 | 21.96 | 50.00        | 28.13       | 28.04 |

| Operating mode |             |           | 3DH5, Hopping ON |       |             |       |                       |       |              |             |       |
|----------------|-------------|-----------|------------------|-------|-------------|-------|-----------------------|-------|--------------|-------------|-------|
| No.            | Freq. [MHz] | Detector  | Reading [dBuV]   |       | Factor [dB] |       | Emission Level [dBuV] |       | Limit [dBuV] | Margin [dB] |       |
|                |             |           | L1               | L2    | L1          | L2    | L1                    | L2    |              | L1          | L2    |
| 1              | 0.23        | QuasiPeak | 27.73            | 30.34 | 10.40       | 10.40 | 38.13                 | 40.74 | 62.40        | 24.27       | 21.66 |
| 2              | 0.24        | Average   | 22.12            | 25.28 | 10.40       | 10.40 | 32.52                 | 35.68 | 52.40        | 19.88       | 16.72 |
| 3              | 0.39        | QuasiPeak | 19.34            | 23.95 | 10.50       | 10.50 | 29.84                 | 34.45 | 58.90        | 29.06       | 24.45 |
| 4              | 0.36        | Average   | 14.60            | 18.05 | 10.50       | 10.50 | 25.10                 | 28.55 | 48.90        | 23.80       | 20.35 |
| 5              | 0.60        | QuasiPeak | 8.22             | 10.55 | 10.50       | 10.50 | 18.72                 | 21.05 | 56.00        | 37.28       | 34.95 |
| 6              | 0.64        | Average   | 6.90             | 7.17  | 10.50       | 10.50 | 17.40                 | 17.67 | 46.00        | 28.60       | 28.33 |
| 7              | 14.12       | QuasiPeak | 23.35            | 23.49 | 11.30       | 11.30 | 34.65                 | 34.79 | 60.00        | 25.35       | 25.21 |
| 8              | 14.39       | Average   | 9.21             | 9.42  | 11.30       | 11.30 | 20.51                 | 20.72 | 50.00        | 29.49       | 29.28 |
| 9              | 16.51       | QuasiPeak | 21.24            | 21.72 | 11.30       | 11.30 | 32.54                 | 33.02 | 60.00        | 27.46       | 26.98 |
| 10             | 15.14       | Average   | 9.51             | 9.60  | 11.30       | 11.30 | 20.81                 | 20.90 | 50.00        | 29.19       | 29.10 |
| 11             | 16.03       | QuasiPeak | 25.09            | 24.76 | 11.30       | 11.30 | 36.39                 | 36.06 | 60.00        | 23.61       | 23.94 |
| 12             | 17.16       | Average   | 10.57            | 10.66 | 11.30       | 11.30 | 21.87                 | 21.96 | 50.00        | 28.13       | 28.04 |

## 9.10 Receiver Spurious Emissions

|                          |                                     |
|--------------------------|-------------------------------------|
| <b>Regulations</b>       | RSS-Gen 7.1                         |
| <b>Test Method/Guide</b> | ANSI C63.10-2013 clause 6.5 and 6.6 |

### Test Procedure

See section 9.6

### Test Result

|                           |                                     |                                     |                      |
|---------------------------|-------------------------------------|-------------------------------------|----------------------|
| <b>Operating mode</b>     | Receiving mode, EUT Axis: X         |                                     |                      |
| <b>Location</b>           | Nagano Laboratory<br>No.2 Test Site | Nagano Laboratory<br>No.2 Test Site |                      |
| <b>Frequency</b>          | 30 - 1000 MHz,                      | 1 - 18 GHz,                         | 18 - 25 GHz          |
| <b>Test date</b>          | November 18, 2016,                  | November 17,<br>2016                | November 17,<br>2016 |
| <b>Temperature</b>        | 18.0                                | 19.0                                | 19.0 [degree C]      |
| <b>Humidity variation</b> | 40.0                                | 40.0                                | 40.0 [%]             |
| <b>Test Engineer</b>      | Tomochika Yonemura                  |                                     |                      |

| No. | Freq.<br>[MHz] | Detector  | Reading<br>[dBuV] |       | Factor [dB]   |                 | Result<br>[dBuV/m] |      | Limit<br>[dBuV/m] | Margin<br>[dB] |      |
|-----|----------------|-----------|-------------------|-------|---------------|-----------------|--------------------|------|-------------------|----------------|------|
|     |                |           | Hor               | Ver   | Loss,<br>Gain | Dist.<br>Factor | Hor                | Ver  |                   | Hor            | Ver  |
| 1   | 280.511        | QuasiPeak | 33.87             | 34.06 | -3.0          | 0.0             | 30.9               | 31.1 | 40.0              | 9.1            | 8.9  |
| 2   | 625.500        | QuasiPeak | 35.51             | 35.65 | 5.7           | 0.0             | 41.2               | 41.3 | 46.0              | 4.8            | 4.7  |
| 3   | 4882.000       | Peak      | 41.48             | 42.91 | 9.6           | 0.0             | 51.1               | 52.5 | 74.0              | 22.9           | 21.5 |
| 4   | 4882.000       | Average   | 33.21             | 33.34 | 9.6           | 0.0             | 42.8               | 42.9 | 54.0              | 11.2           | 11.1 |
| 5   | 7323.000       | Peak      | 37.64             | 38.11 | 15.0          | 0.0             | 52.6               | 53.1 | 74.0              | 21.4           | 20.9 |
| 6   | 7323.000       | Average   | 31.72             | 30.80 | 15.0          | 0.0             | 46.7               | 45.8 | 54.0              | 7.3            | 8.2  |
| 7   | 9764.000       | Peak      | 36.25             | 34.69 | 17.3          | 0.0             | 53.6               | 52.0 | 74.0              | 20.4           | 22.0 |
| 8   | 9764.000       | Average   | 24.98             | 26.11 | 17.3          | 0.0             | 42.3               | 43.4 | 54.0              | 11.7           | 10.6 |
| 9   | 12205.000      | Peak      | 34.39             | 33.68 | 21.7          | 0.0             | 56.1               | 55.4 | 74.0              | 17.9           | 18.6 |
| 10  | 12205.000      | Average   | 25.53             | 25.50 | 21.7          | 0.0             | 47.3               | 47.2 | 54.0              | 6.7            | 6.8  |
| 11  | 280.511        | QuasiPeak | 33.87             | 34.06 | -3.0          | 0.0             | 30.9               | 31.1 | 40.0              | 9.1            | 8.9  |
| 12  | 625.500        | QuasiPeak | 35.51             | 35.65 | 5.7           | 0.0             | 41.2               | 41.3 | 46.0              | 4.8            | 4.7  |

### Note.

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

## SECTION 10. LIST AND DIAGRAM OF MEASURING INSTRUMENTS

Test instruments are calibrated according to Quality Manual and Calibration Rules of Intertek Japan K.K.

All measurements equipment used for the measurement is calibrated based on standard.

Each measurement result is traceable to national or international standards.

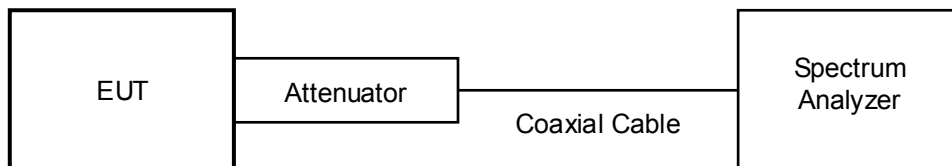
Antenna used in the measurement is calibrated according to ANSI C63.5.

### 10.1 RF Conducted

#### Measurement Instruments

| Instrument        | Model No.      | Serial No. | Manufacturer | Cal. Interval | Effective period |
|-------------------|----------------|------------|--------------|---------------|------------------|
| Spectrum Analyzer | N9030A         | MY52350520 | Agilent      | 1 Y           | Feb.28, 2017     |
| 20 dB Attenuator  | 8493C          | 78585      | Agilent      | 1 Y           | Jul.31, 2017     |
| Coaxial Cable     | SUCOFLEX 104PE | 94703/4PE  | SUHNER       | 1 Y           | Jul.31, 2017     |

#### Measurement Equipment Configuration



## 10.2 Radiated Emission

### Measurement Instruments

| Instrument                                  | Model No.              | Serial No. | Manufacturer    | Cal. Interval | Effective period |
|---------------------------------------------|------------------------|------------|-----------------|---------------|------------------|
| <b>30 – 1000 MHz</b>                        |                        |            |                 |               |                  |
| Tri-log Antenna                             | VULB9168WP             | 331        | Schwarzbeck     | 1 Y           | Jan. 2017        |
| Amplifier                                   | 8447F                  | 2805A02505 | Hewlett Packard | 1 Y           | Feb. 2017        |
| Attenuator                                  | 6806.17.AC             | -          | HUBER+SUHNER    | 1 Y           | Apr. 2017        |
| Coaxial Cable(R1)                           | EM0NSA3                | MTD02325   | Fujikura        | 1 Y           | Jan. 2017        |
| Coaxial Cable(R2)                           | SUCOFLEX 106           | 12718/6    | HUBER+SUHNER    | 1 Y           | Aug. 2017        |
| Spectrum Analyzer                           | N9030A                 | MY52350520 | Agilent         | 1 Y           | Feb.28, 2017     |
| Test Receiver                               | ESS                    | 842886/010 | Rohde&Schwarz   | 1 Y           | Jan. 2017        |
| Site Attenuation<br>(Nagano No.2 Test Site) | -                      | -          | -               | 1 Y           | May. 2017        |
| <b>Above 1000 MHz</b>                       |                        |            |                 |               |                  |
| Double Ridged Antenna                       | 3115                   | 2568       | EMCO            | 1 Y           | Dec. 2016        |
| Horn Antenna<br>with Preamplifier           | MLA-18265-B03-30       | 1694440    | TSJ             | 1 Y           | Sep. 2017        |
| Amplifier                                   | TPA0118-30             | 950186     | TOYO            | 1 Y           | Apr. 2017        |
| Attenuator                                  | 6806.17.B              | -          | HUBER+SUHNER    | 1 Y           | Apr. 2017        |
| Notch Filter                                | BRM50702               | 111        | Micro-Tronics   | 1 Y           | Jul. 2017        |
| Coaxial Cable(R3)                           | SUCOFLEX 104PE(6m)     | 64611/4PE  | HUBER+SUHNER    | 1 Y           | Apr. 2017        |
| Coaxial Cable(R4)                           | SUCOFLEX 104PE(1m)     | 64587/4PE  | HUBER+SUHNER    | 1 Y           | Apr. 2017        |
| Spectrum Analyzer                           | N9030A                 | MY52350520 | Agilent         | 1 Y           | Feb.28, 2017     |
| Coaxial Cable (R5)                          | 5B-048-98-98-6000      | 120315     | Candox          | 1 Y           | Sep. 2017        |
| SVSWR<br>(Nagano No.2 Test Site)            | -                      | -          | -               | 1 Y           | Sep. 2017        |
| <b>Common</b>                               |                        |            |                 |               |                  |
| Testing Software                            | emiT (Version 3,0,0,0) | -          | -               | --            | -                |

## Measurement Instruments Configurations

Diagram of the measurement instruments ( 30-1000 MHz )

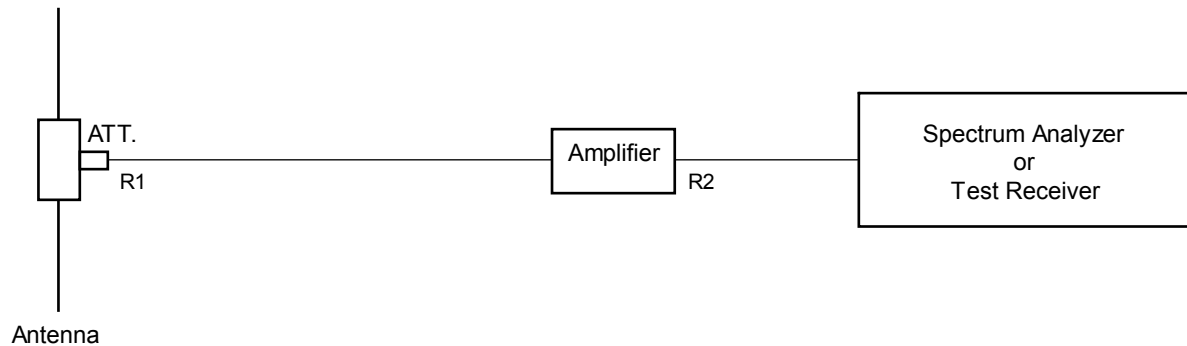


Diagram of the measurement instruments ( 2000 - 3000 MHz)

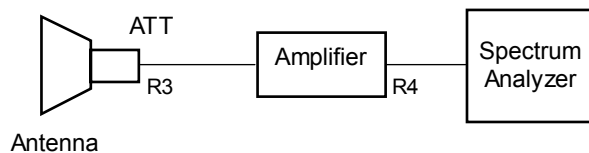


Diagram of the measurement instruments ( 1000- 2000 and 3000 – 18000 MHz)

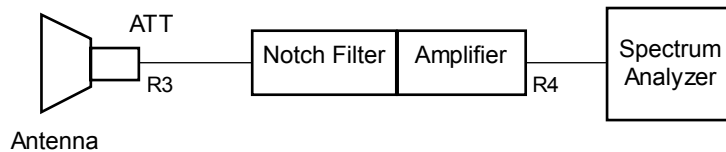
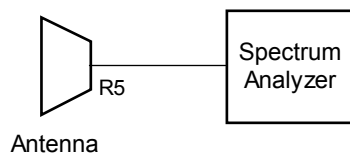
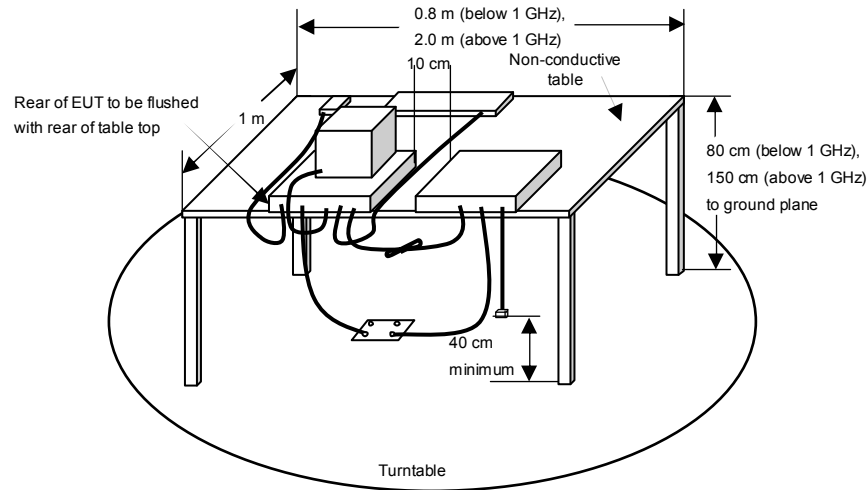


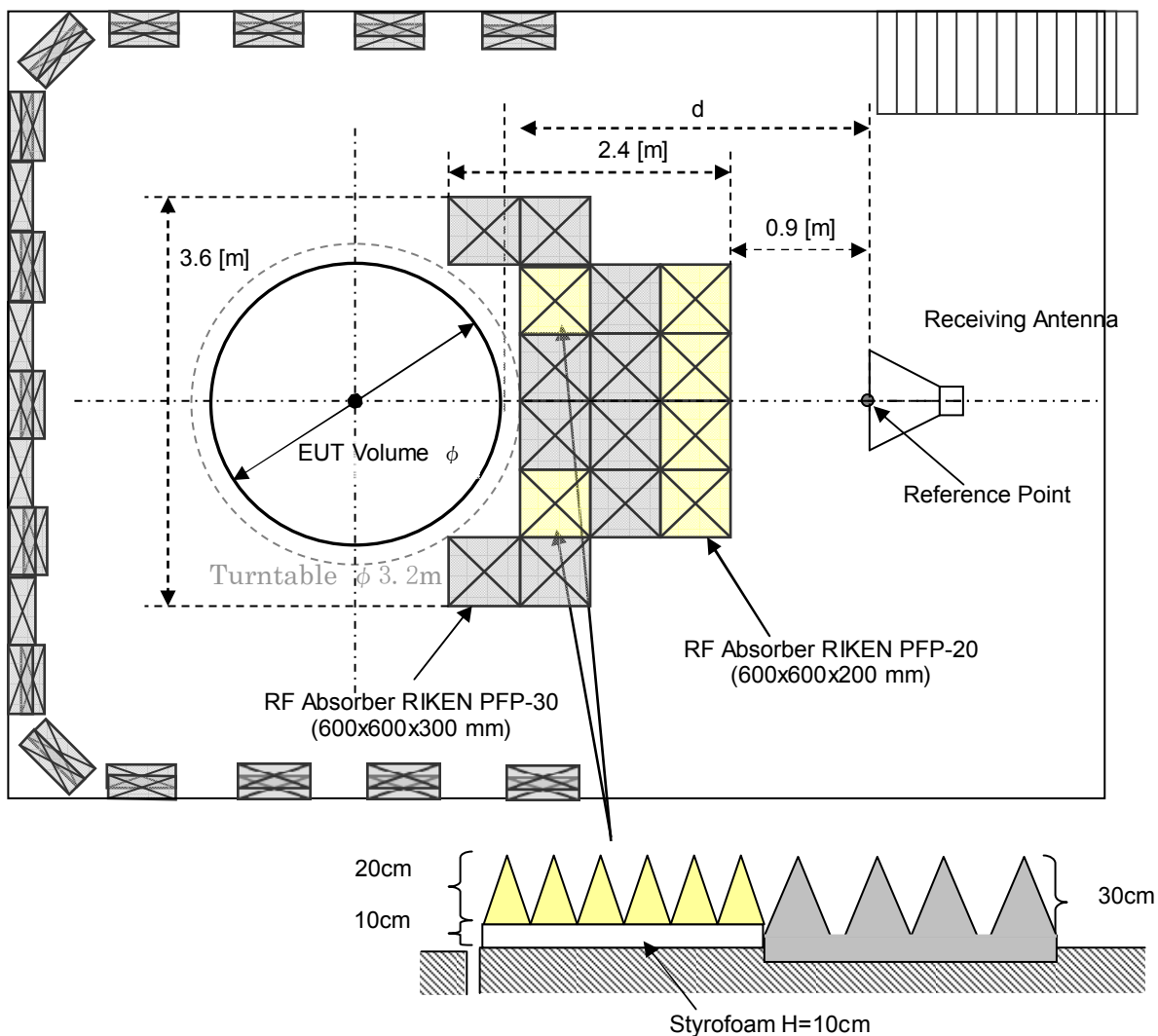
Diagram of the measurement instruments ( 18000 - 25000 MHz)



### EUT set-up as per standard



### Absorber placement and Receive Antenna location in Radiated disturbance above 1 GHz

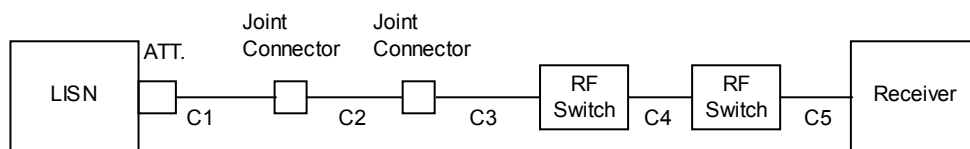


### 10.3 AC Line Conducted Emission

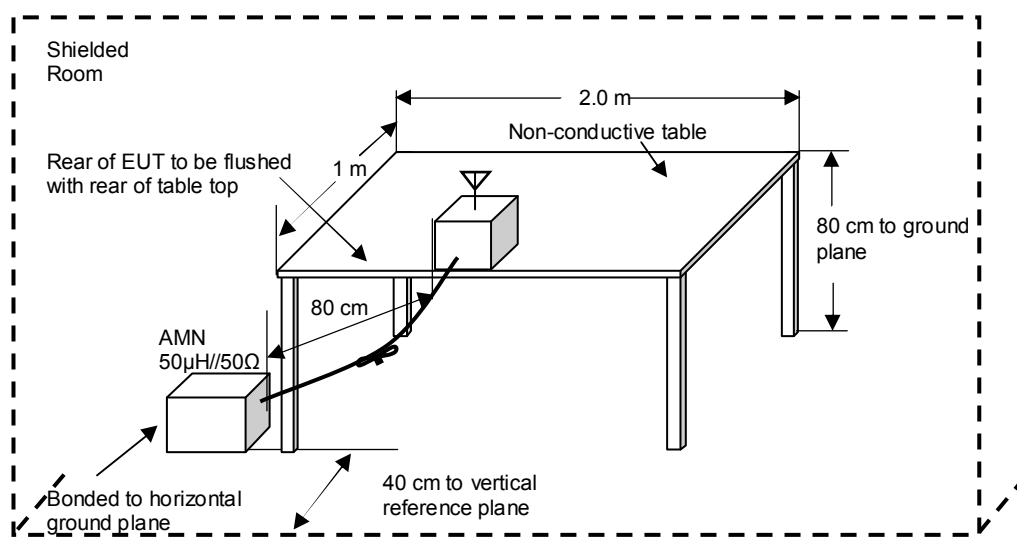
#### Measurement Instrument

| Instrument        | Model No.                      | Serial No. | Manufacturer    | Cal. Interval | Effective period |
|-------------------|--------------------------------|------------|-----------------|---------------|------------------|
| LISN (EUT)        | ESH2-Z5                        | 879675/014 | ROHDE & SCHWARZ | 1 Y           | Apr. 2017        |
| 10 dB Attenuator  | CFA-01                         | KSR00251   | TAMAGAWA        | 1 Y           | Apr. 2017        |
| Coaxial Cable(C1) | 3D-2W                          | -          | FUJIKURA        | 1 Y           | Apr. 2017        |
| Coaxial Cable(C2) | RG-5A/U                        | -          | FUJIKURA        | 1 Y           | Apr. 2017        |
| Coaxial Cable(C3) | RG214HF                        | -          | FUJIKURA        | 1 Y           | Apr. 2017        |
| Coaxial Cable(C4) | RG214HF                        | -          | FUJIKURA        | 1 Y           | Apr. 2017        |
| Coaxial Cable(C5) | RG214HF                        | -          | FUJIKURA        | 1 Y           | Apr. 2017        |
| RF Switch         | MP59B                          | M28542     | Anritsu         | 1 Y           | Feb. 2017        |
| RF Switch         | ACX-150-1                      | -          | Intertek        | 1 Y           | Feb. 2017        |
| Test Receiver     | ESS<br>(Firmware Version 1.21) | 842123/010 | Rohde & Schwarz | 1 Y           | Feb. 2017        |
| Testing Software  | emiT (Version 3,0,0,0)         | -          | -               | -             | -                |

#### Measurement Instruments Configurations



#### Test setup as per standard



\* Reference Ground plane : greater than 2 x 2m