

## RADIO TEST REPORT

**Test Report No.: 26KE0202-HO-A**

**Applicant** : Sony Computer Entertainment Inc.  
**Type of Equipment** : REFERENCE TOOL  
**Model No.** : DECR-1000A  
**FCC ID** : AK8DEHR1000  
**Test standard** : FCC Part 15 Subpart C  
Section 15.207, Section 15.247: 2006  
**Test Result** : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.

**Date of test:**

June 22 to 28, 2006

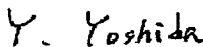
**Tested by:**



Mitsuru Fujimura  
EMC Services

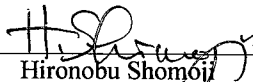


Takumi Shimada  
EMC Services



Yutaka Yoshida  
EMC Services

**Approved by :**



Hironobu Shomoji  
Group Leader of EMC Services



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.

\*As for the range of Accreditation in NVLAP, you may refer to the WEB address, <http://ulapex.jp/emc/nvlap.htm>

**UL Apex Co., Ltd.**

**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

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## **SECTION 1: Client information**

|                  |                                                        |
|------------------|--------------------------------------------------------|
| Company Name     | Sony Computer Entertainment Inc.                       |
| Brand Name       | SONY                                                   |
| Address          | 2-6-21 Minamiaoyama, Minato-ku, Tokyo, 107-0062, Japan |
| Telephone Number | +81-3-6438-8625                                        |
| Facsimile Number | +81-3-6438-8607                                        |
| Contact Person   | Akiko Tsukada                                          |

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

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

|                        |                                                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------|
| Type of Equipment      | REFERENCE TOOL                                                                                    |
| Model No               | DECR-1000A                                                                                        |
| Serial No              | SR00001 (Conducted Emission/ Radiated Emission test)<br>SR00006 (Antenna Terminal Conducted test) |
| Rating                 | AC 120V/60Hz                                                                                      |
| Country of Manufacture | JAPAN                                                                                             |
| Receipt Date of Sample | June 20, 2006                                                                                     |
| Condition of EUT       | Production prototype<br>(Not for Sale: This sample is equivalent to mass-produced items.)         |
| Modification of EUT    | No modification by the test lab.                                                                  |

### **2.2 Product Description**

Model: DECR-1000A, referred to as the EUT in this report, is a REFERENCE TOOL to make software for game. It contains Bluetooth (Ver. 2.0+EDR) module and IEEE802.11b/g WLAN module. Those modules do not transmit simultaneously.

#### **Bluetooth (Ver. 2.0+EDR)**

|                             |                                   |
|-----------------------------|-----------------------------------|
| Equipment Type              | Transceiver                       |
| Frequency of Operation      | 2402-2480MHz                      |
| Type of Modulation          | FHSS (GFSK, $\pi/4$ DQPSK, 8DPSK) |
| Bandwidth & Channel spacing | 1MHz & 1MHz                       |
| Power Supply (inner)        | DC3.3V                            |

#### **IEEE802.11b/g WLAN**

|                             |                |
|-----------------------------|----------------|
| Equipment Type              | Transceiver    |
| Frequency of Operation      | 2412-2462MHz   |
| Type of Modulation          | DSSS/OFDM      |
| Bandwidth & Channel spacing | 20MHz & 5MHz   |
| Power Supply (inner)        | DC 3.3V/DC1.3V |

\*For WLAN test, please see UL Apex Test Report No. 26KE0202-HO-B.

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**[Antenna]**

|                        |                                                                    |
|------------------------|--------------------------------------------------------------------|
| Antenna Type           | Monopole Antenna<br>(Common antenna for Bluetooth and WLAN module) |
| Antenna Connector Type | SMK TS-6 connector with custom key                                 |
| Antenna Gain           | 2.09dBi max                                                        |

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

#### **3.1 Test Specification**

Test Specification : FCC Part15 Subpart C : 2006

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators  
Section 15.207 Conducted limits : 2006  
Section 15.247 Operation within the bands 902-928MHz,  
2400-2483.5MHz, and 5725-5850MHz: 2006

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

The stable voltage (DC3.3V) is constantly provided to the Bluetooth module. Therefore, the EUT complies with the requirement.

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

The EUT has a unique antenna connector (SMK TS-6 connector with custom key). Therefore, the equipment complies with the antenna requirement of Section 15.203.

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### 3.2 Procedures and results

| No. | Item                         | Test Procedure                                                          | Specification                               | Remarks                | Deviation | Worst Margin*0)                                                             | Results  |
|-----|------------------------------|-------------------------------------------------------------------------|---------------------------------------------|------------------------|-----------|-----------------------------------------------------------------------------|----------|
| 1   | Conducted emission           | FCC: ANSI C63.4:2003<br>7. AC powerline conducted emission measurements | FCC: Section 15.207                         |                        | N/A       | 11.4dB<br>0.20542 MHz<br>AV, N                                              | Complied |
|     |                              | IC: RSS-Gen 7.2.2                                                       | IC: RSS-Gen 7.2.2                           |                        |           |                                                                             |          |
| 2   | Carrier Frequency Separation | FCC: ANSI C63.4:2003<br>13. Measurement of intentional radiators        | FCC: Section15.247(a)(1)                    | Conducted              | N/A       | See data.                                                                   | Complied |
|     |                              | IC: -                                                                   | IC: RSS-210 A8.1 (2)                        |                        |           |                                                                             |          |
| 3   | 20dB Bandwidth               | FCC: ANSI C63.4:2003<br>13. Measurement of intentional radiators        | FCC: Section15.247(a)(1)                    | Conducted              | N/A       |                                                                             | Complied |
|     |                              | IC: -                                                                   | IC: RSS-210 A8.1 (1)                        |                        |           |                                                                             |          |
| 4   | Number of Hopping Frequency  | FCC: ANSI C63.4:2003<br>13. Measurement of intentional radiators        | FCC: Section15.247(a)(1)(iii)               | Conducted              | N/A       |                                                                             | Complied |
|     |                              | IC: -                                                                   | IC: RSS-210 A8.1 (4)                        |                        |           |                                                                             |          |
| 5   | Dwell time                   | FCC: ANSI C63.4:2003<br>13. Measurement of intentional radiators        | FCC: Section15.247(a)(1)(iii)               | Conducted              | N/A       |                                                                             | Complied |
|     |                              | IC: -                                                                   | IC: RSS-210 A8.1 (4)                        |                        |           |                                                                             |          |
| 6   | Maximum Peak Output Power    | FCC: ANSI C63.4:2003<br>13. Measurement of intentional radiators        | FCC: Section15.247(b)(1)                    | Conducted              | N/A       | Complied                                                                    |          |
|     |                              | IC: RSS-Gen 4.6                                                         | IC: RSS-210 A8.4 (2)                        |                        |           |                                                                             |          |
| 7   | Band Edge Compliance         | FCC: ANSI C63.4:2003<br>13. Measurement of intentional radiators        | FCC: Section15.247(d)                       | Conducted              | N/A       | Complied                                                                    |          |
|     |                              | IC: -                                                                   | IC: RSS-210 A8.5                            |                        |           |                                                                             |          |
| 8   | Spurious Emission            | FCC: ANSI C63.4:2003<br>13. Measurement of intentional radiators        | FCC: Section15.247(d)                       | Conducted/<br>Radiated | N/A       | Tx<br>3.7dB<br>750.000MHz<br>QP, Hor<br>Rx<br>7.5dB<br>66.650MHz<br>OP. Ver | Complied |
|     |                              | IC: RSS-Gen 4.7<br>RSS-Gen 4.8                                          | IC: RSS-210 A8.5<br>RSS-Gen 7.2.1 and 7.2.3 |                        |           |                                                                             |          |

Note: UL Apex's EMI Work Procedures No.QPM05 and QPM15.

\*0) The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

\*These tests were also referred to FCC Public Notice DA 00-705 "Guidance on Measurement for Frequency Hopping Spread Spectrum Systems".

\*These tests were performed without any deviations from test procedure except for additions or exclusions.

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**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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### 3.3 Addition to standards

| No. | Item                    | Test Procedure | Specification | Remarks   | Deviation | Worst margin | Results |
|-----|-------------------------|----------------|---------------|-----------|-----------|--------------|---------|
| 1   | 99% Occupied Band Width | RSS-Gen 4.4.1  | RSS-Gen 4.4.1 | Conducted | N/A       | N/A          | N/A     |

### 3.4 Uncertainty

#### Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test is  $\pm 2.6$ dB.

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

#### Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is  $\pm 4.59$ dB(3m)/ $\pm 4.58$ dB(10m).

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is  $\pm 4.62$ dB(3m)/ $\pm 4.60$ dB(10m).

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is  $\pm 5.27$ dB.

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

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

#### Other test except Conducted Emission and Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test is  $\pm 3.0$ dB.

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UL Apex Co., Ltd.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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### 3.5 Test Location

UL Apex Co., Ltd. Head Office EMC Lab. \*NVLAP Lab. code: 200572-0

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Facsimile : +81 596 24 8124

|                            | FCC Registration Number | IC Registration Number | Width x Depth x Height (m) | Size of reference ground plane (m) / horizontal conducting plane | Other rooms      |
|----------------------------|-------------------------|------------------------|----------------------------|------------------------------------------------------------------|------------------|
| No.1 semi-anechoic chamber | 313583                  | IC4247A                | 19.2 x 11.2 x 7.7m         | 7.0 x 6.0m                                                       | Preparation room |
| No.2 semi-anechoic chamber | 655103                  | IC4247A-2              | 7.5 x 5.8 x 5.2m           | 4.0 x 4.0m                                                       | -                |
| No.3 semi-anechoic chamber | 148738                  | IC4247A-3              | 12.0 x 8.5 x 5.9m          | 6.8 x 5.75m                                                      |                  |
| No.3 shielded room         | -                       | -                      | 4.0 x 6.0 x 2.7m           | N/A                                                              | -                |
| No.4 semi-anechoic chamber | 134570                  | IC4247A-4              | 12.0 x 8.5 x 5.9m          | 6.8 x 5.75m                                                      | -                |
| No.4 shielded room         | -                       | -                      | 4.0 x 6.0 x 2.7m           | N/A                                                              | -                |
| No.5 shielded room         | -                       | -                      | 6.0 x 6.0 x 3.9m           | N/A                                                              | -                |
| No.6 shielded room         | -                       | -                      | 4.0 x 4.5 x 2.7m           | N/A                                                              | -                |
| No.6 measurement room      | -                       | -                      | 4.75 x 5.4 x 3.0m          | N/A                                                              | -                |
| No.7 shielded room         | -                       | -                      | 4.7 x 7.5 x 2.7m           | 4.7 x 7.5m                                                       | -                |
| No.8 measurement room      | -                       | -                      | 3.1 x 5.0 x 2.7m           | N/A                                                              | -                |

\* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3 and No.4 semi-anechoic chambers and No.7 shielded room.

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

Refer to APPENDIX 1 to 3.

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

### **4.1 Operating Modes**

The mode used for test :

1. Transmitting mode: GFSK (Packet size DH1<sup>\*1</sup>), DH3\*, DH5, Data packet: PRBS9)
    - Low Channel : 2402MHz
    - Mid Channel : 2441MHz
    - High Channel : 2480MHz
  2. Transmitting mode: 8DPSK<sup>\*2</sup> (Packet size 3-DH1<sup>\*1</sup>, 3-DH3<sup>\*1</sup>, 3-DH5, Data packet: PRBS9)
    - Low Channel : 2402MHz
    - Mid Channel : 2441MHz
    - High Channel : 2480MHz
  3. Receiving mode
    - Mid Channel : 2441MHz
  4. Inquiry mode (only for Antenna Terminal Conducted test)
- <sup>\*1</sup>) Used for Dwell time test only
- <sup>\*2</sup>) As the Conducted Power level at 8DPSK was higher than the one at 4DPSK, the test was performed at 8DPSK.

**Remarks:** Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not influence on the output power, bandwidth, and spurious emission of the EUT. However, the limit level 125mW mode was used due to AFH and EDR mode.



#### Description of EUT and Support equipment

| No. | Item            | Model number      | Serial number              | Manufacturer                     | Remarks |
|-----|-----------------|-------------------|----------------------------|----------------------------------|---------|
| A   | REFERENCE TOOL  | DECR-1000A        | SR00001 *1)<br>SR00006 *2) | Sony Computer Entertainment Inc. | EUT     |
| B   | EXT-ANT         | -                 | -                          | Sony Computer Entertainment Inc. | EUT     |
| C   | Foot SW         | -                 | -                          | -                                | -       |
| D   | Controller      | -                 | -                          | Sony Computer Entertainment Inc  | -       |
| E   | Controller      | -                 | -                          | Sony Computer Entertainment Inc  | -       |
| F   | SD Memory       | RP-SDK512         | -                          | Panasonic                        | -       |
| G   | CF Memory       | RCF-X             | -                          | BUFFALO                          | -       |
| H   | Memory Stick    | MSX-M512S         | -                          | Sony Computer Entertainment Inc  | -       |
| I   | HDMI Selector   | HDMI Switcher 2x1 | 64372                      | Gefen                            | -       |
| J   | AC Adapter      | GFP101U-520       | 0501000803                 | Gefen                            | -       |
| K   | Display Monitor | MDT201WS          | 5Z002107GJ                 | Mitsubishi                       | -       |
| L   | HUB             | FXG-05TXJ         | 29EH03103A1                | PLANEX                           | -       |
| M   | AC Adapter      | MTIS-5050250-A1   | -                          | PLANEX                           | -       |
| N   | PC              | PP10L             | 16784800629                | DELL                             | -       |
| O   | AC Adapter      | PA-1650-05D       | -                          | DELL                             | -       |
| P   | Mouse           | M-UV94            | LNA51401252                | Logitech                         | -       |
| Q   | Audio Selector  | SB-A40            | -                          | Sony Computer Entertainment Inc  | -       |
| R   | Speaker         | MF5000            | -                          | Creative                         | -       |
| S   | PSP             | PSP-1000          | 00-27400000-0635932        | Sony Computer Entertainment Inc  | -       |
| T   | PSP             | PSP-1000          | 00-27400000-0635933        | Sony Computer Entertainment Inc  | -       |
| U   | AC Adapter      | PSP-100           | 05010144149A               | Mitsumi                          | -       |
| V   | AC Adapter      | PSP-100           | 0501044150A                | Mitsumi                          | -       |
| W   | USB Mouse       | PCGA-UMS3         | 51101013                   | Sony Computer Entertainment Inc  | -       |
| X   | USB Keyboard    | SCPH-10240        | -                          | Sony Computer Entertainment Inc  | -       |

\*1) Used for Conducted Emission/ Radiated Emission test

\*2) Used for Antenna Terminal Measurement test

**UL Apex Co., Ltd.**

**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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**List of cables used**

| No. | Name                   | Length (m) | Cable Shielding | Connector Shielding | Remark                                  |
|-----|------------------------|------------|-----------------|---------------------|-----------------------------------------|
| 1   | DC Cable               | 1.8        | Unshielded      | Unshielded          | -                                       |
| 2   | HDMI Cable             | 1.8        | Shielded        | Shielded            | -                                       |
| 3   | AC Cable               | 2.0        | Shielded        | Shielded            | -                                       |
| 4   | HDMI-DVI Cable         | 2.0        | Shielded        | Shielded            | -                                       |
| 5   | Video Cable (D-Shaped) | 2.4        | Shielded        | Shielded            | -                                       |
| 6   | VGA Cable              | 2.0        | Shielded        | Shielded            | Two ferrite cores (standard attachment) |
| 7   | LAN Cable              | 2.0        | Shielded        | Shielded            | -                                       |
| 8   | LAN Cable              | 2.0        | Shielded        | Shielded            | -                                       |
| 9   | LAN Cable              | 2.0        | Shielded        | Shielded            | -                                       |
| 10  | DC Cable               | 1.8        | Unshielded      | Unshielded          | -                                       |
| 11  | LAN Cable              | 3.0        | Shielded        | Shielded            | One ferrite core                        |
| 12  | DC Cable               | 1.8        | Unshielded      | Unshielded          | -                                       |
| 13  | AC Cable               | 0.8        | Unshielded      | Unshielded          | -                                       |
| 14  | Audio Cable            | 1.5        | Shielded        | Shielded            | -                                       |
| 15  | Audio Cable            | 1.5        | Shielded        | Shielded            | -                                       |
| 16  | Audio Cable            | 1.5        | Shielded        | Shielded            | -                                       |
| 17  | Audio Cable            | 1.5        | Shielded        | Shielded            | -                                       |
| 18  | Audio Cable            | 0.5        | Shielded        | Shielded            | -                                       |
| 19  | Mouse Cable            | 0.6        | Shielded        | Shielded            | -                                       |
| 20  | Antenna Cable          | 2.0        | Shielded        | Shielded            | -                                       |
| 21  | AC Power Cable         | 2.0        | Unshielded      | Unshielded          | -                                       |
| 22  | Mouse Cable            | 0.8        | Shielded        | Shielded            | -                                       |
| 23  | Keyboard Cable         | 1.9        | Unshielded      | Unshielded          | -                                       |
| 24  | USB Cable              | 1.8        | Shielded        | Shielded            | Two ferrite cores (standard attachment) |
| 25  | USB Cable              | 1.8        | Shielded        | Shielded            | Two ferrite cores (standard attachment) |
| 26  | USB Cable              | 1.8        | Shielded        | Shielded            | -                                       |
| 27  | DC Cable               | 1.5        | Unshielded      | Unshielded          | -                                       |
| 28  | AC Cable               | 1.0        | Unshielded      | Unshielded          | -                                       |
| 29  | USB Cable              | 1.8        | Shielded        | Shielded            | -                                       |
| 30  | DC Cable               | 1.5        | Unshielded      | Unshielded          | -                                       |
| 31  | AC Cable               | 1.0        | Unshielded      | Unshielded          | -                                       |
| 32  | Foot SW Cable          | 2.0        | Shielded        | Shielded            | -                                       |

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**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

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## **SECTION 5: Conducted Emission**

### **Test Procedure and conditions**

EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, raised 80cm above the conducting ground plane.

The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN)/ Artificial mains Network (AMN) and excess AC cable was bundled in center.

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

I/O cable and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the antenna in a Semi Anechoic Chamber or a Measurement Room.

The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

|                          |                                                              |
|--------------------------|--------------------------------------------------------------|
| <b>Detector</b>          | <b>: CISPR quasi-peak and average detector (IF BW 9 kHz)</b> |
| <b>Measurement range</b> | <b>: 0.15-30MHz</b>                                          |
| <b>Test data</b>         | <b>: APPENDIX 3</b>                                          |
| <b>Test result</b>       | <b>: Pass</b>                                                |

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4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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## **SECTION 6: Spurious Emission**

### **[Conducted]**

#### **Test Procedure**

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

**Test data** : APPENDIX 3

**Test result** : Pass

### **[Radiated]**

#### **Test Procedure**

EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, raised 80cm above the conducting ground plane.

The Radiated Electric Field Strength intensity has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m(Below 10GHz) and 1m(Upper 10GHz).

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

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

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

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

In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

**20dBc was applied to the frequency over the limit of FCC 15.209 / Table 2 of RSS-210 2.7 (IC) and outside the restricted band of 15.205 / Table 1 of RSS-210 2.7 (IC).**

| Frequency       | Below 1GHz                               | Above 1GHz                                             |
|-----------------|------------------------------------------|--------------------------------------------------------|
| Instrument used | Test Receiver / Spectrum Analyzer        | Spectrum Analyzer                                      |
| Detector        | QP: BW 120kHz(T/R)                       | PK: RBW:1MHz/VBW: 1MHz                                 |
| IF Bandwidth    | 20dBc : RBW: 100kHz<br>VBW: 300kHz (S/A) | AV: RBW:1MHz/VBW:10Hz<br>20dBc : RBW:100kHz/VBW:300kHz |

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

**Test data** : APPENDIX 3

**Test result** : Pass

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**UL Apex Co., Ltd.**

**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

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## **SECTION 7: Bandwidth**

### **Test Procedure**

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

|             |              |
|-------------|--------------|
| Test data   | : APPENDIX 3 |
| Test result | : Pass       |

## **SECTION 8: Maximum Peak Output Power**

### **Test Procedure**

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

|             |              |
|-------------|--------------|
| Test data   | : APPENDIX 3 |
| Test result | : Pass       |

## **SECTION 9: Carrier Frequency Separation**

### **Test Procedure**

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

|             |              |
|-------------|--------------|
| Test data   | : APPENDIX 3 |
| Test result | : Pass       |

## **SECTION 10: Number of Hopping Frequency**

### **Test Procedure**

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

|             |              |
|-------------|--------------|
| Test data   | : APPENDIX 3 |
| Test result | : Pass       |

## **SECTION 11: Dwell time**

### **Test Procedure**

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

|             |              |
|-------------|--------------|
| Test data   | : APPENDIX 3 |
| Test result | : Pass       |

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