



# **RADIO TEST REPORT**

**Test Report No.: 10836676S-A**

(Original test report: 31JE0038-SH-01-A-R1)

**Applicant** : FUJIFILM Corporation  
**Type of Equipment** : Flat Panel Sensor  
**Model No.** : DR-ID 613SE  
**FCC ID** : W2Z-01000004  
**Test regulation** : FCC Part15 Subpart E: 2015  
**Test item** : Conducted emission, Radiated emission  
**Test result** : Complied

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3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
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6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.

**Date of test:**

June 30 to July 4, 2015

**Representative test engineer:**

*Y. Ishikawa*

Yosuke Ishikawa  
Engineer

Consumer Technology Division

**Approved by :**

*T. Imamura*

Toyokazu Imamura  
Leader

Consumer Technology Division



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

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13-EM-F0429



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## **SECTION 1: Customer information**

Company Name : FUJIFILM Corporation  
Address : 798 Miyanodai, Kaisei-Machi, Ashigarakami-Gun, Kanagawa-ken, 258-8538, Japan  
Telephone Number : +81-465-85-4054  
Facsimile Number : +81-465-85-2043  
Contact Person : Tomonari Sendai

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

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

Type of Equipment : Flat Panel Sensor  
Model Number : DR-ID 613SE  
Serial Number : 26990005  
Rating : DC 12 V  
AC 100 -240 V, 47-63 Hz (AC Adaptor)  
Country of Mass-production : Japan  
Condition of EUT : Production model  
Receipt Date of Sample : June 18, 2015  
Modification of EUT : No modification by the test lab.

### **2.2 Product description**

Model: DR-ID 613SE (referred to as the EUT in this report) is a Flat Panel Sensor.

#### **Radio Specification**

Radio Type : Transceiver  
Method of Frequency Generation : Synthesizer  
Power Supply (inner) : DC3.3V  
Antenna Gain : 2.14dBi  
Antenna Cable loss : 2.3dB(5.15GHz)~2.5dB(5.25GHz)  
\*The cable loss is proportional from 5.15GHz to 5.25GHz.  
Clock frequency : 40MHz

|                        | IEEE802.11a                        | IEEE802.11n<br>(20 M band) | IEEE802.11n<br>(40 M band) |
|------------------------|------------------------------------|----------------------------|----------------------------|
| Frequency of operation | 5180-5240MHz                       | 5180-5240MHz               | 5190 - 5230MHz             |
| Type of modulation     | OFDM<br>(64QAM, 16QAM, QPSK, BPSK) |                            |                            |
| Channel spacing        | 20MHz                              | 20MHz                      | 40MHz                      |
| Antenna type           | Planer inverted F antenna          |                            |                            |
| Antenna Connector type | U.FL Alternative connector         |                            |                            |

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

This EUT provides stable voltage (DC3.3V) constantly to RF part regardless of input voltage. Therefore, this EUT complies with the requirement.

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

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

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## SECTION 3: Test specification, procedures & results

### 3.1 Test specification

Test specification : FCC Part 15 Subpart E: 2015, final revised on June 12, 2015 and effective July 13, 2015  
Title : FCC 47CFR Part15 Radio Frequency Device Subpart E Unlicensed National Information Infrastructure Devices  
Section 15.207 Conducted limits  
Section 15.209 Radiated emission limits, general requirements  
Section 15.407 General technical requirements

\* The revision on June 12, 2015 does not affect the test specification applied to the EUT.

### 3.2 Procedures & Results

| Item                                      | Test Procedure *1)                                                 | Specification                             | Remarks   | Deviation | Worst Margin                                                                                                            | Results  |
|-------------------------------------------|--------------------------------------------------------------------|-------------------------------------------|-----------|-----------|-------------------------------------------------------------------------------------------------------------------------|----------|
| Conducted emission                        | ANSI C63.4:2009<br>7. AC powerline conducted emission measurements | FCC 15.407 (b)(6) & 15.207                | -         | N/A       | 13.6 dB<br>Freq.: 12.22356 MHz<br>Detector: Average<br>Phase: L1<br>Mode: IEEE802.11n(HT20),<br>Tx, 5240 MHz            | Complied |
| 6dB, 26dB & 20dB emission bandwidth       | ANSI C63.4:2009<br>13. Measurement of intentional radiators        | FCC 15.407 (a)(1)(2)(3)<br>FCC 15.215 (c) | Conducted | *2)       | -                                                                                                                       | N/A      |
| Maximum conducted output power            | ANSI C63.4:2009<br>13. Measurement of intentional radiators        | FCC 15.407 (a)(1)(2)(3)                   | Conducted | *2)       |                                                                                                                         | N/A      |
| Peak power spectral density               | ANSI C63.4:2009<br>13. Measurement of intentional radiators        | FCC 15.407 (a)(1)(2)(3)                   | Conducted | *2)       |                                                                                                                         | N/A      |
| Spurious emission & Restricted band edges | ANSI C63.4:2009<br>13. Measurement of intentional radiators        | FCC 15.109, 15.407 (b), 15.205 & 15.209   | Radiated  | N/A       | 6.5 dB<br>Freq.: 31.6 MHz<br>Detector: Quasi-Peak<br>Polarization: Vertical<br>Mode: Tx, 5240 MHz<br>IEEE802.11n (HT20) | Complied |
| Dynamic frequency selection               | FCC 06-96<br>APPENDIX                                              | FCC 15.407 (h)                            | Conducted | N/A*3)    | N/A                                                                                                                     | N/A      |

\*1) These tests were also referred to KDB 789033 (FCC), "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E".

\*2) Refer to the test report 31JE0038-SH-01-A-R1.

\*3) The test is not applicable since the EUT does not operate in the 5.25-5.35 GHz and 5.47-5.725 GHz bands.

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

### 3.3 Addition to standard

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

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### 3.4 Uncertainty

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

| Item                                            | Frequency range | No.1 SAC <sup>*1</sup> /SR <sup>*2</sup><br>(±) | No.2 SAC/SR<br>(±) | No.3 SAC/SR<br>(±) |
|-------------------------------------------------|-----------------|-------------------------------------------------|--------------------|--------------------|
| Conducted emission<br>(AC Mains) LISN           | 150 kHz-30 MHz  | 3.6 dB                                          | 3.4 dB             | 3.4 dB             |
| Radiated emission<br>(Measurement distance: 3m) | 9 kHz-30 MHz    | 3.7 dB                                          | 3.5 dB             | 3.5 dB             |
|                                                 | 30 MHz-300 MHz  | 4.9 dB                                          | 4.9 dB             | 4.7 dB             |
|                                                 | 300 MHz-1 GHz   | 5.0 dB                                          | 5.0 dB             | 4.8 dB             |
|                                                 | 1 GHz-15 GHz    | 4.9 dB                                          | 4.9 dB             | 4.9 dB             |
| Radiated emission<br>(Measurement distance: 1m) | 15 GHz-18 GHz   | 5.7 dB                                          | 5.7 dB             | 5.7 dB             |
|                                                 | 18 GHz-40 GHz   | 4.5 dB                                          | 4.3 dB             | 4.3 dB             |

\*1: SAC=Semi-Anechoic Chamber

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

#### Conducted emission test

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

#### Radiated emission test

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

### 3.5 Test location

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|                                                                | IC<br>Registration<br>No. | Width x Depth x<br>Height (m) | Size of reference<br>ground plane (m) /<br>horizontal<br>conducting plane | Maximum<br>measurement<br>distance |
|----------------------------------------------------------------|---------------------------|-------------------------------|---------------------------------------------------------------------------|------------------------------------|
| <input type="checkbox"/> No.1 Semi-anechoic chamber            | 2973D-1                   | 20.6 x 11.3 x 7.65            | 20.6 x 11.3                                                               | 10m                                |
| <input checked="" type="checkbox"/> No.2 Semi-anechoic chamber | 2973D-2                   | 20.6 x 11.3 x 7.65            | 20.6 x 11.3                                                               | 10m                                |
| <input checked="" type="checkbox"/> No.3 Semi-anechoic chamber | 2973D-3                   | 12.7 x 7.7 x 5.35             | 12.7 x 7.7                                                                | 5m                                 |
| <input type="checkbox"/> No.4 Semi-anechoic chamber            | -                         | 8.1 x 5.1 x 3.55              | 8.1 x 5.1                                                                 | -                                  |
| <input type="checkbox"/> No.1 Shielded room                    | -                         | 6.8 x 4.1 x 2.7               | 6.8 x 4.1                                                                 | -                                  |
| <input type="checkbox"/> No.2 Shielded room                    | -                         | 6.8 x 4.1 x 2.7               | 6.8 x 4.1                                                                 | -                                  |
| <input type="checkbox"/> No.3 Shielded room                    | -                         | 6.3 x 4.7 x 2.7               | 6.3 x 4.7                                                                 | -                                  |
| <input type="checkbox"/> No.4 Shielded room                    | -                         | 4.4 x 4.7 x 2.7               | 4.4 x 4.7                                                                 | -                                  |
| <input checked="" type="checkbox"/> No.5 Shielded room         | -                         | 7.8 x 6.4 x 2.7               | 7.8 x 6.4                                                                 | -                                  |
| <input type="checkbox"/> No.6 Shielded room                    | -                         | 7.8 x 6.4 x 2.7               | 7.8 x 6.4                                                                 | -                                  |
| <input type="checkbox"/> No.7 Shielded room                    | -                         | 2.76 x 3.76 x 2.4             | 2.76 x 3.76                                                               | -                                  |
| <input type="checkbox"/> No.8 Shielded room                    | -                         | 3.45 x 5.5 x 2.4              | 3.45 x 5.5                                                                | -                                  |
| <input type="checkbox"/> No.1 Measurement room                 | -                         | 2.55 x 4.1 x 2.5              | 2.55 x 4.1                                                                | -                                  |

### 3.6 Test setup, Test data & Test instruments

Refer to APPENDIX 1 to 3.

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

### 4.1 Operating mode

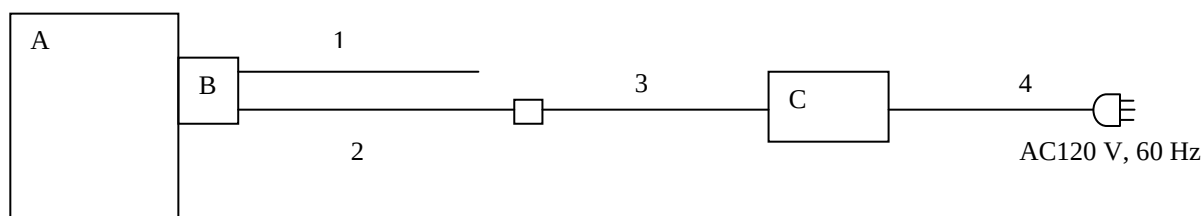
| Test item                                                                                                                                                                                        | Mode                                   | Tested frequency             | Worst data rate *1) | Antenna       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------|---------------------|---------------|
| Conducted emission, Radiated emission (below 1GHz) *1)                                                                                                                                           | Transmitting IEEE 802.11n (HT20), MIMO | 5240 MHz                     | MCS8, PN9           | Side & Bottom |
| Radiated emission (above 1GHz) *2)                                                                                                                                                               | Transmitting IEEE 802.11n (HT20), MIMO | 5180 MHz, 5220 MHz, 5240 MHz | MCS8, PN9           | Side & Bottom |
|                                                                                                                                                                                                  | Transmitting IEEE 802.11n (HT40), MIMO | 5190 MHz, 5230 MHz           | MCS8, PN9           | Side & Bottom |
| *1) Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing- Managing Complex Regulatory Approvals - "of TCB Council Workshop October 2009.            |                                        |                              |                     |               |
| *2) Since 11a and 11n-20 have the same modulation method and no differences in transmitting specification, test was performed on the representative mode that had the highest peak output power. |                                        |                              |                     |               |

EUT has the power settings by the software as follows;

|                |                                                                                                                |
|----------------|----------------------------------------------------------------------------------------------------------------|
| Power settings | IEEE 802.11n (HT20): 11.0 dBm (5180-5240 MHz)<br>IEEE 802.11n (HT40): 10.0 dBm (5190 MHz), 11.0 dBm (5230 MHz) |
| Software       | Atheros Radio Test (ART)<br>- Revision 0.9 BUILD #27 ART_11n<br>- Customer Version (ANWI BUILD)                |

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

### 4.2 Configuration and peripherals



\* Test data was taken under worse case conditions.

#### Description of EUT and support equipment

| No. | Item                | Model number      | Serial number | Manufacturer          | Remarks |
|-----|---------------------|-------------------|---------------|-----------------------|---------|
| A   | Flat Panel Detector | DR-ID613SE        | 26990005      | Silex Technology Inc. | EUT     |
| B   | Connector           | -                 | -             | -                     | -       |
| C   | AC Adaptor          | MPU64-105-NC3FXXG | -             | SINPRO                | -       |

#### List of cables used

| No. | Cable Name               | Length (m) | Shield (Cable) | Shield (Connector) | Remarks |
|-----|--------------------------|------------|----------------|--------------------|---------|
| 1   | LAN Cable                | 0.9        | Shielded       | Shielded           | -       |
| 2   | DC cable                 | 1.1        | Unshielded     | Unshielded         | -       |
| 3   | Output Cord (AC Adaptor) | 1.1        | Unshielded     | Unshielded         | -       |
| 4   | AC Cord                  | 3.0        | Unshielded     | Unshielded         | -       |

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## **SECTION 5: Conducted emission**

### **5.1 Operating environment**

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

### **5.2 Test configuration**

EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 0.8 m above the conducting ground plane. The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity. The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT and its peripheral was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80 cm from any other grounded conducting surface. EUT was located 80 cm from LISN. Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. Photographs of the set up are shown in APPENDIX 3.

### **5.3 Test conditions**

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

### **5.4 Test procedure**

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

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

### **5.5 Results**

Summary of the test results : Pass  
Refer to APPENDIX 1

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## SECTION 6: Radiated emission

### 6.1 Operating environment

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

### 6.2 Test configuration

EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 0.8 m above the conducting ground plane. The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity. Photographs of the set up are shown in APPENDIX 3.

### 6.3 Test conditions

Frequency range : 30 MHz – 40 GHz  
EUT position : Table top

### 6.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3 m (below 15 GHz) / 1 m (above 15 GHz). Measurements were performed with quasi-peak, peak and average detector. The measuring antenna height was varied between 1 and 4 m 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. Drawing of the antenna direction is shown in Figure 1. The radiated emission measurements were made with the following detection.

| Frequency      | 30-1000 MHz | 1-40 GHz                                          |
|----------------|-------------|---------------------------------------------------|
| Detection type | Quasi-Peak  | Peak<br>Average *1)                               |
| IF Bandwidth   | 120 kHz     | RBW: 1 MHz<br>VBW: 3 MHz<br>RBW: 1 MHz<br>VBW: *2 |

\*1) The test method was referred to Section G) 6) d) Method VB (Averaging using reduced video bandwidth) of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on June 6, 2014)"

\*2) When duty cycle > 98 percent, VBW was set at 10Hz.

When duty cycle < 98 percent, VBW (Average) calculation sheet in APPENDIX 1.

Detector and averaging type set for linear voltage averaging.

Below 1 GHz

The result also satisfied with the general limits specified in FCC 15.209 (a).

Above 1 GHz

Inside of restricted bands (FCC 15.205): Limit in FCC 15.209 (a)

Outside of the restricted bands: Limit 68.2dBuV/m (-27dBm e.i.r.p.\*) in FCC 15.407(b)(1)(2)(3)

Restricted band edge: Limit in FCC 15.209(a)

Since this limit is severer than the limit of the inside of restricted bands.

\*Electric Field Strength to e.i.r.p. conversion

$P [dBm] = E [dBuV/m] - 95.2 [dB]$

$P [dBm] = 10 \times \text{LOG} ( \{ (10^{(E [dBuV/m] / 20)} \times 10^{(-6)}) \times (\text{Distance} = 3 [m]) \}^2 / 30 ) \times 10^3 ) (uV/m):$

P is the e.i.r.p. (Watts)

\* Distance Factor for the measurement at 1 m:  $20 \times \log (3.0 \text{ m}/1.0 \text{ m}) = 9.5 \text{ dB}$

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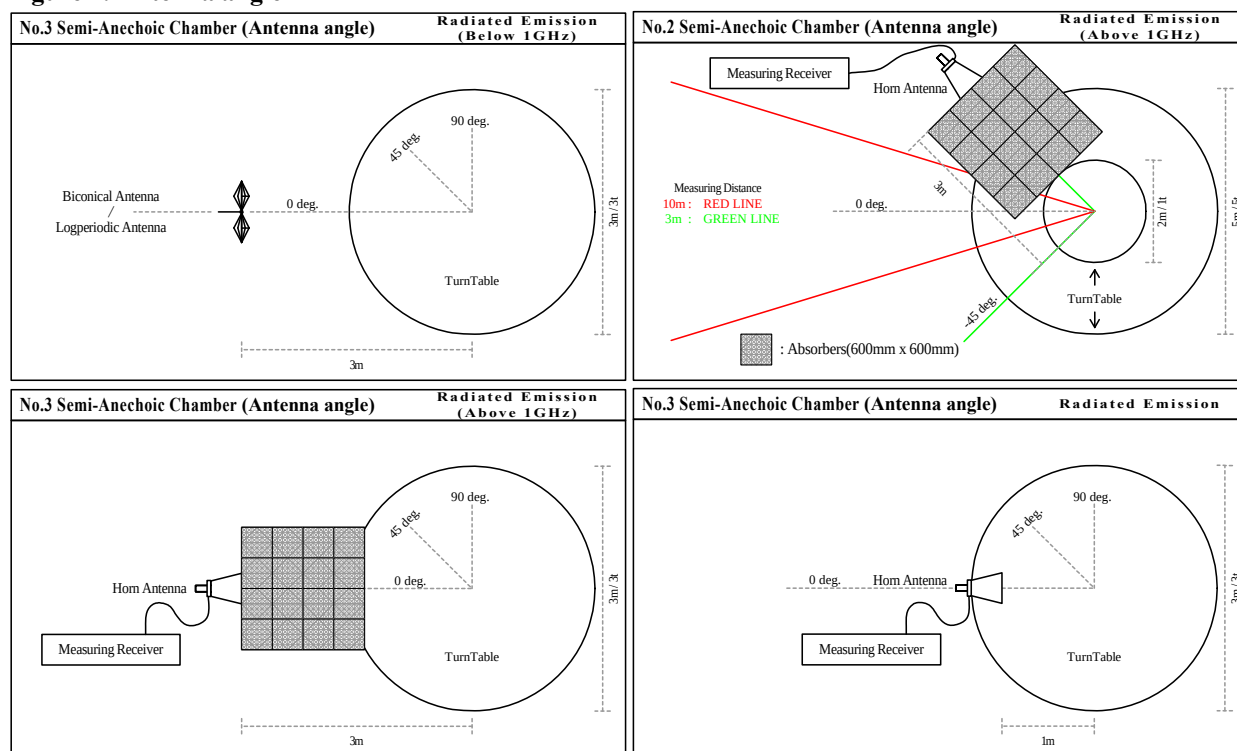
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The carrier levels and noise levels were confirmed at each position of X, Y and Z axes to see the position of maximum noise, and the test was made at the position that has the maximum noise.

| Antenna polarization | Carrier | Spurious (30 M-1 GHz) | Spurious (1-6.4 GHz) | Spurious (6.4-15 GHz) | Spurious (15-18 GHz) | Spurious (18-26.5 GHz) | Spurious (26.5-40 GHz) |
|----------------------|---------|-----------------------|----------------------|-----------------------|----------------------|------------------------|------------------------|
| Horizontal           | Y       | Z                     | Y                    | Y                     | Z                    | X                      | X                      |
| Vertical             | X       | Z                     | X                    | Y                     | Z                    | X                      | X                      |

**Figure 1. Antenna angle**



## 6.5 Results

Summary of the test results :

Pass

\* No noise was detected other than listed points.

Refer to APPENDIX 1

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## **Contents of APPENDIXES**

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

Conducted emission  
Radiated emission

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

Test instruments

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

Conducted emission  
Radiated emission  
Pre-check of worst position

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DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room  
Date : 2015/07/03

Company : silex technology,Inc.

Kind of EUT : Flat Panel Detector

Model No. : DR-ID 613SE

Serial No. : 26990005

Remarks : -

Mode : IEEE802.11n(HT20), Tx, 5240 MHz

Order No. : 10836676S

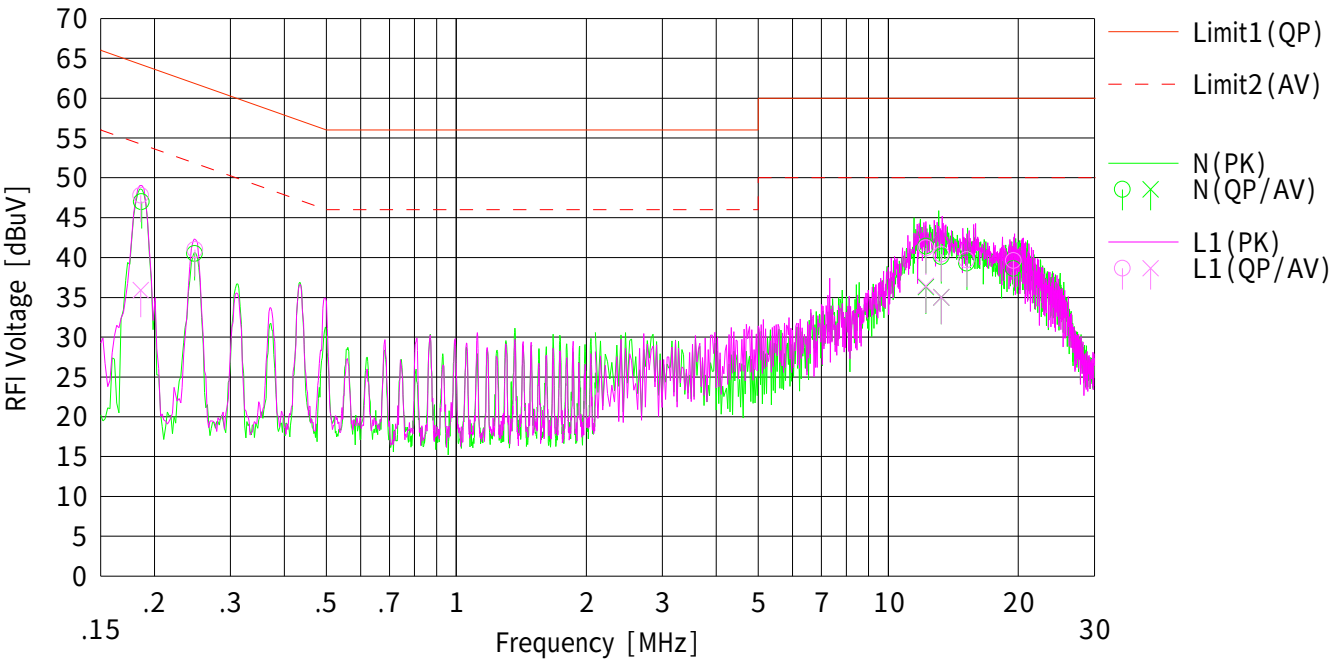
Power : AC 120 V / 60 Hz

Temp./Humi. : 26 deg.C / 48 %RH

Limit1 : FCC 15C(15.207) QP

Limit2 : FCC 15C(15.207) AV

Engineer : Wataru Kojima



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac<br>[dB] | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |               | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.18672        | 34.6           | ---            | 12.4          | 47.0           | ---            | 64.1           | 54.1           | 17.1         | ---          | N     |         |
| 2   | 0.24795        | 28.1           | ---            | 12.4          | 40.5           | ---            | 61.8           | 51.8           | 21.3         | ---          | N     |         |
| 3   | 12.22356       | 28.4           | 23.3           | 13.0          | 41.4           | 36.3           | 60.0           | 50.0           | 18.6         | 13.7         | N     |         |
| 4   | 13.27620       | 27.1           | 22.0           | 13.0          | 40.1           | 35.0           | 60.0           | 50.0           | 19.9         | 15.0         | N     |         |
| 5   | 15.20210       | 26.2           | ---            | 13.1          | 39.3           | ---            | 60.0           | 50.0           | 20.7         | ---          | N     |         |
| 6   | 19.48080       | 25.3           | ---            | 13.3          | 38.6           | ---            | 60.0           | 50.0           | 21.4         | ---          | N     |         |
| 7   | 0.18596        | 35.4           | 23.5           | 12.4          | 47.8           | 35.9           | 64.2           | 54.2           | 16.4         | 18.3         | L1    |         |
| 8   | 0.24809        | 28.6           | ---            | 12.4          | 41.0           | ---            | 61.8           | 51.8           | 20.8         | ---          | L1    |         |
| 9   | 12.22356       | 28.2           | 23.4           | 13.0          | 41.2           | 36.4           | 60.0           | 50.0           | 18.8         | 13.6         | L1    |         |
| 10  | 13.27620       | 27.4           | 22.0           | 13.0          | 40.4           | 35.0           | 60.0           | 50.0           | 19.6         | 15.0         | L1    |         |
| 11  | 15.20210       | 26.6           | ---            | 13.1          | 39.7           | ---            | 60.0           | 50.0           | 20.3         | ---          | L1    |         |
| 12  | 19.48080       | 26.3           | ---            | 13.3          | 39.6           | ---            | 60.0           | 50.0           | 20.4         | ---          | L1    |         |

## Radiated Emission

|                        |                                            |                            |                            |
|------------------------|--------------------------------------------|----------------------------|----------------------------|
| Test place             | No.2 Semi Anechoic Chamber                 | No.3 Semi Anechoic Chamber | No.3 Semi Anechoic Chamber |
| Date                   | June 30, 2015                              | July 3, 2015               | July 4, 2015               |
| Temperature / Humidity | 23 deg.C, 67 %RH                           | 24 deg.C, 48 %RH           | 23 deg.C, 55 %RH           |
| Engineer               | Yosuke Ishikawa                            | Wataru Kojima              | Yosuke Ishikawa            |
| Mode                   | Tx, 5180 MHz<br>Tx, IEEE802.11n HT20, PN9, |                            |                            |

### (below 1GHz and above 1GHz Inside of the restricted band)

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

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark   |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|----------|
| Hori.    | 10360.0         | PK       | 45.4           | 39.3            | 7.9       | 39.1      | 3.1                  | 56.6            | 73.9           | 17.3        | 100.0       | 359.0        |          |
| Hori.    | 15540.0         | PK       | 48.1           | 39.6            | 0.9       | 40.9      | -9.5                 | 38.2            | 73.9           | 35.7        | 100.0       | 147.0        |          |
| Hori.    | 10360.0         | AV       | 33.4           | 39.3            | 7.9       | 39.1      | 3.1                  | 44.6            | 53.9           | <b>9.3</b>  | 100.0       | 359.0        | VBW:10Hz |
| Hori.    | 15540.0         | AV       | 35.7           | 39.6            | 0.9       | 40.9      | -9.5                 | 25.8            | 53.9           | 28.1        | 100.0       | 147.0        | VBW:10Hz |
| Vert.    | 10360.0         | PK       | 45.3           | 39.3            | 7.9       | 39.1      | 3.1                  | 56.5            | 73.9           | 17.4        | 100.0       | 359.0        |          |
| Vert.    | 15540.0         | PK       | 47.6           | 39.6            | 0.9       | 40.9      | -9.5                 | 37.7            | 73.9           | 36.2        | 100.0       | 156.0        |          |
| Vert.    | 10360.0         | AV       | 33.3           | 39.3            | 7.9       | 39.1      | 3.1                  | 44.5            | 53.9           | 9.4         | 100.0       | 359.0        | VBW:10Hz |
| Vert.    | 15540.0         | AV       | 35.7           | 39.6            | 0.9       | 40.9      | -9.5                 | 25.8            | 53.9           | 28.1        | 100.0       | 156.0        | VBW:10Hz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

\*The 4th harmonic was not seen so the result was its base noise level

Distance factor: 1GHz - 6.4GHz:  $20\log(3.75 \text{ m} / 3.0 \text{ m}) = 2.0 \text{ dB}$ 6.4 GHz - 15 GHz :  $20\log(4.25 \text{ m} / 3.0 \text{ m}) = 3.1 \text{ dB}$ 15 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$ 

### (Calculation) (above 1GHz Outside of the restricted band)

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

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP [dBm]) | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5150.0          | PK       | 44.4           | 31.3            | 16.0      | 33.9      | 2.0                  | 59.8            | -35.4               | -27.0       | <b>8.4</b>  | 100         | 304          |        |
| Vert.    | 5150.0          | PK       | 43.7           | 31.3            | 16.0      | 33.9      | 2.0                  | 59.1            | -36.1               | -27.0       | 9.1         | 100         | 174          |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])=10\*LOG ( ( { 10 ^ ( Electric Field Strength [dBuV/m] / 20 ) \* 10 ^ (-6) \* Distance:3[m] ) ^ 2 } / 30 ) \* 10 ^ 3 )

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

\*The 4th harmonic was not seen so the result was its base noise level

Distance factor: 1GHz - 6.4GHz:  $20\log(3.75 \text{ m} / 3.0 \text{ m}) = 2.0 \text{ dB}$ 6.4 GHz - 15 GHz :  $20\log(4.25 \text{ m} / 3.0 \text{ m}) = 3.1 \text{ dB}$ 15 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$ 

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## Radiated Emission

|                        |                                            |                            |                            |
|------------------------|--------------------------------------------|----------------------------|----------------------------|
| Test place             | No.2 Semi Anechoic Chamber                 | No.3 Semi Anechoic Chamber | No.3 Semi Anechoic Chamber |
| Date                   | June 30, 2015                              | July 3, 2015               | July 4, 2015               |
| Temperature / Humidity | 23 deg.C, 67 %RH                           | 24 deg.C, 48 %RH           | 23 deg.C, 55 %RH           |
| Engineer               | Yosuke Ishikawa                            | Wataru Kojima              | Yosuke Ishikawa            |
| Mode                   | Tx, 5220 MHz<br>Tx, IEEE802.11n HT20, PN9, |                            |                            |

### (below 1GHz and above 1GHz Inside of the restricted band)

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

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Distance<br>Factor [dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark   |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|-------------------------|--------------------|-------------------|----------------|----------------|-----------------|----------|
| Hori.    | 10440.0            | PK       | 44.5              | 39.4               | 8.0          | 39.1         | 3.1                     | 55.9               | 73.9              | 18.0           | 100.0          | 0.0             |          |
| Hori.    | 15660.0            | PK       | 46.6              | 39.1               | 1.1          | 40.8         | -9.5                    | 36.5               | 73.9              | 37.4           | 100.0          | 174.0           |          |
| Hori.    | 10440.0            | AV       | 33.0              | 39.4               | 8.0          | 39.1         | 3.1                     | 44.4               | 53.9              | <b>9.5</b>     | 100.0          | 0.0             | VBW:10Hz |
| Hori.    | 15660.0            | AV       | 35.0              | 39.1               | 1.1          | 40.8         | -9.5                    | 24.9               | 53.9              | 29.0           | 100.0          | 174.0           | VBW:10Hz |
| Vert.    | 10440.0            | PK       | 44.8              | 39.4               | 8.0          | 39.1         | 3.1                     | 56.2               | 73.9              | 17.7           | 100.0          | 359.0           |          |
| Vert.    | 15660.0            | PK       | 47.5              | 39.1               | 1.1          | 40.8         | -9.5                    | 37.4               | 73.9              | 36.5           | 100.0          | 166.0           |          |
| Vert.    | 10440.0            | AV       | 33.0              | 39.4               | 8.0          | 39.1         | 3.1                     | 44.4               | 53.9              | <b>9.5</b>     | 100.0          | 359.0           | VBW:10Hz |
| Vert.    | 15660.0            | AV       | 35.4              | 39.1               | 1.1          | 40.8         | -9.5                    | 25.3               | 53.9              | 28.6           | 100.0          | 166.0           | VBW:10Hz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

\*The 4th harmonic was not seen so the result was its base noise level

Distance factor: 1GHz - 6.4GHz:  $20\log(3.75 \text{ m} / 3.0 \text{ m}) = 2.0 \text{ dB}$ 6.4 GHz - 15 GHz :  $20\log(4.25 \text{ m} / 3.0 \text{ m}) = 3.1 \text{ dB}$ 15 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$ 

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Radiated Emission

|                        |                                            |                            |                            |
|------------------------|--------------------------------------------|----------------------------|----------------------------|
| Test place             | No.2 Semi Anechoic Chamber                 | No.3 Semi Anechoic Chamber | No.3 Semi Anechoic Chamber |
| Date                   | June 30, 2015                              | July 3, 2015               | July 4, 2015               |
| Temperature / Humidity | 23 deg.C, 67 %RH                           | 24 deg.C, 48 %RH           | 23 deg.C, 55 %RH           |
| Engineer               | Yosuke Ishikawa                            | Wataru Kojima              | Yosuke Ishikawa            |
| Mode                   | Tx, 5240 MHz<br>Tx, IEEE802.11n HT20, PN9, |                            |                            |

(below 1GHz and above 1GHz Inside of the restricted band)

| (* PK: Peak, AV: Average, QP: Quasi-Peak) |                 |          |                |                 |           |           |                      |                 |                |             |             |              |          |
|-------------------------------------------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|----------|
| Polarity                                  | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark   |
| Hori.                                     | 207.1           | QP       | 34.4           | 16.4            | 8.1       | 32.0      | 0.0                  | 26.9            | 43.5           | 16.6        | 150.0       | 170.0        |          |
| Hori.                                     | 210.1           | QP       | 35.4           | 16.4            | 8.2       | 32.0      | 0.0                  | 28.0            | 43.5           | 15.5        | 150.0       | 174.0        |          |
| Hori.                                     | 337.9           | QP       | 33.0           | 14.9            | 8.8       | 31.9      | 0.0                  | 24.8            | 46.0           | 21.2        | 100.0       | 283.0        |          |
| Hori.                                     | 419.5           | QP       | 34.3           | 16.7            | 9.2       | 31.9      | 0.0                  | 28.3            | 46.0           | 17.7        | 100.0       | 16.0         |          |
| Hori.                                     | 500.0           | QP       | 34.4           | 17.8            | 9.5       | 32.0      | 0.0                  | 29.7            | 46.0           | 16.3        | 100.0       | 204.0        |          |
| Hori.                                     | 800.0           | QP       | 32.9           | 21.0            | 10.7      | 31.5      | 0.0                  | 33.1            | 46.0           | 12.9        | 100.0       | 28.0         |          |
| Hori.                                     | 10480.0         | PK       | 44.6           | 39.5            | 8.0       | 39.0      | 3.1                  | 56.2            | 73.9           | 17.7        | 100.0       | 0.0          |          |
| Hori.                                     | 15720.0         | PK       | 47.6           | 38.9            | 1.2       | 40.8      | -9.5                 | 37.4            | 73.9           | 36.5        | 100.0       | 170.0        |          |
| Hori.                                     | 10480.0         | AV       | 33.0           | 39.5            | 8.0       | 39.0      | 3.1                  | 44.6            | 53.9           | 9.3         | 100.0       | 0.0          | VBW:10Hz |
| Hori.                                     | 15720.0         | AV       | 34.8           | 38.9            | 1.2       | 40.8      | -9.5                 | 24.6            | 53.9           | 29.3        | 100.0       | 170.0        | VBW:10Hz |
| Vert.                                     | 31.6            | QP       | 42.0           | 16.9            | 6.7       | 32.1      | 0.0                  | 33.5            | 40.0           | 6.5         | 100.0       | 356.0        |          |
| Vert.                                     | 59.4            | QP       | 44.5           | 7.9             | 6.8       | 32.1      | 0.0                  | 27.1            | 40.0           | 12.9        | 100.0       | 144.0        |          |
| Vert.                                     | 107.7           | QP       | 36.1           | 11.1            | 7.4       | 32.1      | 0.0                  | 22.5            | 43.5           | 21.0        | 100.0       | 105.0        |          |
| Vert.                                     | 800.0           | QP       | 32.1           | 21.0            | 10.7      | 31.5      | 0.0                  | 32.3            | 46.0           | 13.7        | 100.0       | 149.0        |          |
| Vert.                                     | 10480.0         | PK       | 44.3           | 39.5            | 8.0       | 39.0      | 3.1                  | 55.9            | 73.9           | 18.0        | 100.0       | 359.0        |          |
| Vert.                                     | 15720.0         | PK       | 47.4           | 38.9            | 1.2       | 40.8      | -9.5                 | 37.2            | 73.9           | 36.7        | 100.0       | 185.0        |          |
| Vert.                                     | 10480.0         | AV       | 33.0           | 39.5            | 8.0       | 39.0      | 3.1                  | 44.6            | 53.9           | 9.3         | 100.0       | 359.0        | VBW:10Hz |
| Vert.                                     | 15720.0         | AV       | 34.8           | 38.9            | 1.2       | 40.8      | -9.5                 | 24.6            | 53.9           | 29.3        | 100.0       | 185.0        | VBW:10Hz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

\*The 4th harmonic was not seen so the result was its base noise level

Distance factor: 1GHz - 6.4GHz: 20log(3.75 m / 3.0 m) = 2.0 dF

6.4 GHz - 15 GHz : 20log (4.25 m / 3.0 m) = 3.1 dF

15 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.5 dF

## Radiated Emission

|                        |                                            |                            |                            |
|------------------------|--------------------------------------------|----------------------------|----------------------------|
| Test place             | No.2 Semi Anechoic Chamber                 | No.3 Semi Anechoic Chamber | No.3 Semi Anechoic Chamber |
| Date                   | June 30, 2015                              | July 3, 2015               | July 4, 2015               |
| Temperature / Humidity | 23 deg.C, 67 %RH                           | 24 deg.C, 48 %RH           | 23 deg.C, 55 %RH           |
| Engineer               | Yosuke Ishikawa                            | Wataru Kojima              | Yosuke Ishikawa            |
| Mode                   | Tx, 5190 MHz<br>Tx, IEEE802.11n HT40, PN9, |                            |                            |

### (below 1GHz and above 1GHz Inside of the restricted band)

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

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark   |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|----------|
| Hori.    | 10380.0         | PK       | 45.3           | 39.3            | 7.9       | 39.1      | 3.1                  | 56.5            | 73.9           | 17.4        | 100.0       | 0.0          |          |
| Hori.    | 15570.0         | PK       | 46.4           | 39.5            | 0.9       | 40.9      | -9.5                 | 36.4            | 73.9           | 37.5        | 100.0       | 359.0        |          |
| Hori.    | 10380.0         | AV       | 33.1           | 39.3            | 7.9       | 39.1      | 3.1                  | 44.3            | 53.9           | 9.6         | 100.0       | 0.0          | VBW:10Hz |
| Hori.    | 15570.0         | AV       | 35.1           | 39.5            | 0.9       | 40.9      | -9.5                 | 25.1            | 53.9           | 28.8        | 100.0       | 359.0        | VBW:10Hz |
| Vert.    | 10380.0         | PK       | 45.2           | 39.3            | 7.9       | 39.1      | 3.1                  | 56.4            | 73.9           | 17.5        | 100.0       | 359.0        |          |
| Vert.    | 15570.0         | PK       | 47.4           | 39.5            | 0.9       | 40.9      | -9.5                 | 37.4            | 73.9           | 36.5        | 100.0       | 188.0        |          |
| Vert.    | 10380.0         | AV       | 33.2           | 39.3            | 7.9       | 39.1      | 3.1                  | 44.4            | 53.9           | <b>9.5</b>  | 100.0       | 359.0        | VBW:10Hz |
| Vert.    | 15570.0         | AV       | 35.2           | 39.5            | 0.9       | 40.9      | -9.5                 | 25.2            | 53.9           | 28.7        | 100.0       | 188.0        | VBW:10Hz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

\*The 4th harmonic was not seen so the result was its base noise level

Distance factor: 1GHz - 6.4GHz:  $20\log(3.75 \text{ m} / 3.0 \text{ m}) = 2.0 \text{ dB}$ 6.4 GHz - 15 GHz :  $20\log(4.25 \text{ m} / 3.0 \text{ m}) = 3.1 \text{ dB}$ 15 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$ 

### (Calculation) (above 1GHz Outside of the restricted band)

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

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Result (EIRP [dBm]) | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|---------------------|-------------|-------------|-------------|--------------|--------|
| Hori.    | 5150.0          | PK       | 44.0           | 31.3            | 16.0      | 33.9      | 2.0                  | 59.4            | -35.8               | -27.0       | 8.8         | 100         | 133          |        |
| Vert.    | 5150.0          | PK       | 44.5           | 31.3            | 16.0      | 33.9      | 2.0                  | 59.9            | -35.3               | -27.0       | <b>8.3</b>  | 100         | 236          |        |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10 \cdot \text{LOG} \left( \left( \left( 10^{\left( \text{Electric Field Strength [dBuV/m]} / 20 \right)} \right) \cdot 10^{-6} \right) \cdot \text{Distance:3[m]}^2 / 30 \right) \cdot 10^3$ 

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

\*The 4th harmonic was not seen so the result was its base noise level

Distance factor: 1GHz - 6.4GHz:  $20\log(3.75 \text{ m} / 3.0 \text{ m}) = 2.0 \text{ dB}$ 6.4 GHz - 15 GHz :  $20\log(4.25 \text{ m} / 3.0 \text{ m}) = 3.1 \text{ dB}$ 15 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$ 

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## Radiated Emission

|                        |                                            |                            |                            |
|------------------------|--------------------------------------------|----------------------------|----------------------------|
| Test place             | No.2 Semi Anechoic Chamber                 | No.3 Semi Anechoic Chamber | No.3 Semi Anechoic Chamber |
| Date                   | June 30, 2015                              | July 3, 2015               | July 4, 2015               |
| Temperature / Humidity | 23 deg.C, 67 %RH                           | 24 deg.C, 48 %RH           | 23 deg.C, 55 %RH           |
| Engineer               | Yosuke Ishikawa                            | Wataru Kojima              | Yosuke Ishikawa            |
| Mode                   | Tx, 5230 MHz<br>Tx, IEEE802.11n HT40, PN9, |                            |                            |

### (below 1GHz and above 1GHz Inside of the restricted band)

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

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Distance Factor [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Height [cm] | Angle [deg.] | Remark   |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|----------------------|-----------------|----------------|-------------|-------------|--------------|----------|
| Hori.    | 10460.0         | PK       | 45.2           | 39.5            | 8.0       | 39.1      | 3.1                  | 56.7            | 73.9           | 17.2        | 100.0       | 359.0        |          |
| Hori.    | 15690.0         | PK       | 46.3           | 39.0            | 1.1       | 40.8      | -9.5                 | 36.1            | 73.9           | 37.8        | 100.0       | 359.0        |          |
| Hori.    | 10460.0         | AV       | 33.0           | 39.5            | 8.0       | 39.1      | 3.1                  | 44.5            | 53.9           | <b>9.4</b>  | 100.0       | 359.0        | VBW:10Hz |
| Hori.    | 15690.0         | AV       | 35.0           | 39.0            | 1.1       | 40.8      | -9.5                 | 24.8            | 53.9           | 29.1        | 100.0       | 359.0        | VBW:10Hz |
| Vert.    | 10460.0         | PK       | 45.4           | 39.5            | 8.0       | 39.1      | 3.1                  | 56.9            | 73.9           | 17.0        | 100.0       | 359.0        |          |
| Vert.    | 15690.0         | PK       | 47.2           | 39.0            | 1.1       | 40.8      | -9.5                 | 37.0            | 73.9           | 36.9        | 100.0       | 359.0        |          |
| Vert.    | 10460.0         | AV       | 32.9           | 39.5            | 8.0       | 39.1      | 3.1                  | 44.4            | 53.9           | 9.5         | 100.0       | 359.0        | VBW:10Hz |
| Vert.    | 15690.0         | AV       | 35.1           | 39.0            | 1.1       | 40.8      | -9.5                 | 24.9            | 53.9           | 29.0        | 100.0       | 359.0        | VBW:10Hz |

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

\*The 4th harmonic was not seen so the result was its base noise level

Distance factor: 1GHz - 6.4GHz:  $20\log(3.75 \text{ m} / 3.0 \text{ m}) = 2.0 \text{ dB}$ 6.4 GHz - 15 GHz :  $20\log(4.25 \text{ m} / 3.0 \text{ m}) = 3.1 \text{ dB}$ 15 GHz - 40 GHz :  $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$ 

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## APPENDIX 2

### Test Instruments

#### EMI test equipment

| Control No.                            | Instrument                   | Manufacturer                                               | Model No                                           | Serial No                  | Test Item | Calibration Date<br>* Interval(month) |
|----------------------------------------|------------------------------|------------------------------------------------------------|----------------------------------------------------|----------------------------|-----------|---------------------------------------|
| KAF-04                                 | Pre Amplifier                | Agilent                                                    | 8449B                                              | 3008A01600                 | RE        | 2015/04/28 * 12                       |
| SCC-G05                                | Coaxial Cable                | Junkosha                                                   | J12J102207-00                                      | APR-30-15-03<br>7          | RE        | 2015/05/11 * 12                       |
| SCC-G22                                | Coaxial Cable                | Suhner                                                     | SUCOFLEX 104                                       | 296199/4                   | RE        | 2015/05/19 * 12                       |
| SHA-02                                 | Horn Antenna                 | Schwarzbeck                                                | BBHA9120D                                          | 9120D-726                  | RE        | 2014/08/12 * 12                       |
| SOS-03                                 | Humidity Indicator           | A&D                                                        | AD-5681                                            | 4063325                    | RE        | 2014/10/30 * 12                       |
| STR-07                                 | Test Receiver                | Rohde & Schwarz                                            | ESU26                                              | 100484                     | RE        | 2014/09/03 * 12                       |
| SJM-14                                 | Measure                      | ASKUL                                                      | -                                                  | -                          | RE        | -                                     |
| SAEC-02(SVSWR)                         | Semi-Anechoic Chamber        | TDK                                                        | SAEC-02(SVSWR)                                     | 2                          | RE        | 2014/07/28 * 12                       |
| COTS-SEMI-1                            | EMI Software                 | TSJ                                                        | TEPTO-DV(RE,CE,<br>RF, MF)                         | -                          | RE        | -                                     |
| SAT10-05                               | Attenuator(above1GHz)        | Agilent                                                    | 8493C-010                                          | 74864                      | RE        | 2014/11/21 * 12                       |
| SAEC-03(NSA)                           | Semi-Anechoic Chamber        | TDK                                                        | SAEC-03(NSA)                                       | 3                          | RE        | 2014/07/14 * 12                       |
| SBA-03                                 | Biconical Antenna            | Schwarzbeck                                                | BBA9106                                            | 91032666                   | RE        | 2014/10/18 * 12                       |
| SLA-03                                 | Logperiodic Antenna          | Schwarzbeck                                                | UHALP9108A                                         | UHALP 9108-A<br>0901       | RE        | 2014/10/18 * 12                       |
| SAT6-08                                | Attenuator                   | HIROSE ELECTRIC<br>CO.,LTD.                                | AT-406(40)                                         | -                          | RE        | 2014/08/27 * 12                       |
| SCC-C1/C2/C<br>3/C4/C5/C10/<br>SRSE-03 | Coaxial Cable&RF<br>Selector | Fujikura/Fujikura/Suhner/<br>Suhner/Suhner/Suhner/<br>TOYO | 8D2W/12DSFA/14<br>1PE/141PE/141PE<br>/141PE/NS4906 | -/0901-271(RF<br>Selector) | RE        | 2015/04/17 * 12                       |
| SAF-03                                 | Pre Amplifier                | SONOMA                                                     | 310N                                               | 290213                     | RE        | 2015/02/18 * 12                       |
| STR-06                                 | Test Receiver                | Rohde & Schwarz                                            | ESCI                                               | 101259                     | RE        | 2015/03/24 * 12                       |
| SOS-05                                 | Humidity Indicator           | A&D                                                        | AD-5681                                            | 4062518                    | RE        | 2014/10/30 * 12                       |
| SJM-15                                 | Measure                      | ASKUL                                                      | -                                                  | -                          | RE        | -                                     |
| KSA-08                                 | Spectrum Analyzer            | Agilent                                                    | E4446A                                             | MY46180525                 | RE        | 2015/03/23 * 12                       |
| SAF-08                                 | Pre Amplifier                | TOYO Corporation                                           | HAP18-26W                                          | 00000019                   | RE        | 2015/03/23 * 12                       |
| SHA-04                                 | Horn Antenna                 | ETS LINDGREN                                               | 3160-09                                            | LM3640                     | RE        | 2015/03/17 * 12                       |
| SCC-G15                                | Coaxial Cable                | Suhner                                                     | SUCOFLEX 102                                       | 32703/2                    | RE        | 2015/03/11 * 12                       |
| SAF-10                                 | Pre Amplifier                | TOYO Corporation                                           | HAP26-40W                                          | 00000010                   | RE        | 2015/03/23 * 12                       |
| SHA-06                                 | Horn Antenna                 | ETS LINDGREN                                               | 3160-10                                            | LM3459                     | RE        | 2015/03/17 * 12                       |
| SCC-G19                                | Coaxial Cable                | Suhner                                                     | SUCOFLEX 102A                                      | 1188/2A                    | RE        | 2015/03/11 * 12                       |
| SAF-06                                 | Pre Amplifier                | TOYO Corporation                                           | TPA0118-36                                         | 1440491                    | RE        | 2015/05/27 * 12                       |
| SCC-G04                                | Coaxial Cable                | Junkosha                                                   | J12J102207-00                                      | JUN-12-14-018              | RE        | 2015/06/08 * 12                       |
| SCC-G23                                | Coaxial Cable                | Suhner                                                     | SUCOFLEX 104                                       | 297342/4                   | RE        | 2015/05/19 * 12                       |
| SHA-03                                 | Horn Antenna                 | Schwarzbeck                                                | BBHA9120D                                          | 9120D-739                  | RE        | 2014/08/12 * 12                       |
| SFL-03                                 | Highpass Filter              | MICRO-TRONICS                                              | HPM50112                                           | 028                        | RE        | 2014/11/21 * 12                       |
|                                        |                              |                                                            |                                                    |                            |           |                                       |
|                                        |                              |                                                            |                                                    |                            |           |                                       |

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

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

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

Test Item :

RE: Radiated emission ,

## APPENDIX 2

### Test Instruments

#### EMI test equipment

| Control No.            | Instrument                   | Manufacturer       | Model No                   | Serial No                   | Test Item | Calibration Date *<br>Interval(month) |
|------------------------|------------------------------|--------------------|----------------------------|-----------------------------|-----------|---------------------------------------|
| SCC-C9/C10/S<br>RSE-03 | Coaxial Cable&RF<br>Selector | Suhner/Suhner/TOYO | RG223U/141PE/N<br>S4906    | -/0901-271(<br>RF Selector) | CE        | 2015/04/17 * 12                       |
| SLS-05                 | LISN                         | Rohde & Schwarz    | ENV216                     | 100516                      | CE        | 2015/02/24 * 12                       |
| SAT3-06                | Attenuator                   | JFW                | 50HF-003N                  | -                           | CE        | 2015/02/18 * 12                       |
| SOS-06                 | Humidity Indicator           | A&D                | AD-5681                    | 4062118                     | CE        | 2014/12/24 * 12                       |
| STR-06                 | Test Receiver                | Rohde & Schwarz    | ESCI                       | 101259                      | CE        | 2015/03/24 * 12                       |
| SJM-15                 | Measure                      | ASKUL              | -                          | -                           | CE        | -                                     |
| COTS-SEMI-1            | EMI Software                 | TSJ                | TEPTO-DV(RE,CE,<br>RFL,MF) | -                           | CE        | -                                     |
|                        |                              |                    |                            |                             |           |                                       |
|                        |                              |                    |                            |                             |           |                                       |
|                        |                              |                    |                            |                             |           |                                       |

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

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

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

Test Item :

CE: Conducted emission ,