

## **APPENDIX 2: Data of EMI test**

### **Carrier Frequency Separation**

UL Japan, Inc.  
Head Office EMC Lab. No.6 measurement Room

|           |                             |               |                                  |
|-----------|-----------------------------|---------------|----------------------------------|
| COMPANY   | : SOKKIA CO., LTD.          | REGULATION    | : FCC15.247(a)(1)/RSS-210A8.1(b) |
| EQUIPMENT | : WT11 Bluetooth Module     | TEST DISTANCE | : -                              |
| MODEL     | : WT11                      | DATE          | : 09/27/2007                     |
| S/ N      | : ES0001                    | TEMPERATURE   | : 25 deg.C                       |
| POWER     | : DC3.3V                    | HUMIDITY      | : 55 %                           |
| MODE      | : BT Tx(Hopping on)/Inquiry | ENGINEER      | : Takahiro Hatakeda              |

#### **[DH5]**

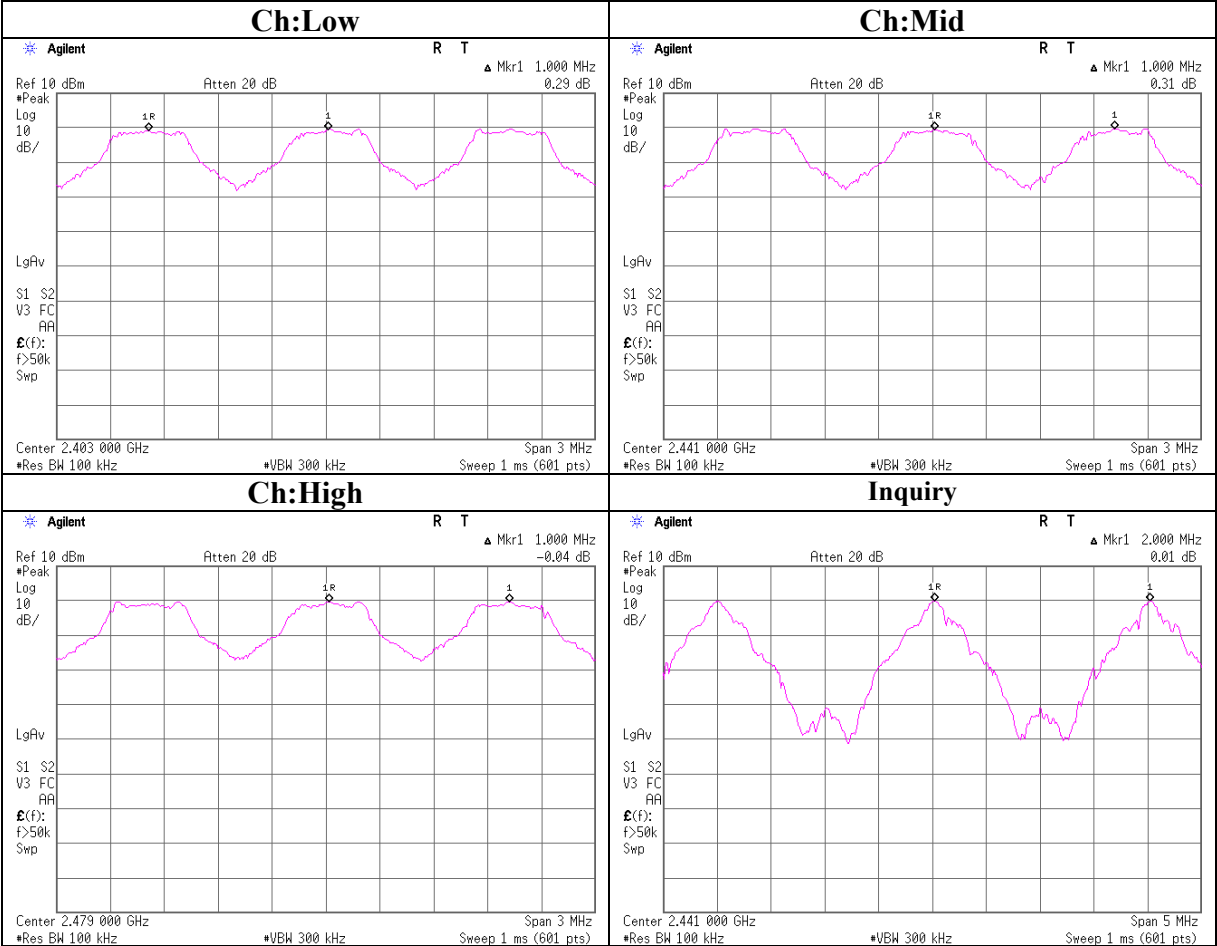
| Ch      | Freq.<br>[MHz] | Channel separation<br>[MHz] | Limit                                                                                   |
|---------|----------------|-----------------------------|-----------------------------------------------------------------------------------------|
| Low     | 2402.0         | 1.000                       | >0.620[MHz] (two-thirds of 20dB Bandwidth(0.930[MHz])) or 25[kHz](whichever is greater) |
| Mid     | 2441.0         | 1.000                       | >0.624[MHz] (two-thirds of 20dB Bandwidth(0.935[MHz])) or 25[kHz](whichever is greater) |
| High    | 2480.0         | 1.000                       | >0.627[MHz] (two-thirds of 20dB Bandwidth(0.940[MHz])) or 25[kHz](whichever is greater) |
| Inquiry | 2441.0         | 2.000                       | >0.514[MHz] (two-thirds of 20dB Bandwidth(0.771[MHz])) or 25[kHz](whichever is greater) |

#### **[3DH5]**

| Ch   | Freq.<br>[MHz] | Channel separation<br>[MHz] | Limit                                                                                   |
|------|----------------|-----------------------------|-----------------------------------------------------------------------------------------|
| Low  | 2402.0         | 1.000                       | >0.834[MHz] (two-thirds of 20dB Bandwidth(1.250[MHz])) or 25[kHz](whichever is greater) |
| Mid  | 2441.0         | 1.000                       | >0.834[MHz] (two-thirds of 20dB Bandwidth(1.250[MHz])) or 25[kHz](whichever is greater) |
| High | 2480.0         | 1.000                       | >0.834[MHz] (two-thirds of 20dB Bandwidth(1.250[MHz])) or 25[kHz](whichever is greater) |

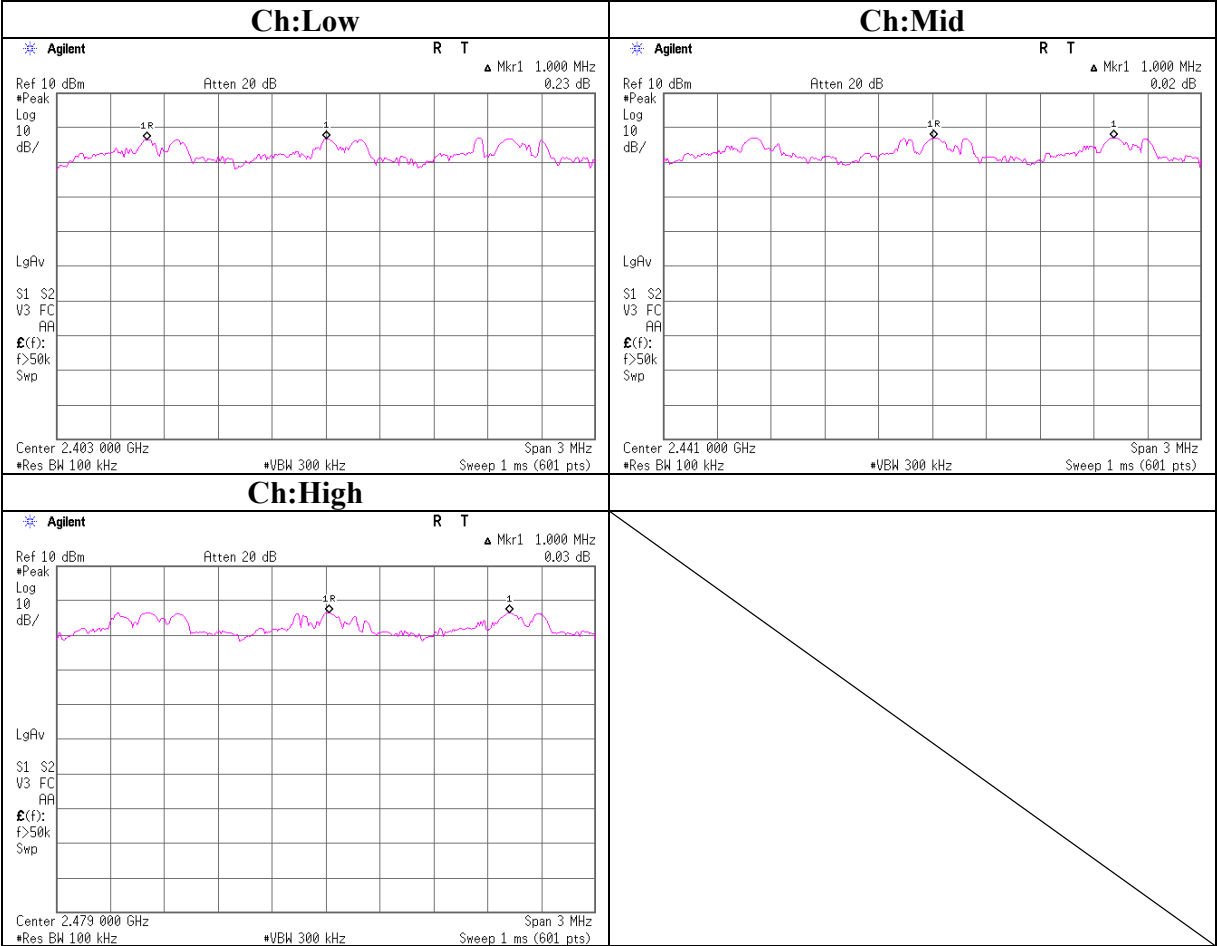
Carrier Frequency Separation

[BDR]



Carrier Frequency Separation

[EDR]



## **20dB Bandwidth**

UL Japan, Inc.  
Head Office EMC Lab. No.6 measurement Room

|           |                              |               |                                  |
|-----------|------------------------------|---------------|----------------------------------|
| COMPANY   | : SOKKIA CO., LTD.           | REGULATION    | : FCC15.247(a)(1)/RSS-210A8.1(a) |
| EQUIPMENT | : WT11 Bluetooth Module      | TEST DISTANCE | : -                              |
| MODEL     | : WT11                       | DATE          | : 09/27/2007                     |
| S/ N      | : ES0001                     | TEMPERATURE   | : 25 deg.C                       |
| POWER     | : DC3.3V                     | HUMIDITY      | : 55 %                           |
| MODE      | : BT Tx(Hopping off)/Inquiry | ENGINEER      | : Takahiro Hatakeda              |

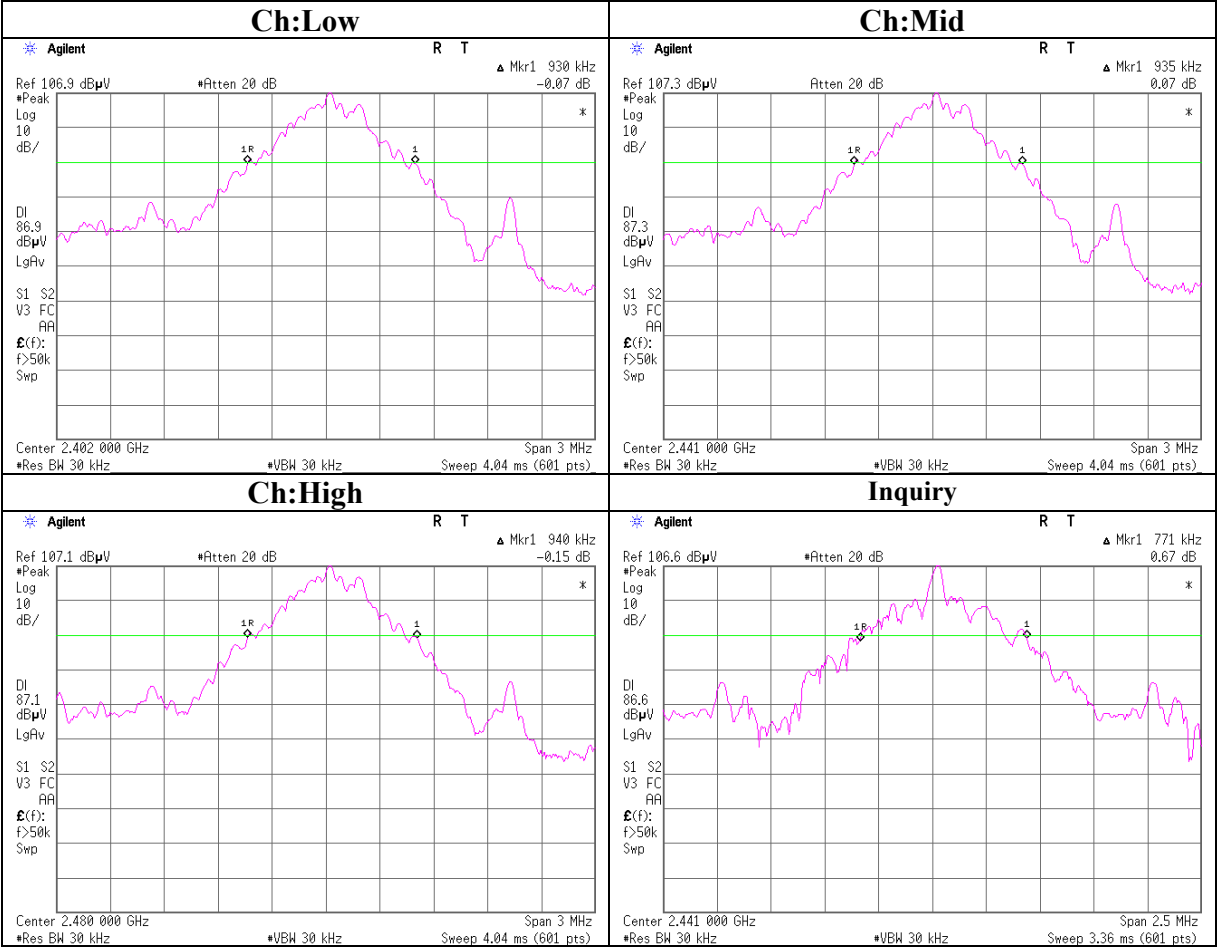
### **[DH5]**

| Ch      | Freq.  | 20dB Bandwidth | Limit |
|---------|--------|----------------|-------|
|         | [MHz]  | [MHz]          | [MHz] |
| Low     | 2402.0 | 0.930          | -     |
| Mid     | 2441.0 | 0.935          | -     |
| High    | 2480.0 | 0.940          | -     |
| Inquiry | 2441.0 | 0.771          | -     |

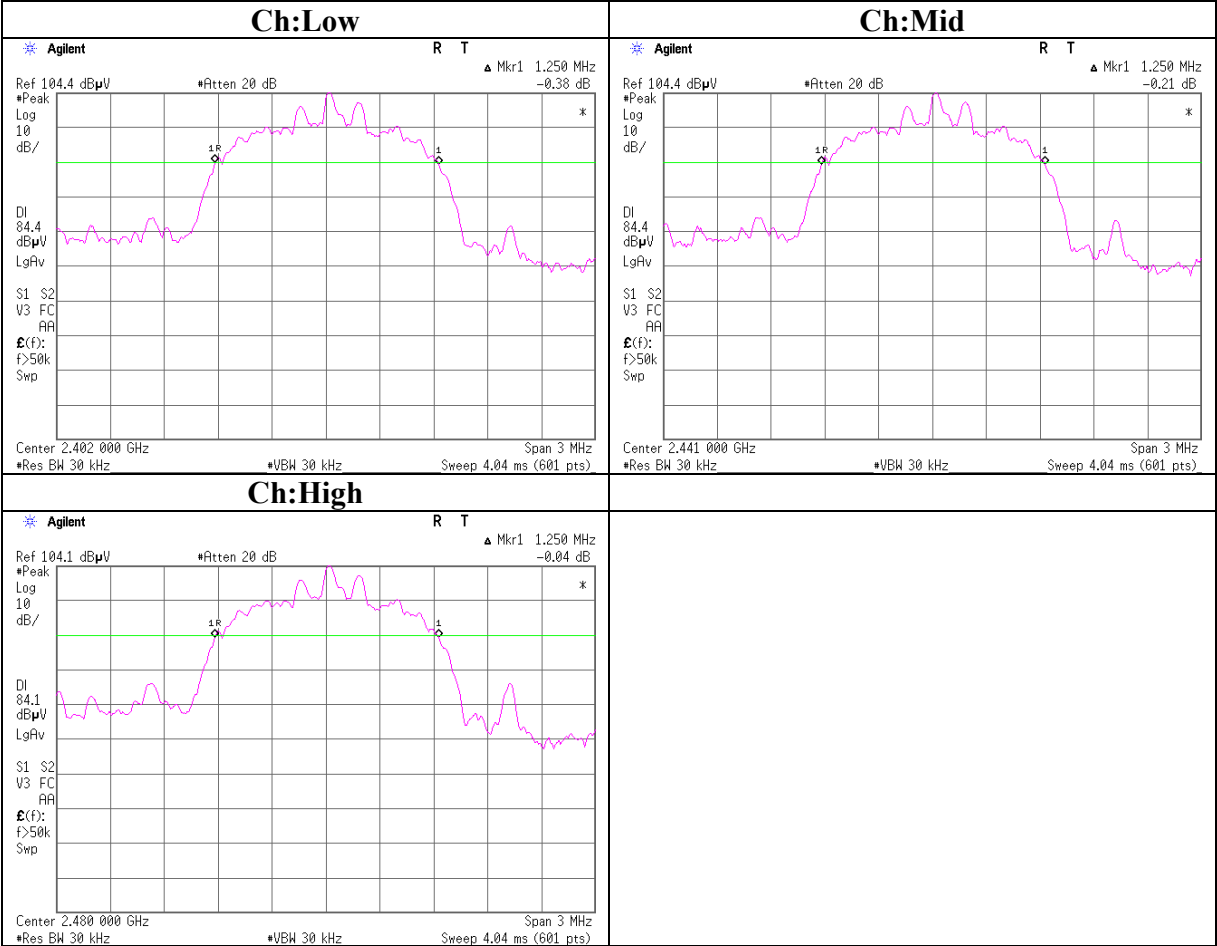
### **[3DH5]**

| Ch   | Freq.  | 20dB Bandwidth | Limit |
|------|--------|----------------|-------|
|      | [MHz]  | [MHz]          | [MHz] |
| Low  | 2402.0 | 1.250          | -     |
| Mid  | 2441.0 | 1.250          | -     |
| High | 2480.0 | 1.250          | -     |

20dB Bandwidth  
[BDR]



20dB Bandwidth  
[EDR]



## Number of Hopping Frequency

UL Japan, Inc.

Head Office EMC Lab. No.6 measurement Room

COMPANY : SOKKIA CO., LTD.  
EQUIPMENT : WT11 Bluetooth Module  
MODEL : WT11  
S/N : ES0001  
POWER : DC3.3V  
MODE : BT Tx(Hopping on)/Inquiry

REGULATION : FCC15.247(a)(1)(iii)/RSS-210A8.1(d)  
TEST DISTANCE : -  
DATE : 09/27/2007  
TEMPERATURE : 25 deg.C  
HUMIDITY : 55 %  
ENGINEER : Takahiro Hatakeda

### [DH5]

| Mode           | Number of channel | Limit     |
|----------------|-------------------|-----------|
|                | [number]          | [time]    |
| Tx(Hopping on) | 79                | $\geq 15$ |

### [3DH5]

| Mode           | Number of channel | Limit     |
|----------------|-------------------|-----------|
|                | [number]          | [time]    |
| Tx(Hopping on) | 79                | $\geq 15$ |

### [Inquiry]

| Mode    | Number of channel | Limit     |
|---------|-------------------|-----------|
|         | [number]          | [time]    |
| Inquiry | 32                | $\geq 15$ |

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**UL Japan, Inc.**

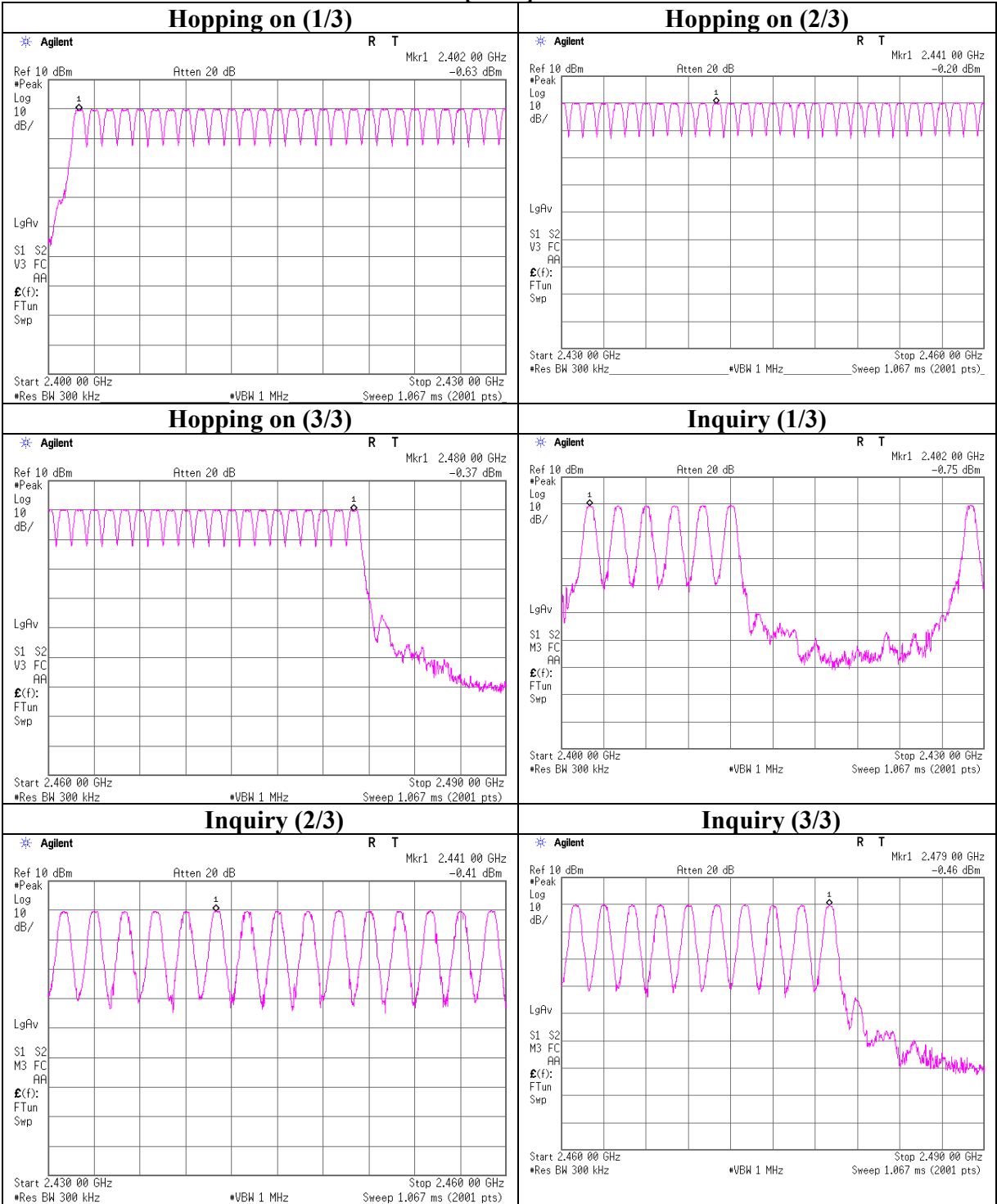
**Head Office EMC Lab.**

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

Telephone : +81 596 24 8116

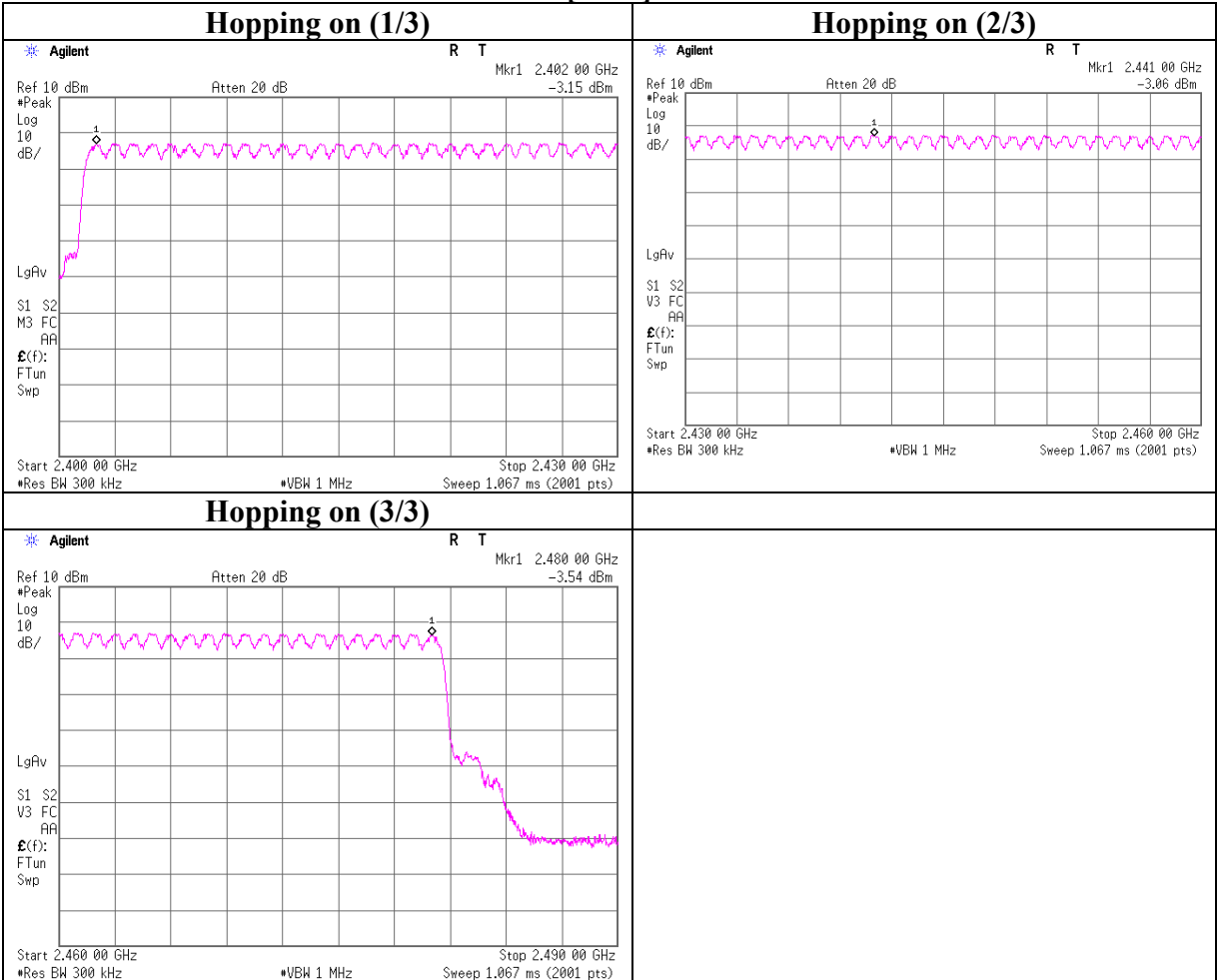
Facsimile : +81 596 24 8124

**Number of Hopping Frequency**  
**[BDR]**



Number of Hopping Frequency

[EDR]



## Dwell time

UL Japan, Inc.  
Head Office EMC Lab. No.6 measurement Room

COMPANY : SOKKIA CO., LTD.  
EQUIPMENT : WT11 Bluetooth Module  
MODEL : WT11  
S/ N : ES0001  
POWER : DC3.3V  
MODE : BT Tx(Hopping on)/Inquiry

REGULATION : FCC15.247(a)(1)(iii)/RSS-210A8.1(d)  
TEST DISTANCE : -  
DATE : 09/27/2007  
TEMPERATURE : 25 deg.C  
HUMIDITY : 55 %  
ENGINEER : Takahiro Hatakeda

### [BDR]

| Mode | Number of transmission<br>in a 31.6(79 Hopping x 0.4)<br>/ 12.8(32 Hopping x 0.4)second period |             |           | Length of<br>transmission time<br>[msec] | Result<br>[msec] | Limit<br>[msec] |
|------|------------------------------------------------------------------------------------------------|-------------|-----------|------------------------------------------|------------------|-----------------|
| DH1  | 51 times / 5 sec. x                                                                            | 31.6 sec. = | 323 times | 0.490                                    | 158              | 400             |
| DH3  | 26 times / 5 sec. x                                                                            | 31.6 sec. = | 165 times | 1.750                                    | 289              | 400             |
| DH5  | 17 times / 5 sec. x                                                                            | 31.6 sec. = | 108 times | 3.008                                    | 325              | 400             |

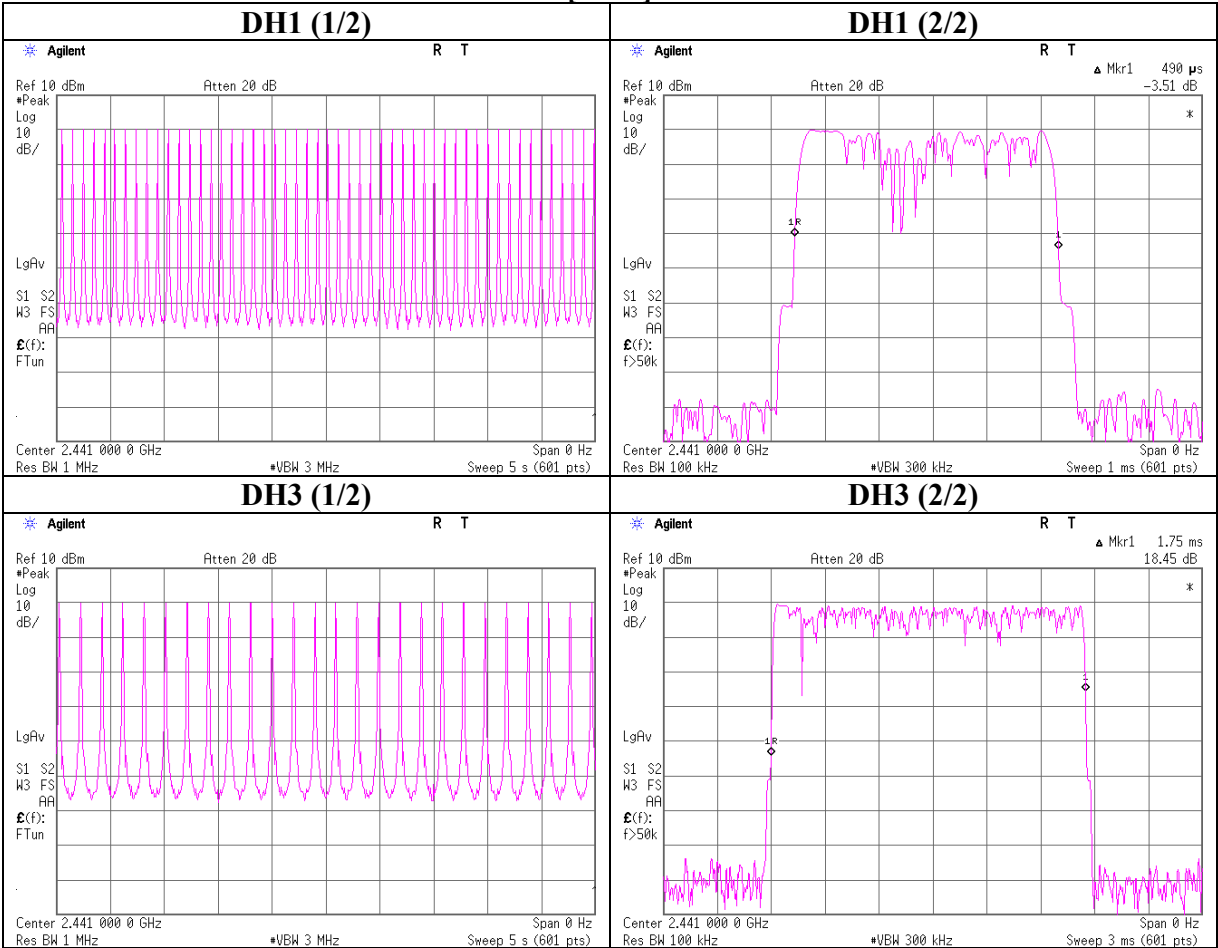
### [Inquiry]

| Mode    | Number of transmission<br>in a 31.6(79 Hopping x 0.4)<br>/ 12.8(32 Hopping x 0.4)second period |             |            | Length of<br>transmission time<br>[msec] | Result<br>[msec] | Limit<br>[msec] |
|---------|------------------------------------------------------------------------------------------------|-------------|------------|------------------------------------------|------------------|-----------------|
| Inquiry | 100 times / 1 sec. x                                                                           | 12.8 sec. = | 1280 times | 0.187                                    | 240              | 400             |

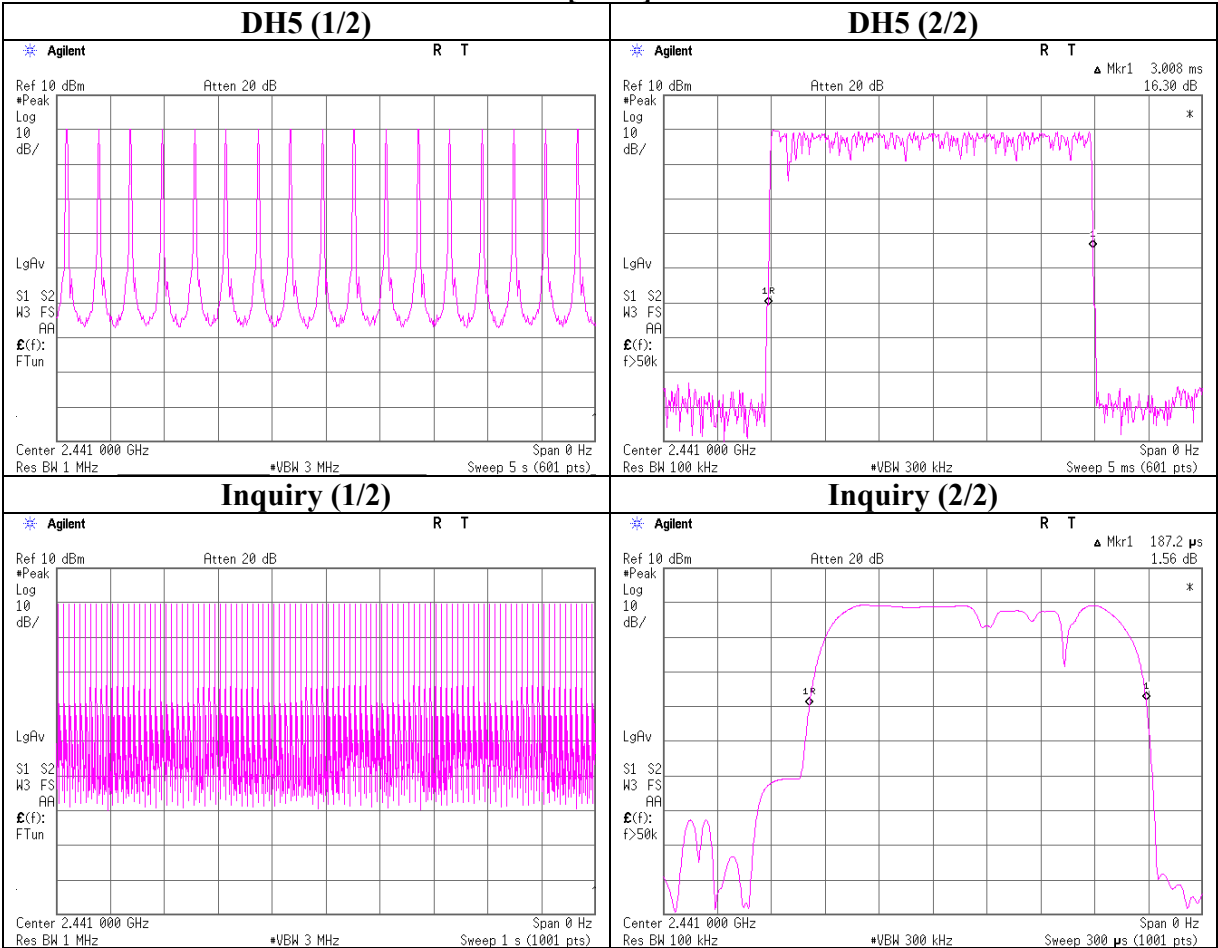
### [EDR]

| Mode | Number of transmission<br>in a 31.6(79 Hopping x 0.4)<br>/ 12.8(32 Hopping x 0.4)second period |             |           | Length of<br>transmission time<br>[msec] | Result<br>[msec] | Limit<br>[msec] |
|------|------------------------------------------------------------------------------------------------|-------------|-----------|------------------------------------------|------------------|-----------------|
| 3DH1 | 51 times / 5 sec. x                                                                            | 31.6 sec. = | 323 times | 0.487                                    | 157              | 400             |
| 3DH3 | 26 times / 5 sec. x                                                                            | 31.6 sec. = | 165 times | 1.745                                    | 288              | 400             |
| 3DH5 | 17 times / 5 sec. x                                                                            | 31.6 sec. = | 108 times | 3.000                                    | 324              | 400             |

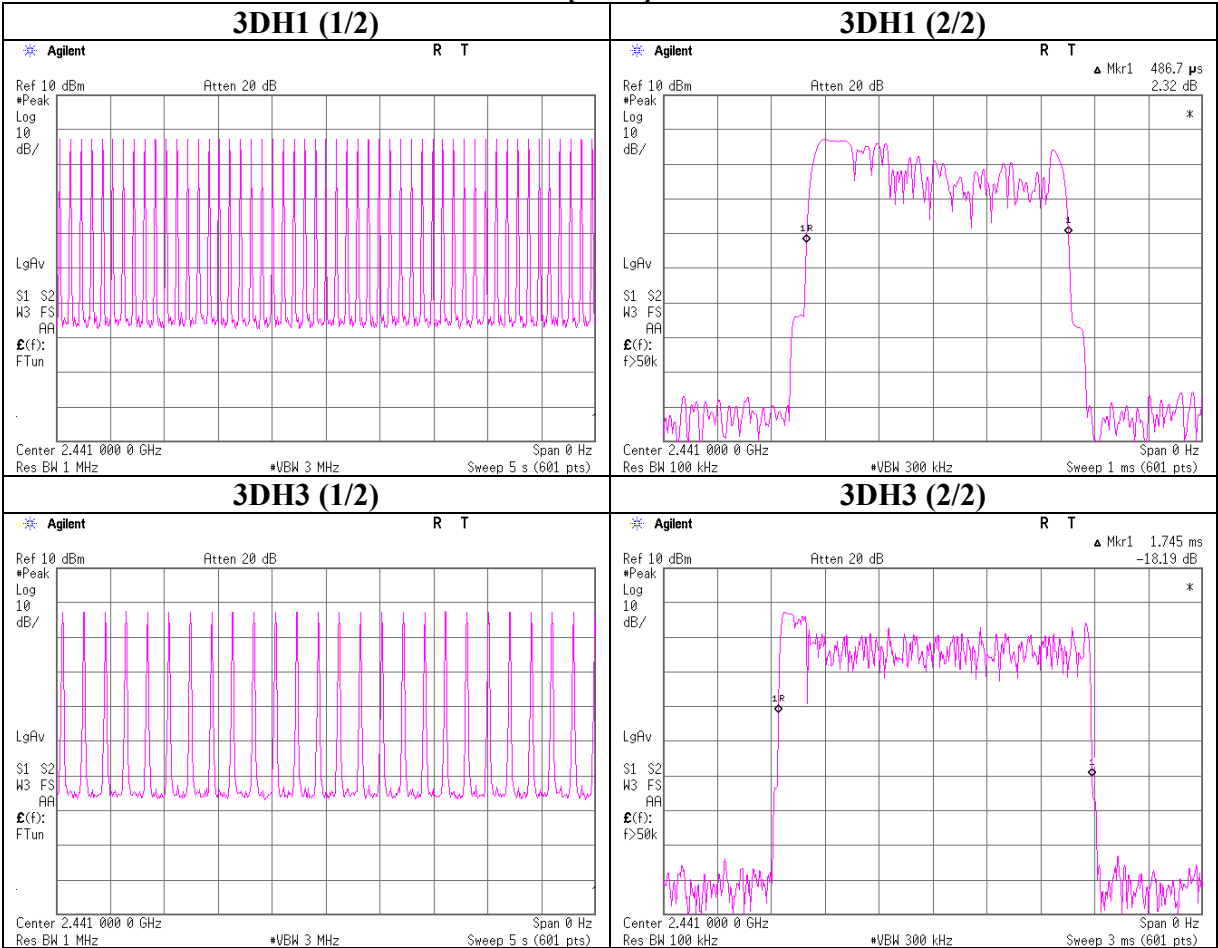
Dwell time  
[BDR]



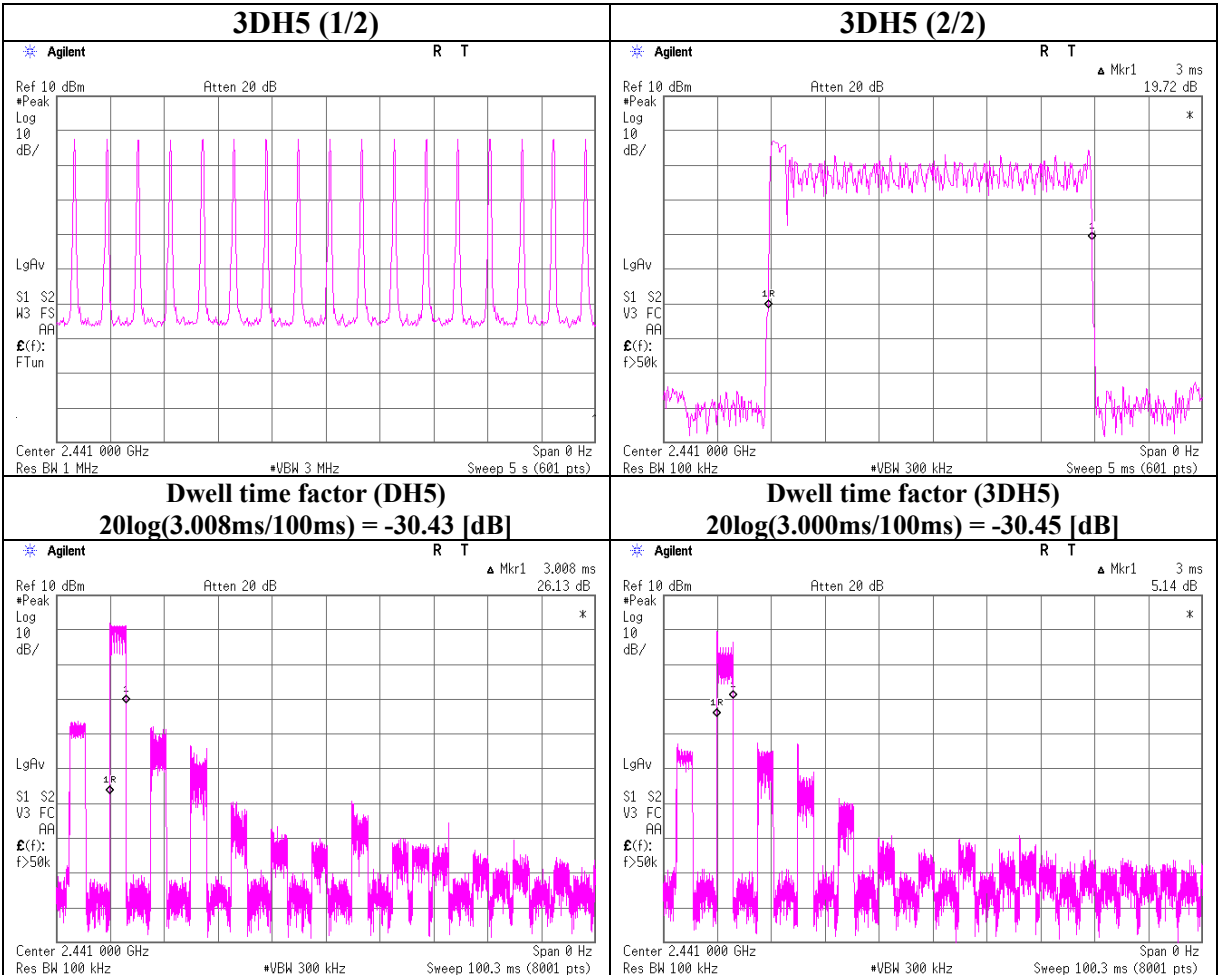
Dwell time  
[BDR]



Dwell time  
[EDR]



Dwell time [EDR] / Dwell time factor [DH5 / 3DH5]



## Maximum Peak Output Power

UL Japan, Inc.  
Head Office EMC Lab. No.6 Shielded Room

|           |                              |               |                                  |
|-----------|------------------------------|---------------|----------------------------------|
| COMPANY   | : SOKKIA CO., LTD.           | REGULATION    | : FCC15.247(b)(1)/RSS-210A8.4(2) |
| EQUIPMENT | : WT11 Bluetooth Module      | TEST DISTANCE | : -                              |
| MODEL     | : WT11                       | DATE          | : 09/03/2007                     |
| S/ N      | : ES0001                     | TEMPERATURE   | : 23deg.C                        |
| POWER     | : DC3.3V                     | HUMIDITY      | : 65%                            |
| MODE      | : BT Tx(Hopping Off)/Inquiry | ENGINEER      | : Takahiro Hatakeda              |

### [DH5]

| Ch      | Freq.<br>[MHz] | P/M<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>[dB] | Result |       | Limit |      | Margin<br>[dB] |
|---------|----------------|-------------------------|-----------------------|----------------|--------|-------|-------|------|----------------|
|         |                |                         |                       |                | [dBm]  | [mW]  | [dBm] | [mW] |                |
| Low     | 2402.0         | -0.07                   | 1.30                  | 10.01          | 11.24  | 13.30 | 20.97 | 125  | 9.73           |
| Mid     | 2441.0         | 0.17                    | 1.31                  | 10.02          | 11.50  | 14.13 | 20.97 | 125  | 9.47           |
| High    | 2480.0         | 0.06                    | 1.32                  | 10.03          | 11.41  | 13.84 | 20.97 | 125  | 9.56           |
| Inquiry | 2441.0         | -0.63                   | 1.31                  | 10.02          | 10.70  | 11.75 | 20.97 | 125  | 10.27          |

### [3DH5]

| Ch   | Freq.<br>[MHz] | P/M<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>[dB] | Result |      | Limit |      | Margin<br>[dB] |
|------|----------------|-------------------------|-----------------------|----------------|--------|------|-------|------|----------------|
|      |                |                         |                       |                | [dBm]  | [mW] | [dBm] | [mW] |                |
| Low  | 2402.0         | -2.51                   | 1.30                  | 10.01          | 8.80   | 7.59 | 20.97 | 125  | 12.17          |
| Mid  | 2441.0         | -2.34                   | 1.31                  | 10.02          | 8.99   | 7.93 | 20.97 | 125  | 11.98          |
| High | 2480.0         | -2.75                   | 1.32                  | 10.03          | 8.60   | 7.24 | 20.97 | 125  | 12.37          |

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

\* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

**Radiated Spurious Emission (below 1GHz)**  
**ANT.1, BDR, Tx, Ch. Low**

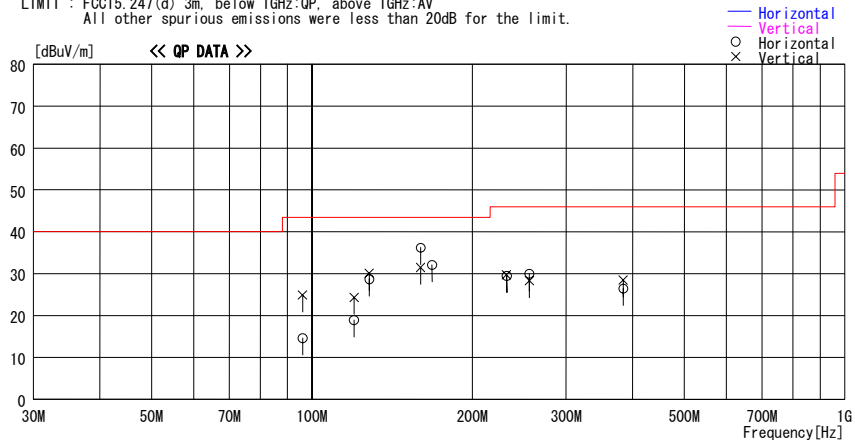
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/10/03

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001  
Report No. : 27GE0320-HO  
Power : DC3.3V  
Temp./Humi. : 23deg.C. / 72%  
Operator : Makoto Kosaka

Mode / Remarks : BT DH5 Tx 2402MHz Hor:X-axis, Ver:Y-axis ANT1:2.00dBi High Power

LIMIT : FCC15.247(d) 3m. below 1GHz:QP, above 1GHz:AV  
All other spurious emissions were less than 20dB for the limit.



| Frequency | Reading | DET | Antenna | Loss& | Level    | Angle | Height | Polar. | Limit    | Margin | Comment |
|-----------|---------|-----|---------|-------|----------|-------|--------|--------|----------|--------|---------|
|           |         |     | Factor  | Gain  |          |       |        |        |          |        |         |
| [MHz]     | [dBuV]  |     | [dB/m]  | [dB]  | [dBuV/m] | [Deg] | [cm]   |        | [dBuV/m] | [dB]   |         |
| 96.000    | 29.0    | QP  | 9.7     | -24.1 | 14.6     | 64    | 190    | Hori.  | 43.5     | 28.9   |         |
| 96.000    | 39.3    | QP  | 9.7     | -24.1 | 24.9     | 184   | 100    | Vert.  | 43.5     | 18.6   |         |
| 120.000   | 29.5    | QP  | 13.1    | -23.7 | 18.9     | 30    | 273    | Hori.  | 43.5     | 24.6   |         |
| 120.000   | 34.9    | QP  | 13.1    | -23.7 | 24.3     | 181   | 100    | Vert.  | 43.5     | 19.2   |         |
| 128.000   | 38.6    | QP  | 13.7    | -23.6 | 28.7     | 184   | 345    | Hori.  | 43.5     | 14.8   |         |
| 128.000   | 40.0    | QP  | 13.7    | -23.6 | 30.1     | 218   | 100    | Vert.  | 43.5     | 13.4   |         |
| 160.000   | 43.8    | QP  | 15.6    | -23.2 | 36.2     | 52    | 193    | Hori.  | 43.5     | 7.3    |         |
| 160.000   | 39.1    | QP  | 15.6    | -23.2 | 31.5     | 333   | 185    | Vert.  | 43.5     | 12.0   |         |
| 168.000   | 39.2    | QP  | 16.0    | -23.1 | 32.1     | 190   | 64     | Hori.  | 43.5     | 11.4   |         |
| 232.000   | 35.1    | QP  | 17.0    | -22.6 | 29.5     | 22    | 144    | Hori.  | 46.0     | 16.5   |         |
| 232.000   | 35.3    | QP  | 17.0    | -22.6 | 29.7     | 334   | 100    | Vert.  | 46.0     | 16.3   |         |
| 256.000   | 34.9    | QP  | 17.5    | -22.4 | 30.0     | 64    | 130    | Hori.  | 46.0     | 16.0   |         |
| 256.000   | 33.2    | QP  | 17.5    | -22.4 | 28.3     | 35    | 100    | Vert.  | 46.0     | 17.7   |         |
| 384.000   | 31.0    | QP  | 16.9    | -21.5 | 26.4     | 95    | 100    | Hori.  | 46.0     | 19.6   |         |
| 384.000   | 33.1    | QP  | 16.9    | -21.5 | 28.5     | 45    | 135    | Vert.  | 46.0     | 17.5   |         |

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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

**Radiated Spurious Emission (below 1GHz)**  
**ANT.1, BDR, Tx, Ch. Mid**

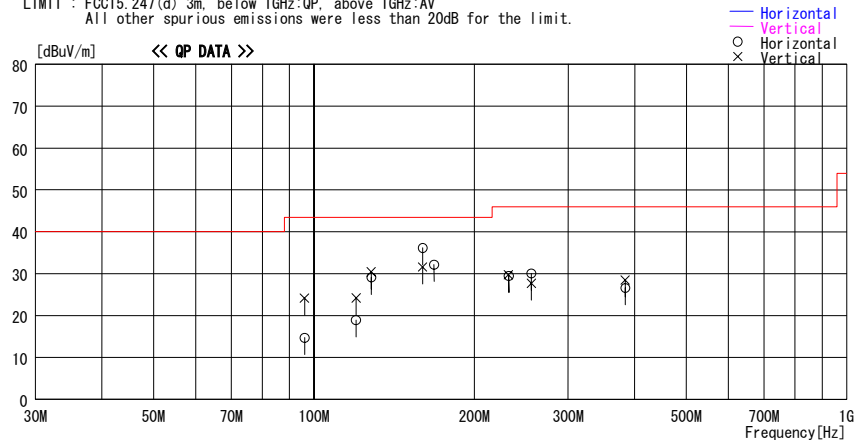
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/10/03

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001  
Report No. : 27GE0320-HO  
Power : DC3.3V  
Temp./Humi. : 23deg.C. / 72%  
Operator : Makoto Kosaka

Mode / Remarks : BT DH5 Tx 2441MHz Hor:X-axis, Ver:Y-axis ANT1:2.00dBi High Power

LIMIT : FCC15.247(d) 3m. below 1GHz:QP, above 1GHz:AV  
All other spurious emissions were less than 20dB for the limit.



| Frequency<br>[MHz] | Reading<br>[dBuV] | DET | Antenna          | Loss&        | Level<br>[dBuV/m] | Angle<br>[Deg] | Height<br>[cm] | Polar. | Limit<br>[dBuV/m] | Margin<br>[dB] | Comment |
|--------------------|-------------------|-----|------------------|--------------|-------------------|----------------|----------------|--------|-------------------|----------------|---------|
|                    |                   |     | Factor<br>[dB/m] | Gain<br>[dB] |                   |                |                |        |                   |                |         |
| 96.000             | 29.1              | QP  | 9.7              | -24.1        | 14.7              | 65             | 189            | Hori.  | 43.5              | 28.8           |         |
| 96.000             | 38.5              | QP  | 9.7              | -24.1        | 24.1              | 188            | 100            | Vert.  | 43.5              | 19.4           |         |
| 120.000            | 29.5              | QP  | 13.1             | -23.7        | 18.9              | 30             | 270            | Hori.  | 43.5              | 24.6           |         |
| 120.000            | 34.8              | QP  | 13.1             | -23.7        | 24.2              | 180            | 100            | Vert.  | 43.5              | 19.3           |         |
| 128.000            | 39.0              | QP  | 13.7             | -23.6        | 29.1              | 344            | 183            | Hori.  | 43.5              | 14.4           |         |
| 128.000            | 40.3              | QP  | 13.7             | -23.6        | 30.4              | 224            | 100            | Vert.  | 43.5              | 13.1           |         |
| 160.000            | 43.7              | QP  | 15.6             | -23.2        | 36.1              | 43             | 192            | Hori.  | 43.5              | 7.4            |         |
| 160.000            | 39.2              | QP  | 15.6             | -23.2        | 31.6              | 338            | 185            | Vert.  | 43.5              | 11.9           |         |
| 168.000            | 39.3              | QP  | 16.0             | -23.1        | 32.2              | 63             | 189            | Hori.  | 43.5              | 11.3           |         |
| 232.000            | 35.1              | QP  | 17.0             | -22.6        | 29.5              | 20             | 145            | Hori.  | 46.0              | 16.5           |         |
| 232.000            | 35.3              | QP  | 17.0             | -22.6        | 29.7              | 346            | 100            | Vert.  | 46.0              | 16.3           |         |
| 256.000            | 35.0              | QP  | 17.5             | -22.4        | 30.1              | 66             | 130            | Hori.  | 46.0              | 15.9           |         |
| 256.000            | 32.6              | QP  | 17.5             | -22.4        | 27.7              | 47             | 100            | Vert.  | 46.0              | 18.3           |         |
| 384.000            | 31.2              | QP  | 16.9             | -21.5        | 26.6              | 94             | 100            | Hori.  | 46.0              | 19.4           |         |
| 384.000            | 33.1              | QP  | 16.9             | -21.5        | 28.5              | 46             | 135            | Vert.  | 46.0              | 17.5           |         |

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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

**Radiated Spurious Emission (below 1GHz)**  
**ANT.1, BDR, Tx, Ch. High**

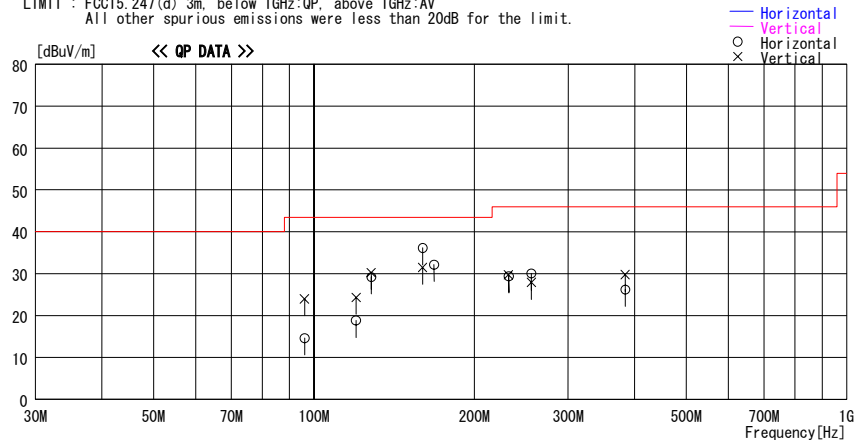
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/10/03

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001  
Report No. : 27GE0320-HO  
Power : DC3.3V  
Temp./Humi. : 23deg.C. / 72%  
Operator : Makoto Kosaka

Mode / Remarks : BT DH5 Tx 2480MHz Hor:X-axis, Ver:Y-axis ANT1:2.00dBi High Power

LIMIT : FCC15.247(d) 3m. below 1GHz:QP, above 1GHz:AV  
All other spurious emissions were less than 20dB for the limit.



| Frequency | Reading | DET | Antenna | Loss& | Level    | Angle | Height | Polar. | Limit    | Margin | Comment |
|-----------|---------|-----|---------|-------|----------|-------|--------|--------|----------|--------|---------|
|           |         |     | Factor  | Gain  |          |       |        |        |          |        |         |
| [MHz]     | [dBuV]  |     | [dB/m]  | [dB]  | [dBuV/m] | [Deg] | [cm]   |        | [dBuV/m] | [dB]   |         |
| 96.000    | 29.0    | QP  | 9.7     | -24.1 | 14.6     | 66    | 189    | Hori.  | 43.5     | 28.9   |         |
| 96.000    | 38.4    | QP  | 9.7     | -24.1 | 24.0     | 196   | 100    | Vert.  | 43.5     | 19.5   |         |
| 120.000   | 29.4    | QP  | 13.1    | -23.7 | 18.8     | 272   | 31     | Hori.  | 43.5     | 24.7   |         |
| 120.000   | 34.9    | QP  | 13.1    | -23.7 | 24.3     | 184   | 100    | Vert.  | 43.5     | 19.2   |         |
| 128.000   | 39.1    | QP  | 13.7    | -23.6 | 29.2     | 345   | 182    | Hori.  | 43.5     | 14.3   |         |
| 128.000   | 40.2    | QP  | 13.7    | -23.6 | 30.3     | 225   | 100    | Vert.  | 43.5     | 13.2   |         |
| 160.000   | 43.7    | QP  | 15.6    | -23.2 | 36.1     | 61    | 193    | Hori.  | 43.5     | 7.4    |         |
| 160.000   | 39.1    | QP  | 15.6    | -23.2 | 31.5     | 351   | 185    | Vert.  | 43.5     | 12.0   |         |
| 168.000   | 39.3    | QP  | 16.0    | -23.1 | 32.2     | 65    | 189    | Hori.  | 43.5     | 11.3   |         |
| 232.000   | 35.0    | QP  | 17.0    | -22.6 | 29.4     | 22    | 144    | Hori.  | 46.0     | 16.6   |         |
| 232.000   | 35.3    | QP  | 17.0    | -22.6 | 29.7     | 340   | 100    | Vert.  | 46.0     | 16.3   |         |
| 256.000   | 35.0    | QP  | 17.5    | -22.4 | 30.1     | 65    | 130    | Hori.  | 46.0     | 15.9   |         |
| 256.000   | 32.8    | QP  | 17.5    | -22.4 | 27.9     | 55    | 100    | Vert.  | 46.0     | 18.1   |         |
| 384.000   | 30.8    | QP  | 16.9    | -21.5 | 26.2     | 98    | 100    | Hori.  | 46.0     | 19.8   |         |
| 384.000   | 34.4    | QP  | 16.9    | -21.5 | 29.8     | 54    | 130    | Vert.  | 46.0     | 16.2   |         |

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

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

**Radiated Spurious Emission (below 1GHz)**  
**ANT.1, EDR, Tx, Ch. Low**

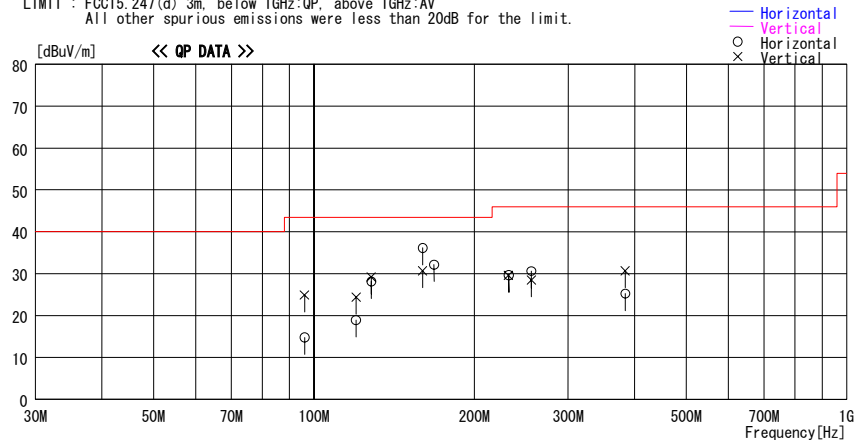
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/10/03

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001  
Report No. : 27GE0320-HO  
Power : DC3.3V  
Temp./Humi. : 23deg.C. / 72%  
Operator : Makoto Kosaka

Mode / Remarks : BT 3DH5 Tx 2402MHz Hor:X-axis, Ver:Y-axis ANT1:2.00dBi High Power

LIMIT : FCC15.247(d) 3m. below 1GHz:QP, above 1GHz:AV  
All other spurious emissions were less than 20dB for the limit.



| Frequency | Reading | DET | Antenna |            | Level    | Angle | Height | Polar. | Limit    | Margin | Comment |
|-----------|---------|-----|---------|------------|----------|-------|--------|--------|----------|--------|---------|
|           |         |     | Factor  | Loss& Gain |          |       |        |        |          |        |         |
| [MHz]     | [dBuV]  |     | [dB/m]  | [dB]       | [dBuV/m] | [Deg] | [cm]   |        | [dBuV/m] | [dB]   |         |
| 96.000    | 29.2    | QP  | 9.7     | -24.1      | 14.8     | 65    | 190    | Hori.  | 43.5     | 28.7   |         |
| 96.000    | 39.3    | QP  | 9.7     | -24.1      | 24.9     | 181   | 100    | Vert.  | 43.5     | 18.6   |         |
| 120.000   | 29.5    | QP  | 13.1    | -23.7      | 18.9     | 29    | 270    | Hori.  | 43.5     | 24.6   |         |
| 120.000   | 35.0    | QP  | 13.1    | -23.7      | 24.4     | 181   | 100    | Vert.  | 43.5     | 19.1   |         |
| 128.000   | 38.0    | QP  | 13.7    | -23.6      | 28.1     | 220   | 150    | Hori.  | 43.5     | 15.4   |         |
| 128.000   | 39.1    | QP  | 13.7    | -23.6      | 29.2     | 345   | 183    | Vert.  | 43.5     | 14.3   |         |
| 160.000   | 43.7    | QP  | 15.6    | -23.2      | 36.1     | 51    | 195    | Hori.  | 43.5     | 7.4    |         |
| 160.000   | 38.3    | QP  | 15.6    | -23.2      | 30.7     | 345   | 100    | Vert.  | 43.5     | 12.8   |         |
| 168.000   | 39.3    | QP  | 16.0    | -23.1      | 32.2     | 62    | 186    | Hori.  | 43.5     | 11.3   |         |
| 232.000   | 35.3    | QP  | 17.0    | -22.6      | 29.7     | 19    | 145    | Hori.  | 46.0     | 16.3   |         |
| 232.000   | 35.2    | QP  | 17.0    | -22.6      | 29.6     | 324   | 100    | Vert.  | 46.0     | 16.4   |         |
| 256.000   | 35.5    | QP  | 17.5    | -22.4      | 30.6     | 65    | 133    | Hori.  | 46.0     | 15.4   |         |
| 256.000   | 33.4    | QP  | 17.5    | -22.4      | 28.5     | 35    | 100    | Vert.  | 46.0     | 17.5   |         |
| 384.000   | 29.8    | QP  | 16.9    | -21.5      | 25.2     | 96    | 100    | Hori.  | 46.0     | 20.8   |         |
| 384.000   | 35.3    | QP  | 16.9    | -21.5      | 30.7     | 54    | 128    | Vert.  | 46.0     | 15.3   |         |

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN(AMP)

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

**Radiated Spurious Emission (below 1GHz)**  
**ANT.1, EDR, Tx, Ch. Mid**

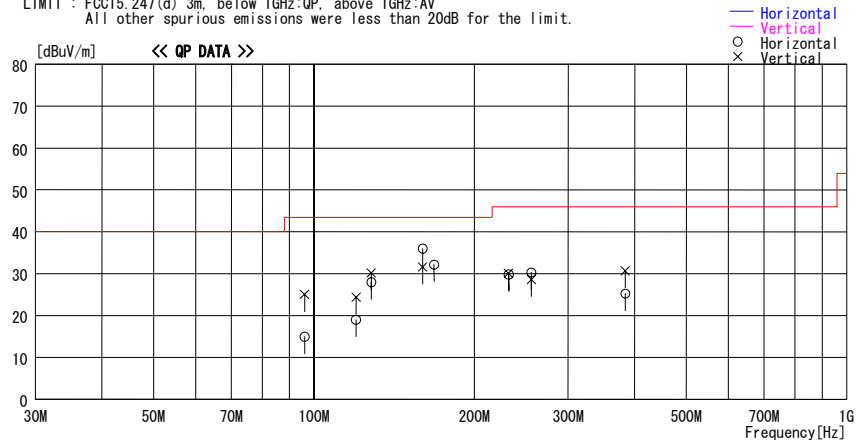
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/10/03

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001  
Report No. : 27GE0320-HO  
Power : DC3.3V  
Temp./Humi. : 23deg.C. / 72%  
Operator : Makoto Kosaka

Mode / Remarks : BT 3DH5 Tx 2441MHz Hor:X-axis, Ver:Y-axis ANT1:2.00dBi High Power

LIMIT : FCC15.247(d) 3m. below 1GHz:QP, above 1GHz:AV  
All other spurious emissions were less than 20dB for the limit.



| Frequency | Reading | DET | Antenna | Loss& | Level    | Angle | Height | Polar. | Limit    | Margin | Comment |
|-----------|---------|-----|---------|-------|----------|-------|--------|--------|----------|--------|---------|
|           |         |     | Factor  | Gain  |          |       |        |        |          |        |         |
| [MHz]     | [dBuV]  |     | [dB/m]  | [dB]  | [dBuV/m] | [Deg] | [cm]   |        | [dBuV/m] | [dB]   |         |
| 96.000    | 29.4    | QP  | 9.7     | -24.1 | 15.0     | 66    | 190    | Hori.  | 43.5     | 28.5   |         |
| 96.000    | 39.4    | QP  | 9.7     | -24.1 | 25.0     | 184   | 100    | Vert.  | 43.5     | 18.5   |         |
| 120.000   | 29.6    | QP  | 13.1    | -23.7 | 19.0     | 29    | 270    | Hori.  | 43.5     | 24.5   |         |
| 120.000   | 35.0    | QP  | 13.1    | -23.7 | 24.4     | 181   | 100    | Vert.  | 43.5     | 19.1   |         |
| 128.000   | 37.9    | QP  | 13.7    | -23.6 | 28.0     | 221   | 149    | Hori.  | 43.5     | 15.5   |         |
| 128.000   | 40.1    | QP  | 13.7    | -23.6 | 30.2     | 219   | 100    | Vert.  | 43.5     | 13.3   |         |
| 160.000   | 43.6    | QP  | 15.6    | -23.2 | 36.0     | 44    | 194    | Hori.  | 43.5     | 7.5    |         |
| 160.000   | 39.2    | QP  | 15.6    | -23.2 | 31.6     | 333   | 186    | Vert.  | 43.5     | 11.9   |         |
| 168.000   | 39.3    | QP  | 16.0    | -23.1 | 32.2     | 67    | 186    | Hori.  | 43.5     | 11.3   |         |
| 232.000   | 35.4    | QP  | 17.0    | -22.6 | 29.8     | 18    | 144    | Hori.  | 46.0     | 16.2   |         |
| 232.000   | 35.7    | QP  | 17.0    | -22.6 | 30.1     | 333   | 100    | Vert.  | 46.0     | 15.9   |         |
| 256.000   | 35.2    | QP  | 17.5    | -22.4 | 30.3     | 65    | 133    | Hori.  | 46.0     | 15.7   |         |
| 256.000   | 33.5    | QP  | 17.5    | -22.4 | 28.6     | 33    | 100    | Vert.  | 46.0     | 17.4   |         |
| 384.000   | 29.8    | QP  | 16.9    | -21.5 | 25.2     | 90    | 100    | Hori.  | 46.0     | 20.8   |         |
| 384.000   | 35.3    | QP  | 16.9    | -21.5 | 30.7     | 55    | 121    | Vert.  | 46.0     | 15.3   |         |

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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









**Radiated Spurious Emission (below 1GHz)**  
**ANT.2, EDR, Tx, Ch. Low**

**DATA OF RADIATED EMISSION TEST**

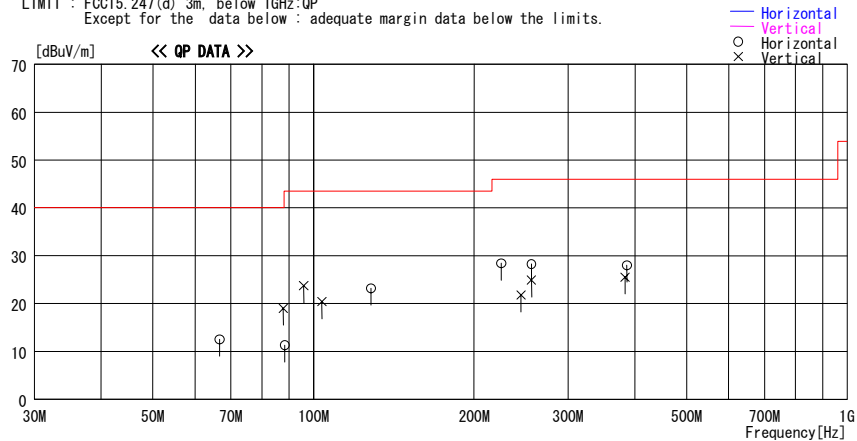
UL Japan, Inc. Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/10/05

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001  
Report No. : 27GE0320-HO  
Power : DC3.3V  
Temp./Humi. : 24deg.C. / 64%  
Operator : Makoto Kosaka

Mode / Remarks : BT EDR Tx 2402MHz, Worst-axis H:X-axis,V:Y-axis, Ant2:2.14dBi

LIMIT : FCC15.247(d) 3m, below 1GHz:QP

Except for the data below : adequate margin data below the limits.



| Frequency | Reading | DET | Antenna |       | Level    | Angle | Height | Polar. | Limit    | Margin |
|-----------|---------|-----|---------|-------|----------|-------|--------|--------|----------|--------|
|           |         |     | Factor  | Gain  |          |       |        |        |          |        |
| [MHz]     | [dBuV]  |     | [dB/m]  | [dB]  | [dBuV/m] | [Deg] | [cm]   |        | [dBuV/m] | [dB]   |
| 66.720    | 29.2    | QP  | 7.6     | -24.3 | 12.5     | 278   | 220    | Hori.  | 40.0     | 27.5   |
| 87.780    | 34.8    | QP  | 8.3     | -24.1 | 19.0     | 250   | 100    | Vert.  | 40.0     | 21.0   |
| 88.320    | 27.1    | QP  | 8.3     | -24.1 | 11.3     | 88    | 212    | Hori.  | 43.5     | 32.2   |
| 95.880    | 38.1    | QP  | 9.7     | -24.1 | 23.7     | 60    | 100    | Vert.  | 43.5     | 19.8   |
| 103.710   | 33.4    | QP  | 11.0    | -24.0 | 20.4     | 357   | 100    | Vert.  | 43.5     | 23.1   |
| 128.009   | 33.1    | QP  | 13.7    | -23.6 | 23.2     | 234   | 312    | Hori.  | 43.5     | 20.3   |
| 224.671   | 34.1    | QP  | 16.9    | -22.6 | 28.4     | 93    | 233    | Hori.  | 46.0     | 17.6   |
| 244.651   | 27.1    | QP  | 17.2    | -22.5 | 21.8     | 43    | 100    | Vert.  | 46.0     | 24.2   |
| 256.001   | 33.2    | QP  | 17.5    | -22.4 | 28.3     | 62    | 211    | Hori.  | 46.0     | 17.7   |
| 256.261   | 29.8    | QP  | 17.5    | -22.4 | 24.9     | 44    | 100    | Vert.  | 46.0     | 21.1   |
| 383.302   | 30.1    | QP  | 16.9    | -21.5 | 25.5     | 122   | 100    | Vert.  | 46.0     | 20.5   |
| 386.102   | 32.5    | QP  | 17.0    | -21.5 | 28.0     | 1     | 100    | Hori.  | 46.0     | 18.0   |

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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

**Radiated Spurious Emission (below 1GHz)**  
**ANT.2, EDR, Tx, Ch. Mid**

**DATA OF RADIATED EMISSION TEST**

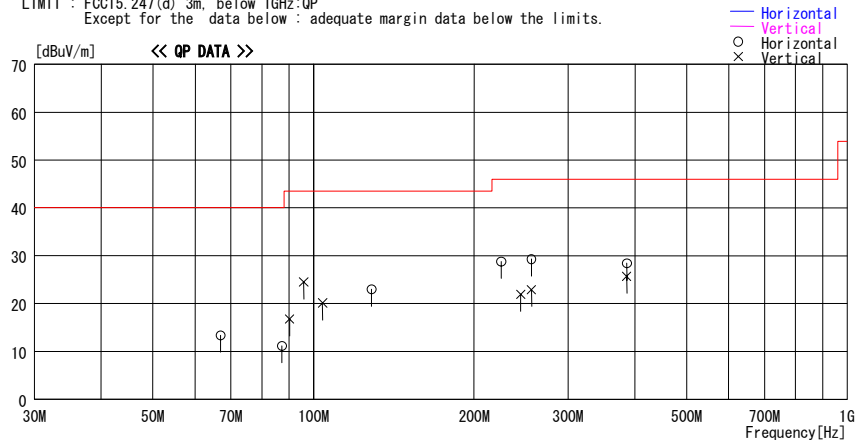
UL Japan, Inc. Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/10/05

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001  
Report No. : 27GE0320-HO  
Power : DC3.3V  
Temp./Humi. : 24deg.C. / 64%  
Operator : Makoto Kosaka

Mode / Remarks : BT EDR Tx 2441MHz, Worst-axis H:X-axis,V:Y-axis, Ant2:2.14dBi

LIMIT : FCC15.247(d) 3m, below 1GHz:QP

Except for the data below : adequate margin data below the limits.



| Frequency | Reading | DET | Antenna |       | Level    | Angle | Height | Polar. | Limit    | Margin |
|-----------|---------|-----|---------|-------|----------|-------|--------|--------|----------|--------|
|           |         |     | Factor  | Gain  |          |       |        |        |          |        |
| [MHz]     | [dBuV]  |     | [dB/m]  | [dB]  | [dBuV/m] | [Deg] | [cm]   |        | [dBuV/m] | [dB]   |
| 66.990    | 30.1    | QP  | 7.6     | -24.3 | 13.4     | 79    | 221    | Hori.  | 40.0     | 26.6   |
| 87.240    | 27.1    | QP  | 8.2     | -24.1 | 11.2     | 57    | 245    | Hori.  | 40.0     | 28.8   |
| 90.210    | 32.1    | QP  | 8.7     | -24.0 | 16.8     | 352   | 100    | Vert.  | 43.5     | 26.7   |
| 95.880    | 38.9    | QP  | 9.7     | -24.1 | 24.5     | 2     | 100    | Vert.  | 43.5     | 19.0   |
| 103.980   | 33.1    | QP  | 11.0    | -24.0 | 20.1     | 354   | 100    | Vert.  | 43.5     | 23.4   |
| 128.549   | 32.8    | QP  | 13.8    | -23.6 | 23.0     | 285   | 289    | Hori.  | 43.5     | 20.5   |
| 224.671   | 34.5    | QP  | 16.9    | -22.6 | 28.8     | 81    | 211    | Hori.  | 46.0     | 17.2   |
| 244.381   | 27.2    | QP  | 17.2    | -22.5 | 21.9     | 1     | 100    | Vert.  | 46.0     | 24.1   |
| 256.002   | 34.2    | QP  | 17.5    | -22.4 | 29.3     | 72    | 244    | Hori.  | 46.0     | 16.7   |
| 256.261   | 27.8    | QP  | 17.5    | -22.4 | 22.9     | 350   | 100    | Vert.  | 46.0     | 23.1   |
| 386.102   | 32.9    | QP  | 17.0    | -21.5 | 28.4     | 1     | 100    | Hori.  | 46.0     | 17.6   |
| 386.102   | 30.2    | QP  | 17.0    | -21.5 | 25.7     | 309   | 100    | Vert.  | 46.0     | 20.3   |

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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

**Radiated Spurious Emission (below 1GHz)**  
**ANT.2, EDR, Tx, Ch. High**

**DATA OF RADIATED EMISSION TEST**

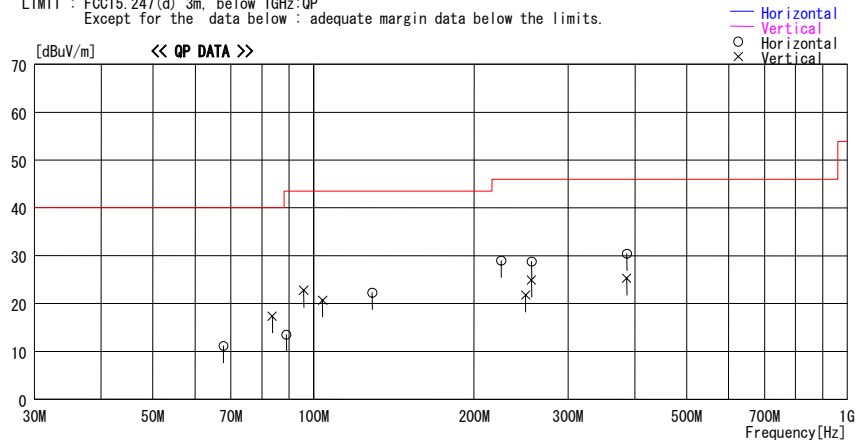
UL Japan, Inc. Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/10/05

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001  
Report No. : 27GE0320-HO  
Power : DC3.3V  
Temp./Humi. : 24deg.C. / 64%  
Operator : Makoto Kosaka

Mode / Remarks : BT EDR Tx 2480MHz, Worst-axis H:X-axis,V:Y-axis, Ant2:2.14dBi

LIMIT : FCC15.247(d) 3m, below 1GHz:QP

Except for the data below : adequate margin data below the limits.



| Frequency | Reading | DET | Antenna |       | Level    | Angle | Height | Polar. | Limit    | Margin |
|-----------|---------|-----|---------|-------|----------|-------|--------|--------|----------|--------|
|           |         |     | Factor  | Gain  |          |       |        |        |          |        |
| [MHz]     | [dBuV]  |     | [dB/m]  | [dB]  | [dBuV/m] | [Deg] | [cm]   |        | [dBuV/m] | [dB]   |
| 67.800    | 28.1    | QP  | 7.4     | -24.3 | 11.2     | 227   | 288    | Hori.  | 40.0     | 28.8   |
| 83.730    | 33.9    | QP  | 7.6     | -24.1 | 17.4     | 357   | 100    | Vert.  | 40.0     | 22.6   |
| 88.860    | 29.1    | QP  | 8.4     | -24.0 | 13.5     | 76    | 312    | Hori.  | 43.5     | 30.0   |
| 95.880    | 37.2    | QP  | 9.7     | -24.1 | 22.8     | 19    | 100    | Vert.  | 43.5     | 20.7   |
| 103.980   | 33.7    | QP  | 11.0    | -24.0 | 20.7     | 81    | 100    | Vert.  | 43.5     | 22.8   |
| 128.819   | 32.1    | QP  | 13.8    | -23.6 | 22.3     | 64    | 233    | Hori.  | 43.5     | 21.2   |
| 224.671   | 34.7    | QP  | 16.9    | -22.6 | 29.0     | 71    | 211    | Hori.  | 46.0     | 17.0   |
| 249.781   | 27.1    | QP  | 17.2    | -22.5 | 21.8     | 267   | 100    | Vert.  | 46.0     | 24.2   |
| 256.261   | 33.7    | QP  | 17.5    | -22.4 | 28.8     | 80    | 289    | Hori.  | 46.0     | 17.2   |
| 256.261   | 29.8    | QP  | 17.5    | -22.4 | 24.9     | 0     | 100    | Vert.  | 46.0     | 21.1   |
| 386.102   | 34.9    | QP  | 17.0    | -21.5 | 30.4     | 1     | 100    | Hori.  | 46.0     | 15.6   |
| 386.102   | 29.8    | QP  | 17.0    | -21.5 | 25.3     | 309   | 100    | Vert.  | 46.0     | 20.7   |

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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

**Radiated Spurious Emission (below 1GHz)**  
**ANT.1, Rx, Ch. Mid**

**DATA OF RADIATED EMISSION TEST**

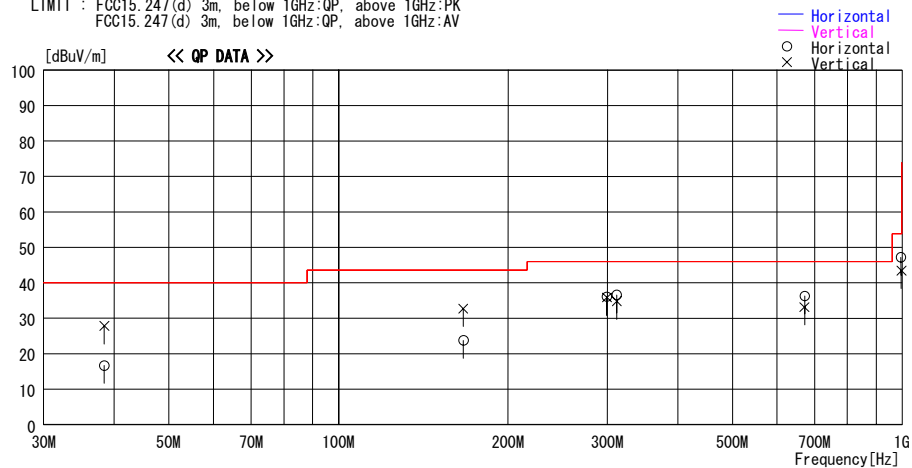
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/09/21

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001

Report No. : 27GE0320-H0  
Power : DC3.3V  
Temp./Humi. : 26deg. C. / 60%  
Operator : Takahiro Hatakeda

Mode / Remarks : BT Rx 2441MHz, Worst-axis H:X-axis, V:Y-axis Ant:2.00dBi

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



| Frequency<br>[MHz] | Reading<br>[dBuV] | DET | Antenna          | Loss&        | Level<br>[dBuV/m] | Angle<br>[Deg] | Height<br>[cm] | Polar. | Limit    | Margin |
|--------------------|-------------------|-----|------------------|--------------|-------------------|----------------|----------------|--------|----------|--------|
|                    |                   |     | Factor<br>[dB/m] | Gain<br>[dB] |                   |                |                |        | [dBuV/m] | [dB]   |
| 38.396             | 26.8              | QP  | 14.8             | -24.9        | 16.7              | 80             | 300            | Hori.  | 40.0     | 23.3   |
| 38.396             | 37.9              | QP  | 14.8             | -24.9        | 27.8              | 0              | 100            | Vert.  | 40.0     | 12.2   |
| 166.590            | 39.9              | QP  | 15.9             | -23.1        | 32.7              | 0              | 100            | Vert.  | 43.5     | 10.8   |
| 166.590            | 31.0              | QP  | 15.9             | -23.1        | 23.8              | 220            | 300            | Hori.  | 43.5     | 19.7   |
| 299.294            | 38.3              | QP  | 19.6             | -22.1        | 35.8              | 266            | 100            | Vert.  | 46.0     | 10.2   |
| 299.297            | 38.6              | QP  | 19.6             | -22.1        | 36.1              | 298            | 227            | Hori.  | 46.0     | 9.9    |
| 311.767            | 44.1              | QP  | 14.5             | -22.0        | 36.6              | 289            | 197            | Hori.  | 46.0     | 9.4    |
| 311.765            | 42.3              | QP  | 14.5             | -22.0        | 34.8              | 263            | 100            | Vert.  | 46.0     | 11.2   |
| 672.002            | 37.0              | QP  | 19.4             | -20.1        | 36.3              | 48             | 135            | Hori.  | 46.0     | 9.7    |
| 671.995            | 33.8              | QP  | 19.4             | -20.1        | 33.1              | 0              | 100            | Vert.  | 46.0     | 12.9   |
| 995.971            | 41.0              | QP  | 23.2             | -17.0        | 47.2              | 114            | 100            | Hori.  | 53.9     | 6.7    |
| 997.158            | 37.2              | QP  | 23.2             | -17.0        | 43.4              | 126            | 100            | Vert.  | 53.9     | 10.5   |

CHART:WITH FACTOR ANT TYPE: ~30MHz:LOOP, 30~300MHz:BICONICAL, 300MHz~1000MHz:LOGPERIODIC, 1000MHz~:HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

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

**Radiated Spurious Emission (below 1GHz)**  
**ANT.2, Rx, Ch. Mid**

**DATA OF RADIATED EMISSION TEST**

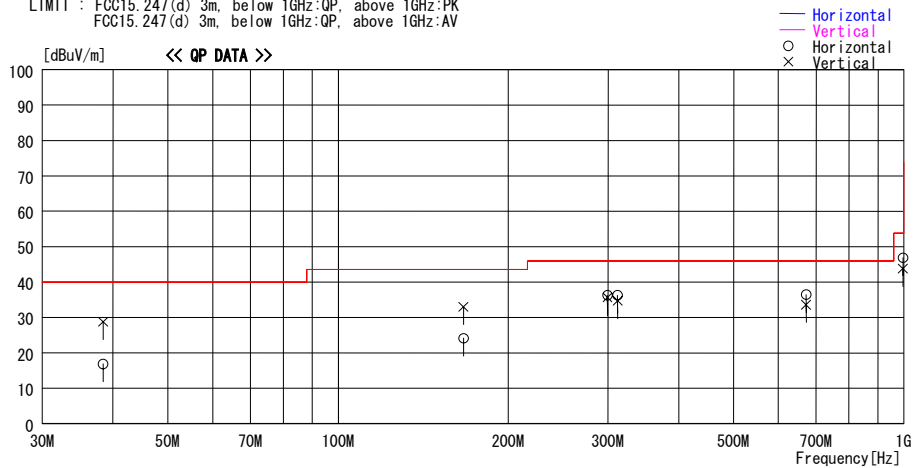
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2007/09/21

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001

Report No. : 27GE0320-H0  
Power : DC3.3V  
Temp./Humi. : 26deg. C. / 60%  
Operator : Takahiro Hatakeda

Mode / Remarks : BT Rx 2441MHz, Worst-axis H:X-axis, V:Y-axis Ant:2.14dBi

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



| Frequency<br>[MHz] | Reading<br>[dBuV] | DET | Antenna          |                    | Level<br>[dBuV/m] | Angle<br>[Deg] | Height<br>[cm] | Polar. | Limit    |      |
|--------------------|-------------------|-----|------------------|--------------------|-------------------|----------------|----------------|--------|----------|------|
|                    |                   |     | Factor<br>[dB/m] | Loss& Gain<br>[dB] |                   |                |                |        | [dBuV/m] | [dB] |
| 38.406             | 27.0              | QP  | 14.8             | -24.9              | 16.9              | 77             | 300            | Hori.  | 40.0     | 23.1 |
| 38.406             | 38.9              | QP  | 14.8             | -24.9              | 28.8              | 0              | 100            | Vert.  | 40.0     | 11.2 |
| 166.551            | 40.2              | QP  | 15.9             | -23.1              | 33.0              | 0              | 100            | Vert.  | 43.5     | 10.5 |
| 166.551            | 31.4              | QP  | 15.9             | -23.1              | 24.2              | 219            | 300            | Hori.  | 43.5     | 19.3 |
| 299.289            | 38.1              | QP  | 19.6             | -22.1              | 35.6              | 268            | 100            | Vert.  | 46.0     | 10.4 |
| 299.291            | 38.8              | QP  | 19.6             | -22.1              | 36.3              | 298            | 226            | Hori.  | 46.0     | 9.7  |
| 311.758            | 43.8              | QP  | 14.5             | -22.0              | 36.3              | 292            | 194            | Hori.  | 46.0     | 9.7  |
| 311.766            | 42.2              | QP  | 14.5             | -22.0              | 34.7              | 264            | 100            | Vert.  | 46.0     | 11.3 |
| 672.005            | 37.2              | QP  | 19.4             | -20.1              | 36.5              | 51             | 133            | Hori.  | 46.0     | 9.5  |
| 671.996            | 34.3              | QP  | 19.4             | -20.1              | 33.6              | 1              | 100            | Vert.  | 46.0     | 12.4 |
| 996.291            | 40.7              | QP  | 23.2             | -17.0              | 46.9              | 111            | 100            | Hori.  | 53.9     | 7.0  |
| 996.701            | 37.6              | QP  | 23.2             | -17.0              | 43.8              | 127            | 100            | Vert.  | 53.9     | 10.1 |

CHART:WITH FACTOR ANT TYPE:-30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

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

**Radiated Spurious Emission (above 1GHz)**  
**ANT.1, BDR, Tx, Ch. Low**

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : SOKKIA CO., LTD. Report No. : 27GE0320-HO  
Equipment : WT11 Bluetooth Module Regulation : Fcc Part15 Subpart C 15.247(d)  
Model : WT11 Test distance : 3/1m  
Sample No. : ES0001 Date : 09/05/2007 : 09/06/2007  
Power : DC3.3V Temperature : 24deg.C : 24deg.C  
Mode : Bluetooth, Tx 2402MHz /BDR, DH5 Humidity : 61% : 62%  
Remarks : Hor X-axis / Ver Y-axis, Ant type 1 Engineer : Makoto Kosaka : Yutaka Yoshida

**PK DETECT (RBW: 1MHz, VBW: 1MHz)**

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] |   | RESULT   |      | Limit<br>PK<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|---|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |   | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                |   | [dBuV/m] |      |                         | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 1                                                                                                   | 1602.0        | 58.8        | 58.9      | 26.0                    | 32.5                | 2.3                   | 0.0                            | - | 54.6     | 54.7 | 73.9                    | 19.3   | 19.2 |
| 2                                                                                                   | 2390.0        | 49.9        | 48.7      | 27.3                    | 31.5                | 3.0                   | 10.1                           | - | 58.8     | 57.6 | 73.9                    | 15.1   | 16.3 |
| 3                                                                                                   | 4804.0        | 50.1        | 48.6      | 31.5                    | 30.8                | 3.9                   | 0.5                            | - | 55.2     | 53.7 | 73.9                    | 18.7   | 20.2 |
| 4                                                                                                   | 7206.0        | 41.8        | 41.4      | 35.8                    | 31.3                | 4.5                   | 0.6                            | - | 51.4     | 51.0 | 73.9                    | 22.5   | 22.9 |
| 5                                                                                                   | 9608.0        | 43.2        | 42.7      | 38.2                    | 31.9                | 5.4                   | 0.8                            | - | 55.7     | 55.2 | 73.9                    | 18.2   | 18.7 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 5                                                                                                   | 12010.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 6                                                                                                   | 14412.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 7                                                                                                   | 16814.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 8                                                                                                   | 19216.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 9                                                                                                   | 21618.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 10                                                                                                  | 24020.0       | 40.6        | 40.8      | 38.7                    | 30.5                | 9.3                   | 0.0                            | - | 48.6     | 48.8 | 73.9                    | 25.3   | 25.1 |

**AV DETECT (RBW: 1MHz, VBW: 10Hz)**

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |      | Limit<br>AV<br>[dBuV/m] | MARGIN   |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|------|-------------------------|----------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER  |                         | HOR      | VER  |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                |                              | [dBuV/m] |      |                         | [dBuV/m] |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |                              |          |      |                         |          |      |
| 1                                                                                                   | 1602.0        | 56.3        | 55.3      | 26.0                    | 32.5                | 2.3                   | 0.0                            | -30.4                        | 21.7     | 20.7 | 53.9                    | 32.2     | 33.2 |
| 2                                                                                                   | 2390.0        | 36.4        | 35.0      | 27.3                    | 31.5                | 3.0                   | 10.1                           | -30.4                        | 14.9     | 13.5 | 53.9                    | 39.0     | 40.4 |
| 3                                                                                                   | 4804.0        | 38.1        | 36.5      | 31.5                    | 30.8                | 3.9                   | 0.5                            | -30.4                        | 12.8     | 11.2 | 53.9                    | 41.1     | 42.7 |
| 4                                                                                                   | 7206.0        | 29.1        | 29.0      | 35.8                    | 31.3                | 4.5                   | 0.6                            | -30.4                        | 8.3      | 8.2  | 53.9                    | 45.6     | 45.7 |
| 5                                                                                                   | 9608.0        | 30.5        | 30.3      | 38.2                    | 31.9                | 5.4                   | 0.8                            | -30.4                        | 12.6     | 12.4 | 53.9                    | 41.3     | 41.5 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |                              |          |      |                         |          |      |
| 5                                                                                                   | 12010.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -        | -    |
| 6                                                                                                   | 14412.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -        | -    |
| 7                                                                                                   | 16814.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -        | -    |
| 8                                                                                                   | 19216.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -        | -    |
| 9                                                                                                   | 21618.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -        | -    |
| 10                                                                                                  | 24020.0       | 29.2        | 29.2      | 38.7                    | 30.5                | 9.3                   | 0.0                            | -30.4                        | 6.8      | 6.8  | 53.9                    | 47.1     | 47.1 |

**20dBc(Fundamental 2402MHz) (RBW: 100kHz, VBW: 300kHz)**

| No.                                                                                          | FREQ<br>[MHz] | S/A READING |       | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | RESULT |       | Limit<br>20dBc<br>[dBuV/m] | MARGIN     |      |      |
|----------------------------------------------------------------------------------------------|---------------|-------------|-------|-------------------------|---------------------|-----------------------|--------------------------------|--------|-------|----------------------------|------------|------|------|
|                                                                                              |               | HOR         | VER   |                         |                     |                       |                                | HOR    | VER   |                            | HOR        | VER  |      |
|                                                                                              |               | [dBuV]      |       |                         |                     |                       |                                |        |       |                            |            |      |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss |               |             |       |                         |                     |                       |                                |        |       |                            |            |      |      |
| 0                                                                                            | 2402.0        | 103.0       | 100.8 | 27.3                    | 31.5                | 3.0                   | 10.1                           | -      | 111.9 | 109.7                      | -          | -    | -    |
| 1                                                                                            | 2400.0        | 60.7        | 59.0  | 27.3                    | 31.5                | 3.0                   | 10.1                           | -      | 69.6  | 67.9                       | Funda-20dB | 22.3 | 21.8 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB  
Dwell time factor : 20log(dwell time/100ms) 20log(3.008/100) = -30.43dB  
Except for the above table : All other spurious emissions were less than 20dB for the limit.  
In the frequency over the third harmonic, the noise from the EUT was not seen. The data above is its base noise.  
The test result is round off to one or two decimal places, so some differences might be observed.  
Hi-Pass Filter/Attenuator was not used for factor 0.0dB of the above table.

Test report No. : 27GE0320-HO-A  
Page : 47 of 76  
Issued date : October15, 2007  
FCC ID : S6MWT11

## Radiated Spurious Emission (above 1GHz)

### ANT.1, BDR, Tx, Ch. Mid

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

|            |                                       |               |                                  |
|------------|---------------------------------------|---------------|----------------------------------|
| Company    | : SOKKIA CO., LTD.                    | Report No.    | : 27GE0320-HO                    |
| Equipment  | : WT11 Bluetooth Module               | Regulation    | : Fcc Part15 Subpart C 15.247(d) |
| Model      | : WT11-E-AI                           | Test distance | : 3/1m                           |
| Sample No. | : ES0001                              | Date          | : 09/05/2007 : 09/6/2007         |
| Power      | : DC3.3V                              | Temperature   | : 24deg.C : 24deg.C              |
| Mode       | : Bluetooth, Tx 2441MHz /BDR, DH5     | Humidity      | : 61% : 62%                      |
| Remarks    | : Hor X-axis / Ver Y-axis, Ant type 1 | Engineer      | : Makoto Kosaka : Yutaka Yoshida |

#### PK DETECT (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] |   | RESULT   |      | Limit<br>PK<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|---|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |   | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           | [dB/m]                  | [dB]                | [dB]                  | [dB]                           |   | [dBuV/m] |      | [dBuV/m]                | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 1                                                                                                   | 1628.1        | 61.2        | 59.9      | 26.1                    | 32.4                | 2.3                   | 0.0                            | - | 57.2     | 55.9 | 73.9                    | 16.7   | 18.0 |
| 2                                                                                                   | 4882.0        | 48.4        | 47.7      | 31.7                    | 30.7                | 3.9                   | 0.4                            | - | 53.7     | 53.0 | 73.9                    | 20.2   | 20.9 |
| 3                                                                                                   | 7323.0        | 41.7        | 41.6      | 35.9                    | 31.3                | 4.6                   | 0.6                            | - | 51.5     | 51.4 | 73.9                    | 22.4   | 22.5 |
| 4                                                                                                   | 9764.0        | 43.0        | 43.1      | 38.2                    | 32.1                | 5.4                   | 0.7                            | - | 55.2     | 55.3 | 73.9                    | 18.7   | 18.6 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 5                                                                                                   | 12205.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 6                                                                                                   | 14646.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 7                                                                                                   | 17087.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 8                                                                                                   | 19528.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 9                                                                                                   | 21969.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 10                                                                                                  | 24410.0       | 40.6        | 40.8      | 38.8                    | 30.3                | 9.4                   | 0.0                            | - | 49.0     | 49.2 | 73.9                    | 24.9   | 24.7 |

#### AV DETECT (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           | [dB/m]                  | [dB]                | [dB]                  | [dB]                           |                              | [dBuV/m] |      | [dBuV/m]                | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 1                                                                                                   | 1628.1        | 57.8        | 54.4      | 26.1                    | 32.4                | 2.3                   | 0.0                            | -30.4                        | 23.4     | 20.0 | 53.9                    | 30.5   | 33.9 |
| 2                                                                                                   | 4882.0        | 34.5        | 33.0      | 31.7                    | 30.7                | 3.9                   | 0.4                            | -30.4                        | 9.4      | 7.9  | 53.9                    | 44.5   | 46.0 |
| 3                                                                                                   | 7323.0        | 29.0        | 29.0      | 35.9                    | 31.3                | 4.6                   | 0.6                            | -30.4                        | 8.4      | 8.4  | 53.9                    | 45.5   | 45.5 |
| 4                                                                                                   | 9764.0        | 30.2        | 30.1      | 38.2                    | 32.1                | 5.4                   | 0.7                            | -30.4                        | 12.0     | 11.9 | 53.9                    | 41.9   | 42.0 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 5                                                                                                   | 12205.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 6                                                                                                   | 14646.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 7                                                                                                   | 17087.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 8                                                                                                   | 19528.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 9                                                                                                   | 21969.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 10                                                                                                  | 24410.0       | 29.2        | 29.2      | 38.8                    | 30.3                | 9.4                   | 0.0                            | -30.4                        | 7.2      | 7.2  | 53.9                    | 46.7   | 46.7 |

Test Distance 1.0m : Distance Factor(Dfac) =  $20\log(3/1.0) = 9.5\text{dB}$

Dwell time factor :  $20\log(\text{dwell time}/100\text{ms})$   $20\log(3.008/100) = -30.43\text{dB}$

Except for the above table : All other spurious emissions were less than 20dB for the limit.

In the frequency over the third harmonic, the noise from the EUT was not seen. The data above is its base noise.

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

Hi-Pass Fiter was not used for factor 0.0dB of the above table.

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**Radiated Spurious Emission (above 1GHz)**  
**ANT.1, BDR, Tx, Ch. High**

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : SOKKIA CO., LTD. Report No. : 27GE0320-HO  
Equipment : WT11 Bluetooth Module Regulation : Fcc Part15 Subpart C 15.247(d)  
Model : WT11 Test distance : 3/1m  
Sample No. : ES0001 Date : 09/05/2007 : 09/6/2007  
Power : DC3.3V Temperature : 24deg.C : 24deg.C  
Mode : Bluetooth, Tx 2480MHz /BDR, DH5 Humidity : 61% : 63%  
Remarks : Hor X-axis / Ver Y-axis, Ant type 1 Engineer : Makoto Kosaka : Yutaka Yoshida

**PK DETECT** (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] |   | RESULT   |      | Limit<br>PK<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|---|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |   | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                |   | [dBuV/m] |      |                         | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 1                                                                                                   | 1654.0        | 60.1        | 61.0      | 26.1                    | 32.4                | 2.4                   | 0.0                            | - | 56.2     | 57.1 | 73.9                    | 17.7   | 16.8 |
| 2*                                                                                                  | 2483.5        | 65.1        | 63.7      | 27.4                    | 31.5                | 3.1                   | 10.1                           | - | 74.2     | 72.8 | 73.9                    | -      | -    |
| 3                                                                                                   | 4960.0        | 54.1        | 51.5      | 31.8                    | 30.7                | 4.0                   | 0.3                            | - | 59.5     | 56.9 | 73.9                    | 14.4   | 17.0 |
| 4                                                                                                   | 7440.0        | 41.9        | 41.5      | 36.1                    | 31.3                | 4.7                   | 0.6                            | - | 52.0     | 51.6 | 73.9                    | 21.9   | 22.3 |
| 5                                                                                                   | 9920.0        | 43.5        | 43.0      | 38.2                    | 32.2                | 5.4                   | 0.6                            | - | 55.5     | 55.0 | 73.9                    | 18.4   | 18.9 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 6                                                                                                   | 12400.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 7                                                                                                   | 14880.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 8                                                                                                   | 17360.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 9                                                                                                   | 19840.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 10                                                                                                  | 22320.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 11                                                                                                  | 24800.0       | 40.7        | 41.7      | 38.9                    | 30.1                | 9.4                   | 0.0                            | - | 49.4     | 50.4 | 73.9                    | 24.5   | 23.5 |

\* Reference data (See Marker-Delta Method data on page 49)

**AV DETECT** (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                 | FREQ<br><br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|-------------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|------|-------------------------|--------|------|
|                                                                                                     |                   | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |                   | [dBuV]      |           |                         |                     |                       |                                |                              | [dBuV/m] |      | [dB]                    |        |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |                   |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 1                                                                                                   | 1654.0            | 57.2        | 57.7      | 26.1                    | 32.4                | 2.4                   | 0.0                            | -30.4                        | 22.9     | 23.4 | 53.9                    | 31.0   | 30.5 |
| 2                                                                                                   | 2483.5            | 55.1        | 54.3      | 27.4                    | 31.5                | 3.1                   | 10.1                           | -30.4                        | 33.8     | 33.0 | 53.9                    | 20.1   | 20.9 |
| 3                                                                                                   | 4960.0            | 41.3        | 38.9      | 31.8                    | 30.7                | 4.0                   | 0.3                            | -30.4                        | 16.3     | 13.9 | 53.9                    | 37.6   | 40.0 |
| 4                                                                                                   | 7440.0            | 29.5        | 29.5      | 36.1                    | 31.3                | 4.7                   | 0.6                            | -30.4                        | 9.2      | 9.2  | 53.9                    | 44.7   | 44.7 |
| 5                                                                                                   | 9920.0            | 30.2        | 30.2      | 38.2                    | 32.2                | 5.4                   | 0.6                            | -30.4                        | 11.8     | 11.8 | 53.9                    | 42.1   | 42.1 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |                   |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 6                                                                                                   | 12400.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 7                                                                                                   | 14880.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 8                                                                                                   | 17360.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 9                                                                                                   | 19840.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 10                                                                                                  | 22320.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 11                                                                                                  | 24800.0           | 29.5        | 29.5      | 38.9                    | 30.1                | 9.4                   | 0.0                            | -30.4                        | 7.8      | 7.8  | 53.9                    | 46.1   | 46.1 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

Dwell time factor : 20log(dwell time/100ms) 20log(3.008/100) = -30.43dB

Except for the above table : All other spurious emissions were less than 20dB for the limit.

In the frequency over the third harmonic, the noise from the EUT was not seen. The data above is its base noise.

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

Hi-Pass Filter was not used for factor 0.0dB of the above table.

## Radiated Spurious Emission (above 1GHz) (Marker Delta method data)

### ANT.1, BDR, Tx, Ch. High

Marker-Delta Method (RBW:30kHz)

| MARKET-DATA-METER (KBDW-50KHZ)                                                              |        |                        |        |               |             |               |      |   |        |      |                |        |      |
|---------------------------------------------------------------------------------------------|--------|------------------------|--------|---------------|-------------|---------------|------|---|--------|------|----------------|--------|------|
| No.                                                                                         | FREQ   | Carrier Level - delta* |        | ANT<br>Factor | AMP<br>GAIN | CABLE<br>LOSS | ATTN |   | RESULT |      | Limit<br>PK/AV | MARGIN |      |
|                                                                                             |        | HOR                    | VER    |               |             |               |      |   | HOR    | VER  |                | HOR    | VER  |
|                                                                                             |        | [MHz]                  | [dBuV] |               |             |               |      |   | [dBm]  | [dB] |                | [dB]   | [dB] |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Attenuator Loss |        |                        |        |               |             |               |      |   |        |      |                |        |      |
| PK DETECT                                                                                   |        |                        |        |               |             |               |      |   |        |      |                |        |      |
| 1                                                                                           | 2483.5 | 54.0                   | 51.3   | 27.4          | 31.5        | 3.1           | 10.1 | - | 63.1   | 60.4 | 73.9           | 10.8   | 13.5 |
| AV DETECT                                                                                   |        |                        |        |               |             |               |      |   |        |      |                |        |      |
| 1**                                                                                         | 2483.5 | N/A                    | N/A    | -             | -           | -             | -    | - | -      | -    | 53.9           | -      | -    |

\*Carrier Level - delta = Carrier(RBW:1MHz) - {Carrier(RBW:30kHz) - Bandedge(RBW:30kHz)}

\*\*The Marker-Delta Method was not applied about AV measurement. Instead, Dwell time factor was applied.

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

\*Reference data

S/A Reading

|         |                                | Polarity  | Hor [dBuV] |      | Ver [dBuV] |      |
|---------|--------------------------------|-----------|------------|------|------------|------|
|         |                                | Detector  | PK         | AV   | PK         | AV   |
|         |                                | RBW \ VBW | 1MHz       | 10Hz | 1MHz       | 10Hz |
| Step 1) | Fundamental(2480MHz)           | 1MHz      | 102.0      | 88.9 | 101.0      | 88.3 |
| Step 2) | Fundamental(2480MHz)           | 30kHz     | 99.3       | 80.0 | 99.5       | 79.4 |
|         | Band-edge(2483.5MHz)           | 30kHz     | 51.2       | 42.1 | 49.7       | 41.5 |
|         | Amplitude delta *1             | -         | 48.0       | 37.9 | 49.8       | 38.0 |
| Step 3) | Field strength of band-edge *2 | -         | 54.0       | 51.1 | 51.3       | 50.3 |

\*1 Amplitude delta = Fundamental(RBW:30kHz) - Band-edge(RBW:30kHz)

\*2 Field strength of band-edge = Fundamental(RBW:1MHz) - Amplitude delta

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## Radiated Spurious Emission (above 1GHz)

### ANT.1, EDR, Tx, Ch. Low

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : SOKKIA CO., LTD.  
Equipment : WT11 Bluetooth Module  
Model : WT11  
Sample No. : ES0001  
Power : DC3.3V  
Mode : Bluetooth, Tx 2402MHz /EDR, 3-DHS  
Remarks : Hor X-axis / Ver Y-axis, Ant type 1

Report No. : 27GE0320-HO  
Regulation : Fcc Part15 Subpart C 15.247(d)  
Test distance : 3/1m  
Date : 09/05/2007 : 09/06/2007  
Temperature : 24deg.C : 24deg.C  
Humidity : 61% : 62%  
Engineer : Hidekazu Tanaka : Yutaka Yoshida

#### PK DETECT (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                 | FREQ    | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | RESULT |          | Limit<br>PK<br>[dBuV/m] | MARGIN |      |      |
|-----------------------------------------------------------------------------------------------------|---------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|--------|----------|-------------------------|--------|------|------|
|                                                                                                     | [MHz]   | HOR         | VER       |                         |                     |                       |                                | HOR    | VER      |                         | HOR    | VER  |      |
|                                                                                                     |         | [dBuV]      |           |                         |                     |                       |                                |        | [dBuV/m] |                         |        | [dB] |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |         |             |           |                         |                     |                       |                                |        |          |                         |        |      |      |
| 1                                                                                                   | 1602.0  | 59.6        | 58.9      | 26.0                    | 32.5                | 2.3                   | 0.0                            | -      | 55.4     | 54.7                    | 73.9   | 18.5 | 19.2 |
| 2                                                                                                   | 2390.0  | 45.4        | 44.6      | 27.3                    | 31.5                | 3.0                   | 10.1                           | -      | 54.3     | 53.5                    | 73.9   | 19.6 | 20.4 |
| 3                                                                                                   | 4804.0  | 47.8        | 47.7      | 31.5                    | 30.8                | 3.9                   | 0.5                            | -      | 52.9     | 52.8                    | 73.9   | 21.0 | 21.1 |
| 4                                                                                                   | 7206.0  | 40.4        | 41.1      | 35.8                    | 31.3                | 4.5                   | 0.6                            | -      | 50.0     | 50.7                    | 73.9   | 23.9 | 23.2 |
| 5                                                                                                   | 9608.0  | 42.4        | 42.3      | 38.2                    | 31.9                | 5.4                   | 0.8                            | -      | 54.9     | 54.8                    | 73.9   | 19.0 | 19.1 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |         |             |           |                         |                     |                       |                                |        |          |                         |        |      |      |
| 6                                                                                                   | 12010.0 | not found   | not found | -                       | -                   | -                     | -                              | -      | -        | -                       | 73.9   | -    | -    |
| 7                                                                                                   | 14412.0 | not found   | not found | -                       | -                   | -                     | -                              | -      | -        | -                       | 73.9   | -    | -    |
| 8                                                                                                   | 16814.0 | not found   | not found | -                       | -                   | -                     | -                              | -      | -        | -                       | 73.9   | -    | -    |
| 9                                                                                                   | 19216.0 | not found   | not found | -                       | -                   | -                     | -                              | -      | -        | -                       | 73.9   | -    | -    |
| 10                                                                                                  | 21618.0 | not found   | not found | -                       | -                   | -                     | -                              | -      | -        | -                       | 73.9   | -    | -    |
| 11                                                                                                  | 24020.0 | 41.0        | 41.1      | 38.7                    | 30.5                | 9.3                   | 0.0                            | -      | 49.0     | 49.1                    | 73.9   | 24.9 | 24.8 |

#### AV DETECT (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                 | FREQ    | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|------|-------------------------|--------|------|
|                                                                                                     | [MHz]   | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |         | [dBuV]      |           |                         |                     |                       |                                |                              | [dBuV/m] |      |                         | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |         |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 1                                                                                                   | 1602.0  | 58.0        | 55.5      | 26.0                    | 32.5                | 2.3                   | 0.0                            | -30.5                        | 23.3     | 20.8 | 53.9                    | 30.6   | 33.1 |
| 2                                                                                                   | 2390.0  | 32.1        | 31.7      | 27.3                    | 31.5                | 3.0                   | 10.1                           | -30.5                        | 10.6     | 10.2 | 53.9                    | 43.4   | 43.8 |
| 3                                                                                                   | 4804.0  | 32.1        | 32.1      | 31.5                    | 30.8                | 3.9                   | 0.5                            | -30.5                        | 6.8      | 6.8  | 53.9                    | 47.2   | 47.2 |
| 4                                                                                                   | 7206.0  | 29.1        | 29.3      | 35.8                    | 31.3                | 4.5                   | 0.6                            | -30.5                        | 8.3      | 8.5  | 53.9                    | 45.7   | 45.5 |
| 5                                                                                                   | 9608.0  | 30.7        | 30.8      | 38.2                    | 31.9                | 5.4                   | 0.8                            | -30.5                        | 12.8     | 12.9 | 53.9                    | 41.2   | 41.1 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |         |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 6                                                                                                   | 12010.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 7                                                                                                   | 14412.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 8                                                                                                   | 16814.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 9                                                                                                   | 19216.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 10                                                                                                  | 21618.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 11                                                                                                  | 24020.0 | 29.4        | 29.5      | 38.7                    | 30.5                | 9.3                   | 0.0                            | -30.5                        | 6.9      | 7.1  | 53.9                    | 47.0   | 46.9 |

#### 20dBc(Fundamental 2402MHz) (RBW: 100kHz, VBW: 300kHz)

| No.                                                                                          | FREQ<br>[MHz] | S/A READING |      | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | RESULT   |       | Limit<br>20dBc<br>[dBuV/m] | MARGIN     |      |
|----------------------------------------------------------------------------------------------|---------------|-------------|------|-------------------------|---------------------|-----------------------|--------------------------------|----------|-------|----------------------------|------------|------|
|                                                                                              |               | HOR         | VER  |                         |                     |                       |                                | HOR      | VER   |                            | HOR        | VER  |
|                                                                                              |               | [dBuV]      |      |                         |                     |                       |                                | [dBuV/m] |       |                            | [dB]       |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss |               |             |      |                         |                     |                       |                                |          |       |                            |            |      |
| 0                                                                                            | 2402.0        | 100.7       | 99.0 | 27.3                    | 31.5                | 3.0                   | 10.1                           | -        | 109.6 | 107.9                      | -          | -    |
| 1                                                                                            | 2400.0        | 63.3        | 61.9 | 27.3                    | 31.5                | 3.0                   | 10.1                           | -        | 72.2  | 70.8                       | Funda-20dB | 17.4 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

Dwell time factor : 20log(dwell time/100ms) 20log(3.00/100) = -30.45dB

Except for the above table : All other spurious emissions were less than 20dB for the limit.

In the frequency over the third harmonic, the noise from the EUT was not seen. The data above is its base noise.

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

Hi-Pass Filter/Attenuator was not used for factor 0.0dB of the above table.

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**Radiated Spurious Emission (above 1GHz)**  
**ANT.1, EDR, Tx, Ch. Mid**

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

|            |                                       |               |                                    |
|------------|---------------------------------------|---------------|------------------------------------|
| Company    | : SOKKIA CO., LTD.                    | Report No.    | : 27GE0320-HO                      |
| Equipment  | : WT11 Bluetooth Module               | Regulation    | : Fcc Part15 Subpart C 15.247(d)   |
| Model      | : WT11                                | Test distance | : 3/1m                             |
| Sample No. | : ES0001                              | Date          | : 09/05/2007 : 09/06/2007          |
| Power      | : DC3.3V                              | Temperature   | : 24deg.C                          |
| Mode       | : Bluetooth, Tx 2441MHz /EDR, 3-DH5   | Humidity      | : 61% : 62%                        |
| Remarks    | : Hor X-axis / Ver Y-axis, Ant type 1 | Engineer      | : Hidekazu Tanaka : Yutaka Yoshida |

**PK DETECT** (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] |   | RESULT   |      | Limit<br>PK<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|---|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |   | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                |   | [dBuV/m] |      |                         | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 1                                                                                                   | 1628.0        | 57.8        | 59.8      | 26.1                    | 32.4                | 2.3                   | 0.0                            | - | 53.8     | 55.8 | 73.9                    | 20.1   | 18.1 |
| 2                                                                                                   | 4882.0        | 49.7        | 45.9      | 31.7                    | 30.7                | 3.9                   | 0.4                            | - | 55.0     | 51.2 | 73.9                    | 18.9   | 22.7 |
| 3                                                                                                   | 7323.0        | 40.5        | 40.4      | 35.9                    | 31.3                | 4.6                   | 0.6                            | - | 50.3     | 50.2 | 73.9                    | 23.6   | 23.7 |
| 4                                                                                                   | 9764.0        | 42.3        | 42.4      | 38.2                    | 32.1                | 5.4                   | 0.7                            | - | 54.5     | 54.6 | 73.9                    | 19.4   | 19.3 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 5                                                                                                   | 12205.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 6                                                                                                   | 14646.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 7                                                                                                   | 17087.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 8                                                                                                   | 19528.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 9                                                                                                   | 21969.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 10                                                                                                  | 24410.0       | 39.9        | 40.9      | 38.8                    | 30.3                | 9.4                   | 0.0                            | - | 48.3     | 49.3 | 73.9                    | 25.6   | 24.6 |

**AV DETECT** (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                |                              | [dBuV/m] |      |                         | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 1                                                                                                   | 1628.0        | 55.5        | 53.7      | 26.1                    | 32.4                | 2.3                   | 0.0                            | -30.5                        | 21.0     | 19.2 | 53.9                    | 32.9   | 34.7 |
| 2                                                                                                   | 4882.0        | 31.0        | 28.6      | 31.7                    | 30.7                | 3.9                   | 0.4                            | -30.5                        | 5.9      | 3.5  | 53.9                    | 48.1   | 50.5 |
| 3                                                                                                   | 7323.0        | 29.1        | 28.9      | 35.9                    | 31.3                | 4.6                   | 0.6                            | -30.5                        | 8.5      | 8.3  | 53.9                    | 45.5   | 45.7 |
| 4                                                                                                   | 9764.0        | 30.8        | 30.8      | 38.2                    | 32.1                | 5.4                   | 0.7                            | -30.5                        | 12.6     | 12.6 | 53.9                    | 41.4   | 41.4 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 5                                                                                                   | 12205.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 6                                                                                                   | 14646.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 7                                                                                                   | 17087.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 8                                                                                                   | 19528.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 9                                                                                                   | 21969.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 10                                                                                                  | 24410.0       | 28.8        | 28.9      | 38.8                    | 30.3                | 9.4                   | 0.0                            | -30.5                        | 6.8      | 6.8  | 53.9                    | 47.2   | 47.1 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB  
Dwell time factor : 20log(dwell time/100ms) 20log(3.00/100) = -30.45dB  
Except for the above table : All other spurious emissions were less than 20dB for the limit.  
In the frequency over the third harmonic, the noise from the EUT was not seen.The data above is its base noise.  
The test result is round off to one or two decimal places, so some differences might be observed.  
Hi-Pass Fiter/Attenuator was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission (above 1GHz)**  
**ANT.1, EDR, Tx, Ch. High**

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : SOKKIA CO., LTD.  
Equipment : WT11 Bluetooth Module  
Model : WT11  
Sample No. : ES0001  
Power : DC3.3V  
Mode : Bluetooth, Tx 2480MHz /EDR, 3-DH5  
Remarks : Hor X-axis / Ver Y-axis, Ant type 1

Report No. : 27GE0320-HO  
Regulation : Fcc Part15 Subpart C 15.247(d)  
Test distance : 3/1m  
Date : 09/05/2007 : 09/06/2007  
Temperature : 24deg.C : 24deg.C  
Humidity : 61% : 62%  
Engineer : Hidekazu Tanaka : Yutaka Yoshida

**PK DETECT** (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                 | FREQ    | S/A READING |           | ANT<br>Factor | AMP<br>GAIN | CABLE<br>LOSS | Hi-Pass<br>Filter/ATTN |          | RESULT   |      | Limit<br>PK | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------|-------------|-----------|---------------|-------------|---------------|------------------------|----------|----------|------|-------------|--------|------|
|                                                                                                     |         | HOR         | VER       |               |             |               |                        |          | HOR      | VER  |             | HOR    | VER  |
|                                                                                                     | [MHz]   | [dBuV]      |           | [dB/m]        | [dB]        | [dB]          | [dB]                   | [dBuV/m] | [dBuV/m] | [dB] | [dB]        |        |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |         |             |           |               |             |               |                        |          |          |      |             |        |      |
| 1                                                                                                   | 1654.0  | 59.2        | 57.6      | 26.1          | 32.4        | 2.4           | 0.0                    | -        | 55.3     | 53.7 | 73.9        | 18.6   | 20.2 |
| 2*                                                                                                  | 2483.5  | 64.7        | 63.4      | 27.4          | 31.5        | 3.1           | 10.1                   | -        | 73.8     | 72.5 | 73.9        | -      | -    |
| 3                                                                                                   | 3308.0  | 50.7        | 48.8      | 28.7          | 31.2        | 3.4           | 0.0                    | -        | 51.6     | 49.7 | 73.9        | 22.3   | 24.2 |
| 4                                                                                                   | 4960.0  | 48.7        | 47.0      | 31.8          | 30.7        | 4.0           | 0.3                    | -        | 54.1     | 52.4 | 73.9        | 19.8   | 21.5 |
| 5                                                                                                   | 7440.0  | 41.2        | 40.7      | 36.1          | 31.3        | 4.7           | 0.6                    | -        | 51.3     | 50.8 | 73.9        | 22.6   | 23.1 |
| 6                                                                                                   | 9920.0  | 42.0        | 42.4      | 38.2          | 32.2        | 5.4           | 0.6                    | -        | 54.0     | 54.4 | 73.9        | 19.9   | 19.5 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |         |             |           |               |             |               |                        |          |          |      |             |        |      |
| 7                                                                                                   | 12400.0 | not found   | not found | -             | -           | -             | -                      | -        | -        | -    | 73.9        | -      | -    |
| 8                                                                                                   | 14880.0 | not found   | not found | -             | -           | -             | -                      | -        | -        | -    | 73.9        | -      | -    |
| 9                                                                                                   | 17360.0 | not found   | not found | -             | -           | -             | -                      | -        | -        | -    | 73.9        | -      | -    |
| 10                                                                                                  | 19840.0 | not found   | not found | -             | -           | -             | -                      | -        | -        | -    | 73.9        | -      | -    |
| 11                                                                                                  | 22320.0 | not found   | not found | -             | -           | -             | -                      | -        | -        | -    | 73.9        | -      | -    |
| 12                                                                                                  | 24800.0 | 41.9        | 41.2      | 38.9          | 30.1        | 9.4           | 0.0                    | -        | 50.6     | 49.9 | 73.9        | 23.3   | 24.0 |

\* Reference data (See Marker-Delta Method data on page 53)

**AV DETECT** (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|--------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |                              | HOR    | VER  |                         | HOR    | VER  |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |                              |        |      |                         |        |      |
| 1                                                                                                   | 1654.0        | 57.6        | 52.4      | 26.1                    | 32.4                | 2.4                   | 0.0                            | -30.5                        | 23.2   | 18.0 | 53.9                    | 30.7   | 35.9 |
| 2                                                                                                   | 2483.5        | 51.1        | 50.6      | 27.4                    | 31.5                | 3.1                   | 10.1                           | -30.5                        | 29.8   | 29.3 | 53.9                    | 24.2   | 24.7 |
| 3                                                                                                   | 3308.0        | 42.7        | 41.0      | 28.7                    | 31.2                | 3.4                   | 0.0                            | -30.5                        | 13.2   | 11.5 | 53.9                    | 40.8   | 42.5 |
| 4                                                                                                   | 4960.0        | 31.9        | 30.3      | 31.8                    | 30.7                | 4.0                   | 0.3                            | -30.5                        | 6.9    | 5.3  | 53.9                    | 47.1   | 48.7 |
| 5                                                                                                   | 7440.0        | 29.5        | 29.5      | 36.1                    | 31.3                | 4.7                   | 0.6                            | -30.5                        | 9.2    | 9.2  | 53.9                    | 44.8   | 44.8 |
| 6                                                                                                   | 9920.0        | 31.0        | 30.9      | 38.2                    | 32.2                | 5.4                   | 0.6                            | -30.5                        | 12.6   | 12.5 | 53.9                    | 41.4   | 41.5 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |                              |        |      |                         |        |      |
| 7                                                                                                   | 12400.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 8                                                                                                   | 14880.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 9                                                                                                   | 17360.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 10                                                                                                  | 19840.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 11                                                                                                  | 22320.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 12                                                                                                  | 24800.0       | 29.7        | 29.7      | 38.9                    | 30.1                | 9.4                   | 0.0                            | -30.5                        | 7.9    | 7.9  | 53.9                    | 46.0   | 46.0 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

Dwell time factor : 20log(dwell time/100ms) 20log(3.00/100) = -30.45dB

Except for the above table : All other spurious emissions were less than 20dB for the limit.

In the frequency over the third harmonic, the noise from the EUT was not seen. The data above is its base noise.

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

**Radiated Spurious Emission (above 1GHz) (Marker Delta method data)**  
**ANT.1, EDR, Tx, Ch. High**

**Marker-Delta Method (RBW:30kHz)**

| No.                                                                                         | FREQ<br>[MHz] | Carrier Level - delta* |      | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTN<br>[dB] | RESULT   |      | Limit<br>PK/AV<br>[dBuV/m] | MARGIN |      |      |
|---------------------------------------------------------------------------------------------|---------------|------------------------|------|-------------------------|---------------------|-----------------------|--------------|----------|------|----------------------------|--------|------|------|
|                                                                                             |               | HOR                    | VER  |                         |                     |                       |              | HOR      | VER  |                            | HOR    | VER  |      |
|                                                                                             |               | [dBuV]                 |      |                         |                     |                       |              | [dBuV/m] |      |                            | [dB]   |      |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Attenuator Loss |               |                        |      |                         |                     |                       |              |          |      |                            |        |      |      |
| PK DETECT                                                                                   |               |                        |      |                         |                     |                       |              |          |      |                            |        |      |      |
| 1                                                                                           | 2483.5        | 53.1                   | 52.1 | 27.4                    | 31.5                | 3.1                   | 10.1         | -        | 62.2 | 61.2                       | 73.9   | 11.7 | 12.7 |
| AV DETECT                                                                                   |               |                        |      |                         |                     |                       |              |          |      |                            |        |      |      |
| 1**                                                                                         | 2483.5        | N/A                    | N/A  | -                       | -                   | -                     | -            | -        | -    | -                          | 53.9   | -    | -    |

\*Carrier Level - delta = Carrier(RBW:1MHz) - {Carrier(RBW:30kHz) - Bandedge(RBW:30kHz)}  
\*\*The Marker-Delta Method was not applied about AV measurement. Instead, Dwell time factor was applied.  
The test result is round off to one or two decimal places, so some differences might be observed.

\*Reference data

S/A Reading

|         |                                | Polarity  | Hor [dBuV] |      | Ver [dBuV] |      |
|---------|--------------------------------|-----------|------------|------|------------|------|
|         |                                | Detector  | PK         | AV   | PK         | AV   |
|         |                                | RBW \ VBW | 1MHz       | 10Hz | 1MHz       | 10Hz |
| Step 1) | Fundamental(2480MHz)           | 1MHz      | 100.1      | 83.9 | 98.9       | 83.0 |
| Step 2) | Fundamental(2480MHz)           | 30kHz     | 100.1      | 72.0 | 98.9       | 71.0 |
|         | Band-edge(2483.5MHz)           | 30kHz     | 53.1       | 36.1 | 52.1       | 35.1 |
|         | Amplitude delta *1             | -         | 47.0       | 35.9 | 46.8       | 35.9 |
| Step 3) | Field strength of band-edge *2 | -         | 53.1       | 48.0 | 52.1       | 47.1 |

\*1 Amplitude delta = Fundamental(RBW:30kHz) - Band-edge(RBW:30kHz)  
\*2 Field strength of band-edge = Fundamental(RBW:1MHz) - Amplitude delta

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FCC ID : S6MWT11

## Radiated Spurious Emission (above 1GHz)

### ANT.2, BDR, Tx, Ch. Low

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

|            |                                       |               |                                    |
|------------|---------------------------------------|---------------|------------------------------------|
| Company    | : SOKKIA CO., LTD.                    | Report No.    | : 27GE0320-HO                      |
| Equipment  | : WT11 Bluetooth Module               | Regulation    | : Fcc Part15 Subpart C 15.247(d)   |
| Model      | : WT11                                | Test distance | : 3/1m                             |
| Sample No. | : ES0001                              | Date          | : 09/05/2007 : 09/06/2007          |
| Power      | : DC3.3V                              | Temperature   | : 24deg.C : 24deg.C                |
| Mode       | : Bluetooth, Tx 2402MHz /BDR, DH5     | Humidity      | : 61% : 62%                        |
| Remarks    | : Hor X-axis / Ver Y-axis, Ant type 2 | Engineer      | : Hidekazu Tanaka : Yutaka Yoshida |

#### PK DETECT (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | RESULT   |      | Limit<br>PK<br>[dBuV/m] | MARGIN |      |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|----------|------|-------------------------|--------|------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                | HOR      | VER  |                         | HOR    | VER  |      |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                | [dBuV/m] |      |                         | [dB]   |      |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |          |      |                         |        |      |      |
| 1                                                                                                   | 1602.0        | 56.8        | 57.9      | 26.0                    | 32.5                | 2.3                   | 0.0                            | -        | 52.6 | 53.7                    | 73.9   | 21.3 | 20.2 |
| 2                                                                                                   | 2390.0        | 50.6        | 47.3      | 27.3                    | 31.5                | 3.0                   | 10.1                           | -        | 59.5 | 56.2                    | 73.9   | 14.4 | 17.7 |
| 3                                                                                                   | 4804.0        | 57.7        | 56.3      | 31.5                    | 30.8                | 3.9                   | 0.5                            | -        | 62.8 | 61.4                    | 73.9   | 11.1 | 12.5 |
| 4                                                                                                   | 7206.0        | 41.8        | 41.0      | 35.8                    | 31.3                | 4.5                   | 0.5                            | -        | 51.3 | 50.5                    | 73.9   | 22.6 | 23.4 |
| 5                                                                                                   | 9608.0        | 41.3        | 41.4      | 38.2                    | 31.9                | 5.4                   | 0.5                            | -        | 53.5 | 53.6                    | 73.9   | 20.4 | 20.3 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |          |      |                         |        |      |      |
| 5                                                                                                   | 12010.0       | not found   | not found | -                       | -                   | -                     | -                              | -        | -    | -                       | 73.9   | -    | -    |
| 6                                                                                                   | 14412.0       | not found   | not found | -                       | -                   | -                     | -                              | -        | -    | -                       | 73.9   | -    | -    |
| 7                                                                                                   | 16814.0       | not found   | not found | -                       | -                   | -                     | -                              | -        | -    | -                       | 73.9   | -    | -    |
| 8                                                                                                   | 19216.0       | not found   | not found | -                       | -                   | -                     | -                              | -        | -    | -                       | 73.9   | -    | -    |
| 9                                                                                                   | 21618.0       | not found   | not found | -                       | -                   | -                     | -                              | -        | -    | -                       | 73.9   | -    | -    |
| 10                                                                                                  | 24020.0       | 41.5        | 41.7      | 38.7                    | 30.5                | 9.3                   | 0.0                            | -        | 49.5 | 49.7                    | 73.9   | 24.4 | 24.2 |

#### AV DETECT (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                |                              | [dBuV/m] |      |                         | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 1                                                                                                   | 1602.0        | 54.6        | 54.7      | 26.0                    | 32.5                | 2.3                   | 0.0                            | -30.4                        | 20.0     | 20.1 | 53.9                    | 33.9   | 33.8 |
| 2                                                                                                   | 2390.0        | 35.9        | 34.1      | 27.3                    | 31.5                | 3.0                   | 10.1                           | -30.4                        | 14.4     | 12.6 | 53.9                    | 39.5   | 41.3 |
| 3                                                                                                   | 4804.0        | 47.3        | 45.9      | 31.5                    | 30.8                | 3.9                   | 0.5                            | -30.4                        | 22.0     | 20.6 | 53.9                    | 31.9   | 33.3 |
| 4                                                                                                   | 7206.0        | 30.0        | 29.5      | 35.8                    | 31.3                | 4.5                   | 0.5                            | -30.4                        | 9.1      | 8.6  | 53.9                    | 44.8   | 45.3 |
| 5                                                                                                   | 9608.0        | 30.1        | 30.3      | 38.2                    | 31.9                | 5.4                   | 0.5                            | -30.4                        | 11.9     | 12.1 | 53.9                    | 42.0   | 41.8 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 5                                                                                                   | 12010.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 6                                                                                                   | 14412.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 7                                                                                                   | 16814.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 8                                                                                                   | 19216.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 9                                                                                                   | 21618.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 10                                                                                                  | 24020.0       | 29.7        | 29.7      | 38.7                    | 30.5                | 9.3                   | 0.0                            | -30.4                        | 7.3      | 7.3  | 53.9                    | 46.6   | 46.6 |

#### 20dBc(Fundamental 2402MHz) (RBW: 100kHz, VBW: 300kHz)

| No.                                                                                          | FREQ   | S/A READING |       | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | RESULT |          | Limit<br>20dBc<br>[dBuV/m] | MARGIN     |           |
|----------------------------------------------------------------------------------------------|--------|-------------|-------|-------------------------|---------------------|-----------------------|--------------------------------|--------|----------|----------------------------|------------|-----------|
|                                                                                              | [MHz]  | HOR         | VER   |                         |                     |                       |                                | HOR    | VER      |                            | HOR        | VER       |
|                                                                                              |        | [dBuV]      |       |                         |                     |                       |                                |        | [dBuV/m] |                            |            | [dB]      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss |        |             |       |                         |                     |                       |                                |        |          |                            |            |           |
| 0                                                                                            | 2402.0 | 105.4       | 102.3 | 27.3                    | 31.5                | 3.0                   | 10.1                           | -      | 114.3    | 111.2                      | -          | -         |
| 1                                                                                            | 2400.0 | 61.4        | 58.5  | 27.3                    | 31.5                | 3.0                   | 10.1                           | -      | 70.3     | 67.4                       | Funda-20dB | 24.0 23.8 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB  
Dwell time factor : 20log(dwell time/100ms) 20log(3.008/100) = -30.43dB  
Except for the above table : All other spurious emissions were less than 20dB for the limit.  
In the frequency over the third harmonic, the noise from the EUT was not seen.The data above is its base noise.  
The test result is round off to one or two decimal places, so some differences might be observed.  
Hi-Pass Fiter/Attenuator was not used for factor 0.0dB of the above table.

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## Radiated Spurious Emission (above 1GHz)

### ANT.2, BDR, Tx, Ch. Mid

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

|                                               |                                             |
|-----------------------------------------------|---------------------------------------------|
| Company : SOKKIA CO., LTD.                    | Report No. : 27GE0320-HO                    |
| Equipment : WT11 Bluetooth Module             | Regulation : Fcc Part15 Subpart C 15.247(d) |
| Model : WT11                                  | Test distance : 3/1m                        |
| Sample No. : ES0001                           | Date : 09/05/2007 : 09/06/2007              |
| Power : DC3.3V                                | Temperature : 24deg.C : 24deg.C             |
| Mode : Bluetooth, Tx 2441MHz /BDR, DH5        | Humidity : 61% : 62%                        |
| Remarks : Hor X-axis / Ver Y-axis, Ant type 2 | Engineer : Hidekazu Tanaka : Yutaka Yoshida |

**PK DETECT** (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                        | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] |   | RESULT   |      | Limit<br>PK<br>[dBuV/m] | MARGIN |      |
|------------------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|---|----------|------|-------------------------|--------|------|
|                                                                                                            |               | HOR         | VER       |                         |                     |                       |                                |   | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                            |               | [dBuV]      |           |                         |                     |                       |                                |   | [dBuV/m] |      |                         | [dB]   |      |
| <b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss</b>        |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 1                                                                                                          | 1628.0        | 57.9        | 59.0      | 26.1                    | 32.4                | 2.3                   | 0.0                            | - | 53.9     | 55.0 | 73.9                    | 20.0   | 18.9 |
| 2                                                                                                          | 2537.0        | 48.8        | 46.0      | 27.5                    | 31.5                | 3.1                   | 10.1                           | - | 58.0     | 55.2 | 73.9                    | 15.9   | 18.7 |
| 3                                                                                                          | 4882.0        | 49.5        | 51.3      | 31.7                    | 30.7                | 3.9                   | 0.4                            | - | 54.8     | 56.6 | 73.9                    | 19.1   | 17.3 |
| 4                                                                                                          | 7323.0        | 41.5        | 41.0      | 35.9                    | 31.3                | 4.6                   | 0.5                            | - | 51.2     | 50.7 | 73.9                    | 22.7   | 23.2 |
| 5                                                                                                          | 9764.0        | 42.8        | 43.6      | 38.2                    | 32.1                | 5.4                   | 0.4                            | - | 54.7     | 55.5 | 73.9                    | 19.2   | 18.4 |
| <b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac</b> |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 6                                                                                                          | 12205.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 7                                                                                                          | 14646.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 8                                                                                                          | 17087.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 9                                                                                                          | 19528.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 10                                                                                                         | 21969.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 11                                                                                                         | 24410.0       | 40.8        | 39.9      | 38.8                    | 30.3                | 9.4                   | 0.0                            | - | 49.2     | 48.3 | 73.9                    | 24.7   | 25.6 |

**AV DETECT** (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                        | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|------------------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|------|-------------------------|--------|------|
|                                                                                                            |               | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                            |               | [dBuV]      |           |                         |                     |                       |                                |                              | [dBuV/m] |      |                         | [dB]   |      |
| <b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss</b>        |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 1                                                                                                          | 1628.0        | 55.9        | 55.9      | 26.1                    | 32.4                | 2.3                   | 0.0                            | -30.4                        | 21.5     | 21.5 | 53.9                    | 32.4   | 32.4 |
| 2                                                                                                          | 2537.0        | 41.2        | 38.6      | 27.5                    | 31.5                | 3.1                   | 10.1                           | 0.0                          | 50.4     | 47.8 | 53.9                    | 3.5    | 6.1  |
| 3                                                                                                          | 4882.0        | 35.0        | 35.2      | 31.7                    | 30.7                | 3.9                   | 0.4                            | -30.4                        | 9.9      | 10.1 | 53.9                    | 44.0   | 43.8 |
| 4                                                                                                          | 7323.0        | 29.7        | 29.9      | 35.9                    | 31.3                | 4.6                   | 0.5                            | -30.4                        | 9.0      | 9.2  | 53.9                    | 44.9   | 44.7 |
| 5                                                                                                          | 9764.0        | 31.0        | 31.2      | 38.2                    | 32.1                | 5.4                   | 0.4                            | -30.4                        | 12.5     | 12.7 | 53.9                    | 41.4   | 41.2 |
| <b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac</b> |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 6                                                                                                          | 12205.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 7                                                                                                          | 14646.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 8                                                                                                          | 17087.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 9                                                                                                          | 19528.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 10                                                                                                         | 21969.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 11                                                                                                         | 24410.0       | 28.7        | 28.7      | 38.8                    | 30.3                | 9.4                   | 0.0                            | -30.4                        | 6.7      | 6.7  | 53.9                    | 47.2   | 47.2 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB  
Dwell time factor : 20log(dwell time/100ms) 20log(3.008/100) = -30.43dB  
Except for the above table : All other spurious emissions were less than 20dB for the limit.  
In the frequency over the third harmonic, the noise from the EUT was not seen.The data above is its base noise.  
The test result is round off to one or two decimal places, so some differences might be observed.  
Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission (above 1GHz)**  
**ANT.2, BDR, Tx, Ch. High**

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : SOKKIA CO., LTD. Report No. : 27GE0320-HO  
Equipment : WT11 Bluetooth Module Regulation : Fcc Part15 Subpart C 15.247(d)  
Model : WT11 Test distance : 3/1m  
Sample No. : ES0001 Date : 09/05/2007 : 09/06/2007  
Power : DC3.3V Temperature : 24deg.C : 25deg.C  
Mode : Bluetooth, Tx 2480MHz /BDR, DH5 Humidity : 61% : 60%  
Remarks : Hor X-axis / Ver Y-axis, Ant type 2 Engineer : Hidekazu Tanaka : Yutaka Yoshida

**PK DETECT** (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                 | FREQ<br><br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] |   | RESULT |          | Limit | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|-------------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|---|--------|----------|-------|--------|------|
|                                                                                                     |                   | HOR         | VER       |                         |                     |                       |                                |   |        | PK       | HOR   | VER    |      |
|                                                                                                     |                   | [dBuV]      |           |                         |                     |                       |                                |   |        | [dBuV/m] | [dB]  |        |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |                   |             |           |                         |                     |                       |                                |   |        |          |       |        |      |
| 1                                                                                                   | 1654.0            | 52.5        | 50.5      | 26.1                    | 32.4                | 2.4                   | 10.1                           | - | 58.7   | 56.7     | 73.9  | 15.2   | 17.2 |
| 2*                                                                                                  | 2483.5            | 64.2        | 63.0      | 27.4                    | 31.5                | 3.1                   | 10.1                           | - | 73.3   | 72.1     | 73.9  | -      | -    |
| 3                                                                                                   | 3308.1            | 45.7        | 41.2      | 28.7                    | 31.2                | 3.4                   | 10.0                           | - | 56.6   | 52.1     | 73.9  | 17.3   | 21.8 |
| 4                                                                                                   | 4960.0            | 49.2        | 48.1      | 31.8                    | 30.7                | 4.0                   | 0.3                            | - | 54.6   | 53.5     | 73.9  | 19.3   | 20.4 |
| 5                                                                                                   | 7440.0            | 42.0        | 41.6      | 36.1                    | 31.3                | 4.7                   | 0.6                            | - | 52.1   | 51.7     | 73.9  | 21.8   | 22.2 |
| 6                                                                                                   | 9920.0            | 42.1        | 42.8      | 38.2                    | 32.2                | 5.4                   | 0.3                            | - | 53.8   | 54.5     | 73.9  | 20.1   | 19.4 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |                   |             |           |                         |                     |                       |                                |   |        |          |       |        |      |
| 7                                                                                                   | 12400.0           | not found   | not found | -                       | -                   | -                     | -                              | - | -      | -        | 73.9  | -      | -    |
| 8                                                                                                   | 14880.0           | not found   | not found | -                       | -                   | -                     | -                              | - | -      | -        | 73.9  | -      | -    |
| 9                                                                                                   | 17360.0           | not found   | not found | -                       | -                   | -                     | -                              | - | -      | -        | 73.9  | -      | -    |
| 10                                                                                                  | 19840.0           | not found   | not found | -                       | -                   | -                     | -                              | - | -      | -        | 73.9  | -      | -    |
| 11                                                                                                  | 22320.0           | not found   | not found | -                       | -                   | -                     | -                              | - | -      | -        | 73.9  | -      | -    |
| 12                                                                                                  | 24800.0           | 41.0        | 41.3      | 38.9                    | 30.1                | 9.4                   | 0.0                            | - | 49.7   | 50.0     | 73.9  | 24.2   | 23.9 |

\* Reference data (See Marker-Delta Method data on page 57)

**AV DETECT** (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                 | FREQ<br><br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|-------------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|--------|------|-------------------------|--------|------|
|                                                                                                     |                   | HOR         | VER       |                         |                     |                       |                                |                              | HOR    | VER  |                         | HOR    | VER  |
|                                                                                                     |                   | [dBuV]      |           |                         |                     |                       |                                |                              |        |      |                         |        |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |                   |             |           |                         |                     |                       |                                |                              |        |      |                         |        |      |
| 1                                                                                                   | 1654.0            | 49.3        | 47.8      | 26.1                    | 32.4                | 2.4                   | 10.1                           | -30.4                        | 25.1   | 23.6 | 53.9                    | 28.8   | 30.3 |
| 2                                                                                                   | 2483.5            | 55.8        | 52.6      | 27.4                    | 31.5                | 3.1                   | 10.1                           | -30.4                        | 34.5   | 31.3 | 53.9                    | 19.4   | 22.6 |
| 3                                                                                                   | 3308.1            | 38.3        | 33.4      | 28.7                    | 31.2                | 3.4                   | 10.0                           | -30.4                        | 18.8   | 13.9 | 53.9                    | 35.1   | 40.0 |
| 4                                                                                                   | 4960.0            | 32.4        | 32.8      | 31.8                    | 30.7                | 4.0                   | 0.3                            | -30.4                        | 7.4    | 7.8  | 53.9                    | 46.5   | 46.1 |
| 5                                                                                                   | 7440.0            | 29.2        | 30.5      | 36.1                    | 31.3                | 4.7                   | 0.6                            | -30.4                        | 8.9    | 10.2 | 53.9                    | 45.0   | 43.7 |
| 6                                                                                                   | 9920.0            | 30.2        | 31.4      | 38.2                    | 32.2                | 5.4                   | 0.3                            | -30.4                        | 11.5   | 12.7 | 53.9                    | 42.4   | 41.2 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |                   |             |           |                         |                     |                       |                                |                              |        |      |                         |        |      |
| 7                                                                                                   | 12400.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 8                                                                                                   | 14880.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 9                                                                                                   | 17360.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 10                                                                                                  | 19840.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 11                                                                                                  | 22320.0           | not found   | not found | -                       | -                   | -                     | -                              | -                            | -      | -    | 53.9                    | -      | -    |
| 12                                                                                                  | 24800.0           | 29.6        | 29.6      | 38.9                    | 30.1                | 9.4                   | 0.0                            | -30.4                        | 7.9    | 7.9  | 53.9                    | 46.0   | 46.0 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

Dwell time factor : 20log(dwell time/100ms) 20log(3.008/100) = -30.43dB

Except for the above table : All other spurious emissions were less than 20dB for the limit.

In the frequency over the third harmonic, the noise from the EUT was not seen. The data above is its base noise.

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

Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission (above 1GHz) (Marker Delta method data)**  
**ANT.2, BDR, Tx, Ch. High**

**Marker-Delta Method (RBW:30kHz)**

| No.                                                                                         | FREQ<br>[MHz] | Carrier Level - delta* |      | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTN<br>[dB] |   | RESULT   |      | Limit<br>PK/AV<br>[dBuV/m] | MARGIN |      |
|---------------------------------------------------------------------------------------------|---------------|------------------------|------|-------------------------|---------------------|-----------------------|--------------|---|----------|------|----------------------------|--------|------|
|                                                                                             |               | HOR                    | VER  |                         |                     |                       |              |   | HOR      | VER  |                            | HOR    | VER  |
|                                                                                             |               | [dBuV]                 |      |                         |                     |                       |              |   | [dBuV/m] |      |                            | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Attenuator Loss |               |                        |      |                         |                     |                       |              |   |          |      |                            |        |      |
| PK DETECT                                                                                   |               |                        |      |                         |                     |                       |              |   |          |      |                            |        |      |
| 1                                                                                           | 2483.5        | 54.6                   | 53.1 | 27.4                    | 31.5                | 3.1                   | 10.1         | - | 63.7     | 62.2 | 73.9                       | 10.2   | 11.7 |
| AV DETECT                                                                                   |               |                        |      |                         |                     |                       |              |   |          |      |                            |        |      |
| 1**                                                                                         | 2483.5        | N/A                    | N/A  | -                       | -                   | -                     | -            | - | -        | -    | 53.9                       | -      | -    |

\*Carrier Level - delta = Carrier(RBW:1MHz) - {Carrier(RBW:30kHz) - Bandedge(RBW:30kHz)}

\*\*The Marker-Delta Method was not applied about AV measurement. Instead, Dwell time factor was applied.

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

\*Reference data

S/A Reading

|         |                                | Polarity  | Hor [dBuV] |      | Ver [dBuV] |      |
|---------|--------------------------------|-----------|------------|------|------------|------|
|         |                                | Detector  | PK         | AV   | PK         | AV   |
|         |                                | RBW \ VBW | 1MHz       | 10Hz | 1MHz       | 10Hz |
| Step 1) | Fundamental(2480MHz)           | 1MHz      | 103.2      | 90.2 | 101.2      | 87.2 |
| Step 2) | Fundamental(2480MHz)           | 30kHz     | 103.1      | 81.6 | 101.3      | 79.3 |
|         | Band-edge(2483.5MHz)           | 30kHz     | 54.5       | 43.4 | 53.2       | 41.9 |
|         | Amplitude delta *1             | -         | 48.6       | 38.2 | 48.1       | 37.4 |
| Step 3) | Field strength of band-edge *2 | -         | 54.6       | 52.0 | 53.1       | 49.8 |

\*1 Amplitude delta = Fundamental(RBW:30kHz) - Band-edge(RBW:30kHz)

\*2 Field strength of band-edge = Fundamental(RBW:1MHz) - Amplitude delta

**Radiated Spurious Emission (above 1GHz)**  
**ANT.2, EDR, Tx, Ch. Low**

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : SOKKIA CO., LTD. Report No. : 27GE0320-HO  
Equipment : WT11 Bluetooth Module Regulation : Fcc Part15 Subpart C 15.247(d)  
Model : WT11 Test distance : 3/1m  
Sample No. : ES0001 Date : 09/05/2007 : 09/06/2007  
Power : DC3.3V Temperature : 24deg.C : 24deg.C  
Mode : Bluetooth, Tx 2402MHz /EDR, 3-DH5 Humidity : 61% : 62%  
Remarks : Hor X-axis / Ver Y-axis, Ant type 2 Engineer : Hidekazu Tanaka : Yutaka Yoshida

**PK DETECT (RBW: 1MHz, VBW: 1MHz)**

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] |   | RESULT   |      | Limit<br>PK<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|---|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |   | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                |   | [dBuV/m] |      |                         | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 1                                                                                                   | 1602.0        | 59.7        | 58.4      | 26.0                    | 32.5                | 2.3                   | 0.0                            | - | 55.5     | 54.2 | 73.9                    | 18.4   | 19.7 |
| 2                                                                                                   | 2390.0        | 48.6        | 45.9      | 27.3                    | 31.5                | 3.0                   | 10.1                           | - | 57.5     | 54.8 | 73.9                    | 16.4   | 19.1 |
| 3                                                                                                   | 4804.0        | 51.6        | 50.5      | 31.5                    | 30.8                | 3.9                   | 0.5                            | - | 56.7     | 55.6 | 73.9                    | 17.2   | 18.3 |
| 4                                                                                                   | 7206.0        | 41.2        | 41.6      | 35.8                    | 31.3                | 4.5                   | 0.5                            | - | 50.7     | 51.1 | 73.9                    | 23.2   | 22.8 |
| 5                                                                                                   | 9608.0        | 41.9        | 42.1      | 38.2                    | 31.9                | 5.4                   | 0.5                            | - | 54.1     | 54.3 | 73.9                    | 19.8   | 19.6 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 5                                                                                                   | 12010.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 6                                                                                                   | 14412.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 7                                                                                                   | 16814.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 8                                                                                                   | 19216.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 9                                                                                                   | 21618.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 10                                                                                                  | 24020.0       | 40.9        | 41.2      | 38.7                    | 30.5                | 9.3                   | 0.0                            | - | 48.9     | 49.2 | 73.9                    | 25.0   | 24.7 |

**AV DETECT (RBW: 1MHz, VBW: 10Hz)**

| No.                                                                                                 | FREQ    | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|------|-------------------------|--------|------|
|                                                                                                     | [MHz]   | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |         | [dBuV]      |           |                         |                     |                       |                                |                              | [dBuV/m] |      |                         |        |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |         |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 1                                                                                                   | 1602.0  | 56.8        | 55.5      | 26.0                    | 32.5                | 2.3                   | 0.0                            | -30.5                        | 22.1     | 20.8 | 53.9                    | 31.8   | 33.1 |
| 2                                                                                                   | 2390.0  | 34.5        | 32.2      | 27.3                    | 31.5                | 3.0                   | 10.1                           | -30.5                        | 13.0     | 10.7 | 53.9                    | 41.0   | 43.3 |
| 3                                                                                                   | 4804.0  | 36.6        | 35.3      | 31.5                    | 30.8                | 3.9                   | 0.5                            | -30.5                        | 11.3     | 10.0 | 53.9                    | 42.7   | 44.0 |
| 4                                                                                                   | 7206.0  | 29.8        | 30.0      | 35.8                    | 31.3                | 4.5                   | 0.5                            | -30.5                        | 8.9      | 9.1  | 53.9                    | 45.1   | 44.9 |
| 5                                                                                                   | 9608.0  | 30.9        | 30.8      | 38.2                    | 31.9                | 5.4                   | 0.5                            | -30.5                        | 12.7     | 12.6 | 53.9                    | 41.3   | 41.4 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |         |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 5                                                                                                   | 12010.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 6                                                                                                   | 14412.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 7                                                                                                   | 16814.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 8                                                                                                   | 19216.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 9                                                                                                   | 21618.0 | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 10                                                                                                  | 24020.0 | 29.3        | 29.3      | 38.7                    | 30.5                | 9.3                   | 0.0                            | -30.5                        | 6.9      | 6.9  | 53.9                    | 47.1   | 47.1 |

**20dBc(Fundamental 2402MHz) (RBW: 100kHz, VBW: 300kHz)**

| No. | FREQ<br>[MHz] | S/A READING                                                                                  |      | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | RESULT |       | Limit<br>20dBc<br>[dBuV/m] | MARGIN     |      |      |
|-----|---------------|----------------------------------------------------------------------------------------------|------|-------------------------|---------------------|-----------------------|--------------------------------|--------|-------|----------------------------|------------|------|------|
|     |               | HOR                                                                                          | VER  |                         |                     |                       |                                | HOR    | VER   |                            | HOR        | VER  |      |
|     |               | Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss |      |                         |                     |                       |                                |        |       |                            |            |      |      |
| 0   | 2402.0        | 103.4                                                                                        | 99.6 | 27.3                    | 31.5                | 3.0                   | 10.1                           | -      | 112.3 | 108.5                      | -          | -    | -    |
| 1   | 2400.0        | 66.9                                                                                         | 63.4 | 27.3                    | 31.5                | 3.0                   | 10.1                           | -      | 75.8  | 72.3                       | Funda-20dB | 16.5 | 16.2 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB  
Dwell time factor : 20log(dwell time/100ms) 20log(3.00/100) = -30.45dB  
Except for the above table : All other spurious emissions were less than 20dB for the limit.  
In the frequency over the third harmonic, the noise from the EUT was not seen.The data above is its base noise.  
The test result is round off to one or two decimal places, so some differences might be observed.  
Hi-Pass Fiter/Attenuator was not used for factor 0.0dB of the above table.

## Radiated Spurious Emission (above 1GHz)

### ANT.2, EDR, Tx, Ch. Mid

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

|                                               |                                             |                  |
|-----------------------------------------------|---------------------------------------------|------------------|
| Company : SOKKIA CO., LTD.                    | Report No. : 27GE0320-HO                    |                  |
| Equipment : WT11 Bluetooth Module             | Regulation : Fcc Part15 Subpart C 15.247(d) |                  |
| Model : WT11                                  | Test distance : 3/1m                        |                  |
| Sample No. : ES0001                           | Date : 09/05/2007                           | : 09/06/2007     |
| Power : DC3.3V                                | Temperature : 24deg.C                       | : 24deg.C        |
| Mode : Bluetooth, Tx 2441MHz /EDR, DH5        | Humidity : 61%                              | : 62%            |
| Remarks : Hor X-axis / Ver Y-axis, Ant type 2 | Engineer : Hidekazu Tanaka                  | : Yutaka Yoshida |

**PK DETECT** (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                        | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] |   | RESULT   |          | Limit<br>PK<br>[dBuV/m] | MARGIN |      |
|------------------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|---|----------|----------|-------------------------|--------|------|
|                                                                                                            |               | HOR         | VER       |                         |                     |                       |                                |   | HOR      | VER      |                         | HOR    | VER  |
|                                                                                                            |               | [dBuV]      | [dBuV]    | [dB/m]                  | [dB]                | [dB]                  | [dB]                           |   | [dBuV/m] | [dBuV/m] | [dBuV/m]                | [dB]   | [dB] |
| <b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss</b>        |               |             |           |                         |                     |                       |                                |   |          |          |                         |        |      |
| 1                                                                                                          | 1628.0        | 57.3        | 58.6      | 26.1                    | 32.4                | 2.3                   | 0.0                            | - | 53.3     | 54.6     | 73.9                    | 20.6   | 19.3 |
| 2                                                                                                          | 4882.0        | 48.2        | 48.8      | 31.7                    | 30.7                | 3.9                   | 0.4                            | - | 53.5     | 54.1     | 73.9                    | 20.4   | 19.8 |
| 3                                                                                                          | 7323.0        | 41.6        | 41.2      | 35.9                    | 31.3                | 4.6                   | 0.5                            | - | 51.3     | 50.9     | 73.9                    | 22.6   | 23.0 |
| 4                                                                                                          | 9764.0        | 43.9        | 42.3      | 38.2                    | 32.1                | 5.4                   | 0.4                            | - | 55.8     | 54.2     | 73.9                    | 18.1   | 19.7 |
| <b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac</b> |               |             |           |                         |                     |                       |                                |   |          |          |                         |        |      |
| 5                                                                                                          | 12205.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -        | 73.9                    | -      | -    |
| 6                                                                                                          | 14646.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -        | 73.9                    | -      | -    |
| 7                                                                                                          | 17087.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -        | 73.9                    | -      | -    |
| 8                                                                                                          | 19528.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -        | 73.9                    | -      | -    |
| 9                                                                                                          | 21969.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -        | 73.9                    | -      | -    |
| 10                                                                                                         | 24410.0       | 41.0        | 41.0      | 38.8                    | 30.3                | 9.4                   | 0.0                            | - | 49.4     | 49.4     | 73.9                    | 24.5   | 24.5 |

**AV DETECT** (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                        | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |          | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|------------------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|----------|-------------------------|--------|------|
|                                                                                                            |               | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER      |                         | HOR    | VER  |
|                                                                                                            |               | [dBuV]      | [dBuV]    | [dB/m]                  | [dB]                | [dB]                  | [dB]                           | [dB]                         | [dBuV/m] | [dBuV/m] | [dBuV/m]                | [dB]   | [dB] |
| <b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss</b>        |               |             |           |                         |                     |                       |                                |                              |          |          |                         |        |      |
| 1                                                                                                          | 1628.0        | 54.9        | 55.4      | 26.1                    | 32.4                | 2.3                   | 0.0                            | -30.5                        | 20.4     | 20.9     | 53.9                    | 33.5   | 33.0 |
| 2                                                                                                          | 4882.0        | 30.3        | 30.6      | 31.7                    | 30.7                | 3.9                   | 0.4                            | -30.5                        | 5.2      | 5.5      | 53.9                    | 48.8   | 48.5 |
| 3                                                                                                          | 7323.0        | 29.8        | 29.8      | 35.9                    | 31.3                | 4.6                   | 0.5                            | -30.5                        | 9.1      | 9.1      | 53.9                    | 44.9   | 44.9 |
| 4                                                                                                          | 9764.0        | 31.1        | 31.2      | 38.2                    | 32.1                | 5.4                   | 0.4                            | -30.5                        | 12.6     | 12.7     | 53.9                    | 41.4   | 41.3 |
| <b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac</b> |               |             |           |                         |                     |                       |                                |                              |          |          |                         |        |      |
| 5                                                                                                          | 12205.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -        | 53.9                    | -      | -    |
| 6                                                                                                          | 14646.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -        | 53.9                    | -      | -    |
| 7                                                                                                          | 17087.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -        | 53.9                    | -      | -    |
| 8                                                                                                          | 19528.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -        | 53.9                    | -      | -    |
| 9                                                                                                          | 21969.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -        | 53.9                    | -      | -    |
| 10                                                                                                         | 24410.0       | 28.7        | 28.7      | 38.8                    | 30.3                | 9.4                   | 0.0                            | -30.5                        | 6.7      | 6.7      | 53.9                    | 47.3   | 47.3 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB  
Dwell time factor : 20log(dwell time/100ms) 20log(3.00/100) = -30.45dB  
Except for the above table : All other spurious emissions were less than 20dB for the limit.  
In the frequency over the third harmonic, the noise from the EUT was not seen.The data above is its base noise.  
The test result is round off to one or two decimal places, so some differences might be observed.  
Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission (above 1GHz)**  
**ANT.2, EDR, Tx, Ch. High**

Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : SOKKIA CO., LTD. Report No. : 27GE0320-HO  
Equipment : WT11 Bluetooth Module Regulation : Fcc Part15 Subpart C 15.247(d)  
Model : WT11 Test distance : 3/1m  
Sample No. : ES0001 Date : 09/05/2007 : 09/06/2007  
Power : DC3.3V Temperature : 24deg.C : 24deg.C  
Mode : Bluetooth, Tx 2480MHz /EDR, DH5 Humidity : 61% : 62%  
Remarks : Hor X-axis / Ver Y-axis, Ant type 2 Engineer : Hidekazu Tanaka : Yutaka Yoshida

**PK DETECT** (RBW: 1MHz, VBW: 1MHz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] |   | RESULT   |      | Limit<br>PK<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|---|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |   | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                |   | [dBuV/m] |      |                         | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 1                                                                                                   | 1654.0        | 51.4        | 49.4      | 26.1                    | 32.4                | 2.4                   | 10.1                           | - | 57.6     | 55.6 | 73.9                    | 16.3   | 18.3 |
| 2*                                                                                                  | 2483.5        | 64.3        | 62.9      | 27.4                    | 31.5                | 3.1                   | 10.1                           | - | 73.4     | 72.0 | 73.9                    | -      | -    |
| 3                                                                                                   | 3308.0        | 43.0        | 40.1      | 28.7                    | 31.2                | 3.4                   | 10.0                           | - | 53.9     | 51.0 | 73.9                    | 20.0   | 22.9 |
| 4                                                                                                   | 4960.1        | 47.5        | 45.7      | 31.8                    | 30.7                | 4.0                   | 0.3                            | - | 52.9     | 51.1 | 73.9                    | 21.0   | 22.8 |
| 5                                                                                                   | 7440.0        | 42.0        | 41.5      | 36.1                    | 31.3                | 4.7                   | 0.6                            | - | 52.1     | 51.6 | 73.9                    | 21.8   | 22.3 |
| 6                                                                                                   | 9920.0        | 43.1        | 42.9      | 38.2                    | 32.2                | 5.4                   | 0.3                            | - | 54.8     | 54.6 | 73.9                    | 19.1   | 19.3 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |   |          |      |                         |        |      |
| 7                                                                                                   | 12400.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 8                                                                                                   | 14880.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 9                                                                                                   | 17360.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 10                                                                                                  | 19840.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 11                                                                                                  | 22320.0       | not found   | not found | -                       | -                   | -                     | -                              | - | -        | -    | 73.9                    | -      | -    |
| 12                                                                                                  | 24800.0       | 41.2        | 40.6      | 38.9                    | 30.1                | 9.4                   | 0.0                            | - | 49.9     | 49.3 | 73.9                    | 24.0   | 24.6 |

\* Reference data (See Marker-Delta Method data on page 61)

**AV DETECT** (RBW: 1MHz, VBW: 10Hz)

| No.                                                                                                 | FREQ<br>[MHz] | S/A READING |           | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | Hi-Pass<br>Filter/ATTN<br>[dB] | Dwell time<br>Factor<br>[dB] | RESULT   |      | Limit<br>AV<br>[dBuV/m] | MARGIN |      |
|-----------------------------------------------------------------------------------------------------|---------------|-------------|-----------|-------------------------|---------------------|-----------------------|--------------------------------|------------------------------|----------|------|-------------------------|--------|------|
|                                                                                                     |               | HOR         | VER       |                         |                     |                       |                                |                              | HOR      | VER  |                         | HOR    | VER  |
|                                                                                                     |               | [dBuV]      |           |                         |                     |                       |                                |                              | [dBuV/m] |      |                         | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss        |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 1                                                                                                   | 1654.0        | 49.4        | 47.4      | 26.1                    | 32.4                | 2.4                   | 10.1                           | -30.5                        | 25.1     | 23.1 | 53.9                    | 28.8   | 30.8 |
| 2                                                                                                   | 2483.5        | 51.1        | 49.3      | 27.4                    | 31.5                | 3.1                   | 10.1                           | -30.5                        | 29.8     | 28.0 | 53.9                    | 24.2   | 26.0 |
| 3                                                                                                   | 3308.0        | 34.4        | 31.0      | 28.7                    | 31.2                | 3.4                   | 10.0                           | -30.5                        | 14.8     | 11.4 | 53.9                    | 39.1   | 42.5 |
| 4                                                                                                   | 4960.1        | 29.6        | 29.2      | 31.8                    | 30.7                | 4.0                   | 0.3                            | -30.5                        | 4.6      | 4.2  | 53.9                    | 49.4   | 49.8 |
| 5                                                                                                   | 7440.0        | 30.3        | 30.1      | 36.1                    | 31.3                | 4.7                   | 0.6                            | -30.5                        | 10.0     | 9.8  | 53.9                    | 44.0   | 44.2 |
| 6                                                                                                   | 9920.0        | 31.4        | 31.0      | 38.2                    | 32.2                | 5.4                   | 0.3                            | -30.5                        | 12.7     | 12.3 | 53.9                    | 41.3   | 41.7 |
| Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter/ATTN Loss - Dfac |               |             |           |                         |                     |                       |                                |                              |          |      |                         |        |      |
| 7                                                                                                   | 12400.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 8                                                                                                   | 14880.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 9                                                                                                   | 17360.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 10                                                                                                  | 19840.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 11                                                                                                  | 22320.0       | not found   | not found | -                       | -                   | -                     | -                              | -                            | -        | -    | 53.9                    | -      | -    |
| 12                                                                                                  | 24800.0       | 29.5        | 29.5      | 38.9                    | 30.1                | 9.4                   | 0.0                            | -30.5                        | 7.7      | 7.7  | 53.9                    | 46.2   | 46.2 |

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

Dwell time factor : 20log(dwell time/100ms) 20log(3.00/100) = -30.45dB

Except for the above table : All other spurious emissions were less than 20dB for the limit.

In the frequency over the third harmonic, the noise from the EUT was not seen.The data above is its base noise.

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

Hi-Pass Fiter was not used for factor 0.0dB of the above table.

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**Radiated Spurious Emission (above 1GHz) (Marker Delta method data)**  
**ANT.2, EDR, Tx, Ch. High**

**Marker-Delta Method (RBW:30kHz)**

| No.                                                                                         | FREQ<br><br>[MHz] | Carrier Level - delta* |      | ANT<br>Factor<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTN<br>[dB] |   | RESULT   |      | Limit<br>PK/AV<br>[dBuV/m] | MARGIN |      |
|---------------------------------------------------------------------------------------------|-------------------|------------------------|------|-------------------------|---------------------|-----------------------|--------------|---|----------|------|----------------------------|--------|------|
|                                                                                             |                   | HOR                    | VER  |                         |                     |                       |              |   | HOR      | VER  |                            | HOR    | VER  |
|                                                                                             |                   | [dBuV]                 |      |                         |                     |                       |              |   | [dBuV/m] |      |                            | [dB]   |      |
| Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Attenuator Loss |                   |                        |      |                         |                     |                       |              |   |          |      |                            |        |      |
| PK DETECT                                                                                   |                   |                        |      |                         |                     |                       |              |   |          |      |                            |        |      |
| 1                                                                                           | 2483.5            | 52.8                   | 51.4 | 27.4                    | 31.5                | 3.1                   | 10.1         | - | 61.9     | 60.5 | 73.9                       | 12.0   | 13.4 |
| AV DETECT                                                                                   |                   |                        |      |                         |                     |                       |              |   |          |      |                            |        |      |
| 1**                                                                                         | 2483.5            | N/A                    | N/A  | -                       | -                   | -                     | -            | - | -        | -    | 53.9                       | -      | -    |

\*Carrier Level - delta = Carrier(RBW:1MHz) - {Carrier(RBW:30kHz) - Bandedge(RBW:30kHz)}

\*\*The Marker-Delta Method was not applied about AV measurement. Instead, Dwell time factor was applied.

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

\*Reference data

S/A Reading

|         |                                | Polarity  | Hor [dBuV] |      | Ver [dBuV] |      |
|---------|--------------------------------|-----------|------------|------|------------|------|
|         |                                | Detector  | PK         | AV   | PK         | AV   |
|         |                                | RBW \ VBW | 1MHz       | 10Hz | 1MHz       | 10Hz |
| Step 1) | Fundamental(2480MHz)           | 1MHz      | 99.5       | 83.3 | 97.8       | 82.6 |
| Step 2) | Fundamental(2480MHz)           | 30kHz     | 99.0       | 71.4 | 97.3       | 70.6 |
|         | Band-edge(2483.5MHz)           | 30kHz     | 52.3       | 35.7 | 50.9       | 34.5 |
|         | Amplitude delta *1             | -         | 46.7       | 35.7 | 46.4       | 36.1 |
| Step 3) | Field strength of band-edge *2 | -         | 52.8       | 47.6 | 51.4       | 46.5 |

\*1 Amplitude delta = Fundamental(RBW:30kHz) - Band-edge(RBW:30kHz)

\*2 Field strength of band-edge = Fundamental(RBW:1MHz) - Amplitude delta

## Radiated Spurious Emission (above 1GHz)

### ANT.1, Rx, Ch. Mid

## DATA OF RADIATED EMISSION TEST

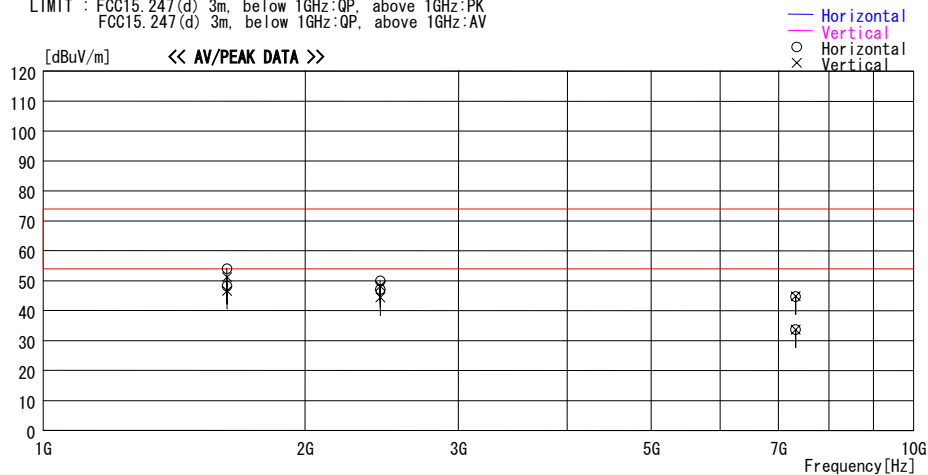
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2007/09/17

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001

Report No. : 27GE0320-H0  
Power : DC3.3V  
Temp./Humi. : 25deg.C. / 69%  
Operator : Hidekazu Tanaka

Mode / Remarks : BT Rx 2441MHz, Worst-axis H:X-axis, V:Y-axis, ANT1:2dBi

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



| Frequency<br>[MHz] | Reading<br>[dBuV] | DET | Antenna          | Loss         | Level<br>[dBuV/m] | Angle<br>[Deg] | Height<br>[cm] | Polar. | Limit<br>[dBuV/m] | Margin<br>[dB] |
|--------------------|-------------------|-----|------------------|--------------|-------------------|----------------|----------------|--------|-------------------|----------------|
|                    |                   |     | Factor<br>[dB/m] | Gain<br>[dB] |                   |                |                |        |                   |                |
| 1626.355           | 62.4              | PK  | 26.0             | -34.3        | 54.1              | 138            | 129            | Hori.  | 73.9              | 19.8           |
| 1626.355           | 56.5              | AV  | 26.0             | -34.3        | 48.2              | 138            | 129            | Hori.  | 53.9              | 5.7            |
| 1626.355           | 59.5              | PK  | 26.0             | -34.3        | 51.2              | 220            | 107            | Vert.  | 73.9              | 22.7           |
| 1626.355           | 54.9              | AV  | 26.0             | -34.3        | 46.6              | 220            | 107            | Vert.  | 53.9              | 7.3            |
| 2439.645           | 56.3              | PK  | 27.2             | -33.5        | 50.0              | 101            | 167            | Hori.  | 73.9              | 23.9           |
| 2439.645           | 53.5              | AV  | 27.2             | -33.5        | 47.2              | 101            | 167            | Hori.  | 53.9              | 6.7            |
| 2439.645           | 54.5              | PK  | 27.2             | -33.5        | 48.2              | 347            | 169            | Vert.  | 73.9              | 25.7           |
| 2439.645           | 50.7              | AV  | 27.2             | -33.5        | 44.4              | 347            | 169            | Vert.  | 53.9              | 9.5            |
| 7323.000           | 40.3              | PK  | 36.0             | -31.6        | 44.7              | 0              | 100            | Hori.  | 73.9              | 29.2           |
| 7323.000           | 29.3              | AV  | 36.0             | -31.6        | 33.7              | 0              | 100            | Hori.  | 53.9              | 20.2           |
| 7323.000           | 40.4              | PK  | 36.0             | -31.6        | 44.8              | 0              | 100            | Vert.  | 73.9              | 29.1           |
| 7323.000           | 29.3              | AV  | 36.0             | -31.6        | 33.7              | 0              | 100            | Vert.  | 53.9              | 20.2           |

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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

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## Radiated Spurious Emission (above 1GHz)

### ANT.2, Rx, Ch. Mid

## DATA OF RADIATED EMISSION TEST

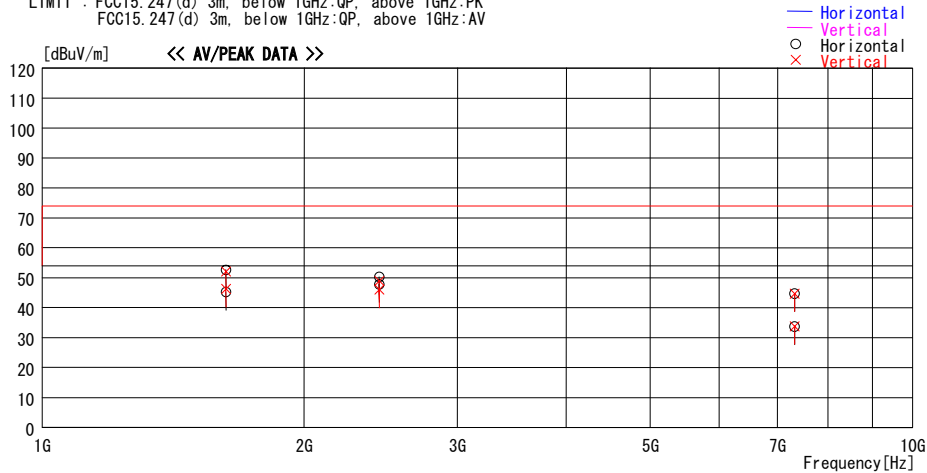
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber  
Date : 2007/09/17

Company : SOKKIA CO., LTD.  
Kind of EUT : WT11 Bluetooth Module  
Model No. : WT11  
Serial No. : ES0001

Report No. : 27GE0320-HO  
Power : DC3.3V  
Temp./Humi. : 25deg.C / 69%  
Operator : Hidekazu Tanaka

Mode / Remarks : BT Rx 2441MHz, Worst-axis H:Z-axis, V:Y-axis, ANT2:2.14dBi

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



| Frequency | Reading | DET | Antenna | Loss  | Level    | Angle | Height | Polar. | Limit    | Margin |
|-----------|---------|-----|---------|-------|----------|-------|--------|--------|----------|--------|
|           |         |     | Factor  | Gain  |          |       |        |        |          |        |
| [MHz]     | [dBuV]  |     | [dB/m]  | [dB]  | [dBuV/m] | [Deg] | [cm]   |        | [dBuV/m] | [dB]   |
| 1626.349  | 60.9    | PK  | 26.0    | -34.3 | 52.6     | 134   | 124    | Hori.  | 73.9     | 21.3   |
| 1626.349  | 53.5    | AV  | 26.0    | -34.3 | 45.2     | 134   | 124    | Hori.  | 53.9     | 8.7    |
| 1626.349  | 60.4    | PK  | 26.0    | -34.3 | 52.1     | 338   | 201    | Vert.  | 73.9     | 21.8   |
| 1626.349  | 54.5    | AV  | 26.0    | -34.3 | 46.2     | 338   | 201    | Vert.  | 53.9     | 7.7    |
| 2439.529  | 56.6    | PK  | 27.2    | -33.5 | 50.3     | 86    | 201    | Hori.  | 73.9     | 23.6   |
| 2439.529  | 54.1    | AV  | 27.2    | -33.5 | 47.8     | 86    | 201    | Hori.  | 53.9     | 6.1    |
| 2439.529  | 55.2    | PK  | 27.2    | -33.5 | 48.9     | 0     | 116    | Vert.  | 73.9     | 25.0   |
| 2439.529  | 52.3    | AV  | 27.2    | -33.5 | 46.0     | 0     | 116    | Vert.  | 53.9     | 7.9    |
| 7323.000  | 40.4    | PK  | 36.0    | -31.6 | 44.8     | 0     | 100    | Hori.  | 73.9     | 29.1   |
| 7323.000  | 29.3    | AV  | 36.0    | -31.6 | 33.7     | 0     | 100    | Hori.  | 53.9     | 20.2   |
| 7323.000  | 40.3    | PK  | 36.0    | -31.6 | 44.7     | 0     | 100    | Vert.  | 73.9     | 29.2   |
| 7323.000  | 29.4    | AV  | 36.0    | -31.6 | 33.8     | 0     | 100    | Vert.  | 53.9     | 20.1   |

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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

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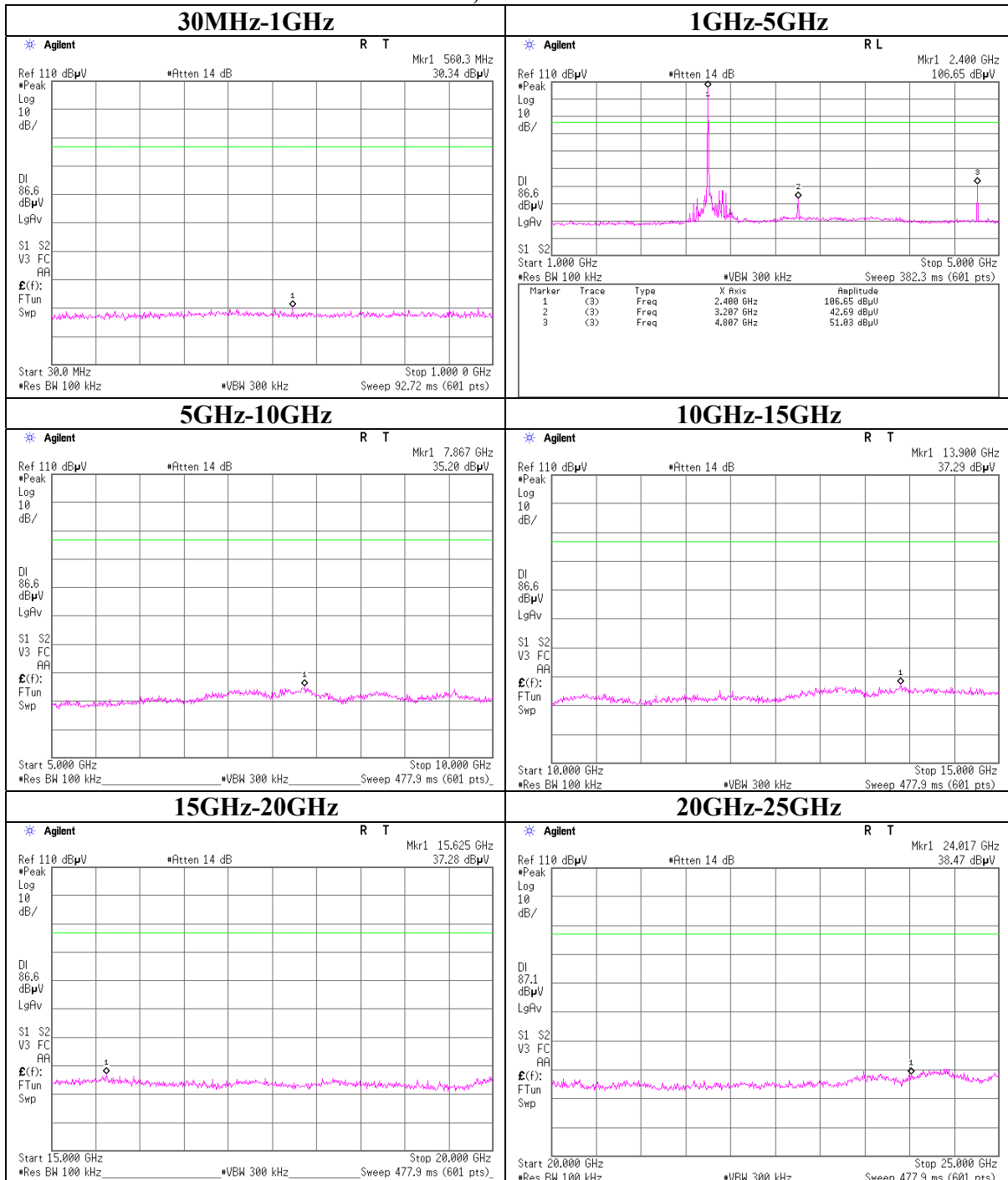
Head Office EMC Lab.

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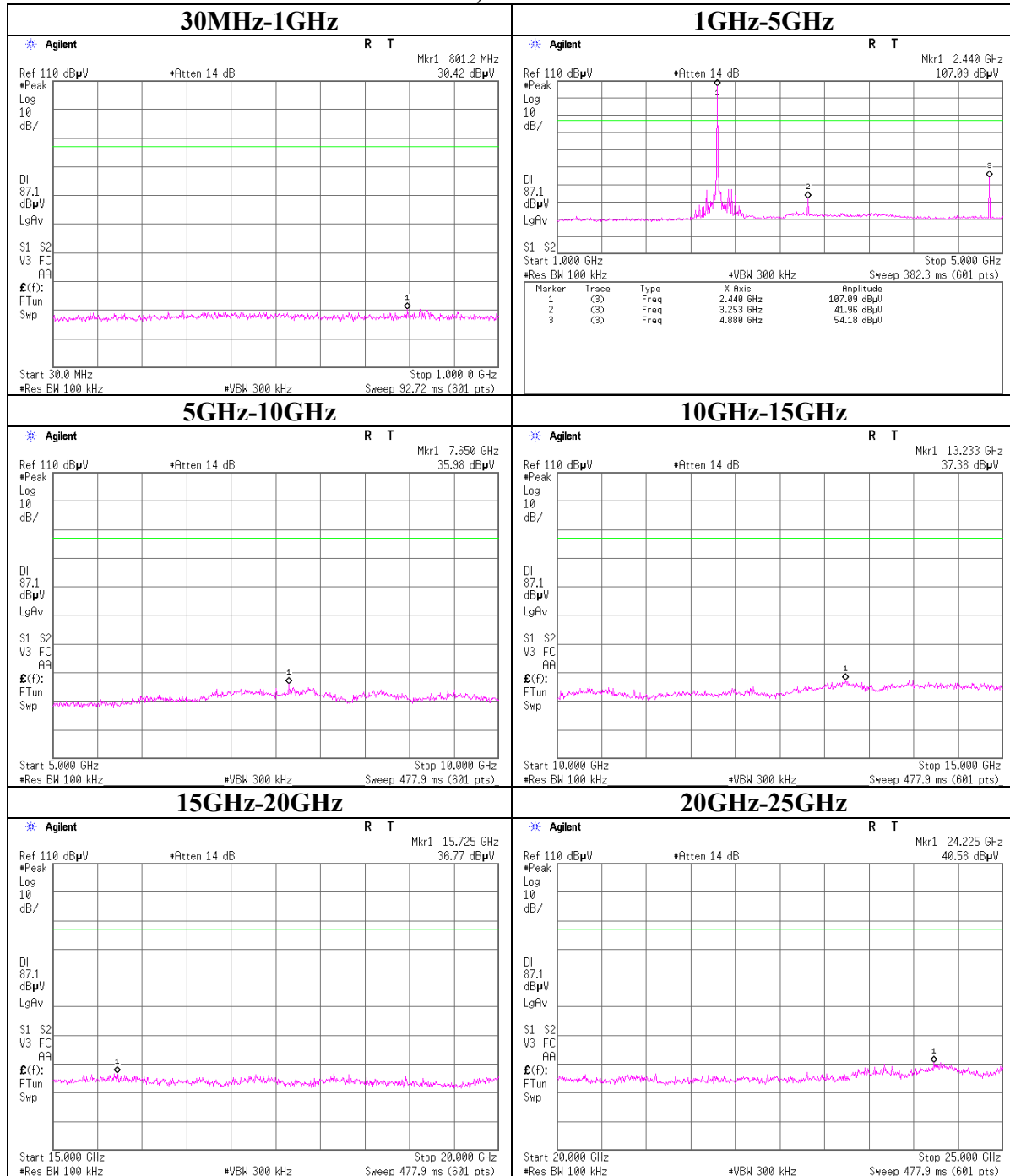
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

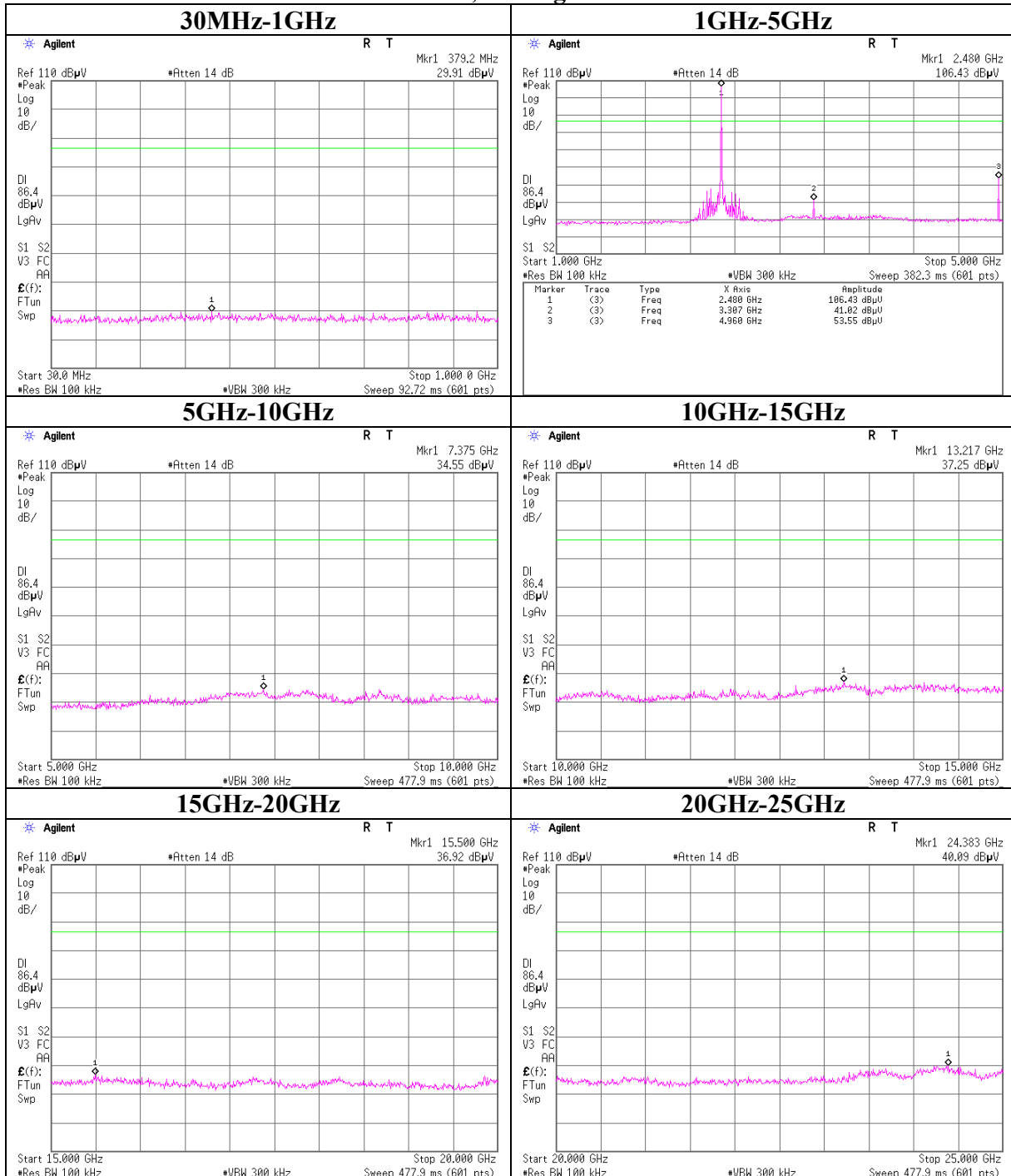
**Conducted Spurious Emission(BDR)**  
**Tx, Ch:Low**



**Conducted Spurious Emission(BDR)**  
**Tx, Ch:Mid**

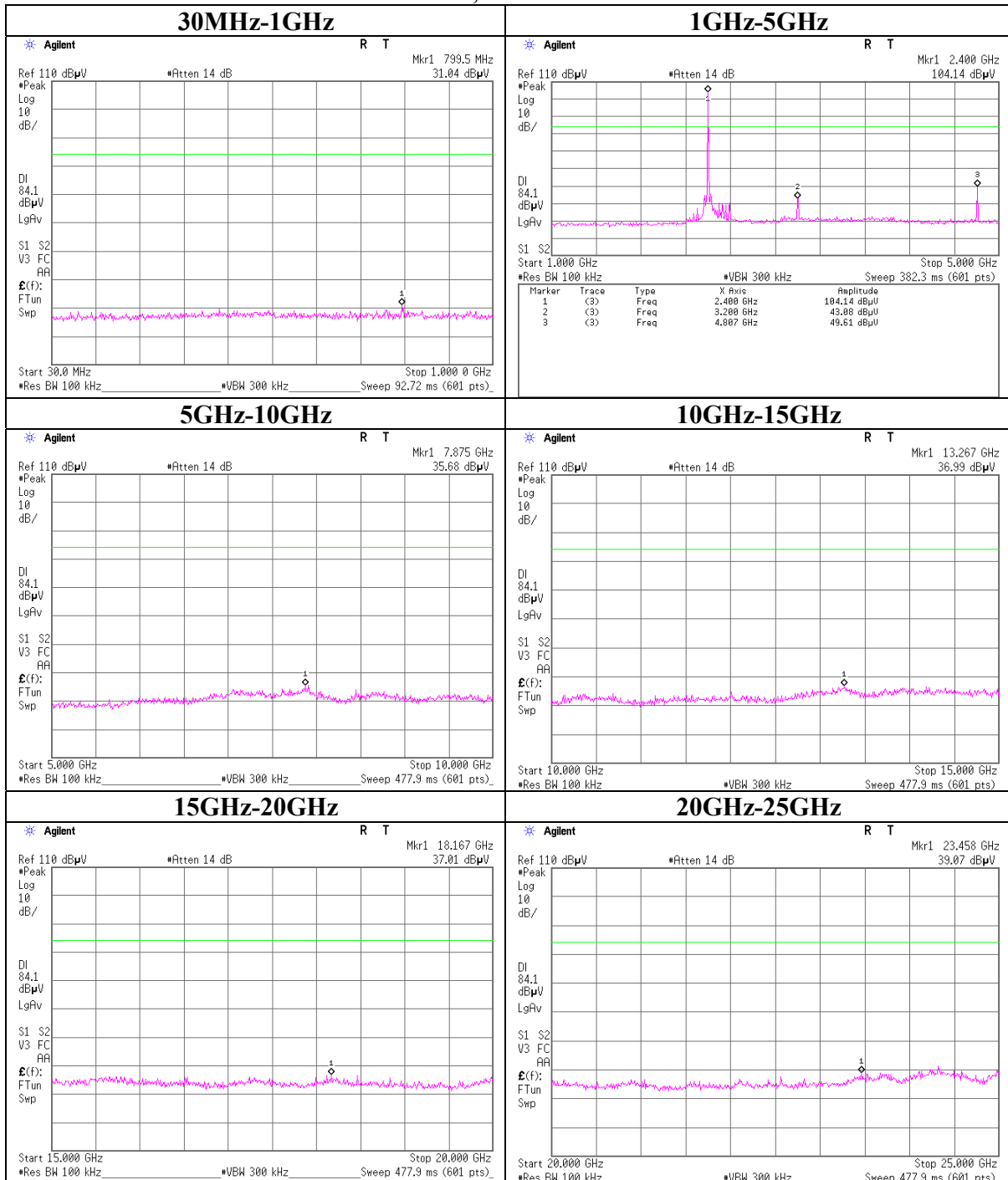


**Conducted Spurious Emission(BDR)**  
**Tx, Ch:High**



### Conducted Spurious Emission(EDR)

Tx, Ch:Low



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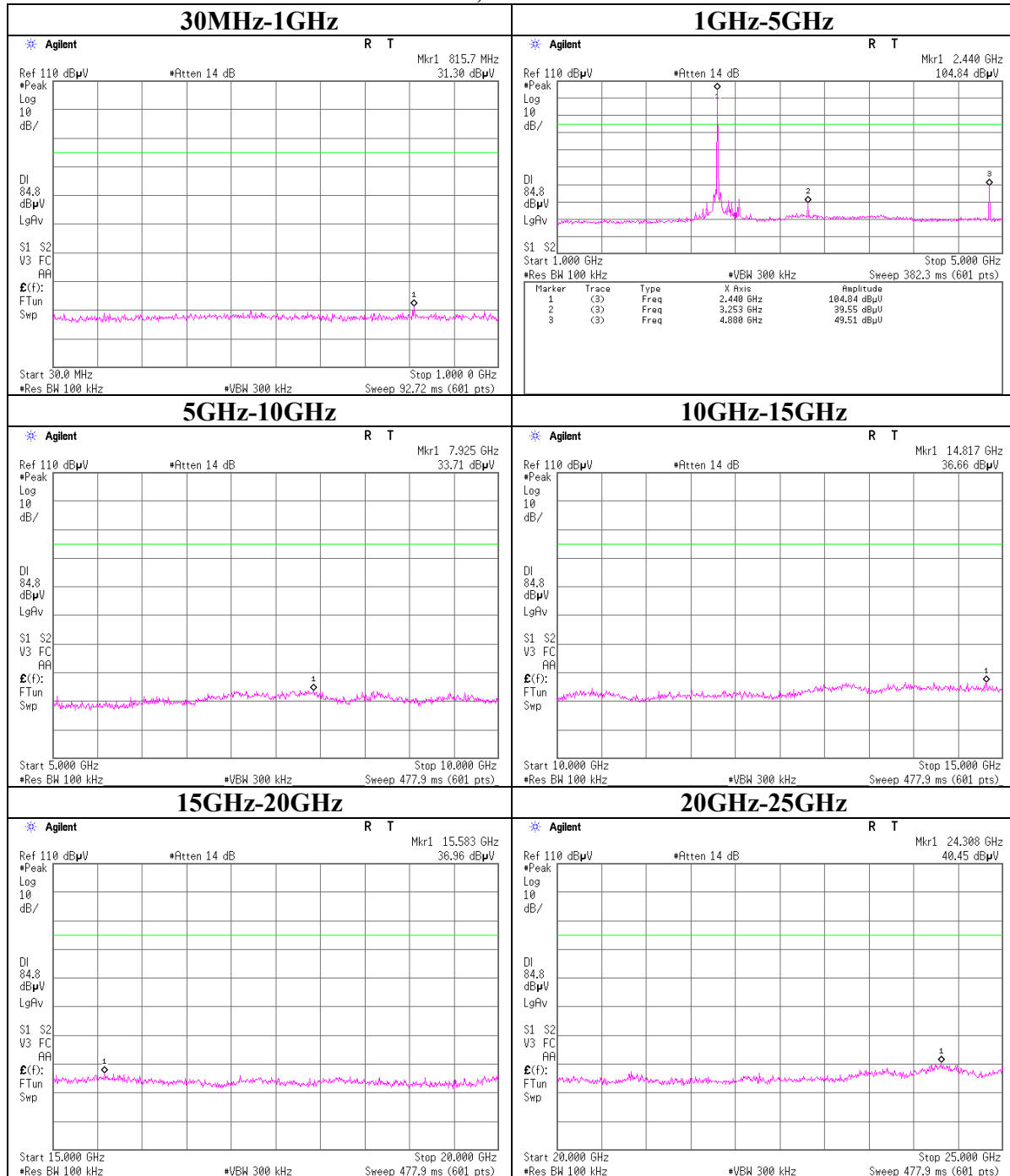
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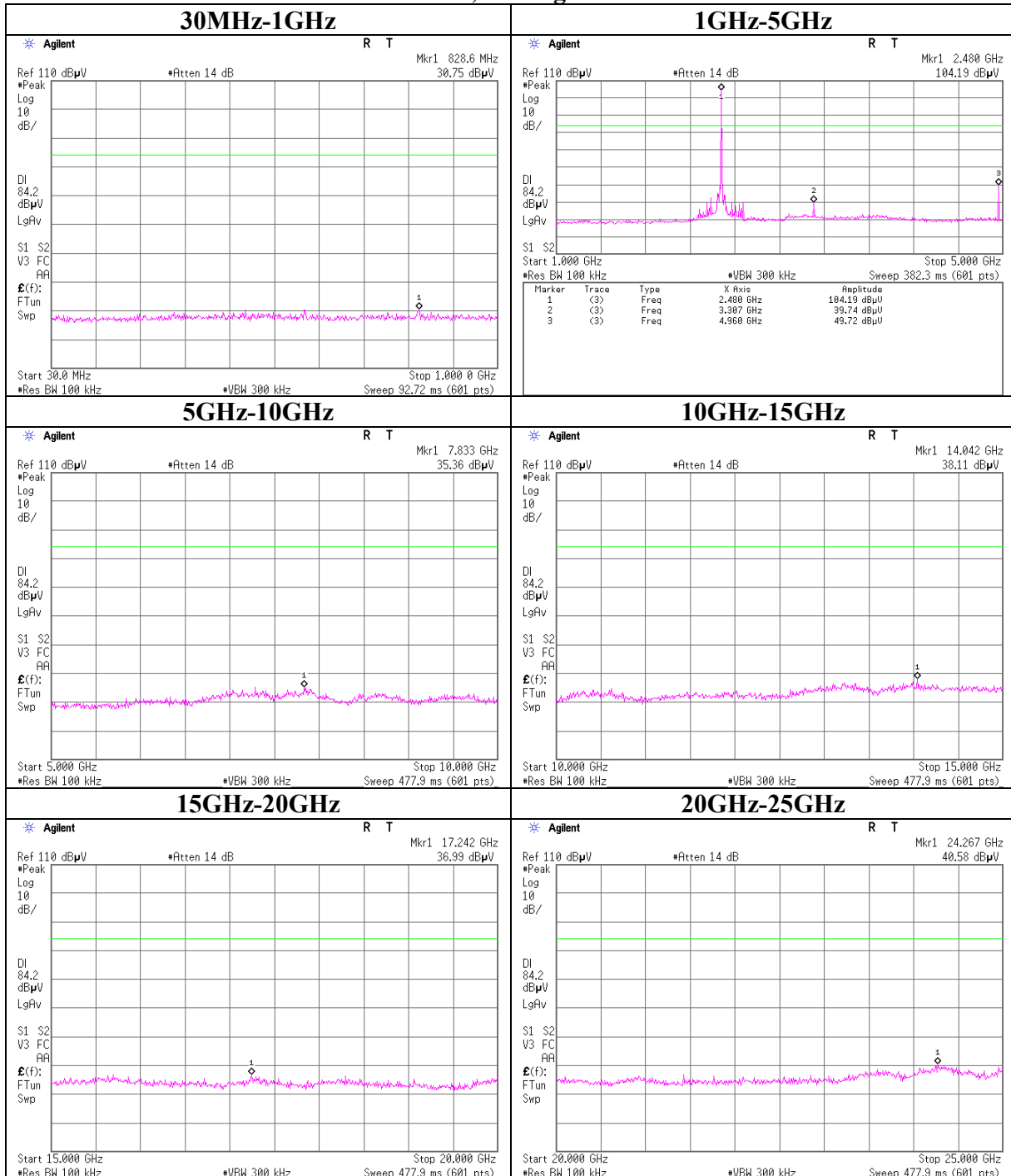
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

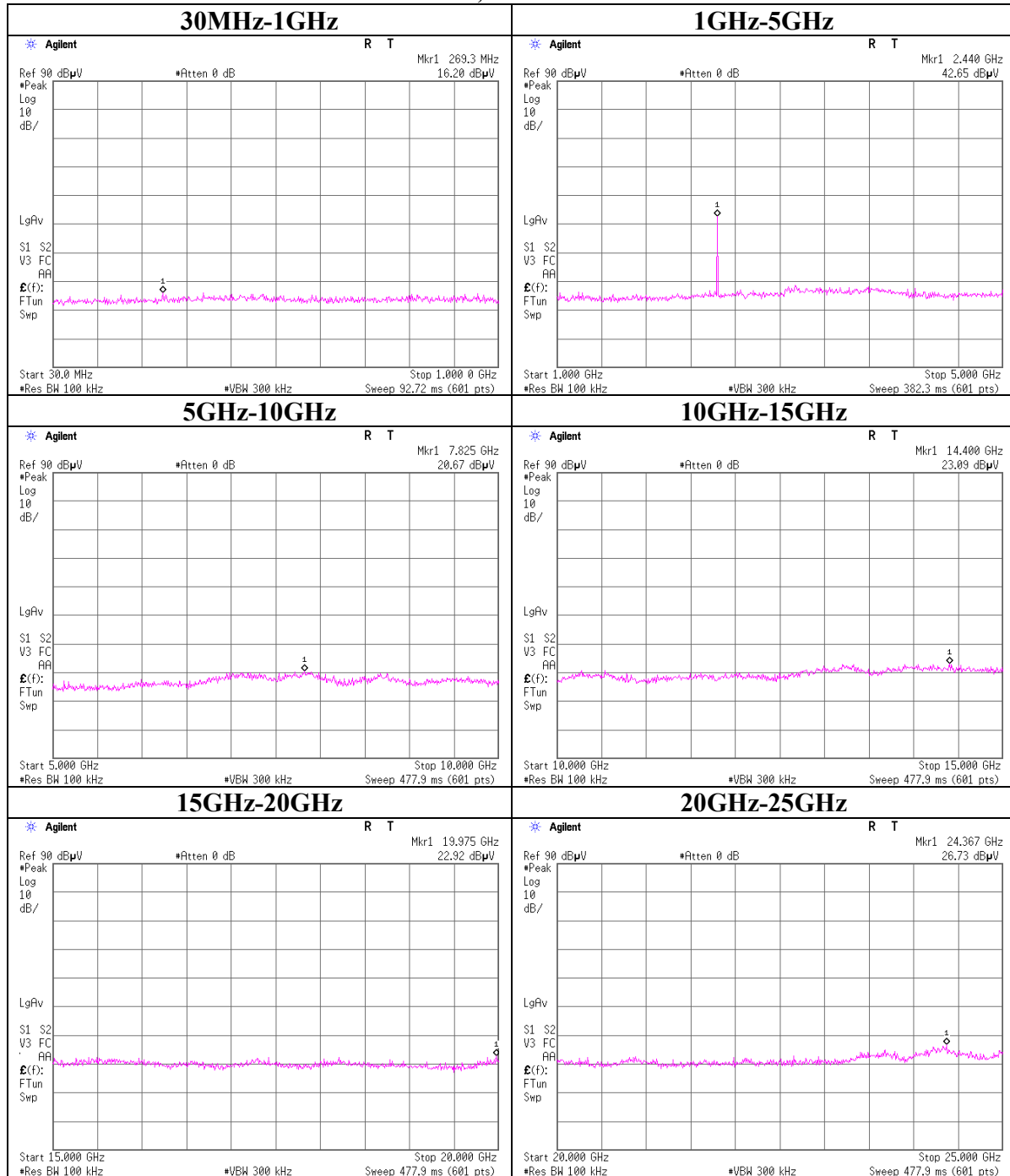
**Conducted Spurious Emission(EDR)**  
**Tx, Ch:Mid**



**Conducted Spurious Emission(EDR)**  
**Tx, Ch:High**

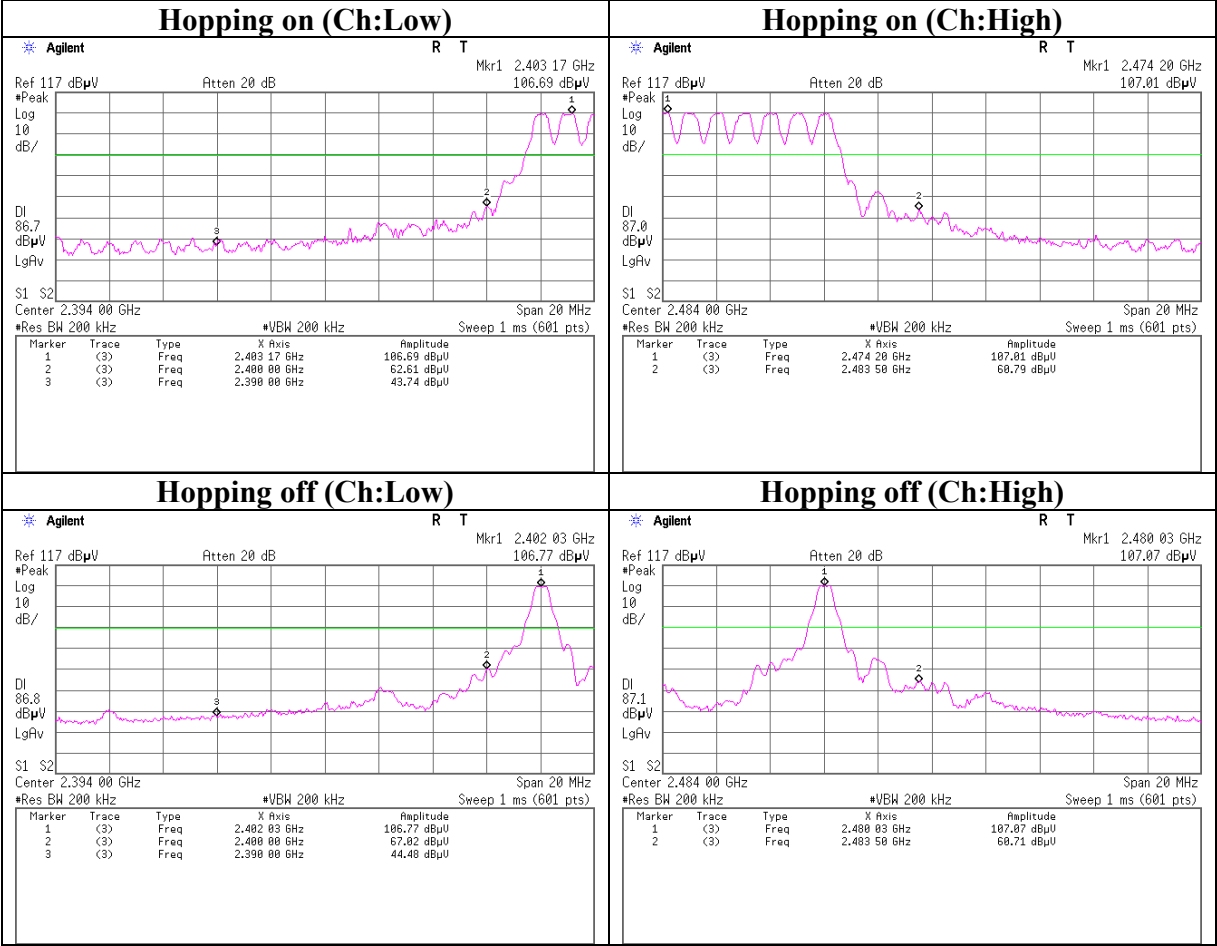


**Conducted Spurious Emission**  
**Rx, Ch:Mid**

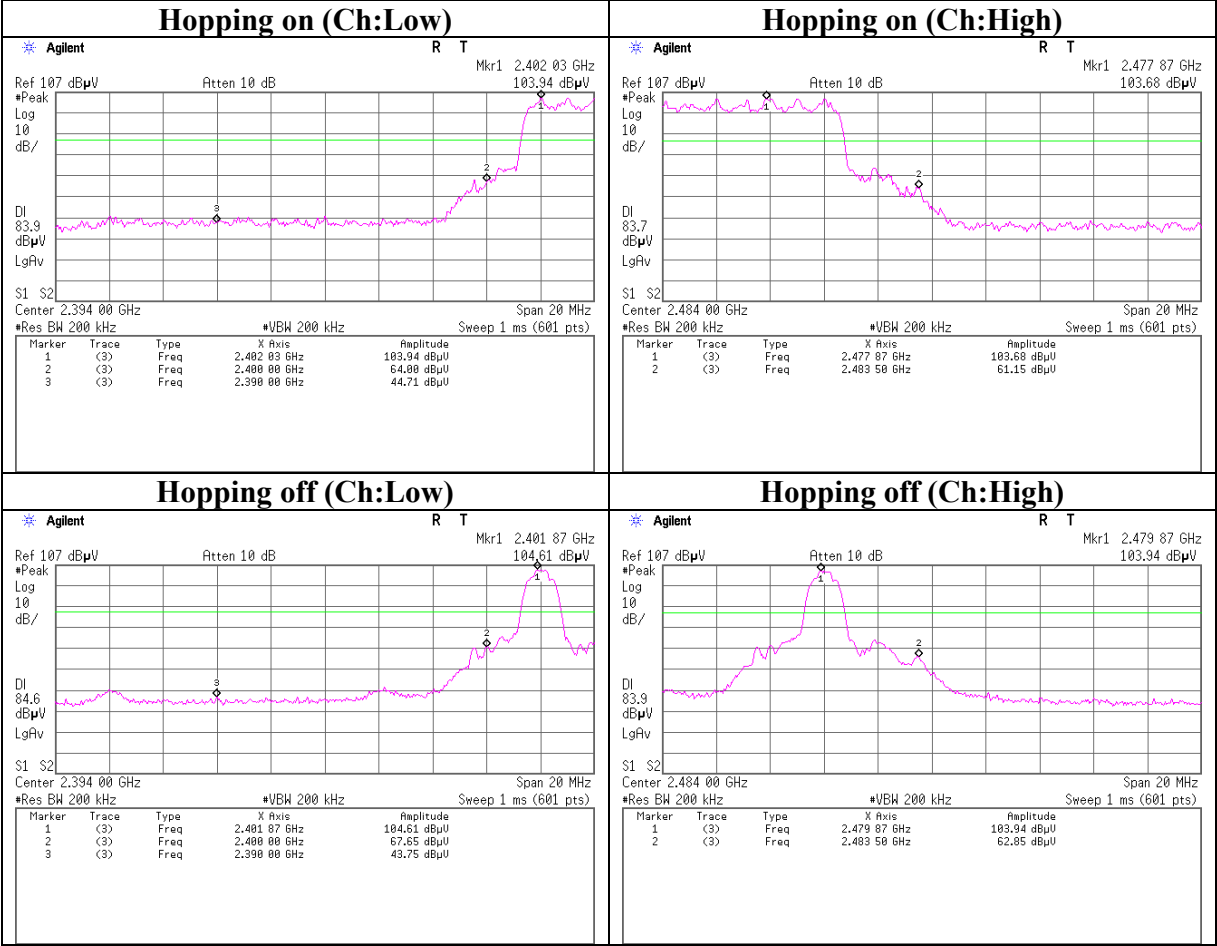


Conducted Spurious Emission(BDR)

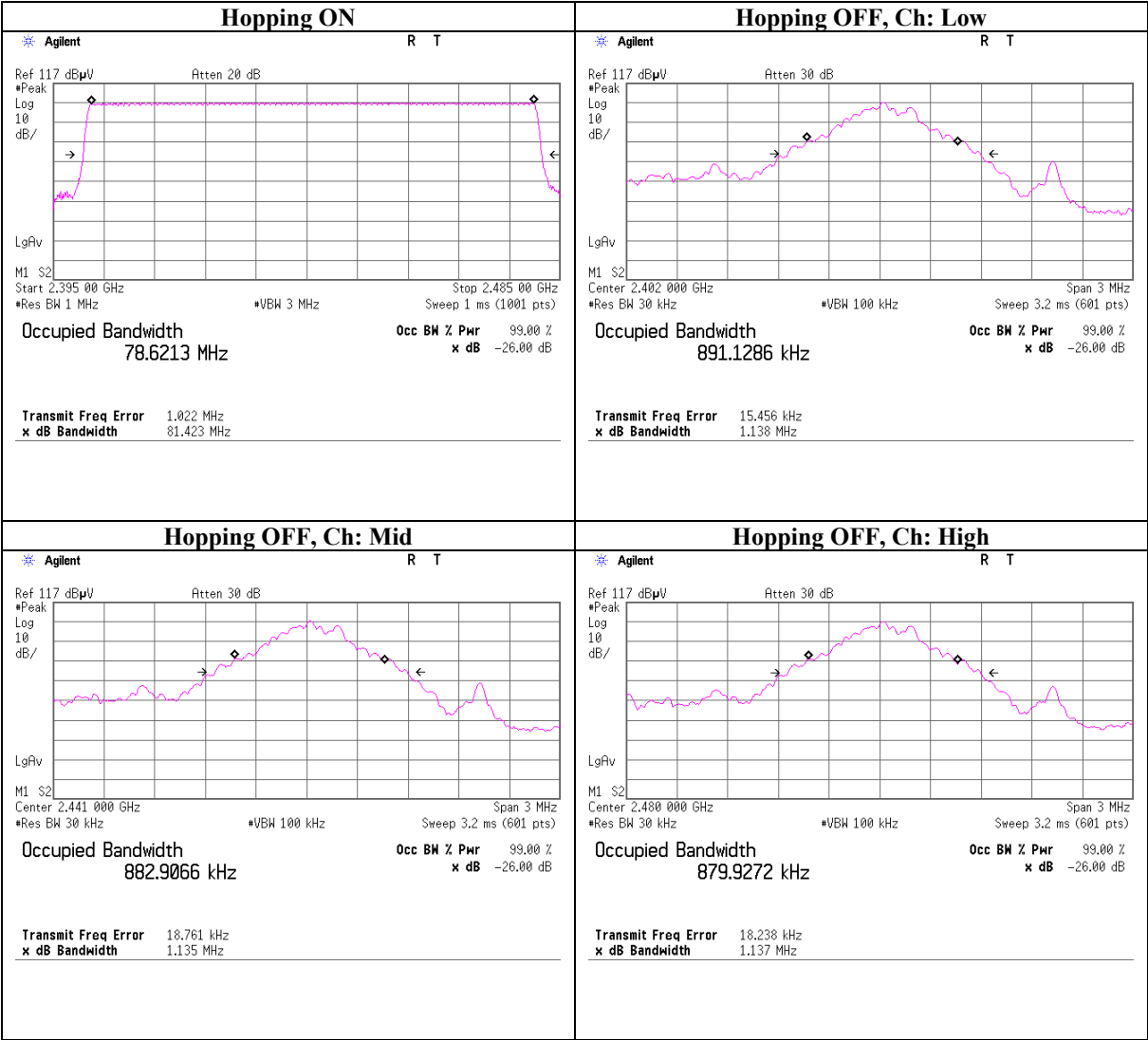
Band Edge compliance



Conducted Spurious Emission(EDR)  
Band Edge compliance

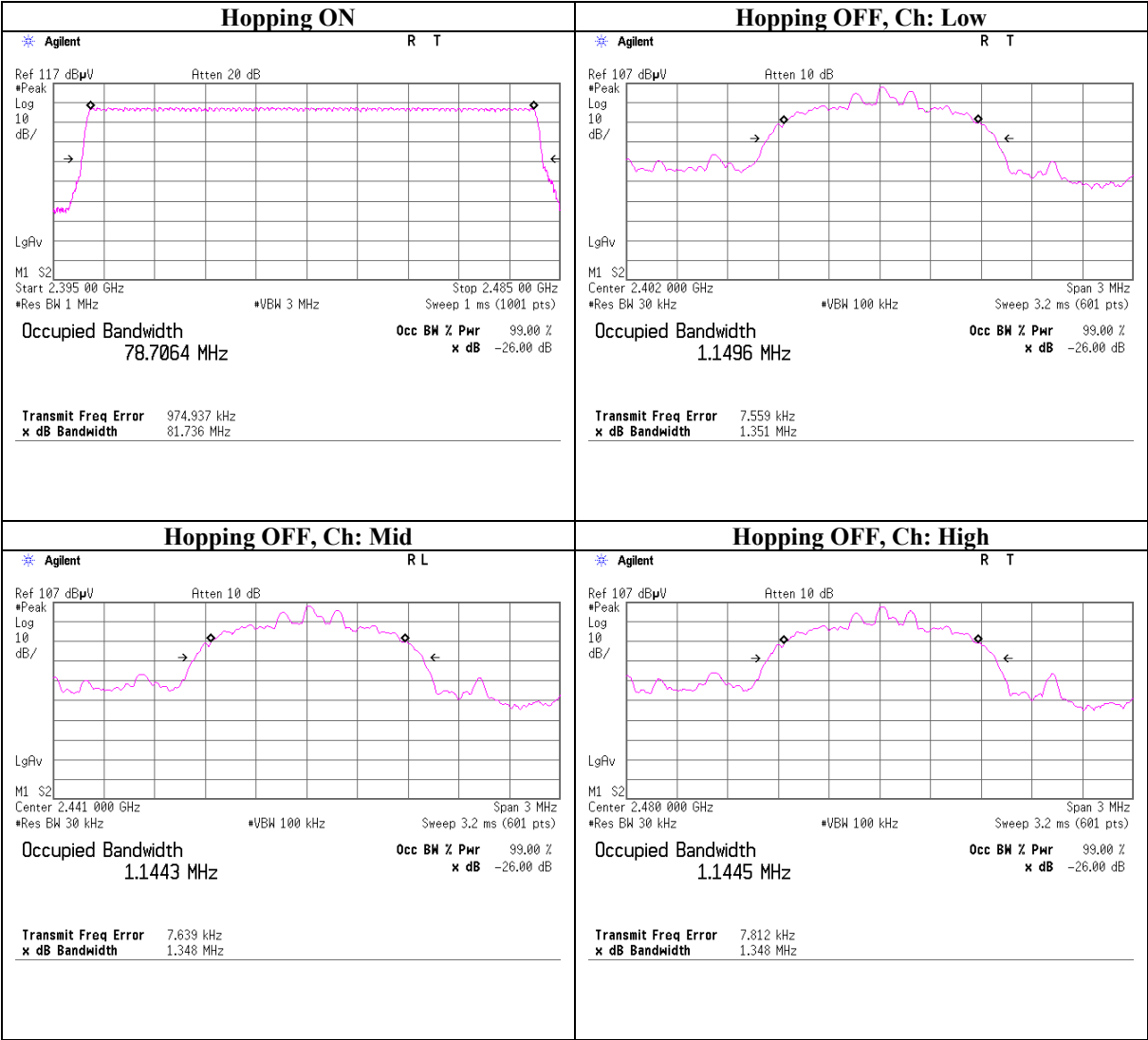


99% Occupied Bandwidth(BDR)



\*Refer to 20dB Bandwidth for 99% Occupied Bandwidth, inquiry mode

99% Occupied Bandwidth(EDR)



\*Refer to 20dB Bandwidth for 99% Occupied Bandwidth, inquiry mode

### **APPENDIX 3:Test instruments**

#### **EMI test equipment**

| <b>Control No.</b> | <b>Instrument</b>           | <b>Manufacturer</b> | <b>Model No</b>          | <b>Test Item</b> | <b>Calibration Date *<br/>Interval(month)</b> |
|--------------------|-----------------------------|---------------------|--------------------------|------------------|-----------------------------------------------|
| MAEC-03            | Anechoic Chamber            | TDK                 | Semi Anechoic Chamber 3m | RE               | 2007/03/05 * 12                               |
| MBA-03             | Biconical Antenna           | Schwarzbeck         | BBA9106                  | RE               | 2007/01/19 * 12                               |
| MLA-03             | Logperiodic Antenna         | Schwarzbeck         | USLP9143                 | RE               | 2007/01/19 * 12                               |
| MCC-51             | Coaxial cable               | UL Japan            | -                        | RE               | 2007/07/26 * 12                               |
| MAT-31             | Attenuator(6dB)             | TME                 | UFA-01                   | RE               | 2007/03/05 * 12                               |
| MPA-13             | Pre Amplifier               | SONOMA INSTRUMENT   | 310                      | RE               | 2007/03/16 * 12                               |
| MTR-02             | Test Receiver               | Rohde & Schwarz     | ESCS30                   | RE               | 2007/02/03 * 12                               |
| MSA-09             | Spectrum Analyzer           | Advantest           | R3273                    | RE               | 2006/12/08 * 12                               |
| MSTW-14            | EMI measurement program     | TSJ                 | TEPTO-DV                 | RE               | -                                             |
| MOS-12             | Thermo-Hygrometer           | Custom              | CTH-180                  | RE               | 2006/01/19 * 24                               |
| MJM-06             | Measure                     | PROMART             | SEN1955                  | RE               | -                                             |
| MHA-20             | Horn Antenna 1-18GHz        | Schwarzbeck         | BBHA9120D                | RE               | 2007/04/14 * 12                               |
| MCC-56             | Microwave Cable 1G-26.5GHz  | Suhner              | SUCOFLEX104              | RE               | 2007/03/29 * 12                               |
| MPA-11             | MicroWave System Amplifier  | Agilent             | 83017A                   | RE               | 2007/03/02 * 12                               |
| MAT-25             | Attenuator(10dB)(above1GHz) | Agilent             | 8493C                    | RE               | 2007/06/28 * 12                               |
| MHF-06             | High Pass Filter 3.5-24GHz  | Tokimec             | TF323DCA                 | RE               | 2007/05/30 * 12                               |
| MHF-13             | High Pass Filter 3.5-18GHz  | TOKIMEC             | TF323DCB                 | RE               | 2006/12/18 * 12                               |
| MHA-16             | Horn Antenna 15-40GHz       | Schwarzbeck         | BBHA9170                 | RE               | 2007/04/06 * 12                               |
| MMM-02             | Digital Tester              | Hioki               | 3255                     | RE               | 2007/03/23 * 12                               |
| MPM-09             | Power Meter                 | Anritsu             | ML2495A                  | AT               | 2007/09/22 * 12                               |
| MPSE-12            | Power sensor                | Anritsu             | MA2411B                  | AT               | 2007/09/22 * 12                               |
| MAT-22             | Attenuator(10dB) DC-18GHz   | Orient Microwave    | BX10-0476-00             | AT               | 2007/03/07 * 12                               |
| MCC-67             | Microwave Cable 1G-40GHz    | Schner              | SUCOFLEX102              | AT               | 2007/04/03 * 12                               |
| MOS-14             | Thermo-Hygrometer           | Custom              | CTH-180                  | AT               | 2006/01/19 * 24                               |
| MSA-10             | Spectrum Analyzer           | Agilent             | E4448A                   | AT               | 2007/07/04 * 12                               |
| MMM-11             | Digital HiTESTER            | Hioki               | 3805                     | AT               | 2007/04/18 * 12                               |
| MDPS-04            | DC Power Supply             | KENWOOD TMI         | PW18-1.3AT               | RE/AT            | Pre check                                     |

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

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

\*Some calibrations were performed after the tested dates, however those EMI test equipment have been controlled by means of an unbroken chains of calibrations

Test Item: RE: Radiated Emission

AT: Antenna Terminal Conducted test

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