



**FCC ID: SH6PS2400N**  
Issued on Oct. 20, 2004

Report No.: FR492707

# FCC TEST REPORT

**CATEGORY** : Portable  
**PRODUCT NAME** : 3-in-1 Omni Directional Wireless Presenter  
**FCC ID.** : SH6PS2400N  
**FILING TYPE** : Certification  
**BRAND NAME** : Raytac  
**MODEL NAME** : PS2400N

**APPLICANT** : **Raytac Corporation**  
5F-3, No. 755, Chung Cheng Rd., Chung Ho, Taipei-Hsien  
235, Taiwan, R.O.C.

**MANUFACTURER** : **Taicom Data Systems Co., Ltd**  
No. 45, Wu-Kung 5 Rd., Wu-Ku Industrial Park Taipei-Hsien,  
Taiwan

**ISSUED BY** : **SPORTON INTERNATIONAL INC.**  
6F, No. 106, Sec. 1, Hsin Tai Wu Rd., His Chih, Taipei Hsien,  
Taiwan, R.O.C.

## Statements:

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

Certificate or Test Report could not be used by the applicant to claim the product endorsement by CNLA, NVLAP or any agency of U.S. government.

The test equipment used to perform the test are calibrated and traceable to NML/ROC or NIST/USA.



Lab Code: 200079-0

**SPORTON International Inc.**

TEL : 886-2-2696-2468

FAX : 886-2-2696-2255



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## History of this test report

Original Report Issue Date: Oct. 20, 2004

Report No.: FR492707

No additional attachment.

Additional attachment were issued as following record:

| Attachment No. | Issue Date | Description |
|----------------|------------|-------------|
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# CERTIFICATE OF COMPLIANCE

with

**47 CFR FCC Part 15 Subpart C ( Section 15.249 )**

**PRODUCT NAME** : 3-in-1 Omni Directional Wireless Presenter

**BRAND NAME** : Raytac

**MODEL NAME** : PS2400N

**APPLICANT** : **Raytac Corporation**

5F-3, No. 755, Chung Cheng Rd., Chung Ho, Taipei-Hsien  
235, Taiwan, R.O.C.

**MANUFACTURER** : **Taicom Data Systems Co., Ltd**

No. 45, Wu-Kung 5 Rd., Wu-Ku Industrial Park Taipei-Hsien,  
Taiwan

I **HEREBY** CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4 - 2003 and all test are performed according to 47 CFR FCC Part 15. Testing was carried out on Oct. 16, 2004 at SPORTON International Inc. LAB.

A handwritten signature in blue ink, appearing to read 'Roger Sheng', is written over a horizontal line.

Reviewed By:

Roger Sheng / Manager



## 1. General Description of Equipment under Test

### 1.1. Applicant

**Raytac Corporation**

5F-3, No. 755, Chung Cheng Rd., Chung Ho, Taipei-Hsien 235, Taiwan, R.O.C.

### 1.2. Manufacturer

**Taicom Data Systems Co., Ltd**

No. 45, Wu-Kung 5 Rd., Wu-Ku Industrial Park Taipei-Hsien, Taiwan

### 1.3. Basic Description of Equipment under Test

This product is a directional wireless presenter with GFSK modulation. The technical data has been listed on section "Features of Equipment under Test".

### 1.4. Features of Equipment under Test

| Items                         | Description                 |
|-------------------------------|-----------------------------|
| Type of Modulation            | GFSK                        |
| Number of Channels            | 16                          |
| Frequency Band                | 2400MHz ~ 2480MHz           |
| Carrier Frequency             | See section 1.5 for details |
| Channel Bandwidth             | 1MHz                        |
| Antenna Type                  | Printed                     |
| Function Type                 | Transmitter                 |
| Testing Duty Cycle            | 100.00%                     |
| Power Rating (DC/AC, Voltage) | From Battery / 3.0 Vdc      |
| Test Power Source             | 110.00V AC                  |
| Temperature Range (Operating) | -10 ~ 55                    |

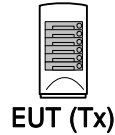
### 1.5. Table for Carrier Frequencies

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| 01      | 2405 MHz  | 05      | 2425 MHz  | 09      | 2445 MHz  | 13      | 2465 MHz  |
| 02      | 2410 MHz  | 06      | 2430 MHz  | 10      | 2450 MHz  | 14      | 2470 MHz  |
| 03      | 2415 MHz  | 07      | 2435 MHz  | 11      | 2455 MHz  | 15      | 2475 MHz  |
| 04      | 2420 MHz  | 08      | 2440 MHz  | 12      | 2460 MHz  | 16      | 2480 MHz  |

## 2. Test Configuration of the Equipment under Test

### 2.1. Connection Diagram of Test System

<Tx>



### 2.2. The Test Mode Description

Spurious emission below 1GHz is independent of channel selection, so only channel 16 was tested.

AC conduction emission is independent of channel selection, so only channel 16 was the worst tested case.

### 2.3. Description of Test Supporting Units

| Support unit | Brand  | Model No.           | Serial No. | FCC ID | Data cable (m) |
|--------------|--------|---------------------|------------|--------|----------------|
| Notebook     | COMPAQ | Presario 1500       | SP0004     | DoC    | -              |
| Printer      | EPSON  | STYLUS<br>COLOR 680 | SP0016     | DoC    | 1              |



### 3. General Information of Test

#### 3.1. Test Facility

**Test Site Location** : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiag, Tao Yuan Hsien, Taiwan, R.O.C.

: TEL 886-3-327-3456

: FAX 886-3-318-0055

**Test Site No** : 03CH03-HY

#### 3.2. Test Conditions

Normal Voltage : 3.3VDC

Extreme Voltages : 3.7VDC and 2.8VDC

Normal Temperature : 20°C

Extreme Temperature : -10 °C and 55 °C

#### 3.3. Standards for Methods of Measurement

Here is the list of the standards followed in this test report.

**ANSI C63.4-2003**

**47 CFR Part 15 Subpart C ( Section 15.249 )**

#### 3.4. DoC Statement

This EUT is also classified as a device of computer peripheral Class B which DoC has to be followed. It has been verified according to the rule of 47 CFR part 15 Subpart B, and found that all the requirements has been fulfilled.

#### 3.5. Frequency Range Investigated

Radiated emission test: from 30 MHz to 10th carrier harmonic.

#### 3.6. Test Distance

The test distance of radiated emission (30MHz~1GHz) test from antenna to EUT is 3 M

The test distance of radiated emission (1GHz~10th carrier harmonic) test from antenna to EUT is 1 M

#### 3.7. Test Software

There is no test software.



## 4. List of Measurements

### 4.1. Summary of the Test Results

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Applied Standard: 47 CFR Part 15 and Part 2

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| Paragraph | FCC Rule      | Description of Test              | Result |
|-----------|---------------|----------------------------------|--------|
| 5.1       | 15.249        | Maximum Carrier Field Strength   | Pass   |
| 5.2       | 15.249        | Band Edges Emission              | Pass   |
| 5.3       | 15.207        | AC Power Line Conducted Emission | NA     |
| 5.4       | 15.209/15.249 | Spurious Radiated Emission       | Pass   |
| 5.5       | 15.203        | Antenna Requirement              | Pass   |

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## 5. Test Result

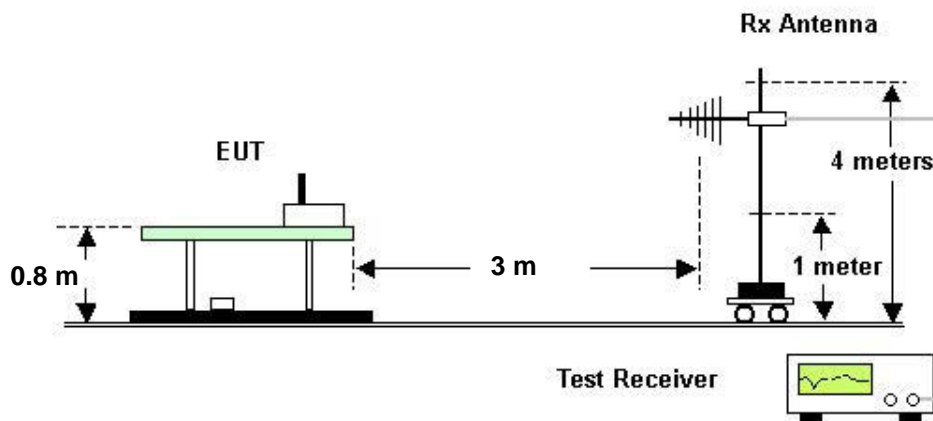
### 5.1. Test of Maximum Carrier Field Strength

#### 5.1.1. Measuring Instruments

Please reference to section 6.

#### 5.1.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
4. For carrier field strength emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. For carrier field strength emission, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
6. Test Setup Layout





5.1.3. Test Result:

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

| Channel | Frequency<br>( MHz ) | Level<br>( dBuV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBuV/m ) | Read<br>Level<br>( dBuV/m ) | Detector |
|---------|----------------------|---------------------|-------------------------|-----------------------------|-----------------------------|----------|
| 01      | 2405 MHz             | 50.45               | 43.55                   | 94.00                       | 44.90                       | Average  |
| 01      | 2405 MHz             | 64.03               | 49.97                   | 114.00                      | 41.38                       | Peak     |
| 08      | 2440 MHz             | 50.62               | 43.38                   | 94.00                       | 40.65                       | Average  |
| 08      | 2440 MHz             | 64.35               | 49.65                   | 114.00                      | 63.81                       | Peak     |
| 16      | 2480 MHz             | 50.66               | 43.34                   | 94.00                       | 39.70                       | Average  |
| 16      | 2480 MHz             | 62.96               | 51.04                   | 114.00                      | 62.33                       | Peak     |

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.



## 5.2. Test of Band Edges Emission

### 5.2.1. Measuring Instruments

Please reference to section 6.

### 5.2.2. Test Procedures

1. The transmitter is set to the lowest and highest channel.
2. Configure the EUT according to ANSI C63.4.
3. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
4. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
5. For band edge emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
6. For band edge emission, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

### 5.2.3. Test Result:

Temperature: 24°C

Relative Humidity: 63%

Duty Cycle of the Equipment During the Test: 100.00%

Test Engineer: Steve Chen

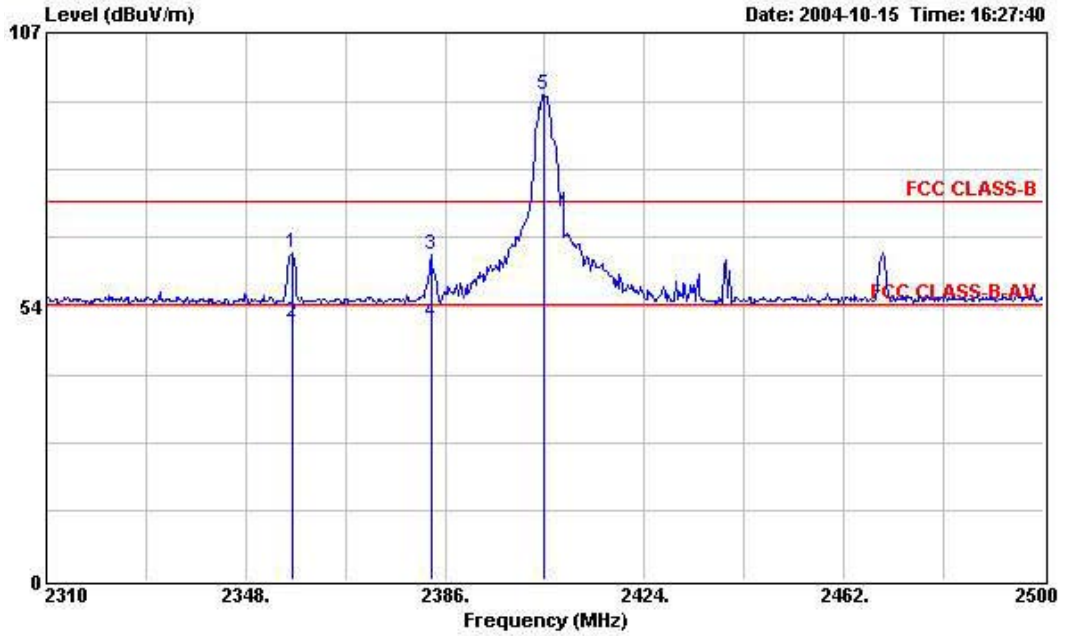
| Test Channel | Freq. (MHz) | Level* (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Read ( dBuV/m ) | Trace (PK/AV) |
|--------------|-------------|-----------------|-------------|----------------|-----------------|---------------|
| 01           | 2356.740    | 64.03           | -9.97       | 74             | 34.13           | PK            |
| 01           | 2356.740    | 50.45           | -3.55       | 54             | 20.55           | AV            |
| 16           | 2497.340    | 61.99           | -12.01      | 74             | 31.70           | PK            |
| 16           | 2497.340    | 50.65           | -3.35       | 54             | 20.36           | AV            |

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level\*.

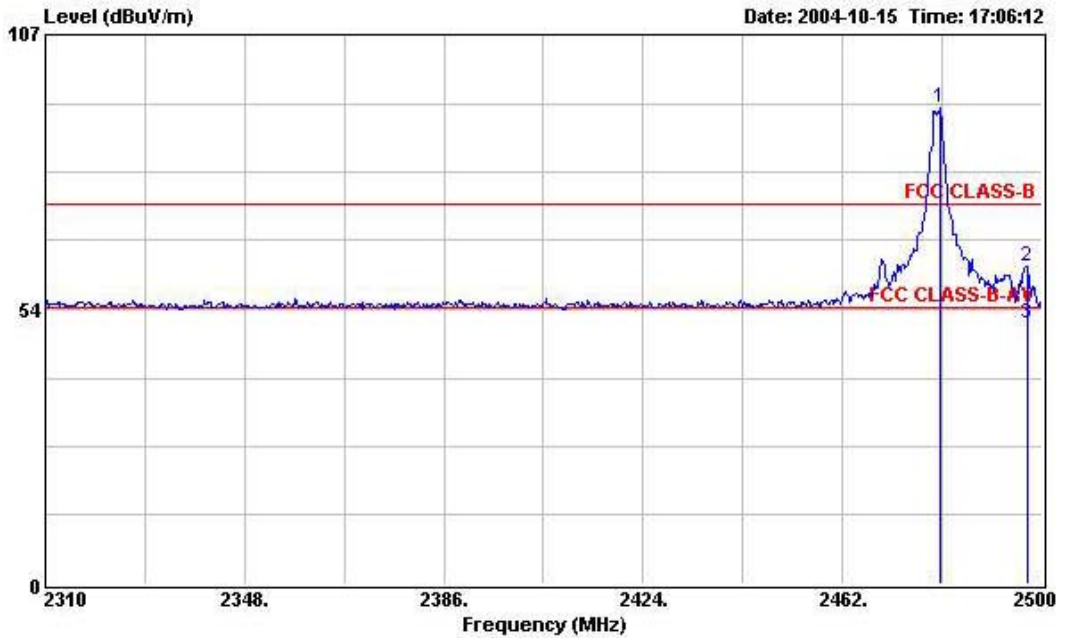
Level\* : The max field strength in the restricted bands.



Band Edge Plot on 2405 MHz



Band Edge Plot on 2480 MHz





### **5.3. Test of AC Power Line Conducted Emission**

The power source of the EUT is DC, so it is not required to test the item.



## 5.4. Test of Spurious Radiated Emission

### 5.4.1. Measuring Instruments

Please reference to section 6.

### 5.4.2. Limit

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (micorvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009~0.490       | 2400/F(KHz)                       | 300                           |
| 0.490~1.705       | 24000/F(KHz)                      | 30                            |
| 1.705~30.0        | 30                                | 30                            |
| 30~88             | 100                               | 3                             |
| 88~216            | 150                               | 3                             |
| 216~960           | 200                               | 3                             |
| Above 960         | 500                               | 3                             |

### 5.4.3. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer and receiver.

| Spectrum Parameter | Setting  |
|--------------------|--|
| Attenuation        | Auto   |
| Start Frequency    | 1000 MHz                                       |
| Stop Frequency     | 10th carrier harmonic                          |
| RB / VB            | 1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average |

| Receiver Parameter     | Setting                          |
|------------------------|----------------------------------|
| Attenuation            | Auto                             |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP    |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP    |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

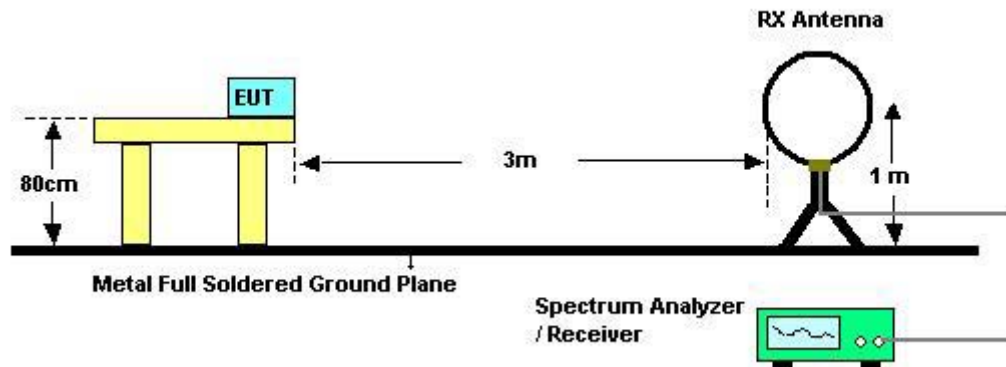


#### 5.4.4. Test Procedures

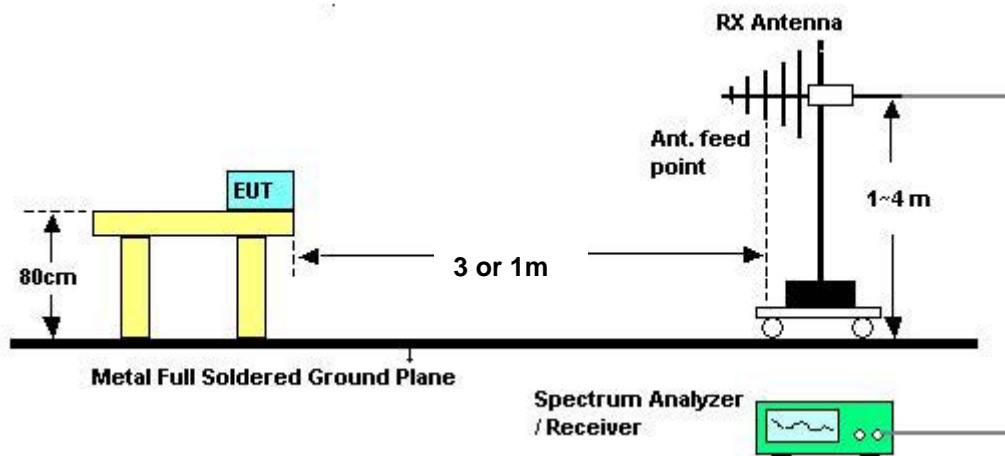
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

#### 5.4.5. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.

Distance extrapolation factor =  $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$  (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

#### 5.4.6. Test Deviation

There is no deviation with the original standard.

#### 5.4.7. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.





5.4.8. Results of Radiated Emissions (9kHz~30MHz)

|               |           |          |     |
|---------------|-----------|----------|-----|
| Temperature   | 25        | Humidity | 54% |
| Test Engineer | Vic Hsiao |          |     |

| Freq.<br>(MHz) | Level<br>(dBuV) | Over Limit<br>(dB) | Limit Line<br>(dBuV) | Remark   |
|----------------|-----------------|--------------------|----------------------|----------|
| -              | -               | -                  | -                    | See Note |

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $40 \log(\text{specific distance} / \text{test distance})$  (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.



5.4.9. Test Results for CH 16 / 2480 MHz ( for emission below 1GHz) -X

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq    | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|---------|--------|------------|------------|------------|--------------|------------|---------------|--------|---------|-----------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |        | cm      | deg       |
| 1 | 36.630  | 15.92  | -24.08     | 40.00      | 30.80      | 12.12        | 1.03       | 28.03         | Peak   | ---     | ---       |
| 2 | 91.030  | 12.32  | -31.18     | 43.50      | 30.06      | 8.55         | 1.63       | 27.92         | Peak   | ---     | ---       |
| 3 | 107.860 | 12.51  | -30.99     | 43.50      | 28.41      | 10.13        | 1.85       | 27.88         | Peak   | ---     | ---       |
| 1 | 416.000 | 19.93  | -26.07     | 46.00      | 27.65      | 16.67        | 3.55       | 27.94         | Peak   | ---     | ---       |
| 2 | 595.200 | 23.33  | -22.67     | 46.00      | 27.60      | 20.18        | 4.35       | 28.80         | Peak   | ---     | ---       |
| 3 | 832.800 | 25.38  | -20.62     | 46.00      | 26.95      | 21.83        | 5.23       | 28.63         | Peak   | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq    | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|---------|--------|------------|------------|------------|--------------|------------|---------------|--------|---------|-----------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |        | cm      | deg       |
| 1 | 32.380  | 16.66  | -23.34     | 40.00      | 31.23      | 12.49        | 0.98       | 28.04         | Peak   | ---     | ---       |
| 2 | 38.500  | 15.81  | -24.19     | 40.00      | 30.41      | 12.38        | 1.05       | 28.03         | Peak   | ---     | ---       |
| 3 | 93.070  | 15.69  | -27.81     | 43.50      | 33.30      | 8.66         | 1.64       | 27.91         | Peak   | ---     | ---       |
| 1 | 656.800 | 23.95  | -22.05     | 46.00      | 27.48      | 20.57        | 4.64       | 28.74         | Peak   | ---     | ---       |
| 2 | 896.800 | 28.34  | -17.66     | 46.00      | 29.61      | 21.71        | 5.33       | 28.31         | Peak   | 158     | 179       |
| 3 | 979.200 | 28.25  | -25.75     | 54.00      | 27.39      | 23.45        | 5.63       | 28.22         | Peak   | ---     | ---       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.10. Test Results for CH 01 / 2405 MHz ( for emission above 1GHz) -X

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2358.000 | 61.17  | -12.83     | 74.00      | 70.88      | 28.21        | 1.69       | 39.61         | Peak    | ---     | ---       |
| 2 | 2358.000 | 50.17  | -3.83      | 54.00      | 59.88      | 28.21        | 1.69       | 39.61         | Average | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2356.000 | 61.05  | -12.95     | 74.00      | 70.77      | 28.20        | 1.69       | 39.61         | Peak    | ---     | ---       |
| 2 | 2356.000 | 50.31  | -3.69      | 54.00      | 60.03      | 28.20        | 1.69       | 39.61         | Average | ---     | ---       |
| 3 | 2742.000 | 53.83  | -20.17     | 74.00      | 62.08      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 50.09  | -3.91      | 54.00      | 58.34      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |
| 1 | 7212.000 | 44.22  | -9.78      | 54.00      | 45.15      | 35.77        | 2.78       | 39.48         | Average | ---     | ---       |
| 2 | 7212.000 | 54.97  | -19.03     | 74.00      | 55.90      | 35.77        | 2.78       | 39.48         | Peak    | ---     | ---       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.11. Test Results for CH 08 / 2440 MHz ( for emission above 1GHz) -X

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2358.000 | 56.66  | -17.34     | 74.00      | 66.37      | 28.21        | 1.69       | 39.61         | Peak    | ---     | ---       |
| 2 | 2358.000 | 50.40  | -3.60      | 54.00      | 60.11      | 28.21        | 1.69       | 39.61         | Average | ---     | ---       |
| 3 | 2742.000 | 55.60  | -18.40     | 74.00      | 63.85      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 50.20  | -3.80      | 54.00      | 58.45      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 4884.000 | 54.00  | -20.00     | 74.00      | 58.52      | 33.11        | 2.51       | 40.14         | Peak    | ---     | ---       |
| 2 | 4884.000 | 44.06  | -9.94      | 54.00      | 48.58      | 33.11        | 2.51       | 40.14         | Average | ---     | ---       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.12. Test Results for CH 16 / 2480 MHz ( for emission above 1GHz) -X

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2532.000 | 57.96  | -16.04     | 74.00      | 67.02      | 28.64        | 1.87       | 39.57         | Peak    | ---     | ---       |
| 2 | 2532.000 | 48.43  | -5.57      | 54.00      | 57.49      | 28.64        | 1.87       | 39.57         | Average | ---     | ---       |
| 3 | 2596.000 | 58.19  | -15.81     | 74.00      | 66.99      | 28.84        | 1.91       | 39.55         | Peak    | ---     | ---       |
| 4 | 2596.000 | 49.59  | -4.41      | 54.00      | 58.39      | 28.84        | 1.91       | 39.55         | Average | ---     | ---       |
| 5 | 2742.000 | 54.39  | -19.61     | 74.00      | 62.64      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 6 | 2742.000 | 49.64  | -4.36      | 54.00      | 57.89      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2742.000 | 53.29  | -20.71     | 74.00      | 61.54      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 2 | 2742.000 | 49.24  | -4.76      | 54.00      | 57.49      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |
| 1 | 4958.000 | 57.01  | -16.99     | 74.00      | 61.47      | 33.25        | 2.44       | 40.15         | Peak    | ---     | ---       |
| 2 | 4958.000 | 42.36  | -11.64     | 54.00      | 46.82      | 33.25        | 2.44       | 40.15         | Average | ---     | ---       |
| 1 | 7438.000 | 55.55  | -18.45     | 74.00      | 55.54      | 36.45        | 2.97       | 39.41         | Peak    | ---     | ---       |
| 2 | 7438.000 | 47.06  | -6.94      | 54.00      | 47.05      | 36.45        | 2.97       | 39.41         | Average | ---     | ---       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.13. Test Results for CH 16 / 2480 MHz ( for emission below 1GHz) -Y

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq    | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|---------|--------|------------|------------|------------|--------------|------------|---------------|--------|---------|-----------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |        | cm      | deg       |
| 1 | 36.630  | 16.75  | -23.25     | 40.00      | 31.63      | 12.12        | 1.03       | 28.03         | Peak   | ---     | ---       |
| 2 | 46.830  | 15.21  | -24.79     | 40.00      | 30.04      | 12.02        | 1.16       | 28.01         | Peak   | ---     | ---       |
| 3 | 91.030  | 13.42  | -30.08     | 43.50      | 31.16      | 8.55         | 1.63       | 27.92         | Peak   | ---     | ---       |
| 1 | 396.800 | 20.68  | -25.32     | 46.00      | 28.30      | 16.70        | 3.46       | 27.78         | Peak   | ---     | ---       |
| 2 | 592.000 | 23.89  | -22.11     | 46.00      | 28.31      | 20.04        | 4.33       | 28.79         | Peak   | ---     | ---       |
| 3 | 819.200 | 26.36  | -19.64     | 46.00      | 28.09      | 21.86        | 5.11       | 28.70         | Peak   | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq    | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|---------|--------|------------|------------|------------|--------------|------------|---------------|--------|---------|-----------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |        | cm      | deg       |
| 1 | 32.380  | 17.39  | -22.61     | 40.00      | 31.96      | 12.49        | 0.98       | 28.04         | Peak   | ---     | ---       |
| 2 | 37.990  | 16.14  | -23.86     | 40.00      | 30.81      | 12.31        | 1.05       | 28.03         | Peak   | ---     | ---       |
| 3 | 46.660  | 15.01  | -24.99     | 40.00      | 29.80      | 12.06        | 1.16       | 28.01         | Peak   | ---     | ---       |
| 1 | 310.400 | 17.17  | -28.83     | 46.00      | 27.26      | 14.12        | 3.14       | 27.35         | Peak   | ---     | ---       |
| 2 | 599.200 | 23.56  | -22.44     | 46.00      | 27.63      | 20.36        | 4.37       | 28.80         | Peak   | ---     | ---       |
| 3 | 896.800 | 28.96  | -17.04     | 46.00      | 30.23      | 21.71        | 5.33       | 28.31         | Peak   | 121     | 174       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.14. Test Results for CH 01 / 2405 MHz ( for emission above 1GHz) -Y

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 4812.000 | 54.71  | -19.29     | 74.00      | 59.44      | 32.98        | 2.43       | 40.14         | Peak    | ---     | ---       |
| 2 | 4812.000 | 41.60  | -12.40     | 54.00      | 46.33      | 32.98        | 2.43       | 40.14         | Average | ---     | ---       |
| 1 | 7212.000 | 57.04  | -16.96     | 74.00      | 57.97      | 35.77        | 2.78       | 39.48         | Peak    | ---     | ---       |
| 2 | 7212.000 | 47.00  | -7.00      | 54.00      | 47.93      | 35.77        | 2.78       | 39.48         | Average | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2358.000 | 59.94  | -14.06     | 74.00      | 69.65      | 28.21        | 1.69       | 39.61         | Peak    | ---     | ---       |
| 2 | 2358.000 | 50.44  | -3.56      | 54.00      | 60.15      | 28.21        | 1.69       | 39.61         | Average | ---     | ---       |
| 3 | 2742.000 | 59.02  | -14.98     | 74.00      | 67.27      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 47.62  | -6.38      | 54.00      | 55.87      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |
| 1 | 4812.000 | 53.42  | -20.58     | 74.00      | 58.15      | 32.98        | 2.43       | 40.14         | Peak    | ---     | ---       |
| 2 | 4812.000 | 43.63  | -10.37     | 54.00      | 48.36      | 32.98        | 2.43       | 40.14         | Average | ---     | ---       |
| 1 | 7212.000 | 55.99  | -18.01     | 74.00      | 56.92      | 35.77        | 2.78       | 39.48         | Peak    | ---     | ---       |
| 2 | 7212.000 | 48.03  | -5.97      | 54.00      | 48.96      | 35.77        | 2.78       | 39.48         | Average | ---     | ---       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.15. Test Results for CH 08 / 2440 MHz ( for emission above 1GHz) -Y

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 4878.000 | 57.09  | -16.91     | 74.00      | 61.62      | 33.10        | 2.51       | 40.14         | Peak    | ---     | ---       |
| 2 | 4878.000 | 43.72  | -10.28     | 54.00      | 48.25      | 33.10        | 2.51       | 40.14         | Average | ---     | ---       |
| 1 | 7318.000 | 60.33  | -13.67     | 74.00      | 60.70      | 36.09        | 2.99       | 39.45         | Peak    | ---     | ---       |
| 2 | 7318.000 | 47.10  | -6.90      | 54.00      | 47.47      | 36.09        | 2.99       | 39.45         | Average | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2356.000 | 62.40  | -11.60     | 74.00      | 72.12      | 28.20        | 1.69       | 39.61         | Peak    | ---     | ---       |
| 2 | 2356.000 | 50.30  | -3.70      | 54.00      | 60.02      | 28.20        | 1.69       | 39.61         | Average | ---     | ---       |
| 3 | 2742.000 | 56.00  | -18.00     | 74.00      | 64.25      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 49.19  | -4.81      | 54.00      | 57.44      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |
| 1 | 4884.000 | 56.57  | -17.43     | 74.00      | 61.09      | 33.11        | 2.51       | 40.14         | Peak    | ---     | ---       |
| 2 | 4884.000 | 44.00  | -10.00     | 54.00      | 48.52      | 33.11        | 2.51       | 40.14         | Average | ---     | ---       |
| 1 | 7318.000 | 53.59  | -20.41     | 74.00      | 53.96      | 36.09        | 2.99       | 39.45         | Peak    | ---     | ---       |
| 2 | 7318.000 | 46.99  | -7.01      | 54.00      | 47.36      | 36.09        | 2.99       | 39.45         | Average | ---     | ---       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level





5.4.16. Test Results for CH 16 / 2480 MHz ( for emission above 1GHz) -Y

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2596.000 | 53.66  | -20.34     | 74.00      | 62.46      | 28.84        | 1.91       | 39.55         | Peak    | ---     | ---       |
| 2 | 2596.000 | 49.53  | -4.47      | 54.00      | 58.33      | 28.84        | 1.91       | 39.55         | Average | ---     | ---       |
| 1 | 4958.000 | 58.67  | -15.33     | 74.00      | 63.13      | 33.25        | 2.44       | 40.15         | Peak    | ---     | ---       |
| 2 | 4958.000 | 43.34  | -10.66     | 54.00      | 47.80      | 33.25        | 2.44       | 40.15         | Average | ---     | ---       |
| 1 | 7436.000 | 58.54  | -15.46     | 74.00      | 58.54      | 36.44        | 2.97       | 39.41         | Peak    | ---     | ---       |
| 2 | 7436.000 | 47.60  | -6.40      | 54.00      | 47.60      | 36.44        | 2.97       | 39.41         | Average | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2532.000 | 53.69  | -20.31     | 74.00      | 62.75      | 28.64        | 1.87       | 39.57         | Peak    | ---     | ---       |
| 2 | 2532.000 | 49.59  | -4.41      | 54.00      | 58.65      | 28.64        | 1.87       | 39.57         | Average | ---     | ---       |
| 3 | 2596.000 | 56.18  | -17.82     | 74.00      | 64.98      | 28.84        | 1.91       | 39.55         | Peak    | ---     | ---       |
| 4 | 2596.000 | 48.02  | -5.98      | 54.00      | 56.82      | 28.84        | 1.91       | 39.55         | Average | ---     | ---       |
| 5 | 2742.000 | 55.55  | -18.45     | 74.00      | 63.80      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 6 | 2742.000 | 50.21  | -3.79      | 54.00      | 58.46      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |
| 1 | 4964.000 | 55.52  | -18.48     | 74.00      | 59.95      | 33.26        | 2.46       | 40.15         | Peak    | ---     | ---       |
| 2 | 4964.000 | 43.23  | -10.77     | 54.00      | 47.66      | 33.26        | 2.46       | 40.15         | Average | ---     | ---       |
| 1 | 7438.000 | 54.70  | -19.30     | 74.00      | 54.69      | 36.45        | 2.97       | 39.41         | Peak    | ---     | ---       |
| 2 | 7438.000 | 48.60  | -5.40      | 54.00      | 48.59      | 36.45        | 2.97       | 39.41         | Average | ---     | ---       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.17. Test Results for CH 16 / 2480 MHz ( for emission below 1GHz) -Z

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq    | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|---------|--------|------------|------------|------------|--------------|------------|---------------|--------|---------|-----------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |        | cm      | deg       |
| 1 | 34.590  | 14.90  | -25.10     | 40.00      | 29.95      | 11.98        | 1.01       | 28.04         | Peak   | ---     | ---       |
| 2 | 90.860  | 12.71  | -30.79     | 43.50      | 30.46      | 8.54         | 1.63       | 27.92         | Peak   | ---     | ---       |
| 3 | 156.820 | 15.15  | -28.35     | 43.50      | 28.28      | 12.38        | 2.28       | 27.79         | Peak   | ---     | ---       |
| 1 | 460.800 | 21.10  | -24.90     | 46.00      | 29.36      | 16.31        | 3.77       | 28.34         | Peak   | ---     | ---       |
| 2 | 855.200 | 26.10  | -19.90     | 46.00      | 27.59      | 21.79        | 5.24       | 28.52         | Peak   | ---     | ---       |
| 3 | 906.400 | 26.70  | -19.30     | 46.00      | 27.79      | 21.84        | 5.36       | 28.29         | Peak   | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq    | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|---------|--------|------------|------------|------------|--------------|------------|---------------|--------|---------|-----------|
|   | MHz     | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |        | cm      | deg       |
| 1 | 32.380  | 17.09  | -22.91     | 40.00      | 31.66      | 12.49        | 0.98       | 28.04         | Peak   | ---     | ---       |
| 2 | 38.500  | 17.23  | -22.77     | 40.00      | 31.83      | 12.38        | 1.05       | 28.03         | Peak   | ---     | ---       |
| 3 | 46.660  | 16.38  | -23.62     | 40.00      | 31.17      | 12.06        | 1.16       | 28.01         | Peak   | ---     | ---       |
| 1 | 393.600 | 20.06  | -25.94     | 46.00      | 27.77      | 16.62        | 3.44       | 27.77         | Peak   | ---     | ---       |
| 2 | 650.400 | 23.94  | -22.06     | 46.00      | 27.60      | 20.55        | 4.54       | 28.75         | Peak   | ---     | ---       |
| 3 | 896.800 | 27.71  | -18.29     | 46.00      | 28.98      | 21.71        | 5.33       | 28.31         | Peak   | 126     | 184       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.18. Test Results for CH 01 / 2405 MHz ( for emission above 1GHz) -Z

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2356.000 | 56.72  | -17.28     | 74.00      | 66.44      | 28.20        | 1.69       | 39.61         | Peak    | ---     | ---       |
| 2 | 2356.000 | 50.67  | -3.33      | 54.00      | 60.39      | 28.20        | 1.69       | 39.61         | Average | ---     | ---       |
| 3 | 2742.000 | 57.32  | -16.68     | 74.00      | 65.57      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 49.28  | -4.72      | 54.00      | 57.53      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2358.000 | 54.05  | -19.95     | 74.00      | 63.76      | 28.21        | 1.69       | 39.61         | Peak    | ---     | ---       |
| 2 | 2358.000 | 50.18  | -3.82      | 54.00      | 59.89      | 28.21        | 1.69       | 39.61         | Average | ---     | ---       |
| 3 | 2742.000 | 53.82  | -20.18     | 74.00      | 62.07      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 49.22  | -4.78      | 54.00      | 57.47      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.19. Test Results for CH 08 / 2440 MHz ( for emission above 1GHz) -Z

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2356.000 | 59.91  | -14.09     | 74.00      | 69.63      | 28.20        | 1.69       | 39.61         | Peak    | ---     | ---       |
| 2 | 2356.000 | 48.32  | -5.68      | 54.00      | 58.04      | 28.20        | 1.69       | 39.61         | Average | ---     | ---       |
| 3 | 2742.000 | 53.32  | -20.68     | 74.00      | 61.57      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 47.24  | -6.76      | 54.00      | 55.49      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2358.000 | 58.32  | -15.68     | 74.00      | 68.03      | 28.21        | 1.69       | 39.61         | Peak    | ---     | ---       |
| 2 | 2358.000 | 50.01  | -3.99      | 54.00      | 59.72      | 28.21        | 1.69       | 39.61         | Average | ---     | ---       |
| 3 | 2742.000 | 54.10  | -19.90     | 74.00      | 62.35      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 48.53  | -5.47      | 54.00      | 56.78      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |
| 1 | 4878.000 | 54.84  | -19.16     | 74.00      | 59.37      | 33.10        | 2.51       | 40.14         | Peak    | ---     | ---       |
| 2 | 4878.000 | 44.16  | -9.84      | 54.00      | 48.69      | 33.10        | 2.51       | 40.14         | Average | ---     | ---       |

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level



5.4.20. Test Results for CH 16 / 2480 MHz ( for emission above 1GHz) -Z

- Temperature: 24°C
- Relative Humidity: 63%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Steve Chen

**(A) Polarization: Horizontal**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2526.000 | 54.06  | -19.94     | 74.00      | 63.14      | 28.62        | 1.87       | 39.57         | Peak    | ---     | ---       |
| 2 | 2526.000 | 48.27  | -5.73      | 54.00      | 57.35      | 28.62        | 1.87       | 39.57         | Average | ---     | ---       |
| 3 | 2742.000 | 57.22  | -16.78     | 74.00      | 65.47      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 48.64  | -5.36      | 54.00      | 56.89      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |

**(B) Polarization: Vertical**

|   | Freq     | Level  | Over Limit | Limit Line | Read Level | Probe Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|------------|--------------|------------|---------------|---------|---------|-----------|
|   | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB           | dB         | dB            |         | cm      | deg       |
| 1 | 2526.000 | 54.90  | -19.10     | 74.00      | 63.98      | 28.62        | 1.87       | 39.57         | Peak    | ---     | ---       |
| 2 | 2526.000 | 50.93  | -3.07      | 54.00      | 60.01      | 28.62        | 1.87       | 39.57         | Average | ---     | ---       |
| 3 | 2742.000 | 54.15  | -19.85     | 74.00      | 62.40      | 29.29        | 1.95       | 39.49         | Peak    | ---     | ---       |
| 4 | 2742.000 | 47.17  | -6.83      | 54.00      | 55.42      | 29.29        | 1.95       | 39.49         | Average | ---     | ---       |
| 1 | 7438.000 | 54.14  | -19.86     | 74.00      | 54.13      | 36.45        | 2.97       | 39.41         | Peak    | ---     | ---       |
| 2 | 7438.000 | 48.39  | -5.61      | 54.00      | 48.38      | 36.45        | 2.97       | 39.41         | Average | ---     | ---       |

Note:

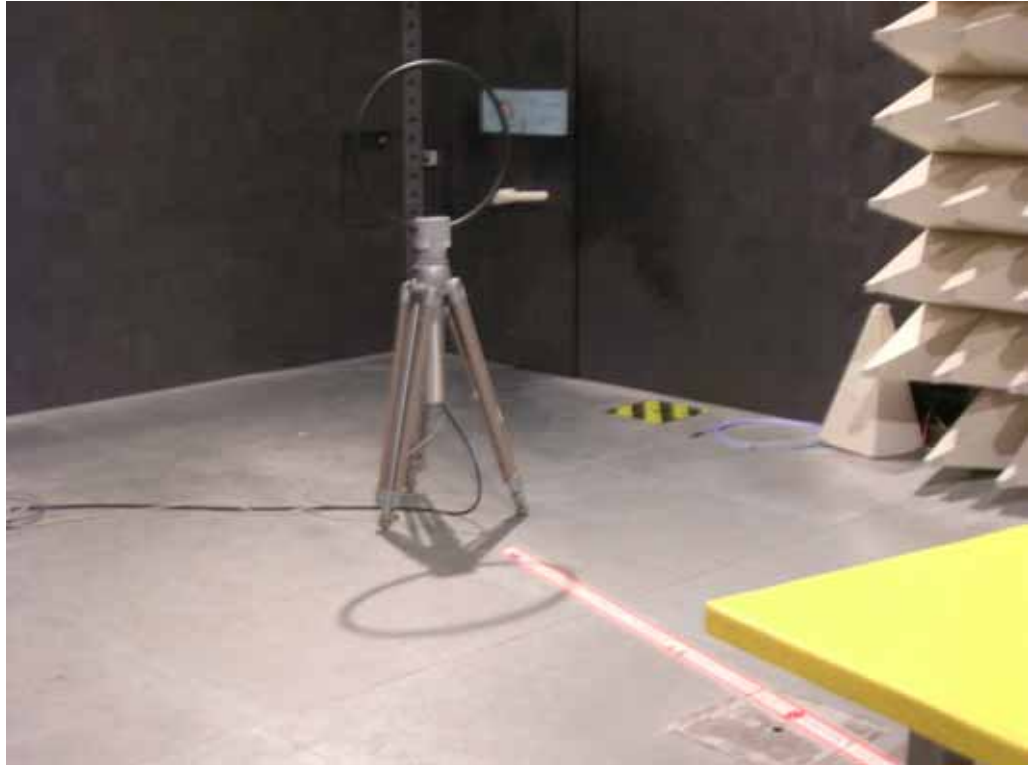
Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.4.21. Photographs of Radiated Emission Test Configuration

9kHz ~1GHz

FRONT VIEW

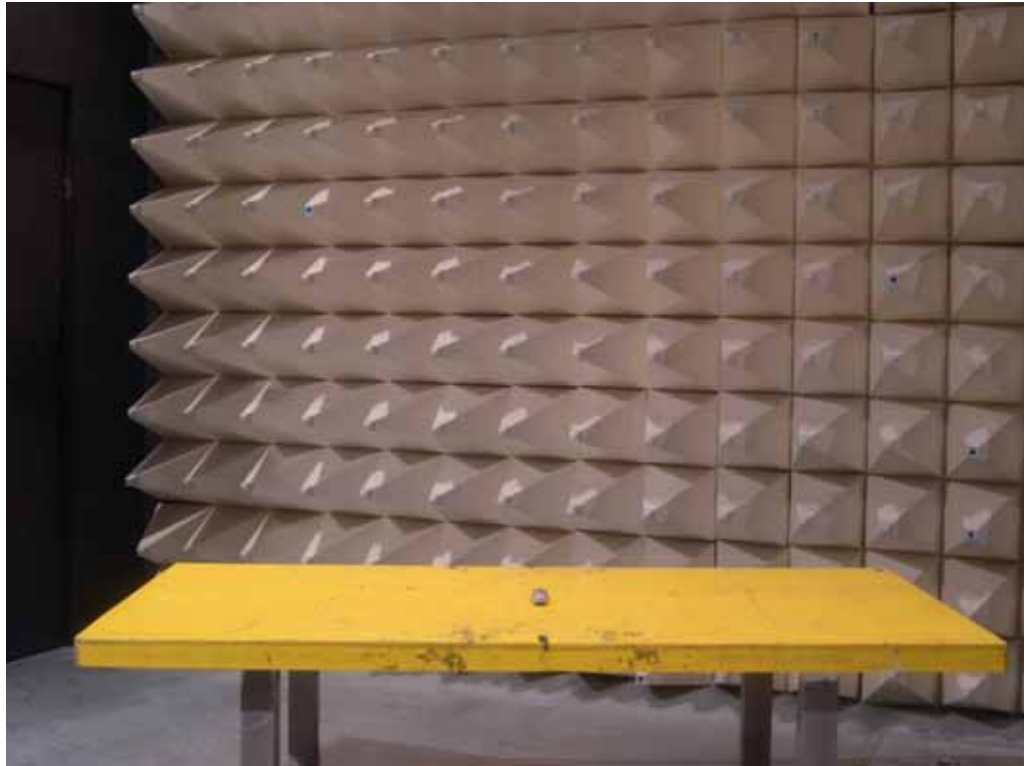


REAR VIEW



**Transmitter**

**FRONT VIEW**



**REAR VIEW**





## **5.5. Antenna Requirements**

### 5.5.1. Standard Applicable

47 CFR Part15 Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

### 5.5.2. Antenna Connected Construction

There is no antenna connector for printed antenna.





## 6. List of Measuring Equipments Used

| Items | Instrument               | Manufacturer   | Model No.    | Serial No. | Characteristics  | Calibration Date | Remark                |
|-------|--------------------------|----------------|--------------|------------|------------------|------------------|-----------------------|
| 1     | EMC Receiver             | R&S            | ESCS 30      | 100174     | 9 KHz – 2.75 GHz | Feb. 16, 2004    | Conduction (CO04-HY)  |
| 2     | LISN                     | MessTec        | NNB-2/16Z    | 2001/004   | 9 KHz – 30 MHz   | Jun. 09, 2004    | Conduction (CO04-HY)  |
| 3     | LISN (Support Unit)      | MessTec        | NNB-2/16Z    | 99041      | 9 KHz – 30 MHz   | Apr. 27, 2004    | Conduction (CO04-HY)  |
| 4     | EMI Filter               | LINDGREN       | LRE-2030     | 2651       | < 450 Hz         | N/A              | Conduction (CO04-HY)  |
| 5     | RF Cable-CON             | UTIFLEX        | 3102-26886-4 | CB044      | 9KHz~30MHz       | Apr. 21, 2004    | Conduction (CO04-HY)  |
| 6     | 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M       | 03CH03-HY  | 30MHz~1GHz<br>3m | Jun. 21, 2004    | Radiation (03CH03-HY) |
| 7     | Spectrum analyzer        | R&S            | FSP40        | 100004     | 9KHZ~40GHz       | Aug. 31, 2004    | Radiation (03CH03-HY) |
| 8     | Amplifier                | HP             | 8447D        | 2944A09072 | 100KHz – 1.3GHz  | Nov. 05, 2003    | Radiation (03CH03-HY) |
| 9     | Biconical Antenna        | SCHWARZBECK    | VHBB 9124    | 301        | 30MHz –200MHz    | Jul. 28, 2004    | Radiation (03CH03-HY) |
| 10    | Log Antenna              | SCHWARZBECK    | VUSLP 9111   | 221        | 200MHz -1GHz     | Jul. 28, 2004    | Radiation (03CH03-HY) |
| 11    | RF Cable-R03m            | Jye Bao        | RG142        | CB021      | 30MHz~1GHz       | Dec. 03, 2003    | Radiation (03CH03-HY) |
| 12    | Amplifier                | MITEQ          | AFS44        | 849984     | 100MHz~26.5GHz   | Mar. 26, 2004    | Radiation (03CH03-HY) |
| 13    | Horn Antenna             | EMCO           | 3115         | 6821       | 1GHz – 18GHz     | Sep. 11, 2004    | Radiation (03CH03-HY) |
| 14    | Turn Table               | HD             | DS 420       | 420/650/00 | 0 ~ 360 degree   | N/A              | Radiation (03CH03-HY) |
| 15    | Antenna Mast             | HD             | MA 240       | 240/560/00 | 1 m - 4 m        | N/A              | Radiation (03CH03-HY) |
| 16    | Horn Antenna             | Schwarzbeck    | BBHA9170     | 154        | 18GHz~40GHz      | Jun. 09, 2004    | Radiation (03CH03-HY) |
| 17    | RF Cable-HIGH            | Jye Bao        | RG142        | CB030-HIGH | 1GHz~29.5GHz     | Dec. 05, 2003    | Radiation (03CH03-HY) |
| 18    | Loop Antenna             | R&S            | HFH2-Z2      | 860004/001 | 9kHz ~ 30MHz     | May 04, 2004*    | Radiation (03CH03-HY) |

Calibration Interval of instruments listed above is one year.

\* Calibration Interval of instruments listed above is two year.