

# FCC Test Report

E.U.T. : Digital Game Caller  
Trade Name : WESTERN RIVERS  
Model : M789  
FCC ID : SC2-M789  
Report No. : RF-A89-0407-071  
Date of Report : August 17, 2004

Prepared for

**ARGUSTEAM ENTERPRISE CO.,LTD.**

NO.26 TUNG-AN E.ST.SAN-CHUNG CITY, TAIPEI COUNTY, TAIWAN R.O.C.

Prepared by



**Central Research Technology Co.**

**EMC Test Laboratory**

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NVLAP LAB CODE 200575-0



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**Total : 26 Pages**

# Certification of Compliance

**E.U.T.** : Digital Game Caller  
**Trade Name** : WESTERN RIVERS  
**Model** : M789  
**FCC ID** : SC2-M789  
**Manufacturer** : ARGUSTEAM ENTERPRISE CO.,LTD.  
**Applicant** : ARGUSTEAM ENTERPRISE CO.,LTD.  
**Address** : NO.26 TUNG-AN E.ST.SAN-CHUNG CITY, TAIPEI COUNTY,  
TAIWAN R.O.C.  
**Date of receipt of Sample** : July 20, 2004  
**Date of Test** : August 13, 2004  
**Applicable Standards** : 47 CFR part 15, Subpart C  
**Deviation** : None  
**Condition of Test Sample** : Prototype



We, **Central Research Technology Co.**, hereby certify that one sample of the designated product was tested in our facility during the period mentioned above. The test records, data evaluation and Equipment Under Test (EUT) configurations shown in the present report are true and accurate representation of the measurements of the sample's RF characteristics under the conditions herein specified.

The test results show that the EUT as described in the present report is in compliance with the requirements set forth in the standards mentioned above and apply to the tested sample identified in the present report only. The test report shall not be reproduced, except in its entirety, without the written approval of Central Research Technology Co.

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**Attachment 3 – Internal Photographs of EUT**

## **1 General Description**

### **1.1 General Description of EUT**

|              |                                 |
|--------------|---------------------------------|
| E.U.T.       | : Digital Game Caller           |
| Model No.    | : M789                          |
| FCC ID       | : SC2-M789                      |
| Brand        | : WESTERN RIVERS                |
| Power in     | : DC 3V (Battery)               |
| Test Voltage | : DC 3V (Battery)               |
| Applicant    | : ARGUSTEAM ENTERPRISE CO.,LTD. |
| Manufacturer | : ARGUSTEAM ENTERPRISE CO.,LTD. |

### **1.2 Characteristic of E.U.T.**

Frequency Range : 433.92MHz

Function Modulation: FSK

The EUT is used to transmit control command only. Please refer to the user's manual for the details.

### **1.3 Test Methodology**

For this E.U.T., the radiated emissions measurement performed according to the procedures illustrated in ANSI C63.4 and other required were illustrated in separate sections of this test report for detail.

Since the EUT is considered a portable unit, it was pre-tested on the positioned of each 3 axis. There for only the test data of the worse case was used for Radiated test.

## 1.4 Requirement for Compliance

### (1) Radiated Emission Requirement

For intentional device, according to §15.209, the general requirement of field strength of radiated emissions from intentional radiator at a distance of 3meters shall not exceed the below table.

| Table 3 Limit   |                          |                       |                         |
|-----------------|--------------------------|-----------------------|-------------------------|
| Frequency (MHz) | Measurement Distance (m) | Field Strength (uV/m) | Field Strength (dBuV/m) |
| 30 – 88         | 3                        | 100                   | 40.0                    |
| 88 – 216        | 3                        | 150                   | 43.5                    |
| 216 – 960       | 3                        | 200                   | 46.0                    |
| 960 – 1610      | 3                        | 500                   | 54.0                    |
| above 1610      | 3                        | 500                   | 54.0                    |

Note 1- The lower limit shall apply at the transition frequency.

### (2) Dwell Time

According to 15.231(a)(1), A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

### (3) Field Strength of Emissions

According to 15.231(b), In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

| Fundamental Frequency (MHz) | Field Strength of Fundament (uV/m) | Field Strength of Spurious Emission (uV/m) |
|-----------------------------|------------------------------------|--------------------------------------------|
| 40.66 - 40.70               | 2250                               | 225                                        |
| 70 – 130                    | 1250                               | 125                                        |
| 130 – 174                   | 1250 to 3750**                     | 125 to 375**                               |
| 174 – 260                   | 3750                               | 375                                        |
| 260 – 470                   | 3750 to 12500**                    | 375 to 1250**                              |
| Above 470                   | 12500                              | 1250                                       |

\*\* linear interpolations

**(4) Emission Bandwidth**

According to 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

**(5) Restricted Band**

| Frequency (MHz)            | Frequency (MHz) | Frequency (MHz) | Frequency (MHz) |
|----------------------------|-----------------|-----------------|-----------------|
| 0.090 - 0.110              | 37.475 - 38.275 | 1435.0 - 1626.5 | 8025.0 - 8500.0 |
| <sup>1</sup> 0.490 - 0.510 | 73.500 - 75.400 | 1660.0 - 1755.0 | 9000.0 - 9200.0 |
| 2.172 - 2.198              | 108.00 - 138.00 | 1805.0 - 1850.0 | 9300.0 - 9500.0 |
| 3.013 - 3.033              | 149.90 - 150.05 | 2200.0 - 2300.0 | 10600 - 12700   |
| 4.115 - 4.198              | 156.70 - 156.90 | 2310.0 - 2390.0 | 13250 - 13400   |
| 5.670 - 5.690              | 162.01 - 167.17 | 2483.5 - 2500.0 | 14470 - 14500   |
| 6.200 - 6.300              | 167.72 - 173.20 | 2655.0 - 2900.0 | 15350 - 16200   |
| 8.230 - 8.400              | 240.00 - 285.00 | 3260.0 - 3267.0 | 17700 - 21400   |
| 12.265 - 12.600            | 322.00 - 335.40 | 3332.0 - 3339.0 | 22010 - 23120   |
| 13.340 - 13.430            | 399.90 - 410.00 | 3345.8 - 3358.0 | 23600 - 24000   |
| 14.965 - 15.020            | 608.00 - 614.00 | 3500.0 - 4400.0 | 31200 - 31800   |
| 16.700 - 16.755            | 825.00 - 915.00 | 4500.0 - 5250.0 | 36430 - 36500   |
| 19.965 - 20.020            | 935.00 - 1240.0 | 5350.0 - 5460.0 | 38600 以上        |
| 25.500 - 25.700            | 1300.0 - 1427.0 | 7250.0 - 7750.0 |                 |

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

## 1.5 Layout of Setup



(Transmitter)

### Connecting Cables :

| No. | Cable | Length | Shielded | Core | Shielded Backshell | Supported by lab. | Note |
|-----|-------|--------|----------|------|--------------------|-------------------|------|
| N/A | *     | *      | *        | *    | *                  | *                 | *    |

### Justification:

For both conducted and radiated emission below 1GHz, the system was configured for typical fasion as a customer could normal use it.

For radiated emission, measurement of radiated emission from digital circuit is performed with normal transmitting.

## 1.6 Test Facility

| Test Room                               | Type of Test Room                         | Descriptions                                                                                                     |
|-----------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> TR1 | 10m semi-anechoic chamber<br>(23m×14m×9m) | Complying with the NSA requirements in documents CISPR 22 and ANSI C63.4. for the radiated emission measurement. |
| <input checked="" type="checkbox"/> TR4 | Shielding Room<br>(5m×3m×3m)              | For the RF conducted emission measurement.                                                                       |

## 1.7 Measurement Uncertainty

All the measurement uncertainty evaluation procedures in this report are base on ETSI TR 100 028-1, 100 028-2, and ETSI TR 102 273-3. The assessed measurement uncertainties are:

| Test Item                          | Measurement Uncertainty               |
|------------------------------------|---------------------------------------|
| Dwell Time                         | 2%                                    |
| Radiated Emission:<br>(below 1GHz) | Horizontal 4.56dB ; Vertical 4.56dB   |
| Radiated Emission:<br>(above 1GHz) | Horizontal 4.05 dB ; Vertical 4.08 dB |
| Bandwidth                          | 4.56 Hz                               |

## **2 Dwell Time**

**Result: Pass**

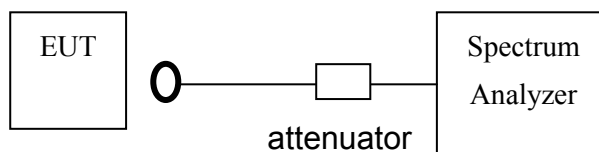
### **2.1 Applied standard**

According to 15.231(a), A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

### **2.2 Measurement Procedure**

- a. The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.
- b. The Transmitter output of EUT was connected to the spectrum analyzer through an attenuator.
- c. Set the the spectrum analyzer into zero span and performs the dwell time bandwidth measurement.
- d. Record the dwell time and compare with the required limit.

## 2.3 Test configuration



## 2.4 Test Instruments

| Test Site and Equipment | Manufacturer | Model No./Serial No. | Last Cal.  |
|-------------------------|--------------|----------------------|------------|
| Shielded Room           | ETS.LINDGREN | TR4/15353-F          | 2003/8/27  |
| Spectrum Analyzer       | R&S          | FSP40/100031         | 2004/6/8   |
| Attenuator              | HP           | 8495B/ 2814A13358    | 2003/12/29 |

Note:

1. The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC.
2. NCR:No Calibration Required.

### Instrument Setting

| RBW    | VBW    | Detector | Trace   | Comment |
|--------|--------|----------|---------|---------|
| 100KHz | 300KHz | Peak     | Maxhold |         |

### Climatic Condition

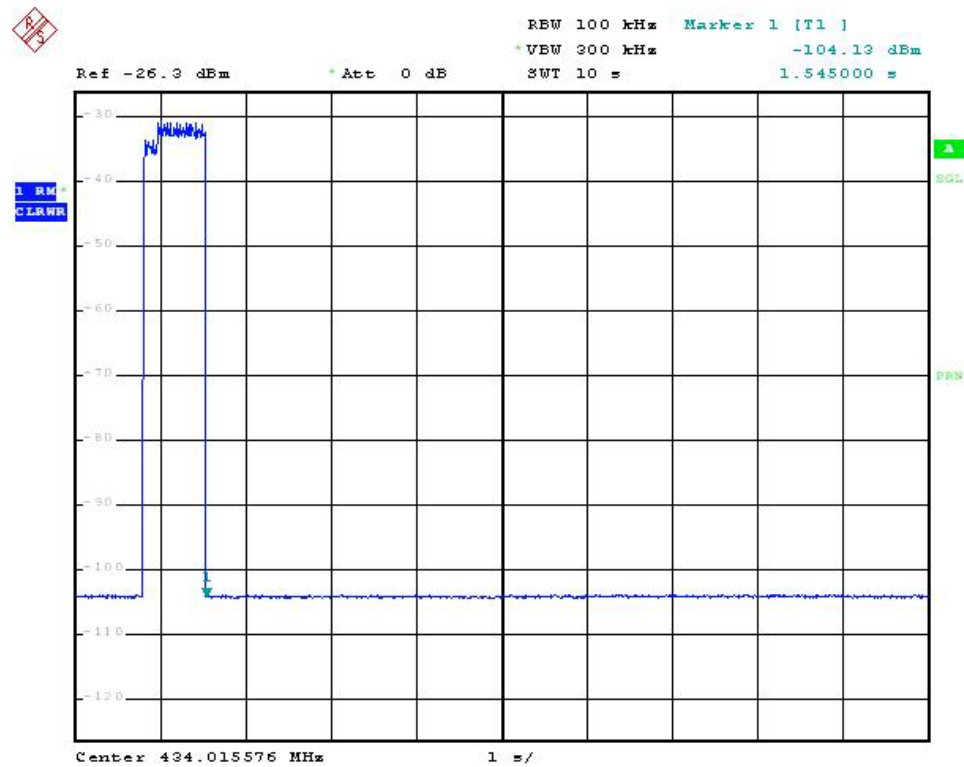
Ambient Temperature : 24°C;

Relative Humidity : 55%

## 2.5 Test Data

Test Site : TR4

Tester : Bill



The transmitter will automatically deactivate within 5 second after release the button of the transmitter.

### 3 Radiated Emission

Result: Pass

#### 3.1 Applied standard

According to 15.231(b), In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

| Fundamental<br>Frequency<br>(MHz) | Field Strength of<br>Fundament<br>(uV/m) | Field Strength of<br>Spurious Emission<br>(uV/m) |
|-----------------------------------|------------------------------------------|--------------------------------------------------|
| 40.66 - 40.70                     | 2250                                     | 225                                              |
| 70 – 130                          | 1250                                     | 125                                              |
| 130 – 174                         | 1250 to 3750**                           | 125 to 375**                                     |
| 174 – 260                         | 3750                                     | 375                                              |
| 260 – 470                         | 3750 to 12500**                          | 375 to 1250**                                    |
| Above 470                         | 12500                                    | 1250                                             |

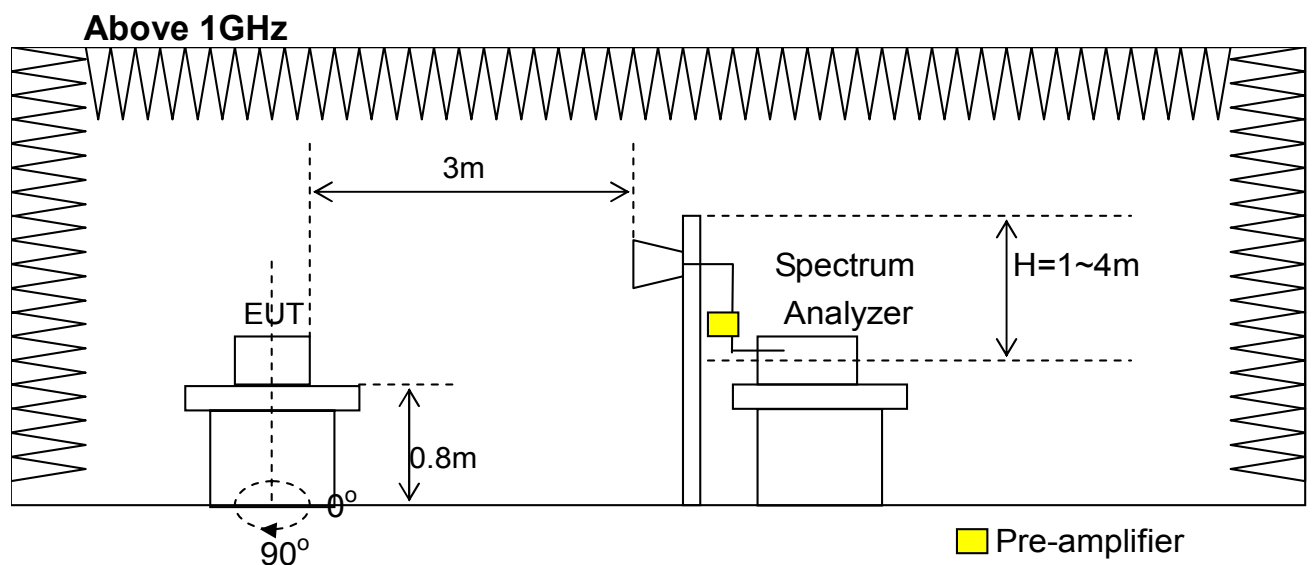
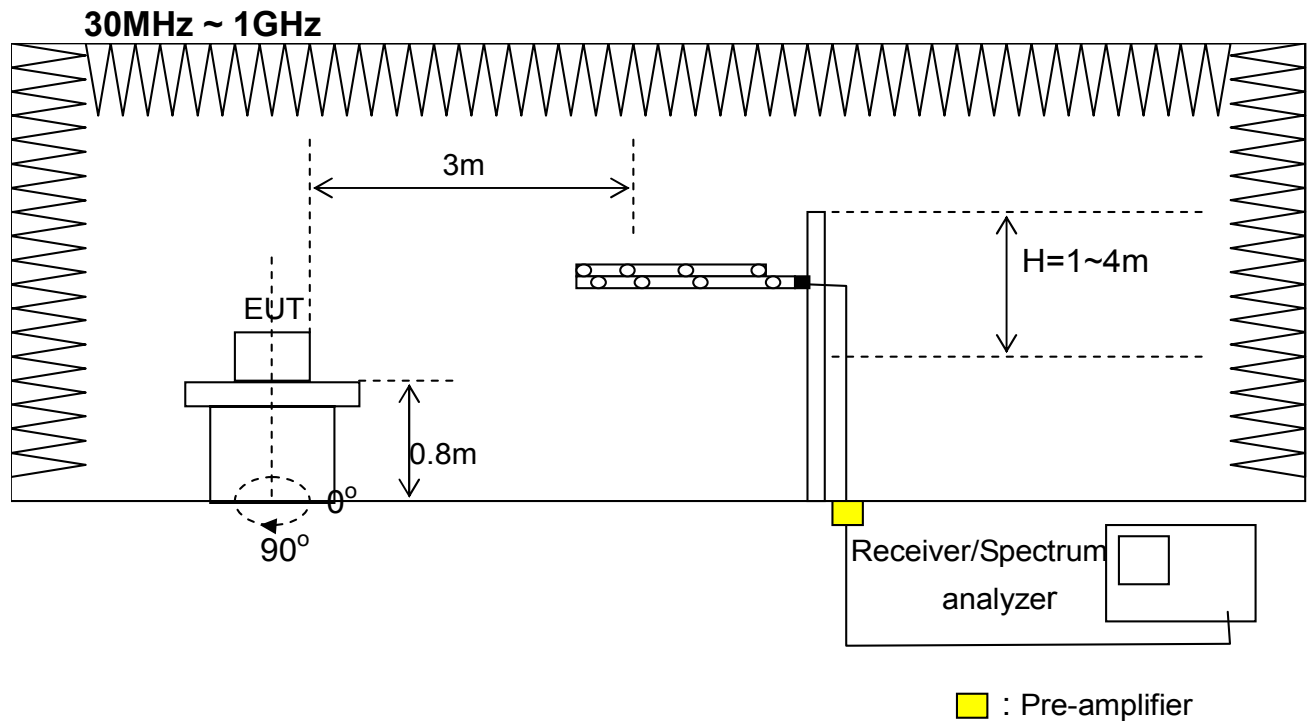
\*\* linear interpolations

Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in Section 15.209, whichever limit permits a higher field strength.

### **3.2 Measurement Procedure**

- a. The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.
- b. If the EUT is tabletop equipment, it was placed on a wooden table with a height of 0.8 meters above the reference ground plane in the semi-anechoic chamber. If the EUT is floor-standing equipment, it was placed on a non-conducted support with a height of 0.1 meters above the reference ground plane in the semi-anechoic chamber.
- c. The EUT was set 3m away from the interference receiving antenna.
- d. Rapidly sweep the signal in the test frequency range by using the spectrum through the Maximum-peak detector.
- e. Rotate the EUT from 0° to 360° and position the receiving antenna at heights from 1 to 4 meters above the reference ground plane continuously to determine the fundamental frequency and frequencies associated with higher emission levels and record them.
- f. Then measure each frequency found from step e. by using the spectrum with rotating the EUT and positioning the receiving antenna height to determine the maximum level.
- g. Finely tune the antenna and turntable around the recorded position of each frequency found from step f.
- h. For measurement of frequency below 1000MHz, set the receiver detector to be Quasi-Peak per CISPR 16-1 to find out the maximum level occurred.
- i. For measurement of frequency above 1000MHz, set the spectrum detector to be Peak or Average to find out the maximum level occurred, if any.
- j. Record the frequency and polarization of the receiving antenna and compare the maximum level with the required limit.
- k. Change the receiving antenna to another polarization to measure radiated emission by following step d. to j. again.
- l. If the peak emission level measured from step e. is 10dB lower than the limit specified, then the emission values presented will be the peak value only. Otherwise, accurate Q.P. value will be measured and presented.

### 3.3 Test configuration



### 3.4 Test Instruments

| Test Site and Equipment | Manufacturer | Model No./Serial No.       | Last Cal.  |
|-------------------------|--------------|----------------------------|------------|
| Semi-anechoic Chamber   | ETS.LINDGREN | TR1/17627-B                | 2004/4/11  |
| Test Receiver           | R&S          | ESCS30/ 836858/020         | 2003/10/31 |
| Spectrum Analyzer       | R&S          | FSP40/100031               | 2004/6/8   |
| Antenna                 | R&S          | HL562/ 360543/010          | 2003/12/8  |
| Antenna                 | R&S          | HF906/ 359287/001          | 2004/4/26  |
| Pre-amplifier           | MITEQ        | JS4-00101800-28-5A/ 742229 | 2004/3/14  |
| Pre-amplifier           | Mini Circuit | ZKL-2/ 001                 | 2004/4/17  |

Note :

1. The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC.
2. NCR:No Calibration Required

### Instrument Setting

| RBW    | VBW  | Detector     | Trace   | Comment                     |
|--------|------|--------------|---------|-----------------------------|
| 100KHz | N/A  | Peak/Average | Maxhold | Field Strength of Fundament |
| 120kHz | N/A  | Quasi-Peak   | Maxhold | Below 1GHz                  |
| 1MHz   | 1MHz | Peak         | Maxhold | Above 1GHz Peak             |

### Climatic Condition

Ambient Temperature : 24°C;

Relative Humidity : 55%

### 3.5 Test Data

#### Field Strength of Fundament

**Test Distance** : 3m  
**Worse Case Mode** : Z-axis

**Tester** : CJH

| Frequency (MHz) | Polarization | Reading Data (dBuV) |       | Correction Factor (dB/m) | Output Field Strength (dBμV/m) |       | Limit (dBμV/m) |       | Margin (dB) |      |
|-----------------|--------------|---------------------|-------|--------------------------|--------------------------------|-------|----------------|-------|-------------|------|
|                 |              | PK                  | AV    |                          | PK                             | AV    | PK             | AV    | PK          | AV   |
| 434.03          | V            | 89.24               | 85.69 | -12.68                   | 76.56                          | 73.01 | 100.79         | 80.79 | 24.23       | 7.78 |
| 433.89          | H            | 92.86               | 89.31 | -12.69                   | 80.17                          | 76.62 | 100.79         | 80.79 | 20.62       | 4.17 |

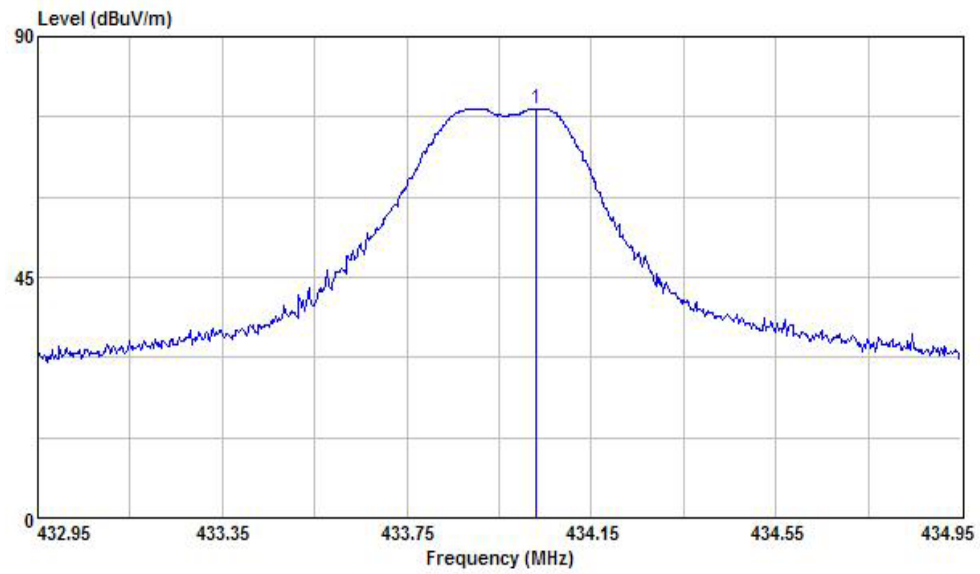
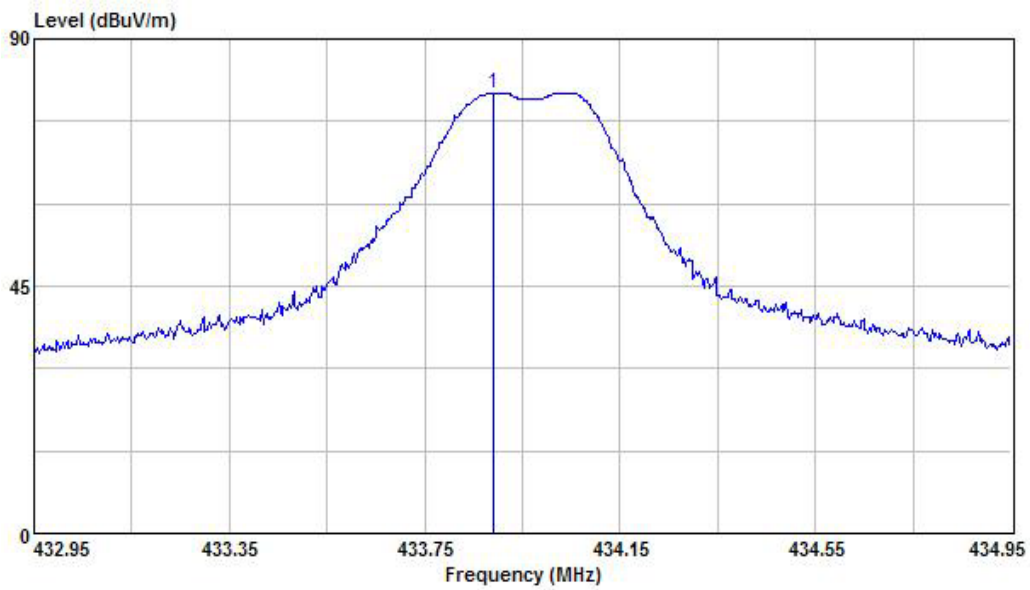
Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Output Field Strength (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Output Field Strength
4. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle)

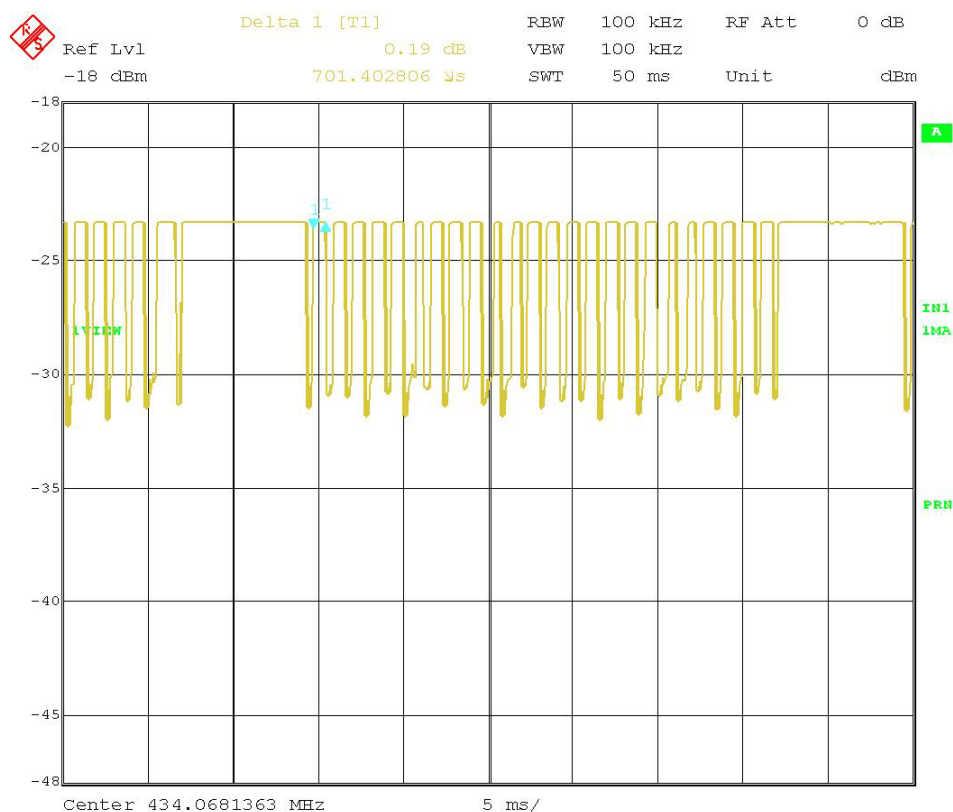
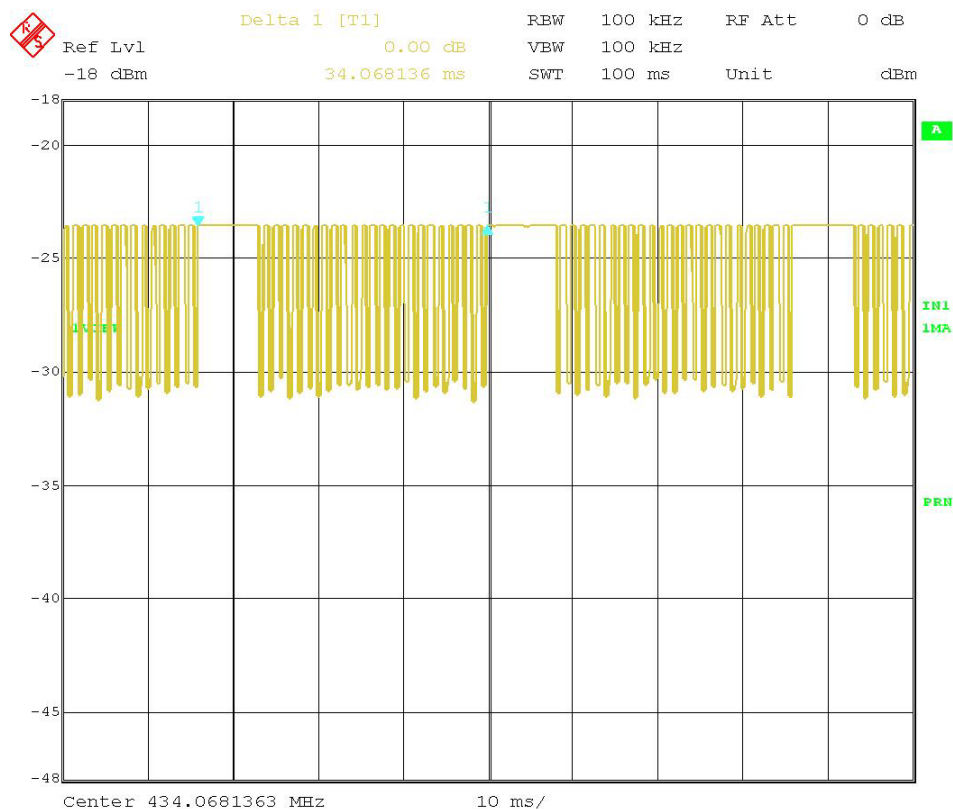
Where the duty factor is calculated from following formula:

$$20\log(\text{Duty cycle}) = 20\log \frac{7.3146 + 0.7014 \times 19 + 0.4008 \times 5}{34.068} = -3.55\text{dB}$$

please see page 18 for plotted duty cycle.

**V Polarization, PK****H Polarization, PK**

## Duty cycle



## Field Strength of Spurious Emission

## Below 1GHz

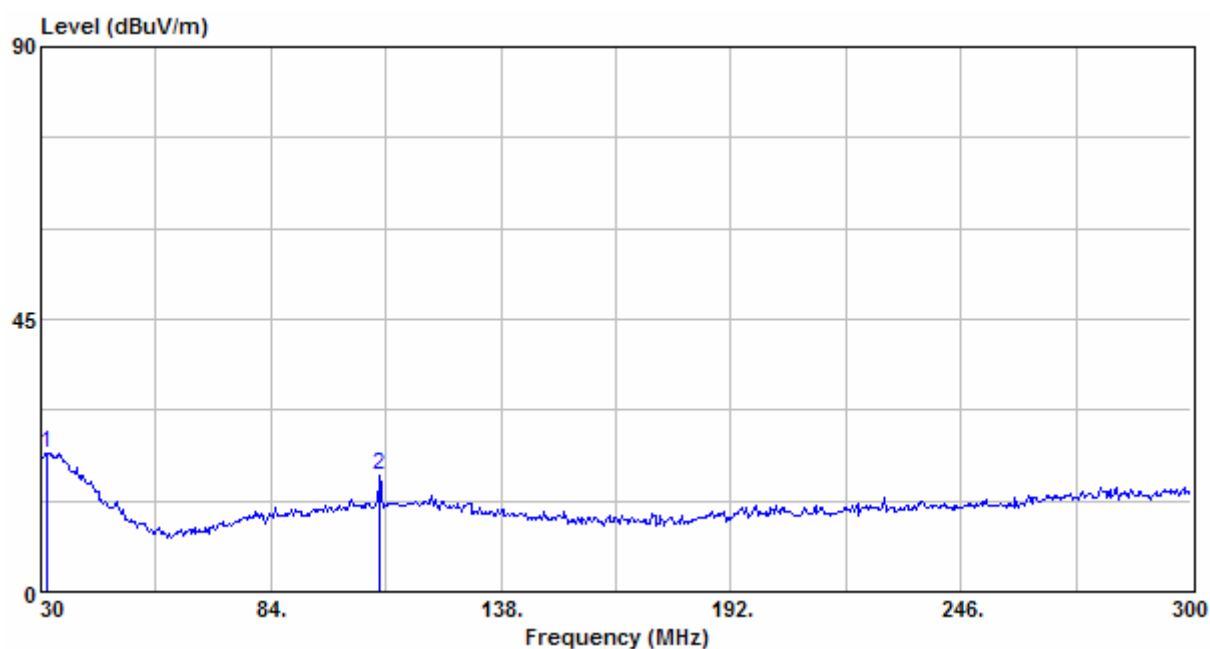
Test Distance : 3m  
Polarization : Vertical  
Worse Case Mode : X- axis

Tester : CJH  
Frequency Range : 30MHz~300MHz

|   | Freq.<br>(MHz) | Reading Data<br>(dBuV) | Correction Factor<br>(dB/m) | Emission Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|---|----------------|------------------------|-----------------------------|----------------------------|-------------------|----------------|
| 1 | 31.62          | 33.52                  | -10.63                      | 22.89                      | 40.00             | 17.11          |
| 2 | 109.65         | 37.60                  | -18.34                      | 19.26                      | 43.50             | 24.24          |

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. “\*”: The emission is too low to be measured.



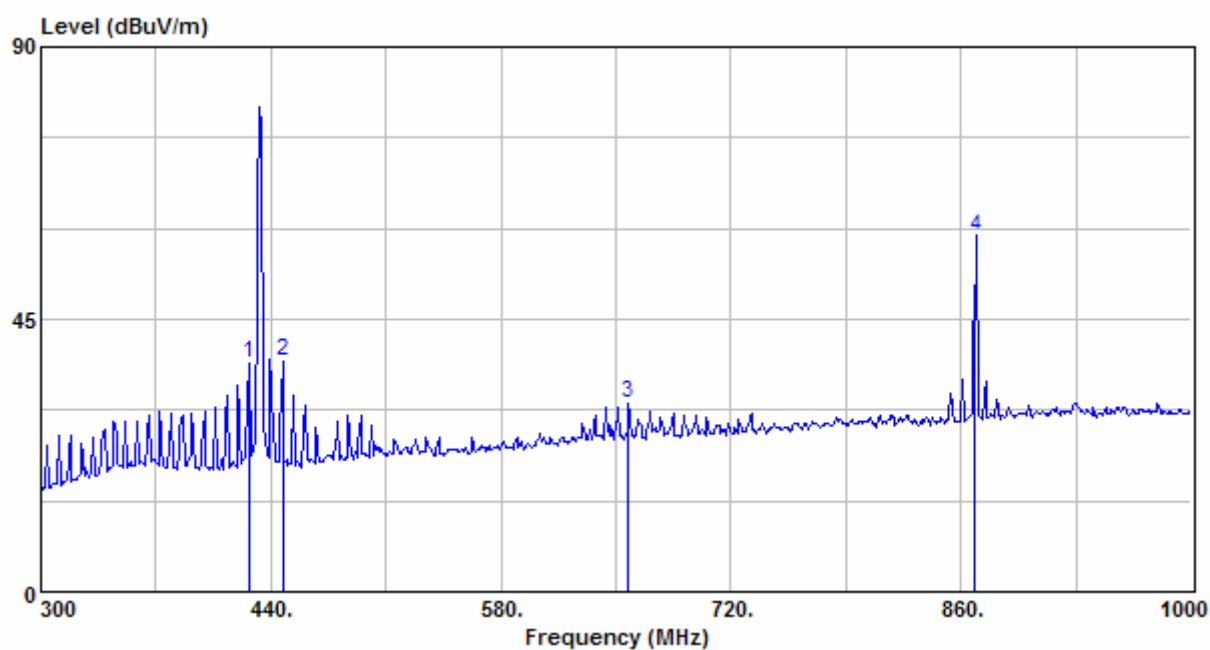
Test Distance : 3m  
Polarization : Vertical  
Worse Case Mode : X- axis

Tester : CJH  
Frequency Range : 300MHz~1GHz

|   | Freq.<br>(MHz) | Reading Data<br>(dBuV) | Correction Factor<br>(dB/m) | Emission Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|---|----------------|------------------------|-----------------------------|----------------------------|-------------------|----------------|
| 1 | 427.40         | 49.84                  | -12.24                      | 37.60                      | 61.94             | 24.34          |
| 2 | 447.00         | 49.95                  | -11.88                      | 38.07                      | 61.94             | 23.87          |
| 3 | 657.70         | 38.20                  | -6.97                       | 31.23                      | 61.94             | 30.71          |
| 4 | 868.12         | 63.63                  | -4.65                       | 58.98                      | 61.94             | 2.96           |

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level



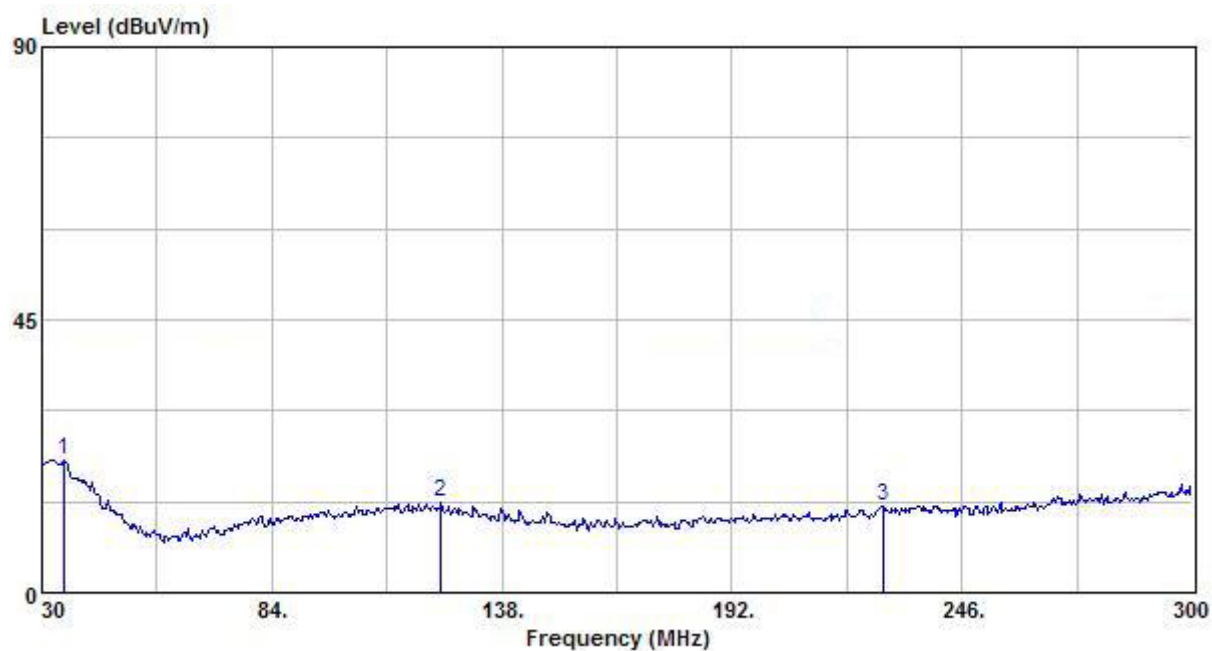
Test Distance : 3m  
Polarization : Horizontal  
Worse Case Mode : Z- axis

Tester : CJH  
Frequency Range : 30MHz~300MHz

|   | Freq.<br>(MHz) | Reading Data<br>(dBuV) | Correction Factor<br>(dB/m) | Emission Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|---|----------------|------------------------|-----------------------------|----------------------------|-------------------|----------------|
| 1 | 35.13          | 33.03                  | -11.35                      | 21.68                      | 40.00             | 18.32          |
| 2 | 123.69         | 33.65                  | -18.91                      | 14.74                      | 43.50             | 28.76          |
| 3 | 227.37         | 33.73                  | -19.36                      | 14.37                      | 51.48             | 37.11          |

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level



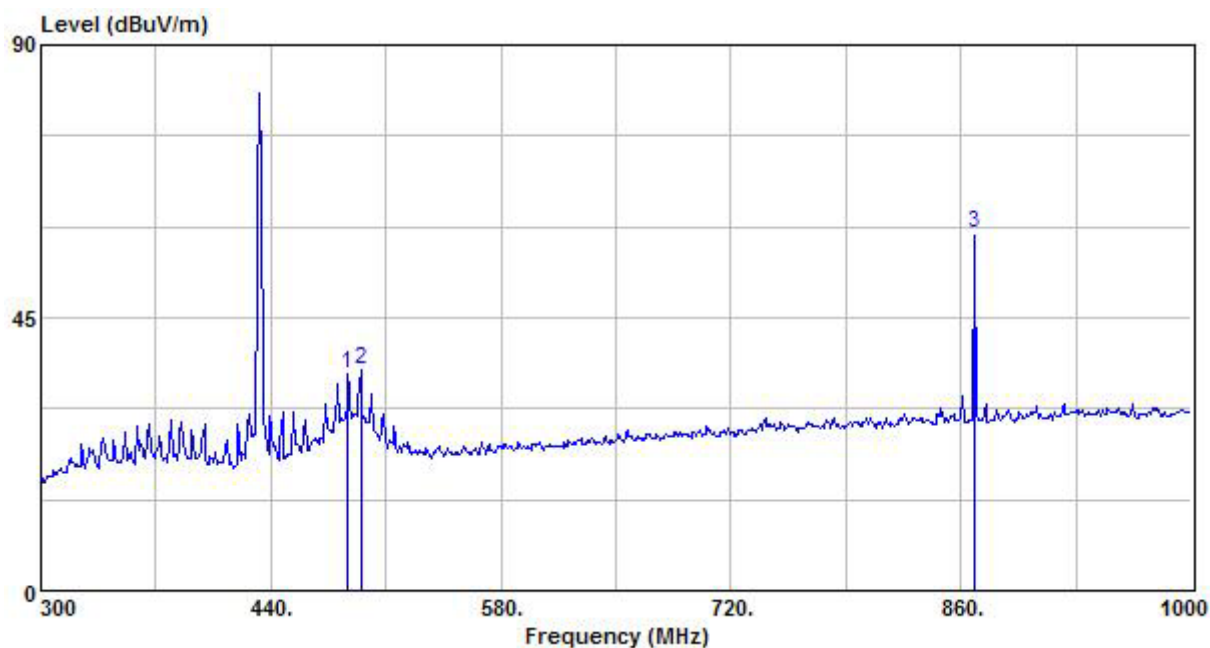
Test Distance : 3m  
Polarization : Horizontal  
Worse Case Mode : Z-axis

Tester : CJH  
Frequency Range : 300MHz~1GHz

|   | Freq.<br>(MHz) | Reading Data<br>(dBuV) | Correction Factor<br>(dB/m) | Emission Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|---|----------------|------------------------|-----------------------------|----------------------------|-------------------|----------------|
| 1 | 486.90         | 47.07                  | -11.20                      | 35.87                      | 61.94             | 26.07          |
| 2 | 494.60         | 47.25                  | -10.98                      | 36.27                      | 61.94             | 25.67          |
| 3 | 868.06         | 63.63                  | -4.65                       | 58.98                      | 61.94             | 2.96           |

Note :

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level



## Above 1GHz

Test Distance : 3m  
Polarization : Vertical  
Worse Case Mode : Z-axis

Tester : CJH  
Frequency Range : 1GHz ~ 4.5GHz

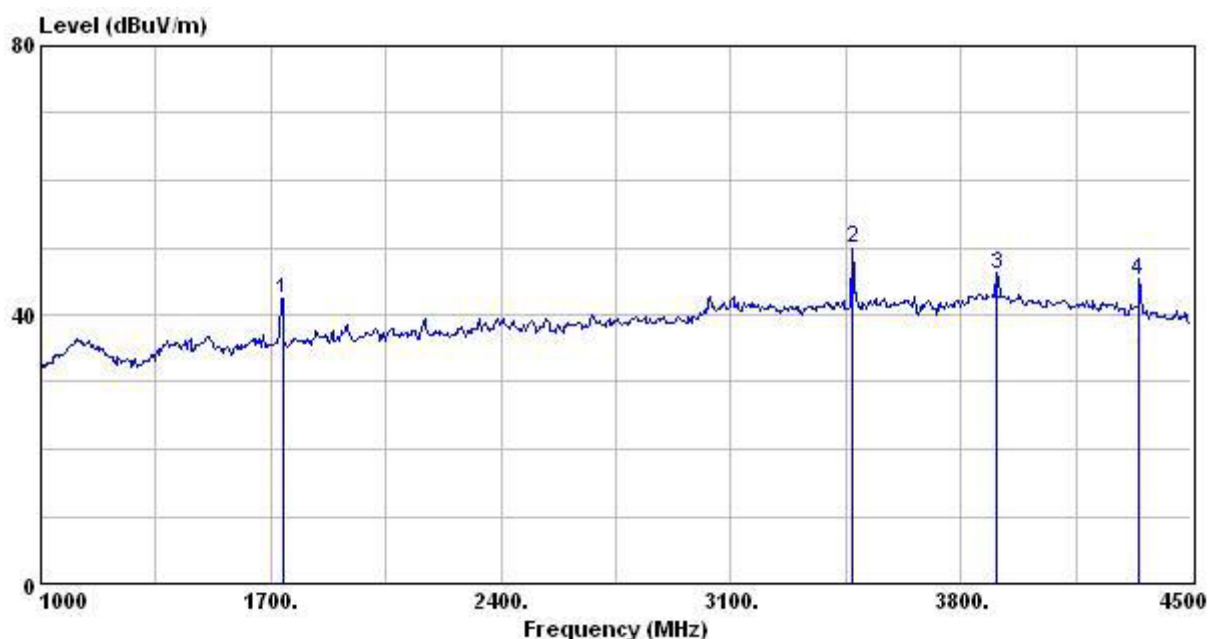
| Frequency (MHz) | Reading Data (dBuV) |       | Correction Factor (dB/m) | Emission Level (dBuV/m) |       | Limit (dBuV/m) |       | Margin (dB) |       |
|-----------------|---------------------|-------|--------------------------|-------------------------|-------|----------------|-------|-------------|-------|
|                 | PK                  | AV    |                          | PK                      | AV    | PK             | AV    | PK          | AV    |
| 1735.00         | 46.13               | 42.58 | -3.93                    | 42.20                   | 38.65 | 81.94          | 61.94 | 39.74       | 23.29 |
| 3471.00         | 48.91               | 45.36 | 0.93                     | 49.84                   | 46.29 | 81.94          | 61.94 | 32.10       | 15.65 |
| 3906.01         | 44.03               | 40.48 | 2.13                     | 46.16                   | 42.61 | 74.00          | 54.00 | 27.84       | 11.39 |
| 4340.15         | 43.63               | 40.08 | 1.72                     | 45.34                   | 41.80 | 74.00          | 54.00 | 28.66       | 12.20 |

Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “\*”: The emission is too low to be measured.
6. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle)  
Where the duty factor is calculated from following formula:

$$20\log(\text{Duty cycle}) = 20\log \frac{7.3146 + 0.7014 \times 19 + 0.4008 \times 5}{34.068} = -3.55\text{dB}$$

please see page 18 for plotted duty cycle.



Test Distance : 3m  
Polarization : Horizontal  
Worse Case Mode : Z-axis

Tester : CJH  
Frequency Range : 1GHz ~ 4.5GHz

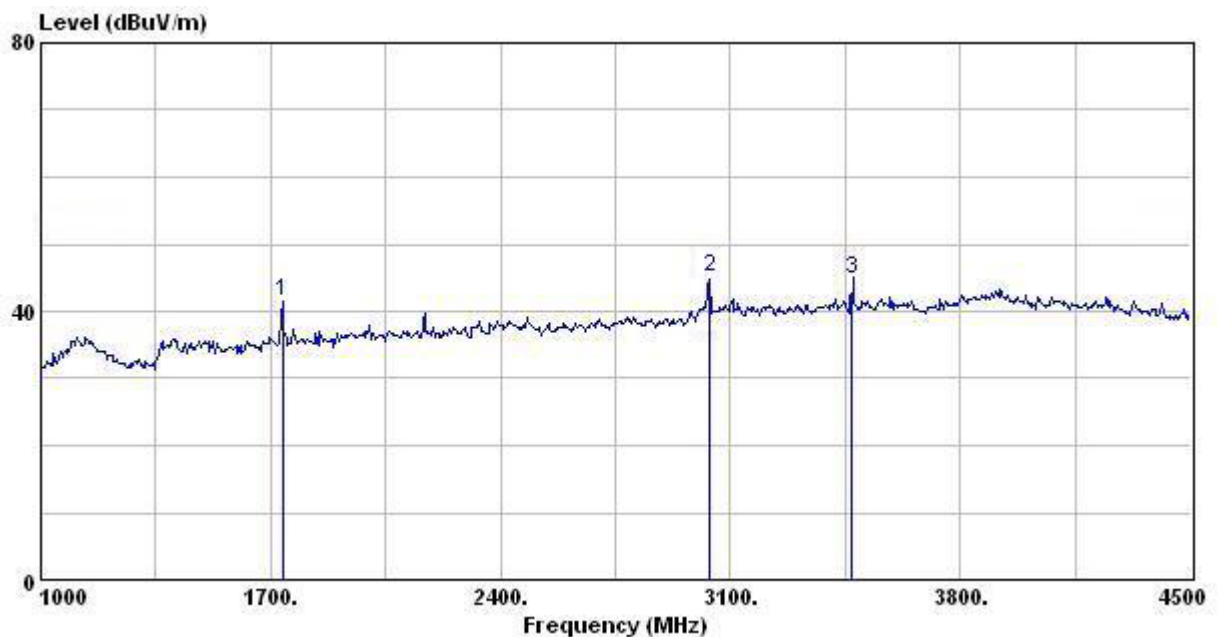
| Frequency (MHz) | Reading Data (dBuV) |       | Correction Factor (dB/m) | Emission Level (dBμV/m) |       | Limit (dBμV/m) |       | Margin (dB) |       |
|-----------------|---------------------|-------|--------------------------|-------------------------|-------|----------------|-------|-------------|-------|
|                 | PK                  | AV    |                          | PK                      | AV    | PK             | AV    | PK          | AV    |
| 1735.00         | 45.44               | 41.89 | -3.93                    | 41.51                   | 37.96 | 81.94          | 61.94 | 40.43       | 23.98 |
| 3037.00         | 45.10               | 41.55 | -0.25                    | 44.85                   | 41.3  | 81.94          | 61.94 | 37.09       | 20.64 |
| 3471.00         | 44.19               | 40.64 | 0.93                     | 45.12                   | 41.57 | 81.94          | 61.94 | 36.82       | 20.37 |

Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “\*”: The emission is too low to be measured.
6. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle)  
Where the duty factor is calculated from following formula:

$$20\log(\text{Duty cycle}) = 20\log \frac{7.3146 + 0.7014 \times 19 + 0.4008 \times 5}{34.068} = -3.55\text{dB}$$

please see page 18 for plotted duty cycle.



## 4 Bandwidth

**Result:** Pass

### 4.1 Applied standard

According to 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

### 4.2 Measurement Procedure

- The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.
- The Transmitter output of EUT was connected to the spectrum analyzer through an attenuator.
- Measure the 20dB bandwidth and compare with the required limit.

### 4.3 Test configuration

As stated in the section 2.3

### 4.4 Test Instruments

As stated in the section 2.4

#### Instrument Setting

| RBW    | VBW    | Detector | Trace   | Comment |
|--------|--------|----------|---------|---------|
| 100kHz | 300kHz | Peak     | Maxhold |         |

#### Climatic Condition

Ambient Temperature : 24°C; Relative Humidity : 55%

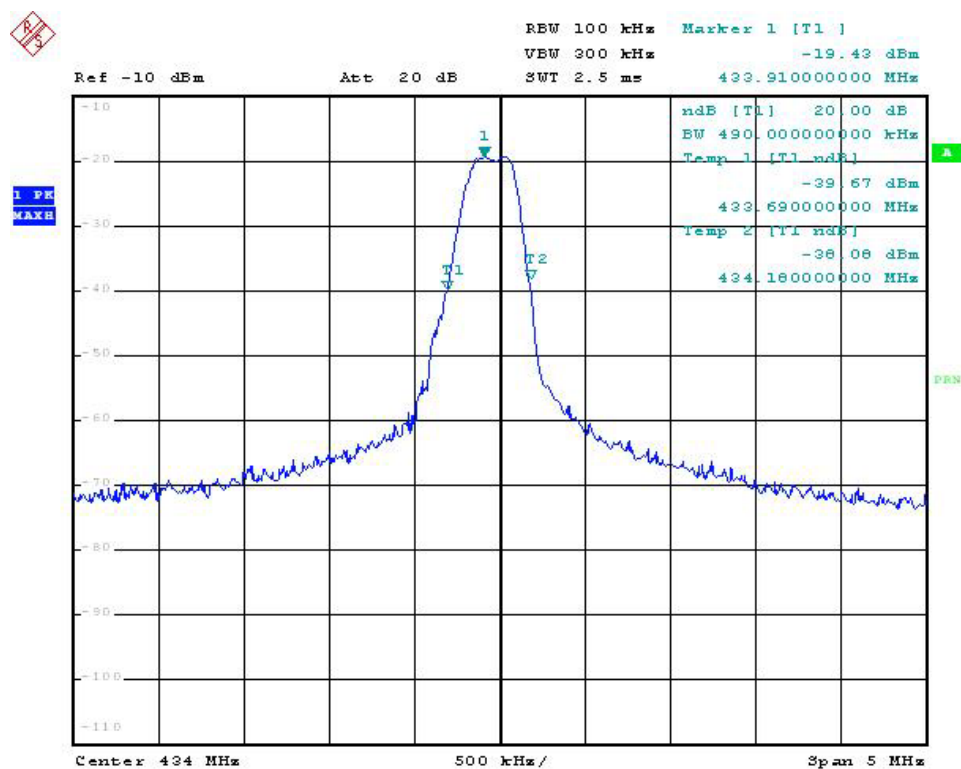
## 4.5 Test Data

## 20dB Bandwidth

Emission Freq. : 433.92MHz

Tester

: Bill



Measured 20dB bandwidth is  $490\text{ kHz} < 433.92\text{ MHz} \times 0.25\% = 1.0848\text{ MHz}$ .