



**CONFORMANCE TEST REPORT  
FOR  
FCC 47 CFR, Part 15 Subpart C  
and  
Canada RSS-210**

**Report No.: 10-01-MAS-174**

Client: **OPTEX CO., LTD.**  
Product: **INDOOR/OUTDOOR SENSOR TRANSMITTER**  
Model: **TD-20U**  
FCC ID: **DC9TD-20U**  
IC ID: **4012A-000000TD20U**  
Manufacturer/supplier: **IQ Group Sdn. Bhd.**

Date test item received: 2009/12/24  
Date test campaign completed: 2010/01/27  
Date of issue: 2010/03/09




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*Total number of pages of this test report: 23 pages*

*Total number of pages of photos: External photos 1 pages*

*Internal photos 4 pages*

*Setup photos 1 pages*

| Test Engineer  | Checked By  | Approved By  |
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Manufacturer : IQ Group Sdn. Bhd.  
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( FTZ ), Bayan Lepas , 11900 Pulau Pinang, Malaysia.  
EUT : INDOOR/OUTDOOR SENSOR TRANSMITTER  
Trade name : OPTEX  
Model No. : TD-20U  
Power Source : 3V dc  
Regulations applied : FCC 47 CFR, Part 15 Subpart C (2008)  
Canada RSS-210 Issue 7 (2007) / RSS-Gen Issue 2 (2007)

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# Table of Contents

# Page

|   |           |
|---|-----------|
| <b>1. GENERAL INFORMATION .....</b>                     | <b>4</b>  |
| 1.1 PRODUCT DESCRIPTION .....                           | 4         |
| 1.2 CHARACTERISTICS OF DEVICE:.....                     | 4         |
| 1.3 TEST METHODOLOGY .....                              | 4         |
| 1.4 TEST FACILITY .....                                 | 4         |
| 1.5 TEST SUMMARY .....                                  | 4         |
| <b>2. DEFINITION AND LIMITS .....</b>                   | <b>5</b>  |
| 2.1 DEFINITION .....                                    | 5         |
| 2.2 RESTRICTED BANDS OF OPERATION .....                 | 5         |
| 2.3 LIMITATION.....                                     | 6         |
| 2.4 LABELING REQUIREMENT.....                           | 7         |
| 2.5 USER INFORMATION .....                              | 7         |
| <b>3. RADIATED EMISSION MEASUREMENT .....</b>           | <b>8</b>  |
| 3.1 APPLICABLE STANDARD.....                            | 8         |
| 3.2 MEASUREMENT PROCEDURE .....                         | 8         |
| 3.3 TEST DATA.....                                      | 10        |
| 3.4 FIELD STRENGTH CALCULATION .....                    | 14        |
| 3.5 RADIATED TEST EQUIPMENT.....                        | 14        |
| 3.6 MEASURING INSTRUMENT SETUP.....                     | 18        |
| <b>4. BANDWIDTH OF EMISSION.....</b>                    | <b>19</b> |
| 4.1 APPLICABLE STANDARD PLOT GRAPHIC OF BANDWIDTH ..... | 19        |
| 4.2 TEST EQUIPMENT .....                                | 19        |
| 4.3 TEST RESULT .....                                   | 19        |
| <b>5. CONDUCTED EMISSION MEASUREMENT .....</b>          | <b>21</b> |
| <b>6. LIMIT OF TRANSMISSION TIME .....</b>              | <b>22</b> |
| 6.1 APPLICABLE STANDARD .....                           | 22        |
| 6.2 TEST EQUIPMENT .....                                | 22        |
| 6.3 TEST RESULT .....                                   | 22        |

## 1. GENERAL INFORMATION

### 1.1 Product Description

- a) Type of EUT : INDOOR/OUTDOOR SENSOR TRANSMITTER  
 b) Model No. : TD-20U  
 c) Serial No. : ----  
 d) FCC ID : DC9TD-20U  
 e) IC ID : 4012A-000000TD20U  
 f) Working Frequency : 418 MHz

### 1.2 Characteristics of Device:

This product is Motion Detector Transmitter, it mean the activation is trigger by body temperature movement. Once is activated the product, the product will send out 1.0 second transmission data and LED will light up at the same time.  
 When the 9V battery is low capacity, the LED will blinking after the 1.0 second transmission data.

### 1.3 Test Methodology

Both Conducted and radiated testing were performed according to the procedures in chapter 13 of ANSI C63.4 (2003).

The equipment under test was operated continuously in its normal operating mode for the purpose of the measurements. In order to secure the continuous operation of the device under test, the circuit rewired by the manufacturer to affect its intended operation. The receiving antenna was varied from 1 to 4 meters and the wooden turntable was rotated through 360 degrees to obtain the highest reading on the field strength meter or on the display of the spectrum analyzer. And also, each emission was to be maximized by changing the orientation of the equipment transmitter under test.

### 1.4 Test Facility

The semi-anechoic chamber and conducted measurement facility used to collect the radiated and conducted data are located inside the Building at No.8, Lane 29, Wen-ming Road, Lo-shan Tsun, Kweishan Hsiang, Taoyuan, Taiwan, R.O.C.  
 This site has been accreditation as a FCC filing site.

### 1.5 Test Summary

| Requirement                | FCC Paragraph #        | IC RSS-210 Paragraph # | IC RSS-Gen Paragraph # | Test Pass |
|----------------------------|------------------------|------------------------|------------------------|-----------|
| Radiated Emission          | 15.231(b)(e)&15.209    | 2.6&A1.1.2             | 7.2.3                  | ☒         |
| Bandwidth of Emission      | 15.231(c)              | A1.1.3                 | N/A                    | ☒         |
| Conducted Emission         | 15.207                 | N/A                    | 7.2.2                  | N/A       |
| Limit of Transmission Time | 15.231(a)(1)&15.231(e) | A1.1                   | N/A                    | ☒         |

## 2. DEFINITION AND LIMITS

### 2.1 Definition

Intentional radiator:

A device that intentionally generates and emits radio frequency energy by radiation or induction.

### 2.2 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz               | MHz                   | MHz           | GHz         |
|-------------------|-----------------------|---------------|-------------|
| 0.090 - 0.110     | 16.42-16.423          | 399.9-410     | 4.5-5.25    |
| 0.495 - 0.505 **  | 16.69475 - 16.69525   | 608-614       | 5.35-5.46   |
| 2.1735 - 2.1905   | 16.80425 - 16.80475   | 960-1240      | 7.25-7.75   |
| 4.125-4.128       | 25.5-25.67            | 1300-1427     | 8.025-8.5   |
| 4.17725-4.17775   | 37.5-38.25            | 1435-1626.5   | 9.0-9.2     |
| 4.20725-4.20775   | 73-74.6               | 1645.5-1646.5 | 9.3-9.5     |
| 6.215-6.218       | 74.8-75.2             | 1660-1710     | 10.6-12.7   |
| 6.26775-6.26825   | 108-121.94            | 1718.8-1722.2 | 13.25-13.4  |
| 6.31175-6.31225   | 123-138               | 2200-2300     | 14.47-14.5  |
| 8.291-8.294       | 149.9-150.05          | 2310-2390     | 15.35-16.2  |
| 8.362-8.366       | 156.52475 - 156.52525 | 2483.5-2500   | 17.7-21.4   |
| 8.37625-8.38675   | 156.7-156.9           | 2655-2900     | 22.01-23.12 |
| 8.41425-8.41475   | 162.0125-167.17       | 3260-3267     | 23.6-24.0   |
| 12.29-12.293      | 167.72-173.2          | 3332-3339     | 31.2-31.8   |
| 12.51975-12.52025 | 240-285               | 3345.8-3358   | 36.43-36.5  |
| 12.57675-12.57725 | 322-335.4             | 3600-4400     | Above 38.6  |
| 13.36-13.41       |                       |               |             |

Remark "\*\*\*" : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

## 2.3 Limitation

### (1) Conducted Emission Limits :

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the conducted limit is the following:

| Frequency MHz | Quasi Peak dB $\mu$ V | Average dB $\mu$ V |
|---------------|-----------------------|--------------------|
| 0.15 - 0.5    | 66-56                 | 56-46              |
| 0.5 - 5.0     | 56                    | 46                 |
| 5.0 - 30.0    | 60                    | 50                 |

### (2) Radiated Emission Limits :

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:

| Frequency Band (MHz) | Field strength of Fundamental (uV/m) | Field strength of Spurious (uV/m) |
|----------------------|--------------------------------------|-----------------------------------|
| 40.66-40.70          | 2250                                 | 225                               |
| 70-130               | 1250                                 | 125                               |
| 130-174              | *1,250 to 3,750                      | *125 to 375                       |
| 174-260              | 3750                                 | 375                               |
| 260-470              | *3,750 to 12,500                     | *375 to 1250                      |
| Above 470            | 12500                                | 1250                              |

\* Linear interpolations.

According to 15.231(e) ,Periodic operation in the band 40.66-40.70 MHz and above 70 MHz, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

| Frequency Band (MHz) | Field strength of Fundamental (uV/m) | Field strength of Spurious (uV/m) |
|----------------------|--------------------------------------|-----------------------------------|
| 40.66-40.70          | 1000                                 | 100                               |
| 70-130               | 500                                  | 50                                |
| 130-174              | *500-1500                            | *50-150                           |
| 174-260              | 1500                                 | 150                               |
| 260-470              | *1500-5000                           | *150-500                          |
| Above 470            | 5000                                 | 500                               |

\* Linear interpolations.

According to 15.205 (b), the field strength of emissions appearing within the Restricted Bands shall not exceed. The general radiated limits in 15.209, as following table:

| Frequency<br>(MHz) | Field Strength |                  | Measurement Distance<br>(meters) |
|--------------------|----------------|------------------|----------------------------------|
|                    | $\mu$ V/meter  | dB $\mu$ V/meter |                                  |
| 30 - 88            | 100            | 40.0             | 3                                |
| 88 - 216           | 150            | 43.5             | 3                                |
| 216 - 960          | 200            | 46.0             | 3                                |
| Above 960          | 500            | 54.0             | 3                                |

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

### (3) Limit of transmission 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.

According to 15.231(e), devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

## 2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device :

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## 2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with the FCC RF exposure compliance requirement, this device and its antenna must not be co-located or operating to conjunction with any other antenna or transmitter.

### 3. RADIATED EMISSION MEASUREMENT

#### 3.1 Applicable Standard

For periodic operation intentional radiator, the radiated emission shall comply with § 15.231(b).

#### 3.2 Measurement Procedure

##### A.Preliminary Measurement For Portable Devices.

For portable devices, the following procedure was performed to determine the maximum emission axis of EUT (X and Y axis):

1. With the receiving antenna is H polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
2. With the receiving antenna is V polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
3. Compare the results derived from above two steps. The axis of maximum emission from EUT was determined and the configuration was used to perform the final measurement.
4. The position in which the maximum noise occurred was "X axis". (Please see the test setup photos)

##### B. Final Measurement

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively. Turn on EUT and make sure that it is in continuous operating function.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a semi-anechoic chamber to determine the accurate frequencies of higher emissions and then each selected frequency is precisely measured. As the same purpose, for emission measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.
3. For emission measured below and above 1 GHz, set the spectrum analyzer on a 120 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.



Figure 1 : Frequencies measured below 1 GHz configuration

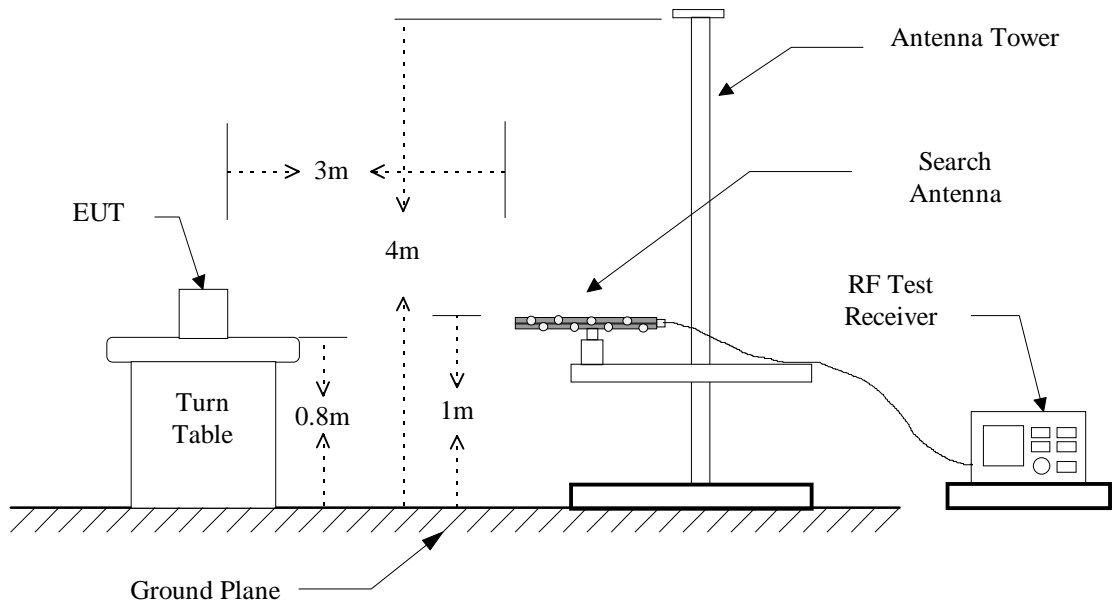
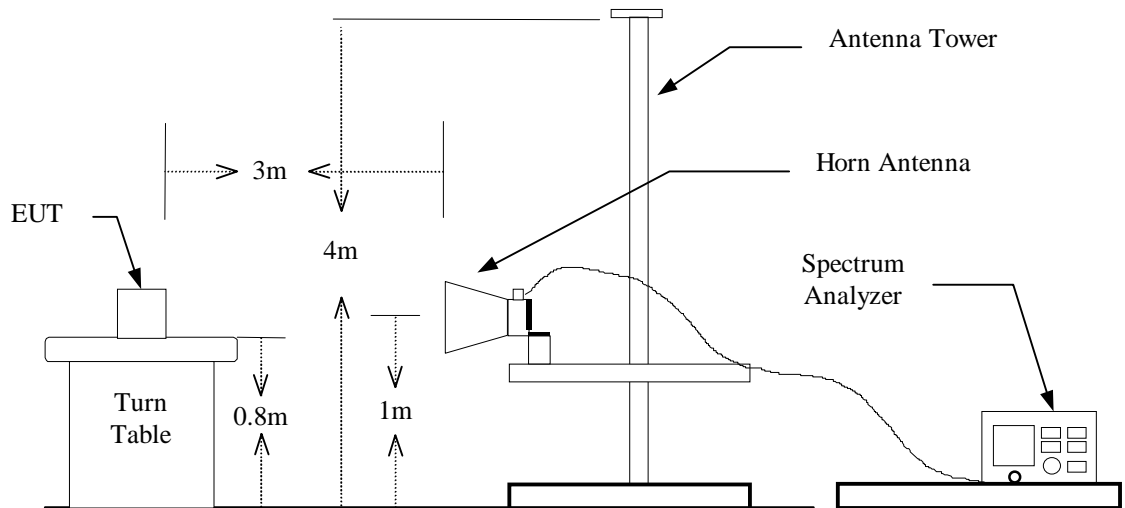


Figure 2 : Frequencies measured above 1 GHz configuration



### 3.3 Test Data

#### 3.3.1 Fundamental and Harmonic

Operated mode : Transmitting

Test Date : Dec. 24, 2009 Temperature : 21 °C

Humidity : 57%

| Frequency<br>(MHz) | Ant<br>Pol<br>H/V | Reading (dBuV)<br>@3m |      |      | Correct<br>Factor<br>(dB/m) | Duty<br>cycle<br>(dB) | Result (dBuV)<br>@3m |      |      | Limit (dBuV/m)<br>@3m |      |      | Margin<br>(dB) |
|--------------------|-------------------|-----------------------|------|------|-----------------------------|-----------------------|----------------------|------|------|-----------------------|------|------|----------------|
|                    |                   | Peak                  | QP   | AVG  |                             |                       | Peak                 | QP   | AVG  | Peak                  | QP   | AVG  |                |
| <b>Fundamental</b> |                   |                       |      |      |                             |                       |                      |      |      |                       |      |      |                |
| 418.7760           | H                 | 72.7                  | ---- | ---- | 19.37                       | -15.26                | 92.1                 | ---- | 76.8 | 100.3                 | ---- | 80.3 | -3.5           |
| 418.7760           | V                 | 71.9                  | ---- | ---- | 19.37                       | -15.26                | 91.3                 | ---- | 76.0 | 100.3                 | ---- | 80.3 | -4.3           |
| <b>Harmonic</b>    |                   |                       |      |      |                             |                       |                      |      |      |                       |      |      |                |
| 837.5520           | H                 | 32.7                  | ---- | ---- | 24.94                       | -15.26                | 57.6                 | ---- | 42.3 | 80.3                  | ---- | 60.3 | -18.0          |
| 837.5520           | V                 | 27.6                  | ---- | ---- | 24.94                       | -15.26                | 52.5                 | ---- | 37.2 | 80.3                  | ---- | 60.3 | -23.1          |
| 1256.3280          | H                 | 54.7                  | ---- | ---- | -13.32                      | -15.26                | 41.4                 | ---- | 26.1 | 80.3                  | ---- | 60.3 | -34.2          |
| 1256.3280          | V                 | 59.8                  | ---- | ---- | -13.32                      | -15.26                | 46.5                 | ---- | 31.2 | 80.3                  | ---- | 60.3 | -29.1          |
| *1675.1040         | H                 | 53.2                  | ---- | ---- | -11.22                      | -15.26                | 42.0                 | ---- | 26.7 | 74.0                  | ---- | 54.0 | -27.3          |
| *1675.1040         | V                 | 60.5                  | ---- | ---- | -11.22                      | -15.26                | 49.3                 | ---- | 34.0 | 74.0                  | ---- | 54.0 | -20.0          |
| 2093.8800          | H                 | 50.5                  | ---- | ---- | -9.32                       | -15.26                | 41.2                 | ---- | 25.9 | 80.3                  | ---- | 60.3 | -34.4          |
| 2093.8800          | V                 | 52.9                  | ---- | ---- | -9.32                       | -15.26                | 43.6                 | ---- | 28.3 | 80.3                  | ---- | 60.3 | -32.0          |
| 2512.6560          | H                 | ----                  | ---- | ---- | -8.06                       | -15.26                | ----                 | ---- | ---- | 80.3                  | ---- | 60.3 | ----           |
| 2512.6560          | V                 | 52.6                  | ---- | ---- | -8.06                       | -15.26                | 44.5                 | ---- | 29.2 | 80.3                  | ---- | 60.3 | -31.1          |
| 2931.4320          | H                 | 59.7                  | ---- | ---- | -6.63                       | -15.26                | 53.1                 | ---- | 37.8 | 80.3                  | ---- | 60.3 | -22.5          |
| 2931.4320          | V                 | 55.2                  | ---- | ---- | -6.63                       | -15.26                | 48.6                 | ---- | 33.3 | 80.3                  | ---- | 60.3 | -27.0          |
| *3350.2080         | H                 | 61.0                  | ---- | ---- | -5.42                       | -15.26                | 55.6                 | ---- | 40.3 | 74.0                  | ---- | 54.0 | -13.7          |
| *3350.2080         | V                 | 56.8                  | ---- | ---- | -5.42                       | -15.26                | 51.4                 | ---- | 36.1 | 74.0                  | ---- | 54.0 | -17.9          |
| *3768.9840         | H                 | ----                  | ---- | ---- | -3.98                       | -15.26                | ----                 | ---- | ---- | 74.0                  | ---- | 54.0 | ----           |
| *3768.9840         | V                 | 50.4                  | ---- | ---- | -3.98                       | -15.26                | 46.4                 | ---- | 31.1 | 74.0                  | ---- | 54.0 | -22.9          |
| *4187.7600         | H                 | 52.8                  | ---- | ---- | -3.14                       | -15.26                | 49.7                 | ---- | 34.4 | 74.0                  | ---- | 54.0 | -19.6          |
| *4187.7600         | V                 | 52.9                  | ---- | ---- | -3.14                       | -15.26                | 49.8                 | ---- | 34.5 | 74.0                  | ---- | 54.0 | -19.5          |

**Note:**

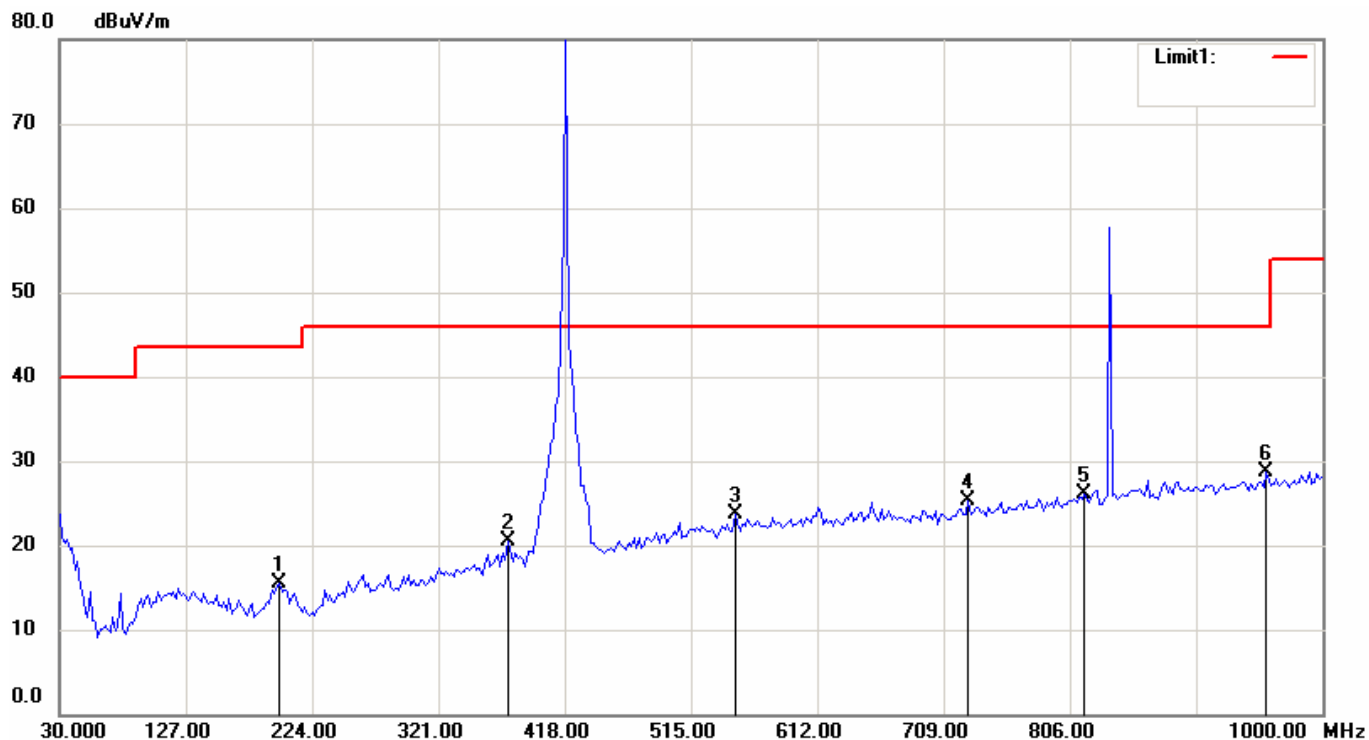
1. Peak Result = Peak Reading + Correct Factor
2. AVG Result = Peak Result + Duty Factor
3. If the result of peak value is under the limit of average, the average value doesn't need to be measured.
4. "\*" means the frequency is in the Restricted Bands.

### 3.3.2 Other Emission

Operated mode : Transmitting

#### A. below 1GHz

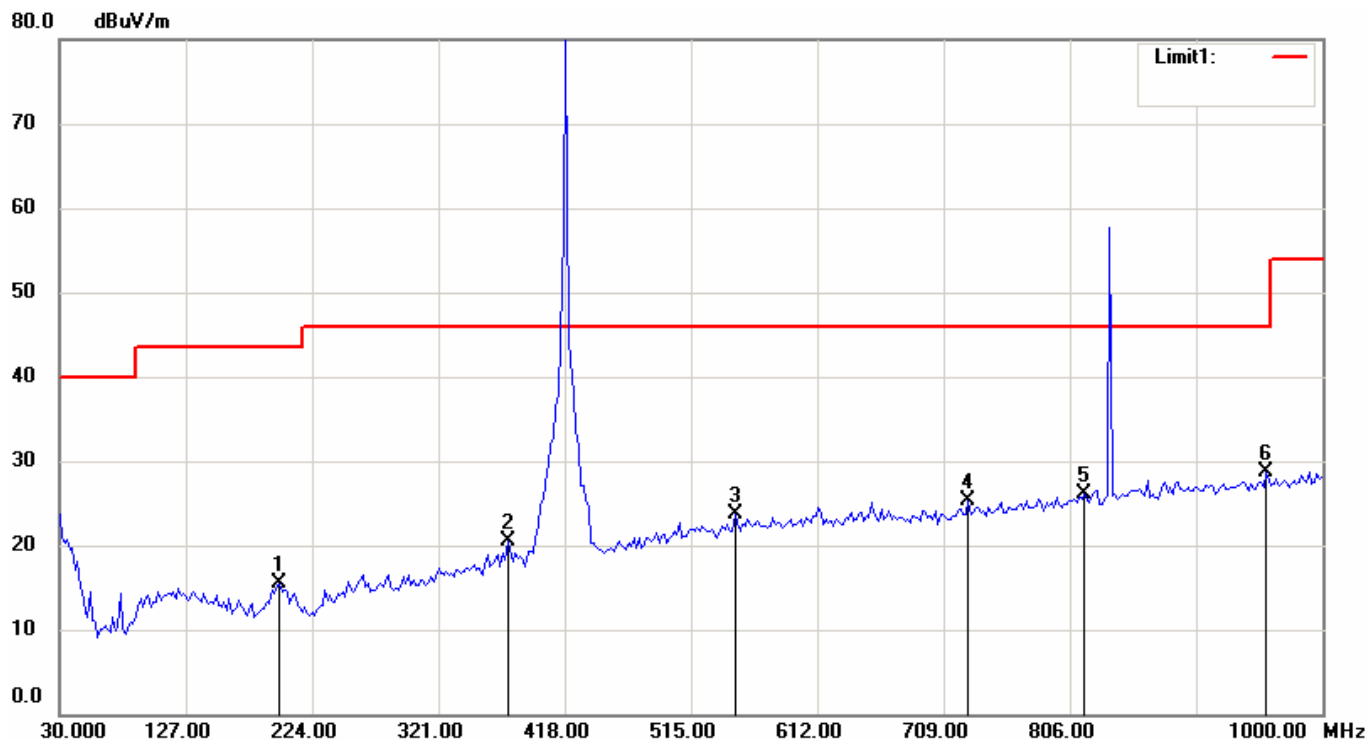
File: PRETEST      Data: #231      Date: 2009/12/24      Temperature: 21 °C  
 Time: AM 08:52:22      Humidity: 57 %



Condition: FCC Part15 RE-Class B\_30-1000MHz      Polarization: Horizontal  
 EUT:      Distance: 3m  
 Model: TD-20U  
 Test Mode: TX  
 Note:

| No. | Frequency (MHz) | Reading (dBuV/m) | Detector | Corrected Factor(dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----|-----------------|------------------|----------|----------------------|-----------------|----------------|-------------|
| 1   | 199.1182        | 0.97             | peak     | 14.57                | 15.54           | 43.50          | -27.96      |
| 2   | 374.0681        | 2.06             | peak     | 18.37                | 20.43           | 46.00          | -25.57      |
| 3   | 549.0180        | 1.96             | peak     | 21.77                | 23.73           | 46.00          | -22.27      |
| 4   | 727.8555        | 1.78             | peak     | 23.49                | 25.27           | 46.00          | -20.73      |
| 5   | 817.2744        | 1.60             | peak     | 24.60                | 26.20           | 46.00          | -19.80      |
| 6   | 957.2345        | 2.46             | peak     | 26.18                | 28.64           | 46.00          | -17.36      |

File: PRETEST      Data: #232      Date: 2009/12/24      Temperature: 21 °C  
 Time: AM 08:53:56      Humidity: 57 %



Condition: FCC Part15 RE-Class B\_30-1000MHz      Polarization: Vertical  
 EUT:      Distance: 3m  
 Model: TD-20U  
 Test Mode: TX  
 Note:

| No. | Frequency (MHz) | Reading (dBuV/m) | Detector | Corrected Factor(dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----|-----------------|------------------|----------|----------------------|-----------------|----------------|-------------|
| 1   | 37.7754         | 12.55            | peak     | 16.17                | 28.72           | 40.00          | -11.28      |
| 2   | 86.3726         | 18.53            | peak     | 9.86                 | 28.39           | 40.00          | -11.61      |
| 3   | 125.2505        | 6.53             | peak     | 13.95                | 20.48           | 43.50          | -23.02      |
| 4   | 175.7915        | 10.01            | peak     | 11.52                | 21.53           | 43.50          | -21.97      |
| 5   | 201.0620        | 16.12            | peak     | 14.65                | 30.77           | 43.50          | -12.73      |
| 6   | 224.3888        | 8.47             | peak     | 12.63                | 21.10           | 46.00          | -24.90      |

**B. above 1GHz**

| Frequency<br>(MHz) | Reading (dBuV) |     |      |     | Correct<br>Factor<br>(dB/m) | Result @3m<br>(dBuV/m) |     | Limit @3m<br>(dBuV/m) |      |
|--------------------|----------------|-----|------|-----|-----------------------------|------------------------|-----|-----------------------|------|
|                    | H              |     | V    |     |                             | Peak                   | AVG | Peak                  | AVG  |
|                    | Peak           | AVG | Peak | AVG |                             |                        |     |                       |      |
| 4606.5360          | 57.5           | --- | 58.8 | --- | -15.26                      | 55.8                   | --- | 74.0                  | 54.0 |

Note: √

1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "---" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
  - ±4.6dB (30MHz ≤ f < 300MHz).
  - ±4.4dB (300MHz ≤ f < 1000MHz).
  - ±4.1dB (1GHz ≤ f ≤ 18GHz).

### 3.4 Field Strength Calculation

(a) Field Strength:

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$RESULT = READING + CORR. FACTOR$$

where CORR. FACTOR = Antenna FACTOR + Cable FACTOR

(b) Duty Factor:

$$20\log \frac{0.35(ms) \times 9 + 0.6(ms) \times 16 + 1.1166(ms) \times 4}{99.75(ms)} = -15.26 \text{ dB}$$

The plotted graph of Duty Factor please see page 15 ~ 17

### 3.5 Radiated Test Equipment

The following instrument are used for radiated emissions measurement :

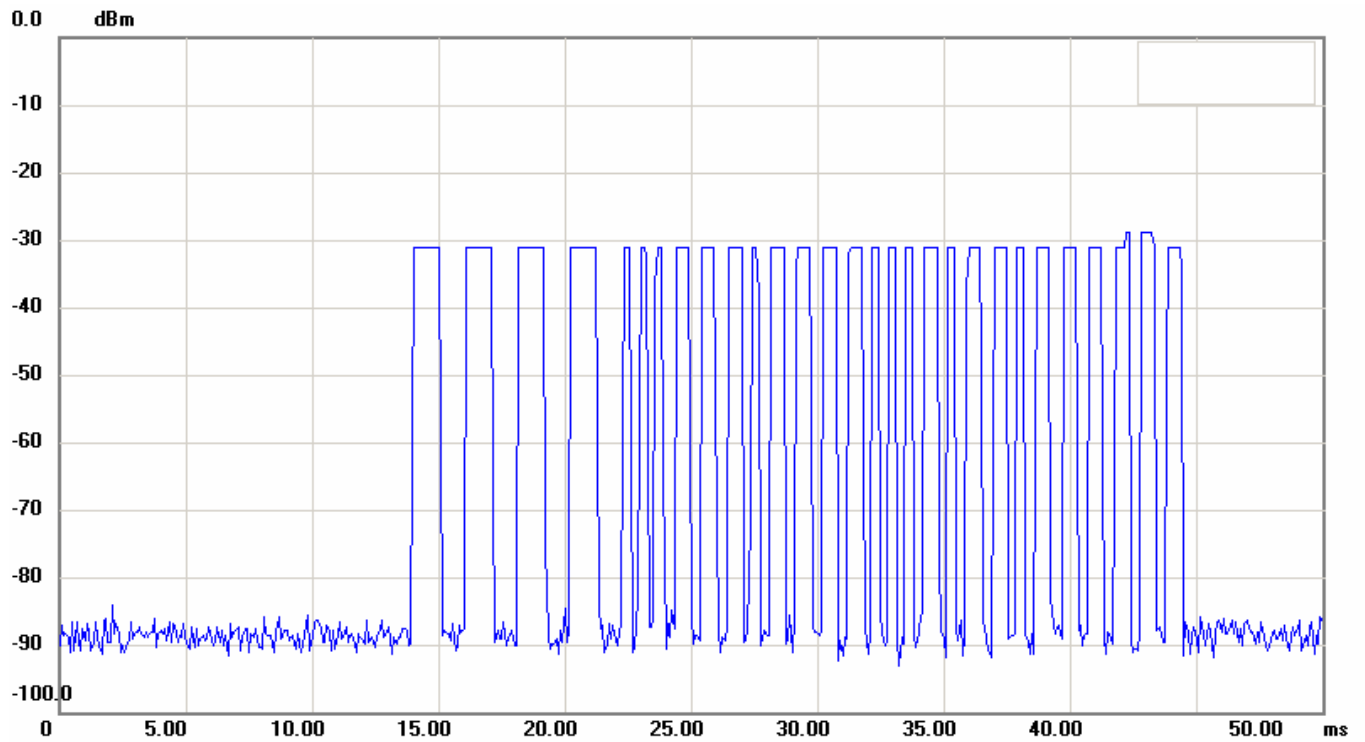
| Equipment         | Manufacturer    | Model No. | Serial No.   | Calibrated until |
|-------------------|-----------------|-----------|--------------|------------------|
| EMI Receiver      | R&S             | ESIB7     | 13054414-001 | Jul. 19, 2010    |
| BiLog Antenna     | Schaffner       | CBL 6112B | 2927         | Aug. 18, 2010    |
| Horn Antenna      | EMCO            | 3115      | 9107-3729    | Dec. 10, 2010    |
| PRE-Amplifier     | Agilent         | 8449B     | ----         | Oct. 11, 2010    |
| Spectrum Analyzer | Rohde & Schwarz | FSU46     | 13040904-001 | Nov. 18, 2010    |

Note: The standards used to perform this calibration are traceable to NML/ROC, NIST/USA and NPL.

File: 10-01-MAS-174 Data: #2

Date: 2010/1/27  
Time: PM 12:40:40

Temperature: 18 °C  
Humidity: 51 %



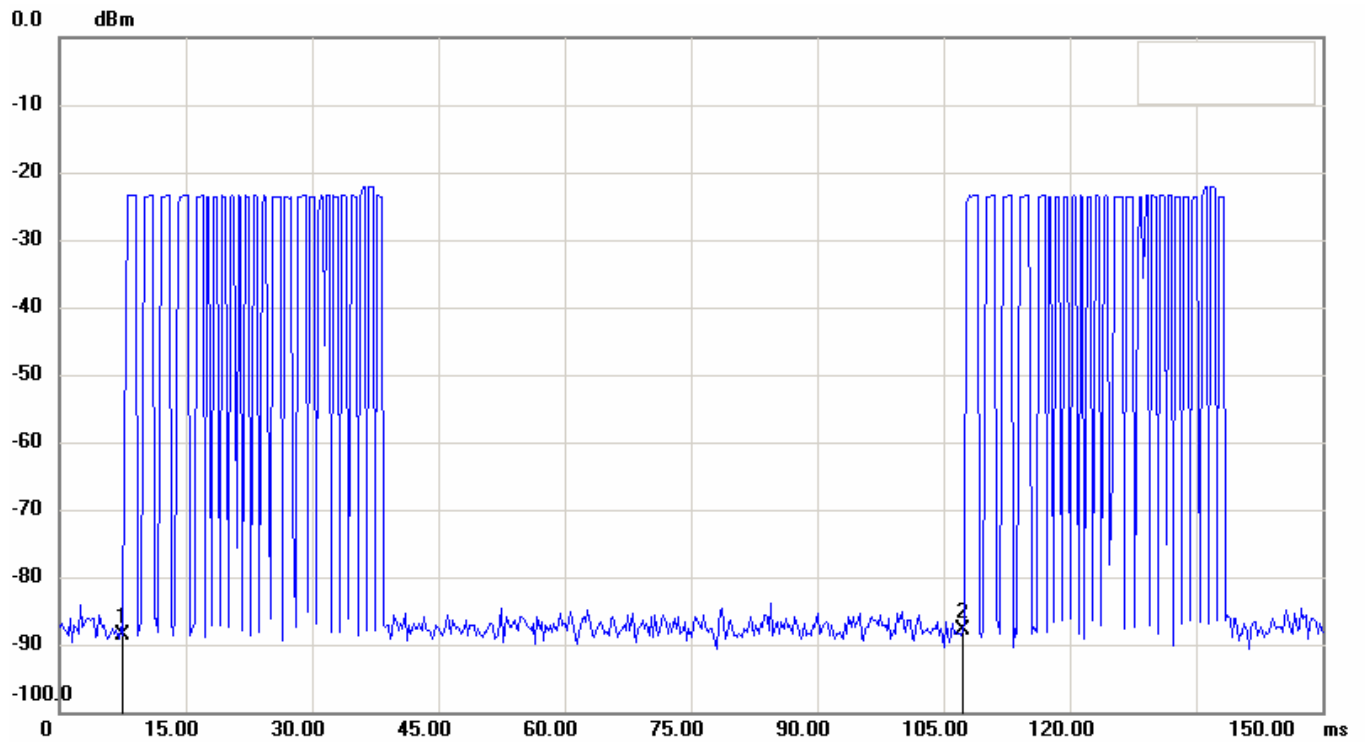
Condition:  
EUT:  
Model:  
Test Mode:  
Note:

RF Conducted  
Sweep Time: 50ms Att.: 10dB  
RBW: 100 KHz VBW: 300 KHz

File: 10-01-MAS-174 Data: #3

Date: 2010/1/27  
 Time: PM 12:41:37

Temperature: 18 °C  
 Humidity: 51 %



Condition:  
 EUT:  
 Model:  
 Test Mode:  
 Note:

RF Conducted  
 Sweep Time: 150ms Att.: 10dB  
 RBW: 100 KHz VBW: 300 KHz

| No. | Sweep time(ms) | Level(dBm) |
|-----|----------------|------------|
| 1   | 7.5000         | -88.61     |
| 2   | 107.2500       | -87.83     |

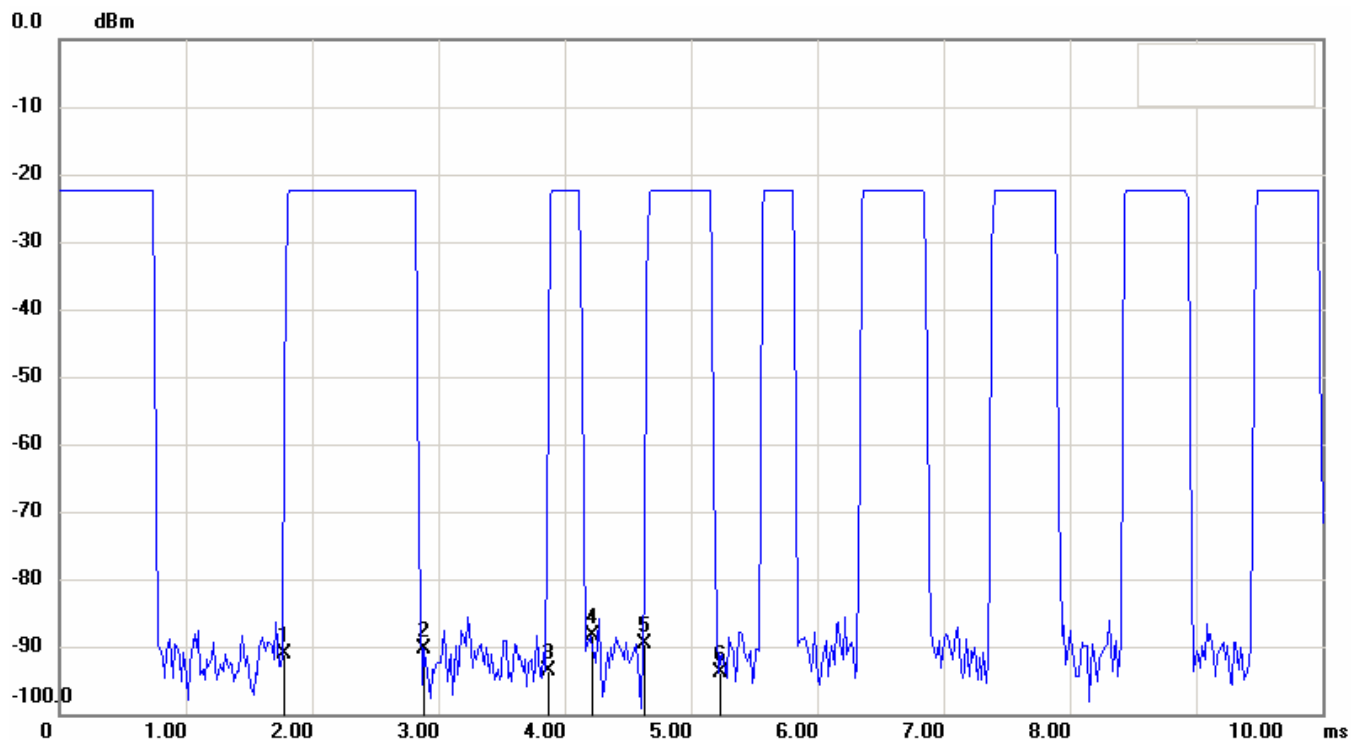
| No. |         | $\Delta$ Time(ms) | $\Delta$ Level(dB) |
|-----|---------|-------------------|--------------------|
| 1   | mk2-mk1 | 99.75             | 0.78               |



File: 10-01-MAS-174 Data: #4

Date: 2010/1/27  
 Time: PM 12:42:21

Temperature: 18 °C  
 Humidity: 51 %



Condition:  
 EUT:  
 Model:  
 Test Mode:  
 Note:

TD-20U  
 PE036

RF Conducted  
 Sweep Time: 10ms Att.: 10dB  
 RBW: 100 KHz VBW: 300 KHz

| No. | Sweep time(ms) | Level(dBm) |
|-----|----------------|------------|
| 1   | 1.7667         | -91.11     |
| 2   | 2.8833         | -90.40     |
| 3   | 3.8500         | -93.67     |
| 4   | 4.2000         | -88.48     |
| 5   | 4.6167         | -89.60     |
| 6   | 5.2167         | -93.98     |

| No. |         | $\Delta$ Time(ms) | $\Delta$ Level(dB) |
|-----|---------|-------------------|--------------------|
| 1   | mk4-mk3 | 0.35              | 5.19               |
| 2   | mk6-mk5 | 0.6               | -4.38              |
| 3   | mk2-mk1 | 1.1166            | 0.71               |

### 3.6 Measuring Instrument Setup

Measuring instrument setup in measured frequency band when specified detector function is used :

| Frequency Band (MHz) | Instrument        | Function | Resolution Bandwidth | Video Bandwidth |
|----------------------|-------------------|----------|----------------------|-----------------|
| 30 to 1000           | EMI Test Receiver | Peak     | 120 kHz              | 300 kHz         |
| 1000 to 4500         | EMI Test Receiver | Peak     | 1 MHz                | 1 MHz           |

## 4. BANDWIDTH OF EMISSION

### 4.1 Applicable Standard Plot Graphic of Bandwidth

Per FCC rule §15.231(c), the permitted emission bandwidth is no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz.

### 4.2 Test Equipment

| Equipment         | Manufacturer | Model No. | Next Cal. Date |
|-------------------|--------------|-----------|----------------|
| Spectrum Analyzer | Agilent      | E4446A    | Sep. 27, 2010  |

### 4.3 Test Result

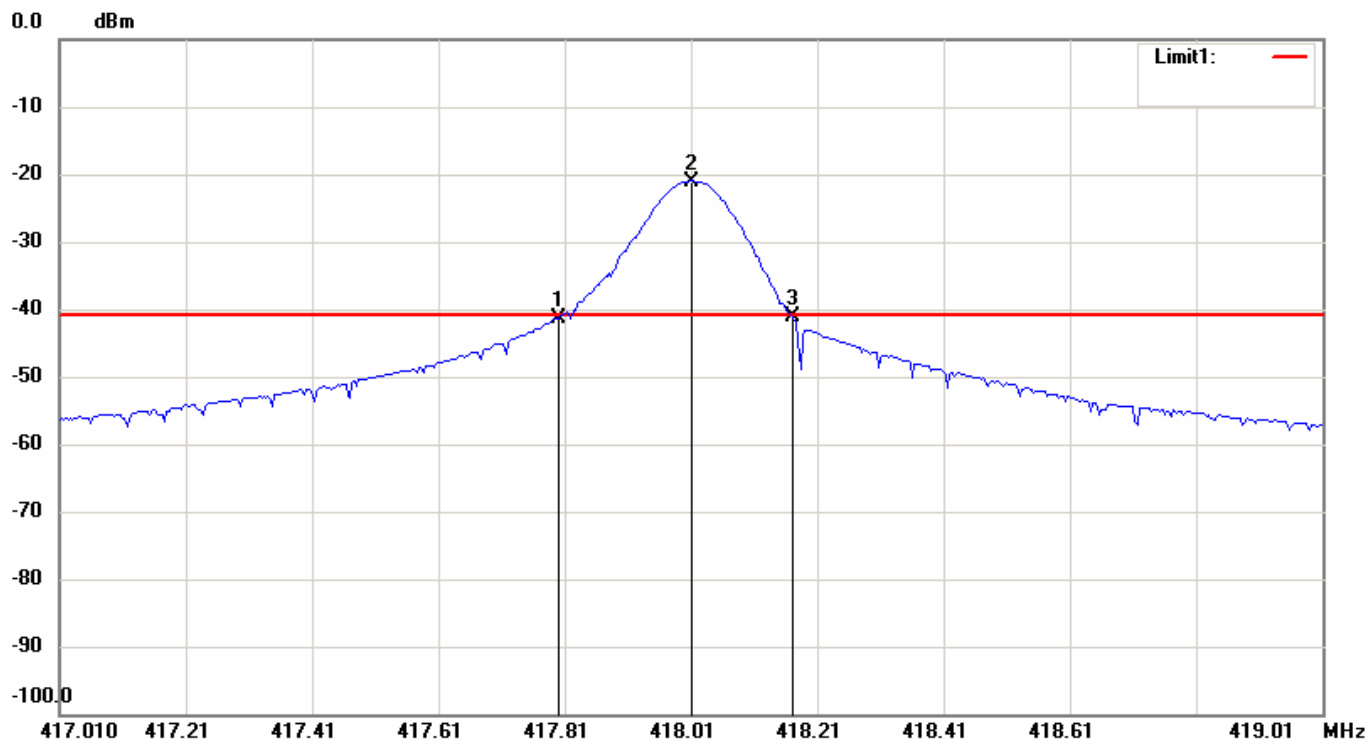
Test Date : Jan. 27, 2010      Temperature : 18 °C      Humidity : 51%

|                       |                                  |
|-----------------------|----------------------------------|
| Center Frequency      | 418.01 MHz                       |
| FCC Limit             | 418.01 MHz × 0.25% = 1045.00 kHz |
| Bandwidth of Emission | 370 kHz                          |
| Chart                 | Page 20                          |
| Result                | PASS                             |

File: 10-01-MAS-174 Data: #1

Date: 2010/1/27  
 Time: PM 12:39:49

Temperature: 18 °C  
 Humidity: 51 %



Condition:  
 EUT:  
 Model:  
 Test Mode:  
 Note:

RF Conducted  
 Sweep Time: 1ms Att.: 10dB  
 RBW: 100 KHz VBW: 300 KHz

| No. | Frequency(MHz) | Level(dBm) |
|-----|----------------|------------|
| 1   | 417.8000       | -41.40     |
| 2   | 418.0100       | -21.00     |
| 3   | 418.1700       | -41.22     |

| No. |         | $\Delta$ Frequency(MHz) | $\Delta$ Level(dB) |
|-----|---------|-------------------------|--------------------|
| 1   | mk3-mk1 | 0.37                    | 0.18               |

## **5. CONDUCTED EMISSION MEASUREMENT**

This EUT is excused from investigation of conducted emission, for it is powered by battery only. According to §15.207 (d), measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

## 6. LIMIT OF TRANSMISSION TIME

### 6.1 Applicable Standard

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.

### 6.2 Test Equipment

| Equipment         | Manufacturer | Model No. | Next Cal. Date |
|-------------------|--------------|-----------|----------------|
| Spectrum Analyzer | Agilent      | E4446A    | Sep. 27, 2010  |

### 6.3 Test Result

Test Date : Jan. 27, 2010    Temperature : 18 °C    Humidity : 51%

The motion sensor controls the switch.

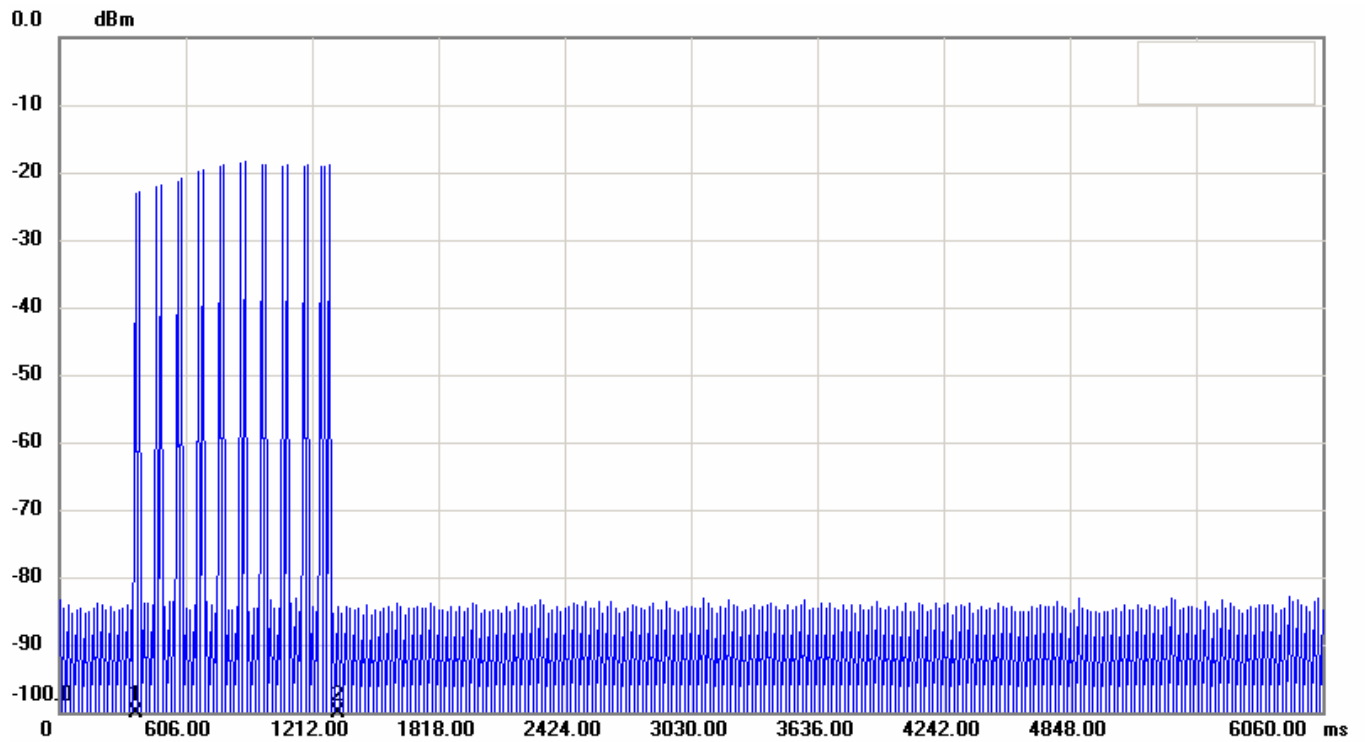
This transmitter is operated by manual and active time is 0.969 second after the switch off.

*Note : Please refer to page 23 for chart*

File: 10-01-MAS-174 Data: #6

Date: 2010/1/27  
 Time: PM 01:16:11

Temperature: 18 °C  
 Humidity: 51 %



Condition:  
 EUT:  
 Model:  
 Test Mode:  
 Note:

RF Conducted  
 Sweep Time: 6060ms Att.: 10dB  
 RBW: 100 KHz VBW: 300 KHz

| No. | Sweep time(ms) | Level(dBm) |
|-----|----------------|------------|
| 1   | 353.5023       | -121.91    |
| 2   | 1323.1087      | -124.89    |

| No. |         | $\Delta$ Time(ms) | $\Delta$ Level(dB) |
|-----|---------|-------------------|--------------------|
| 1   | mk2-mk1 | 969.6064          | -2.98              |