
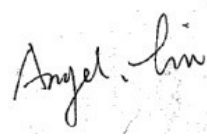
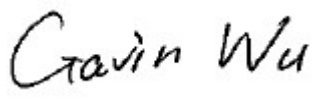




TEST REPORT

| | | | |
|--|---|---|-------------------|
| Report No.: | EM201200218-1 | Application No.: | ZJ00016126 |
| Applicant: | EverFlourish Electrical Co.,Ltd | | |
| Applicant Address: | Renjiu Village, Wuxiang Town, Yinzhou, Ningbo 315111 P.R. China | | |
| Sample Description: | Transmitter | | |
| Model: | EMW200TK1 | | |
| FCC ID | VBA-EF200TK | | |
| Test Location: | EMC Laboratory of Guangzhou GRG Metrology and Test Co., Ltd. | | |
| Test Specification: | FCC PART 15 Subpart C: 2010 section 15.231 | | |
| Test Date: | 2012-06-28 | | |
| Test Result: | Pass | | |
| Tested By: | Reviewed By: | Approved By: | |
| Jane Cao / Test Engineer | Angel Liu / Reviewer | Gavin Wu / Director | |
|  |  |  | |
| Date:2012-06-28 | Date:2012-06-28 | Date:2012-06-28 | |
| Other Aspects: | | | |
| / | | | |
| Abbreviations: ok / P = passed; fail / F = failed; n.a. / N = not applicable | | | |
| The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT. | | | |

DIRECTIONS OF TEST

1. This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.
2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.
3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.

1 TEST SUMMARY

| Test | Test Requirement | Standard Paragraph | Result |
|--------------------|-------------------------|---------------------------|---------------|
| Radiated Emission | FCC PART 15C :2010 | Section 15.231 | PASS |
| Occupied Bandwidth | FCC PART 15C :2010 | Section 15.231 | PASS |
| Dwell Time | FCC PART 15C :2010 | Section 15.231 | PASS |

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2 GENERAL INFORMATION


2.1 CLIENT INFORMATION

Applicant: EverFlourish Electrical Co.,Ltd
Address: Renjiu Village, Wuxiang Town, Yinzhou, Ningbo 315111 P.R.
China

2.2 MANUFACTURER INFORMATION

Manufacturer : EverFlourish Electrical Co.,Ltd
Address: Renjiu Village, Wuxiang Town, Yinzhou, Ningbo 315111 P.R.
China

General Description of E.U.T.

Product Name: Transmitter
Model: EMW200TK1
Trade Name:  EverFlourish
Frequency 433.92MHz
Power supply DC 12V
Antenna requirement integrated

2.3 STANDARDS APPLICABLE FOR TESTING

The standard used was FCC PART 15 Subpart C: 2010.Section 15.231

2.4 TEST LOCATION

All tests were performed at:

EMC Laboratory of Guangzhou GRG Metrology and Test Co., Ltd.
No tests were sub-contracted.

2.5 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

2.6 TEST FACILITY

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

| | |
|--------|---------------------------|
| USA | FCC Listed Lab No. 688188 |
| China | CNAS No.L0446 |
| China | DILAC No.DL175 |
| Canada | 8355A-1 |

3 EQUIPMENTS USED DURING TEST

| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|--------------------------------------|--------------|-------------|---------------|-----------------|
| Dwell Time/Occupied bandwidth | | | | |
| Receiver | R&S | ESU40 | 100106 | 2012-09-26 |
| Radiated Emissions | | | | |
| Biconical Log-periodic Antenna | ETS.LINDGREN | 3142C | 00075971 | 2012-09-26 |
| Pre-amplifier | HP | 8447DOPT010 | 2944A06252 | 2013-03-11 |
| Pre-amplifier | Agilent | 8449B | 3008A01649 | 2013-03-11 |
| Receiver | R&S | ESU40 | 100106 | 2012-07-19 |
| Horn antenna | SCHWARZBECK | BBHA9120D | D752 | 2013-10-14 |
| Cable | GRGT | GRGT2 | GRGT2 | 2012-07-12 |

4 TEST RESULTS

3.1 Radiated emissions

Test Requirement: FCC Part 15 C section 15.231(b)
Test Method: ANSI C63.4 SECTION 8&13
Test Date: 2012-05-31
Test Status: Test in fixing operating frequency
Power supply: DC 12V

Requirements : All emission from a digital device, including any network of conductors and apparatus shall not exceed the level of field strength specified

Test Configuration:

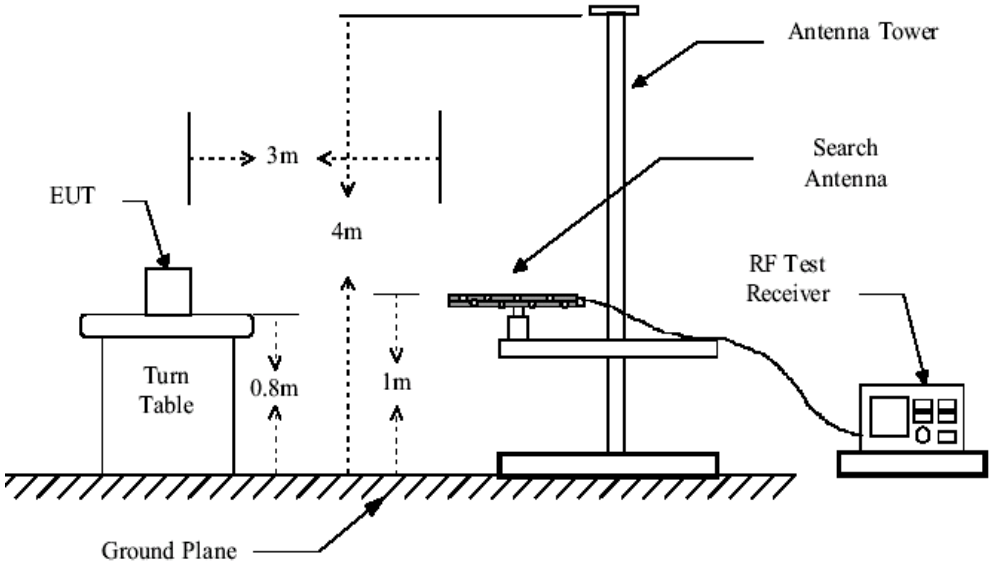


Figure 1. 30MHz to 1GHz radiated emissions test configuration

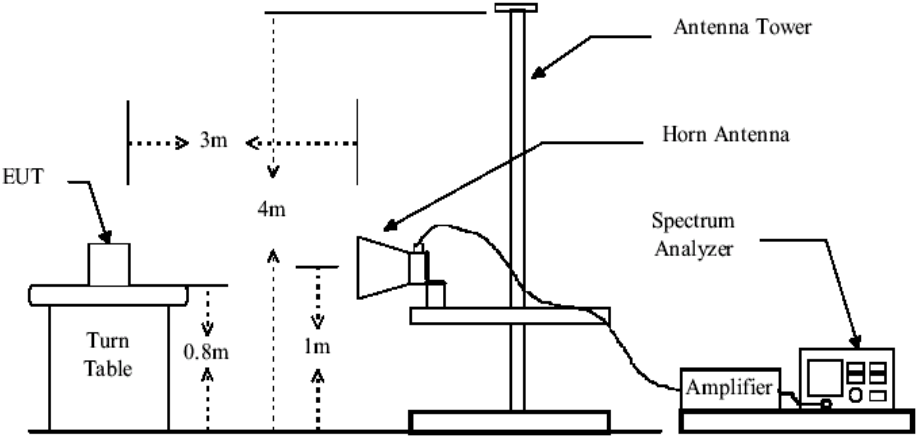


Figure 2. Above 1GHz radiated emissions test configuration

Duty cycle:

Average=peak(dBuV/m)-duty cycle (dB)

$T_p=62.019\text{ms}$

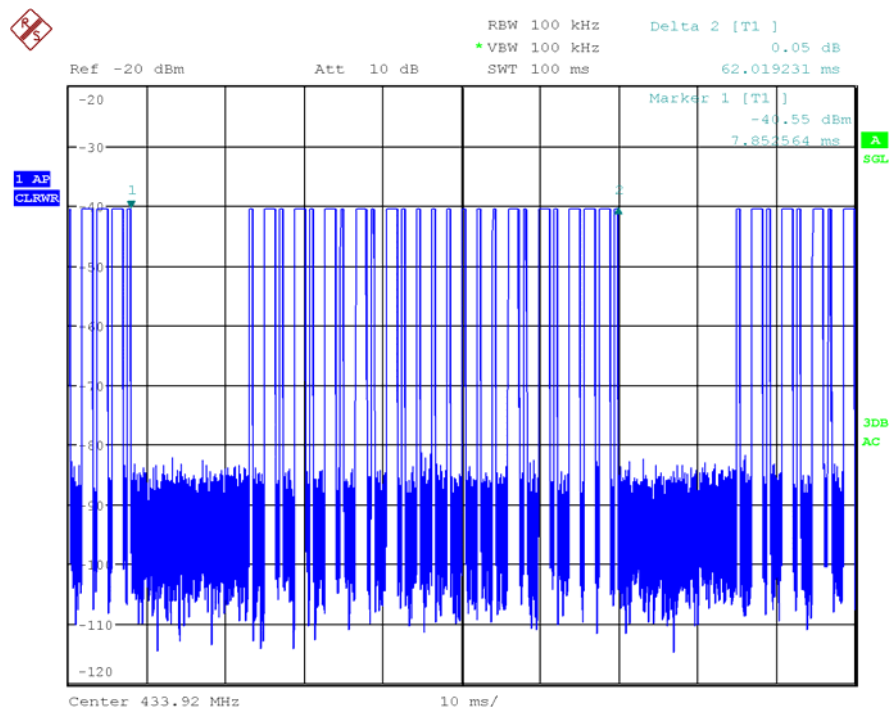
$T_{on1}=1.291 \times 10=12.91\text{ms}$

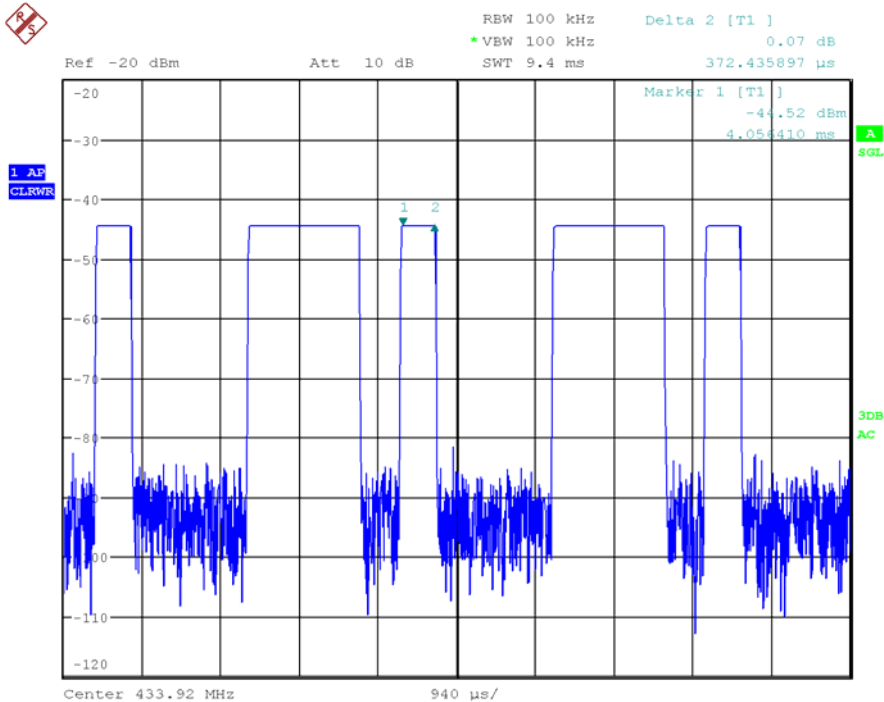
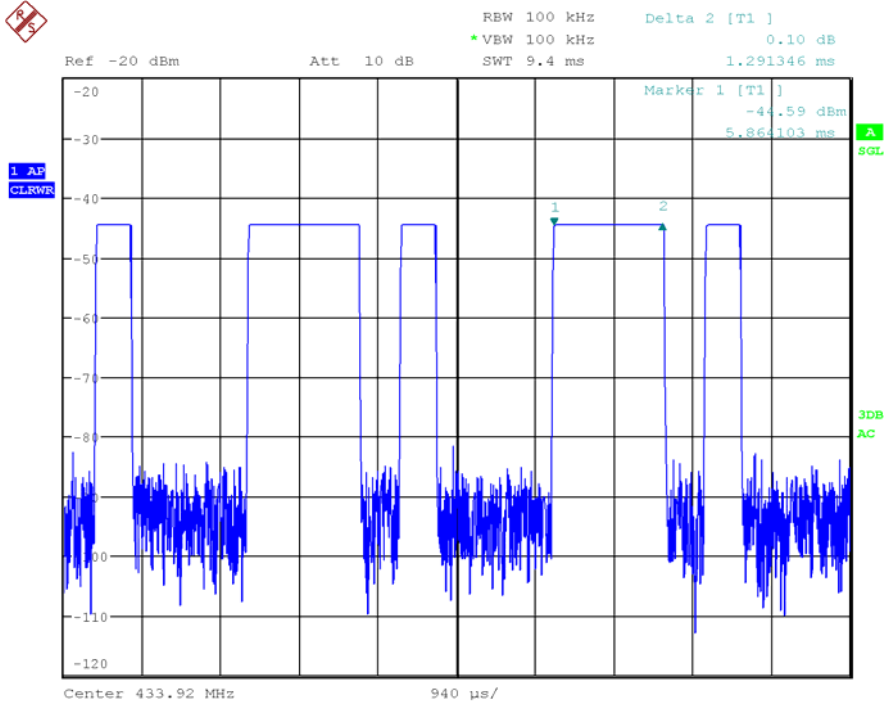
$T_{on2}=0.372 \times 15=5.58\text{ms}$

$T_{on}=T_{on1}+T_{on2}=18.49$

$\text{Factor}=20\log(T_{on}/T_p)=20\log(18.49/62.019)=-10.51$

Refer to attached plots for detail





1) **Fundamental Radiated Emission****FCC Part 15 Subpart C Paragraph 15.231 Limit**

| Fundamental Frequency (MHz) | Field Strength of Fundamental | | Field Strength of Spurious Emission | |
|-----------------------------|-------------------------------|-------------|-------------------------------------|-------------|
| | uV/m | dBuV/m | uV/m | dBuV/m |
| 40.66-40.70 | 2250 | 67.04 | 225 | 47.04 |
| 70-130 | 1250 | 61.94 | 125 | 41.94 |
| 130-174 | 1250-3370 | 61.94-70.55 | 125-375 | 41.94-51.48 |
| 174-260 | 3750 | 71.48 | 375 | 51.48 |
| 260-470 | 3750-12500 | 71.48-81.94 | 375-1250 | 51.48-61.94 |
| Above 470 | 12500 | 81.94 | 1250 | 61.94 |

Note: 1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)

2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

4.Linear interpolations for frequency ranges 130-174MHz and 260-470MHz

5.the above field strength limits are specified at a distance of 3-meters and the tighter limits apply at the band edges

(a) On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a CISPR quasi-peak detector function and related measurement bandwidths, unless otherwise specified. The specifications for the measuring instrument using the CISPR

quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Interference (CISPR) of the International Electro technical Commission. As an alternative to CISPR quasi-peak measurements, the responsible party, at its option, may demonstrate compliance with the emission limits using measuring equipment employing a peak detector function, properly adjusted for such factors as pulse desensitization, as long as the same bandwidths as indicated for CISPR quasi-peak measurements are employed.

Note: For pulse modulated devices with a pulse-repetition frequency of 20 Hz or less and for which CISPR quasi-peak measurements are specified, compliance with the regulations shall be demonstrated

using measuring equipment employing a peak detector function, properly adjusted for such factors as pulse desensitization, using the same measurement bandwidths that are indicated for CISPR quasi-peak measurements.

(b) Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are

specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, *e.g.*, see §§ 15.250, 15.252, 15.255, and 15.509-15.519 of this part, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device, *e.g.*, the total peak power level. Note that the use of a pulse desensitization correction factor may be needed to determine the total peak emission level. The instruction manual or application note for the measurement instrument should be consulted for determining pulse desensitization factors, as necessary.

| | | | |
|-------------------------|--------------------------------|----------------------|-----------------|
| Project No.: | ZJ00016126 | Polarization: | Vertical |
| Test mode | Keeping Tx transmitting | Power Source: | DC 12V |
| Test item: | Radiation Test | Date: | 2012-6-1 |
| Temp./Hum.(%RH): | 20/50%RH | Time: | 8:20:52 |
| EUT: | Transmitter | Distance: | 3m |
| Model: | EMW200TK1 | Test Result: | Pass |
| Note: | | | |

| Frequency (MHz) | Emission (PK/AV) (dBuV/m) | Horizontal / Vertical | Limits (dBuV/m) | Margin (dB) | remark |
|-----------------|------------------------------|--------------------------|-----------------|----------------|--------|
| 433.92 | 67.80 | Horizontal | 100.82 | 33.02 | PEAK |
| 433.92 | 57.29 | Horizontal | 80.82 | 23.53 | AVG |
| 433.92 | 80.12 | Vertical | 100.82 | 20.7 | PEAK |
| 433.92 | 69.61 | Vertical | 80.82 | 11.21 | AVG |

NOTE: average=peak (dBuV/m)-duty cycle (dB)

2).General Radiated Emission and Harmonics Radiated Emission

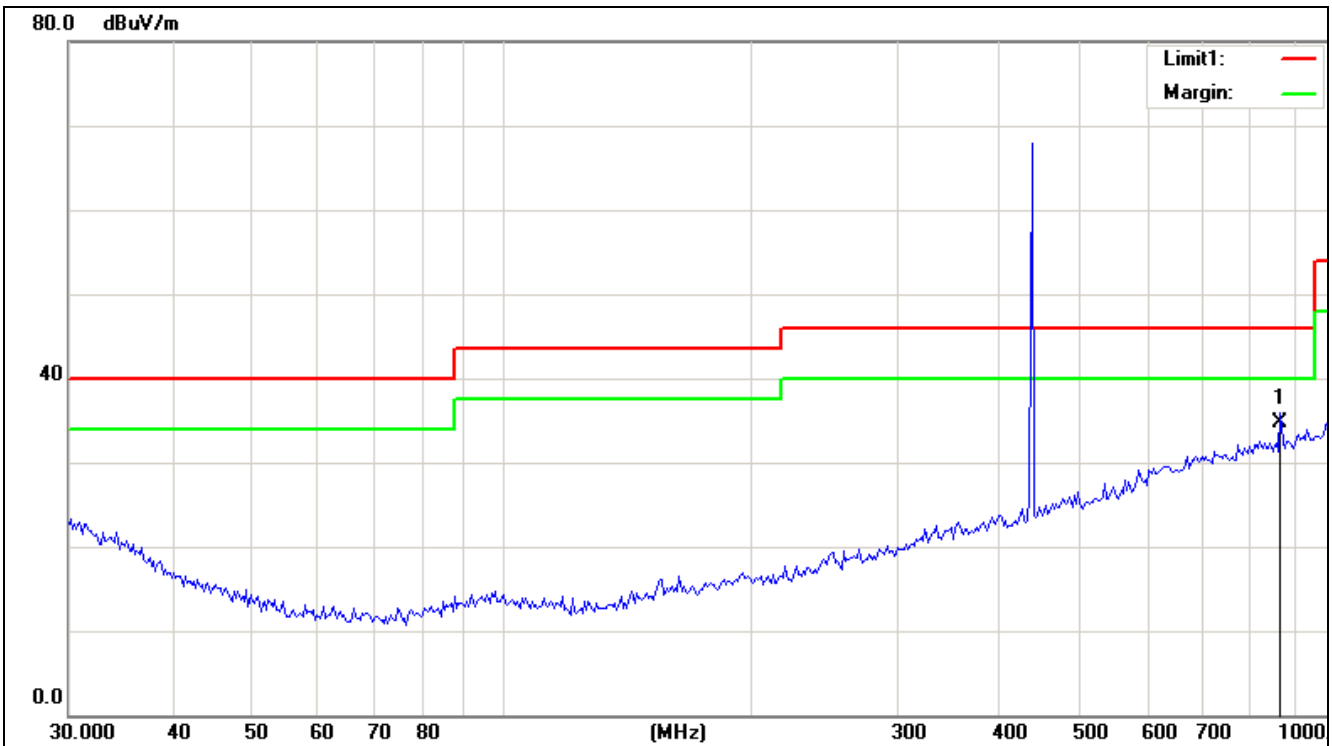
Test Procedure :The procedure used was ANSI Standard C63.4-2003.The receive was scanned from 30MHz to 5000MHz/when an emission was found. the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for peak detection mode using the receiver .The EUT was measured for both the horizontal and vertical polarities and performed a pre-test three orthogonal planes .The worst case emissions were reported. An initial pre-san was performed in the 3m chamber using the spectrum analyzer in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measure by Bilog antenna with a orthogonal polarities. The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier .The basic equation with a sample calculation is as follows:
Final Test Level=Receiver Reading+ Antenna Factor + Cable Factor – Preamplifier Factor

The following test result were performed on the EUT

Frequencies in restricted band are complied to limit on Paragraph 15.209.

| Frequency Range (MHz) | Distance (m) | Field strength (dB μ V/m) |
|-----------------------|--------------|-------------------------------|
| 30-88 | 3 | 40.0 |
| 88-216 | 3 | 43.5 |
| 216-960 | 3 | 43.5 |
| Above 960 | 3 | 54.0 |

| | | | |
|-------------------------|-----------------------------------|----------------------|-----------------|
| Project No.: | ZJ00016126 | Polarization: | Vertical |
| Standard: | (RE)FCC PART 15 class B 3m | Power Source: | DC 12V |
| Test item: | Radiation Test | Date: | 2012-6-1 |
| Temp./Hum.(%RH): | 20/50%RH | Time: | 8:20:52 |
| EUT: | Transmitter | Distance: | 3m |
| Model: | EMW200TK1 | Test Result: | Pass |
| Note: | | | |

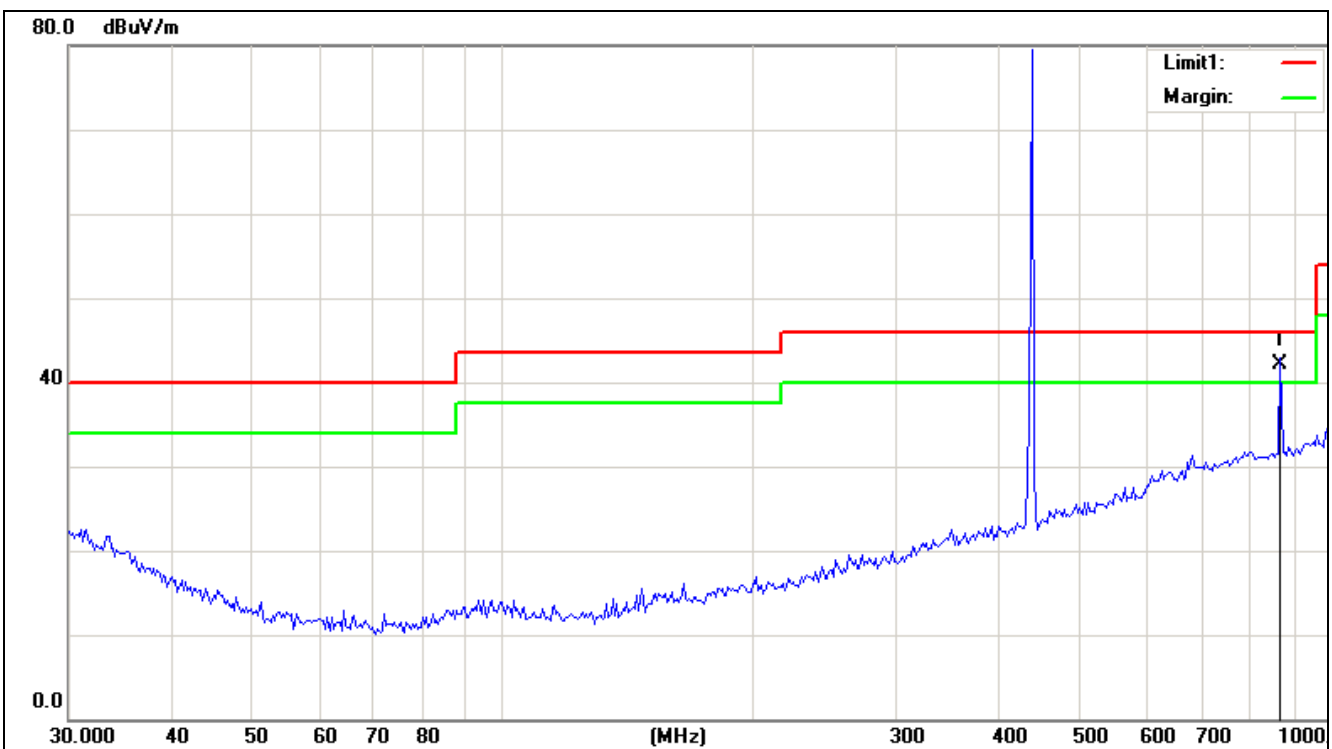


| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-----------------|--------|
| 1 | 868.9349 | 9.22 | 25.48 | 34.70 | 46.00 | -11.30 | QP |

Above 1GHz

| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-----------------|--------|
| 1 | 2913.915 | 28.28 | 22.62 | 50.90 | 74.00 | -23.10 | peak |
| 2 | 2913.915 | 16.38 | 22.62 | 39.00 | 54.00 | -15.00 | AVG |
| 3 | 3534.101 | 28.67 | 24.24 | 52.91 | 74.00 | -21.09 | peak |
| 4 | 3534.101 | 15.76 | 24.24 | 40.00 | 54.00 | -14.00 | AVG |

| | | | |
|-------------------------|-----------------------------------|----------------------|-------------------|
| Project No.: | ZJ00016126 | Polarization: | Horizontal |
| Standard: | (RE)FCC PART 15 class B 3m | Power Source: | DC 12V |
| Test item: | Radiation Test | Date: | 2012-6-1 |
| Temp./Hum.(%RH): | 20/50%RH | Time: | 8:25:23 |
| EUT: | Transmitter | Distance: | 3m |
| Model: | EMW200TK1 | Test Result: | Pass |
| Note: | | | |



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|--------------------|--------|
| 1 | 868.9349 | 16.72 | 25.48 | 42.20 | 46.00 | -3.80 | QP |

Above 1GHz

| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|--------------------|--------|
| 1 | 2913.915 | 26.28 | 22.62 | 48.90 | 74.00 | -25.10 | peak |
| 2 | 2913.915 | 16.38 | 22.62 | 39.00 | 54.00 | -15.00 | AVG |
| 3 | 3534.101 | 26.67 | 24.24 | 50.91 | 74.00 | -23.09 | peak |
| 4 | 3534.101 | 15.76 | 24.24 | 40.00 | 54.00 | -14.00 | AVG |

3.2 OCCUPIED BANDWIDTH

Test Requirement: FCC Part 15 C Section 15.231(C)
Test Method: FCC PART 2.1049&ANSI C63.4 section 13
Test Date: 2012-05-31
Test Status: Test in fixing operating frequency
Power supply: DC 12V
Test requirements: Per 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. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Test Procedure:

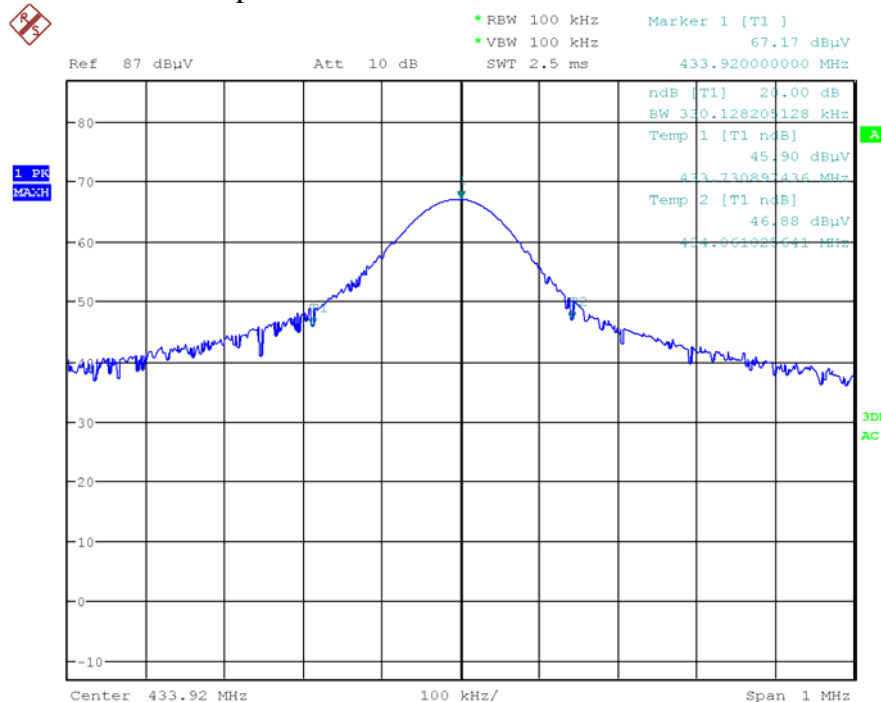
1. Set the spectrum analyzer: Span = approximately 2 to 3 times the 20dB bandwidth, centred on a hopping channel;
2. Set the spectrum analyzer: RBW >= 1% of the 20dB bandwidth (set 10kHz). VBW >= RBW. Sweep = auto; Detector Function = Peak. Trace = Max Hold.
3. Mark the peak frequency and -20dB points
4. bandwidth value is OBW value.

test result

| Frequency (MHz) | 20dB Bandwidth Emission (kHz) | Limit (MHz) | Limit (MHz) |
|-------------------|-------------------------------|-------------|-------------|
| 433.92 | 330.12 | 1.08 | Pass |

Limit=Frequency x 0.25%=433.92 x 0.25%=1.08MHz

Refer to attached plots:



The EUT meets the requirements of the 15.231(c).

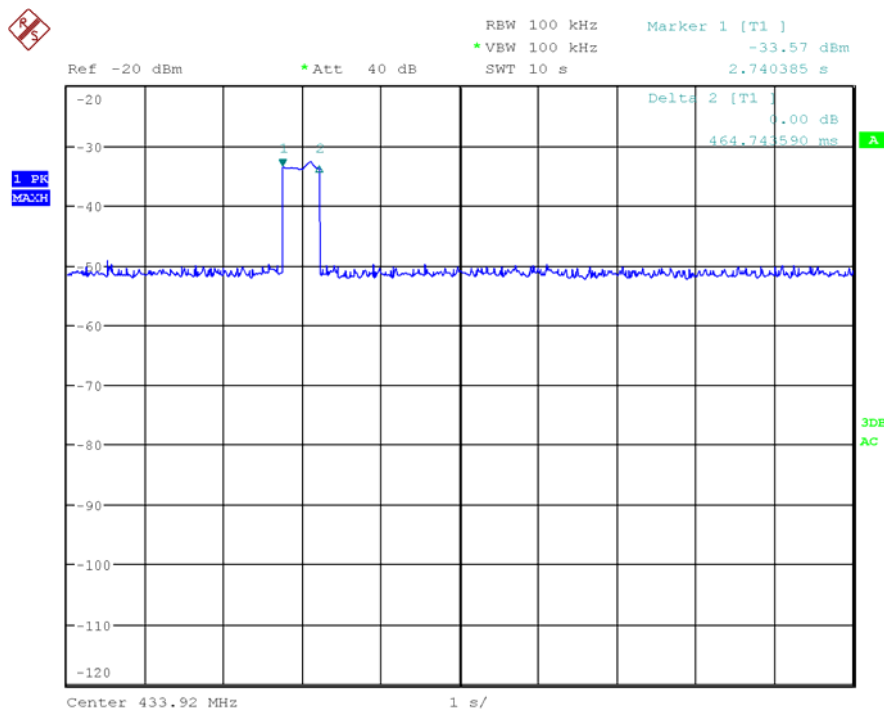
3.3 DWELL TIME

| | |
|---------------------------|--|
| Test Requirement: | FCC Part 15 C section 15.231(a) |
| Test Method: | FCC Part 15 C section 15.231(a) |
| Test Date: | 2012-06-04 |
| Test requirements: | Per 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. |
| Test Status: | Test in fixing frequency |
| Power supply: | DC 12V |

Test Procedure:

1. Set spectrum analyzer span = 0. centered on a hopping channel;
2. Set RBW = 100KHz and VBW = 100KHz. Sweep = as necessary to capture the entire dwell time per hopping channel. Detector Function = Peak. Trace = Max hold;
3. Use the marker-delta function to determine the dwell time.

Test Results:



The EUT meets the requirements of the emissions.

5. TEST SETUP PHOTO

Below 1G



Above 1G

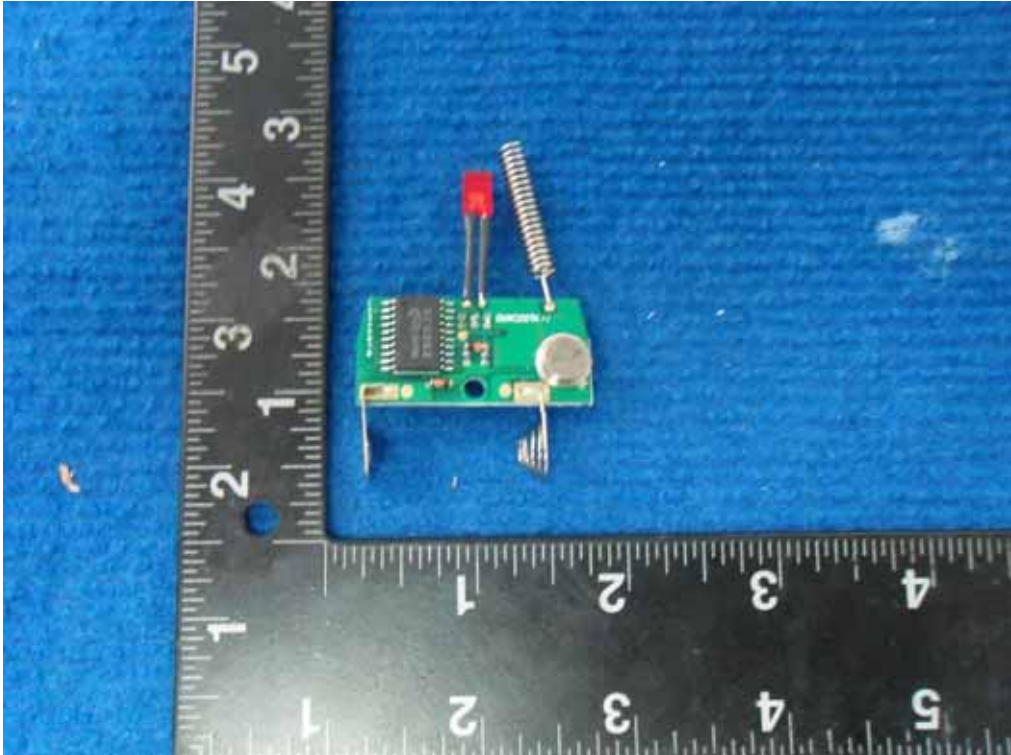
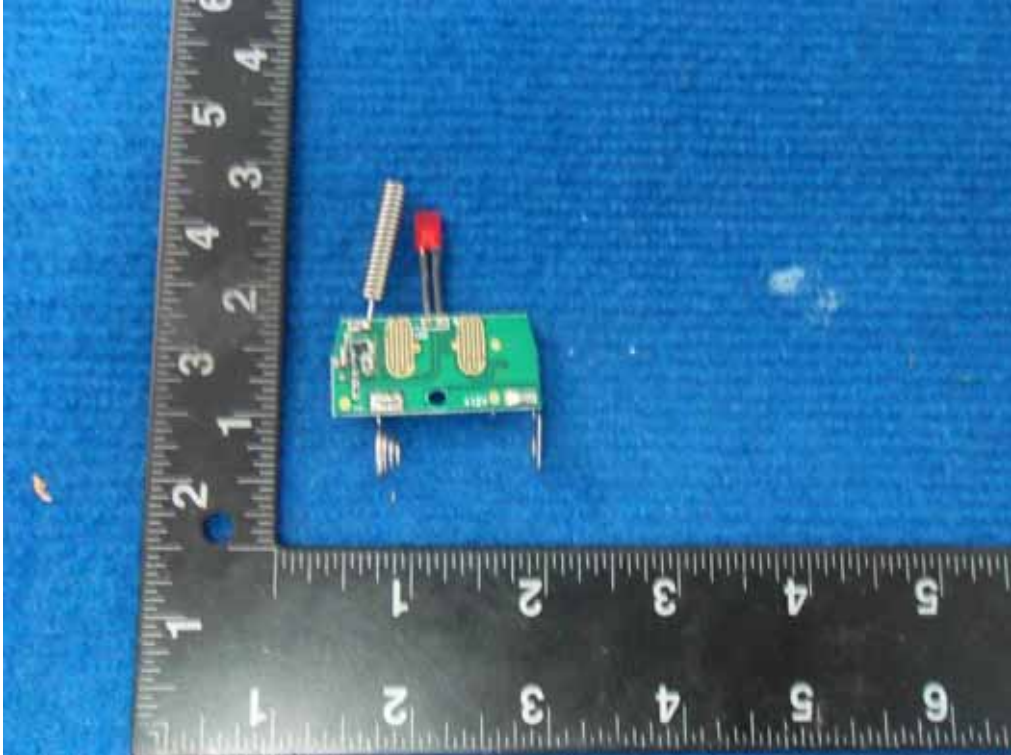


6. PHOTOGRAPHS OF EUT









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