FCC CERTIFICATION REPORT

For

WEATHER STATION

Trade Name	**:**	N/A
Model Number	**:**	WH5
FCC ID	**:**	WA5WH5
Report Number	**:**	SZ1012015-FC
Date	**:**	December 24, 2010

Prepared for：

FINE OFFSET ELECTRONICS CO., LTD.
4/F., BLOCK B3, EASTERN INDUSTRIAL PARK,
OVERSEAS CHINESE TOWN, NANSHAN, SHENZHEN

Prepared by：

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TABLE OF CONTENTS

1 CERTIFICATION OF COMPLIANCE

Equipment Under Test:	Weather Station
Trade Name:	N/A
Model Number:	WH5
Serial Number:	N/A
Applicant:	FINE OFFSET ELECTRONICS CO., LTD. 4/F., BLOCK B3, EASTERN INDUSTRIAL PARK, OVERSEAS CHINESE TOWN, NANSHAN, SHENZHEN
Manufacturer:	FINE OFFSET ELECTRONICS CO., LTD. 4/F., BLOCK B3, EASTERN INDUSTRIAL PARK, OVERSEAS CHINESE TOWN, NANSHAN, SHENZHEN
Type of Test:	FCC Rules and Regulations Part 15, Subpart C Section 15.231
Measurement Procedure:	ANSI C63.4: 2003
Report Number:	SZ1012015-FC
Date of test:	December 15, 2010
Deviation:	None
Condition of Test Sample:	Normal
Test Result:	Passed

The above equipment was tested by SEC Engineering Co., Ltd. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, Subpart C Section 15.231 and the measurement procedure according to ANSI C63.4. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report. The report shall not be reproduced in part without written approval of SEC Engineering Co., Ltd.

Prepared by: Tina

Engineer

Approved by Authorized Signatory: Jack

Manager

2 TEST SUMMARY

Test Item	FCC Rules	Result
Conducted Emission	FCC Part 15.207	N/A*
Radiated Emission	FCC Part 15.231(e)	PASS
20dB Bandwidth	FCC Part 15.231(c)	PASS
Duration Time and Silent Period Measurement	FCC Part 15.231(e)	PASS

Remark: "N/A" means "Not applicable".

3 GENERAL INFORMATION

3.1 SYSTEM DESCRIPTION

The set of Weather Station system is included the Transmitter and Receiver, the Transmitter model no. is WH5 and the Receiver model no. is WH1285. Here, this report is just to certificate the Transmitter WH5.

3.2 PRODUCT INFORMATION

EUT:	Weather Station (Transmitter)
Model Number:	WH5
Operation Frequency:	433.92MHz
Power Supply:	DC 3V ("AA" batteries 2×)
Applicant:	Fine Offset Electronics Co., Ltd.
Address:	4/F., Block B3, Eastern Industrial Park, Overseas Chinese Town, NANSHAN, SHENZHEN
Manufacturer:	Fine Offset Electronics Co., Ltd.
Address:	4/F., Block B3, Eastern Industrial Park, Overseas Chinese Town, NANSHAN, SHENZHEN
Date of sample received:	December 13, 2010
Date of Test:	December 15, 2010

3.3 SUPPORT EQUIPMENT

No any other support equipment will be needed.

4 TEST FACILITY

Location: No.1 Workshop, M-10, Middle Section, Science& Technology Park, Shenzhen, China

Site Accreditation:

VCCI:

The 3m Semi-anechoic chamber and Shielded Room (7.5m×4.0m×3.0m) have been registered in Accordance with the Regulations for Voluntary Control Measure with Registration No.: R-2197 and C-2383 respectively. Date of Registration: September 29, 2008. Be valid until September 28, 2011.

FCC-Registration No.: 556682

Registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, June 27 2008.

Industry Canada (IC)

The 3m Semi-anechoic chamber has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1

Instrument Tolerance: All measuring equipment is in accord with ANSI C63.4 and CISPR 22 requirements that meet industry regulatory agency and accreditation agency requirement.

Ground Plane:

Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table.

For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

5 TEST EQUIPMENT LIST

Equipment used during the tests

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3m Semi-Anechoic	ETS-LINDGREN	N/A	SEL0017	17-06-2010	17-06-2011
2	Antenna Positioner	ETS-LINDGREN	2070/2080	SEL0019	N/A	N/A
3	Turn Table	ETS-LINDGREN	N/A	N/A	N/A	N/A
4	Multi-Device Controller	ETS-LINDGREN	2090	SEL0018	N/A	N/A
5	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	05-11-2010	05-11-2011
6	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
7	BiConiLog Antenna	ETS-LINDGREN	3142C	SEL0015	05-11-2010	05-11-2011
8	Double-ridged horn	ETS-LINDGREN	3117	SEL0006	10-11-2010	10-11-2011
9	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	10-08-2010	10-08-2011
10	Coaxial cable	SGS	N/A	SEL0028	18-06-2010	17-06-2011
11	Pre-amplifer (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	02-06-2010	02-06-2011
12	Pre-amplifer (0.1-26.5GHz)	Compliance Directions System Inc.	PAP-0126	SEL0168	18-12-2009	18-12-2010
13	Spectrum Analyzer	Rohde & Schwarz	FSP30	SEL0154	22-10-2010	22-10-2011
14	Temperature Chamber	GuangZhou GongWen	GDJW-100	SEL0043	02-06-2010	02-06-2011
15	Humidity/Temperature Indicator	ShangHai	ZJ1-2B	SEL0101 to SEL0103	28-10-2010	28-10-2011
16	Barometer	ChangChun	DYM3	SEL0088	08-06-2010	08-06-2011

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

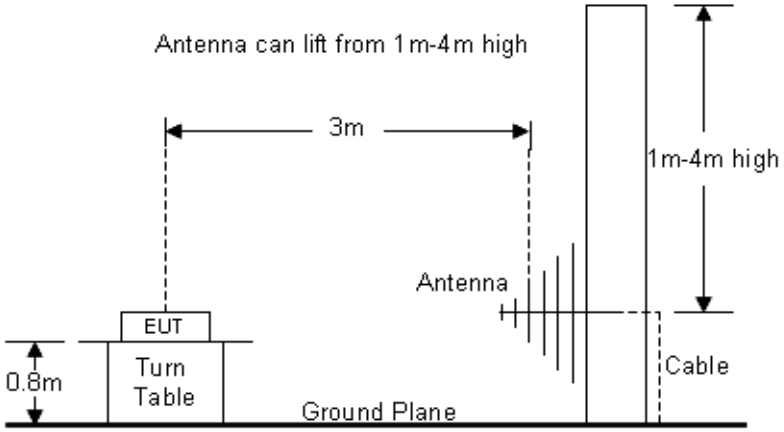
6 THE FIELD STRENGTH OF RADIATION EMISSION

6.1 Block Diagram of Test Setup

1. Block diagram of connection between the EUT and simulators

EUT: Weather Station (Transmitter)

2. Semi-anechoic Chamber Test Setup Diagram



EUT: Weather Station (Transmitter)

6.2 The Field Strength of Radiation Emission Measurement Limits

1. Radiation Emission Measurement Limits According to FCC Part 15 Section 15.231(e)

Fundamental Frequency Range [MHz]	Field Strength of Fundamental Emission [Average] [μV/m]	Field Strength of Spurious Emission [Average] [μV/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

Where F is the frequency in MHz, The formulas for calculating the maximum permitted fundamental field strengths are as follows:
For the band 130-174MHz, μV/m at 3 meters=22.72727(F)-2454.545;
For the band 260-470MHz, μV/m at 3 meters=16.6667(F)-2833.3333;
The maximum permissible unwanted emission level is 20dB below the maximum permitted fundamental level.

2. Restricted Band Radiation Emission Measurement Limits According to FCC part 15 Section 15.205 and Section15.209.

6.3 Configuration of EUT on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission

requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

Weather Station (Transmitter) (EUT)

Model Number: WH5
Serial Number: N/A
Manufacturer: Fine Offset Electronics Co., Ltd.

6.4 Operation Condition of EUT

1. Setup the EUT and simulator as shown as Section 6.1.
2. Turn on the power of all equipment.
3. Let the EUT work in measuring mode (TX) and measure it.

6.5 Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI 63.4 on radiated emission measurement.

The bandwidth of test receiver is set at 120kHz in 30-1000MHz, and 1MHz in 1000-5000MHz.

The frequency range from 30MHz to 5000MHz is checked.

6.6 The Field Strength of Radiation Emission Measurement Results

The frequency range 30MHz to 5000MHz is investigated.

EUT: Weather Station (TX) Test Location: 3m-Chamber
Model Number: WH5 Tested By: Jock
Test Mode: TX Temp. / Hum.: 25℃ / 50%
Detector Function: Peak Test Date: 15/12/2010

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBm)	Average Factor dB	Emission Level (dBm/m)		Limit (dBm/m)		Margin (dB)		Polarization
						AV	PK	AV	PK	AV	PK	
433.981	16.59	2.35	27.33	77.50	0.72	68.38	69.10	72.80	92.80	-4.42	-23.70	Horizontal
867.975	22.85	3.48	26.92	48.30	0.72	46.99	47.71	52.80	72.80	-5.81	-25.09	
433.982	16.59	2.35	27.33	78.60	0.72	69.48	70.20	72.80	92.80	-3.32	-22.60	Vertical
867.973	22.85	3.48	26.92	50.10	0.72	48.79	49.51	52.80	72.80	-4.01	-23.29	

Note:
1. Emissions attenuated more than 6dB below the permitted value are not reported.
2. Measurements were made using a peak detector. Average results were calculated by using average factor calculation method. Any emission falling within the restricted bands of FCC Part 15 Section 15.205 were compliance with the emission limit of FCC Part 15 Section 15.209.
3. The field strength is calculated by adding the antenna factor and cable loss factor, and then subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:
Result = Reading + Antenna Factor + Cable Loss – Amplifier Gain
4. FCC Limit for Average Measurement = 16.6667(433.92)-2833.3333 = 4398.68μV/m= 72.8dBμV/m
5. The spectral diagrams in appendix I display the measurement of peak values.

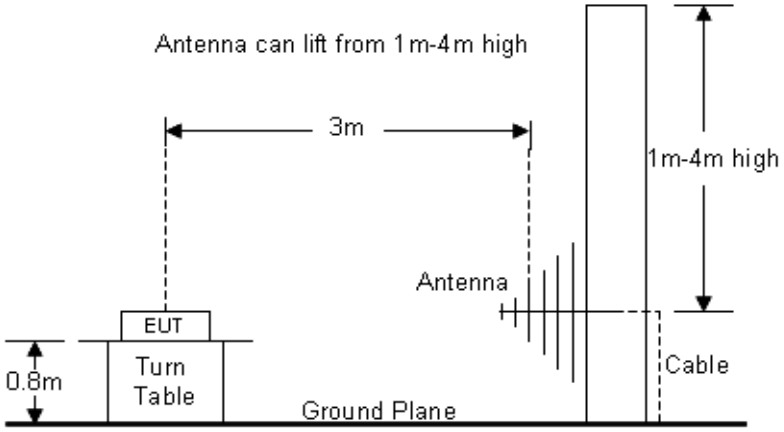
7 20dB OCCUPIED BANDWIDTH

7.1 Block Diagram of Test Setup

1. Block diagram of connection between the EUT and simulators

EUT: Weather Station (Transmitter)

2. Semi-anechoic Chamber Test Setup Diagram



EUT: Weather Station (Transmitter)

7.2 The Bandwidth Emission Measurement Limit

According to FCC Part 15 Section 15.231(c), the bandwidth of emission shall be no wider than 0.25% of the center frequency. Therefore, the bandwidth of the emission limit is 433.92MHz×0.25% = 1084.8kHz. Bandwidth is determined at the two points 20 dB down from the top of modulated carrier.

7.3 Configuration of EUT on Measurement

The following equipment is installed on the bandwidth of emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

Weather Station (Transmitter) (EUT)

Model Number: WH5
Serial Number: N/A
Manufacturer: Fine Offset Electronics Co., Ltd.

7.4 Operation Condition of EUT

1. Setup the EUT and simulator as shown as Section 7.1.
2. Turn on the power of all equipment.
3. Let the EUT work in measuring mode (TX) and measure it.

7.5 **Test Procedure**

1. Set SPA Center Frequency = Fundamental frequency,
   RBW = 10kHz,
   VBW = 30kHz,
   Span = 5MHz.
2. Set SPA Max hold. Mark peak-20dB

7.6 The Bandwidth Emission Measurement Result

The EUT does meet the FCC requirement.

-20dB bandwidth = 60.0 kHz, and 60.0 kHz < 1084.8 kHz.

The spectral diagrams are in appendix I.

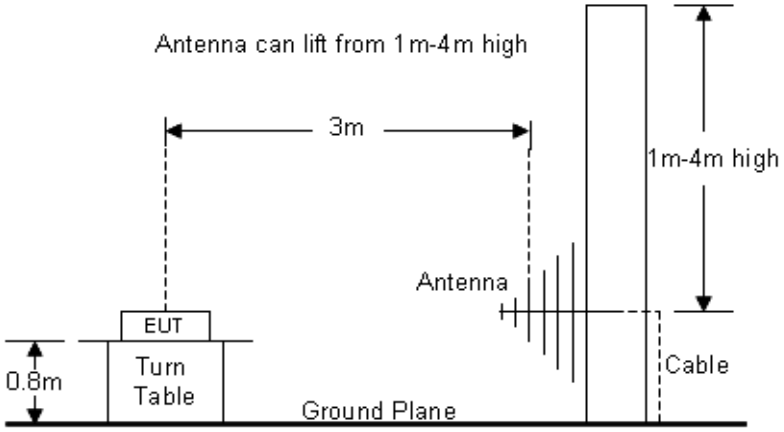
8 DURATION TIME AND SILENT PERIOD MEASUREMENT

8.1 Block Diagram of Test Setup

1. Block diagram of connection between the EUT and simulators

EUT: Weather Station (Transmitter)

2. Semi-anechoic Chamber Test Setup Diagram



EUT: Weather Station (Transmitter)

8.2 The Duration Time and Silent Period Measurement Limit

According to FCC Part 15 Section 15.231(e), in addition, 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.

8.3 Configuration of EUT on Measurement

The following equipment is installed on duration time and silent period measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

Weather Station (Transmitter) (EUT)

Model Number: WH5
Serial Number: N/A
Manufacturer: Fine Offset Electronics Co., Ltd.

8.4 Operation Condition of EUT

1. Setup the EUT and simulator as shown as Section 8.1.
2. Turn on the power of all equipment.
3. Let the EUT work in measuring mode (TX) measure it.

8.5 Test Procedure

1. Set SPA Center Frequency = Fundamental frequency,
   RBW = 1MHz,
   VBW = 1MHz,
   Span = 0Hz.
2. Set EUT as normal operation.
3. Set SPA View. Delta Mark time.

8.6 The Measurement Result

The EUT does meet the FCC requirement.

The transmissions are sent at periodic rate automatically.

Duration time = 92 ms <1 s

Silent period = 48 seconds >10 seconds > 30 times the duration of the transmission

The spectral diagrams are in appendix I.

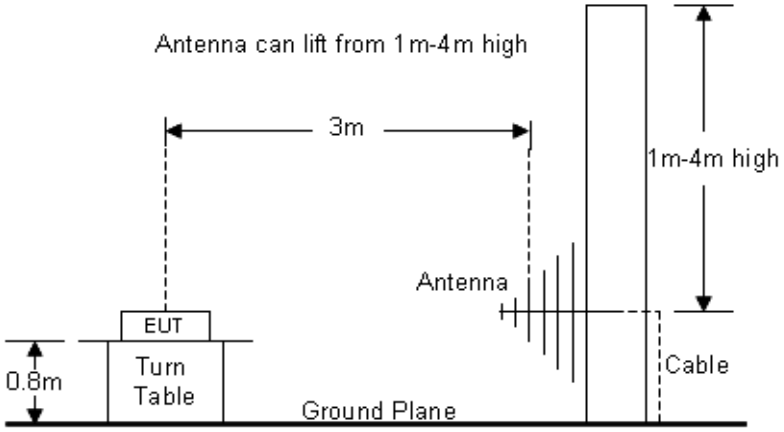
9 AVERAGE FACTOR MEASUREMENT

9.1 Block Diagram of Test Setup

1. Block diagram of connection between the EUT and simulators

EUT: Weather Station (Transmitter)

2. Semi-anechoic Chamber Test Setup Diagram



EUT: Weather Station (Transmitter)

9.2 The Average Factor Measurement

According to ANSI C63.4 Section 13.1.4.2, devices transmitting pulsed emissions and subject to a limit requiring an average detector function for radiated emissions shall initially be measured with an instrument that uses a peak detector. A radiated emission measured with a peak detector may then be corrected to a true average using the appropriate factor for emission duty cycle. This correction factor relates the measured peak level to the average limit and is derived by averaging absolute field strength over one complete pulse train that is 0.1s, or less, in length. If the pulse train is longer than 0.1s, the average shall be determined from the average absolute field strength during 0.1s interval in which the field strength is at maximum. Instructions on calculating the duty cycle of a transmitter with pulsed emissions are provided in ANSI C63.4 H4, step j.

Average factor in dB = 20 log (duty cycle)

9.3 Configuration of EUT on Measurement

The following equipment is installed on average factor measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

Weather Station (Transmitter) (EUT)

Model Number: WH5
Serial Number: N/A
Manufacturer: Fine Offset Electronics Co., Ltd.

9.4 Operation Condition of EUT

1. Setup the EUT and simulator as shown as section 9.1.
2. Turn on the power of all equipment.
3. Let the EUT work in measuring mode (TX) measure it.

9.5 Test Procedure

1. The time period over which the duty cycle is measured is 100ms, or the repetition cycle, whichever is a shorter time frame. The worst case (highest percentage on) duty cycle is used for the calculation.
2. Set SPA Center Frequency = Fundamental frequency,
   RBW = 1MHz,
   VBW = 1MHz,
   Span = 0Hz.
3. Set EUT as normal operation.
4. Set SPA View. Delta Mark time.

9.6 The Measurement Result

The duty cycle is simply the on time divided by the period:
Effective period of one cycle = 100 ms
Sum of pulse width = 92 ms
Duty Cycle = 92 ms / 100 ms = 0.92
Therefore, the average factor is found by 20log0.92 = -0.72dB

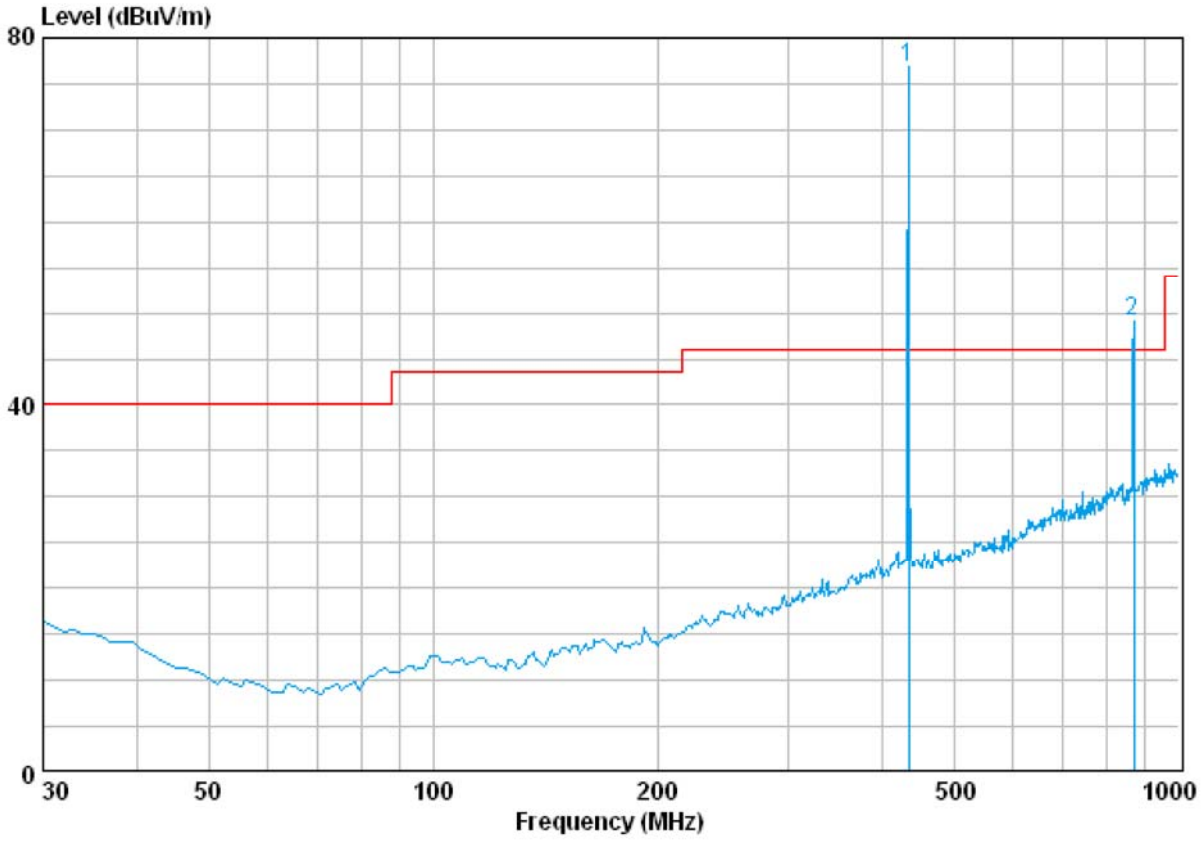
The spectral diagrams are in appendix I.

10 APPENDIX I

10.1 Radiation Emission Test

Model Number: WH5
Polarization: Horizontal
Test Mode: TX
Detector Function: Peak

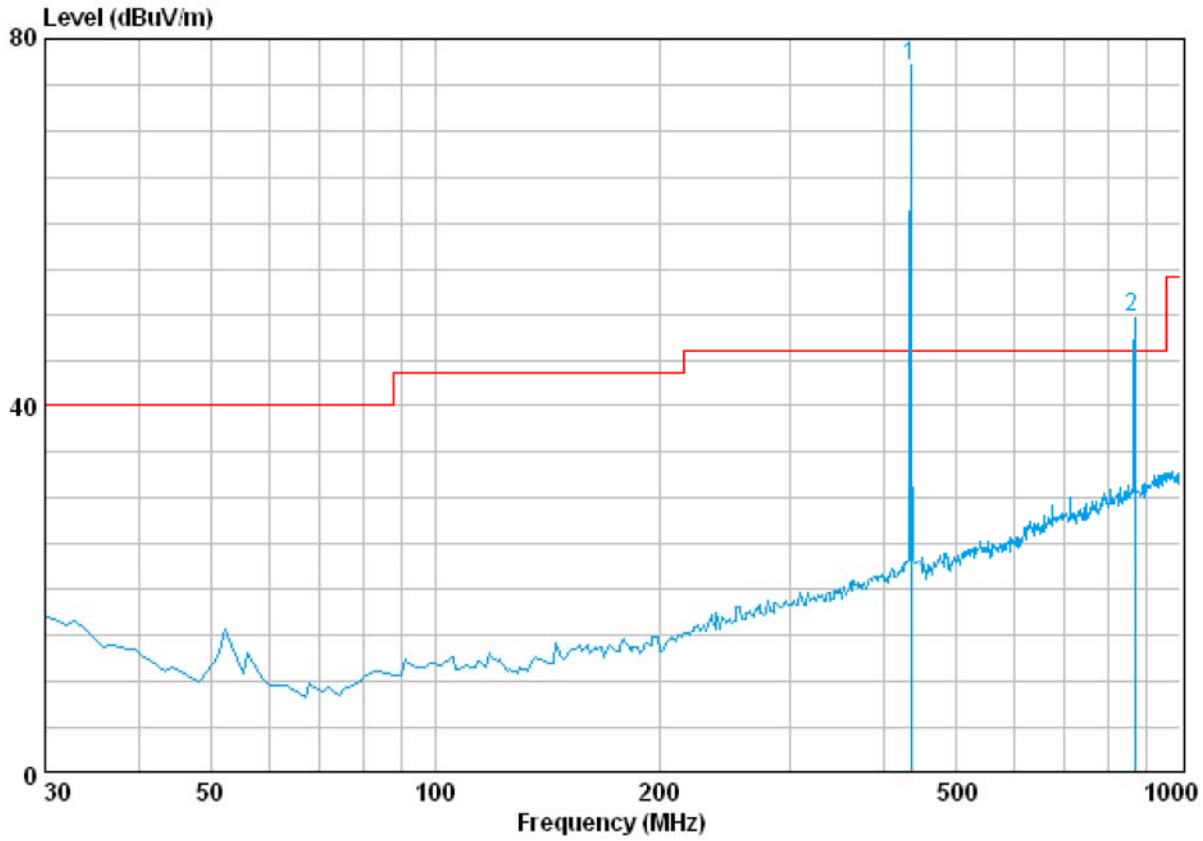
Test Location: 3m-Chamber
Tested By: Jock
Temp. / Hum.: 25℃ / 50%
Test Date: 15/12/2010



Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBm)	Emission Level (dBm/m)	Limit (dBm/m)	Margin (dB)
433.981	16.59	2.35	27.33	77.50	69.10	92.80	-23.70
867.975	22.85	3.48	26.92	48.30	47.71	72.80	-25.09

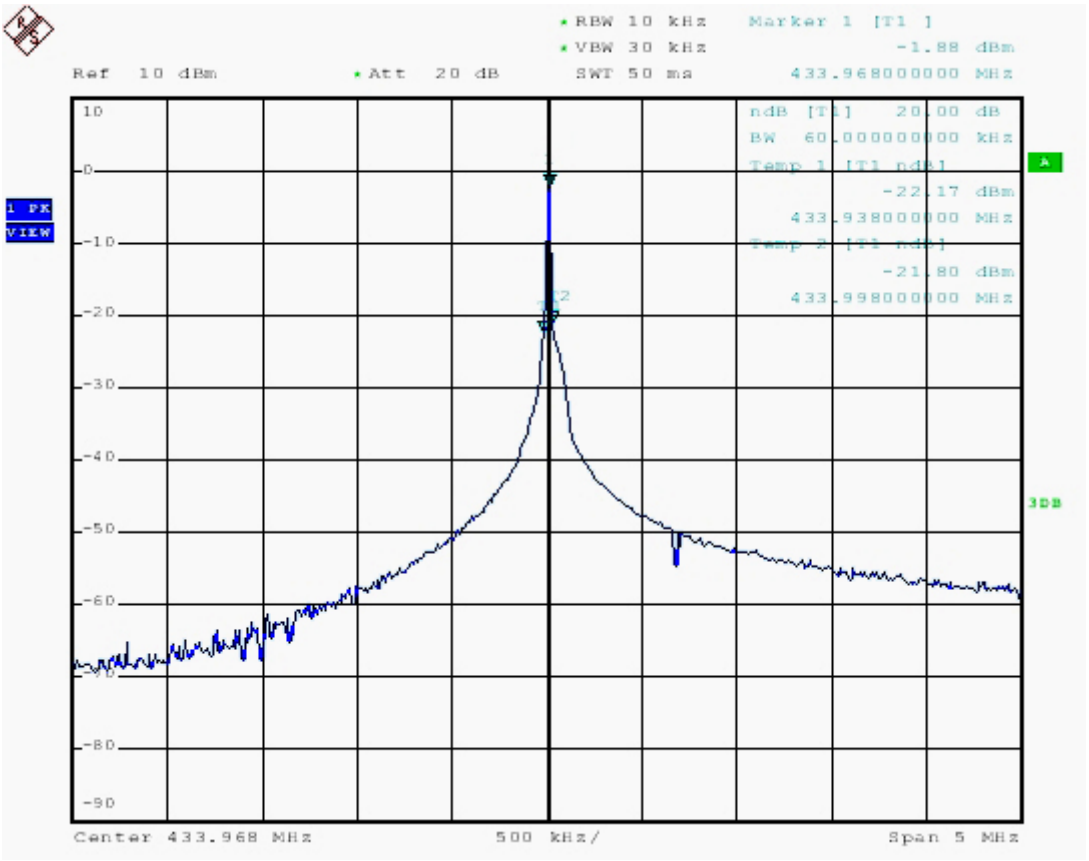
Model Number: WH5
Polarization: Vertical
Test Mode: TX
Detector Function: Peak

Test Location: 3m-Chamber
Tested By: Jock
Temp. / Hum.: 25℃ / 50%
Test Date: 15/12/2010



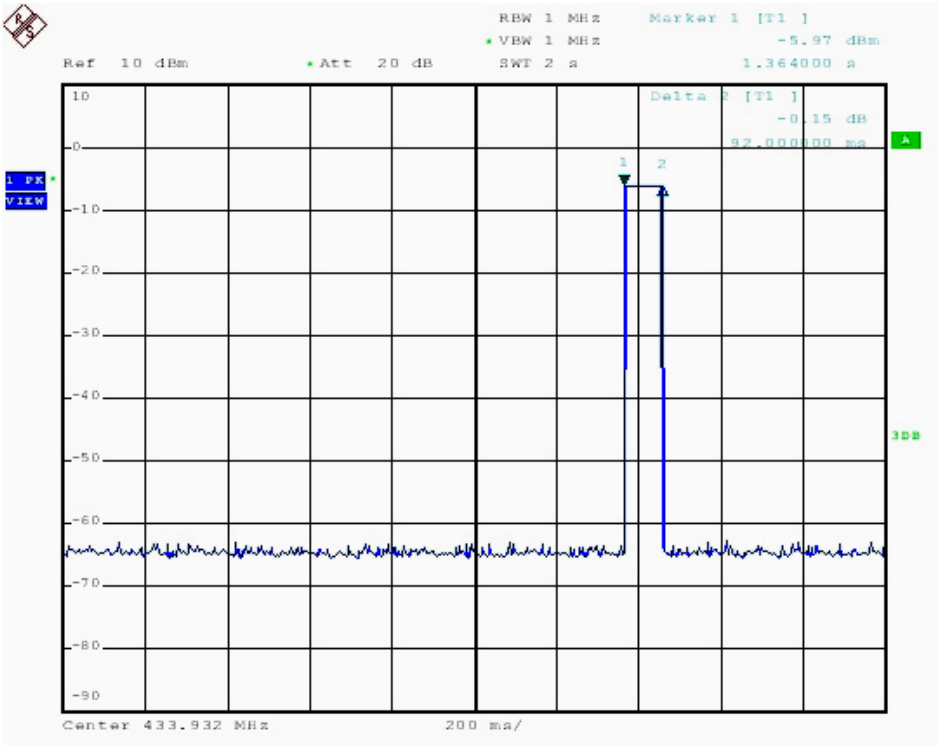
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBm)	Emission Level (dBm/m)	Limit (dBm/m)	Margin (dB)
433.982	16.59	2.35	27.33	78.60	70.20	92.80	-22.60
867.973	22.85	3.48	26.92	50.10	49.51	72.80	-23.29

10.2 20dB OCCUPIED BANDWIDTH

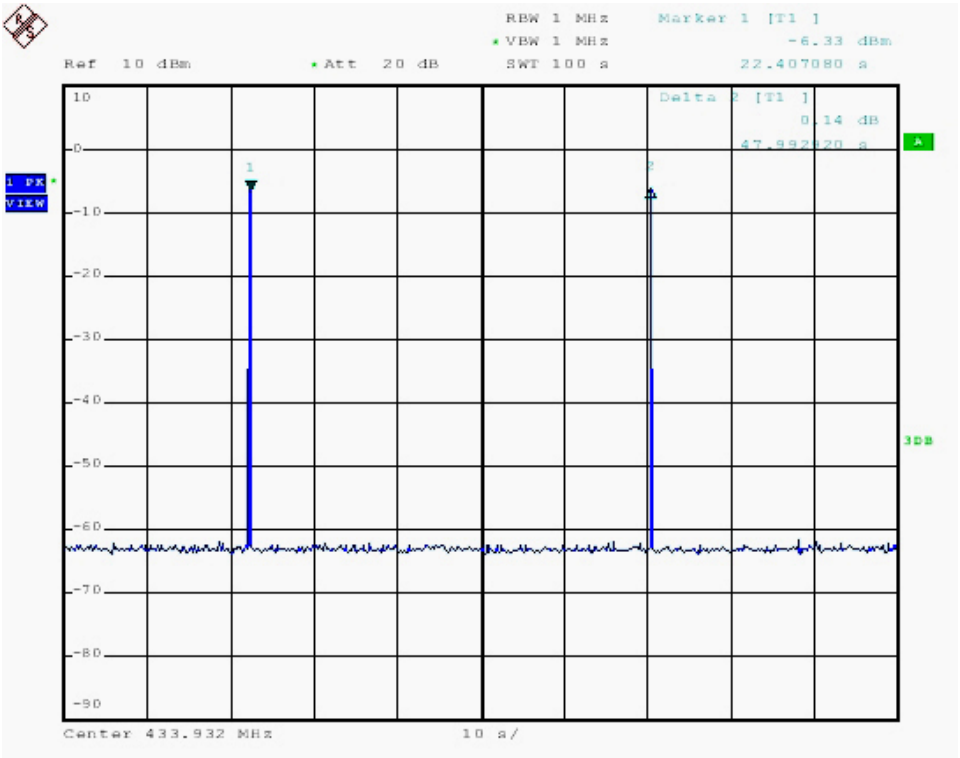


20dB occupied bandwidth = 60.0 kHz

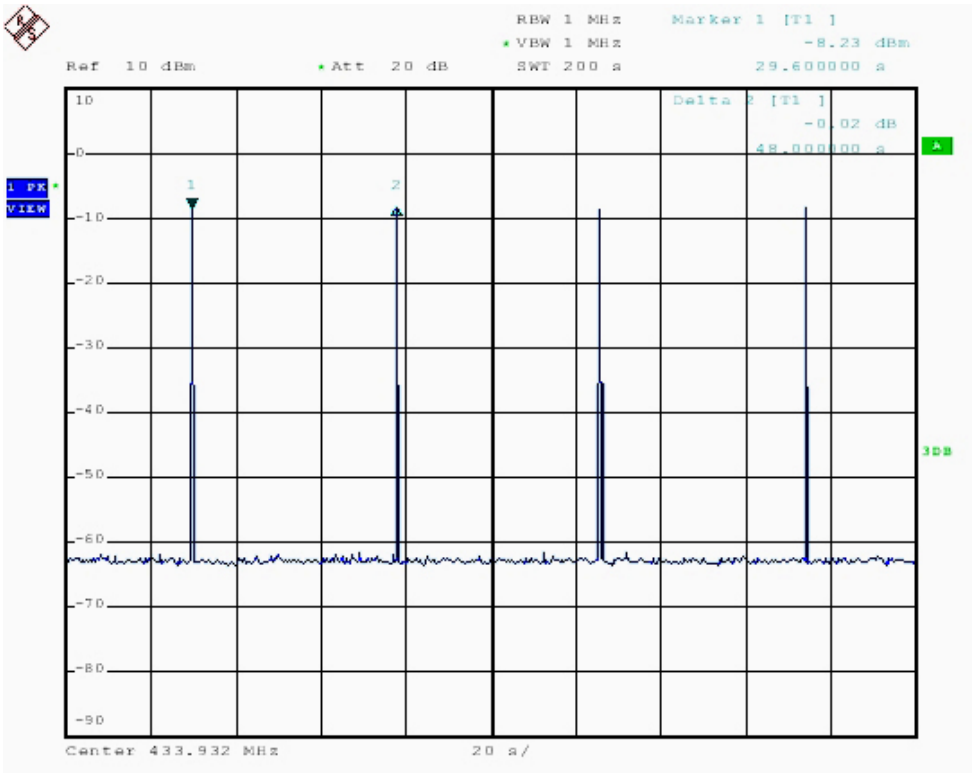
10.3 Duration Time and Silent Period



The above graph shows the duration of "on" signal, duration time = 92 ms



The above graph shows the silent period of "off" signal, silent period is 48s.



The above graph shows the transmissions are sent at periodic rate automatically.