

### Shenzhen Huatongwei International Inspection Co., Ltd.

Keji S,12th, Road, Hi-tech Industrial Park, Shenzhen, Guangdong, China Phone:86-755-26748099 Fax:86-755-26748089 http://www.szhtw.com.cn







## **FCC TEST REPORT**

# 47 CFR FCC Part 15 Subpart C & 15.231

FCC ID	L5CW186TX-T		
Report Reference No	WE11070032		
Compiled by			
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Date of issue	Aug 23, 2011		
Testing Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd		
Address	Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China		
Applicant's name	Ansen Electronics Company		
Address	ROOM 73-78,2/F., SINO INDUSTRIAL PLAZA, 9 KAL CHEUNG ROAD, KOWLOON BAY, KOWLOON, HONG KONG		
Manufacturer's name	Ansen Electronics Company		
Address	Chen Tung Industrial Zone, Ning Tau Administrative District, Qiao Tau Zhen, Dongguan, Guangdong		
Test specification:			
Standard	47 CFR FCC Part 15 Subpart C & 15.231		
	ANSI C63.10: 2009		
TRF Originator	: Shenzhen Huatongwei International Inspection CO., Ltd		
Master TRF:	Dated 2006-06		
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Equipment Under Test:	Weather station Transmitter
Trade Mark:	1
Model/Type reference	W186-T
Listed Models	
Result	Complied

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Applicant : Ansen Electronics Company

Address : ROOM 73-78,2/F., SINO INDUSTRIAL PLAZA, 9 KAL CHEUNG

ROAD, KOWLOON BAY, KOWLOON, HONG KONG

Manufacturer : Ansen Electronics Company

Address : Chen Tung Industrial Zone, Ning Tau Administrative District, Qiao

Tau Zhen, Dongguan, Guangdong

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# 1. TEST STANDARDS

The tests were performed according to following standards:

47 CFR FCC Part 15 Subpart C & 15.231 – Intentional Radiators & Periodic operation in the band 40.66–40.70 MHz and above 70 MHz

ANSI C63.10: 2009 - American National Standard for Teating Unlicensed Wireless Devices

# 2. SUMMARY

#### 2.1. General Remarks

Date of receipt of test sample : July 28, 2011

Testing commenced on : July 28, 2011

Testing concluded on : Aug 23, 2011

## 2.2. Equipment under test power supply

Power supply voltage : O 120V / 60 Hz O 115V / 60Hz

 $\bigcirc$  12 V DC  $\bigcirc$  24 V DC

Other (specified in blank below)

DC 3V from battery

## 2.3. Short description of the Equipment under Test (EUT)

Product Name : Weather station Transmitter

Model Number : W186-T

Operation Frequency : 433.92MHz

Modulation Technology : ASK

Transmitter Type : Periodic Transmitter

Sample Type : Prototype

I/O Port : /

For more details, refer to the user's manual of the EUT.

## 2.4. EUT operation mode

The EUT has been tested under typical operating condition.

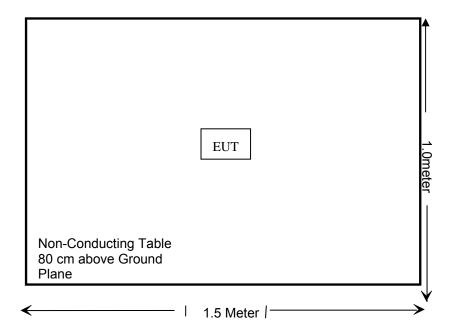
## 2.5. Related submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **L5CW186TX-T** filling to comply with the FCC Part 15, Subpart C Rules.

#### 2.6. Modifications

No modifications were implemented to meet testing criteria.

# 2.7. Block Diagram of Test Setup



Note: For actual sample please see test setup photos and EUT external photos.

## 2.8. Summary of standards and result

FCC Rules	Description of Test	Result
§15.207 (a)	Conducted Emissions	N/A
§15.205, §15.209, 15.35 (c), §15.231 (e)	Radiated Emissions	Compliant
§15.231(e)	Deactivation Testing	Compliant
§15.231(c)	20 dB Band Width Testing	Compliant
§15.203	Antenna Requirement	Compliant

NOTE: 1) The detailed test rusult please see section 4.

- 2) The test report merely corresponds to the test sample.
- 3) It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

# 3. TEST ENVIRONMENT

## 3.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 22.

## 3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: Mar. 30, 2009. Valid time is until Mar. 29, 2012.

#### A2LA-Lab Cert. No. 2243.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until Sept. 30, 2011.

## FCC-Registration No.: 662850

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been 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 662850, Renewal date Jul. 01, 2009, valid time is until Jun. 30, 2012.

#### IC-Registration No.: 5377A

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Jan. 25, 2011, valid time is until Jan. 24, 2014.

#### **ACA**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

#### NEMKO-Aut. No.: ELA125

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10, the authorization is valid through Jul. 07, 2013.

### **VCCI**

The 3m Semi-anechoic chamber  $(12.2m\times7.95m\times6.7m)$  and Shielded Room  $(8m\times4m\times3m)$  of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2010. Valid time is until Dec. 23, 2013.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2009. Valid time is until Dec. 19, 2012.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2010. Valid time is until May 06, 2013.

#### DNV

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2013.

#### 3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 22 ° C

Humidity: 65 %

Atmospheric pressure: 950-1050mbar

### 3.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	0.09~30MHz	3.85dB	(1)
Radiated Emission	30~1000MHz	4.22dB	(1)
Radiated Emission	1~12.75GHz	4.35dB	(1)
20dB Bandwidth	1	0.25dB	(1)
Deactivation Time	/	0.5ms	(1)

<sup>(1)</sup> This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

# 3.5. Equipments Used during the Test

Condu	Conducted Emisssions				
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100106	2010/10/24
2	Artificial Mains	ROHDE & SCHWARZ	ESH2-Z5	100028	2010/10/24
3	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100044	2010/10/24
4	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	2010/10/24

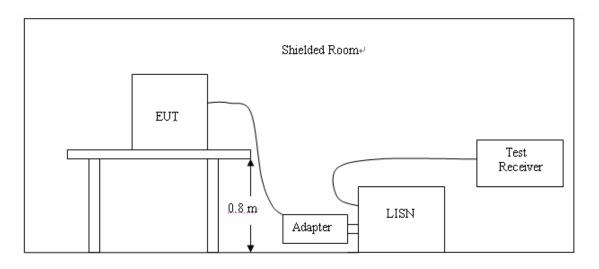
Radiated Emissions					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2010/10/24
2	Amplifier	Sonoma	310 N	291722	2010/10/24
3	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2010/10/24
4	RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	2010/10/24
5	TURNTABLE	ETS	2088	2149	2010/10/24
6	ANTENNA MAST	ETS	2075	2346	2010/10/24
7	EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	N/A	2010/10/24
8	Double-Ridged- Waveguide Horn Antenna	ROHDE & SCHWARZ	HF906	100039	2010/10/24
9	Amplifier	ROHDE & SCHWARZ	HF906 (1-18)GMZ	00101800-28- 5A	2010/10/24
10	Loop Antenna	ROHDE & SCHWARZ	HFH2-Z2	100020	2010/10/24

20dB	20dB Bandwidth & Deactivation Time & Duty Cycle			
Item	Item Test Equipment Manufacturer Model No. Serial No. Last Cal.			
1 EMI Test Receiver ROHDE & SCHWARZ ESCI 100106 2010/10/24				

# 4. TEST CONDITIONS AND RESULTS

#### 4.1. AC Conducted Emission

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a Weather station Transmitter; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2 Support equipment, if needed, was placed as per ANSI C63.10.
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4 All support equipments received AC power from a second LISN, if any.
- 5 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 6 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 7 During the above scans, the emissions were maximized by cable manipulation.

#### **CONDUCTED LIMIT**

According to FCC Subpart 15 B § 15.207 AC Conducted Emission Limits is as following:

Frequency fange	Conducted limit (dBµV)		
(MHz)	Quasi-peak	Average	
0.1~ 0.5	66 to 56*	56 to 46*	
0.5 ~ 5	56	46	
5 ~ 30	60	50	
* Decreasing linearly with the logarithm of the frequency			

# **TEST RESULTS**

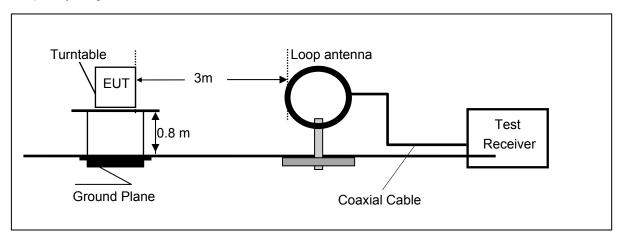
Not applicable to this device (beacuse the equipment without any AC port)

## 4.2. Radiated Emission

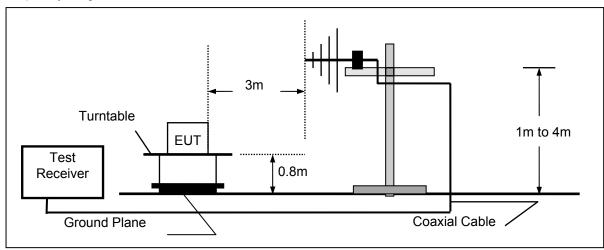
## **TEST CONFIGURATION**

Radiated Emission Test Set-Up

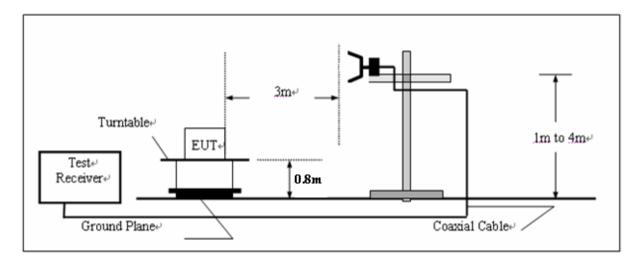
Frequency range 9KHz - 30MHz



Frequency range 30MHz - 1000MHz



Frequency range 1GHz - 5GHz



#### **TEST PROCEDURE**

- 1, The EUT was placed on a turn table which is 0.8m above ground plane, Put the battery into the EUT and the EUT will transmit automatic at 433.92MHz.
- 2, Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0 ° to 360 ° to acquire the highest emissions from EUT., each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 3, Repeat above procedures until all frequency measurements have been completed.

### **EMI Test Receiver Setup**

The system was investigated from 9 KHz to 5 GHz.

During the radiated emission test, the test receiver was set with the following configurations:

Frequency Range	RBW	VBW	<b>Dectector</b>
9kHz- 150kHz	200 Hz	1 kHz	QP
150kHz-30 MHz	9 KHz	30 KHz	QP
30MHz - 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 5 GHz	1 MHz	3 MHz	PK
1000 MHz – 5 GHz	1 MHz	10 Hz	AV

Note:The measurement employ AV detector for the frequency bands 9KHz-90KHz and 110KHz-490KHz .

#### **RADIATION LIMIT**

For periodic transmitter, according to § 15.231(e), the field strength of fundamental from device at a distance of 3 meters shall not exceed the following values:

Fundamental frequency	Distance (Meters)	Field strength of fundamental		
(MHz)		(μV/m)	(dBµV/m)	
40.66-40.70	3	1000	60	
70-130	3	500	54	
130-174	3	500 to 1500	54 to 63.5	
174-260	3	1500	63.5	
260-470	3	1500 to 5000	63.5 to 74	
Above 470	3	5000	74	

For periodic transmitter, according to § 15.231(e), the field strength radiated emissions from device at a distance of 3 meters shall not exceed the following values:

Fundamental frequency	Distance (Meters)	Field str spurious	
(MHz)		(μV/m)	(dBµV/m)
40.66-40.70	3	100	40
70-130	3	50	34
130-174	3	50 to 150	34 to 43.5
174-260	3	150	43.5
260-470	3	150 to 500	43.5 to 54
Above 470	3	500	54

Note: 1, For other bands limit pls refer 15.209

FCC Part 15B § 15.209, all spurious emissions shall comply with the limits of table as follow:

Frequency (MHz)	Distance (Meters)	Radiated (μV/m)	Radiated (dBµV/m)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
Above 960	3	500	54.0

Note: The sprious emissions shall be bittenuated to the average limits shown in above table or to the general limits shown in section 15.209, which limit permits a higher field strength.

<sup>2,</sup> The limit beolw 1GHz based CISPR quasi-peak detector, the limit above 1GHz based average detector and peak limit is 74dBuV/m.

## **TEST RESULTS**

The emissions from 30MHz to 5GHz are measured peak and average level, below 1Ghz measured QP level, detailed test data please see below.Besides, we tested 3 direction and recorded the worst data.

#### Radiated emission of fundamental emission of Channel 1

Frequency (MHz)	Corrected Reading (dBµV/m)@3m	FCC Limit (dBµV/m) @3m	Margin (dB)	Detector	Polari- zation
433.92	61.50	92.87	31.37	PK	Horizontal
433.92	45.08	72.87	27.79	AV	Horizontal
433.92	67.70	92.87	25.17	PK	Vertical
433.92	51.28	72.87	21.59	AV	Vertical

## Spurious radiated emission of Channel 1

Frequency (MHz)	Corrected Reading (dBµV/m)@3m	FCC Limit (dBµV/m) @3m	Margin (dB)	Detector	Polari- zation
0.16	61.60	83.52	21.92	PK	/
0.16	45.18	63.52	18.34	AV	/
16.38	31.89	49.54	17.65	QP	/
30.00	13.40	40.00	26.60	QP	Horizontal
873.65	24.80	46.00	21.20	QP	Horizontal
867.82	31.16	72.87	41.71	PK	Horizontal
867.82	14.74	52.87	38.13	AV	Horizontal
2172.34	55.39	72.87	17.48	PK	Horizontal
2172.34	38.97	52.87	13.90	AV	Horizontal
3034.07	52.03	72.87	20.84	PK	Horizontal
3034.07	35.61	52.87	17.26	AV	Horizontal
30.00	13.89	40.00	26.11	QP	Vertical
873.65	27.00	46.00	19.00	QP	Vertical
867.82	38.31	72.87	34.56	PK	Vertical
867.82	21.89	52.87	30.98	AV	Vertical
2172.34	63.58	72.87	9.29	PK	Vertical
2172.34	47.16	52.87	5.71	AV	Vertical
2603.21	51.23	72.87	21.64	PK	Vertical
2603.21	34.81	52.87	18.06	AV	Vertical

#### Radiated emission of fundamental emission of Channel 2

Frequency (MHz)	Corrected Reading (dBµV/m)@3m	FCC Limit (dBµV/m) @3m	Margin (dB)	Detector	Polari- zation
433.92	57.10	92.87	35.77	PK	Horizontal
433.92	40.98	72.87	31.89	AV	Horizontal
433.92	70.30	92.87	22.57	PK	Vertical
433.92	54.18	72.87	18.69	AV	Vertical

# Spurious radiated emission of Channel 2

Frequency (MHz)	Corrected Reading (dBµV/m)@3m	FCC Limit (dBµV/m) @3m	Margin (dB)	Detector	Polari- zation
0.16	60.83	83.52	22.69	PK	/
0.16	44.71	63.52	18.81	AV	/
16.38	32.16	49.54	17.38	QP	/
30.00	14.37	40.00	25.63	QP	Horizontal
873.65	26.39	46.00	19.61	QP	Horizontal
867.82	33.08	72.87	39.79	PK	Horizontal
867.82	16.96	52.87	35.91	AV	Horizontal
2172.34	55.93	72.87	16.94	PK	Horizontal
2172.34	39.81	52.87	13.06	AV	Horizontal
3034.07	53.21	72.87	19.66	PK	Horizontal
3034.07	37.09	52.87	15.78	AV	Horizontal
30.00	13.17	40.00	26.83	QP	Vertical
873.65	27.69	46.00	18.31	QP	Vertical
867.82	39.04	72.87	33.83	PK	Vertical
867.82	22.92	52.87	29.95	AV	Vertical
2172.34	64.56	72.87	8.31	PK	Vertical
2172.34	48.44	52.87	4.43	AV	Vertical
2603.21	52.05	72.87	20.82	PK	Vertical
2603.21	35.93	52.87	16.94	AV	Vertical

#### Radiated emission of fundamental emission of Channel 3

Frequency (MHz)	Corrected Reading (dBµV/m)@3m	FCC Limit (dBµV/m) @3m	Margin (dB)	Detector	Polari- zation
433.92	61.10	92.87	31.77	PK	Horizontal
433.92	44.38	72.87	28.49	AV	Horizontal
433.92	70.50	92.87	22.37	PK	Vertical
433.92	53.78	72.87	19.09	AV	Vertical

#### Spurious radiated emission of Channel 3

Frequency (MHz)	Corrected Reading (dBµV/m)@3m	FCC Limit (dBµV/m) @3m	Margin (dB)	Detector	Polari- zation
0.16	62.17	83.52	21.35	PK	/
0.16	45.45	63.52	18.07	AV	/
16.38	32.41	49.54	17.13	QP	/
30.00	13.62	40.00	26.38	QP	Horizontal
873.65	25.32	46.00	20.68	QP	Horizontal
867.82	32.31	72.87	40.56	PK	Horizontal
867.82	15.59	52.87	37.28	AV	Horizontal
2172.34	55.67	72.87	17.2	PK	Horizontal
2172.34	38.95	52.87	13.92	AV	Horizontal
3034.07	52.54	72.87	20.33	PK	Horizontal
3034.07	35.82	52.87	17.05	AV	Horizontal
30.00	13.84	40.00	26.16	QP	Vertical
873.65	27.29	46.00	18.71	QP	Vertical
867.82	38.45	72.87	34.42	PK	Vertical
867.82	21.73	52.87	31.14	AV	Vertical
2172.34	63.72	72.87	9.15	PK	Vertical
2172.34	47.00	52.87	5.87	AV	Vertical
2603.21	51.37	72.87	21.5	PK	Vertical
2603.21	34.65	52.87	18.22	AV	Vertical

Note 1: According to section 15.35(b), when average radiated emission measurements are specified, including emission measurement below 1000MHz, there also is limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated.

Note 2: Average Result = Peak Field Strength + Duty Cycle Correction Factor.

Note 3: Duty Cycle Correction Factor value refers to below.

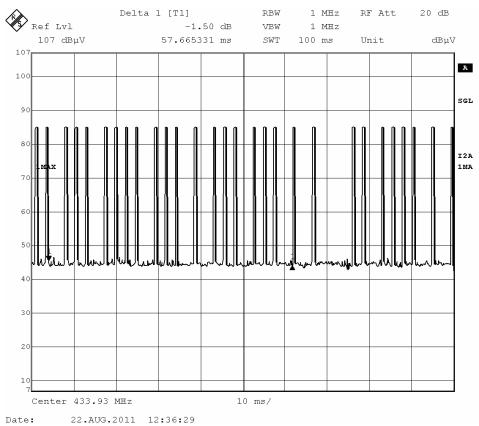
### **Duty Cycle Correction Factor**

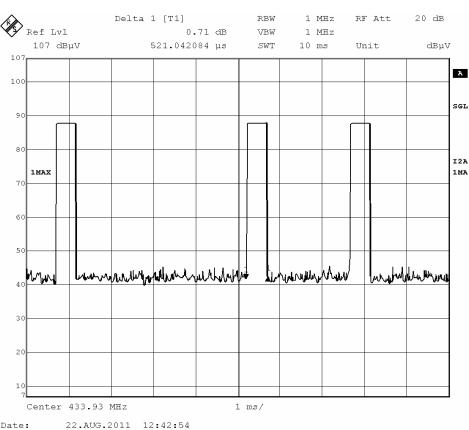
#### **Channel 1**

Total pulse on time:0.521 millisecond

Duty Cycle = TX on/100ms X 100% = 0.521\*29 ms/100ms X 100% =15.11%

Duty Cycle Correction Factor = 20log (Duty Cycle) = -16.42

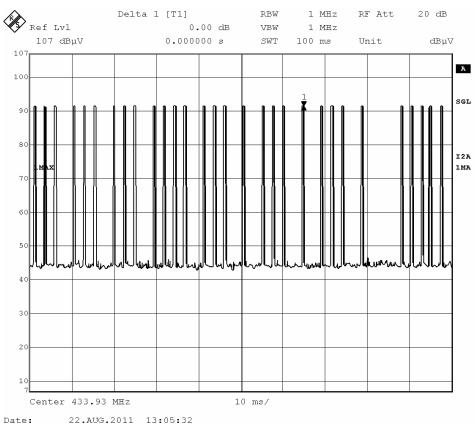


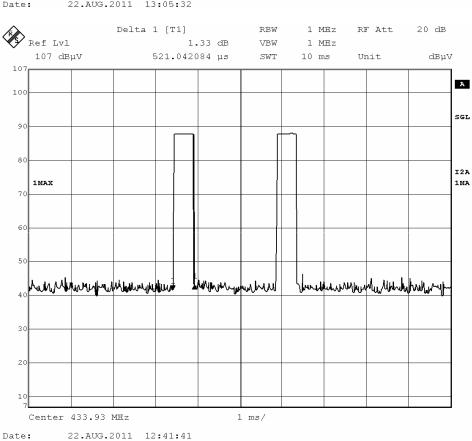


Total pulse on time:0.521 millisecond

Duty Cycle = TX on/100ms X 100% = 0.521\*30 ms/100ms X 100% =15.63%

Duty Cycle Correction Factor = 20log (Duty Cycle) = -16.12

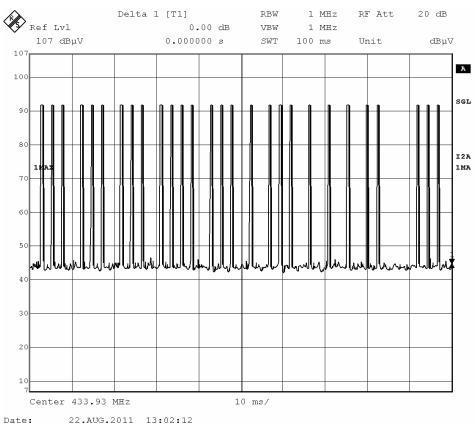


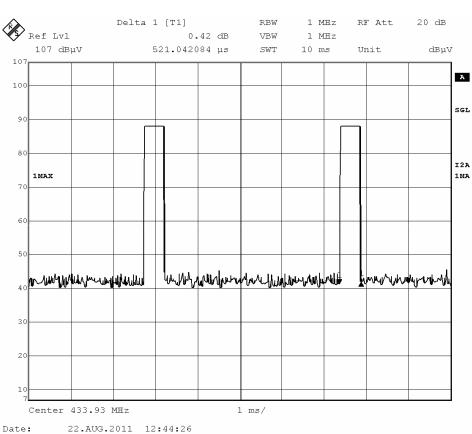


Total pulse on time:0.521 millisecond

Duty Cycle = TX on/100ms X 100% = 0.521\*28 ms/100ms X 100% =14.59%

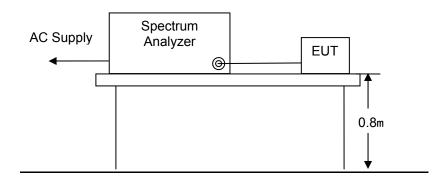
Duty Cycle Correction Factor = 20log (Duty Cycle) = -16.72





## 4.3. Deactivation Time

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1 The EUT was placed on a wooded table which is 0.8m height and close to receiver antenna of spectrum analyzer.
- 2 The spectrum analyzer resolution bandwidth was set to 1 MHz and video bandwidth was set to 1 MHz to encompass all significant spectral components during the test. The spectrum analyzer was operated in linear scale and zero span mode after tuning to the transmitter carrier frequency.

### Limit

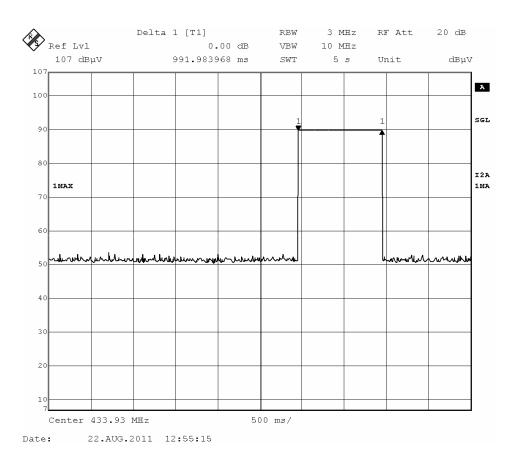
For periodic transmitter, according to FCC Part 15C § 15.231(e)

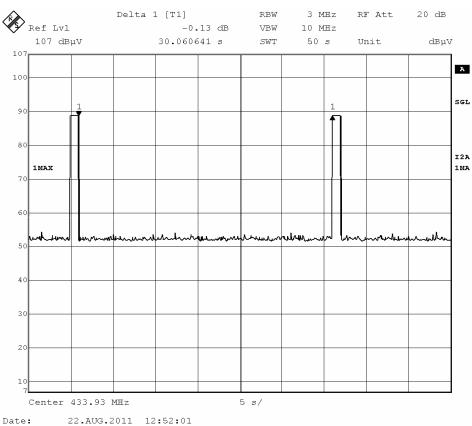
Item	Limit	
item	(second)	
One transmission time	not greater than 1 second	
Transmission period	at least 30 times the duration of the transmssion but in no case less than 10 second	

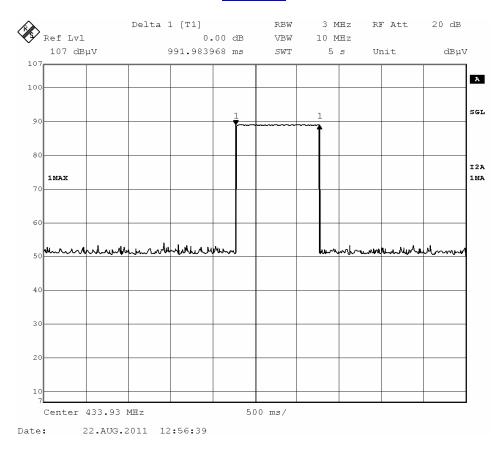
#### **TEST RESULTS**

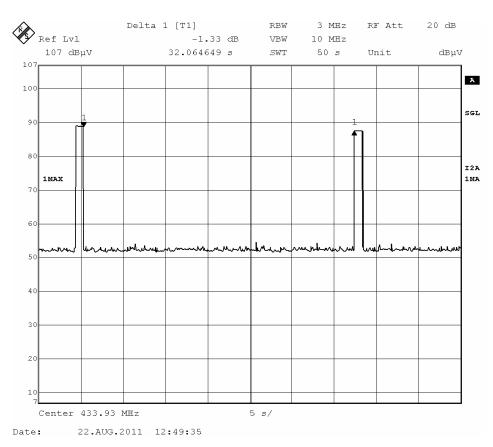
EUT statement: The transmitter was automatically activated, and the carrier frequency 433.92MHz:

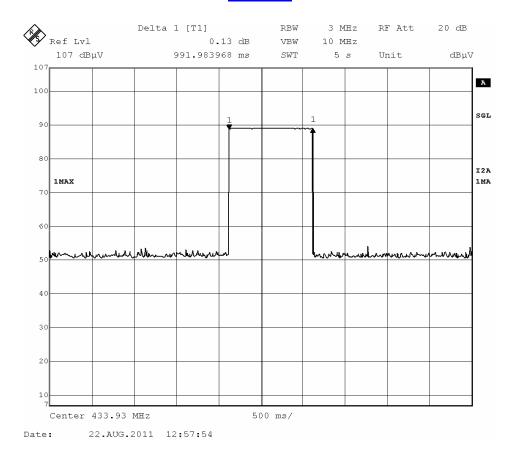
Frequency (MHz)	One transmission time (second)	Transmission period (second)	Result
Channel1(433.92)	0.992	0.992*30=29.76<30.06	Pass
Channel2(433.92)	0.992	0.992*30=29.76<32.06	Pass
Channel3(433.92)	0.992	0.992*30=29.76<34.07	Pass

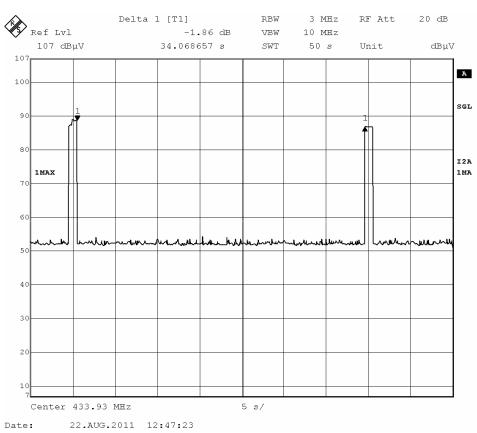






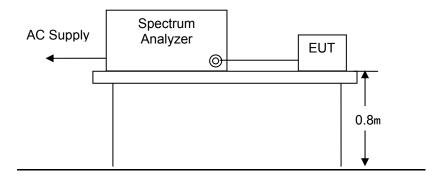






## 4.4. 20dB Bandwidth

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1 The EUT was placed on a wooded table which is 0.8m height and close to receiver antenna of spectrum analyzer.
- 2 The spectrum analyzer resolution bandwidth was set to 10 kHz and video bandwidth was set to 30 kHz to encompass all significant spectral components during the test. The detector was set to peak and hold mode to clearly observe the components.

## <u>Limit</u>

According to FCC Part 15C § 15.231(c)

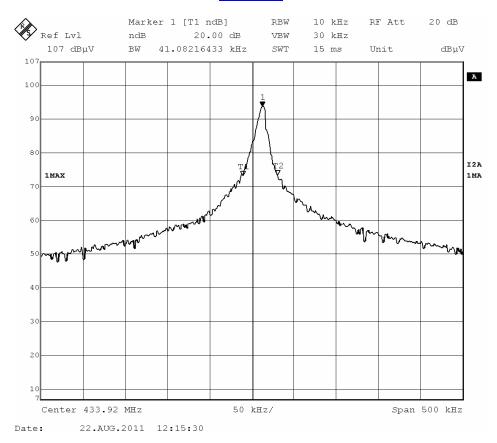
The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz.

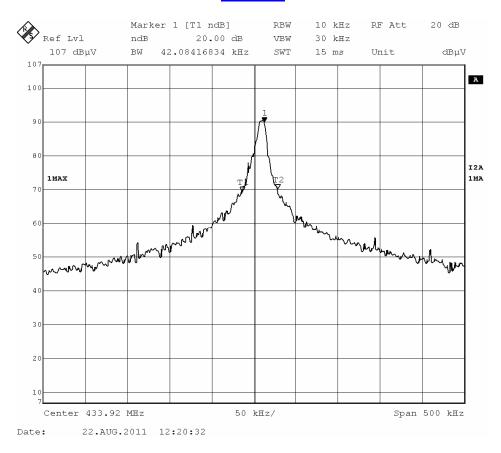
## **TEST RESULTS**

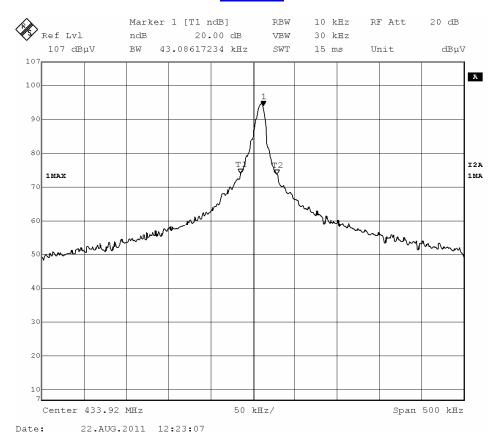
Frequency (MHz)	20dB Bandwidth Measurement Bandwidth (KHz)	Limit (kHz)	Result
Channel 1(433.92)	41.08	1084.80	Pass
Channel 2(433.92)	42.08	1084.80	Pass
Channel 3(433.92)	43.09	1084.80	Pass

## **20dB Bandwidth**

## **Channel 1**







## 4.5. Antenna Requirement

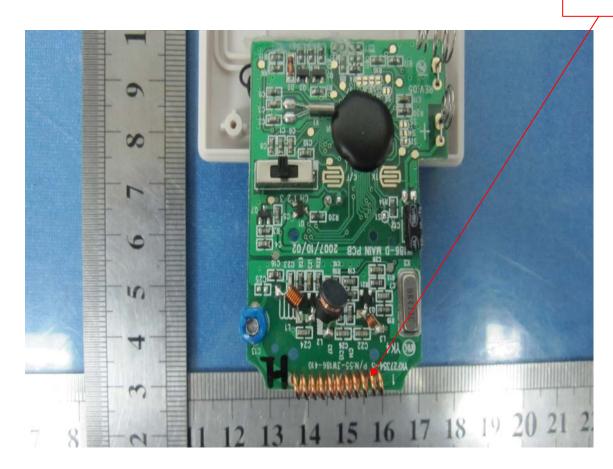
According to FCC Part 15C § 15.203,

- a), An intentional radiator shall be de-signed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
- b), The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

The EUT use of a Integral antenna, Please refer to the EUT Internal photos.

The EUT complied the antenna requirement.

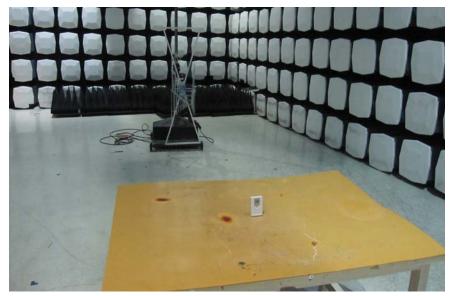
Antenna

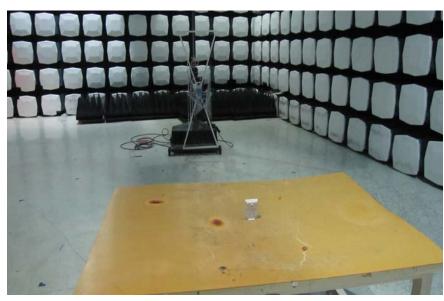


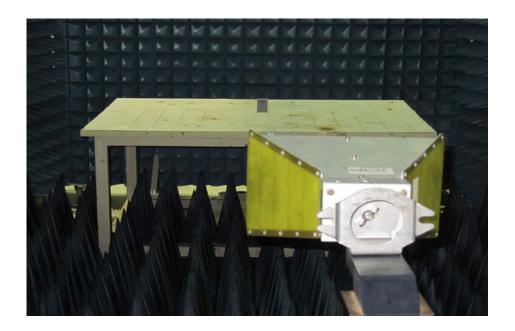
# 5. Test Setup Photos of the EUT

# Radiated emission test photo









# 6. External and Internal Photos of the EUT

## **External Photos&antenna photo**









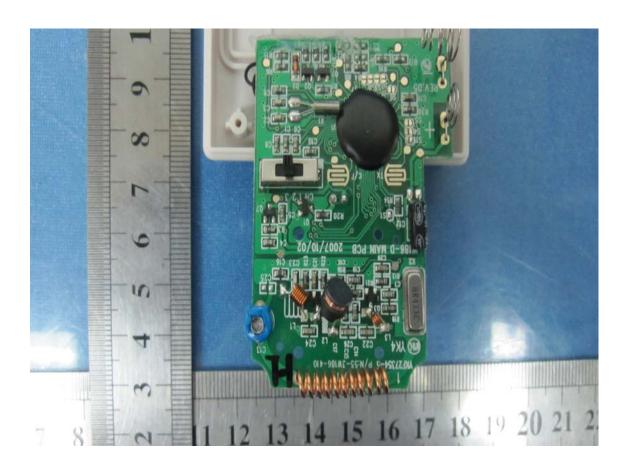


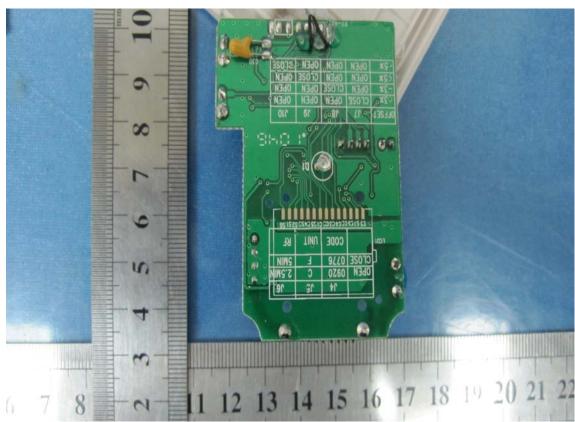


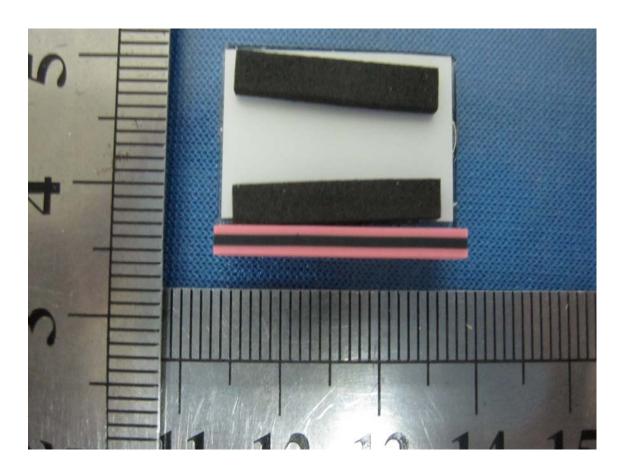
# **Internal Photos**

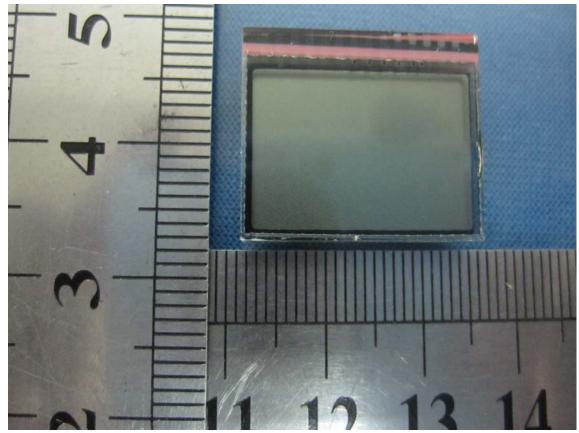












.....End of Report.....