

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT INTENTIONAL RADIATOR CERTIFICATION

Product Name : Foxpro Decoy
Model Name : TXJA
FCC ID : C6M621
Trade Name : N/A
Report Number : SZEE100915262102-1
Date : Sep. 20, 2010

Standards	Results
<input checked="" type="checkbox"/> FCC Part15C: 2009	Pass

Prepared for:
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<i>N/A means not applicable</i>	

1. GENERAL INFORMATION

Applicant & Address: FOXPRO INC
14 Fox Hollow Drive Lewistown, PA 17044 USA

Manufacturer & Address: ICO Products (china), LLC
B23-3F, Hengfeng industrial district, Xixiang Town,
Bao'An District, Shenzhen

Equipment Under Test: Foxpro Decoy

Model Name: TXJA

FCC ID: C6M621

Operated Frequency: 433.99MHz

Trade Name: N/A

Serial Number: N/A

Technical Data: DC 12V

Date of test: Sep. 17, 2010 to Sep. 20, 2010

Condition of Test Sample: Normal

The above equipment was tested by Centre Testing International Corporation for compliance with the requirements set forth in the FCC Part15.231 and 15.209 and the measurement procedure according to FCC requirements and ANSI C63.4:2003.

The test results of this report relate only to the tested sample identified in this report.

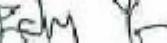
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Hengpei Wang

Reviewed by :


Louisa Lu

Approved by :


Lily Yan
Supervisor

Date

: Sep. 20, 2010



2. TEST SUMMARY

Clause	Test Item	Rule	Result
1	20dB bandwidth	FCC Part15.231(c)	PASS
2	Time measurement	FCC Part15.231(a)(1)	PASS
3	Radiated Emission	FCC Part15.231(b) & FCC Part15.209(a)	PASS

Note: The EUT is powered by 12V dc battery.

3. MEASUREMENT UNCERTAINTY

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement items	Uncertainty
Radiated Emissions	4.4 dB

4. PRODUCT INFORMATION

Items	Description
Rating	DC 12V
Equipments Class	Security/Remote Control Transmitter
Modulation	ASK
Frequency Range	433.99MHz
Channel Number	1
Antenna	Integral Antenna

5. TEST EQUIPMENT

Equipment	Manufacturer	Model Number	Serial Number	Due Date
Receiver	R&S	ESCI	100435	08/25/2011
Spectrum Analyzer	Agilent	E4440A	MY46185649	04/09/2011
Biconilog Antenna	ETS-LINGREN	3142C	00044562	07/31/2011
Horn Antenna	ETS-LINDGREN	3117	00057407	07/31/2011
Loop Antenna	ETS-LINDGREN	6502	00071730	07/19/2011
Microwave Preamplifier	Agilent	8449B	3008A02425	--
Multi device Controller	ETS-LINGREN	2090	00057230	01/19/2011
3M Chamber & Accessories	ETS-LINDGREN	FACT-3	N/A	01/19/2011

6. SYSTEM TEST CONFIGURATION

6.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. It was powered by a 12V DC battery. Only the worst case data were recorded in this test report.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

6.2 EUT Exercising Software

There was no special software to exercise the device.

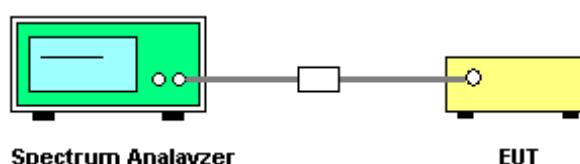
7. 20DB BANDWIDTH MEASUREMENT

7.1 LIMITS

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

As the center frequency for the device operating is 433.99MHz, thus, the 20dB bandwidth limit is 1.08MHz.

7.2 BLOCK DIAGRAM OF TEST SETUP

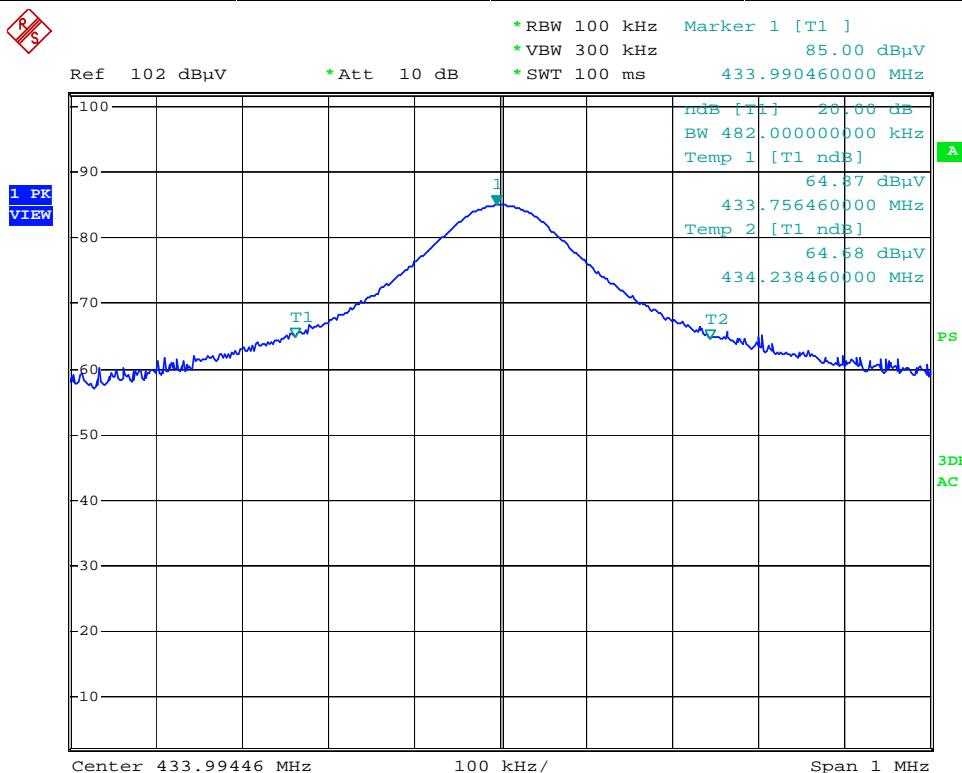


7.3 TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set spectrum analyzer's RBW and VBW to applicable value with Peak in Max Hold.
3. A PEAK output reading and 20B BW function in spectrum analyzer were taken.

7.4 TEST RESULT

Frequency (MHz)	20dB BW (MHz)	Limit (MHz)	Result (Pass / Fail)
433.990	0.482	1.08	Pass

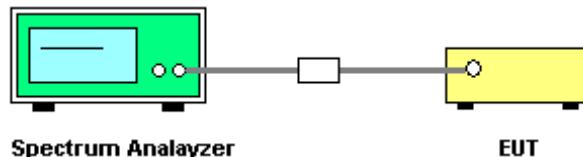


8. TIME MEASUREMENT

8.1 LIMITS

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

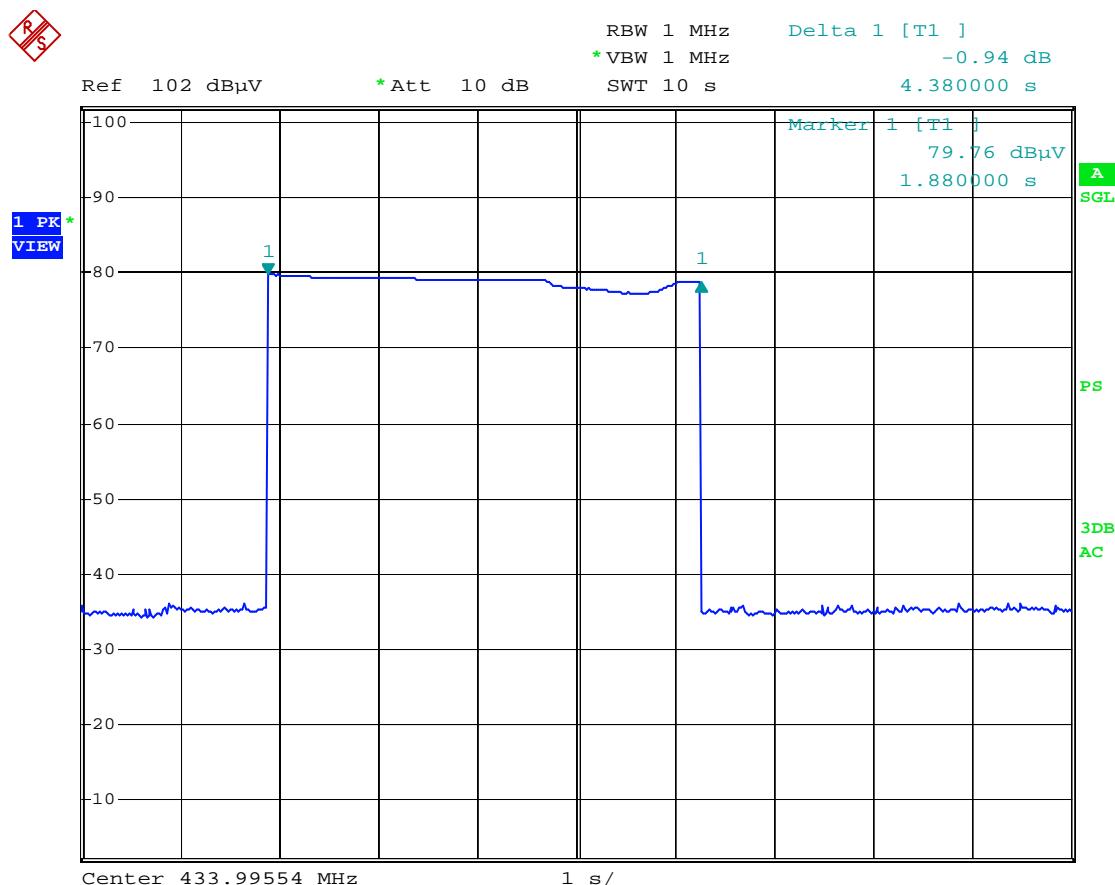
8.2 BLOCK DIAGRAM OF TEST SETUP



8.3 TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set the center frequency is 433.99MHz and set the Span is 0Hz.
3. Set spectrum analyzer's RBW and VBW to applicable value with Peak.
4. Read the time from transmission to silent from the spectrum analyzer directly.

8.4 TEST RESULT



9. RADIATED EMISSIONS MEASUREMENT

9.1 LIMITS

FCC Part15.209(a):

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

FCC Part15.231(b):

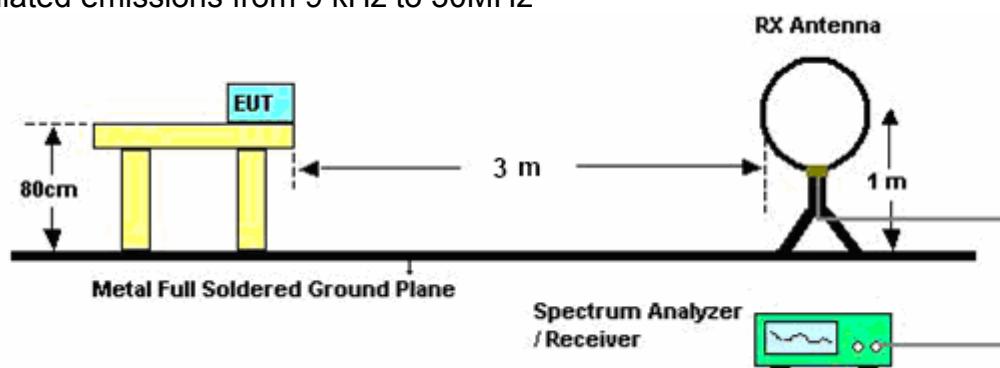
Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
260-470	3750 to 12500*	375 to 1250

Note 1: Linear interpolation in frequency band 260-470 MHz.

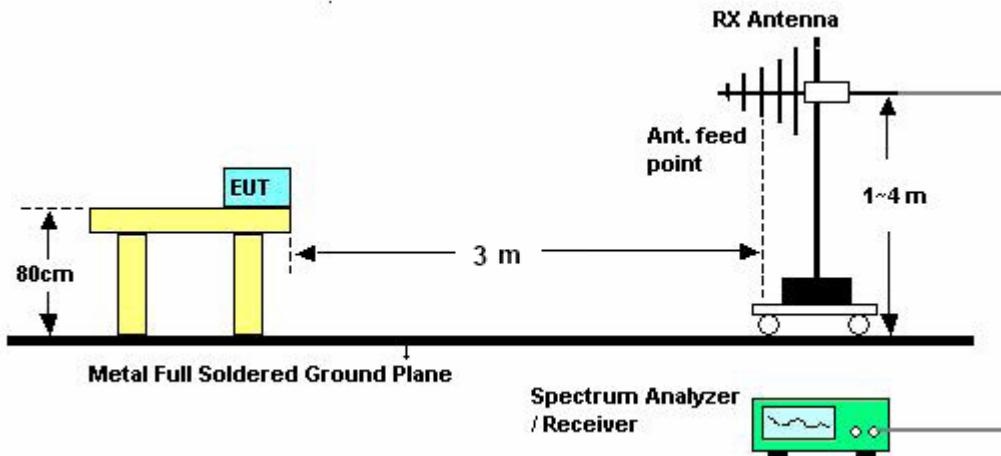
2: The above field strength limits are specified at a distance of 3 meters.

9.2 BLOCK DIAGRAM OF TEST SETUP

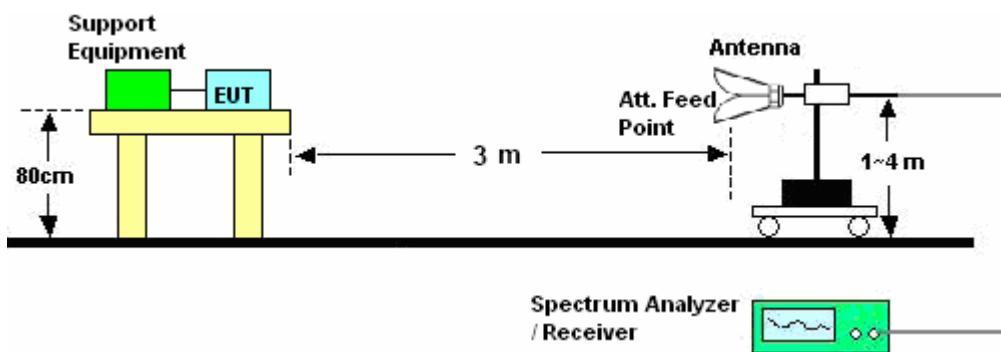
For radiated emissions from 9 kHz to 30MHz



For radiated emissions from 30 - 1000MHz



For radiated emissions above 1GHz



9.3 TEST PROCEDURE

A. 30 - 1000MHz

- The EUT was placed on the top of a turntable 0.8 meters above the ground in the chamber, 3 meters away from the antenna (wideband antenna), which was mounted on the top of a variable-height antenna tower. The maximum values of the field strength are recorded by adjusting the polarizations of the test antenna and rotating the turntable.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test frequency analyzer system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

B. Below 30MHz and Above 1GHz

- The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meters away from the antenna (loop antenna). The maximum values of the field strength are recorded by adjusting the polarizations of the test antenna and rotating the turntable.
- For each suspected emission, the EUT was arranged to its worst case and then turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test frequency analyzer system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

9.4 TEST RESULT

Frequency (MHz)	Polarization (H/V)	Final Emission _PK (dB μ V/m)	AV factor (dB)	Final Emission _AV (dB μ V/m)	AV Limit (dB μ V/m)	Result (Pass / Fail)
433.99	H	88.23	-12.9	75.33	80.8	Pass
3040.00	H	66.49	-12.9	53.59	60.8	Pass
3473.00	H	62.45	-12.9	49.55	60.8	Pass
2166.67	V	61.67	-12.9	48.77	60.8	Pass
3040.00	V	61.86	-12.9	48.96	60.8	Pass

Note 1: The above table only shows the frequencies which peak emission exceed the average limit. The peak data of other frequencies are all below the average limit (please refer to the test graph in following pages), so the average data of other frequencies are deemed to fulfill the average limits and not reported.

Note 2: The emissions below 30MHz are not reported for they are much lower than the limits.

Note 3: Below 1GHz: The total factor = cable loss+ antenna factor.

Above 1GHz: The total factor = cable loss+ antenna factor -amplifier factor.

Final Emission _PK = Reading Level_ PK+ total factor.

Final Emission _AV = Final Emission _PK + AV factor.

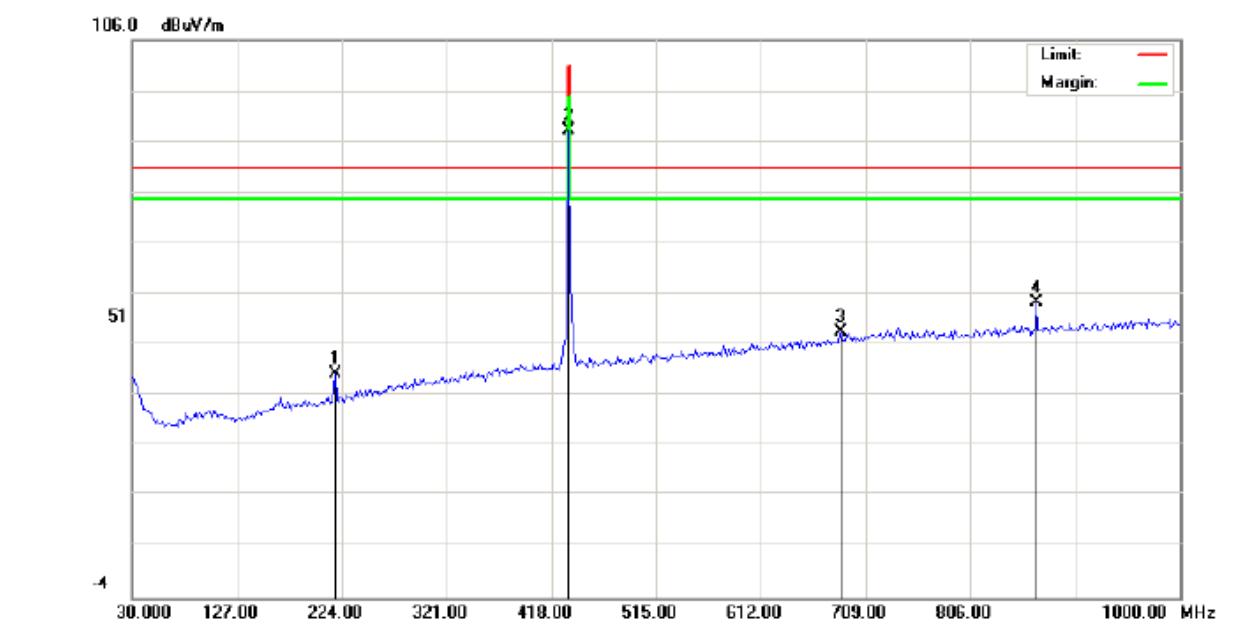
Note 4: The duty cycle is simply the on-time divided by the period:

The duration of one cycle = 36.1ms

Effective period of the cycle = $23 \times 282\mu\text{s} + 2 \times 854\mu\text{s}$
= 8.1946ms

$$DC = 8.1946\text{ms} / 36.1\text{ms} = 0.226$$

Therefore, the averaging factor is found by $20 \log_{10} 0.226 = -12.9 \text{ dB}$

Test graph of radiated emission


Site site #1

Polarization: **Horizontal**

Temperature: 26

Limit: FCC15.231A 433MHz PK BELOW 1GHz

Power: DC 12V

Humidity: 60 %

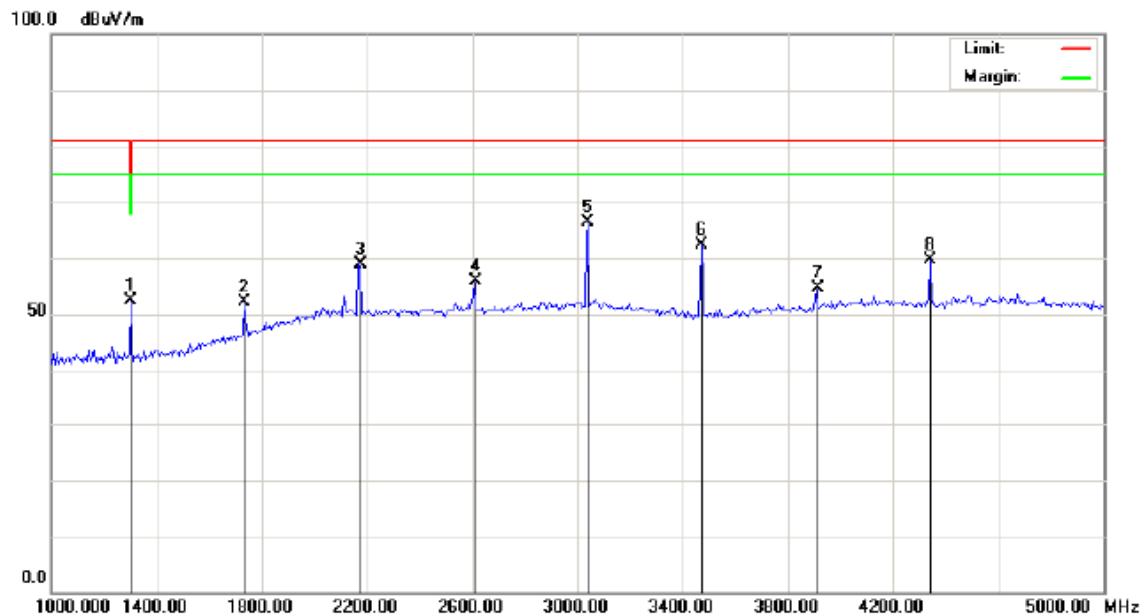
EUT: Foxpro Decoy

M/N: TXJA

Mode: TX

Note:

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		MHz	Peak	QP	Avg	dB	peak	QP	Avg	QP	Avg	QP	Avg	
1	217.5333	27.91				12.54	40.45			80.80		-40.35		P
2	434.1667	69.31				18.92	88.23			100.8		-12.57		P
3	686.3667	24.39				24.39	48.78			80.80		-32.02		P
4	867.4333	28.36				26.15	54.51			80.80		-26.29		P



Site site #1

Polarization: *Horizontal*

Temperature: 26

Limit: FCC15.231A 433MHz PK Above 1GHz

Power: DC 12V

Humidity: 60 %

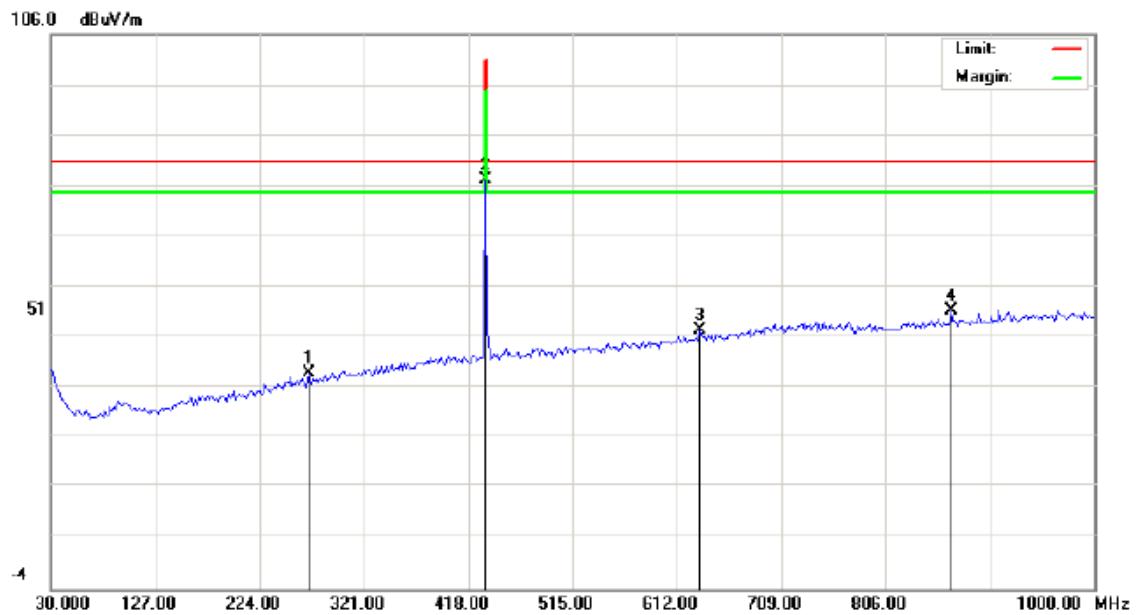
EUT: Foxpro Decoy

M/N: TXJA

Mode: TX

Note:-

No.	Freq.	Reading_Level (dBuV)		Correct Factor	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)				
		MHz	Peak	QP	Avg	dB	Peak	QP	Avg	QP	Avg	QP	Avg	P/F
1	1300.000	54.63			-2.29	52.34			74.00		-21.66			P
2	1733.333	49.60			2.60	52.20			80.80		-28.60			P
3	2166.667	51.82			7.08	58.90			80.80		-21.90			P
4	2606.667	47.86			8.04	55.90			80.80		-24.90			P
5	3040.000	57.65			8.84	66.49			80.80		-14.31			P
6	3473.333	54.97			7.48	62.45			80.80		-18.35			P
7	3906.667	45.12			9.60	54.72			80.80		-26.08			P
8	4340.000	49.14			10.60	59.74			80.80		-21.06			P



Site site #1 Polarization: Vertical Temperature: 26

Limit: FCC15.231A 433MHz PK BELOW 1GHz Power: DC 12V Humidity: 60 %

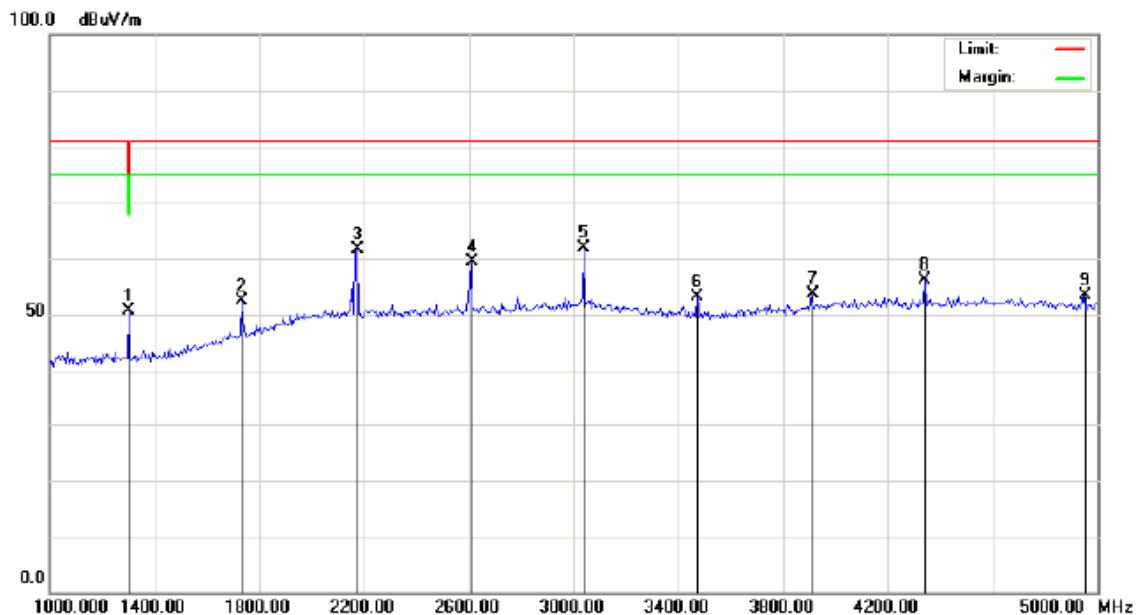
EUT: Foxpro Decoy

M/N: TXJA

Mode: TX

Note:

No.	Freq.	Reading Level (dB _{uV})			Correct Factor			Measurement (dB _{uV/m})			Limit (dB _{uV/m})			Margin (dB)	
		MHz	Peak	QP	Avg	dB	peak	QP	Avg	QP	Avg	QP	Avg	P/F	Comment
1	269.2667	24.51				14.60	39.11			80.80		-41.69		P	
2	434.1667	58.22				18.92	77.14			100.8		-23.66		P	
3	633.0167	24.50				23.03	47.53			80.80		-33.27		P	
4	867.4333	25.21				26.15	51.36			80.80		-29.44		P	



Site site #1

Polarization: *Vertical*

Temperature: 26

Limit: FCC15.231A 433MHz PK Above 1GHz

Power: DC 12V

Humidity: 60 %

EUT: Foxpro Decov

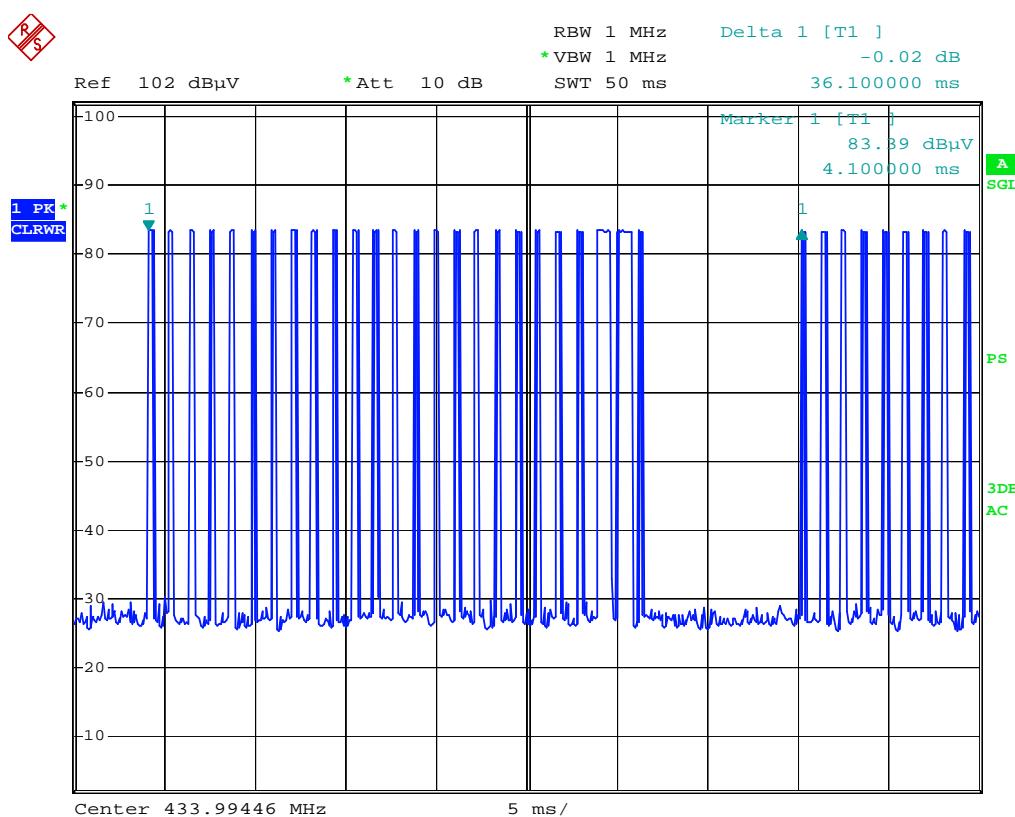
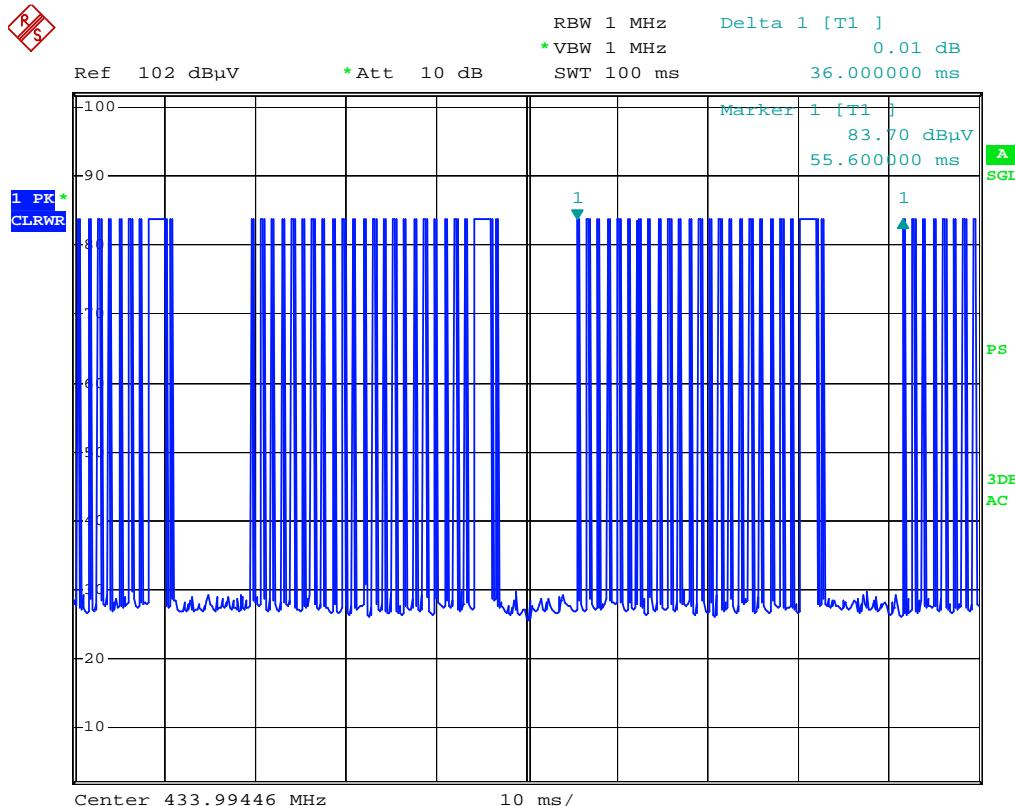
M/N: TXJA

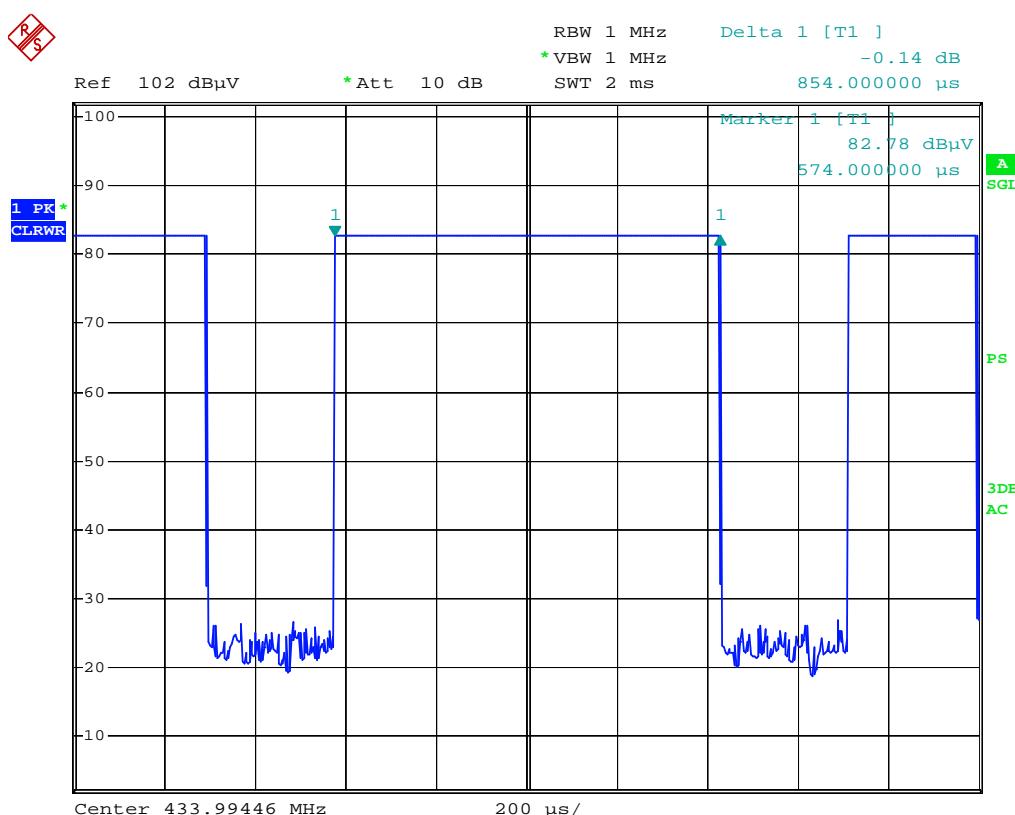
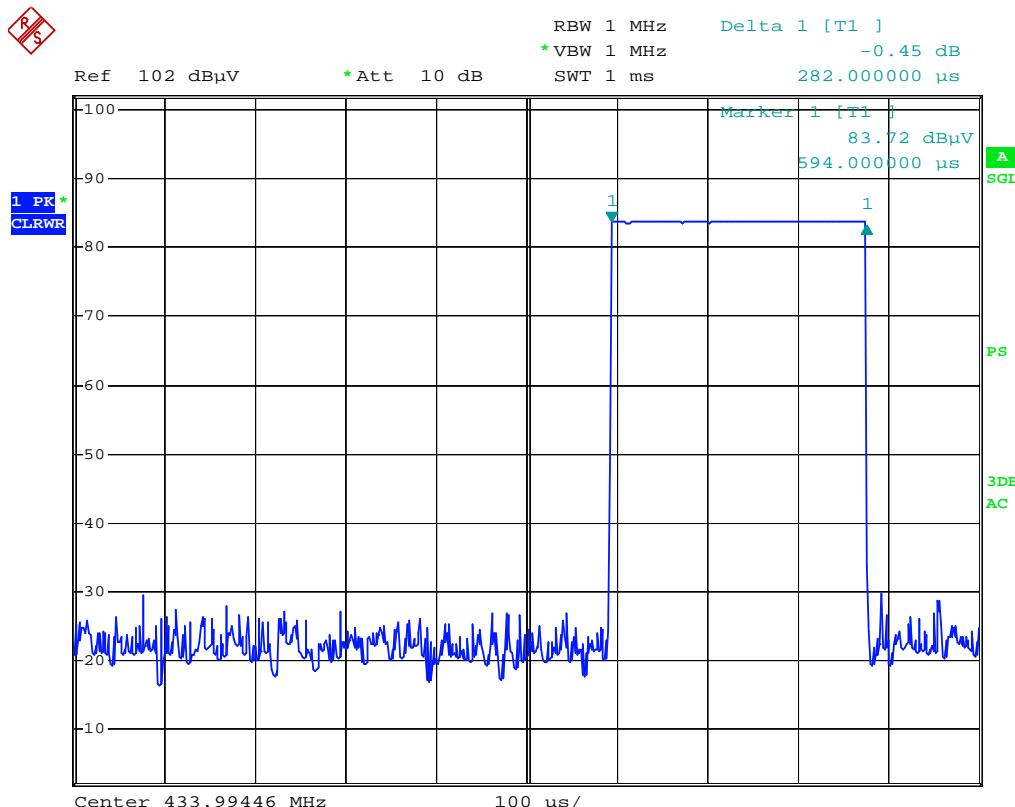
Mode: TX

Note

No.	Freq.	Reading_Level (dBuV)		Correct Factor		Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)			
		MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F
1	1300.000	53.00				-2.29	50.71			74.00		-23.29		P
2	1733.333	49.76				2.60	52.36			80.80		-28.44		P
3	2166.667	54.59				7.08	61.67			80.80		-19.13		P
4	2606.667	51.43				8.04	59.47			80.80		-21.33		P
5	3040.000	53.02				8.84	61.86			80.80		-18.94		P
6	3473.333	45.57				7.48	53.05			80.80		-27.75		P
7	3906.667	44.07				9.60	53.67			80.80		-27.13		P
8	4340.000	45.42				10.60	56.02			80.80		-24.78		P
9	4946.667	42.38				11.02	53.40			80.80		-27.40		P

The plots of duty cycle:





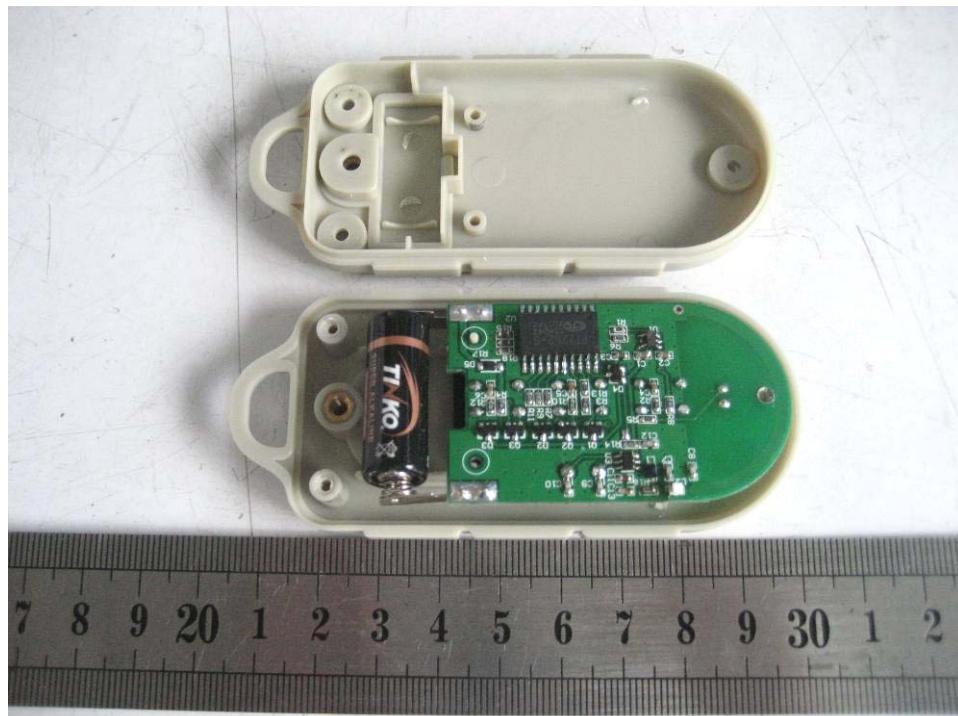
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP**TEST SETUP OF RADIATED EMISSION**

APPENDIX 2 EXTERNAL PHOTOGRAPHS OF EUT

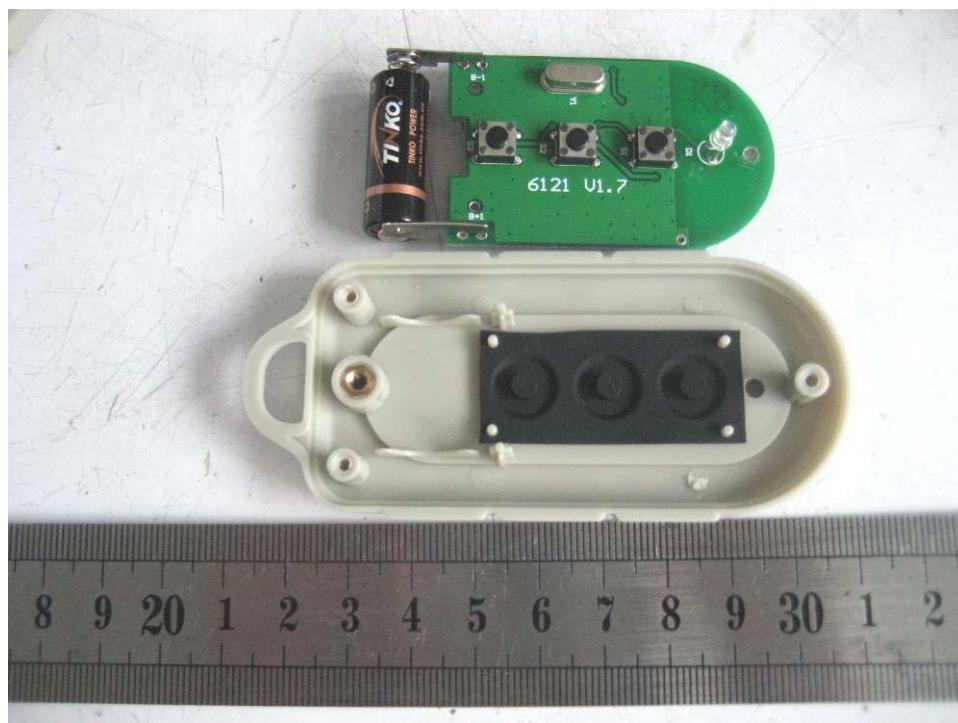
View of EUT-1



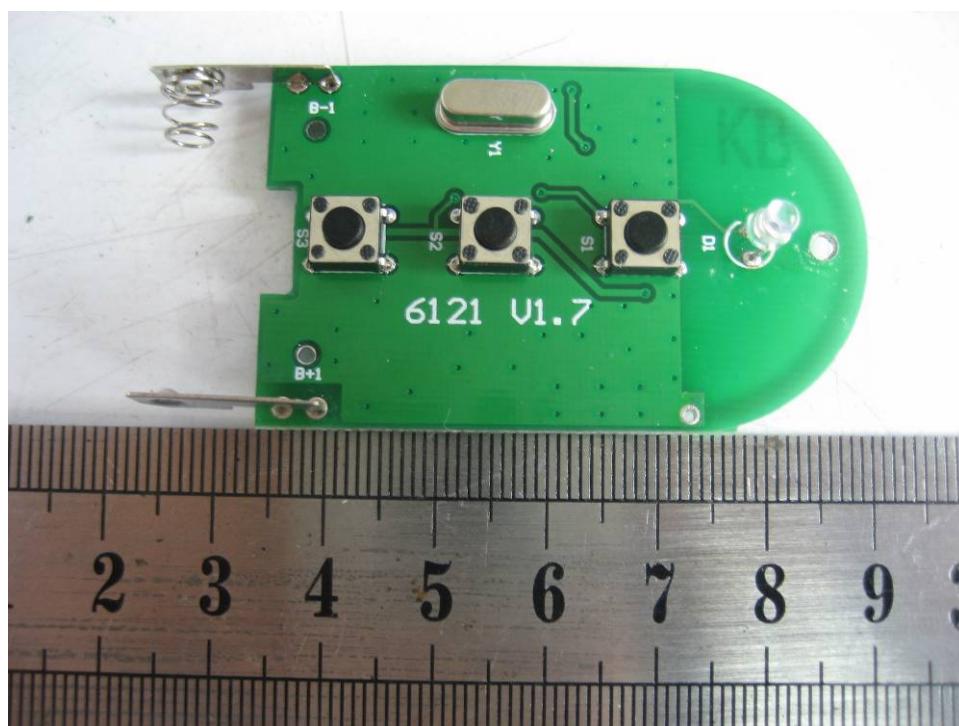
View of EUT-2

APPENDIX 3 INTERNAL PHOTOGRAPHS OF EUT

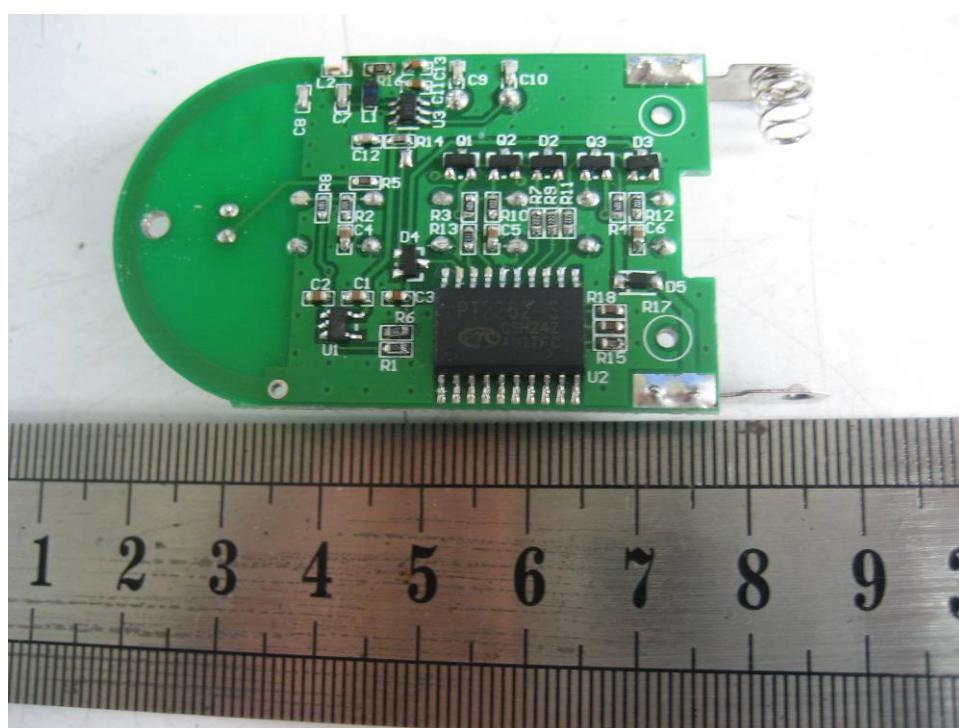
View of internal EUT-1



View of internal EUT-2



View of internal EUT-3



View of internal EUT-4

----- End of report -----