ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION

Product Name	:	car alarm system remote control
Trade Name	:	avt
Model Name	:	T66T25T32T85
FCC ID	:	ZCJT66T32T85
Serial Number	:	N/A
Technical Data	:	DC 3V
Report Number	:	EESZD03030005-1
Date	:	Mar. 14, 2011
Regulations	:	See below

Test Standards	Results
☒ FCC Part 15 Subpart C: 2009	PASS

Prepared for:

Shenzhen Tongyijia Industrial Develop Co., Ltd.
11/L, HANGDU BUILDING, NO.1006 HUAFU ROAD, SHENZHEN, CHINA

Prepared by:

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Check No.: 57126532

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N/A means not applicable.

1. GENERAL INFORMATION

Applicant:	Shenzhen Tongyijia Industrial Develop Co., Ltd. 11/L, HANGDU BUILDING, NO.1006 HUAFU ROAD, SHENZHEN, CHINA
Manufacturer:	Shenzhen Tongyijia Industrial Develop Co., Ltd. 11/L, HANGDU BUILDING, NO.1006 HUAFU ROAD, SHENZHEN, CHINA
Equipment Authorization:	Certification
Product Name:	car alarm system remote control
Trade Name:	avt
Model Name:	T66T25T32T85
Operated Frequency:	433.92MHz
Serial Number:	N/A
Technical Data:	DC 3V
Report Number:	EESZD03030005-1
Date of Test:	Mar. 03, 2011 to Mar. 14, 2011

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 C63.4:2009.
The test results of this report relate only to the tested sample identified in this report.

Prepared by : Christy Chen

Reviewed by : Louisa Lu

Approved by : Lily Yan
Supervisor

Date Mar. 14, 2011

2. TEST SUMMARY

Item	Test Item	Rule	Result
1	Operation characteristics	FCC Part15.231(a)	**PASS**
2	Radiated Emission	FCC Part15.231(b)	**PASS**
3	20dB bandwidth	FCC Part15.231(c)	**PASS**

Note: The power supply of EUT is by 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 3V
Equipments Class	Security/Remote Control Transmitter
Modulation	ASK
Frequency Range	433.92MHz
Channel Number	1
Antenna	Integral PCB Antenna

5. TEST EQUIPMENT

Equipment	Manufacturer	Model	Serial No.	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	07/09/2012
Spectrum Analyzer	Agilent	E4440A	MY46185649	04/09/2011
Biconilog Antenna	ETS-LINGREN	3142C	00044562	07/31/2011
Horn Antenna	ETS-LINGREN	3117	00057407	06/07/2011
Microwave Preamplifier	Agilent	11909A	186871	N/A

6. OPERATION CHARACTERISTICS

6.1 LIMITS

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

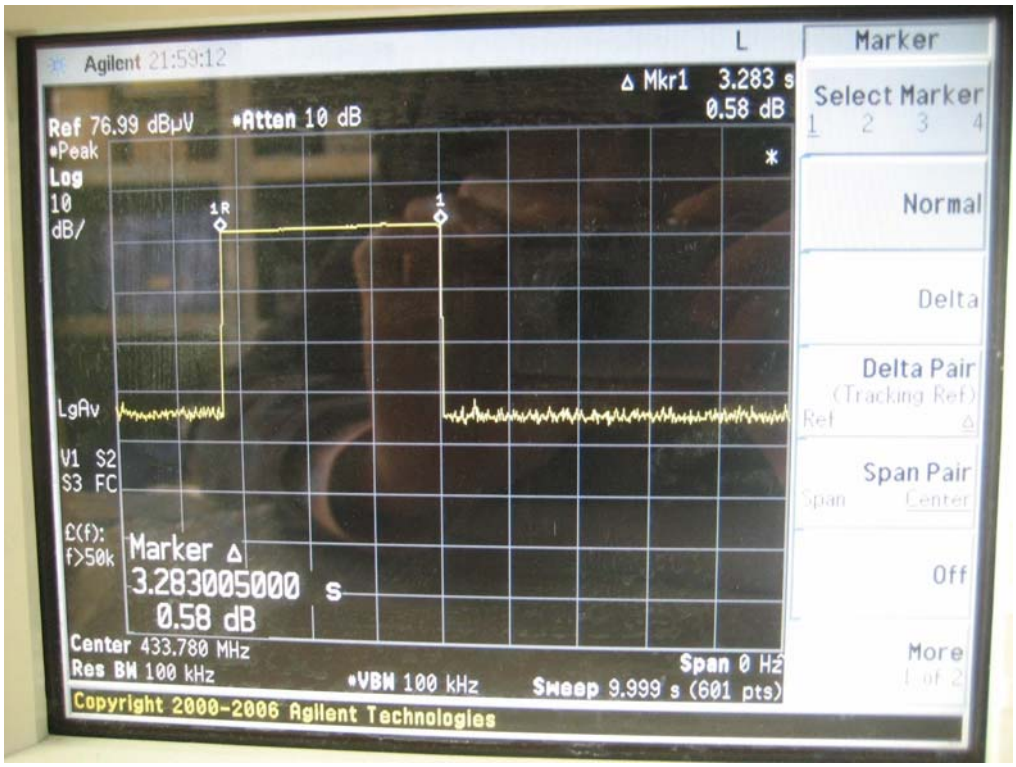
6.2 BLOCK DIAGRAM OF TEST SETUP

6.3 TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set the center frequency is 433.92MHz and set the Span is 0Hz.
3. Set spectrum analyzer's RBW and VBW to applicable value with Peak.
4. Read the transmission time and silent time from the spectrum analyzer directly.

6.4 TEST RESULT

Channel	Frequency (MHz)	Test (s)	Limit (s)	Result (Pass / Fail)
1	433.92	3.283	5	Pass



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 433.92MHz, thus, the 20dB bandwidth limit is 1.08MHz.

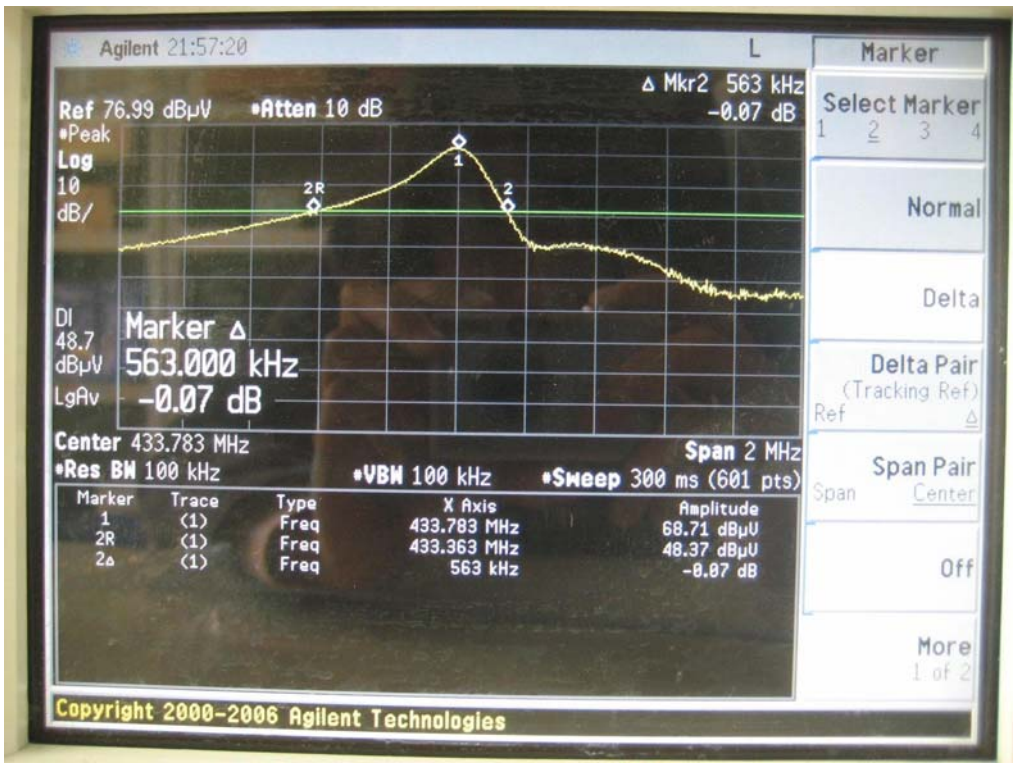
7.2 BLOCK DIAGRAM OF TEST SETUP

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

Channel	Frequency (MHz)	20dB BW (MHz)	Limit (MHz)	Result (Pass / Fail)
1	433.920	0.563	1.08	Pass



8. RADIATED EMISSIONS MEASUREMENT

8.1 LIMITS

FCC part 15.231(b):

Fundamental Frequency (MHz)	Field Strength of Fundamental microvolts/m at 3 metres	Field Strength of Unwanted Emissions microvolts/m at 3 metres
260-470	3750 to 12500*	375 to 1250*

* Linear interpolation with frequency F in MHz

The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in § 15.209, whichever limit permits a higher field strength.

FCC part 15.205(a):

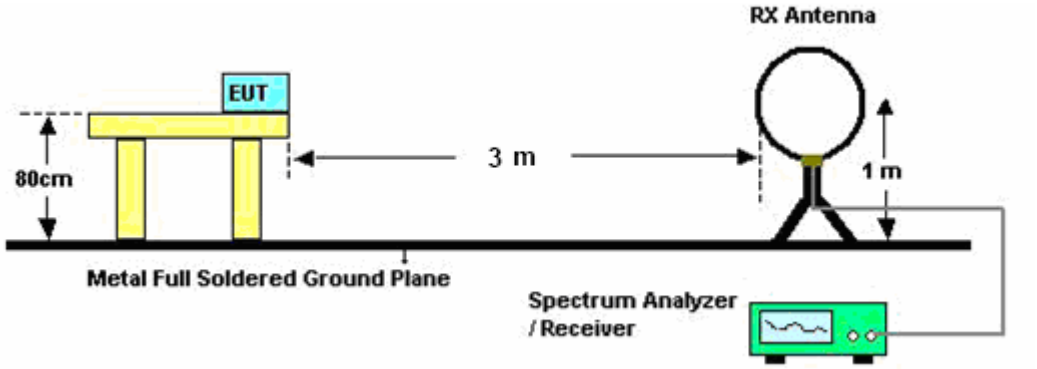
Restricted bands of operation:

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
[1] 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	2690–2900	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	[2]
13.36–13.41.			

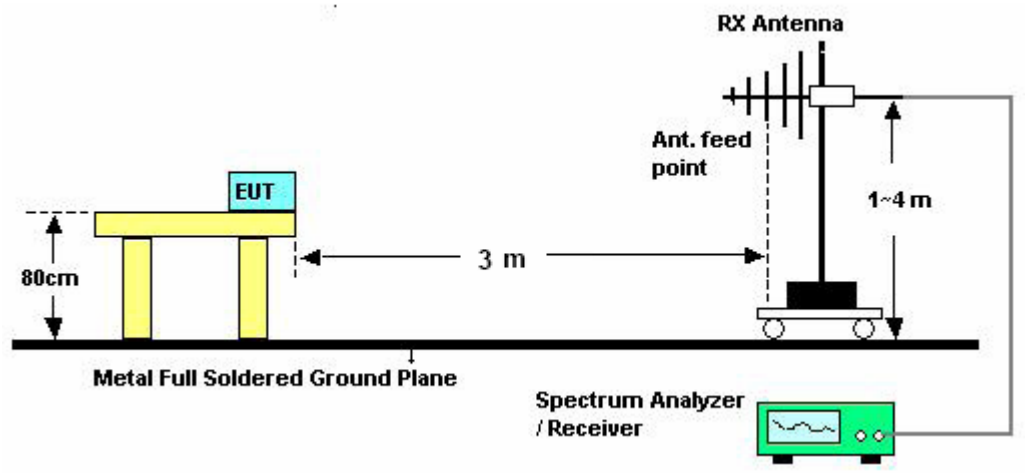
[1] Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.
[2] Above 38.6

8.2 BLOCK DIAGRAM OF TEST SETUP

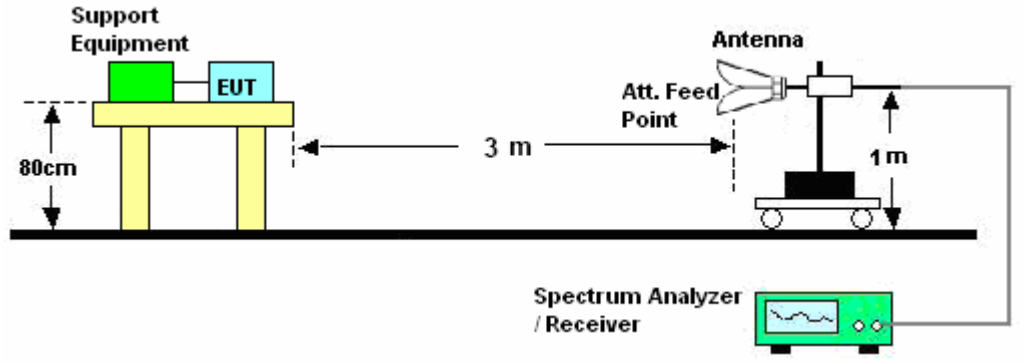
For radiated emissions from 9 kHz to 30MHz



For radiated emissions from 30 - 1000MHz



For radiated emissions above 1GHz



8.3 TEST PROCEDURE

A. 30 - 1000MHz

a. 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.

b. 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.

c. The test frequency analyzer system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

B. Below 30MHz and Above 1GHz

a. The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 1 meter 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.

b. 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.

c. The test frequency analyzer system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

8.4 TEST RESULT

Frequency (MHZ)	Polarization (H/V)	Emission _PK (dBμV/m)	AV factor (dB)	Final Emission_AV (dBμV/m)	Limit (dBμV/m)		Result (P/F)
					PK	AV	
433.9200*	H	58.84	---	---	100.83	80.33	P
433.9200*	V	49.57	---	---	100.83	80.33	P
867.8400**	H	41.11	---	---	80.83	60.83	P
867.8400**	V	42.90	---	---	80.83	60.83	P
2046.667	H	48.90	---	---	80.83	60.83	P
3080.000	H	51.79	---	---	80.83	60.83	P
3660.000	H	51.29	---	---	73.98	53.98	P
4640.000	H	52.03	---	---	73.98	53.98	P
2006.667	V	48.79	---	---	80.83	60.83	P
2413.333	V	50.65	---	---	80.83	60.83	P
3053.333	V	51.42	---	---	80.83	60.83	P
3200.000	V	51.25	---	---	80.83	60.83	P
3526.667	V	50.48	---	---	80.83	60.83	P
4513.333	V	52.81	---	---	73.98	53.98	P
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Table 1: Test data of Radiated Emissions, 30MHz ~ 5GHz

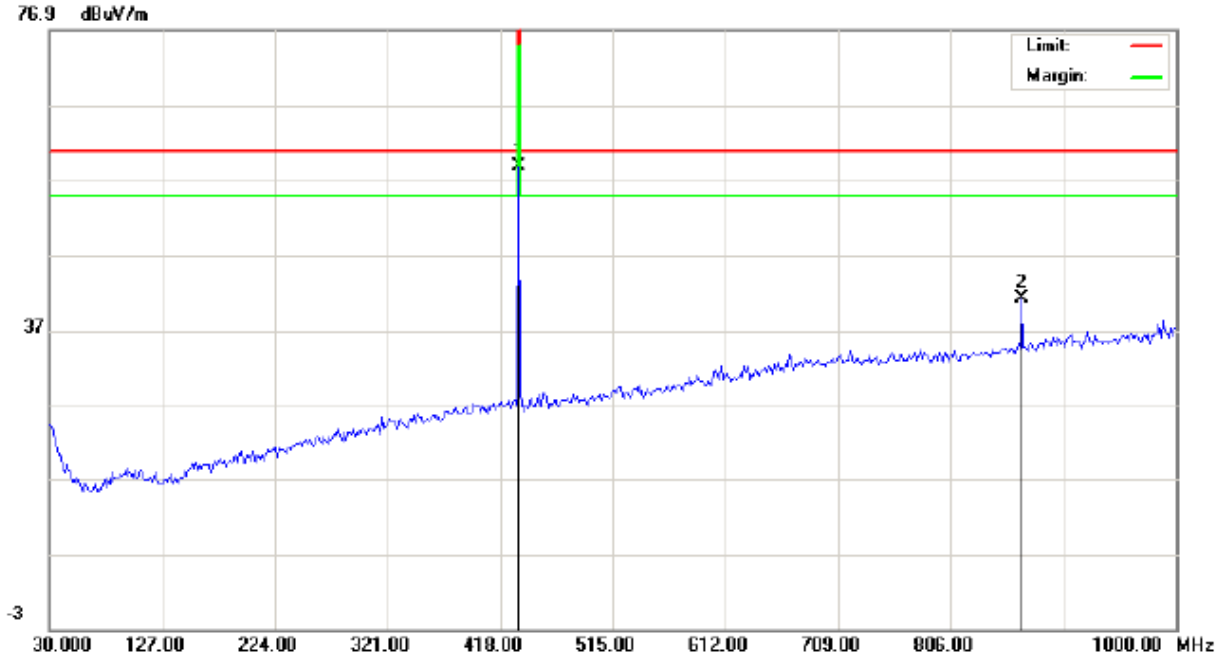
Note 1:
*: Fundamental Frequency; **: Field Frequency of Unwanted Emissions

Note 2:
Limit dBμV/m @3m = Limit dBμV/m @300m+ 80
Limit dBμV/m @3m = Limit dBμV/m @30m + 40

Note 3:
1. The data below 30MHz are very low, so they are not recorded.
2. All the test data are less than average limit, so the AV factor (duty cycle) is not applicable.

Figure 1: Test figure of radiated emission, 30MHz ~ 1GHz, 3m distance

H:



V:

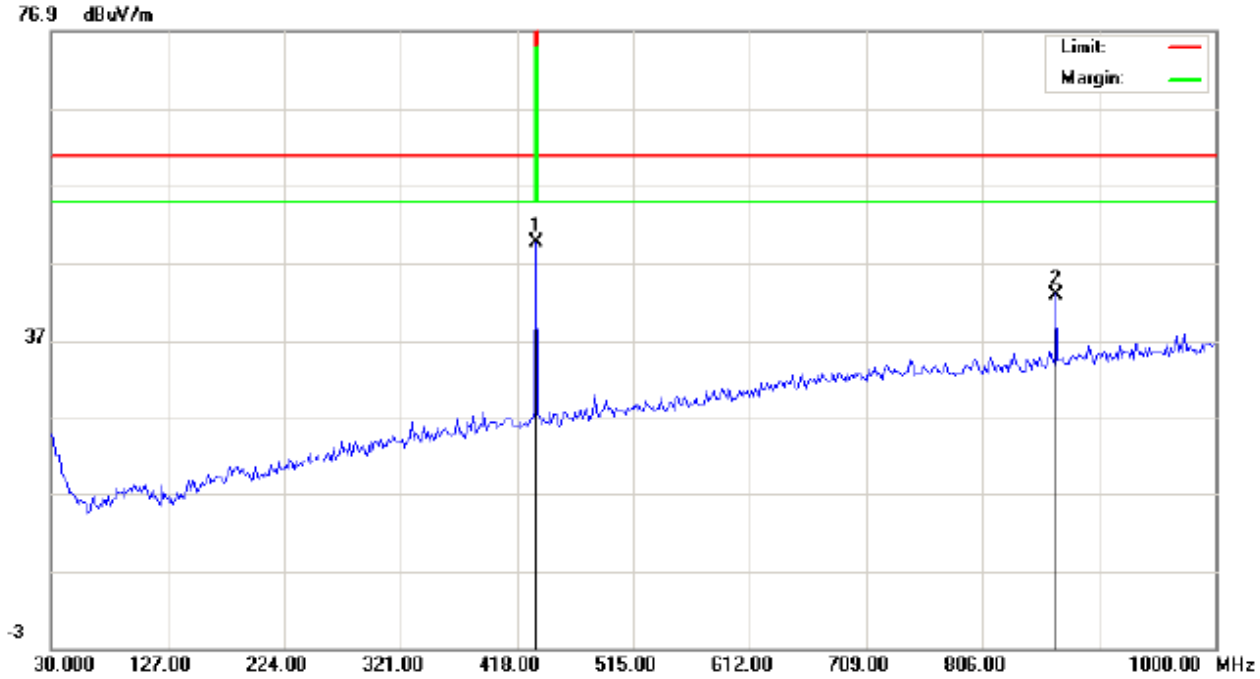
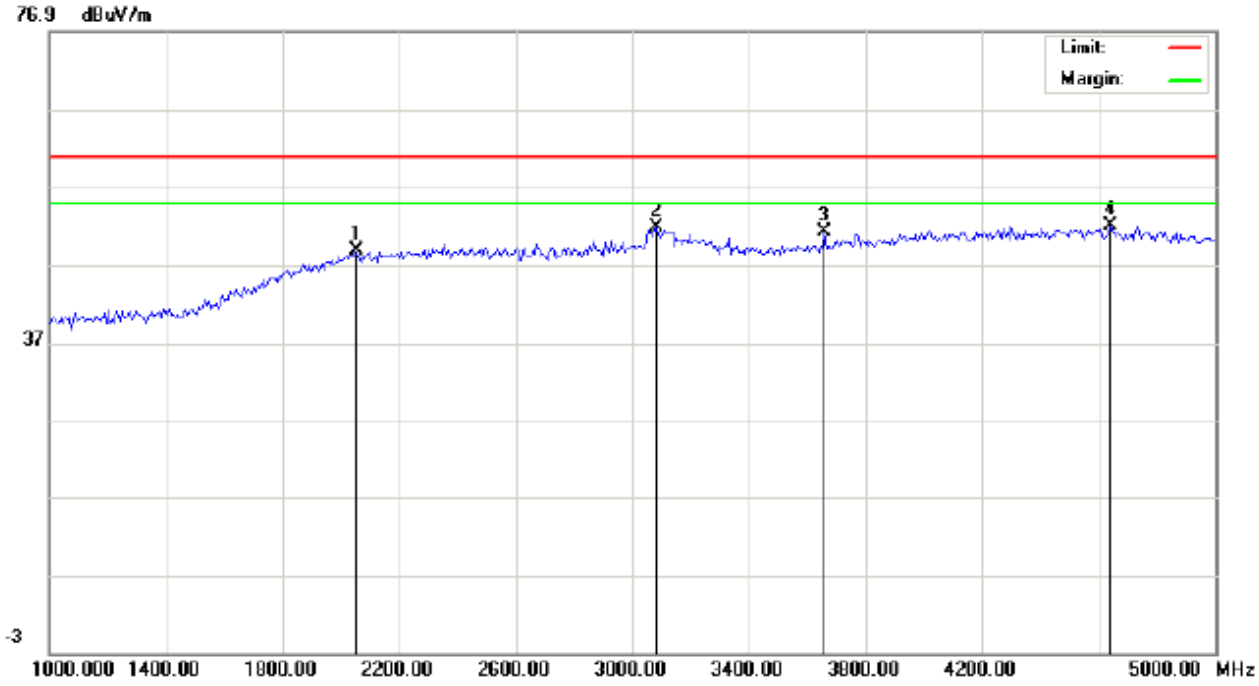


Figure 2: Test figure of radiated emission, above 1GHz, 3m distance

H:



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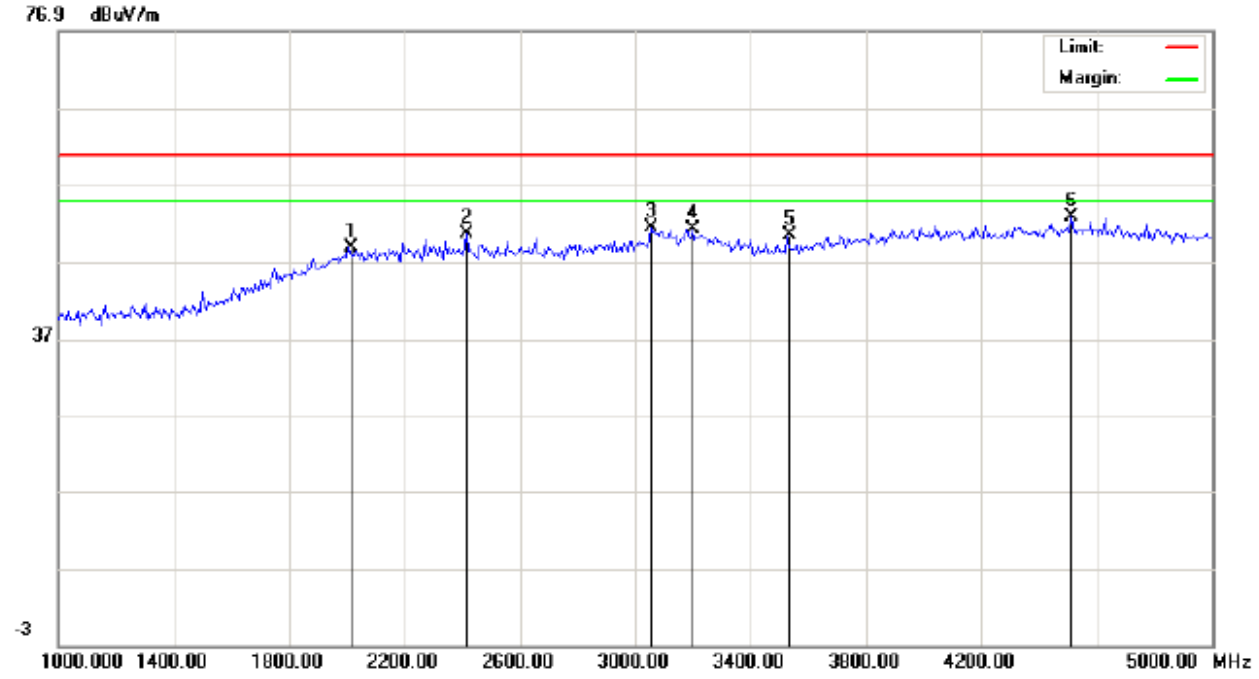
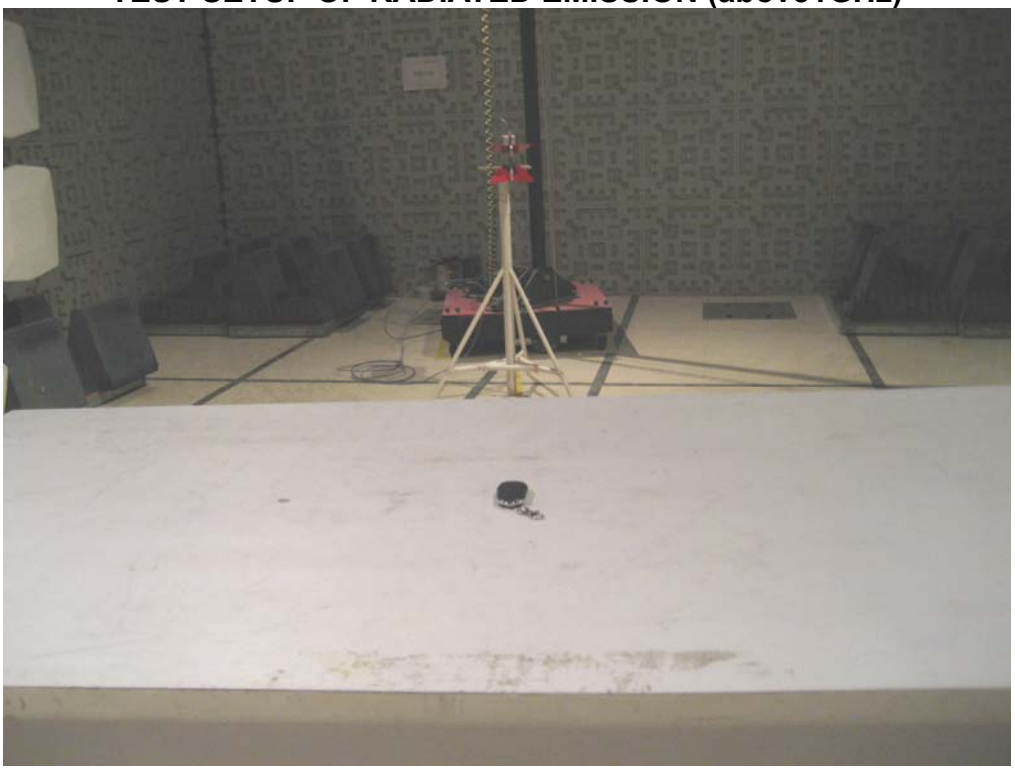


APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

TEST SETUP OF RADIATED EMISSION (30MHz -1GHz)

TEST SETUP OF RADIATED EMISSION (above1GHz)

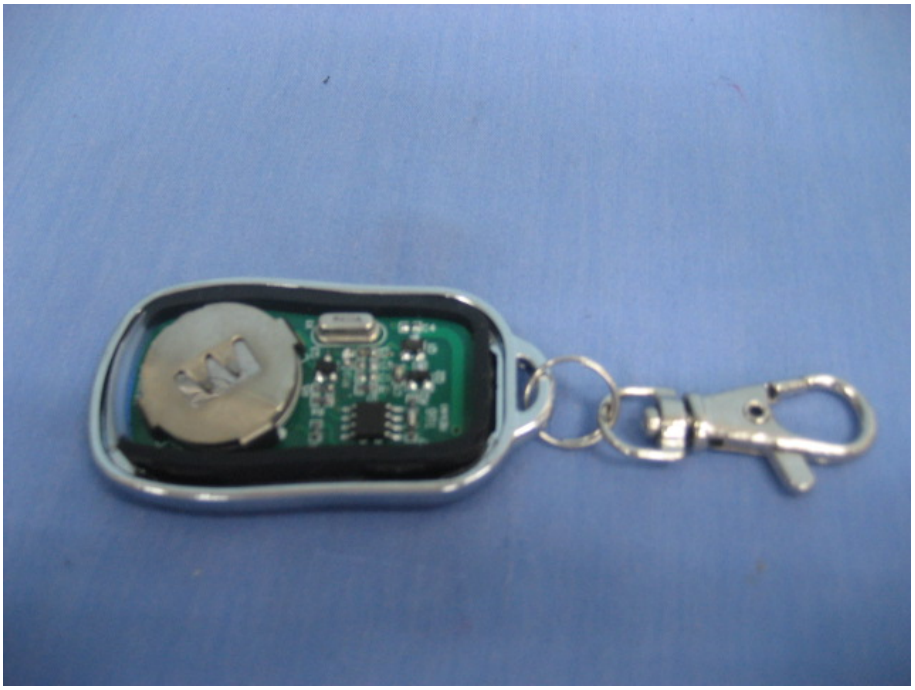


APPENDIX 2 EXTERNAL PHOTOGRAPHS OF EUT

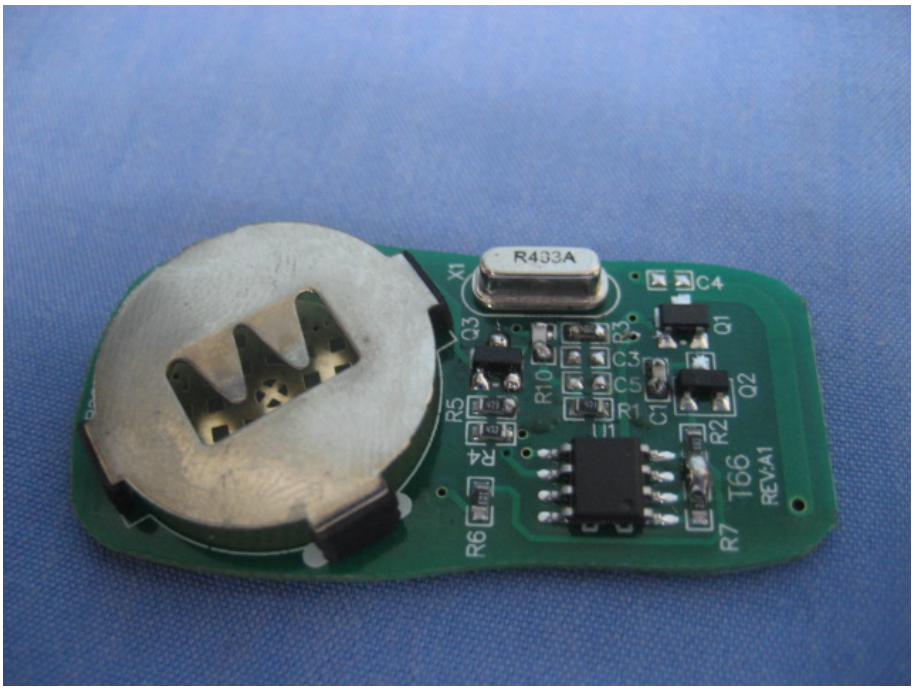
View of external EUT-1

View of external EUT-2

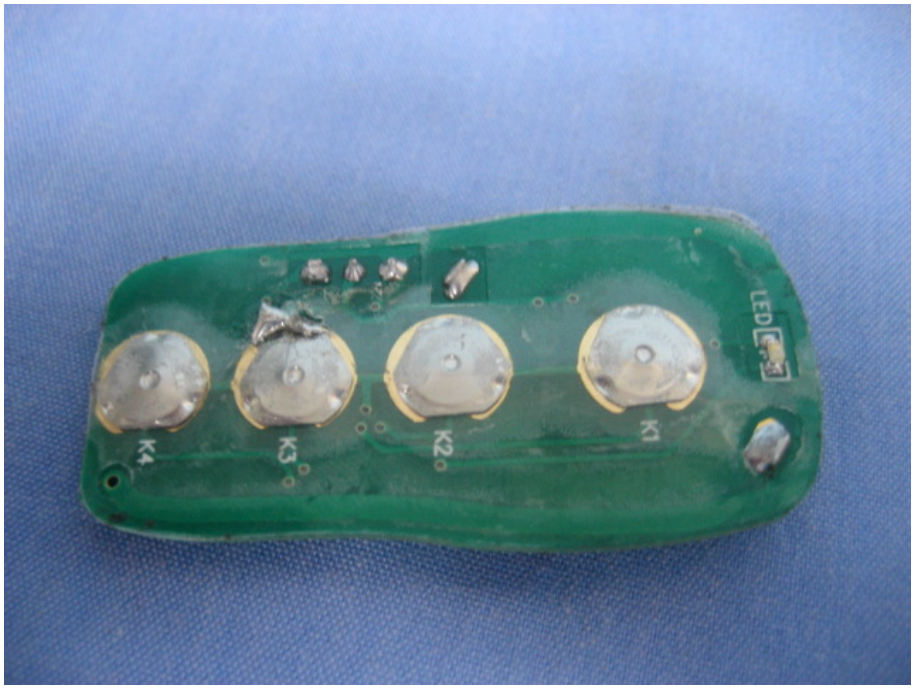
APPENDIX 3 INTERNAL PHOTOGRAPHS OF EUT



View of internal EUT-1



View of internal EUT-2



View of internal EUT-3

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