



World Standardization Certification & Testing CO., LTD
World Standardization Safety and EMC Testing Centre

FCC ID TEST REPORT

for

Smoke detector

**Model: SSG-SD01, SSG-YG01, SSG-E, SSG-O, SSG-Q, SSG-Y,
SSG-HJT, SSG-GSM, SSG-O-GSM, SSG-2P818, SSG-2P828, SSG-TEL,
SSG-V84, SSG-CMS, SSG-DVR, SSG-3G-B83**

Trade Mark: N/A

FCC ID: BUMSSG-SD01

Test Report Number: WSCT12030137E

Issued Date: March 07, 2012

Issued for

Shenzhen Security Group

**Building 9, No.18, North Area Of Makan Industrial Park, Xili Town,
Nanshan District, Shenzhen, China**

Issued by:

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00	WSCT12030137E	Initial Issue	ALL	Kallen Wang



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1 TEST RESULT CERTIFICATION

Product: Smoke detector

Model: SSG-SD01, SSG-YG01, SSG-E, SSG-O, SSG-Q, SSG-Y, SSG-HJT, SSG-GSM,
SSG-O-GSM, SSG-2P818, SSG-2P828, SSG-TEL, SSG-V84, SSG-CMS,
SSG-DVR, SSG-3G-B83

Trade Mark: N/A

Applicant: Shenzhen Security Group

Building 9, No.18, North Area Of Makan Industrial Park, Xili Town,
Nanshan District, Shenzhen, China

Factory: Shenzhen Security Group

Building 9, No.18, North Area Of Makan Industrial Park, Xili Town,
Nanshan District, Shenzhen, China

Tested Date: February 28~ March 05, 2012

Test Voltage: DC 9V

APPLICABLE STANDARDS

STANDARD	TEST RESULT
FCC Part 15 Subpart C: 2010	No non-compliance noted
ANSI C63.4: 2003	No non-compliance noted

Note: 1. The test result judgment is decided by the limit of measurement standard
2. The information of measurement uncertainty is available upon the customer's request.

Deviation from Applicable Standard

None

The above equipment has been tested by World Standardization Certification & Testing Co., Ltd and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Jack Ma

Tested By: _____
(Jack Ma)

Date: 2012-03-07

Mike Mo

Check By: _____
(Mike Mo)

Date: 2012-03-07

James

Approved By: _____

Date: 2012-03-07



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Revised: None

(Kallen Wang)

2 TEST RESULT SUMMARY

Test Item	Test Result
Conduct Emission	N/A
Radiation Emission	Pass
Bandwidth Test	Pass
Dwell time Test	Pass

Note: 1. The test result judgment is decided by the limit of test standard
2. The information of measurement uncertainty is available upon the customer's request.
3. N/A means to no applicable.



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3 EUT DESCRIPTION

Product	Smoke detector
Trade Mark	N/A
Model	SSG-SD01, SSG-YG01, SSG-E, SSG-O, SSG-Q, SSG-Y, SSG-HJT, SSG-GSM, SSG-O-GSM, SSG-2P818, SSG-2P828, SSG-TEL, SSG-V84, SSG-CMS, SSG-DVR, SSG-3G-B83
Applicant	Shenzhen Security Group
Housing material	Plastic
EUT Type	☒ Engineering Sample. ☐ Product Sample, ☐ Mass Product Sample.
Serial Number	N/A
Antenna Type	Integral Antenna
EUT Power Rating	DC 9V
Temperature Range(Operating)	-5 ~50℃
Type of the Equipment	Combined Equipment
Operating Frequency	433.92MHz
Number of Channels	1 Channels
Channel Separation	N/A
Modulation type	ASK
Dwell time	less than 5s

N/A mean to no applicable

Models Difference

No.	Model Number	Input	Tested With
1	SSG-SD01	DC 9V 0.1uW	☒
2	SSG-YG01	DC 9V 0.1uW	☐
3	SSG-E	DC 9V 0.1uW	☐
4	SSG-O	DC 9V 0.1uW	☐
5	SSG-Q	DC 9V 0.1uW	☐
6	SSG-Y	DC 9V 0.1uW	☐
7	SSG-HJT	DC 9V 0.1uW	☐
8	SSG-GSM	DC 9V 0.1uW	☐
9	SSG-O-GSM	DC 9V 0.1uW	☐



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10	SSG-2P818	DC 9V 0.1uW	☐
11	SSG-2P828	DC 9V 0.1uW	☐
12	SSG-TEL	DC 9V 0.1uW	☐
13	SSG-V84	DC 9V 0.1uW	☐
14	SSG-CMS	DC 9V 0.1uW	☐
15	SSG-DVR	DC 9V 0.1uW	☐
16	SSG-3G-B83	DC 9V 0.1uW	☐

NOTE: SSG-SD01 is tested model, other models are derivative models, The models are identical in circuit and PCB layout, only model names are different for the marketing requirement, So the test data of SSG-SD01 can represent the remaining models.

4 TEST METHODOLOGY

4.1 DECISION OF FINAL TEST MODE

The EUT was tested together with the below additional components, and configuration, which produced the worst emission levels, was selected and recorded in this report.

The measurement was performed at 3 axis for lie orientation, side orientation and stand orientation. The lie orientation is the worst mode, so only the worst mode test data was reported.

the following test mode was recorder in this report.

Test Item	Test mode
Conduct Emission	N/A
Radiation Emission	Operating
Bandwidth Test	Operating
Dwell time Test	Operating

4.2 EUT SYSTEM OPERATION

1. Set up EUT with the relative support equipments.
2. Make sure the EUT worked normally during the test.

5 SETUP OF EQUIPMENT UNDER TEST

5.1 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Note:

- 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5.2 CONFIGURATION OF SYSTEM UNDER TEST



(EUT: Smoke detector)

6 FACILITIES AND ACCREDITATIONS

6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

World Standardization Certification & Testing CO., LTD.

Building A, Baoshi Road, Baoshi Science & Technology Park, Bao'an District, Shenzhen, Guangdong, China

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 15. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6.2 ACCREDITATIONS

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

USA	FCC	(The certificate registration number is 131628)
	TIMCO	(The certificate registration number is Q2001)
Japan	VCCI	(The certificate registration number is C-2912, R-2662)
	INDUSTRY CANADA	(The certificated registration number is 7700A-1)
Canada	TUV	(The certificate registration number is UA50138086-0001,UA50138086-0002)
	EMCC	(The certificated registration number is 080380)
Germany	CNAS	(The certificated registration number is L3732)
China		

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.wsct.org.cn>

6.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency		Uncertainty
Conducted emissions	150kHz~30MHz		+/- 3.59dB
Radiated emissions	Horizontal	30MHz ~ 200MHz	+/- 4.77dB
		200MHz ~1000MHz	+/- 4.93dB
	Vertical	30MHz ~ 200MHz	+/- 5.04dB
		200MHz ~1000MHz	+/- 4.93dB

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



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7 Antenna requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Connector Construction

The antenna used in this product is PCB antenna and no consideration of replacement

8 CONDUCTED EMISSION MEASUREMENT

8.1 LIMITS

FREQUENCY (MHz)	Class B (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:

- (1) The lower limit shall apply at the transition frequencies.
- (2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- (3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

8.2 TEST INSTRUMENTS

Conducted Emission Test Site G				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	100005	12/16/2012
LISN	LS	LS16	16010222119	12/16/2012
LISN(EUT)	Mestec	AN3016	04/10040	12/22/2012

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).
2. N.C.R = No Calibration Request.

8.3 TEST PROCEDURES

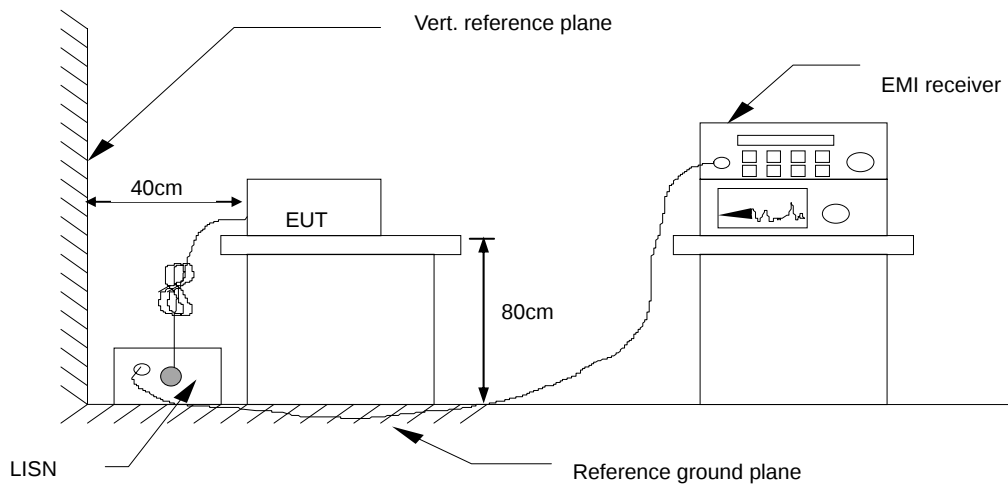
The EUT was put on a wooden table which was 0.8metre high above the ground and connected to the AC mains through a Artificial Mains Network (A.M.N). The mains lead in excess of 1 m separating the EUT from the AMN was folded back and forth parallel to the lead so as to form a bundle with a length of 0.3m to 0.4m. The EUT was kept 0.4m from any other earthed conducting surface. Both sides of AC line were checked to find out the maximum conducted emission levels according to the test procedure during conducted emission test.

The bandwidth of the test receiver (ESCI) was set at 9KHz.

The frequency range from 150 KHz to 30 MHz was investigated.

The test data of the worst-case condition(s) was recorded.

8.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

8.5. TEST RESULTS

N/A

9 RADIATED EMISSION MEASUREMENT

9.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FCC Part 15 C (Section: 15.205; Section: 15.209; Section:15.231(b))

According to 15.231 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency(MHz)	Field Strength of Fundamental		Field Strength of Spurious	
	uV/meter	dBuV/meter	uV/meter	dBuV/meter
40.66 - 40.70	2250	67	225	47
70 -130	1250	62	125	42
130 - 174	1250 to 3750	62 to 71.5	125 to 375	42 to 51.5
174 - 260	3750	71.5	375	51.5
260 - 470	3750 to 12500	71.5 to 82	375 to 1250	51.5 to 62
Above 470	12500	82	1250	62

Note: (1) 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, uV/m at 3 meters = $56.81818(F) - 6136.3636$; for the band 260-470MHz, uV/m at 3 meters = $41.6667(F) - 7083.333$. The maximum permitted unwanted emission level is 20dB below the maximum permitted fundamental level.

(2) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges. Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength uV/meter	Measurement distance (meters)
0.009-0.490	$2400/F(\text{kHz})$	300
0.490-1.705	$24000/F(\text{kHz})$	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

9.2 TEST INSTRUMENTS

Radiated Emission Test Site 966				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	100005	12/16/2012
Spectrum Analyser	R&S	FSU	100114	07/14/2012
Preamplifier	H.P.	HP8447E	2945A02715	12/16/2012
Bilog Antenna	SUNOL Sciences	JB5	A021907	04/26/2012
Preamplifier	Compliance Direction	PAM0118	1360976	12/16/2012
Horn Antenna	Compliance Engineer	CE18000	001	06/10/2012
Cable	TIME MICROWAVE	LMR-400	N-TYPE04	06/09/2012
System-Controller	CCS	N/A	N/A	N.C.R
Turn Table	CCS	N/A	N/A	N.C.R
Antenna Tower	CCS	N/A	N/A	N.C.R

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).
2. N.C.R = No Calibration Request.

9.3 TEST PROCEDURES

The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. At the frequency of 30 MHz~1000MHz ,the measuring antenna moved up and down to find out the maximum emission level. It moved from 1 to 4 m for horizontal and vertical polarizations. The broadband antenna was used as a receiving antenna. At the frequency of 1 GHz -5GHz ,the measuring antenna stands 1 m for horizontal and vertical polarizations. The horn antenna was used as a receiving antenna.

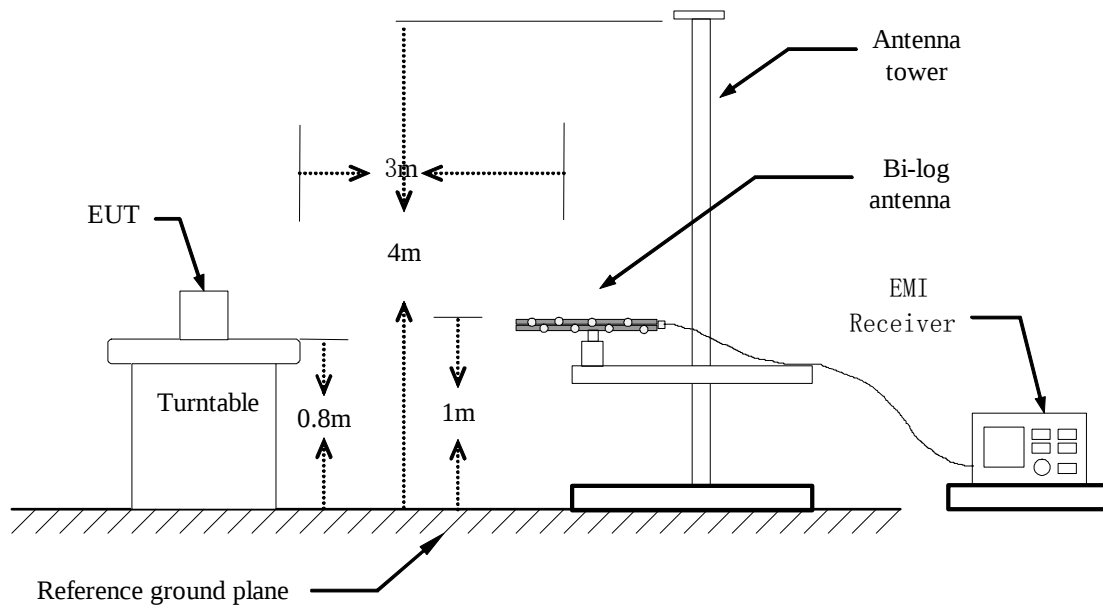
The bandwidth setting on the test receiver was 120 KHz (30 MHz~1000MHz).

The bandwidth setting on the test receiver was 1MHz (1 GHz~5GHz).

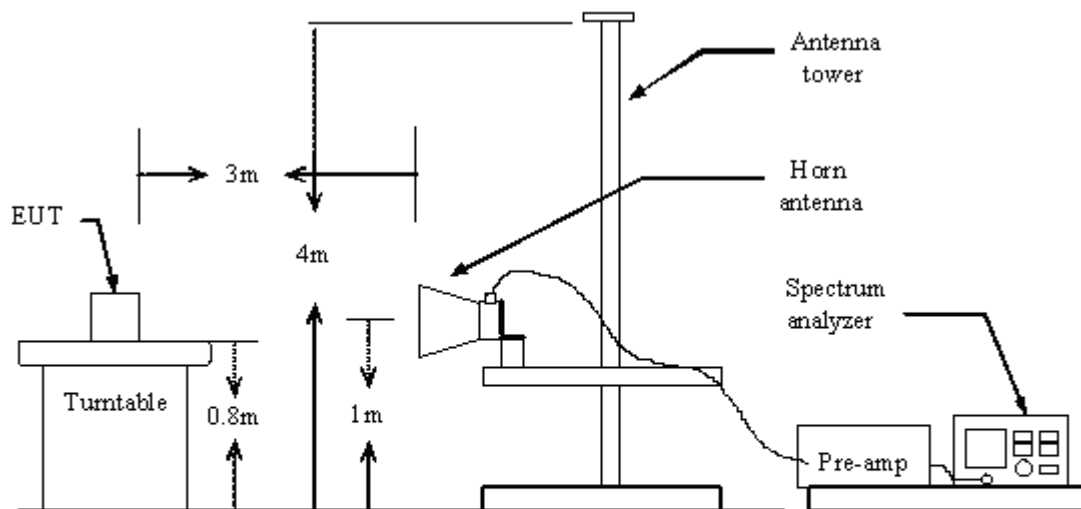
The test data of the worst-case condition(s) was recorded.

9.4 TEST SETUP

Below 1GHz



Above 1GHz



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



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9.5 TEST RESULTS

Model No.	SSG-SD01	Test Mode	Operating
Environmental Conditions	25°C, 55% RH	Test Result	Pass

Frequency(MHz)	Orientation	Level(dBuV)	Limit(dBuV)	Margin	Detector	Result
433.92	H	72.51	100.82	-28.31	QP	Pass
433.92	H	54.33	80.82	-26.49	AV	Pass
53.150	H	34.80	40.00	-5.20	QP	Pass
124.30	H	35.80	43.50	-7.70	QP	Pass
868.93	H	59.09	80.82	-21.73	QP	Pass
868.93	H	40.91	60.82	-19.91	AV	Pass
1300.76	H	60.31	80.82	-20.51	Peak	Pass
1300.76	H	42.13	60.82	-18.69	AV	Pass
1735.68	H	63.25	80.82	-17.57	Peak	Pass
1735.68	H	45.07	60.82	-15.75	AV	Pass
2169.60	H	65.00	80.82	-15.82	Peak	Pass
2169.60	H	46.82	60.82	-14.00	AV	Pass
433.92	V	67.77	100.82	-33.05	QP	Pass
433.92	V	49.59	80.82	-31.23	AV	Pass
53.818	V	33.20	40.00	-6.80	QP	Pass
120.20	V	34.11	43.50	-9.39	QP	Pass
868.93	V	48.26	80.82	-32.56	QP	Pass
868.93	V	30.08	60.82	-30.74	AV	Pass
1300.76	V	61.50	80.82	-19.32	Peak	Pass
1300.76	V	43.32	60.82	-17.50	AV	Pass
1735.68	V	64.00	80.82	-16.82	Peak	Pass
1735.68	V	45.82	60.82	-15.00	AV	Pass
2169.60	V	65.80	80.82	-15.02	Peak	Pass
2169.60	V	47.62	60.82	-13.20	AV	Pass

Note: 1. Level (dBuV) = Receiver reading level (dBuV) + Corr. Factor (dB)
2. AV level = PK level - |20logdutycycle|
3. 20logdutycycle = -18.18
4. The signal bandwidth was measured and less than 100KHz RBW so PDCF factor is not required to correct the fundamental signal peak result.

10 20dB OCCUPIED BANDWIDTH MEASUREMENT

10.1 LIMITS OF BAND

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

10.2 TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	100005	12/16/2012
Pre Amplifier	H.P.	HP8447E	2945A02715	12/16/2012
Bilog Antenna	SUNOL Sciences	JB5	A021907	04/26/2012

10.3 TEST PROCEDURE

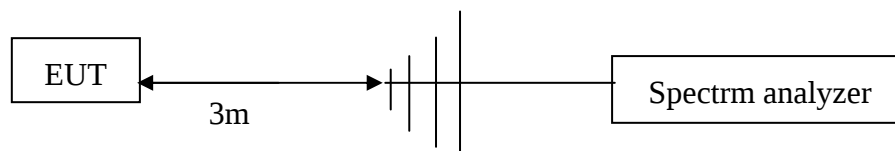
The EUT was placed on a turn table was 0.8meter above ground.

The signal was coupled to the spectrum analyzer through an antenna.

Set SPA RBW: 100KHz, VBW:100KHz sweep time :auto

Set SPA trace max hold, then view.

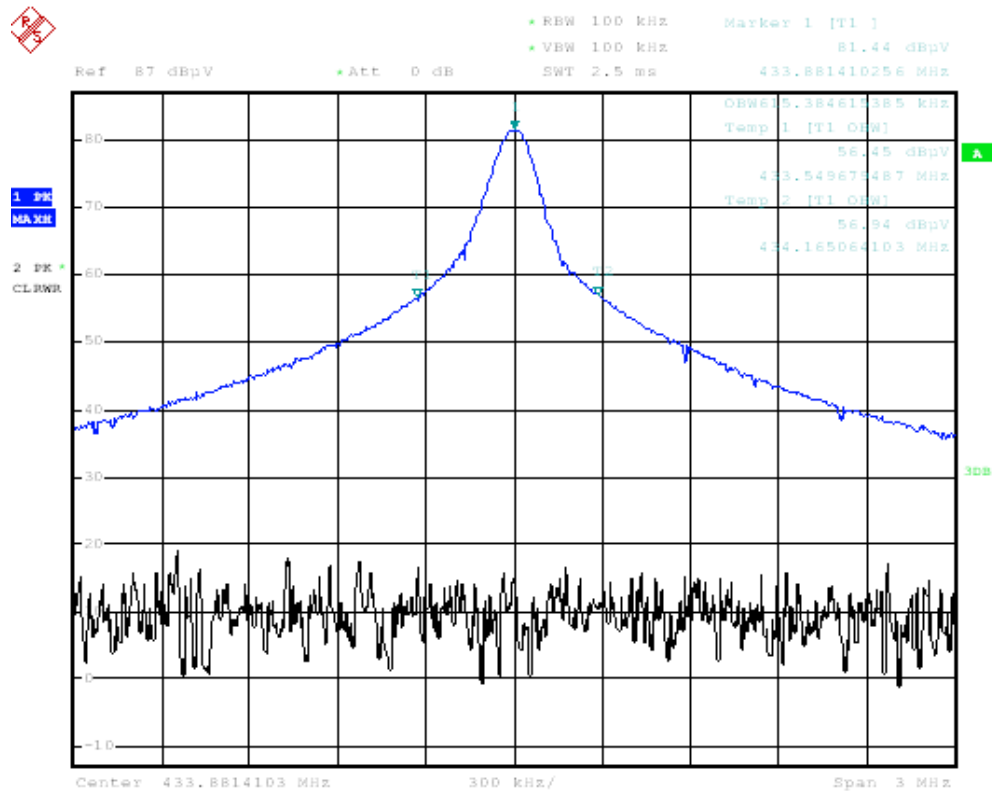
10.4 TEST SETUP



10.5 TEST RESULT

Frequency (MHz)	20dB bandwidth (KHz)	Maximum Limit (KHz)	Result
433.92	615	1084.8	Pass

Details please see the following test plots.



11 DWELL TIME MEASUREMENT

11.1 LIMIT OF DWELL TIME

The transmitting time shall not more than 5 seconds

11.2 TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	100005	12/16/2012
Pre Amplifier	H.P.	HP8447E	2945A02715	12/16/2012
Bilog Antenna	SUNOL Sciences	JB5	A021907	04/26/2012

11.3 TEST PROCEDURE

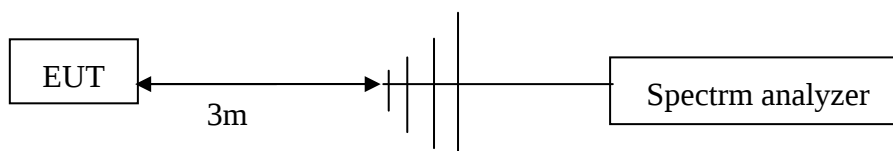
The EUT was placed on a turn table was 0.8meter above ground.

The signal was coupled to the specturm analyzer through an antenna.

Set SPA RBW: 1MHz, VBW:1MHz Span:0Hz

Set SPA trace max hold, then view.

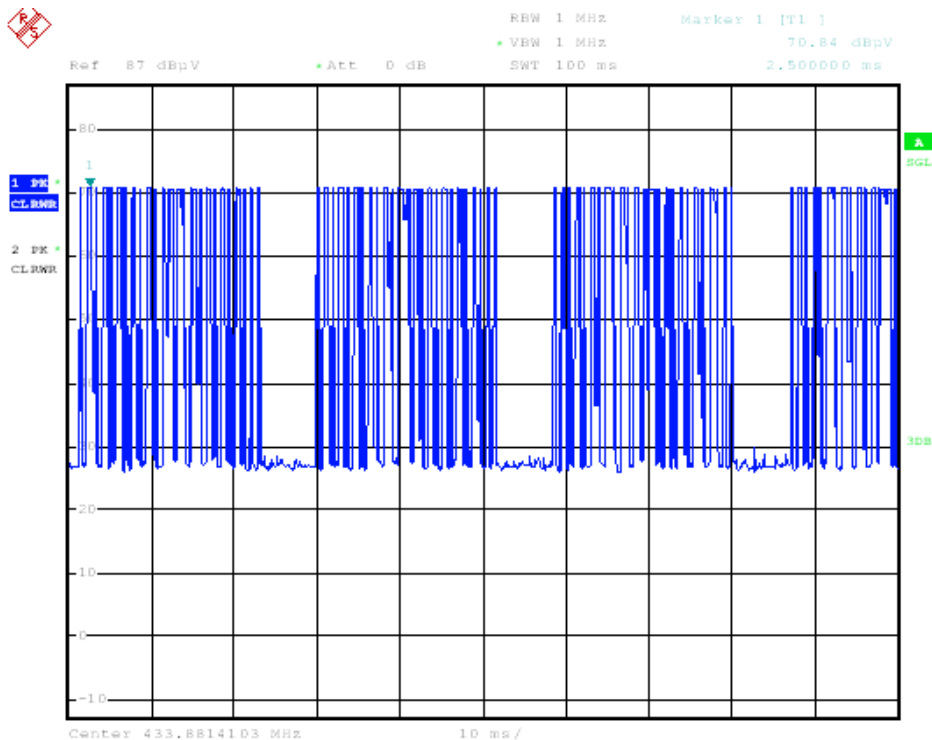
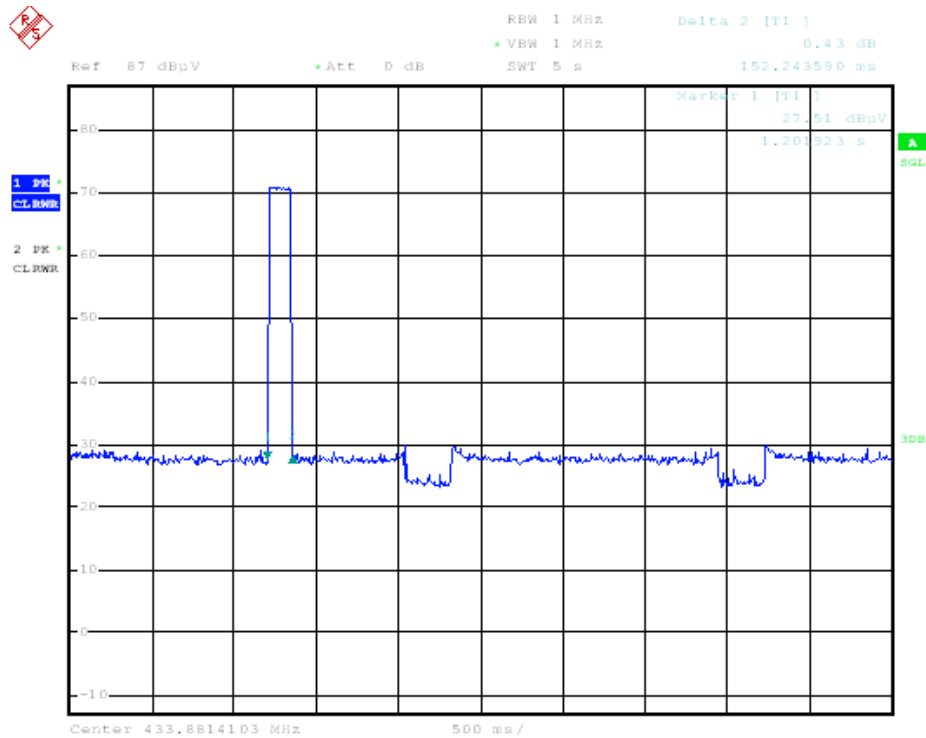
11.4 TEST SETUP

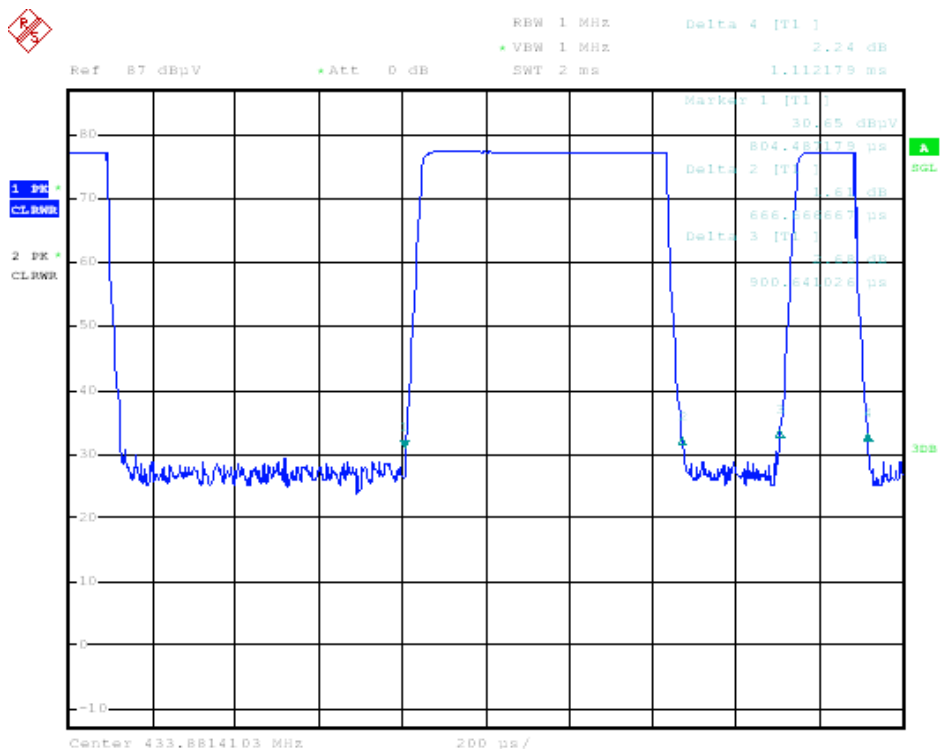
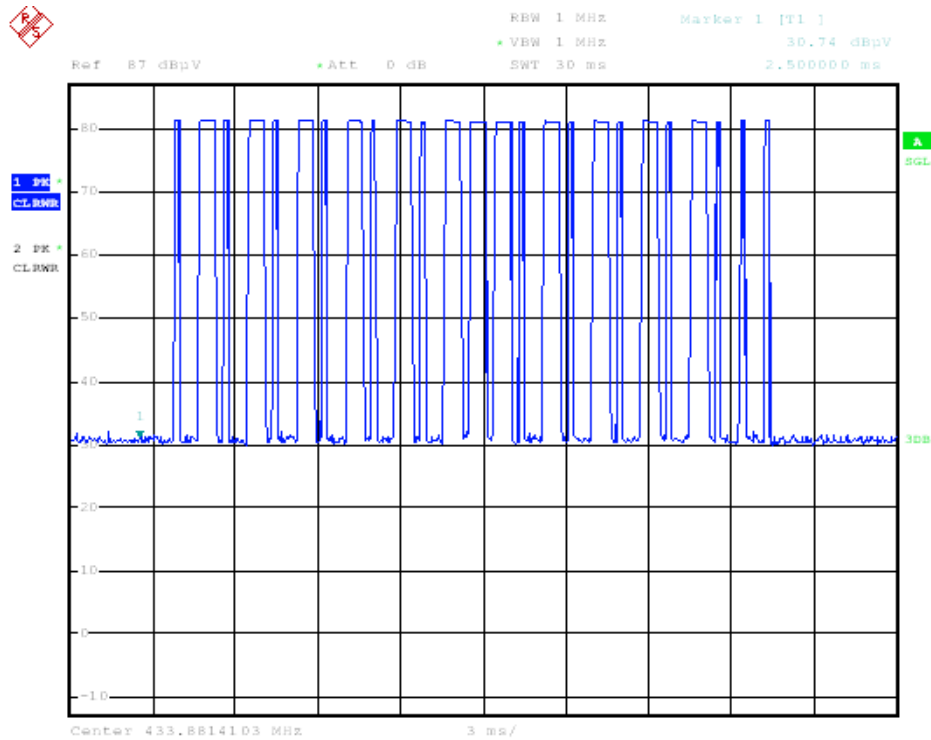


11.5 TEST RESULT

Transmission Limited Time (s)	Actual Transmission Time (s)	Result
≤ 5	1.2	Pass

Details please see the following test plots

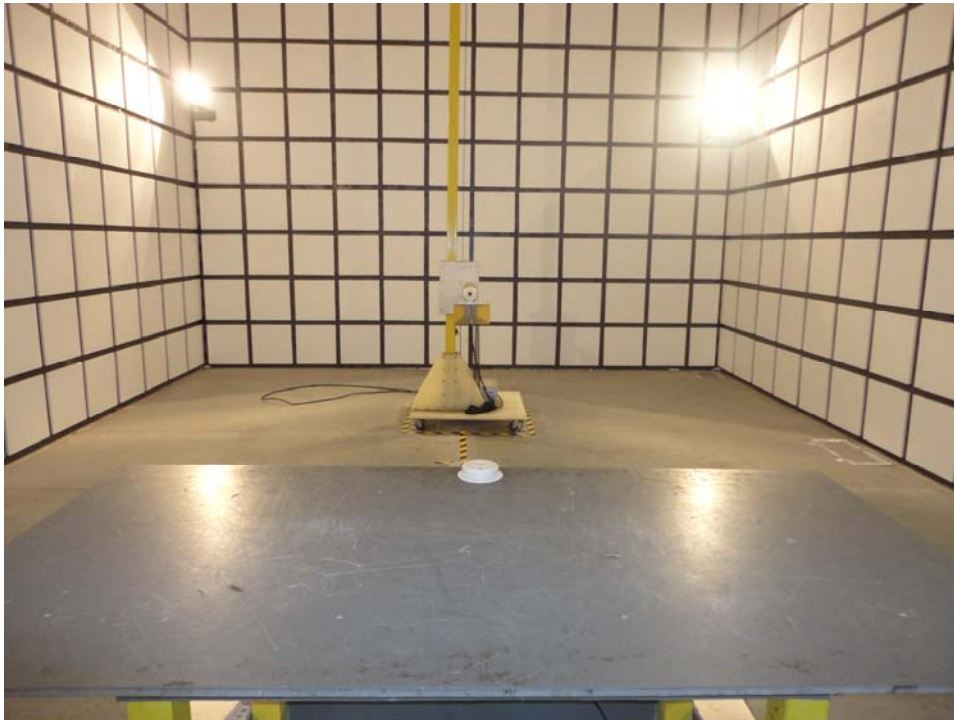




12. PHOTOGRAPHS OF THE TEST CONFIGURATION

RADIATED EMISSION TEST BELOW 1GHz



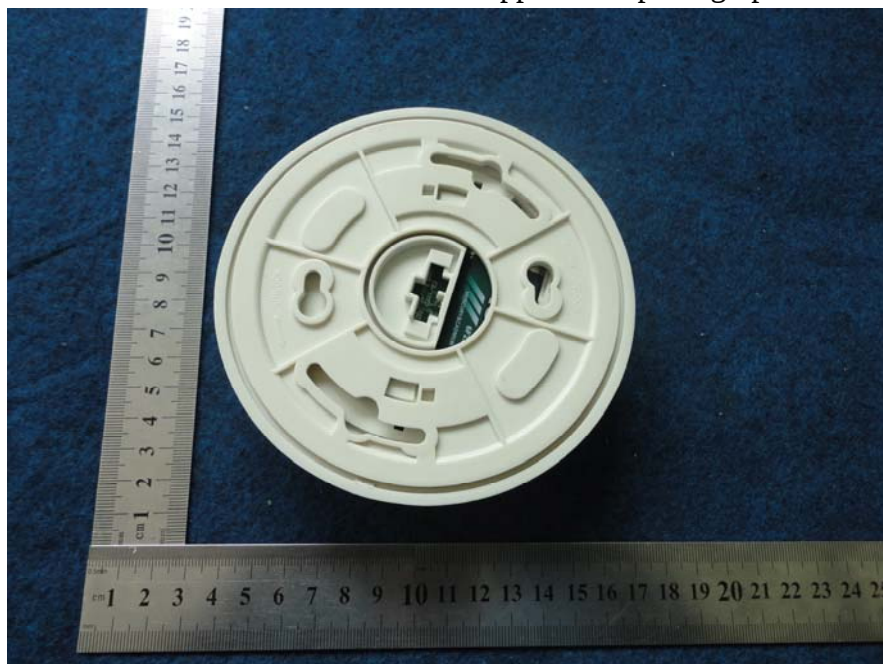
RADIATED EMISSION TEST ABOVE 1GHz

13. PHOTOGRAPHS OF EUT

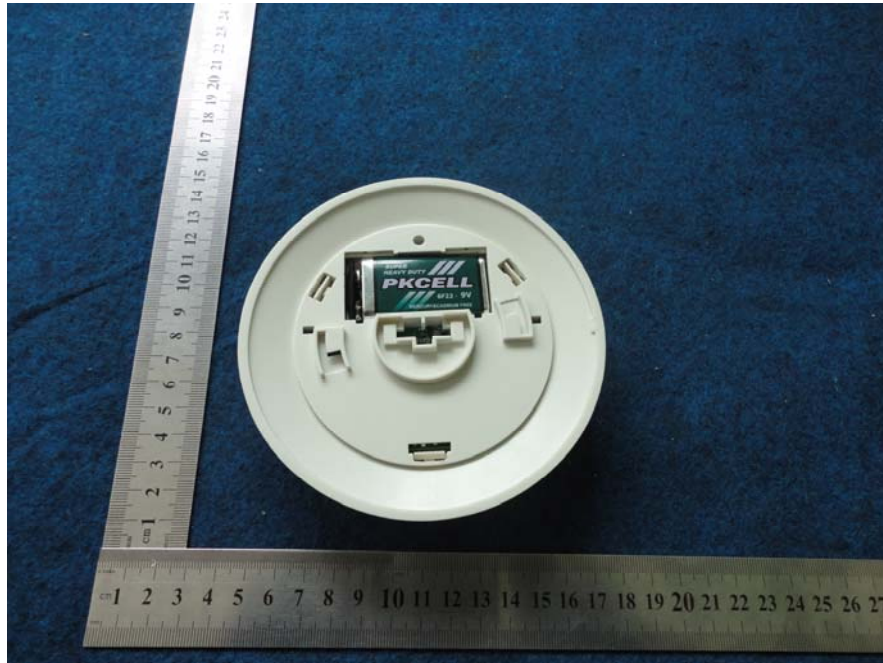
Appearance photograph of EUT



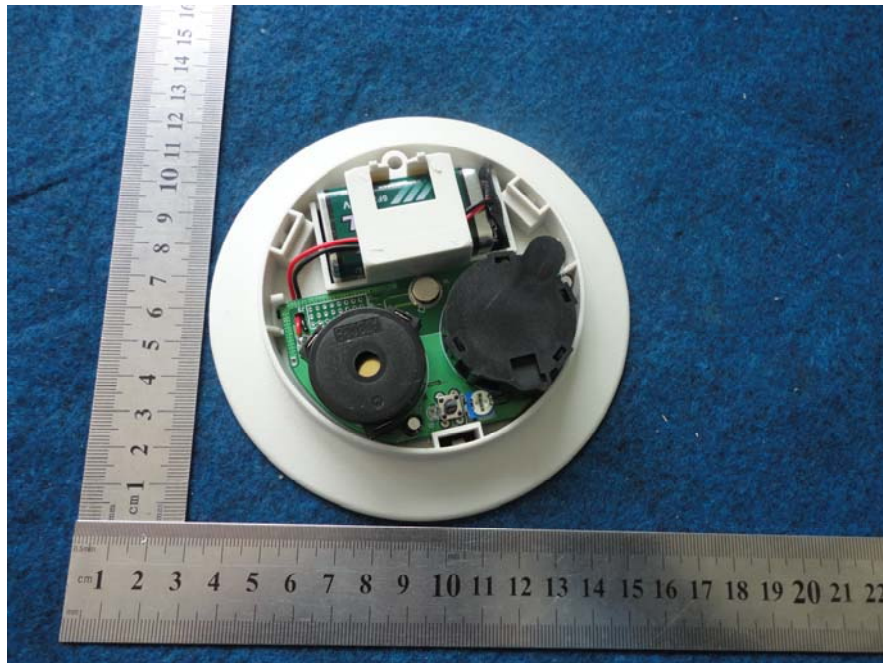
Appearance photograph of EUT



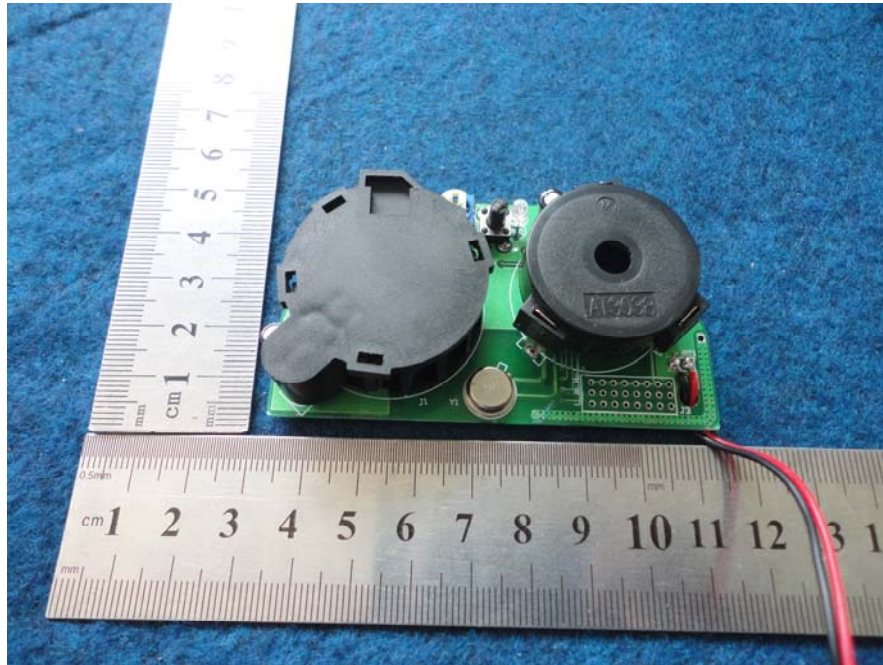
Internal photograph of EUT



Internal photograph of EUT



PCB photograph of EUT



PCB photograph of EUT

