FCC Part 15
Test Report

For

Wireless alarm system remote controller

Model Name: RL-0507A

Brand Name: RL/SWANN

FCC ID: YI6RL-0507A

Report No.: AGC11881008SZ10-1F2

Date of Issue: Aug.21, 2010

Prepared For

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Prepared By

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VERIFICATION OF COMPLIANCE

Applicant:	GUANGDONG ROULE ELECTRONICS CO., LTD
	NO.12, Pingdong 3rd Road, Nanping Industry Community, Zhuhai City, GuangDong, China
Manufacturer:	GUANGDONG ROULE ELECTRONICS CO., LTD
	NO.12, Pingdong 3rd Road, Nanping Industry Community, Zhuhai City, GuangDong, China
Product Name:	Wireless alarm system remote controller
Brand Name:	RL/SWANN
Model Number:	RL-0507A
File Number:	AGC11881008SZ10-1F2
Date of Test:	Aug.13 to Aug.21, 2010

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance Co., Ltd. The data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C 63.4:2003. The sample tested as described in this report is in compliance with the FCC Rules Part 15

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

Checked By: Jekey Zhang

Jekey Zhang Aug.21, 2010

Authorized By King Zhang

King Zhang Aug.21, 2010

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

The EUT is a short rang, lower power . It is designed by way of utilizing the AM modulation achieves the system operating.

A major technical description of EUT is described as following:

Power Supply	DC12V by battery					
Transmitter Frequency	433.92 MHz (only one channel)					
Transmit Power	-3.7dBm					
Modulation Technique	AM					
Bandwidth of Channels	220.47KHz					
Duration of each transmission	133.3ms					
Antenna Type	A permanent fixed antenna, which is built-in, designed as an indispensable part of the EUT					
Size of EUT:	Length	5.1cm	width	2.1cm	height	0.9cm

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: YI6RL-0507A**, filing to comply with the FCC Part 15 requirements.

1.3 TEST METHODOLOGY

The radiated emission testing was performed according to the procedures of ANSI C 63.4: 2003 and FCC CFR 47 Rules of 15.207,15.209, 15.231,2.1057

1.4 TEST FACILITY

The test site used to collect the radiated data is located on the address of 2F., No.2 Building, Huafeng No.1 Technical Industrial Park, Sanwei, Xixiang, Baoan District, Shenzhen, China. The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003.
FCC register No.: 259865

1.5 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

1.6 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

2.3 GENERAL TECHNICAL REQUIREMENTS

(1). Section 15.207: Conducted Limits (Not applicable)
(2). Section 15.209: Radiated Emission
(3). Section 15.231: Spurious Emission Limits
(4). Section 15.231: The Duration of Each Transmission

2.4 CONFIGURATION OF TESTED SYSTEM

Fig. 2-1 Configuration of Tested System

Table 2-1 Equipment Used in Tested System

Item	Equipment	Model No.	Identifier	Note
1	Wireless alarm system remote controller	RL-0507A	FCC ID: YI6RL-0507A	EUT
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--	--	--	--	--

3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207	Conducted Emission	N/A
§15.209	Radiated Emission	Compliant
§15.231	Spurious Emission Limits	Compliant
§15.231	The Duration of Each Transmission	Compliant

4. DESCRIPTION OF TEST MODES

The EUT (Wireless alarm system remote controller) has been tested under normal operating condition.

5. CONDUCTED LIMITS (Not applicable)

5.1 PROVISIONS APPLICABLE

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the, the radio frequency voltage that is conducted back onto the AC power line on any frequencies within the band 150 KHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50uH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

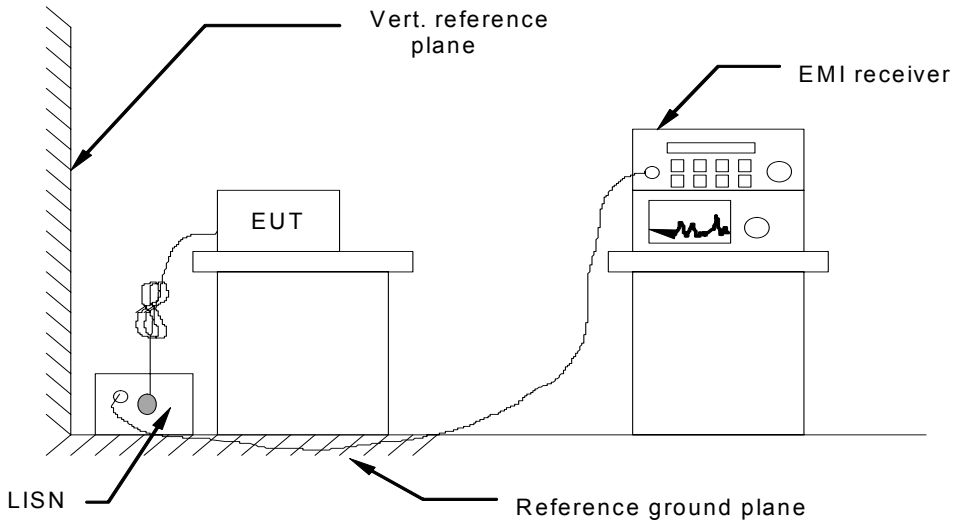
Frequency of Emission (MHz)	Conducted Limit(dBuV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50

* Decreases with the logarithm of the frequency.

5.2 MEASUREMENT PROCEDURE

(1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
(2) Support equipment, if needed, was placed as per ANSI C63.4.
(3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
(4) The EUT received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
(5) All support equipments received AC power from a second LISN, if any.
(6) 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.
(7) Analyzer / Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
During the above scans, the emissions were maximized by cable manipulation.

5.3 TEST SETUP BLOCK DIAGRAM



5.4 TEST EQUIPMENT USED

Conducted Emission Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Cal. Date**
TEST RECEIVER	R&S	FCKL1528	A0304230	2010.06
LISN	SCHWARZBECK	NSLK8127	A0304233	2010.06

5.5 TEST RESULT

N/A

6. FREQUENCY TOLERANCE

6.1 PROVISIONS APPLICABLE

According to Section 15.231(c), 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.

Limit: 433.89MHz*0.25%=1.08MHz

6.2 MEASUREMENT PROCEDURE

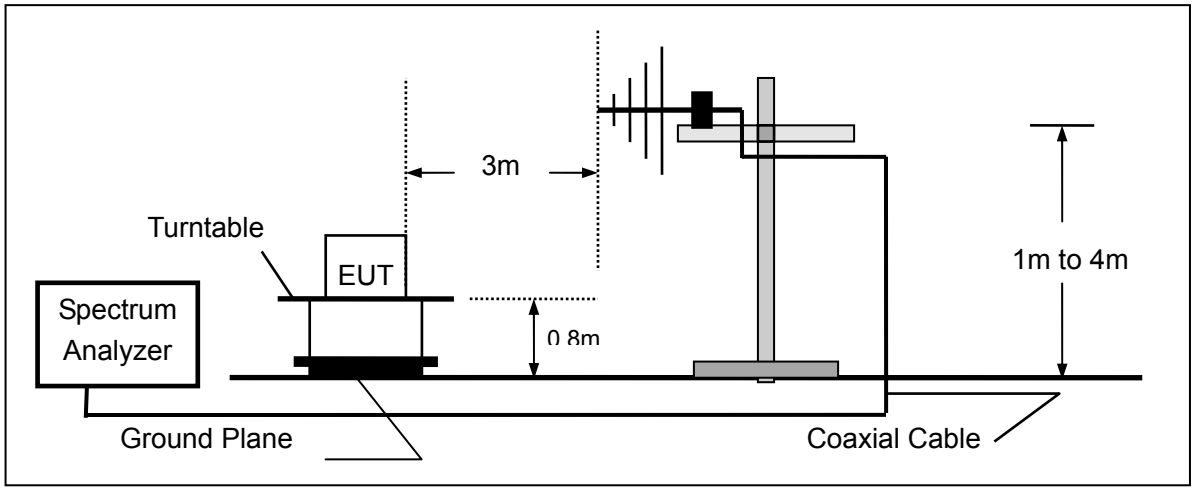
1).The EUT was placed on a turn table which is 0.8m above ground plane.

2).The EUT was operated with signal modulated.

3).Set SPA Center Frequency = fundamental frequency, RBW=VBW=51KHz, Span=500kHz

4).Set SPA Max hold. Mark peak, -20dB

6.3 TEST SETUP BLOCK DIAGRAM

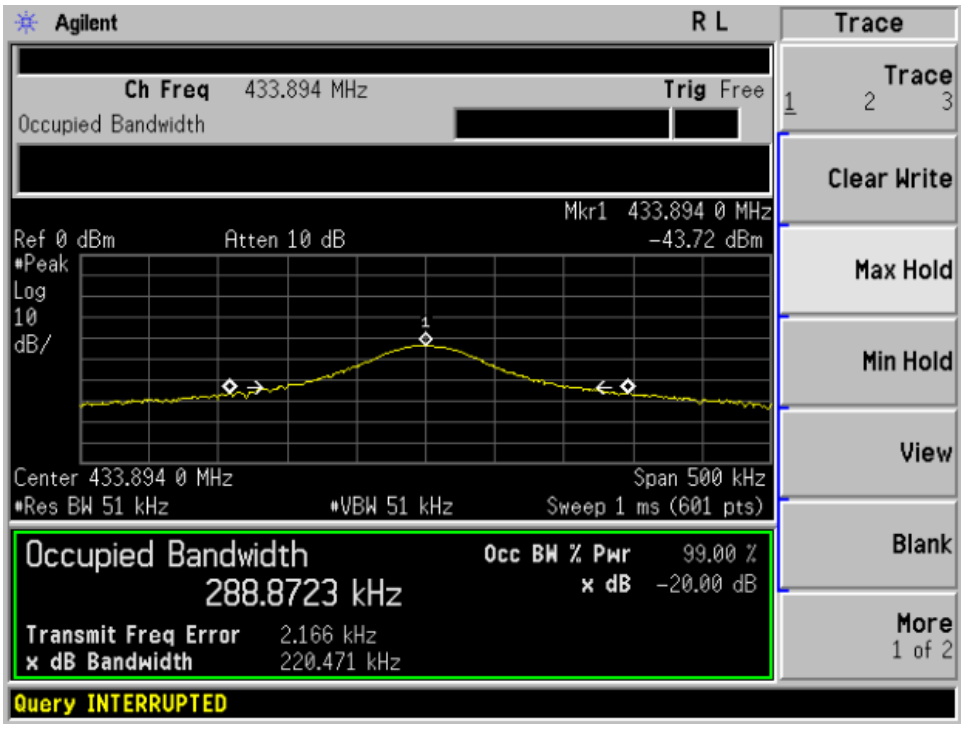


6.4 MEASUREMENT EQUIPMENT USED:

3M ANECHOIC CHAMBER RADIATION TEST SITE					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCS30	100343	04/16/2010	04/15/2011
AMPLIFIER	HP	HP8447E	2945A02715	04/16/2010	04/15/2011
ANTENNA	Sunol Sciences Corp.	JB3	A021907	04/16/2010	04/15/2011
ANTENNA	Sunol Sciences Corp.	JB3	A021907	04/16/2010	04/15/2011
Spectrum Analyzer	Agilent	E4440A	US41421290	04/16/2010	04/15/2011

6.5 MEASUREMENT RESULT

Operation Mode:	TX	Test Date:	Aug.17, 2010
Temperature:	25°C	Tested by:	Jekey Zhang
Humidity:	55 % RH	Polarity:	--



20dB bandwidth	LIMIT	RESULT
220.471KHz	1.08MHz	PASS

7. RADIATED EMISSION

7.1 PROVISIONS APPLICABLE

According to Section 15.231(b)

Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, μV/m at 3 meters = 56.81818(F) - 6136.3636; for the band 260-470 MHz, μV/m at 3 meters = 41.6667(F) - 7083.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.

Limit: AV 20lg(41.6667*433.89-7083.3333) =80.82dBuV/m
PK 100.82dBuV/m

7.2 MEASUREMENT PROCEDURE

(1)On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.

(2)The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.

(3)The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.

(4)The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.

(5)The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.

(6)The transmitter shall than be rotated through 360°in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

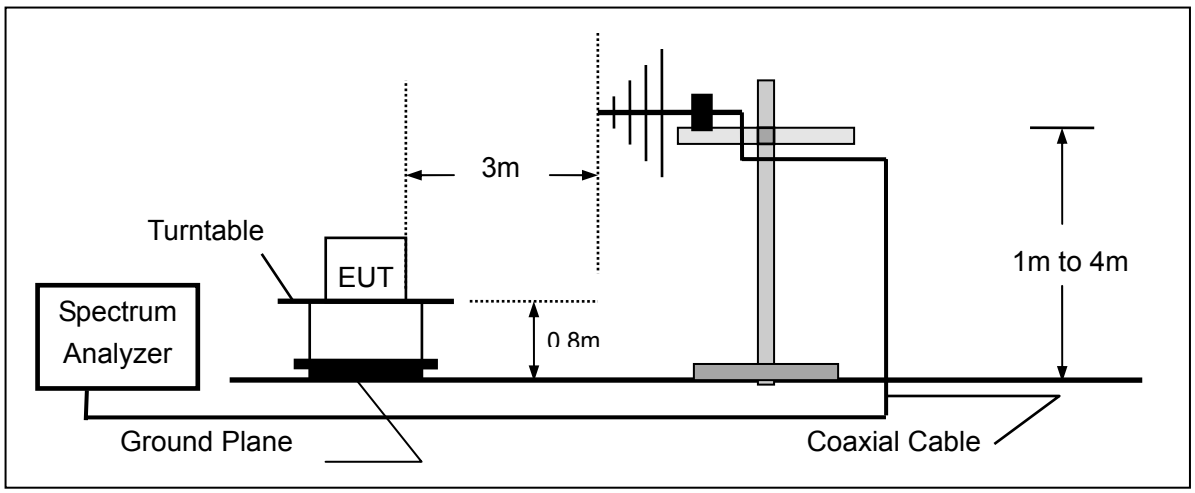
(7)The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.

(8)The maximum signal level detected by the measuring receiver shall be recorded.

(9)The measurement shall be repeated with the test antenna set to horizontal polarization

(10) According to the above steps, three orthogonal planes (x, y, z) are operated.

7.3 TEST SETUP BLOCK DIAGRAM



7.4 MEASUREMENT EQUIPMENT USED:

3M ANECHOIC CHAMBER RADIATION TEST SITE					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCS30	100343	04/16/2010	04/15/2011
AMPLIFIER	HP	HP8447E	2945A02715	04/16/2010	04/15/2011
ANTENNA	Sunol Sciences Corp.	JB3	A021907	04/16/2010	04/15/2011
ANTENNA	Sunol Sciences Corp.	JB3	A021907	04/16/2010	04/15/2011
Spectrum Analyzer	Agilent	E4440A	US41421290	04/16/2010	04/15/2011

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start Frequency	1000MHz
Stop Frequency	5000MHz
RB/VB	1MHz/1MHz for Peak

Receiver Parameter	Setting
Start Frequency	30MHz
Stop Frequency	1000MHz
RB/VB	120KHz/120kHz

CALCULATION OF DUTY CYCLE:

The period of the pulse train is determined by observing it on an oscilloscope or a spectrum analyzer with zero (0) frequency span. A plot is then made of the pulse train with a sweep time of 100 milliseconds. This sweep determines the duration of the pulse train, which in this case is millisecond. This sweep allows the determination of the number of and type of pulses, i.e. long & short. Plots are then made showing the duration of each type of pulse and its duration.From the 100 millisecond Plot, the number of a given type of pulse is then multiplied by the duration of that type pulse. This allows the calculation of the amount of time the UUT is on within 100 ms. If the pulse train is longer than 100 ms then this number is multiplied by 100 to determine the percentage ON TIME. If the pulse train is less than 100 ms the total on time is divided by the length of the pulse train and then multiplied by 100 to determine the percentage ON TIME. In this case there were 18 short pulses 483.3 us long and 12 long pulses 1.55 ms long for a total of 27.30 ms ON TIME within 100 ms pulse train. The average field strength is determined by multiplying the peak field
strength by the percent on time.

dB = 20*log(ON TIME)/PERIOD
dB = 20*log(27.30/100)
dB = 20*log(0.273)
dB = -11.28

Duty cycle factor: -11.28 dB

7.5 MEASUREMENT RESULTS

Operation Mode:	TX	Test Date:	Aug.17, 2010
Temperature:	25°C	Tested by:	Mary Liu
Humidity:	55 % RH	Polarity:	--

X ORTHOGONAL PLANE IS THE STATE DATA OF THREE ORTHOGONAL PLANES (X, Y, Z)

RADIATED EMISSION – HORIZONTAL (30MHZ TO 5GHZ)							
Frequency	**Antenna Pol.**	**Field Strength**	**Field Strength**	**Limit(PK)**	**Limit(QP)**	**Limit(AV)**	**State**
MHz	H/V	dBuV/m (PK)	dBuV/m (AV)	dBuV/m	dBuV/m	dBuV/m	
433.890	H	88.21	76.93	100.82	--	80.82	pass
867.780	H	55.24	43.96	80.82	--	60.82	pass
1301.670	H	40.52	29.24	74.00	--	54.00	pass
1735.560	H	--	--	80.82	--	60.82	pass
3471.120	H	--	--	80.82	--	60.82	pass
4338.900	H	--	--	74.00	--	54.00	pass
--	H	--	--	74.00	--	54.00	pass

RADIATED EMISSION - VERTICAL(30MHZ TO 5GHZ)							
Frequency	**Antenna Pol.**	**Field Strength**	**Field Strength**	**Limit(PK)**	**Limit(QP)**	**Limit(AV)**	**State**
GHz	H/V	dBuV/m (PK)	dBuV/m (AV)	dBuV/m	dBuV/m	dBuV/m	
433.890	V	81.20	69.92	100.82	--	80.82	pass
867.780	V	54.57	43.29	80.82	--	60.82	pass
1301.670	V	38.28	27.00	74.00	--	54.00	pass
1735.560	V	--	--	80.82	--	60.82	pass
3471.120	V	--	--	80.82	--	60.82	pass
4338.900	V	--	--	74.00	--	54.00	pass
--	H	--	--	74.00	--	54.00	pass

Note:

"-"indicate the test value is mush lower to limit

8. THE DURATION OF EACH TRANSMISSION

8.1 PROVISIONS APPLICABLE

8.1.1 According to Section 15.231(a), 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 TEST SETUP

The same as 6.3

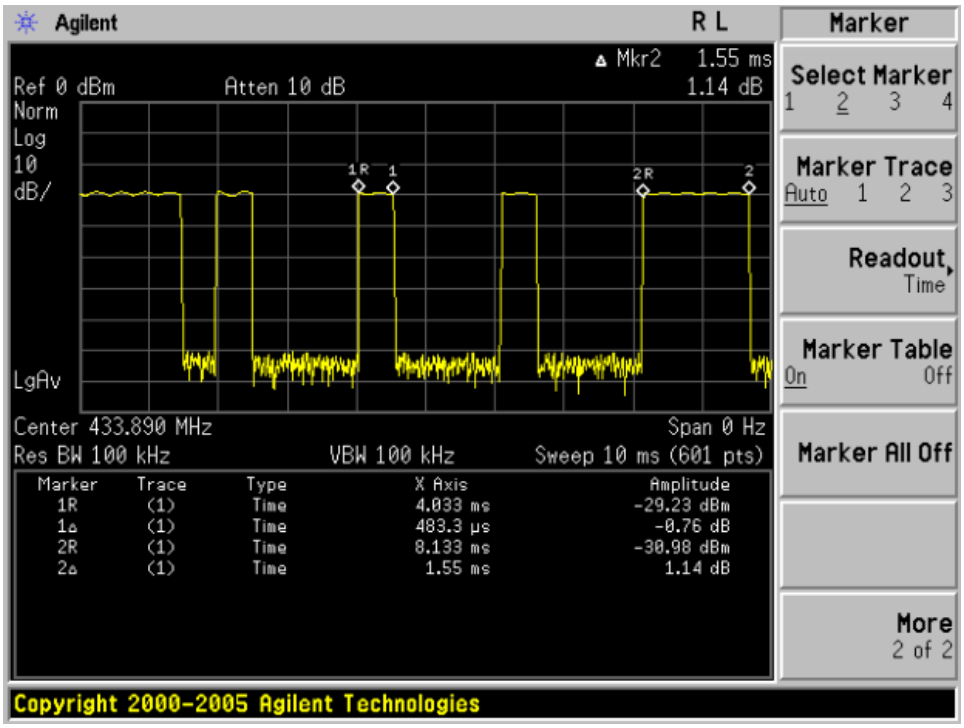
8.3 MEASUREMENT INSTRUMENTS

The same as 6.4

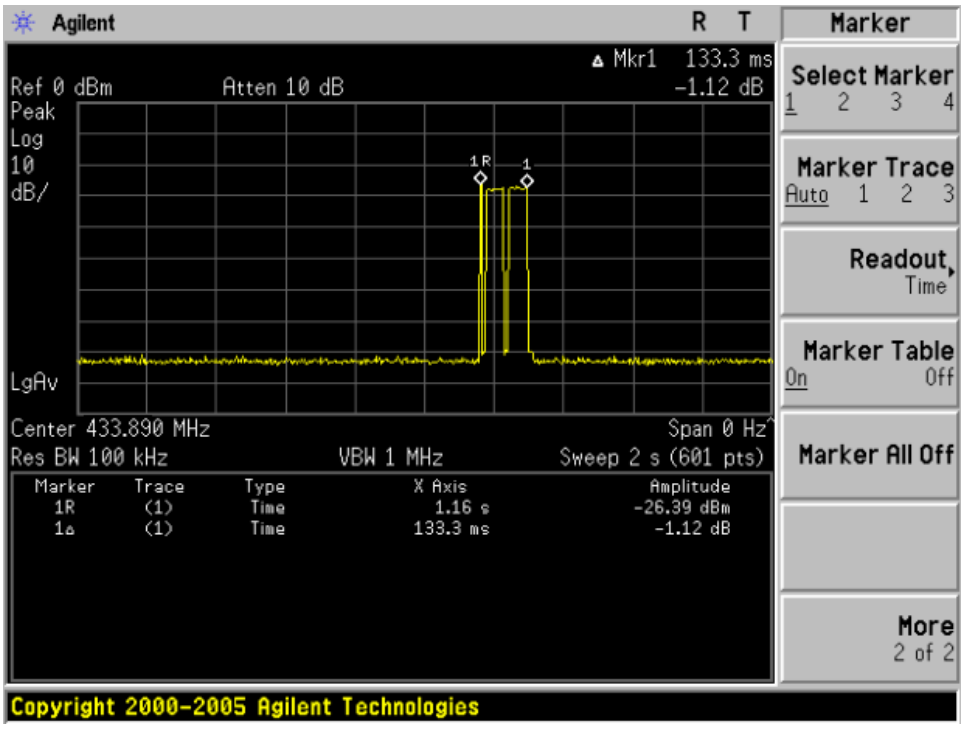
8.4 MEASUREMENT RESULT

Operation Mode:	TX	Test Date:	Aug.17, 2010
Temperature:	25°C	Tested by:	Mary Liu
Humidity:	55 % RH	Polarity:	--

DUTY CYCLE PLOT



THE DURATION OF EACH TRANSMISSION

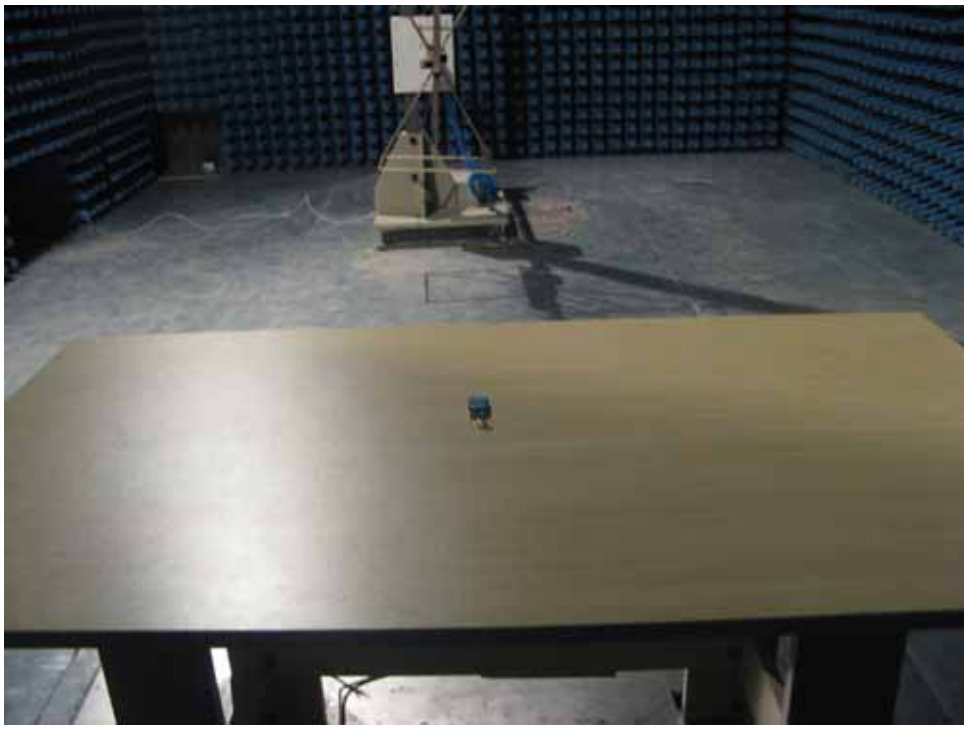


THE DURATION OF EACH TRANSMISSION	LIMIT	RESULT
133.3ms	<5s	PASS

APPENDIX I

PHOTOGRAPHS OF SETUP

RADIATED TEST SETUP



APPENDIX II

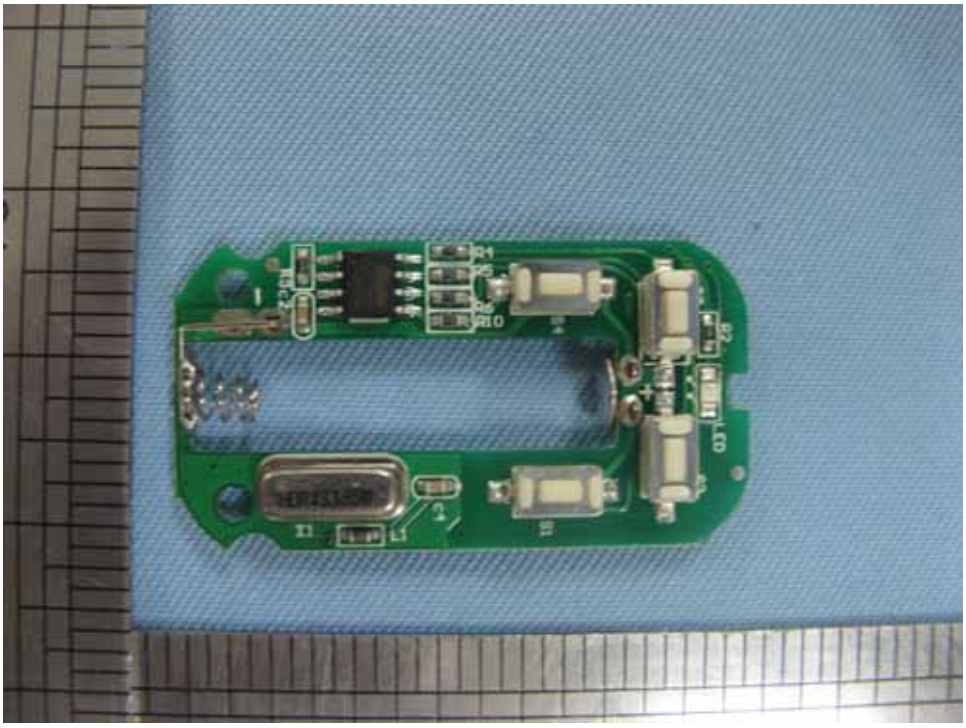
EXTERNAL VIEW OF EUT

TOP VIEW OF EUT

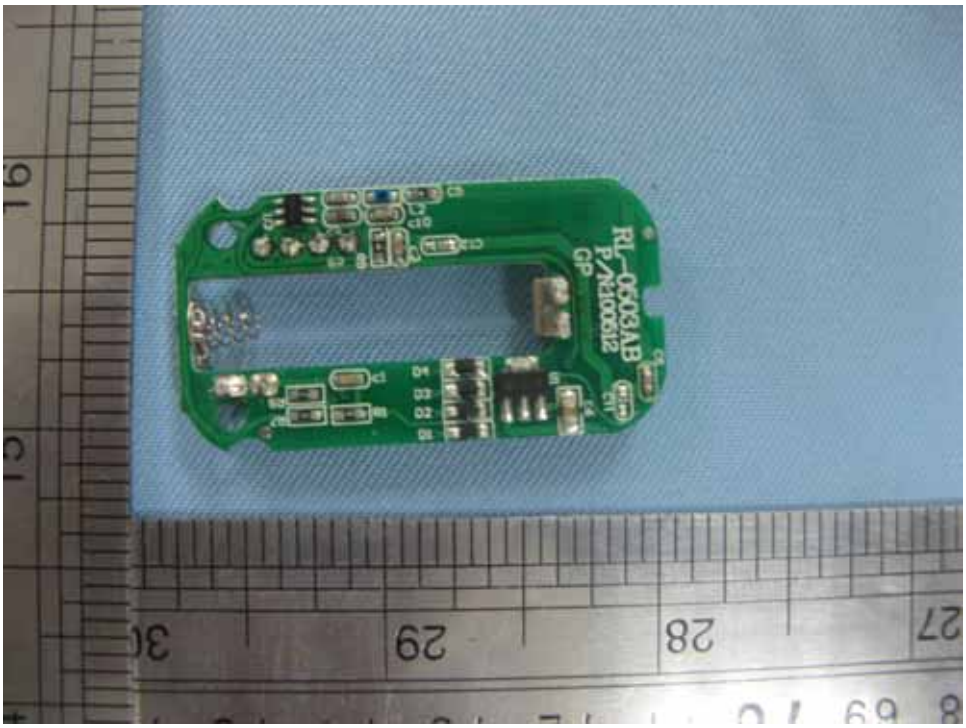
BOTTOM VIEW OF EUT

OPEN VIEW OF EUT

INTERNAL VIEW OF EUT – 1



INTERNAL VIEW OF EUT – 2



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