APPLICATION FOR VERIFICATION
On Behalf of
Carewell Electric Technology (Zhongshan) Co., Ltd.

REMOTE CONTROL
Model No.: AC2.4

FCC ID: 2AAZPAC24

Prepared for	:	Carewell Electric Technology (Zhongshan) Co., Ltd.
Address	:	Torch Development Zone, No.2, Ouya Road, Zhongshan, Guangdong, China
Prepared by	:	Accurate Technology Co., Ltd.
Address	:	F1, Bldg. A&D, Changyuan New Material Port, Keyuan Rd., Science & Industry Park, Nanshan District, Shenzhen 518057, P.R. China
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Report No.	:	ATE20160445
Date of Test	:	Mar 21-23, 2016
Date of Report	:	Mar 23, 2016

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Test Report Declaration

Applicant	:	Carewell Electric Technology (Zhongshan) Co., Ltd.
Manufacturer	:	Carewell Electric Technology(Zhongshan)Co.,Ltd.
EUT Description	:	REMOTE CONTROL
		(A) MODEL NO.: AC2.4
		(B) SERIAL NO.: N/A
		(C) POWER SUPPLY: AC 120V/60Hz

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B
ANSI C63.4: 2014

The device described above is tested by Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Accurate Technology Co., Ltd.

Date of Test :	Mar 21-Mar 23, 2016
Date of Report :	Mar 23, 2016
Prepared by :	Tim Zhang
	(Tim.zhang, Engineer)
Approved & Authorized Signer :	
	(Sean Liu, Manager)

1. TEST RESULTS SUMMARY

Test Items	Test Standard	Test Results
Power Line Conducted Emission	FCC Part 15 Subpart B	Pass
Radiated Emission	FCC Part 15 Subpart B	Pass

2. GENERAL INFORMATION

2.1.Product of Device (EUT)

EUT	:	REMOTE CONTROL
Model Number	:	AC2.4
Power Supply	:	AC 120V/60Hz
Modulation:	:	ASK
Receiver Frequency	:	315MHz RX
Applicant	:	Carewell Electric Technology (Zhongshan) Co., Ltd.
Address	:	Torch Development Zone, No.2, Ouya Road, Zhongshan, Guangdong, China
Manufacturer	:	Carewell Electric Technology(Zhongshan)Co.,Ltd.
Address	:	Torch Development Zone, No.2, Ouya Road, Zhongshan, Guangdong, China
Date of sample received	:	Mar 21, 2016
Date of Test	:	Mar 21-23,2016

2.2.Accessory and Auxiliary Equipment

NA

2.3.Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen, May 10, 2004

Listed by FCC
The Registration Number is 253065
Listed by FCC
The Registration Number is 752051

Listed by Industry Canada
The Registration Number is 5077A-1
Listed by Industry Canada
The Registration Number is 5077A-2

Accredited by China National Accreditation Committee for Laboratories
The Certificate Registration Number is L3193

Name of Firm : Accurate Technology Co., Ltd.
Site Location : F1, Bldg. A&D, Changyuan New Material Port, Keyuan Rd., Science & Industry Park, Nanshan District, Shenzhen 518057, P.R. China

2.4.Measurement Uncertainty

Conducted emission expanded uncertainty	:	U=2.23dB, k=2
Power disturbance expanded uncertainty	:	U=2.92dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	:	U=3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	:	U=4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	:	U=4.06dB, k=2

3. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated date	Calibrated until
EMI Test REMOTE CONTROL	Rohde&Schwarz	ESCS30	100307	Jan. 10, 2016	Jan. 09, 2017
EMI Test REMOTE CONTROL	Rohde&Schwarz	ESPI3	101526/003	Jan. 10, 2016	Jan. 09, 2017
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 10, 2016	Jan. 09, 2017
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 10, 2016	Jan. 09, 2017
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 14, 2016	Jan. 13, 2017
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 14, 2016	Jan. 13, 2017
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 10, 2016	Jan. 09, 2017
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 10, 2016	Jan. 09, 2017

4. POWER LINE CONDUCTED MEASUREMENT

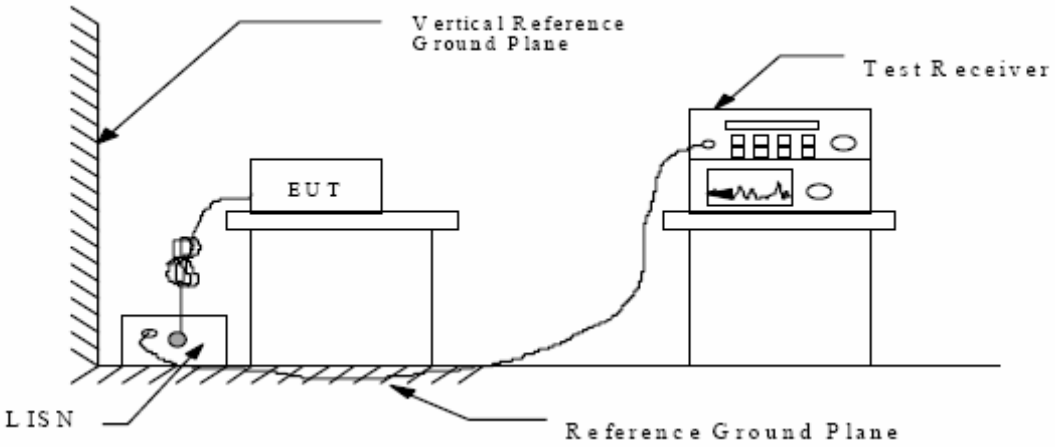
4.1. Block Diagram of Test Setup

4.1.1.Block diagram of connection between the EUT and simulators

AC 120V/60Hz

(EUT: REMOTE CONTROL)

4.1.2.Shielding Room Test Setup Diagram



(EUT: REMOTE CONTROL)

4.2. The Emission Limit

4.2.1.Conducted Emission Measurement Limits According to Section 15.107(a)

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

* Decreases with the logarithm of the frequency.

4.3. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

4.3.1.REMOTE CONTROL (EUT)

Model Number: AC2.4
Serial Number: N/A
Manufacturer: Carewell Electric Technology (Zhongshan) Co., Ltd.

4.4. Operating Condition of EUT

4.4.1.Setup the EUT and simulator as shown as Section 4.1

4.4.2.Turn on the power of all equipment.

4.4.3.Let the EUT work in test mode and measure it.

4.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 on Conducted Emission Measurement.

The bandwidth of test REMOTE CONTROL (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

4.6. Power Line Conducted Emission Measurement Results

PASS.

Test Mode: RX

MEASUREMENT RESULT: "RY0323-2_fin"

2016-3-23 10:59

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.512000	35.20	11.5	56	20.8	QP	N	GND
2.427500	39.60	11.7	56	16.4	QP	N	GND
25.823000	16.80	12.0	60	43.2	QP	N	GND

MEASUREMENT RESULT: "RY0323-2_fin2"

2016-3-23 10:59

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.258000	31.70	10.9	52	19.8	AV	N	GND
2.454500	37.80	11.7	46	8.2	AV	N	GND
21.345500	13.70	12.0	50	36.3	AV	N	GND

MEASUREMENT RESULT: "RY0323-1_fin"

2016-3-23 10:56

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.512000	35.30	11.5	56	20.7	QP	L1	GND
2.436500	39.70	11.7	56	16.3	QP	L1	GND
28.680500	15.80	12.0	60	44.2	QP	L1	GND

MEASUREMENT RESULT: "RY0323-1_fin2"

2016-3-23 10:56

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.266000	31.50	10.9	51	19.7	AV	L1	GND
2.477000	37.50	11.7	46	8.5	AV	L1	GND
17.939000	13.40	11.9	50	36.6	AV	L1	GND

Emissions attenuated more than 20 dB below the permissible value are not reported.
The spectral diagrams are shown in the following pages.

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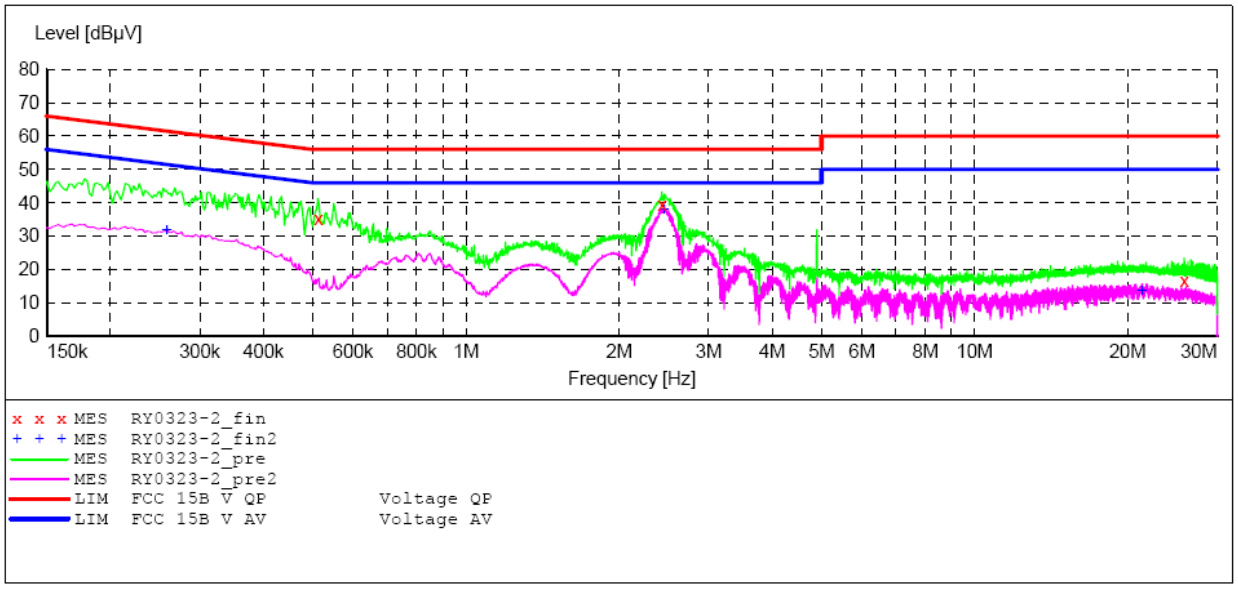
CONDUCTED EMISSION STANDARD FCC PART15 B

```
EUT:                    REMOTE CONTROL   M/N:AC 2.4
Manufacturer:           Carewell
Operating Condition:    ON&RX
Test Site:              2#Shielding Room
Operator:               Ricky
Test Specification:     N  120V/60Hz
Comment:                Report NO.:ATE20160445
Start of Test:          2016-3-23 / 10:57:38
```

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



MEASUREMENT RESULT: "RY0323-2_fin"

2016-3-23 10:59

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.512000	35.20	11.5	56	20.8	QP	N	GND
2.427500	39.60	11.7	56	16.4	QP	N	GND
25.823000	16.80	12.0	60	43.2	QP	N	GND

MEASUREMENT RESULT: "RY0323-2_fin2"

2016-3-23 10:59

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.258000	31.70	10.9	52	19.8	AV	N	GND
2.454500	37.80	11.7	46	8.2	AV	N	GND
21.345500	13.70	12.0	50	36.3	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD

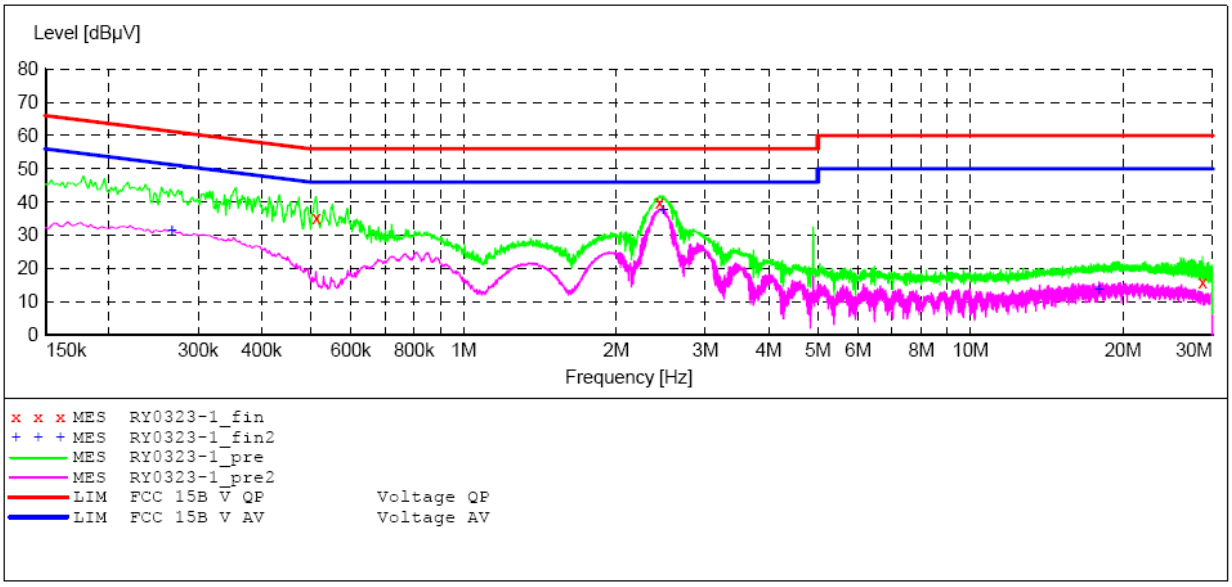
CONDUCTED EMISSION STANDARD FCC PART15 B

EUT: REMOTE CONTROL M/N:AC 2.4
Manufacturer: Carewell
Operating Condition: ON&RX
Test Site: 2#Shielding Room
Operator: Ricky
Test Specification: L 120V/60Hz
Comment: Report NO.:ATE20160445
Start of Test: 2016-3-23 / 10:54:44

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



MEASUREMENT RESULT: "RY0323-1_fin"

2016-3-23 10:56

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.512000	35.30	11.5	56	20.7	QP	L1	GND
2.436500	39.70	11.7	56	16.3	QP	L1	GND
28.680500	15.80	12.0	60	44.2	QP	L1	GND

MEASUREMENT RESULT: "RY0323-1_fin2"

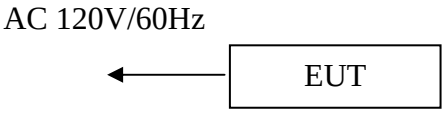
2016-3-23 10:56

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.266000	31.50	10.9	51	19.7	AV	L1	GND
2.477000	37.50	11.7	46	8.5	AV	L1	GND
17.939000	13.40	11.9	50	36.6	AV	L1	GND

5. RADIATED EMISSION MEASUREMENT

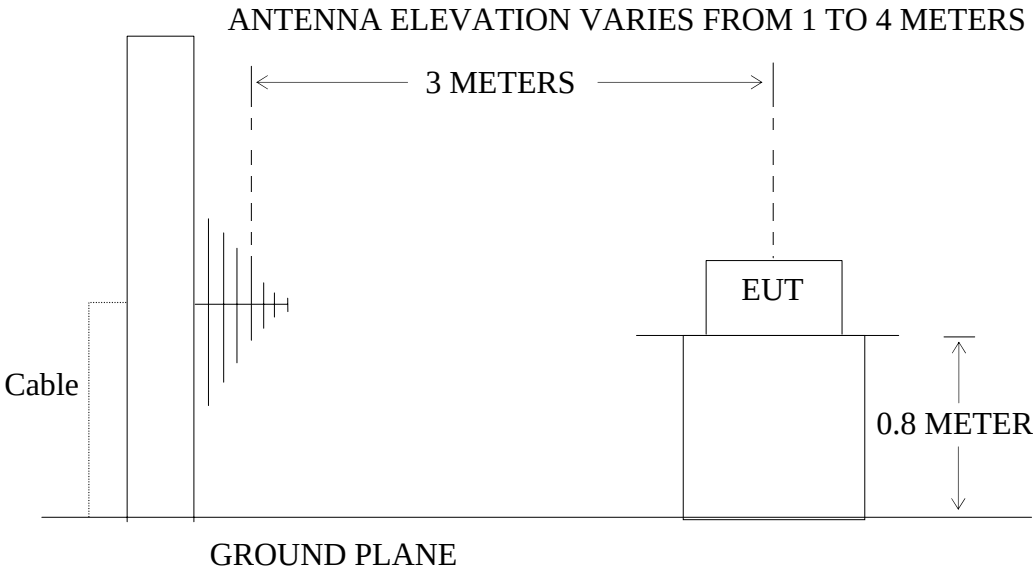
5.1.Block Diagram of Test Setup

5.1.1.Block diagram of connection between the EUT and simulators



(EUT: REMOTE CONTROL)

5.1.2.Semi-Anechoic Chamber Test Setup Diagram



(EUT: REMOTE CONTROL)

5.2.The Emission Limit For Section 15.109 (a)

5.2.1.Radiation Emission Measurement Limits According to Section 15.109 (a).

Frequency MHz	Distance Meters	Field Strengths Limit	
		μV/m	dB(μV/m)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
960-1000	3	500	54.0
Remark: (1) Emission level dB (μV) = 20 log Emission level μV/m. (2)The smaller limit shall apply at the cross point between two frequency bands. (3)Distance is the distance in meters between the measuring instrument antenna and the closest point of any part of the device or system.			

5.3.EUT Configuration on Measurement

The following equipment is installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.3.1.REMOTE CONTROL

Model Number**:** AC2.4
Serial Number**:** N/A
Manufacturer**:** Carewell Electric Technology (Zhongshan) Co., Ltd.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 4.2.

5.4.2.Turn on the power of all equipment.

5.4.3.Let the EUT work in test mode (Rx) and measure it.

5.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2014 on radiated emission measurement.

The bandwidth of the EMI test REMOTE CONTROL (R&S ESCS30) is set at 120kHz from 30MHz to 1000MHz.
The frequency range from 30MHz to 2000MHz is checked.

5.6.Radiated Emission Noise Measurement Result

PASS.

Model Number: AC2.4
Test mode: RX

Horizontal

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	147.8747	57.79	-22.28	35.51	43.50	-7.99	QP
2	484.9068	53.80	-12.40	41.40	46.00	-4.60	QP
3	546.4368	52.42	-11.19	41.23	46.00	-4.77	QP

Vertical

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	33.9256	53.63	-17.36	36.27	40.00	-3.73	QP
2	131.6855	61.82	-21.79	40.03	43.50	-3.47	QP
3	495.2379	51.88	-12.29	39.59	46.00	-6.41	QP

Above 1G

Horizontal

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1800.874	47.25	-9.49	37.76	74.00	-36.24	peak
2	1800.874	41.15	-9.49	31.66	54.00	-22.34	AVG

Vertical

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1831.144	47.16	-9.38	37.78	74.00	-36.22	peak
2	1831.144	40.11	-9.38	30.73	54.00	-23.27	AVG

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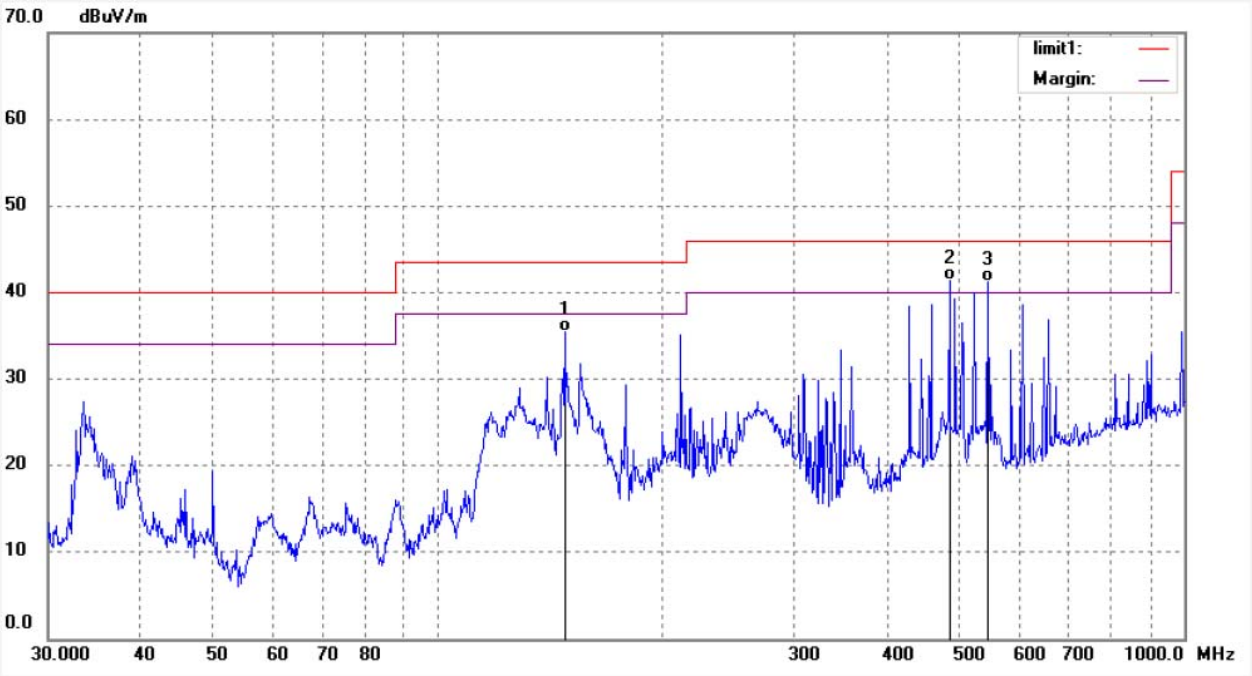
Job No.: Ricky 2016 #167
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: REMOTE CONTROL
Mode: ON&RX
Model: AC 2.4
Manufacturer: Carewell

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/03/22/
Time: 9/49/52
Engineer Signature: Ricky
Distance: 3m

Note: Report NO.:ATE20160445



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	147.8747	57.79	-22.28	35.51	43.50	-7.99	QP			
2	484.9068	53.80	-12.40	41.40	46.00	-4.60	QP			
3	546.4368	52.42	-11.19	41.23	46.00	-4.77	QP			

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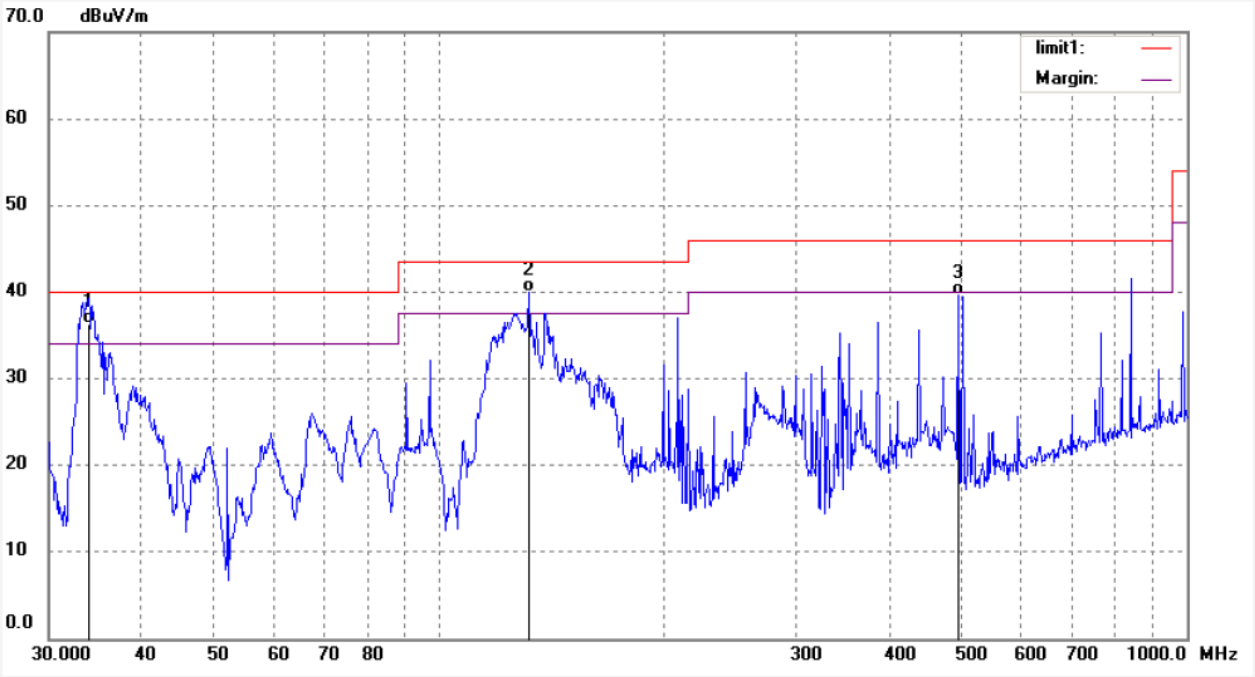
Job No.: Ricky 2016 #168	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 16/03/22/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/50/52
EUT: REMOTE CONTROL	Engineer Signature: Ricky
Mode: ON&RX	Distance: 3m
Model: AC 2.4	
Manufacturer: Carewell	

Note: Report NO.:ATE20160445



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.9256	53.63	-17.36	36.27	40.00	-3.73	QP			
2	131.6855	61.82	-21.79	40.03	43.50	-3.47	QP			
3	495.2379	51.88	-12.29	39.59	46.00	-6.41	QP			

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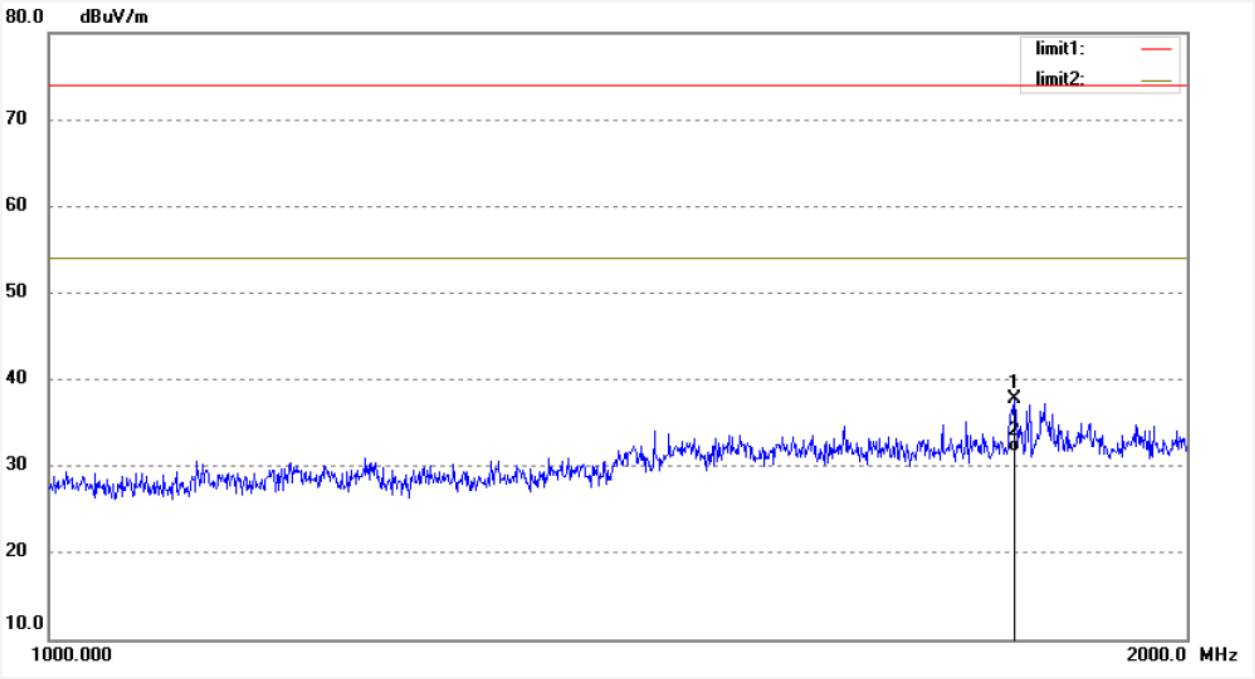
Fax:+86-0755-26503396

Job No.: Ricky 2016 #169	Polarization: Horizontal
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2016/03/23
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 15:57:40
EUT: REMOTE CONTROL	Engineer Signature: Ricky
Mode: ON&RX	Distance: 3m
Model: AC 2.4	
Manufacturer: Carewell	

Note: Report NO.:ATE20160445



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1800.874	47.25	-9.49	37.76	74.00	-36.24	peak			
2	1800.874	41.15	-9.49	31.66	54.00	-22.34	AVG			

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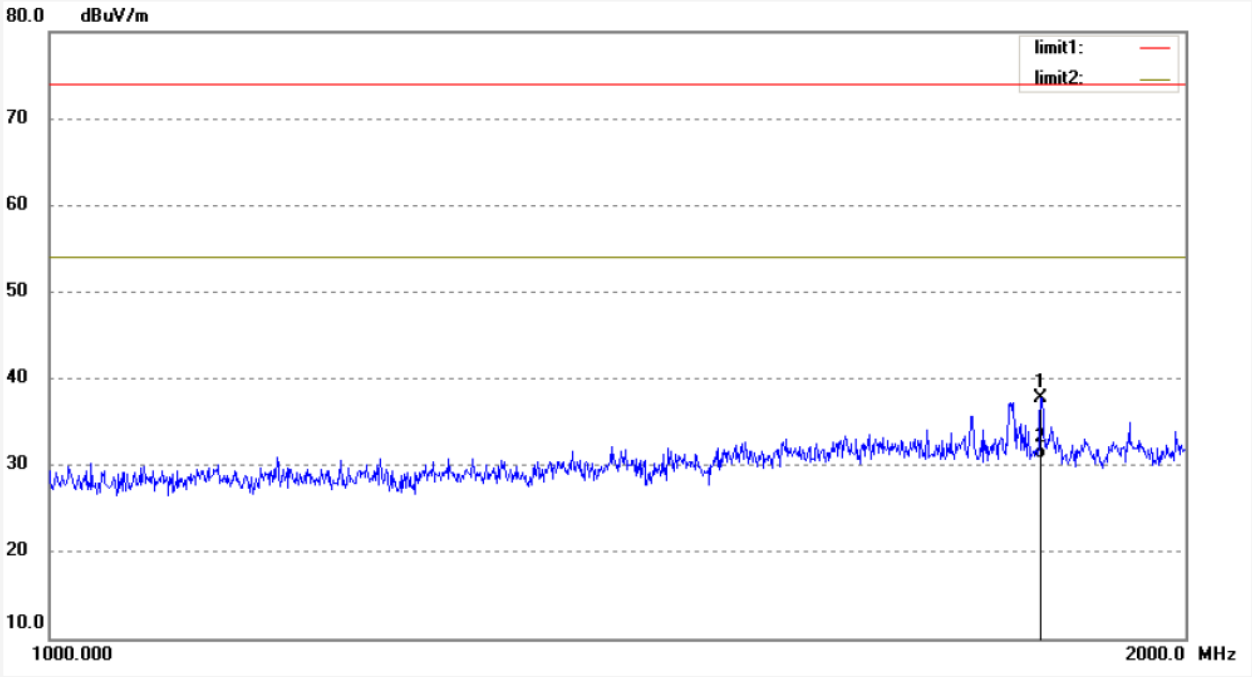
Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Ricky 2016 #170	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2016/03/23
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 15:58:50
EUT: REMOTE CONTROL	Engineer Signature: Ricky
Mode: ON&RX	Distance: 3m
Model: AC 2.4	
Manufacturer: Carewell	

Note: Report NO.:ATE20160445



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1831.144	47.16	-9.38	37.78	74.00	-36.22	peak			
2	1831.144	40.11	-9.38	30.73	54.00	-23.27	AVG			