CENTRE OF TESTING SERVICE INTERNATIONAL

OPERATE ACCORDING TO ISO/IEC 17025

FCC ID
TEST REPORT

TEST REPORT NUMBER : CGZ3131210-01156-EF

CENTRE OF TESTING SERVICE CO., LTD.

A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China

TEST REPORT For FCC ID

Report Reference No.	**CGZ3131210-01156-EF**
Date of issue.....	17 December 2013
Testing Laboratory Name	**CENTRE OF TESTING SERVICE CO., LTD.**
Address.....	A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Testing location/ procedure	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's name.....	Yeiser Research & Development, LLC
Address.....	9338 Bond Avenue，El Cajon，CA 92021 USA
Test specification	
Standard	**47 CFR PART 15 OCT, 2012 , ANSI C63.4-2009**
Test Report Form No.	CTSEMC-1.0
TRF Originator.....	CENTRE OF TESTING SERVICE CO., LTD.
Master TRF.....	Dated 2009-01

Test item description	: Remote control of battery pump kit
Trade Mark	/
Manufacturer.....	/
Model/Type reference.....	B164-RC
Ratings.....	Battery 4.5V
Operating Frequency.....	433.77 MHz
Result	**PASSED**

Compiled by:	**Supervised by:**	**Approved by:**
Kate zhang / Fileadministrators	Duke yang / Technique principal	Vincent yao / Manager

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

FCC ID -- T E S T R E P O R T

Test Report No. :	CGZ3131210-01156-EF	17 December 2013 Date of issue

Type / Model.....	B164-RC
EUT.....	Remote control of battery pump kit
Applicant……	Yeiser Research & Development, LLC
Address.....	9338 Bond Avenue，El Cajon，CA 92021 USA
Telephone.....	+ 619 449 2392
Fax.....	+ 619 449 3506
Contact.....	Richard Henderson
Manufacturer……	/
Address.....	/
Telephone.....	/
Fax.....	/
Contact.....	/
Factory ……	/
Address.....	/
Telephone.....	/
Fax.....	/
Contact.....	/

Test Result according to the standards on page 3: **PASSED**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

TABLE OF CONTENTS

Description **Page**

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

1. TEST STANDARDS

The tests were performed according to following standards:

■ **47 CFR PART 15 OCT, 2012**
■ **ANSI C63.4-2009**

2. SUMMARY

2.1 GENERAL REMARKS

Date of receipt of test sample	10 December 2013 2013
Testing commenced on	10~16 December 2013
Testing concluded on	17 December 2013

2.2 FINAL ASSESSMENT

The FCC requirements pertaining to the technical standards and tested operation modes are

■ - fulfilled.

□ - **not** fulfilled.

The equipment under test

■ - fulfils the FCC requirements cited on page 1.

□ - **does not** fulfil the FCC requirements cited on page 1.

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

3. EQUIPMENT UNDER TEST

3.1 Power supply system utilised

Power supply voltage : ■ Battery 4.5V
□ Other

3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: **1**
Serial number: Prototype

3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:
For Radiation emission:

■ –TX +X position
□ –TX +Y position
□ –TX +Z position

Operation mode 1: TX +X position
Note: X position of EUT is the worst case, so only these test results be recorded in the test report.

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

3.4 EUT configuration

3.4.1. Description of configuration (EUT)

Description	:	Remote control of battery pump kit
Model Number	:	B164-RC
Operation frequency	:	433.77 MHz
Radio Technology	:	ASK
Modulation Technology	:	ASK modulation
Antenna	:	External Antenna

3.4.2. Tested Supporting System Details

N/A

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

4. TEST ENVIRONMENT

4.1 Address of the test laboratory

A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China

Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406

4.2 Test facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L3394

CENTRE OF TESTING SERVICE CO., LTD. has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

IC-Registration No.: 8374A

The 3m Alternate Test Site of CENTRE OF TESTING SERVICE CO., LTD. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on June 6, 2011 .

FCC-Registration No.: 971995

CENTRE OF TESTING SERVICE CO., LTD., EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No.791995, July 13,2012.

4.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35 ° C
Humidity:	25~75 %
Atmospheric pressure:	86~106 kPa

4.4 Definitions of symbols used in this test report

■ - The black square indicates that the listed condition, standard or equipment is applicable for this report.

□ - The empty square indicates that the listed condition, standard or equipment is **not** applicable for this report.

4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±1.22dB	(1)
Power disturbance	30MHz~300MHz	±1.38dB	(1)
Radiation emission (3m)	30MHz~300MHz	±3.14dB	(1)
	300MHz~1000MHz	±3.18dB	(1)
	1GHz~18GHz	±3.54dB	(1)

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

5. Summary of standards and results

5.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	**Standard**	**Results**
Conducted Emission Test	ANSI C63.4-2009 FCC Part 15 C: 15.207	N/A
Radiated Emission Test	ANSI C63.4-2009 FCC Part 15 C: 15.231(a)	PASSED
20 dB Bandwidth Test	ANSI C63.4-2009 FCC Part 15 C: 15.231	PASSED
Stop Transmitting Time Test	ANSI C63.4-2009 FCC Part 15 C: 15.231	PASSED
N/A is an abbreviation for Not Applicable.		

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service

6. Power Line Conducted Emission Test

6.1.1 Description of the test location

Test location : Shielding Room

6.1.2Test Equipment

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESHS10	842884/012	2013/11
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2013/11
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/026	2013/11
4	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100301	2013/11
5	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	2013/11

6.2.1 Block Diagram of Test Setup

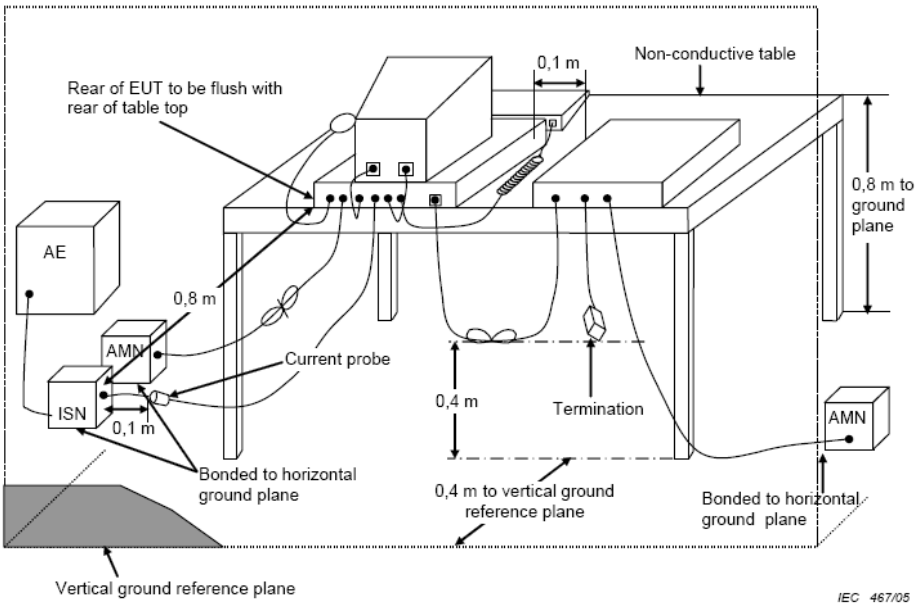
TX

EUT

(EUT: Remote control of battery pump kit)

6.2.2 Description of the test set-up

6.1.2.1 Operating Condition
The EUT is engraving during the test, and the results of the maximum emanation are recorded
6.1.2.2 Block Diagram of Test Setup



CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service

6.2.3 Limits of disturbance (Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

6.2.4 Power Line Conducted Emission Test Results

Power supply by battery , Not applicable.

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

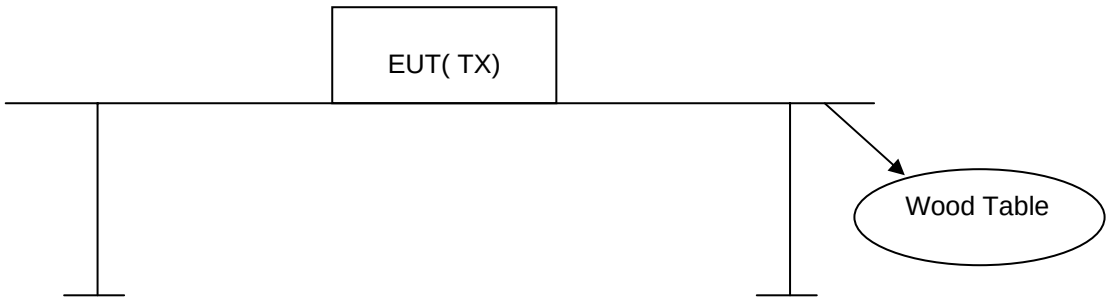
7. Radiated disturbance (electric field)

7.1.Test Equipment

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2013/11
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2013/03
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2013/03
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2013/03
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03
6	Loop Antenna	A.R.A	PLA-1030/B	1030	2013/11

7.2.Block Diagram of Test Setup

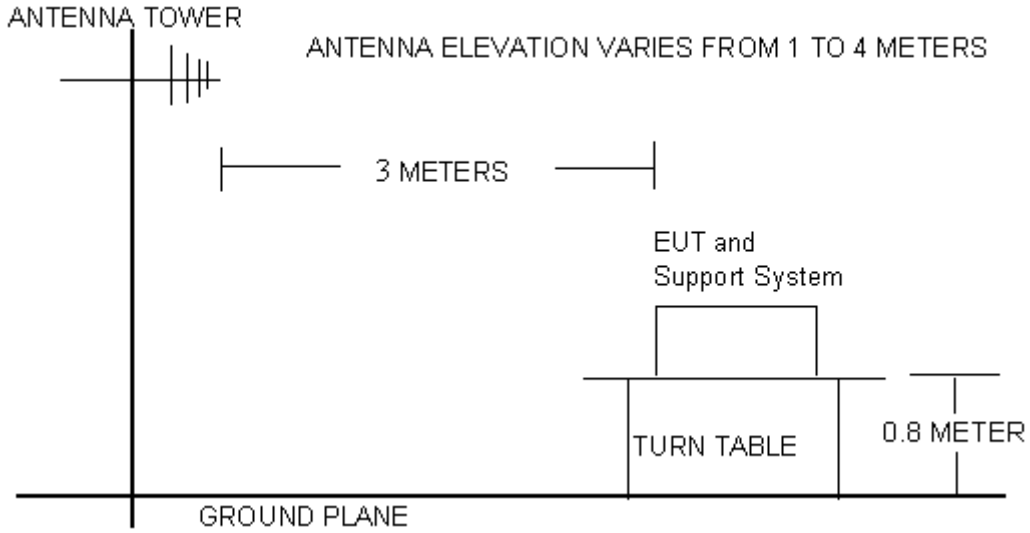
7.2.1 Block Diagram of connection between EUT and simulators



(EUT:*Remote control of battery pump kit*)

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service

7.2.2 Anechoic Chamber Setup Diagram



7.3.Radiated Emission Limit Standard: FCC 15.231,209

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(KHz)	----
0.490 ~ 1.705	30	24000/F(KHz)	----
1.705 ~ 30	3	30	----
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark： (1) Emission level dBμV = 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.

7.4.Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 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 polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2009on radiated emission Test.

The frequency range from 30MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

All measurements for radiated emissions within the restricted bands were performed using a Quasi-Peak detector with 120kHz RBW below 1GHz and a Peak and Average detector with 1MHz RBW above 1GHz,

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service

All measurements for radiated emissions within the restricted bands were performed using a Quasi-Peak detector with 300kHz VBW below 1GHz and a Peak detector with 1MHz VBW above 1GHz, A average detector be caluclated from peak value using duty cycle factor Both 30MHz to 1000MHz and above 1GHz

Pretest x, y, z position of EUT, final, select the worst case x position test and record the test results in the report.

The test modes (TX and RX Mode) is tested in Anechoic Chamber and all the scanning waveforms are reported on section 7.5

7.5.Radiated Emission Test Results

PASSED.

The frequency range from 9KHz to 30MHz,30MHz to 230MHz, 230MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

Test Mode:	TX –X Position Mode	Result:	■ - passed □ - not passed
Frequency range:	9KHz~30MHz		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
Remark:Other frequency no specific emission form the EUT (Margin > 10dB form the applicable Limit)							

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

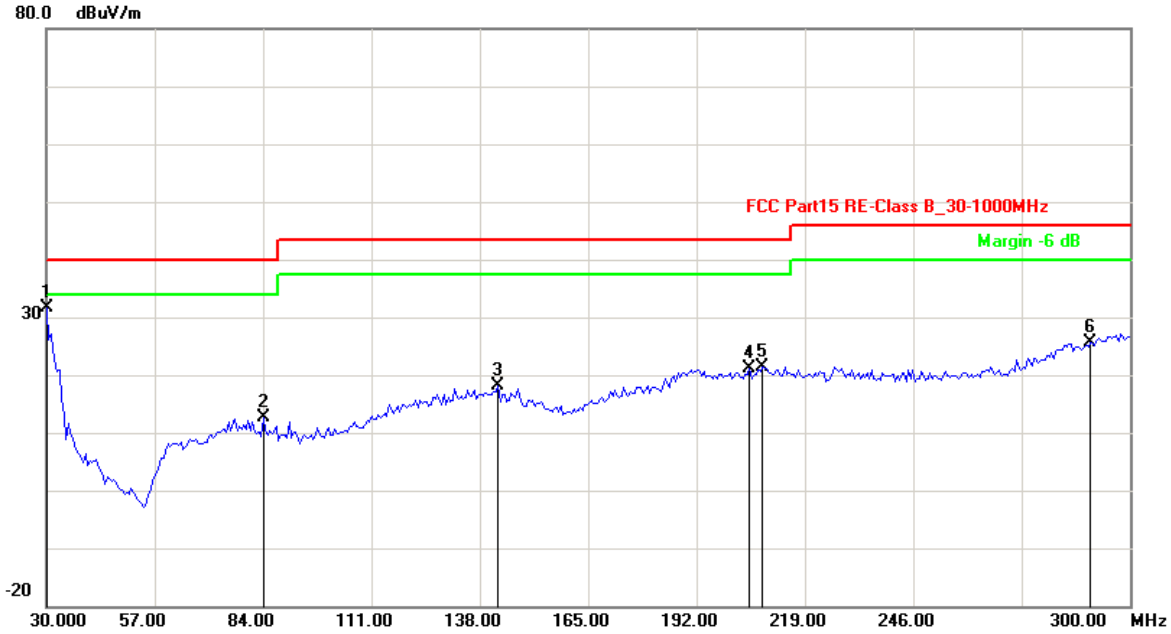
Channel: Test point: Frequency range:	433.77 MHz (TX) Horizontal 30MHz ~18GHz	Result:	■ - passed □ - not passed

EUT	Remote control of battery pump kit
Operating Condition	Battery 4.5V
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	10~16 December 2013
Operator	**Duke**
MODEL NO	B164-RC

Fundamental and Harmonics Average Result							
Frequency (MHz)	**Factor (dB/m)**	**Reading (dBμV)**	**Duty Cycle Correction Factor(dB)**	**Level (dBμV/m)**	**Limit (15.231a) (dBμV/m)**	**Margin (dB)**	**Det.**
433.77	-15.64	93.88	------	78.24	------	------	Peak
433.77	-15.64	93.88	-8.70	69.54	80.82	-11.28	AVG

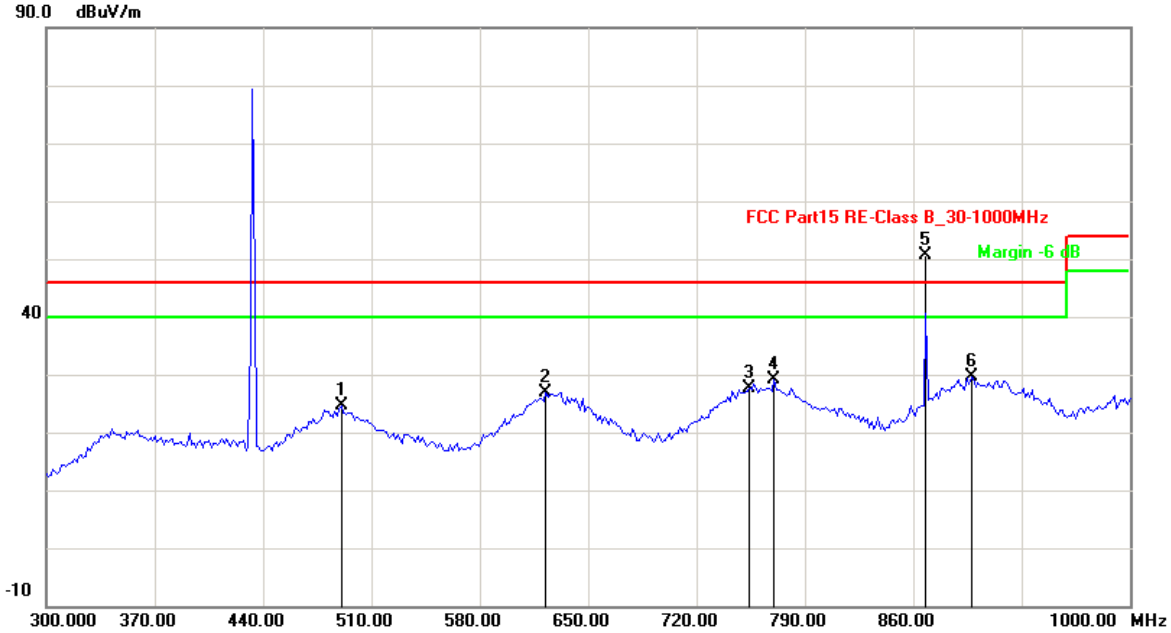
Note:Level=Reading+Factor. Margin= Limit-Level.
Average Level=Peak level + Duty Factor

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV/m)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.
1	30.0000	-18.45	50.16	31.71	40.00	-8.29	QP
2	84.1082	-22.31	34.91	12.60	40.00	-27.40	QP
3	142.5451	-16.62	34.70	18.08	43.50	-25.42	QP
4	205.3106	-12.34	33.58	21.24	43.50	-22.26	QP
5	208.5571	-12.15	33.47	21.32	43.50	-22.18	QP
6	290.2605	-7.02	32.72	25.70	46.00	-20.30	QP

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	490.7816	-9.95	34.62	24.67	46.00	-21.33	QP
2	622.6453	-7.14	34.11	26.97	46.00	-19.03	QP
3	754.5090	-5.95	33.48	27.53	46.00	-18.47	QP
4	769.9399	-5.72	34.94	29.22	46.00	-16.78	QP
5	868.1363	-7.54	58.20	41.96	60.82	-18.86	AVG
6	897.5952	-4.04	33.77	29.73	46.00	-16.27	QP

Above 1GHz

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	2190.381	0.72	40.11	40.83	74.00	-33.17	peak
2	2190.381	0.72	25.62	26.34	74.00	-47.66	peak
3	2609.218	4.39	41.11	45.50	74.00	-28.50	peak
4	2609.218	4.39	26.02	30.41	74.00	-43.59	peak
5	3204.409	7.26	40.41	47.67	74.00	-26.33	peak
6	3204.409	7.26	25.42	32.68	74.00	-41.32	peak
7	4020.040	9.86	37.84	47.70	74.00	-26.30	peak
8	4020.040	9.86	23.99	33.85	74.00	-40.15	peak
9	5519.038	13.83	37.83	51.66	74.00	-22.34	peak
10	5519.038	13.83	23.18	37.01	54.00	-16.99	AVG
11	7591.182	18.62	37.00	55.62	74.00	-18.38	peak
12	7591.182	18.62	22.64	41.26	54.00	-12.74	AVG

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service

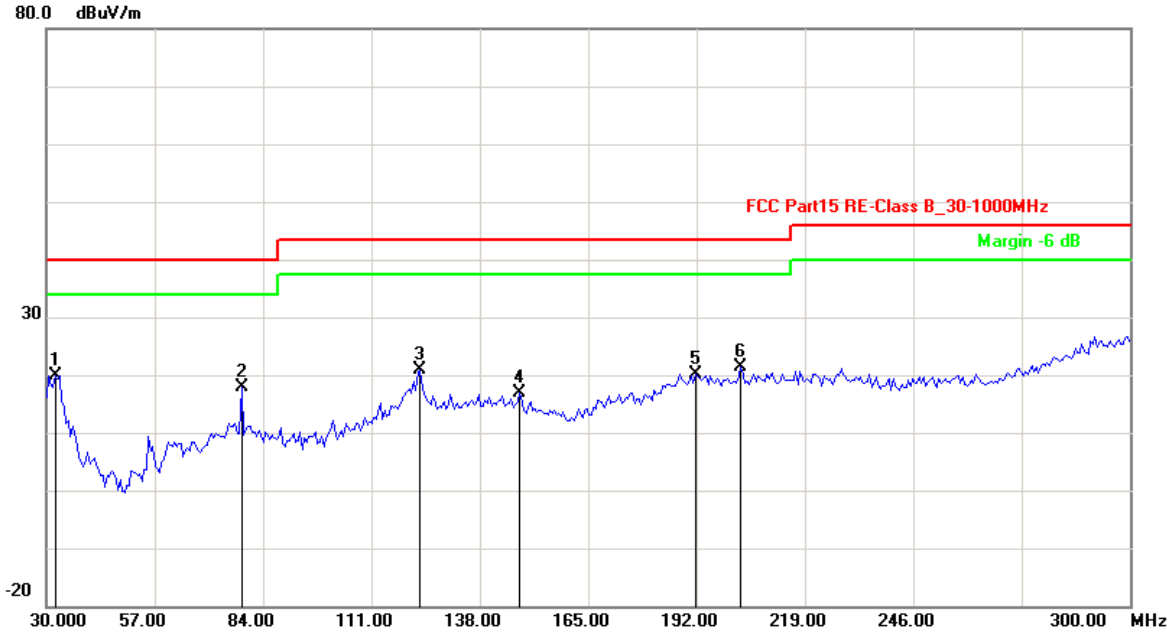
Channel: Test point: Frequency range:	433.77 MHz (TX) Vertical 30MHz ~18GHz	Result:	■ - passed □ - not passed

EUT	Remote control of battery pump kit
Operating Condition	Battery 4.5V
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	10~16 December 2013
Operator	**Duke**
MODEL NO	B164-RC

Fundamental and Harmonics Average Result							
Frequency (MHz)	**Factor (dB/m)**	**Reading (dBμV)**	**Duty Cycle Correction Factor(dB)**	**Level (dBμV/m)**	**Limit (15.231a) (dBμV/m)**	**Margin (dB)**	**Det.**
433.77	-15.64	97.49	----	81.85	------	------	Peak
433.77	-15.64	97.49	-8.70	73.15	80.82	-7.67	AVG

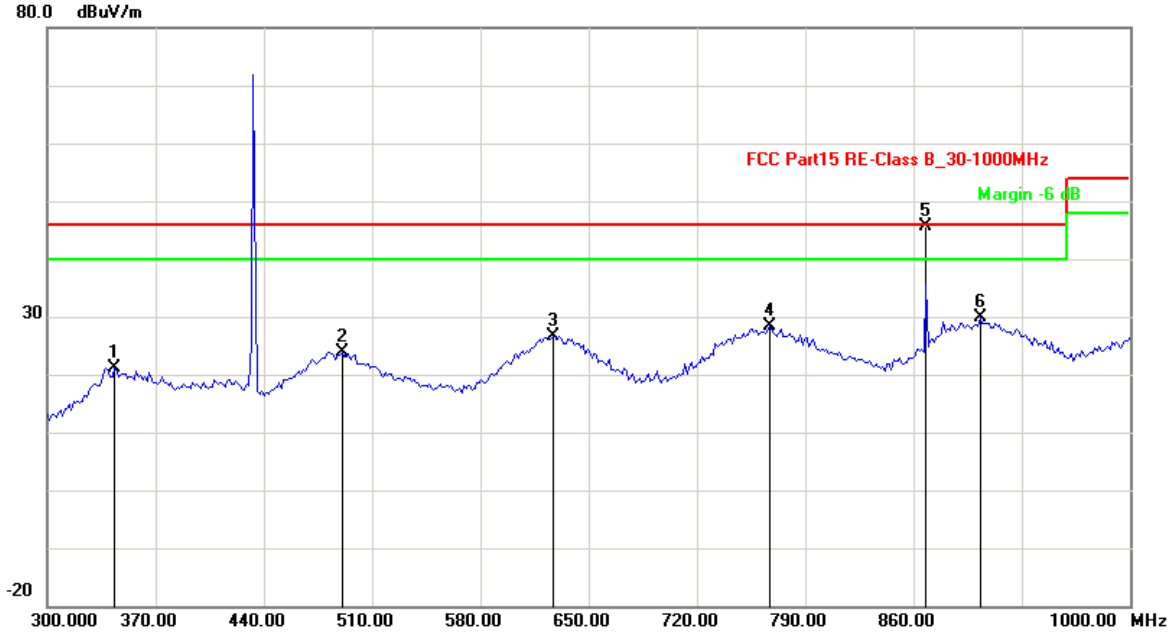
Note:Level=Reading+Factor. Margin= Limit - Level.
Average Level=Peak level + Duty Factor

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	32.1643	-20.42	40.39	19.97	40.00	-20.03	QP
2	78.6974	-21.42	39.18	17.76	40.00	-22.24	QP
3	123.0661	-17.80	38.73	20.93	43.50	-22.57	QP
4	147.9559	-17.14	33.92	16.78	43.50	-26.72	QP
5	191.7836	-12.13	32.27	20.14	43.50	-23.36	QP
6	203.1463	-12.47	33.76	21.29	43.50	-22.21	QP

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	343.4869	-13.25	34.33	21.08	46.00	-24.92	QP
2	490.7816	-9.95	33.92	23.97	46.00	-22.03	QP
3	626.8537	-7.26	33.97	26.71	46.00	-19.29	QP
4	767.1342	-5.65	33.98	28.33	46.00	-17.67	QP
5	868.1363	-7.54	53.27	37.03	60.82	-23.79	AVG
6	903.2064	-4.01	33.99	29.98	46.00	-16.02	QP

Above 1GHz

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	2454.910	3.33	42.23	45.56	74.00	-28.44	peak
2	2454.910	3.33	26.68	30.01	54.00	-23.99	AVG
3	3535.070	8.32	40.95	49.27	74.00	-24.73	peak
4	3535.070	8.32	26.27	34.59	54.00	-19.41	AVG
5	3821.643	9.24	40.34	49.58	74.00	-24.42	peak
6	3821.643	9.24	25.62	34.86	54.00	-19.14	AVG
7	5474.950	13.69	38.46	52.15	74.00	-21.85	peak
8	5474.950	13.69	24.16	37.85	54.00	-16.15	AVG
9	7392.786	18.35	36.66	55.01	74.00	-18.99	peak
10	7392.786	18.35	21.80	40.15	54.00	-13.85	AVG
11	8120.240	19.53	37.59	57.12	74.00	-16.88	peak
12	8120.240	19.53	23.46	42.99	54.00	-11.01	AVG

Remark: Others frequency Radiated Emission level margin all >10dB of Limit.

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service

8. 20 dB Bandwidth test

8.1. Test Equipment

20 dB Bandwidth test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	2013/11
2	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2013/03
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03

8.2. Test Information

EUT:	Remote control of battery pump kit
M/N:	B164-RC
Power supply:	Battery 4.5V
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.231
Test mode:	Transmitting
Test Frequency:	433.77 MHz
Test Date:	16 December 2013
Test By:	**Duke**

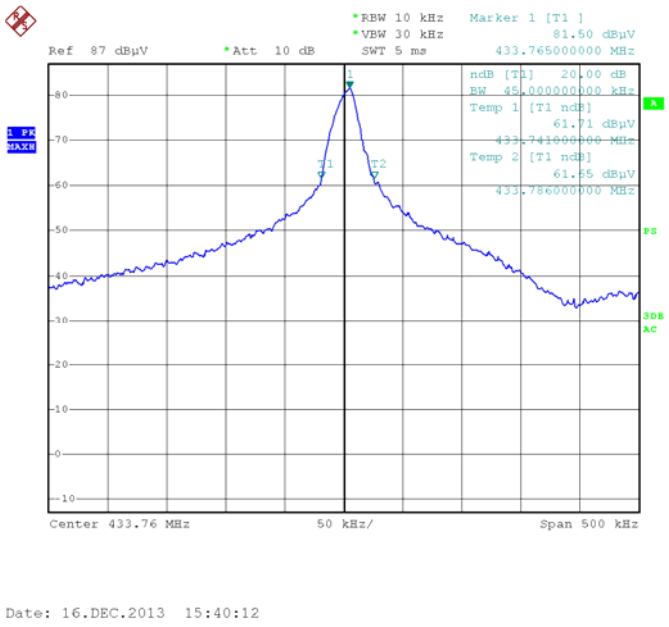
CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

8.3. Test Results

PASSED.

The testing data was attached in the next pages.

Frequency (MHz)	20 dB Bandwidth (kHz)	Limit(kHz): No wider than 0.25% of the center frequency	Conclusion
433.77	45	433.77*0.25%=1.084MHz	PASSED



Date: 16.DEC.2013 15:40:12

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service

9. Stop Transmitting Time Test

9.1. Test Equipment

Band Edge Compliance test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	2013/11
2	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2013/03
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03

9.2. Test Information

EUT:	Remote control of battery pump kit
M/N:	B164-RC
Power supply:	Battery 4.5V
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.231(a)
Test mode:	Transmitting
Test Frequency:	433.77 MHz
Test Date:	16 December 2013
Test By:	**Duke**

9.3. Test Results

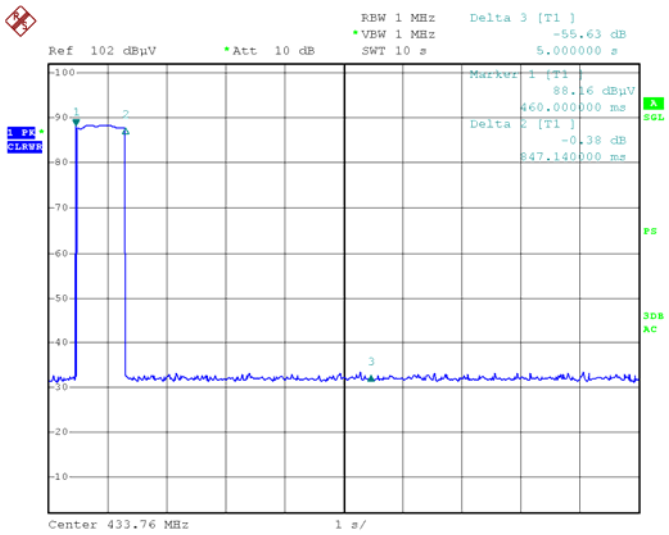
PASSED.

The testing data was attached in the next pages.

Set the spectrum to zero span, activated the EUT automatically, And then, we could see the transmitting wave in the spectrum, when the time marker went to “1R”, released the EUT, After 847.14ms, we could see the EUT stop transmitting.

Frequency (MHz)	Stop Transmitting Time	Limit: not more than 5 seconds of being released	Conclusion
433.77	847.14ms	5s	PASSED

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service



Date: 16.DEC.2013 15:53:25

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

10. Pulse Desensitization Correction Factor

10.1. Test Equipment

Band Edge Compliance test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	2013/11
2	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2013/03
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03

10.2. Test Information

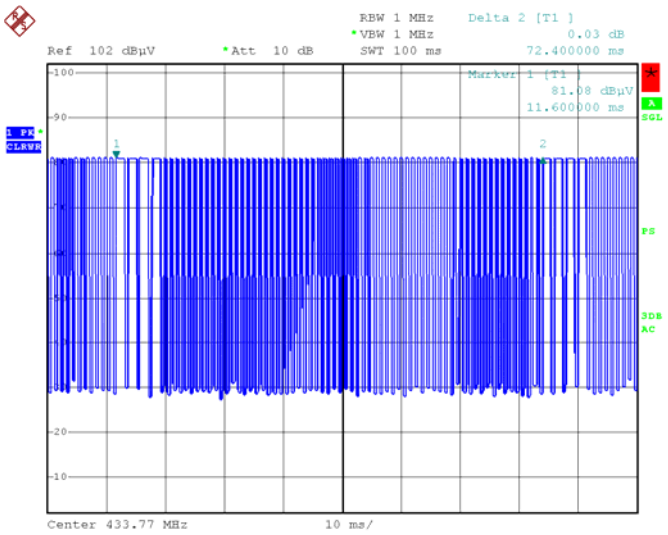
EUT:	Remote control of battery pump kit
M/N:	B164-RC
Power supply:	Battery 4.5V
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.231
Test mode:	Transmitting
Test Frequency:	433.77 MHz
Test Date:	17 December 2013
Test By:	**Duke**

10.3. Test Results

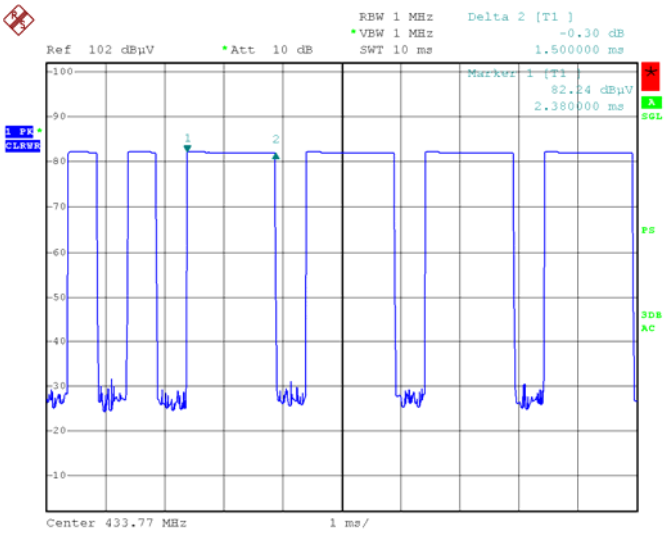
PASSED.

The testing data was attached in the next pages.

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn

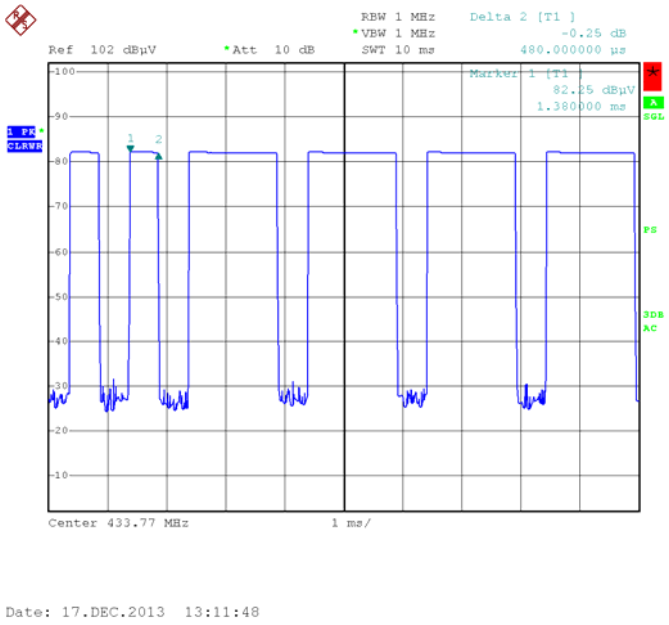


Date: 17.DEC.2013 13:09:38



Date: 17.DEC.2013 13:11:29

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service



Test Data

Ton+off=847.14 ms(which exceeds 0.1 seconds,and use the formula Ton/100ms to calculate the duty-cycle correction factor)

Ton=1.50*4+0.48*64=36.72ms

Duty cycle Correction Factor=20*log(Ton/Ton+off)= 20*log 36.72ms /100ms= -8.70dB

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn See Reverse For Terms And Conditions of Service

11. Manufacturer/ Approval holder Declaration

The following identical model(s):

N/A

Belong to the tested device:

Product description: **Remote control of battery pump kit**
Model name: **B164-RC**

CENTRE OF TESTING SERVICE CO., LTD.
A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406
Complaint line：+86-20-85533471 E-mail：cts@cts-lab.com.cn