



SGS-CSTC Standards Technical Services Ltd.

No.198 Kezhu Road, Science Town Economic& Technology
Development District Guangzhou, China 510663 Telephone:
Telephone: +86 (0) 20 82155555
Fax: +86 (0) 20 82075059
Email: sgs_internet_operations@sgs.com
FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

Report No.: SZEMO071103151RFF
Page: 1 of 13
FCC ID: VHND6020

TEST REPORT

Application No. : SZEMO071103151RF
Applicant : Youngo Limited
Manufacturer : SHENZHEN POWERWONDER ELECTRONICS CO., LTD
FCC ID : VHND6020
Fundamental Frequency : 303.96MHz
Equipment under Test (EUT):
Name : Remote Control
Model : DC6020
Standards : FCC PART 15, SUBPART C : 2007 (Section 15.231)
Date of Receipt : 07 November 2007
Date of Test : 26 November to 19 December 2007
Date of Issue : 07 January 2008

Test Result :	PASS *
----------------------	---------------

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law." Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company.



2 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Radiated Emission (30MHz to 1000MHz)	FCC PART 15 : 2007	Section 15.231	PASS
Occupied Bandwidth	FCC PART 15 : 2007	Section 15.231	PASS
Dwell Time	FCC PART 15 : 2007	Section 15.231	PASS

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law." Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	2
3 CONTENTS	3
4 GENERAL INFORMATION	4
4.1 CLIENT INFORMATION	4
4.2 DETAILS OF E.U.T.	4
4.3 DESCRIPTION OF SUPPORT UNITS	4
4.4 TEST LOCATION	4
4.5 OTHER INFORMATION REQUESTED BY THE CUSTOMER	4
4.6 TEST FACILITY	5
5 TEST RESULTS	6
5.1 TEST INSTRUMENTS	6
5.2 E.U.T. OPERATION	6
5.3 TEST PROCEDURE & MEASUREMENT DATA	7
5.3.1 Radiated Emissions	7
5.3.2 Occupied Bandwidth	11-13

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law." Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



4 General Information

4.1 Client Information

Applicant: Youngo Limited
Address of Applicant: The Youth Industrial Administration Park Chen Jiang Huizhou City Guangdong Province P.R.C
Manufacturer: SHENZHEN POWERWONDER ELECTRONICS CO., LTD
Address of Applicant: 30 Area No.3, YanXing Bldg. 2/F West, hi-tech Industrial Park, Nanshan District Shenzhen, Guangdong Province, China

4.2 Details of E.U.T.

Product Name: Remote Control
Model: DC6020
Power Supply: 3.0V DC (2*1.5V 'AAA' Size Batteries) for Tx.

4.3 Description of Support Units

The EUT was tested as an independent unit: a 303.96MHz radio transmitter.

4.4 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory, No.198 Kezhu Road, Science Town Economic& Technology Development District Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.5 Other Information Requested by the Customer

None.

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law." Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



4.6 Test Facility

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

- **NVLAP – Lab Code: 200611-0**
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0. Effective through December 31, 2006.
- **ACA**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
The 3m Semi-anechoic chamber and Shielded Room (11.5m x 4m x 4m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1599 and C-1706 respectively.
Date of Registration: June 01, 2005. Valid until February 22, 2008
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**
Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAL – LAB Code: L0141**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.
- **FCC – Registration No.: 282399**
SGS-CSTC Standards Technical Services 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 282399, May 31, 2002. With the above and NVLAP's accreditation, SGS-CSTC is an authorised test laboratory for the DoC process.
- **Industry Canada (IC)**
The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5169.

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



5 Test Results

5.1 Test Instruments

R&TTE RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2007	15-06-2008
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2007	11-12-2008
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	01-06-2007	31-05-2008
5	Coaxial cable	SGS	N/A	SEL0027	20-10-2007	19-10-2008
6	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2007	11-08-2008
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	27-06-2007	26-06-2008
8	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	15-06-2007	14-06-2008

5.2 E.U.T. Operation

Operating Environment:

Temperature: 24.0 °C
Humidity: 50 % RH
Atmospheric Pressure: 1006 mbar

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



5.3 Test Procedure & Measurement Data

5.3.1 Radiated Emissions

Test Requirement: FCC Part15 C
Test Method: ANSI C63.4 section 8 & 13
Test Date: 26 November 2007(Initial Test)
19 December 2007 (Retest)
Measurement Distance: 3m (Semi-Anechoic Chamber and OATS)
Frequency range 30 MHz – 5.0GHz for transmitting mode.
Test instrumentation resolution bandwidth 120 kHz (30 MHz - 1000 MHz)
1 MHz (1000 MHz – 25GHz)

Procedure:

- 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified

Requirements:

Table with 3 columns: Fundamental Frequency MHz, Field Strength of Fundamental (dBµV/m @ 3m), Field Strength of Harmonics and Spurious Emissions (dBµV/m @ 3m). Rows include frequency ranges like 40.66 to 40.70, 70 to 130, 130 to 174, 174 to 260, 260 to 470, and 470 and above.

The fundamental frequency of the EUT is 303.96MHz

The limit for average field strength dBuv/m for the fundamental frequency= 74.9dBuv/m.

No fundamental is allowed in the restricted bands.

The limit for average field strength dBuv/m for the harmonics and spurious frequencies = 54.9dBuv/m. Spurious in the restricted bands must be less than 54.0 dBuv/m or 15.209.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier . The basic equation with a sample calculation is as follows:

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Peramplifer Factor

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities.

The following test results were performed on the EUT on 20 December 2003:

1. Fundamental emission

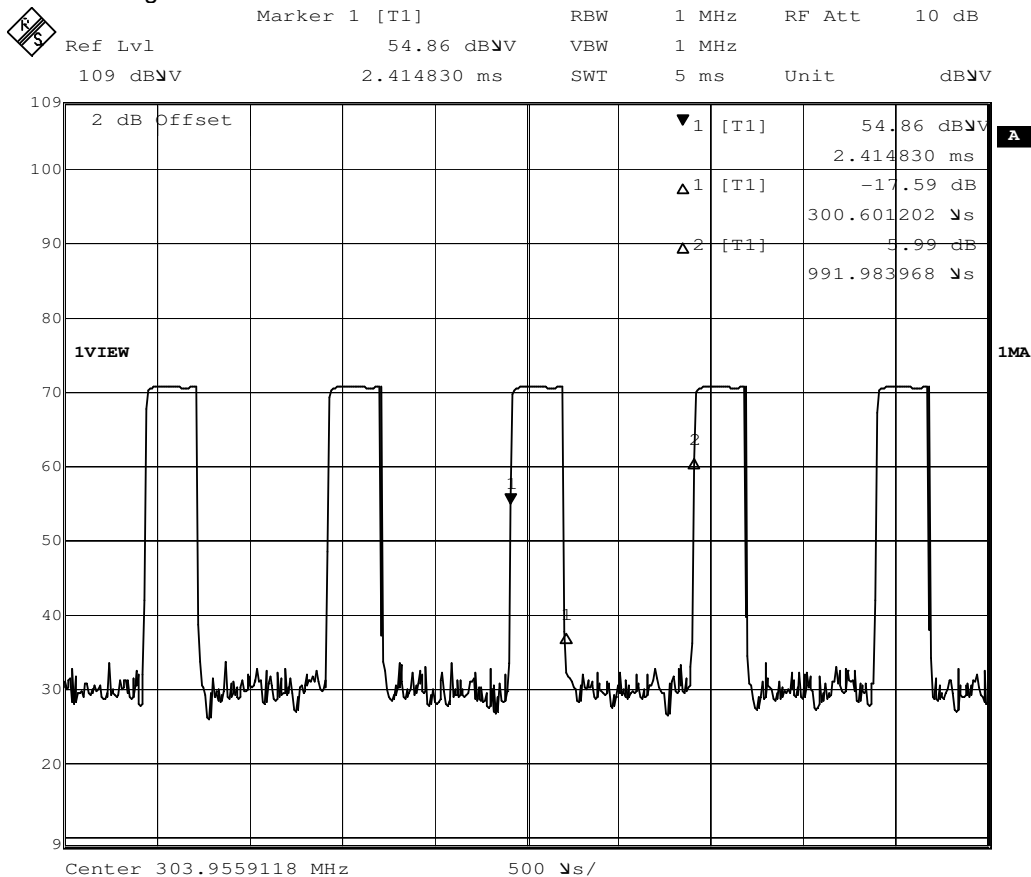
Test Frequency (MHz)	Peak (dBµV/m)		Limits (dBµV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
303.96	53.1	56.8	94.9	41.8	38.1

Duty Cycle Calculation

Calculation according to RF burst Para 15.35(c)

$$20\log^*(300.6\text{Usec}/991.98\text{Usec})=-10.4\text{dB}$$

See below fig.



Date: 28.DEC.2007 17:23:24

Average data=Peak data + Duty cycle

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



Test Frequency (MHz)	Average (dBµV/m)		Limits (dBµV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
303.96	50.1	53.8	74.9	24.8	21.1

2. Harmonics & Spurious Emissions

Measure with Peak Detector

Test Frequency (MHz)	Peak (dBµV/m)		Limits (dBµV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
607.920	29.3	30.10	46	16.7	15.90
911.880	34.17	36.23	46	11.83	9.77
1215.840	30.21	33.06	74	43.79	40.94
1519.800	NA	NA	74	NA	NA
1823.760	NA	NA	74	NA	NA
2127.720	NA	NA	74	NA	NA
2431.680	NA	NA	74	NA	NA
2735.640	NA	NA	74	NA	NA
3039.600	NA	NA	74	NA	NA

Harmonics & Spurious Emissions Average

Measure with Peak Detector

Test Frequency (MHz)	Peak (dBµV/m)		Limits (dBµV/m)	Duty cycle	Margin (dB)	
	Vertical	Horizontal			Vertical	Horizontal
1215.840	19.81	22.66	54	-10.4	34.19	31.34
1519.800	NA	NA	54	-10.4	NA	NA
1823.760	NA	NA	54	-10.4	NA	NA
2127.720	NA	NA	54	-10.4	NA	NA
2431.680	NA	NA	54	-10.4	NA	NA
2735.640	NA	NA	54	-10.4	NA	NA
3039.600	NA	NA	54	-10.4	NA	NA

Remark:

1 According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



the radio frequency emissions, as measured using instrumentation with a peak detector

function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

2 NA: For this intentional radiator operates below 10 GHz, the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the fifth harmonic of this intentional radiator, the disturbance is very low.

TEST RESULTS: The unit does meet the FCC Part 15 C Section 15.231 requirements.

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law." Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company

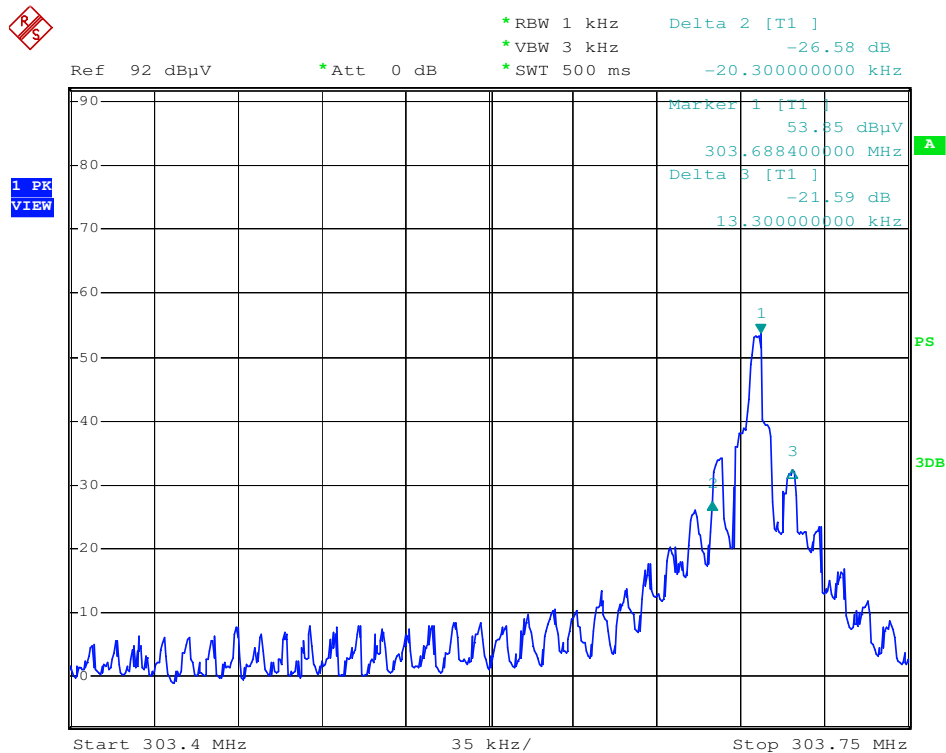


5.3.2 Occupied Bandwidth

Test Requirement: FCC Part15 C
Test Method: ANSI C63.4 section 13 & FCC Part 2.1049
Test Date: 26 November 2007(Initial Test)
19 December 2007(Retest)
Requirements: 15.231 (c3) 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.

Method of measurement: A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken. The vertical is set to 10dB per division. The horizontal scale is set to 152KHz per division.

The graph as below, represents the emissions take for this device.



Date: 9.JAN.2008 10:23:41

The results: The unit does meet the FCC Part 15C Section 15.231 requirements.

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



4.3.5 Dwell Time:

Test Requirement: FCC Part15 C
Test Method: FCC Part15 C Section 15.231.
Test Date: 26 November 2007(Initial Test)
19 December 2007 (Retest)

Requirements:

1. Regulation 15.231 (a) The provisions of this Section are restricted to periodic operation within the band 40.66 40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this Section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Radio control of toys is not permitted. Continuous transmissions, such as voice or video, and data transmissions are not permitted. The prohibition against data transmissions does not preclude the use of recognition codes. Those codes are used to identify the sensor that is activated or to identify the particular component as being part of the system.

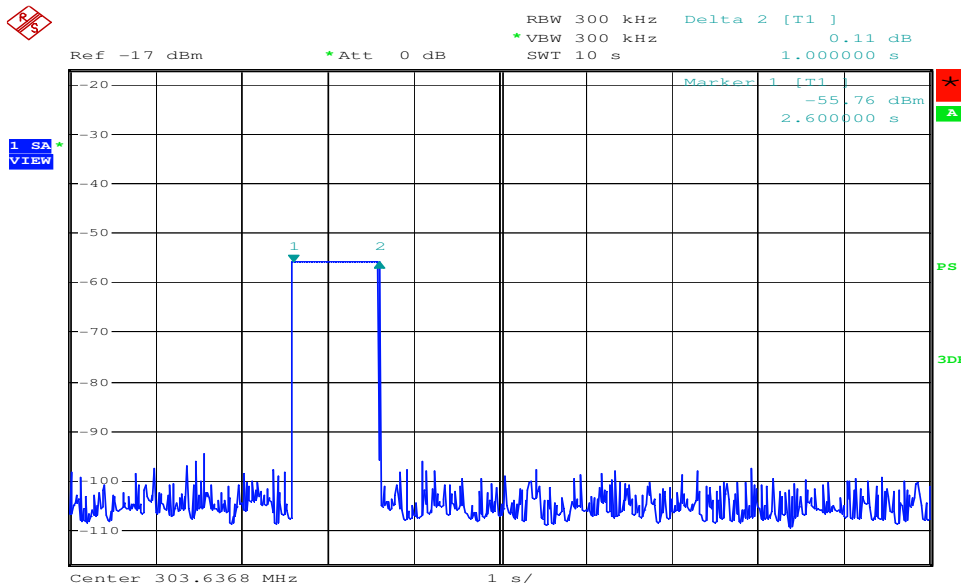
Result:

The EUT is similar as a remote switch.
The EUT meets the requirements of this section.

2. Regulation 15.231 (a1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

Result:

Transmitter ceases immediately after being released.
Please refer to the duration of the each transmission as below:



Date: 13.DEC.2007 11:06:22

The results: The unit does meet the FCC Part 15C Section 15.231 requirements.

FCC ID:VHND6020

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This document cannot be reproduced except in full, without prior approval of the Company



3. Regulation 15.231 (a2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

Result:

The EUT does not have automatic transmission.

4. Regulation 15.231 (a3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions to determine system integrity of transmitters used in security or safety applications are allowed if the periodic rate of transmission does not exceed one transmission of not more than one second duration per hour for each transmitter.

Result:

The EUT does not employ periodic transmission.

5. Regulation 15.231 (a4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.

Result:

This section is not applicable to the EUT.