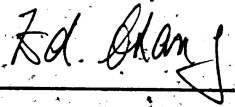
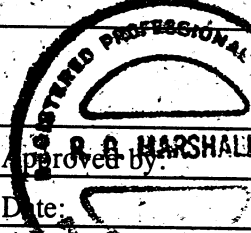
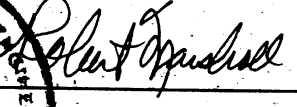


# Marstech Limited

11 Kelfield Street, Etobicoke, Ontario, Canada, M9W 5A1  
Telephone (416) 246-1116, Fax (416) 246-1020

## TEST REPORT

REPORT DATE:	16 August 2002	REPORT NO:	22263D
CONTENTS:	See Table of Contents		
SUBMITTOR:	Smarthome Products Limited Rm B-812, 8/F, Sea View Estate, 2-8 Watson Road North Point, Hong Kong		
SUBJECT:	Model No: WB007-16 FCC ID: LQP-WB007-16		
TEST SPECIFICATION:	FCC 47 CFR Part 15 Subpart "B" for and Unintentional Radiator NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	6 August 2002	DATE TESTED:	14 August 2002
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS:	None		
Tested By:	 Edward Chang	 Approved by: Robert G. Marshall, P. Eng. Date: Aug. 27/02	
<b>THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF MARSTECH LIMITED.</b> This report was prepared by Marstech Limited for the account of the "Submitter". The material in it reflects Marstech's judgement in light of the information available to it at the time of preparation. Any use which a Third Party makes of this report, or any reliance on decisions to be made based on it, are the responsibility of such Third Parties. Marstech accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.			

Professional Engineers  
Ontario



Engineering &  
Administrative



Testing For FCC  
Submissions/Verifications

Approved Test Facility



TECHNICAL REPORT - FCC 2.1033(b)

Applicant

Smarthome Products Ltd.  
Rm B-812, 8/F, Sea View Estate, 2-8 Watson Road  
North Point, Hong Kong

FCC Identifier

LQP-WB007-16

Manufacturer

Smarthome Products (Shenzhen) Co. Ltd.  
6 Shi Long Da Dao, Shui Tian Chuen  
Shiyan, Baoan, Shenzhen, PRC

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<u>Exhibit</u>	<u>Description</u>	<u>FCC Ref.</u>	<u>Page</u>
A	Installation and Operating Instructions Furnished to the User	2.1033(b)(3)	Exhibit A Exhibit A(1)
B	Description of Circuit Functions	2.1033(b)(4)	Exhibit B Exhibit B(1)
C	Block Diagram Schematic Diagram	2.1033(b)(5)	Exhibit C Exhibit C(1) Exhibit C(2)
D	Report of Measurements	2.1033(b)(6)	Exhibit D
E	Photographs Label Equipment	2.1033(b)(7)	Exhibit E Exhibit E(1)-1 to -2 Exhibit E(2)-1 to -4

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### **TEST REPORT CONTAINING:**

Exhibit D(1)-2  
Exhibit D(1)-3 to -5  
Exhibit D(1)-6 to -8  
Exhibit D(2)

Product Description  
Test Facility and Equipment List  
Field Strength of Emissions  
Test Set-Up Photo

**PRODUCT DESCRIPTION**

The Smarthome Products Ltd. Model WB007-16 is a wireless battery operated door chime transmitter operating at 315.42MHz.

## **TEST FACILITY AND EQUIPMENT LIST**

### **FACILITIES:**

Radiated: ANSI C63.4 (FCC OET/55) open field 3 metre test range. This test range is protected from the cold and moisture by a non-conductive enclosure.

Conducted: 2.5m Anechoic Chamber

### **EQUIPMENT**

Anritsu 2601A Spectrum Analyzer  
Advantest R3261A Spectrum Analyzer  
Hewlett-Packard RF generator # 8640 B with an 002 doubler  
A.H. Systems biconical antenna; ..... 20 MHz to 330 MHz  
A.H. Systems log periodic antenna; ..... 300 MHz to 1.8 GHz  
Eaton dipole antennas; T1, T2, T3 ..... 25 MHz to 1.0 GHz  
Roberts dipole antennas; T1, T2, T3 & T4 25 MHz to 1.0 GHz  
Compliance Design P950 Preamp (16 dB) ... 25 MHz to 1.0 GHz

### **NOTE:**

The Anritsu 2601A Spectrum Analyzer and the Advantest R3261A Spectrum Analyzer are calibrated annually, and that calibration is directly traceable to the National Research Council of Canada. (NRC) This equipment is only used by qualified technicians and only for the purpose of EMI measurements. The three metre test range has been carefully evaluated to the ANSI document C63.4 and will be remeasured for reflections and losses every three years.

**ADDITIONAL TEST EQUIPMENT LIST**

1. Spectrum Analyzer: HP 8591EM, S/N 3639A00995, Calibrated April 2002
2. Spectrum Analyzer: ANRITSU 2601A, S/N MT64544, Calibrated May 2002
3. Spectrum Analyzer: IFR AN940, S/N 635001039, Calibrated March 2002
4. Preamp: HP 8449B, S/N 3008A00378, Calibrated August 2002
5. Horn Antenna: Q-PAR 6878/24, S/N 1721, 1.5-18GHz
6. Line Impedance Stabilization Network.: Marstech, Cal. July 2002

4U, OCT-05-00 11:13AM

COM-SERVE

519 748 0155

P. 01

FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division  
7435 Oakland Mills Road  
Columbia, MD. 21046

September 20, 2000

Electrohome Electronics Ltd.  
809 Wellington St. N.  
Kitchener, Ontario N2G 4J6  
Canada

Registration Number: 90578

Attention: Gerry Gallagher

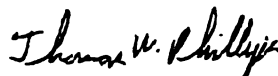
Re: Measurement facility located at Roseville  
3 meter-site  
Date of Listing: September 20, 2000

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that this filing must be updated for any changes made to the facility, and at least every three years from the date of listing the data on file must be certified as current.

If requested, the above mentioned facility has been added to our list of those who perform these measurement services for the public on a fee basis. An up-to-date list of such public test facilities is available on the Internet on the FCC Website at WWW.FCC.GOV, E-Filing, OET Equipment Authorization Electronic Filing.

Sincerely,



Thomas W Phillips  
Electronics Engineer

## **15.109 SPURIOUS RADIATED EMISSIONS**

### **RESULTS**

#### **Model WC133:**

Receiver:      **Maximum field strength:**      **63.82 dB $\mu$ V/M at 315.42 MHz**

### **TEST CONDITIONS**

#### **Equipment Positioning:**

Receiver:      Laying on its back and vertical  
Transmitter:      N/A

**Antenna Polarization:**      Horizontal

**Measurement Bandwidth:**      120KHz

#### **Supply Voltage:**

Transmitter:      12V battery  
Receiver:      N/A

### **METHODS OF MEASUREMENT**

#### **Transmitter:**

The portable RF transmitter portion of the device was placed on a one meter high, non-metallic turntable. A new twelve volt, alkaline battery was installed in the transmitter. The transmitter was activated by continuous pressure on the push button switch by a non-conductive actuator. Measurements were made in a minimum of 3 orthogonal equipment positions.

For each of the above conditions the turntable was rotated through 360 degrees while the receiving antenna was varied in height from 1 to 4 meters and set in both planes of polarization to find the maximum signal strength. The level was converted to a field strength using the antenna correction factors and cable losses.



## FIELD STRENGTH OF EMISSIONS

Page 2 of 2

**Test Data:**

Pre-Amp: 16 dB

Emission Frequency MHZ	Meter Reading @3m dB $\mu$ V	Antenna	Cable and ACF dB	Field Strength dB $\mu$ V/M	Pk/Av Ratio (dB) DCCF	Corrected Field Strength dB $\mu$ V/M	FCC Limit dB $\mu$ V/M	Margin dB	Detector & BW KHz
315.42*	52.42	RT3 H	21.4	73.82	-10	63.82	75.6	-11.78	PK 100
630*	33	LP H	23.3	56.3	-10	46.3	55.6	-9.3	PK 100
945*	25.1	LP H	31.5	56.6	-10	46.6	55.6	-9	PK 100
1260*	27	LP H	35	62	-10	52	55.6	-3.6	PK 1000
1575*	25	LP H	39	64	-10	54	54	0	PK 1000
1890	59	HV	-3	56	-10	46	55.6	-9.6	PK 1000
2205	57	HV	-2.9	54.1	-10	44.1	54	-9.9	PK 1000
2520	51	HV	-2.25	48.75	-10	38.75	55.6	-16.85	PK 1000
2835	--								
3150	--								

\*EUT on its back, other readings EUT vertical

# PEAK TO AVERAGE RATIO MODEL WB007-16

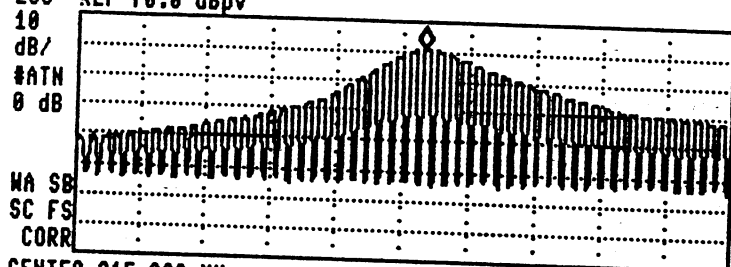
10:29:40 AUG 15, 2002

Signal Freq (MHz)	PK Amp	QP Amp	AV Amp
315.033500	60.5	60.4	50.4

SPAN  
1.000 MHz

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 315.033 MHz  
60.47 dBuV

LOG REF 70.0 dBuV



CENTER 315.000 MHz SPAN 1.000 MHz  
IF BW 120 kHz AVG BW 300 kHz #SWP 1.00 sec

NOTE: The measurement was made with all three detectors used. The PK detector measurement was 60.5 dBuV/M and the AV (average) detector measurement was 50.4 dBuV/M resulting in a PK to AV ratio of  $60.5 - 50.4 = 10.1 = -10$  dB.