ADVANCED
COMPLIANCE LABORATORY

6 Randolph Way
Hillsborough, NJ 08876
Tel: (732) 560-9010
Fax: (732) 560-9173

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

315MHZ RECEIVER
MODEL: RMB5
FCC ID: **LQP-RMB5**

APRIL 10, 2001

This report concerns (check one): Original grant __x__ Class II change _____
Equipment type: Superregenerative Receiver

Deferred grant requested per 47 CF 0.457(d)(1)(ii)? yes _____ no __x__
If yes, defer until: _____ (date)
Company agrees to notify the Commission by _____ (date)
of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? yes _____ no __x__
If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR [10-1-90 Edition] provision.

Report prepared for: **SMARTHOME PRODUCTS LTD.**
Report prepared by: **Advanced Compliance Lab**
Report number: **0048-040301-01**

NVLAP®

The test result in this report IS supported and covered by the NVLAP accreditation

Table of Contents

Figures

1. GENERAL INFORMATION

1.1 Verification of Compliance

EUT:	315MHZ RECEIVER
Model:	RMB5
Applicant:	**SMARTHOME PRODUCTS LTD.**
Test Type:	CERTIFICATION
Result:	PASS
Tested by:	ADVANCED COMPLIANCE LABORATORY
Test Date:	April 05,2001
Report Number:	**0048-040301-01**

The above equipment was tested by Advanced Compliance Laboratory for compliance with the requirement set forth in the FCC rules and regulations Part 15, subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in **Advanced Compliance Lab**. Doc. No. 0048-01-01.

	Prob. Dist.	Uncertainty(dB)	Uncertainty(dB)	Uncertainty(dB)
		30-1000MHz	1-6.5GHz	Conducted
Combined Std. Uncertainty u_c	norm.	±2.36	±2.99	±1.83

Wei Li
Advanced Compliance Lab

Date

1.2 Equipment Modifications

N/A

1.3 Product Information

System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	315MHZ RECEIVER(1)	**LQP-RMB5(1)**	
Housing	PLASTICS / METAL BASE		
Power Supply	BATTERY		
Clock/OSC Freq.	314.8MHz		
Device Type	SUPERREGENERATIVE RECEIVER		

(1) EUT submitted for grant.

1.4 Test Methodology

Both conducted and radiated tests were performed according to the procedures in ANSI C63.4-1992. Radiated test was performed at an antenna to EUT distance of 3 meters.

1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated and conducted data are located at 50 Randolph Road, Somerset, New Jersey. This site has been accepted by FCC to perform measurements under Part 15 or 18 in a letter dated January 02, 2001 (Refer to: 90601). The NVLAP Lab code for accreditation of FCC EMC Test Method is: 200101-0.

1.6 Test Equipment

Manufacture	Model	Serial No.	Description	Last Cal dd/mm/yy	Cal Due dd/mm/yy
Hewlett-Packard	HP8546A	3625A00341	EMI Receiver	08/01/01	08/01/02
Fischer Custom	LISN-2	900-4-008	Line Impedance Stabilization Networks	20/05/00	20/05/01
Fischer Custom	LISN-2	900-4-009	Line Impedance Stabilization Networks	26/04/00	26/04/01
EMCO	3115	4945	Double Ridge Guide Horn Antenna	05/12/99	05/12/00
EMCO	3104C	4396	30-200MHz Biconical Antenna	02/05/00	02/05/01
EMCO	3146	3350	200-1000MHz Log-Periodic Antenna	02/05/00	02/05/01

All Test Equipment Used are Calibrated Traceable to NIST Standards.

1.7 Statement for the Document Use

This report shall not be reproduced except in full, without the written approval of the laboratory. And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

2. PRODUCT LABELING

See attachment: fcclabel.jpg

Fig 2.1 FCC ID Label

Fig. 2.2 Location of Label

3. SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT.

A ROHDE&SCHWARZ SMH signal generator was used during the test to radiate an unmodulated CW signal to cohered the receiver at 314.8 MHz. The level was adjusted to let this occur. The position of worst case when EUT was flat on turn table during the test as Figure 3.1 and Figure 3.2.

3.2 Special Accessories

N/A

3.3 Configuration of Tested System

Figure 3.1 and Figure 3.2 illustrate this system, which is tested standing along.

Figure 3.1 Radiated Test Setup, Front View

Figure 3.2 Radiated Test Setup, Rear View

4. SYSTEM SCHEMATICS

See attachment: schematic.jpg

Figure 4.1 System Schematics

5. RADIATED EMISSION DATA

5.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

$$FS = RA - AF - CF - AG$$

where FS: Corrected Field Strength in dBμV/m
RA: Amplitude of EMI Receiver before correction in dBμV
AF: Antenna Factor in dB/m
CF: Cable Attenuation Factor in dB
AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

So the receiver readings are recorded without further correction.

5.2 Test Methods and Conditions

The initial step in collecting radiated data is a EMI Receiver scan of the measurement range 30MHz - 5GHz. Significant peaks are then marked down and these signals are then measured with quasi-peak detector conform with CISPR 16. IF bandwidth is 120kHz and video bandwidth is 300kHz for measuring 30MHz-1GHz. Both bandwidth are 1MHz for above 1GHz measurement.

5.3 Test Data

The following data lists the significant emission frequencies, polarity and position, corrected amplitude reading of the EMI Receiver, the Class B limit, and the difference between the corrected reading and the Class B limit. Explanation of the correction is given in section 5.1.

Test Personnel:

Tester Signature _____ Date _____

Typed/Printed Name: David Tu

Radiated Emission Data

Frequency (MHz)	Polarity [H or V] Position	Height (m)	Azimuth (Degree)	Amplitude Reading (dBµV/m)	Class B 3m Limit (dBµV/m)	Difference from limit (dB)
309.9	H	1.0	225	34.6	46.0	-11.4
311.2	H	1.0	225	37.4	46.0	-8.6
311.7	H	1.0	225	38.1	46.0	-7.9
312.6	H	1.0	225	38.8	46.0	-7.2
314.0	H	1.0	225	41.3	46.0	-4.7
315.0	H	1.0	225	41.4	46.0	-4.6
315.4	H	1.0	225	40.6	46.0	-5.4
316.0	H	1.0	225	37.7	46.0	-8.3
318.7	H	1.0	225	32.3	46.0	-13.7
311.7	V	1.6	270	34.3	46.0	-11.7
312.6	V	1.6	270	36.0	46.0	-10.0
314.0	V	1.6	270	37.6	46.0	-8.4
314.7	V	1.6	270	38.0	46.0	-8.0
315.0	V	1.6	270	37.7	46.0	-8.3
316.0	V	1.6	270	33.7	46.0	-12.3

6. PHOTOS OF TESTED EUT

The following photos show the inside details of the EUT.

a. Attachments of EUTpic-1.pdf: front.jpg, rear.jpg, inside.jpg.
b. Attachments of EUTpic-2.pdf: pcbtop, component.jpg, foil.jpg .
c. Attachments of EUT schematic: schematic.pdf,
d. Attachments of EUT block diagram: blockdia.pdf
e. FCC labeling: fcclabel.pdf