

ADVANCED
COMPLIANCE LABORATORY

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ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

BABY MONITOR
MODEL: 15602
FCC ID: LWA15602

JANUARY 30, 2001

This report concerns (check one): Original grant Class II change
Equipment type: Low Power Intentional Radiator

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes no (date)
If yes, defer until: _____

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
If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR
[10-1-90 Edition] provision.

Report prepared for: REGAL ENTERPRISES LTD.
Report prepared by: Advanced Compliance Lab
Report number: 0048-010901-01(Tx)

NVLAP®

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

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1. GENERAL INFORMATION

1.1 Verification of Compliance

EUT: **BABY MONITOR**

Model: **15602**

Applicant: **REGAL ENTERPRISES LTD..
FLAT 16, 18/F., HONOUR IND. CENTRE,
6 SUN YIP ST., CHAI WAN, HONG KONG**
Contact: Angle Ng

Test Type: **FCC Part 15C CERTIFICATION**

Result: **PASS**

Tested by: **ADVANCED COMPLIANCE LABORATORY**

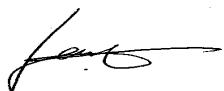
Test Date: **January 22, 2001**

Report Number: **0048-010901-01(Tx)**

The above equipment was tested by Compliance Laboratory, Advanced Technologies, Inc. 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
Lab Manager
Advanced Compliance Lab

Date: Jan. 30, 2001

1.2 Equipment Modifications

N/A

1.3 Product Information

System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	BABY MONITOR 15602 ⁽¹⁾	LWA15602	
Housing	PLASTICS		
Power Supply	9V DC Battery or AC Adapter(option)		
Clock/OSC Freq.	49.85 MHz & 49.89 MHz		
Receiver	15602 (RX) (FCC Part15 Class B DOC)		
AC Adapter	RadioShark/ CAT.No. 273-1662		

(1) EUT submitted for grant.

1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-1992 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 May 19, 1997 (Refer to: 31040/PRV 1300F2). 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	15/12/99	08/01/01
Fischer Custom	LISN-2	900-4-008	Line Impedance Stabilization Networks	20/05/99	20/05/00
Fischer Custom	LISN-2	900-4-009	Line Impedance Stabilization Networks	26/04/00	26/04/01
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

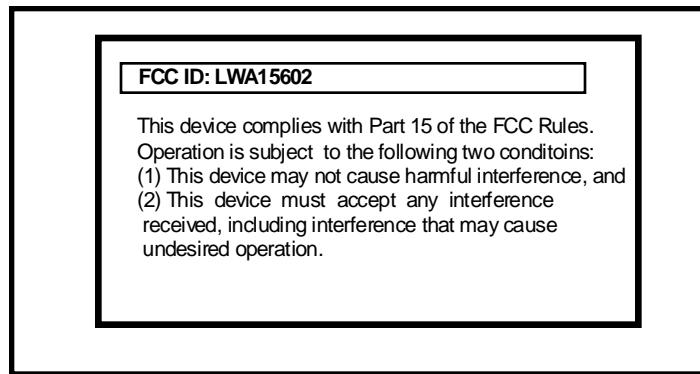


Figure 2.1 FCC ID Label

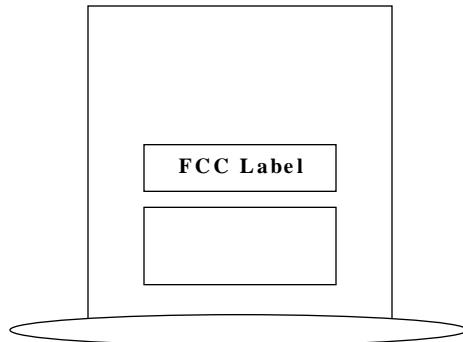


Figure 2.2 Location of Label on the Side of EUT

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.

Testing was performed in AC/DC mode and EUT was operated at frequency channel 49.85 or 48.89Mhz continuously. The channel 49.85Mhz/AC mode was found as the worst case.

3.2 Special Accessories

N/A

3.3 Configuration of Tested System

Figure 3.1 to Figure 3.4 illustrate this system, which is tested standing along.

Figure 3.1 Radiated Test Setup, Front

(see the attachment: **setup.pdf/radfront.jpg**)

Figure 3.2 Radiated Test Setup, Rear

(see attachment: **setup.pdf/radrear.jpg**)

Figure 3.3 Conductive Test Setup, Front

(see the attachment: setup.pdf/confront.jpg)

Figure 3.4 Conductive Test Setup, Rear

(see attachment: setup.pdf/conrear.jpg)

4. SYSTEM SCHEMATICS

Figure 4.1 System Schematics

(see attachment: schematic.jpg)

5. CONDUCTED EMISSION DATA

5.1 Test Methods and Conditions

The EUT exercise program was loaded during the conducted emission test. EMI Receiver was scanned from 450KHz to 30MHz with maximum hold mode for maximum emission. The IF Bandwidth is 9KHz. Recorded data was sent to the plotter to generate output in linear format. At the input of the spectrum analyzer, a HP transient limiter is inserted for protective purpose. This limiter has a 10 dB attenuation in the range of 450KHZ to 30MHZ. That factor was automatically compensated by the receiver, so the readings are the corrected readings. The reference of the plot is the FCC Class B limit 250 μ V in Figure 5.1 through Figure 5.2.

Emissions that have peak values close to the specification limit (if any) are also measured in the quasi-peak detector mode to determine the compliance. Between 2 operation channels: CH1/49.85MHz and CH2/49.89MHz, the worse case is CH1.

5.2 Test Data

Figure 5.1 through Figure 5.2 show the neutral and line conducted emissions.

Test Personnel:

Tester Signature : 

Date: 01-22-2001

Typed/Printed Name: David Tu

See attachment: emission-band.pdf/L1.jpg

Figure 5.1 Neutral Conducted Emission

See attachment: emission-band.pdf/L2.jpg

Figure 5.2 Line Conducted Emission

6. RADIATED EMISSION DATA

6.1 Field Strength Calculation

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

$$RA = FS + AF + CF + AG$$

where

RA: Amplitude of EMI Receiver before correction in dB μ V

FS: Corrected Field Strength in dB μ V/m

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)

6.2 Test Methods and Conditions

The EUT exercise program was loaded during the radiated emission test. The initial step in collecting radiated data is a EMI Receiver scan of the measurement range 30MHz - 5GHz using peak detector. IF bandwidth is 120kHz and video bandwidth is 300kHz for measuring 30MHz-1GHz. Both bandwidth are 1MHz for above 1GHz measurement.

6.3 Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, calculated average reading, the FCC limit, and the difference between the peak reading and the limit. Explanation of the correction and calculation are given in section 6.1.

Between 2 operation channels: CH1/49.85MHz and CH2/49.89MHz, the worse case is CH1.

Test Personnel:

Tester Signature: 
David Tu

Date: 01-22-2001

Typed/Printed Name: David Tu

Radiated Test Data (CH1—49.85MHz)

Frequency (MHz)	Polarity [H, V] Position	Height (m)	Azimuth (Degree)	Peak(2) Reading (dB μ V/m)	Class B(1) 3m Limit (dB μ V/m)	Difference from limit (dB)
49.85	H	3.4	090	40.3	80	-39.7
99.68	H	3.4	090	28.2	40	-11.8
149.52	H	3.2	255	30.3	40	-9.7
199.36	H	2.0	270	24.0	40	-16.0
249.20	H	1.3	265	29.5	40	-10.5
299.04	H	1.3	265	34.7	40	-5.3
348.88	H	1.0	045	35.4	40	-4.6
398.72	H	1.0	225	36.6	40	-3.4
598.08	H	1.4	270	36.9	40	-3.1
647.92	H	1.3	270	36.0	40	-4.0
49.85	V	1.0	180	43.5	80	-36.5
99.68	V	1.0	180	31.6	40	-8.4
149.52	V	1.1	000	34.5	40	-5.5
199.36	V	1.1	270	26.4	40	-13.6
249.20	V	1.1	180	29.2	40	-10.8
299.04	V	1.9	225	34.8	40	-5.2
348.88	V	1.1	090	36.5	40	-3.5
398.72	V	1.1	000	36.2	40	-3.8
598.08	V	2.1	000	36.1	40	-3.9
647.92	V	2.1	320	36.3	40	-3.7

(1) The limit for emissions within the 49.82-49.90MHz band is 10,000uV(80dB). Sec. 15.235. The limit for other emissions is defined in Sec. 15.209. Bandwidth requirement in sec. 15.235 is met as shown in the attachment, emission-band.pdf.

(2) Because each peak reading is less than the FCC average limit, it is not necessary to show the calculated average reading based on the pulse train characteristics.

6. PHOTOS OF TESTED EUT

The following photos show the inside details of the EUT.

See Attachments in the photo files of front.jpg, rear.jpg, inside.jpg, compnt.jpg, foil.jpg