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ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

B/O WIRELESS DOOR CHIME TRANSMITTER

MODEL: RC3110T

FCC ID: DE4RC3110T

JUNE 18, 1998

This report concerns (check one): Original grant ☒ Class II change ☐
Equipment type: Periodic Operation Intentional Radiator

Deferred grant requested per 47 CF 0.457(d)(1)(ii)? yes ☐ no ☒

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 ☒

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

Report prepared for:

LMS ASIA LIMITED

Report prepared by:

Fountain Compliance Lab

Report number:

0048-980603-03



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: B/O WIRELESS DOOR CHIME TRANSMITTER
 Model: RC3110T
 Applicant: LMS ASIA LIMITED
 Test Type: CERTIFICATION
 Result: PASS
 Tested by: FOUNTAIN COMPLIANCE LABORATORY
 Test Date: 6/10/98
 Report Number: 0048-980603-03

The above equipment was tested by Fountain Technologies, Inc. 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 Fountain 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
 Fountain Compliance Lab
 Fountain Technologies, Inc.

7-1-98
 Date

1.2 Equipment Modifications

N/A

1.3 Product Information

System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	B/O WIRELESS DOOR CHIME TRANSMITTER ⁽¹⁾	DE4RC3110T	
Housing	PLASTICS		
Power Supply	BATTERY		
Clock/OSC Freq.	314.8MHz		
Device Type	Periodic Operation		

(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	12/11/97	12/11/98
Fischer Custom	LISN-2	900-4-008	Line Impedance Stabilization Networks	05/05/98	05/05/99
Fischer Custom	LISN-2	900-4-009	Line Impedance Stabilization Networks	01/04/98	01/04/99
EMCO	3115	4945	Double Ridge Guide Horn Antenna	03/10/97	03/10/98
EMCO	3104C	4396	30-200MHz Biconical Antenna	16/06/97	16/06/98
EMCO	3146	3350	200-1000MHz Log-Periodic Antenna	16/06/97	16/06/98

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

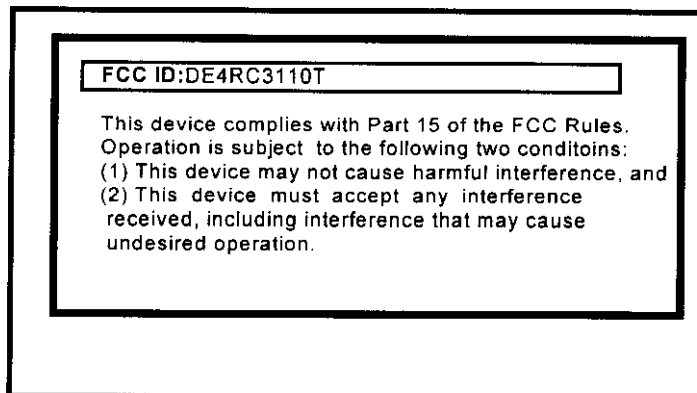


Figure 2.1 FCC ID Label

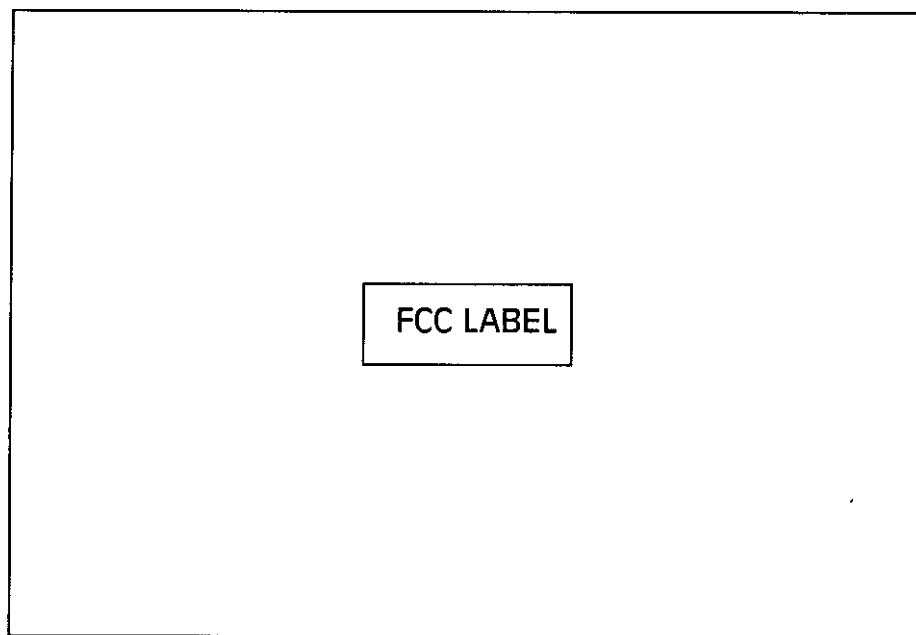


Figure 2.2 Location of Label on Back of the EUT

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 (Made on the PCB).

This manually operated transmitter will deactivate immediately after the switch button has been released.

3.2 Special Accessories

N/A

3.3 Configuration of Tested System

Figure 3.1 and Figure 3.3 illustrate this system, which is tested standing along.

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 dB μ V/m

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

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)

5.2 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.

5.3 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 5.1.

Test Personnel:

Tester Signature



Date



Typed/Printed Name: David Tu

Radiated Test Data

Frequency (MHz)	Polarity [H or V], Position (1)	Height (m)	Azimuth (Degree)	Peak Reading (dBμV/m)	Calculated Average Reading ⁽⁵⁾ (dBμV/m)	FCC 3m Limit (dBμV/m)	Difference from limit (dB)
314.8	H, 1	1	137	61.4		75.6 ⁽³⁾	-14.2
314.8	H, 2	1	156	59.4		75.6 ⁽³⁾	-16.2
314.8	H, 3	1	166	53.7		75.6 ⁽³⁾	-21.9
314.8	V, 1	1	032	49.4		75.6 ⁽³⁾	-26.2
314.8	V, 2	1	118	58.4		75.6 ⁽³⁾	-17.2
314.8	V, 3	1	320	55.3		75.6 ⁽³⁾	-20.3
629.7	H, 1	1	337	43.0		61.9 ⁽⁴⁾	-18.9
629.7	H, 2	1	353	43.8		61.9 ⁽⁴⁾	-18.1
629.7	H, 3	1	025	35.7		61.9 ⁽⁴⁾	-26.2
629.7	V, 1	1	103	37.9		61.9 ⁽⁴⁾	-24.0
629.7	V, 2	1	079	41.2		61.9 ⁽⁴⁾	-20.7
629.7	V, 3	1	106	46.6		61.9 ⁽⁴⁾	-15.3
1259.5	H, 2	1	104	53.2		61.9 ⁽⁴⁾	-8.7
1259.5	H, 3	1	100	53.9		61.9 ⁽⁴⁾	-8.0
1259.5	V, 1	1	182	52.7		61.9 ⁽⁴⁾	-9.2
1259.5	V, 2	1	189	50.9		61.9 ⁽⁴⁾	-1.8
1574	V, 2	1	111	52.1		54.0 ⁽²⁾	-1.9

(1) See Figure 3.1, 3.2 and 3.3 for definition of position 1, 2, 3.

(2) Restricted band.

(3) Fundamental limit is 3750-12500 microvolts/meter linear interpolations.

(4) Spurious limit is 375-1250 microvolts/meter linear interpolations.

(5) 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 characteristic.

5.4 Occupied Bandwidth

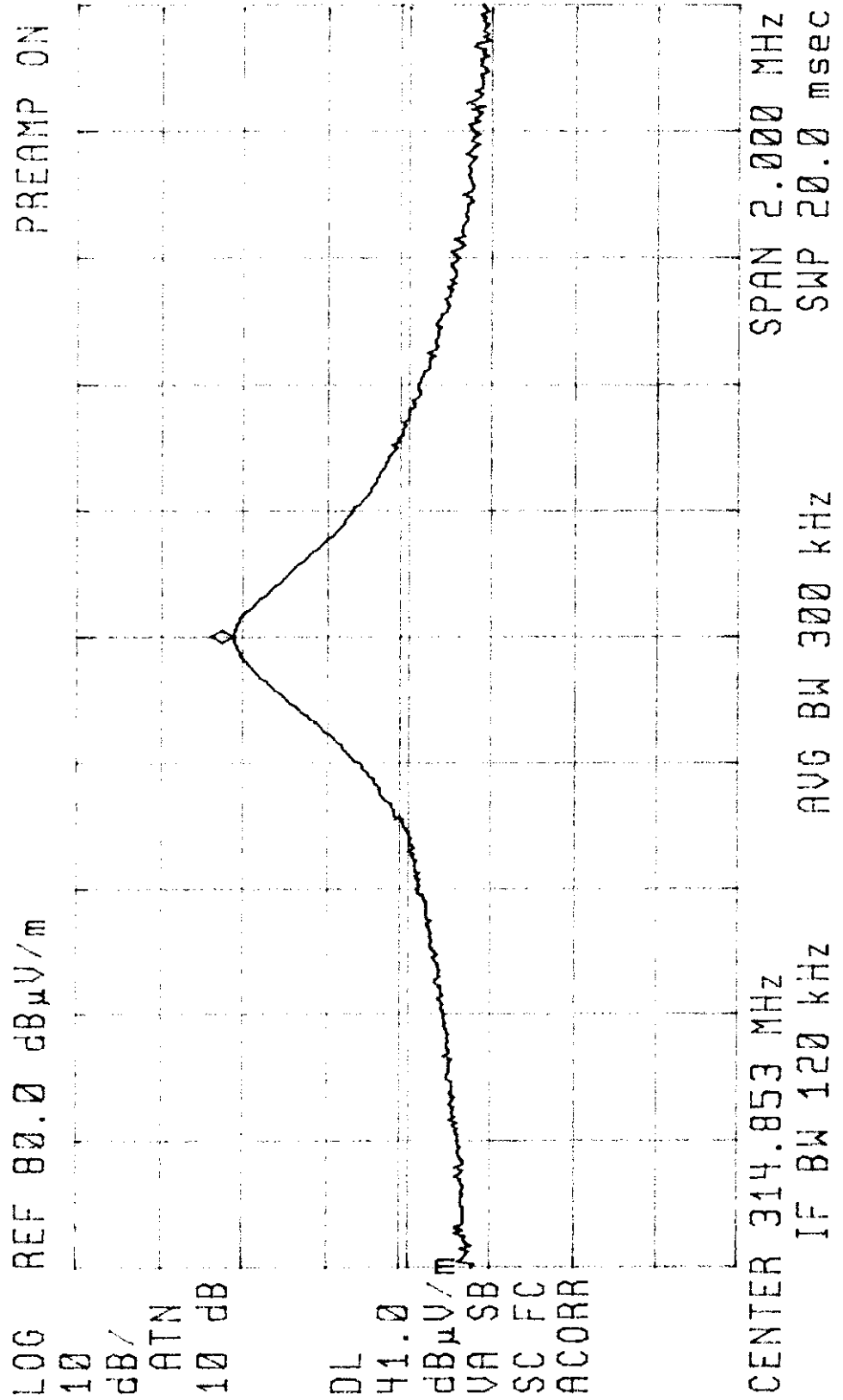
The bandwidth of the emission shall be no wider than 0.25% of the center frequency, in this case, 0.78MHz. Bandwidth is determined at the points 20dB down from the modulated carrier. Figure 5.1 shows the occupied bandwidth plot.

Figure 5.4 Occupied Bandwidth

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MARKER
 314.853 MHz
 60.89 dB μ V/m

ACTV DET: PEAK
 MEAS DET: PEAK QP
 MKR 314.853 MHz
 60.89 dB μ V/m



6. PHOTOS OF TESTED EUT

The following photos show the inside details of the EUT.