ADVANCED
COMPLIANCE LABORATORY

6 Randolph Way
Hillsborough, NJ 08844
Tel: (908) 927-9288
Fax: (908) 927-0728

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

WIRELESS THERMO CLOCK TRANSMITTER
MODEL: 8361
FCC ID: RSO8361

February 3, 2004

This report concerns (check one): Original grant __x__ Class II change _____
Equipment type: LOW POWER TRANSMITTER

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:	BOBCO TECHNOLOGY LTD.
Report prepared by:	Advanced Compliance Lab
Report number:	0048-040112-01

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:	WIRELESS THERMO CLOCK TRANSMITTER
Model:	8361
Applicant:	BOBCO TECHNOLOGY LTD.
Test Type:	FCC Part 15C CERTIFICATION
Result:	PASS
Tested by:	ADVANCED COMPLIANCE LAB
Test Date:	Jan. 19, 2004
Report Number:	0048-040112-01

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

Date: Feb. 3, 2004

1.2 Equipment Modifications

N/A

1.3 Product Information

System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	WIRELESS THERMO CLOCK TRANSMITTER:8361	RSO8361(1)	
Housing	PLASTIC		
Power Supply	3V DC BATTERY		
Clock/OSC Freq.	433.9 MHz		
Device Type	Periodic Operation 15.231(e)		
Receiver	8361RX	DoC	

(1) EUT submitted for grant.

1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-2001 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 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	12/01/04	12/01/05
EMCO	3115	4945	Double Ridge Guide Horn Antenna	11/08/03	11/08/04
AIL	94455	933	20-300MHz Biconical Antenna	11/03/03	11/03/04
EMCO	3146	3672	200-1000MHz Log-Periodic Antenna	11/02/03	11/02/04
Fischer Custom	LISN-2	900-4-0008	Line Impedance Stabilization Networks	11/08/03	11/08/04
Fischer Custom	LISN-2	900-4-0009	Line Impedance Stabilization Networks	25/08/03	25/08/04

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

FCC ID: RSO8361
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference. and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Figure 2.1 FCC ID Label

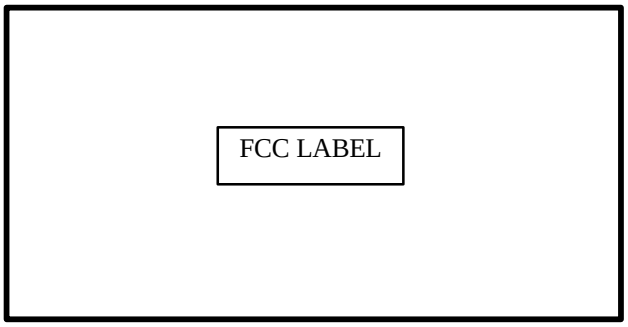


Figure 2.2 Location of Label on Back of the EUT

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). One LED is located on the front appearance.

This transmitter sends out a signal at minimum 30s interval and each transmission lasts less than one second.

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.

Figure 3.1 Radiated Test Setup, Position 1-X

Figure 3.2 Radiated Test Setup, Position 2 -Y

Figure 3.3 Radiated Test Setup, Position 3-Z

4. SYSTEM SCHEMATICS

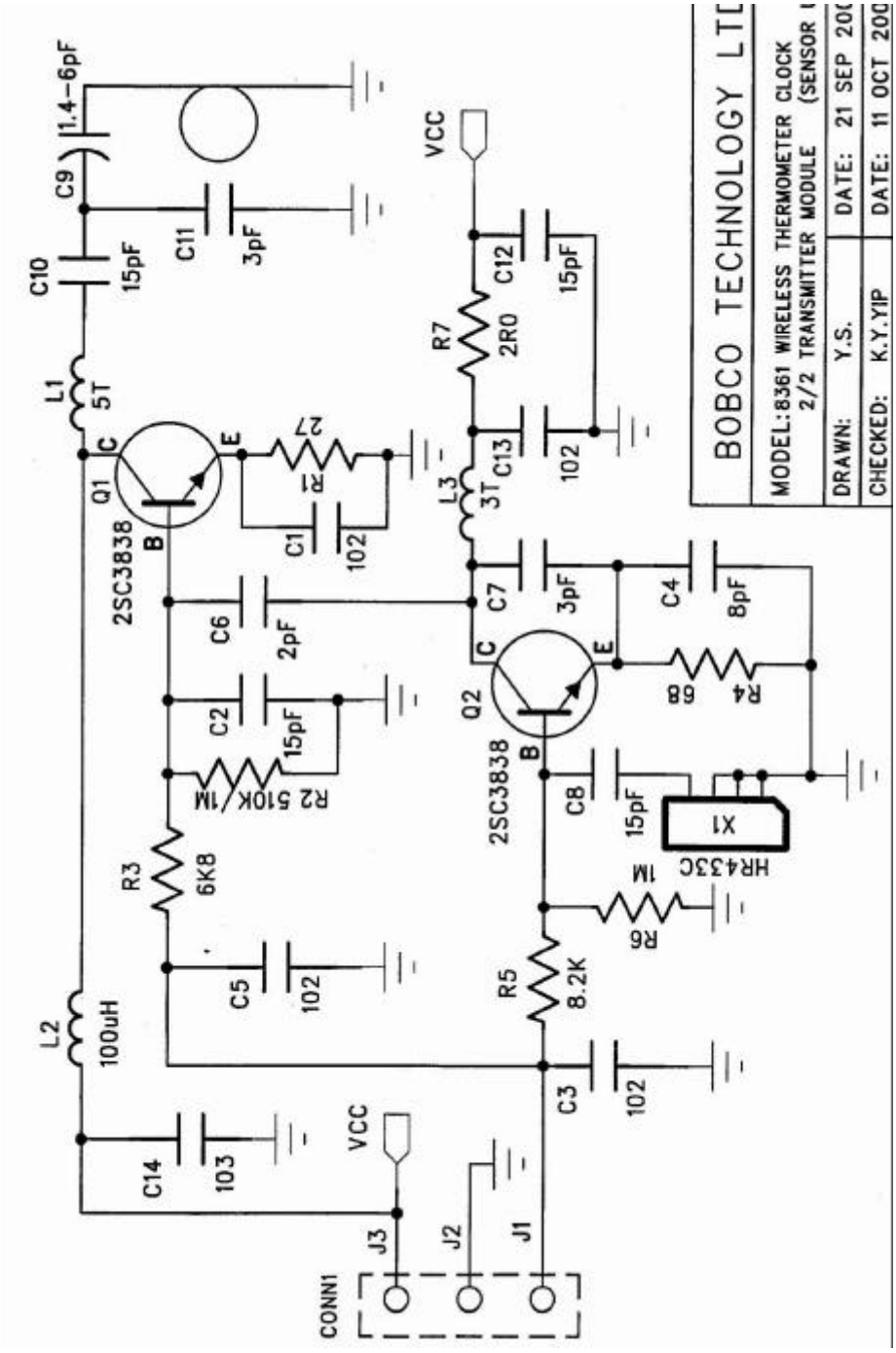


Figure 4.1 System Schematics

5. RADIATED EMISSION DATA

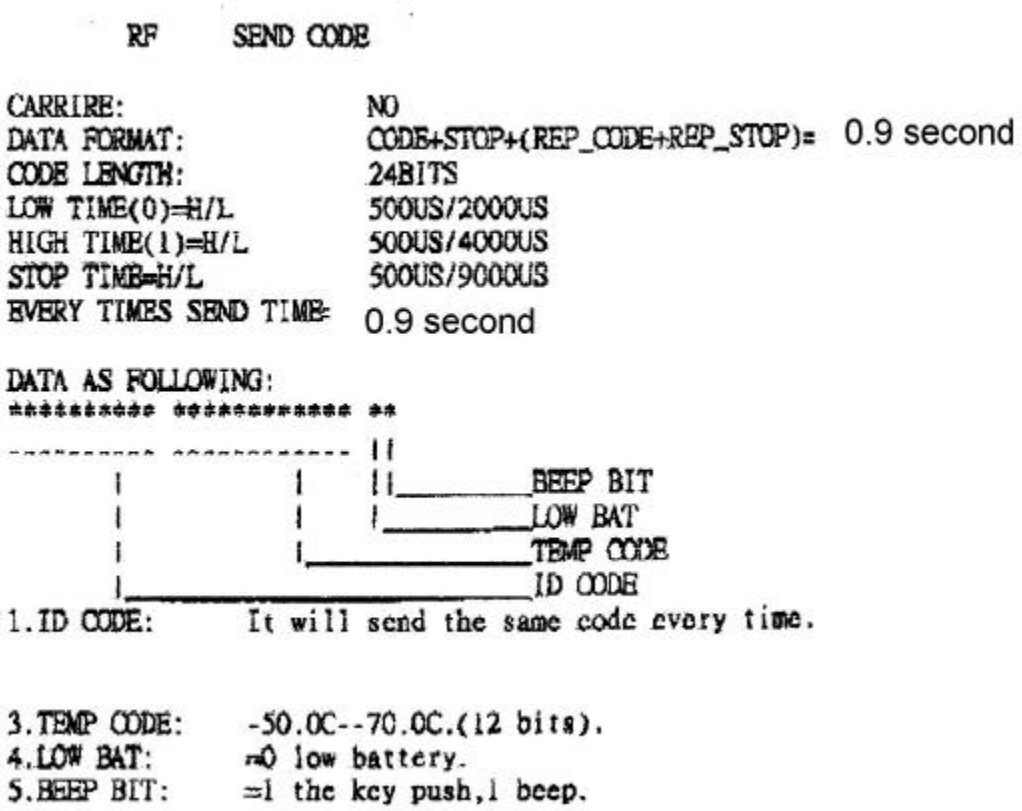
5.1 Field Strength Calculation

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)

The transmitter sends out long and/or short pulse trains with less than 1s transmission duration each time. Silent period is no less than 30s.



Considering the max. signal strength within 0.1s duration, the transmitting period containing 3 sets of data consisted of consecutive-short-pulse-train (all "1"s) is selected for duty-cycle calculation: Coeff. =(500/2000) xN = 0.25

The maximum average field strength should be 0.25 of the peak field strength measured. So we use peak value minus 12dB as calculated maximum average field strength.

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.
CH1 is chosen as the worst case for final reading.

Test Personnel:

Typed/Printed Name: Edward Lee Date: Jan. 19, 2004

Radiated Test Data (CH1)

Frequency (MHz)	Polarity [H or V], Position (X,Y,Z)	Height (m)	Azimuth (Degree)	Peak Reading (dBμV/m)	Calculated Average Reading (dBμV/m)	FCC 3m Limit (dBμV/m)	Difference from limit (dB)
433.9	H,X(1)	1.2	200	81.3	69.3	72.8(3)	-3.5
867.8	H,X	1.1	200	56.3	44.3	52.8(4)	-8.5
1301.7	H,X	1.1	180	51.6	39.6	52.8(2)	-13.2
1735.7	H,X	1.1	180	55.0	43	52.8	-9.8
2169.6	H,X	1.1	180	62.3	50.3	52.8	-2.5
2603.5	H,X	1.1	180	54.3	42.3	52.8	-10.5
433.9	V,X	1.4	180	80.8	68.8	72.8	-4
867.8	V,X	1.4	180	62.0	50	52.8	-2.8
1301.7	V,X	1.1	220	52.3	40.3	52.8	-12.5
1735.7	V,X	1.1	180	46.2	34.2	52.8	-18.6
2169.6	V,X	1.1	220	53.1	41.1	52.8	-11.7
2603.5	V,X	1.1	180	51.1	39.1	52.8	-13.7
433.9	H,Y	1.2	220	82.5	70.5	72.8	-2.3
867.8	H,Y	1.2	220	61.4	49.4	52.8	-3.4
1301.7	H,Y	1.1	220	52.5	40.5	52.8	-12.3
1735.7	H,Y	1.1	200	51.2	39.2	52.8	-13.6
2169.6	H,Y	1.1	200	58.3	46.3	52.8	-6.5
2603.5	H,Y	1.1	200	50.5	38.5	52.8	-14.3
433.9	V,Y	1.5	160	82.8	70.8	72.8	-2
867.8	V,Y	1.4	220	58.1	46.1	52.8	-6.7
1301.7	V,Y	1.1	250	54.2	42.2	52.8	-10.6
1735.7	V,Y	1.1	180	49.1	37.1	52.8	-15.7
2169.6	V,Y	1.1	180	58.3	46.3	52.8	-6.5
2603.5	V,Y	1.1	180	49.3	37.3	52.8	-15.5
433.9	H,Z	1.2	200	82.6	70.6	72.8	-2.2
867.8	H,Z	1.2	240	53.6	41.6	52.8	-11.2
1301.7	H,Z	1.1	240	53.3	41.3	52.8	-11.5
1735.7	H,Z	1.1	200	52.1	40.1	52.8	-12.7
2169.6	H,Z	1.1	200	55.5	43.5	52.8	-9.3
2603.5	H,Z	1.1	220	52.0	40	52.8	-12.8
433.9	V,Z	1.6	250	82.2	70.2	72.8	-2.6
867.8	V,Z	1.4	220	62.1	50.1	52.8	-2.7
1301.7	V,Z	1.1	220	54.3	42.3	52.8	-10.5
1735.7	V,Z	1.1	200	49.1	37.1	52.8	-15.7
2169.6	V,Z	1.1	220	58.3	46.3	52.8	-6.5
2603.5	V,Z	1.1	200	49.4	37.4	52.8	-15.4

(1) See Figure 3.1, 3.2 and 3.3 for definition of position X-1, Y-2, Z-3.
(2) Restricted band per 15.205 with higher limit 54db.
(3) Fundamental limit is 1500-5000 microvolts/meter linear interpolations per 15.231(e).
(4) Spurious limit is 150-500 microvolts/meter linear interpolations per 15.231(e).

5.4 Occupied Bandwidth

The bandwidth of the emission shall be no wider than 0.25% of the center frequency, in this case, 1.085MHz(433.9x0.25%). Bandwidth is determined at the points 20dB down from the modulated carrier. Figure 5.1 shows the occupied bandwidth plot.

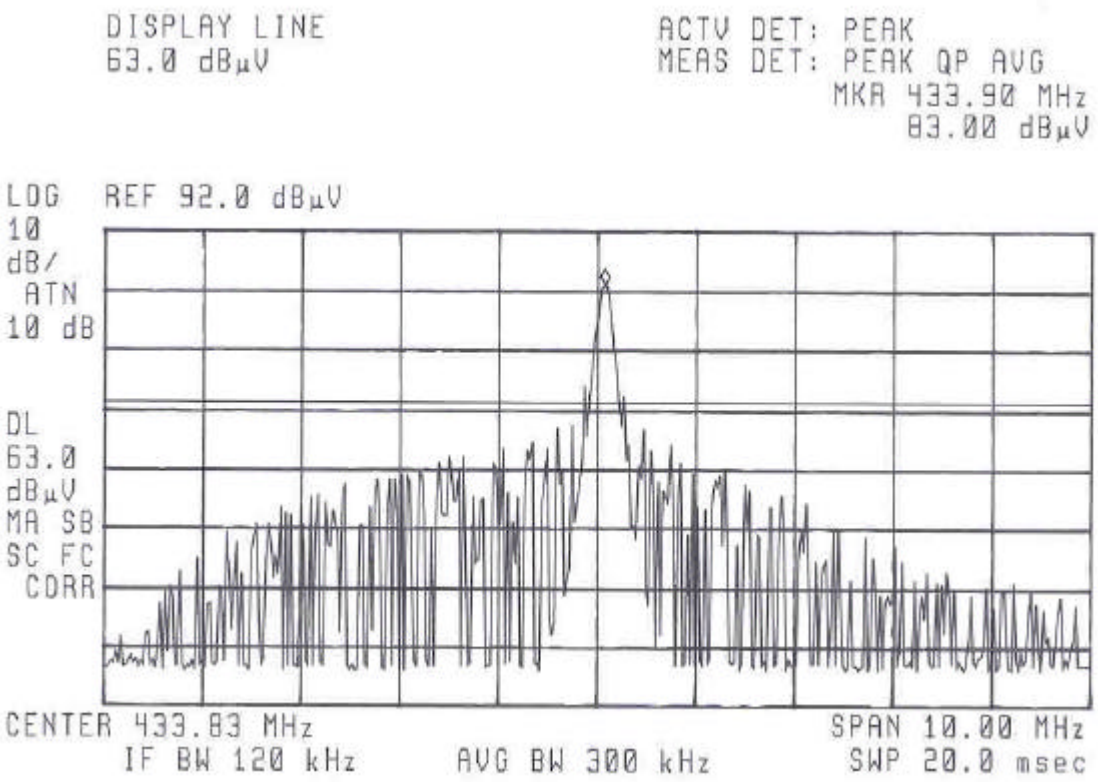


Figure 5.1 Occupied Bandwidth

6. PHOTOS OF TESTED EUT

The following photos show the inside details of the EUT.

See attachments:
EUT.pdf contains front.jpg, rear.jpg, inside.jpg, RF-component.jpg, RF-foil.jpg, component.jpg, foil.jpg