

December 2, 1998

X-10 (USA), Inc.
91 Ruckman Road
Closter, NJ 07624-0420

Attention: Mr. Dave Rye

Dear Sir:

Enclosed you will find Retlif Testing Laboratories' Test Report R-7739-1, which covers the Part 15, Subpart C Certification testing of your 310 MHz Wrist Watch Emergency Call Button Transmitter Model: WR10A, FCC ID: B4S-WR10A. This testing was performed and application generated in accordance with your Verbal Authorization.

As of this date the original application has been forwarded to the Federal Communications Commission via electronic filing..

We thank you for this opportunity to be of service to you. Should you have any questions regarding the enclosed application please feel free to contact me.

Very truly yours,

RETLIF TESTING LABORATORIES

Michelle Tirado
Administrative Coordinator

Enc. (as stated)

FCC COMPLIANCE TEST REPORT
ON A
**310 MHZ WRIST WATCH EMERGENCY
CALL BUTTON TRANSMITTER**
MODEL: WR10A
FCC ID: B4S-WR10A

CUSTOMER NAME: _____
X-10 (USA), Inc.

CUSTOMER P.O.: _____
Verbal Authorization

DATE OF REPORT: _____
December 2, 1998

TEST REPORT NO.: _____
R-7739-1

TEST START DATE: _____
September 29, 1998

TEST FINISH DATE: _____
November 12, 1998

TEST TECHNICIAN: _____
D. Cortes

TEST ENGINEER: _____
T. Schneider

SUPERVISOR: _____
R.J. Reitz

REPORT PREPARED BY: _____
L. Anderson

GOVERNMENT SOURCE INSPECTION: _____
Not Applicable

Our letters and reports are for the exclusive use of the customer to whom they are addressed, and their communications to any other or the use of the name of RETLIF TESTING LABORATORIES must receive our prior written approval. Our letters and reports apply only to the sample tested and are not necessarily indicative of the qualities of apparently identical or similar products. The reports and letters and the name of RETLIF TESTING LABORATORIES or insignia are not to be used under any circumstances in advertising to the general public. This report may not be used by you to claim product endorsement by NVLAP or any agency of the U.S. Government. This test report shall not be reproduced, except in full, without the written approval of RETLIF TESTING LABORATORIES.

CERTIFICATION AND SIGNATURES

We certify that this report is a true report of the results obtained from the tests of the equipment stated. We further certify that the measurements shown in this report were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.

Thomas J. Schneider
EMC Test Engineer
NVLAP Approved Signatory

Richard J. Reitz
Laboratory Manager
NVLAP Approved Signatory

NON-WARRANTY PROVISION

The testing services have been performed, findings obtained, and reports prepared in accordance with generally accepted testing laboratory principles and practices. This warranty is in lieu of all other warranties, either express or implied.

NON-ENDORSEMENT

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation endorsement, or certification of the product or material tested. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

Test Report No. R-7739-1
FCC ID: B4S-WR10A

TABLE OF EXHIBITS

Exhibit 1	Equipment Label per 2.1033(b)(7)
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EXHIBIT 1

FCC ID Label

Para. 2.1033(b)(7)

EXHIBIT 2

Equipment Photographs

Para. 2.1033(b)(7)

EXHIBIT 3

Technical Description

Para. 2.1033(b)(4)

Technical Report 2.1033(b)(4)

Equipment Manufacturer

X-10 Electronics Shenzhen Co. Ltd.
X-10 Building
Labour Industrial District
Shenzhen, Xixiang, Bao An
Guang Dong, China, 518102

FCC Identifier

B4S-WR10A

Operating Instructions

See Exhibit 5

Trade Name

X-10 (USA)

Model Number

WR10A

Additional Model Numbers and Trade Names

Not Applicable

EXHIBIT 4

Block Diagram and Schematic

Para. 2.1033(b)(5)

EXHIBIT 5

Installation and Operating Instructions

Para. 2.1033(b)(3)

EXHIBIT 6

Report of Measurements

Para. 2.1033(b)(6)

APPLICANT X-10 (USA), Inc. 91 Ruckman Road Closter, NJ 07624-0420	MANUFACTURER X-10 Electronics Shenzhen Co. Ltd. X-10 Building Labour Industrial District Shenzhen, Xixiang, Bao An Guang Dong, China, 518102
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TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C, Para. 15.231

TEST PROCEDURE: ANSI C63.4:1992

TEST SAMPLE DESCRIPTION

BRANDNAME: X-10 (USA), Inc. MODEL: WR10A

TYPE: 310 MHz RF Transmitter

POWER REQUIREMENTS: CR2016 Lithium 3 VDC Battery

FREQUENCY OF OPERATION: 310 MHz

TESTS PERFORMED

Para. 15.231(a), Radiated Emissions, Fundamental and Harmonics

Para. 15.231(c), Occupied Bandwidth

Duty Cycle Determination

I HEREBY CERTIFY THAT: The measurements shown here were in accordance with the procedure indicated and that the energy emitted by this equipment was found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.

I FURTHER CERTIFY THAT: On the basis of the measurements made, the device tested is capable of operation in compliance with the requirements of Part 15 of the FCC Rules under normal use and maintenance.

SIGN	PRINT Thomas J. Schneider	TITLE EMC Test Engineer
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REPORT OF MEASUREMENTS

Applicant: X-10 (USA), Inc.
Device: 310 MHz Wrist Watch Emergency Call Button Transmitter
FCC ID: B4S-WR10A
Power Requirements: CR2016 Lithium 3VDC Bbattery
Applicable Rule Section: Part 15, Subpart C, Section 15.231

TEST RESULTS

- 15.231 (a) - The device is used as a transmitter for safety of life purposes in emergency situations.
- 15.231 (a)(1) & - The transmitter is manually operated and ceases transmission within 5
15.231(2) seconds after deactivation.
- 15.231 (a)(3) - The transmitter does not perform periodic transmissions.
- 15.231 (a)(4)- The device is employed for RC purposes involving safety of life purposes.
- 15.231 (b) - The fundamental field strength did not exceed 5833 $\mu\text{V/M}$ (Average) at a test distance of 3 meters. In addition, the requirements of section 15.35 for averaging pulsed emissions and for limiting peak emissions were met.
- The field strength of harmonic and spurious emissions did not exceed 583 $\mu\text{V/M}$ (AVERAGE).
- 15.231 (c) - The device operates at 310 MHz. The bandwidth of emissions did not exceed 0.25% of the operating frequency (775 kHz).

REPORT OF MEASUREMENTS (continued)

DETERMINATION OF FIELD STRENGTH LIMITS

The field strength limits shown below are found in Section 15.231.

Frequency		Limit	
F1	= 260	3750	= L1
Fo	= 310		Lo
F2	= 470	12500	= L2

The formula below was utilized to determine the limits:

$$\text{Limit} = L1 + [(Fo-F1)(L2-L1)/(F2-F1)]$$

Solving yields:

$$\text{Fundamental Limit} = 5,833 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

$$\text{Harmonic Limit} = 583 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

DETERMINATION OF DUTY CYCLE

The unit's RF output was directly coupled to the input of the spectrum analyzer. The analyzer was set for a frequency span of 0Hz. The sweep time was then adjusted in order to display one full pulse train. The transmitter on time was then summed and compared to the time for one full cycle in order to obtain the duty cycle.

Transmitter On Time	=	39.0 milliseconds (maximum- worst case in 100 ms)
Transmitter Cycle Time	=	126.4 milliseconds
Transmitter Duty Cycle	=	39.0 %

CALCULATION:

1 Large Pulse	=	9.6 milliseconds
42 x 700 μs (small pulse)	=	29.4 milliseconds
9.6 + 29.4	=	39 milliseconds
Duty Cycle	=	39.0 %
Correction Factor	=	-8.2 db (.39 log 20 = 8.2)

REPORT OF MEASUREMENTS (continued)

SPECTRUM ANALYZER DESENSITIZATION CONSIDERATIONS

Due to the nature of the emissions being measured, care was taken to ensure that the resolution bandwidth of the spectrum analyzer was adequate to provide accurate measurements. The following formula was utilized:

Setting pulse desensitization equal to zero and utilizing the minimum observed pulse width of 700 μ s yields a minimum required bandwidth of 952.4 Hz. FCC specified bandwidths of 100kHz and 1MHz were utilized below and above 1GHz, respectively.

GENERAL NOTES

1. All readings were taken utilizing a peak detector function at a test distance of 3 meters.
2. The duty cycle was applied to the peak readings in order to determine the average value of the emissions.
3. All measurements were made with (1) CR2016 Lithium 3 VDC battery installed in the unit.
4. The frequency range was scanned from 30 MHz to 3.1 GHz . All emissions not reported were more than 20 dB below the specified limit.

Exhibit 6
Report of Measurements
Radiated Emissions Data, Para. 15.231(a)

Exhibit 6

Report of Measurements

Occupied Bandwidth, Para. 15.231(c)

Exhibit 6

Report of Measurements
Duty Cycle Determination

Exhibit 6

Report of Measurements

TEST EQUIPMENT LIST

EQUIPMENT LIST

FCC Part 15 Subpart C Radiated Emissions

EN	Type	Manufacturer	Frequency Range	Model No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3 Meter	RNY	8/30/97	8/30/99
128C	Double Ridge Guide	Eaton Corporation	1 GHz - 18 GHz	96001	10/6/97	10/6/98
133	Broadband Pre-Amplifier	Electro-Metrics	10 kHz - 1 GHz, 26dB	BPA-1000	6/22/98	6/22/99
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	9/19/98	3/19/99
141A	Graphics Plotter	Hewlett Packard	N/A	7470A	3/4/98	3/4/99
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	9/19/98	3/19/99
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	FP-50 - 6 dB	6/22/98	6/22/99
523	Biconilog	Electro-Mechanics	26 MHz - 1100 MHz	3143	9/30/98	10/31/98
543	Preamplifier	Hewlett Packard	1.0 GHz - 26.5 GHz	8449B	9/3/98	9/3/99