

July 9, 2001

Federal Communications Commission
Equipment Authorization Branch
7435 Oakland Mills Road
Columbia, MD 21046

Dear Sir/Madam:

Enclosed you will find an application for Certification of a PocketWizard Max Intentional Radiator, FCC ID: KDS-PW2-001. Certification is requested to the requirements of Part 15, Subpart C of the Commission's rules. This application is being filed by Retlif Testing Laboratories on behalf of LPA Design.

I trust that you will find the enclosed application to be complete; however, should you have any questions or require any additional information, please feel free to contact us.

Very truly yours,

RETLIF TESTING LABORATORIES

Scott Wentworth
Manager

Enc. (as stated)

APPLICANT

LPA Design
1350 Shelburne Road
South Burlington, VT 05403

MANUFACTURER Test Report No. R-3378N
FCC ID: KDS-PW2-001

SAME

TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C, Para. 15.231

Test Report No. R-3378N
FCC ID: KDS-PW2-001

_ TEST PROCEDURE: ANSI C63.4:1992

Test Report No. R-3378N
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Test Report No. R-3378N
FCC ID: KDS-PW2-001

TEST SAMPLE DESCRIPTION

Test Report No. R-3378N
FCC ID: KDS-PW2-001

BRANDNAME: PocketWizard Max MODEL: N/A
Test Report No. R-3378N
FCC ID: KDS-PW2-001

TYPE: Intentional Radiator - Transceiver

Test Report No. R-3378N
FCC ID: KDS-PW2-001

POWER REQUIREMENTS: 3VDC (Internal Battery or External Power Supply)

Test Report No. R-3378N
FCC ID: KDS-PW2-001

FREQUENCY OF OPERATION RANGE: 344MHz to 354MHz

Test Report No. R-3378N
FCC ID: KDS-PW2-001

_TEST FREQUENCIES: 346.5MHz and 349.0MHz

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TESTS PERFORMED

Test Report No. R-3378N
FCC ID: KDS-PW2-001

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

Test Report No. R-3378N

FCC ID: KDS-PW2-001

Para. 15.231(c), Occupied Bandwidth

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Para. 15.207(a), Conducted Emissions

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REPORT OF MEASUREMENTS

Test Report No. R-3378N
FCC ID: KDS-PW2-001

Applicant:

LPA Design

Test Report No. R-3378N
FCC ID: KDS-PW2-001

Device:

Transceiver

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FCC ID:

KDS-PW2-001

Test Report No. R-3378N
FCC ID: KDS-PW2-001

Power Requirements: 3VDC (Internal Battery or External Power Supply)

Test Report No. R-3378N
FCC ID: KDS-PW2-001

Applicable Rule Section: Part 15, Subpart C, Section 15.231

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REPORT OF MEASUREMENTS (continued)

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TEST RESULTS

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15.231 (a) -

The device is a transceiver for remote control of photographic strobes.

15.231 (a)(1) &- The transmitter is manually operated and ceases transmission less than 5

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15.231 (2) seconds after deactivation.

15.231 (a)(3) - The transmitter does not perform periodic transmissions at regularly predetermined

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FCC ID: KDS-PW2-001

intervals.

15.231 (a)(4)-

The device is not employed for RC purposes involving security.

15.231 (b) -

The field strength at 346.5MHz did not exceed 77.3 dB μ V/M (7,328 μ V/M).

The field strength at 349.0MHz did not exceed 77.4 dB μ V/M (7,413 μ V/M).

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The requirements of section 15.35 for averaging pulsed emissions and for

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limiting peak emissions were met.

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The field strength of harmonic and spurious emissions did not exceed

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732 μ V/M or 741 μ V/M.

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15.231 (c) -

The device operates over a frequency range of 344MHz to 354MHz. The

sample was tested at 346.5MHz and 349.0MHz. The bandwidth of emissions

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did not exceed 0.25% of the operating frequency.

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REPORT OF MEASUREMENTS (continued)

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DETERMINATION OF FIELD STRENGTH LIMITS

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

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Frequency Tested: 346.5MHz

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FCC ID: KDS-PW2-001

Frequency

Limit

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FCC ID: KDS-PW2-001

F1 = 260 3750 = L1

Test Report No. R-3378N
FCC ID: KDS-PW2-001

Fo = 346.5

Lo

Test Report No. R-3378N
FCC ID: KDS-PW2-001

F2 = 470 12500 = L2

Test Report No. R-3378N
FCC ID: KDS-PW2-001

The formula below was utilized to determine the limits:

Test Report No. R-3378N
FCC ID: KDS-PW2-001

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

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Solving yields:

Fundamental Limit = 7,328 μ V/M (AVERAGE) @ 3 Meters

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Harmonic Limit = 732 μ V/M (AVERAGE) @ 3 Meters

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FCC ID: KDS-PW2-001

Frequency Tested: 349.0MHz

Test Report No. R-3378N
FCC ID: KDS-PW2-001

Frequency

Limit

Test Report No. R-3378N
FCC ID: KDS-PW2-001

F1 = 260 3750 = L1

Test Report No. R-3378N
FCC ID: KDS-PW2-001

Fo = 349.0

Lo

Test Report No. R-3378N
FCC ID: KDS-PW2-001

F2 = 470 12500 = L2

Test Report No. R-3378N
FCC ID: KDS-PW2-001

The formula below was utilized to determine the limits:

Test Report No. R-3378N
FCC ID: KDS-PW2-001

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

Test Report No. R-3378N
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Solving yields:

Fundamental Limit = 7,413 μ V/M (AVERAGE) @ 3 Meters

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Harmonic Limit = 741 μ V/M (AVERAGE) @ 3 Meters

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REPORT OF MEASUREMENTS (continued)

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DETERMINATION OF DUTY CYCLE

Test Report No. R-3378N
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The analyzer was set for a frequency span of 0Hz. The sweep time was then adjusted in order to

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FCC ID: KDS-PW2-001

display one full pulse train. The transmitter on time was then summed and compared to the time for

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one full cycle in order to obtain the duty cycle.

Transmitter On Time = 0.450 milliseconds (maximum)

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Transmitter Cycle Time = 5.350 milliseconds

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Transmitter Duty Cycle = 0.0841

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*See Attached Duty Cycle Timing Diagram

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SPECTRUM ANALYZER DESENSITIZATION CONSIDERATIONS

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Due to the nature of the emissions being measured, care was taken to ensure that the resolution

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bandwidth of the spectrum analyzer was adequate to provide accurate measurements.

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GENERAL NOTES

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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.

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3. The frequency range for radiated emissions was scanned from 30

MHz to 3.6 GHz. The frequency range for conducted emissions

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was scanned from 450 kHz to 30 MHz.

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EQUIPMENT LIST

Test Report No. R-3378N
FCC ID: KDS-PW2-001

Radiated Emissions

Test Report No. R-3378N
FCC ID: KDS-PW2-001

EN	Type	Manufacturer	Frequency Range	Model No.	Cal Date	Due Date
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3116 Pre-Amplifier

Miteq

0.1 GHz - 18 GHz

AFS42-35

12/3/98

12/3/99

Test Report No. R-3378N
FCC ID: KDS-PW2-001

3118 Broadband Pre-Amplifier Electro-Metrics 10 KHz - 1 GHz BPA-1000 6/24/98 6/24/99

Test Report No. R-3378N
FCC ID: KDS-PW2-001

3258	Double Ridge Guide	EMCO	1 - 18 GHz	3115	4/3/98	4/3/99
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FCC ID: KDS-PW2-001

4029	Open Area Test Site	Retlif	3 / 10 Meters	RNH	6/15/98	6/15/99
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Test Report No. R-3378N
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4202 Biconilog

EMCO

26 MHz - 2 GHz

3142

6/10/98

6/10/99

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4895 Spectrum Analyzer

Hewlett Packard

9kHz - 22GHz

8593EM

9/18/98

9/18/99

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4896 Graphics Plotter

Hewlett Packard

N/A

7470A

8/23/98

8/23/99

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FCC ID: KDS-PW2-001

EQUIPMENT LIST

Test Report No. R-3378N
FCC ID: KDS-PW2-001

Conducted Emissions

Test Report No. R-3378N
FCC ID: KDS-PW2-001

EN	Type	Manufacturer	Frequency Range	Model No.	Cal Date	Due Date
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3107	Spectrum Analyzer	Advantest	10 KHz - 3 GHz	4131B	2/9/98	2/9/99
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Test Report No. R-3378N
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4027 LISN

Solar Electronics

10 KHz - 30 MHz

9252-50-R-24BNC

6/24/98

6/24/99

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4028	Isolation Transformer	Acme	N/A	120x240	1/24/98	1/24/99
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FCC ID: KDS-PW2-001

4050 Transient Limiter

Hewlett Packard

9 KHz - 200 MHz

11970K

12/9/98

12/9/99

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FCC ID: KDS-PW2-001

4896	Graphics Plotter	Hewlett Packard	N/A	7470A	8/23/98	8/23/99
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FCC ID: KDS-PW2-001

