

July 1, 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 SAME
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TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C, Para. 15.231

TEST PROCEDURE: ANSI C63.4:1992

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TEST SAMPLE DESCRIPTION

BRAND NAME: PocketWizard Max MODEL: N/A

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TYPE: Intentional Radiator - Transceiver

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

FREQUENCY OF OPERATION RANGE: 344MHz to 354MHz

TEST FREQUENCIES: 346.5MHz and 349.0MHz

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TESTS PERFORMED

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

Para. 15.231(c), Occupied Bandwidth

Para. 15.207(a), Conducted Emissions

REPORT OF MEASUREMENTS

Applicant: LPA Design

Device: Transceiver

FCC ID: KDS-PW2-001

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

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

REPORT OF MEASUREMENTS (continued)

TEST RESULTS

- 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
15.231 (2) seconds after deactivation.
- 15.231 (a)(3) - The transmitter does not perform periodic transmissions at regularly
predetermined 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). 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
732 μ V/M or 741 μ V/M.
- 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 did not exceed 0.25% of the operating frequency.

REPORT OF MEASUREMENTS (continued)

DETERMINATION OF FIELD STRENGTH LIMITS

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

Frequency Tested: 346.5MHz

Frequency				Limit
F1	=	260	3750	= L1
Fo	=	346.5		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:

$$\text{Fundamental Limit} = 7,328 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

$$\text{Harmonic Limit} = 732 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

Frequency Tested: 349.0MHz

Frequency				Limit
F1	=	260	3750	= L1
Fo	=	349.0		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:

$$\text{Fundamental Limit} = 7,413 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

$$\text{Harmonic Limit} = 741 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

REPORT OF MEASUREMENTS (continued)

DETERMINATION OF DUTY CYCLE

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	=	0.450 milliseconds (maximum)
Transmitter Cycle Time	=	5.350 milliseconds
Transmitter Duty Cycle	=	0.0841

*See Attached Duty Cycle Timing Diagram

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.

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. The frequency range for radiated emissions was scanned from 30 MHz to 3.6 GHz. The frequency range for conducted emissions was scanned from 450 kHz to 30 MHz.

EQUIPMENT LIST

Radiated Emissions

EN	Type	Manufacturer	Frequency Range	Model No.	Cal Date	Due Date
3116	Pre-Amplifier	Miteq	0.1 GHz - 18 GHz	AFS42-35	12/3/98	12/3/99
3118	Broadband Pre-Amplifier	Electro-Metrics	10 KHz - 1 GHz	BPA-1000	6/24/98	6/24/99
3258	Double Ridge Guide	EMCO	1 - 18 GHz	3115	4/3/98	4/3/99
4029	Open Area Test Site	Retlif	3 / 10 Meters	RNH	6/15/98	6/15/99
4202	Biconilog	EMCO	26 MHz - 2 GHz	3142	6/10/98	6/10/99
4895	Spectrum Analyzer	Hewlett Packard	9kHz - 22GHz	8593EM	9/18/98	9/18/99
4896	Graphics Plotter	Hewlett Packard	N/A	7470A	8/23/98	8/23/99

EQUIPMENT LIST

Conducted Emissions

EN	Type	Manufacturer	Frequency Range	Model No.	Cal Date	Due Date
3107	Spectrum Analyzer	Advantest	10 KHz - 3 GHz	4131B	2/9/98	2/9/99
4027	LISN	Solar Electronics	10 KHz - 30 MHz	9252-50-R-24BNC	6/24/98	6/24/99
4028	Isolation Transformer	Acme	N/A	120x240	1/24/98	1/24/99
4050	Transient Limiter	Hewlett Packard	9 KHz - 200 MHz	11970K	12/9/98	12/9/99
4896	Graphics Plotter	Hewlett Packard	N/A	7470A	8/23/98	8/23/99