

July 2, 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

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

TEST PROCEDURE: ANSI C63.4:1992

TEST SAMPLE DESCRIPTION

BRAND NAME: PocketWizard Max

MODEL: N/A

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

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)

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

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

Test Report No. R-3378N  
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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 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 V/M (7,328 V/M). The field strength at 349.0MHz did not exceed 77.4 dB V/M (7,413 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 V/M or 741 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:

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

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

#### **Frequency Tested: 349.0MHz**

Frequency
Limit

$$\begin{array}{rcl}
 & F1 & = & 260 \\
 3750 & = & L1 & \\
 & F0 & = & 349.0 \\
 & & & L0 \\
 & F2 & = & 470 \\
 12500 & = & L2 & 
 \end{array}$$

The formula below was utilized to determine the limits:

$$\text{Limit} = L1 + [(F0-F1)(L2-L1)/(F2-F1)]$$

Solving yields:

$$\begin{array}{rcl} \text{Fundamental Limit} & = & 7,413 \text{ V/M} \\ \text{(AVERAGE) @ 3 Meters} & & \end{array}$$

$$\begin{array}{rcl} \text{Harmonic Limit} & = & 741 \text{ V/M} \\ \text{(AVERAGE) @ 3 Meters} & & \end{array}$$

#### 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.

$$\begin{array}{rcl} \text{Transmitter On Time} & = & 0.450 \text{ milliseconds} \\ \text{(maximum)} & & \end{array}$$

$$\text{Transmitter Cycle Time} = 5.350 \text{ milliseconds}$$

$$\text{Transmitter Duty Cycle} = 0.0841$$

\*See Attached Duty Cycle Timing Diagram

#### SPECTRUM ANALYZER

#### DESENSITIZATION CONSIDERATIONS

Test Report No. R-3378N  
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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.

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



## 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	
	6/24/986/24/99		
4028	Isolation Transformer	Acme	N/A
4050	Transient Limiter	Hewlett Packard	9
	KHz - 200 MHz	11970K	
	12/9/9812/9/99		
4896	Graphics Plotter	Hewlett Packard	N/A

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