



RF Exposure Information Attachment

FCC ID#: H9PLA4111
Wireless LAN PC Card

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Device Description

The LA-4111 is a 2.4 GHz direct sequence 11 Mb/s transceiver incorporated into a type II PC Card package. This PC Card is a module that will be used in various other devices for wireless connection to a local area network. The various devices are hand-held terminals that capture Voice, barcode, or keyboard data and exchange data with a local area network. The output power is fixed at 60 mW. This certification request includes nineteen antennas. Thirteen mobile antennas whose use meet the 20 cm rule and 6 portable antennas that are incorporated into hand held devices.

MPE distance Calculations

Calculations of the MPE distance for each antenna are based on using equation (3) of OET Bulletin 65. Equation (3) was used instead of equations (11) through (18) for ease of computation justified by the fact that equation (3) leads to calculations of higher field strength and a greater MPE distance. All distances are calculated using 60 mW.

$$R = \sqrt{PG/4\pi S}$$

$$P = 60 \text{ mW}$$

$$S = 1 \text{ mW/cm}^2$$

$$G = 10^{(9.5 \text{ dBi}/10)} = 8.9$$

$$R = \sqrt{60 * 8.9 / 4\pi} = 6.52 \text{ cm}$$

In the case of the Parabolic Grid the MPE distance is 6.52 cm.

EIRP Calculations

The basis for the EIRP calculation is OET Bulletin 65 Supplement C page 22 footnote 17.

$$\text{EIRP} = 10^{(P_{\text{out}} (\text{dBm}) + \text{Antenna Gain (dBi)} - \text{Cable Loss (db)})/10}$$

$$= 10^{((17.7 + 23 - 14)/10)} = 468 \text{ mW}$$

Mobile Devices

Symbols mobile devices fall in the OET Bulletin 65 Supplement C Table 1 category:

Transmitter or DeviceType	EIRP	Applicable Methods to Ensure Compliance
Transmitters using indoor antennas that operate at 20 cm or more from nearby persons.	≤ 2.5 W EIRP at 915 MHz or ≤ 4 W EIRP at 2450 MHz	Transmitters operating at 2.5 W EIRP (1.5 W ERP) or less at 915 MHz, or at 4 W EIRP (2.4 W ERP) or less at 2450 MHz, generally are not expected to exceed MPE limits when nearby persons are 20 cm or more from most antennas. Therefore, special instructions and warnings are normally not necessary to ensure compliance.

Warning Instructions:

Not Required

Portable Devices

Symbols portable devices fall in the OET Bulletin 65 Supplement C Table 1 category:

Transmitter or DeviceType	EIRP	Applicable Methods to Ensure Compliance
Cordless phone handsets and most other transmitters using monopole or dipole type antennas as an integral part of the device.	≤ 0.3 W at 915 MHz or ≤ 0.2 W at 2450 MHz	These transmitters generally are not expected to exceed MPE limits (0.61 mW/cm ² at 915 MHz and 1.0 mW/cm ² at 2450 MHz); special instructions or warnings are normally not necessary to ensure compliance.

Warning Instructions:

Not Required

Antenna Summary Table

Mobile Antennas

Ant #	Model	Symbol P/N	Gain ¹ (dBi)	Cable Loss (dB)	Output Power ² (dBm)	EIRP (mW)	Tested ³
1	Plane Antenna	ML-2499-PSA1-00	0 dBi	.5	17.2	52	Yes
2	Dipole Antenna (4' Cable),	ML-2499-HPA1-00 (4 ft)	3.8 dBi	0.8	16.9	117	Yes
2.1	Dipole Antenna (15" cable)	ML-2499-HPA2-00 (15 ft)	3.8 dBi	3.8	13.9	59	Yes
3	Rubber Duck	ML-2499-APA1-00	1 dBi	0	17.7	74	Yes
4	Yagi	ML-2499-YGA1-01	13 dB	4	13.7	468	Yes
5	Patch	ML-2499-PTA1-01	6 dBi	2	15.7	148	Yes
6	Panel	ML-2499-PNA1-01	11dBi	3.4	14.3	339	Yes
15	Parabolic Grid	ML-2499-PGA1-00	23 dBi	14	3.7	468	Yes
16	S2406	ML-2499-WHA1-20/30	7	5.6 / 8.4	12.1 / 9.3	81 / 43	Yes
18	Corner Patch	ML-2499-DLA1-06	7.5 dBi	2.5	15.2	186	Yes
19	Ceiling Mount Panel	ML-2499-SD24-06	3.3 dBi	1.5	16.2	89	Yes
X	Access Point	21-20667-01	2.2 dBi	.2	17.5	93	Yes

Portable Antennas

Ant #	Model	Symbol P/N	Gain	Cable Loss (dB)	Output Power (dBm)	EIRP (mW)	Tested
9	4640	21-17486-02	< 0 dBi	0	17.7	60	Yes
10	2140	10-17577-01	< 0 dBi	0	17.7	60	Yes
11	6140	10-35305-01	< 0 dBi	0	17.7	60	Yes
12	6840	10-32290-01	< 0 dBi	0	17.7	60	Yes
17	Criticare	50-21900-021	0 dBi	0	17.7	60	Yes
20	2040	10-17577-02	< 0 dBi	0	17.7	60	Yes
Z	End Cap	ML-3099-PCEC-01	0 dBi	0	17.7	60	Yes

¹ Antenna gain is without cable loss

² Includes cable loss

³ Restricted band data included in test report