

Compliance with 47 CFR 15.247(i)

“Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.”

The EUT is a 802.11(b) radio that will be installed in the HP Handheld sp400f All-in-One Scanner Printer. The radio operates in the 2.4 – 2.4836 GHz frequency range. The radio is not intended for long term use within 20 centimeters of the head or torso of a user. The HP Scanner Printer can be used either as a handheld or hand mounted device. As such, the RF Exposure condition will be handheld portable. Please see the attached FCC Inquiry (Tracking Number 743944) that verifies that the EUT is not subject to routine environmental evaluation per 47 CFR 2.1091(c). Per 47 CFR 1.1310, the EUT must meet the General Population / Uncontrolled exposure limits listed in Table 1.

The radio, when installed in the HP Scanner Printer will only use a single chip antenna, the Wireless Business Unit M/N: WPANTFR4022A PIFA antenna, gain = 2.0 dBi. Per the original grant, the maximum conducted output power was 15.66 dBm (36.8 mW)

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population as 1 mW/cm². The exposure level at a 20 cm distance from the EUT's transmitting antenna is calculated using the general equation:

$$S = (PG)/4\pi R^2$$

Where: S = power density (mW/cm²)

P = power input to the antenna (mW)

G = numeric power gain relative to an isotropic radiator

R = distance to the center of the radiation of the antenna (20 cm = limit for MPE estimates)

PG = EIRP

Solving for S, the maximum power density 20 cm from the transmitting antenna is summarized in the following table:

MPE Estimate

FCC ID: B94CE190A

Antenna Type	Antenna Part No.	Transmit Frequency (MHz)	Max Peak Conducted Output Power (mW)	Antenna Gain (dBi)	Minimum Antenna Cable Loss (dB)	Power Density @ 20 cm (mW/cm ²)	General Population Exposure Limit from 1.1310 (mW/cm ²)
PIFA	WPANTFR4022A	904.86	36.8	2	0	0.012	1

The power density does not exceed 1 mW/cm² at 20 cm; therefore, the exposure condition is compliant with FCC rules.

The applicant's radio, FCC ID: B94CE190A, is compliant with the requirements of 15.247(i).

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From: **Generic Office of Engineering Technology** <oetech@fccsun27w.fcc.gov>

Date: Aug 1, 2007 2:14 PM

Subject: Response to Inquiry to FCC (Tracking Number 743944)

To: gkiemel@nwemc.com

Inquiry:

The attached document describes a WiFi enabled PDA that is only hand-held. There are no provisions for use within 20 cm of the head or torso. The manufacturer would like to have confirmation from the FCC that the device does not require SAR evaluation since it is a hand-held only portable.

Response:

based on description, handheld-only appear to be appropriate and applicable

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