

**MOTOROLA**

Date: April 22, 1999.

Authorization & Evaluation Division  
Federal Communications Commission Laboratory  
7435 Oakland Mills Road  
Columbia, MD 21046

Att: Mr. Frank Coperich

Re: Response to questions concerning Certification of Transmitter with FCC ID: AZ489FT5792.

Dear Mr. Coperich:

Motorola Inc., 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322, herein submits the following information in response to your request on the effective radiated power (ERP).

The effective radiated power is the product of the RF output power stated in the table of Exhibit 12 originally submitted (to show compliance with 47 CFR 90.635(b) per 47 CFR 2.985(a)) times the gain of the collapsible antenna relative to a half-wave dipole. The gain of the collapsible antenna supplied with the radio is close to that of a dipole antenna so the ERP is close to the RF power output. Affecting the magnitude of the ERP is the state of the antenna, collapsed versus extended.

The radiation pattern of the radio is very uniform in a free space condition with a variation of about 1 dB when the radio is rotated about its axis. ERP information provided in the following revised version of Table 2 for Exhibit 12 was the greatest radiated power observed during rotation, which occurred in the extended state of the antenna. The revised table also clarifies the operating duty cycle for various user selected radio operational modes described in the user manual. It is evident from Table 2 that this radio intended for authorization per Part 90 rules is also compliant with the Broadband PCS requirement of 2 watts or less E.I.R.P given in 47 CFR 24.2321(b) as well as the Cellular Radiotelephone Service requirement of 7 watts or less ERP given in 47 CFR 22.913(a).

For purposes of relating this ERP information to the previously supplied SAR information and RF power output information, an RF output power level for 15 ms. transmission pulses of 0.75 watts produces an ERP of 840 milliwatts which corresponds to a TDM duty cycle of 100%. The SAR value reported of 0.81 W/kg measured at the head was obtained during a test at 33.33% duty cycle which, per the revised table, corresponds to a mean ERP of 280 milliwatts.

## **Section 12-2: Effective Radiated Power per Radio Multiplex Factor**

| <b>81/120 Multiplexing</b><br>(67.5 % duty cycle)<br>Packet data mode maximum duty cycle | <b>2/6 Multiplexing</b><br>(33.33 % duty cycle)<br>Telephone mode (standard) | <b>1/6 Multiplexing</b><br>(16.67 % duty cycle)<br>Dispatch radio mode, or optional telephone mode | <b>COMMENTS</b>                                                                                       |
|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 2.25 to 840 milliwatts                                                                   |                                                                              |                                                                                                    | Mean ERP limits over any 15 ms transmission pulse.<br>Operational ERP is set by base station control. |
| 1.7 to 570 milliwatts                                                                    | 0.75 to 280 milliwatts                                                       | 0.38 to 140 milliwatts                                                                             | Mean ERP limits over any 1.8 second interval.<br>Operational ERP is set by base station control       |

The ERP characteristic was measured while a radio was vertically mounted on a non-conducting platform/turntable in a Scientific Atlanta model 2083A Antenna Measurement System. Since the instrumentation for the measurement system RF anechoic chamber did not support pulsed measurements the radio was set into a test mode which enabled transmission of a continuous wave (CW) signal. The power received at a Watkins-Johnson model AR122 antenna located at the end of the chamber was recorded on a Hewlett Packard model 8566B spectrum analyzer, and scaled upwards to compensate for the calibrated path loss and deviation from normally rated RF output power.

Contact me at (954) 723-5793 if you require any additional information.

Regards,

Mike Ramnath  
 FCC Liaison  
 Email address: emr003@email.mot.com