MOTOROLA

Date: May 20, 1999.

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

Dear Mr. Coperich:

Motorola Inc., 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322, is sending the following information in support of our application for Certification of transceiver with FCC ID: AZ489FT5792 (Confirmation Number: EA93655) based on experience gained with the Certification of similar transceiver with FCC ID: AZ489FT5793.

Effective Radiated Power (ERP)

An associated base station allocates a number of 15ms time division multiplex (TDM) time slots in which the transceiver transmits, depending on the user requested transmission mode. The trunking system protocol for voice transmission uses a 90ms frame divided into six 15ms time slots. Two-way radio dispatch transmissions are accomplished using one time slot, while PSTN interconnect calls utilize either 1 or 2 time slots. Circuit data mode is one in which the transceiver functions as a wireless RF modem which utilizes 2 time slots. In the packet data mode, the protocol uses a multiple of voice/circuit data mode frames, with a duty cycle which varies with the RF environment, the worst case duty cycle of 67.5% occurring with 20 frames (120 time slots). These slot allocations are summarized in the following table.

The effective radiated power is the product of the RF output power times the gain of the collapsible antenna relative to a half-wave dipole times a duty cycle factor. In the case herein submitted, a pulse average RF output power level of 720 milliwatts (for 15 ms. transmission pulses) produces an ERP of 744 milliwatts. The radiation pattern of the radio is very uniform in a free space condition with a variation of about 2 dB when the radio is rotated about its axis. ERP information provided in the following table was the greatest radiated power observed during rotation, which occurred in the extended state of the antenna. This table also corrects the duty cycle information originally supplied, and clarifies the operating duty cycle for various user selected radio operational modes described in the user manual. It is evident from the ERP table 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).

The RF output power of the transceiver also is controlled by the base station receiver which senses the received signal strength and, via control channel commands, adjusts active transmitter output power in approximately 1dB steps over the range from maximum rated

output power to approximately 35 dB cutback.

Table 1 Effective Radiated Power per Radio Multiplex Factor

81/120 Multiplexing (67.5 % duty cycle) Packet data mode maximum duty cycle	**2/6 Multiplexing** (33.33 % duty cycle) Telephone mode (standard)	**1/6 Multiplexing** (16.67 % duty cycle) Dispatch radio mode, or optional telephone mode	**COMMENTS**
0.166 to 744 milliwatt			Mean ERP limits over any 15 ms transmission pulse. Operational ERP is set by base station control.
0.112 to 502 milliwatt	0.055 to 248 milliwatt	0.028 to 124 milliwatt	Mean ERP limits over any 1.8 second interval. Operational ERP is set by base station control

The following ratings given in Exhibit 12.1 have been revised for consistency with the table above

E. DC Voltage and Current into the final RF amplifier stage/stages at standard test voltage	4.8 Volts DC *250 mA mean current at 1/6 Multiplexing* *500 mA mean current at 1/3 Multiplexing* *1012.5 mA mean current at 81/120 Multiplexing*

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.

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

Regards,

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FCC Liaison
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