



Date: August 10, 2000

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

Attention: Joe Dichoso and Kwok Chan

Subject: Response to correspondence number 13976 dated May 11, 2000, confirmation number EA97526, for FCC ID: AZ492FT4835.

Gentlemen:

Motorola, Inc. is responding to the correspondence number 13976. In addition to the answers provided below, we are enclosing a report of the SAR measurement for two types of antennas used for the UHF, 403-470 MHz, Mobile unit.

Q1. This transmitter is categorically excluded from routine MPE evaluation. However, because of its relatively higher output (30 watts) and lower MPE limit (0.269 mW/cm^2) allowed at its operating frequency, additional information is needed to confirm if MPE compliance can be assured. An RF exposure compliance statement has been submitted for this filing indicating that Motorola had subject this device to RF exposure evaluation. The mentioned test data may be used to address RF exposure concerns, or Motorola may choose to use other alternative means to address the exposure concerns.

A1. Motorola is enclosing the MPE Test Report dated 3/17/00, as requested in item 1. This original report indicated this Mobile Radio was tested and certified to be compliant to the FCC's limits for Occupational/Controlled Exposures (1.343 mW/cm^2) for people outside the car and to the General Population/Uncontrolled Exposure limit of 0.269 mW/cm^2 for people inside the car. Subsequent to guidance received from the FCC on other Mobile Products the exposure levels for people outside the vehicle have been re-evaluated to the Uncontrolled Limits. The results of this re-evaluation have been documented in Motorola Technical Report "UHF band mobile unit (antenna) report: SAR measurements" (attached) and relate actual SAR to measured MPE levels. This report clearly shows that the exposure levels of people outside the car are below the FCC SAR limit of 1.6 W/kg for the uncontrolled population.

Q2. The user's manual indicates a separation distance of 2 feet (61 cm) is needed between the antenna and persons to satisfy RF exposure requirement. The manual indicates transmission should only occur when people inside and outside of a vehicle are at least maintaining this minimum distance from the antenna. It is not clear if the information included in the manual can effectively alert all radio operators/users so that RF exposure compliance can be assured. The burden and responsibility for ensuring compliance are resting on the radio operators to ensure all

persons are at least 2 feet away from the antenna during transmission to ensure compliance. Currently, the manual information has instructed people inside a vehicle to be at least 2 feet away from the antenna, which may not be always feasible. Please clarify these issues accordingly. If MPE test data is available, it would clarify the actual distance needed for ensuring compliance.

A2. Please refer to the enclosed revised User's Manual wherein the previous instructions to the operator to assure people inside the car are a specified distance from the antenna have been deleted. This is consistent with the test results contained in the MPE report which indicate levels inside the car, both front and rear seat locations, adequately meet the General Population/Uncontrolled Exposure limit of 0.269 mw/cm^2 for all intended antenna locations.

The revised user manual provides adequate instructions to the operator not to transmit unless people outside the vehicle are at least 2 feet from the antenna.

Q3. The manual stated installation of vehicle-mount antennas are according to requirements of the antenna manufacturer and installation instructions for this radio. Five antennas, up to 5 dBd gain, have been identified in the manual for this device's operating frequency. The antennas indicated in the Operational Description Exhibit appear to be in error (model #s do not match frequency range?) and also included other 50 ohm antennas. Please clarify the type of installation instructions that will be available for users and installers to ensure RF exposure compliance and identify the antennas that will be used for this device.

A3. Motorola is enclosing the antenna installation instructions which is used for other antennas including the one for the above application. We have amended the User's Manual and Exhibit 12, Section h (Operational Description) of the application to reflect the type of antennas available with this product. The available antennas are as follows:

HAE4002A	Mini-U 403-430 MHz, 1/4 Wave Roof Mount
HAE4003A	Mini-U 450-470 MHz, 1/4 Wave Roof Mount
HAE4010A	Mini-U 406-420 MHz, 3.5dB Gain Roof Mount
HAE4011A	Mini-U 450-470 MHz, 3.5dB Gain Roof Mount

Please note that antenna HAE4019A was part of the MPE Report. However, we have decided that we will not offer this antenna with this radio.

Q4. The manual indicates this device may be used with an antenna installed outside of buildings, please clarify if this is one of the intended operating configurations for this device. If so, appropriate installation instructions and requirements should be provided to users and installers for satisfying RF exposure compliance.

A4. Yes, fixed site configuration with external antenna is one of the intended operating configurations. Please refer to the recently enhanced installation instructions addressing this type of configuration found in the User and Radio Installation Manuals.

We trust that the above information satisfies your requirements. Please contact me at

(954) 723-5793, if you require any additional information.

Sincerely,

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FCC Liaison.
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