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SAR Test Report for Motorola Mobile Device – W24

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The Motorola Personal Communications Sector Product Safety & Compliance Laboratory has evaluated the WiFi module, W24, as a mobile device per 47 CFR §1.1310 titled "Radiofrequency radiation exposure limits", generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as "a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons." This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product, Motorola has made the following statement: "**IMPORTANT:** To meet the FCC's RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna". Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 centimeters from the user. Thus, this product is a "mobile device" as defined in section § 2.1091 paragraph (b). Table 1 (B) of 47 CFR §1.1310 lists the limits for MPE for the General Population. Since the mobile cellular phone operates in the 2450 MHz band, the listed limit of 1.0 mW/cm² applies.

The MPE of a radiating structure can be calculated by knowing the transmit EIRP and the distance at which MPE is being calculated. In this case MPE will be calculated at 20 cm, which is the minimum separation between the body of the user and nearby persons and the antenna. The maximum sourced based time-averaged transmit power for this product is 0.316 Watts in the 2450 MHz band, this assumes a worst case 100% duty rate. When installed using a cable loss of 0.65 dB and antenna gain at 2437 MHz of 3.0 dBi, 0.277 mW/cm² is achieved at a distance of 20cm from the antenna. This is below the specified MPE limit. Therefore, by requiring the user and nearby persons to remain at least 20cm from the antenna, the MPE is not exceeded.