



January 23, 2001.

Mr. Joe Dichoso and Dr. Kwok Chan
 Authorization & Evaluation Division
 Federal Communications Commission Laboratory
 7435 Oakland Mills Road
 Columbia, MD 21046

Re: Form 731 Confirmation Number: EA 98914 with FCC ID: AZ489FT5798.

Gentlemen;

Motorola Inc., 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322, herein submits its response to the January 9, 2001 request for information on FCC ID: AZ489FT5798, EA98914 via correspondence number 17641.

Q1. The SAR report indicates this PTT radio may operate with a half-wave or a quarter-wave antenna. The SAR results tabulated in Section 7 of the test report do not provided sufficient info for determining the specific antennas, operating configurations, belt-clips and holsters that have been tested. The device may be used with three different belt-clips and three different holsters. It is unclear how the construction of these body-worn accessories, such as metallic components and separation distances, may affect body-worn SAR for the corresponding antenna configurations. Please clarify and provide the applicable test data to support compliance for these device operating configurations.

A1. All accessories listed in section 3 of the SAR test report were evaluated at the center of the primary transmit band. For example, at the body-worn configuration, both of the antennas were examined at the frequency 815.525MHz with the belt clip (kit # HLN9844A) and different battery types. The following table indicates the results of the highest SAR for each antenna:

Table1:

Body Worn test configuration	Battery	Antenna	Test Freq (MHz)	Distance (cm)	Measured SAR (mW/g)
Belt clip (HLN9844A)	HNN9013B	NAF5042A (1/4 Wave)	815.525	2.1	6.4
Belt clip (HLN9844A)	HNN9013B	NAF5037A (1/2 Wave)	815.525	2.1	5.0

Then, with the combination of battery and antenna that provided highest SAR were used to evaluate all the carry accessories listed in section 3 of the SAR test report. The following table indicates the SAR results and separation distances for each of the tested carry accessories:

Table 2:

Body Worn test configuration	Battery	Antenna	Test Freq (MHz)	Distance (cm)	Measured SAR (mW/g)
Belt clip (HLN9844A)	HNN9013B	NAF5042A (1/4 Wave)	815.525	2.1	6.4
Belt clip (HLN9714A)	HNN9013B	NAF5042A (1/4 Wave)	815.525	2.2	5.3
Belt clip carry holder (HLN9952A, HLN9844A)	HNN9013B	NAF5042A (1/4 Wave)	815.525	2.7	5.0
Case, std leather, short, DTMF, belt loop, thin battery (HLN9677A) and carry strap (NTN5243)	HNN9013B	NAF5042A (1/4 Wave)	815.525	3.4	3.3
Case, nylon with belt loop (HLN9701B)	HNN9013B	NAF5042A (1/4 Wave)	815.525	3.1	3.1
Case, std leather, short, DTMF, swivel, thin battery (HLN9690A)	HNN9013B	NAF5042A (1/4 Wave)	815.525	5.2	1.9

Finally, with the combination of battery, antenna, carry accessory that provided the highest SAR result (in this case, battery: HNN9013B, antenna: NAF5042A, beltclip:HLN9844A) were used to evaluate at other frequencies and highest SAR results are listed in section 7 of the SAR report.

Q2. Please provide photos or illustrations to identify the individual body-worn accessories, their construction and operating configurations to support their test conditions.

A2. Pictures and description of body-worn accessories



Side view: Radio with carry accessory



Front view: from left to right HLN9844A, HLN9714A, HLN9952, HLN9690A, HLN9677A, HLN9701B.



Back View: from left to right HLN9844A, HLN9714A, HLN9952, HLN9690A, HLN9677A, HLN9701B.



HLN9690A: Standard leather case with swivel leather belt loop.

DESCRIPTION OF BODY-WORN ACCESSORIES:

- HLN9844A:** spring belt clip, 2 inches, fits all batteries
- HLN9714A:** spring belt clip, 3 inches, fits all batteries
- HLN9952:** plastic carry holder can be used with either belt clips (HLN9844A or HLN9714A), fits all batteries.
- HLN9690A:** short standard leather case with swivel leather belt loop, fits thin battery
- HLN9677A:** short standard leather case with attached leather belt loop, fits thin battery. This case also has two carry strap retaining rings for the shoulder strap option.
- HLN9701B:** short nylon case with belt loop, fits all batteries. This case also has two carry strap retaining rings for the shoulder strap option.

Q3. Please provide additional SAR plots to identify the peak SAR locations resulted from the two antenna configurations and body-worn accessories, one for each configuration or by description if the SAR distributions and locations are substantially similar.

A3. The following is the SAR plots for data included in above tables:

Waris 9cm Whip Ant- Abdomen; Test Date:09/07/00

Run #: PMUF1064A_ 00090707, Time: 29-36 min.

Model #: PMUF1064A, S/N: WQ35N0YA,

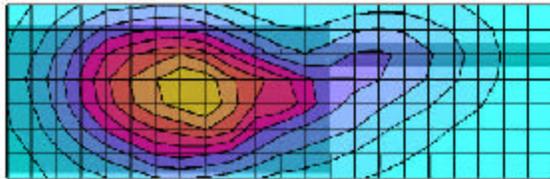
Meas Power: 2.79W, Tx_Freq: 815.525 MHz,

Batt: HNN9013B, **Ant: NAF5042A**, RSM: HMN9052A, **Belt Clip: HLN9844**

Full bodyPhantom; Full Body_Abdomen

Probe: ET3DV6 - SN1384; ConvF(6.45,6.45,6.45); Crest factor: 1.0; Muscle 835 MHz : s = 1.08 mho/m $\epsilon_r = 51.9$ $\rho = 1.07$ g/cm³

Cube 5x5x7:SAR (1g): 6.39 mW/g, (Worst-case extrapolation)



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Waris 17cm Whip Ant_Abdomen; Test Date:09/07/00

Run #: PMUF1064A_00090706, Time: 36 min.

Model #: PMUF1064A, S/N: WQ35N0YA,

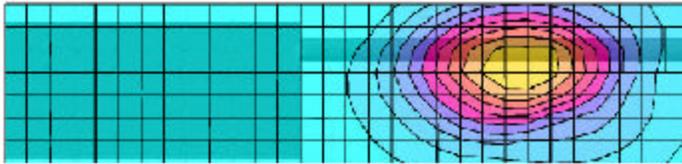
Meas Power: 2.79W, Tx_Freq: 815.525 MHz,

Batt: HNN9013B, **Ant: NAF5037A**, RSM: HMN9052A, **Belt Clip: HLN9844**

Full bodyPhantom; Full Body_Abdomen

Probe: ET3DV6 - SN1384; ConvF(6.45,6.45,6.45); Crest factor: 1.0; Muscle 835 MHz : s = 1.08 mho/m $\epsilon_r = 51.9$ $\rho = 1.07$ g/cm³

Cube 5x5x7:SAR (1g): 5.04 mW/g, (Worst-case extrapolation)



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Waris 9cm Whip Ant- Abd; Test Date: 09/11/00

Run #: PMUF1064A_ 00091101, Time: 30 min.

Model #: PMUF1064A, S/N: WQ35N0YA,

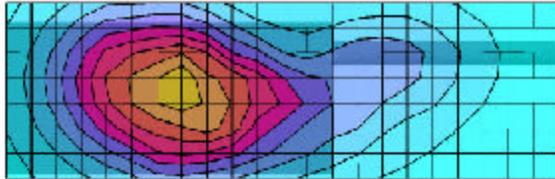
Meas Power: 2.79W, Tx_Freq: 815.525 MHz,

Batt: HNN9013B, **Ant: NAF5042A**, RSM: HMN9052A, **Belt Clip: HLN9714**

Full bodyPhantom; Full Body_Abdomen

Probe: ET3DV6 - SN1384; ConvF(6.45,6.45,6.45); Crest factor: 1.0; Muscle 835 MHz : s = 1.08 mho/m $\epsilon_r = 51.9$ $\rho = 1.07$ g/cm³

Cube 5x5x7:SAR (1g): 5.27 mW/g, (Worst-case extrapolation)



Motorola CGISS EME Lab

Waris 9cm Whip Ant- Abd; Test Date:09/11/00

Run #: PMUF1064A_00091102, Time: 29 min.

Model #: PMUF1064A, S/N: WQ35N0YA,

Meas Power: 2.79W, Tx_Freq: 815.525 MHz,

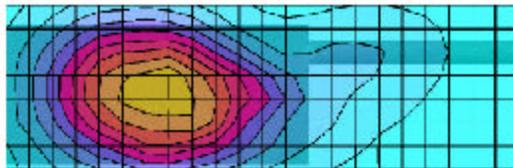
Batt: HNN9013B, **Ant: NAF5042A,**

RSM: HMN9052A, Belt Clip: HLN9844, Carry Holder: HLN9952

Full bodyPhantom; Full Body_Abdomen

Probe: ET3DV6 - SN1384; ConvF(6.45,6.45,6.45); Crest factor: 1.0; Muscle 835 MHz : s = 1.08 mho/m e r = 51.9 r = 1.07 g/cm³

Cube 5x5x7:SAR (1g): 5.01 mW/g, (Worst-case extrapolation)



Motorola CGISS EME Lab

Waris 9cm Whip Ant- Abd; Test Date: 09/11/00

Run #: PMUF1064A_00091104, Time: 29 min.

Model #: PMUF1064A, S/N: WQ35N0YA,

Meas Power: 2.79W, Tx_Freq: 815.525 MHz,

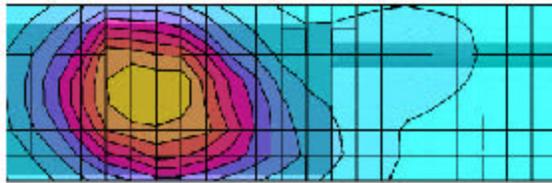
Batt: HNN9013B, **Ant: NAF5042A,**

RSM: HMN9052A, **Leather case w/ belt loop:HLN9677 & Carry strap: NTN5243**

Full bodyPhantom; Full Body_Abdomen

Probe: ET3DV6 - SN1384; ConvF(6.45,6.45,6.45); Crest factor: 1.0; Muscle 835 MHz : s = 1.08 mho/m e r = 51.9 r = 1.07 g/cm³

Cube 5x5x7:SAR (1g): 3.31 mW/g, (Worst-case extrapolation)



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Waris 9cm Whip Ant- Abd; Test Date: 09/11/00

Run #: PMUF1064A_00091103, Time: 30 min.

Model #: PMUF1064A, S/N: WQ35N0YA,

Meas Power: 2.79W, Tx_Freq: 815.525 MHz,

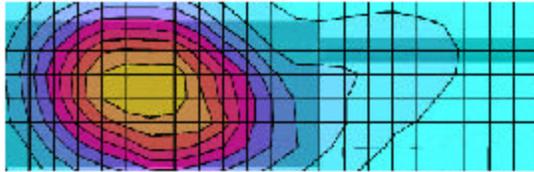
Batt: HNN9013B, **Ant: NAF5042A,**

RSM: HMN9052A, **Nylon case: HLN9701B**

Full bodyPhantom; Full Body_Abdomen

Probe: ET3DV6 - SN1384; ConvF(6.45,6.45,6.45); Crest factor: 1.0; Muscle 835 MHz : s = 1.08 mho/m e r = 51.9 r = 1.07 g/cm³

Cube 5x5x7:SAR (1g): 3.05 mW/g, (Worst-case extrapolation)



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Waris 9cm Whip Ant- Abd; Test Date:09/11/00

Run #: PMUF1064A_ 00091104, Time: 29 min.

Model #: PMUF1064A, S/N: WQ35N0YA,

Meas Power: 2.79W, Tx_Freq: 815.525 MHz,

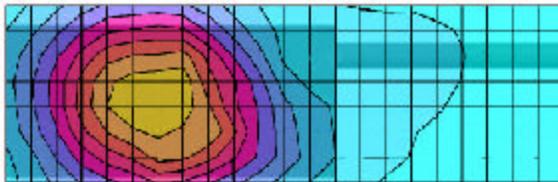
Batt: HNN9013B, **Ant: NAF5042A,**

RSM: HMN9052A, **Leather case swivel: HLN9690**

Full bodyPhantom; Full Body_Abdomen

Probe: ET3DV6 - SN1384; ConvF(6.45,6.45,6.45); Crest factor: 1.0; Muscle 835 MHz : s = 1.08 mho/m e r = 51.9 r = 1.07 g/cm³

Cube 5x5x7:SAR (1g): 1.85 mW/g, (Worst-case extrapolation)



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Q4. This radio is intended for occupational use only and body-worn SAR only complies with controlled exposure limit at 50% duty factor. In order for users to qualify for controlled exposure, they must have the knowledge to control their exposure conditions and duration to satisfy the higher occupational exposure limit. Users may acquire this knowledge by specific training, either to be trained in person or provided with detailed training instructions. The parties responsible for user training should be clearly identify. If user training can be fulfilled by detailed instructions, an RF exposure label on the device for directing users to the specific instructions is usually necessary. Please submit a copy of the training info/instructions. (As an example, see FCC ID: OWDTR-0006-E or other recently approved similar filings).

A4. This device will be marketed to and used by employees of public safety agencies, e.g police, fire and emergency medical, solely for work-related operations. User training is the responsibility of these agencies, who can be expected to employ the usage instructions, safety information and operational cautions set forth in the user's manual, instructional sessions or other means. Motorola also makes available to its customers training classes on the proper use of two-way radios.

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

Regards,
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