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Supplement to SAR Test Report for Motorola portable cellular phone (FCC ID IHDT6NF1).

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### 1. Summary of FCC request for additional information

There was a request for additional information regarding Motorola's SAR Test Report for Motorola portable satellite transceiver (FCC ID IHDT6NF1) dated August 26, 1999. The requested information may be summarized as follows:

- A) There is a need to re-confirm the conductivity value of the simulated tissue.
- B) The need to conduct SAR evaluation with applicable cellular phone modules installed in the portable satellite transceiver.

### 2. Conductivity value of the simulated tissue.

The Motorola portable satellite transceiver (FCC ID IHDT6NF1) was tested against a phantom head that was filled with simulated head tissue. As described in the original report dated August 26, 1999, the simulated head tissue had a relative dielectric constant equal to 41 and a conductivity equal to 1.32 S/m. Also stated was: "The composition of the liquid mixture is as follows: 45.9% water; 53.0% sugar; 0% salt, 1% HEC; and 0.1% bactericide." A mixture with the same composition was made and measured and found to have a relative dielectric constant of 40 and conductivity of 1.56 S/m. These are slightly different values than were originally found. Since the conductivity is higher than is required by the FCC's value of 1.07 S/m at 1620 MHz, the measured SAR values are being overstated.

### 3. Satellite mode SAR evaluation with cellular phone modules installed.

The Motorola portable satellite transceiver (FCC ID IHDT6NF1) was tested with three different cellular phone modules installed. The SAR data was taken with the transceiver in satellite mode. The SAR data for Motorola portable cellular phone modules with FCC ID numbers IHDT5NC1 (AMPS/CDMA 800 MHz) and IHDT6NB1 (CDMA 1900 MHz) are pending and will be submitted to the FCC at a later date. The SAR data for the Motorola portable cellular phone module FCC ID IHDT56NA1 (AMPS/TDMA 800/1900 MHz) will be submitted with that report at the time of filing on a future date.

The portable satellite transceiver tested in the report dated August 26, 1999 (serial number 081099-2) is not software compatible with the cellular phone modules listed above. Thus a new unit, serial number 00426v, has been used for the SAR data taken in this report. Figure 1 shows the front of the portable satellite transceiver tested. Figure 2 shows the back of the portable satellite transceiver with a portable cellular phone module installed. The antenna has the same retracted and extended antenna positions as does the unit in the August 26, 1999 report. Figure 3 shows the portable satellite transceiver with a portable cellular phone module installed as it is placed onto the phantom. The unit tested is also mechanically and electrically identical to the August 26, 1999 unit except for the software that makes it compatible with cellular phone modules. For the purposes of this report, the portable satellite transceiver was fully tested with one of the cellular phone modules. Then the worst case antenna retracted and the worst case antenna extended positions were duplicated with the remaining two cellular

phone modules. Since all of the SAR values found are very low, this method is sufficient to demonstrate compliance.



Figure 1. Front of Transceiver



Figure 2. Back of Transceiver Showing Antenna Extended and Cellular Phone Module Installed



Figure 3. Portable Satellite Transceiver With Portable Cellular Module Installed Against Phantom Head.

The measurement methods and equipment used for the tests contained in this report are identical to those used in the August 26, 1999 report. Therefore only the test results with the cellular phone modules installed in the portable satellite transceiver are shown in this report. The following table lists the measured SAR values for the portable satellite transceiver with the CDMA 1900 cellular phone module installed. A full data set output of the two test conditions with the highest SAR values from the Dasy™ measurement system is included as appendix A. The test conditions included are indicated as bold numbers in the following table. All other test conditions measured lower SAR values than those included. Note that a larger scan area was used for these tests than for the data shown in the August 26, 1999 report. This was done to demonstrate compliance in the full scan area and does not reflect any impact on the August 26, 1999 data.

SAR values with CDMA 1900 MHz cellular phone module installed

Channel	<i>Left Side Head</i>		<i>Right Side Head</i>	
	Ant Retracted	Ant Extended	Ant Retracted	Ant Extended
1	0.13	<b>0.01</b>	0.14	0.01
120	0.15	0.01	0.16	0.01
240	0.20	0.01	<b>0.20</b>	0.01

The channel 1 antenna extended left side head condition and the channel 240 antenna retracted right side head condition were duplicated with the AMPS/CDMA 800 MHz and AMPS/TDMA 800/1900 MHz cellular phone modules installed. Those results are shown in the following two tables:

SAR values with AMPS/CDMA 800 MHz cellular phone module installed

Channel	<i>Left Side Head</i>		<i>Right Side Head</i>	
	Ant Retracted	Ant Extended	Ant Retracted	Ant Extended
1		0.02		
120				
240			0.21	

SAR values with AMPS/TDMA 800/1900 MHz cellular phone module installed

Channel	<i>Left Side Head</i>		<i>Right Side Head</i>	
	Ant Retracted	Ant Extended	Ant Retracted	Ant Extended
1		0.02		
120				
240			0.20	

#### 4. Summary

The SAR values found for the portable satellite transceiver (IHDT6NF1) are below the maximum recommended levels of 1.6 W/kg with all three indicated cellular phone modules installed.

## Appendix A

The following pages are printouts from the Dasy™ measurement system of the data as indicated.

### s/n 00426 V w/CDMA 1900MHz cellular phone module

chan:1 / Pwr:00 / Iridium ant extended / et

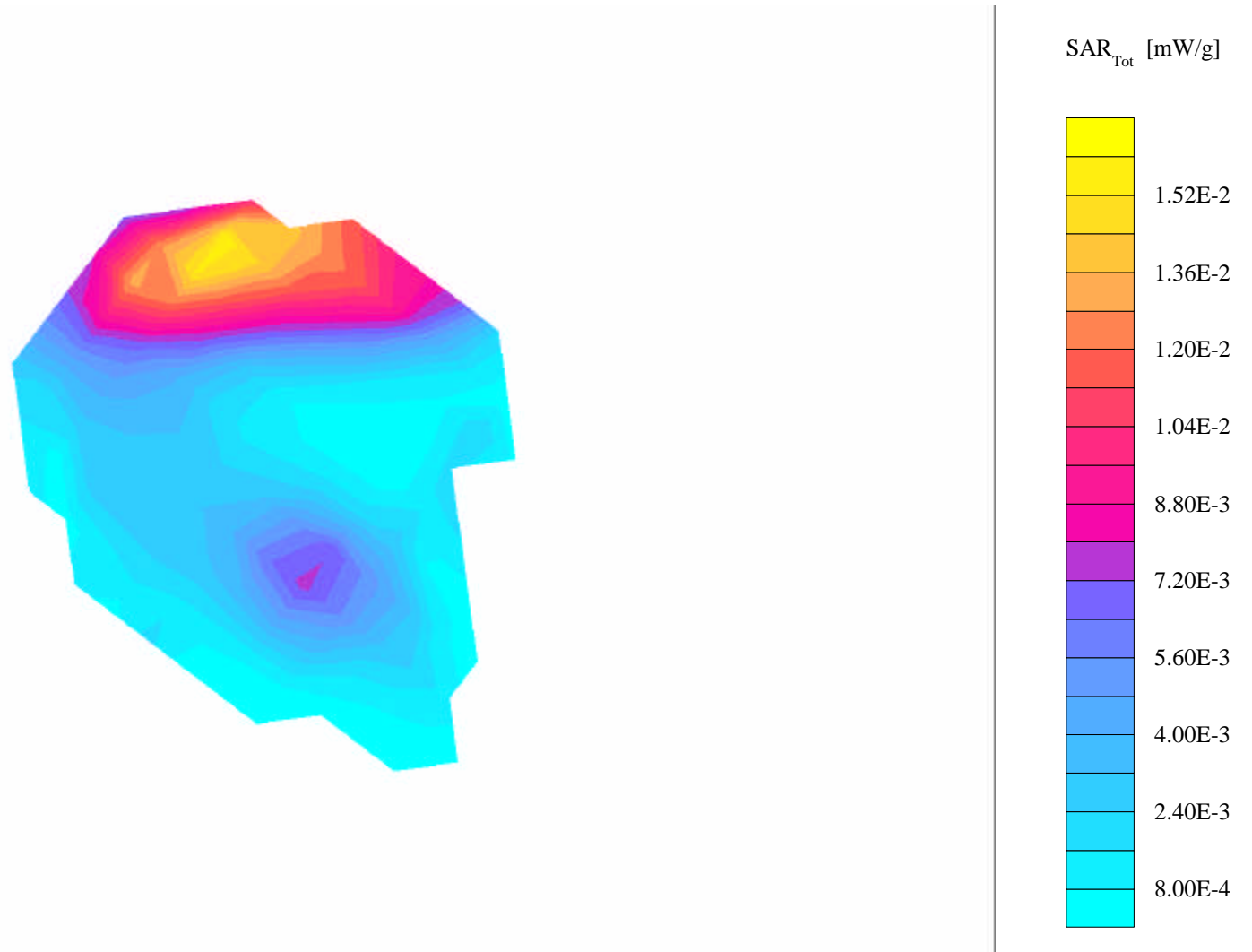
Clyde Phantom; Left Head Section; Position: (0°,0°); Frequency: 1616 MHz

Probe: ET3DV4 - SN1103; ConvF(5.20,5.20,5.20); Crest factor: 11.0; Brain 1620 MHz:  $\sigma = 1.56$  mho/m  $\epsilon_r = 40.0$   $\rho = 1.00$  g/cm<sup>3</sup>

Cube 5x5x7: SAR (1g): 0.0142 mW/g, SAR (10g): 0.0099 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 0.0

Powerdrift: -0.60 dB



### S/N 00426 V w/CDMA 1900MHz cellular phone module

chan: 240 / Pwr:00 / Iridium Ant Retracted / et

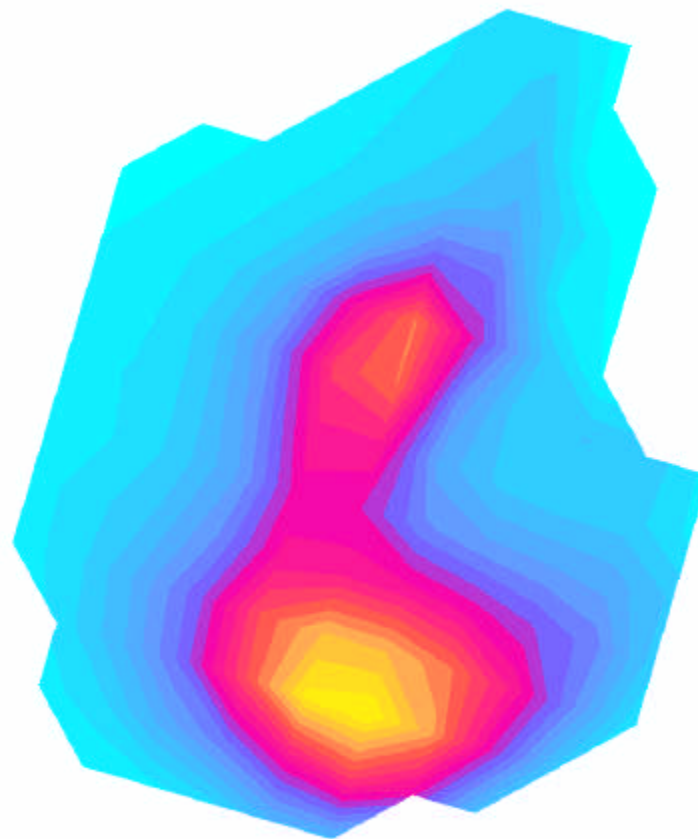
Bonnie Phantom; Right Head Section; Position: (0°,0°); Frequency: 1616 MHz

Probe: ET3DV4 - SN1103; ConvF(5.20,5.20,5.20); Crest factor: 11.0; Brain 1620 MHz:  $\sigma = 1.56$  mho/m  $\epsilon_r = 40.0$   $\rho = 1.00$  g/cm<sup>3</sup>

Cube 5x5x7: SAR (1g): 0.203 mW/g, SAR (10g): 0.133 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 0.0

Powerdrift: -0.11 dB



SAR<sub>Tot</sub> [mW/g]

