



June 10, 1999
 Supplement to SAR Test Report for Motorola portable cellular phone (FCC ID IHDT6NB1).

Prepared by:
 Paul Moller, Principal Staff Engineer
 Motorola Personal Communications Sector Product Safety Laboratory
 Libertyville, Illinois

There were two questions asked about some of the data that was presented in the SAR Test Report for Motorola portable cellular phone (FCC ID IHDT6NB1) dated May 11, 1999. The following are the answers to those questions.

- 1) The Crest Factor is used to indicated the duty cycle of the incident wave form. The crest factor for a CDMA full rate signal should be 1.0. The crest factor on the original data was erroneously set to both 8 and 11. The following tables show that there is basically no difference in resultant SAR when the crest factor is set to 1.0 and the data is re-evaluated.

Crest Factor set to 8 and 11					
	<i>Left side head</i>		<i>Right side head</i>		
	Antenna	Antenna	Antenna	Antenna	Conducted
Channel	Retracted	Extended	Retracted	Extended	Transmit Power
25	0.137	0.111	0.053	0.224	25.2
600	0.023	0.175	0.044	0.201	25.3
1175	0.048	0.010	0.041	0.068	25.0

Crest Factor set to 1.0					
	<i>Left side head</i>		<i>Right side head</i>		
	Antenna	Antenna	Antenna	Antenna	Conducted
Channel	Retracted	Extended	Retracted	Extended	Transmit Power
25	0.135	0.110	0.053	0.217	25.2
600	0.023	0.171	0.044	0.195	25.3
1175	0.048	0.010	0.041	0.068	25.0

A full data set output of two test conditions with the highest SAR values from the Dasy? measurement system is included as appendix A.

- 2) The Powerdrift is a measure of the change in dB of the electric field from just before to just after the SAR is measured at a location in the phantom called the “origin” . This location can be taught nearly anywhere in the phantom. Since the origin must be taught before the SAR measurement is taken, it is usually not possible to teach the origin at exactly the location of highest SAR in the phantom. Thus when the Powerdrift is measured it is usually done at a location where the SAR is somewhat lower than the highest measured 1g SAR. In the case of the test unit that was evaluated, FCC ID IHDT6NB1, the highest 1g SAR was found to be 0,22 mw/g, and the Powerdrift was measured about 2 cm away from the peak SAR location. The result is that there is some “noise” on the Powerdrift measurement due to the very low values being compared. The reported Powerdrifts for all measurements of this unit range from -2.4dB to +1.9dB. Even if the full -2.41dB Powerdrift were the actual change in test sample power out, the resultant SAR value would be well below the 1.6 mw/g limit.

Additionally the test sample was found to have some drift in its conducted power output. This drift was found to be -0.9dB over 15 minutes, and -1.8dB over 30 minutes. Since the SAR measurement takes about 15 minutes, it can be concluded that the SAR at the beginning of the measurement was 0.9dB higher than is reported (since SAR is actually measured closer to the end of the measurement time). It is therefore reasonable to assume that the actual SAR values could have been as much as 0.9dB above the values reported by the measurement system. This would correspond to a maximum SAR value of $0.224 + 0.9\text{dB} = \mathbf{0.276 \text{ W/Kg}}$.

Appendix A

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

SWF0240A S/N 120399-13A

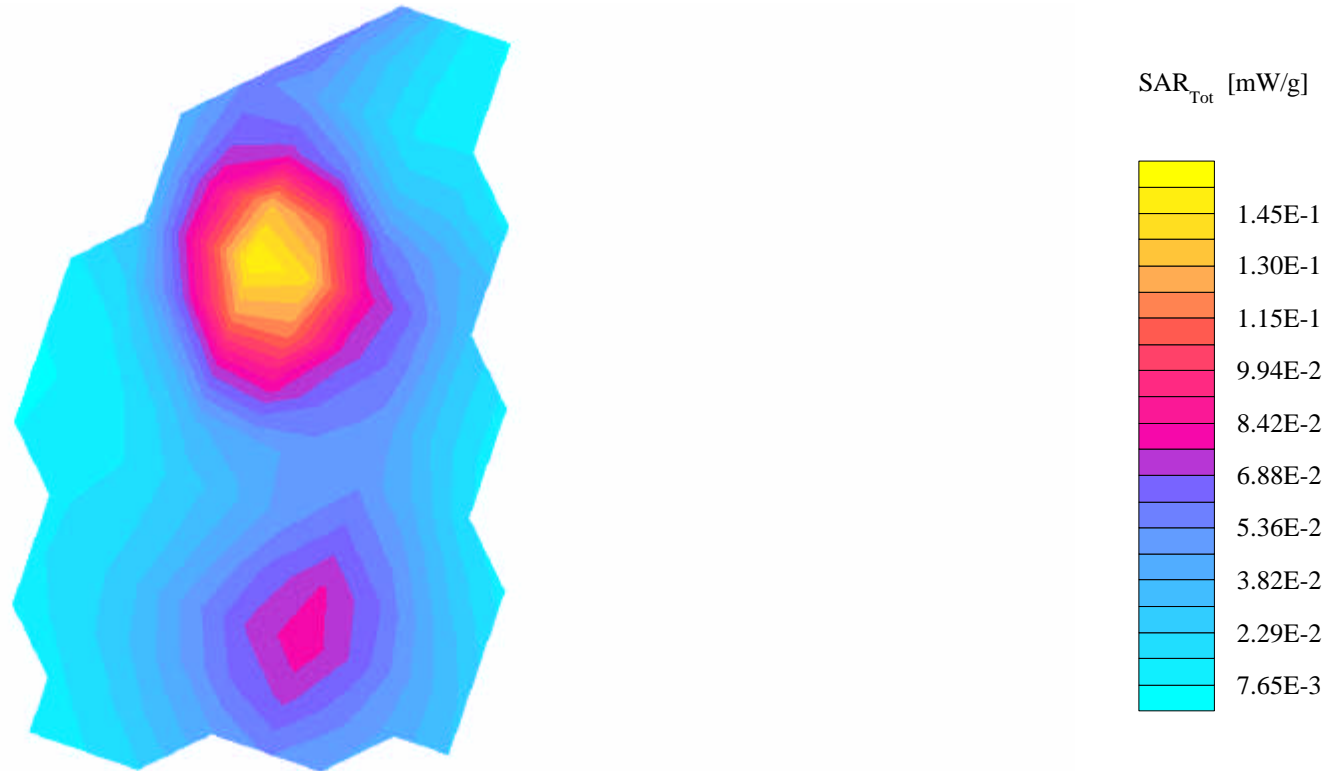
MOTO Left Phantom; Section; Position: ; Frequency: 1851 [MHz]

Probe: ET3DV4 - SN1005 (DAE2); ConvF(5.10,5.10,5.10); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.71$ [mho/m] $\epsilon_r = 41.0$ $\rho = 1.00$ [g/cm³]

Cube 5x5x7: SAR (1g): 0.135 [mW/g], SAR (10g): 0.0752 [mW/g], (Worst-case extrapolation)

Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0

Powerdrift: -2.41 dB



SWF0240A S/N 120399-13A

MOTO Right Phantom; Section; Position: ; Frequency: 1851 [MHz]

Probe: ET3DV4 - SN1005 (DAE2); ConvF(5.10,5.10,5.10); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.71$ [mho/m] $\epsilon_r = 41.0$ $\rho = 1.00$ [g/cm³]

Cube 5x5x7: SAR (1g): 0.217 [mW/g], SAR (10g): 0.121 [mW/g], (Worst-case extrapolation)

Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0

Powerdrift: 1.67 dB

