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Supplement to SAR Test Report for Motorola portable cellular phone (FCC ID IHDT56BJ1).

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1. *Please submit tilt position data, per Suppl C methods.*

Please see included Supplement Test report.

2. *Please describe exact methods and reasons for extrapolated SAR data in Dec 7 SAR report section 3. If device is operating properly, SAR should not be scaled. Is data in Oct 9 report scaled also?*

The exact method of extrapolation is New SAR = Old SAR * 10^(drift/10). The SAR reported at the end of the measurement process by DASY can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process (this is the worst case SAR because it corresponds to the average output power before the SAR test). The device is operating properly and does have an output level that is reduced over time. This is verified by measuring the SAR drift after the test.

This process does not contradict the Supplement C 01-01 section "Test Device Operating Conditions" statement of "Transmitters should be tested at the maximum output level for normal operation within the intended wireless networks, to avoid undesirable performance issues that could lead to SAR changes. The measured SAR values may be scaled to cover certain output tolerances expected among production units during normal use provided the scaled values are within 5% of the measured values." This device was tested at the maximum output level for normal operation. The measured drift is not due to manufacturing tolerances expected among production units. We are not scaling the measured SAR up to account for low initial output power. We are following the section "Device operating capabilities" statement of "If a device or its battery is not designed to maintain a constant average output power, SAR should be evaluated with respect to the highest exposure expected based on battery capacity. The measured SAR should typically correspond to the average output power measured before and after the SAR measurement." By using the measured drift to extrapolate the measured SAR the resulting value corresponds to the average output power before the SAR test.

3. *"The body liquid values exceed the 5% tolerance of Suppl C, e.g., by 10%. Please provide estimates of how this will affect reported SAR, using Kuster/Balzano theory or similar. Please adjust measurement uncertainty value of 12% accordingly."*

Although the previously supplied sensitivity numbers (published by Schmid & Partner Engineering AG in the Application Note: SAR Sensitivities) provide an indication on how SAR will change due to change of dielectric properties of body liquid, FDTD simulations was performed to verify such predictions.

The liquid parameters for body are listed in the following table.

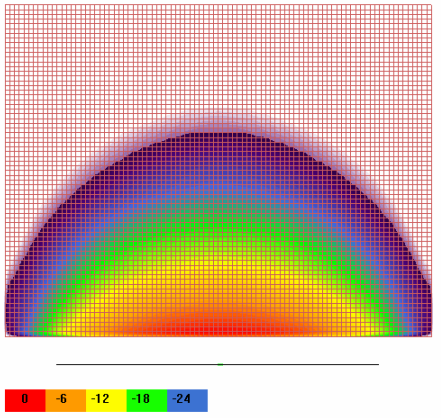
***f* (MHz)**	**Tissue type**	**Limits / Measured**	**Dielectric Parameters**		
			e_r	s **(S/m)**	r **(g/cm^3)**
836	Head	Measured Values, **8/30/01**	43.00	0.88	1.00
		FCC Recommended Values	41.50	0.90	1.03
	Body	Measured Values, **09/06/01**	**50.90**	**1.09**	**1.00**
		FCC Recommended Values	**55.20**	**0.97**	**1.04**
1880	Head	Measured Values, **09/04/01**	39.65	1.39	1.00
		FCC Recommended Values	40.00	1.40	1.03
	Body	Measured Values, **09/06/01**	**48.83**	**1.65**	**1.00**
		Recommended Limits	**53.30**	**1.52**	**1.04**

Computations were performed using the Measured (09/04/01) and Recommended values of dielectric constant and conductivity both at 836 MHz and 1880 MHz for flat phantom/dipole configuration. In both cases, the center-fed half wavelength dipole antenna was used. SAR numbers are normalized to 1W forward power.

At 836 MHz the dipole was placed at 15 mm distance from the dielectric interface. The dimensions of the flat phantom were (225 x 225 x 175) mm. FDTD voxel size was (2.5 x 2.5 x 2.5) mm. Dielectric property was taken from the table above. The results are:

Frequency, MHz	Dielectric: Body	1 g. Avg. SAR, W/kg/W
836	**Measured, 09/06/01**	**8.97**
	Recommended Limits	**7.98**

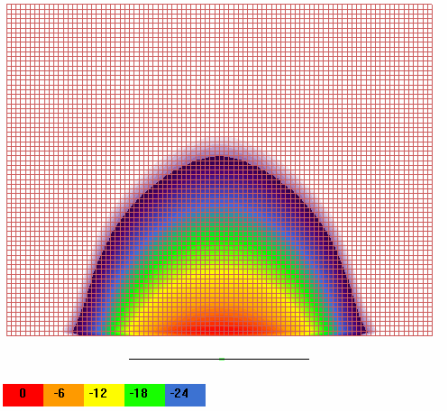
SAR for recommended liquid is 11% lower than for measured liquid used in the compliance assessments.
The picture below shows the normalized (dB) SAR distribution in this case (836 MHz).



At 1880 MHz the dipole was placed at 10 mm distance from the dielectric interface. The dimensions of the flat phantom were (180 x 180 x 140) mm. FDTD voxel size was (2.0 x 2.0 x 2.0) mm. Dielectric property was taken from the table above. The results are:

Frequency, MHz	Dielectric: Body	1 g. Avg. SAR, W/kg
1880	**Measured, 09/06/01**	**39.5**
	Recommended Limits	**36.2**

SAR for recommended liquid is 8.4% lower than for measured liquid. The picture below shows the normalized (dB) SAR distribution in this case (1880 MHz).



FCC: "Please adjust measurement uncertainty value of 12% accordingly."

Measurement uncertainty has not changed. So, it should be kept 12%. What changed is the value of dielectric constant and conductivity. They deviate more than 5% from the recommended values, but are measured with the same uncertainty. Consequently, the higher SAR is not due to the different uncertainty but due to the bias introduced in the assessment by the difference of the mixture parameters values. As was shown above, these different values lead to overestimation of SAR, which indicates the conservative approach adopted in the assessment.