



MOTOROLA

Date: Oct 14, 2009

Subject: Request for additional information regarding FCC ID: IHDP56KC2

Reference:

Correspondence Reference Number: IHD91105
Confirmation Number: 909151105-7
Date of Original Email: Oct. 9, 2009

Prepared by:

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Follow-up Questions and responses follow:

1. Regarding your response to question #8, the plots in the new report still do not indicate if DTS output power ("channel power") was measured with an average or a peak detector. Please provide this information.

Response: [Please refer to Version 2 of the WLAN EMC report submitted online.](#)

2. Regarding your response to question #9, the revised DTS report still does not include peak plots demonstrating compliance at the upper and lower band edges (20 dBc or 30 dBc, depending on whether output power was measured with a peak or an average detector). Please provide these plots.

Response: [Please refer to Version 2 of the WLAN EMC report submitted online.](#)

3. Regarding your response to question #11, please provide a description of how the SAR values were corrected for tissue permittivity that was measured above the nominal target (sample calculation).

Response: [Our calculations follow the guidance provided in FCC KDB 450824. Within KDB 450824, it is specified that a SAR correction for deviations of the complex permittivity from simulated tissue targets if the deviation is in the direction that does not result in a "conservative" SAR result. Sensitivity coefficients are provided for some frequencies within "Attachment 1: Tissue Parameter Variations" of KDB 450824.](#)

[The compensation formula from Annex F of IEC 62209-2 was utilized to apply the sensitivity coefficients to the measured SAR value:](#)

$$\Delta SAR = S_{\epsilon} \Delta \epsilon + S_{\sigma} \Delta \sigma$$

Here, $S_{\epsilon} = \partial SAR / \partial \epsilon$ and $S_{\sigma} = \partial SAR / \partial \sigma$ are sensitivity coefficients, representing the sensitivity of SAR to permittivity and conductivity, respectively.

Then the final adjusted SAR was calculated as: **Measured_SAR / (1 + delta_SAR)**

For this particular equipment authorization request:

The measured relative permittivity was slightly above the target value at 835 MHz. Therefore the sensitivity coefficient for Er was determined by linear interpolation of the two reference values given in KDB 450824. The sensitivity coefficient used for 835 MHz was: Er of -0.563.

The measured tissue properties at 835 MHz in this equipment authorization request were:

Er = 41.7 (which FCC has target of 41.5)

Sigma = 0.92 S/m (which FCC has a target of 0.90 S/m)

KDB450824 states on page 3, 6th sentence, that "the tissue dielectric parameters measured for routine measurements should be less than the target Er and higher than the target Sigma values to minimize SAR underestimations." Therefore, since the measured sigma was already above the target value, there is no need to use this in the calculation of the adjusted SAR value. We only need to account for Er, since it was above the target.

Therefore our formula becomes:

$$\text{delta_SAR} = 0.563 * [(41.7 - 41.5) / 41.5] = -0.0027\%$$

So the measured SAR should be raised by 0.0027%, which for a measured SAR of 0.26 W/kg is 0.0007 W/kg. Therefore, the resulting, adjusted, SAR value is $0.26 / (1 - 0.0007) = 0.260184$ W/kg. SAR is routinely only report to three significant digits, therefore the measured SAR of 0.26 W/kg is identical to the adjusted SAR of 0.26 W/kg.