January 11, 2002

RESPONSES TO FCC QUESTIONS ON THE SAR COMPLIANCE TEST REPORT OF ATHEROS MODEL AR5BCB-00013 DATED NOVEMBER 20, 2001

1. Please use Suppl. C ed 01-01 for all future filings. Due to differing tabulated frequencies, it is unknown whether or not liquid parameters in EA728513 comply with Suppl.. C 01-01.

Response:

FCC Suppl. C ed 01-01 has indeed been used in preparing this SAR report as far as possible. Though not specifically written at the end of Section II, the desired dielectric properties $\varepsilon_r = 48.9$ and $\sigma = 5.42$ S/m for "body" tissue at 5.3 GHz were obtained by interpolating the dielectric properties at 3.0 and 5.8 GHz given in Appendix C of FCC Suppl. C ed 01-01. This is a valid procedure since Ref. 12 of FCC Suppl. C ed 01-01 does not give properties for the so-called "body" tissue and Ref. 11 gives properties for the head model only up to 3.0 GHz.

2. Measurement uncertainty budget is needed.

Response:

We intend to submit a detailed analysis of the measurement uncertainty budget in future filings. Our present estimate of the measurement accuracy of ±20% is based on the peak 1-g SARs measured as well as calculated for dipole antennas placed against planar phantoms and a number of actual telephones placed against the phantom model of the head [see Ref. 5 of the SAR report -- Q. Yu, et al., *IEEE Trans. EMC*, Vol. 41(3), pp. 234-245, August 1999]. Also, a measured peak 1-g SAR of 0.134 W/kg as against an FDTD-calculated SAR of 0.129 W/kg was previously reported for the SAR report of EA101903 which is a very similar device at 5.25 GHz radiating only 16 dBm conducted power. This difference of less than 4% is certainly within the ±20% uncertainty in measured SARs reported for the present SAR compliance test report.

3. Only 1, 3, 5, 7, 9 mm layer values are shown. Are these interpolated from 4, 6, 8, 10, 12 measured values? Were 4, 6, 8, 10, 12 measured values used in averaging?

Response:

The SAR values are extrapolated from the values measured at depths of 4, 6, 8, 10 and 12 mm by using a polynomial fit to the data for various locations. To determine peak 1-cm^3 SAR, the extrapolated data thus obtained for depths of 1, 3, 5, 7 and 9 mm is used.

4. What is loss tangent of 6.35 mm-thick flat phantom at 5.3 GHz?

Response:

The dielectric constant of the acrylic polystyrene is $\varepsilon_r = 2.56$ and its loss tangent given in ITT Handbook [a] is 0.00033 at 3 GHz and 0.0012 at 25 GHz. Thus, the loss tangent is considerably lower than 0.05 suggested as the upper limit in FCC Suppl. C ed 01-01.

5. To verify liquid depth and proper test system operation, we have been requesting graphs of SAR vs. depth into liquid at the peak SAR configuration(s). In future filings, please provide such graphs.

Response:

The measured variations of SAR vs. depth into the liquid at the peak SAR locations from Tables 1 and 2 of the SAR report are plotted in Fig. a while those from Tables 3 and 4 of the SAR report are plotted in Fig. b. Both Figs. a and b are attached here.

6. Figures 1, 2 appear to be identical to Figs. 1, 2 in the SAR report of EA101903. Are these identical devices?

Response:

Figures 1 and 2 are indeed similar to Figs. 1 and 2 in the SAR report of EA101903 since the devices are similar in external appearance and a similar PC is used.

[a] *ITT Handbook*, Reference Data for Radio Engineers, Fifth Edition, Howard W. Sams & Co. Inc., p. 4-29, 1968.

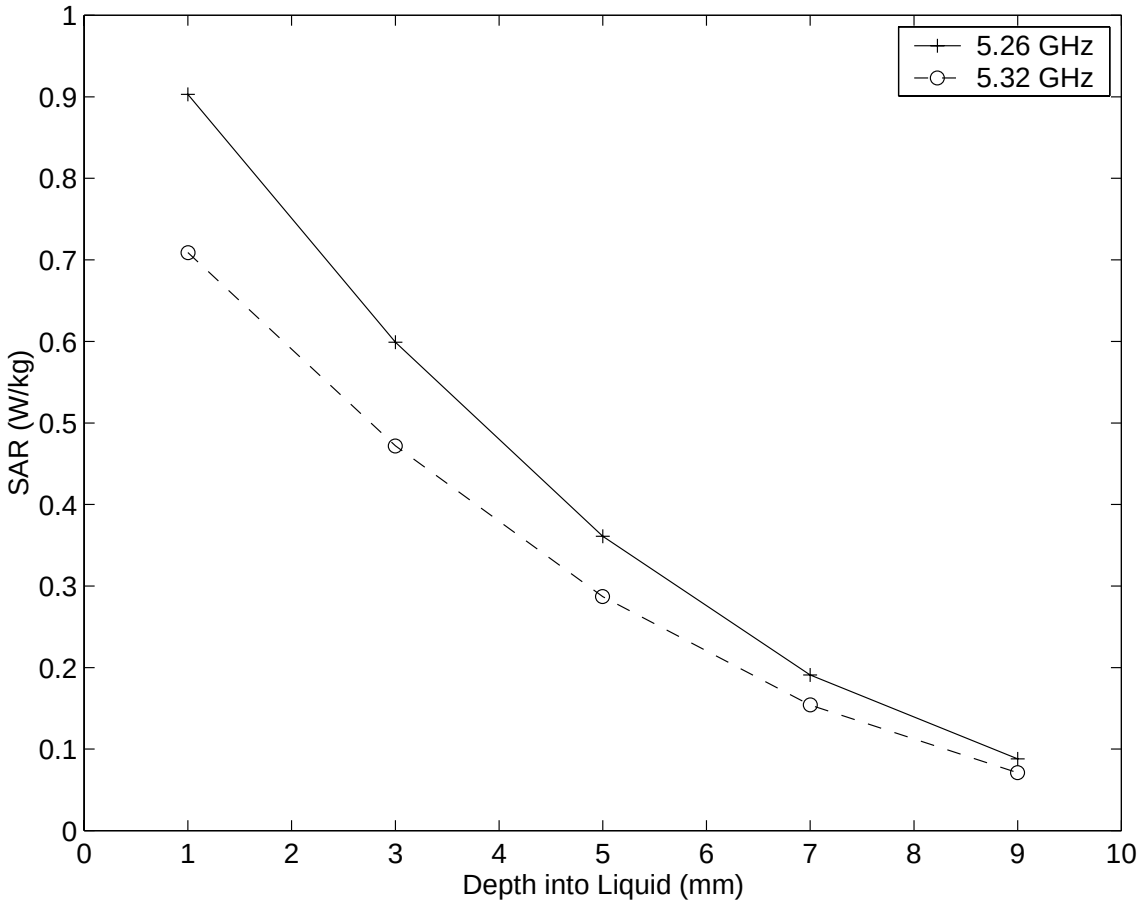

Fig. a. Plot of the SAR variations as a function of depth in the liquid for locations of peak SAR from Tables 1 and 2 (Above-lap position) of the SAR Compliance Test Report.

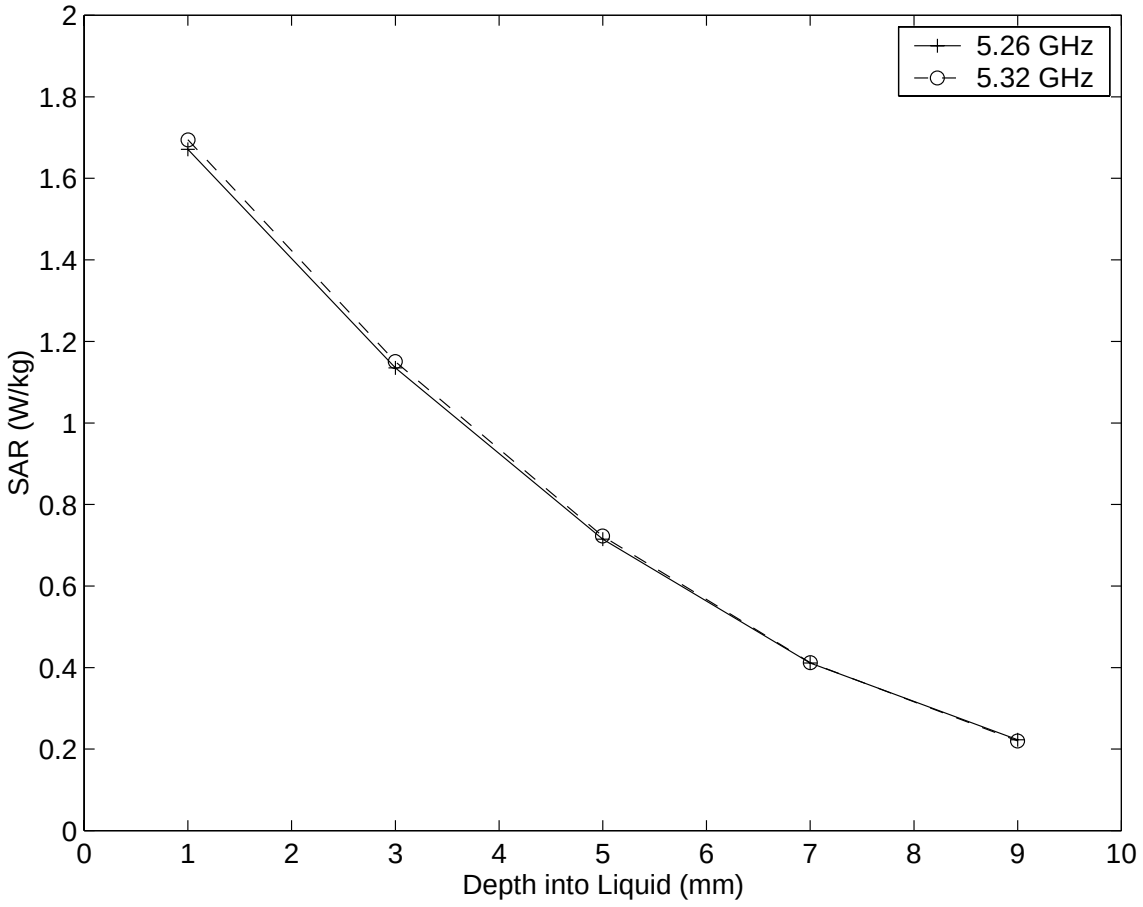

Fig. b. Plot of the SAR variations as a function of depth in the liquid for locations of peak SAR from Tables 3 and 4 (End-on position) of the SAR Compliance Test Report.