



EMC Technologies Pty Ltd
ABN 82 057 105 549
57 Assembly Drive
Tullamarine Victoria Australia 3043

Ph: + 613 9335 3333
Fax: + 613 9338 9260
email: melb@emctech.com.au

Response to TCB Queries

FCC ID: QORX100

EMC Technologies Report No. M030212 . 7th March 2003

Question 1. Probe calibration: Please provide calibration certificate and date for convF of 6.9 (head tissue parameters).

Calibration of our 1377 probe at 450MHz has been extrapolated using 900MHz brain dielectric parameters. Unfortunately there was no record of this conversion factor except on disk in our probe configuration file which was programmed. We have ordered a probe certificate from our supply SPEAG and expect it within the next few days.

Question 2. Please, provide a revised test report including measurement Uncertainty per Draft P1528 template.

Refer to Page 12 of our SAR report (M030212R) the uncertainty using the DRAFT P1528 template was calculated to be 29.4% based on 95% confidence level.

Question 3. Phantom Size: Please update test report according to new test Equipment or provide a cover letter to explain compliance - Phantom should be twice the critical dimensions of the device.

Refer to Page 13 of our SAR report (M030212R) for updated test equipment. Table 5 rows 4 and 5 "Flat Phantom" for details on phantom. Photos in Appendix A2-A5 show that testing was performed in a flat phantom of overall dimensions 805x425mm. The outer part of the flat section is 6 mm thickness while the inner part is 2mm +/-0.2 mm. The 2mm section was 3 cm longer than the overall length of the DUT including antenna. The width of the 2 mm section was more than twice the width of the DUT but the length of the 2 mm section was only 10% longer than the DUT. All parts of the length of the DUT were over the 2 mm section with no part of the DUT over the 6 mm section. (the FCC has accepted this very minor compromise in this instance)

Question 4. Please, update test data tables in test report or provide a new test data table summarizing the measurements.

Refer to page 15 of our SAR report (M030212R) Table 6: "SAR Measurement Results – 460MHz band (450 to 470MHz)" for a summary of results and conducted power measurements.

Refer to page 17 Table 7: "Final Extrapolated SAR Results and Additional Tests". This table includes the original SAR results, original SAR results scaled up by measured drift as well as the SAR extrapolated for a 50% PTT duty Cycle.



EMC Technologies Pty. Ltd., 57 Assembly Dve., Tullamarine, Vic., 3043, Australia.
Phone : +61 3 9335 3333 Fax: +61 3 9338 9260 www.emctech.com.au

NATA Accredited
Laboratory Number: 5292

Question 5. Face SAR - Ch1/12VDC P/S: Please explain why the SAR value for this configuration is 1.11W/kg while the SAR value using the internal battery is 2.13W/kg. It would be expected that the 12VDC lab power supply provides a higher SAR value. Please see item 6 and 7 concerning power droop.

Refer to Page 35 "Plot 6" and 43 "Plot 10": When the external DC Power Supply is connected to the device the SAR distribution changes and the hot spot moves towards the end of the device battery. This apparent anomaly was noticed by us at the time of testing so the test was repeated to check the result. The repeated result was very close to 1.11mW/g. It was attributed to changes in the SAR distribution due to the effect of the external connections.

Question 6. Power droop: Please provide the approximate time to perform SAR scans.

The time was 28 minutes. Refer to SAR report Page 16: 9.1.1, "Details of power droop"

Question 7. Power droop: Please, provide comments in reply to the FCC's request SAR item 3. Testing after +20min and scaling up to full power, etc.

All testing was performed after the device was transmitting at full power for 20mins and then the resulting SAR was scaled up to full power as listed in the report Page 5 Table 1.

The reference conducted power for each channel was taken as the initial power measured at the time of "power on". The conducted power measured at the conclusion of each SAR scan was taken as the final power and is shown in Tables 6 and 7. The difference between the two power measurements was the power droop. The measured SAR was scaled up to account for the droop so giving a worst case estimate of the SAR at the point of first powering up the DUT.

Refer to Appendix C "Power Vs Time" plots with a 12V battery. After 20mins the conducted power measurement is approximately 34.9dBm, this corresponds to the power measured in page 15, Table 6 for the same channel (3). The minor variations in the conducted power measured at the beginning of each scan can be attributed to different batteries and device temperature factors.

Sincerely



Chris Zombolas