

> 2. For SAR, the test sample was tested at 28 dBm average and 38.45 dBm peak output
> with about 3 cm separation between the antenna and the head model. The new antenna
> is a telescoping helical antenna. It can be stowed, pulled out with the extension
> straight, tilted at 45 degrees left or right (upper half only). The Uni-Head
> and Arm phantom was used for the SAR tests. Clarifications are needed for testing
> this handset with the different antenna positions that are dependent on whether
> the unit is placed on the left or right side of a head model and how such operating
> positions are supported and tested by the UH-a phantom used. When the antenna
> is offset towards one side, left and right tilt can result in different exposure
> conditions for the left and right side of the head.
>
>

A sample of the original phone with its old antenna was scanned at the beginning of the project for the new antenna to obtain a correlation between our measurement and the original measurements made by KTL using a Schmid and Partner SAR system. The maximum 1g SAR previously determined on the original phone, with its antenna in (retracted) and positioned in the normal usage position was 0.429 W/kg. With our measurement (including the correction mentioned in 3 below) we determined the maximum 1g SAR to be 0.423 W/kg. Figure 1 shows the 2.5mm area scan for this reference measurement:

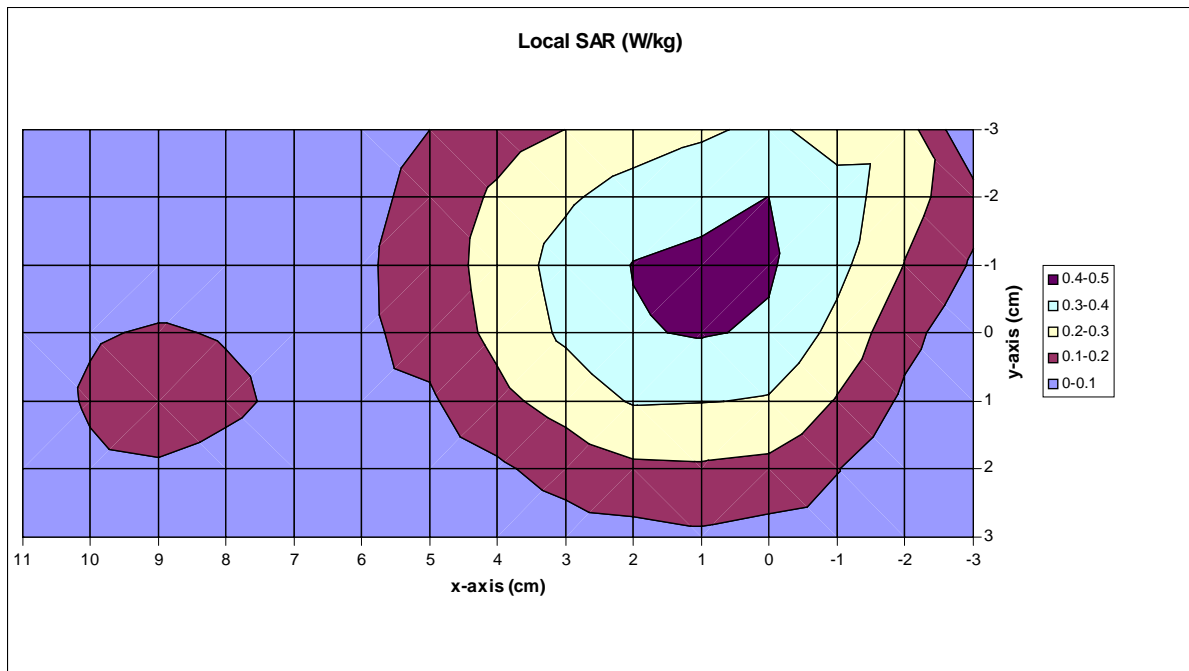


Figure 1. 2.5 mm Area Scan of Original Phone and Antenna.

To show the positioning of the phone with its new antenna with respect to the UniHead phantom and the more conventional IDX phantom a scale blow ups of photographs of the phone were made.

These show the phone with its antenna fully extend as the manufacturer recommends, for its three possible angular positions. Figures 2 through 7 show these scale blow ups from above the two phantoms in their test positions:

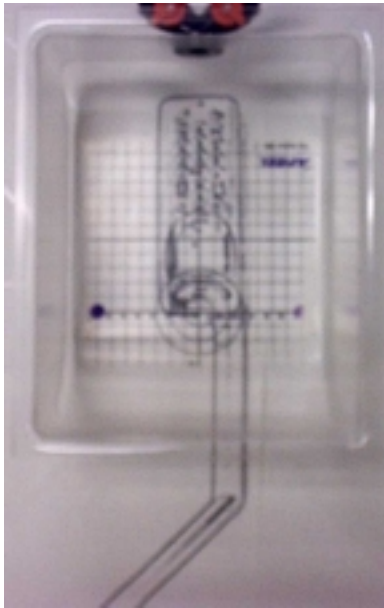


Fig.2. UniHead & Tilted right

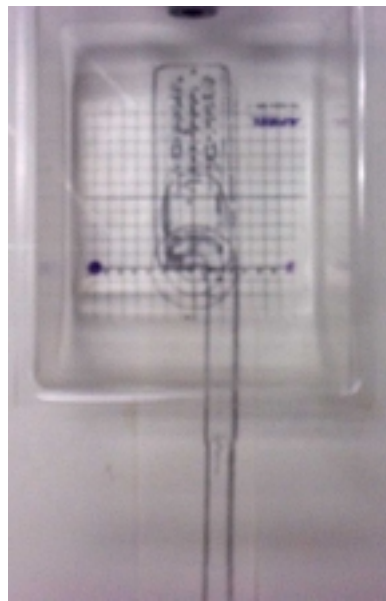


Fig.3. UniHead & Straight

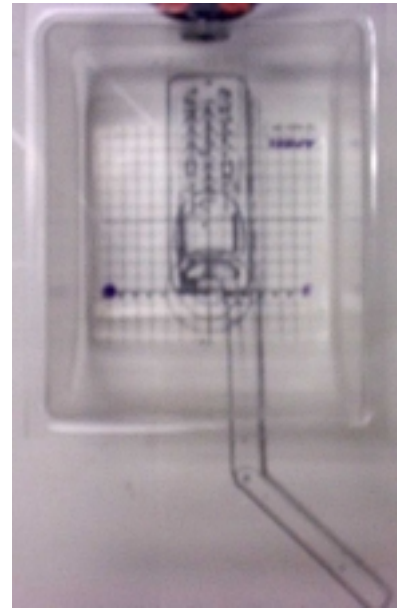


Fig.4. UniHead & Tilted left

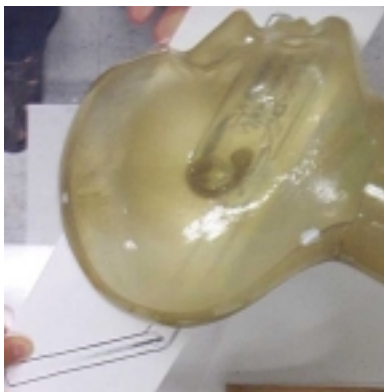


Fig.5. IDX & Tilted right



Fig.6. IDX & Straight



Fig.7. IDX & Tilted left

The fact that the active part of the antenna in the swivelling part of the extension is beyond the phantoms explains the very low 2.5 mm peak local SAR data reported in the table in section

6.2.4. These measurements are essentially showing the “noise” level for these measurement. Figure 8 shows a side view of the IDX phantom with the antenna tilted right with a ruler to show how far the antenna is from the head phantom (note that 3 cm should be added to the distance from the ear to take into account the difference between the actual phone and this 2-dimensional simulation).



Figure 8. Side View of IDX Phantom with 2-Dimensional Phone Simulation (add 3cm).