Re: ICOM Incorporated

FCC ID: AFJ262700

In reply to your recent questions:

1) The FCC ID given throughout the SAR report does not match the information given in the filing. Please adjust

A1) See revised SAR report

2) The SAR scans do not appear to have covered the entire antenna area. Scans should have been performed over the whole antenna and device to ensure that no secondary hot spots occurred in these areas. Was this done during prescans? Please explain.

A2) Since the D.U.T. power drift was found to be significant over the time, we need to minimize the scan area in order to minimize the effect. BUT prescan for the entire D.U.T. was performed prior to the series of scans in order to identify the hot spot and to check the existence of the second peak as well.

3) Please provide a justification for not providing all SAR plots for each configuration tested on page 54 (i.e. if they had similar SAR distributions, a plot of the highest SAR for each test configuration should be sufficient; otherwise additional plots should be included to document the different SAR distributions - purpose is to identify peak locations relative to device and phantom).

A3) In our previous report formats, we used to include all the plots and test results into our test reports. But it happened to increase the size of test report unnecessarily in a certain case where the number of combinations of test configurations resulted in many prescans (multiplying by number of frequencies sometime resulted in more than a hundred scans). As a result we had changed our report format so that we reported the complete set of results and plots for the worst case configuration and only the SAR number for prescans as long as the distributions are similar among them (only accessories were permutated), the FCC and other TCBs have accepted all of our applications in this manner.

4) The SAR test report should include:
a) statement of compliance with FCC RF exposure (?.1093)
b) mobile or portable transmitter device category identified
c) test device is production unit or identical prototype (47 CFR ?.908)?
d) brief description handset holders

A4) a) See certificate
b) See certificate and page 4; Portable
c) See page 5; Production unit
d) See page 47; The handset holders is mainly made of PVC and contains no metallic component at all in order to minimize field perturbation. Velcro and elastic band were used to attach the DUT on the plate of handset holder.

5) The user manual does not appear to contain any specific information regarding SAR compliance. If it is expected that the users manual will be updated for this information, please provide an updated users manual for review.

A5) See revised user manual.

6) Testing appears to have taken place over a 2 day period (5/12 & 5/13). Note that dipole validation test results for each date of device testing must be provided, but it appears to only have been provide for 5/12.

A6) Dipole verification can only be carried out on brain tissue since there are no target validation values for muscle tissue. This being the case, the dipole validation must first be carried out on the brain tissue even though that is not the tissue being measured. It is then required to change the tissue in the phantom to body tissue to carry out the SAR measurements. The

dipole validation can take 1/2 day to perform with the tissue change out so it becomes impractical at this point in time to carry it out daily. This will change as soon as the IEEE SCC34-2 committee provides dipole validation targets for muscle tissue. As such, the FCC and the other TCB's have not been identifying this to us as an issue.

7) The test date on the cover of the report 5/14 does not appear to match the actual test dates. Please correct.

A7) See revised report

8) P1528 specifies the use of a phantom @ 450 MHz to be 700x600mm with a thickness of 6.3 mm as shown in table 8.2. FCC information from various training has stipulated L and W at >= 0.6 ?(apprx. 400 mm at 450 MHz) and < 6.5 ?0.2 mm with < 0.5% sagging. It appears that the phantom used was 2 mm thickness. Please explain how compliance with the sag requirements if the phantom was achieved with only a 2 mm thickness.

A8) The flat phantom we employ is designed to have Plexiglas supports inserted lengthwise on either side of the dipole so that the only unsupported portion of the 2mm base is a small section surrounding the dipole antenna. The width of the unsupported bottom is only a couple of cm so the sag from the unsupported section is still well within the requirements of the P1528 standard.

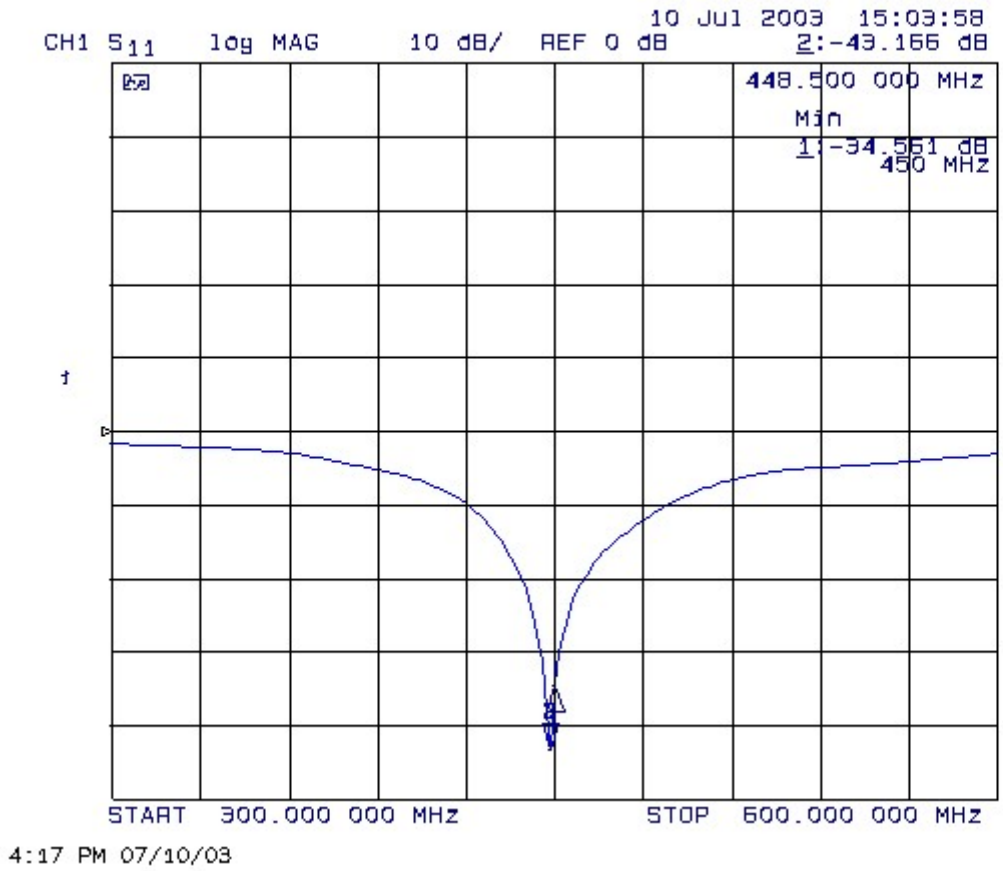
9) The calibration of the probe does not appear to have shown boundary effect error measurements or measurement uncertainty issues addressed in its calibration. Please provide this information.

A9) Below 1GHz, thermal calibration is used and care is taken to position the dipole sensors at least on probe diameter away (4mm). In our procedure, we use 6mm displacement to ensure there is no boundary effect compensation required in the thermal calibration. Boundary effect compensation is only required when the probe come closer than 1/2 probe diameter (2mm) with the phantom surface.

10) Please provide further information regarding the reference dipole (i.e. manufacturer, model, serial, etc.). Also, please provide a plot of return loss data for the dipole used. Is original manufacturer calibration information available?

A10) The reference dipole was manufactured by UltraTech Labs. according to the guideline on Annex G in IEEE P1528/D1.2, April 21, 2003 standard and Table on pp 47~48 in OET 65 supplement C edition 01-01. Refer to the attached plot of return loss for the dipole used.

450 MHz verification dipole
Manufacturer : UltraTech Labs.
Model Number : W450
Serial Number : UT-VDP-002-052003



11) Although the dipole verification may have been performed for 450 MHz, the FCC asks to provide the liquid dielectric parameters measured at device mid-band frequencies as well for each day of testing.

A11) Tissue parameters are verified every day as our routine procedure. The readings are as follow; Brain tissue at 450 MHz
Target - Conductivity: 0.87 Dielectric Constant: 43.5
5/12 - Conductivity: 0.86, Dielectric Constant: 43.6

Muscle tissue at 450 MHz
Target - Conductivity: 0.94 Dielctric Constant: 56.7
5/12 - Conductivity: 0.94, Dielectric Constant: 56.7
5/13 - Conductivity: 0.95, Dielectric Constant: 57.0

Brain tissue at 462 MHz:
5/12 - Conductivity: 0.87, Dielectric Constant: 40.4

Muscle tissue at 462 MHz:
5/12 - Conductivity: 0.95, Dielectric Constant: 51.2
5/13 - Conductivity: 0.96, Dielectric Constant: 53.0

12) It appears as if probe boundary effect compensation was not used (section 5.6.4.4). The FCC has specified that when probe boundary effect compensation is not used the probe tip should be positioned at least half a probe tip diameter from the phantom surface during area and zoom scans. It appears that the closest measurements were made at 4mm (page 60) while the probe diameter is also 4 mm (page 62)

A12) Our probe has 2 mm tip-to-sensor distance as specified in test report thus when the probe was located at surface the actual sensor location was 2 mm away from the surface. Since boundary effect compensation was not used,
the first two measurements was discounted and therefore the first and the closest measurement to the surface that was chosen for post-processing algorithm was one at 4 mm away from the phantom surface from the sensor point of view.