29th August 2003

Mr. Robert Paxman

Intel Corporation
San Diego CA

Re: FCC ID PU5MS2133
Applicant: Wistron Corporation
Correspondence Reference Number: 25598
731 Confirmation Number: EA859241

Dear Mr. Paxman,

Here are the responses to the questions set by Diane Poole from the FCC.

Question 1.

Justification for probe calibration used. Probe calibration states a CF of 5.6 while the SAR contour plots state 6.6. Please explain.

The probe used has two different calibration records, which depend on the amplifier being used at the probe input stage. The amplifier utilized for this assessment was a back up unit, hence the reason why the calibration report CF numbers and the CF numbers used for the assessment do not match. The correct conversion factor is 6.6.

Question 2.

Clarification of antenna positions. Page 2 states that antenna is under keyboard while SAR contour plots suggest antenna is in display. Please clarify. If in keyboard are please provide SAR results for lapheld lid open configuration.

This is a type error; the location of the antenna is in the top left area of the LCD.

Question 3.

Difference between keyboard up position in setup photo 1 and 2. Also, please confirm gap of 10 mm. Gap appears larger in photograph..

The graphs presented have no difference, as they represent the same scan used for both the assessment of the 1 and 10 gram averages. This has been included for visualisation purposes. The gap between the unit and the phantom is achieved using the device positioner which has a scale in mm for changes to the Z axis, which allows deltas in distance to be measured and maintained. This device was maintained at a distance of 10mm for the SAR value recorded.

Question 4.

Difference between keyboard up position in setup photo 1 and 2.

The difference between both images contained within the report, is a shifting of the phantom, and an inclusion of a Styrofoam block used to provide stability for the device under test. This change in process allowed a more detailed scanning area for the conservative SAR recorded in the report.

Question 5.

Justification for system validation. Target value appears to be for head liquid while testing was performed in body liquid. Consider repeating system validation with both liquids to establish comparative values under similar conditions.

The numbers used are in line with conditions as defined for the lab, along with procedures for mixing SAR tissues. Extensive FDTD analysis has been executed, to provide data for recording and assessing conservative SAR. This FDTD analysis has also aided in the design and development of the reference dipoles used for the system validation. System validations have been executed both numerically and experimentally using the APREL designed reference dipoles, following existing methodologies. What has been presented and is consistently used for system validation has shown to be repeatable in both numerical and experimental tests. APREL Laboratories are continuing the research within this area and will make data available to the FCC in a white paper format at a latter date.

Question 6.

Justification for tissue parameters used. Target values are not compliant with Supplement C. Measured values are outside target window for both Supplement C and Aprel developed targets. Please include an analysis of the expected variation on the SAR value. Alternatively please provide data using a probe calibrated in liquid with Supplement C target value.

The ongoing research which APREL has been conducting in respect to tissue recipes has caused us to change certain parameters, along with the ingredients, and this is why it seems that the numbers documented may reflect those for head tissues. We have been experimenting continuously in respect to the values for epsilon and sigma at the higher frequencies, and this has led to modifications to both the head and body tissues. Recently APREL have run a series of numerical analysis comparing the FCC numbers for body against the APREL numbers. The APREL models utilized the dipoles which have been developed for system validation for both head and body, at frequencies of 5.24GHz and 5.8GHz. The results from this analysis have shown that the APREL methods utilized in the assessment for SAR provide a more conservative method for SAR assessment.

It has been found that the measured values presented in the SAR report meets with the mandate for conservative SAR assessment. Any retesting of the device using the target numbers would not result in a major deviation from the SAR values recorded and would be within 5%.

Dielectric measurements executed on tissues at higher frequencies, are susceptible to temperature change. The laboratory where the SAR system is located has a maintained temperature of 22°C in line with the international requirements for a calibration facility. When dielectric measurements are made on the tissue (within the tissue manufacturing facility after preparation) the target values are always met, with a deviation of around 9% for epsilon and 7% for sigma. The ambient temperature for the tissue manufacturing facility is around 20°C and the tissue temperature is normally around 19-20°C. This can account for why there is a slight deviation in respect to the target values being met, as the epsilon and sigma values used for the SAR assessment reflect those measured for tissue which have become acclimatized to the laboratory ambient temperatures. IEEE 1528 states that the temperature for SAR tissue should be within 18-25°C to avoid uncertainties during the SAR measurements, for the higher frequencies this tolerance will have to be re-evaluated.

Question 7.

Additional 1 gm SAR test data for LHS, and RHS 0 gap at lo, mid and high frequencies.

APREL Laboratories follow the directives of IEEE 1528 when measuring SAR associated with a device. A flow chart is presented within the 1528 document showing a method in which to assess active devices. This flow chart provides a route for eliminating measurements classed as un-necessary (due to SAR being considerably lower than the assessed conservative value) thus reducing the time to assess, and eliminate unnecessary data from the test report. As the transmit and receive antennas are located in two separate locations only the transmit antenna location was assessed, as this is where the conservative SAR is located.

Question 8.

Comparative SAR data with higher resolution steps in the Z axis for worst case 1 gm configuration. Suggested 2 or 3 mm step. Repeat original measurement for comparison (5 mm).

The ALIDX-500 software version which APREL Laboratories use can not change the step resolution for the cube scan routine due to the following factors.

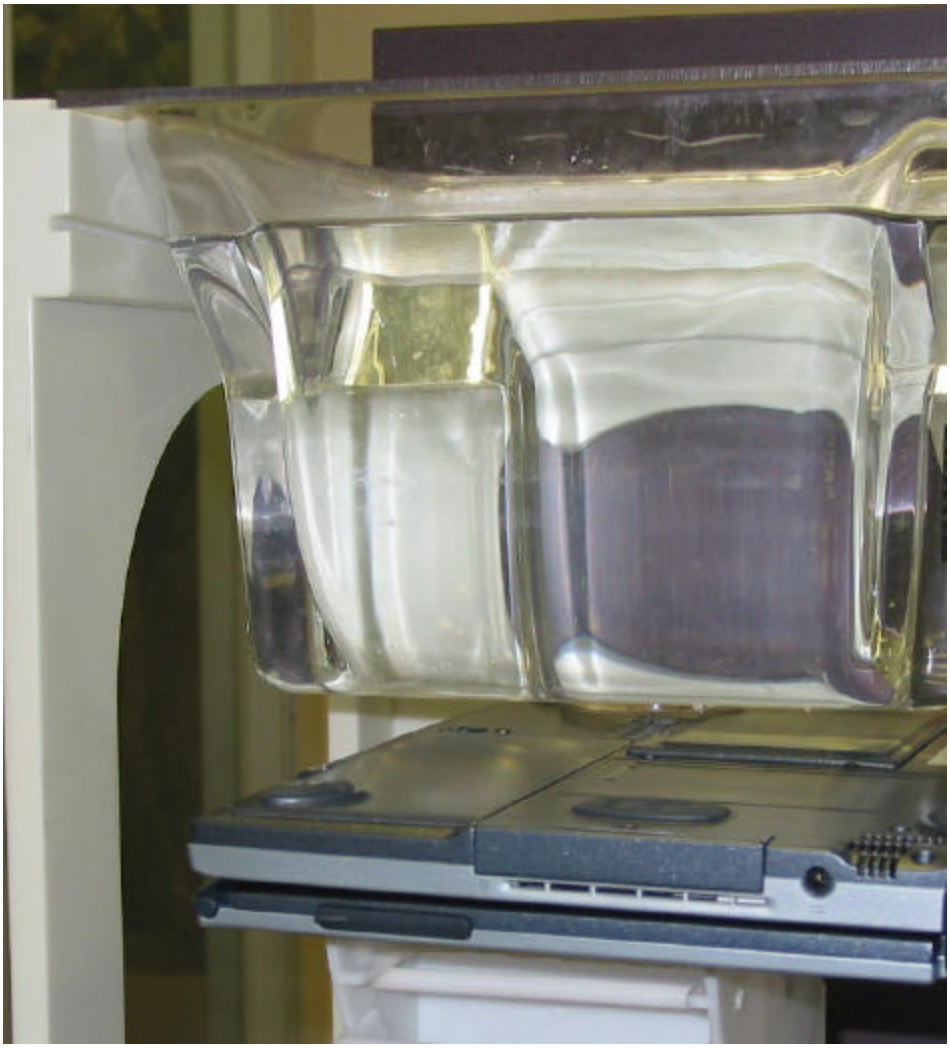
1) The probe diameter is 7mm, thus doser measurements may create additional boundary errors.
2) The software will not allow changes to the step resolution for the cube scan, as the algorithm used for the interpolation and extrapolation does not have a flexible element incorporated.

The ALSAS-10U system which APREL Laboratories have developed and designed will have flexible features for changing step resolution sizes in line with the DUT and lambda characteristics, thus allowing the user to define the cube scan resolution, and cube matrix parameters. The probe which is used on the ALSAS-10 is the E-020 probe which has a diameter of less than 4.5mm which will allow the system to acquire data at a Z height of 4mm.

Question 9.

Photograph for keyboard down tablet mode.

The image for keyboard down while in tablet mode is presented on the next page. It should be noted that the keyboard down mode, is similar to that which is presented while the unit operates with the LCD closed.



Question 10.

Tissue recipe for liquid.

The tissue recipe used for this assessment is.

Sugar = 58.8%
Di Water = 41.0%
Cellulose = 0.1%
Preventol = 0.1%

Epsilon = 45.0 Sigma= 5.85

I trust that the above information should be enough for the FCC to proceed. If you have any further questions please let me know.

Regards,

Stuart Nicol

Director Product Development,
Dosimetric R&D.