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From: alan_lane@adt.com.tw [SMTP:alan_lane@adt.com.tw]
To: tjohnson@AmericanTCB.com
Cc:
Subject: FCC ID: PD5LMWP200RB SAR Review
Sent: 2/10/03 11:43 AM **Importance:** Normal

Hi, Tim

For your question (2)~(6), it is answered by my SAR test engineer. Any further question, please
let me know it. And I will get back to you for your question (1) very soon.

(2) Yes I confirm that the liquid depth is 15cm.

(3) Those parameter is measured by vector network analyzer and tissue parameter feature suggested by
Smidt & Partner. Please see attached file for test procedures. (See attached file: AN Testing Tissue Simulating Liquids Using HP85070.pdf)

(4)
a).The extrapolation is based on a least square algorithm [W. Gander, Computermathematik,
p.168-180]. Through the points in the first 3 cm in all z-axis, polynomials of order four are
calculated. This polynomial is then used to evaluate the points between the surface and the
probe tip. The points, calculated from the surface, have a distance of 1 mm from one
another.

b).The interpolation of the points is done with a 3d-Spline. The 3d-Spline is composed of three
one-dimensional splines with the "Not a knot"-condition [W. Gander, Computermathematik,
p.141-150] (x, y and z -direction) [Numerical Recipes in C, Second Edition, p.123ff].

c).Firstly the size of the cube is calculated. The volume is integrated with the trapezoidal
algorithm. 8000 points (20x20x20) are interpolated to calculate the average.

(5) The maximum search is automatically performed after each coarse scan measurement. It is based on
splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even
with relatively large grid spacings. After the coarse scan measurement, the probe is automatically moved
to a position at the interpolated maximum. The following scan can directly use this position for reference,
e.g., for a finer resolution grid or the cube evaluations.

The 1g peak evaluations are only available for the predefined cube 5x5x7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 32x32x30mm contains about 35g of tissue. The first procedure is an extrapolation (incl. boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume in a 1mm grid (35000 points). In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found.If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

(6) The distance that probe tip to phantom inner surface is 10mm during course scans.

Best Regards,

Dr. Alan Lane
Tel: +886 3 3270910
Fax: +886 3 3270892

----- ??? Alan Lane/ADT ? 2003/02/11 12:40 AM -----

"lyang" <lyang@itslabtes t-twn.com>
???: <demi@adt.com.tw>, <jane@adt.com.tw>
????:
??: FCC ID: PD5LMWP200RB SAR Review
2003/01/29 05:57 PM
??? ? lyang

Dear Demi,

Please find the attached of ATCB comments of DNI's project.

Should you have any question, please feel free to let me now.

Best regards.
Lyn Yang (???)
ETL Semko TWN EMC Lab
Tel +886-3-519-1411 Ext 303
Fax +886-3-519-1410
E-mail: lyang@itslabtest-twn.com

(See attached file: ATCB Comments_012803.pdf)

AN Testing Tissue Simulating Liquids Using HP85070.pdf ATCB Comments_012803.pdf