



Tim Dwyer <rfspectrum@gmail.com>

Sharp Corporation , FCC ID: APYHRO00097, Assessment NO.: AN09T9035, Notice#1

3 messages

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Thu, Apr 9, 2009 at 4:57 PM

To: spetrusk@sharpsec.com

Cc: tim.dwyer@ccsemc.com, mike.kuo@ccsemc.com

Hello Steve,

Review of this application is complete. Some additional information is needed regarding the SAR measurements related to probe calibration having been done at 900 MHz with measurements at 824-849 MHz.

Summarized, FCC KDB 450824 requires that if measurements are performed more than 50 MHz from the frequency at which the probe was calibrated, then additional information needs to be provided to support use of the probe conversion factor at the measurement frequency. KDB 450824 can be accessed and downloaded at the following url: <http://fjallfoss.fcc.gov/oetcf/kdb/forms/FTSSearchResultPage.cfm?id=29244&switch=P>

I am also including below excerpts from KDB 450824.

Please provide a revised SAR report with complete justification for use of the probe for these measurements at 824-849 MHz.

As information for future applications, the additional justification is not required if the probe is calibrated at a frequency within 50 MHz of the measurement. Although not relevant to this application, measurements for 1900 MHz and other bands are also subject to these requirements. To cover most mobile phone testing, recommended calibration frequencies are 835, 900, 1900, and 1950 MHz. IF the probe(s) are not calibrated at the additional frequencies for future applications, please include the expanded information in the SAR report as a matter of routine.

Extracted information from KDB450824 follows.

b) At 300 MHz to 3 GHz, DUT measurements should be within +/- 100 MHz of the probe calibration frequency. SEE ALSO ITEM c).

c) Measurements exceeding 50 % of these intervals, I.E.,

+/- 25 MHz, DUT f less than 300 MHz, OR

+/- 50 MHz, DUT f greater than or equal to 300 MHz,

SHALL APPLY THE FOLLOWING additional steps:

1) When the actual tissue dielectric parameters used for probe calibration are available (careful about some probe manuf. list only nominal or range on calib. cert.), the differences for relative permittivity and conductivity between probe calibration and routine measurements should each be less than or equal to 5 % while also satisfying the required +/- 5 % tolerances in target dielectric parameters.

2) When nominal tissue dielectric parameters are PROVIDED in the probe calibration data, the tissue dielectric parameters measured for routine measurements should be less than the target relative permittivity and higher than the target conductivity values, to minimize SAR underestimations. Otherwise, a thorough analysis of the effective frequency interval supported by the probe calibration and dielectric medium should be included in the SAR report to substantiate the test results - SEE ITEM d). Alternatively, the measured 1-g SAR may be compensated with respect to +5 % tolerances in relative permittivity and -5 % tolerances in conductivity, computed according to valid SAR sensitivity data, to reduce SAR underestimation and maintain conservativeness.

d) When thorough analysis is required for the additional steps, the following SHALL ALSO BE ADDRESSED BY THE DUT TEST LAB.

These other items can contribute to additional SAR differences, especially when the probe calibration, tissue dielectric parameters and device test frequencies are misaligned.

- 1) The probe conversion factor and its frequency response, with respect to the tissue dielectric media used during probe calibration and routine measurements, should be examined to determine if the effective frequency interval is adequate for the intended measurements to satisfy protocol requirements.
- 2) Measurements within the required frequency interval should satisfy an expanded probe calibration uncertainty ($k=2$) less than or equal to 15 % for all measurement conditions.
- 3) When SAR is reported within 10 % of the SAR limit, differences in field conditions and effects of output power levels on signal modulation between probe calibration and routine measurements should be examined to determine probe calibration validity.
- 4) Probe isotropy should also be assessed by rotating the probe in 15 degree increments at the peak SAR location of the zoom scan and accounted for in the measurement uncertainty.

SAR SYSTEM VERIFICATION

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It should be ensured that SAR discrepancies due to probe conversion factor and tissue dielectric parameter differences between the dipole and probe calibration frequencies are also acceptable; for example, less than 10 % to 15 %.

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of the original e-mail date may result in application dismissal and forfeiture of the filing fee. Also, please note that partial responses increase processing time and should not be submitted. Any questions about the content of this correspondence should be directed to the e-mail address listed below the name of the sender.

Best regards,

Tim Dwyer
Technical Reviewer
CCS

Petruska, Steve <spetrusk@sharpsec.com>

Mon, Apr 13, 2009 at 2:49 PM

To: tim.dwyer@ccsemc.com

Cc: mike.kuo@ccsemc.com

Hi Tim,

Please refer to the attached additional SAR probe calibration information that was prepared by JQA.

Please let me know if this will be sufficient to satisfy the requirements of KDB 450824 and allow for completion of the subject application.

(I sent the same document to Chris Harvey today, who is reviewing our application for FCC ID APYHRO00096 and had the same comment regarding the SAR probe calibration.)

Best regards,

Steve Petruska
Sharp Electronics Corp.
201-529-9689

[Quoted text hidden]

 **JQA SAR LTR.pdf**
164K