From: khpark@hctec.co.kr
Sent: Monday, May 20, 2002 2:42 AM
To: MikeKuo@CCSEMC.com
Cc: KiSoo Kim(HCT); SCOTT WANG(CCS)
Subject: HYUNDAI CURITEL INC., FCC ID:PP4DX-22B, AN02T2008 -1/4-

 Dear Mr. Kuo,

Thank you very much for your kind cooperations on reviewing our projects.

Please find the answer just below each questions for Hyundai Curitel Inc. FCC
ID:PP4DX-22B, AN02T1884.

If you have any further questions or commnets, please do not hesitate to contact
me.

Thanks.

Best Regards,

KiSoo Kim - HCT

P.S. : The attahced files will be sent seperately by fourth.

 > -----Original Message-----
> From: CERTADM
 > Sent: Friday, May 03, 2002 11:54 AM
> To: 'mkuo@ccsemc.com'
> Subject: HYUNDAI CURITEL INC., FCC ID:PP4DX-22B, AN02T2008

 Notice_content

 Question #1: Schematic diagrams are not readable. Please provide a clear
copy of schematic diagram.

 ==> We've rescanned the copy of schematic diagram.
        Please find the attached file.
        (filename : ATT. J (SCHEMATIC DIAGRAM(S).doc)

Question #2: The FCC ID number (CKLDX-22B) listed in the user manual under
 RF exposure section does not agree with proposed FCC ID number (PP4DX-22B).

===> We've revised the FCC ID number (PP4DX-22B) in the user manual under
        RF exposure section.
        Please find the changed FCC ID on page #90 in the attached file
        (filename : DX-22B.pdf)

 Question #3: Page 8 of SAR report: the description of body worn test setup
does not agree with actual test configuration. "Since this EUT does not
supply any body worn accessory to the end user a distance of 25 mm from the
EUT back surface to the liquid interface is configured for the generic
test.". From the test setup photo, this EUT was tested with supplied

holster.

==> We've checked and reviesd it.
        Please find the revised sheet on page #8 in the attached file.
        (filename : ATT. N (SAR REPORT).doc)

Question #4: When used with supply holster, what is the separation distance
 between the back of cellular phone to the flat phantom ?

==> It is 25mm.

 Question #5: Section 9.2 of SAR test report, you indicated 935MHz was used
 for system validation.

==> We've revised the frequency on page #13 in Section 9.2 of SAR test report.
      Please find the attached test report.
        (filename : ATT. N (SAR REPORT).doc)

 Question #6:Please provide SAR Vs Z Axis for System Verification.(
Attachment Q)

==> Please find the SAR Vs Z Axis data for System Verification.
        (filename : ATT.Q(DIPOLE VALIDATION PLOTS).doc).

Question #7:By reviewing the SAR Vs Z Axis provided, please provide your
explanation to the following questions:
A) The highest SAR value reported for each SAR Vs Z plot does not match the
highest point indicated on the chart. For example, for Left ear/@channel
0799/AMPs mode, the highest reported SAR value is 0.889mW/g. However, the
highest value indicated on the chart is around 0.36mW/g. Please provide
your explanation for all four SAR Vs Z plots..

==> We've checked operation software and reploted SAR Vs Z Axis as
        attached file.
        (filename : ATT. O (SAR TEST DATA) .doc)

B) The distance to allow the probe away from the bottom of phantom is too
short which resulting the SAR value can not reach to 0. Apparently your
setting is at 35mm and measured with 5 mm distance for total of 7 points.
This setting has to be changed. The distance should be at least 80 mm or
the distance that allow the SAR value to reach Zero. The measuring point
should be reduced to 2mm to allow enough reference data to be reported.

==> We've contacted SPEAG through DYMSTEC which is Korea agency
        regarding the above question and received the answer as below ;

----- Original Message -----
From: Katja Pokovic
To: mkuo@ccsemc.com ; DYMSTEC
Cc: sulser@speag.com
Sent: Tuesday, May 14, 2002 2:29 AM
Subject: Re: HCT Question

hi mike,

please find the answers integrated in the text below.

Question #7:By reviewing the SAR Vs Z Axis provided, please provide your
> explanation to the following questions:
> A) The highest SAR value reported for each SAR Vs Z plot does not match the
> highest point indicated on the chart. For example, for Left ear/@channel
> 0799/AMPs mode, the highest reported SAR value is 0.889mW/g. However, the
> highest value indicated on the chart is around 0.36mW/g. Please provide
> your explanation for all four SAR Vs Z plots..

when you plot the scatter-graph for the Cube measurement and would like to see
the peak then you need to choose the central vertical axis (the default - as you
had it - is the edge z-axis of the cube). as you know the cube is measured as
several axis in xy- direction, however only the one is the one with the highest
SAR value!

> B) The distance to allow the probe away from the bottom of phantom is too
> short which resulting the SAR value can not reach to 0. Apparently your
> setting is at 35mm and measured with 5 mm distance for total of 7 points.
> This setting has to be changed. The distance should be at least 80 mm or
> the distance that allow the SAR value to reach Zero. The measuring point
> should be reduced to 2mm to allow enough reference data to be reported.

your assumption is wrong. the closest measured point to the inner phantom
surface is between 4-5 mm. from that distance 7 points with a spacing of 5 mm
are measured. after the cube measurement is done, software performs
interpolation between measured points and extrapolation to the inner phantom
surface. the overall volume of the measured cube is in the range of 30-35 grams.
since the standards require 1g or 10g, there is a software algorithm that
searches for the highest 1g/10g cube within 30g cube. => more details on the
cube measurement can be found in the DASY User Manual, Section 4.6.3 and 4.7.3

best, katja

Question #8: please justify use of the probe calibration at a different
frequency and different tissue (for body measurement) than used for testing.
Conversion factors on the SAR plots seem to only correlate to head values at
900MHz for probe SN 1608. Yet, testing was performed at 835 MHZ in both head
and body liquids. Please include an analysis of the expected variation on
the SAR value. Alternatively please provide data using a probe calibrated at
the test frequencies and with the target tissue parameters.

===> We've got a calibrated probe conversion factor for 835MHz in head liquid.
          So, we've recalculated SAR value with new conversion factor.
          Please find the attached file.
          (filename : ATT.Q(DIPOLE VALIDATION PLOTS).doc).

And we've received the answer from SPEAG through DYMSTEC which is
Korea
        agency regarding the above question as below ;

----- Original Message -----
From: "Katja Pokovic" <pokovic@speag.com>
To: <mkuo@ccsemc.com>; "DYMSTEC" <dymstec@hitel.net>
Cc: <sulser@speag.com>
Sent: Thursday, May 09, 2002 9:56 PM
Subject: Re: HCT Question

> hi mike,
>
> i am not sure if i know all the background behind your question but i
> will try to give you some explanations and if you need more details,
> please contact us again.
>
> probe conversion factor is strongly dependent on the media
> parameters. since those are also dependent on the frequency the
> conversion factor has a frequency dependence too.
>
> head and body tissues have different dielectric properties and
> therefore the same probe will have two different conversion factors
> for head and body. the difference in percentage is around 3-4 %
> around 900 MHz and around 7-9% around 1800 MHz.
>
> we have developed in the last few years a sophisticated numerical
> probe model which we now use for extensive analysis and evaluation of
> additional conversion factors.
>
> the probe was simulated using a graded mesh with the smallest grid
> spacing of 0.125 mm at the probe tip. in order to mimic the real
> world as much as possible, we have included in the numerical probe
> model all materials used for manufacturing of dosimetric field
> probes, i.e., eccostock, fibre, ceramics, air and silicon. the probe
> response was assessed by calculating the gap voltage over the modeled
> dipoles (attached is the PDF file of the paper in which the pre model
> has been presented). the conversion factor was calculated by
> evaluating the probe response when in air and when immersed in the
> lossy medium. this model has been experimentally validated in great
> extend for the various frequencies for which we have obtained
> experimentally assessed conversion factors.
>
> the results have demonstrated that this approach is greatly reliable
> and that it can be further improved by utilization of the
> experimentally assessed conversion factors such that the uncertainty
> can be kept below 8% for most frequencies in question.
>
> best,
>
> katja

FYI
Please note that the BW for 800 MHz conducted spurious measurements should
be 30 KHz, when more than 60 KHz away from the carrier, not 1 MHz per CFR 47
section 22.917(h)1.

==> We will do that in the future testing.

FYI
In the future filing, please include the following additional information on
each SAR plot:
- date
-ambient and liquid temperatures
-frequency

===> We will do that in the future testing.

Best Regards

Mike Kuo / TCB Certifier
The items indicated above must be submitted before processing can continue
on the above referenced application. Failure to provide the requested
information within 60 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.