Dear Steve,
The response for the requested technical information in CRN: 24953 has been integrated into your original text below. Please review at your earliest convenience. Thanks.

Best regards,

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To: STEVE CHENG,
From: Steve Dayhoff
sdayhoff@fcc.gov
FCC Application Processing Branch

Re: FCC ID MCLJ07H06901
Applicant: Ambit Microsystems Corporation
Correspondence Reference Number: 24953
731 Confirmation Number: EA281737

In regards to your recent application referenced above we kindly request that you provide the following additional information.

Attention please: All the data and plots, which related to the 5G SAR is in the uploaded file "CRN 24953 5G SAR Response from Utah SAR lab.pdf ".

1) Details of BT transmitter mentioned on page 26. Please include power, antenna location, FCC ID. Also provide "co-located condition" SAR data as appropriate.
<Response>
A wrong photograph was attached as Fig. 2 on p. 26 of the previously submitted SAR test report. This device does not have a blue tooth antenna and none should, therefore, have been shown. A corrected version of Fig is attached herewith. We apologize for this mistake, which occurred due to a miscommunication between various parties.
BT marking on page 26 is a typo, this submission including only a 802.11 a/b/g module only, there is not BT device inside.

2) Additional probe calibration data to include axial and hemispherical isotropicity, and linearity. Also, please provide details of the related uncertainty components.
<Response>
As previously mentioned in Section III, the isotropy of the probe was determined by rotating the probe around its axis. The isotropy of the probe was measured to be less than ± 0.23 dB (± 5.5%). The linearity of the probe is the same as the deviation of the probe output from the square-law behavior. The linearity of the probe has been measured to be less than ± 3%.

3) Steps that are being taken to comply with Supplement C recommendations to perform system verification with 100 MHZ of device frequency. Please provide date when upgrade will be complete.

<Response>

Since it is very hard to fabricate a half-wave dipole with a balun in the 5.0-5.8 GHz band, both because of fairly small dimensions as well as relatively limited bandwidth of such dipoles, we are developing a system verification system by using an open-ended, air-filled waveguide as an irradiation system placed at a distance of 8 mm from the base of the planar phantom (10 mm from the lossy fluid in the phantom). For this application, we have set up a WR 187 rectangular waveguide of internal dimensions 1.872" × 0.872" that is fed with microwave power from a Hewlett Packard Model 83620A Synthesized Sweeper (10 MHz-20 GHz). The operating (TE_{10} mode) band of this waveguide is from 3.95 to 5.85 GHz. When placed at a distance of 8 mm from the base of the planar phantom, the reflection coefficient is about 10-20%. Even this relatively small amount of reflection can be reduced to less than 0.5% by using a movable slide screw waveguide tuner (Narda Model 22CI). For system verification, we hope to compare the peak 1-g SAR with that obtained using the FDTD-calculated values for such a radiation system. This work is likely to be completed in the next couple of weeks (first or second week of April 2003).

4) Additional SAR measurement data to include

--values from both antennas A and B for all configurations

--Configuration 3 with display open

--Plot of entire device

--Values for any secondary hot spots in accordance with Supplement C

<Response>

All of the SAR data submitted previously (in the SAR Report dated February 19, 2003) pertained to Antenna B as shown in Fig. a. The additional data measured for Antenna A for all three configurations is added to the previously submitted Table 11 and is resubmitted here as Table a. As expected, the SARs are extremely low for Configuration 1 - Above-lap position.

The coarse scan measurements for Configurations 2 and 3 for Antenna A are given in Figs. b and c, parts 1-4, respectively. The corresponding SAR distributions for the peak 1-g SAR regions are given in Tables b-i, respectively. The z-axis scan plots taken at the highest SAR locations for each for the configurations for Antenna A are given in Figs. d and e, respectively.

Plot of the Entire Device

A photograph of the top cover of the Agency Series Laptop Computer with display open as for Configuration 3 - End-on position is given in Fig. f. Marked here are the various regions 1-12 each of dimension 5.6 × 8.0 cm that have been individually scanned for SAR distributions with a coarse scan resolution of 0.8 cm (8 mm) each. The locations of the individual scan regions on the Agency Series PC Cover of dimensions 28 × 23 cm are given in Fig. g. Since the measured peak 1-g SAR was the highest (0.416 W/kg) for Antenna B for Configuration 3 - End-on position for an irradiation frequency of 5.26 GHz in the base mode, all 12 regions were scanned for the SAR values at a depth of 4 mm in the phantom fluid for the Ambit Microsystems Wireless Antenna B in the base mode at 5.26 GHz. Given in Figs. h to s are the measured SAR distributions for regions 1-12, respectively. For convenience of comparison, all of the measured SAR distributions are shown with the color scale as that in Fig. h for region 1. Also included are the measured SAR distributions for all 12 regions given as Tables j-u, respectively. As expected, the SARs are the highest for region 1 in close proximity to Antenna B. Even for this region 1, the highest SAR region is highly localized occupying an area of approximately 2 × 2.5 cm in physical extent.

5) New SAR plots to include the following information

--Date

--Liquid parameters

--Ambient and liquid temperatures

--Device position and setup

--Outline of device to show hot spot location

--Probe conversion factor
<Response>
Date: March 27, 2003
Liquid parameters: Same as those given in Section V of the SAR test report dated February 19, 2003.
Device positions and set up: Given in various Figs. b, c, parts 1-4, respectively,
Probe conversion factor: Same as for the previous SAR test report; 2.98 (mW/kg)/µV.
SAR system verification: The new data taken for the SAR system verification is attached here as Appendix I. The data for system verification was March 26, 2003. The measured 1-g SAR of 36.429 W/kg is in excellent agreement with the FDTD-calculated 1-g SAR of 35.8 W/kg. Also as expected, the measured SAR plot is quite symmetric.

6) Updated user manual to include appropriate RF exposure user information. The host device should be clearly defined.
<Response>
Revised user manual uploaded in file "CRN 24953 revised User manual.PDF"

7) Demonstration that probe calibration with CW signal applies to modulated signals tested in filing.
<Response>
For the microvoltmeters in our SAR system (HP34401A Multimeters), we use an AC signal filter with a passband of 20 Hz to 300 kHz (1 reading/second). This allows faithful readings of the rectified values of voltage outputs from the three pickup antennas proportional to E 2) of the E-field probe used for SAR measurements. For a variety of modulated signals often used for wireless PCs including the present Ambit Microsystems Mini PCI (FCC ID# J07H06901), the multimeter passband of 20 Hz to 300 kHz is more than sufficient to read all of the frequency components. We have tested the validity of using this AC signal filter by applying signals from a Hewlett Packard Model 83620A synthesized sweeper operating at 5.25 and 5.8 GHz in the CW mode as well as the pulse mode with pulse repetition rates for the latter variable from 50 to 500 Hz and pulse durations variable from 0.5 to 1 msec. For a fixed location of the E-field probe, the SAR readings are proportional to the time-averaged power into the waveguide (from 2.5 to 100 mW) with a probe calibration factor of 2.98 (mW/kg)/µV ± 5%.