Chris Harvey

From: Todd Gallagher [tgallagher@nvtl.com]
Sent: Thursday, May 21, 2009 1:36 PM
To: Ron Hsu
Subject: FW: Advice on Collocated SAR on another project

Hi Ron,

Sorry I should have sent this directly to you. Call me if you have any questions.

Thanks!

Todd Gallagher

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From: Todd Gallagher
Sent: Wednesday, May 20, 2009 3:11 PM
To: mike.kuo@ccsemc.com
Cc: 'Thanh_Nguyen@Dell.com'
Subject: RE: Advice on Collocated SAR on another project

Hi Mike,

Please provide me with a quote covering the testing and TCB services for the Bear platform. A list of required hardware and documentation can be sent as well. This platform will require Industry Canada certificate at the same time.

Let me know what your timeline looks like so I can add it to our schedule.

Thanks Mike!

Todd Gallagher

Manager - Regulatory Engineering

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From: Thanh_Nguyen@Dell.com [mailto:Thanh_Nguyen@Dell.com]
Sent: Wednesday, May 20, 2009 1:28 PM
To: mike.kuo@ccsemc.com; Todd Gallagher
Subject: RE: Advice on Collocated SAR on another project

Mike,

That is great. Thank for checking with FCC on this. Hope that CCS have the bandwidth to help Dell and its WWAN supplier, Novatel, for C2PC of this project.

Todd,

TCB CCS obtained the confirmation for FCC that Co-located SAR is not required for Bear. I would like Novatel to select CCS as the TCB to handle the C2PC for Bear. Please contact Mike Kuo at CCS for all details to start the C2PC.

Regards,

Thanh Nguyen
Wireless Regulatory Engineer
Dell Inc.
One Dell Way, PS4-2, D179, Mail Stop PS4-30 Round Rock, Texas 78682 USA

512-723-8862 (phone)
thanh_nguyen@dell.com

From: Mike Kuo [mailto:mike.kuo@ccsemc.com]
Sent: Wednesday, May 20, 2009 2:15 PM
To: Nguyen, Thanh
Subject: RE: Advice on Collocated SAR on another project

Hi Thanh:

Below is the FCC response to co-located SAR requirements. Attachment is the file that I sent to FCC for their review.

Decision from FCC: Co-located SAR is not required.

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Inquiry <javascript:launchPopup('/oetcf/kdb/help/HelpFile.cfm?form_id=11')> Details:

First Inquiry Category:

Radio Frequency Exposure - MPE; SAR

Second Inquiry Category:

Specific Absorption Rate

Third Inquiry Category:

Non-handset SAR

Dear FCC:

Per the requirement stated in KDB 447498, section 3)b)ii)2), when the antnena to user separation distance is > 5 cm, consultation with FCC is required to determine the similtaneous SAR requirements.

Product Description:

1.netbook computer with screen size (10 inches) less than 12 inches.

2.WWAN and WLAN can transmit simultaneously

3. WWAN-main and WLAN-AUX antenna separation distance is 0 cm.

4. WWAN-main to user separation disance is 17 cm.

5. WLAN-main and WLAN-AUX to user separation distance is 17 cm.

6. Bluetooth power is below power threshold.

Higest individual SAR measured are :

1. WLAN:0.05 W/kg

2. WWAN:0.102 W/kg

Co-located radios:

WLAN:

DW 1397 BroadCom BCM94312HMG FCCid: QDS-BRCM1030

OR

DW 1510 BroadCom BCM94322HMG8L, FCCid: QDS-BRCM1031

WWAN:

DW 5730 EV-DO FCCid: PKRNVWE760D

Or

DW 5530 HSPA FCCid: VV7-MBMF3507G-D

Bluetooth:

DW 365 FCCid: QDS-BRCM1033

Question #1: This device is not subject to KDB 616217 due to screen size is smaller than 12 inches. If KDB 616217 assessment is used, based upon the antenan configuraiton, due to antenna-to-antenna separation distance is < 5 cm, co-located SAR is required. Based upon KDB 447498, contacting FCC is required to determine co-located SAR requirements.

Best Regards

Mike Kuo / CCS

Attachment: Antenna location.

---Reply from Customer on 05/19/2009---

Dear FCC:

Thank you for your quick response. To address each of your question:

a) WWAN-Aux is receiving only antenna so WWAN-AUX and WLAN-main do not transmit simultaneously.

b) WLAN+WWAN is a combo antenna with two ports. One to WWAN and one to WLAN. Due the antenna design, there is no actual physical separation distance thus 0 cm is informed.

It is understood that due to the TX antennas are located on the top edge of laptop computer, the large TX antenna to user separation distance will distribue very low SAR value thus co-located SAR is generally not required.

However, due to KDB 616217 (dxy >= 5 cm) and KDB 447498 stated co-located requirements, TCB has to check with FCC for co-located SAR requirement. Please help to confirm co-located SAR requirements based upon the information submitted.

Best Regards

Mike Kuo / CCS

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Response(s): <javascript:launchPopup('/oetcf/kdb/help/HelpFile.cfm?form_id=11')>

--OET response sent on May 19 2009 3:22PM--

"WWAN-main and WLAN-AUX antenna separation distance is 0 cm."

a) based on description, it appears WWAN-aux and WLAN-main do not have simul.-transmit - or let us know if otherwise

b) above quoted statement says "separation distance is 0 cm", and attachment says "WLAN+WWAN Combo Antenna", however actual antennas are obscured in photos. In general FCC laptop procedure development did not consider antennas "on top of each other." Please give details about how that is one-port or two-port antenna, what is physical separation between WLAN and WWAN radiating structures, etc.

--OET response sent on May 20 2009 1:34PM--

1) for this specific configuration of laptop, transmitters, and antennas, this response serves to OK use of KDB 616217 stand-alone and simul.-transmit test reduction methods

2) furthermore, as we understand present inquiry is requesting exception for the KDB simul.-transmit SAR condition of

{ d_xy .GE. 5 cm } & {r_x .GE. 5 cm} & { sum_all SAR_1g .LT. 1.6 W/kg}

[using notation from Harrington Oct08 FCC-TCB conference notes page 4,

.GE. is "fortran pseudo-code" notation for "greater than or equal to",

.LT. is "less than",

_ means subscript]

namely, this laptop configuration has one antenna pair with { d_xy .LT. 5 cm }

for this specific configuration of laptop, transmitters, and antennas, this response serves to OK use of KDB 616217 but with this specific exception as noted, i.e. simul.-transmit SAR not needed for this specific antenna pair

Best Regards

Mike Kuo

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