Inpsiron 910 Netbook - Summary of FCC SAR Approach

1. Document Scope

This document details the key information relating to configuration options of all transmitting radios contained within the Inspiron 910 netbook as declared by Dell and the approach taken to defining the FCC SAR test requirements.

1.1. Co-located transmitter modules

RFI were advised that the following modules would be used in the Inspiron 910 netbook

Module Type	Manufacturer	FCC ID Number
WWAN F3705g	Ericsson AB	VV7-MBMF3507G
Bluetooth	HON HAI Precision Ind	MCLBCM92046
WLAN 802.11b/g	Atheros Communications	PPD-AR5BXB63
WLAN 802.11g	Broadcom Corporation	QDS-BRCM1028

1.2. Co-located transmitter modules configuration options

It was indicated that the following configuration options would be used:

Option 1 - WWAN F3705g + Bluetooth + WLAN 802.11b/g (Atheros Communications)

Option 2 - WWAN F3705g + Bluetooth + WLAN 802.11g (Broadcom Corporation)

This module configuration information was used in combination with antenna information and power data of the respective modules to create the SAR test calculation requirements as per section 1.5 of this document.

1.3. Antenna location information

Two diagrams were supplied that detailed the key antenna location information. Figure 1 shows the antenna to antenna information and Figure 2 shows a sketch indicating antenna to user information.

Figure 1 - Antenna to antenna distances:

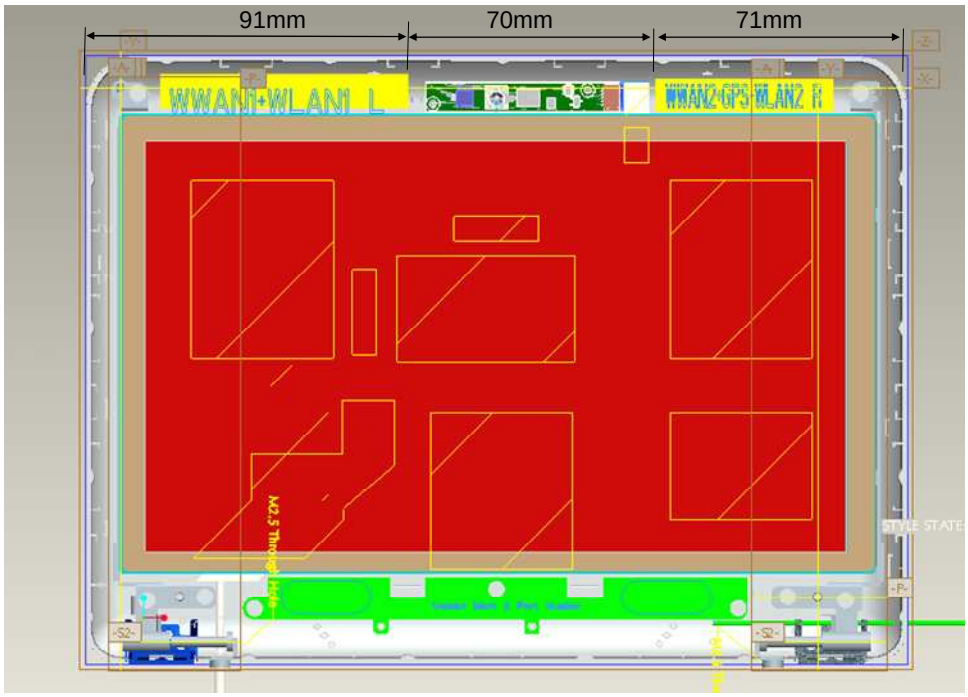
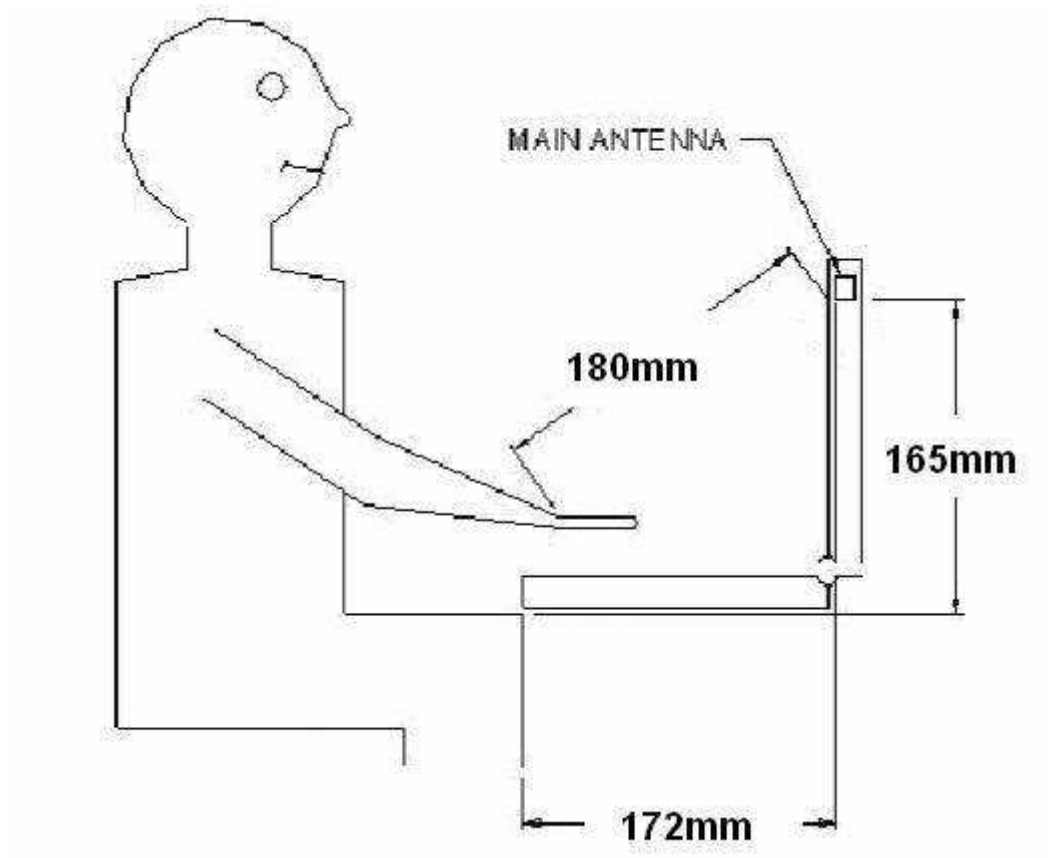


Figure 2 - Antenna to user distances



1.4. Approach to determining FCC SAR test requirements

The SAR Evaluation Considerations for Laptop Computers with Antennas Built-in on Display screens procedure (FCC KDB 616217 D01) was referred to in the first instance however the following notes were observed:

In the Introduction section on page 2 is the following statement:

> "Manufacturers and test labs may apply these procedures to reduce the number of SAR tests necessary to demonstrate compliance for certain transmitter configurations in typical full-size laptop or notebook computers.1"

There is also a footnote on page 2 that states:

> "Displays 12" or larger are consider full size. The exposure conditions of tablet and laptop computers are different; therefore laptop procedures are not applicable to tablets."

As the Inspiron 910 netbook has a display size of 8.9" the FCC was contacted for further clarification on how to proceed, The FCC confirmed that:

> "The KDB 447498 must be taken into consideration together with KDB 616217."

Based on this response we produced a calculation document that defined the SAR test approach.

1.4.1. FCC response to inquiry

From: oetech@fccsun27w.fcc.gov [mailto:oetech@fccsun27w.fcc.gov]
Sent: 08 August 2008 19:39
To: John Bellairs Response to Inquiry
Subject: to FCC (Tracking Number 328836) (TCB)
Importance: High

FCC Federal Communications Commission

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OET

Office of Engineering and Technology

Inquiry:

---**Reply from Customer on 08/07/2008**---

The device is a smaller version of a traditional full size laptop PC. It is larger than that defined as a UMPC or PDA. It is not intended to be used next to the user's ear. A diagram for the device usage with antenna distances is enclosed.
All transmitters can operate simultaneously with conducted TX powers as follows: GSM antenna -2.0W (GSM850) and 1.0W (PCS1900); BT antenna - 1.0mW; WiFi antenna - 0.5W. Antenna gains are not known at present, so assume 0dBi gain for each.
Please advise on the SAR procedure(s)s that apply.

Response:
The KDB 447498 must be taken into consideration together with KDB 616217.

Do not reply to this message. Please select the Reply to an Inquiry Response link from the OET Inquiry System to add any additional information pertaining to this inquiry.