QUALCOMM
CDMA Technologies

Gobi2000™ Module Lenovo S10-3t Tablet Computer Collocated RF Analysis

80-VP949-42 Rev. B

September 1, 2010

Submit technical questions at:
regulatory.support@qualcomm.com

QUALCOMM Incorporated
5775 Morehouse Drive
San Diego, CA 92121-1714
U.S.A.

Revision history

Revision	Date	Description
A	August 29, 2010	Initial release
B	September 1, 2010	Correction of FCC and IC IDs for collocated devices

September 1, 2010

Gobi2000™ Module Lenovo S10-3t Tablet Computer Collocated RF Analysis

80-VP949-42 Rev. B

1 Collocated analysis

1.1 Collocated Transmission Introduction

This document provides a collocation SAR analysis of the Lenovo tablet computer model S10-3t in reference to KDB 447498.

The following devices may be installed in the host device Lenovo S10-3t computer and are capable of transmitting simultaneously with the Gobi2000™ module. Changes to any antenna design or host materials may require a Class II permissive change to update the individual and collocated SAR analysis. Alternate WLAN/BT modules can be used providing the average transmit power and technology support is identical to the modules addressed in Table 1 below, and does not result in greater RF exposure to the user.

Table 1 Collocated FCC IDs

Device Type	Mfr/Model	FCC ID	IC ID	Date Added
WLAN	Atheros/AR5B95	HFS-AR5B95	1787B-AR5B95	August 2010
WLAN	Intel/112BNHMW	PD9112BNHU	1000M-112BNHU	August 2010
WLAN	Broadcom/BCM94313HMG2L	HFS-BCM94313HMG	1787B-BCM9413HMG	August 2010
Bluetooth	Broadcom/BCM92070MD_REF	QDS-BRCM1043	4324A-BRCM1043	August 2010

Per the analysis below, the FCC IDs listed in Table 1 are authorized for the following simultaneous transmission configurations:

- WWAN 850 + WLAN + Bluetooth
- WWAN1900 + WLAN + Bluetooth

1.2 Collocated Transmitter Evaluation

Tables 2 and 3 summarize antenna separation distances and evaluation criteria used for determining test reductions. The maximum WWAN SAR measurement for model S10-3t was in tablet mode in secondary landscape position. Therefore maximum WLAN SAR measurements listed was also for secondary landscape position, except where noted (for cases where secondary landscape orientation was not measured for a given device).

Figure 1 Antenna separation distances

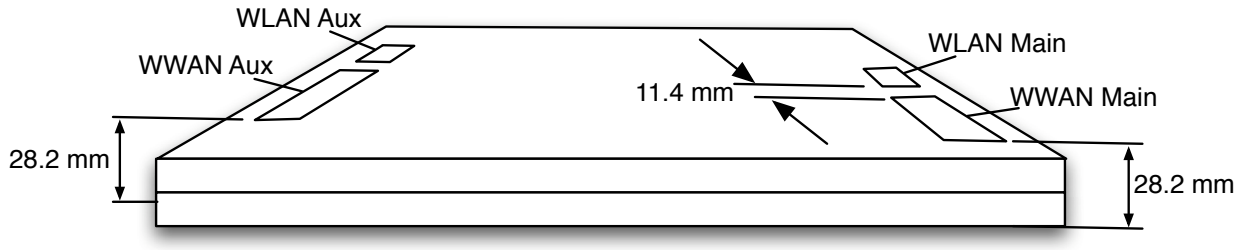

Table 2 Antenna Separation Distances

Antenna	Distance (cm)
WLAN Main-to-user	2.82
WLAN Aux-to-user	2.82
WWAN main-to-user	2.82
WLAN Aux-to-WWAN main	>20
WLAN main-to-WWAN main	1.14

Table 3 Individual Transmitter SAR Evaluation

Technology	Freq (MHz)	Average Power (dBm)	Measured Average Power (mW)	$60/f_{(GHz)}$ (mW)	Highest Measured Individual SAR (mW/g 1g)
WWAN (GPRS-2UL 850 MHz)	824.2	24.93	311.2	72.8	0.786
WWAN (EV-DO 1900 MHz)	1908.75	24.09	256.4	31.4	0.169
WLAN (HFS-AR5B95)	**2412**	**25.2**	**337.0**	**24.9**	**0.082***
WLAN (PD9112BNHU)	2412	16.8	48.0	24.9	0.0072
WLAN (HFS-BCM94313HMG)	2412	25.3	339.6	24.9	0.00529
BT (QDS-BRCM1043)	2400	4.3	2.67	25.0	N/A (<60/f)

*Secondary landscape orientation was not tested for this device, so the highest SAR measurement for the device is listed here for the purposes of this analysis.

Per KDB 447498 4) b) iii) 1), for tablet computers with antennas installed along the tablet edges while operating in Tablet Mode, testing of simultaneous transmission may be omitted if pairs of transmitting antennas' SAR measurements sum to less than 1.6 mW/g. Table 4, *Simultaneous Transmitter SAR Requirements*, shows the calculated sums where required and their respective verdicts. The highest measured WLAN SAR data (boldfaced in Table 3, *Individual Transmitter SAR Evaluation*, HFS-AR5B95, was used for the calculations.

Table 4 Simultaneous Transmitter SAR Requirements

Mode combination	Calculation	Total SAR (mW/g)	Requirement
GPRS-2UL + WLAN Main	0.786 + 0.082	0.868	Simultaneous SAR test not required since sum of individual SAR values < 1.6
EVDO 1900 + WLAN Main	0.169 + 0.082	0.251	Simultaneous SAR test not required since sum of individual SAR values < 1.6
WWAN+ Bluetooth	N/A	N/A	Simultaneous SAR test not required since Bluetooth P(mW)<60/f