

# RF Exposure Evaluation in co-locating with other transmitters

## 1. Configuration

The applying modular transmitter device (FCC ID: **N7NMC8755**) was previously certified by the Commission on October/31/2006 with the same configuration in this application.

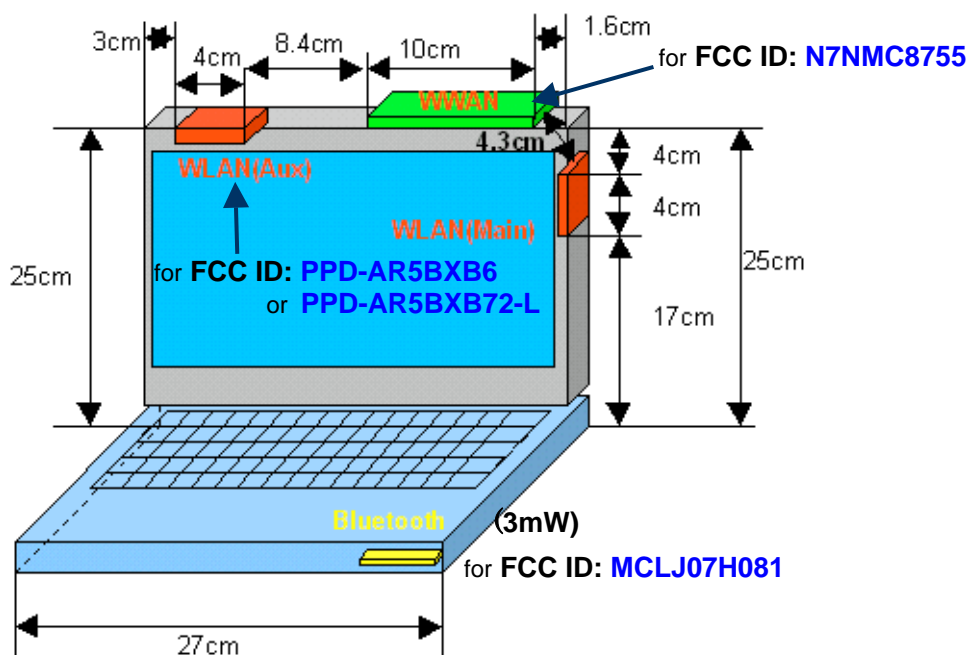
The difference from the previous grant condition is:

**to enable the simultaneous transmission with the WLAN modular transmitters listed below.**

The co-location with the Bluetooth module remains the same.

Note) The host PC (Lenovo DL-note) model, which integrates the applying modular transmitter device (FCC ID: **N7NMC8755**), is marketed in EU, Australia and New Zealand, and is not sold in USA. However, the equipment authorization is necessary for the travelers from those countries.

**Figure-1:** Triple transmitters model of DL-Note



## 2. Justification for SAR testing

The subjected host device is a tablet type PC and the transmission antennas are very close to the human body. Therefore the applying LMA transmitter and the antenna system are categorized as a Potable device pursuant to FCC CFR 47 Section 2.1093.

The separate SAR test report (Number: 06U10666-1B) was measured for the applying modular transmitter (FCC ID: N7NMC8755) with the co-located WLAN (FCC ID: PPD-AR5BXB72-L) and Bluetooth (FCC ID: MCLJ07H081) in active. PPD-AR5BXB72-L was selected representatively as the worse case among the two co-located WLAN transmitter devices.

Also the co-located WLAN modules (FCC ID: PPD-AR5BXB72-L and PPD-AR5BXB6) were examined the SAR independently with the co-located Bluetooth (FCC ID: MCLJ07H081) in active, and granted on October/31/2006 and November/07/2006. The document Numbers of SAR test reports for these transmitters referred in this exhibit are 06U10634-4B and 06LR024SAR-F.

Hereafter, the calculation of grid-summed SAR result for WWAN and each WLAN SAR testing is used for the RF exposure evaluation.

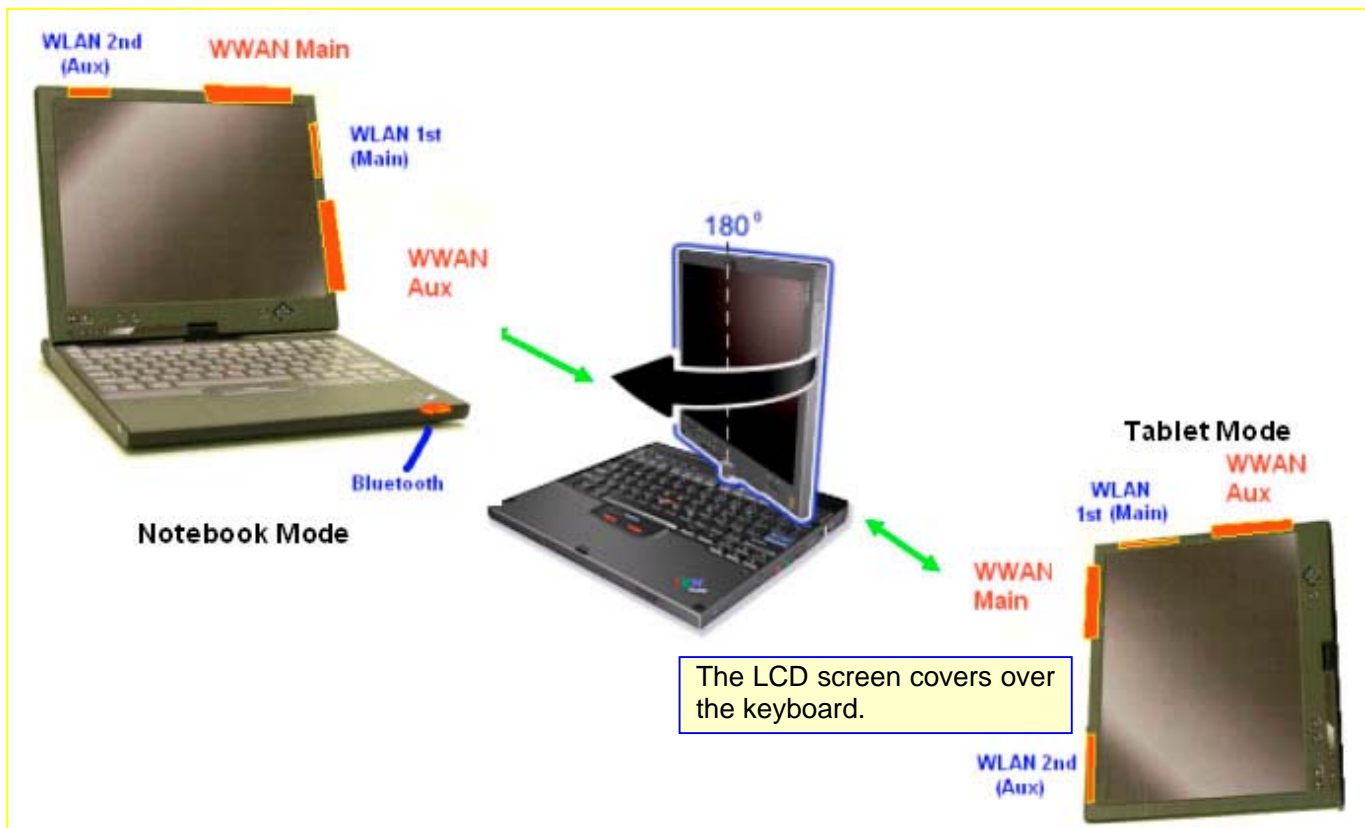
## 3. Conclusion

The maximum grid-summed SAR results of the WWAN and WLAN modules are as follows, then the applying device (FCC ID: N7NMC8755) has found to comply with the limits for the SAR compliance according to FCC CFR 47 section 2.1093, Portable devices.

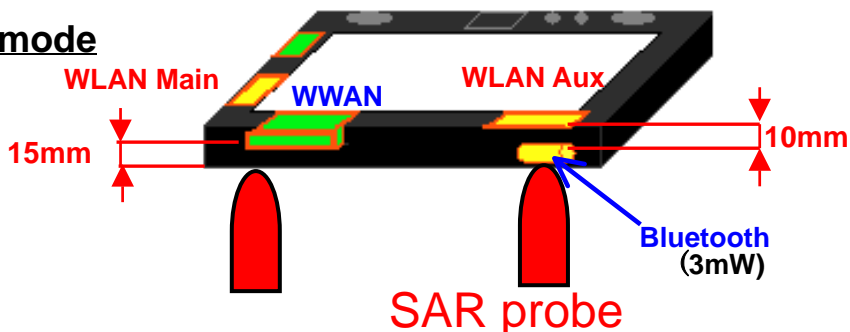
Part 22E	GPRS with WLAN and Bluetooth	0.760 mW/g
	EGPRS with WLAN and Bluetooth	0.700 mW/g
Part 24H	GPRS with WLAN and Bluetooth	0.734 mW/g
	EGPRS with WLAN and Bluetooth	0.705 mW/g

#### 4. Summary of grid-summed SAR result

The SAR test was performed with the following configuration, and the same terms of each configuration are referred in the SAR test report.



#### Laptop mode



**Table-1 Grid-summed SAR result of Laptop mode**

[Unit of results: mW/g]

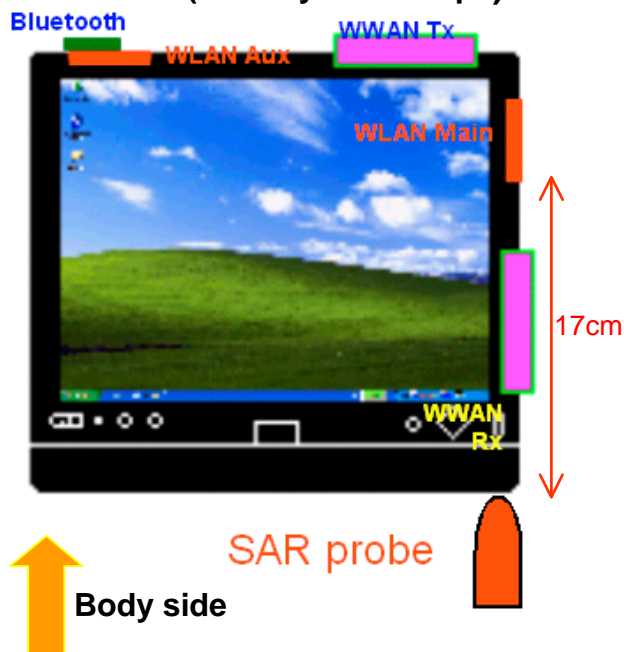
WWAN	N7NMC8755	WLAN	PPD-AR5BXB72-L + MCLJ07H081		PPD-AR5BXB6 + MCLJ07H081	Sum of WLAN + WWAN	
			Main	Aux			
SAR Test Report No.		06U10666-1B	06U10634-4B		06LR024SAR-F		
Laptop (Lap-Held)	GPRS-22H	<b>0.153</b> (0.142) *1	2.4G (DTS)	0.115	0.122	0.067	0.489 *2
	EGPRS-22H	(0.041) *1					0.377 *2
	GPRS-24E	<b>0.188</b> (0.194) *1	5.8G (DTS)	<b>0.264</b>	<b>0.072</b>	0.166	0.524 *2
	EGPRS-24E	(0.068) *1					0.173

\*1: Reference only (the previous measurement results of CCS SAR Report 06U10630-3B)

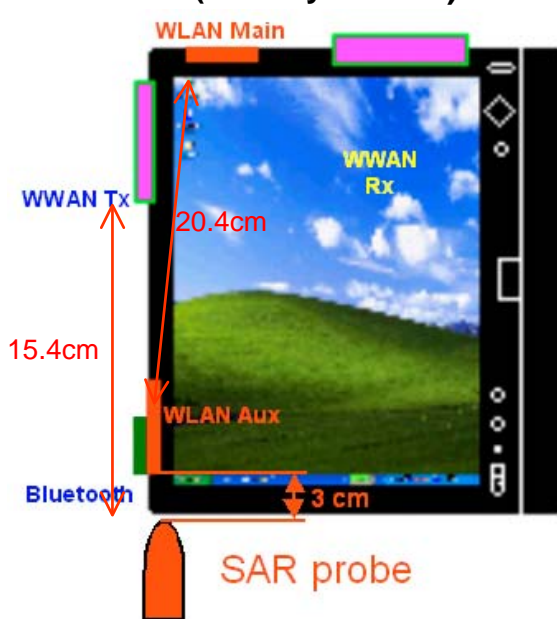
\*2: MC8755 SAR result + the highest SAR result of WLAN (i.e. MIMO Main+Aux in 5.2GHz band)



**Tablet PL (Primary Landscape)**



**Tablet PP (Primary Portrait)**



**Table-2 Grid-summed SAR result of Tablet Primary mode**

[Unit of results: mW/g]

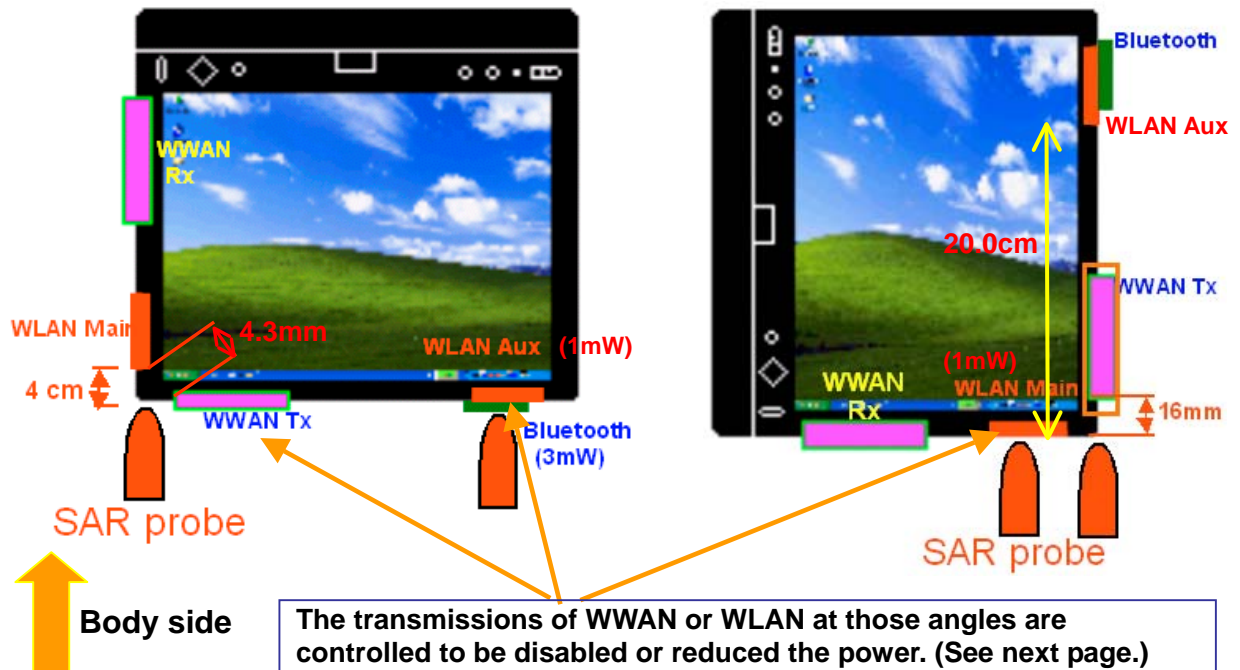
WWAN		N7NMC8755	WLAN		PPD-AR5BxB6 + MCLJ07H081		Sum of WLAN + WWAN
			Main	Aux	PPD-AR5BxB72-L + MCLJ07H081		
SAR Test Report No.		06U10666-1B	06U10634-4B		06LR024SAR-F		
Primary Portrait	GPRS-22H	<b>0.082</b> (0.082) *1	2.4G (DTS)	(mobile)	0.361	0.203	<b>0.760</b> *3
	EGPRS-22H	(0.022) *1					<b>0.700</b> *3
	GPRS-24E	<b>0.056</b> (0.056) *1	5.8G (DTS)	(mobile)	0.233	0.175	<b>0.734</b> *3
	EGPRS-24E	(0.027) *1					<b>0.705</b> *3

\*1: Reference only (the previous measurement results of CCS SAR Report 06U10630-3B)

\*3: MC8755 SAR result + the highest SAR result of WLAN

**Tablet SL (Secondary Landscape)**

**Tablet SP (Secondary Portrait)**



**Table-3 Grid-summed SAR result of Tablet Secondary mode**

[Unit of results: mW/g]

WWAN		N7NMC8755	WLAN	PPD-AR5BXB72-L + MCLJ07H081		PPD-AR5BXB6 + MCLJ07H081	Sum of WLAN + WWAN
SAR Test Report No.		06U10666-1B		Main	Aux	06LR024SAR-F	
Secondary Landscape	GPRS-22H	(disabled)	2.4G (DTS)	0.024	*4 (0.024)	0.053	0.140 *6
	EGPRS-22H	(disabled)					0.140 *6
	GPRS-24E	(disabled)	5.2G (U-NII)	0.042	*4 (0.042)	0.097	0.140 *6
	EGPRS-24E	(disabled)	5.8G (DTS)	<b>0.070</b>	*4 ( <b>0.070</b> )	0.135	0.140 *6
Secondary Portrait	GPRS-22H	<b>0.214</b> (0.194) *1	2.4G (DTS)	*4 (0.024)	*5 (0.024)	0.058	0.354 *6
	EGPRS-22H	(0.069) *1					0.209 *6
	GPRS-24E	<b>0.153</b> (0.064) *1	5.2G (U-NII)	*4 (0.042)	*5 (0.042)	0.079	0.293 *6
	EGPRS-24E	(0.032) *1	5.8G (DTS)	*4 ( <b>0.070</b> )	*5 ( <b>0.070</b> )	0.053	0.172 *6

- \*1: Reference only (the previous measurement results of CCS SAR Report 06U10630-3B)
- \*4: SAR is exempted pursuant to the footnote 14 of the Section 3 in Supplement C to OET Bulletin 65. Instead, the main WLAN antenna's values in Secondary Landscape mode are used as a worse case.
- \*5: SAR was not measured for WLAN due to the distance of mobile antenna. Instead, the main WLAN antenna's values in Secondary Landscape mode are used as a worse case.
- \*6: MC8755 SAR result + the highest SAR result of WLAN

## [Transmission control in “Tablet” operation mode]

- The system recognizes mechanically that it is transformed from “**Notebook mode**” to “**Tablet mode**”.



- The screen angle of **Tablet mode** is determined by operators with the screen rotation switch shown below, then the system recognizes which screen mode in **PL**, **PP**, **SL** or **SP** is selected.
- When the **SL** screen mode was selected, the system controls the transmission power of the Aux antenna for WLAN module (FCC ID: PPD-AR5 BXB72-L) to restrain to **1mW**, or the transmission of WLAN module (FCC ID: PPD-AR5 BXB6) is forced to switch to the main antenna. If WWAN module was active, the system does not function with **SL** mode for any WWAN module, and the screen returns to **PL** mode automatically so that operator won't use the **SL** mode.
- When the **SP** screen mode was selected, the system controls the transmission power of the Main antenna for WLAN module (FCC ID: PPD-AR5 BXB72-L) to restrain to **1mW**, or the transmission of WLAN module (FCC ID: PPD-AR5 BXB6) is forced to switch to the Aux antenna.

