

RF Exposure Evaluation

1. RF Exposure evaluation for the applying LMA transmitter

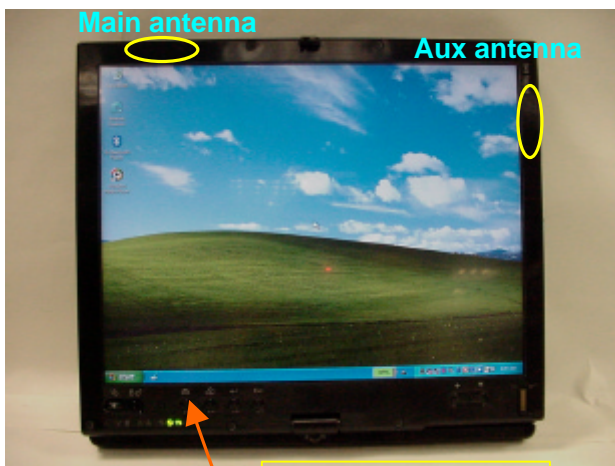
The RF exposure energy from each antenna of ThinkPad X41 Tablet Series satisfies the limit of SAR compliance according FCC CFR 47 section 2.1093, **Portable** devices.

The maximum SAR measurement result for model AR5BMB-44 performed with the ThinkPad X41 Tablet Series was 0.697W/Kg. Please refer to the measurement result of the separate SAR test report.

The test was performed with the co-located Bluetooth device (FCC ID: ANO20040700HER) in active and transmitting simultaneously.

Note: the function to stop Tx diversity in “Tablet” operation mode

When the host PC is used in the “Tablet” operation mode, one of the diversity antennas has a possibility to contact to the human’s body. The system has a control switch to change the rotation angle of LCD screen, then controls to stop the transmission diversity of the antenna, which will contact to the human’s body. This function is employed for model AR5BMB-44 in order to minimize the RF exposure energy to the human’s body.



Operator’s side

Screen angle control switch



Operator’s side

RF transmission stops.



Operator’s side



Operator’s side

RF transmission stops.

2. RF Exposure evaluation with co-located WLAN transmitters

The applying transmitter co-locates with the following Bluetooth module.

Option type	FCC ID	Grantee Name	Product Name	Granted Date	Conducted Tx power
Built-in LMA Transmitter	ANO20040700HER	IBM Japan, Ltd.	IBM integrated Bluetooth IV with 56K Modem	December/09/2004	2.0mW

The Bluetooth antenna of ThinkPad X41 Tablet PC used for the model J07M064 (FCC ID: ANO20040700 HER) is subjected to Class I Permissive Change pursuant to the ET Docket 03–201; FCC 04-165, July 12/2004 and Federal Register / Vol. 69, No. 172, September 7/2004, since the antenna is very similar meander type to the existing granted antenna systems and the peak gain of it does not exceed the maximum certified value as follows.

Host PC model	Designator (Parts Number)	Antenna type	Cable type and length	Peak Gain
ThinkPad X41 Tablet Series	91P6910	Meander Antenna	Coax 400 mm	2.37 dBi
ThinkPad T40 Series, LCD 14 inch model	91P6901		Coax 265 mm	1.20 dBi
ThinkPad T40 Series, LCD 15 inch model	91P6842		Coax 230 mm	2.84 dBi
ThinkPad R50 Series	91P6817		Coax 265 mm	2.16 dBi
ThinkPad X30 Series	46L4680		Coax 180 mm	1.80 dBi
ThinkPad X40 Series	13N5744		Coax 341 mm	1.99 dBi

The output power of the Bluetooth transmitter does not exceed 5mW. Therefore the Bluetooth transmitter itself also satisfies the RF exposure requirement in stand alone pursuant to the footnote 14 of the Section 3 in Supplement C to OET Bulletin 65.

The “**Electronic Handshake**” BIOS Lock logic rejects an unauthorized use of combination of mini-PCI wireless LAN card and Bluetooth module. But an advanced technology may develop an unexpected wireless option such as a USB Bluetooth module ..etc.

IBM provides the following user’s guidance with user’s manual to have users prevent from an unauthorized use of option wireless devices on ThinkPad X41 Tablet Series.

IV) Use of wireless options

Your ThinkPad computer is approved for use of one of the granted Wireless LAN Mini-PCI Cards together with the granted *Bluetooth* module (FCC ID: ANO20040700HER) in the CDC slot simultaneously. Make sure of the following conditions on use of these wireless features.

1. When you use any other RF option device, you are requested to confirm that the device conforms to the SAR requirement and is approved to use for ThinkPad X41 Tablet Series computer.
2. All other wireless features including the integrated Wireless LAN Mini-PCI Card and *Bluetooth* transmitter in your ThinkPad computer are required to be turned off.
3. Users must follow the RF Safety instructions on wireless option devices that are included in the RF option device’s user’s manual.