RF Exposure Evaluation

The built-in antenna connected to the applying modular transmitter is located at the left hinge portion between LCD and keyboard of the host device (IBM ThinkPad R50 Series).
The antenna separation from person's body becomes very close when an user operates the PC on one's lap (approximately 3 cm). Therefore the applying transmitter device with the subjected antenna is categorized as a portable device by FCC CFR 47 section 2.1093.

The conducted output power of the applying Bluetooth transmitter is 2.45mW (3.9dBm) and the antenna gain is 2.16 dBi. Both conducted and radiated powers are far below 50mW.

With reference to OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01), Section 3, footnote 14, the applying modular transmitter with this built-in antenna satisfies the RF exposure evaluation regarding CFR 47 Part 15.247(b)(5) without a SAR compliance test report.

As for the **grant condition** concerning the approved co-locating transmitter devices, IBM guide to customers with a Web site shown in the next page.

IBM Web site for user's guidance concerning the co-located transmitters

Note) The info for the applying LMA transmitter is not available until the product announcement.
http://www.pc.ibm.com/qtechinfo/MIGR-43693.html

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TP Wireless Systems - Approved wireless Mini PCI options and additional RF option devices receive FCC certification

Applicable countries/regions

United States

Service hints & tips

Affected configurations

Additional RF Option devices receive FCC certification for use on:

BIOS group 1

LMA (Limitted Modular Approval) adapters	FCC IDs	Approved ThinkPad models	PC options allowed multiple transmission		
			#1	#2	#3
IBM High Rate Wireless LAN Min PCI Adapter	ANOM3AWEB56GA	R32 Series T30 Series X30 Series (X30)	NG	O	O
Cisco Aironet Wireless 802.11b	ANOU58H004				

BIOS group 2

LMA (Limitted Modular Approval) adapters	FCC IDs	Approved ThinkPad models	PC options allowed multiple transmission		
			#1	#2	#3
Cisco Aironet Wireless 802.11b	ANOU58H004	R40 Series T40 Series X30 Series (X31)	O	O	O
Intel PRO/Wireless LAN 2100 3B Mini PCI Adapter	ANO20020201CLK	R50 Series	O	NG	O
		R40 Series T40 Series X30 Series (X31)	O	O	O
IBM 11a/b/g Wireless LAN Mini PCI Adapter	ANO20030400LEG	R50 Series	O	NG	O
		R40 Series T40 Series X30 Series (X31)	O	O	O
IBM High Rate Wireless LAN Mini PCI Adapter III	ANO20020200BRX	G40 Series	NG	NG	O
		R40 Series	O	O	O

NOTES:

NG: Not authorized to use by the FCC rule, or not recognized by BIOS.

#1: FCC ID: ANO20020100MTN Option Name: IBM Integrated Bluetooth with 56K Modem

#2: FCC ID: PI4BT-ULTRA Option Name: Bluetooth UltraPort Module from IBM

#3: FCC ID: PI4BT-IBM-PCII Option Name: Bluetooth PC Card II

Solution

The supplementary document of ThinkPad's "Service and Troubleshooting Guide" has the following information in "Wireless regulatory information - USA Federal Communications Commission (FCC)" section:

Use of wireless options

Please make sure of the following conditions on use of wireless features.

1. Visit the IBM site at www.ibm.com/pc/qtechinfo/MIGR-43693.html and confirm the updated list of RF option devices that have been approved to cooperate with the integrated wireless feature.
2. When you use any other RF option device that is not listed on the IBM site, all other wireless features including the integrated transmitter in your ThinkPad computer are required to be turned off.
3. Users are requested to follow the RF Safety instructions on wireless option devices that are included in the RF option device's user's manual.

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