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July 01, 2002

To whom this may concern

OET Requested Information

FCC ID : ANOTK1TP10HOP
Applicant : International Business Machines Corporation
Correspondence Reference Number : 23280
731 Confirmation Number : EA297752
Original Requested Date : July 01, 2002

Subject 1) Can all optional transmitters transmit simultaneously? If no, how is that prevented?
If yes, please submit MPE estimation for 2.4 GHz and 5.2 GHz simultaneous.

Answer 1) We decided to withdraw the co-location of the 5.2GHz PCMCIA option card with the applying LMA transmitter due to the insufficient RF exposure evaluation.
As for the 2.4GHz PCMCIA option cards, those transmit simultaneously. Please see the updated RF Exposure evaluation exhibit submitted separately with this letter.

Subject 2) Please submit webpage snapshot listing all optional transmitters.

Answer 2) Please refer the Attachment in this letter.

Subject 3) How does this notebook series (slot location and distance to edges, proximity to shielding/metallic structures) compare to laptop used in 5.2 GHz SAR test, and does that SAR test support compliance in the present host?

Answer 3) We withdrew the co_location with the 5.2GHz option, so this question is no longer applicable.

Subject 4) Time-averaging provisions of 1.1310 may not be used in determining typical exposure levels for devices intended for use by consumers in general population/uncontrolled environments. Please revise RF exposure exhibit accordingly.

Subject 5) "Web guidance" for co-located conditions is pending for TCB approval purposes when SAR routine evaluation is needed, and does not apply for this application. Please revise RF exposure exhibit accordingly.

Answer 4, 5) The RF Exposure exhibit was corrected and submitted separately with this letter.

Subject 6) We do not understand the statement: "When the antenna separation from a person's body is closer than 2.5 cm, the near field estimation (i.e. the source- based time-averaging) is not proper method for the RF exposure evaluation. So 5 mW should be considered as the criteria of SAR evaluation for the co-location of transmitters." We think you mean "MPE estimation," not near-field. We think you may intend to apply Suppl C Footnote 14. Please clarify and revise RF exposure exhibit accordingly. Note that if Bluetooth and 5.2 GHz LAN antennas are close together, simultaneous SAR evaluation could be needed.

Answer 6) The "Web guidance" introduced two evaluation routs for the co-location of standalone transmitters. One is "2% of the source- based time-averaged conducted and radiated output power levels of the dominant transmitter" and the other is "5 mW". The distance between the PC slot and lap is about 1.5cm for all applying PC models, so I thought the

former method is not applicable due to near-field.

But I understood the "Web guidance" is not effective yet, therefore I revised the RF Exposure exhibit.

Please see the new updated one.

Subject 7) Please explain how the system uses a BIOS lock or other method, in order to prevent a user from installing unauthorized transmitter modules.

Answer 7) The BIOS lock mechanism was basically developed for the customer installation of a mini-PCI type transmitter. But the transmitter modules (both integrated WLAN and Bluetooth) of this applying equipment are preinstalled by IBM. Also a broken card will be replaced by IBM ourselves. Therefore there is no phase where an unauthorized transmitter module is installed by a customer in this PC model.

Please refer the submittal exhibit "RF_Safety_Info.pdf". We guide the customers as follows.

i) Installation of the integrated wireless modules

The integrated wireless modules (Wireless LAN Mini-PCI Card and Bluetooth card) are preinstalled by IBM, and you are not permitted to install nor replace the integrated modules by yourself.

If your integrated Wireless LAN Mini-PCI Card or Bluetooth card requires replacement via the proper step shown in "Chapter 3. Getting help and service from IBM" of the ThinkPad X30 Series Service and Troubleshooting Guide, IBM will request you to send your computer with the card(s) to IBM so that IBM will repair it.

Sincerely, July 01, 2002



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Staff Engineer, EMC Engineering,
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Attachment: IBM Web site (draft level of pre_announcement)

<http://www.pc.ibm.com/qtechinfo/MIGR-39377.html>



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TP Wireless Systems – 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:

LMA (Limited Modular Approval) products		FCC IDs	PC options allowed multiple transmission		
			#1	#2	#3
Cisco Aironet Wireless 802.11b	for ThinkPad R32, T30	ANOU58H004	NG	O	O

System Unit approved products	FCC IDs	PC options allowed multiple transmission		
		#1	#2	#3
ThinkPad A22 wireless models	ANOM380211B	O	O	O
ThinkPad A30 Series (A30, A31) wireless models	ANOVNCBDC80211B	O	O	O
ThinkPad R30 Series wireless models (R30, R31)	ANOC126P8056	O	O	O
ThinkPad R32 Series wireless models	ANODS1WLIV	NG	O	O
ThinkPad T23 wireless models	ANOTR4WGA1BAN	O	O	O
ThinkPad T30 Series wireless models	ANOCORN1TASUHOP ANOCORN1SHR	NG	O	O
ThinkPad X22 wireless models	ANOSY3W26629DX	O	O	O
ThinkPad X23, X24 wireless models	ANOSY4W2662DFJ	O	O	O
ThinkPad X30 Series wireless models (X30)	ANOTK1TP10HOP ANOTK1TP10SHR	NG	O	O

NG: not permitted to emit RF frequency with other transmitters simultaneously .

#1: FCC ID: O2OBTPCM101 Option Name: [Bluetooth PC Card](#)

#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 ThinkPad's "Service and Troubleshooting Guide" has the following information in "Wireless regulatory information – USA Federal Communications Commission (FCC)" section:

When you use a Bluetooth option or wireless PCMCIA card in your ThinkPad xxx computer, please make sure of the following

1. Please visit the IBM site at www.ibm.com/pc/support 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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