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August 1, 2002

To whom this may concern

OET Requested Information

FCC ID : ANOTK1TP10SHR
Applicant : International Business Machines Corporation
Correspondence Reference Number : 23511
731 Confirmation Number : EA266557
Original Requested Date : July 31, 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) The 2.4GHz PCMCIA option cards transmit simultaneously with the applying device, but the 5.2GHz PCMCIA option card was withdrawn from the application due to the insufficient RF exposure evaluation.
Please see the revised exhibit "RF_Exposure_update.pdf" submitted on July/25/2002.

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

Answer 2) The Web page is included in the revised exhibit on July/25/2002.

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Answer 3) We withdrew the co_location with the 5.2GHz option, so this question is no longer applicable.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) Source-based time-averaging applies only to fixed transmitters or mobile and portable for occupational use. 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) Please refer the revised exhibit on July/25/2002.

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 approximately 1.5cm for all applying PC models, so I thought the former method is not applicable due to near-field.

Anyway we withdrew the 5.2GHz option and revised the RF Exposure evaluation exhibit. We eliminated the "Web guidance" and made a reference to only Suppl C Footnote 14. Please see the revised exhibit on July/25/2002.

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(ANOTK1TP10SHR) 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.

(page 2)

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.

Subject 8) Page 5 of the DSS test report indicates 32 mW(15dBm) and does not agree with page 19 (100 mW). Please correct. Verify output power.

Answer 8) This was a careless miss. The correct specification of the applying transmitter is 20dBm, so we would like to submit an additional page for the replacement in the next page since we can't revise the test report's date.

Sincerely, August 01, 2002

Shohhei Fujio,



Staff Engineer, EMC Engineering,
Yamato Laboratory, IBM Japan Ltd.

C. OPERATION MODE OF EUT

All tests were performed using the “Venus MPI 350 Software”. Three kinds of modulation are used for transmission with appropriate bit rates:

Table C-1 Transmit mode (TX)

Operation Frequency [GHz]	Rated output power (conducted) [dBm]			Test performed*
	Bit rate 2Mbps	Bit rate 5.5Mbps	Bit rate 11Mbps	
2.412 (Ch. 1)	+20	+20	+20	X
2.417 (Ch. 2)	+20	+20	+20	
2.422 (Ch. 3)	+20	+20	+20	
2.427 (Ch. 4)	+20	+20	+20	
2.432 (Ch. 5)	+20	+20	+20	
2.437 (Ch. 6)	+20	+20	+20	X
2.442 (Ch. 7)	+20	+20	+20	
2.447 (Ch. 8)	+20	+20	+20	
2.452 (Ch. 9)	+20	+20	+20	
2.457 (Ch. 10)	+20	+20	+20	
2.462 (Ch. 11)	+20	+20	+20	X

* Full testing with bit rate 11Mbps only

Table C-2 Receive mode (RX)

Operation Frequency [GHz]	Test performed
2.412 (Ch. 1)	
2.417 (Ch. 2)	
2.422 (Ch. 3)	
2.427 (Ch. 4)	
2.432 (Ch. 5)	
2.437 (Ch. 6)	X
2.442 (Ch. 7)	
2.447 (Ch. 8)	
2.452 (Ch. 9)	
2.457 (Ch. 10)	
2.462 (Ch. 11)	