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To whom this may concern

February 13, 2003

OET Requested Information

FCC ID : ANO20020304T2L
Applicant : International Business Machines Corporation
Correspondence Reference Number: 230207TE.ANO
Confirmation Number : TC3013
Original Requested Date : February 07, 2003

Subject 1) Please clarify the frequency of operation of the transmitter. Theusers manual provided (pages 7, 13) shows 5.15-5.25, 5.25-5.35, and 5.65-5.85 GHz operation. Please revise users manual or send supporting test data, as appropriate.

Answer 1) Those frequency bands are not the specifications of the applying transmitter, but the ones of MSS or High Power radars. The notice of indoor use in 5.15-5.25GHz band is mandated by the CFR47 Part 15.407(e), and the other notice about the interference with High Power radars in 5.25-5.35G Hz or 5.65-5.85GHz band is voluntary. Therefore the manual revision may not be required.

Subject 2) Please clarify the user installed wireless module option antenna installation procedure stated on page 8-9 of the users manual. Please provide how the antenna will be installed or selected by the user and provide antenna installation to satisfy RF exposure compliance.

Answer 2)The users manual of the host device (IBM ThinkPad **X30** Series) introduces 4 kinds of transmitters. The page 8-9 are showing different transmitters which are to be certified separately from this application. Please refer to page **6-7** for the applying **ANO200204T2L.** The FCC ID and installation method is described clearly in those pages. Also please refer to “Outline of Submission” exhibit.

The applying transmitter is pre-installed by IBM, so the latter question is not applicable for the device.

Subject 3) Please explain if this device meets the integral antenna requirement specified in Section 5.407(d) of the FCC Rules.

Answer 3) The antennas are furnished in the LCD section fixedly and the applying transmitter is built-in the keyboard section with a tamperproof screw so that users can not remove it. Therefore the device meets the requirement. Please refer to the “Outline of Submission” and “Circuitry Description” exhibits.

Subject 4) Please clarify the RF Exposure (MPE) exhibit shown on the Power Table page 5/6 (Center Freq. 5.15 - 5.35 GHz) which shows operational frequencies outside the requested frequency band of operation.

Answer 4) The measurement was performed with the full allocated frequency band of UNII devices (i.e. 5150M-5350MHz) to cover the whole intentional emission BW (i.e. 26dB BW).

As shown by the plots of the next page, the highest peak antenna gain was found at 5350MHz for the **main (left)** antenna and declines its value gradually from high to low frequency. In other hand, the peak gain for the **Auxiliary (Right)** antenna was found at 5150MHz, then declines from low to high frequency. Thus the peak antenna gain in the operation band never exceed 1.42 dBi for the left antenna, nor 0.19 dBi for the right antenna. So we would declare those values as the maximum

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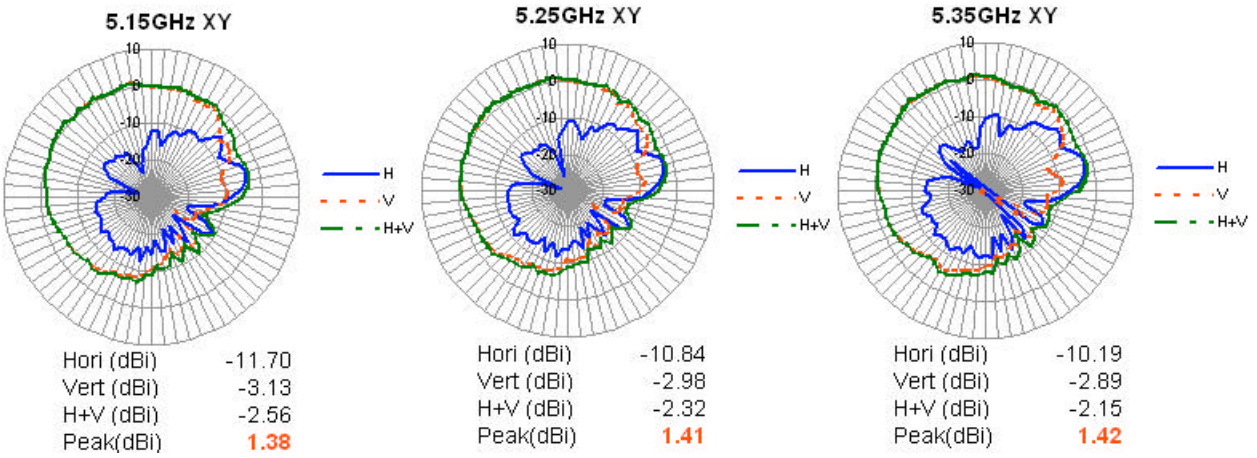
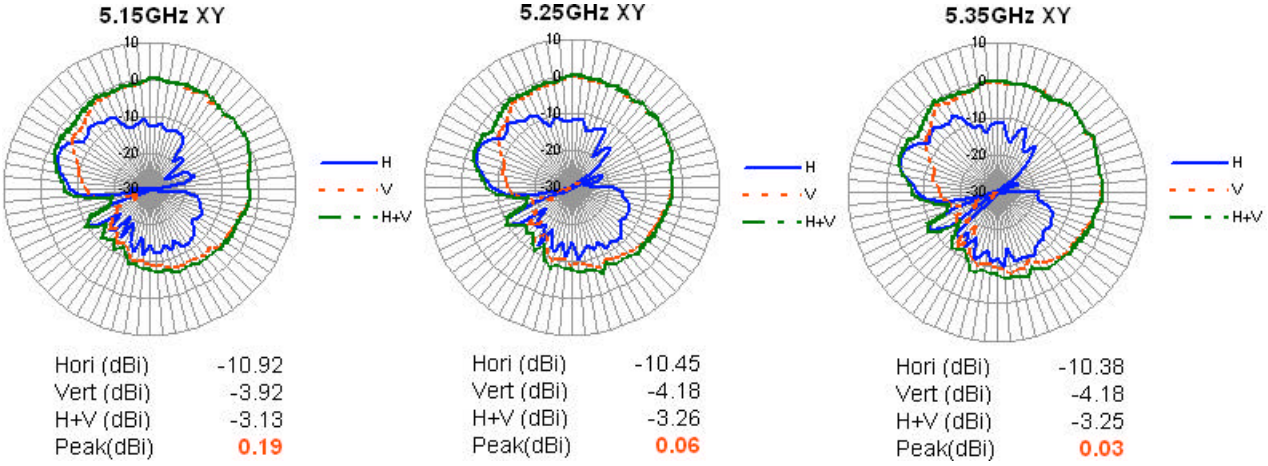
antenna gains.

Plots of the antenna gain (**left** antenna)



Plots of the antenna gain (**Right** antenna)



Subject 5) Please confirm if this UNII device will be installed by IBM only or installed by the user.
Answer 5) The UNII device is pre-installed by IBM only. Please refer to the "Outline of Submission" exhibit, or page 6 of users manual.

Subject 6) Please send the FCC/OET correspondence pertaining to the subject device. Each filing must stand on its own with all the required exhibits/documents.
Answer 6) Yes, we will send each correspondence to each subject device with each separate exhibit.
This is the answer for the Subpart **E** portion of FCC ID: **ANO20020304T2L**. (Document #: FCC 19-0212)

Sincerely, February 13, 2003

T. Murota

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