Application Document for
FCC Part 15, Subpart E (Intentional Radiator)
Class II Permissive change

Model Number: AR5BMB-44

Document Number: FCC 19-0273-0

FCC ID: ANO20040600BTL

August 17, 2004
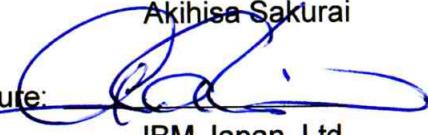
EMC Advisory R&D Engineer

Toshiya Murota

Signature:

IBM Japan, Ltd.
EMC Engineering
LAB-S59
1623-14, Shimotsuruma,
Yamato-shi Kanagawa-ken 242-8502, Japan
Phone: +81-46-215-6574
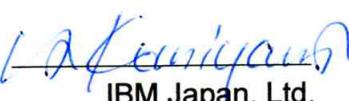Fax: +81-46-273-7420
E-Mail: murota@jp.ibm.com

EMC Engineering Manager / NVLAP signatory

Akihisa Sakurai

Signature:

IBM Japan, Ltd.
EMC Engineering
LAB-S59
1623-14, Shimotsuruma,
Yamato-shi Kanagawa-ken 242-8502, Japan
Phone: +81-46-215-2613
Fax: +81-46-273-7420
E-Mail: akihisa@jp.ibm.com

System Solution and Technology Manager

Hirohide Komiyama

Signature:

IBM Japan, Ltd.
Portable Systems
LAB-R75
1623-14, Shimotsuruma,
Yamato-shi Kanagawa-ken 242-8502, Japan
Phone: +81-46-215-2725

Portable Systems Director

Masaki Kobayashi

Signature:

IBM Japan, Ltd.
Portable Systems
LAB-R70
1623-14, Shimotsuruma,
Yamato-shi Kanagawa-ken 242-8502, Japan
Phone: +81-46-215-3889

Yellow Sheet : No. **EMB73**

Outline of Submission

1.   Objective

This is a certification compliance test report for **Class II permissive change** of the following LMA transmitter device pursuant to FCC Part 15 subpart E (Intentional Radiator).

- ● FCC ID   : **ANO20040600BTL**
- ● Model Number   : AR5BMB-44
- ● Advertising Name   : IBM 11a/b/g Wireless LAN Mini PCI Adapter II
- ● The last grant date   : July/26/2004

There is no hardware nor electrical modification made to the applying modular transmitter itself, but the following new antenna systems (host PC devices) is to be added in this Class II change application.

- ● IBM ThinkPad **G40** Series
- ● IBM ThinkPad **X30** Series
- ● IBM ThinkPad **X40** Series

2.   Product Description

The applying modular transmitter device is an OEM mini-PCI wireless LAN card supplied by Atheros Communications, Inc. The modular device complies with the following transmission modes.

- ● **IEEE802.11a (5180MHz ～ 5320MHz band OFDM)**   ← the applying Tx mode of this application
- ● IEEE802.11a (5745MHz ～ 5825MHz band OFDM)
- ● IEEE802.11b (2412MHz ～ 2462MHz band Direct Sequence Spread Spectrum)
- ● IEEE802.11g (2412MHz ～ 2462MHz band OFDM)

This application includes 5.2GHz band OFDM mode only. The other three modes are subjected to the FCC 15 subpart C (DTS device), and are to be certified with a separate application as **composite** device.

3.   Installation of the applying transmitter

- ● ThinkPad **X30**, **X40** Series: pre-installed by IBM. Also **user installable** option cards are provided.
- ● ThinkPad **G40** Series: pre-installed by IBM only due to the intricate location of mini-PCI card slot (Refer to the separate exhibit "Antenna_Info.pdf".)

The unique electrical connector (so called "**Electronic Handshake**" BIOS Lock) is employed for both applying modular device and host units to satisfy the FCC Part 15.203 or RSS-210 §5.5, and the FCC Part 15.407(d) or RSS 6.2.2 q1(i).   This mechanism enables user to install the applying LMA transmitter to the specified hosts (IBM ThinkPad X30 and X40 Series).

The detail explanation of the unique coupling between the LMA transmitter and antenna systems is shown in the separate exhibit "Confidential_e-Handshake.pdf", however IBM would like to hold it in confidence to maintain the secure "unique operability" with the applying device and IBM antenna systems.

Prepared by T. Murota   **2/3**

The Electronic Handshake BIOS Lock function is also effective for the user's maintenance in replacing a broken card with a spare part for X30 or X40 Series. As for G40 Series, IBM Service centers or dealers replace broken cards.

4.   Co-located Transmitters

The applying LMA transmitter collocates with the following Bluetooth modules and transmits RF frequency simultaneously.

- FCC ID: ANO20020100MTN   (IBM Integrated Bluetooth III with 56 Modem)
- FCC ID: PI4BT-IBM-PCII   (Bluetooth PC Card II)
- FCC ID: PI4BT-ULTRA   (Bluetooth UltraPort Module from IBM)

As for the RF safety evaluation, refer to the separate exhibit "RF_Exposure.pdf ".

5.   Related Submittal(s)/Grant(s)/Notes

During the applying modular device stops RF transmission, the host unit with full peripheral devices including the applying modular device is classified as an unintentional radiator, Digital Device under the FCC Part 15 Subpart B or the Industry Canada Class B Emission Compliance (ICES-003), and subject to DoC.

6. Submittal documents

- Product Labeling   Yes
- LAM Qualification   omitted (identical with the original filing)
- Internal Photos   omitted (ditto)
- External Photos   omitted (ditto)
- Block Diagrams   omitted (ditto)
- Schematic Diagrams   omitted (ditto)
- Parts List   omitted (ditto)
- Circuitry Descriptions of LMA transmitter   omitted (ditto)
- Electronic Handshake BIOS Lock logic   Yes
- The new antenna system Info.   Yes
- Test Report with the new antenna systems   Yes
- Test Setup Photos   Yes
- RF Exposure evaluation for the new antennas   Yes
- IBM Web site concerning the grant condition   Yes
- Users Manual   Yes