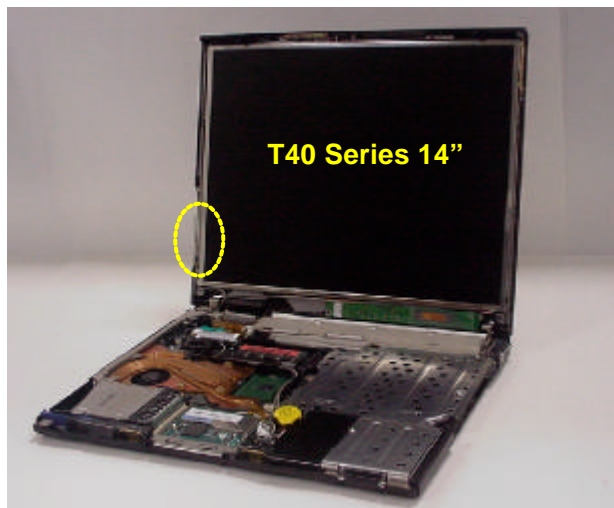
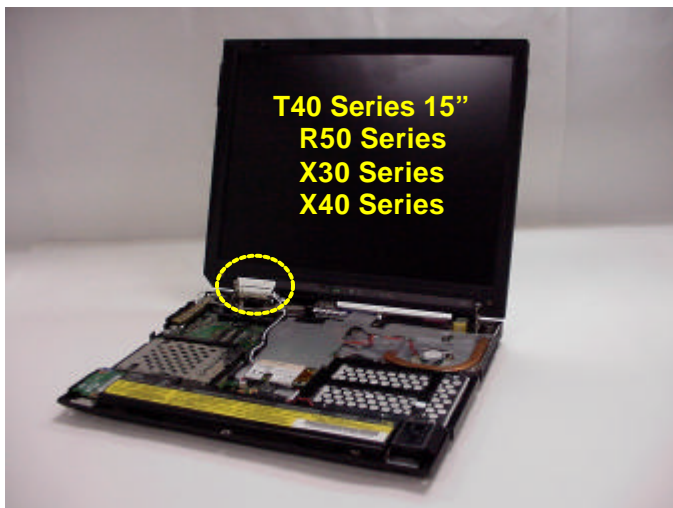


# RF Exposure Evaluation

## 1. RF Exposure evaluation for the applying LMA transmitter

The built-in antenna connected to the applying modular transmitter is located at the left hinge of keyboard section (IBM ThinkPad T40 Series LCD 15 inch model, R50 Series, X30 Series, and X40 Series), or left edge of LCD section (IBM ThinkPad T40 Series LCD 14 inch model).



The closest antenna separation from person's body is approximately 2.5 cm, when a user operates the PC on one's lap. Therefore the applying transmitter device with the subjected antenna systems is categorized as a portable device by FCC CFR 47 section 2.1093.

The conducted output power of the applying Bluetooth transmitter is 2mW (3.1dBm) and the maximum antenna gain is 2.84 dBi. Therefore both conducted power and radiated power (EIRP) 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 complies with the RF exposure evaluation regarding CFR 47 Part 15.247(b)(5) without a SAR compliance test report.

## 2. RF Exposure evaluation with co-located WLAN transmitters

The applying Bluetooth modular transmitter is co-located with one of the following WLAN transmitters.

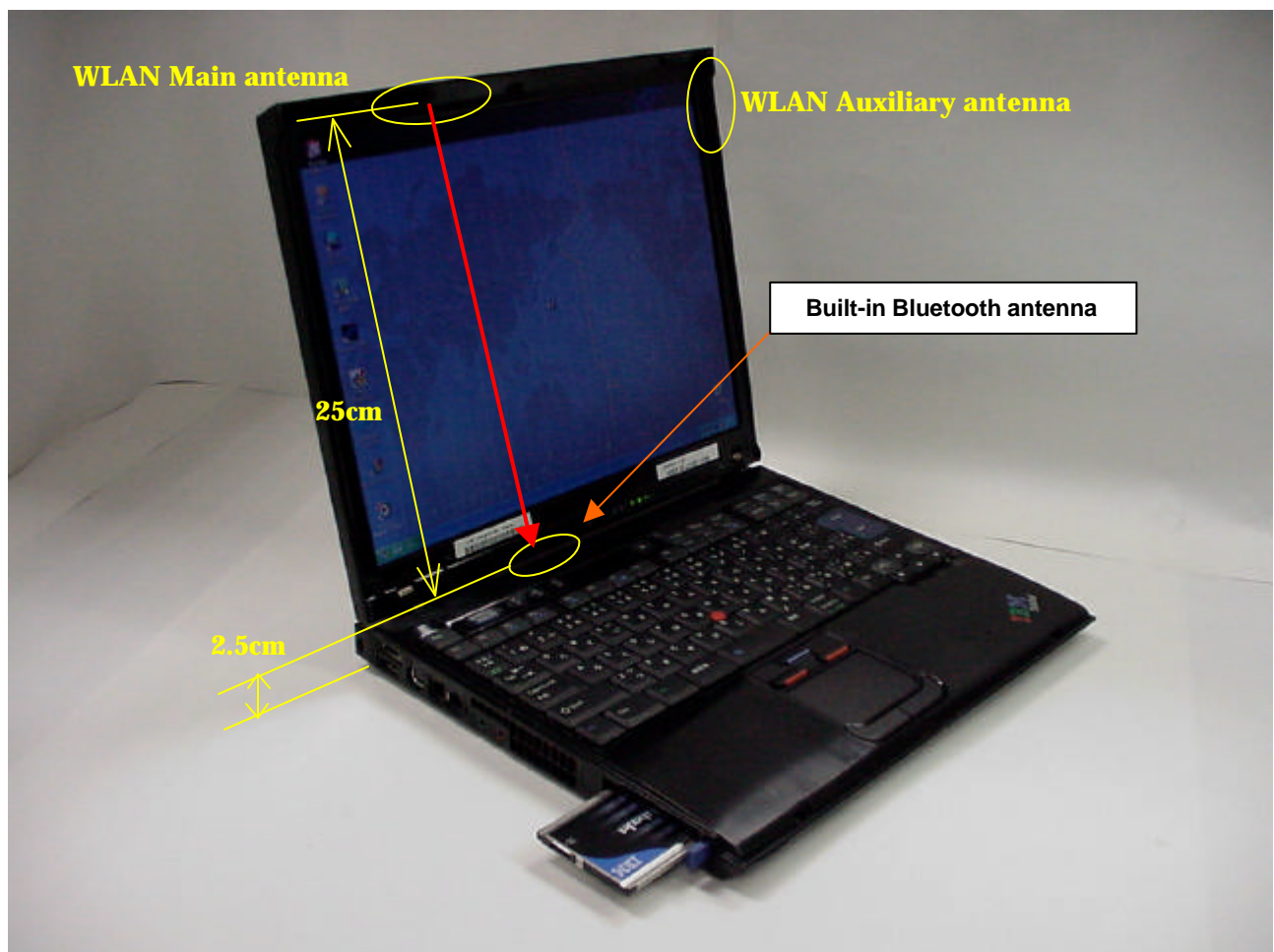
- ANO20020201CLK
- ANO20040501CX2
- ANO20030500CMR
- ANO20040600BTL
- ANO20040601CX2

As shown below, the all WLAN antennas of each host device and the Bluetooth antenna are assembled apart from each other with 20 cm of distance or more.

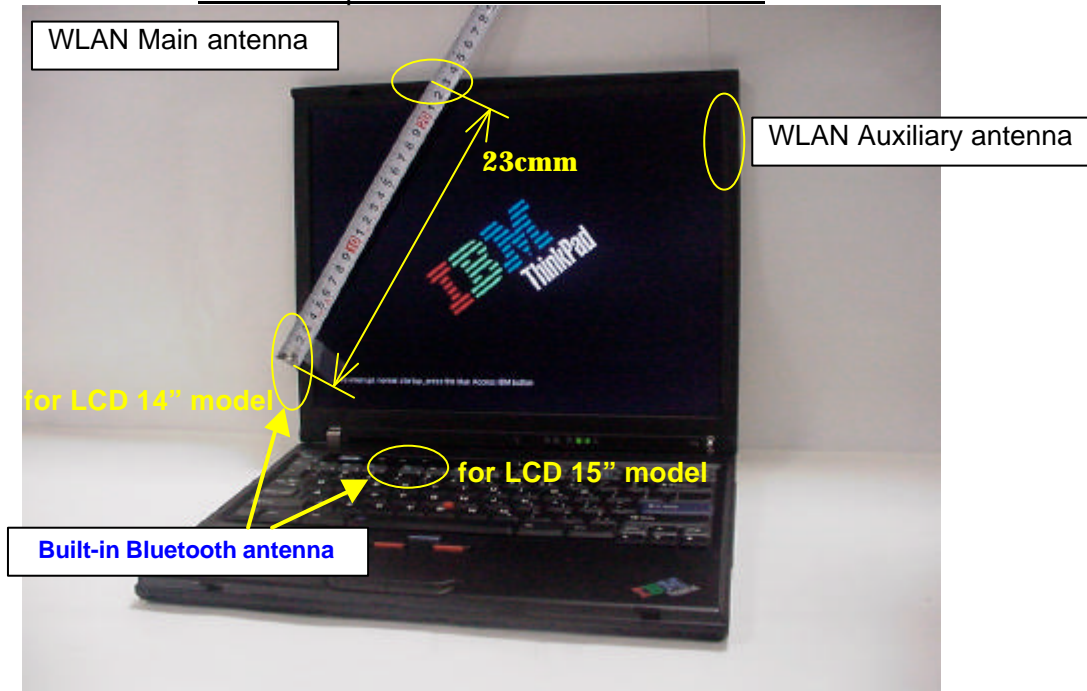
Therefore, those co-located WLAN transmitter devices are allowed to evaluate the RF exposure compliance independently of the applying Bluetooth modular transmitter. In other word, the SAR testing for the applying transmitter in co-locating with those WLAN transmitters is not required, when the WLAN transmitters could satisfy the RF exposure requirement with those own transmission powers.

Those WLAN transmitters were already certified as “Mobile” category for all host devices, therefore they also comply with the RF exposure requirement.

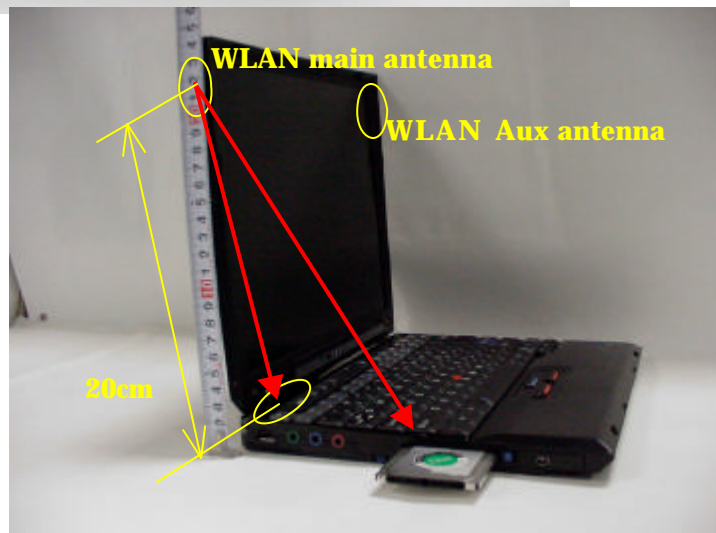
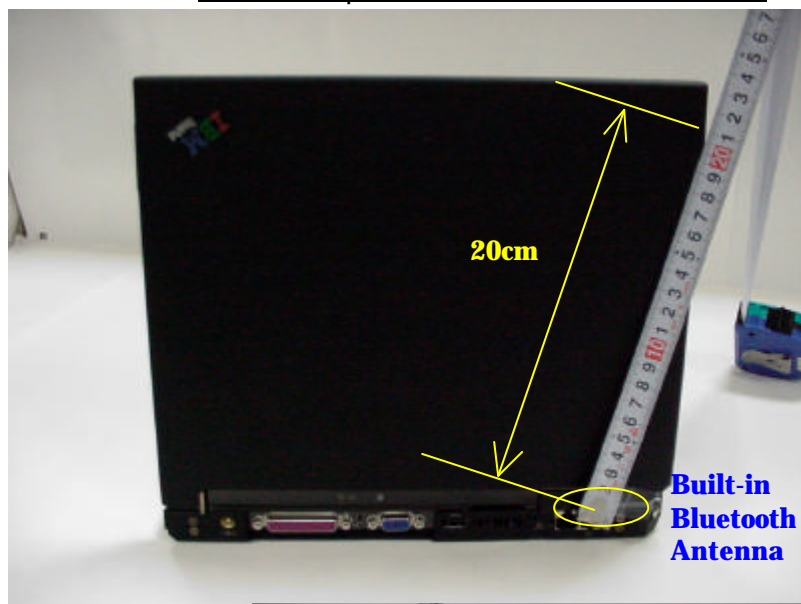
Antenna separation of ThinkPad R50 Series



Antenna separation of ThinkPad T40 Series



Antenna separation of ThinkPad X30 Series



Antenna separation of ThinkPad X40 Series

