

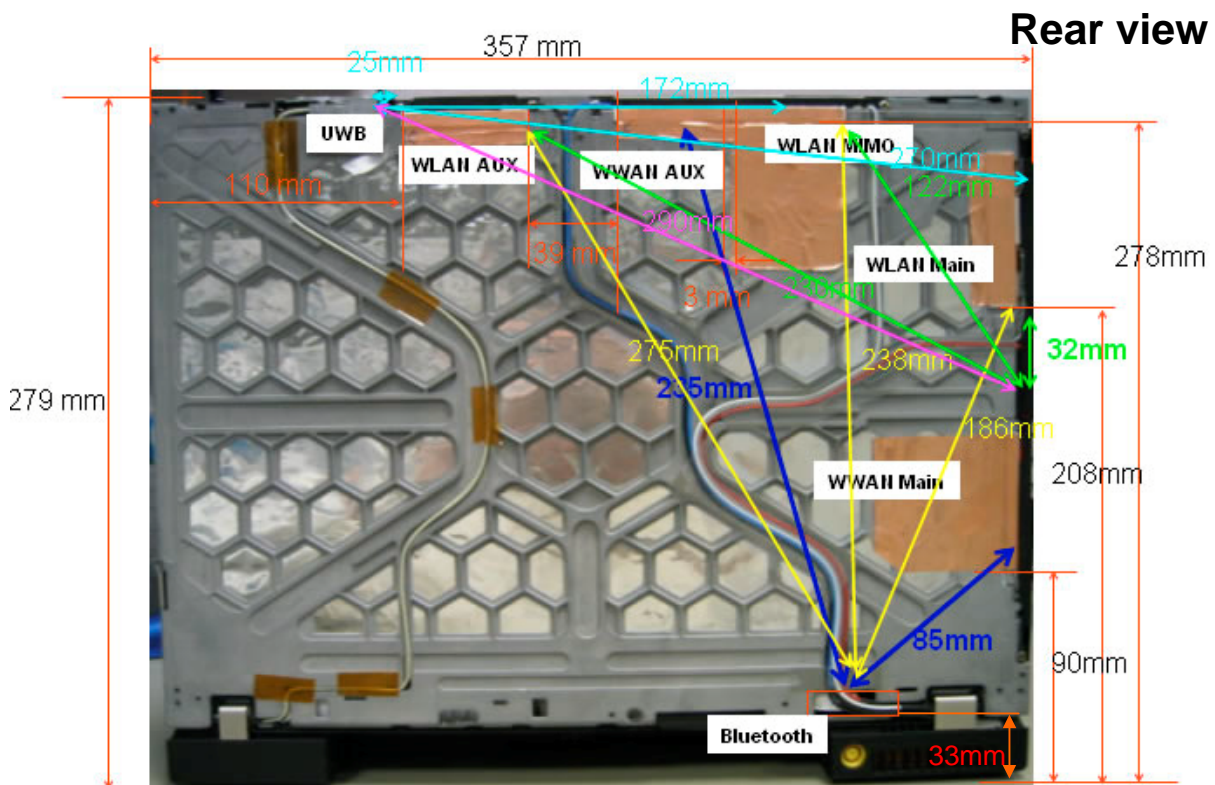
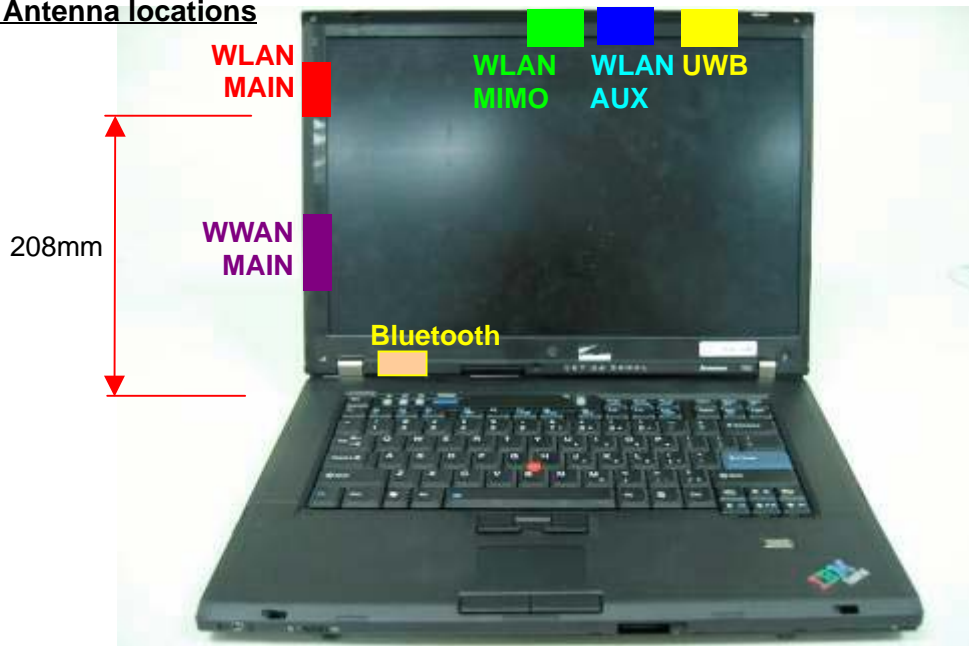
RF Exposure Justification in co-locating with other transmitters

1. RF Exposure evaluation for the applying modular transmitter

As shown below, the separation distance between human body and WLAN transmission antennas of the host PC device (ThinkPad T61 15.4-inch windscreen) is 208mm.

Therefore the applying WLAN transmitter module (FCC ID: PPD-AR5BXB63-L) and the antenna system are subjected to "Mobile device" pursuant to FCC CFR 47 Section 2.1091

Figure-1: Antenna locations



[MPE Evaluation]

The following table shows the highest conducted peak output power of the applying modular transmitter device and the maximum peak antenna gain of the host device (ThinkPad T61 15.4-inch windscreen).

Transmission mode	P: conducted peak output power	G: peak antenna gain *1
2.4GHz band	0.500 W (27.0 dBm)	0.95 dBi

*1) The peak antenna gain is the same as the one of previous grant on April 09, 2007.

Thus, the MPE (Maximum Permissible Exposure) at 20cm of distance is calculated as follows.

Transmission mode	EIRP = P + G (dBm)	EIRP (mW)	MPE (Max. power density) S = EIRP/(4 x π x 20 ²)
2.4GHz band	27.95	623.73	0.124 mW/ cm ²

With this result, the applying modular transmitter has found to comply with the FCC MPE limit (1.0 mW/cm²) according to FCC CFR 47 section 2.1091 for general Population/Uncontrolled exposure.

2. RF Exposure evaluation with co-located WWAN transmitter

As shown in the Figure-1, the WWAN Tx/Rx antenna and the WLAN antenna are co-located with **32mm** of separation distance. However both transmitter modules do not establish the network link connections simultaneously, but switch the operation each other within 11 seconds of hand over time when one is in active. (See Section 5 in this exhibit.)

Therefore, any RF Exposure evaluation for the applying WLAN transmitter in co-locating with WWAN transmitters is not required.

3. RF Exposure evaluation with co-located Bluetooth transmitter

In addition, the applying host PC device incorporates the following Bluetooth transmitter

Co-located Bluetooth device

Model Name	FCC ID, IC Cert. Number	Grantee Name	Granted Date	Conducted Tx power	Antenna gain	EIRP
J07H081	FCC ID: MCLJ07H081	HON HAI Precision Ind. Co., Ltd.	June 23, 2005	3 mW	2 dBi (Peak)	4.8 mW

The Bluetooth transmitter is regarded as “co-located” device due to the antenna separation distance from the WLAN antenna (i.e.186mm), and the WLAN and Bluetooth devices transmit RF frequencies simultaneously.

The Bluetooth antenna is assembled at the hinge section of applying host PC device, and the separation distance from human body is 33mm. Therefore the Bluetooth transmitter module (J07H081) and the antenna system is generally subjected to SAR evaluation.

However the Bluetooth device is exempted from SAR testing thanks to its low power of 3mW pursuant to the footnote 14 of the Section 3 in Supplement C to the FCC OET Bulletin 65, and meets the condition for a co-located non-dominant transmitter according to the “TCB Exclusions List” issued on July/2002.

4. RF Exposure evaluation with co-located UWB transmitter

Also the applying host PC device incorporates the following UWB transmitter, and the WLAN and UWB devices transmit RF frequencies simultaneously.

Co-located UWB device

Model Name	FCC ID	Grantee Name	Granted Date	MPE
T60H990	FCC ID: MCLT60H990	HON HAI Precision Ind. Co., Ltd.	April 20, 2007	0.0123 mW/ cm ² *2

*2: See page 16 of "(Reference) UWB Test Report.pdf".

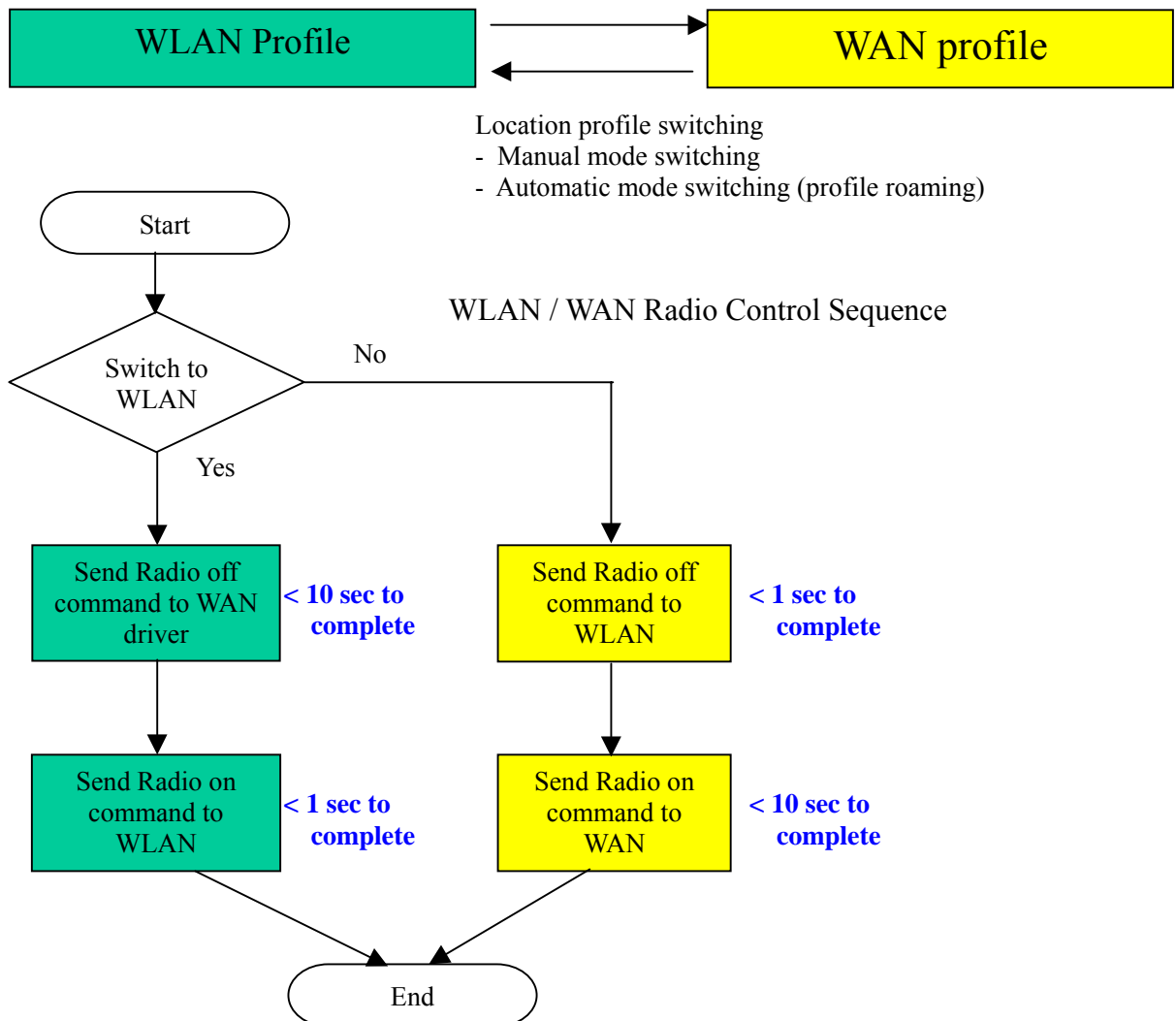
The UWB antenna is located at the top of LCD screen of the host PC and the separation distance from human body is 279mm. Therefore the UWB transmitter (FCC ID: MCLT60H990) and the antenna system are classified as "Mobile device" pursuant to FCC CFR 47 Section 2.1091.

The sum of MPE value of the applying WLAN transmitter and the UWB device is 0.136 mW/ cm², so those devices have found to comply with the FCC MPE limit (1.0 mW/cm²) according to FCC CFR 47 section 2.1091 for general Population/Uncontrolled exposure, then those devices are allowed to transmit RF frequencies simultaneously.

5. Wireless LAN /WAN switching scheme within 11 seconds of handover time

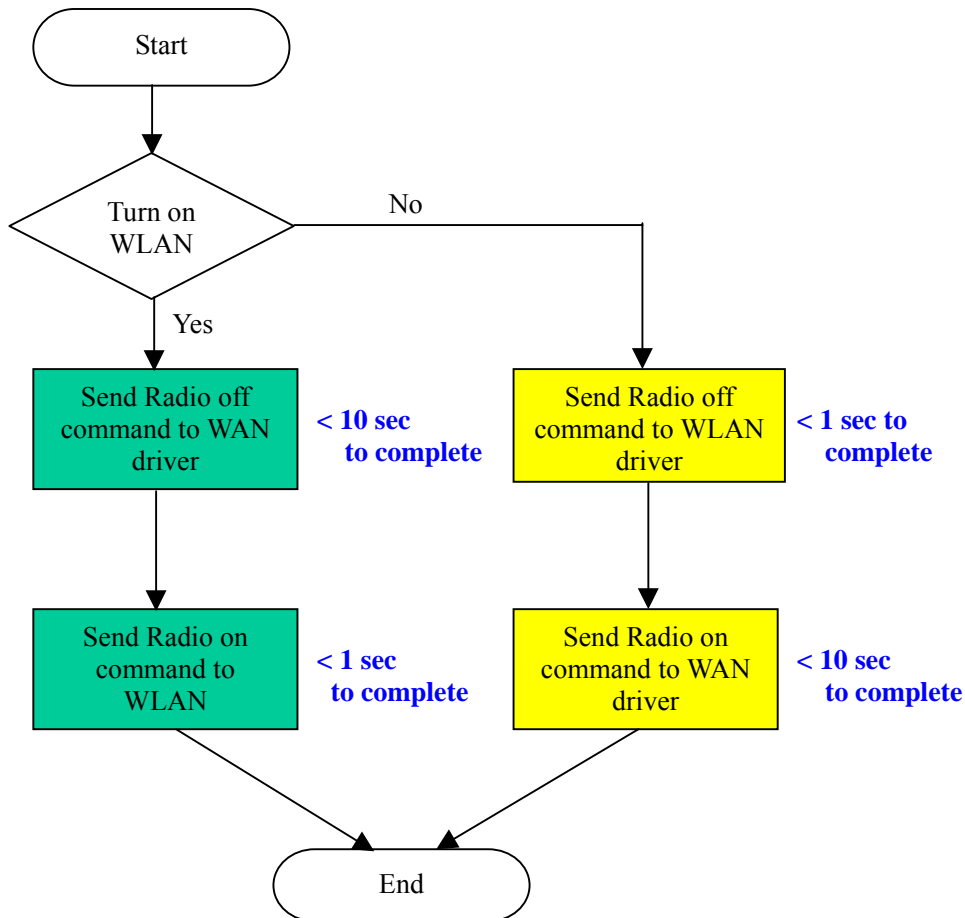
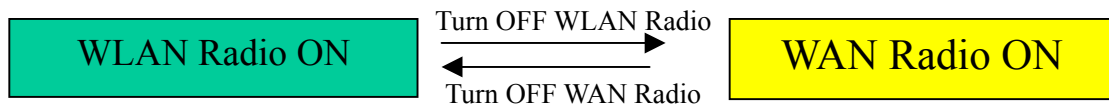
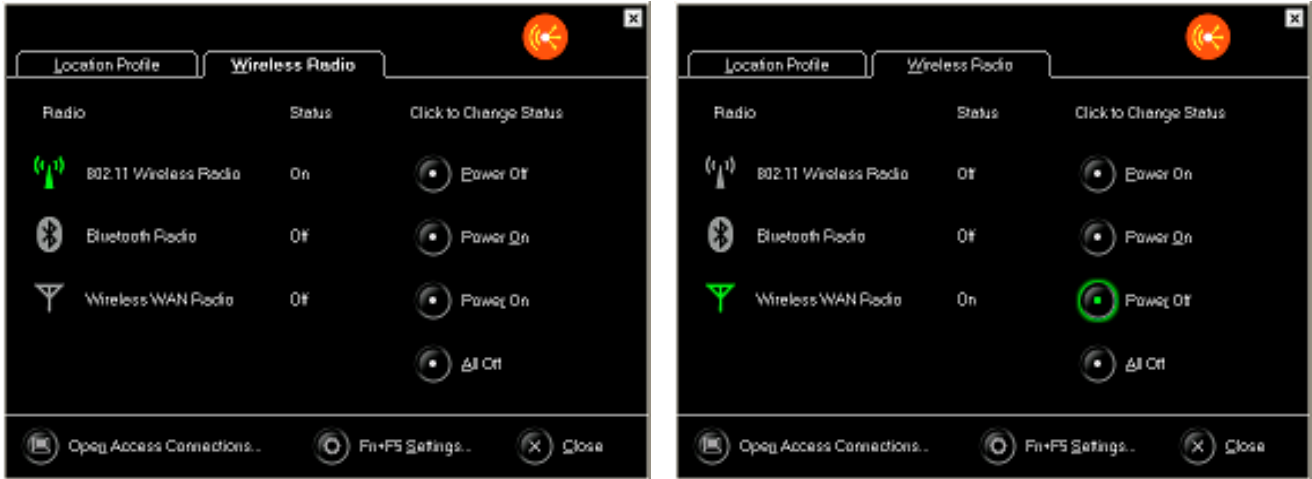
Location profile switching scenario

- Exclusive control for WLAN and WAN when WLAN and WAN location profile is applied by user (manual mode switching)
- Exclusive control when automatic location switching is performed by Access Connections (automatic profile roaming)



Radio control by software menu (Fn+F5 hot key)

Exclusive control when WLAN or WAN Radio ON is selected by hot key



Wireless WAN/LAN status indication

The sifting status from WAN(LAN) to LAN(WAN) is also indicated with the following LED. The switching time is actually shorter than 11 seconds of logical control limit time.

