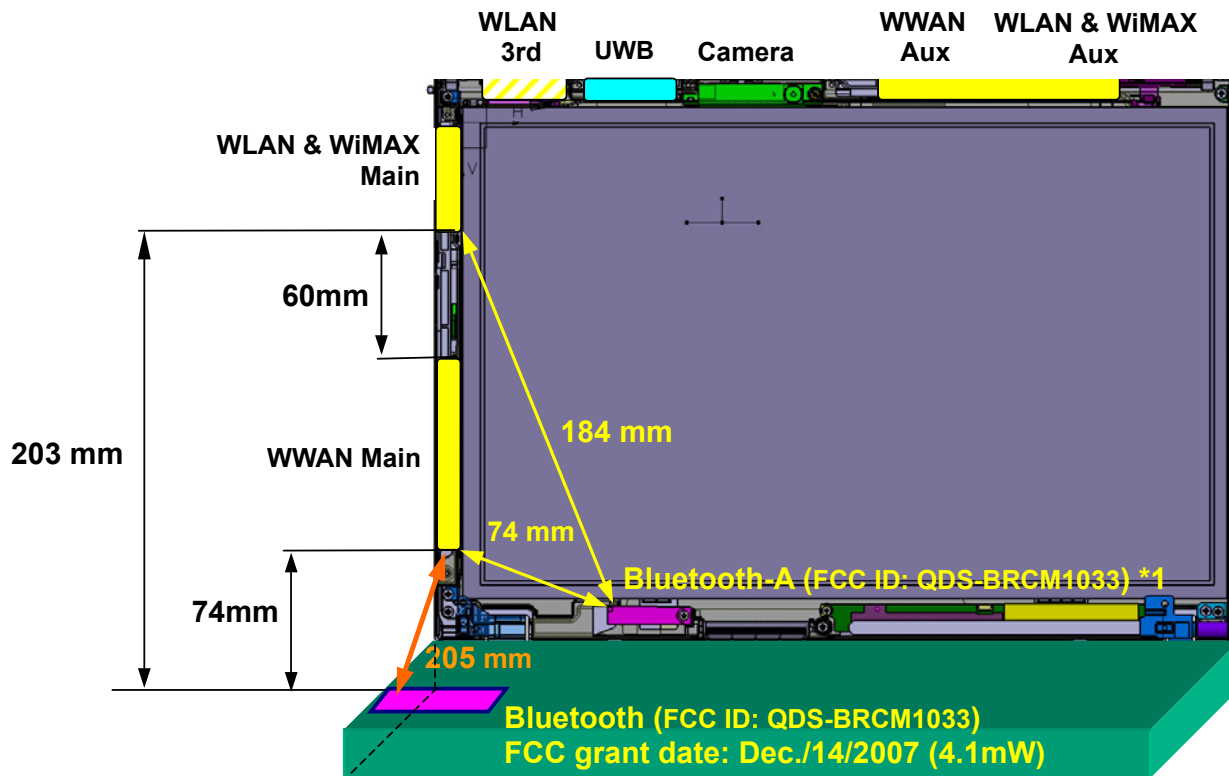


RF Exposure Info. for Model UNDP-1

Figure-1 Antenna configuration of ThinkPad T400/R400



WWAN - Bluetooth:

The RF Exposure evaluation nor SAR testing in co-locating with Bluetooth is not required pursuant to the FCC document "616217 D01 SAR for Laptop v01" issued on December/07/2007, since the separation distance to the nearest WLAN Tx antenna is more than 5cm apart and its maximum power is 4.1mW.

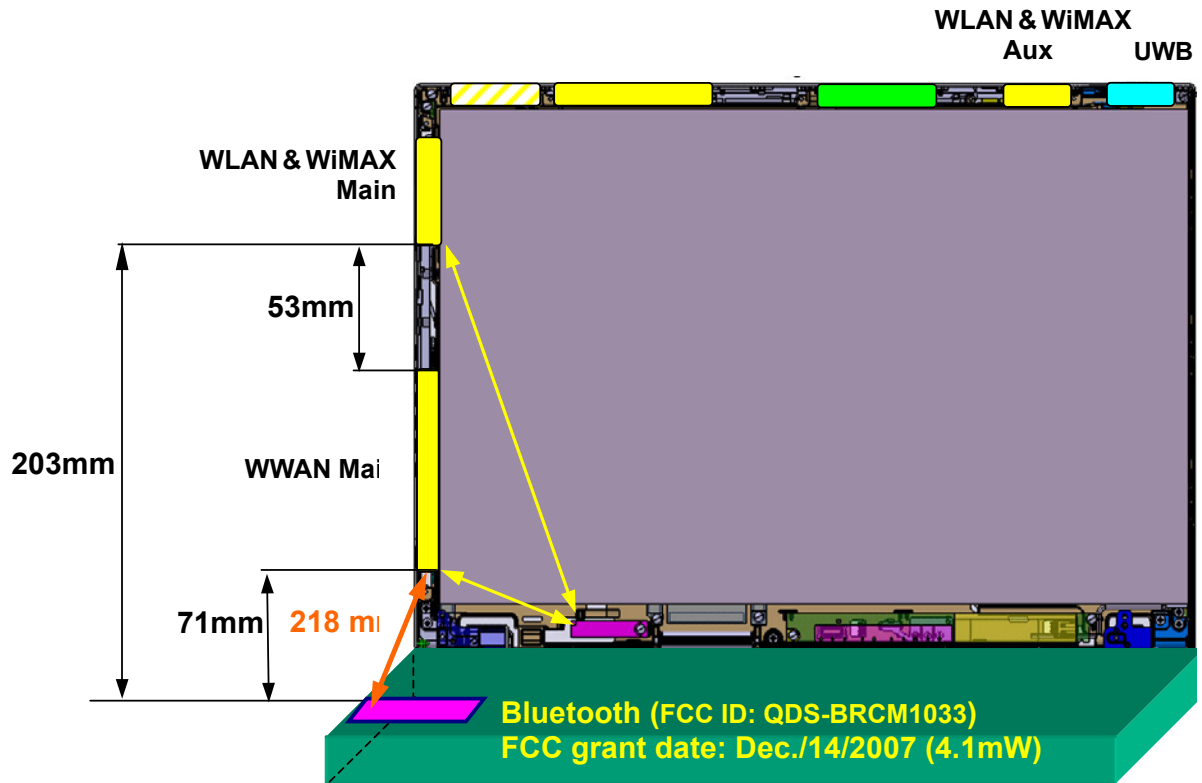
WWAN - UWB:

Since UWB transmitter is not mentioned in the section 2.1091 and 2.1093, it does not subject to RF exposure evaluation. Therefore no co-located MPE or SAR testing is required.

WWAN - WLAN:

The WWAN main (Tx) antenna and WLAN antennas co-locate with 60mm of separation distance, and both devices transmit RF simultaneously.

Figure-2 Antenna configuration of ThinkPad X500/W500



WWAN - Bluetooth:

The RF Exposure evaluation nor SAR testing in co-locating with Bluetooth is not required pursuant to the FCC document "616217 D01 SAR for Laptop v01" issued on December/07/2007, since the separation distance to the nearest WLAN Tx antenna is more than 5cm apart and its maximum power is 4.1mW.

WWAN - UWB:

Since UWB transmitter is not mentioned in the section 2.1091 and 2.1093, it does not subject to RF exposure evaluation. Therefore no co-located MPE or SAR testing is required.

WWAN - WLAN:

The WWAN main (Tx) antenna and WLAN antennas co-locate with 53mm of separation distance, and both devices transmit RF simultaneously.

Table-1: WWAN (Model: **UNDP-1**) SAR info.

UNDP-1 Grant date	Host PC model	FCC CFR	Max. Conducted power (P)	SAR Distance (D)	SAR (W/Kg)	limit (W/Kg)
03/05/2008	ThinkPad T400/R400	Part 22H	1.986 W	7.4 cm	0.081	1.6
	ThinkPad T500/W500			7.1 cm	0.094	
	ThinkPad T400/R400	Part 24E	0.885 W	7.4 cm	0.056	1.6
	ThinkPad T500/W500			7.1 cm	0.049	

Table-2: Co-located WLAN Peak power

Grant date	WLAN FCC ID	Part 15C 2.4GHz band	Part 15E 5.18 – 5.32GHz	Part 15E 5.50 – 5.70GHz	Part 15C 5.745 – 5.825GHz
05/09/2008	PPD-AR5BHB63-L	0.1977W	N/A	N/A	N/A
06/24/2008	PD9LEN512ANMU	0.091 W	0.028 W	0.054 W	0.021 W
07/07/2008	PD9533ANMU	0.130 W	0.110 W	0.110 W	0.068 W

Table-3: WLAN MPE info.

	Max. Conducted power from Table-2 (P)	Max. Host PC antenna gain from Table-4 (G)	MPE *1 (mW/cm ²)	limit (mW/cm ²)
Part 15C 2.4GHz band	0.198 W	1.99 dBi	0.062	1.0
Part 15E 5.18 – 5.32GHz	0.110 W	2.59 dBi	0.040	
Part 15E 5.50 – 5.70GHz	0.110 W	2.79 dBi	0.042	
Part 15E 5.50 – 5.70GHz	0.068 W	2.46 dBi	0.024	

$$*1: MPE = (P \times 1000) \times (10^{G/10}) / (4 \times \pi \times 20^2)$$

Table-4: Certified WLAN antenna List

		Main Antenna					Auxiliary Antenna				
Host PC	Antenna Manufacturer	Antenna P/N	Frequency band (GHz)				Antenna P/N	Frequency band (GHz)			
			2.4 -2.5	5.15 -5.35	5.47 -5.725	5.725 -5.85		2.4 -2.5	5.15 -5.35	5.47 -5.725	5.725 -5.85
T400/R400	NISSEI	3172467	0.54	0.90	1.93	1.47	3172509	1.80	-0.17	0.46	0.46
	Amphenol	LX0970-11-000-R	1.47	0.26	-0.36	-0.30	LX0968-11-000-R	1.68	1.65	1.58	1.08
	FOXCONN	WDAN-L1ML3001-DF	-0.40	2.59	1.62	1.38	WDAN-L1ML3002-DF	1.10	1.22	0.00	-0.69
T500/W500	NISSEI	3172525	1.35	1.76	0.09	-1.66	3172566	1.99	0.77	2.04	2.42
	Amphenol	LX0980-11-000-R	1.61	0.75	1.75	1.75	LX0983-11-000-R	1.57	1.47	1.73	2.33

3rd Antenna				
Antenna P/N	Frequency band (GHz)			
	2.4 -2.5	5.15 -5.35	5.47 -5.725	5.725 -5.85
3172483	1.99	0.97	0.67	1.29
LX0991-11-000-R	-0.60	1.78	2.79	2.46
WDAN-L1ML3004-DF	1.85	0.70	0.20	-0.42
3172541	1.97	0.20	0.82	-1.01
LX0988-11-000-R	1.18	1.53	0.84	0.67