

# WLAN Antenna Information

## Rocky 30

### [Amphenol antenna]

<b>Platform</b>	
Platform owner	Lenovo
Platform name	Rocky 30
Model name	Rocky 30
ODM	Pegatron
Target FCC Grant	
Target Launch Date	
<b>Antenna</b>	
Brand name	Amphenol Taiwan Corporation
Parts Number	WLAN Aux : 14G152168131LV
	WLAN Main : 14G152168231LV
<b>Transmitter Module</b>	
WLAN Tx Module	533ANXMMW, FCC ID: PD9533ANXMU
	533AN_MMW, FCC ID: PD9533ANMU IC: 1000M-533ANMU
	512AN_MMW, FCC ID: PD9LEN512ANMU IC: 1000M-L512ANMU

\*1: The MIMO 3rd antenna is not used for model 512AN\_MMW.

## Section 1. Antenna Assembly Specifications

### 1. Antenna Assembly Summary:

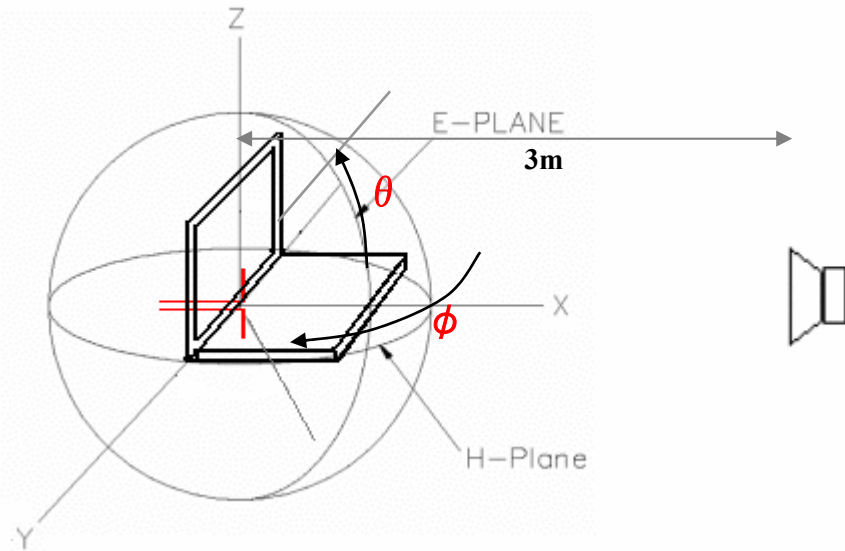
1A Antenna Part Number	1B Manufacture	1C Antenna Type	1D Cable Assembly Part Number and Information	1E *Peak Gain with Cable loss (dBi)
(P/N: 14G1521682 31LV)  Main antenna	Amphenol Taiwan Corporatio n	Coupling antenna & Carrier	P/N: GBE RF 113XL5 50 ohm Coaxial. length: 616.5mm Black diameter: 1.13mm low loss Connector: IPEX	2400-2500MHz -0.59 dBi (peak)
				5150-5350MHz 1.36 dBi (peak)
				5470-5725MHz 2.18 dBi (peak)
				5750-5850MHz 1.64 dBi (peak)
(P/N: 14G1521681 31LV)  Auxiliary antenna			P/N: GBE RF 113XL5 50 ohm Coaxial. length: 834.5mm Black diameter: 1.13mm low loss Connector: IPEX	2400-2500MHz -1.00 dBi (peak)
				5150-5350MHz 0.01 dBi (peak)
				5470-5725MHz 2.19 dBi (peak)
				5750-5850MHz 2.76 dBi (peak)

### 2. Antenna Peak Gain Table:

Frequency (MHz)	Main Antenna		Aux Antenna	
	Horizontal (dBi)	Vertical (dBi)	Horizontal (dBi)	Vertical (dBi)
2400	-2.06	-1.57	-3.53	-1.37
2450	-3.21	-1.08	-3.42	-1.43
2500	-3.68	-0.59	-4.18	-1.00
5150	0.00	1.36	-0.35	1.96
5250	-1.82	-1.25	-0.52	-1.18
5350	-1.15	0.46	-1.04	0.01
5470	-1.27	1.78	-0.13	2.06
5600	-0.92	2.18	-1.08	2.19
5725	0.27	1.58	-0.45	2.17
5750	0.15	1.35	-0.11	2.02
5800	1.43	1.64	2.26	2.76
5850	-0.13	0.67	-0.93	0.84

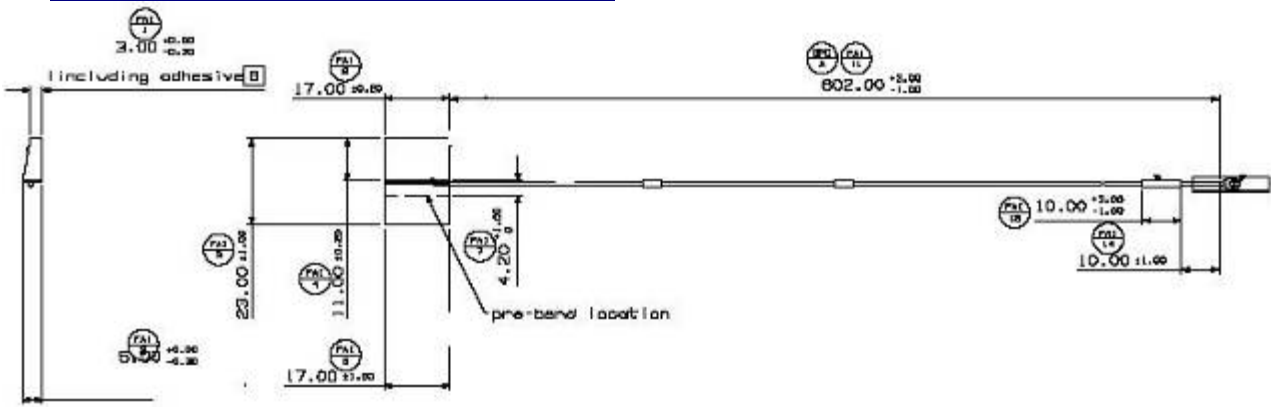
### 3. Antenna Gain Measuring Facility

Radiation characteristic of antenna is measured in regard to the rotation angle  $\phi$  (0~360degree), and the loft angle  $\theta$ (0~90 degree) as shown below.



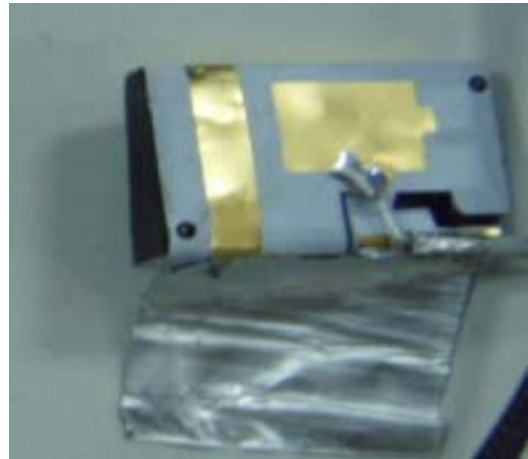
## Section 2. Dimensioned Photos or Drawings of Antennas

**Main Antenna Dimensioned Drawing:**

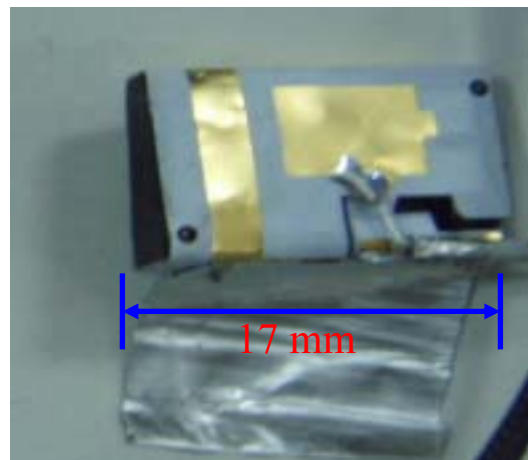


Main WLAN Antenna

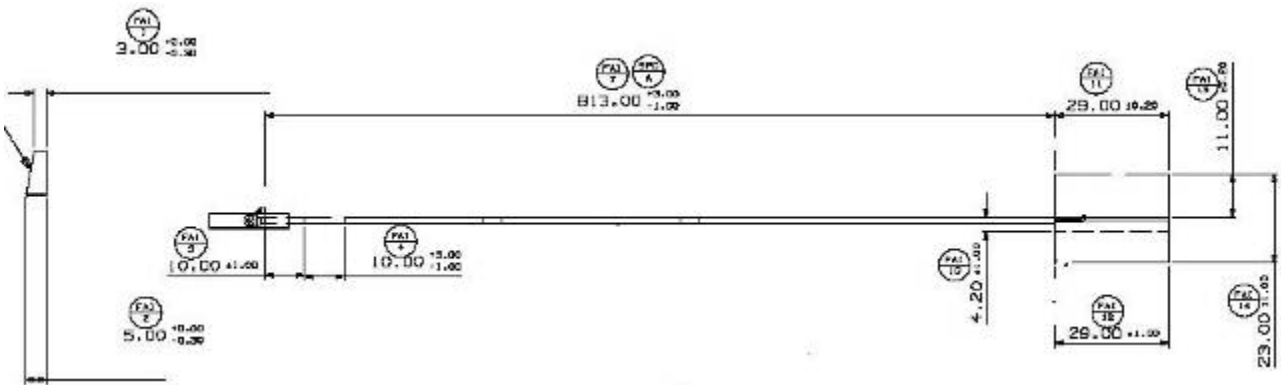
**Main Antenna Photo:**



**Main Antenna**

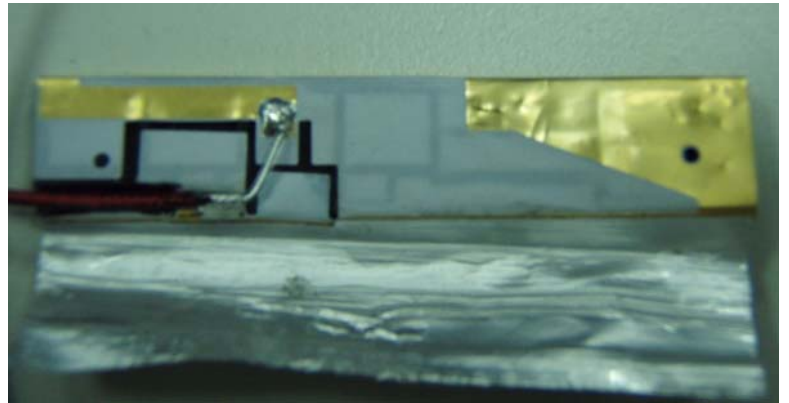


**Aux Antenna Dimensioned Drawing:**

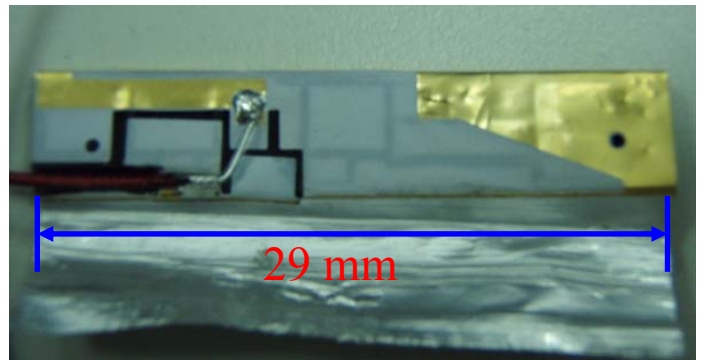


Aux WLAN Antenna

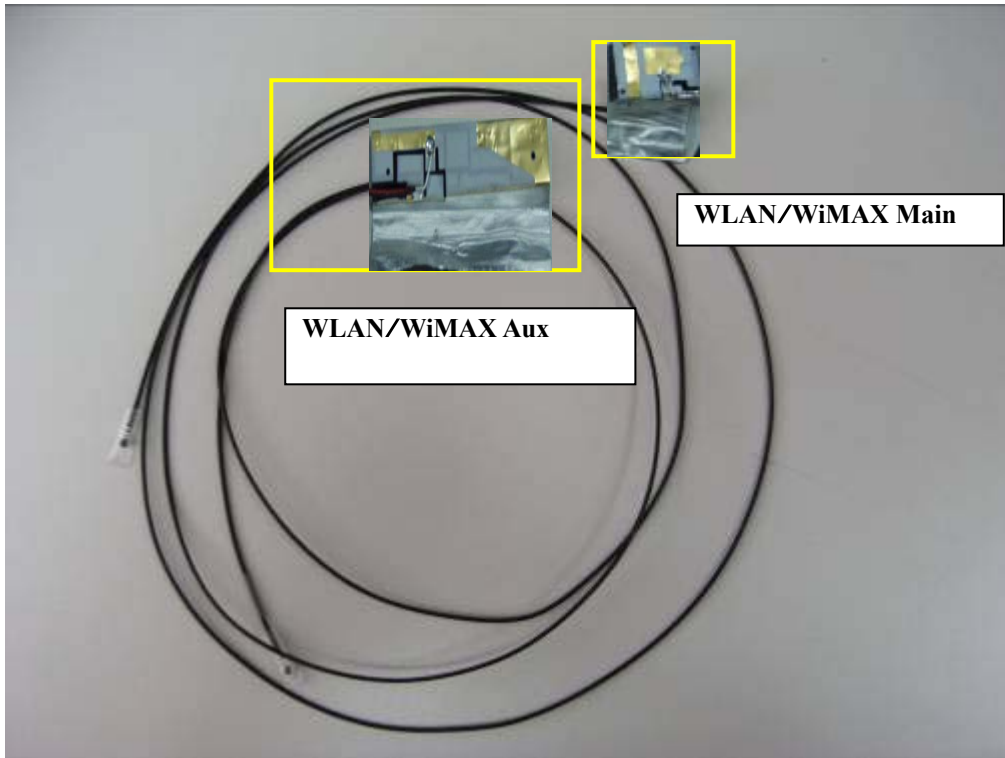
**Aux Antenna Photo:**



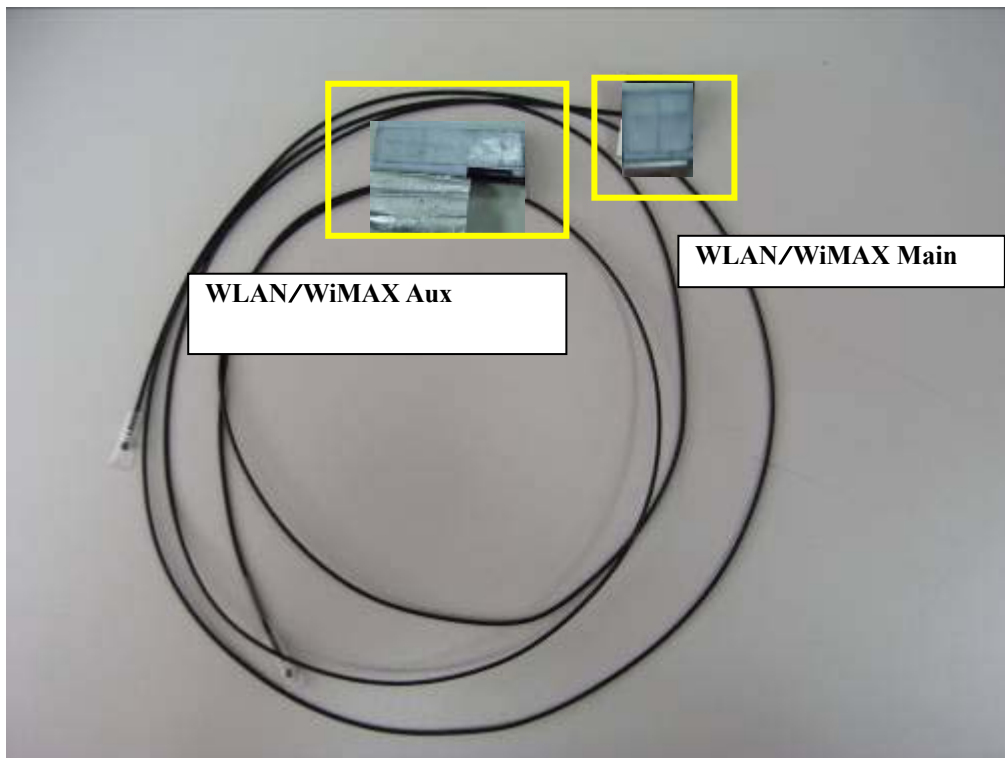
**AUX WLAN Antenna**



Trade Name: Amphenol Taiwan Corporation  
Model No.: **WLAN Main** : 14G152168231LV  
**WLAN Aux** : 14G152168131LV



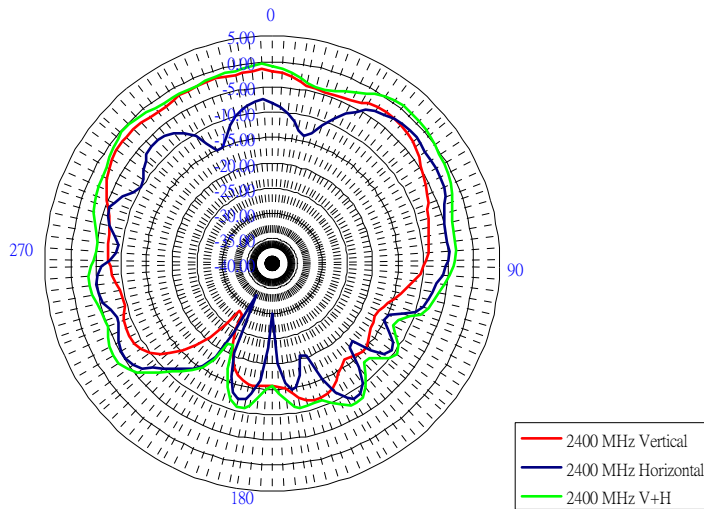
Trade Name: Amphenol Taiwan Corporation  
Model No.: **WLAN Main** : 14G152168231LV  
**WLAN Aux** : 14G152168131LV



## Section 3. Radiation characteristics of antennae Loaded in Host Platform

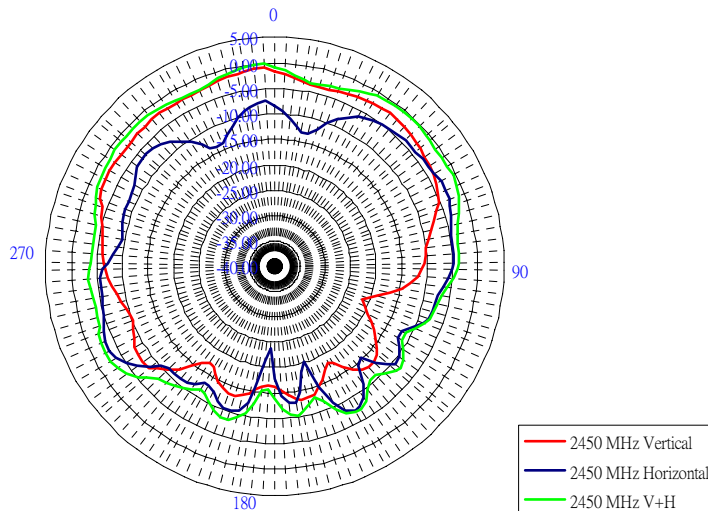
### 2400-2500MHz radiation characteristic

#### Main antenna: 2400 MHz



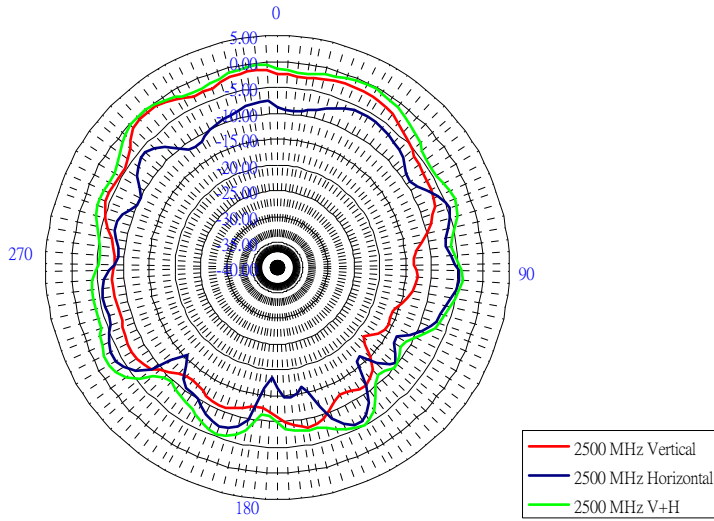
Center Frequency	2400 MHz
Vertical ( Peak )	-1.57 dB
Horizontal ( Peak )	-2.06 dB

#### Main antenna: 2450 MHz



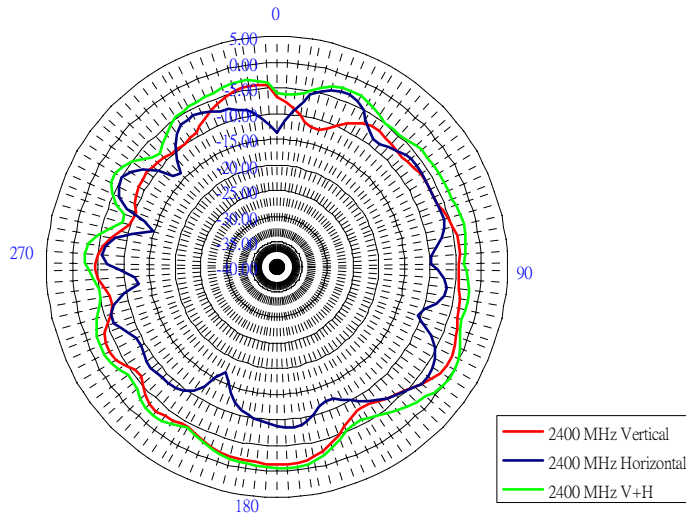
Center Frequency	2450 MHz
Vertical ( Peak )	-1.08 dB
Horizontal ( Peak )	-3.21 dB

**Main antenna: 2500 MHz**



Center Frequency	2500 MHz
Vertical ( Peak )	-0.59 dB
Horizontal ( Peak )	-3.68 dB

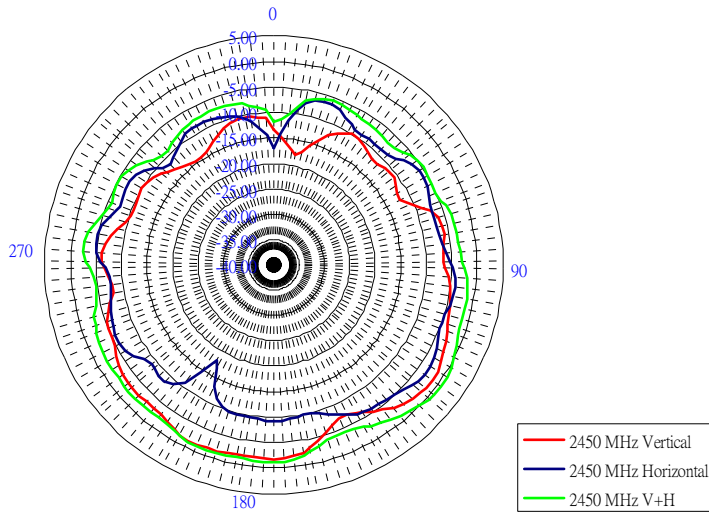
**Auxiliary antenna: 2400 MHz**



Center Frequency	2400 MHz
Vertical ( Peak )	-1.37 dB
Horizontal ( Peak )	-3.53 dB

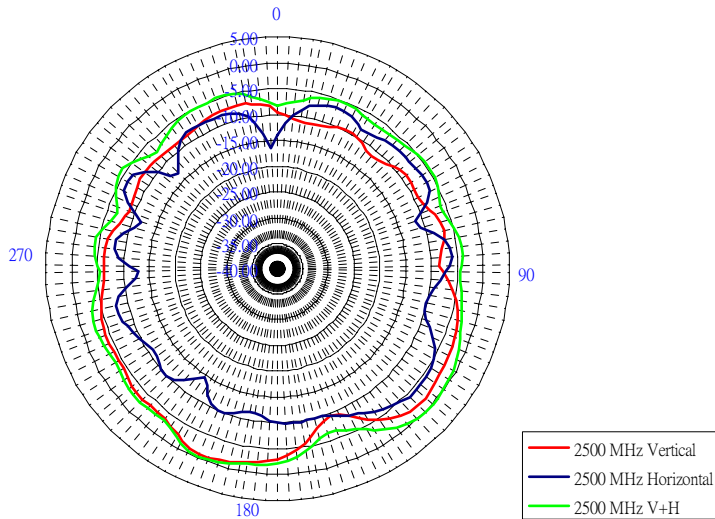


**Auxiliary antenna: 2450 MHz**



Center Frequency	2450 MHz
Vertical ( Peak )	-1.43 dB
Horizontal ( Peak )	-3.42 dB

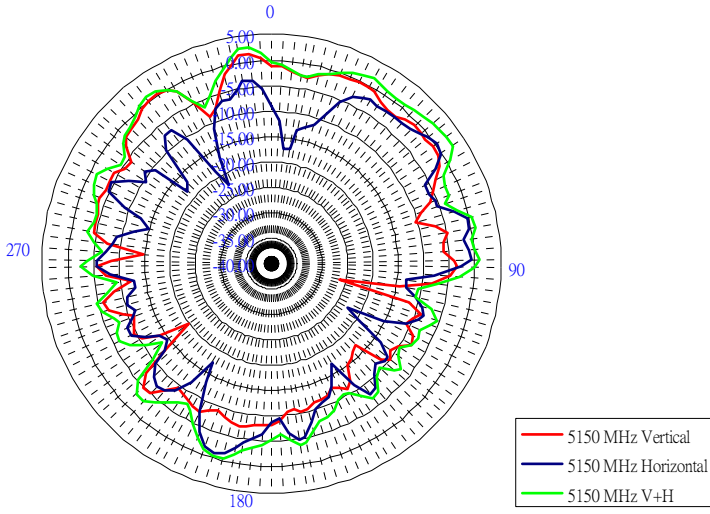
**Auxiliary antenna: 2500 MHz**



Center Frequency	2500 MHz
Vertical ( Peak )	-1.00 dB
Horizontal ( Peak )	-4.18 dB

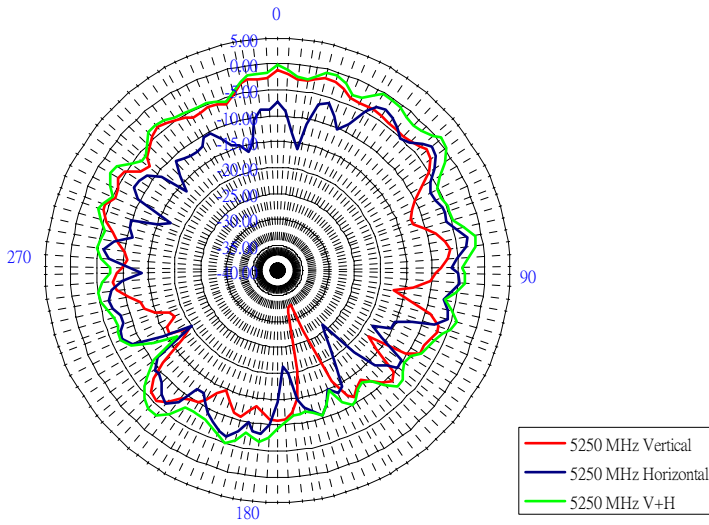
**5150-5350 MHz radiation characteristic**

**Main antenna: 5150 MHz**



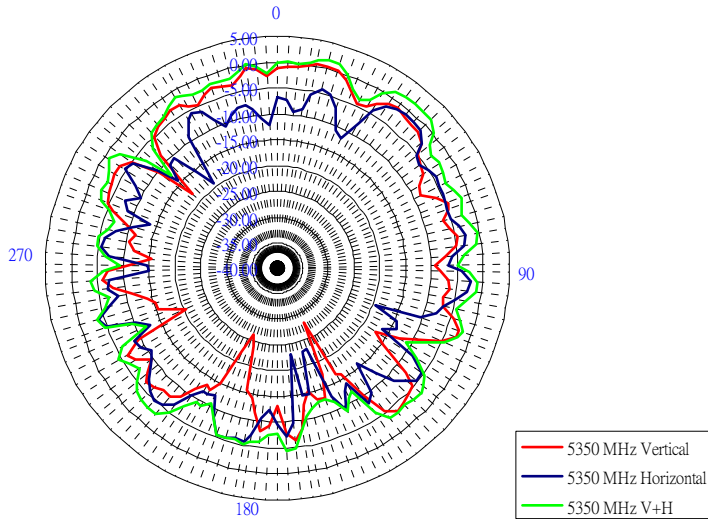
Center Frequency	5150 MHz
Vertical ( Peak )	1.36 dB
Horizontal ( Peak )	0.00 dB

**Main antenna: 5250 MHz**



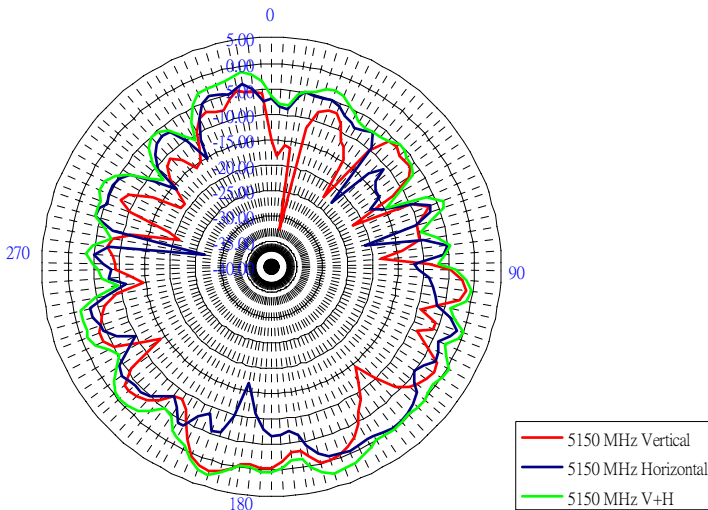
Center Frequency	5250 MHz
Vertical ( Peak )	-1.25 dB
Horizontal ( Peak )	-1.82 dB

**Main antenna: 5350 MHz**



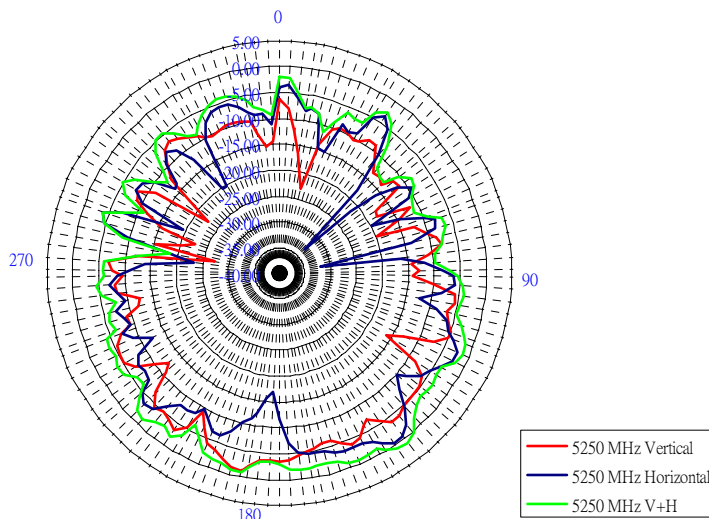
Center Frequency	5350 MHz
Vertical ( Peak )	0.46 dB
Horizontal ( Peak )	-1.15 dB

**Auxiliary antenna: 5150 MHz**



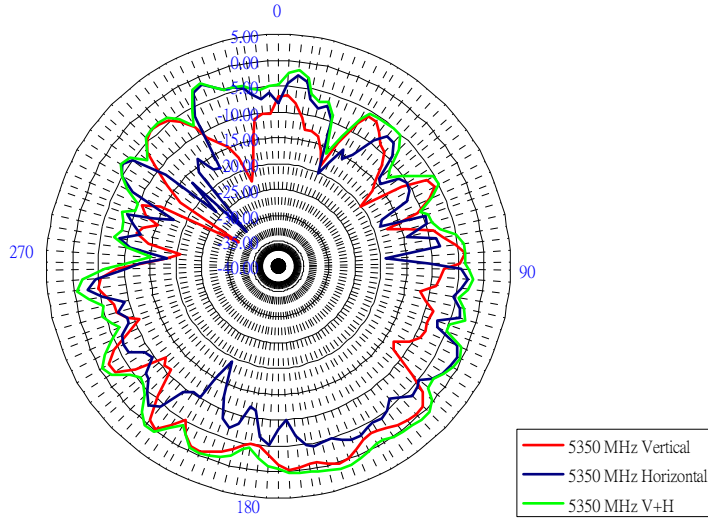
Center Frequency	5150 MHz
Vertical ( Peak )	1.96 dB
Horizontal ( Peak )	-0.35 dB

**Auxiliary antenna: 5250 MHz**



Center Frequency	5250 MHz
Vertical ( Peak )	-1.18 dB
Horizontal ( Peak )	-0.52 dB

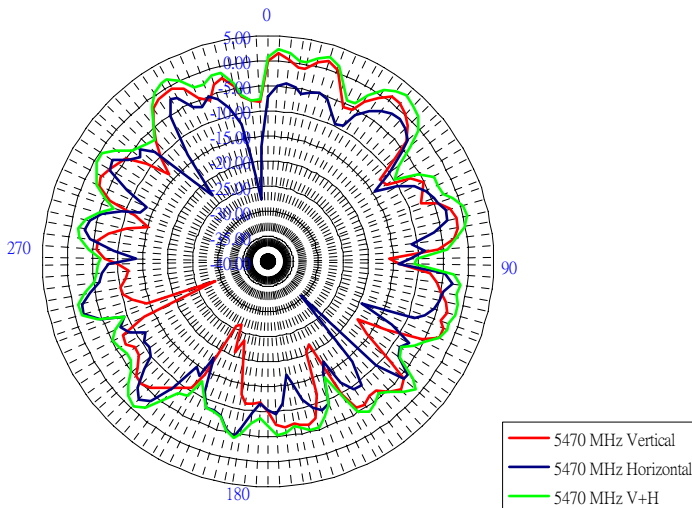
**Auxiliary antenna: 5350 MHz**



Center Frequency	5350 MHz
Vertical ( Peak )	0.01 dB
Horizontal ( Peak )	-1.04 dB

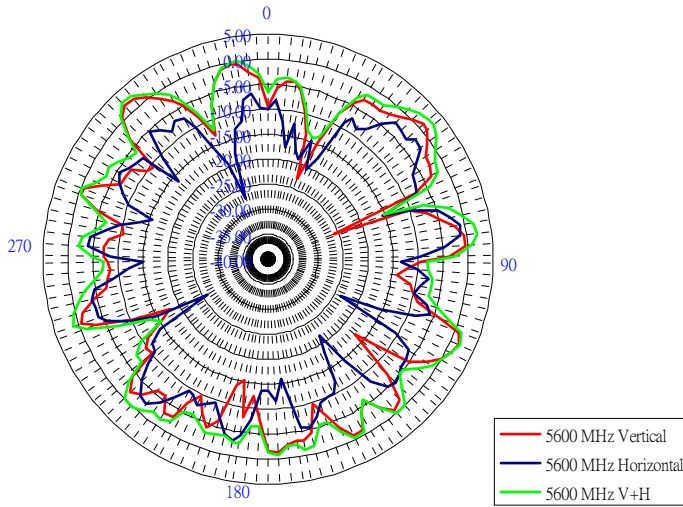
**5470-5725MHz radiation characteristic**

**Main antenna: 5470 MHz**



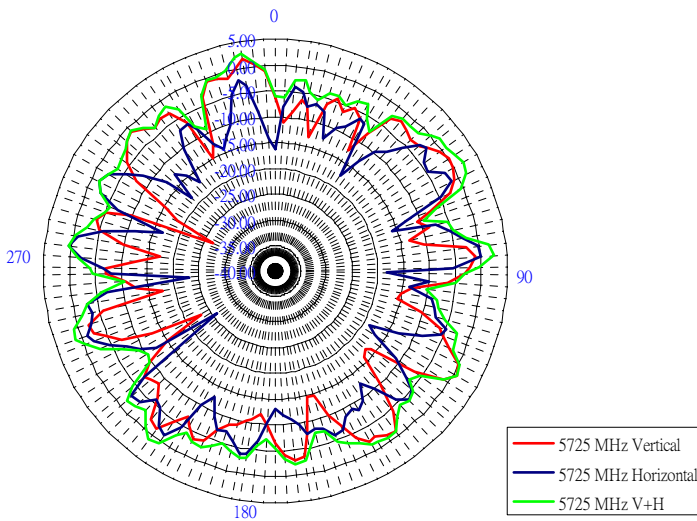
Center Frequency	5470 MHz
Vertical ( Peak )	1.78 dB
Horizontal ( Peak )	-1.27 dB

**Main antenna: 5600 MHz**



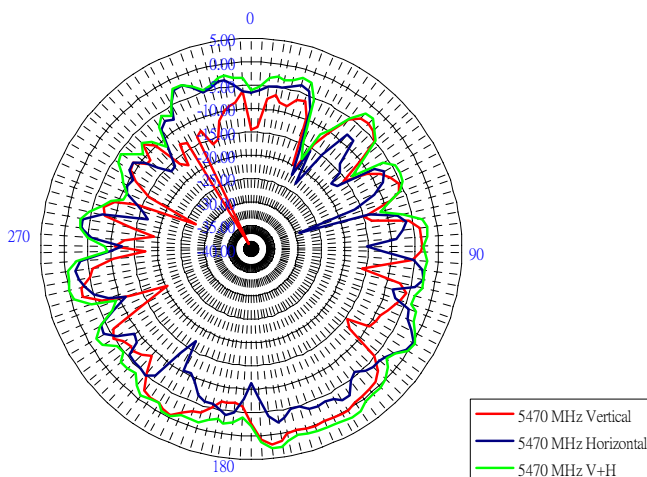
Center Frequency	5600 MHz
Vertical ( Peak )	2.18 dB
Horizontal ( Peak )	-0.92 dB

**Main antenna: 5725 MHz**



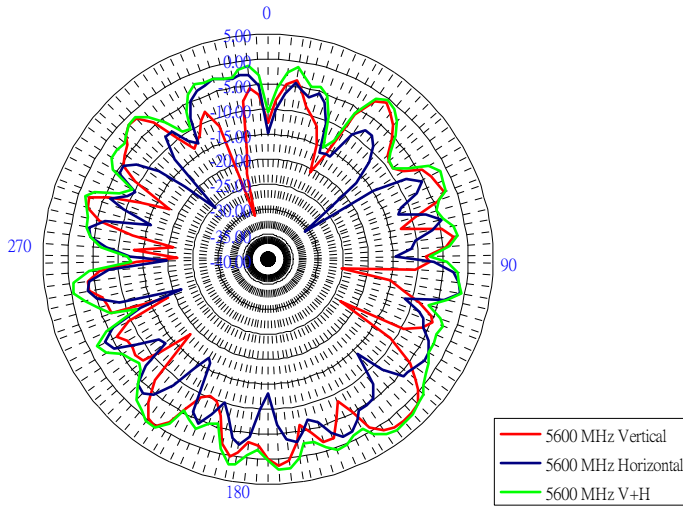
Center Frequency	5725 MHz
Vertical ( Peak )	1.58 dB
Horizontal ( Peak )	0.27 dB

**Auxiliary antenna: 5470 MHz**



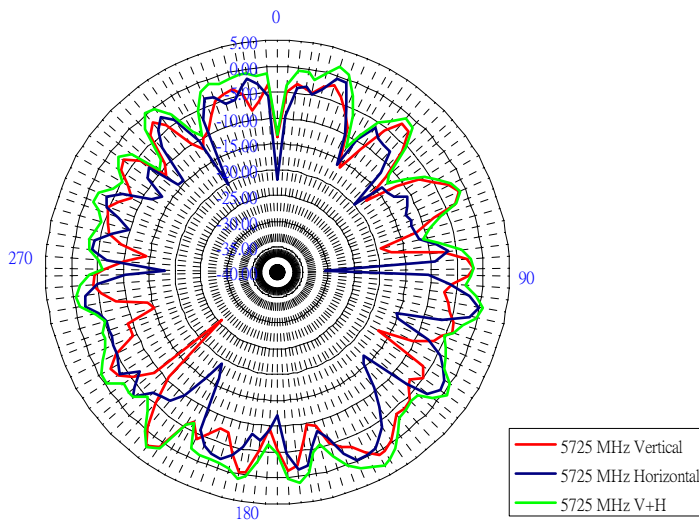
Center Frequency	5470 MHz
Vertical ( Peak )	2.06 dB
Horizontal ( Peak )	-0.13 dB

**Auxiliary antenna: 5600 MHz**



Center Frequency	5600 MHz
Vertical ( Peak )	2.19 dB
Horizontal ( Peak )	-1.08 dB

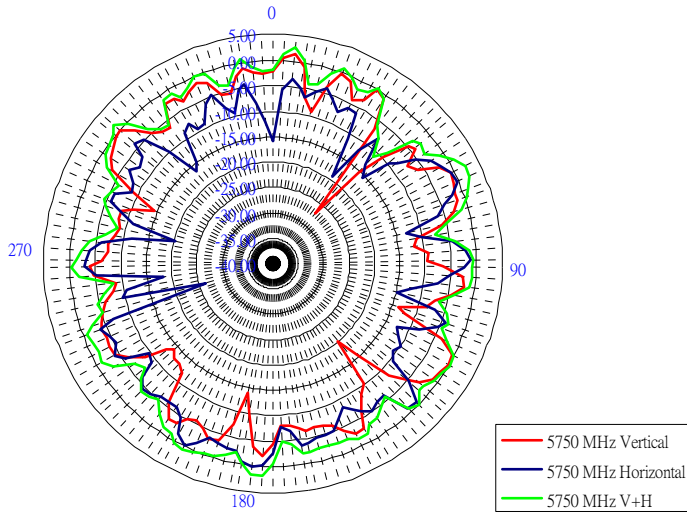
**Auxiliary antenna: 5725 MHz**



Center Frequency	5725 MHz
Vertical ( Peak )	2.17 dB
Horizontal ( Peak )	-0.45 dB

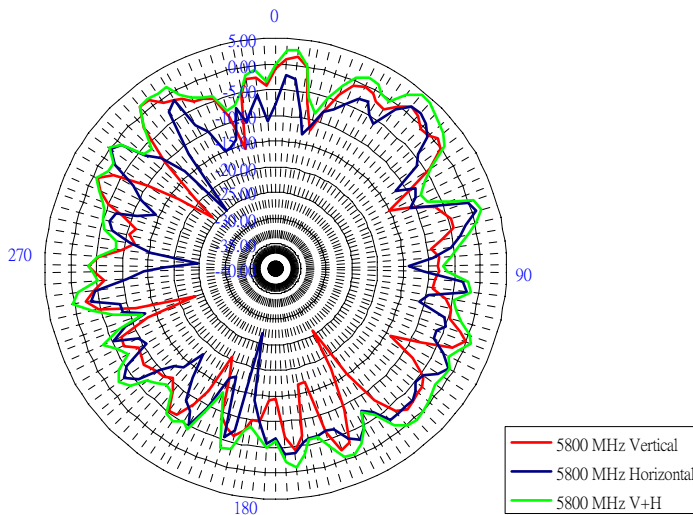
**5725-5850 MHz radiation characteristic**

**Main antenna: 5750 MHz**



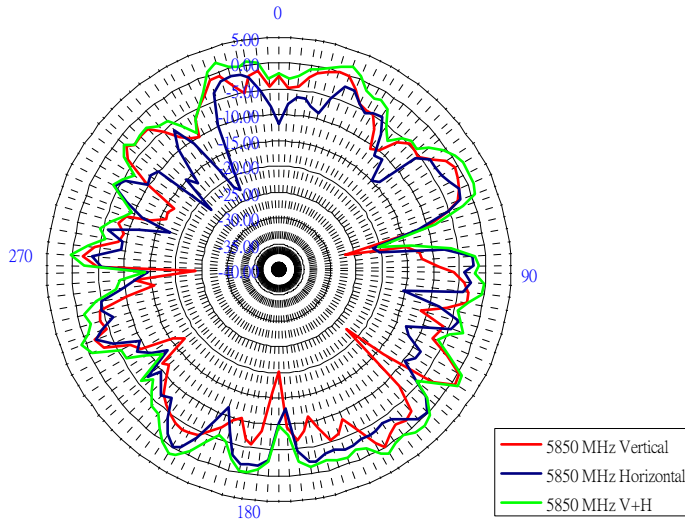
Center Frequency	5750 MHz
Vertical ( Peak )	1.35 dB
Horizontal ( Peak )	0.15 dB

**Main antenna: 5800 MHz**



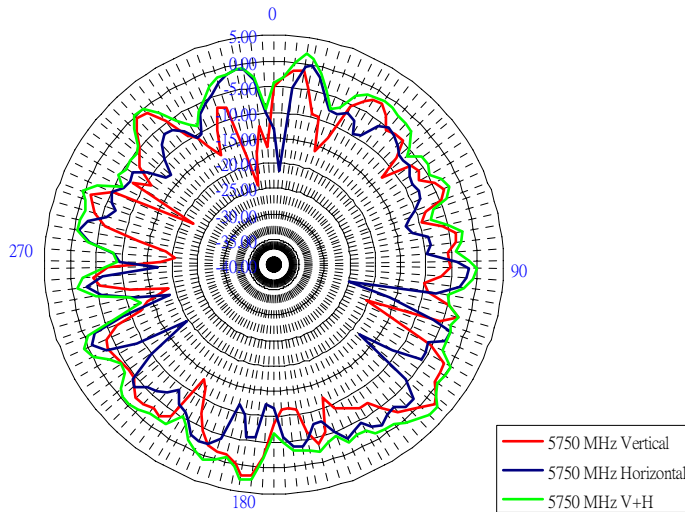
Center Frequency	5800 MHz
Vertical ( Peak )	1.64 dB
Horizontal ( Peak )	1.43 dB

**Main antenna: 5850 MHz**



Center Frequency	5850 MHz
Vertical ( Peak )	0.67 dB
Horizontal ( Peak )	-0.13 dB

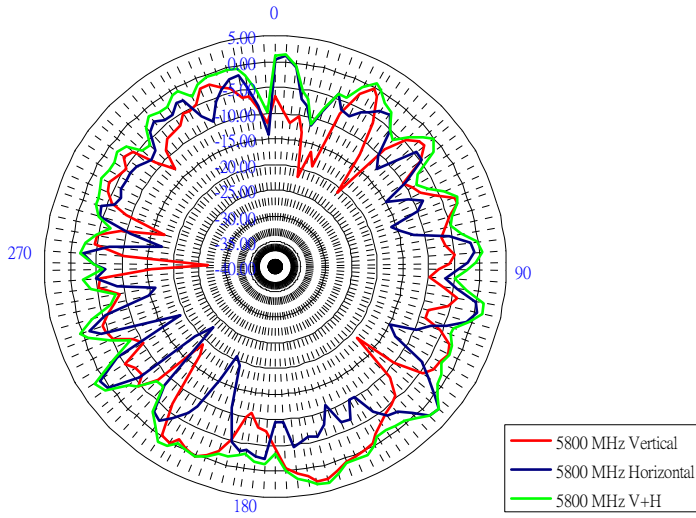
**Auxiliary antenna: 5750 MHz**



Center Frequency	5750 MHz
Vertical ( Peak )	2.02 dB
Horizontal ( Peak )	-0.11 dB

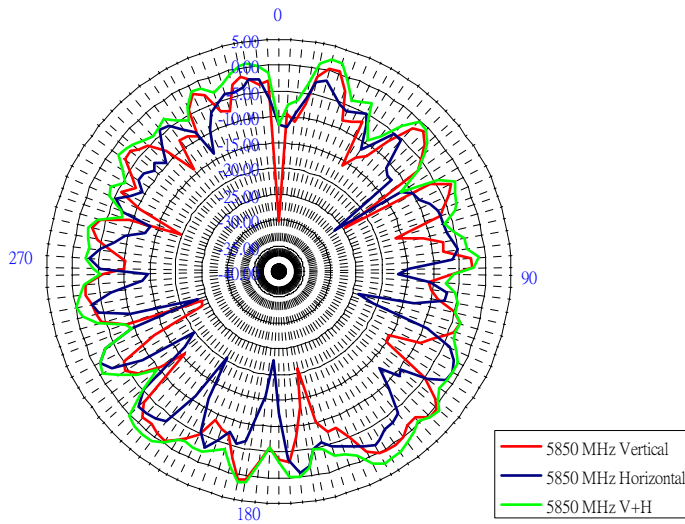
**Auxiliary antenna: 5800 MHz**





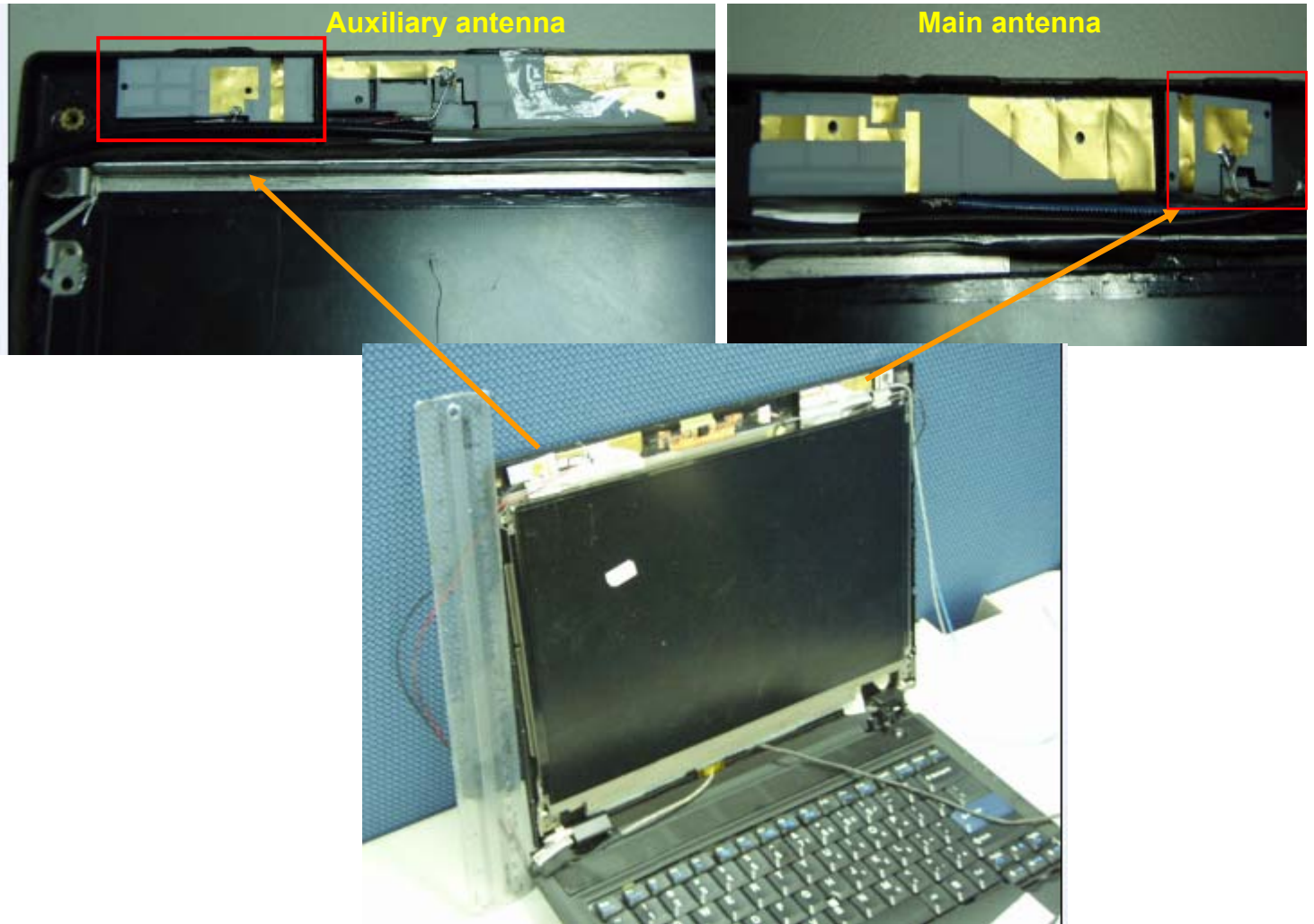
Center Frequency	5800 MHz
Vertical ( Peak )	2.76 dB
Horizontal ( Peak )	2.26 dB

**Auxiliary antenna: 5850 MHz**

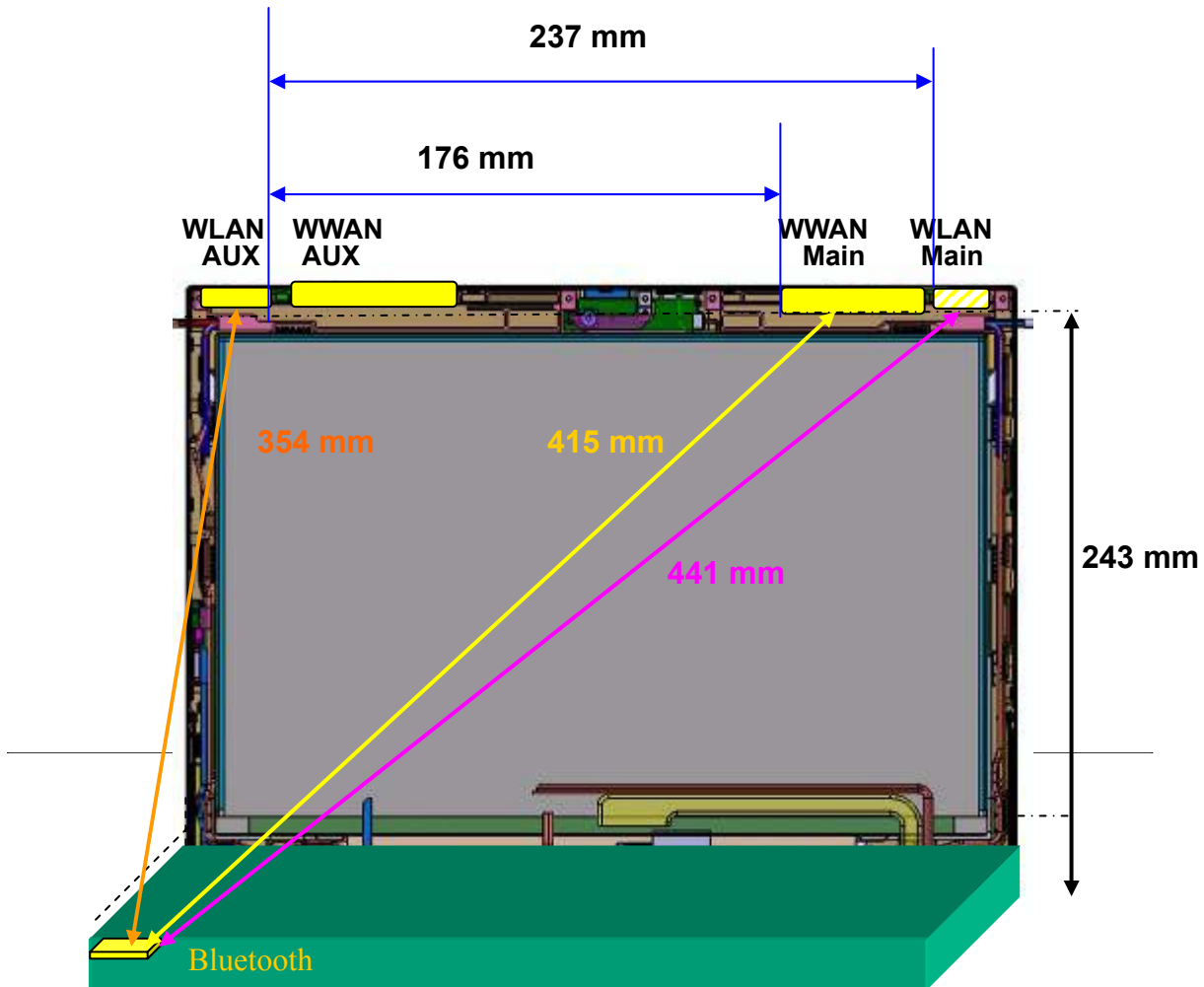


Center Frequency	5850 MHz
Vertical ( Peak )	0.84 dB
Horizontal ( Peak )	-0.93 dB

## Section 4. Host Platform Information



## Section 5. Antenna Host Platform Location Information Antenna Host Platform Location Information



\*1: FCC grant date: Dec./14/2007 (4.1mW)

## Section 6. Antenna dimensional information for SAR evaluation

The host platform (ThinkPad SL300 Series) is **not** subjected to SAR along with the sufficient antenna separation distance from human's body with 243mm. See Section 5.

## Section 7. Co-Location Antenna Separation

1. The WWAN and WLAN (or WiMAX) devices are controlled by proprietary software "Access Connection" which manages handover of transmission between WWAN and WLAN (or WiMAX) devices within 11 seconds, so the both **do not transmit simultaneously**.
2. The SAR evaluation in co-locating with Bluetooth-A or Bluetooth-B 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.
3. 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.