

Regulatory WLAN Antenna Information

| | Company Name | Project Code |
|---------|---------------------------|--------------|
| ODM | Quanta Computer.Inc | ZB1 |
| Antenna | Wistron Neweb Corporation | EBQ-Q1 |
| P/N | Wistron Neweb Corporation | 81.EBQ15.010 |

Antenna Sample / Antenna Data

Requirements for worldwide regulatory approval

| Section | Description of Required OEM / ODM Antenna Information | US / IC | EU | Japan | Taiwan | S.Korea |
|---------|--|----------|----------|----------|----------------------|----------------------|
| 1A | Part Number for Antenna only | Required | Required | Required | Required | Required |
| 1B | Antenna Manufacturer Name | Required | Required | Required | Required | Required |
| 1C | Description of Antenna Type | Required | N/A | N/A | N/A | N/A |
| 1D | Part number of Antenna Assembly / cable impedance, length & diameter. | Required | Desired | Desired | Desired | Desired |
| 1E | Main & Aux antenna (Peak Gain W/ cable loss) | Required | Required | Required | Required | Required |
| | 1E OR 1F, 1G, 1H | | | | | |
| 1F | Main & Aux antenna (Peak Gain only) | Required | Required | Required | Required | Required |
| 1G | VSWR of cable including connector | Required | Required | Required | Required | Required |
| 1H | Main & Aux antenna (Cable loss W/ connector) | Required | Required | Required | Required | Required |
| 2 | Dimensioned Photographs and Drawings of main & auxiliary antennas | Required | Required | Required | Required | Required |
| 3 | Radiation patterns of antennas loaded in the host platform. | Required | Desired | Required | N/A | Required |
| 4 | Platform model name / number - correlated to antenna manufacturer and antenna part number | Required | Required | Desired | Required | Desired |
| 5 | Photograph(s) or Drawings showing location of antennas in platform. (S. Korea requires photographs of antennas for approval submission). Taiwan requires pictures of each antenna type shown in the system. | Required | Required | Desired | Required (Photos) | Required (Photos) |
| 6 | Mech. drawings / photos with dimensions of antenna locations and distance from end-user (For evaluation of SAR testing requirement). | Required | N/A | N/A | N/A | N/A |
| 7 | Photograph(s) or Drawings showing the location of all antennas (WLAN, BT, other) and distance between those transmitting antennas. Information will be used to evaluate whether co-location testing is required. | Required | N/A | N/A | N/A | N/A |

Antenna Information

Section 1. Antenna Assembly Specifications

Antenna Assembly Summary:

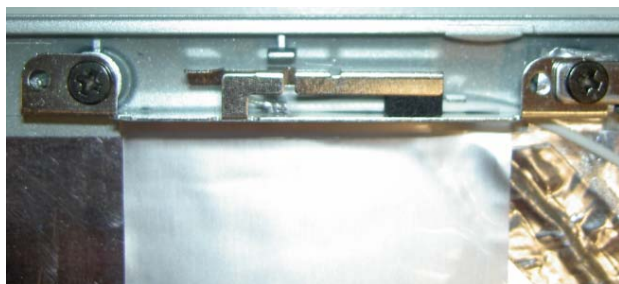
| 1A Antenna Part Number | 1B Manufacture | 1C Antenna Type | 1D Cable Assembly Part Number and Information | 1E Peak Gain W/ Cable loss (dBi) | 1F Peak Gain w/o Cable Loss (dBi) | 1G VSWR | 1H Cable Loss (dBi) |
|--|---------------------------|--------------------|--|--|--|--------------------------------|--|
| Main Antenna (WNC P/N: 81.EBQ15.010) (customer P/N:) | Wistron Neweb Corporation | PIFA | P/N:1371300B(221)&1371350W(221) 50 ohm Coaxial. length: 350 mm diameter: 1.37 mm Connector: IPEX | 2400-2500MHz 6.09 dBi (peak) | 2400-2500MHz 7.04 dBi (peak) | 2400-2500MHz 2.0 max | 2400-2500MHz 0.95 dBi (peak) |
| | | | | 5150-5350MHz 4.11 dBi (peak) | 5150-5350MHz 5.57 dBi (peak) | 5150-5350MHz 2.5 max | 5150-5350MHz 1.46 dBi (peak) |
| | | | | 5470-5725MHz 4.51 dBi (peak) | 5470-5725MHz 6.06 dBi (peak) | 5470-5725MHz 2.5 max | 5470-5725MHz 1.55 dBi (peak) |
| | | | | 5725-5825MHz 2.58 dBi (peak) | 5725-5825MHz 4.14 dBi (peak) | 5725-5825MHz 2.5 max | 5725-5825MHz 1.57 dBi (peak) |
| | | | | | | | |
| AUX Antenna (WNC P/N: 81.EBQ15.010) (customer P/N:) | Wistron Neweb Corporation | PIFA | P/N:1371300B(221)&1371350W(221) 50 ohm Coaxial. length: 300 mm diameter: 1.37 mm Connector: IPEX | 2400-2500MHz 4.45 dBi (peak) | 2400-2500MHz 5.29 dBi (peak) | 2400-2500MHz 2.0 max | 2400-2500MHz 0.84 dBi (peak) |
| | | | | 5150-5350MHz 6.10 dBi (peak) | 5150-5350MHz 7.39 dBi (peak) | 5150-5350MHz 2.5 max | 5150-5350MHz 1.29 dBi (peak) |
| | | | | 5470-5725MHz 5.27 dBi (peak) | 5470-5725MHz 6.63 dBi (peak) | 5470-5725MHz 2.5 max | 5470-5725MHz 1.36 dBi (peak) |
| | | | | 5725-5825MHz 4.00 dBi (peak) | 5725-5825MHz 5.38 dBi (peak) | 5725-5825MHz 2.5 max | 5725-5825MHz 1.38 dBi (peak) |
| | | | | | | | |

Section 2. Dimensioned Photos or Drawings of Antennas

Include a dimensioned photo and dimensioned drawing of main antenna here.

Main and Aux Antenna Dimensioned Drawing:

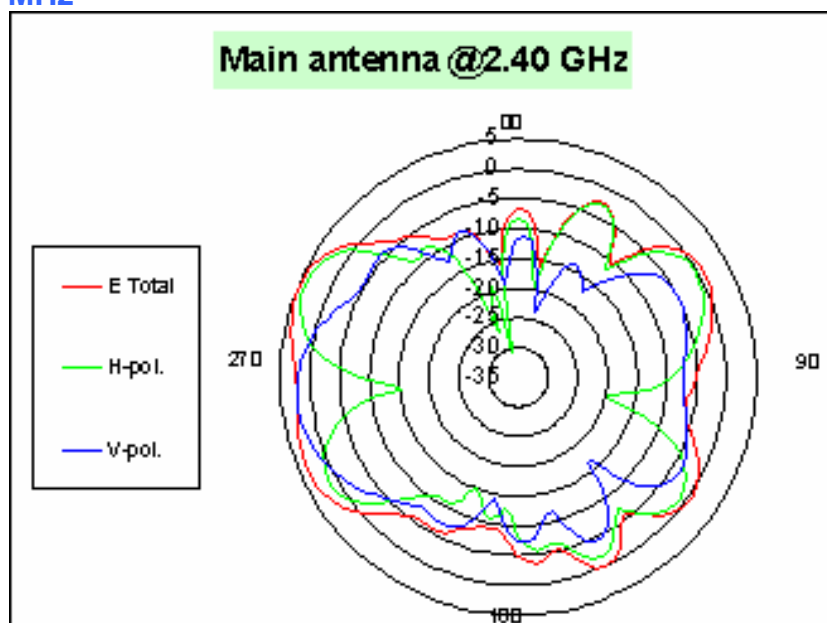
Main and Aux Antenna Photo:



Section 3. Radiation characteristics of antennae Loaded in Host Platform

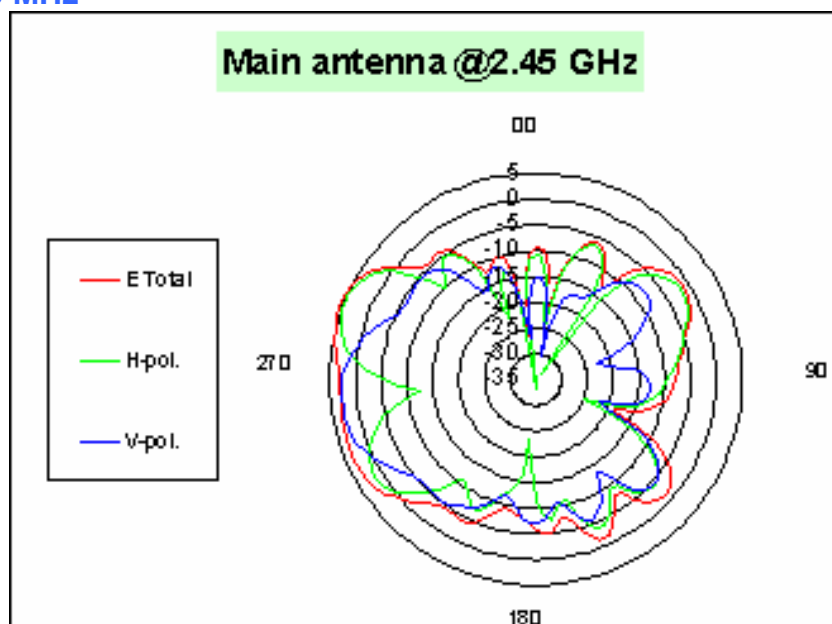
2400-2500MHz radiation characteristic

Main antenna: 2400 MHz



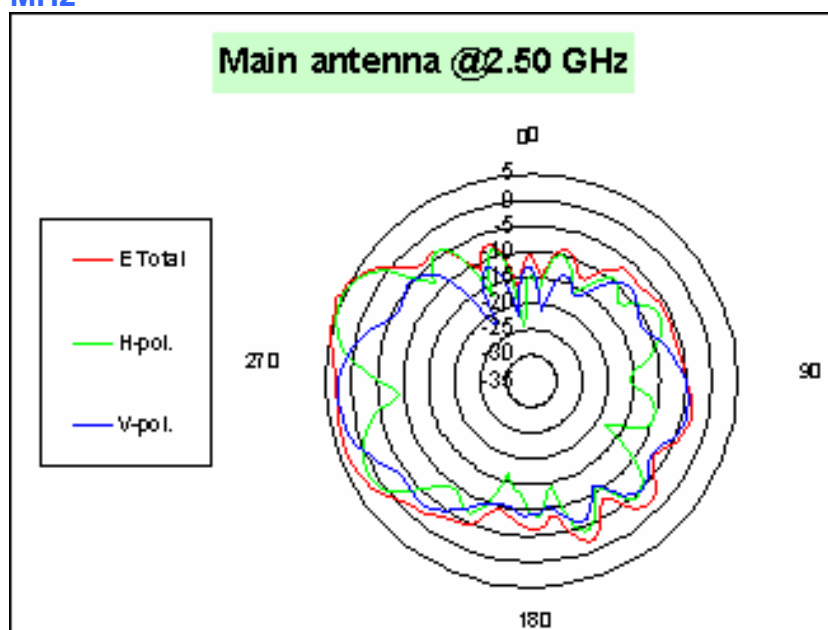
| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 4.86 | 4.10 | 2.27 |
| Average Gain | -1.91 | -4.77 | -5.86 |

Main antenna: 2450 MHz



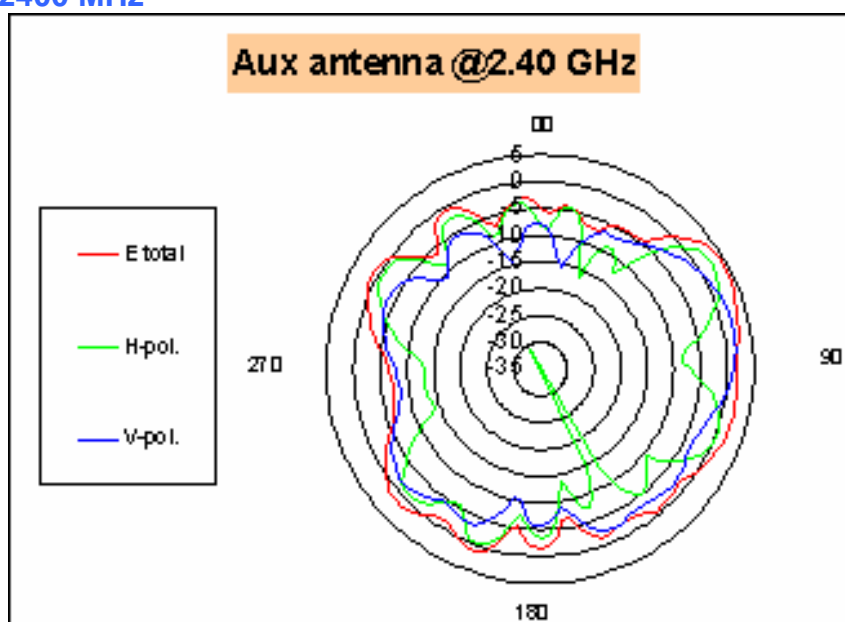
| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 5.48 | 4.99 | 2.79 |
| Average Gain | -2.84 | -5.55 | -7.08 |

Main antenna: 2500 MHz



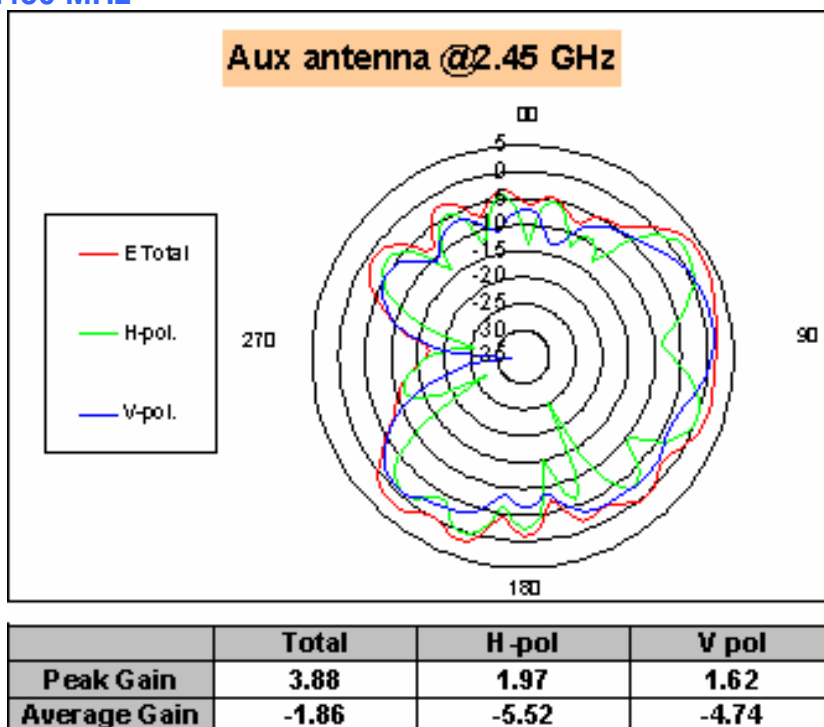
| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 6.09 | 5.36 | 2.63 |
| Average Gain | -2.68 | -6.01 | -6.12 |

Auxiliary antenna: 2400 MHz

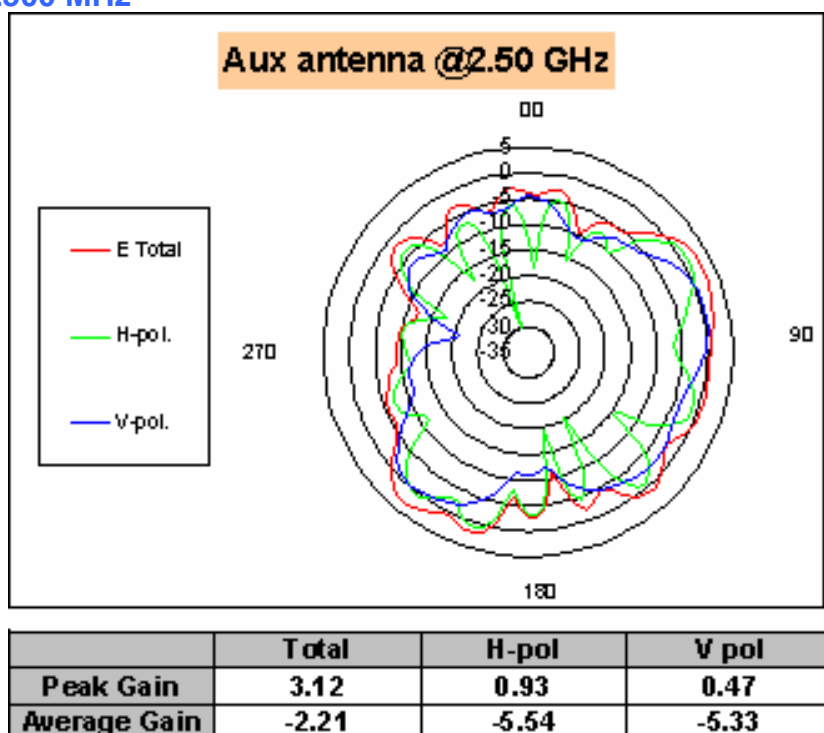


| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 4.45 | 2.56 | 1.85 |
| Average Gain | -1.16 | -4.69 | -4.17 |

Auxiliary antenna: 2450 MHz

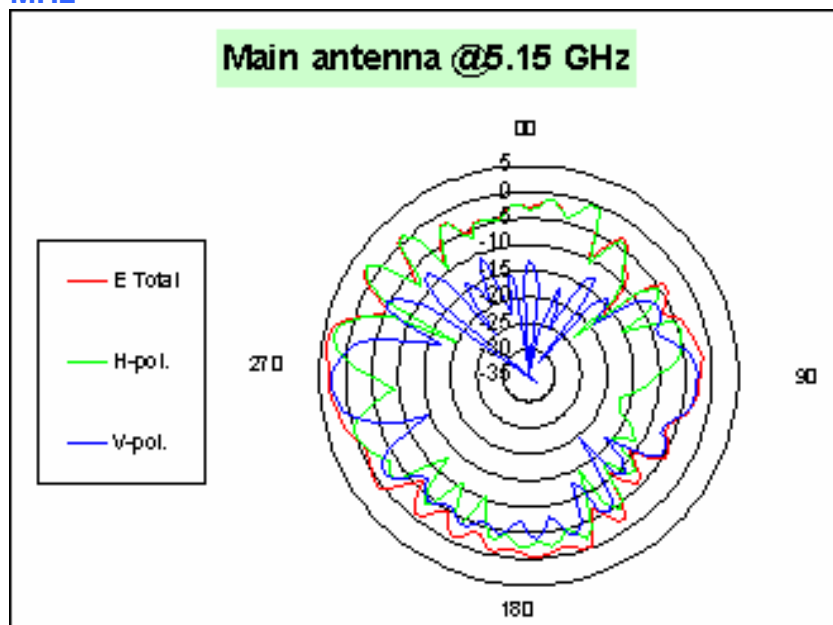


Auxiliary antenna: 2500 MHz



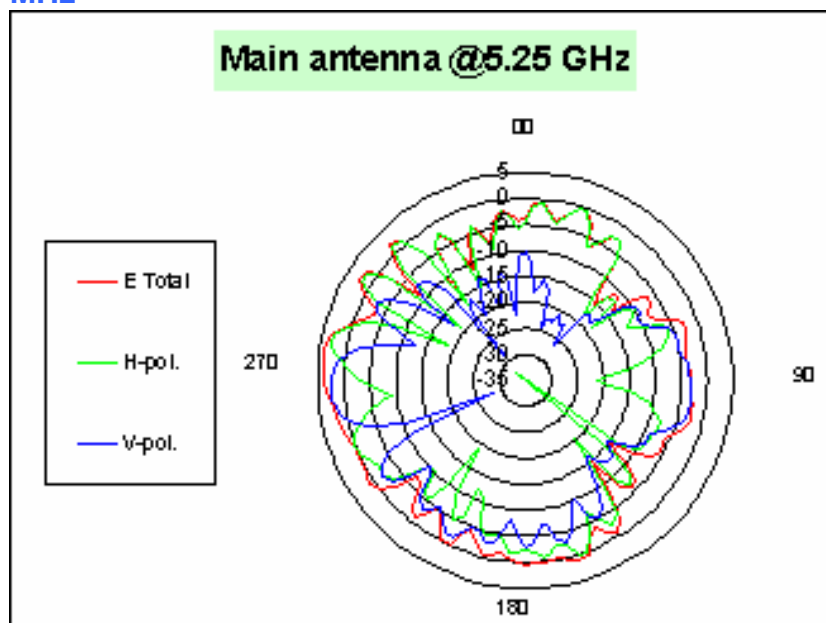
5150-5350 MHz radiation characteristic

Main antenna: 5150 MHz

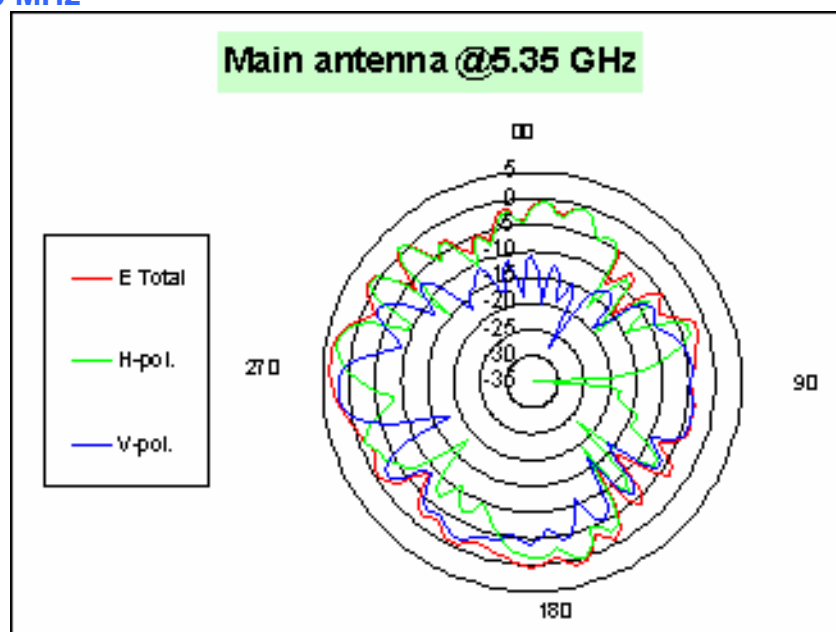


| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 4.07 | 2.89 | 2.62 |
| Average Gain | -2.23 | -4.80 | -7.20 |

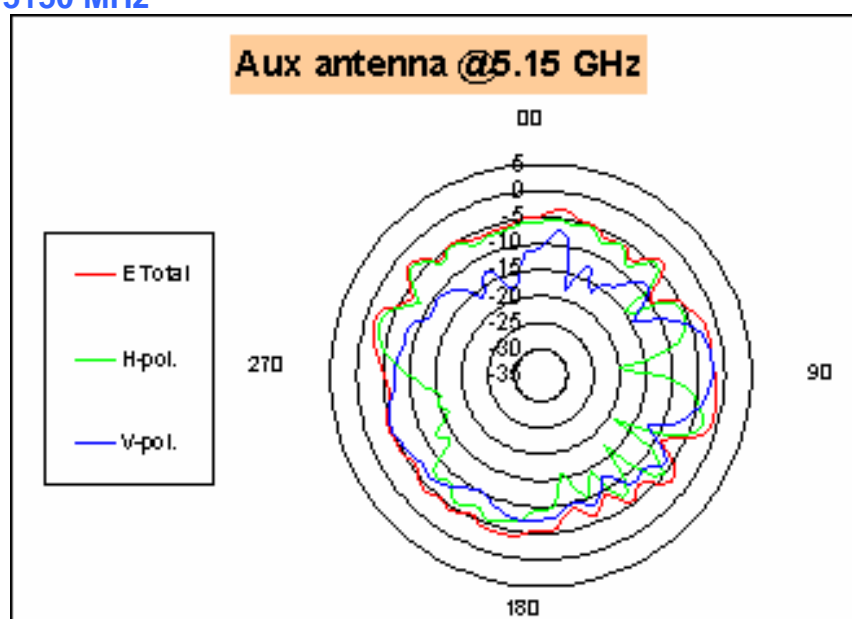
Main antenna: 5250 MHz



| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 4.11 | 2.93 | 2.64 |
| Average Gain | -2.24 | -4.91 | -7.09 |

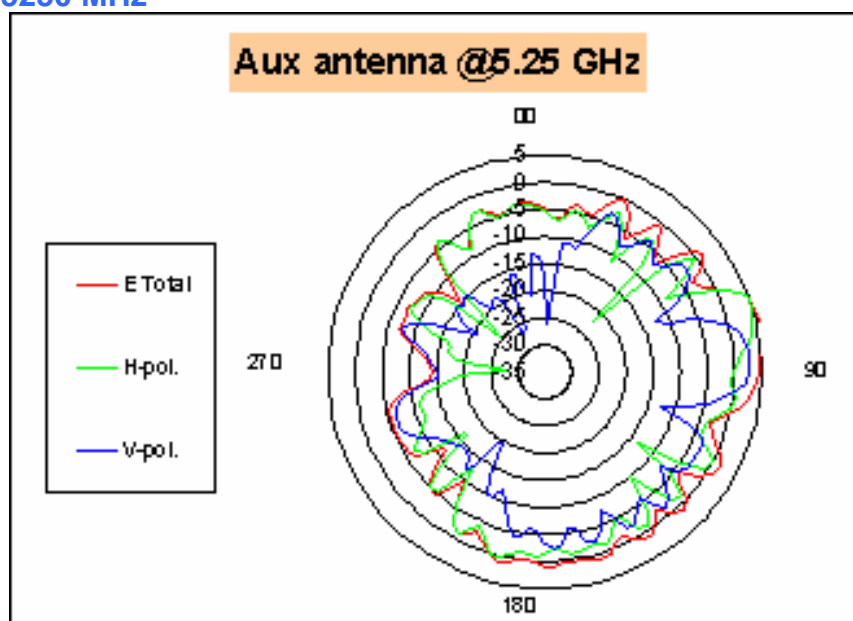
Main antenna: 5350 MHz

| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 3.84 | 2.90 | 2.10 |
| Average Gain | -2.30 | -5.18 | -6.76 |

Auxiliary antenna: 5150 MHz

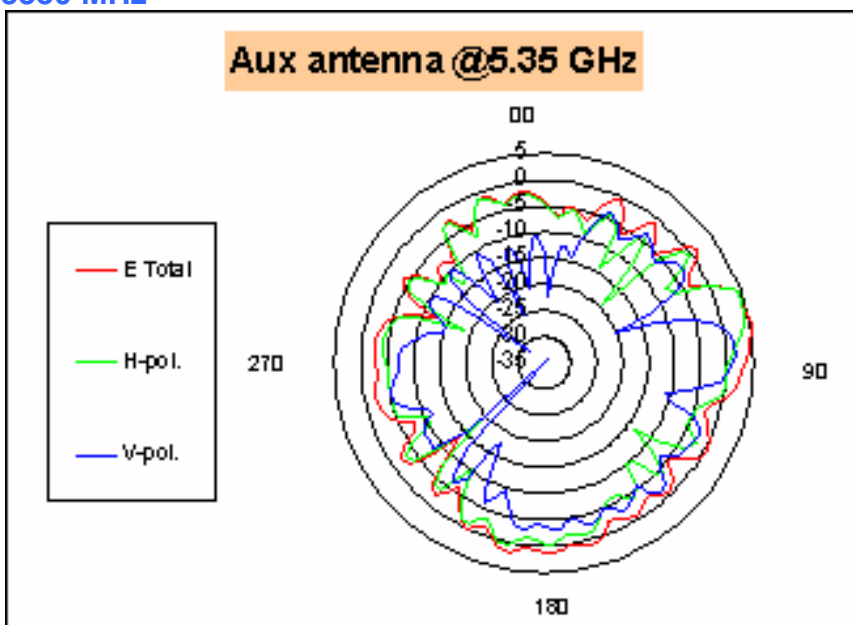
| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | -1.18 | -2.77 | -2.45 |
| Average Gain | -4.69 | -7.66 | -8.58 |

Auxiliary antenna: 5250 MHz



| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 6.10 | 4.96 | 2.79 |
| Average Gain | -2.02 | -4.16 | -7.00 |

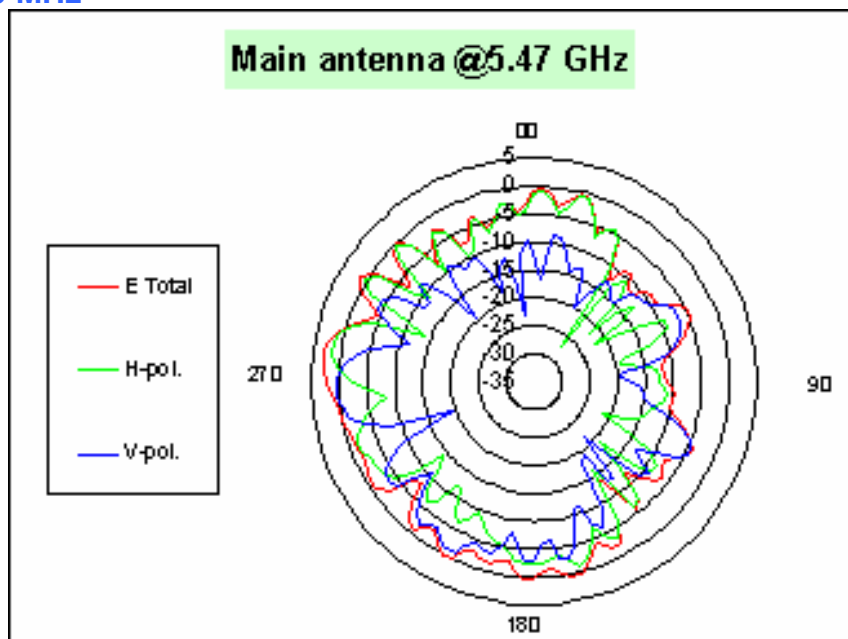
Auxiliary antenna: 5350 MHz



| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 5.34 | 4.45 | 1.52 |
| Average Gain | -1.72 | -3.75 | -6.79 |

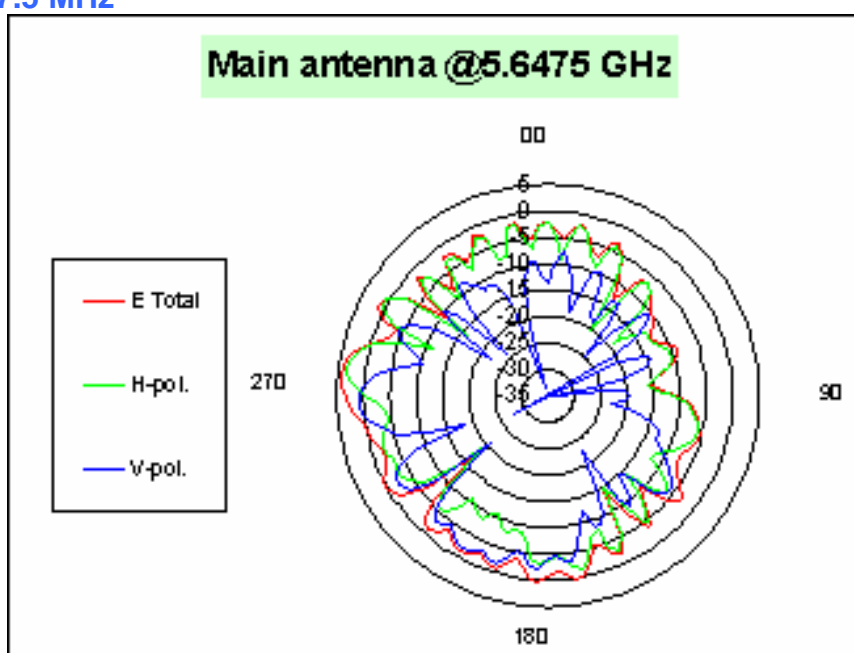
5470-5725MHz radiation characteristic

Main antenna: 5470 MHz

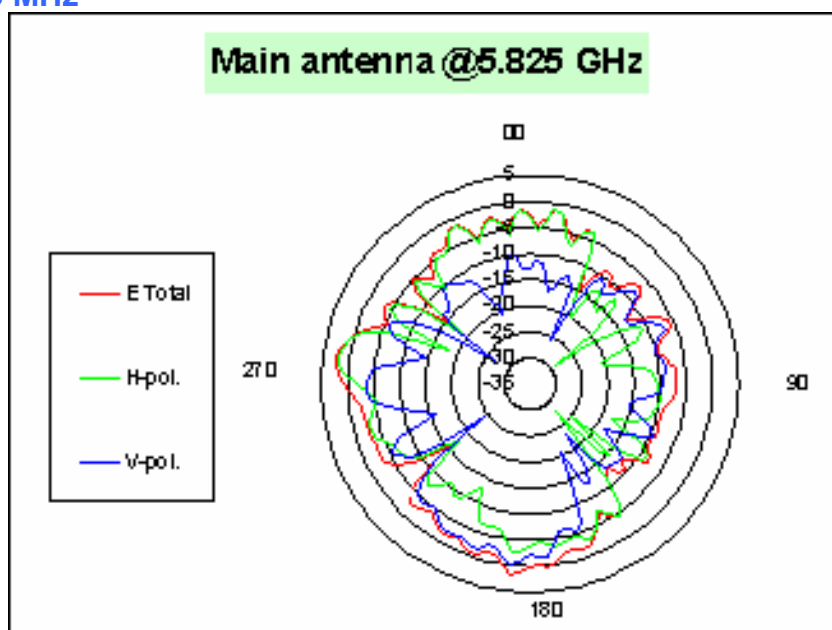


| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 3.04 | 1.65 | 0.57 |
| Average Gain | -3.30 | -5.99 | -7.78 |

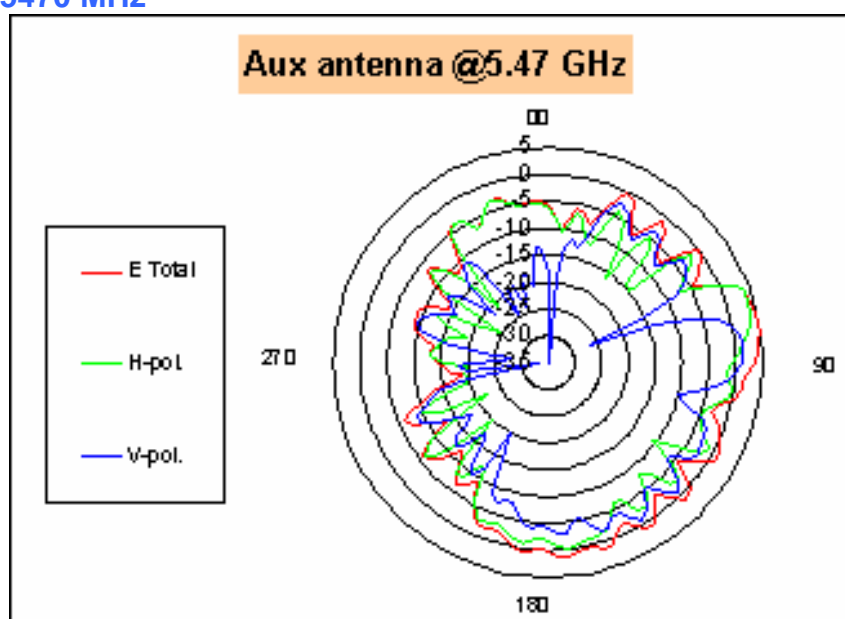
Main antenna: 5647.5 MHz



| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 4.51 | 3.48 | 0.96 |
| Average Gain | -3.49 | -5.73 | -8.52 |

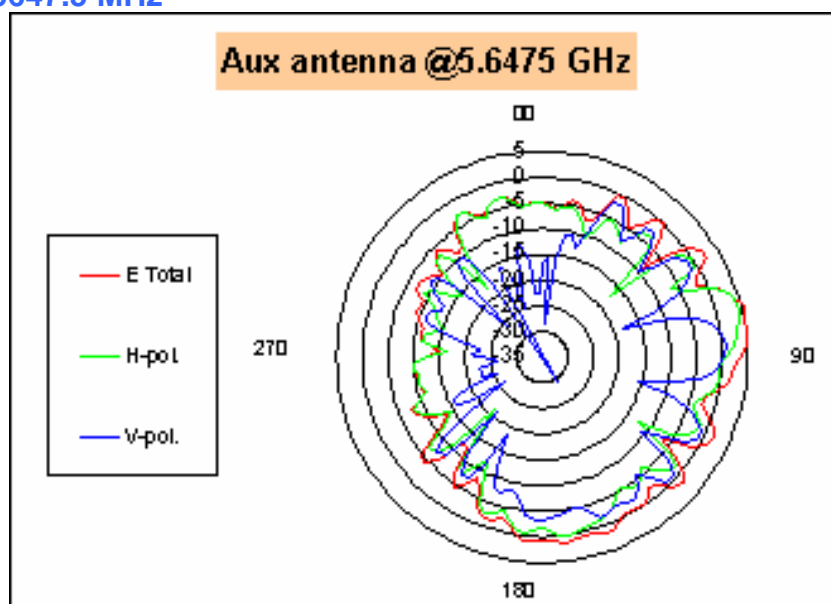
Main antenna: 5825 MHz

| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 2.58 | 2.00 | -0.34 |
| Average Gain | -4.27 | -6.88 | -8.94 |

Auxiliary antenna: 5470 MHz

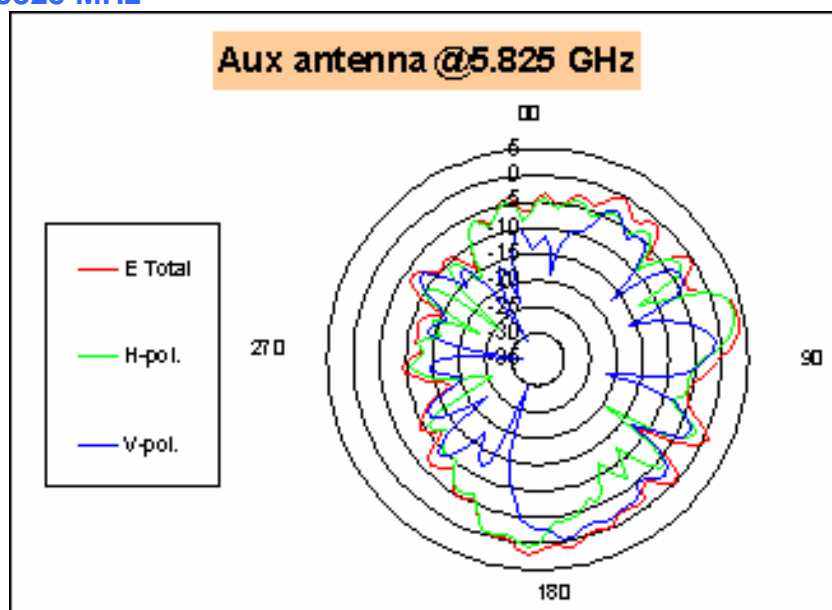
| | Total | H-pol | V pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 5.07 | 3.90 | 1.45 |
| Average Gain | -2.97 | -5.27 | -7.70 |

Auxiliary antenna: 5647.5 MHz



| | Total | H-pol | V-pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 5.27 | 4.72 | 0.71 |
| Average Gain | -2.54 | -4.57 | -7.66 |

Auxiliary antenna: 5825 MHz



| | Total | H-pol | V-pol |
|---------------------|--------------|--------------|--------------|
| Peak Gain | 4.00 | 3.58 | -0.49 |
| Average Gain | -3.77 | -6.21 | -8.38 |

Section 4. Host Platform Information

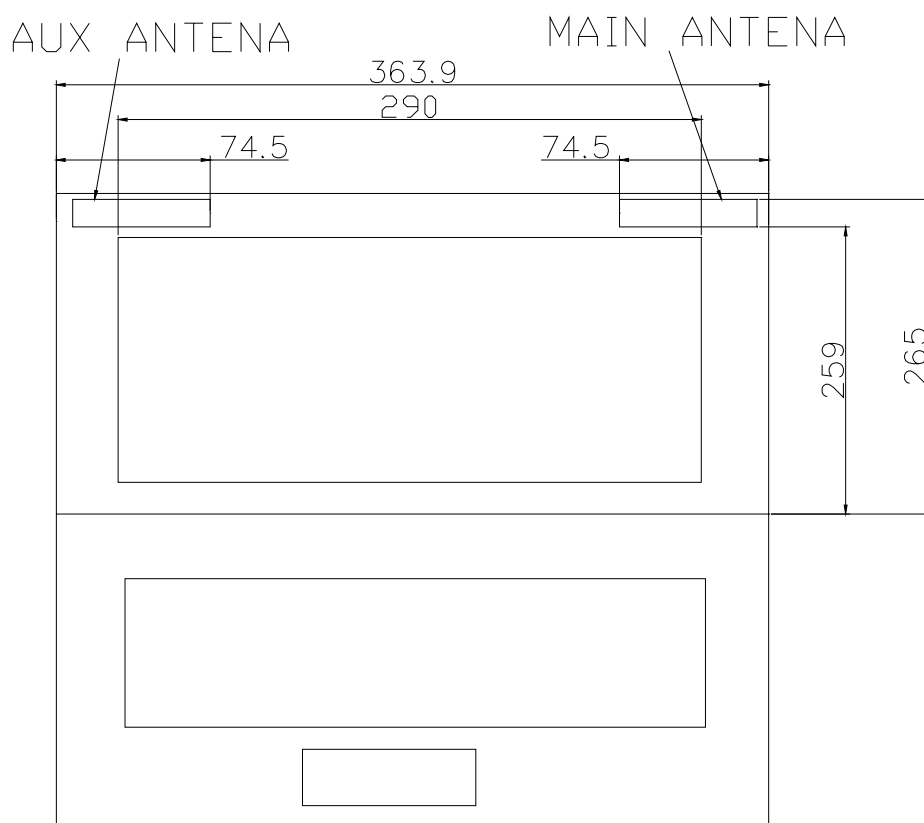
OEM / ODM Host platform: (XXXXXXX) platform correlated to antenna data

Rating Label Photo:

Module Location Photo: (if Singapore required)

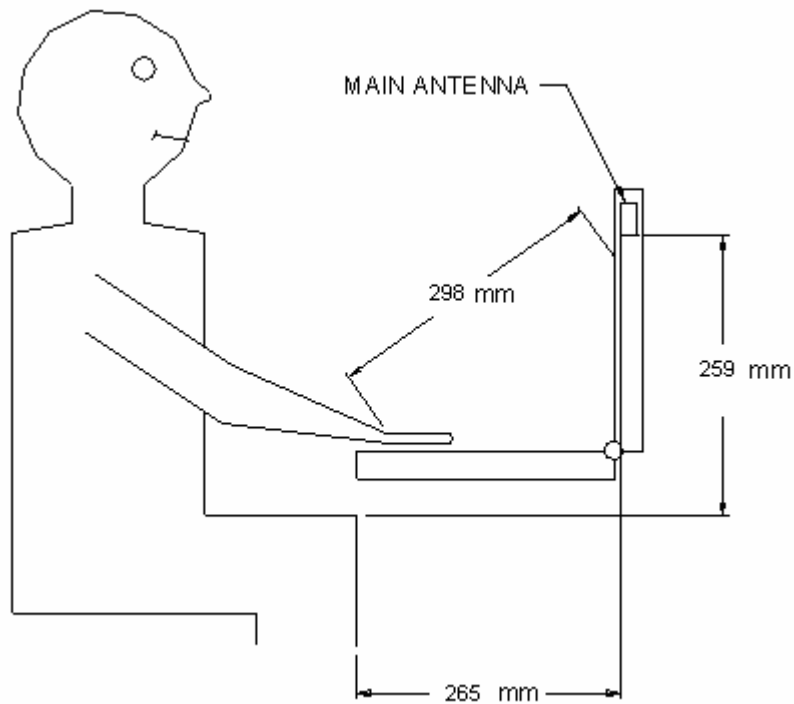
Section 5. Antenna Host Platform Location Information

Include a dimensioned photos or dimensioned drawings of main and auxiliary antenna placements.



Section 6. Antenna dimensional information for SAR evaluation

Include a dimensioned photos or dimensioned drawings showing the distance (mm) between the transmit (main) antenna and the user (excluding hands, wrist, feet, and ankle)



Section 7. Diagram Example of Co-Location Antenna Separation

Indicate distance between WLAN module antennas and Bluetooth/other radio antenna element.

(Note: Due to the evolving rules regarding co-location, each platform will need to be reviewed on a case by case basis)

