

APPROVAL SHEET

Dipole ANTENNA

617~960/1710~2690/3300~4200/5150~7150MHz

Working Frequency

Halogens Free Product

P/N: RFDPA161500SMMB802

Customer : _____
Customer 's Part No. : _____
Approval No. : _____
Issue Date : _____

*Contents in this sheet are subject to change without prior notice.

| Version | Date | Description | Author |
|---------|--------------|-------------|--------|
| V01 | 2019 Feb. | New Release | HWCHAN |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

ELECTRICAL CHARACTERISTICS

| Item | Specification |
|-----------------------|---|
| Frequency Range | 617 ~960 / 1710 ~ 2690 /3300 ~4200 / 5150 ~7150 MHz (note-1) |
| Return Loss | -6.0 dB(Max)(@ 617 ~960 / 1710 ~ 2690 MHz) -6.0 dB(Max)(@ 3300 ~4200 / 5150 ~7150 MHz) |
| VSWR | 3.0 (Max)(@ 617 ~960 / 1710 ~ 2690 MHz) 3.0 (Max)(@ 3300 ~4200 / 5150 ~7150 MHz) |
| Radiation | Omni-directional |
| Gain(peak) | 0.93 dBi(@ 617 ~960 MHz) 2.71 dBi(@1710 ~ 2690 MHz) 3.66 dBi(@ 3300 ~4200 MHz) 4.37 dBi(@5150 ~7150 MHz) |
| Impedance | 50 Ohm Nominal |
| Polarization | Linear Vertical |
| Admitted Power | 1W |
| Operation Temperature | -20°C ~ +65°C |

*note-1: Electrical characteristics will depend on customer's final application.

MATERIAL TABLE

| Items | Description |
|-------------------|----------------------------------|
| Antenna Cover | ABS(Black) |
| Antenna Up Base | ABS (Black) |
| Antenna Down Base | PC (Black) |
| Rivet | POM (Black) |
| PCB | FR4(Single Layer);T=0.8mm(Black) |
| 泡棉單面膠 | EVA+單面 3M9888T |
| Cable | RG178 Cable;Brown |
| Connector | SMA PLUG(Black) |

ORDERING RULE

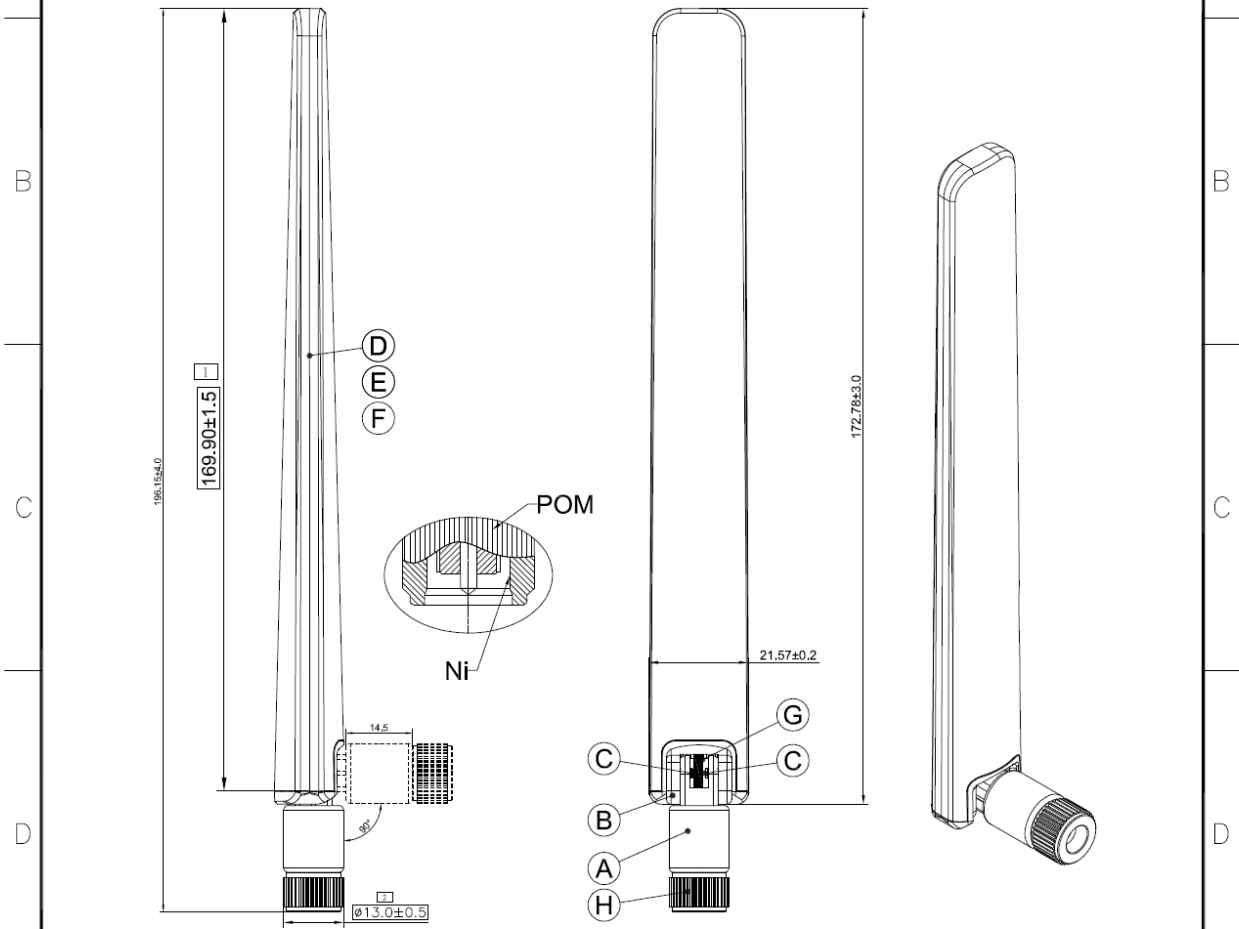
| RF | DPA | 1615 | 00 | S | M | M | B | 8 | 0 |
|------------------|---------------------|--|---|--|---|--|---|---|---------------------------|
| Type Code | Product Code | Dipole Dimension (Unit: mm) | Cable Length (unit: cm) | Connector Brand | Type of Connector | Application | Project status | Wire Diameter | Project |
| Walsin RF Device | DPA: Dipole Antenna | Per 2 digits of length, width e.g.: 1615 Length 169.9mm, Width 13.0mm | 2 digits for cable length e.g.: Non Cable | A: N C:MCX D:IPEX III E: IPEX IV F: IPEX A13 H: Hirose I: IPEX M: MMCX S: SMA T: TNC U:MURATA N: None | A: Reverse Female B: Reverse Male F: Female M: Male N: None | 0: 0GHz 3: 3GHz 6: 6GHz A: 2.4GHz ISM band B: GSM 900/1800 dual band G: GPS band L: 2.4/5.2/5.8 GHz tri-band M:LTE+Sub 6G +5G N: NFC T: LTE band W: WCDMA band | B: MP T:Dur ing Test X: Pile Run | 0:None 1:∅ 0.81 3:∅ 1.13 6:RG316 7:∅ 1.37 8:RG178 9:∅ 1.37 Low Loss | 01~99 series number |

DIMENSIONS

ELECTRICAL

Frequency:
617~960MHz
1710~2690MHz
3300~4200MHz
5150~7150MHz

| NO | DESCRIPTION | DESCRIPTION : MATL : Color | QTY | REMARK |
|----|--------------------|---------------------------------|-----|--------|
| A | Antenna Down Base | PC;Black | 1 | |
| B | Antenna Up Base | ABS;Black | 1 | |
| C | Rivet | POM;Black | 2 | |
| D | Antenna Cover | ABS;Black | 1 | |
| E | PCB(PCAI116-1A) | FR4(Single Layer);T=0.8mm;Black | 1 | |
| F | Sponge+Double Tape | EVA+3M9888T;Black | 1 | |
| G | Cable | RG178 Cable;Brown | 1 | |
| H | Connector | SMA Plug;Black | 1 | |

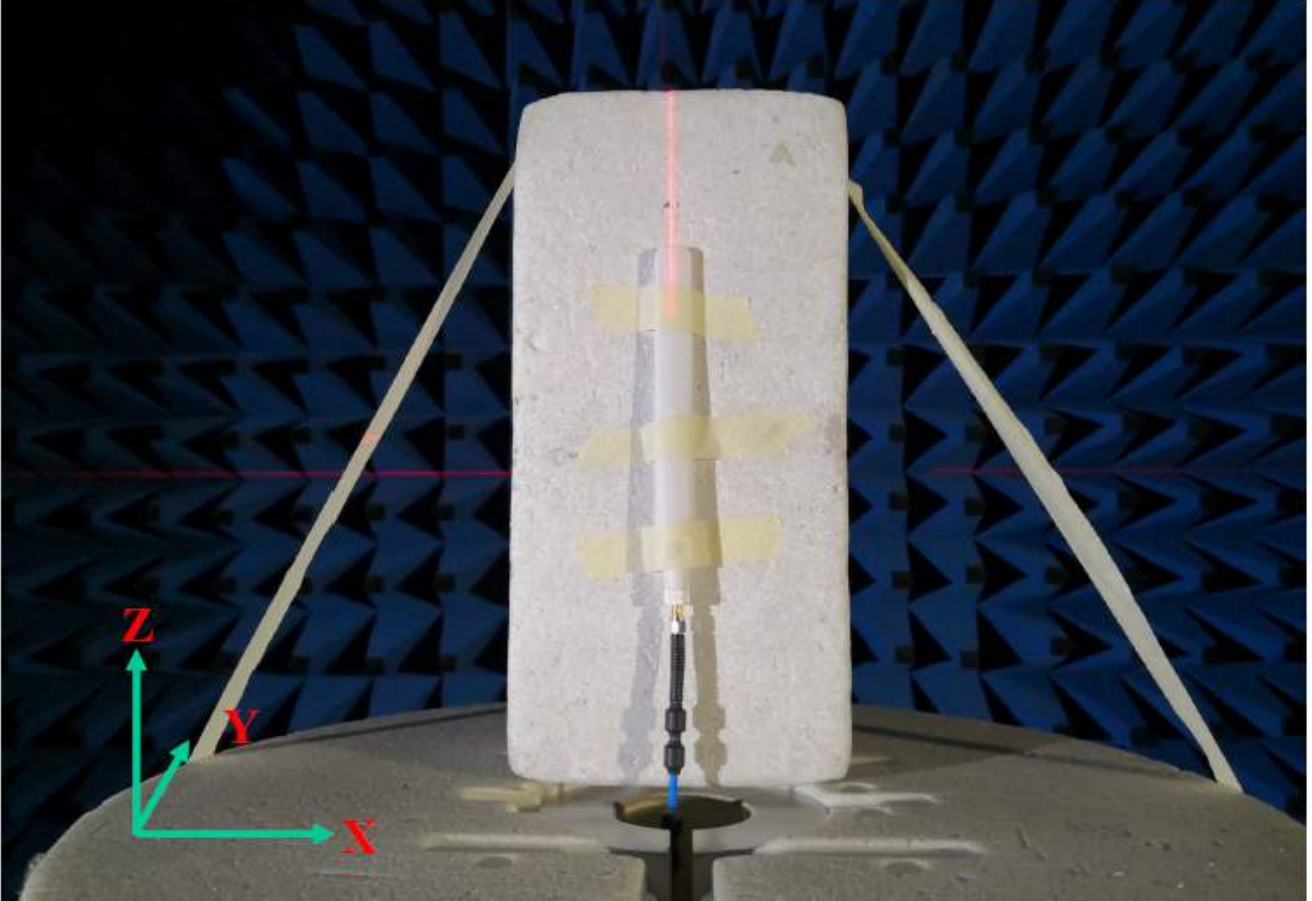


※標記□記號者, 為重點檢驗尺寸

| | | | | | |
|--------------------------|--|--------------------|--|----------|--|
| 設計 DR. HWCHAN 2018.12.21 | | 品名 | | 版本 REV. | |
| 核准 APP. Marco | | ARTICLE | | A | |
| 容許公差 TOLERANCE | | RFDPA161500SMMB802 | | | |
| 6以下.....±0.2 | | 單位 UNIT | | 比例 SCALE | |
| 6以上~30.....±0.5 | | mm | | **** | |
| 30以上~120.....±0.8 | | 張數 SHEET | | 1 | |
| 120以上~315.....±1.2 | | 圖號 | | ☉ | |
| 315以上~1000.....±2.0 | | | | | |
| 1000以上~2000.....±3.0 | | | | | |

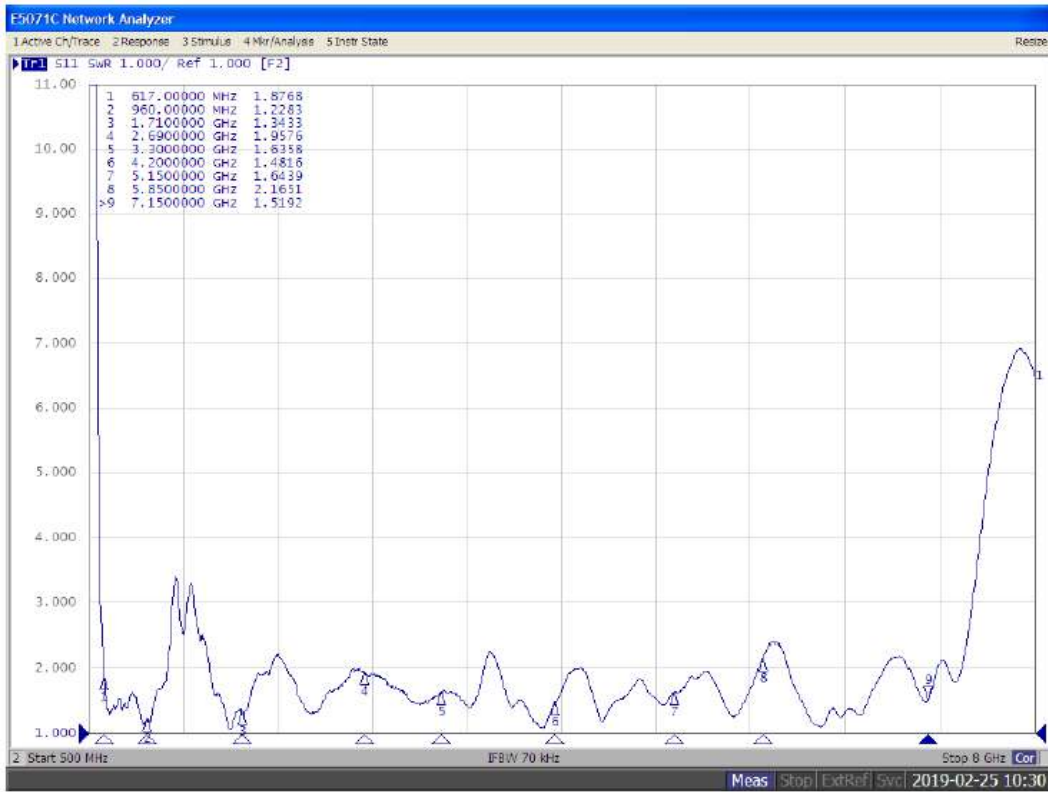
Test Report

EXPERIMENTAL SETUP

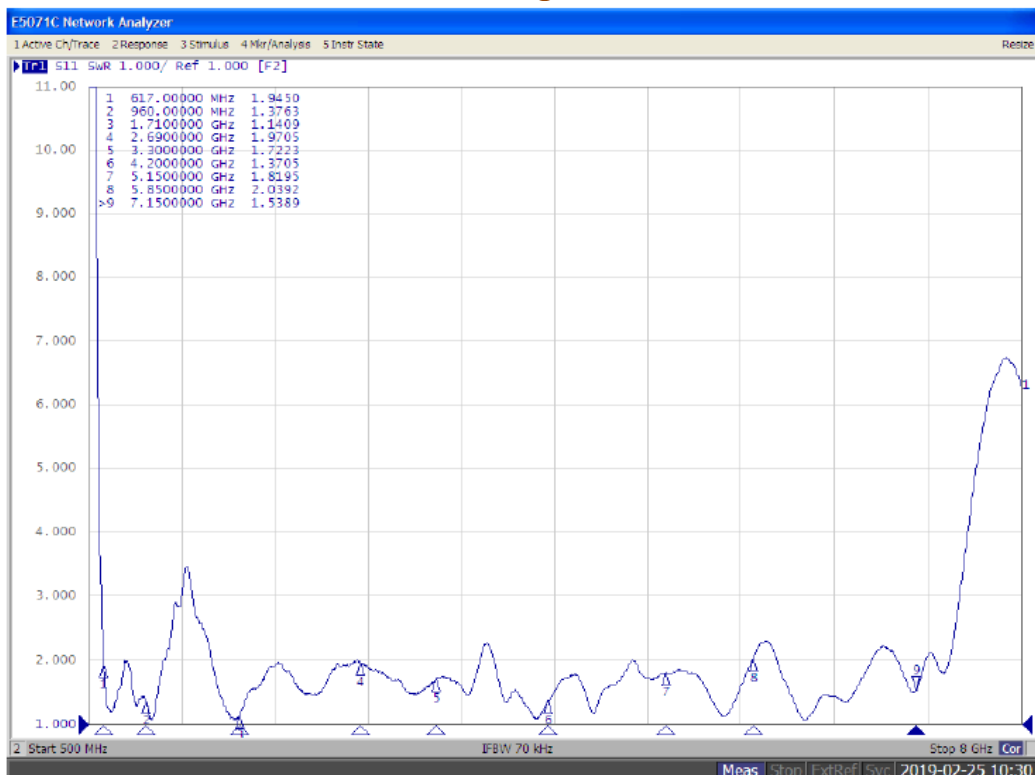


ELECTRICAL CHARACTERISTICS

VSWR 0 Degree

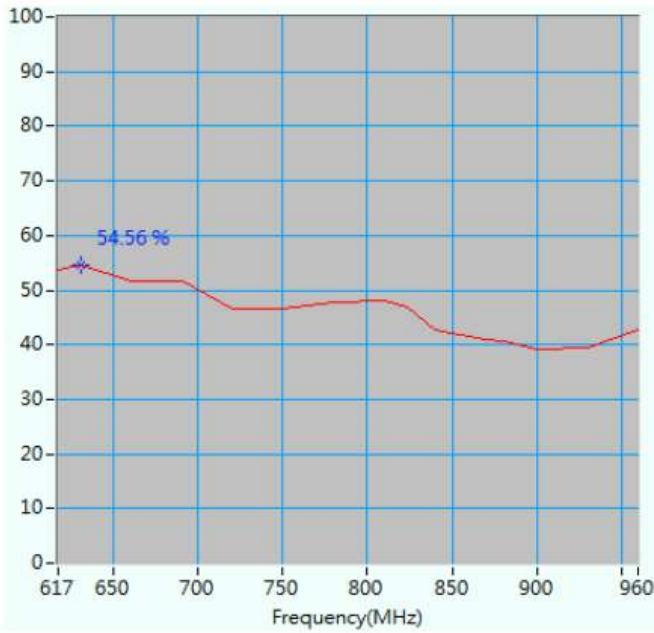


90 Degree

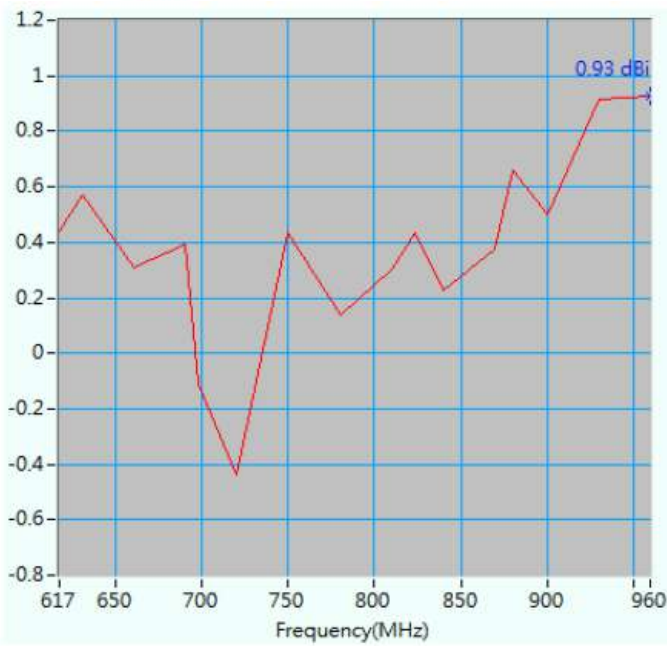


■ Antenna Efficiency and Peak Gain

617~960MHz

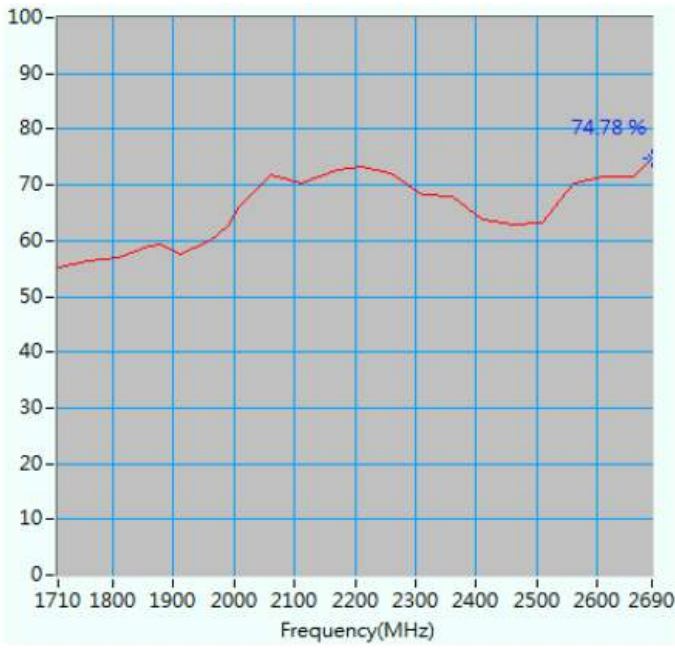


Maximum Efficiency at 630 MHz : 54.5 %

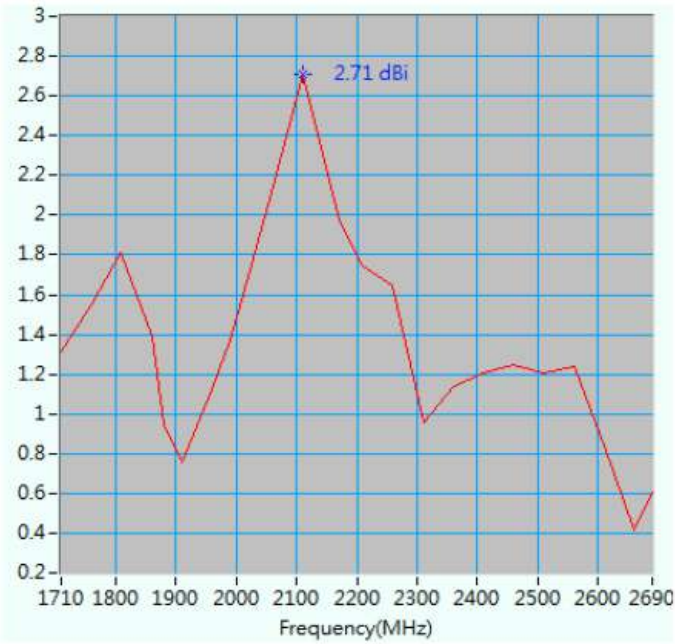


Maximum Peak Gain at 960 MHz : 0.93 dBi

1710~2690MHz

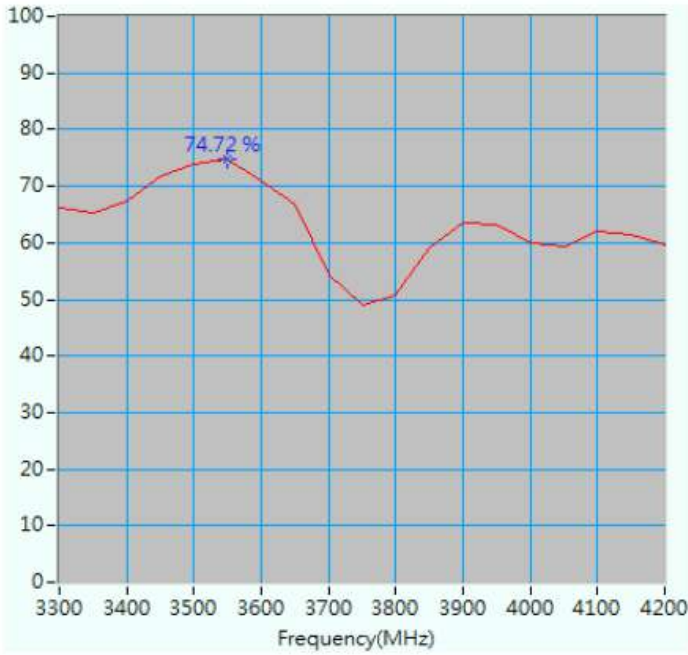


Maximum Efficiency at 2690 MHz : 74.7 %

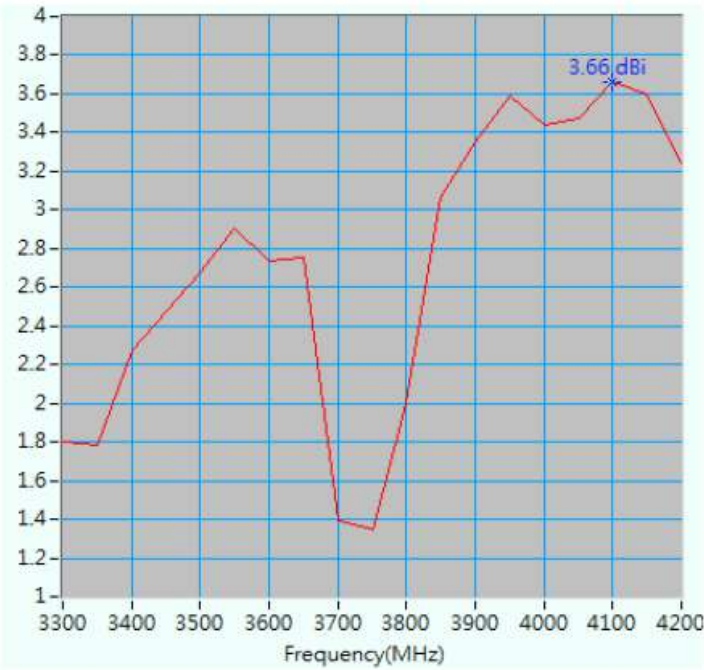


Maximum Peak Gain at 2110 MHz : 2.71 dBi

3300~4200MHz

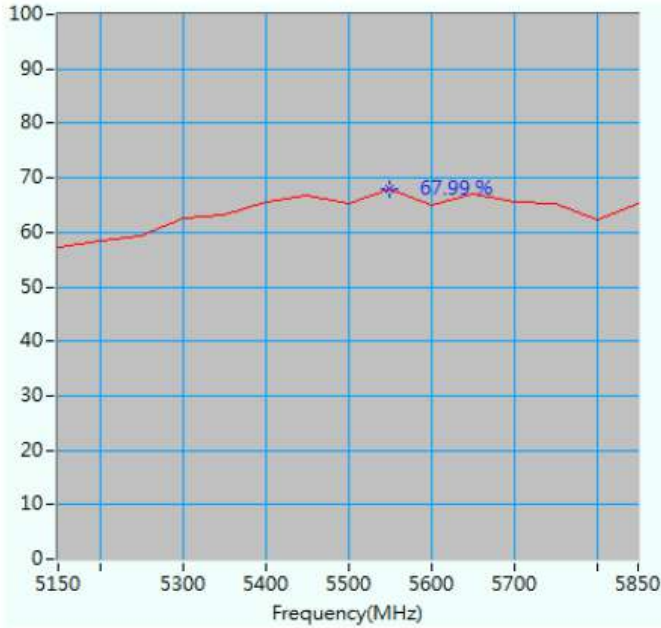


Maximum Efficiency at 3550 MHz : 74.7 %

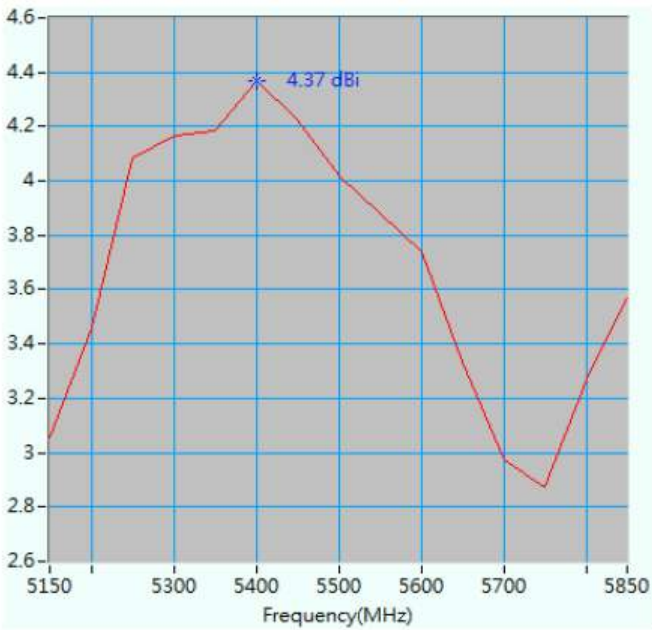


Maximum Peak Gain at 4100 MHz : 3.66 dBi

5150~7150MHz



Maximum Efficiency at 5550 MHz : 67.9 %



Maximum Peak Gain at 5400 MHz : 4.37 dBi

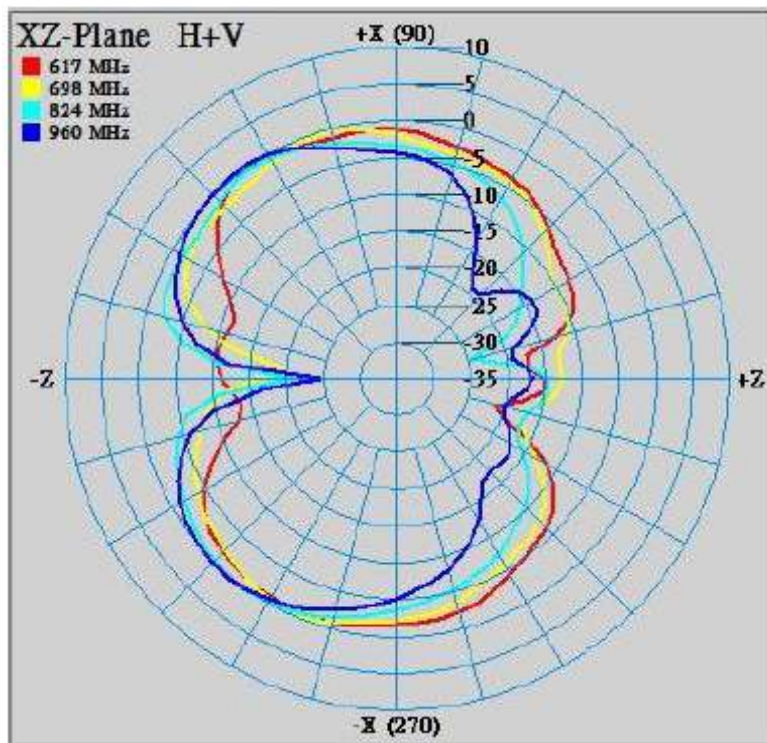
RADIATION PATTERN

617~960MHz

X-Z Plane

Phi=0.00deg

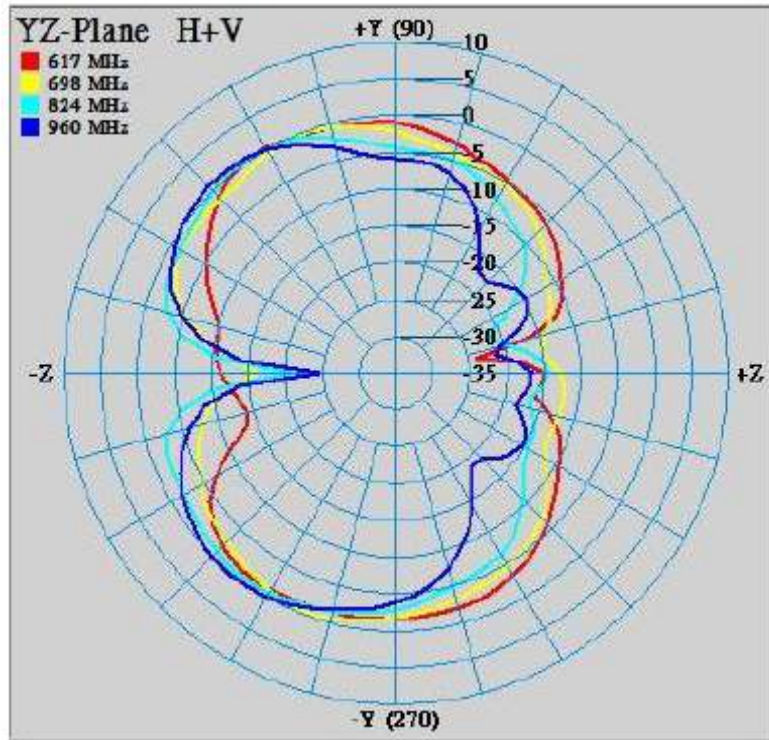
Gain . dB



Y-Z Plane

Phi=90.00deg

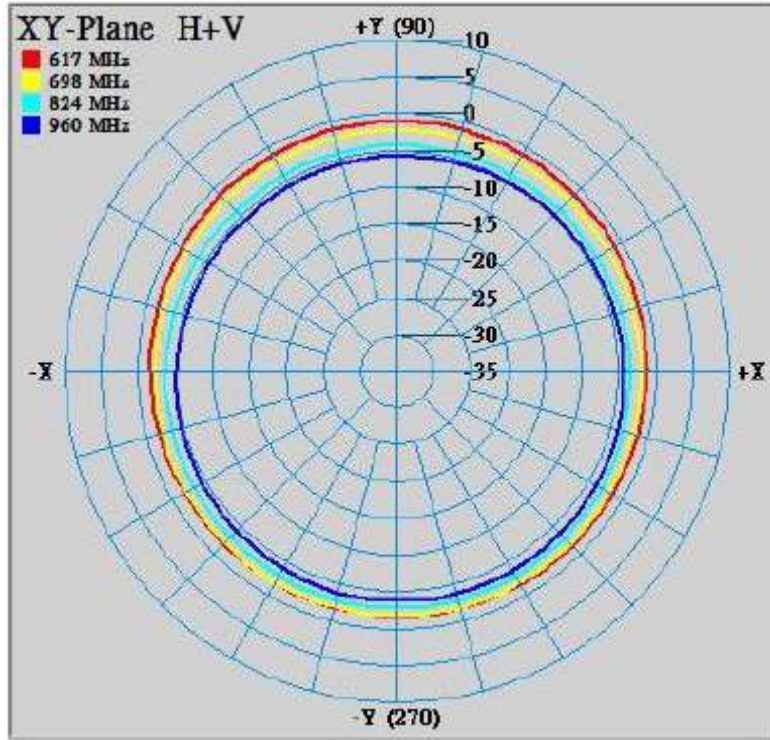
Gain . dB



X-Y Plane

Theta=90.00deg

Gain . dB



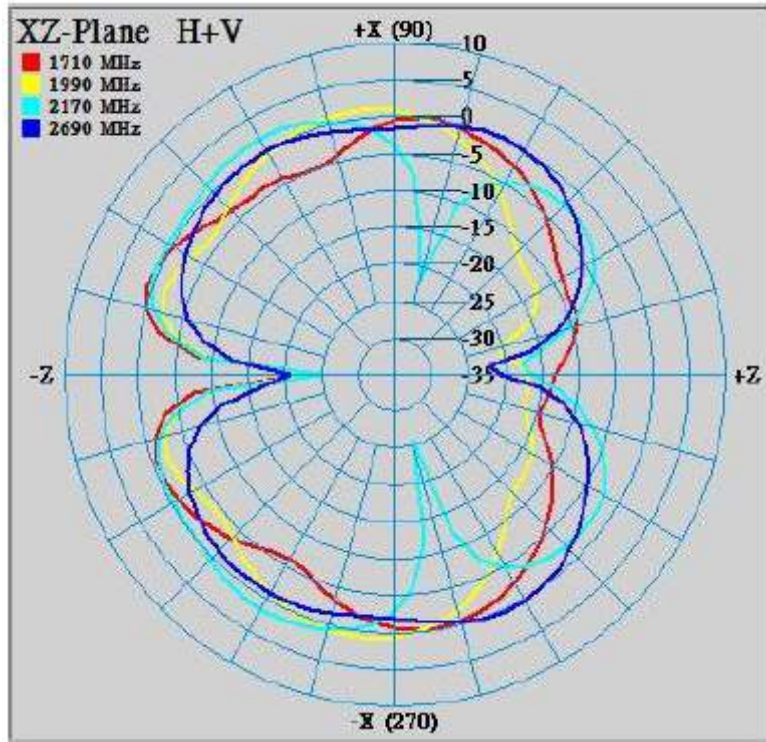
| Frequency [MHz] | ZX plane | | ZY plane | | XY plane | |
|-----------------|----------------|--------------|----------------|--------------|----------------|--------------|
| | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] |
| 617 | 0.03 | -3.93 | 0.32 | -3.85 | -0.94 | -1.36 |
| 698 | -0.15 | -4.03 | -0.12 | -3.90 | -1.77 | -2.03 |
| 824 | 0.22 | -4.02 | 0.38 | -3.92 | -2.81 | -3.52 |
| 960 | 0.58 | -4.41 | 0.93 | -4.28 | -3.73 | -4.66 |

1710~2690MHz

X-Z Plane

Phi=0.00deg

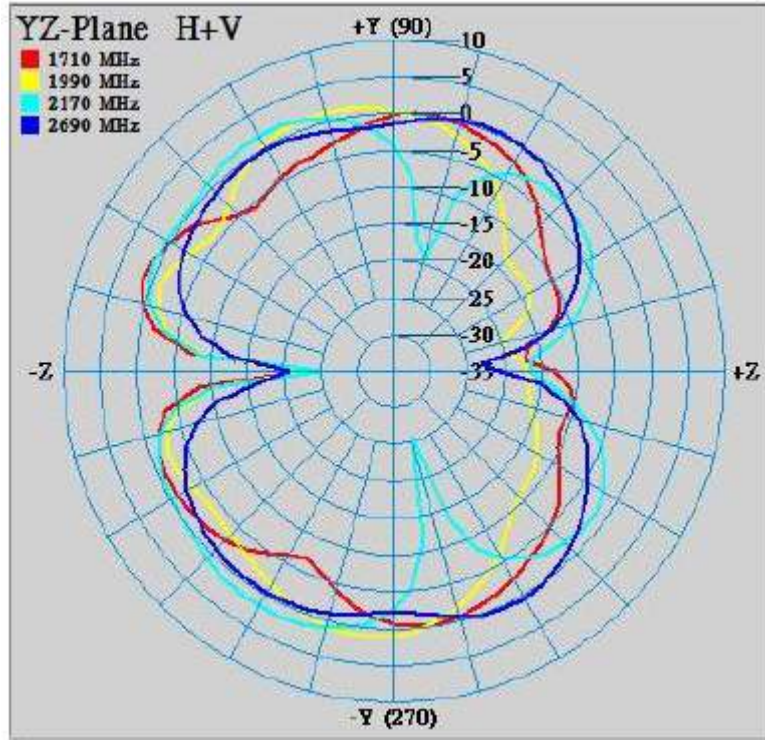
Gain . dB



Y-Z Plane

Phi=90.00deg

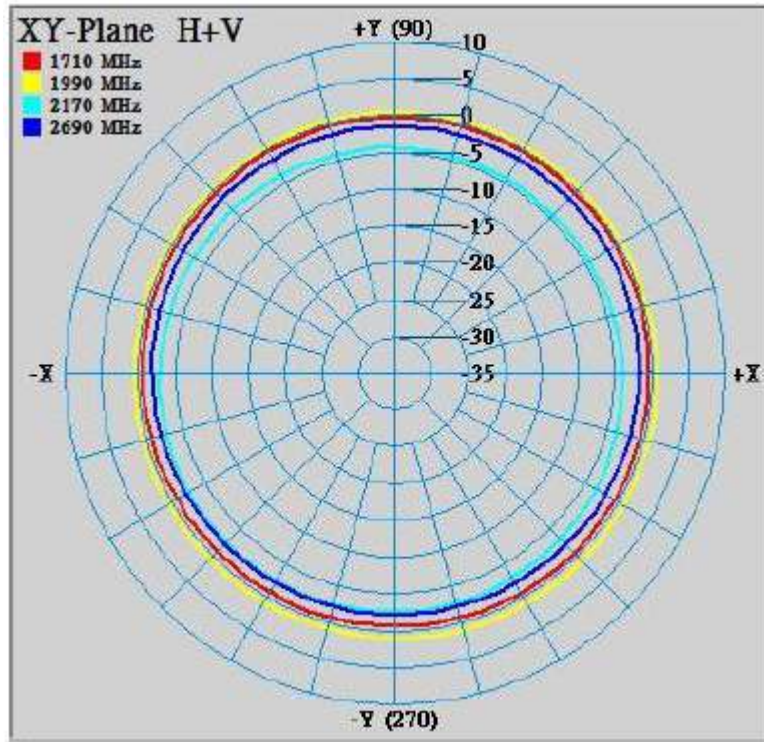
Gain . dB



X-Y Plane

Theta=90.00deg

Gain . dB



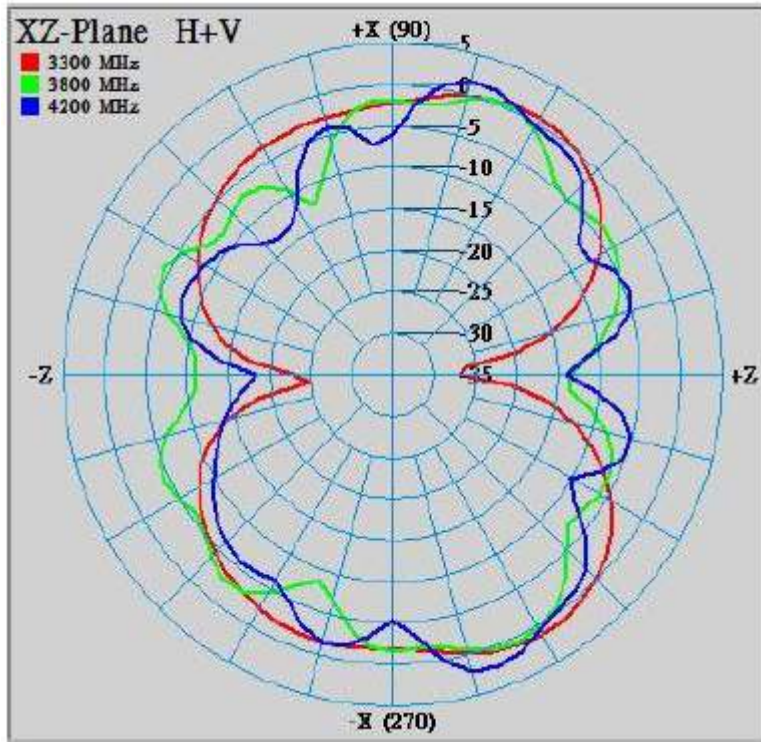
| Frequency [MHz] | ZX plane | | ZY plane | | XY plane | |
|-----------------|----------------|--------------|----------------|--------------|----------------|--------------|
| | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] |
| 1710 | 0.75 | -3.17 | 1.20 | -3.10 | -0.19 | -0.43 |
| 1990 | 1.19 | -3.15 | 1.37 | -3.05 | 1.05 | 0.70 |
| 2170 | 1.96 | -1.86 | 1.92 | -1.82 | -2.45 | -3.39 |
| 2690 | 0.57 | -2.26 | 0.60 | -2.20 | -1.40 | -1.80 |

3300~4200MHz

X-Z Plane

Phi=0.00deg

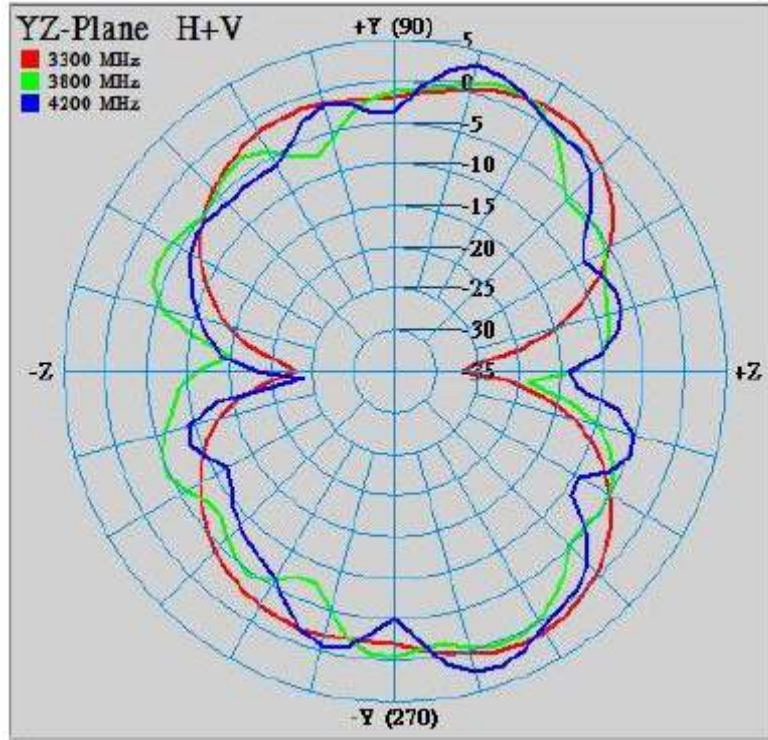
Gain . dB



Y-Z Plane

Phi=90.00deg

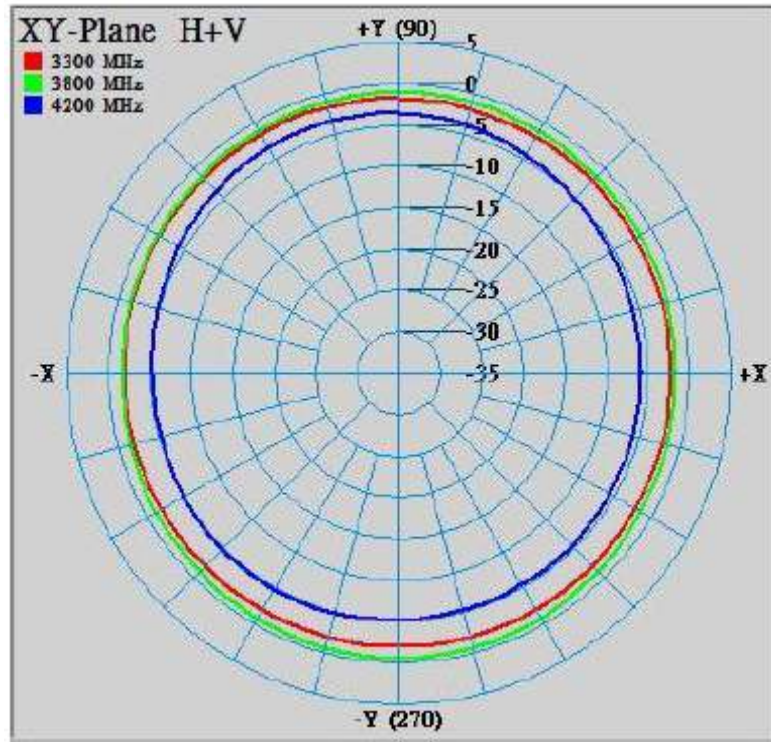
Gain . dB



X-Y Plane

Theta=90.00deg

Gain . dB



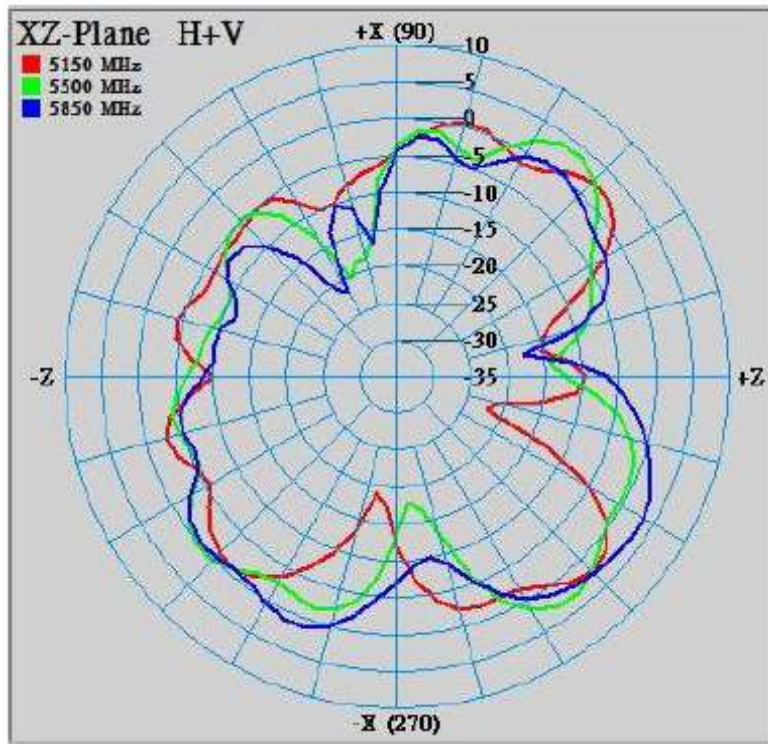
| Frequency [MHz] | ZX plane | | ZY plane | | XY plane | |
|-----------------|----------------|--------------|----------------|--------------|----------------|--------------|
| | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] |
| 3300 | 1.23 | -3.20 | 1.75 | -2.75 | -1.64 | -1.95 |
| 3800 | 0.67 | -4.14 | 1.94 | -3.63 | -0.55 | -1.21 |
| 4200 | 2.51 | -3.81 | 3.18 | -3.04 | -3.40 | -4.86 |

5150~7150MHz

X-Z Plane

Phi=0.00deg

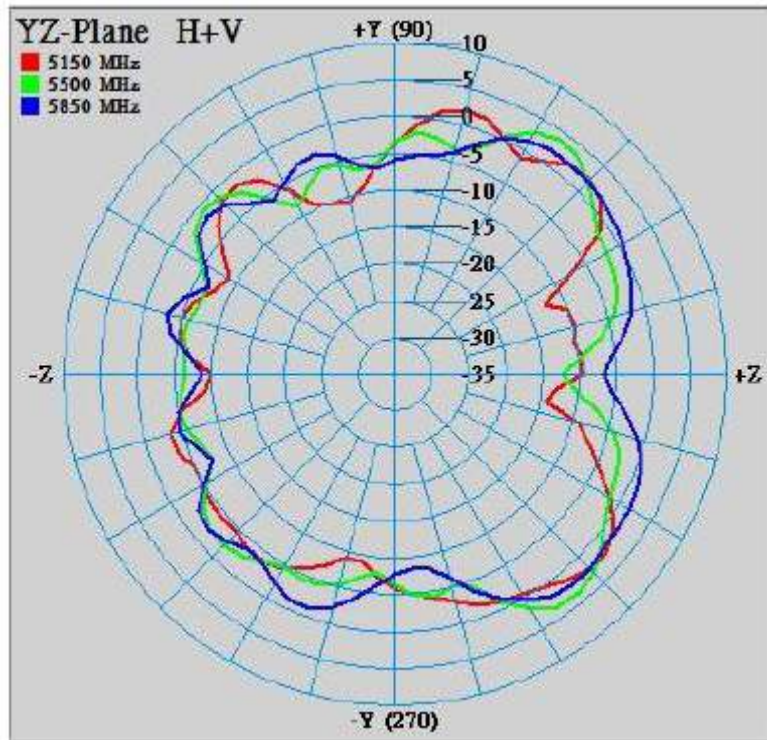
Gain . dB



Y-Z Plane

Phi=90.00deg

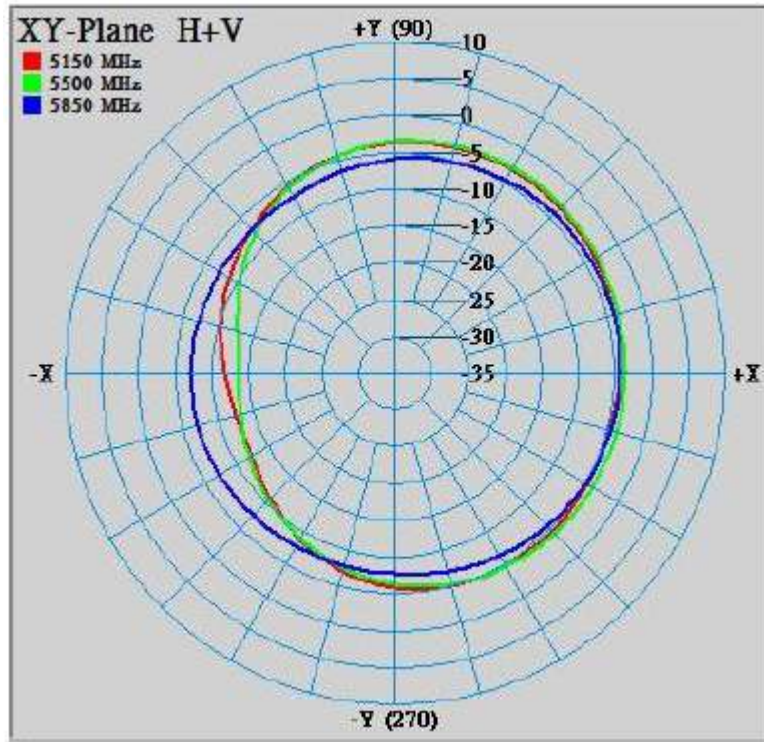
Gain . dB



X-Y Plane

Theta=90.00deg

Gain . dB



| Frequency [MHz] | ZX plane | | ZY plane | | XY plane | |
|-----------------|----------------|--------------|----------------|--------------|----------------|--------------|
| | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] |
| 5150 | 2.64 | -3.19 | 2.62 | -2.82 | -3.05 | -5.61 |
| 5500 | 3.86 | -2.46 | 4.01 | -2.12 | -2.76 | -5.41 |
| 5850 | 3.52 | -2.25 | 2.42 | -1.82 | -4.14 | -6.04 |