

# SPEIFICATION

**PRODUCT NAME : FMM800W  
BUILT-IN ANTENNA**

Rev      3.0

Feb, 2011  
Nissei Limited

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| Rev. | Date       | Contents/Purpose |
|------|------------|------------------|
| 3.0  | 02/01/2011 | First Issue      |
|      |            |                  |

# 1. Product Overview

Product Name FMM800W  
This is intended to be attached to ABS resin box.  
The frequency range is adjusted for ABS resin box.

## Electrical & Physical Properties

|                             | Contents                                                 |          | Remarks                               |
|-----------------------------|----------------------------------------------------------|----------|---------------------------------------|
| Product Name                | FMM800W                                                  | FMM800WA | -                                     |
| Antenna Type                | Dipole, $\lambda$ / 2                                    |          | -                                     |
| Outside Dimensions          | 78mm×20mm×0.4tmm<br>(H×W×T)                              |          | -                                     |
| Weight                      | around 1g                                                |          | -                                     |
| Frequency range<br>(VSWR 3) | 800MHz Band : 830MHz - 885MHz                            |          | -                                     |
|                             | 1700MHz Band : 1750MHz - 1880MHz                         |          |                                       |
|                             | 2000MHz Band : 1940MHz - 2150MHz                         |          |                                       |
| Inpedance                   | 50Ω                                                      |          | -                                     |
| Polarization                | Vertical                                                 |          |                                       |
| Radiation Pattern           | Omnidirectional                                          |          |                                       |
| Maximum Gain                | 1.06dBi                                                  |          | 830 - 885MHz                          |
|                             | 2.86dBi                                                  |          | 1750 - 1880MHz                        |
|                             | 2.10dBi                                                  |          | 1940 - 2150MHz                        |
| Maximum Power               | 1W                                                       |          | -                                     |
| Operational Temperaure      | -20 ~ 90                                                 | -20 ~ 80 | -                                     |
| Strage Temperaure           | -20 ~ 90                                                 |          | -                                     |
| Connector                   | U.FL-LP-066                                              |          | HIROSE                                |
| Wire                        | Coaxial Cable : FWS5022                                  |          | KURABE INDUSTRIAL                     |
|                             | OD : 1.13mm                                              |          | Attenuation                           |
|                             | Cable Length : 100mm                                     |          | 2.0(dB/m)/1.0GHz,<br>2.9(dB/m)/2.0GHz |
| Antenna Material            | Board material: FR-4 ,Board thickness: 0.3mm             |          | -                                     |
|                             | Copper thickness: 18μm/18μm                              |          |                                       |
| Adhesive Transfer Tape      | 467MP                                                    |          | 3M                                    |
| RoHS Compliant              | Yes                                                      |          | -                                     |
| Packing                     | each pc in a small bag; each 100 small bags in a big bag |          | -                                     |

Measuring condition: The above data is measured at the Product attached on ABS resin board.

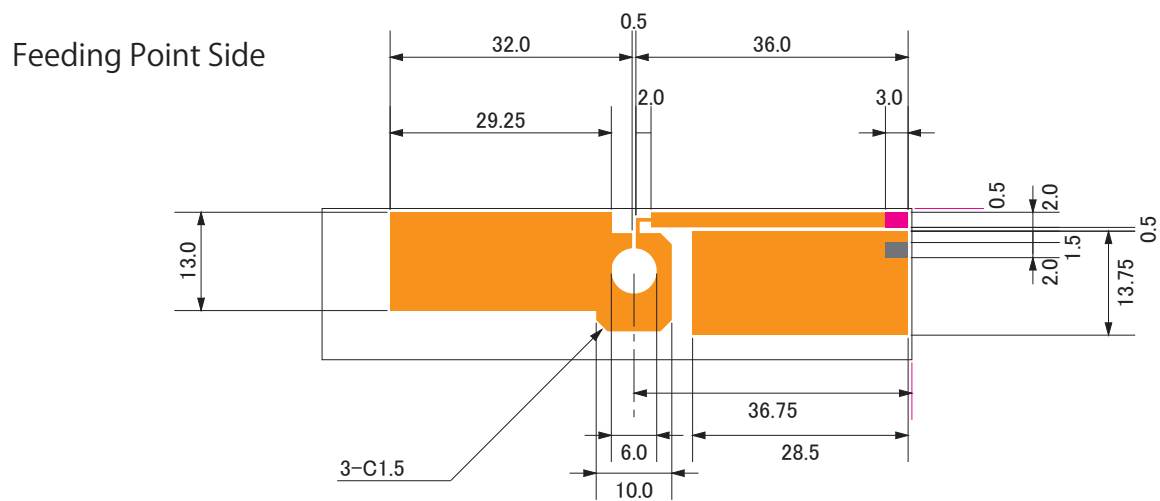
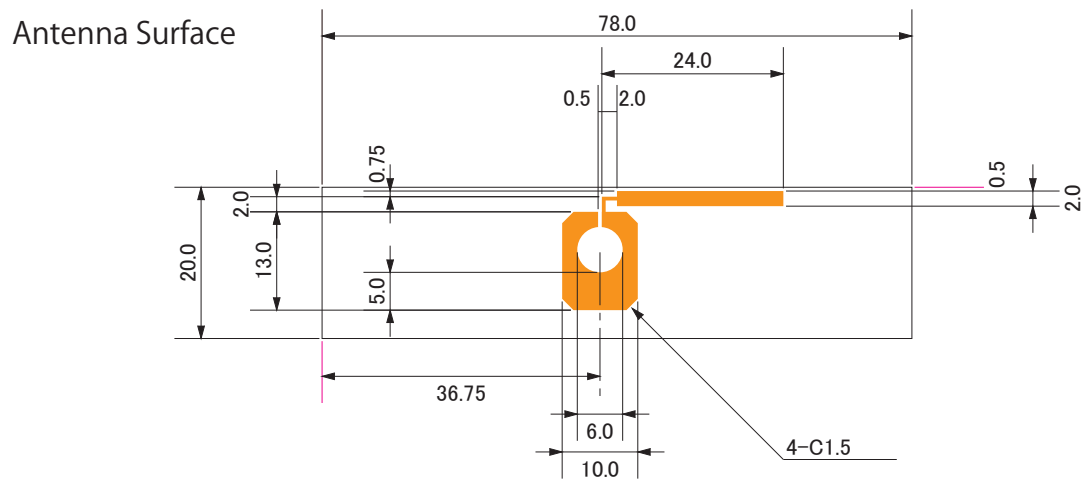
Manufacturer Faverights, Inc.

Warranty period 1 year after delivery

Product life cycle 7 years after delivery

## 2. Configuration

## 2.1 Details of the antenna pattern

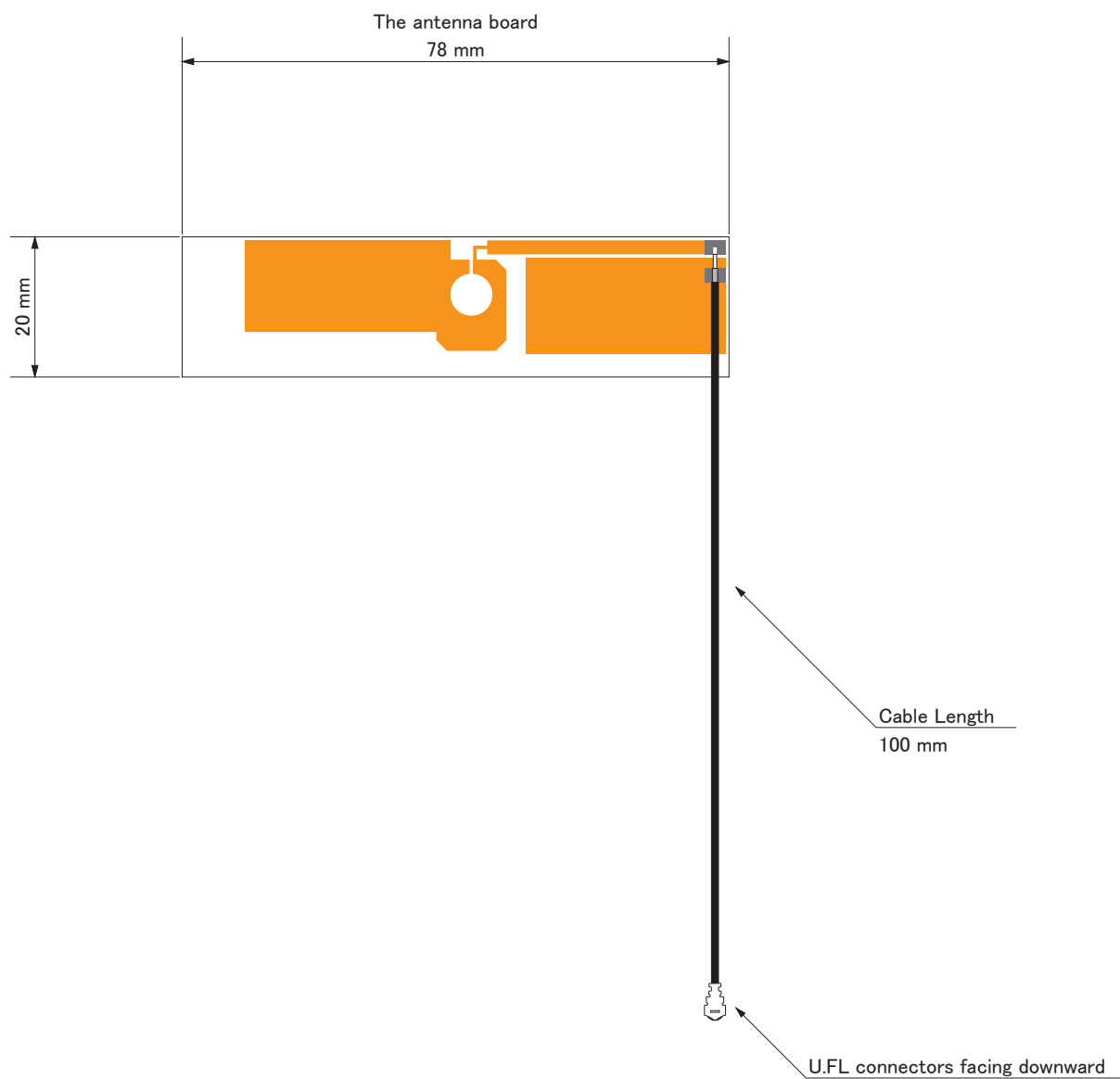


Feeding Point

■ Signal Line

■ GND

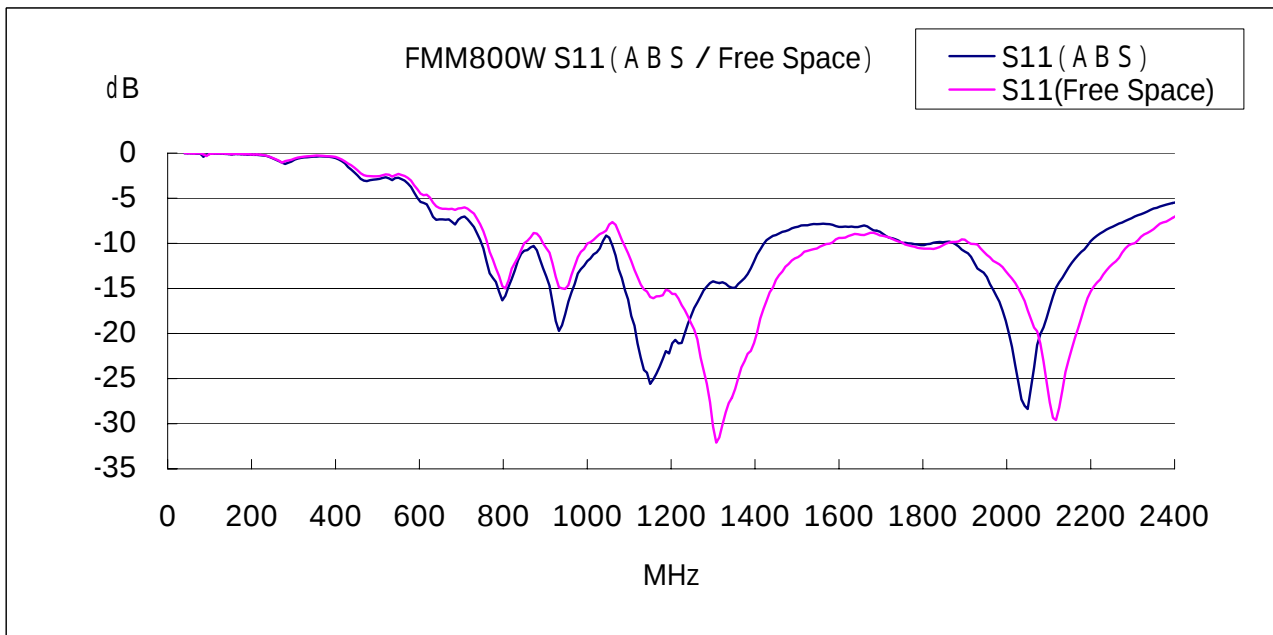
## 2.2 Dimensions of the antenna



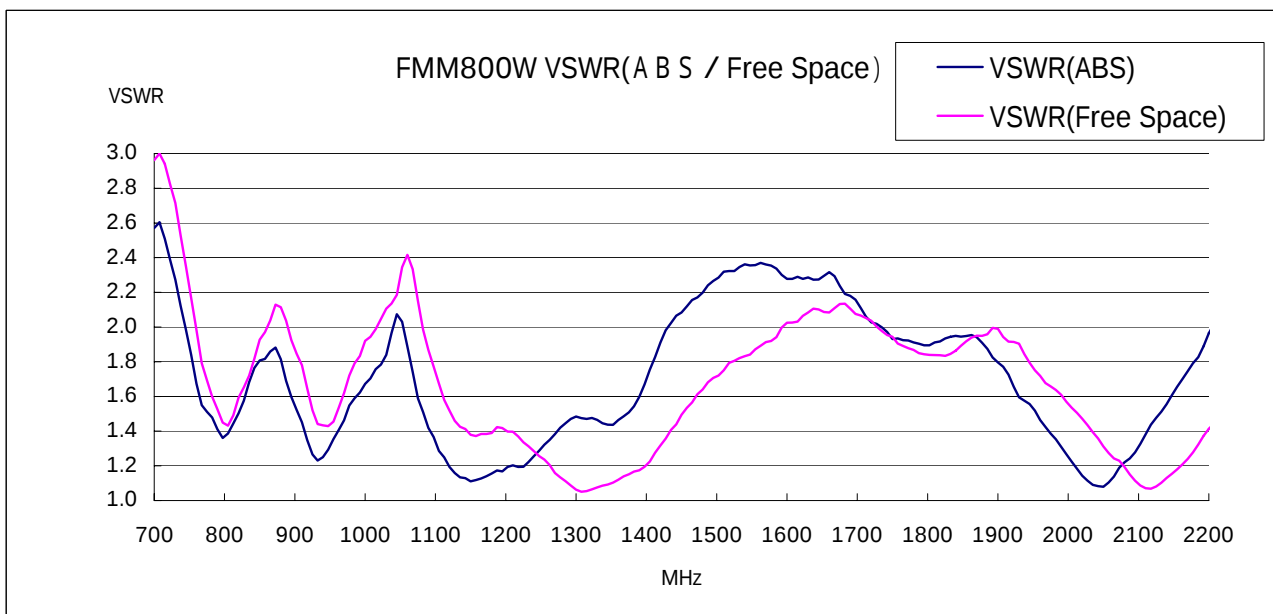
### 3 Electrical Properties

#### 3.1 S11 and VSWR

S11: Comparison between "Attached to the ABS resin" and "In Free-Space"

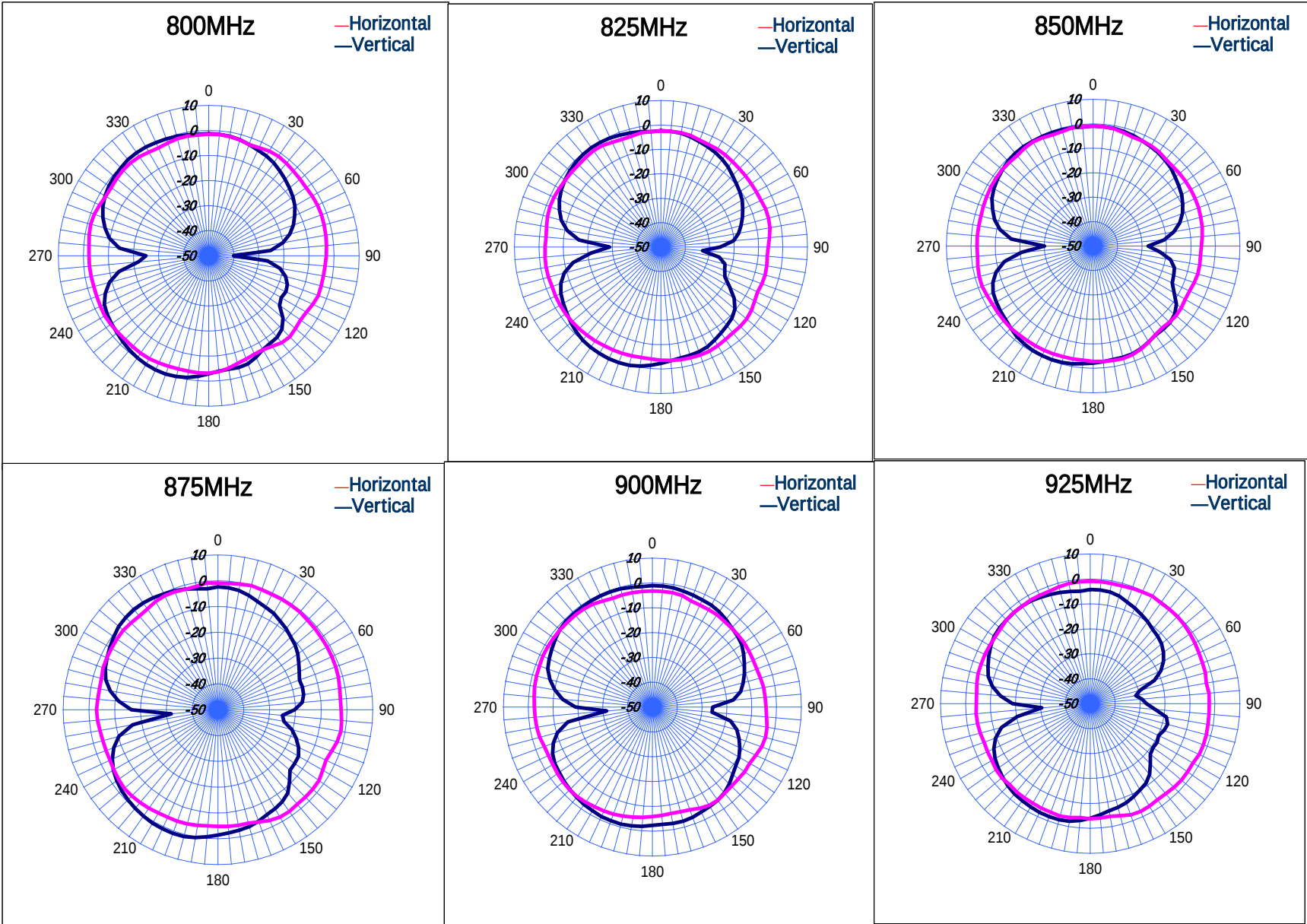


VSWR: Comparison between "Attached to the ABS resin" and "In Free-Space"

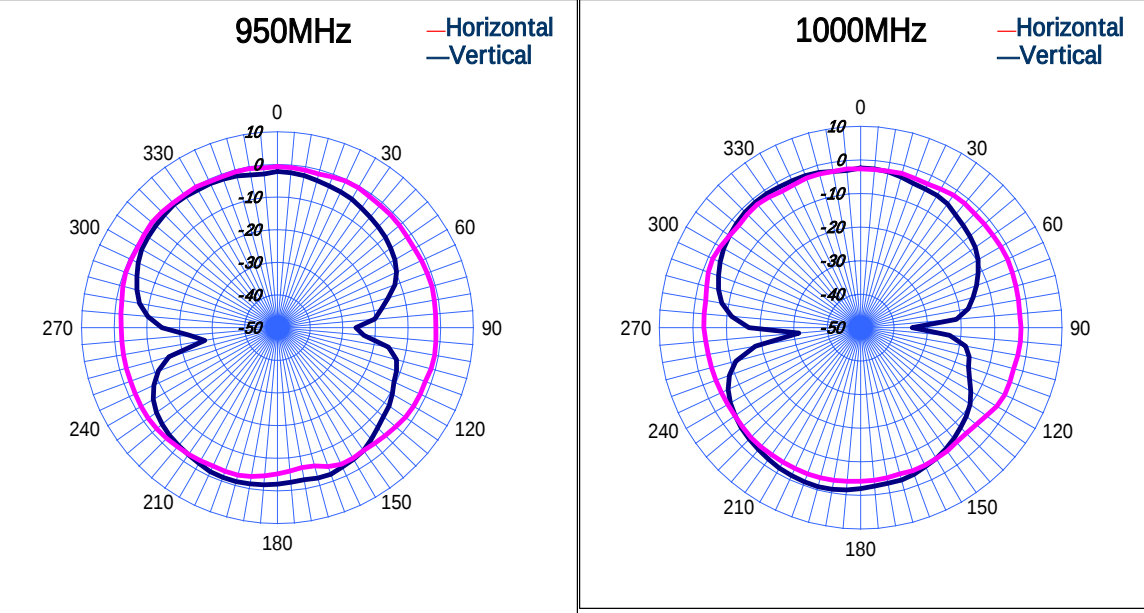


3.2 Gain and Radiation Pattern

800MHz Band,

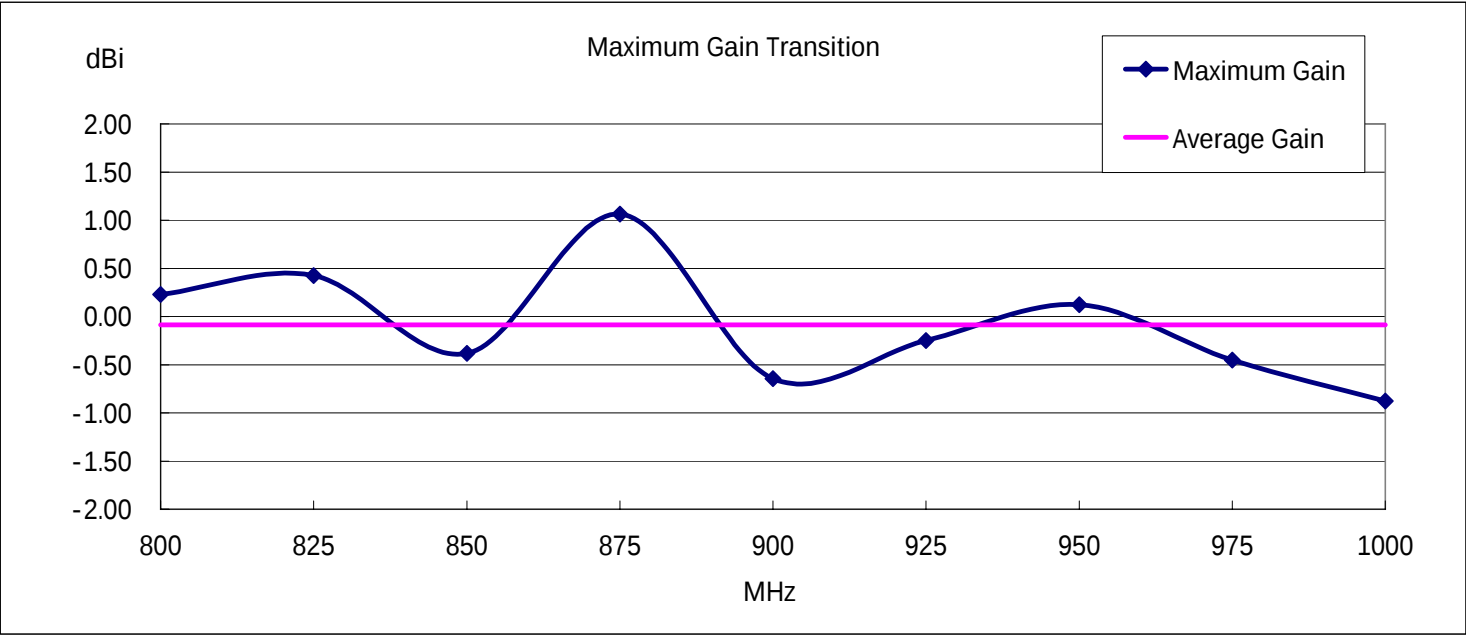


800MHz Band,



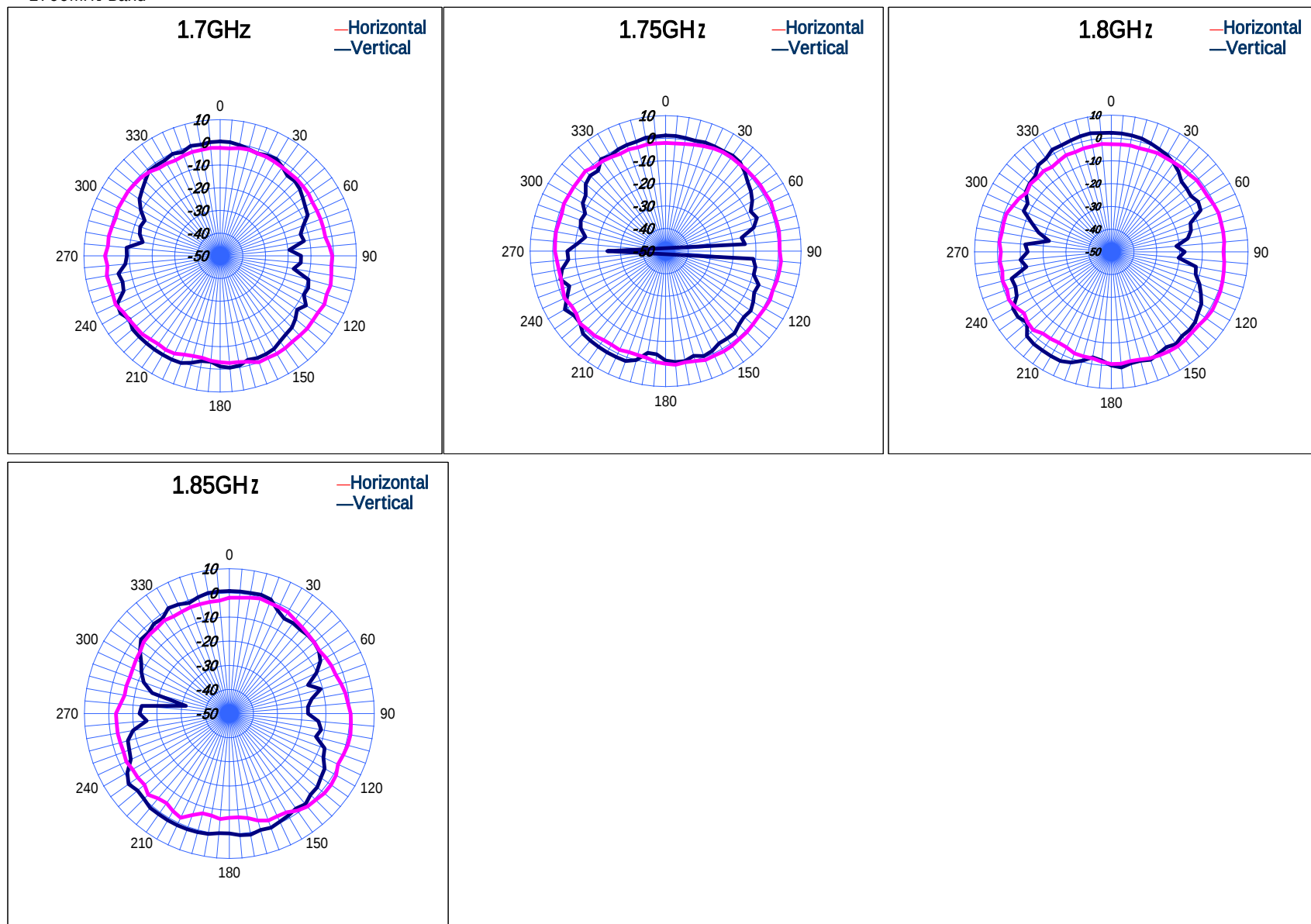
Maximum Gain Transition: 800MHz Band

| Frequency (MHz) | Maximum Gain | Average Gain |
|-----------------|--------------|--------------|
| 800             | 0.23         | -0.085       |
| 825             | 0.42         | -0.085       |
| 850             | -0.38        | -0.085       |
| 875             | 1.06         | -0.085       |
| 900             | -0.64        | -0.085       |
| 925             | -0.25        | -0.085       |
| 950             | 0.12         | -0.085       |
| 975             | -0.45        | -0.085       |
| 1000            | -0.88        | -0.085       |



Measuring condition: The above data is measured at the Product attached on ABS resin board; T=2mm.

1700MHz Band

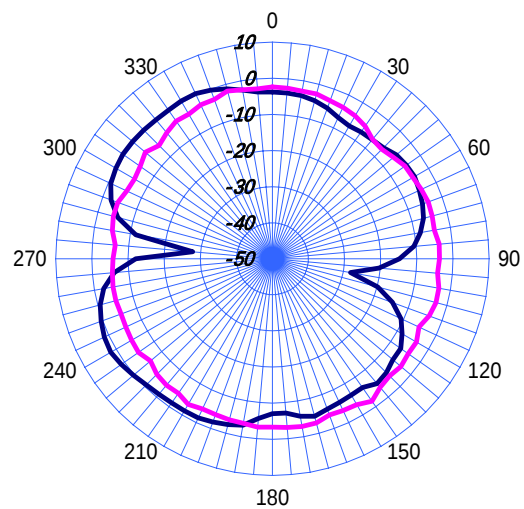


Measuring condition: The above data is measured at the Product attached on ABS resin board; T=2mm.

2000MHz Band

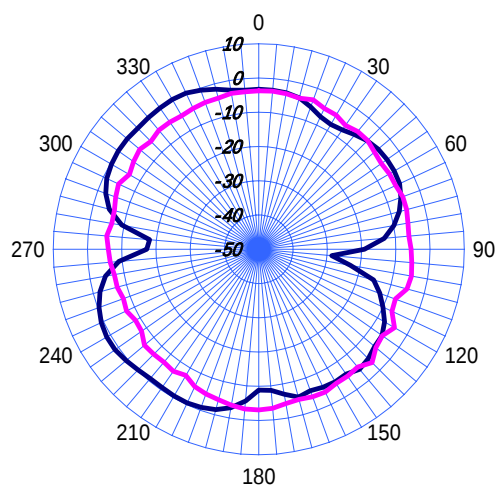
1.90GHz

—Horizontal  
—Vertical



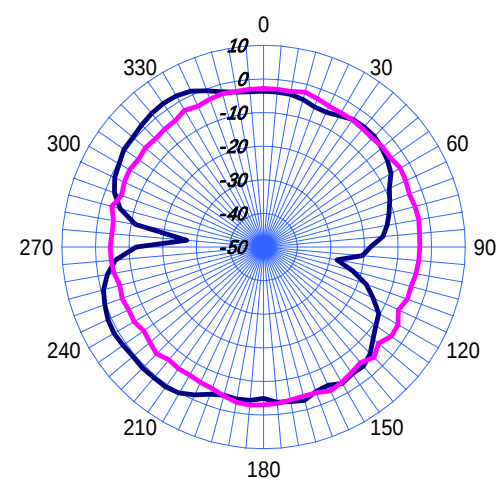
1.95GHz

—Horizontal  
—Vertical



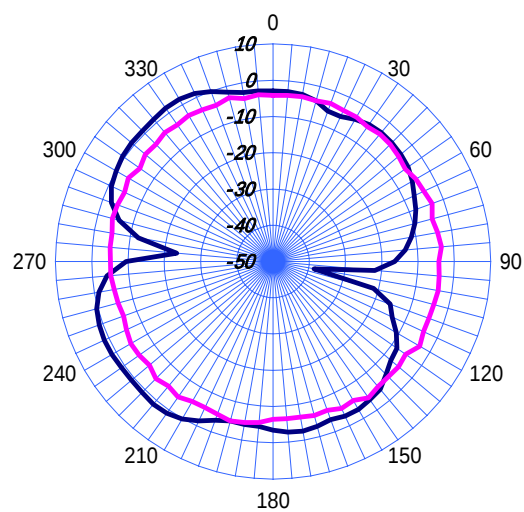
2.00GHz

—Horizontal  
—Vertical



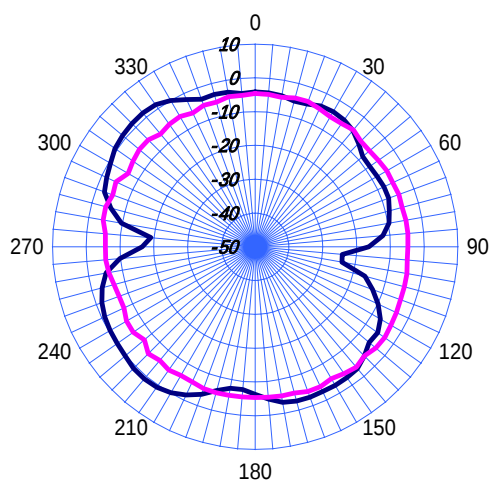
2.05GHz

—Horizontal  
—Vertical



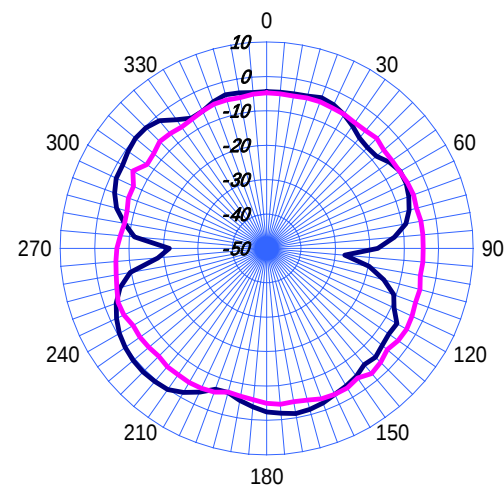
2.10GHz

—Horizontal  
—Vertical



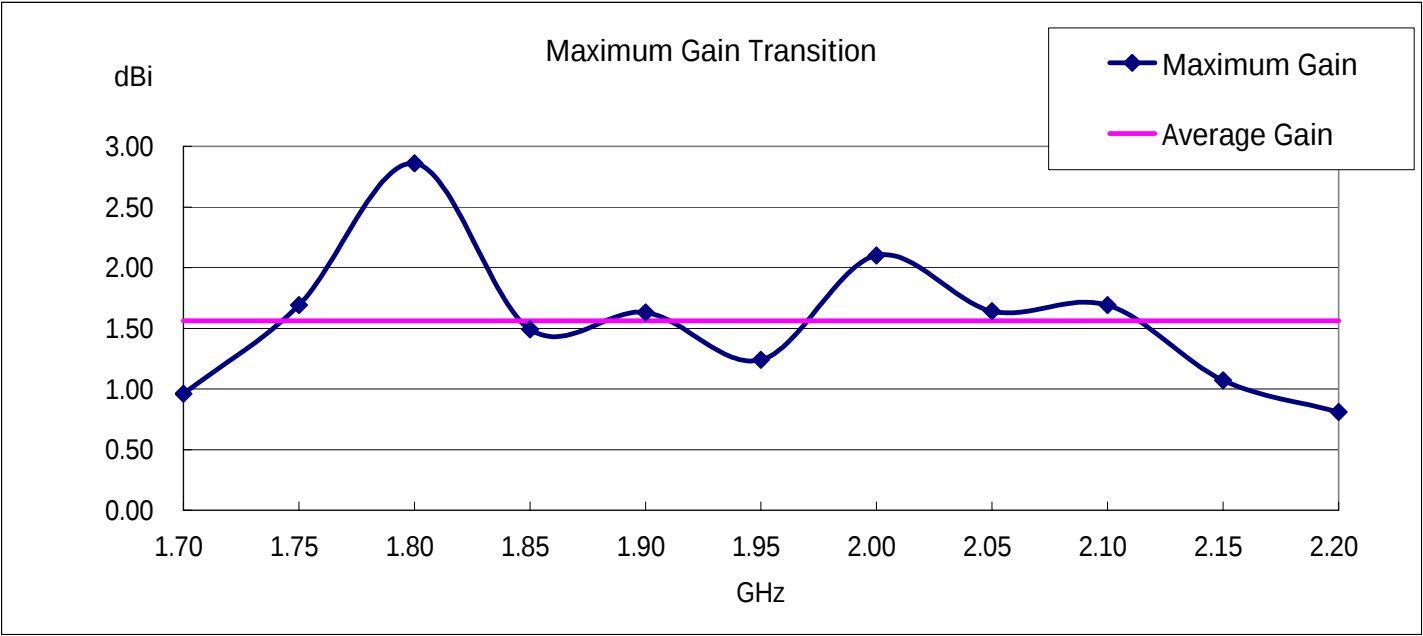
2.20GHz

—Horizontal  
—Vertical



Maximum Gain Transition: 1700MHz Band and 2000MHz Band

| Frequency<br>(MHz) | Maximum<br>Gain | Average<br>Gain |
|--------------------|-----------------|-----------------|
| 1.70               | 0.96            | 1.562           |
| 1.75               | 1.69            | 1.562           |
| 1.80               | 2.86            | 1.562           |
| 1.85               | 1.49            | 1.562           |
| 1.90               | 1.63            | 1.562           |
| 1.95               | 1.24            | 1.562           |
| 2.00               | 2.10            | 1.562           |
| 2.05               | 1.64            | 1.562           |
| 2.10               | 1.69            | 1.562           |
| 2.15               | 1.07            | 1.562           |
| 2.20               | 0.81            | 1.562           |



Measuring condition: The above data is measured at the Product attached on ABS resin board; T=2mm.