



東莞市亨松電子科技有限公司

Dongguan Hengxin Electronic Technology Co., Ltd.

## 承認書

客 戶:

品 名:

2.4G 彈簧天线 (Spring antenna)

料 號:

HX-B1008

客戶料號:

送樣日期:

2025.07.29

| 客戶確認 |     |     | 供應廠商                   |     |
|------|-----|-----|------------------------|-----|
| 工程部  | 品保部 | 採購部 | 核准                     | 送樣人 |
|      |     |     | 趙<br>2025.07.29<br>守 剛 | 龚银明 |

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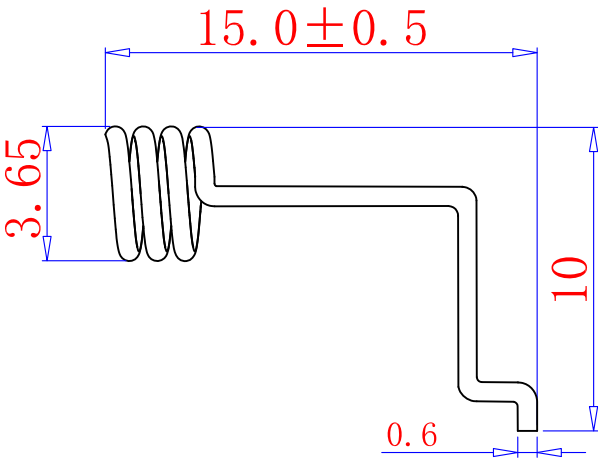
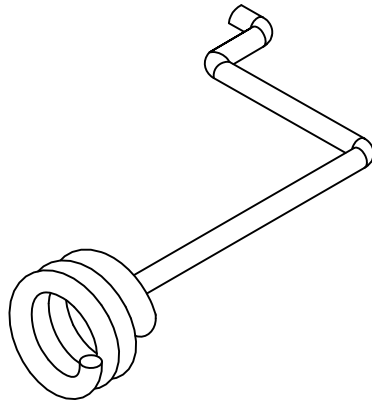
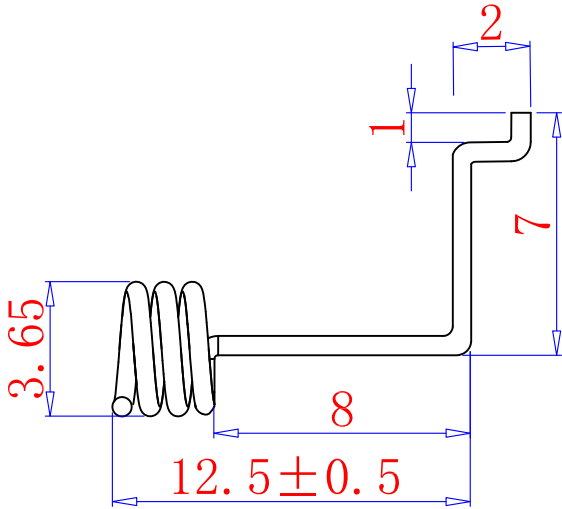
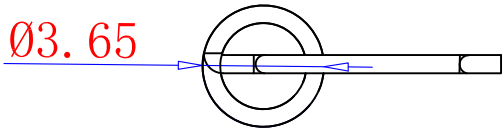
Http://www.nogps.com

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RoHS  
Compatible

| 序号 | 日期 | 原因 | 确认人 |
|----|----|----|-----|
| B  |    |    |     |
| C  |    |    |     |
| D  |    |    |     |



unit : mm

| 弹簧技术要求 |    |        |       |
|--------|----|--------|-------|
| 弹簧材料   | 磷铜 | 直径     | 0.6mm |
| 旋转方向   | /  | 旋转有效圈数 | 3T    |
| 出脚方式   | 单边 | 孔距     | /     |
| 弹簧上部尺寸 |    |        |       |
| 弹簧下部尺寸 |    |        |       |
| 弹簧高度   |    |        |       |

| 东莞市亨松电子科技有限公司       |                       |             |                  |
|---------------------|-----------------------|-------------|------------------|
| PART NAME: 2.4G弹簧天线 |                       |             |                  |
| PART NO.: HX-B1008  |                       |             | DATE: 2025-07-29 |
| APPROVED BY         | CHECKED BY            | DESIGNED BY | Tolerance        |
|                     | 赵<br>2025.07.29<br>守刚 | 卓靖婷         | X.X ±0.50        |
|                     |                       |             | UNITS: mm        |
|                     |                       |             | SCALE: 1/1       |
|                     |                       |             | REVISION: A      |
|                     |                       |             | X.X ±0.15        |
|                     |                       |             | X° ±3°           |

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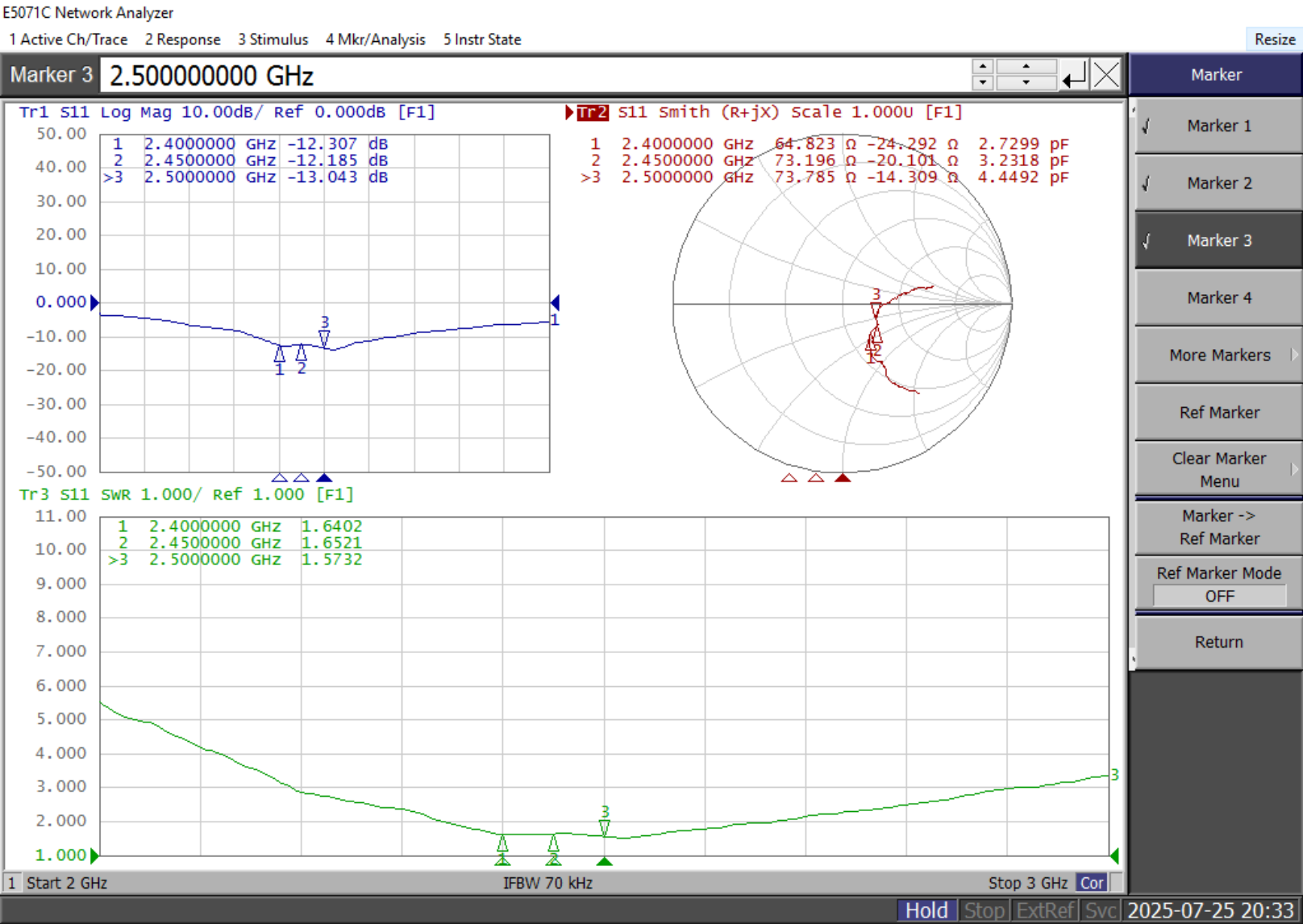
1. Reliability Testing

| Test Item                                | Procedure                                        | Requirement                                                                     |
|------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------|
| 1. Visual inspection and Dimension Check | Applicable methods using x5 magnification        | follow specification                                                            |
| 2. Rapid Changing of Temperature         | -40°C (30minutes) to 80°C (30minutes); 24 cycles | After 2 hours recovery:<br>1. no visible damage<br>2. bandwidth tolerance < ±5% |
| 3. Damp Heat                             | 24 hours at 60°C; 90 ~ 95% RH                    | After 2 hours recovery:<br>1. no visible damage<br>2. bandwidth tolerance < ±5% |
| 4. Endurance                             | 24 hours at 80°C                                 | After 2 hours recovery:<br>1. no visible damage<br>2. bandwidth tolerance < ±5% |
| 5. Connector Pull Strength Test          | >= 1.0 Kg                                        | Hold 2~3S:<br>1. no visible damage<br>2. bandwidth tolerance < ±5%              |

2. Specification

| A. Electrical Characteristics |                   |
|-------------------------------|-------------------|
| S.W.R.( Tested in PC )        | <= 2.0 @ 2.4G     |
| Typical Antenna Gain          | 1.97dBi           |
| Impedance                     | 50 Ohm            |
| B. Material                   |                   |
| Material of Radiator          | CU                |
| Connector Type                | N/A               |
| C. Environmental              |                   |
| Operation Temperature         | - 30 °C ~ + 85 °C |
| Storage Temperature           | - 30 °C ~ + 85 °C |

3. S.W.R. Testing Result



#### 4. Antenna Radiation Pattern

Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

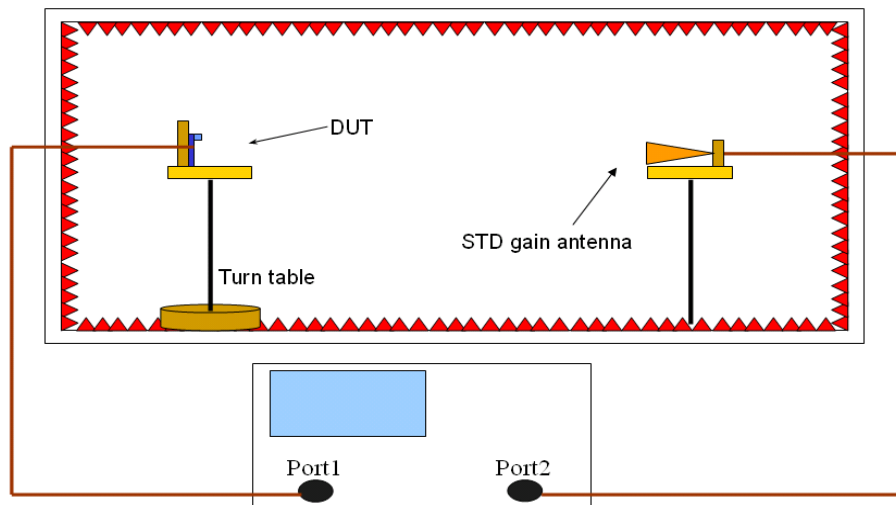
Quiet Zone: 600mm @ 1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

Testing Equipment: Agilent 5071B

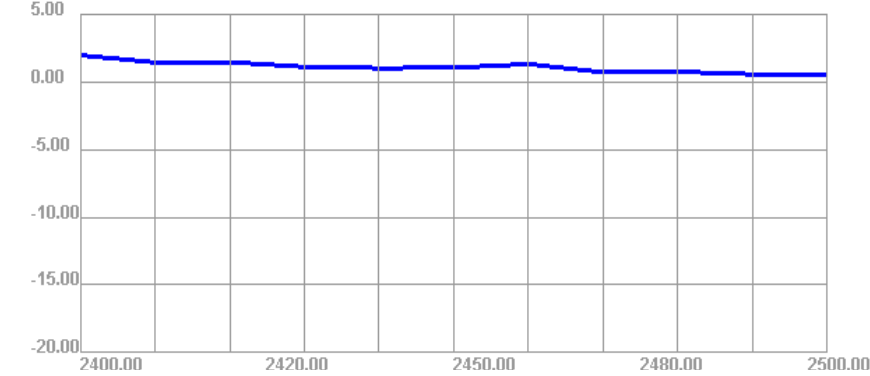
Received Antenna: 0.7 ~ 6.0 GHz for Gain Calibration

Double Ridged Horn Antenna

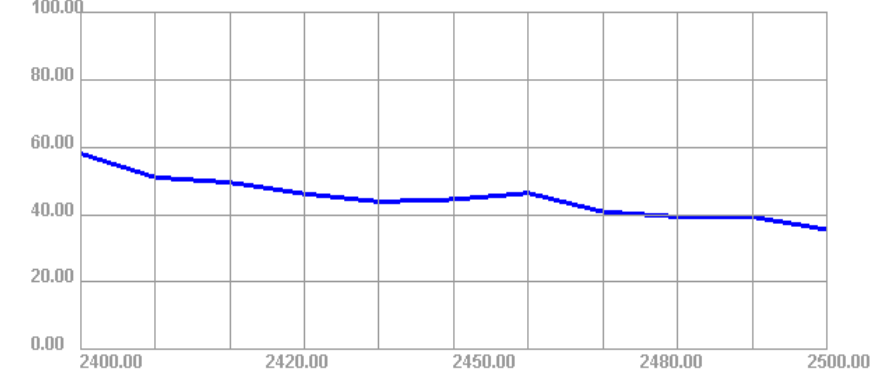


| Passive Test For WIFI-2.4G |          |           |            |            |         |         |          |          |                  |                 |           |           |
|----------------------------|----------|-----------|------------|------------|---------|---------|----------|----------|------------------|-----------------|-----------|-----------|
| Freq (MHz)                 | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | UHS (%) | DHS (%) | Max (dB) | Min (dB) | irectivity (dBi) | Beamwidth (3dB) | AttH (dB) | AttV (dB) |
| 2400                       | 58.14    | -2.36     | 1.97       | -0.18      | 21.985  | 36.153  | 1.97     | -14.07   | 4.33             | 30              | 45.1      | 45.07     |
| 2410                       | 51.05    | -2.92     | 1.43       | -0.72      | 18.952  | 32.094  | 1.43     | -14.62   | 4.35             | 30              | 44.88     | 44.83     |
| 2420                       | 49.53    | -3.05     | 1.46       | -0.69      | 17.903  | 31.632  | 1.46     | -15.64   | 4.51             | 30              | 44.83     | 44.71     |
| 2430                       | 46.19    | -3.35     | 1.11       | -1.04      | 16.291  | 29.894  | 1.11     | -17.75   | 4.47             | 30              | 45.16     | 44.88     |
| 2440                       | 43.85    | -3.58     | 1.02       | -1.13      | 14.97   | 28.879  | 1.02     | -20.12   | 4.6              | 30              | 45.17     | 44.95     |
| 2450                       | 44.52    | -3.51     | 1.05       | -1.1       | 14.746  | 29.773  | 1.05     | -19.21   | 4.56             | 30              | 45.89     | 45.33     |
| 2460                       | 46.39    | -3.34     | 1.32       | -0.83      | 14.837  | 31.55   | 1.32     | -18.38   | 4.65             | 30              | 45.86     | 45.53     |
| 2470                       | 40.85    | -3.89     | 0.71       | -1.44      | 12.534  | 28.316  | 0.71     | -21.74   | 4.6              | 30              | 45.69     | 45.39     |
| 2480                       | 39.39    | -4.05     | 0.75       | -1.4       | 11.59   | 27.8    | 0.75     | -21.58   | 4.8              | 30              | 45.73     | 45.51     |
| 2490                       | 39.32    | -4.05     | 0.57       | -1.58      | 11.059  | 28.259  | 0.57     | -19.63   | 4.62             | 30              | 45.96     | 45.84     |
| 2500                       | 35.58    | -4.49     | 0.58       | -1.57      | 9.659   | 25.916  | 0.58     | -19.94   | 5.07             | 30              | 45.47     | 45.3      |

2400.00MHz - 2500.00MHz Gain

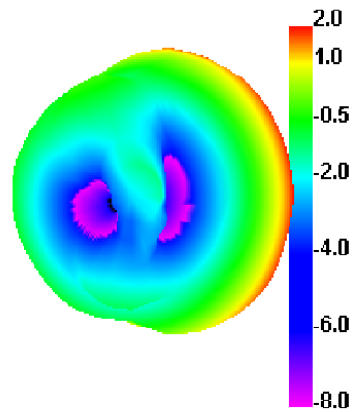


2400.00MHz - 2500.00MHz Efficiency

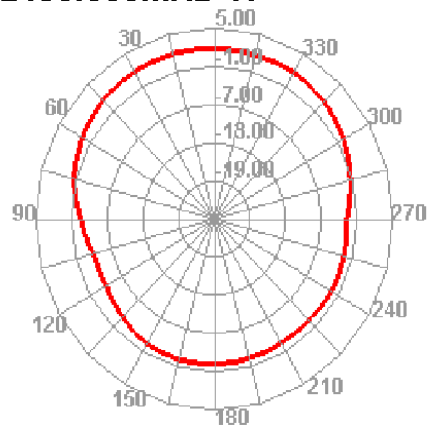


(2400MHZ)最大增益值Gain:1.97dBi

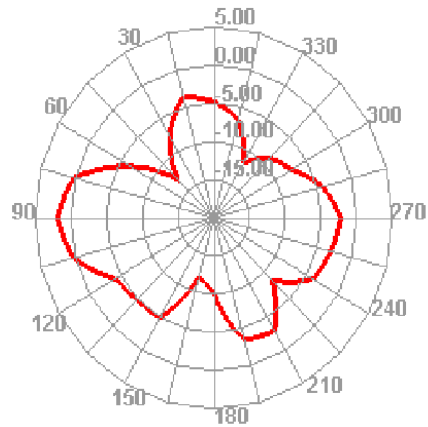
2400.000MHz



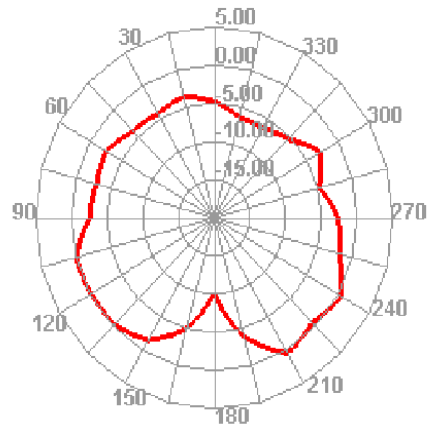
2400.000MHz H



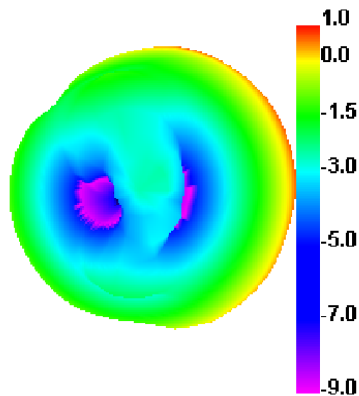
2400.000MHz E1



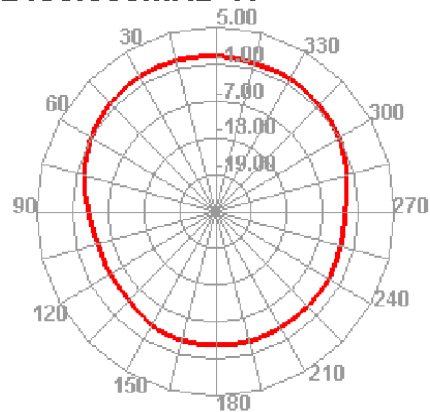
2400.000MHz E2



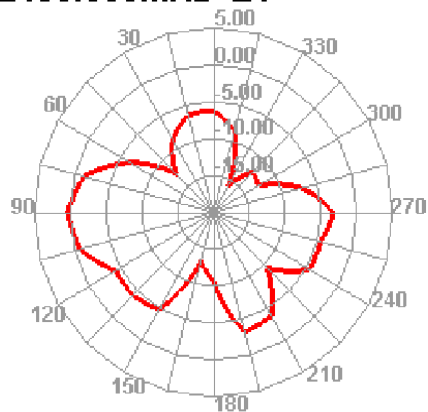
2450.000MHz



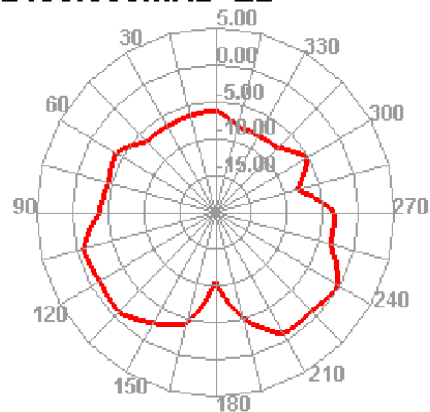
2450.000MHz H



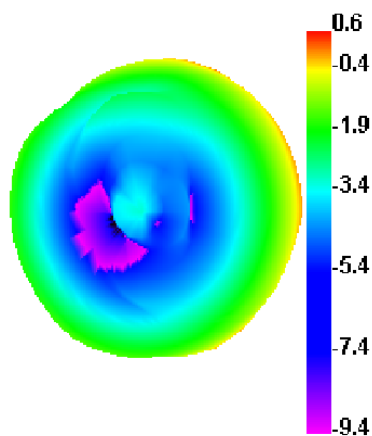
2450.000MHz E1



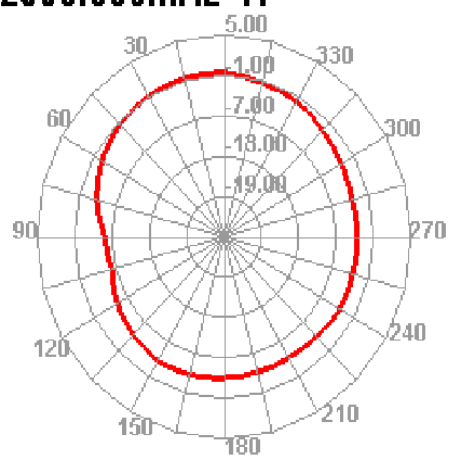
2450.000MHz E2



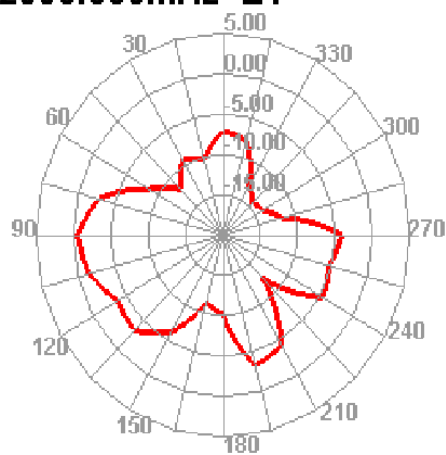
2500.000MHz



2500.000MHz H



2500.000MHz E1



2500.000MHz E2

