

**SPECIFICATION APPROVAL SHEET**

CUSTOMER \_\_\_\_\_

CUS PART NO \_\_\_\_\_

版次:

REV \_\_\_\_\_ X1

SPECIFICATION \_\_\_\_\_  
5.15-5.85GHz  
WIFI Antenna L=160mm(Ø1.13+Tin )

单重:

weight \_\_\_\_\_

SUP PART NO \_\_\_\_\_  
SLEingA200330160-C03

DATE \_\_\_\_\_  
2024.02.01

SUP APPROVED

|                     |         |            |          |
|---------------------|---------|------------|----------|
| APPROVED            | CHECKED | QA CHECKED | DESIGNED |
| Jackson<br>2024.2.1 | Terry   | Lsf        | Terry    |

CUS APPROVED

|          |         |            |          |
|----------|---------|------------|----------|
| APPROVED | CHECKED | QA CHECKED | DESIGNED |
|          |         |            |          |

DONGGUAN SLEing INTEL-TECH CO., LTD

Room 402, No.6 Plant, Accelerator of Modern Enterprise, No, 24 Industry East Road  
Songshanlake District, Dongguan City, Guangdong Province, China.

Tel: +86-076989208968

Fax: +86-0769-89208969

[www.sleing.com](http://www.sleing.com)



DONGGUAN SLEing INTEL-TECH CO.,LTD

变更记录  
MODIFICATION RECORD SHEET

| (REV.) | (Modification date) | Summary of modification content | Signature | Approval |
|--------|---------------------|---------------------------------|-----------|----------|
| X1     | 2024.02.01          | First Issue                     | Jerry     | Jongrei  |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |
|        |                     |                                 |           |          |

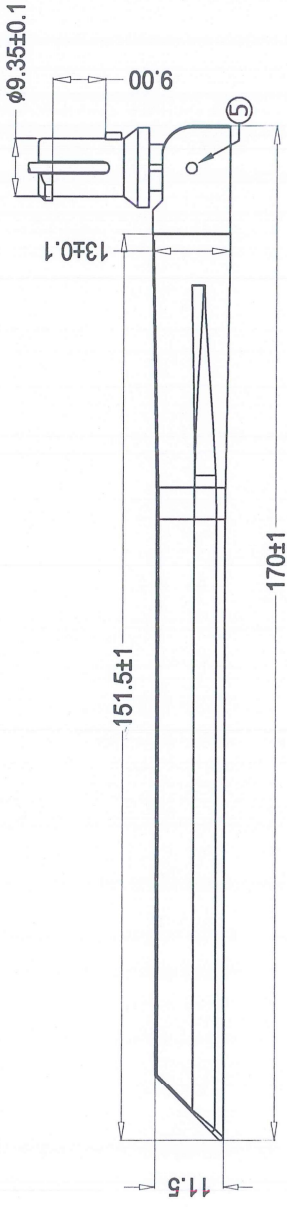
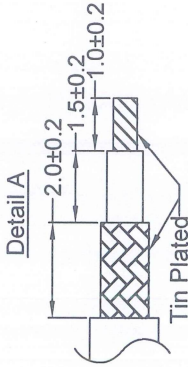
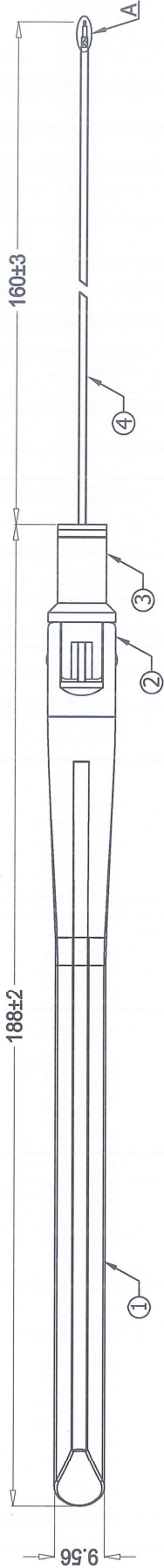
## Spec Item

| N0. | Project                   | Remark | Page |
|-----|---------------------------|--------|------|
| 1   | Spec Cover                |        | 1    |
| 2   | MODIFICATION RECORD SHEET |        | 2    |
| 3   | Spec Item                 |        | 3    |
| 4   | Drawing                   |        | 4    |
| 5   | Test Reports              |        | 5    |
| 6   | S Parameter Test          |        | 6    |
| 7   | Test Setup                |        | 7    |
| 8   | Test Efficiency           |        | 8    |
| 9   | Patten                    |        | 9    |
|     |                           |        |      |
|     |                           |        |      |
|     |                           |        |      |
|     |                           |        |      |
|     |                           |        |      |

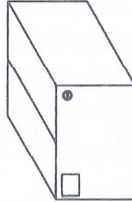
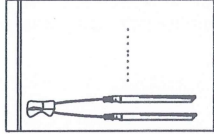
Give clear indication of:

1. The contents of the acknowledgement shall be arranged in order according to the items in the check sheet.
2. The number of copies of the acceptance letter shall be printed according to the customer's requirements, and the SGS report shall be stamped with the engineering seal.
3. All materials shall be confirmed by the customer. Any material/process/changes that may affect product quality and environmental quality must be re-sent to the customer for confirmation before import.
4. SGS report is valid for one year.
5. According to the contents attached to the actual acknowledgement, check the check form: "Yes" is provided, "no" is provided according to customer requirements.

| REV. | CONTENT     | DATE       |
|------|-------------|------------|
| A    | First Issue | 2024.02.01 |



Specification:  
Frequency Rang:5.15~5.85GHz  
Return Loss:-10dB or less  
VSWR:1.92 Max  
Gain:5.0±0.5 dBi



|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|-----------------------------------|-------------|---------------------------------|--|--------|------|---|---|--|--|--|--|--|--|--|
| 25pcs/bundle<br>Packing:50pcs/bag |             | 外箱要貼ROHS標籤與物料標籤各1PCS            |  |        |      |   |   |  |  |  |  |  |  |  |
| 5                                 | Rivet       | POM,Color:White                 |  | 2      |      |   |   |  |  |  |  |  |  |  |
| 4                                 | Cable       | Φ1.13mm Coaxial Cable Black,50Ω |  | 1      |      |   |   |  |  |  |  |  |  |  |
| 3                                 | Bottom Base | PC,Color:White                  |  | 1      |      |   |   |  |  |  |  |  |  |  |
| 2                                 | Upper Base  | PC,Color:White                  |  | 1      |      |   |   |  |  |  |  |  |  |  |
| 1                                 | Antenna Cap | TPEE,Color:White                |  | 1      |      |   |   |  |  |  |  |  |  |  |
| NO                                | PART NAME   | DESCRIPTION                     |  | REMARK | Q'TY | 4 | 3 |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |
|                                   |             |                                 |  |        |      |   |   |  |  |  |  |  |  |  |

## Test Reports

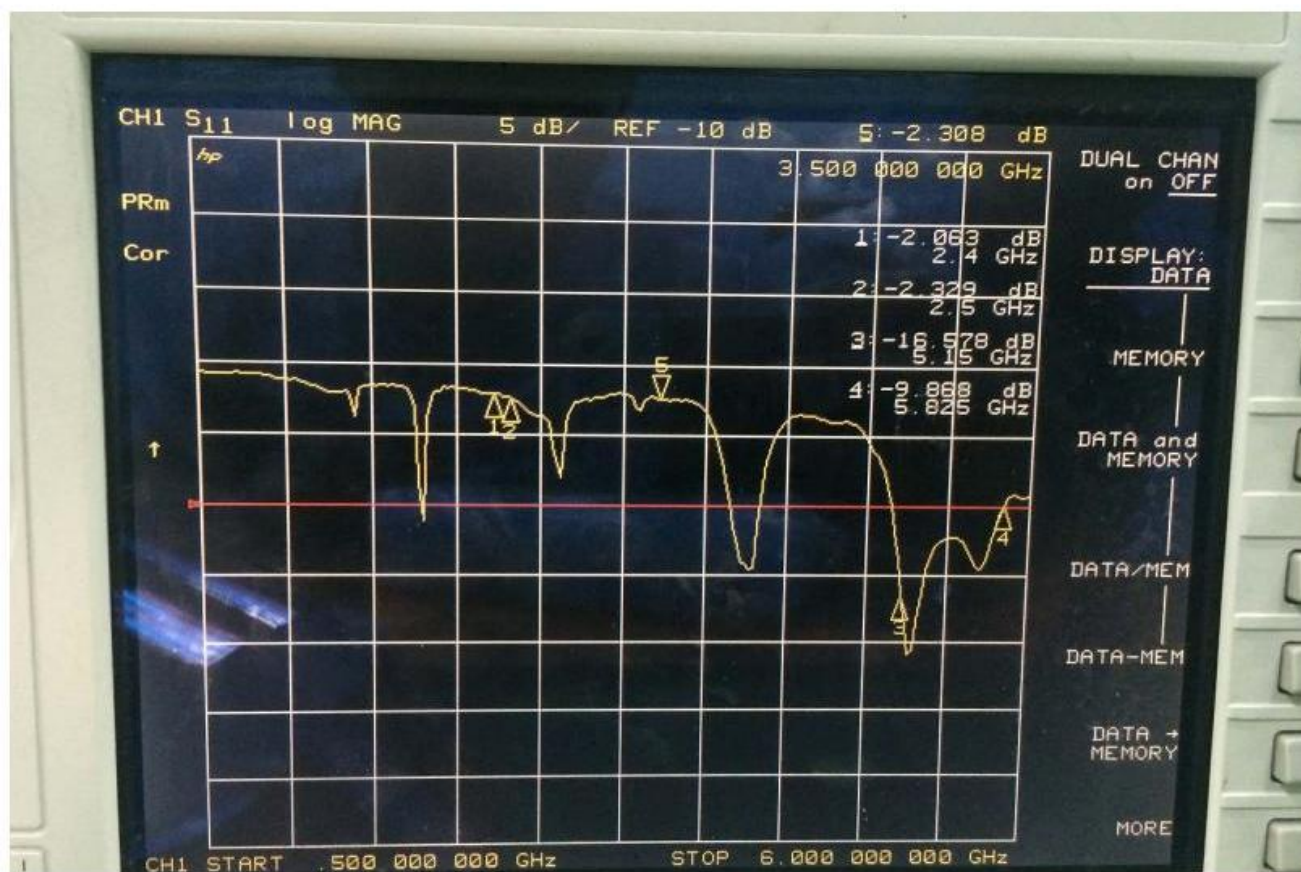
| Electrical Properties |                      |
|-----------------------|----------------------|
| Frequency             | 5.15-5.85GHz         |
| Impedance             | 50 Ohm Nominal       |
| V.S.W.R               | $\leq 1.92$          |
| Return Loss           | -10dB Max            |
| Radiation             | Omni-directional     |
| Gain                  | $5 \pm 1$ dBi        |
| Polarization          | Linear, Vertical     |
| Admitted Power        | 2 W                  |
| Connector             | Tin                  |
| Physical Properties   |                      |
| Antenna Material      | TPEE/PC/POM          |
| Cable Type            | $\Phi 1.13$ mm Black |
| Operating Temp        | -40°C-85°C           |
| Storage Temp.         | -40°C-85°C           |
|                       |                      |

## S Parameter Test

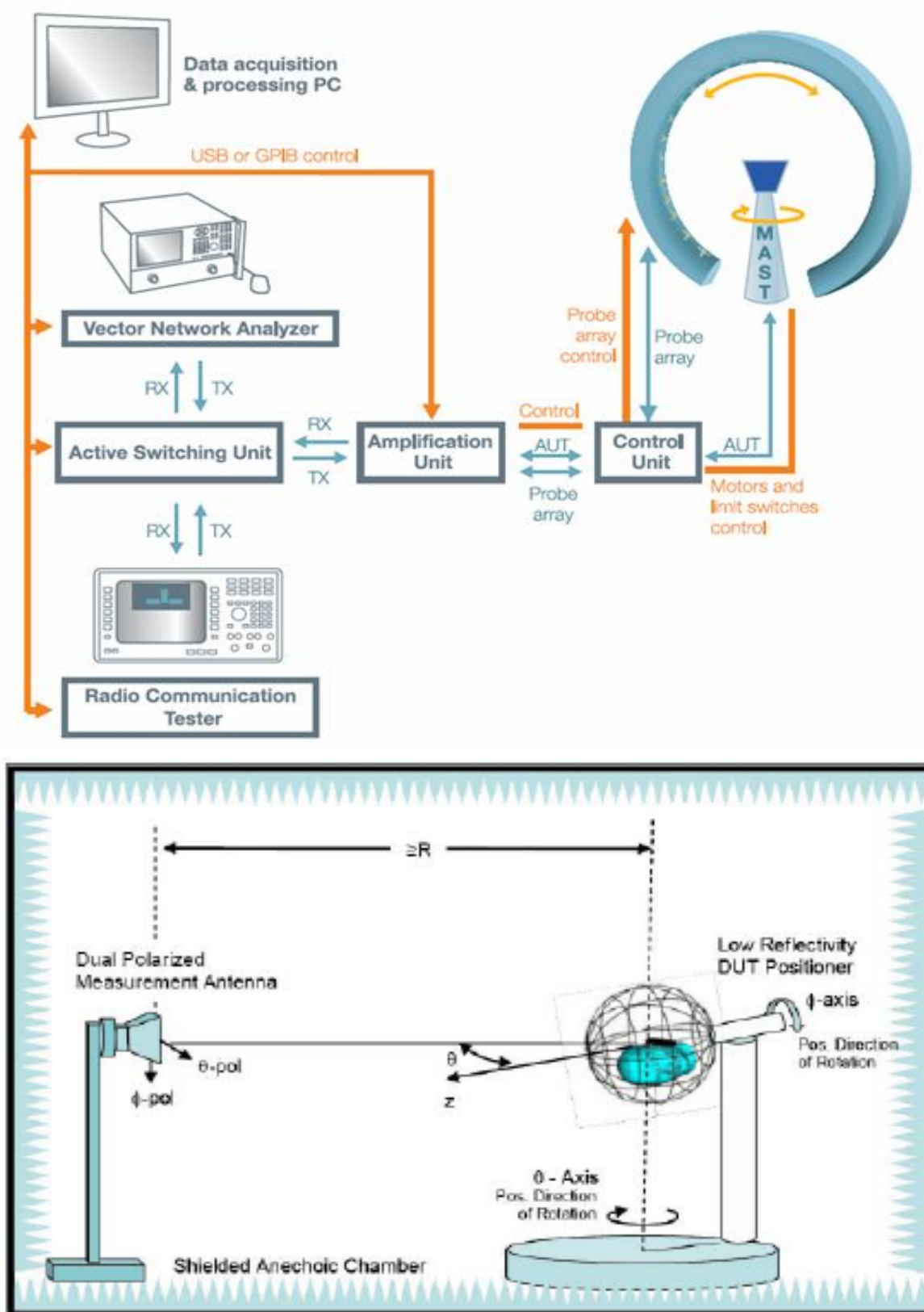
Agilent E5071C Network Analyzer



RF Antenna (Return Loss)



## Setup



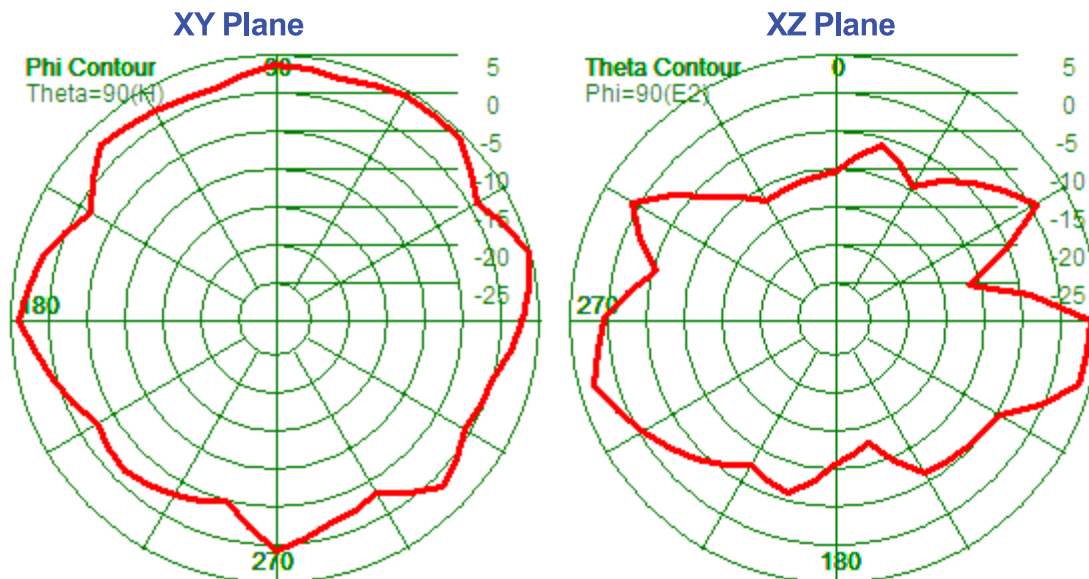
Test

## Efficiency

| Test Point ID | Freq. (MHz) | TRP (dBm) | Gain (dBi) | Directivity (dB) | Efficiency (%) | Efficiency (dB) | Max (dBm) | Theta of Max | Phi of Max | Min (dBm) | Theta of Min | Phi of Min | AVG (dBm) | Max/Min (dB) | Max/AVG (dB) | Min/AVG (dB) |
|---------------|-------------|-----------|------------|------------------|----------------|-----------------|-----------|--------------|------------|-----------|--------------|------------|-----------|--------------|--------------|--------------|
| 1             | 5150.0      | 5150.00   | 4.54       | 6.08             | 70.1%          | -1.54           | 4.54      | 90           | 15         | -18.88    | 135          | 345        | -2.79     | 23.42        | 7.33         | -16.09       |
| 2             | 5250.0      | 5250.00   | 4.82       | 6.21             | 72.6%          | -1.39           | 4.82      | 90           | 180        | -21.45    | 165          | 30         | -3.06     | 26.27        | 7.89         | -18.39       |
| 3             | 5350.0      | 5350.00   | 4.83       | 6.49             | 68.1%          | -1.67           | 4.83      | 90           | 135        | -21.17    | 75           | 150        | -4.10     | 26.00        | 8.93         | -17.07       |
| 4             | 5450.0      | 5450.00   | 5.20       | 6.68             | 71.0%          | -1.49           | 5.20      | 90           | 45         | -24.14    | 165          | 180        | -3.70     | 29.33        | 8.90         | -20.43       |
| 5             | 5550.0      | 5550.00   | 5.44       | 6.93             | 71.0%          | -1.48           | 5.44      | 90           | 45         | -22.74    | 165          | 195        | -3.46     | 28.18        | 8.91         | -19.27       |
| 6             | 5650.0      | 5650.00   | 5.78       | 7.44             | 68.1%          | -1.67           | 5.78      | 90           | 180        | -21.46    | 15           | 270        | -3.69     | 27.24        | 9.46         | -17.78       |
| 7             | 5750.0      | 5750.00   | 5.67       | 7.22             | 70.1%          | -1.54           | 5.67      | 90           | 180        | -21.67    | 165          | 0          | -3.69     | 27.24        | 9.36         | -17.88       |
| 8             | 5850.0      | 5850.00   | 5.92       | 7.58             | 68.2%          | -1.66           | 5.92      | 90           | 180        | -23.29    | 180          | 105        | -3.61     | 29.21        | 9.53         | -19.68       |
| 9             | --          | --        | --         | --               | --             | --              | --        | --           | --         | --        | --           | --         | --        | --           | --           | --           |

## Patten

### 1.3 2D Radiation patterns test results (Passive Antenna)



### 1.5 3D Radiation patterns test results (Passive Antenna)

#### 3D

