

SHENZHEN MTCCO., LTD



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# SHENZHEN MTCCO., LTD

## APPROVALSHEET

MANUFACTORY: SHENZHEN SOUTH STAR TECHNOLOGY CO., LTD

DESCRIPTION: 2. 4G&5G Antenna SPECIFICATION: 1. 37 Black, total  
length, L=150mm

PARTNO.: 3. N101. 2157 MODEL NO.: D1R AIR

PARTNO.: 304ANT00752 D A T E: 2026. 01. 20

### APPROVEDBY

| Engineer   | PCB Engineer | Safety Compliance Engineer | Parts Engineer | Manager |
|------------|--------------|----------------------------|----------------|---------|
|            |              |                            |                |         |
| APPROVEDBY |              |                            |                |         |
| date:      |              |                            |                |         |

Note: This acknowledgement letter needs to be accompanied by detailed sample specifications, drawing materials, etc. There are four complete sets of materials in total. The number of samples shall not be less than 3.



## History

| Version | Date       | Change Description | Note |
|---------|------------|--------------------|------|
| 1.0     | 2026.01.20 | First edition      |      |
|         |            |                    |      |
|         |            |                    |      |
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## Index

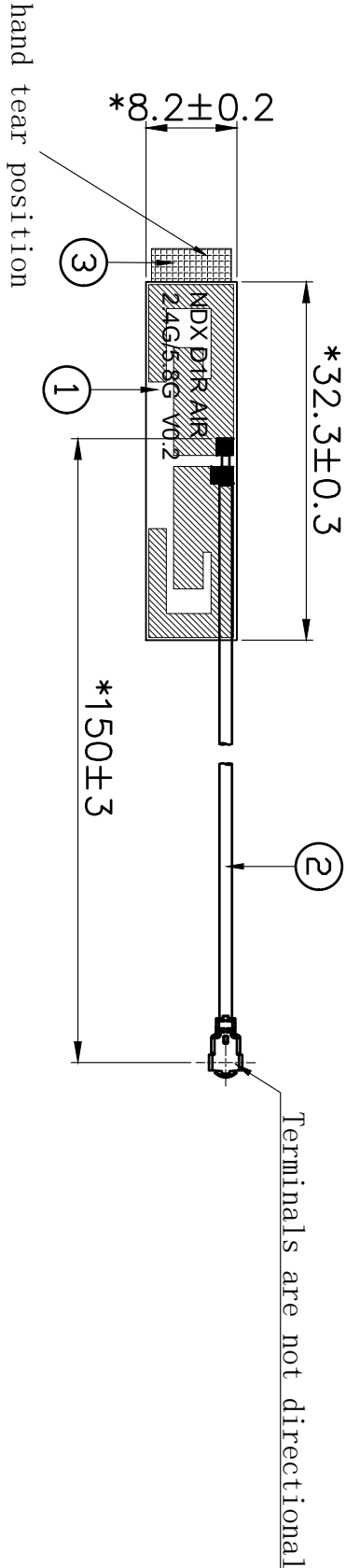
|                                                                   |     |
|-------------------------------------------------------------------|-----|
| 一、Cover                                                           | 1   |
| 二、Colophon                                                        | 2   |
| 三、Index                                                           | 3   |
| 四、The basic parameters                                            | 4   |
| 五、Product Drawing                                                 | 5   |
| 六、Test Equipment & Conditions                                     | 6   |
| 七、Test Report                                                     | 7-8 |
| 八、Antenna material composition table and antenna assembly picture | 9   |
| 九、Packing method                                                  | 10  |



The basic parameters:

| A. Electrical Characteristics            |                                                                        |
|------------------------------------------|------------------------------------------------------------------------|
| Frequency                                | 2400-2485MHz<br>5150-5850MHz                                           |
| VSWR                                     | ≤2                                                                     |
| Efficiency                               | >50%                                                                   |
| Impedance                                | 50 Ohm                                                                 |
| Polarization                             | Linear                                                                 |
| Gain                                     | 2. 03dBi@2400MHz 4. 05dBi@5150MHz<br>1. 91dBi@2440MHz 4. 09dBi@5500MHz |
| Note:                                    | 2. 28dBi@2480MHz 5. 5dBi@5850MHz                                       |
| B. Material & Mechanical Characteristics |                                                                        |
| Material of Radiator                     | PCB                                                                    |
| Cable Type                               | Ø1.13mm Black                                                          |
| Cable length                             | 150mm                                                                  |
| Connector Type                           | Mini Con.-1                                                            |
| Antenna Dimensions                       | 32mm* 8.2mm* 0.6mm                                                     |
| weight                                   |                                                                        |
| C. Environmental                         |                                                                        |
| Operation Temperature                    | -30℃ ~ +65℃                                                            |
| Storage Temperature                      | -40℃ ~ +70℃                                                            |
| Humidity Range                           | 0~99%                                                                  |

| Rev |  | Description | Date       | Remark |
|-----|--|-------------|------------|--------|
| A   |  | New drawing | 2025-12-05 |        |
| B   |  |             |            |        |



$*0.6 \pm 0.1$ (PCB)

$0.15 \pm 0.05$ (Tape)

Note:

1. Marked "\*" is the key size, and Marking "CpK" requires process capability analysis;
2. Unmarked tolerance refer to the Undeclared tolerance table;
3. The electrical property meets the requirements of the specification;
4. All parts shall meet the requirements of RoHS2.0 and REACH、POPs
5. PCB silkscreen or text is used solely for internal traceability and project differentiation, Do not use for other purposes, Font position, size, format, etc. are not required, and font blurriness is not considered an anomaly.

|  |                                               |  |
|--|-----------------------------------------------|--|
|  | 东莞市南斗星科技集团有限公司                                |  |
|  | Dongguan South Star Technology Group co., Ltd |  |

| Undeclared tolerance table |  |  |  | Project | D1R AIR | Designed by | ZC | 2025-12-05 |
|----------------------------|--|--|--|---------|---------|-------------|----|------------|
|----------------------------|--|--|--|---------|---------|-------------|----|------------|

|       |      |   |     |           |                   |       |     |            |
|-------|------|---|-----|-----------|-------------------|-------|-----|------------|
| 0.5~6 | ±0.1 | — | 0.1 | Part Name | 2.4G/5.8G Antenna | RF by | CBJ | 2025-12-05 |
|-------|------|---|-----|-----------|-------------------|-------|-----|------------|

|       |      |   |     |          |             |             |     |            |
|-------|------|---|-----|----------|-------------|-------------|-----|------------|
| >6~30 | ±0.2 | ○ | 0.1 | Part No. | 3.N101.2157 | Approved by | LSL | 2025-12-05 |
|-------|------|---|-----|----------|-------------|-------------|-----|------------|

|         |      |   |     |          |   |      |    |  |
|---------|------|---|-----|----------|---|------|----|--|
| >30~120 | ±0.3 | ◎ | 0.1 | Customer | / | Unit | mm |  |
|---------|------|---|-----|----------|---|------|----|--|

|          |      |   |     |     |  |       |     |     |
|----------|------|---|-----|-----|--|-------|-----|-----|
| >120~400 | ±0.5 | ⊥ | 0.1 | P/N |  | Scale | FIT | Rev |
|----------|------|---|-----|-----|--|-------|-----|-----|

|           |      |   |     |             |             |  |  |   |
|-----------|------|---|-----|-------------|-------------|--|--|---|
| >400~1000 | ±0.8 | ∠ | 0.1 | Page 1 of 1 | Third Angle |  |  | A |
|-----------|------|---|-----|-------------|-------------|--|--|---|

| No. | Part NO.   | Name  | Specification                   | Amount | Remark         |
|-----|------------|-------|---------------------------------|--------|----------------|
| 1   | 2.A21.1204 | PCB   | FR-4/Black                      | 1      |                |
| 2   | 2.A01.2861 | Cable | 1.13mm/ Black cable+Mini Con.-1 | 1      | CaMei/LeiJiang |
| 3   | 1.Z03.0384 | Tape  | 3M9448A                         | 1      |                |

| Connector orientation |               |
|-----------------------|---------------|
| Cable L≤ 100          | ±45°          |
| 100<Cable L≤ 200      | ±90°          |
| Cable L>200           | Don't control |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
|---|---|---|---|---|---|---|---|



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## Test Equipment & Conditions

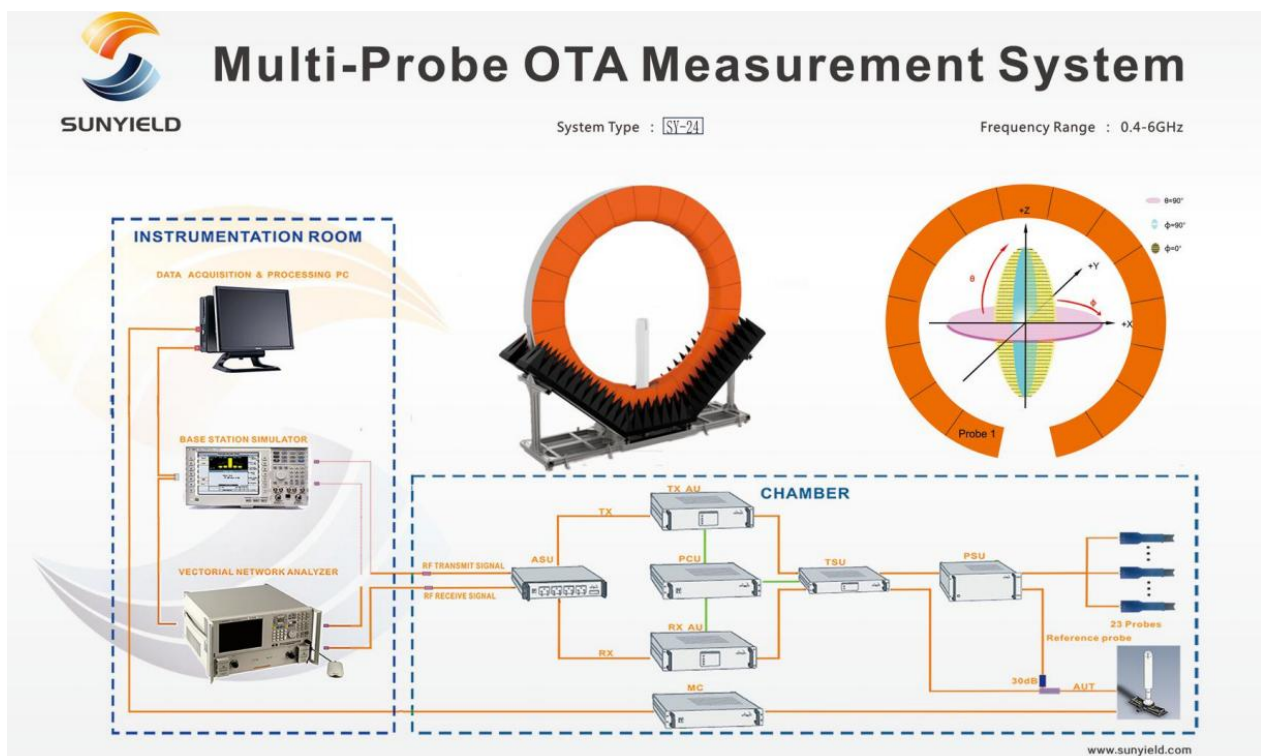
### 1. NetWork Analyzers:

Keysight E5071C

### 2. Comprehensive tester:

CMW500 、 MT8000A、 MT8862A

### 3. 3D Chamber Test System:

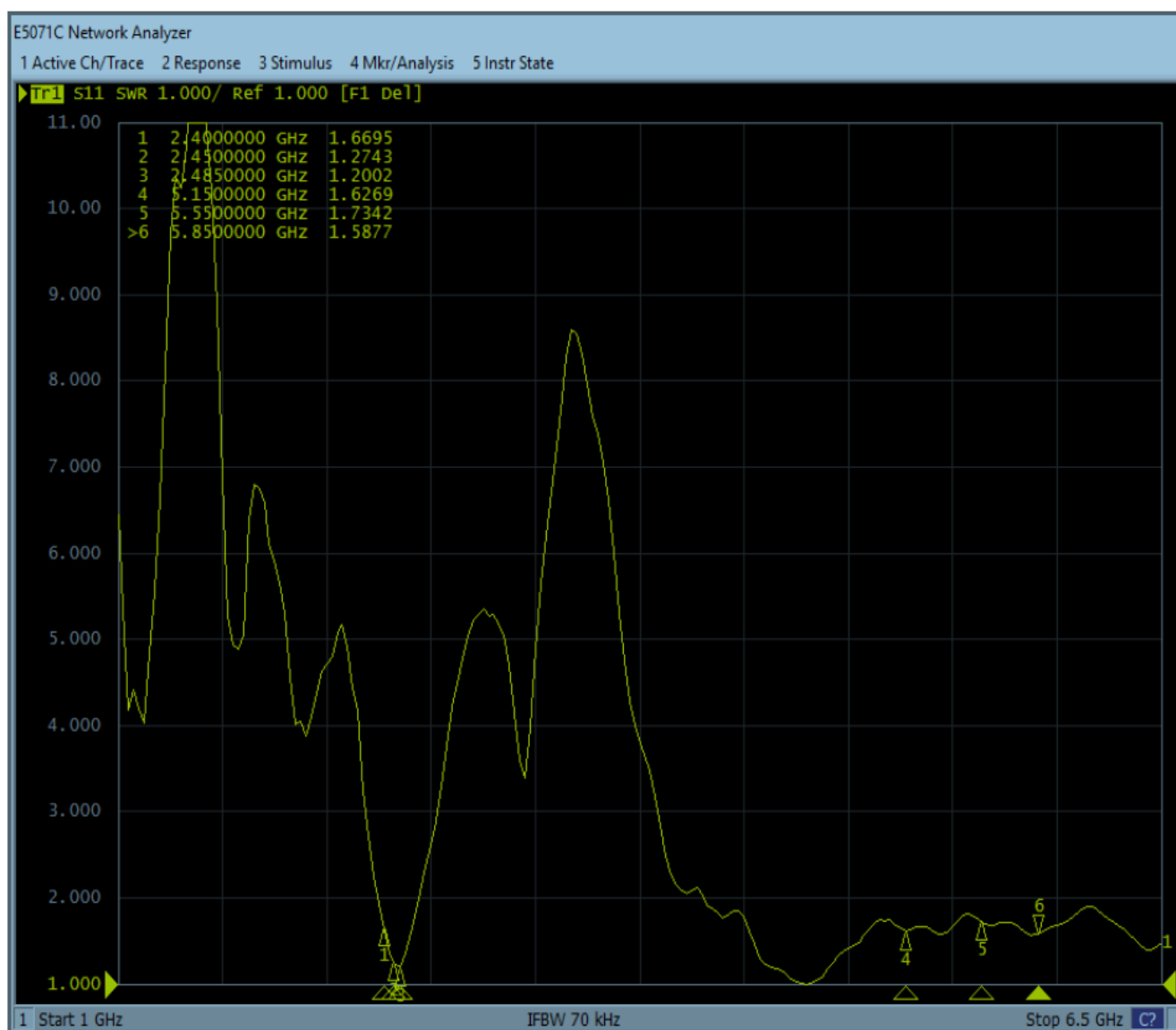




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Antenna Impedance: S11





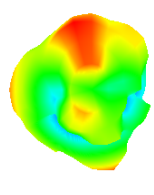
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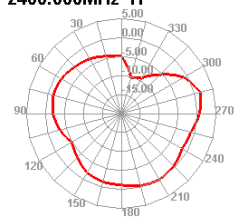
## Efficiency & Gain:

| Freq<br>(MHz) | Effi<br>(%) | Gain<br>(dBi) | Freq<br>(MHz) | Effi<br>(%) | Gain<br>(dBi) |
|---------------|-------------|---------------|---------------|-------------|---------------|
| 2400          | 53.82       | 2.03          | 5150          | 69.48       | 4.05          |
| 2410          | 57.15       | 2.03          | 5200          | 63.72       | 3.65          |
| 2420          | 58.26       | 1.93          | 5250          | 64.16       | 3.47          |
| 2430          | 59.43       | 2.11          | 5300          | 67.62       | 3.53          |
| 2440          | 59.89       | 1.91          | 5350          | 67.27       | 3.72          |
| 2450          | 61.71       | 1.87          | 5400          | 64.83       | 3.69          |
| 2460          | 66          | 2.08          | 5450          | 61.47       | 3.62          |
| 2470          | 67.78       | 2.3           | 5500          | 61.14       | 4.09          |
| 2480          | 65.89       | 2.28          | 5550          | 62.51       | 4.7           |
| 2490          | 65.54       | 2.34          | 5600          | 63.95       | 5.05          |
| 2500          | 68.13       | 2.7           | 5650          | 62.54       | 5             |
|               |             |               | 5700          | 61.35       | 4.92          |
|               |             |               | 5750          | 61.99       | 4.92          |
|               |             |               | 5800          | 63.17       | 5.12          |
|               |             |               | 5850          | 66.69       | 5.5           |

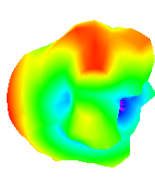
2400.000MHz



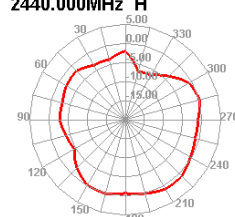
2400.000MHz H



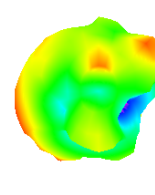
2440.000MHz



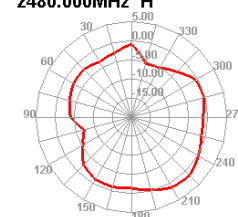
2440.000MHz H



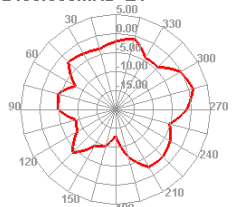
2480.000MHz



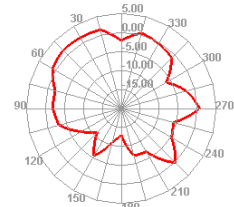
2480.000MHz H



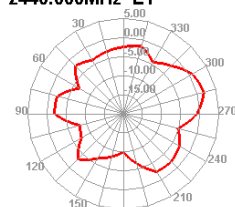
2400.000MHz E1



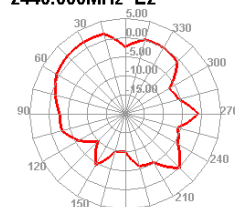
2400.000MHz E2



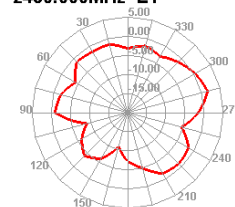
2440.000MHz E1



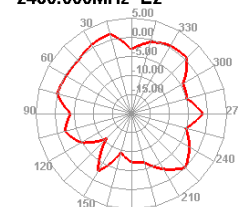
2440.000MHz E2



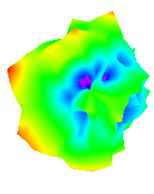
2480.000MHz E1



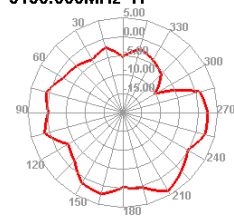
2480.000MHz E2



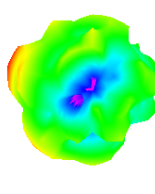
5150.000MHz



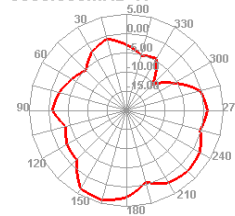
5150.000MHz H



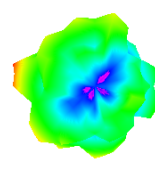
5500.000MHz



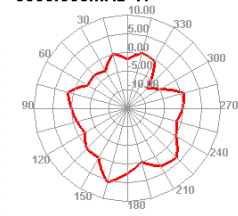
5500.000MHz H



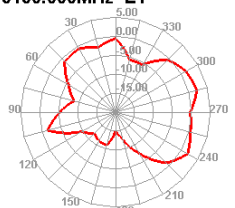
5850.000MHz



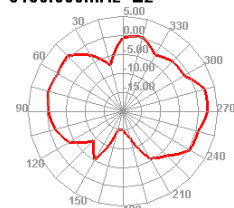
5850.000MHz H



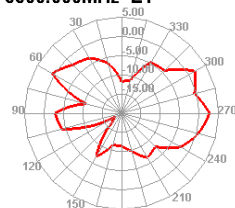
5150.000MHz E1



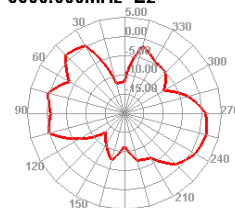
5150.000MHz E2



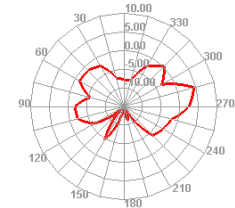
5500.000MHz E1



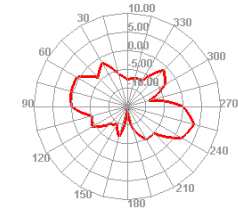
5500.000MHz E2



5850.000MHz E1



5850.000MHz E2



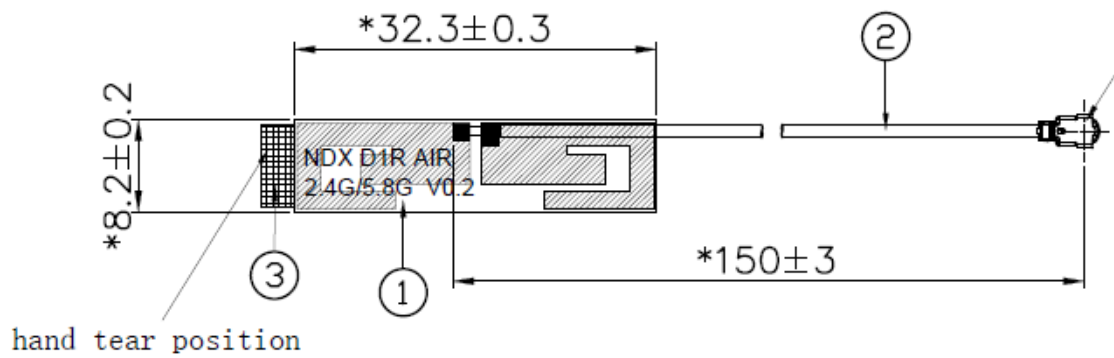


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Antenna material composition table and antenna assembly picture:

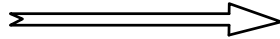
| List of antenna materials |                              |
|---------------------------|------------------------------|
| material name             | Materials Main raw materials |
| PCB                       | FR4                          |
| Cable                     | FEP                          |
| Terminal                  | Gold-plated copper           |
| Tin wire                  | Sn                           |



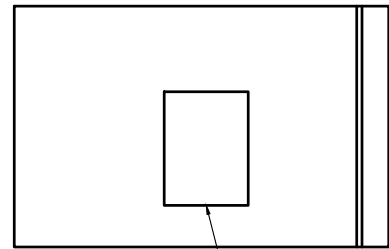


|                        |            |
|------------------------|------------|
| Name : D1R AIR Antenna | Version: A |
|                        |            |

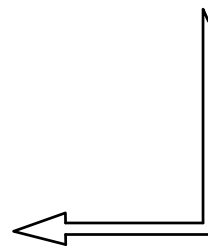
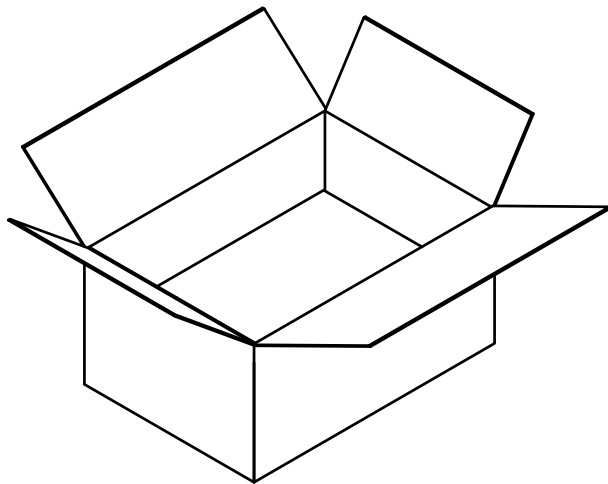
1. The Product



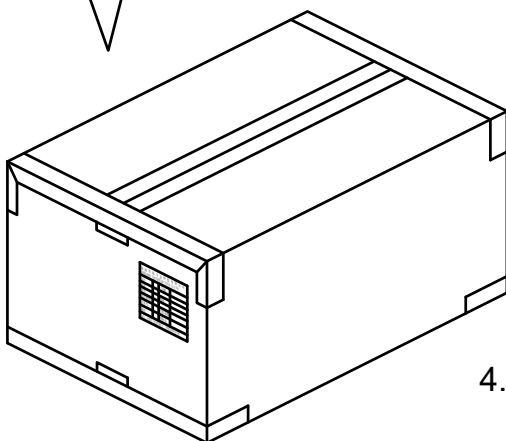
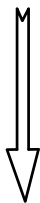
2. 200PCS/per Bag



label



3. Packing (subject to actual packing) .



4. Seal the box and label the carton .

DESIGNED By: ZC

APPROVED By: LSL