

# WA-P-LE-02-289 Specification

## 1. Explanation of part number :

WA    -    P    -    LE    -    02    -    289  
(1)        (2)        (3)        (4)        (5)

(1) Product Type : Wireless Antenna

(2) PCB: PCB+CABLE

(3) Frequency : 2400~2500MHz&5100~5800MHz&5925~7125MHz

(4) Coaxial Cable Type :Black

(5) Suffix : 289

## 2. Storage Condition:

Temperature        -40 to +85°C

Humidity            20 to 90% RH

Recommended storage condition :

Store in room condition as listed below: Temperature -20°C~+45°C, Humidity 80% Max

## 3. Operating Condition:

Temperature        -40 to +70°C

Humidity            10 to 85 %RH

## 4. Electrical Specification :

*Those specifications were specially defined for K2-A13 WIFI model, and all characteristics were measured under the model's handset testing jig .*

### 4-1. Frequency Band:

| Frequency Band | MHz                               |
|----------------|-----------------------------------|
| WIFI           | 2400~2500 & 5100~5800 & 5925~7125 |

UNLESS OTHER SPECIFIED TOLERANCES ON :

X = ±            X.X = ±            X.XX = ±

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SCALE :

UNIT : mm

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## 4-2. Impedance

50 ohm nominal

## 4-3. Matching circuit

None

## 4-4. VSWR

### 4-4.1 Measuring Method

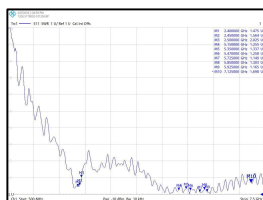
1.A 50Ωcoaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR

2.Keeping this jig away from metal at least 20cm

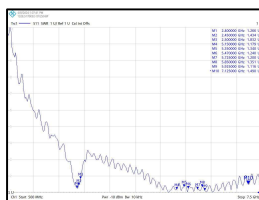
### 4-4.2 Measurement frequency points and VSWR value

| VSWR            | Frequency<br>(Unit MHz) | Spec | 1   | 2   | 3   | 4   | 5   |
|-----------------|-------------------------|------|-----|-----|-----|-----|-----|
| WIFI<br>Antenna | 2450                    | ≤3.0 | 1.5 | 1.8 | 1.6 | 1.3 | 1.4 |
|                 | 5350                    | ≤3.0 | 1.3 | 1.3 | 1.4 | 1.3 | 1.3 |
|                 | 5925                    | ≤4.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
|                 | 7125                    | ≤4.0 | 1.7 | 1.5 | 1.5 | 1.5 | 1.5 |
|                 | Judgement               |      | ok  | ok  | ok  | ok  | ok  |

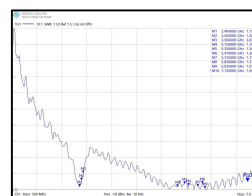
Antenna-1



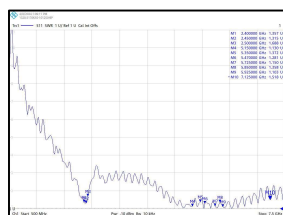
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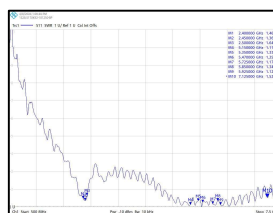
Antenna-3



Antenna-4



Antenna-5



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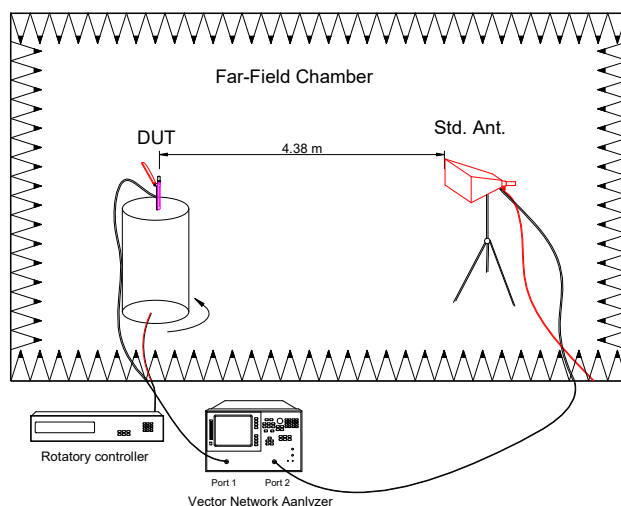
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## 4-5. Efficiency and Gain

### 4-5.1 Measure method

1. Using a low loss coaxial cable to link a standard handset jig
2. Fixed this handset jig on chamber's rotator plane
3. Linking jig into network analyzer port and using a probing horn antenna to collect data.
4. Using another standard gain horn antenna to calibrated those data

### 4-5.2 Chamber definition



1. An anechoic chamber

(8mx4mx3.5m) which satisfied far-field condition was applied to avoid multi-path effect

2. The quiet room region is 40cmx40cmx40cm at the center of rotator
3. The distance between DUT and standard antenna is 4.38 m
4. Probing antenna (9120D horn antenna) and standard gain horn antenna (BBHA9120 LPF 700MHz ~6GHz)

### 4-5.3 Efficiency and Gain

Antenna gain is marked (dBi) and is based on STANDARD HORN antenna. The data shows Peak Gain and Average Gain.

#### 4-5-3-1 Electrical specification

| Frequency (MHz) | Average Efficiency (%) |
|-----------------|------------------------|
| 2400~2500       | >55                    |
| 5100~5825       | >40                    |
| 5925~7125       |                        |

#### 4-5.3-2 Efficiency and Gain Test Data

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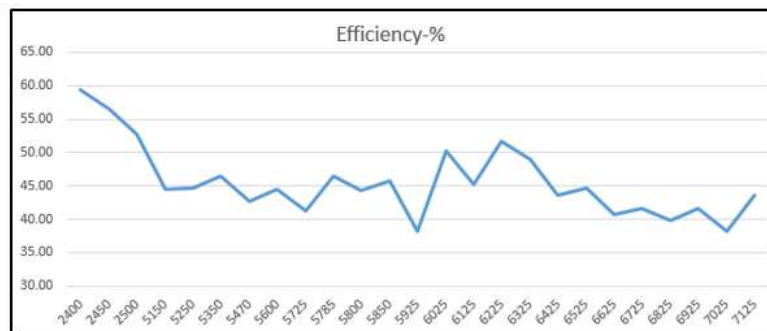
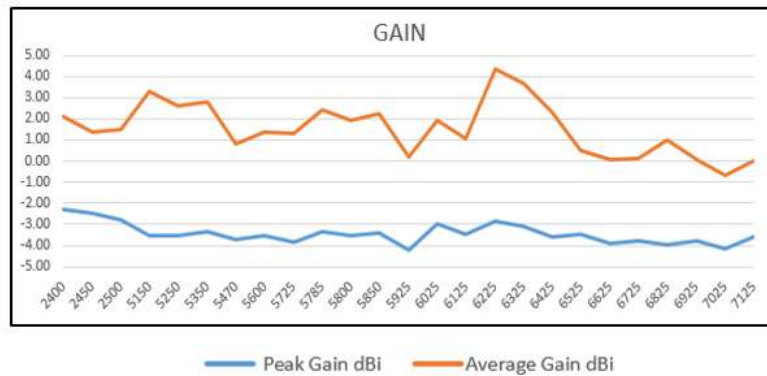
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| Freq-MHz | Average Gain-dBi | peak Gain-dBi | Efficiency-% |
|----------|------------------|---------------|--------------|
| 2400     | -2.26            | 2.12          | 59.38        |
| 2450     | -2.48            | 1.36          | 56.50        |
| 2500     | -2.78            | 1.51          | 52.77        |
| Average  | -2.51            | 1.66          | 56.22        |
| 5150     | -3.52            | 3.28          | 44.46        |
| 5250     | -3.50            | 2.62          | 44.64        |
| 5350     | -3.33            | 2.78          | 46.43        |
| 5470     | -3.69            | 0.79          | 42.71        |
| 5600     | -3.51            | 1.35          | 44.54        |
| 5725     | -3.85            | 1.32          | 41.24        |
| 5785     | -3.32            | 2.41          | 46.51        |
| 5800     | -3.54            | 1.94          | 44.27        |
| 5850     | -3.39            | 2.26          | 45.81        |
| Average  | -3.52            | 2.08          | 44.51        |
| 5925     | -4.19            | 0.20          | 38.13        |
| 6025     | -2.99            | 1.92          | 50.23        |
| 6125     | -3.45            | 1.09          | 45.16        |
| 6225     | -2.87            | 4.38          | 51.60        |
| 6325     | -3.10            | 3.65          | 48.94        |
| 6425     | -3.60            | 2.32          | 43.67        |
| 6525     | -3.50            | 0.48          | 44.66        |
| 6625     | -3.91            | 0.06          | 40.66        |
| 6725     | -3.81            | 0.16          | 41.69        |
| 6825     | -3.99            | 0.98          | 39.90        |
| 6925     | -3.81            | 0.06          | 41.63        |
| 7025     | -4.18            | -0.69         | 38.17        |
| 7125     | -3.61            | 0.00          | 43.52        |
| Average  | -3.62            | 1.12          | 43.68        |



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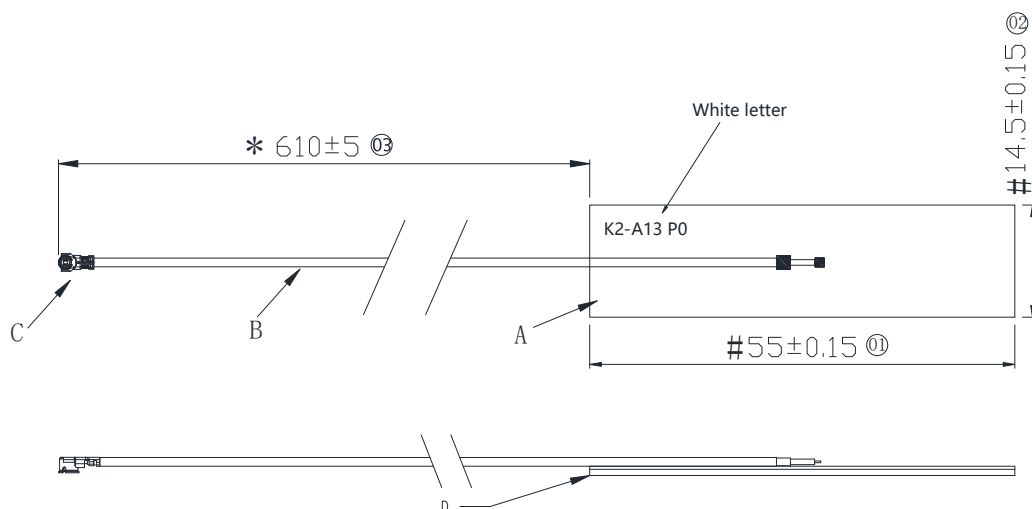
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## 5. Mechanical Specification:

Mechanical Configuration: (“\*”is CPK “\*” is important dimension)



Material list :

| Item | Description | Material                    | Quantity |
|------|-------------|-----------------------------|----------|
| A    | PCB         | FR4 55x14.5mm,T0.4mm        | 1        |
| B    | Cable       | WIR OD1.13mm Low Loss Black | 1        |
| C    | Connector   | CON,MHF-4L Plug Connector   | 1        |
| D    | TAP         | VHB 0.8t                    | 1        |

## 6. UL File No:

| ITEM | DESCRIPTION | SUPPLIER | UL File No |
|------|-------------|----------|------------|
| 1    | PCB         |          |            |
| 2    | CABLE       |          |            |

## 7. Product Picture:

|                                                                                                                                               |                  |                                                                                                                                                                                                       |                 |
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