WA-P-LELE-04-026 Specification

1. Explanation of part number:

$$\frac{WA}{(1)}$$
 - $\frac{P}{(2)}$ - $\frac{LELE}{(3)}$ - $\frac{04}{(4)}$ - $\frac{026}{(5)}$

- (1) Product Type: Wireless Antenna
- (2) PCB: PCB
- (3) Frequency: 2400~2500MHz&5100~5800MHz&5925~7125MHz
- (4) Coaxial Cable Type: With \$ 0.81 Main Black (155.6) / AUX Gray (224.8mm)
- (5) Suffix: 026

2. Storage Condition:

Temperature -40 to $+70^{\circ}$ C Humidity 20 to 65 %RH

3. Operating Condition:

Temperature -40 to $+70^{\circ}$ C Humidity 10 to 85 %RH

4. Electrical Specification:

Those specifications were specially defined for **LG 15ZB90Q/16ZB90Q** WIFI model, and all characteristics were measured under the model's handset testing jig.

4-1. Frequency Band:

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

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4-2. Impedance

50 ohm nominal

4-3. Matching circuit

None

4-4. **VSWR**

4-4.1 Measuring Method

 $1.A~50\Omega$ coaxial cable is connected to the antenna. Then this cable is connected

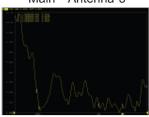
to a network analyzer to measure the VSWR

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

4-4.2 Measurement frequency points and VSWR value

| VSWR | Frequency (Unit MHz) | Spec | 3 |
|-----------------|-------------------------|--------------|-------------------|
| | 2400 | ≦ 4.0 | 3. 3 |
| Voin | 2500 | ≦ 3.0 | 1.6 |
| Main Antenna | 5000 | ≦ 3.5 | 1.9 |
| micoma | 6000 | ≦ 3.0 | 1.4 |
| | | | |
| | Judge | ment | ok |
| | Judge 2400 | ment ≤3.5 | ok 2. 5 |
| A | | | 2000 2000 |
| Aux | 2400 | ≦3.5 | 2. 5 |
| Aux Antenna | 2400 2500 | ≦3.5 ≦3.0 | 2. 5 1. 8 |





AUX Antenna-3



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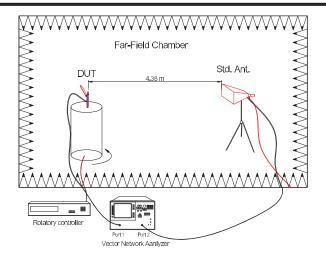


4-5.1 Measure method

- 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

| UNLESS OTHER SPECIFIED | TOLERANCES ON : | | | |
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- 1. An anechoic chamber (8mx4mx3.5m) which satisfied far-field condition was applied to avoid multi-path effect
- 2. The quite 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 | >30 |
| 5100~5825 | >30 |
| 5925~7125 | >25 |

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4-5.3-2 Efficiency and Gain Test Data

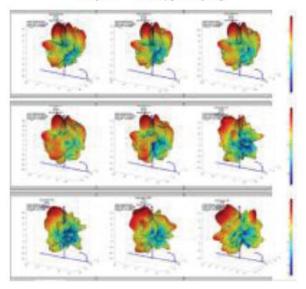
| Feerman | Main Antenna-3 | | | | |
|-----------|----------------|--------------|-----------|--|--|
| Frequency | Efficiency | Average Gain | Peak Gain | | |
| 2400MHz | 36.7 % | -4.3 dBi | 3.1 dBi | | |
| 2425MHz | 39.4 % | -4.0 dBi | 4.8 dBi | | |
| 2450MHz | 37.7 % | -4.2 dBi | 4.4 dBi | | |
| 2475MHz | 39.6 % | -4.0 dBi | 4.5 dBi | | |
| 2500MHz | 48.9 % | -3.1 dBi | 5.3 dBi | | |
| 5150MHz | 37.8 % | -4.2 dBi | 2.7 dBi | | |
| 5250MHz | 39.7 % | -4.0 dBi | 3.7 dBi | | |
| 5350MHz | 36.7 % | -4.4 dBi | 3.1 dBi | | |
| 5725MHz | 42.2 % | -3.7 dBi | 3.1 dBi | | |
| 5825MHz | 44.6 % | -3.5 dBi | 3.0 dBi | | |
| 5925MHz | 35.0 % | -4.6 dBi | 2.0 dBi | | |
| 6525MHz | 36.0 % | -4.4 dBi | 1.9 dBi | | |
| 7125MHz | 36.0 % | -4.4 dBi | 1.9 dBi | | |

| | AUX Antenna-3 | | | | |
|-----------|---------------|--------------|-----------|--|--|
| Frequency | Efficiency | Average Gain | Peak Gain | | |
| 2400MHz | 35.0 % | -4.6 dBi | 1.9 dBi | | |
| 2425MHz | 36.8 % | -4.3 dBi | 2.3 dBi | | |
| 2450MHz | 39.2 % | -4.1 dBi | 2.2 dBi | | |
| 2475MHz | 40.1 % | -4.0 dBi | 3.2 dBi | | |
| 2500MHz | 41.2 % | -3.9 dBi | 3.4 dBi | | |
| 5150MHz | 38.9 % | -4.1 dBi | 2.7 dBi | | |
| 5250MHz | 43.4 % | -3.6 dBi | 3.7 dBi | | |
| 5350MHz | 39.3 % | -4.1 dBi | 3.1 dBi | | |
| 5725MHz | 42.7 % | -3.7 dBi | 3.1 dBi | | |
| 5825MHz | 44.6 % | -3.5 dBi | 3.0 dBi | | |
| 5925MHz | 33.0 % | -4.8 dBi | 2.3 dBi | | |
| 6525MHz | 33.0 % | -4.8 dBi | 2.2 dBi | | |

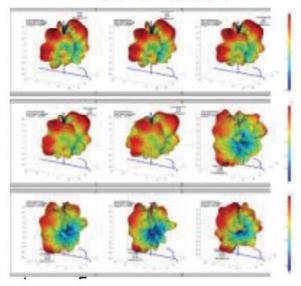
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4-5.3-3 Antenna 3D Radiation Pattern

Main Antenna-3



AUX Antenna-3



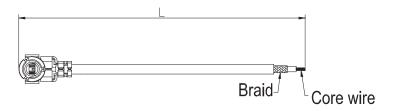
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5. Mechanical Specification:

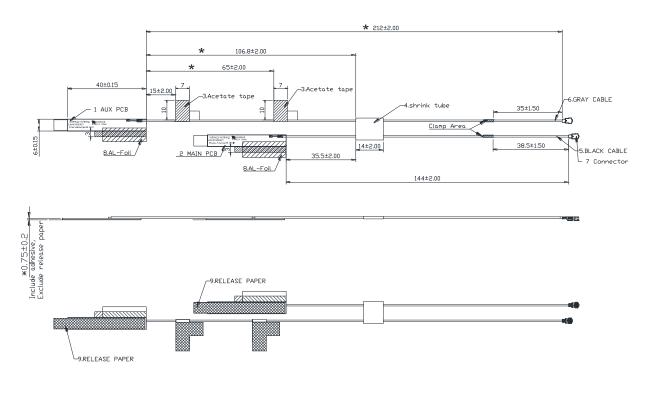
Connector: I-PEX MHF 4: 20611; Cable: RF Cable 0.81 (Main Black/Aux Gray)

Cable length: Main Antenna L: 155.6 ± 2mm(Include connector)

Aux Antenna L: 224.8 ± 2mm(Include connector)



Mechanical Configuration: (* dimension is important dimension)



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Material list :

| Item | Description | Material | Quantity |
|------|--------------|--------------------------------|----------|
| 1 | PCB AUX | FR4 40x7mm,T0.6mm | 1 |
| 2 | PCB MAIN | FR4 40x7mm,T0.6mm | 1 |
| 3 | Acetate Tape | Acetate Tape 21x7mm, T0.12mm | 2 |
| 4 | Shrink Tube | Shrink Tube black, ∮ 1.5 x14mm | 1 |
| 5 | Cable black | Cable 0.81 black | 1 |
| 6 | Cable gray | Cable 0.81 gray | 1 |
| 7 | Connector | I-PEX MHF 4 for 0.81, 20611 | 2 |
| 8 | AL-Foil | AL Foil | 2 |
| 9 | PCB TAPE | G9000 39.4x5.4mm,T0.15 | 2 |
| 10 | Clamp | Clamp 0.81 5mm | 2 |

6. UL File No:

| ITEM | DESCRIPTION | SUPPLIER | UL File No |
|------|-------------|----------|------------|
| 1 | PCB | M00590 | E495648 |
| 2 | CABLE | HA0008 | E318898 |
| | | HA0053 | E464731 |

7. Product Picture:

| UNLESS OTHER SPECIFIED | TOLERANCES ON : | | | |
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