

# WA-P-LELE-04-003 Specification

## 1. Explanation of part number :

WA - P - LELE - 04 - 003  
(1) (2) (3) (4) (5)

(1) Product Type : Wireless Antenna

(2) PCB: PCB

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

(4) Coaxial Cable Type : With  $\phi$  0.81 Main Black (178.4) / AUX Gray (256.4mm)

(5) Suffix : 003

## 2. Storage Condition:

Temperature -40 to +70°C  
Humidity 20 to 65 %RH

## 3. Operating Condition:

Temperature -40 to +70°C  
Humidity 10 to 85 %RH

## 4. Electrical Specification :

*Those specifications were specially defined for LG 17Z90P 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

UNLESS OTHER SPECIFIED TOLERANCES ON :

X = ±      X.X = ±      X.XX = ±

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SCALE :      UNIT : mm

DRAWN BY: 黄江      CHECKED BY: 林娟

DESIGNED BY: 胡志清      APPROVED BY: 唐龙

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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 (Unit MHz)	Spec	1
Main Antenna	2400	≤3.5	1.8
	2500	≤3.5	1.6
	5000	≤3.5	1.2
	6000	≤3.5	1.6
	Judgement		ok
Aux Antenna	2400	≤3.5	2.7
	2500	≤4.0	3.2
	5000	≤4.0	1.2
	6000	≤4.0	1.6
	Judgement		ok

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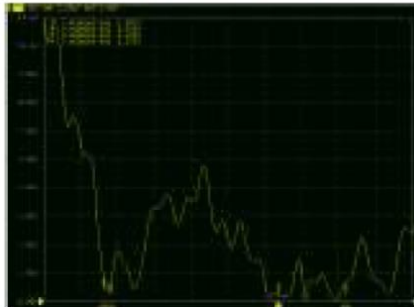
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Main Antenna-1



AUX Antenna-1

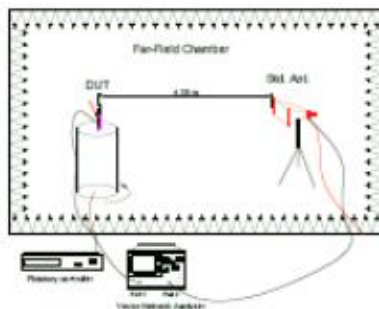


## 4-5. Efficiency and Gain

### 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



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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	>30
5100~5825	>30

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

Frequency	Main Antenna-1		
	Efficiency	Average Gain	Peak Gain
2400MHz	45.9 %	-3.4 dBi	4.0 dBi
2425MHz	55.6 %	-2.6 dBi	5.2 dBi
2450MHz	43.3 %	-3.6 dBi	4.5 dBi
2475MHz	48.2 %	-3.2 dBi	4.8 dBi
2500MHz	50.1 %	-3.0 dBi	5.2 dBi
5150MHz	41.6 %	-3.8 dBi	2.9 dBi
5250MHz	42.1 %	-3.8 dBi	3.8 dBi
5350MHz	38.4 %	-4.2 dBi	0.5 dBi
5725MHz	44.5 %	-3.5 dBi	2.4 dBi
5825MHz	48.3 %	-3.2 dBi	2.7 dBi

Frequency	AUX Antenna-1		
	Efficiency	Average Gain	Peak Gain
2400MHz	41.0 %	-3.9 dBi	4.2 dBi
2425MHz	56.7 %	-2.5 dBi	5.8 dBi
2450MHz	51.0 %	-2.9 dBi	6.4 dBi
2475MHz	55.7 %	-2.5 dBi	6.1 dBi
2500MHz	61.4 %	-2.1 dBi	6.8 dBi
5150MHz	36.5 %	-4.4 dBi	2.9 dBi
5250MHz	41.3 %	-3.8 dBi	3.8 dBi
5350MHz	39.7 %	-4.0 dBi	0.5 dBi
5725MHz	45.0 %	-3.5 dBi	2.4 dBi
5825MHz	47.4 %	-3.2 dBi	2.7 dBi

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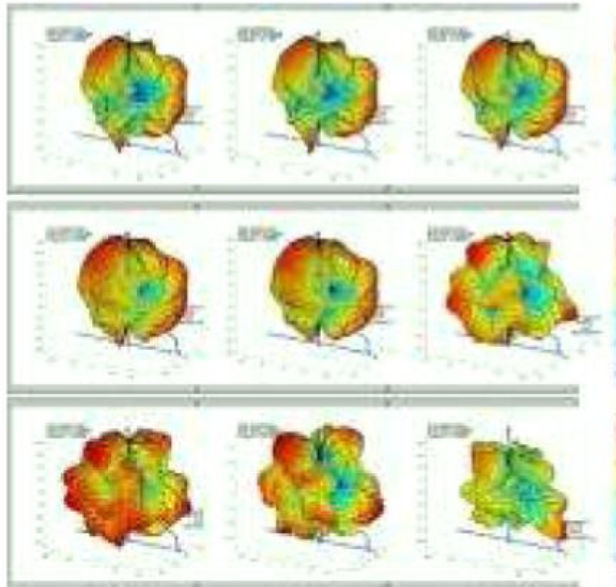
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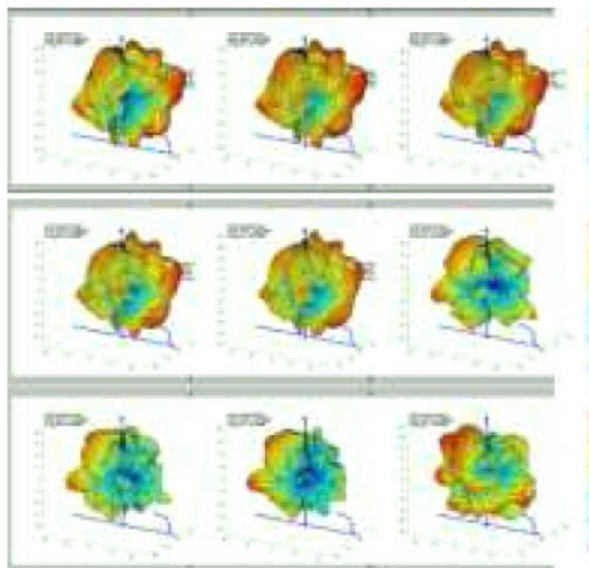


### 4-5.3-3 Antenna 3D Radiation Pattern

#### Main Antenna-1



#### AUX Antenna-1



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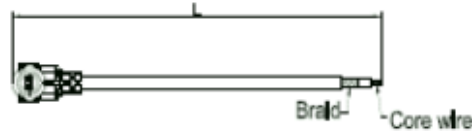
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## 5. Mechanical Specification:

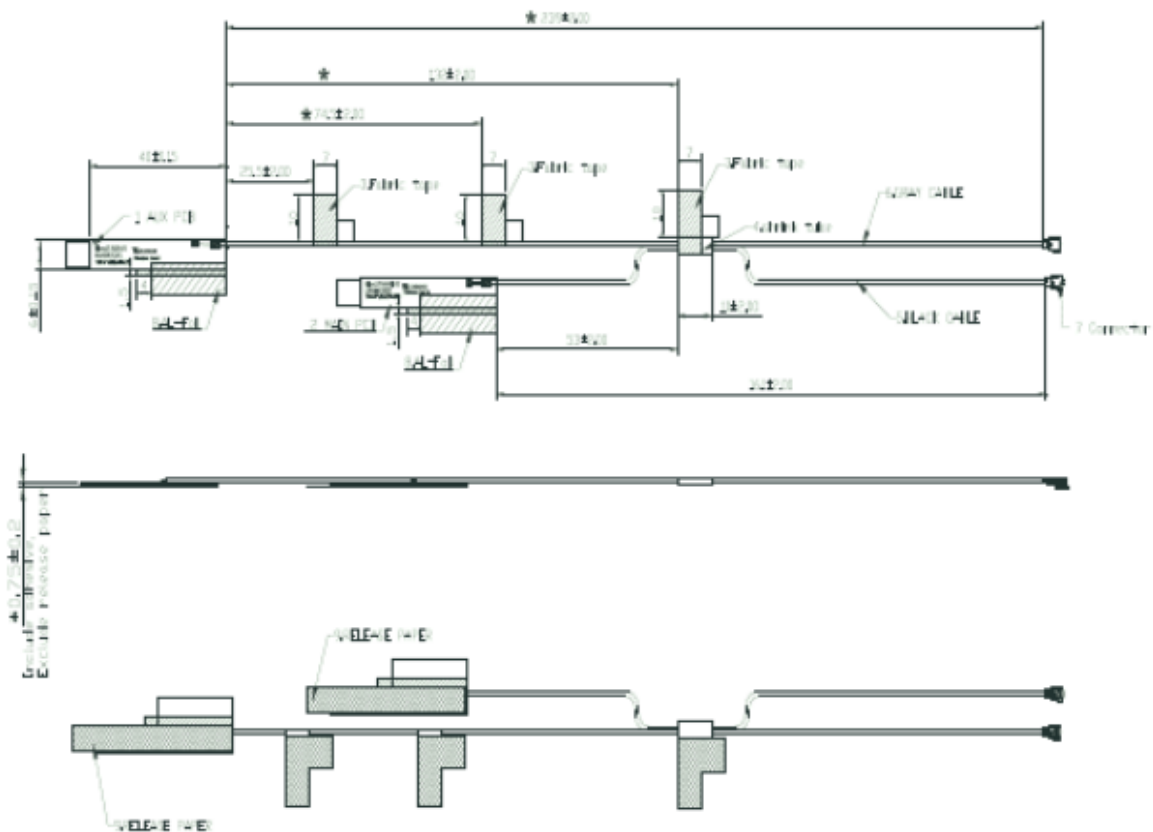
Connector: I-PEX MHF 4; 20611; Cable: RF Cable 0.81 (Main Black/Aux Gray)

Cable length: Main Antenna L:  $172.6 \pm 2\text{mm}$ (Include connector)

Aux Antenna L:  $251.8 \pm 2\text{mm}$ (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	Conductive Tape	Conductive Tape 21x7mm, T0.12mm	3
4	Shrink Tube	Shrink Tube black, $\phi$ 1.5 x15mm	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 ,10x15.7mm, T0.09	2
9	PCB TAPE	G9000 39.4x6.4mm, T0.15	2

6. UL File No:

ITEM	DESCRIPTION	SUPPLIER	UL File No
1	PCB	M00590	E495648
2	CABLE	M00018	E318898
		M00186	E464731

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