

客戶名稱 : **LG 15Z90RT**  
CUSTOMER

Document No.:  
Approval Sheet Rev.:     P1      
Spec. Rev. :     P2    

# 承認書

## APPROVAL SHEET

Product Model No. : **WA-P-LELE-04-044**

LGE P/N. : **EAA65983501**

Maker P/N: **15Z90RT**

产品描述/Product Model No.: **WIFI Antenna**

发行日期/ Issue Date : **2022/12/19**

承認日期/ Approved Date : **2022/12/19**

**Approved by customer: (signing or stamping here)**



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# WA-P-LELE-04-044 Specification

## 1. Explanation of part number :

WA    -    P    -    LELE    -    04    -    044  
 (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 : With  $\phi$  0.81 Main Black / AUX Gray
- (5) Suffix : 044

## 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 LG 14Z90RS 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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DESIGNED BY: 钱龙	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 50Ω 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	1
Main Antenna	2400	$\leq 3.0$	1.3
	2500	$\leq 3.0$	2.3
	5150	$\leq 4.0$	1.5
	7125	$\leq 4.0$	1.8
	Judgement		
Aux Antenna	2400	$\leq 3.0$	1.7
	2500	$\leq 3.0$	1.7
	5150	$\leq 4.0$	2.0
	7125	$\leq 4.0$	1.5
	Judgement		

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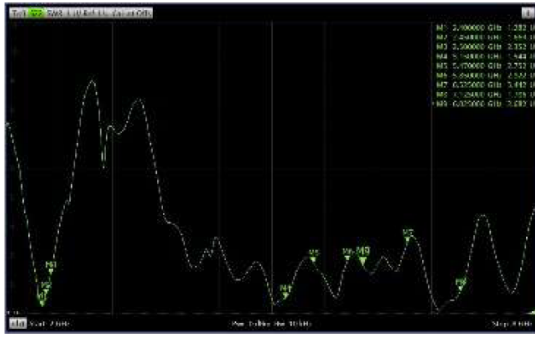
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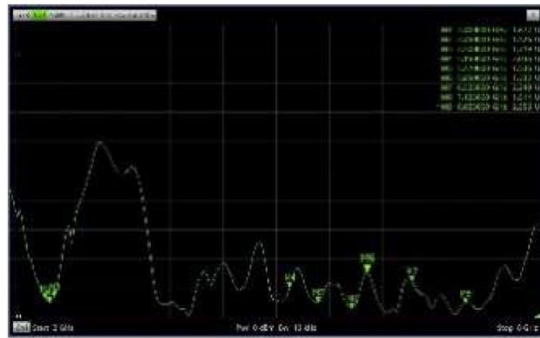
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## Main Antenna-1



## AUX Antenna-1

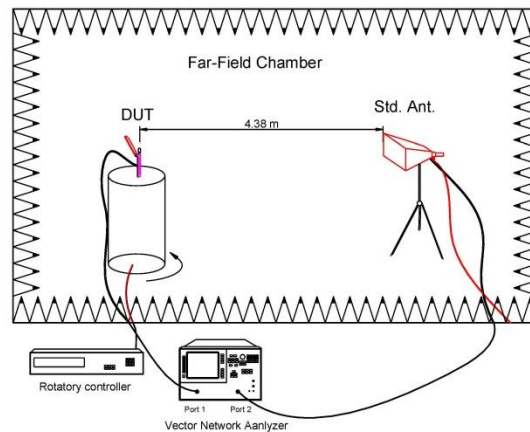


### 4-5. Efficiency and Gain

#### 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



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)

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#### 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	>40
5100~5825	>30
5925~7125	>20

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

Frequency (MHz)	Main-Antenna-1		
	Efficiency (%)	Efficiency (dBi)	Peak Gain (dBi)
2400	56	-2.5	3.2
2450	56.8	-2.5	3.6
2500	47.4	-3.2	3.3
5150	42.5	-3.7	1.9
5470	31.6	-5	2.7
5850	30.1	-5.2	1.3
5925	37.2	-4.3	1.6
6525	25.4	-6	-0.5
7125	45.8	-3.4	3.9

Frequency (MHz)	Aux-Antenna-1		
	Efficiency (%)	Efficiency (dBi)	Peak Gain (dBi)
2400	50	-3	3.7
2450	51.8	-2.9	3.9
2500	46.3	-3.3	4.2
5150	31.4	-5	2.4
5470	38.9	-4.1	1.1
5850	33.2	-4.8	1.1
5925	37.2	-4.3	1.6
6525	24.7	-6.1	0.3
7125	39.4	-4	3

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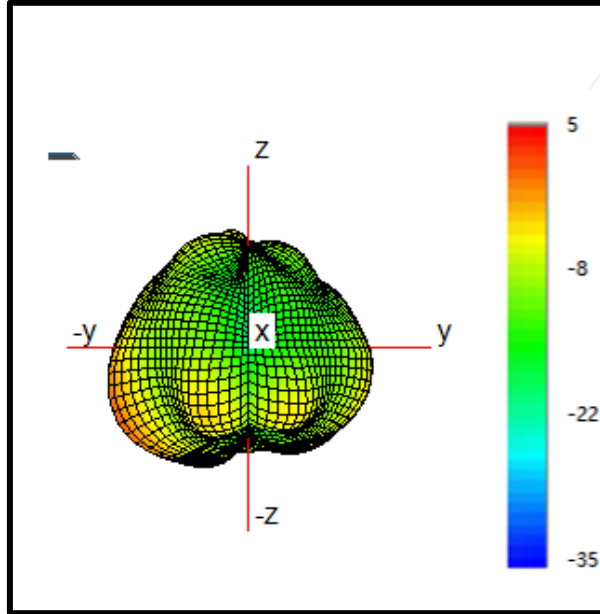
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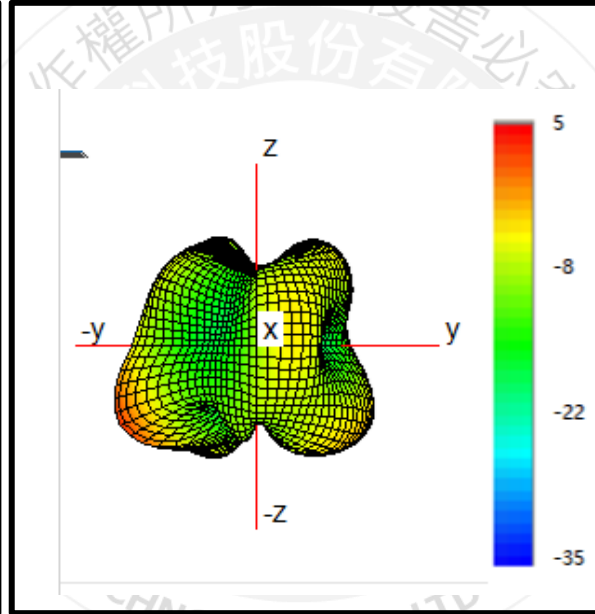
## 2. Antenna Test Results

### 2.4 Antenna Radiation Pattern

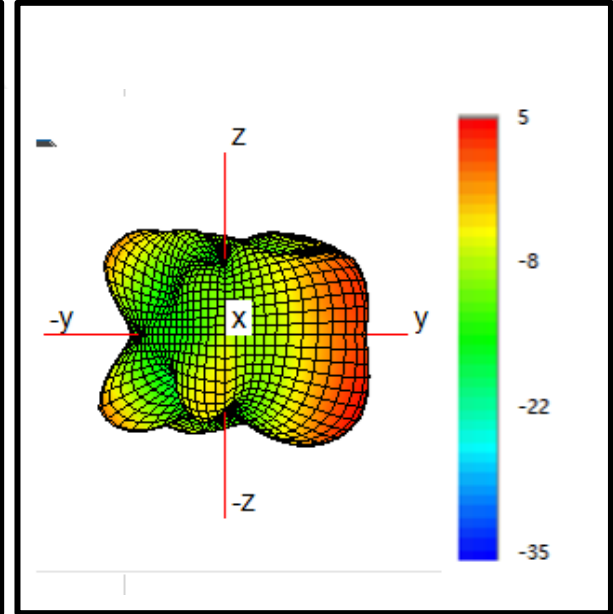
Main Antenna-1



2450MHz



5470MHz

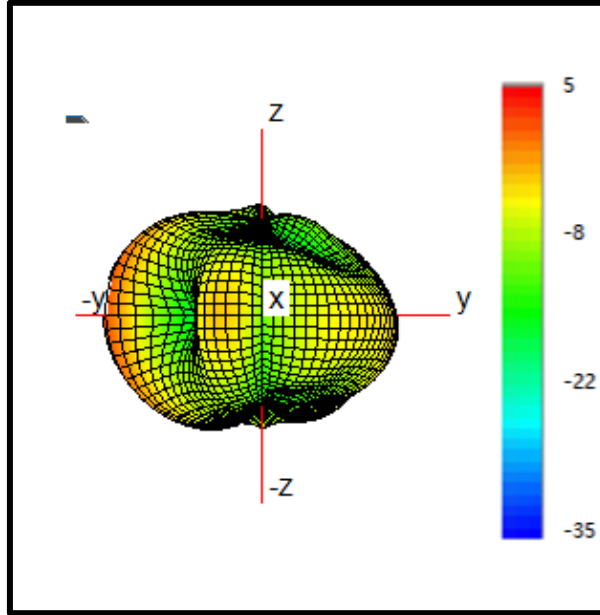


6525MHz

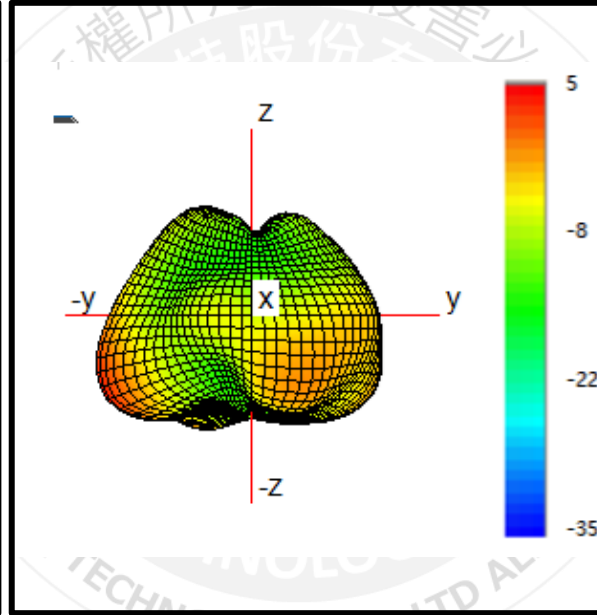
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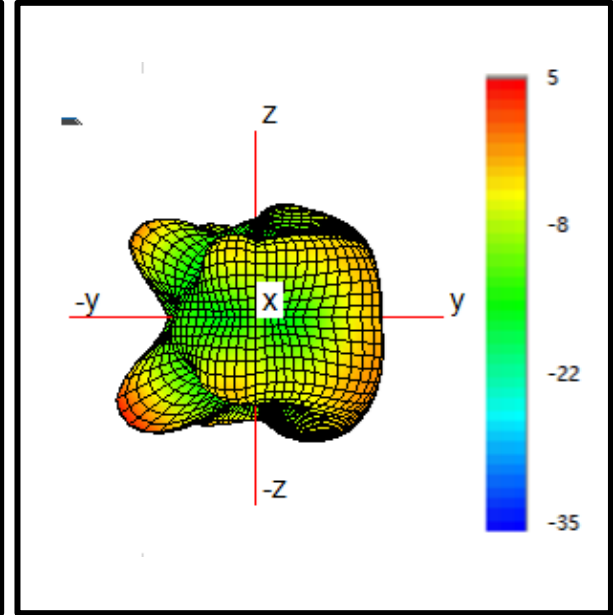
AUX Antenna-1



2450MHz



5470MHz



6525MHz