



客戶名稱 : **LG 17Z90SP**
CUSTOMER

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

承認書

APPROVAL SHEET

產品品名/Product Model No. : **WA-P-LBLB-04-112**

客戶料號/Customer No. : **EAA65985801**

專案名稱/Project Name: **17Z90SP**

發行日期/ Issue Date : **2023/09/20**

承認日期/ Approved Date : _____

Approved by customer: (signing or stamping here)



履历表

History List

[illegible]

WA-P-LBLB-04-112 Specification

1. Explanation of part number :

WA - P - LBLB - 04 - 112
(1) (2) (3) (4) (5)

(1) Product Type : Wireless Antenna

(2) P: PCB+Cable

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

(4) Coaxial Cable Type : With ϕ 0.81 Main Black / AUX Gray

(5) Suffix : 112

2. Storage Condition:

Temperature -40 to +70℃
Humidity 20 to 65 %RH

3. Operating Condition:

Temperature -40 to +70℃
Humidity 10 to 85 %RH

4. Electrical Specification :

Those specifications were specially defined for LG 17Z90SP 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 50Ωcoaxial cable is connected to the antenna. Then this cable is connected

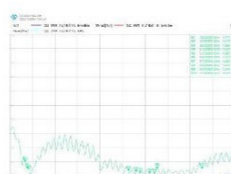
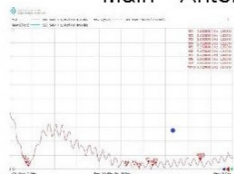
to a network analyzer to measure the VSWR

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

4-4.2 Measurement frequency points and VSWR value

VSWR	Frequency (Unit MHz)	Spec	3
Main Antenna	2400	≤ 3.0	1.6
	2500	≤ 3.0	1.2
	5150	≤ 3.0	1.2
	7125	≤ 3.0	1.6
	Judgement		ok
Aux Antenna	2400	≤ 3.0	1.9
	2500	≤ 3.0	1.3
	5150	≤ 3.0	1.3
	7125	≤ 3.0	1.5
	Judgement		ok

Main Antenna-3



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4-5. Efficiency and Gain

4-5.1 Measuring equipment

Measuring instrument:

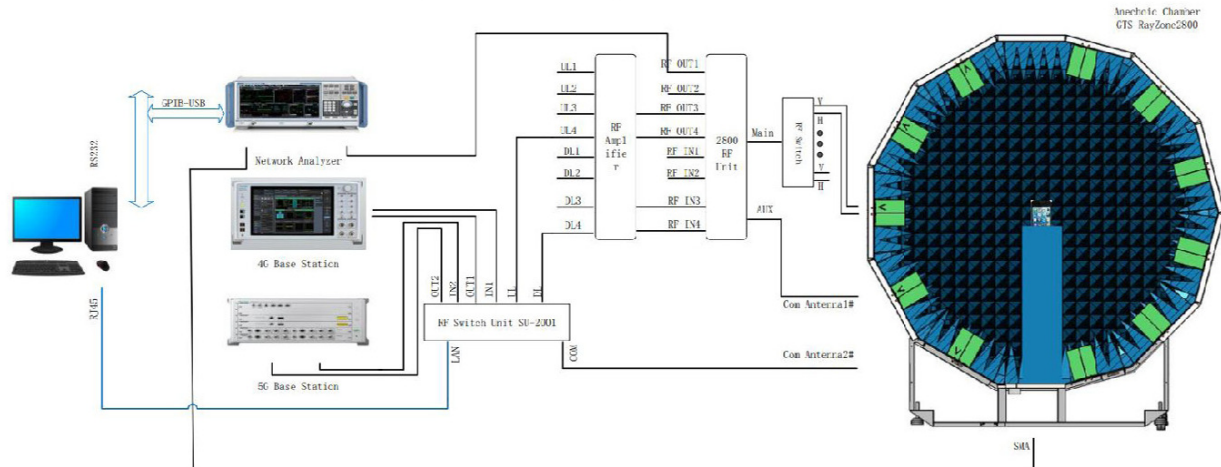
Microwave chamber, Network analyzer, and standard antenna.

Instructions for microwave chamber:

This is a microwave chamber set up by our company in Suzhou, This microwave chamber belongs to a set of near-field measurement system. The size of the chamber is 2.95M * 3M * 3M.



RayZone2800 Test Setup



The microwave chamber, shown above, using a unique multi-probe technique, The aim is to reduce the measurement time of the whole measurement system. The measuring system use multi-probe array instead of single probe to scan the measured surface of the antenna under test, a single probe has the capability of measuring orthogonal polarization amplitude and phase, it also has a wide frequency range, the corresponding multi-probe array is switched quickly by electronic switch, greatly improved the measurement efficiency.

The probe model: MA186960A(400MHz~7.5GHz) . Because of its capability of broadband frequency and the orthogonal polarization function, the number of probes needed to be equipped with the system is reduced; The small size of the probe reduces the coupling between the probes, make it is possible to insert probes of other frequency bands between probes, then a single system can support a wider frequency range

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4-5.2 Efficiency and Gain

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

4-5-2-1 Electrical specification

Frequency (MHz)	Average Efficiency (%)
2400~2500	>30
5100~5825	>30
5925~7125	>30

4-5.2-2 Efficiency and Gain Test Data

Frequency (MHz)	Main Antenna-3			Aux Antenna-3		
	Efficiency (%)	Gain w/ cable loss (dBi)	Peak Gain w/ cable loss (dBi)	Efficiency (%)	Gain w/ cable loss (dBi)	Peak Gain w/ cable loss (dBi)
2.4GHz (2400~2500MHz)	38.6	-4.1	2.1	35.7	-4.5	2.6
5.2&5.3GHz (5150~5350MHz)	34.4	-4.6	1.7	37.4	-4.3	2.8
5.5GHz (5470~5725MHz)	31.3	-5.0	2.4	37.1	-4.3	1.6
5.8GHz (5725~5850MHz)	35.6	-4.4	2.9	35.9	-4.4	2.3
6.2GHz (5925~6425MHz)	32.8	-4.2	0.8	38.5	-4.1	2.8
6.5GHz (6425~6525MHz)	30.9	-5.0	2.3	35.9	-4.4	2.2
6.7GHz (6525~6875MHz)	30.8	-5.1	2.9	35.8	-4.5	2.5
6.9GHz (6875~7125MHz)	28.4	-5.4	2.4	27.6	-5.6	-1.8

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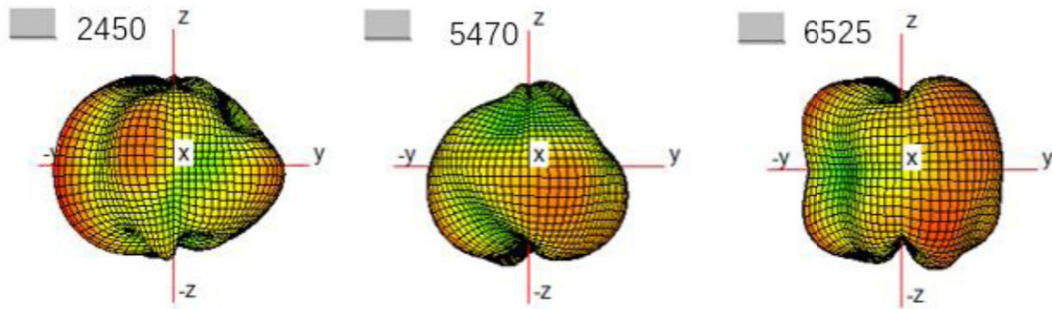
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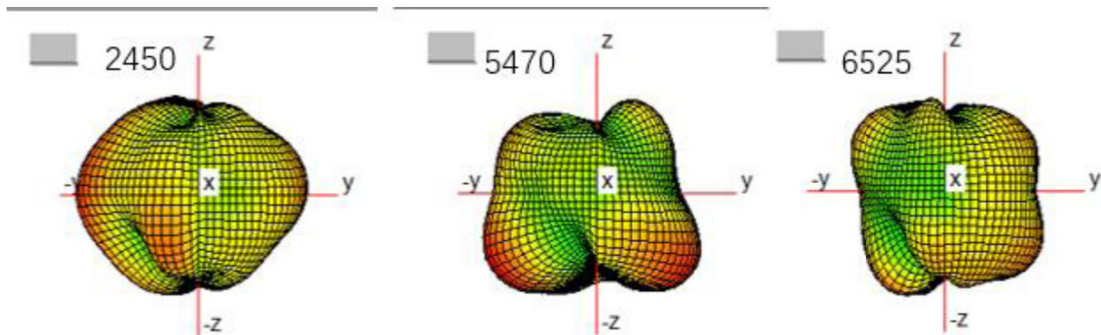
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4-5.2-3 Antenna 3D Radiation Pattern

Main Antenna-3



AUX Antenna-3



5. Mechanical Specification:

Connector: I-PEX MHF 4L: 20572; Cable: RF Cable 0.81 (Main Black/Aux Gray)

Cable length: Aux Antenna L: $324.5 \pm 2\text{mm}$ (Include connector)

Main Antenna L: $275.8 \pm 2\text{mm}$ (Include connector)



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Item	Description	Material	Quantity
1	PCB	PCB T0.4 WA-P-LBLB-04-112	1
2	Acetate tape	Acetate tape 18x10mm, T0.12mm	1
3	Shrink Tube	Shrink Tube black, ϕ 1.5 x45mm	1
4	Shrink Tube	Shrink Tube black, ϕ 1.5 x8mm	1
5	Cable black	Cable 0.81 black	1
6	Cable gray	Cable 0.81 gray	1
7	Connector	I-PEX MHF 4L for 0.81, 20572	2
8	TAP	TAP 3M467 74x4mm	1
9	Clamp	Clamp 0.81 5mm	2

ITEM	DESCRIPTION	SUPPLIER	UL File No
1	PCB	HA0129	E202191
2	CABLE	HA0008	E318898
		HA0053	E464731

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