

Product Model: <u>Deco BE65-Outdoor</u>

Manufacturer: TP-Link Systems Inc.

Test Date: <u>2025.01.23</u>

Tested By: Xuan Shan Xuan Shan

TP-Link Systems Inc.
10 Mauchly, Irvine, CA 92618

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# 2. Electrical Characteristics

Ant1					
Frequency	2400 ~2500MHz				
Impedance	50Ohm				
Antenna Type	IFA				
Antenna Gain	0.93dBi@2400~2500MHz				
Radiation pattern	Omni-Directional				
P/N					

### 3. Gain and Radiation Pattern

### 3.1 Measurement Procedure

This measurement experiment adopted an antenna near-field measurement system, and the diagram of the measurement system was shown in Figure 3-1. The excitation signal was generated by the Keysight E5071C (300kHz-20GHz). Under the control of the central computer, the probe rotated in the  $\theta$  direction, and the EUT rotated in the  $\phi$  direction with the turntable. The probe sampling frame received and collected signals in the near-field range of the EUT. The software system which was controlled by the central computer completed the processing, output and display of the test data.

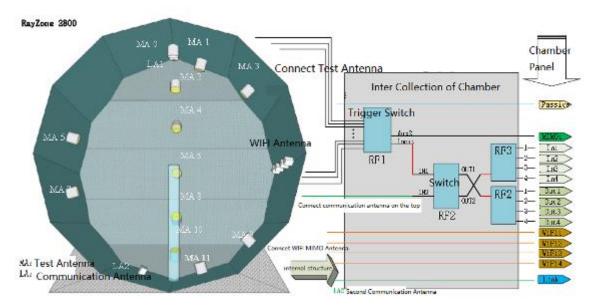


Figure 3-1

The test site was a full anechoic chamber with a size of 3.0m×3.1m×2.97m, which was built by GTS Rayzone2800. All six surfaces of the anechoic chamber were pasted with absorbing materials. And the chamber was calibrated by the authoritative third-party lab every year. The antenna anechoic chamber measurement system adopted a 13-probe multi-probe system. The probe antennas were evenly distributed on the spherical surface surrounding the EUT, and theirs operating frequency was 600MHz~8.5GHz.

During the measurement, the probe antennas were rotated in the  $\theta$  direction under the control of the probe holder to sample the near-field data at the  $\theta$  angle. At the same time, the EUT rotated with the turntable in the  $\phi$  direction to sample the near field data at the  $\phi$  angle. The sampling accuracy was 15°. The system diagram was shown in Figure 3-2. From the sampling results, the EUT's near-field test data of  $\theta$  component,  $\phi$  component and total component could be obtained.

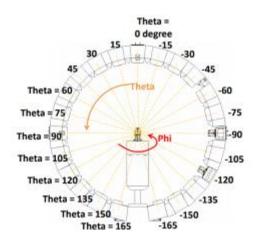


Figure 3-2

Before the measurement, calibrated the vector network analyzer, and then connected the input end of each antenna to the output end of the vector network analyzer, and evenly the antennas to be measured. Test Equipment listed below:

Equipments	Model	Manufacturer	S/N	Cali. Interval	Cali. Due Date
Chamber	Rayzone2800	GTS(General	MY5347043	12months	2026/01/15
Chamber		Test System)	5		
Vector	E5071C	Keysight	MY46315238	24months	2026/03/13
Network Analyzer	E307 1C	Reysigni	101140313236	241110111115	2020/03/13
GTS MaxSign100	V2.1	GTS(General	1	/	,
Software	V Z. I	Test System)	/	,	,

# 3.2 Test Setup

The test setup was shown in Figure 3-3, 3-4:



Figure 3-3

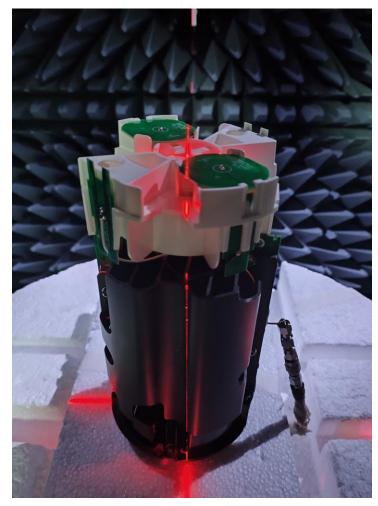
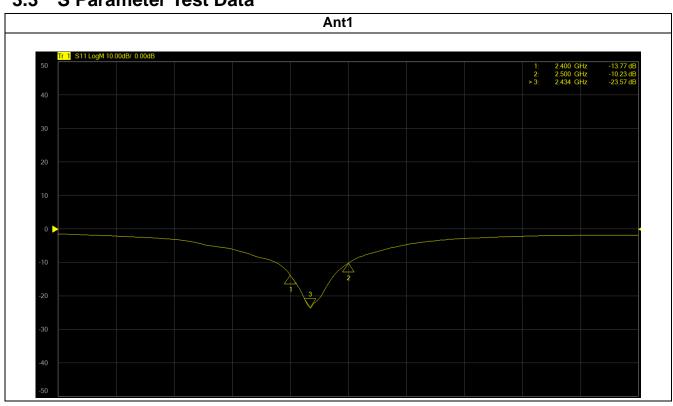


Figure 3-4

# 3.3 S Parameter Test Data



# 3.4 Antenna Peak Gain

Frequency	2.45GHz			
rrequericy	2400~2500MHz			
Ant1 MaxGain(dBi)	0.93			
Ant1 Polarization/	Theta/30/135			
Φ (°)/θ (°)				
Max Gain(dBi)	0.93			

# 3.5 Antenna Radiation Pattern

