



HuiZhou Speed Wireless Technology CO., LTD.  
Taiwan Speed Wireless Technology CO.,LTD.

# Antenna Specification Datasheet

**Customer Name : CHICONY ELECTRONICS CO., LTD.**

**Date : 2024.10.21.**

<b>OEM P/N</b>	0790A2324L-A01
<b>SPEED P/N</b>	F-0Q-51-6009-001-00
<b>Version</b>	A

Prepared by	Signed by	<b>Approved by Customer</b>
RF Engineer	Webb	
ME Engineer	陳曉斌	
Reviewed by	Signed by	
RF Manager	Webb	
ME Manager	駱增周	
Project Manager	Eison	

天線製造商(中文): 惠州硕贝德无线科技股份有限公司

天線製造商地址(英文): Huizhou Speed Wireless Technology Co., Ltd.

天線製造商地址(中文): 广东省惠州市仲恺高新区东江高科技产业园惠泽大道 138 号

天線製造商地址(英文): No.138 Huize Road, Hi-Tech Industrial Park of East River, Zhongkai  
Hi-tech District, Huizhou City, Guangdong Province

天線廠牌: SPEED

Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

# Revision History

Date	Revision	Description of changes
2024-10-21	A	First release

## Antenna Specification Datasheet List

<b>1.</b>	<b>Test Criteria.....</b>	<b>3</b>
	1.1 Test setup, Processes and Criteria .....	3
	1.2. Test Environment.....	3
	1.2.1 Antenna Test Environment.....	4
	1.2.2 Test Conditions .....	4
	1.3 Antenna Drawing .....	5
<b>2</b>	<b>Antenna Gain Specification.....</b>	<b>6</b>
	2.1 Antenna Requirements.....	6
	2.2 Antenna Frequency Bands .....	6
<b>3</b>	<b>S-Parameter Measurement Result .....</b>	<b>7</b>
	3.1. Reflection coefficient : .....	7
<b>4.</b>	<b>Antenna Performance Test.....</b>	<b>9</b>
	4.1 Antenna Measurement Antenna Gain Value .....	9
	4.2 Radiation Pattern.....	10

Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

# 1. Test Criteria

## Test Criteria

Radiation gain measurement shall be made with the antennas installed in the intended notebook system. This specification evaluates performance of antenna at a system level with the antennas operating in a manner similar to customer use.

### 1.1 Test setup, Processes and Criteria

The gain measurement shall follow by following conditions:

- It is required that all the antenna gain to be measured spherically and computed by spatial average be computed of the resultant gain.
- During gain measurement, all other antennas not under test should be terminated by 50 Ohm load in end of cable.
- Space points of 3D gain measurement are increase by specific steps from Theta 0~180 degrees, and Phi, 0~360 degrees, as figure below. The increment steps are different steps are different by antenna functions, besides WiMAX defined in sections of WiMax antenna gain specifications, gain measurement to other function of antennas s should following steps table below.

<b>Theta Start</b>	15 degree	<b>Phi Start</b>	0 degree
<b>Theta Stop</b>	165 degree	<b>Phi Stop</b>	360 degree
<b>Theta Increment</b>	15 degree	<b>Phi Increment</b>	15 degree

### 1.2. Test Environment

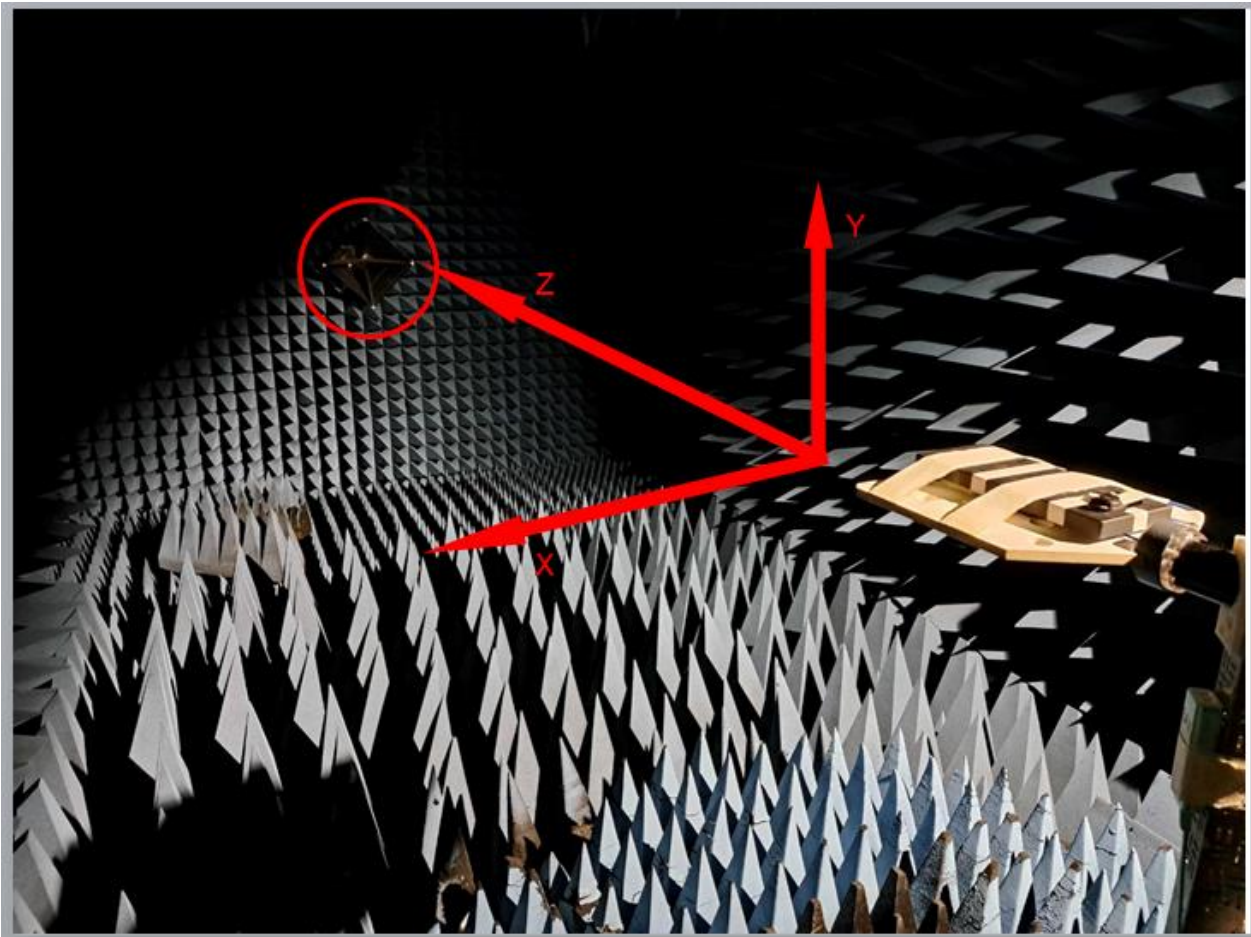
The testing of antenna gain should be made at a CTIA qualified lab with an RF anechoic chamber with at least 3-meter separation from the receive antenna to the antenna under test. The antenna gain report from unqualified lab can't be referenced a passing. Besides, all test equipment including horn antennas, adapters, cables, network analyzers, and receivers shall be calibrated per manufacturer's minimum calibration requirements.

Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

## 1.2.1 Antenna Test Environment

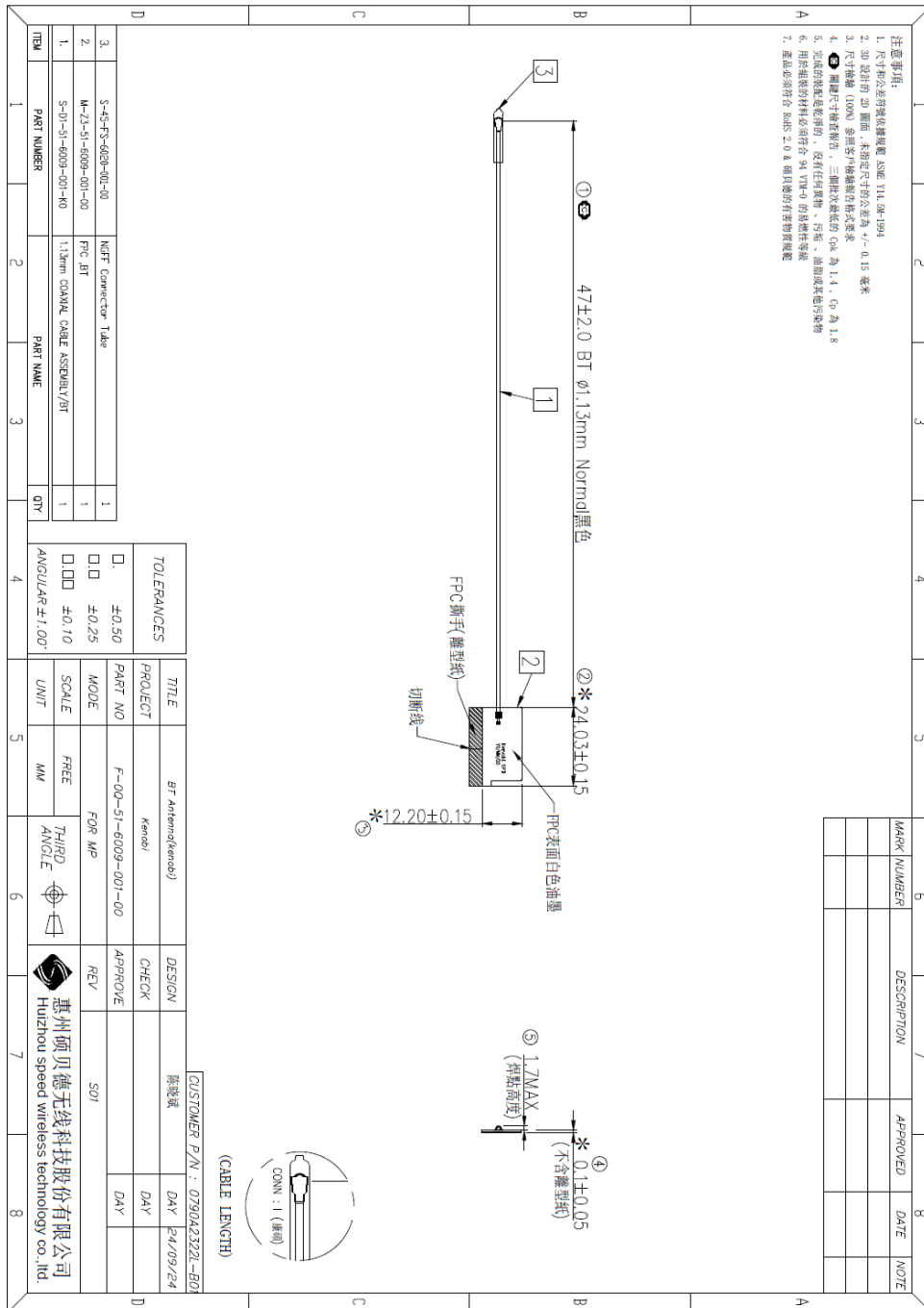
The RF anechoic chamber must be lined with absorptive material rated at a minimum frequency range from 600 MHz to 7.125 GHz.

## 1.2.2 Test Conditions



Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

# 1.3 Antenna Drawing



Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

## 2 Antenna Gain Specification

In order to ensure compliance with customers and worldwide carrier specification, it's required that antenna gain should be measured to meet customers antenna specification. It should be measured spherically and spatial average be computed of the resultant gain, and cover all the necessary required frequencies listed in the latest antenna format.

### 2.1 Antenna Requirements

This specification evaluates performance of antenna at a system level with the antennas operating in a manner similar to customer use. It is required that all the antenna gain should be measured spherically and a spatial average be computed of the resultant gain.

### 2.2 Antenna Frequency Bands

The following table documents the frequency requirements of antenna assemblies for customers products.

Description	Frequency
BT	2.4-2.5GHz

Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

### 3 S-Parameter Measurement Result

#### 3.1. Reflection coefficient :

- (1) Instrument : Network Analyzer.
- (2) Setup :
- (3) Calibrate the Network Analyzer by one port calibration using O.S.L. calibration kits.
- (4) Connect the antenna under test to the Network Analyzer.
- (5) Measure the S11(reflection coefficient) shown in Fig. 1.
- (6) Generally, the S11 is less than  $-10\text{dB}$  to ensure the 90% power into antenna and only less than 10% power back to system.

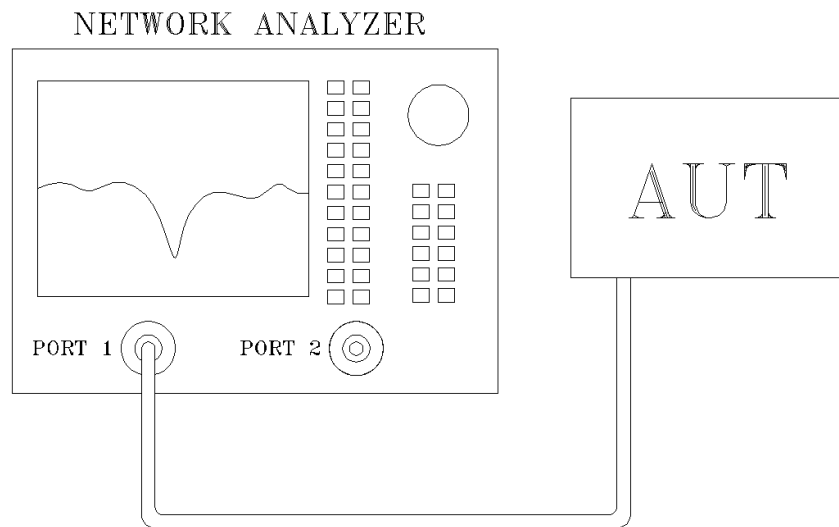
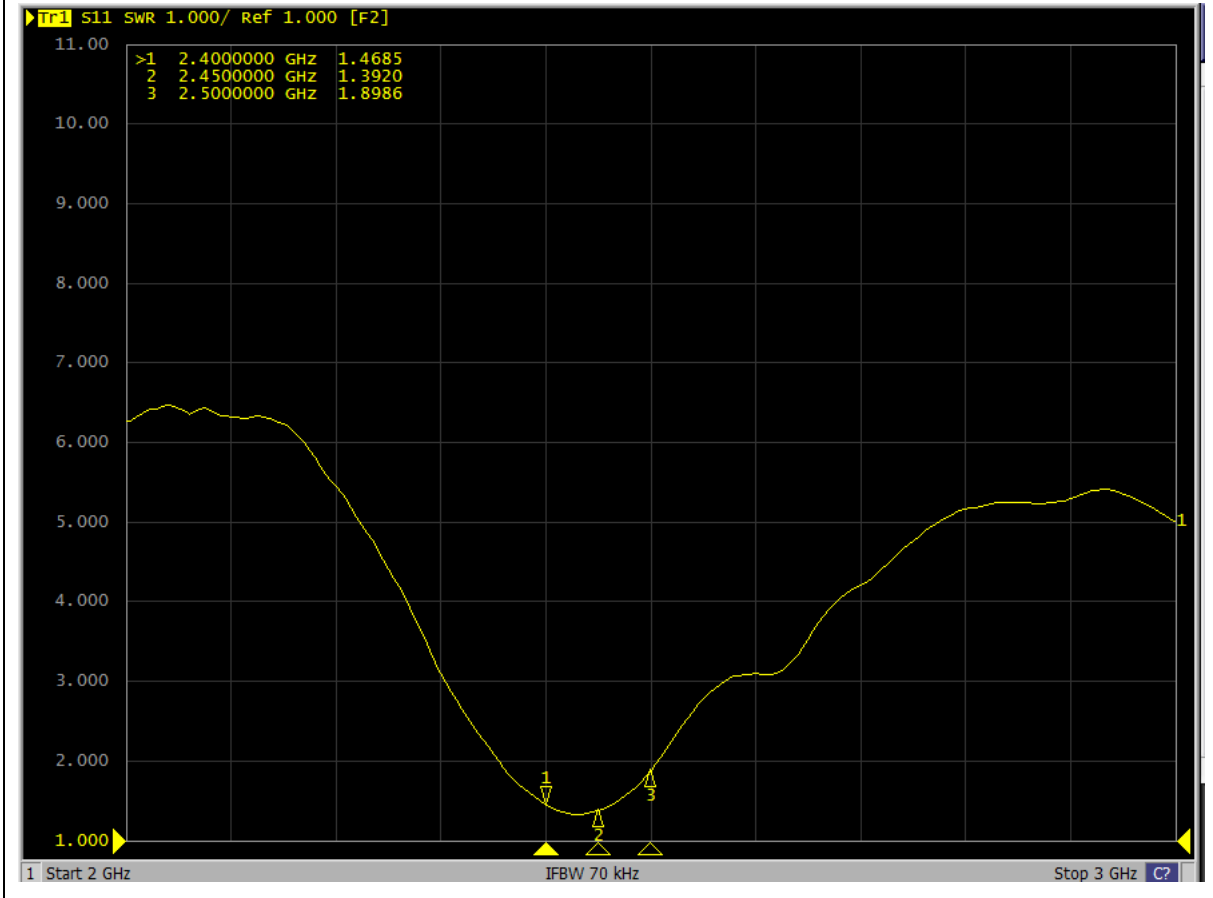


Fig.1 Antenna measured in Network Analyzer

Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

# VSWR



Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		



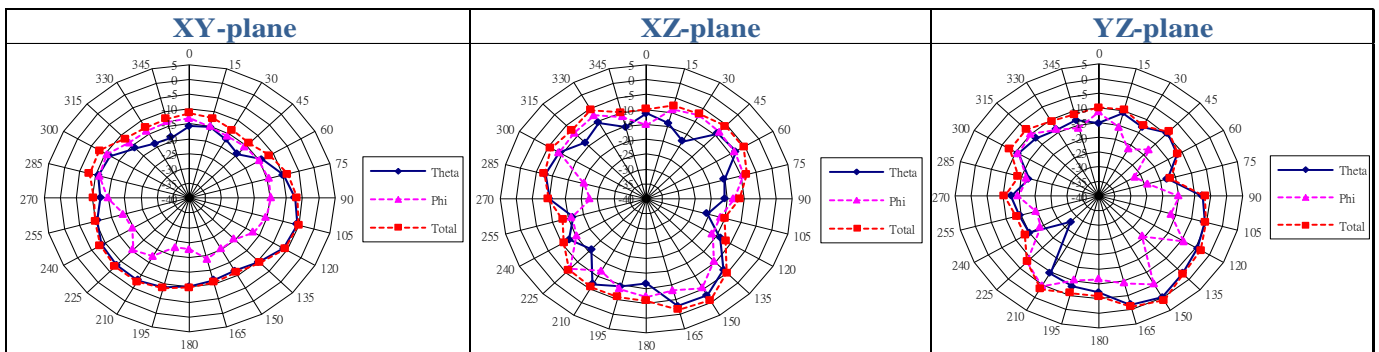
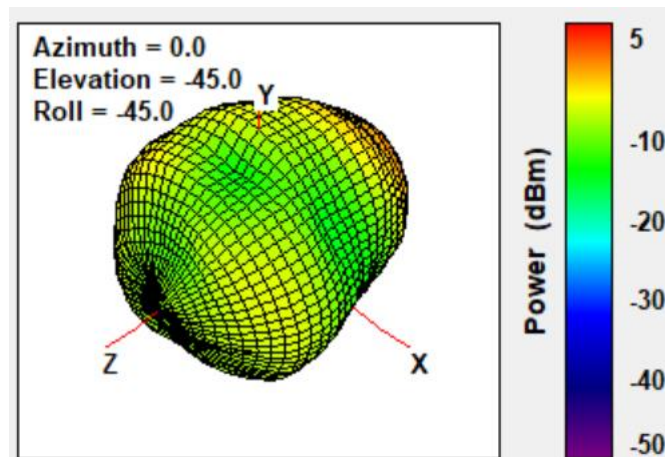
## 4. Antenna Performance Test

### 4.1 Antenna Measurement Antenna Gain Value

Frequency (MHz)	Peak Gain (dBi)	3D Gain (dBi)	3D Radiation Efficiency (%)
2400	1.16	-3.86	41.15
2410	1.33	-3.92	40.56
2420	1.80	-3.76	42.03
2430	1.09	-3.79	41.79
2440	1.61	-3.57	43.98
2450	1.13	-3.31	46.61
2460	1.90	-3.75	42.22
2470	1.28	-3.48	44.89
2480	1.11	-3.68	42.85
2490	1.09	-3.75	42.14
2500	1.73	-3.92	40.59

Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

## 4.2 Radiation Pattern



Project Name : Kenobi	Author : Webb	File Name : 0790A2324L-A01(F-0Q-51-6009-001-00)
Date : 2024.10.21	Check : Eison	
Rev : A		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		