



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

Antenna Specification Datasheet

Customer Name : Chicony

Date : 2025.09.17.

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SPEED P/N	F-0Q-51-6010-003-00
Version	S01

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Revision History

Date	Revision	Description of changes
2025-09-17	S01	First release

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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.

Theta Start	15 degree	Phi Start	0 degree
Theta Stop	165 degree	Phi Stop	360 degree
Theta Increment	15 degree	Phi Increment	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.

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1.2.1 Antenna Test Environment

The RF anechoic chamber must be lined with absorptive material rated at a minimum frequency range from 700 MHz to 6 GHz.

1.2.2 Antenna Test Environment

The RF anechoic chamber must be lined with absorptive material rated at a minimum frequency range from 0.7 GHz to 6 GHz.

1.2.3 Test Conditions

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1.4 Antenna Drawing

Antenna Type :Dipole

Technical drawing of a cable assembly. The drawing includes a side view of the cable with dimensions and a cross-section view. The side view shows a cable with a length of 85.5±2.00 BT, a diameter of 1.13mm, and a low loss specification. Callouts include dimensions for the cable jacket (10.0±0.15, 5.9±0.15), the cable core (27.0±0.15), and the cable braid (30.0±0.15). The drawing also shows a cross-section of the cable with a central conductor and a braided shield. A note indicates that the cable is made of TBSA4982 material.

MARK	NUMBER	DESCRIPTION	APPROVED	DATE	NOTE
		更新走线和线材	陈晓斌	9/18	
		更新走线和线材	陈晓斌	9/20	
		更新走线	陈晓斌	11/11	
		更新走线和线材	陈晓斌	5/14	
		更新走线和客户料号	陈晓斌	9/17	

注意事项:
1. 尺寸和公差按标准规格 ASME Y14.5M-1994
2. 如设计的 2D 图面, 未指定尺寸的公差为 ± 0.15 毫米
3. 尺寸检验 (100%) 参照客户检验规范格式要求
4. 圆角尺寸按查报告, 三层此次最低的 Cpk 为 1.4, Cp 为 1.8
5. 完成的样品是乾淨的, 没有任何异物、污垢、油渍或其他污染物
6. 用於組裝的材料必須符合 94 VTM-0 的易燃性等級
7. 產品必須符合 RoHS 2.0 & 無鉛焊的有價物質規範

1	2	3	4	5	6	7	8
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ITEM	PART NUMBER	PART NAME	QTY	TOLERANCES	TITLE	PROJECT	DESIGN	DAY
1	S-45-FS-6020-001-00	NGFF Connector Tube	1	± 0.50	BT	Dmoha	CHECK	DAY
2	M-Y4-SI-6010-002-00	DOUBLE SHIELD TAPE 02	1	± 0.25	PART NO	F-00-SI-6010-003-00	APPROVE	DAY
3	M-Z2-SI-6010-002-00	PCB BT	1	± 0.10	MODE	FDR DVTI BUILD	REV	DAY
4	S-IL-SI-6010-003-50	1.13mm COAXIAL CABLE ASSEMBLY BT	1	ANGULAR $\pm 1.00^\circ$	SCALE	FREE	T06	DAY

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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

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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 -10dB to ensure the 90% power into antenna and only less than 10% power back to system.

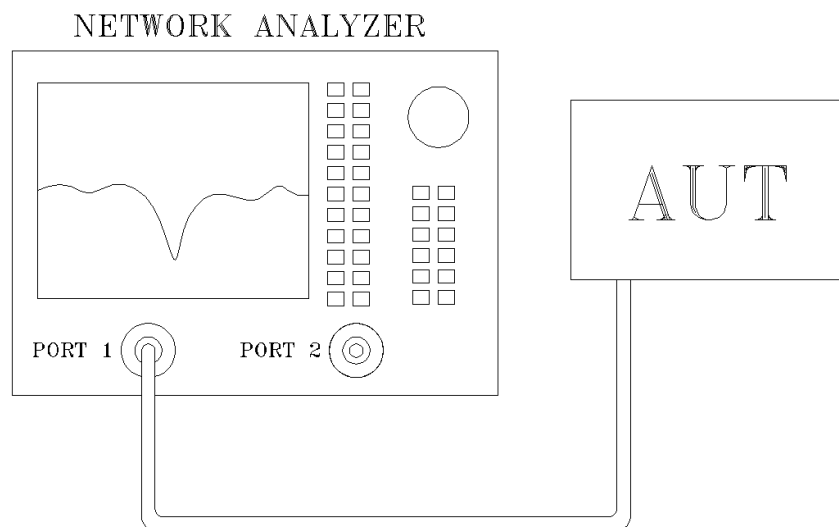
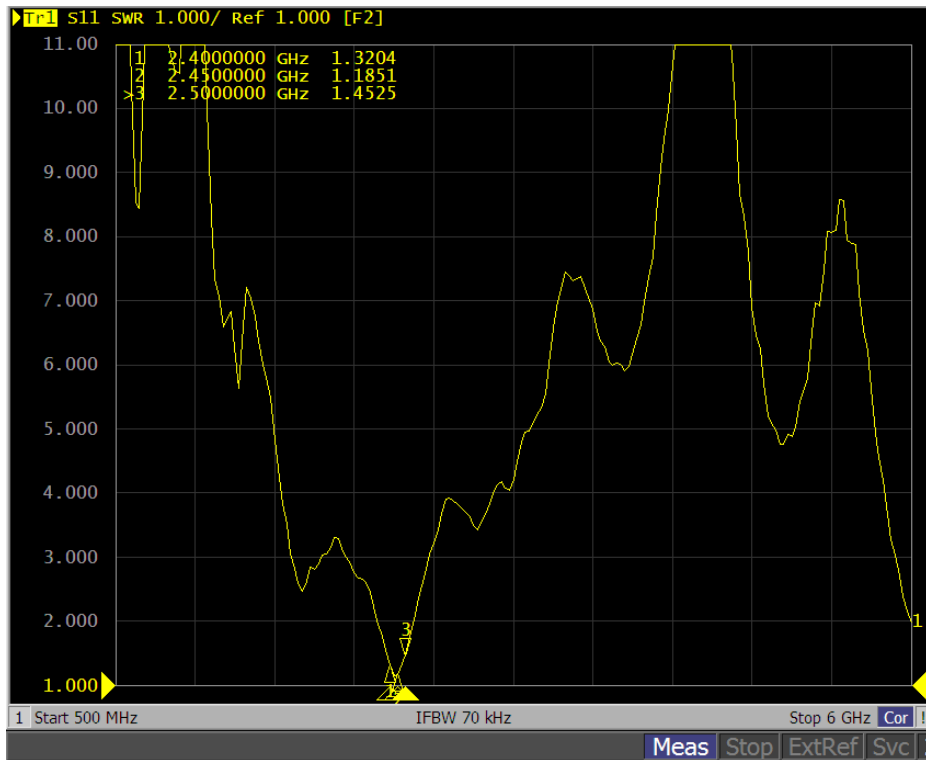


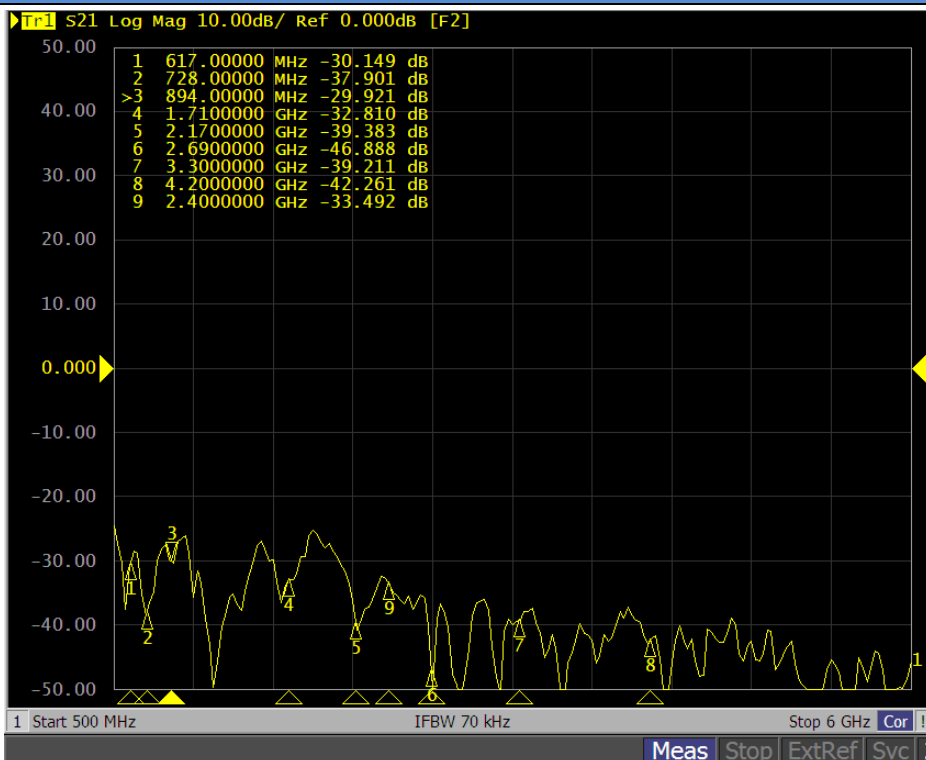
Fig.1 Antenna measured in Network Analyzer

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BT VSWR



TOP & BOTTOM Isolation



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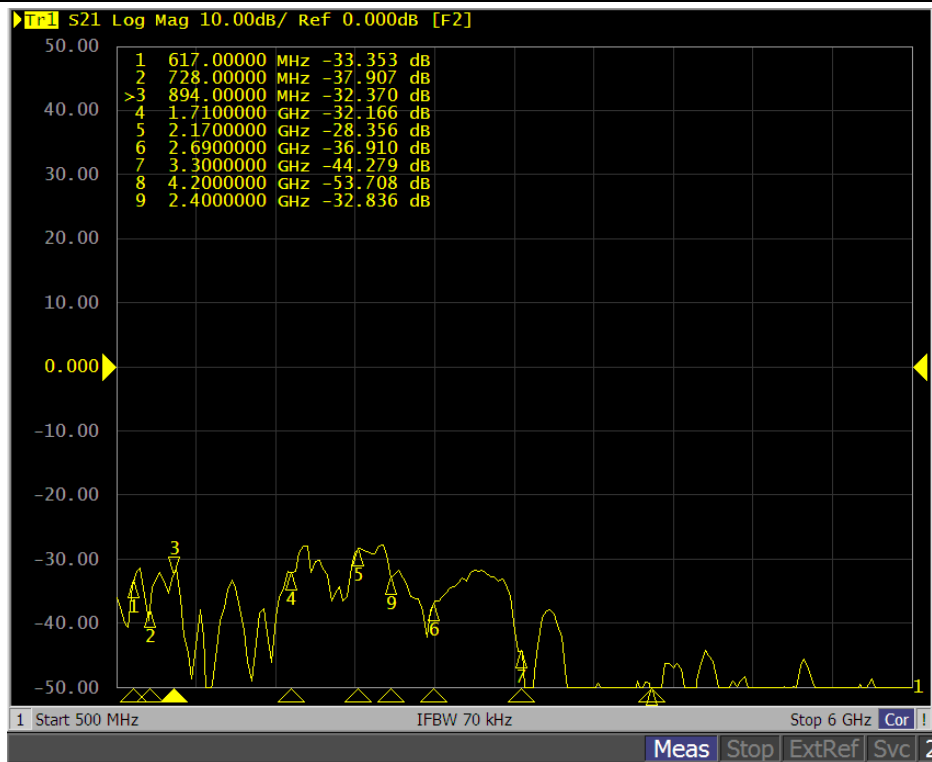
Date : 2025.09.17

Check : Eison Chou

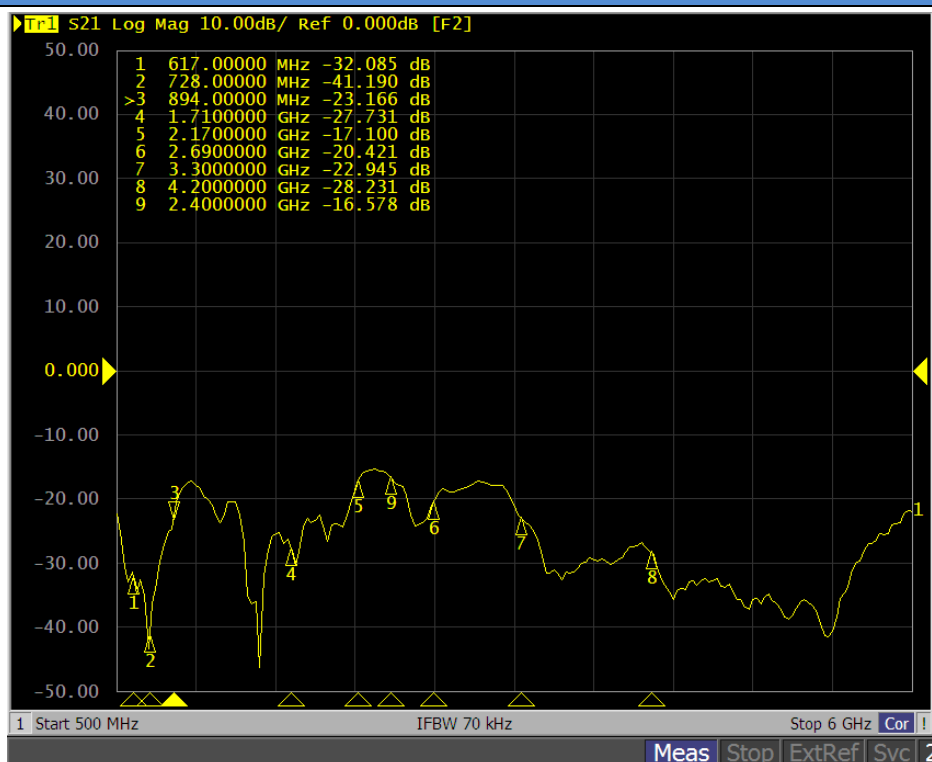
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TOP&BT Isolation



BOTTOM&BT Isolation



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4. Antenna Performance Test

4.1 Antenna Measurement Antenna Gain Value

Frequency (MHz)	Peak Gain (dBi)	3D-Avg Gain (dB)	Efficiency (%)
2400	1.84	-2.12	61.36
2410	1.73	-2.14	61.16
2420	1.64	-2.17	60.67
2430	1.52	-2.21	60.09
2440	1.49	-2.17	60.63
2450	1.56	-2.15	60.98
2460	1.75	-2.06	62.21
2470	2.00	-2.01	62.91
2480	2.34	-1.97	63.54
2490	2.58	-1.91	64.38
2500	2.62	-1.91	64.43

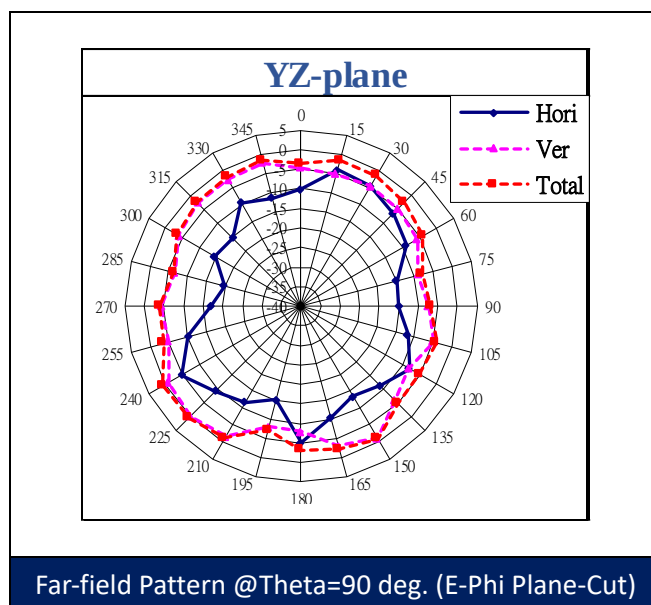
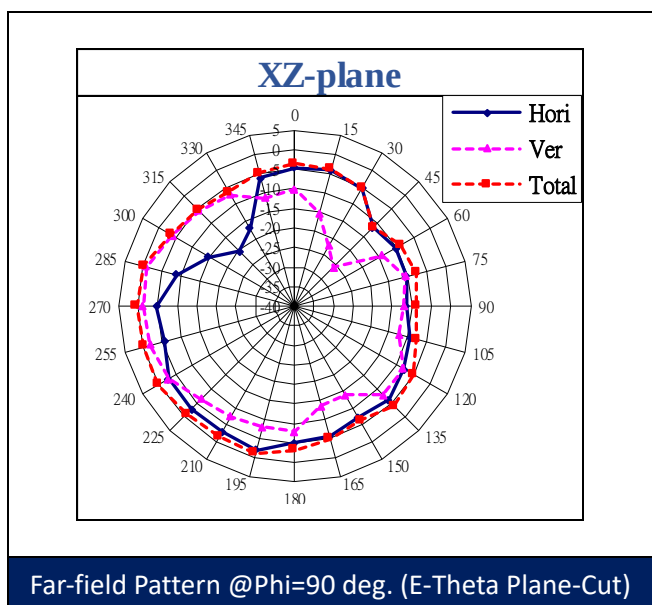
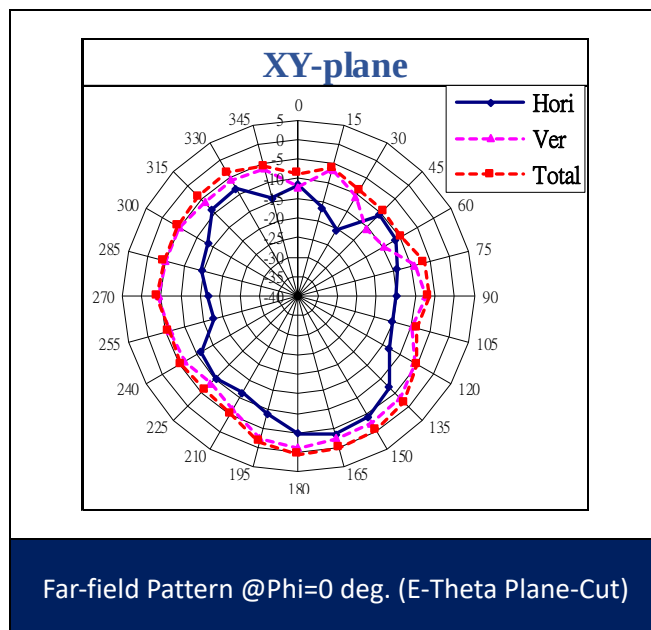
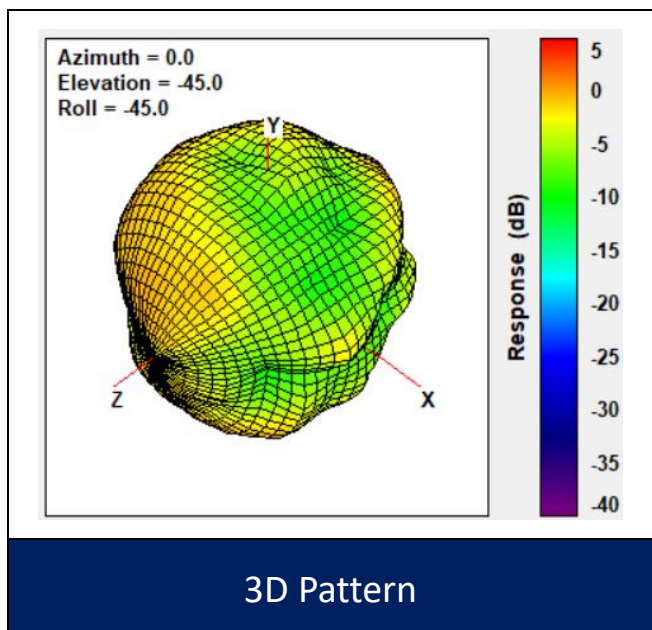
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Appendi

Radiation characteristics of antennae Loaded in Host Platform

2400-2500MHz radiation characteristic

2450MHz



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