



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

Antenna Specification Datasheet

Customer Name : NETRONIX

Date : 2023.02.03.

OEM P/N	
SPEED P/N	F-0G-68-6002-001
Version	T02

Prepared by	Signed by	Approved by Customer
RF Engineer	Webb	
ME Engineer	Regan	
Reviewed by	Signed by	
RF Manager	Webb	
ME Manager	Hector	
Project Manager	Eison	

Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

Revision History

Date	Revision	Description of changes
2022-07-29	T01	First release
2023-02-03	T02	Add copper foil and change layout

Antenna Specification Datasheet List

1. Test Criteria	3
1.1 Test setup, Processes and Criteria	3
1.2. Test Environment	3
1.2.1 LTE Antenna Test Environment	4
1.2.2 LTE Antenna Test Environment	4
1.2.3 Test Conditions	4
1.4 Antenna Drawing	5
2. Antenna Gain Specification	6
2.1 LTE Antenna Requirements	6
2.2 LTE Antenna Frequency Bands	6
3. S-Parameter Measurement Result	7
3.1. Reflection coefficient :	7
4. Antenna Performance Test	9
4.1 Antenna Measurement Antenna Gain Value	9
Appendi	10
Radiation characteristics of antennae Loaded in Host Platform 617-960MHz radiation characteristic	10

Project Name : EA0P04 LDS Antenna	Author : 	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
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.

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.

Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

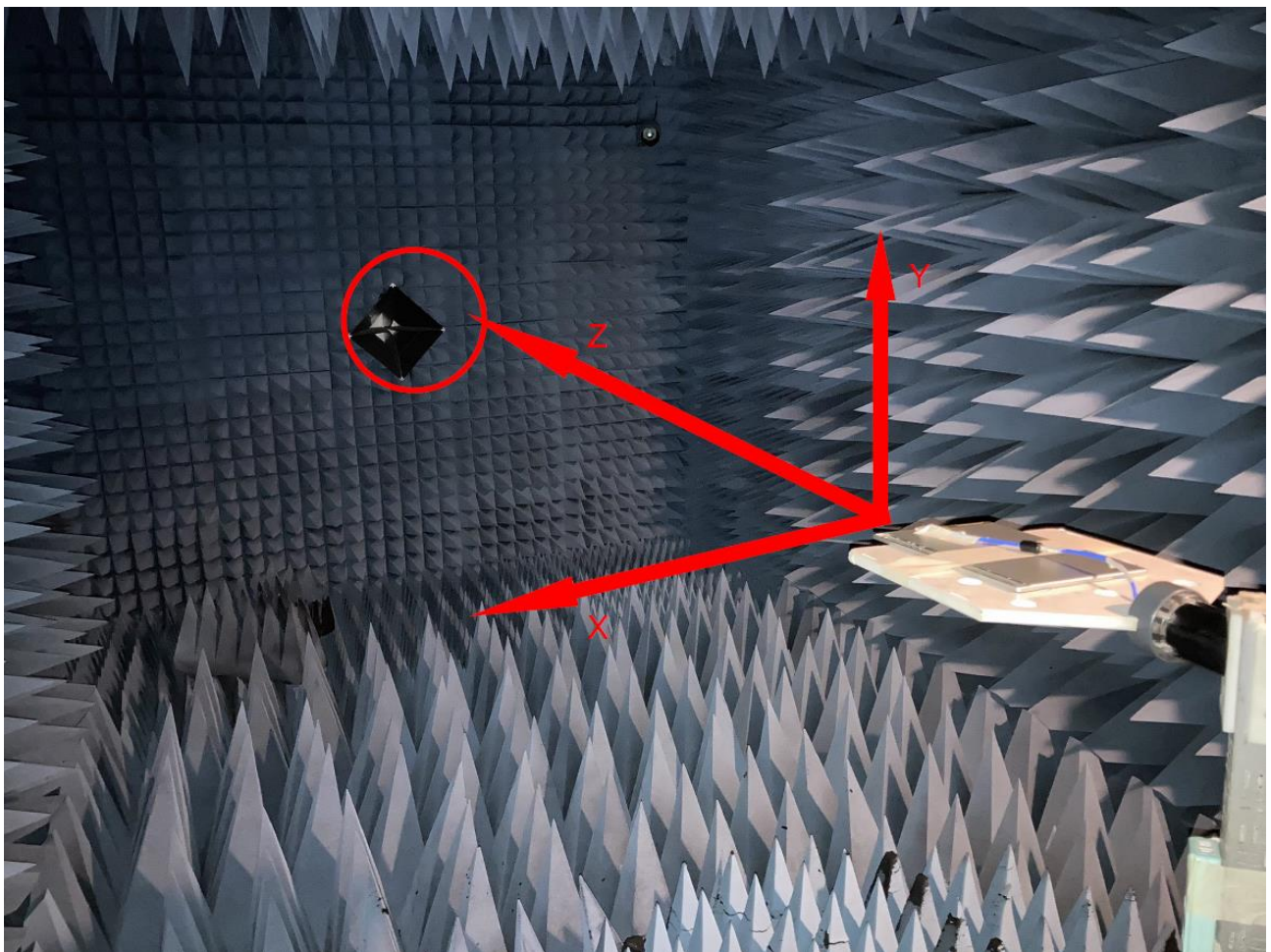
1.2.1 Antenna Test Environment

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

1.2.2 Antenna Test Environment

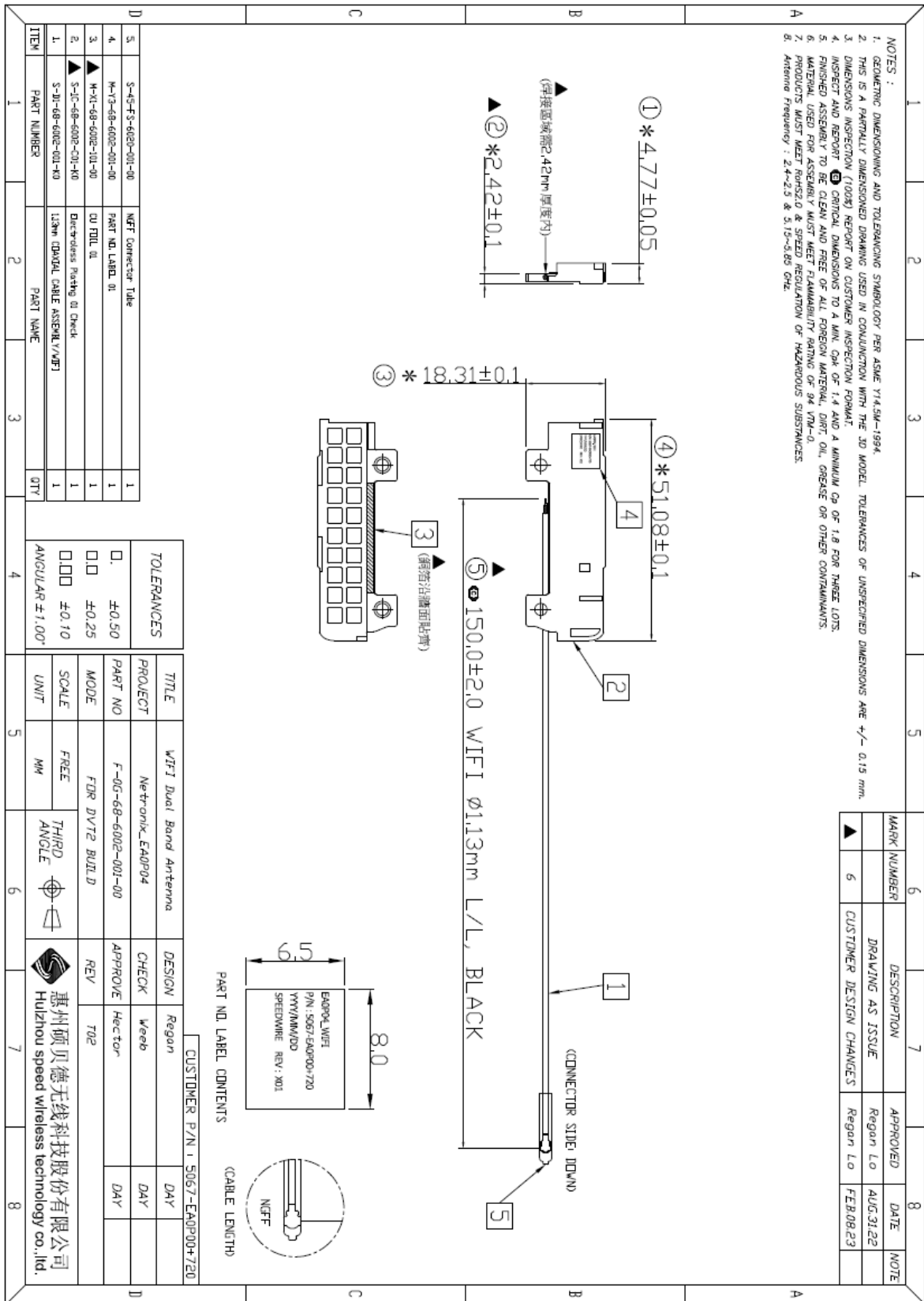
The RF anechoic chamber must be lined with absorptive material rated at a minimum frequency range from 0.7 GHz to 6 GHz.

1.2.3 Test Conditions



Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

1.4 Antenna Drawing



Project Name : EA0P04 LDS Antenna	Author : Check : Eison	File Name : EA0P04 LDS Antenna
Date : 2023.02.03		
Rev : T02		
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
WiFi	2.4 -2.5GHz
	5.15-5.85 GHz

Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
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 -10dB to ensure the 90% power into antenna and only less than 10% power back to system.

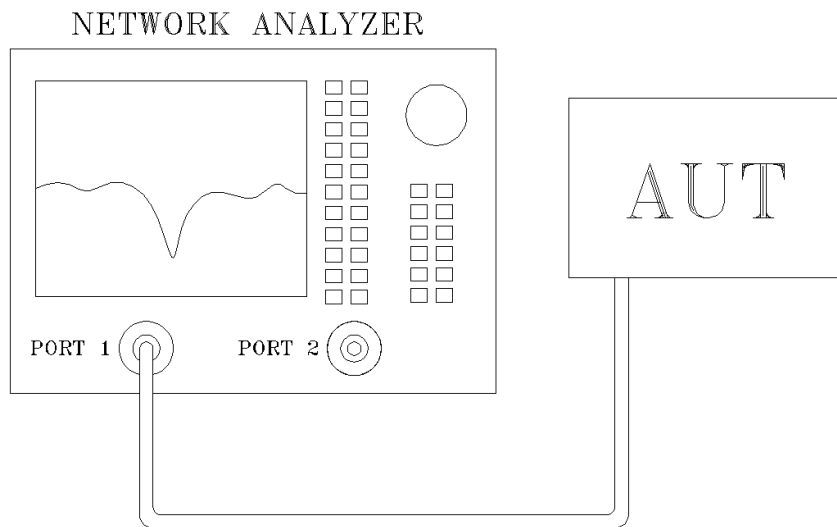
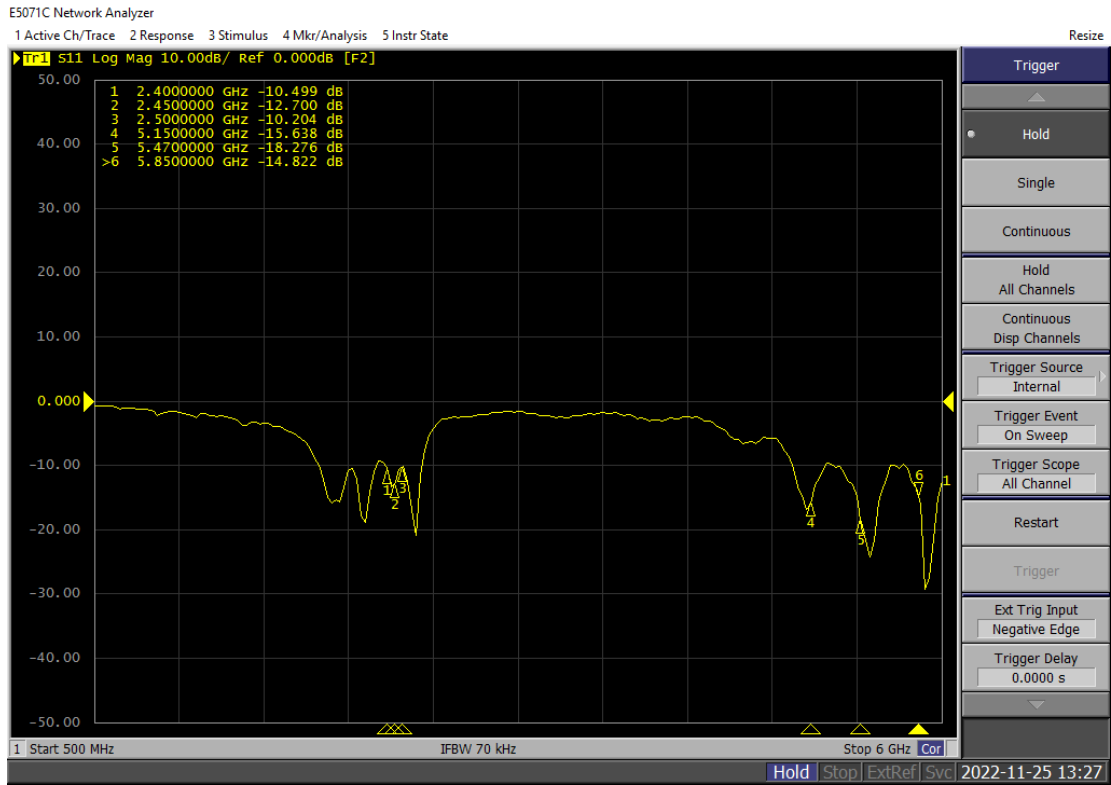


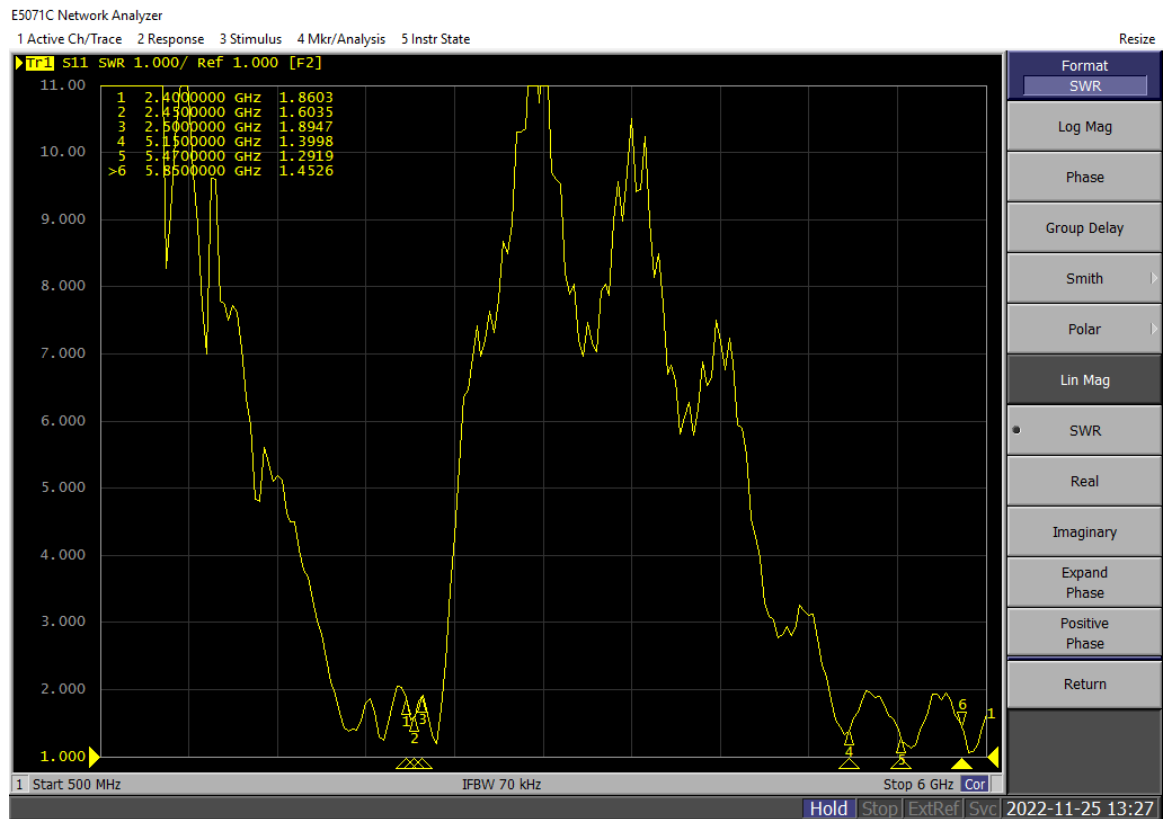
Fig.1 Antenna measured in Network Analyzer

Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

Return Loss



VSWR



Project Name :
EA0P04 LDS Antenna

Author :

File Name :

EA0P04 LDS Antenna

Date : 2023.02.03

Check : Eison

Rev : T02

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-Avg Gain (dB)	Efficiency (%)
2400	1.40	-3.71	43
2450	0.93	-3.36	46
2500	1.02	-4.00	40
5150	1.65	-3.85	41
5250	1.28	-4.03	40
5350	3.35	-3.92	41
5470	1.62	-3.57	44
5600	1.30	-4.02	40
5725	1.08	-3.71	43
5785	1.43	-3.91	41
5850	2.21	-3.76	42

Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

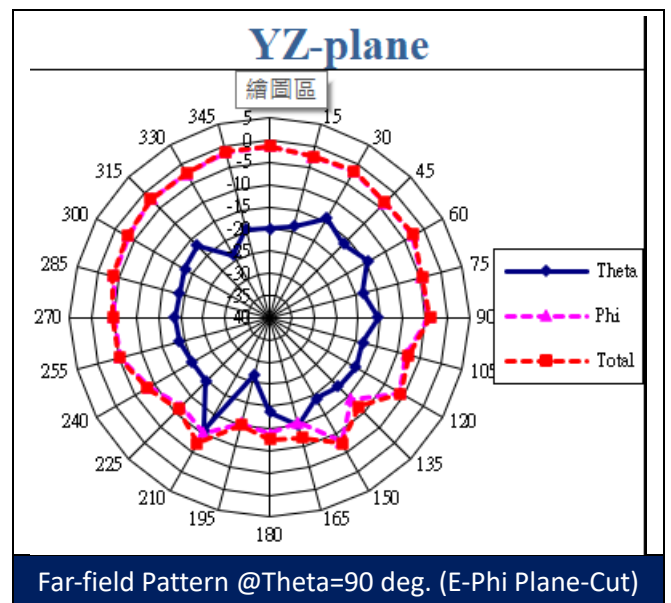
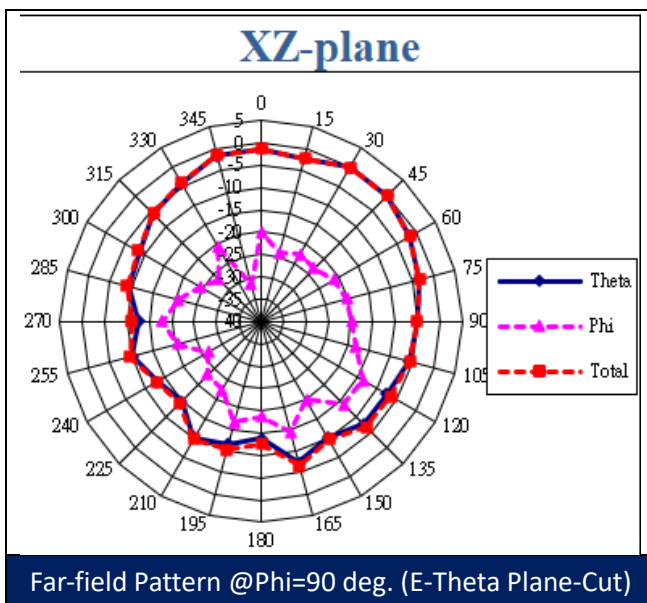
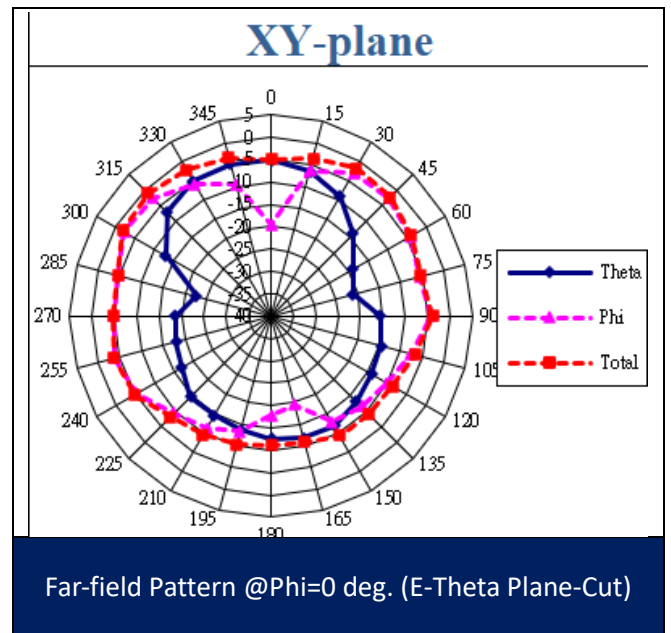
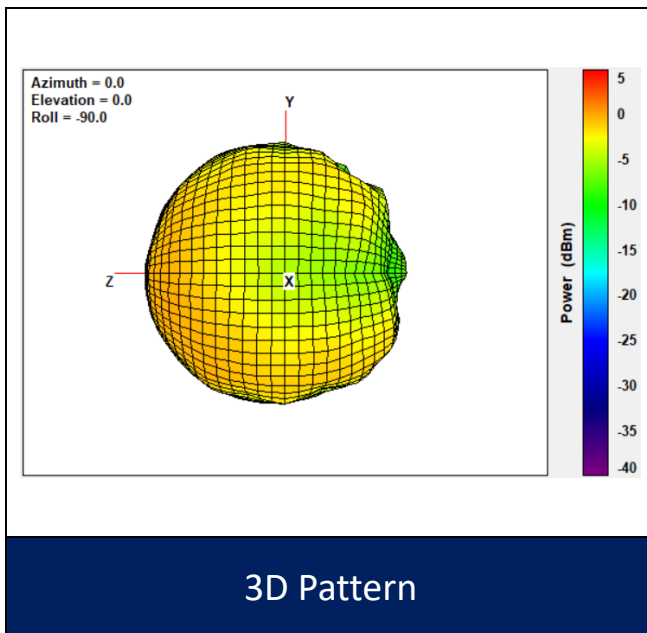
Appendi

Radiation characteristics of antennae Loaded in Host Platform

[2400-2500MHz radiation characteristic](#)

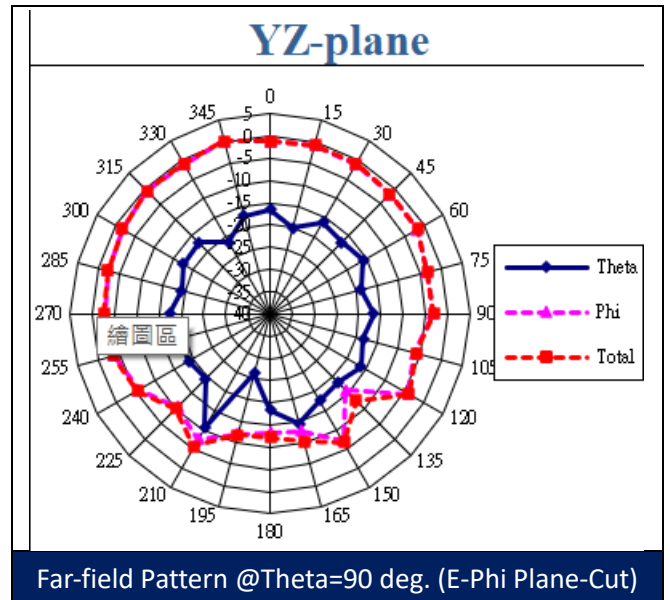
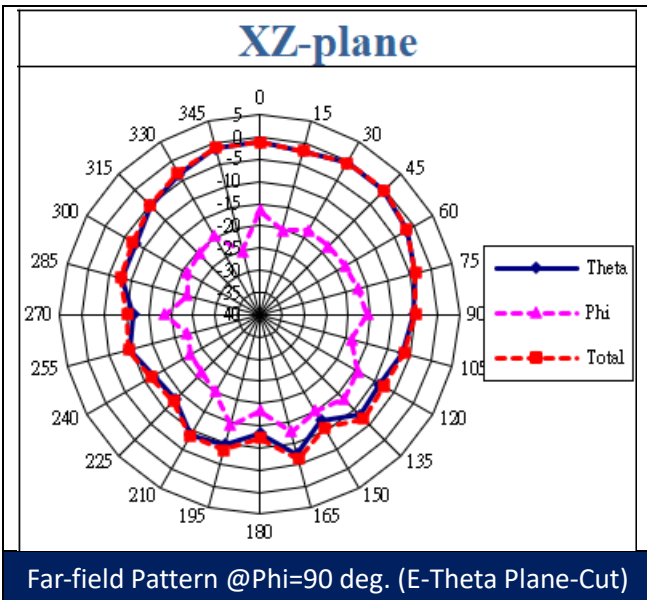
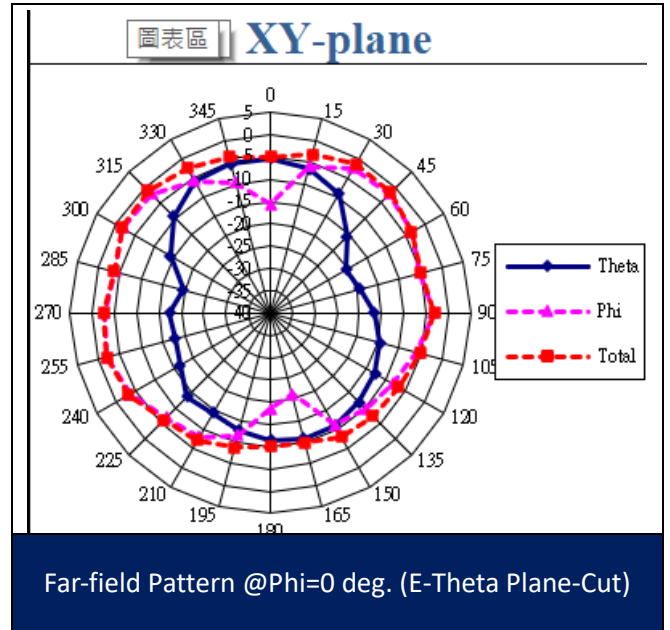
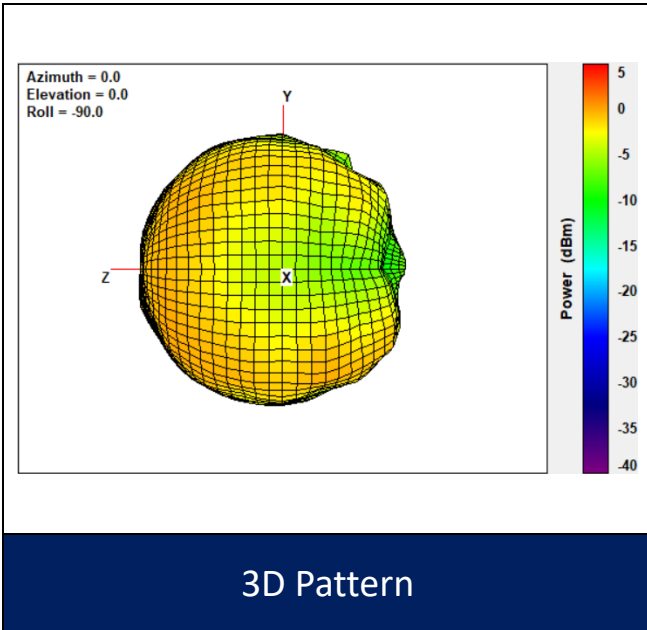
[5150-5850MHz radiation characteristic](#)

2400MHz



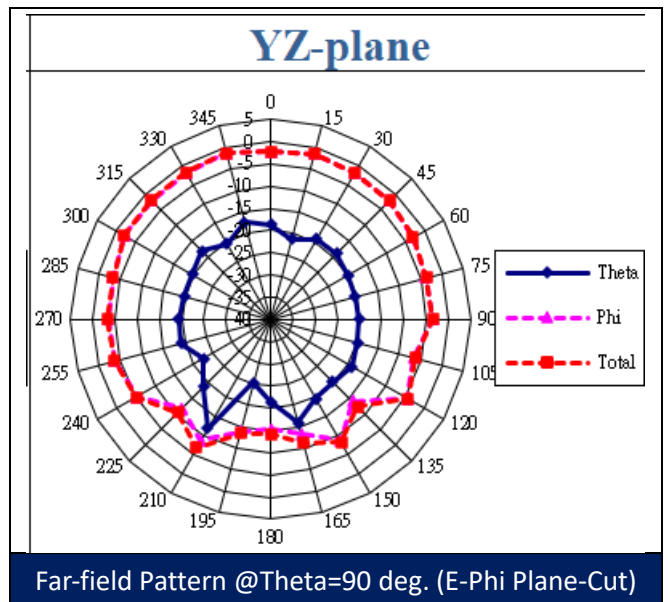
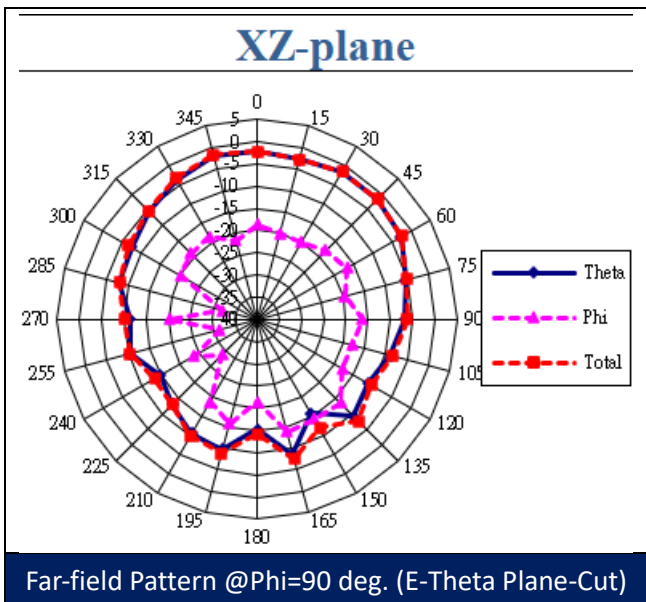
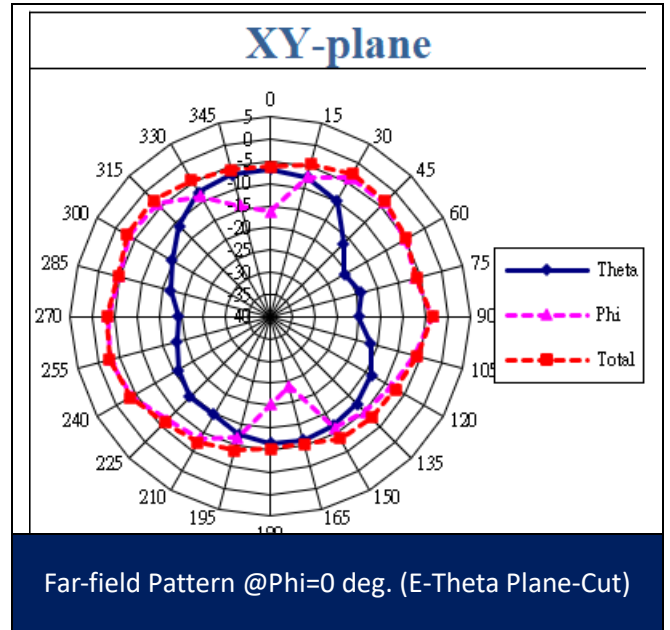
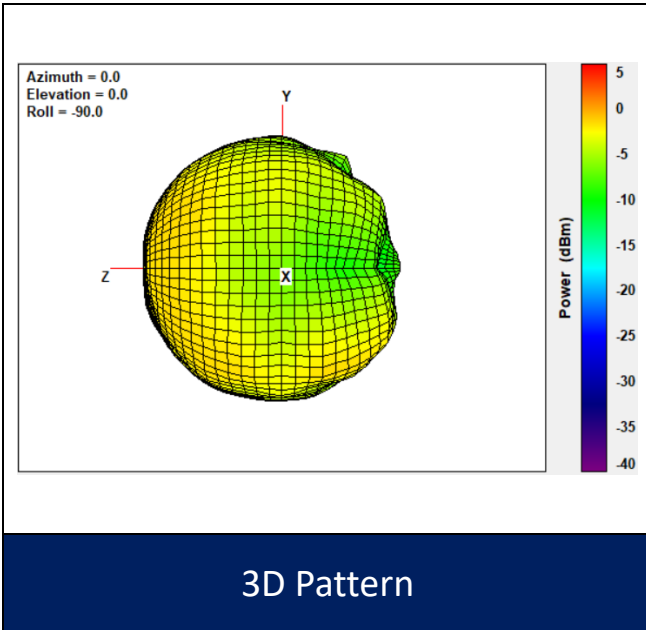
Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

2450MHz



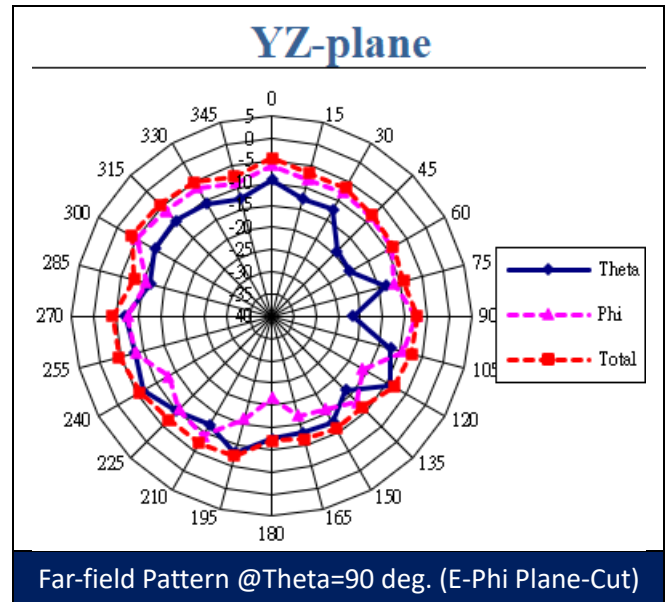
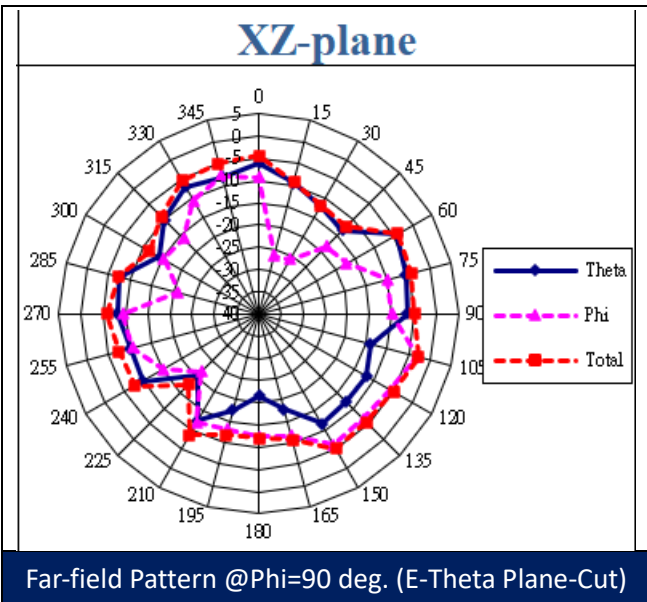
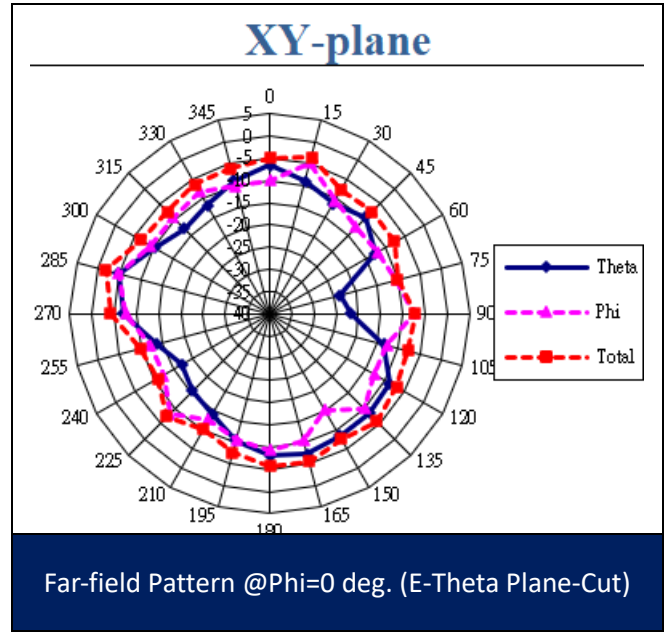
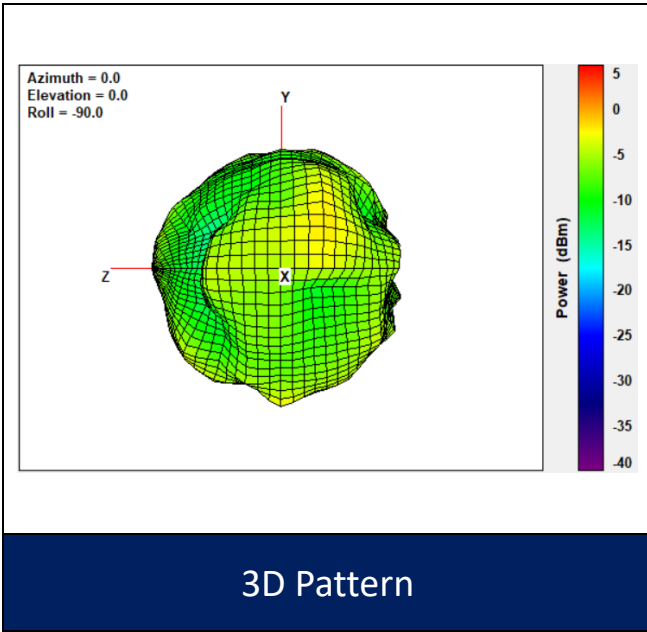
Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

2500MHz



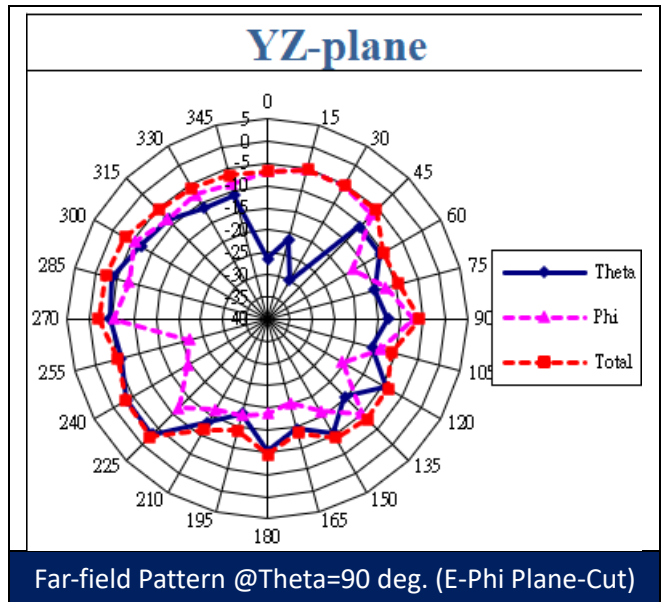
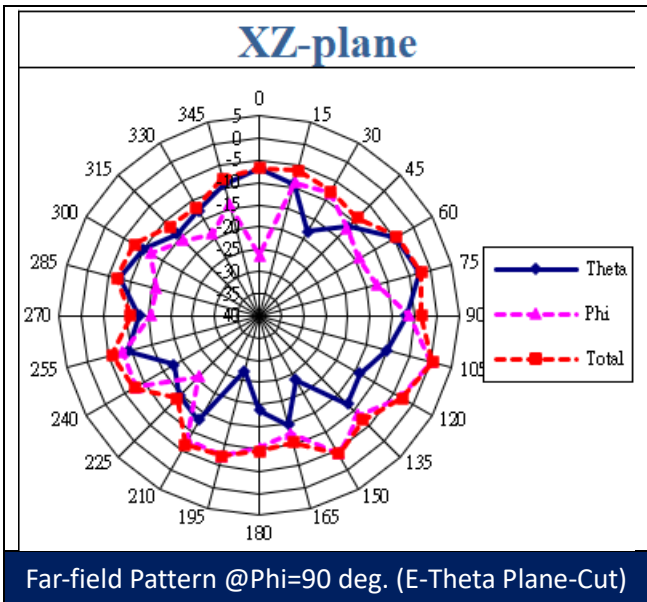
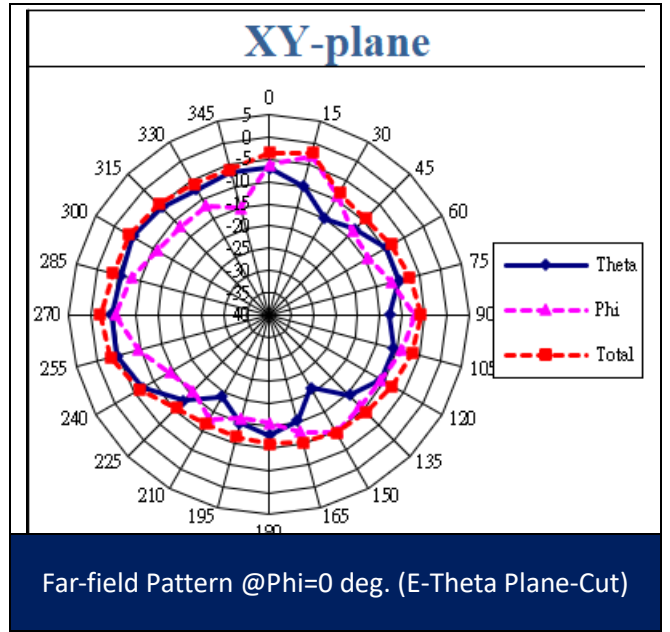
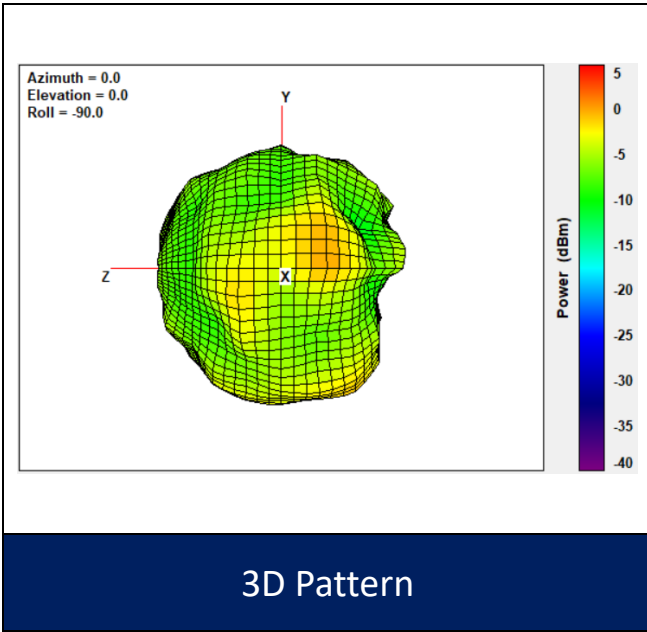
Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

5150MHz



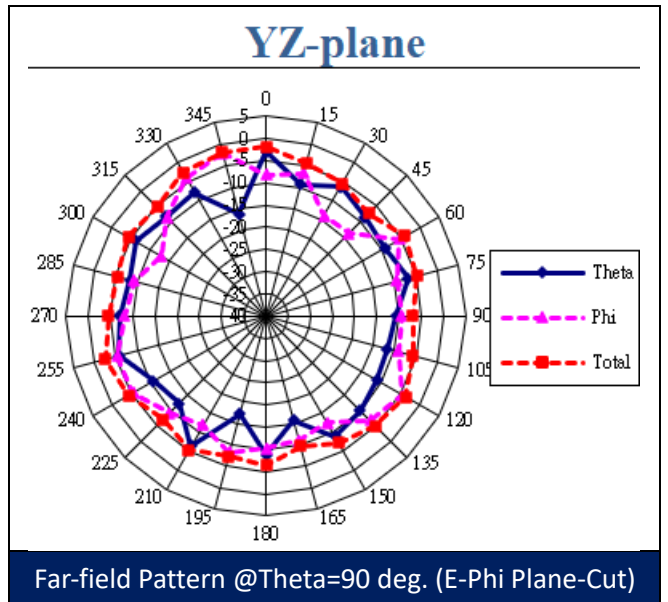
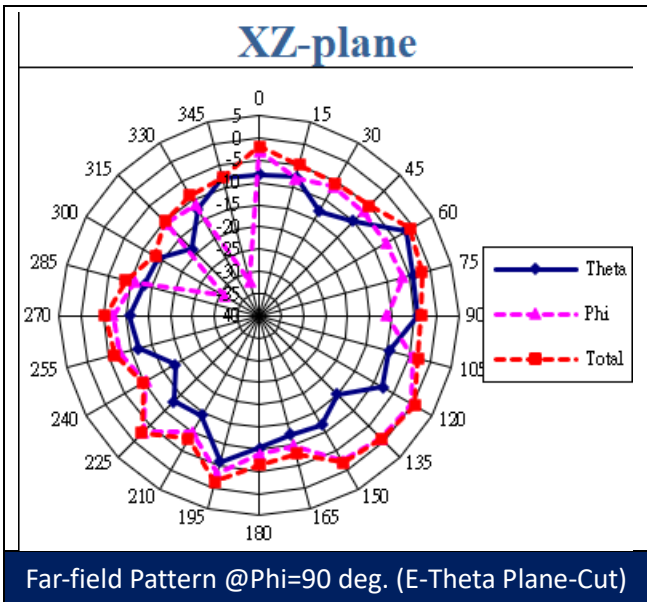
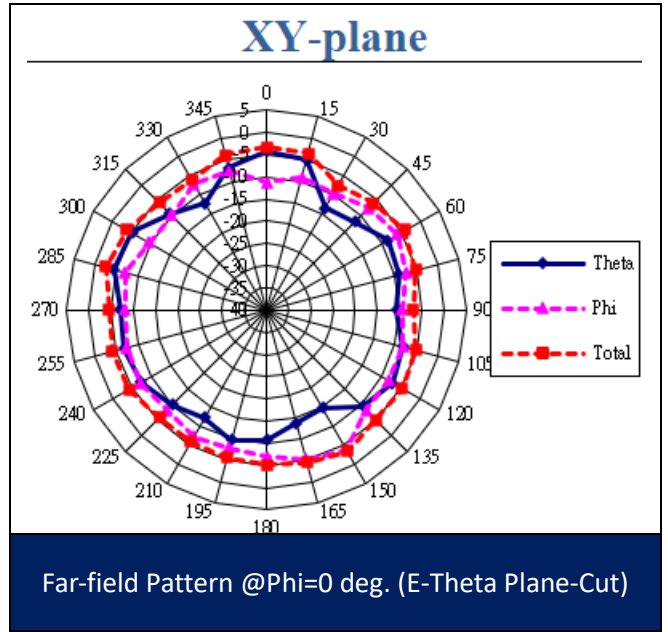
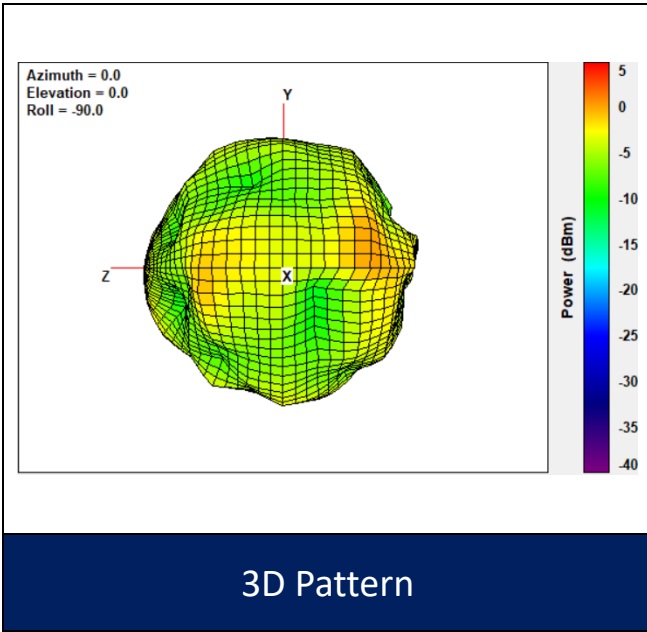
Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

5470MHz



Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		

5850MHz



Project Name : EA0P04 LDS Antenna	Author :	File Name : EA0P04 LDS Antenna
Date : 2023.02.03	Check : Eison	
Rev : T02		
HuiZhou Speed Wireless Technology CO., LTD. / Taiwan Speed Wireless Technology Co., LTD.		