

# SPECIFICATION



Daxian Communication Technology Limited

## 深圳市大显科技有限公司

*Shenzhen Daxian Technology Co., Ltd.*

### 国光 PB-120 天线组件

### GGEC PB-120 Antenna assembly

## 产品规格书

## Product Specification

客户 connection	国光 GGEC	频段 frequency range	2400 ~ 2500MHz
项目名称 entry name	PB-120	版本 edition	V03
物料编号 Material No	1P-B-120-061	颜色 Color	黑色 Black
客户料号 Customer Item Number	<b>EAN00357</b>		
R F 设计 R F Design	胡 鹏 Peng.Hu	结构设计 Structural Design	赖宁平 Ningping Lai
品质经理 Quality Manager	杨 进 Jin.Yang	技术总监 Technical Director	张 磊 Lei Zhang
日期 Date	2023-10-07		

客户确认:

Customer confirmation:

装配是否符合贵司要求: OK NGWhether the assembly meets your company's requirements: OK NG

### 深圳市大显科技有限公司

### Shenzhen Topant Technology Co., Ltd.

深圳市龙岗区布吉镇吉华路 513 号上水径村(国防培训基地  
对面) 达成工业园综合楼 7 楼

TEL:0755-28576002

FAX:0755-84276383

上海分部: 上海市张江高科技园区集成电路产业区龙东大道  
3000 号 8 号楼 201 室

TEL:021-61630552

FAX:755-84276383

Buji Town, Longgang District, Shenzhen, China Jihua Road 513,  
Shangshuijing Village (opposite the national defense  
training base) Dacheng Industrial Park, Building 7.

TEL:0755-28576002

FAX:0755-84276383

Room201, Building8, LongDongRoad3000#, Semiconductor Industry  
Park, ZhangJiang Hitech Zone, ShangHai

TEL:021-61630552

FAX:755-84276383

## 变更履历 Revision history

版本号 Version number	变更内容 Change content	变更理由 Reason for change	发起变更方 Originating Party	日期 Date	修改人 Modified by
V1.0	创建 found			2023-10-07	
V1.1					

[www.Topant.com.cn](http://www.Topant.com.cn)  
Confidentiality requirements

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

# 索引 Indexes

一、项目说明 Project Description.....	4
二、 BT 天线 antenna.....	4
1、 规格 specifications.....	4
1.1 电气规格标准 Electrical specifications and standards.....	5
1.1.1 电性能指标 Electrical performance index.....	5
1.1.2 天线位置布局 Antenna Location Layout.....	5
1.2 结构规格标准 Structural specifications and standards.....	5
1.2.1 天线组成 Antenna composition..	5
2、测试环境 testing environment.....	6
3、测试 test. ....	7
3.1 驻波(VSWR)的测试 Test of standing wave (VSWR).....	7
3.1.1 测试连接 Test connection.....	7
3.2 效率、功率 (TRP)、灵敏度 (TIS) 的测试 Testing of efficiency, power (TRP), sensitivity (TIS).....	7
3.2.1 测试的场地 Test site.....	7
3.2.2 测试的仪表 Tested Instruments.....	7
3.2.3 测试数据 test data.....	7
4、VSWR 参数图 Parameter diagram.....	8
5、无源场型图 Passive field pattern diagram.....	9
6、有源场型图 Active field pattern diagram.....	10
7、OTA 无源/有源测试场景 OTA passive/active testing scenarios.....	11
8、户外拉距测试 Outdoor Pull distance test.....	12
9、哈曼衰减实验室测试场景 Harman attenuation laboratory testing scenario.....	13
10、结论 conclusion.....	13
三、工程图 schedule drawing.....	14

[www.Topant.com.cn](http://www.Topant.com.cn)  
Confidentiality requirements

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

## 一 项目说明 Project Description

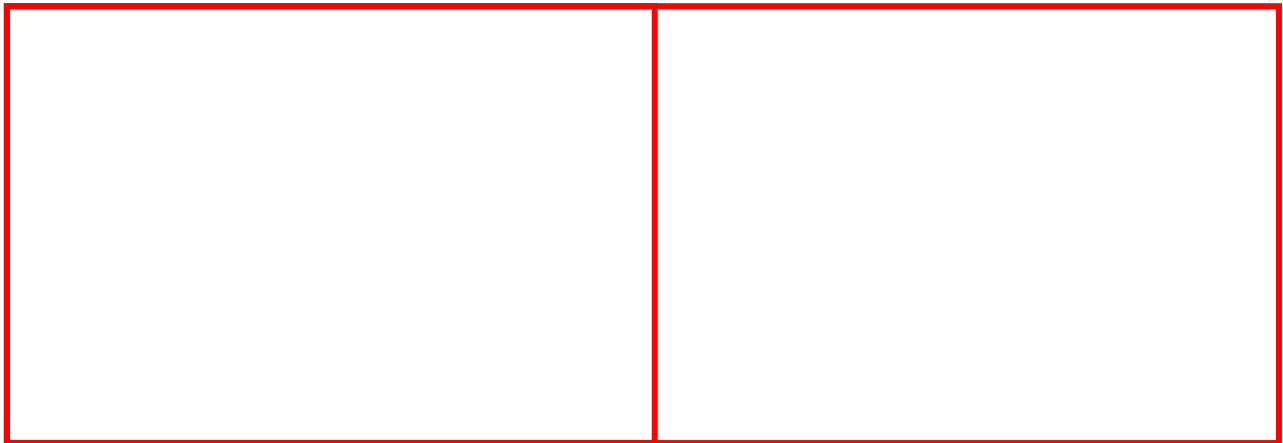
客户名: Customer Name:	国光 GSEC
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400 ~ 2500MHz
天线形式: Antenna form:	FPC+同轴线+线材海绵 FPC+coaxial line+wire sponge
馈电形式: Feed form:	焊接 weld
馈脚数量: Number of feed legs:	两个 Two
硬件版本: Hardware version:	/

## 二 BT 天线组件 Antenna assembly

### 1 规格 specifications

本报告主要提供 PB-120 项目天线的各项电气和结构性能参数的测试状况。下图为大显设计的天线图片。

This report mainly provides the testing status of various electrical and structural performance parameters of the antenna for the PB-120 project. The following image shows an antenna with a large display design.



整机外观图

天线外观图

Whole machine appearance chart

antenna appearing diagram

[www.Topant.com.cn](http://www.Topant.com.cn)

Confidentiality requirements

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

## 1.1 电气规格标准 Electrical specifications and standards

### 1.1.1 电性能指标 Electrical performance index

天线工作频段在 2400 ~ 2500 MHz。下表是大显设计和量产天线的电性能的指标。

The operating frequency band of the antenna is between 2400 and 2500 MHz. The following table shows the electrical performance indicators of large display design and mass production antennas.

Frequency Range	Frequency (MHz)	VSWR
BT	2400 ~ 2500	$\leq 2$

### 1.1.3 天线位置布局 Antenna Location Layout

## 1.2 结构规格标准 Structural specifications and standards

### 1.2.1 天线组成 Antenna composition

天线主要是由 FPC+同轴线+线材海绵 组成。

The antenna is mainly composed of FPC+coaxial line+wire sponge.

[www.Topant.com.cn](http://www.Topant.com.cn)  
Confidentiality requirements

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

## 2. 测试设备 The Equipment of Active Test

Satimo 3D Chamber 6×4×4( m )

Agilent 8960 E5515c

Network analyzer-R&S ZVL



图 2

Figure 2

[www.Topant.com.cn](http://www.Topant.com.cn)  
Confidentiality requirements

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

### 3 测试 test

#### 3.1 驻波(VSWR)的测试 Test of standing wave (VSWR)

3.1.1 测试连接: VSWR 测试装置依次连接为: R&S ZVL 网络分析仪 → 测试线 → 测试治

Test connection: The VSWR test device is sequentially connected as follows: R&S ZVL network analyzer → test line → test fixture

实测(附图)Actual measurement (attached drawing)

#### 3.2 增益及效率、功率 (TRP)、灵敏度 (TIS) 的测试

Gain and efficiency, power (TRP), sensitivity (TIS) testing

##### 3.2.1 测试的场地 Test site:

大显微波暗室。测试频率范围为 400MHz—6GHz, 静区范围为 50cm 圆周, 反射率小于-50 dB。

Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than -50dB.

##### 3.2.2 测试的仪表 Tested Instruments:

R&S ZVL 网络分析仪、Agilent8960 E5515C、标准喇叭天线、法国 SATIMO-SG24SYSTEM 系统、打印机等。

R&S ZVL network analyzer, Agilent 8960 E5515C, standard horn antenna, French SATIMO-SG24SYSTEM system, printer, etc.

##### 3.2.3 测试数据 : 在微波暗室中, 测试的功率和灵敏度相关的数值如下表

Test data: In a microwave anechoic chamber, the values related to the power and sensitivity tested are shown in the table below

#### OTA 有源测试 OTA active testing

BAND	CH	TRP (dBm)	TIS (dBm)
BT	0	9.33	-90.18
	39	9.72	-90.52
	78	9.21	-90.23

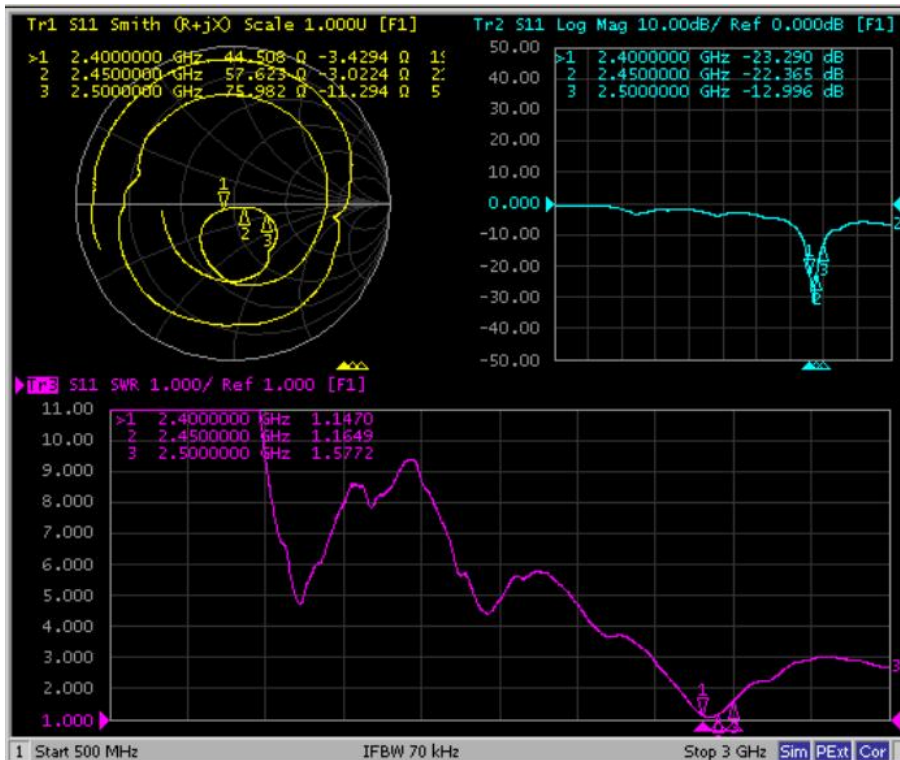
[www.Topant.com.cn](http://www.Topant.com.cn)  
Confidentiality requirements

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

无源效率&增益 Passive efficiency&gain:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	52.19	-2.82	1.51
2410	53.04	-2.75	1.17
2420	52.06	-2.83	1.63
2430	51.56	-2.88	1.3
2440	51.69	-2.87	2.01
2450	52.22	-2.82	2.13
2460	51.18	-2.91	1.81
2470	51.55	-2.88	1.77
2480	53.97	-2.68	1.26
2490	53.57	-2.71	1.49
2500	53.53	-2.71	1.72

4、VSWR 参数图 VSWR parameter diagram



[www.Topant.com.cn](http://www.Topant.com.cn)  
Confidentiality requirements

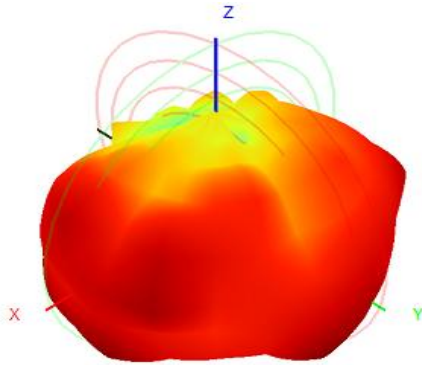
Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd



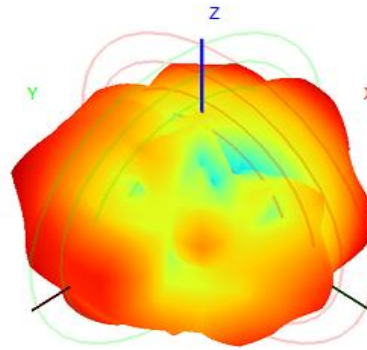
## 5、无源效率场型图-2450MHz

### Passive efficiency field pattern diagram - 2450MHz

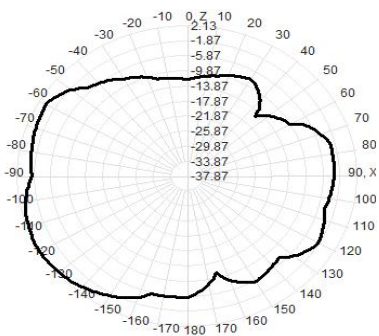
2450.0MHz H+V, Eff: 52.2%



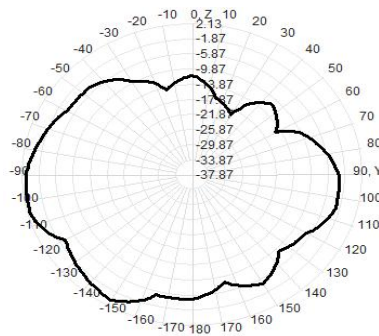
Back View



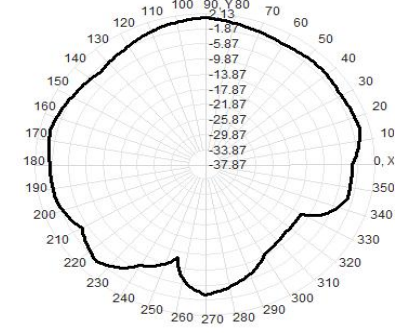
2450.0MHz Total(E1-XZ), Max= 2.13dBi



2450.0MHz Total(E2-YZ), Max= 1.46dBi



Total(H-XY), Max= 1.06dBi, CirD=13.56

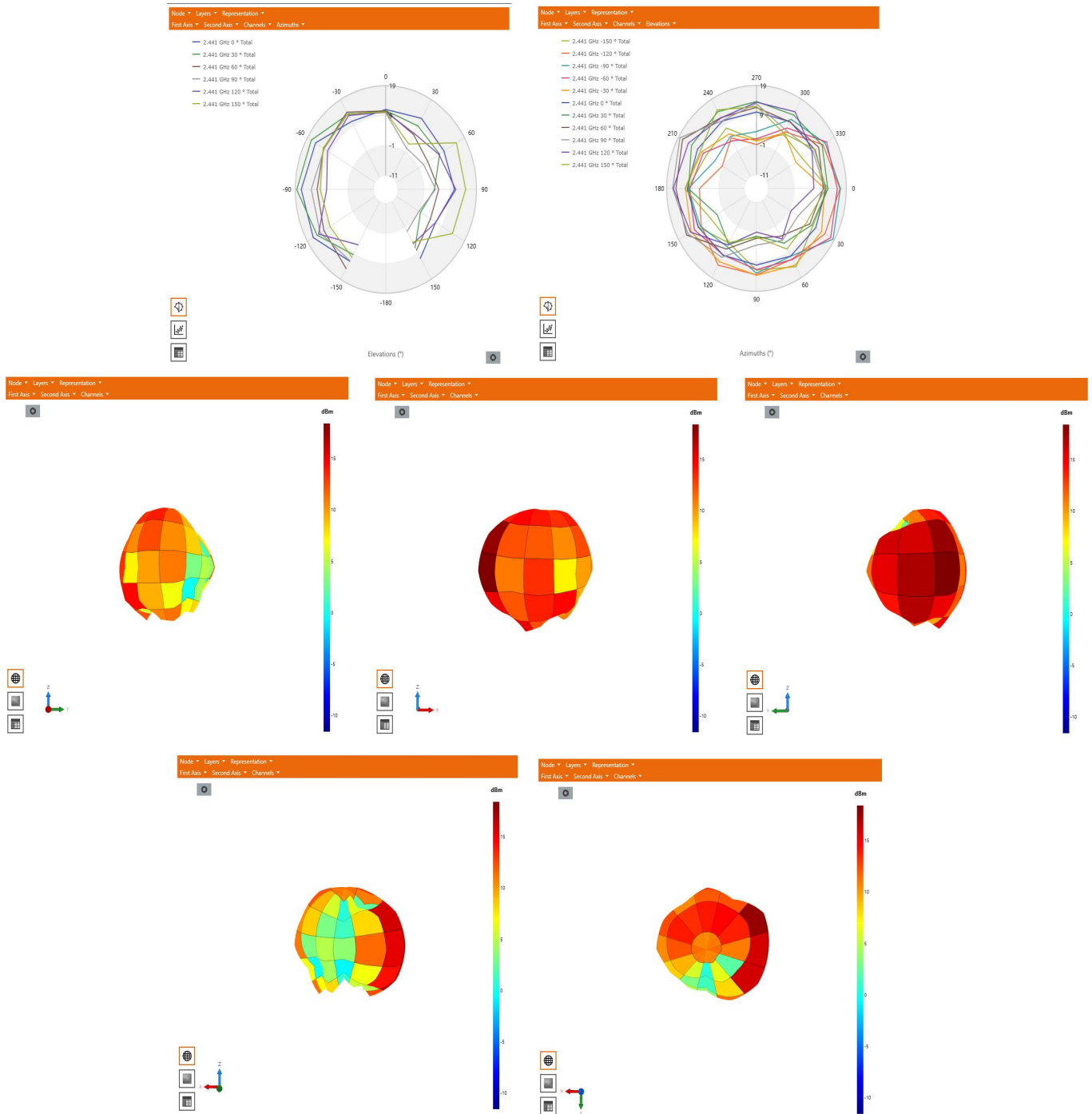


[www.Topant.com.cn](http://www.Topant.com.cn)

Confidentiality requirements

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

## 6、有源场型图-2450MHz Active field pattern diagram-2450MHz



[www.Topant.com.cn](http://www.Topant.com.cn)  
Confidentiality requirements

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

## 7、OTA 无源/有源测试场景

### OTA passive/active testing scenarios

[www.Topant.com.cn](http://www.Topant.com.cn)  
**Confidentiality requirements**

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

8、户外拉距测试 Outdoor pull distance test

机器摆放方向 Machine placement direction	(Iphone13)
前Front	100m
后Behind	100m
左Left	100m
右Right	100m

[www.Topant.com.cn](http://www.Topant.com.cn)

Confidentiality requirements

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd

## 9、哈曼衰减实验室测试场景

### Harman attenuation laboratory testing scenario

标准值: Standard value:	25
前Front	32
后Behind	36
左Left	33
右Right	32

## 10、结论 conclusion

此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!

[www.Topant.com.cn](http://www.Topant.com.cn)

**Confidentiality requirements**

Shenzhen Daxian Technology Co., Ltd. already possesses the information provided by the proprietary technology, which should be strictly confidential and not allowed to be disclosed to any person or company without the prior written consent of Shenzhen Daxian Technology Co., Ltd