



承认书

SPECIFICATION FOR APPROVAL

客户 Customer: Longhui

品牌 Brand: Qiyuan

品名 Description: 2.4G Antenna

规格/型号

Specification

/part no: External Antenna/50 Ω/2.4-2.5GHz/ 3.0dBi@2.4G /SMA90 ° Male female needle gold-plated/Black Wavy Antenna

日期 Date: 2024.01.19

备注 Remark: 承认签章后请回复一份（或复印件）给我司，其余由贵公司留作存档。如果在签章的承认书（或复印件）回复给我司之前，下了有关此规格产品的订单且无特别说明，那么我司就确定贵司已完全承认了。Please return one specification or one copy of it with your chop and signature of approval and retain the others for your record. In the event of an order being placed for this part number before the chop and signed with specification (or copy) is returned and without special explanation, it will be assumed that full approval have been given.

客户签字盖章:

拟制/日期 CHECKED/DATE	审核/日期 AUDITOR/DATE	批准/日期 APPROVED/DATE



规格书

客户料号

Customer P/N: MRTDHL826010

规格描述

Specification: External Antenna/50 Ω /2.4-2.5GHz/ 3.0dBi@2.4
G /SMA90 ° Male female needle gold-plated/
Black Wavy Antenna

品名 Description: 2.4G Antenna

供应商 Supplier: Qiyuan

生产商 Producer: Qiyuan

备注 Remark:

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拟制/日期 CHECKED/DATE	审核/日期 AUDITOR/DATE	批准/日期 APPROVED/DATE
Zhang Bingxiang 2024.01.19	Wu Qianjin 2024.01.19	Luo Daxun 2024.01.19



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天线照片 (Picture) :



电气参数 (Electrical parameters) :

Frequency 频率范围	2.4~2.5GHz
Impedance 特性阻抗	50Ω
S.W.R. 电压驻波比	≤2.0
Antenna Gain 增益	3.0dBi±0.5@2.4~2.5GHz
Polarization 极化形式	vertical polarization
Return Loss 回波损耗	-9.2dB MAX

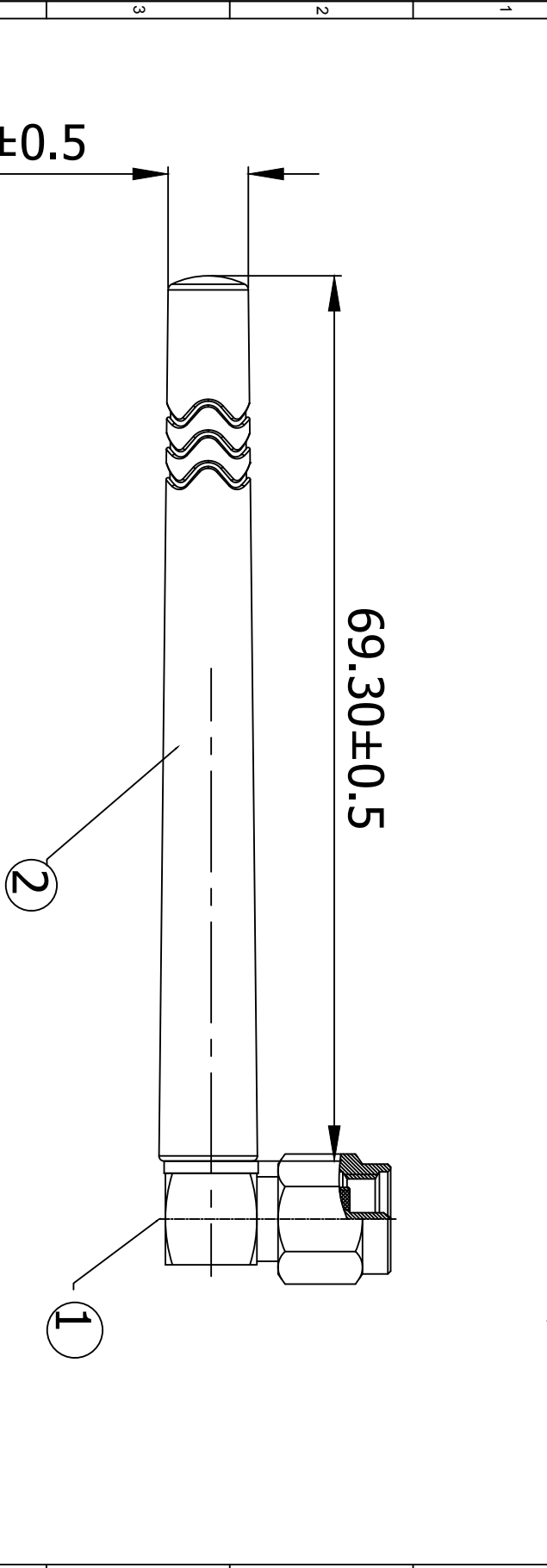
机械参数(Mechanical parameters):

Antenna Colour 天线颜色	Black
RF Cable Model 射频线型号	RG-178, Brown
Connect Type 接口方式	SMA90 ° male and female needle gold-plated

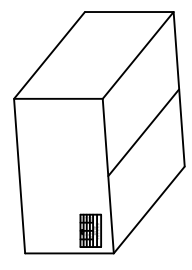
工作/储存温度 (Operating/ Storage Temperature) :

Operating Temperature 工作温度	-40~85℃
Storage Temperature 储存温度	-40~85℃

REV	DATE	DESCRIPTION
A	2024.01.19	NEW ISSUE



Specification:
 Frequency Range : 2400~2500MHz
 VSWR: 1.92:1max
 Gain: 3.0dBi



1. 外箱需贴上 1pcs / ROHS环保标签至外箱标签上;
2. 外箱须贴上 1pcs/外箱标签至外箱右上角。

Pack full : 50pcs/PE Bag

XXX ±5.0	APPROVED	CUSTOMER: QY165	PART NO : MRTDHL826010	QTY	1	ABS, Black
XX ±3.0	CHECKED	PARTNAME :SMA90° Wave Antenna	R.F.P/NO : QY165-21S0004A	REMARK	1	Female PIN SMA; Brass
X ±1.0		REV UNIT SCALE SIZE SHEET				
X ±0.5		A mm 1:1 A4 10F1				
XX ±0.1	DRAWING					
④	朱帆					

东莞市启元电子科技有限公司
 QiYuan Electronic technology Co., LTD.



环境与可靠性试验(Environmental and reliability testing):

Environmental test

High and low temperature humidity test report						
experimental project	High temperature, low temperature and constant humidity test					
Test sample Name plate	Rubber rod Antenna	Test date	2023. 12. 20			
equipment	Constant temperature and humidity test chamber network analyzer	quantity	5PCS			
inspection standard	1. The metal surface coating has no peeling, cracking, wrinkling and other defects;The non-metal part should not be discolored, broken, deformed, degummed and other defects. 2. Electrical test meets the design requirements; The voltage standing wave ratio test is qualified.					
name	The experimental project	require	experimental method	Actual test data	result	
					sample	decide
high temperature test	Temperature (°C)	+85±3	In accordance with GB2423.1-89 9 chapter To be carried out in the prescribed manner	+85	1	qualified
	Temperature stabilization time of test sample (h)	12		1. 2	2	qualified
	Duration of test (h)	1		2. 3	3	qualified
	Recovery time (h)	1		1	4	qualified
						5
low temperature test	Temperature (°C)	-40±3	In accordance with GB2423.1-89 Section 8 chapter Regulation of the methods	-40	1	qualified
	Temperature stabilization time of test sample (h)	1		1. 2	2	qualified
	Duration of test (h)	2		2. 4	3	qualified
	Recovery time (h)	1		1. 1	4	qualified
						5
steady-state damp heat test	Temperature (°C)	+40±2	According to GB2423.3-93 section 5 chapter Stipulated by the parties the parties	+42	1	qualified
	Relative Humidity (%)	90-95		92	2	qualified
	Duration of test (h)	21		22	3	qualified
	Recovery time (h)	1		1. 1	4	qualified
						5



salt spray test; salt fog test

Salt spray test report				
experimental project	salt spray test; salt fog test			
Test sample Name plate	Rubber rod Antenna	Test date	2023. 12. 20	
equipment	salt spray corrosion test chamber	quantity	5PCS	
inspection standard	Put the test sample into the prepared salt solution test chamber and salt spray corrosion chamber for continuous spray test			
Salt solution concentration	52g/L	The pH of the salt solution: 6.5-7.2	test cycle: 24h	
Actual test data	55g/L	The pH of the salt solution: 6.8	test cycle: 26h	
test standard; test criteria	According to GB/T10125 "artificial atmosphere corrosion test, salt spray test" test;Results according to the GB/T6461-2002 "Metal and other inorganic coating on metal substrate after corrosion test is the grade of samples and test pieces" rating.			
test results				
NO.	Corrosion rating	Actual test data	Evaluation of the results	备注
1	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
2	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
3	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
4	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
5	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	



测试设备(Test equipment)



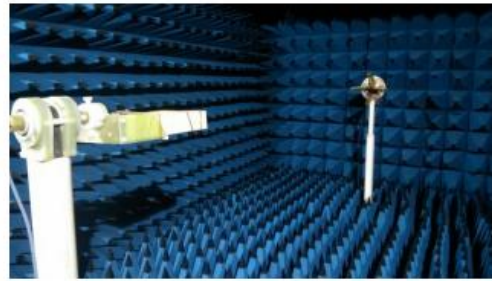
安捷伦 E5071C 网络分析仪



HP 8594E 频谱分析仪



CMW-500

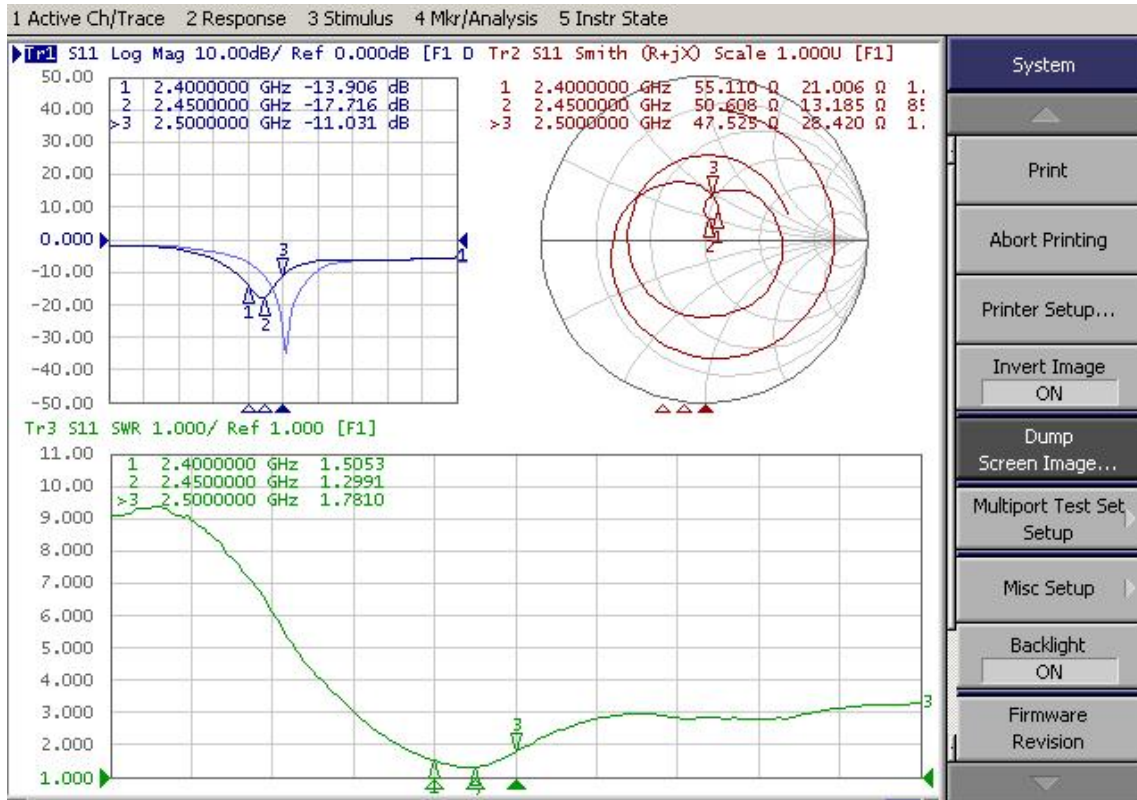


微波暗室



测试参数(Measuring parameter)

V.S.W.R&Return Loss



增益&效率(Gain&Efficiency)

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	3.41	3.33	3.27	3.39	3.45	3.53	3.52	3.41	3.58	3.34	3.45
Efficiency (%)	65.72	68.41	69.44	68.68	69.10	70.02	71.74	68.89	69.35	67.20	66.89

2D、3D Radiation Patter

