Shenzhen Yusheng Communication Equipment Co., Ltd

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Sample acknowledgement

Customer Name: Shenzhen Sannuo Digital Technology Co., Ltd

Customer Material No./Model: 42300355/S-2341

Specifications: FPCB IPEX-1 2.4 G L = 120mm S-2341 Cable Tie S-2341-BT Coaxial FPC RoHS REACH Yusheng

Material Composition Test Report:

Not	Material Quality	Report No.	Valid until
1	PI-CCL electrolytic flexible copper clad laminate	SHAEC24000428806/SHAEC24000428808	2025-01-12/2025-01-12
2	3M 9471E Adhesive backing	Halogen: SHAEC23021627703 ROHS: SHAEC23021627701 REACH: CANEC24006898001	2024-12-27 2024-12-27 2025-04-16

Supplier Review Team:

Make	Audit	Approval	Date of sample delivery/company stamp
Li Jieyi	BI Yezhi	Li Shuo	2024-06-24

Customer (Sannuo) Review Team:

Recognition No.: Date of Edition

Acknowledge	Audit	Approve	Date of recognition

Evaluation items:-No less than 2 acceptance letters-Specifications/drawings-Test reports-Reliability test reports

☑ Sample PCS-Safety Regulations-HSF_

Review conclusion:-Accepted-Conditionally Accepted-Rejected

S-2341 Project Antenna Material Requirements Specification

Customer Name: Shenzhen Sannuo Digital Technology Co., Ltd

Customer Name: S-2341

Product Name: Bluetooth Antenna

Material Code: 42300355

Resume of changes:

Serial number	Version	Status	Start and End Date	Responsible person	Page Number	Remark
1	R: A	First edition	2024-8-28	Li Jieyi	11	

Supplier acknowledges signature:

Owner/Date		IQC/Date	Review/Date	Approval/Date
MD	Bi Yezhi Wisdom	Su Guanfeng	Chen Kehong	
RF	Li Shuo			

The buyer acknowledges the signature (please send it back after acknowledgement):

Purchaser judgment result:-Qualified-Unqualified			
Development Design Engineer/Date	SQE Engineer/Date	Purchase Responsible/Date	Development Manager Approval/Date

Catalogue

1. Overview

1.1 Scope of application

This requirement specifies the antenna technical requirements and material requirements specifications for S-2341 products.

This requirement applies to the antenna selection, testing and acceptance of S-2341 products.

1.2 Basic information of the project

Antenna name:	**S-2341**
Antenna frequency:	BT
Antenna material:	FPC + coaxial line

2. Technical indicator requirements

2.1 Introduction to test items and equipment

Checklist	Test Items	Equipment
S11 parameters	Standing wave ratio, return loss	Network Analyzer
Active testing	TRP, TIS	Comprehensive tester, microwave anechoic chamber
Passive testing	Gain, Efficiency	Network Analyzer

2.2 Passive reporting

2.2. 1 Passive test instructions

Test Equipment: Network Analyzer

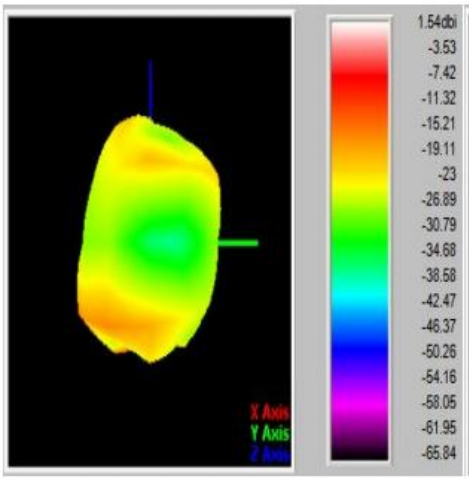
Test method: Use a 50 ohm CABLE CABLE to lead it from the test port of the instrument, connect it to the SMA connector of the hand tool after calibration with a calibration piece, and record the return loss or standing wave ratio corresponding to the relevant frequency point.

2.2. 2 BT passive data

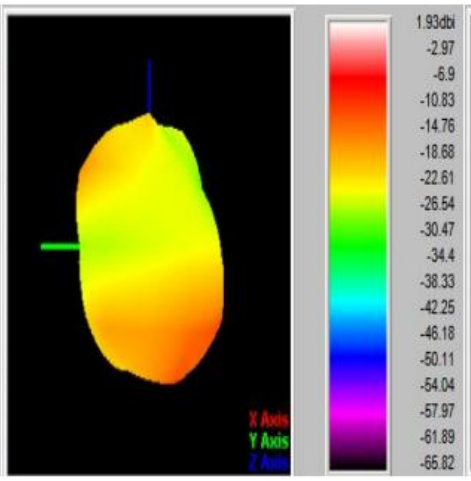
Freq	Effi (%)	GAIN
2400.0	50.3%	1.54
2410.0	50.9%	1.59
2420.0	51.5%	1.65
2430.0	52.4%	1.72
2440.0	53.2%	1.81
2450.0	53.6%	1.93
2460.0	52.7%	1.85
2470.0	52.1%	1.70
2480.0	51.5%	1.62

2.2. 3 BT-3D Direction diagram

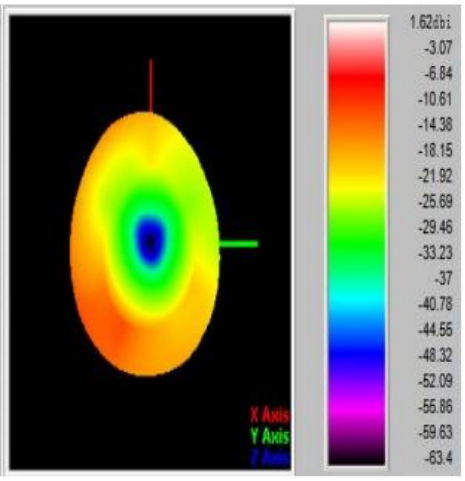
2400MHZ



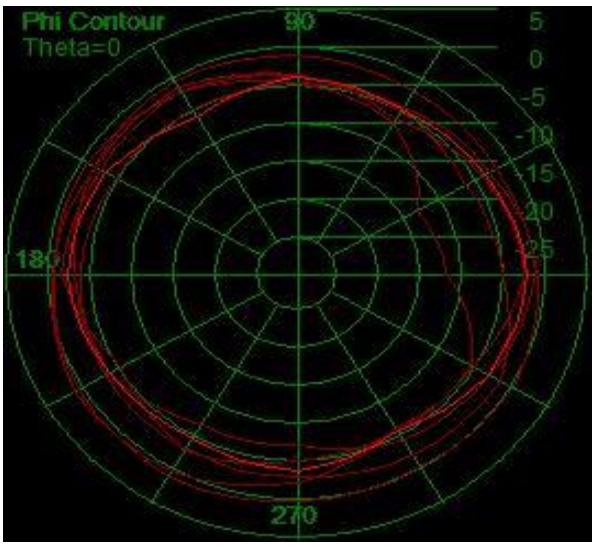
2450MHZ



2480MHZ



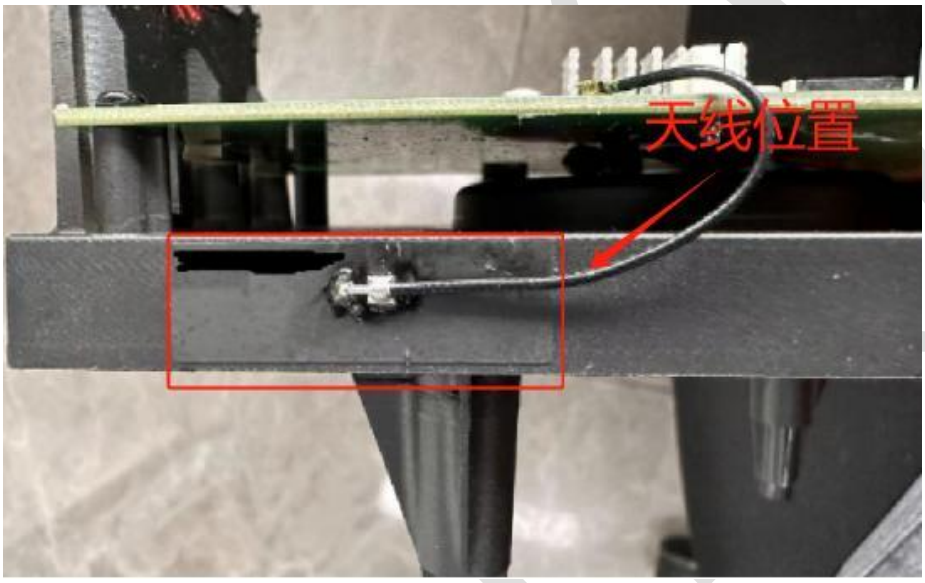
2.2. 4 BT- Direction diagram



2450MHZ

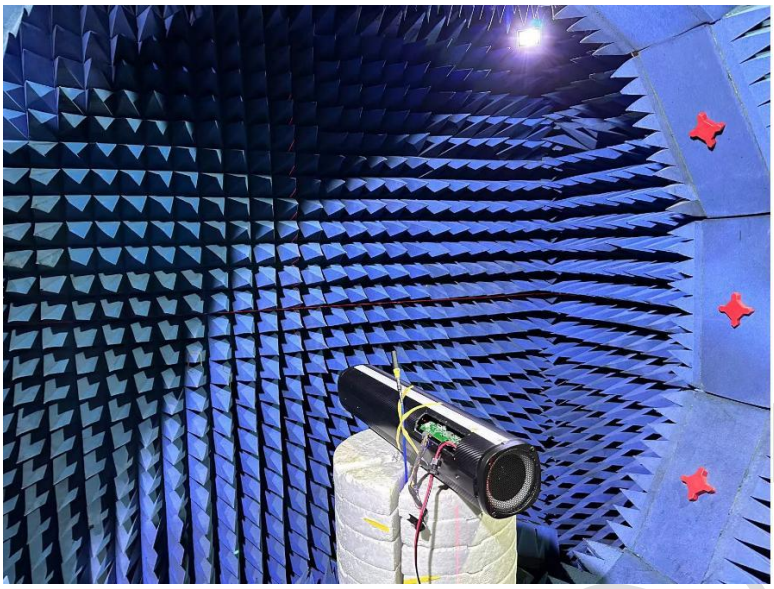
MIN =-5.89 dbi

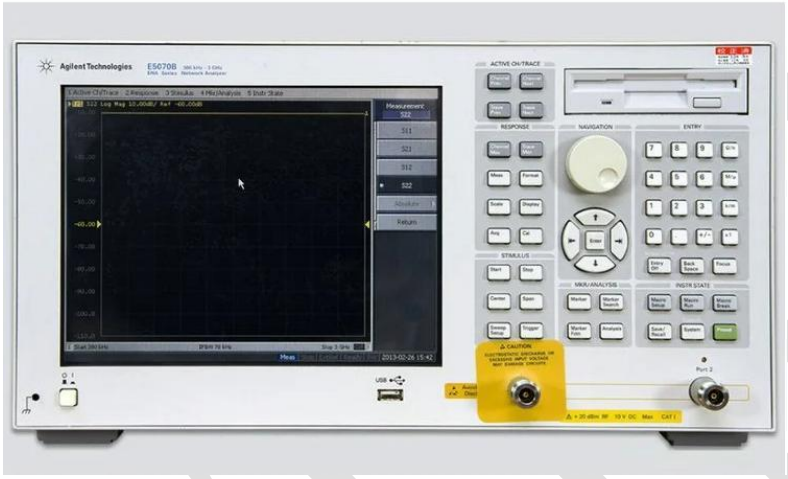
2.2. 5 BT antenna position



Pay attention to the clearance of the antenna area, and arrange cables to avoid the antenna position as much as possible to ensure the antenna performance

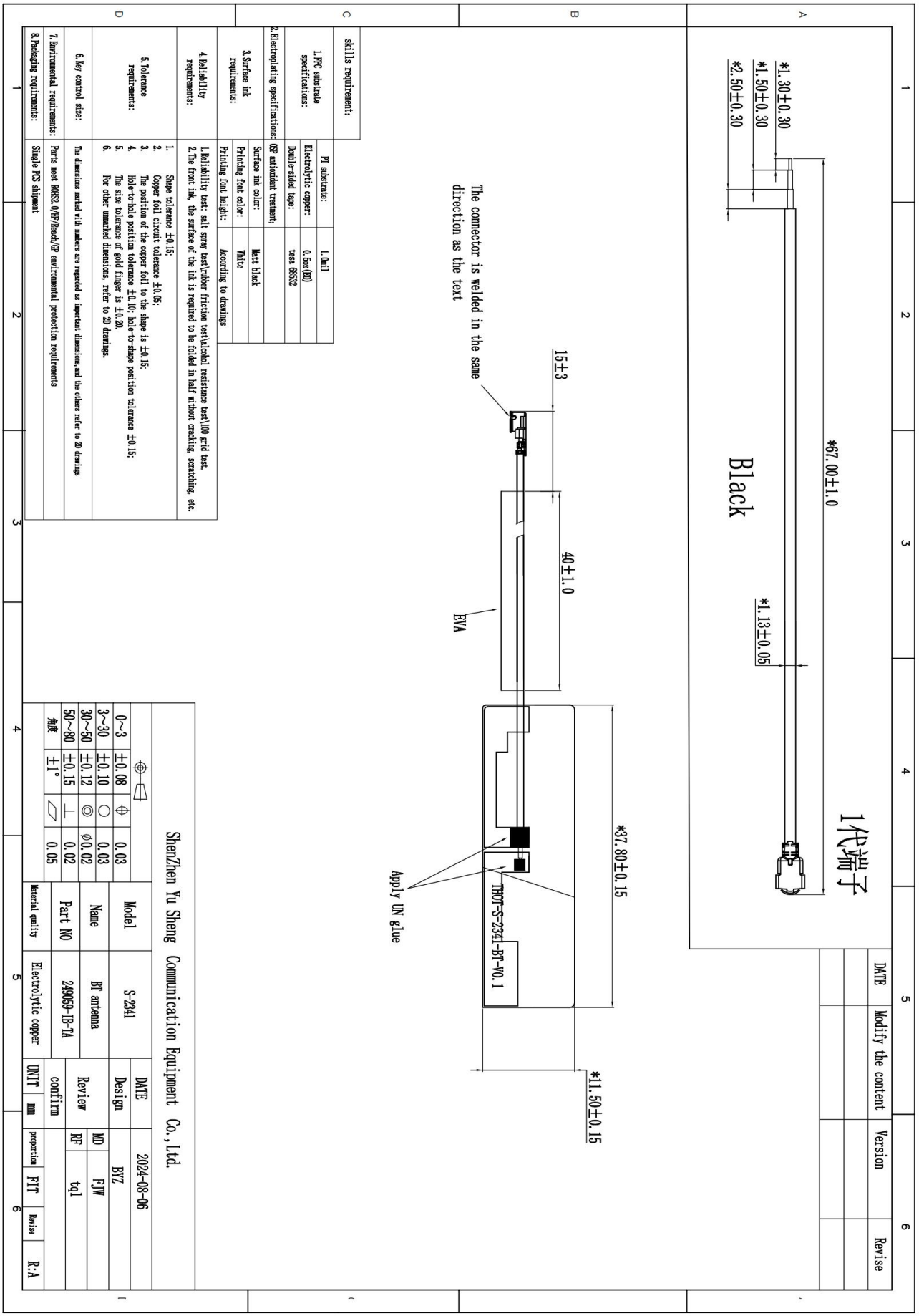
2.2. 6 Antenna passive test environment





Antenna passive test: Put the tested object into the darkroom through the antenna debugging coaxial line and connect it to the darkroom passive test head through the antenna debugging coaxial line, and test the passive data of the antenna of the whole machine through an external tester.

3. Structural drawings



4. Bill of Materials

Shenzhen Yusheng Communication Equipment Co.,LTD

249059 (S-2341) BOM

edition : T:A client : 249 Type of aircTCft : 249059 Set a date : 2024/9/26

Item number	*Material code	*Material name	name	*Machine type	Specification and model	colour	*UNIT.	dosage	remark
2	249059-IB-TA	WIFI antenna assembly		S-2341	FPC_cable_weld_UV	black	PCS	1	
2.1	249059-IB-01-TA	WIFI-FPC		S-2341	WIFI-FPC Electrolytic copper 37.80*11.50*0.12MM	black	PCS	1	
2.2	249059-IB-02-TA	WIFI-cable		S-2341	First generation terminal φ 1.13*67mm	black	PCS	1	
2.3	249059-IB-03-TA	WIFI-EVA		S-2341	EVA 12*40mm	black	PCS	1	
2.4	249059-IB-04-TA	Assembly welding		S-2341	weld+Glue injection	black	PCS	1	
verify :				examine :		manufacture : BYZ			

5. Reliability test report

5.1 Salt Spray Test Report

Salt Spray Test Report

Customer Name	Sannuo	Manufacturing Batch	THOT-20240620
Product Name	S-2341	Number of tests	8PCS
Product material number	249059	Test Criteria	24 hours
Date of inspection	2024-8-26	Material of goods	Antenna

Test time: 2024.8.26 to 2024.8.27

Test Items	Requirements	Actual value	Determine	Test Items	Requirements	Actual value	Determine
Test instrument specifications	KD-60	KD-60	OK	Test time	24H	24H	OK
Salt Spray Test Types	NSS Neutral	NSS Neutral	OK	Salt spray box temperature	35 ° C	35 ° C	OK
PH value of saline	6.5-7.2	7	OK	Salt spray sedimentation (H.80C)	1-2ml	1.7 ml	OK
Spray method	Continuous spray	Continuous spray	OK	Material of goods	FPC	FPC	OK
Composition of brine	5%/NaCL	5%/NaCL	OK	Compressed air throttle pressure	1 ± 0. 1 KG/CM2	1	OK
Saturation temperature	47 ° C	47℃	OK	Specimen placement angle	90°	90°	OK

Test observation time	Observe phenomena
4H	No abnormalities
12H	No abnormalities
24H	No abnormalities

Judgment criteria: According to the national standard 5944-86 rating method, level 9 or above is qualified

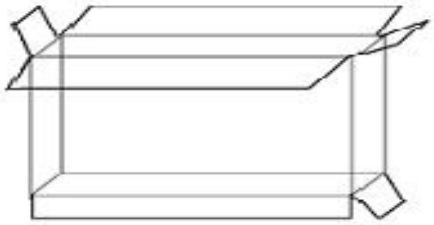
Final judgment result	Qualified √				
Testers	Su Guanfeng	Audit	He Lei	Examine and approve	Feng Jiwu

Remarks: Commonly used salt spray test methods include: NSS medium salt spray test, AASS acetate spray test, CASS copper acetic acid accelerated test.

Constant temperature and humidity hot and cold shock test report NO:								
Client	Sannuo		Date	2024-6-26	In-Plant Number	THOT-20240625		
Antenna model	249059		Quantity	5PCS	Test time	48H		
Material Specifications	FPC		Suppliers	Yusheng Communications	Reference Standard	MIL-SDT-202Method017IEC60749-25 JEDEC JESD22-A104-B IEC68-2-1MIL-STD-2168-85		
Test purpose: To test the reliability of the product, the adhesion force of the coating, the oxidation resistance and corrosion resistance of the coating.								
Equipment name: High and low temperature test chamber								
Laboratory environment								
Temperature	22-26℃		Relative humidity	65-70%	Atmospheric pressure	1MPA		
Test Parameters								
Temperature	High temperature		80℃	Low temperature	-40℃		Temperature tolerance	1℃
Time	Constant temperature	High temperature	2H	High temperature heating	10min		Remark	1. High temperature rise refers to the increase from normal temperature to the set high temperature
		Low temperature	2H	Low temperature cooling	10min			
Number of cycles	31 times		Other	Relative humidity	65%			
Appearance inspection	Layering	ACC	Oxidizing	ACC	Blistering	ACC	Ink shedding	ACC
Testing	Peel resistance	≥ 0.8 kgf/cm2	Spot welding	ACC	100-grid test	ACC	Abrasion wear test	ACC
Test Record:								
Product Number	Product Test Results					Determine		
	After the experiment, there is no abnormality in the product					ACC		
Tester:	Su Guanfeng							

6. Packaging schematic diagram

Packaging method diagram	
Product Name	Bluetooth antenna
P/N	Antenna

Project Name	S-2341	
Packing details	Carton size 1: 35 * 25 * 24.5 cm Carton size 2: Depends on order quantity/quantity	
	Packing method	Packed by order quantity
	Total packing	Packed by order quantity
Things to watch out for		
1. Due to the limitation of order quantity, the packing method of each item is based on the total order quantity or physical volume. The box size is selected		
2. Storage temperature: normal temperature		
3. Storage conditions: Store in a cool and dry place		