

CORE2 Project antenna specificationCustomer name: Suntuo Sports Technology (Dongguan) Co., Ltd.Customer name: CORE2Product name: BLE-FPC antennaSize of product: See the BOM table for details**Change Content CV:**

order number	edition	state	Start and end date	person liable	page number	remarks
1	editio princeps	editio princeps	2026-4-23	Li Jieyi	13	

The Supplier acknowledges the signature of the following documents:

Responsible person / date		IQC/ date	Review / Date	Approval / Date
MD	Jim Feng 26-04-24	Ella 4.24	Karen 4.24	
RF	Kevin 4.24			

The Demander acknowledges the signature (please send it back after the confirmation):

The demander's judgment result: ☐ qualified ☐ unqualified			
Development & Design Engineer / Date	SQE Engineer / Date	Purchasing Leader / Date	Development Manager approval / date

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1. Overview

1.1 Scope of application

This requirement specifies the antenna technical requirements and material requirements specifications for CORE2 products.

This requirement applies to the selection, testing and acceptance of CORE2 antennas.

1.2 Project basic information

Antenna name :	<u>CORE2</u>
Antenna frequency :	BT:-2400MHz-2500MHz
Antenna material :	FPC
Antenna manufacturer :	SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD
Antenna type :	PIFA
Antenna size :	View drawings
Manufacturer address :	4A,4th Floor, Building 2, Nantai Cloud Innovation Valley, Guangming District, Shenzhen

2. Technical index requirements

2.2.1 Introduction of test items and equipment

inventory	test item	equipment
Active test	TRP,TIS	Integrated tester, microwave darkroom

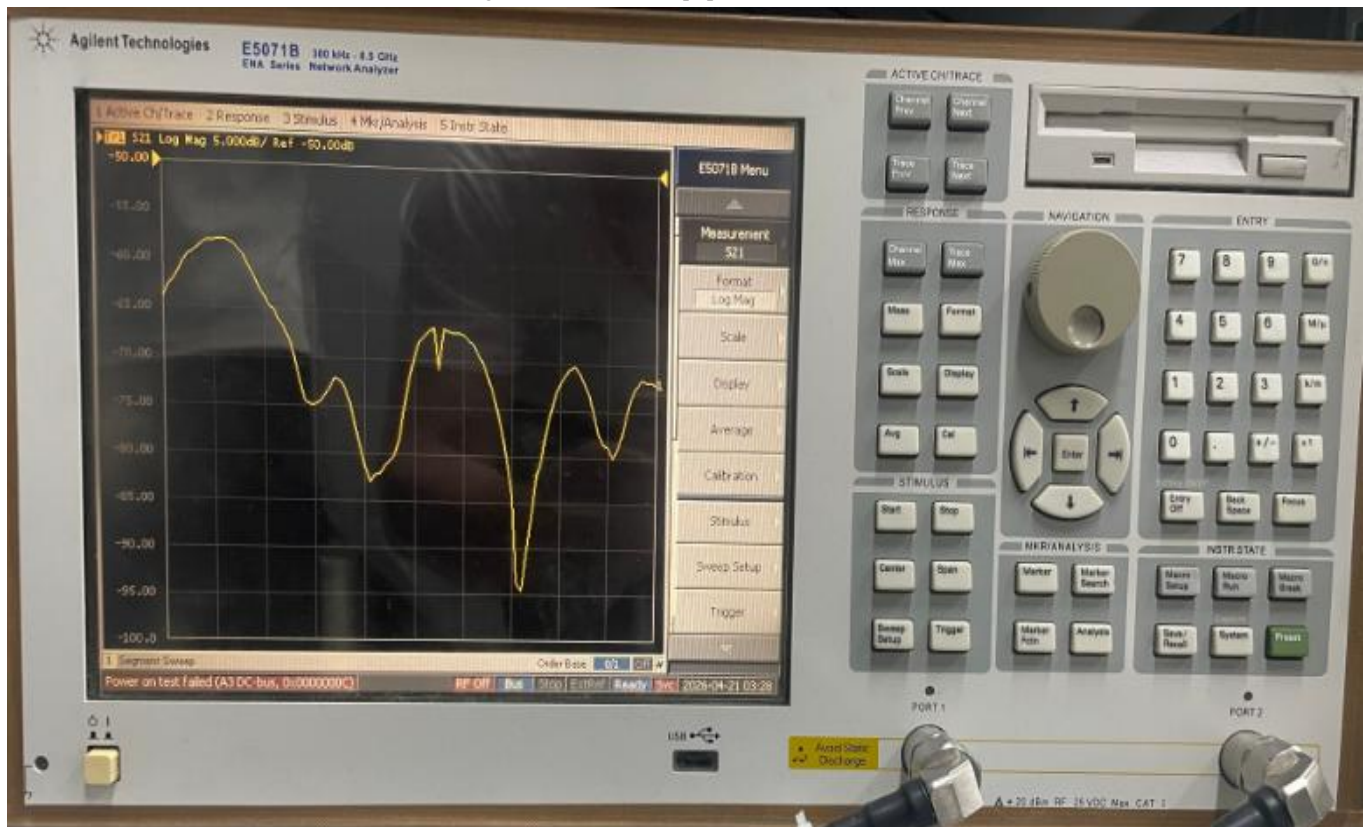
2.2.2 Test instructions

Test tools: Agilent8960 instrument, R & SCMW500, full wave far field ETS dark room, high precision positioning system and its controller and computer with automatic test program

Test environment: temperature $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, humidity $50\% \pm 15\%$

Test method: DUT is fixed in the center of the turntable on the same horizontal line as the center of the horn antenna.

The positioning system enables the DUT to rotate in the whole sphere to satisfy the high-precision 3 D positioning. Each RF instrument and turntable controller communicate with the PC with automatic test software through the GPIB interface.



E5071B

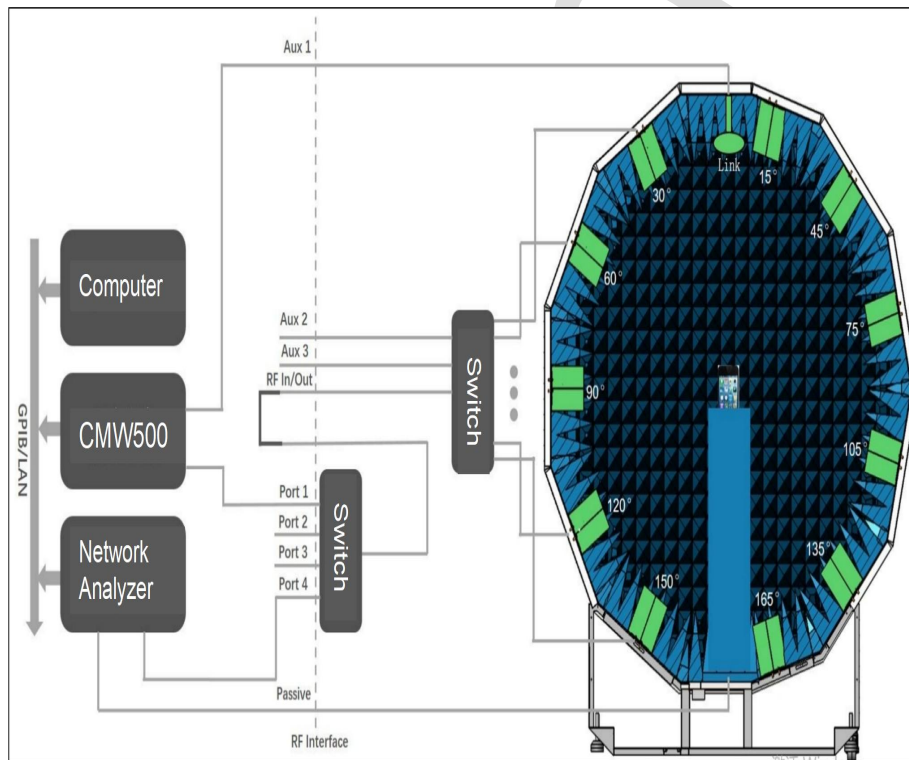
2.2.4 Test Equipment list

No.	Type of Equipment	Manufacturer	Model Number	SN	Calibration Date	Expiration Time
1	Network Analyzer	Agilent	E5071B	NA005	2025.6.28	2026.6.27
2	Switch Control System	GTS	RZ005Y	SCS321	2025.6.28	2026.6.27
3	Dual Polarized Horn Antenna	GTS	DP0241	A0254	2025.6.28	2026.6.27
4	Anechoic Chamber	GTS	RZ1800	AC002	2025.6.28	2026.6.27
5	Test Software	GTS-test	TSV01	V1.2	2025.6.28	2026.6.27

2.2.5 Laboratory Environment

Parameter	Specification
Temperature	Min.=19° C,Max.= 25° C
Relative Humidity	Min.= 41%,Max.=70%
Shielding Effectiveness	0.7-6 GHz:> 100 dB
Ground Resistance	<0. 5

2.2.6 Test Equipment



Rayzone1800 is equipped with 11 pairs of dual-polarized (H&V polarization) measurement antennas numbered 1# to 11#, plus one 0# single-polarized measurement antenna.

The total number of measurement antennas is $11 \times 2 + 1 = 23$.

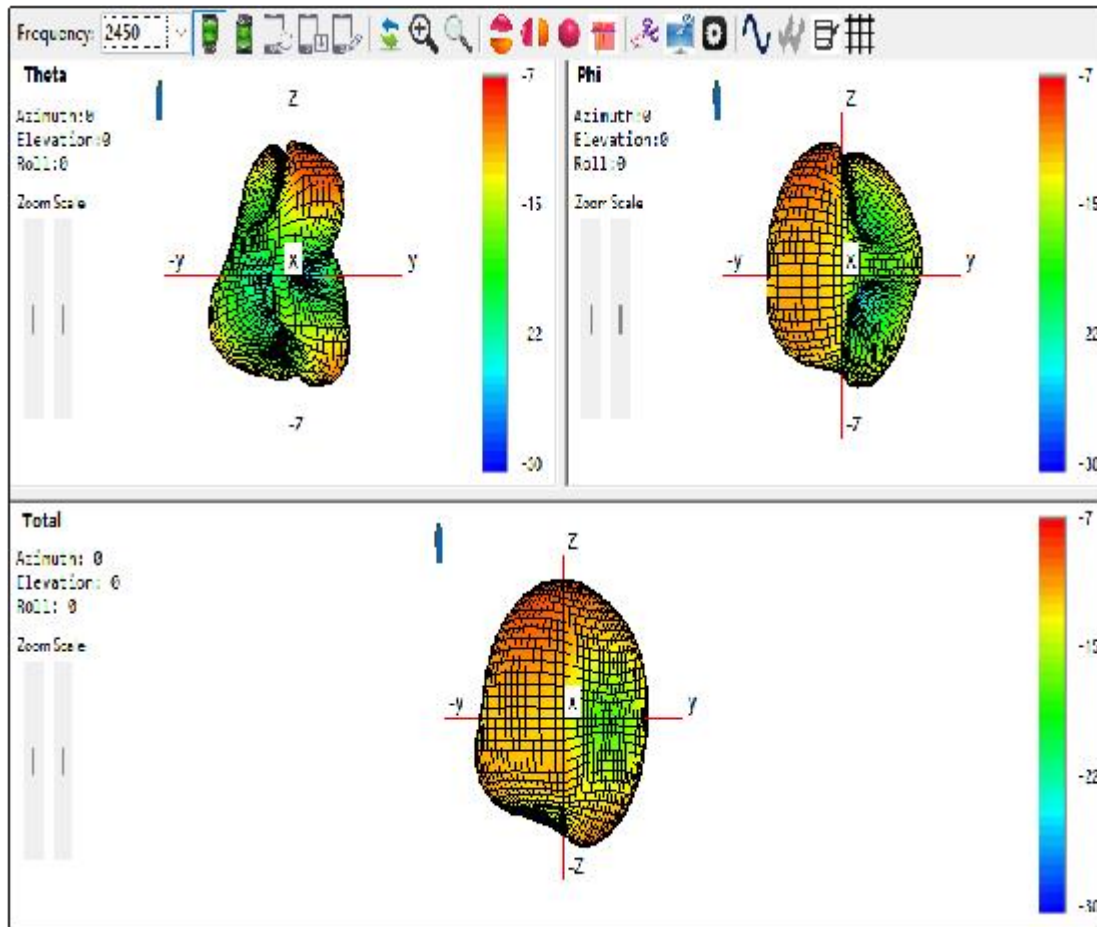
The angle of each antenna is the antenna number multiplied by 15 degrees; for example, antenna 6# is at 90 degrees.

■ Rayzone1800 has two communication antennas (LA1 & LA2):

1.LA1 is located at the top of the anechoic chamber and is used for 2G/3G/4G/Sub-6G/WiFi/BT/Cat-M/NB-IoT testing.

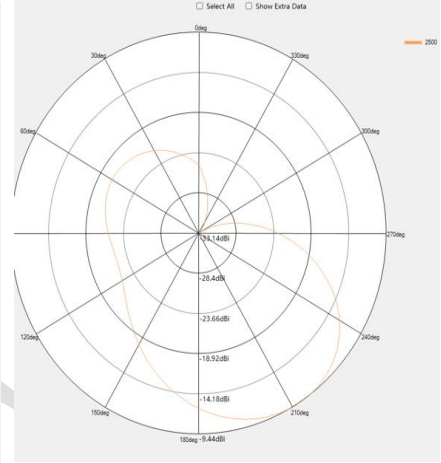
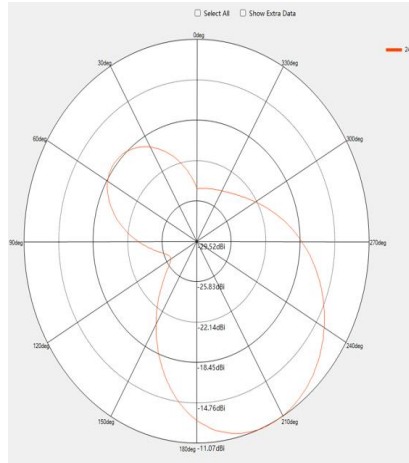
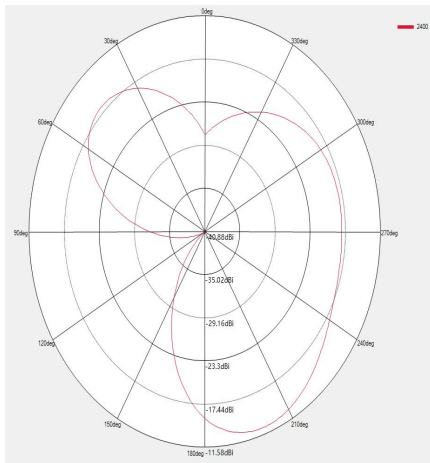
2.LA2 is located beside the turntable and is used for NSA testing.

2.2.7 BT Antenna Efficiency and Gain

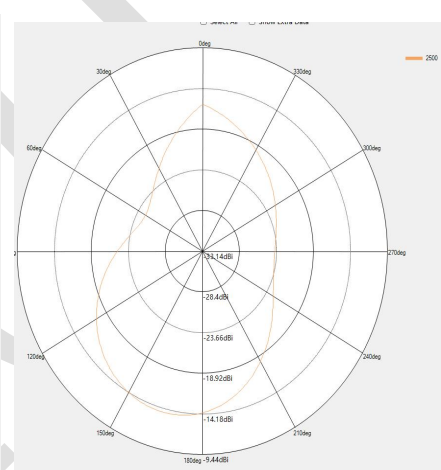
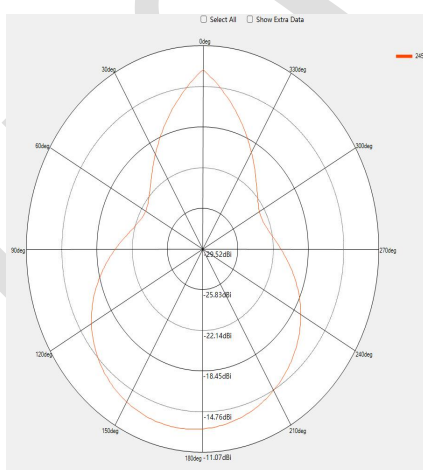
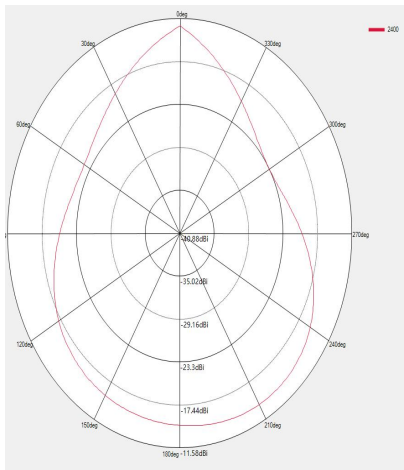


Frequency(MHz)	Efficiency(dB)	Gain(dBi)	Efficiency(%)
2400	-10.64	-6.85	8.62
2410	-10.51	-6.86	8.89
2420	-10.29	-6.34	9.35
2430	-10.54	-6.41	8.82
2440	-10.27	-6.47	9.4
2450	-10.28	-6.24	9.38
2460	-10.74	-6.58	8.44
2470	-10.79	-7.08	8.33
2480	-10.81	-7.05	8.29
2490	-10.87	-7.14	8.19
2500	-10.99	-7.26	7.97

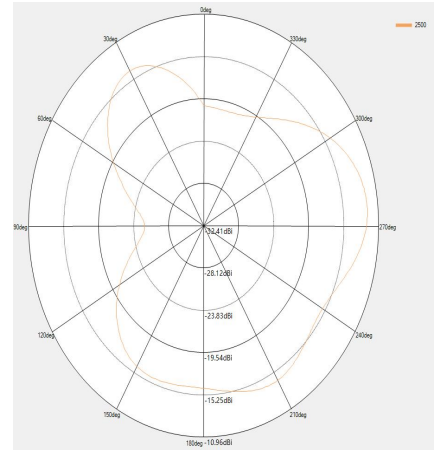
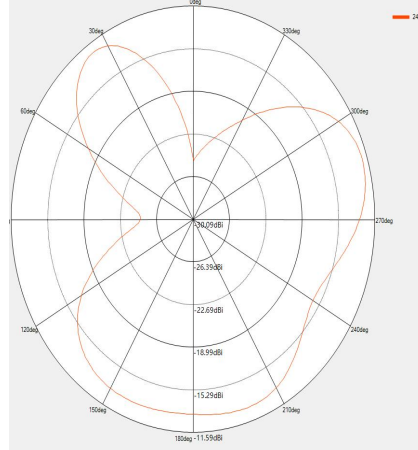
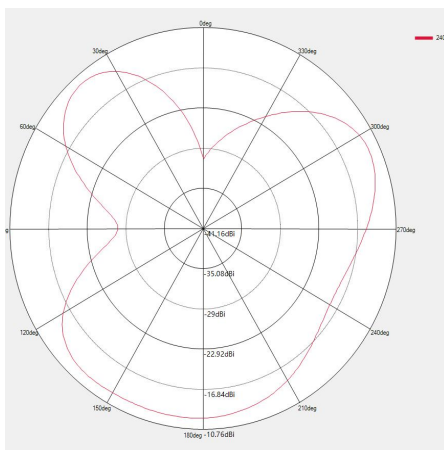
2.2.8 2D-radiation pattern-XOY



2.2.9 2D-radiation pattern-ZOX



2.2.10 2D-radiation pattern-ZOY



3.Engineering drawing

A		*14.99±0.15		*12.38±0.15		*0.12±0.03			
skills requirement: 1.FPC substrate specifications: 2.Electroplating specifications: 3.Surface ink requirements: 4.Reliability requirements: 5.Tolerance requirements: 6.Key control size: 7.Environmental requirements: 8.Packaging requirements:		PI substrate: Electrolytic copper (half to half) 0.5oz (FID) 3M55261 Nickel plated: 3"8um Surface ink color: Matt black Printing font color: WHITE Printing font height: According to drawings 1. Reliability test: salt spray test\rubber friction test\alcohol resistance test\100 grid test. 2. The front ink, the surface of the ink is required to be folded in half without cracking, scratching, etc. 1. Shape tolerance ±0.10; 2. Copper foil circuit tolerance ±0.05; 3. The position of the copper foil to the shape is ±0.15; 4. Hole-to-hole position tolerance ±0.10; hole-to-shape position tolerance ±0.15; 5.The size tolerance of gold finger is ±0.20. 6. For other unmarked dimensions, refer to 2D drawings.		THOT-CORE2-BT-0.1					
DATE		Modify the content		Version		Revise			
1		2		3		4			
Shenzhen Yu Sheng Communication Equipment Co., Ltd.									
Model		DATE		Design		20260314			
Name		BT-FPC		JFB					
Part NO		709009-1A		MD		JFB			
Material quality		Electrolytic copper (half to half)		RF		CXH			
Weld surface treatment		confirm		UNIT		mm		proportion	
Appearance treatment		confirm		UNIT		mm		proportion	
Revise		Revise		Revise		Revise		Revise	
R:A		R:A		R:A		R:A		R:A	
5		6		7		8			

4.Bill of Materials

709009 (CORE2) -BOM

Edition: R:A

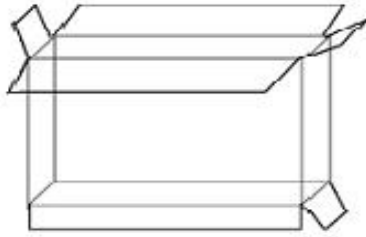
client:709

Model: 709009

date: 20260401

NO	Material code	*Material name	/	Model	specifications and models	colour	Unit	dosage	remarks
1	709009-IA-RA	BT-FPC		CORE2	Black BT-FPC electrolytic copper, half-on-half configuration, gold-plated, laminated film, dimensions: 14.99 × 12.38 × 0.17 mm	Black	PCS	1	
1.1	709009-IA-01-RA	BT-FPC		CORE2	Black BT-FPC electrolytic copper, half-on-half configuration, gold-plated, laminated film, dimensions: 14.99 × 12.38 × 0.17 mm	Black	PCS	1	
Confirmation:			Review:			Production: FJW			

5.Package drawing

Packaging method diagram		
product name	FPC antenna	
P / N	709009	
Project model	CORE2	
File details	Carton Size 1: 270*260*200MM Carton Size 2: 260*200*200MM Carton Size 3: Depending on the order quantity / volume	
	Boating method	Packaging by order quantity
	Total number of binning	Packaging by order quantity
labeling requirement	Tag Size 1: Universal use 100 * 100mm Tag Size 2: According to customer requirements	
matters need attention		
1. Due to the limitation of order quantity, the packing method of each material is the size of the box according to the total quantity of the order or the physical volume		
2. Storage temperature: room temperature		
3. Preservation conditions: store them in a cool and dry place		

6. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test Method: **ANSI/IEEE Std 149-2008**

THOT