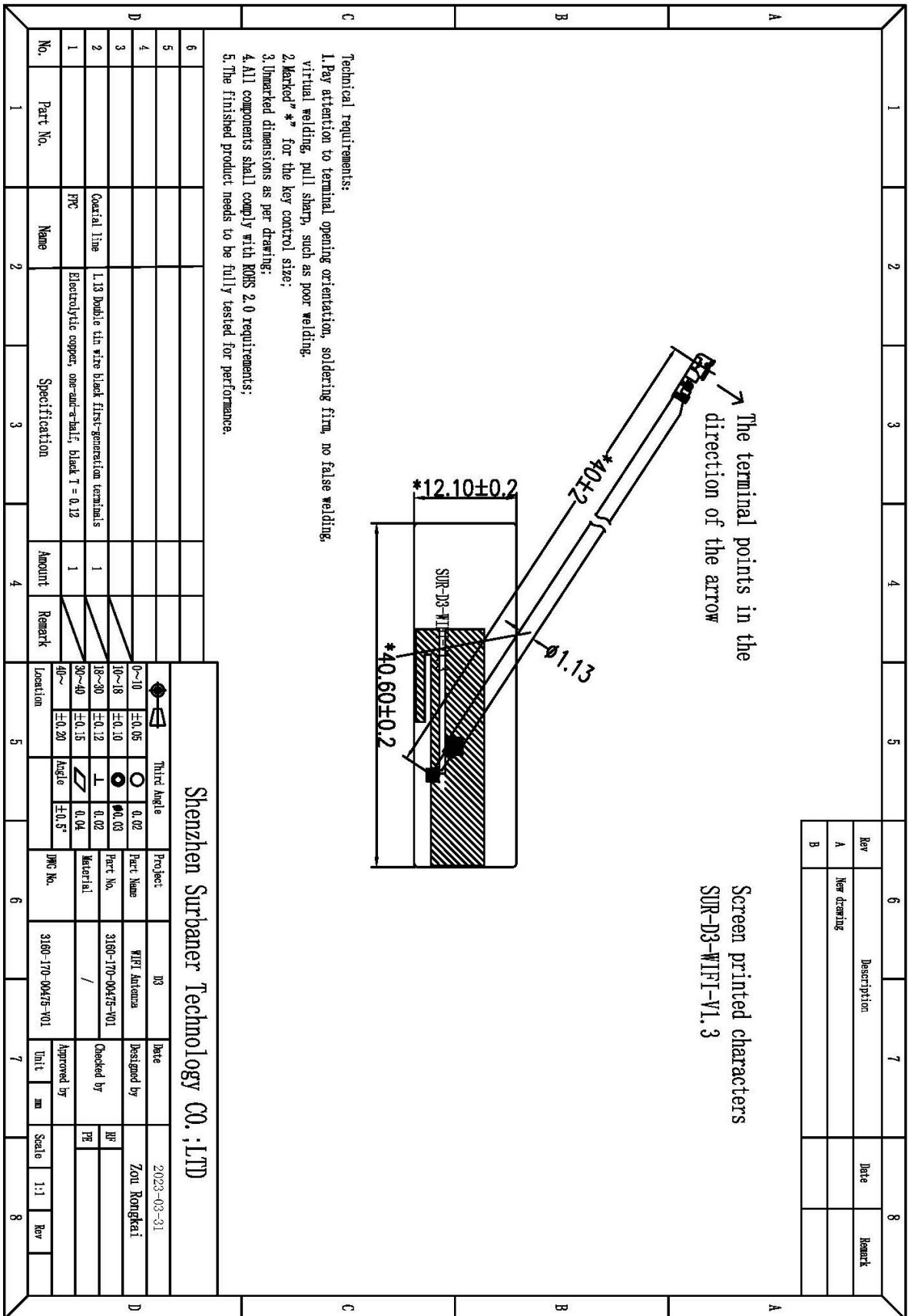


Antenna specification

Customer Name	ZKTECO CO., LTD.		
Customer Project Name	D3	Surbaner Project Name	D3
Customer P/N	A86020051	Surbaner P/N	3160-170-00475-V01
Band	2.4-2.5GHz		
Version	A0		
Designer Information			
RF Engineer	Zeng Xinrong	R&D Director	Zhu Haokui
ME Engineer	Zou Rongkai		

Surbaner Approval			Customer Approval		
	Prepared By	Checked By	Approval By	Checked By	Approval By
Signature	Liu Shengrong	zhuhaokui	ZengBinghao		
Date	Oct. 24. 2022	Oct. 24. 2022	Oct. 24. 2022		

Change Log				
Version	Change Description	Person in Charge	Approval By	Date



Sample Dimensions Test Report

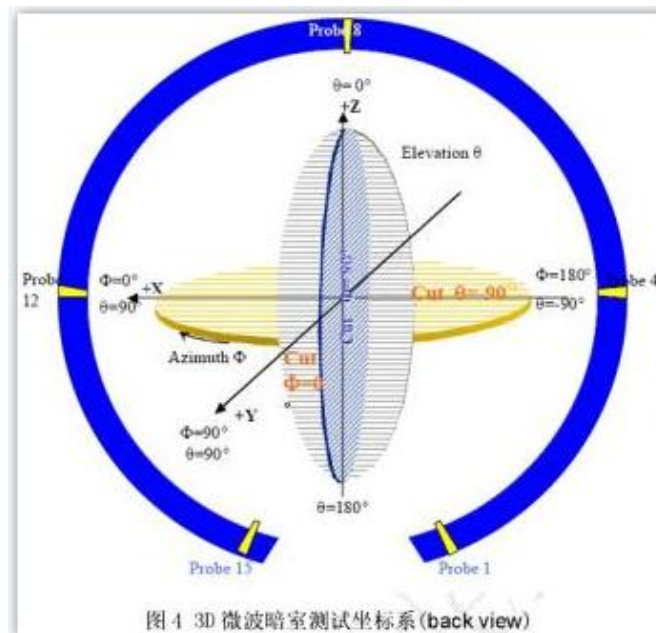
Customer Name	Shang Ji	Customer P/N	A86020051	Surbaner P/N	3160-170-00475-V01
Test Date	2022/10/22	Sample Qty.	3	Inspector	Zeng Xinrong
Dimension No.	Standard	Sample 1	Sample 2	Sample 3	Pass/NG
①FPC length	40.60±0.2mm	40.62	40.60	40.61	Pass
②FPC Width	12.10±0.2mm	12.11	12.10	12.09	Pass
③FPC Thickness	0.12±0.05mm	0.12	0.12	0.121	Pass
④Long line	40±2mm	40.1	40	40	Pass
⑤					
⑥					
⑦					
Conclusion					PASS
Inspector & Date	Zeng Xinrong 2022/10/22		Approval & Date		

RF Performance Test Report

Customer Name	Shang Ji	Project Name	D3	Surbaner P/N	3160-170-00475-V01
Band	2.4-2.5GHz	Test Date	2022/6/14	Inspector	Zeng Xinrong

Antenna Test Equipment Introduction

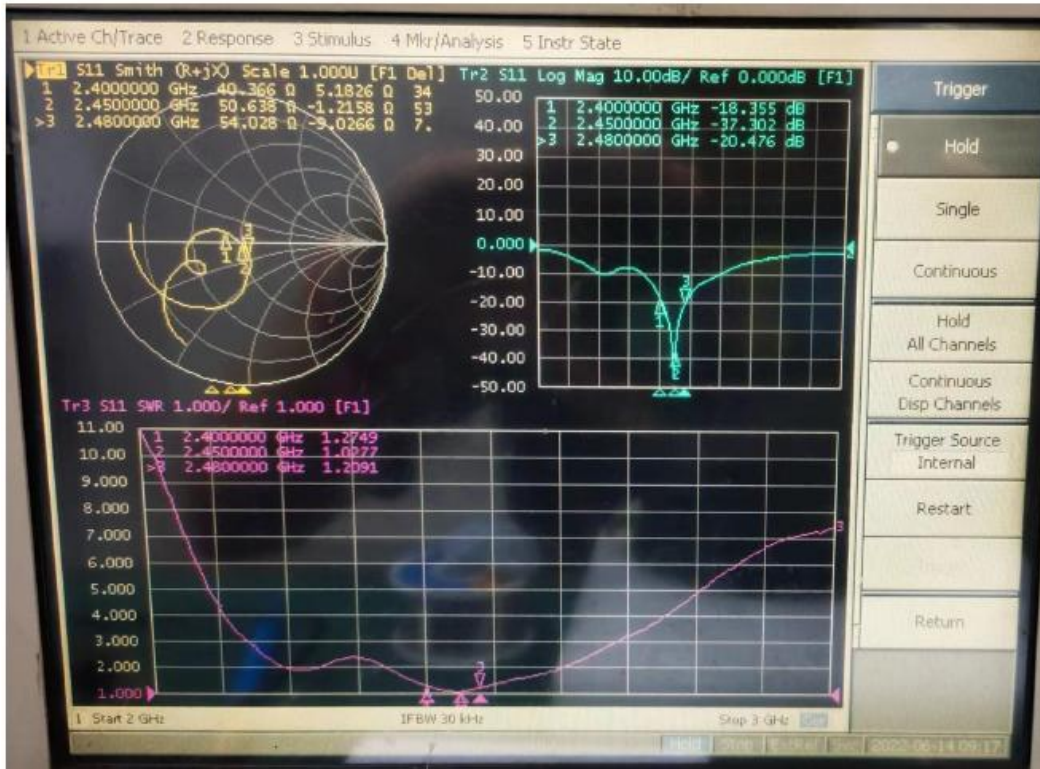
Test of antenna input characteristics using Agilent E5071C and Agilent 5062A vector network analyzer; The radiation pattern of the antenna are tested using the Satimo starlab 3D near field Anechoic Chamber, and the instrument is used to agilent8960 E5515 and Agilent E4438C. The test coordinates of the darkroom are as follows:



1. S11 Parameter-VSWR

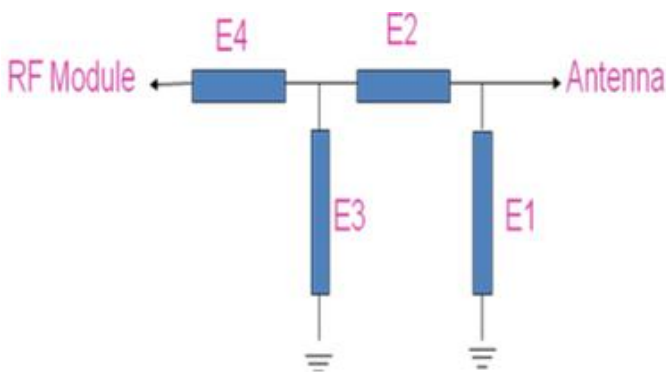
Measuring Method is a 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the S11 parameter, Keeping this fixture away from metal at least 20cm.

S11 Parameter-VSWR



Frequency	2400	2450	2500
VSWR	1.27	1.02	1.20

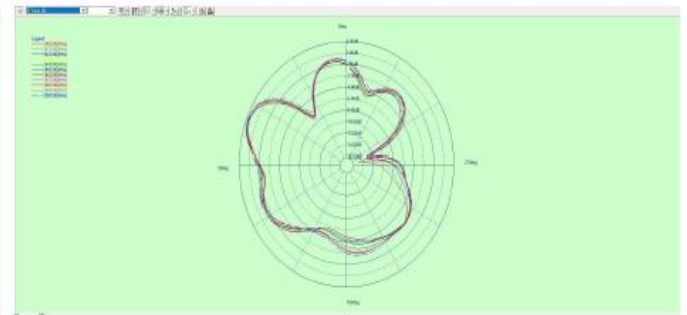
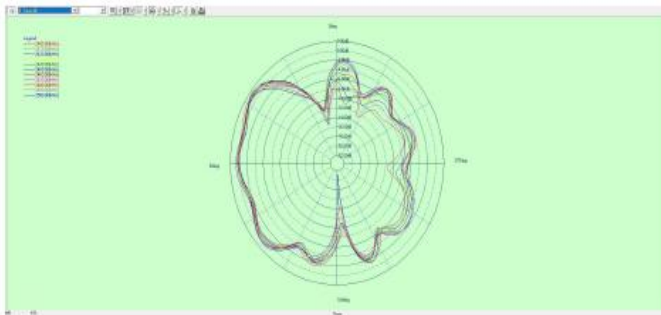
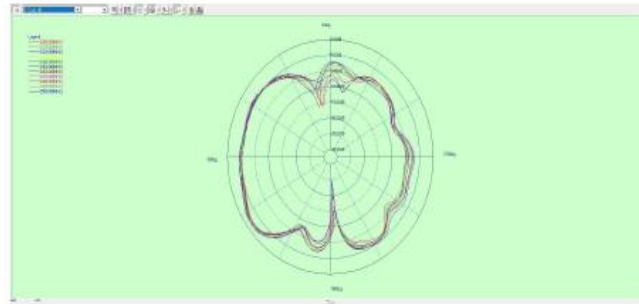
2. Antenna Matching Network



Element	Capacitor	Inductor
E1	N/A	N/A
E2	N/A	N/A
E3	N/A	N/A
E4	N/A	N/A

PCB board end matching circuit has not been changed

2D Pattern



3. Gain & Efficiency

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
2400	52.19	2.51
2410	53.15	2.46
2420	56.42	2.75
2430	55.98	2.78
2440	53.77	2.61
2450	55.68	2.56
2460	60.24	2.90
2470	59.04	2.74
2480	55.87	2.39
2490	57.46	2.66
2500	61.29	2.93

4.OTA

Test Equipment:	R&S CMW270			
Test Condition:	3D chamber			
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
WIFI	802.11 b/11Mbps	1	16.83	-80.21
		6	16.74	-81.38
		11	15.70	-79.64
	802.11 g/54Mbps	1	11.93	-68.13
		6	11.89	-67.03
		11	11.23	-65.64
	802.11 n/65Mbps	1	11.69	-62.23
		6	11.66	-62.29
		11	10.91	-60.44

5.Antenna position map

