

Antenna Test Report

MOKO TECHNOLOGY LIMITED

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Project Name: LW012-CT

Author: 黄文华

Update: 2024-09-13

项目概况

OverView

CUSTOMER NAME	华创	PROJECT NAME	LW012-CT
Items		Details	
• FREQUENCY		LORA:850MHZ-930MHZ; BLE: 2400MHz-2500MHz;	
• PROJECT TYPE			
• ANTENNA SPACE			
• FEED & GROUND PAD			
• SENSITIVE ELEMENTS			
• ANTENNA TYPE			
• PCB			
• OTHERS			

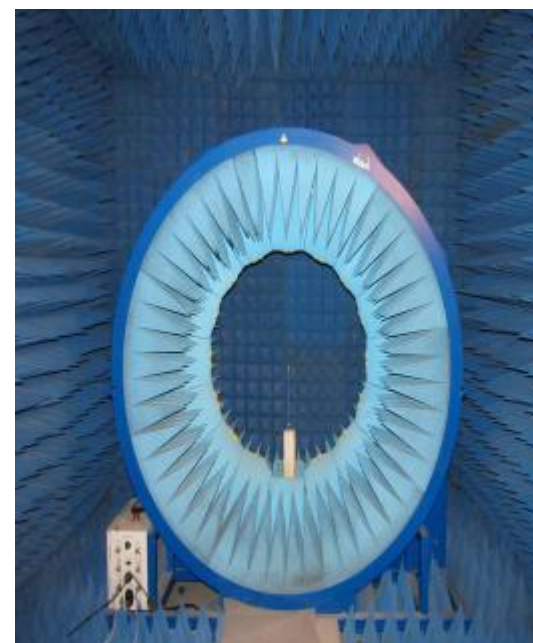
历史报告记录

Revision History

日期 (Date)	版本 (Revision)	负责人 (Author)	更改原因 (Description of changes)
2024-09-13	A	黄文华	调试数据

Test Item & Equipment

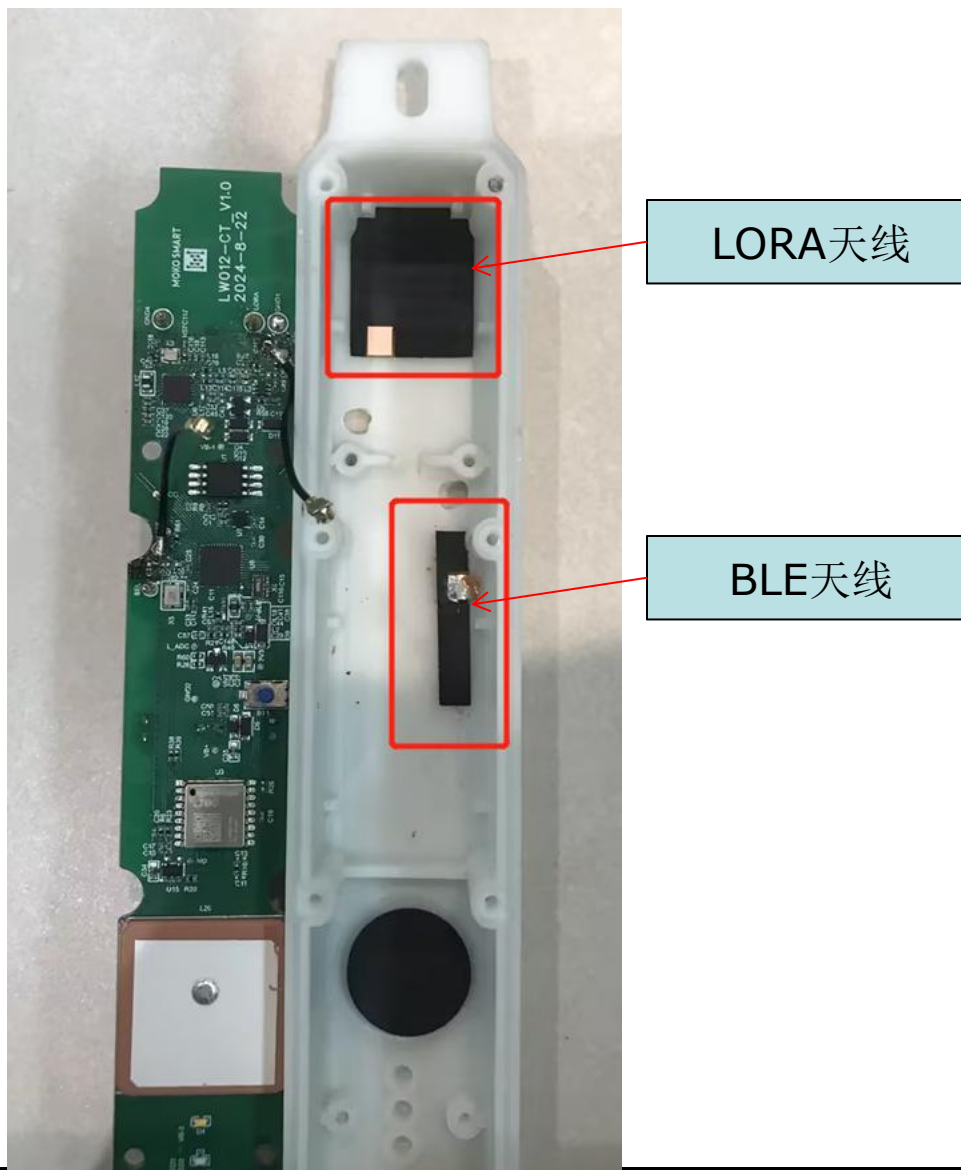
List	Test Item	Equipment	
1.S Parameter	VSWR, Return Loss	Agilent VNA	
2.Active Test	TRP, TIS	Agilent 8960	RayZone1800
3.Passive Test	Gain, Efficiency, Pattern	Agilent E5071C	



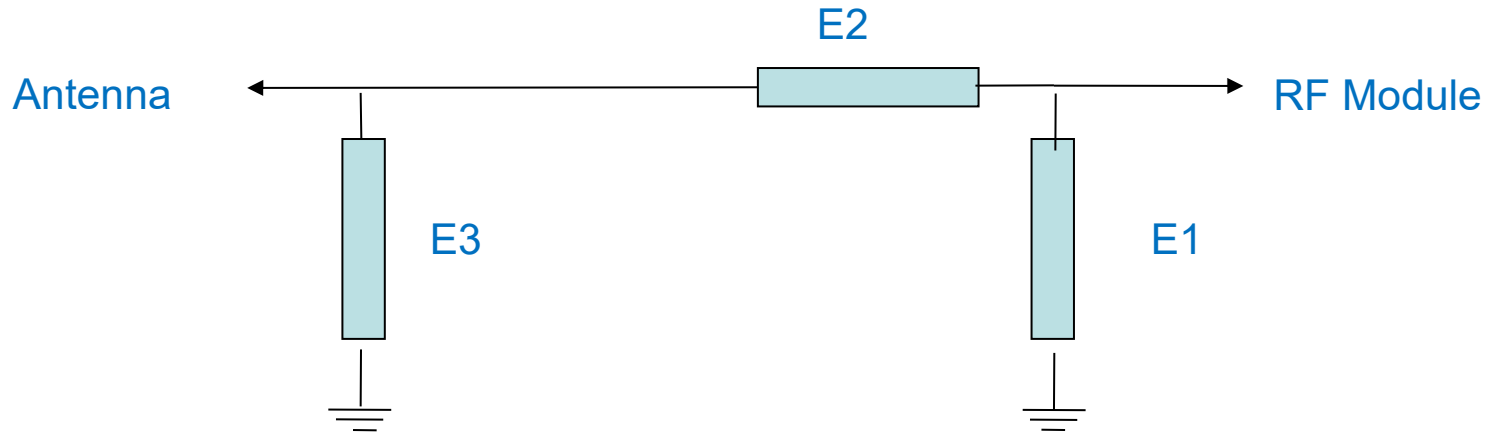
产品示意图



天线区域示意图



Matching Circuit-LORA天线匹配参数

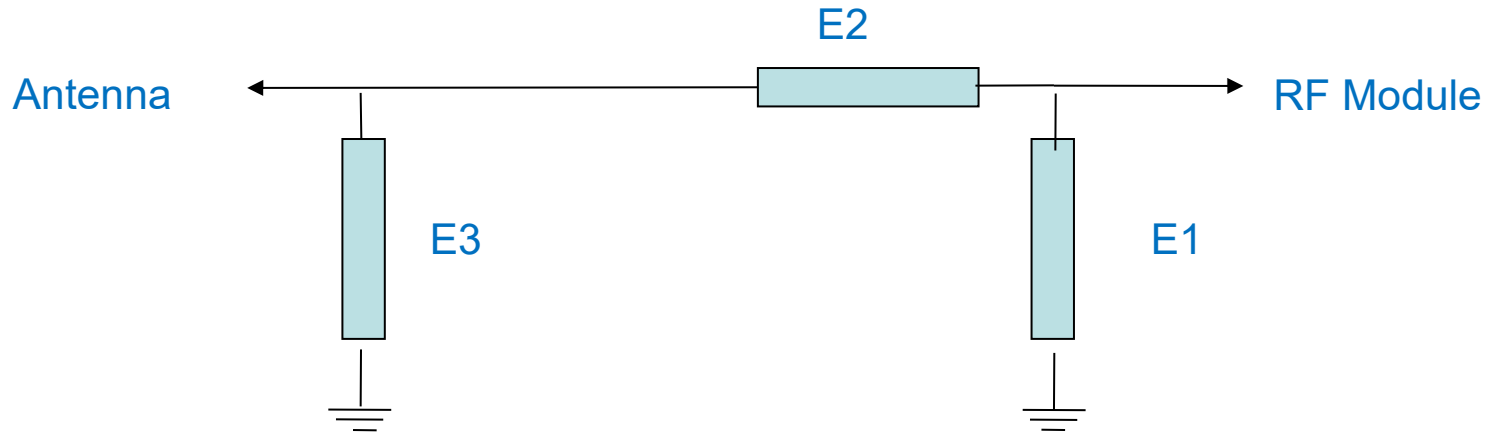


Element	Value
E1(0402)	NC
E2(0402)	0
E3(0402)	8.2NH

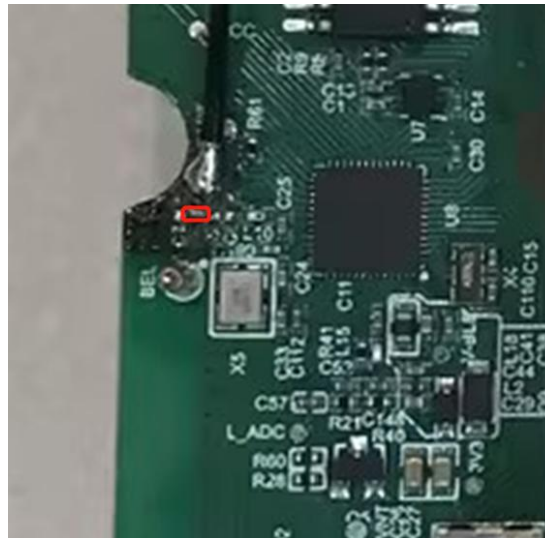


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Matching Circuit-BLE天线匹配参数

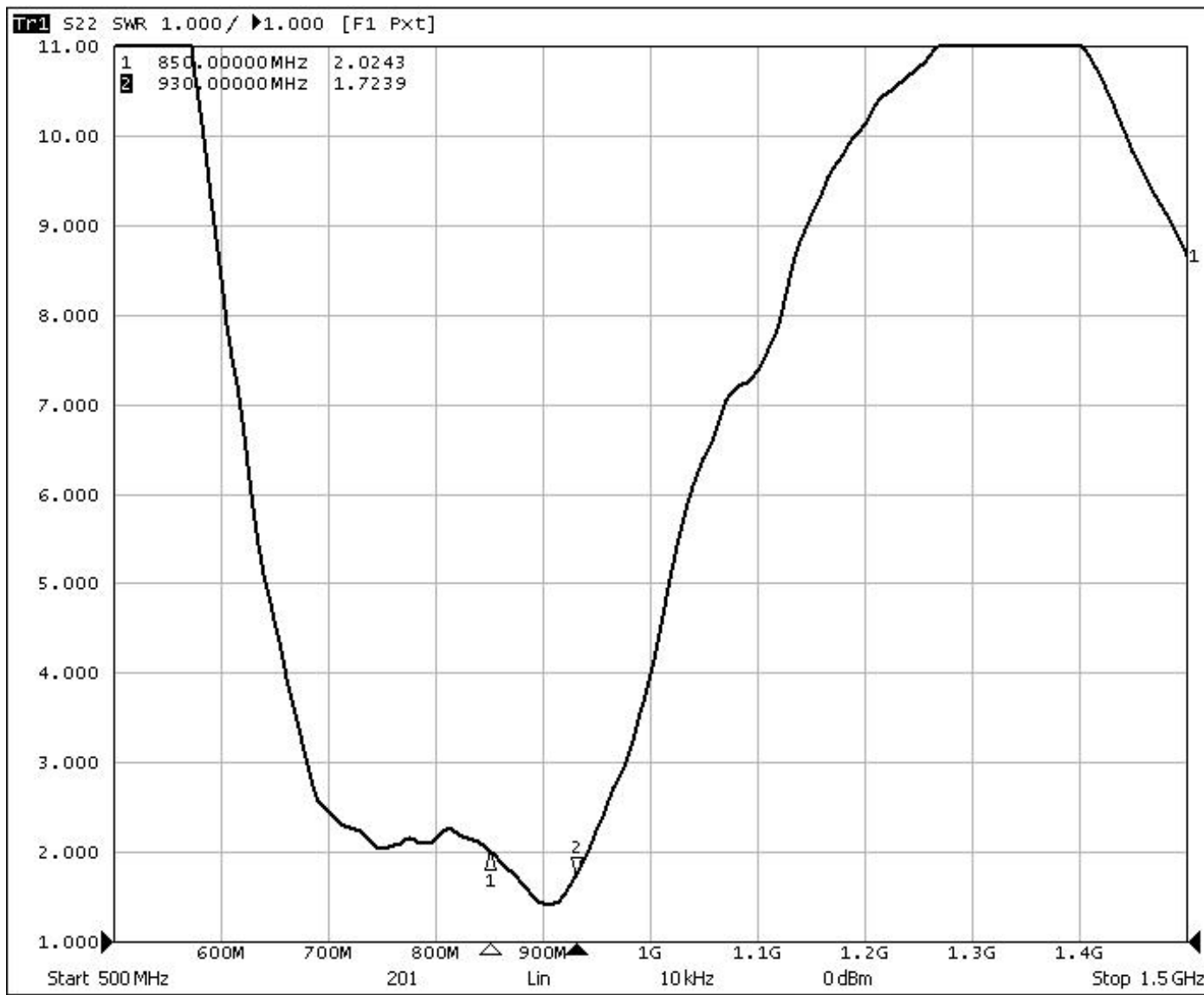


Element	Value
E1(0402)	NC
E2(0402)	1.5PF
E3(0402)	NC



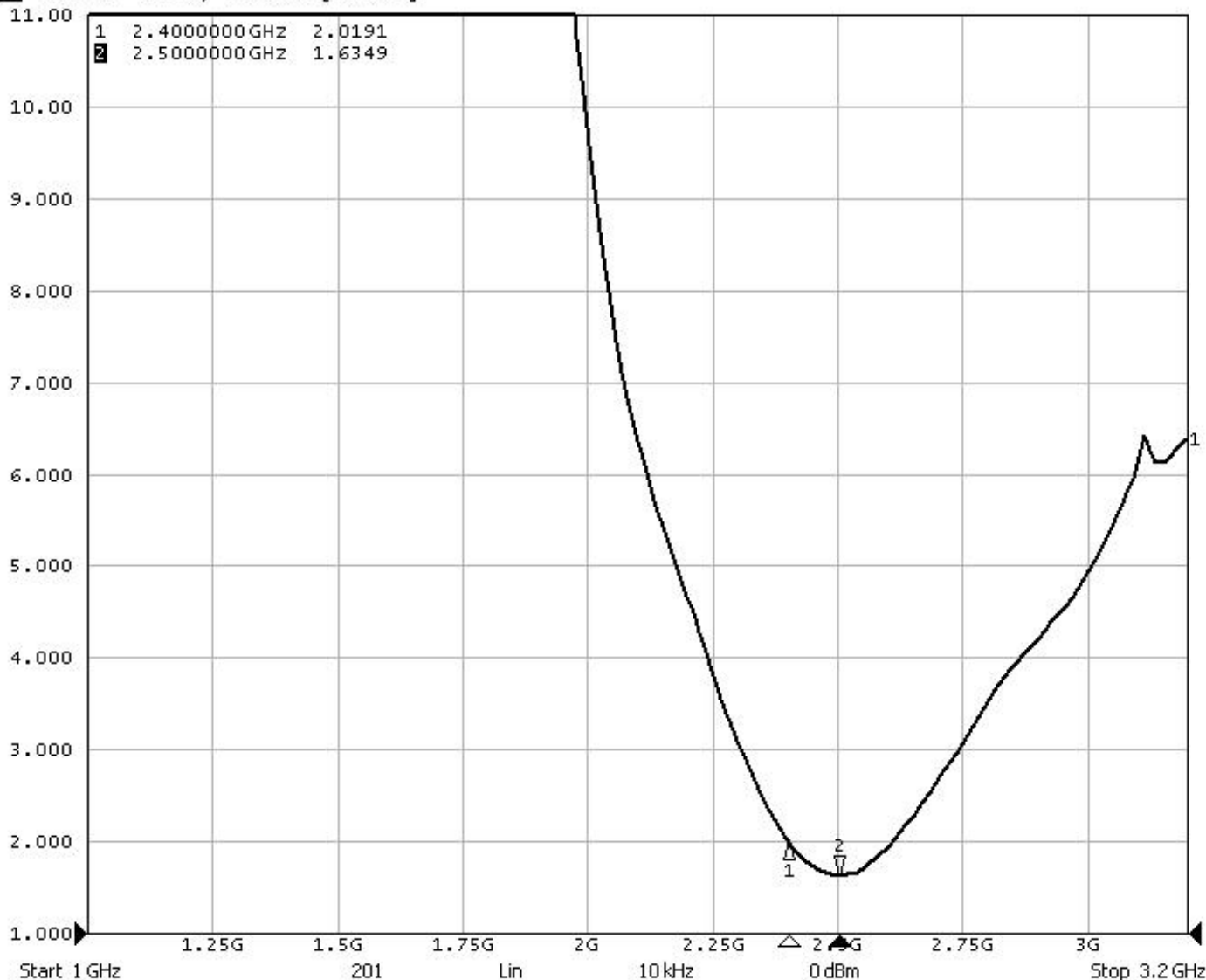
2024-9-13

天线VSWR-LORA天线



天线VSWR-BLE天线

Tr1 S22 SWR 1.000 / 1.000 [F1 Pxt]



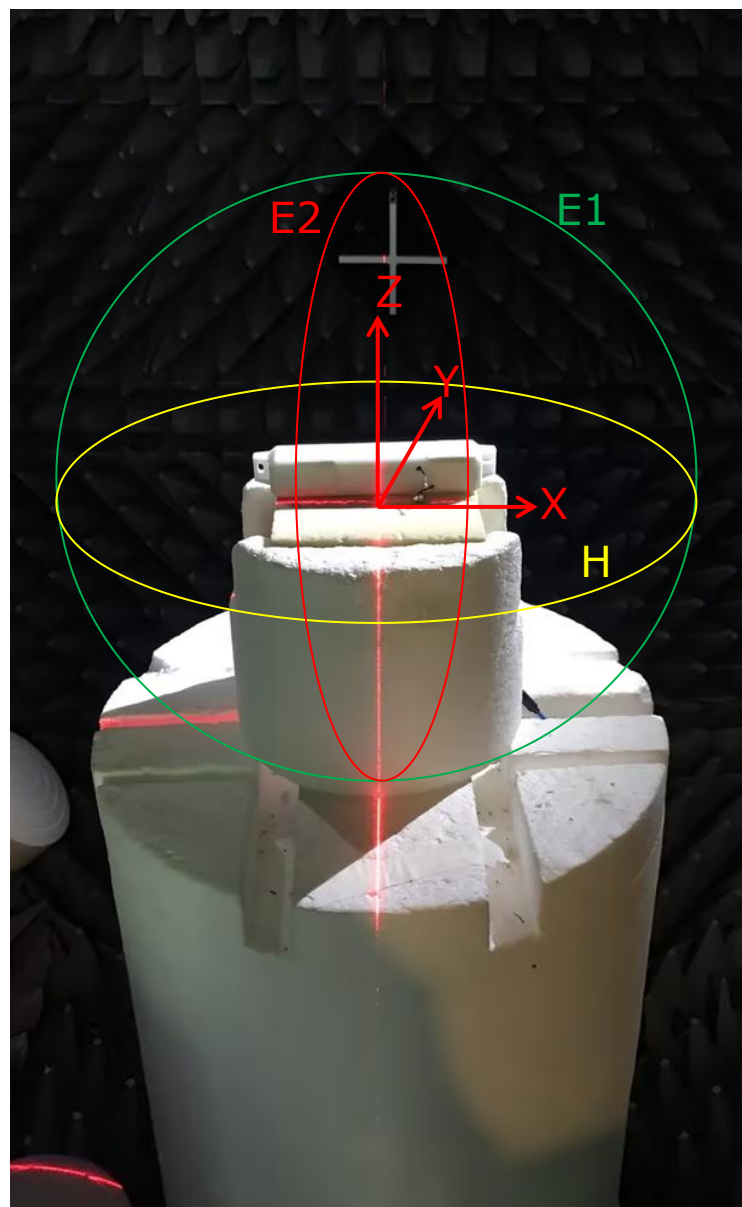
天线无源数据: LORA天线

Freq (MHz)	Gain	Efficiency (%)
850	1.55	49.03
855	1.61	47.41
860	1.40	48.84
865	1.16	47.09
870	1.03	43.95
875	0.74	42.01
880	0.72	41.89
885	0.62	40.20
890	0.58	39.50
895	0.64	40.53
900	0.61	41.63
905	0.57	42.21
910	0.67	43.36
915	0.95	45.01
920	1.13	45.16
925	1.12	44.38
930	0.65	41.25

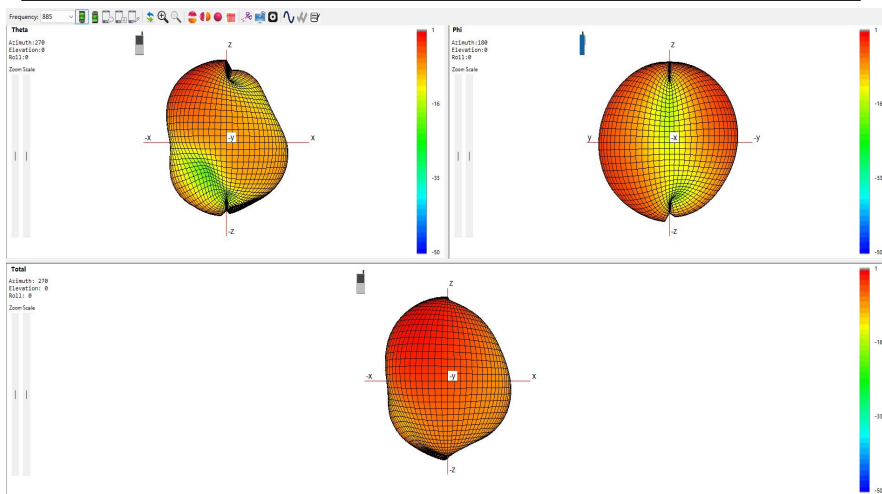
天线无源数据: BLE天线

Freq (MHz)	Gain	Efficiency (%)
2400	0.62	44.98
2410	0.93	49.14
2420	1.00	49.93
2430	0.86	49.20
2440	0.85	49.19
2450	0.80	49.76
2460	0.69	48.82
2470	0.58	48.03
2480	0.36	45.72
2490	0.17	42.75
2500	0.08	41.42

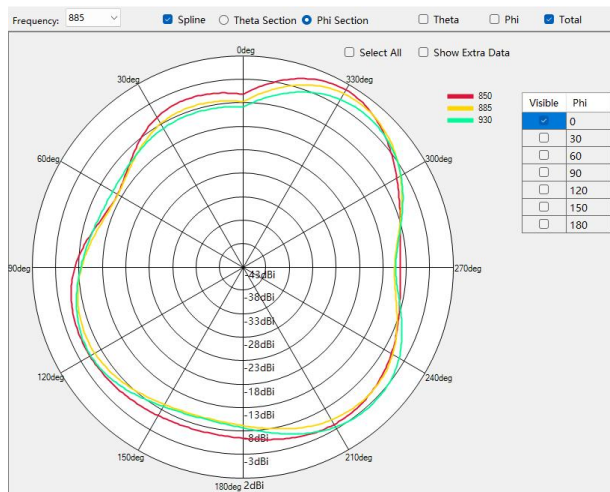
暗室测试坐标示意图



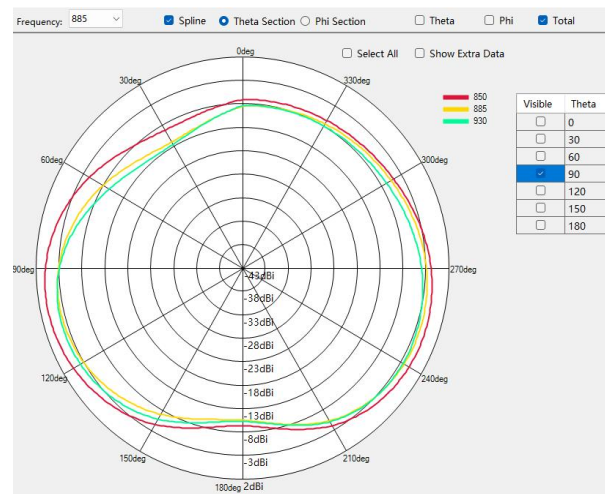
天线2D/3D方向图 LORA天线@885MHZ



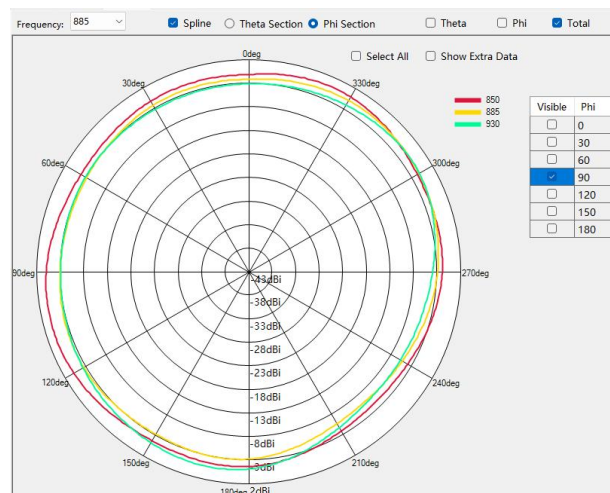
3D



E1

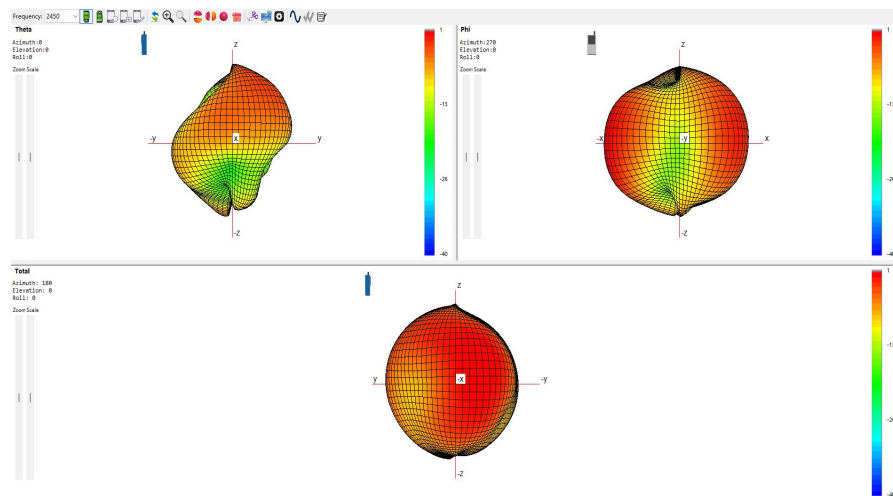


H

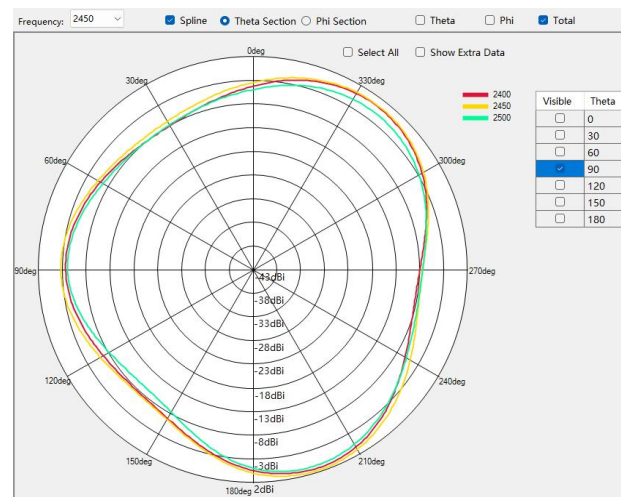


E2

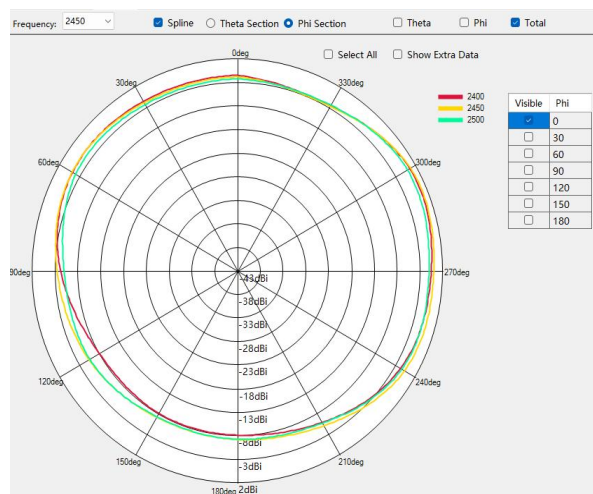
天线2D/3D方向图 BLE天线@2450MHz



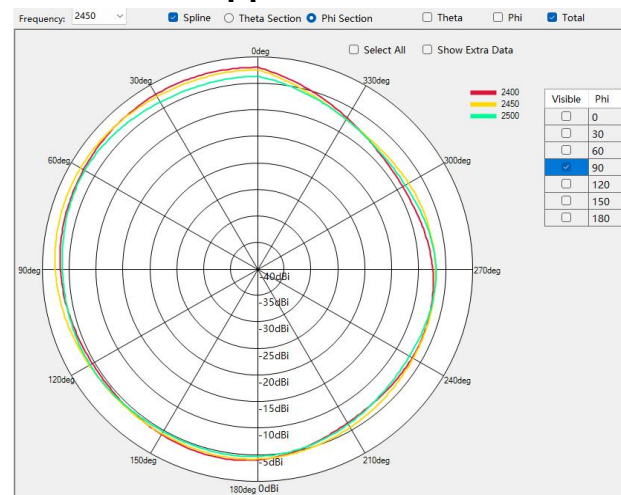
3D



H



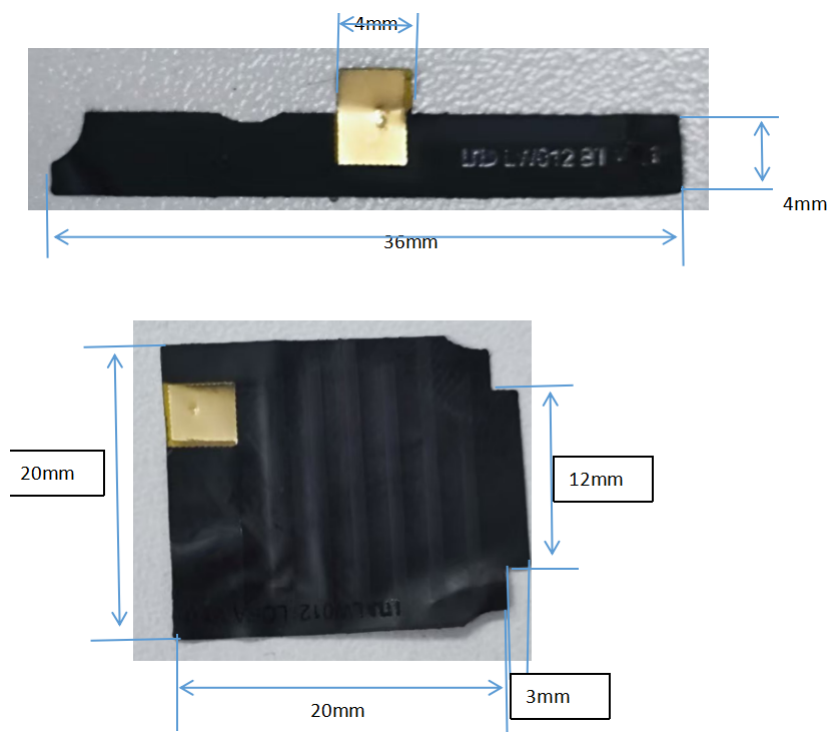
E1



E2

总结

- 1、注意天线 π 型电路增加匹配参数，LORA天线并8.2NH，BLE天线串1.5PF；
- 2、治具会存在一定误差，无源测试数据仅供参考。



2024-9-13