

Shenzhen xīn Lingke Technology Co.,Ltd

ANTENNA APPROVAL SHEET

Customer: Tianke
project: TK331

Part number		Audit	2025.11.12
RF Engineer		Structural Engineer	Zhang Haidon
Customer hardware		Customer Project	
Customer Structure/MD		Customer Quality	
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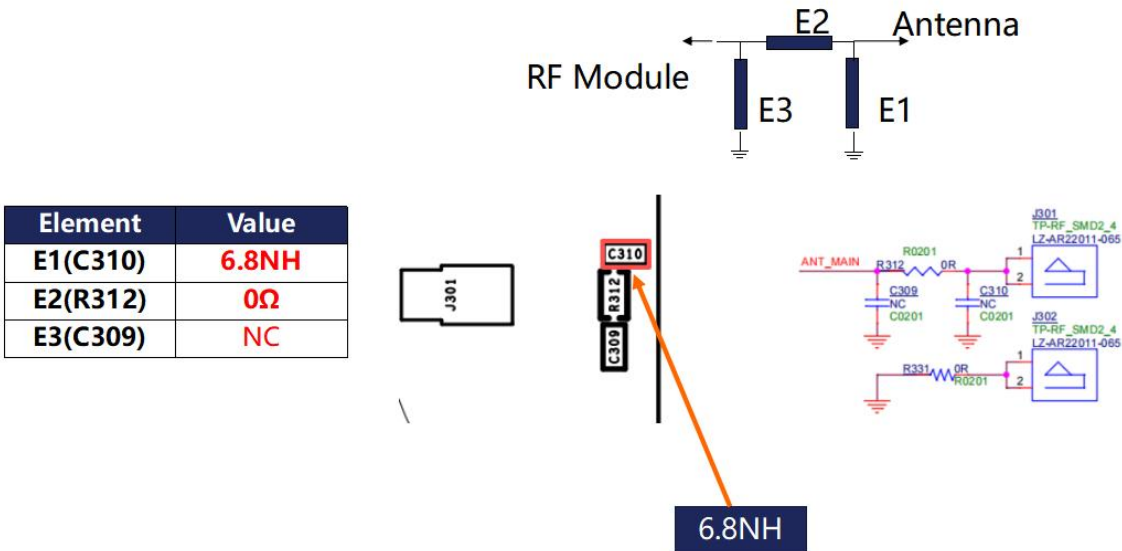
project: TK331		撰写:	文件名: Tianke TK331 Antenna Specification
date: 2025.11.12		Zhang hai dong	
version		审核:	
		Lipeng	
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1 Summary

This report details the antenna performance of the locator calibrated by New Link Technology for Tianke. The device supports multiple frequency bands including LTE (B2/4/5/12/66), GPS, 2.4GHz Wi-Fi, and Bluetooth. Its antenna features an LDS configuration with a PIFA design, housed within the locator's internal structure.

2 detailed introduction

2.1 Matching circuit.



3 Debug Settings

TX Power and RX Sensitivity: These 3D measurements were obtained using the Agilent 8960 in a microwave anechoic chamber (6m×3m×3m).

3.1 TRP、TIS

main antenna correlation data

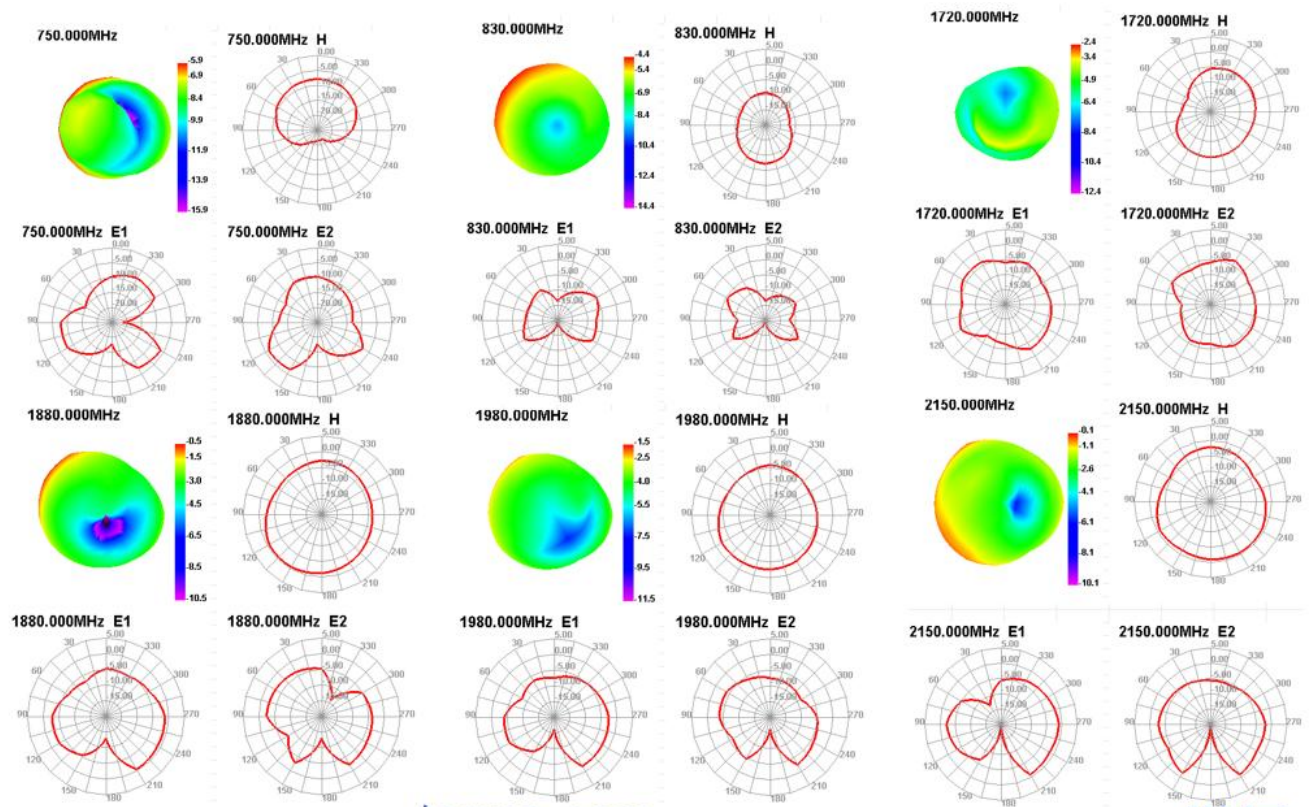
LTE2 TRP			LTE2 TIS
18650	18900	19150	1150
1855	1880	1905	1985
10M	10M	10M	10M
18.74	18.02	17.07	-91.89
LTE4 TRP			LTE4 TIS
20000	20175	20350	2350
1715	1732.5	1750	2150
10M	10M	10M	10M
17.87	16.47	18.28	-92.24
LTE5 TRP			LTE5 TIS
20450	20525	20600	2600
829	836.5	844	889
10M	10M	10M	10M
16.18	15.17	13.16	-85.55
LTE66 TRP			LTE66 TIS
132022	132322	132622	67086
1715	1745	1775	2175
10M	10M	10M	10M
17.35	16.95	18.12	-92.21

main antenna gain

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Freq (MHz)	Gain (dBi)	Freq (MHz)	Gain (dBi)
690	-8.56	1700	-3.23
700	-8.42	1720	-2.38
710	-7.9	1740	-3.05
720	-7.07	1760	-2.18
730	-6.98	1780	-1.84
740	-6.9	1800	-1.18
750	-5.95	1820	-1.04
760	-5.74	1840	-0.96
770	-7.17	1860	-0.48
780	-7.01	1880	-0.48
790	-5.73	1900	0
800	-5.29	1920	-0.72
810	-5.53	1940	-1.01
820	-5.23	1960	-1.17
830	-4.38	1980	-1.49
840	-4.65	2000	-0.51
850	-4.18	2020	-1.05
860	-4.95	2040	-0.35
870	-6.72	2060	-1.2
880	-7.76	2080	-0.78
		2090	-1.21
		2100	-1.1
		2120	-0.01
		2140	-0.65
		2150	-0.14
		2160	0.38

mainantennadirection



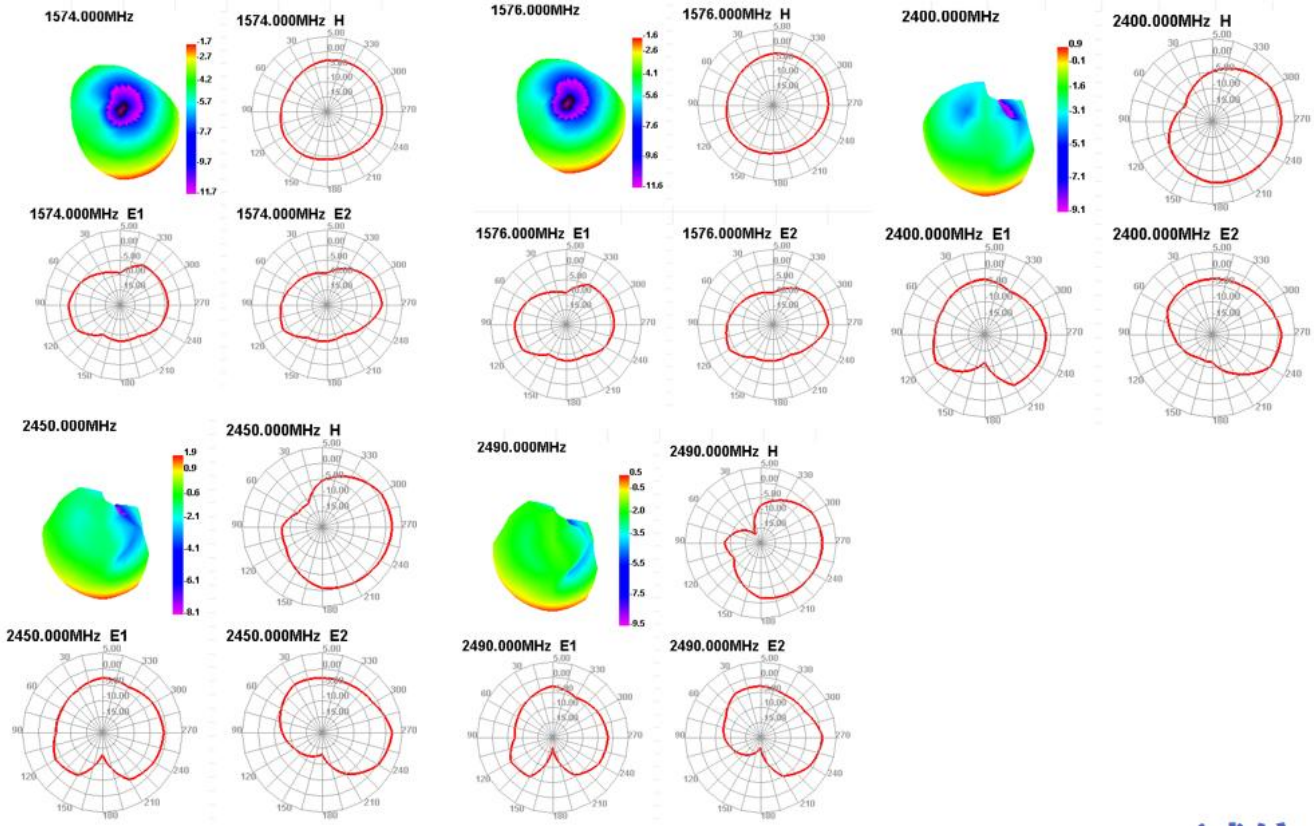
GPS/BT antenna correlation data

GPS/BT efficiency gain

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Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
1560	33.98	-1.59	2400	41.64	0.94
1562	34.09	-1.57	2410	42.18	1.43
1564	34.54	-1.51	2420	43.14	1.46
1566	34.8	-1.47	2430	44.95	1.29
1568	34.57	-1.5	2440	45.9	2.06
1570	33.74	-1.63	2450	44.69	1.91
1572	33.69	-1.63	2460	44.62	1.68
1574	33.64	-1.67	2470	43.9	1.26
1576	34.08	-1.61	2480	42.75	1.08
1578	35.04	-1.5	2490	38.43	0.53
1580	36.24	-1.35	2500	38.23	1.49
1582	36.8	-1.29			
1584	37.13	-1.28			
1586	37.09	-1.29			
1588	36.81	-1.36			
1590	36.67	-1.41			
1592	36.55	-1.44			
1594	36.69	-1.46			
1596	36.91	-1.46			
1598	36.92	-1.48			
1600	36.57	-1.56			
1602	36.18	-1.65			

GPS/BTdirectional diagram

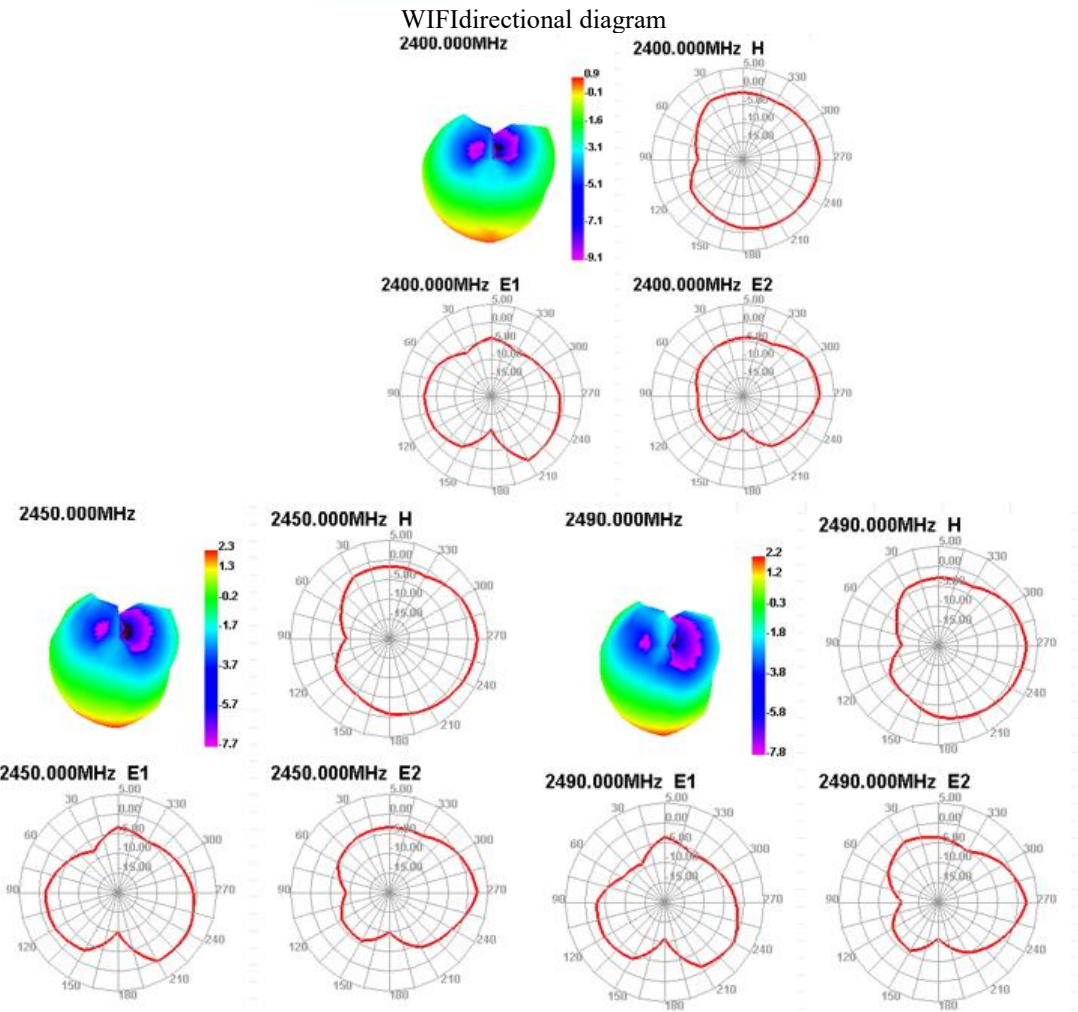


WiFi antenna correlation data

WiFi efficiency gain

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Freq (MHz)	Effi (%)	Gain (dBi)
2400	43.7	0.91
2410	45.71	1.5
2420	46.83	1.43
2430	45.15	1.12
2440	51.22	2.13
2450	49.33	2.26
2460	49.43	2.42
2470	47.32	2.39
2480	43.24	2.25
2490	42.87	2.17
2500	41.84	2.73

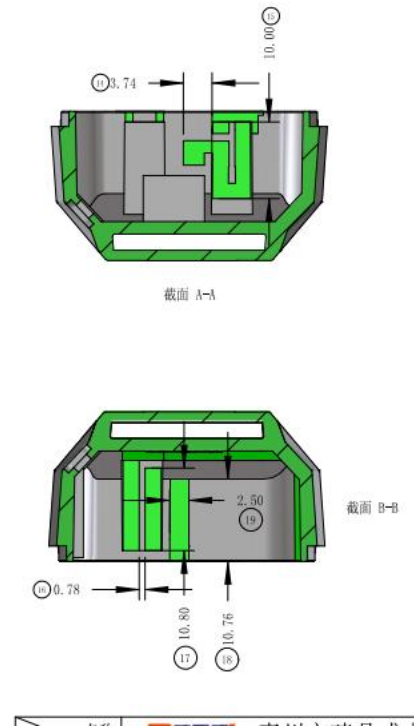
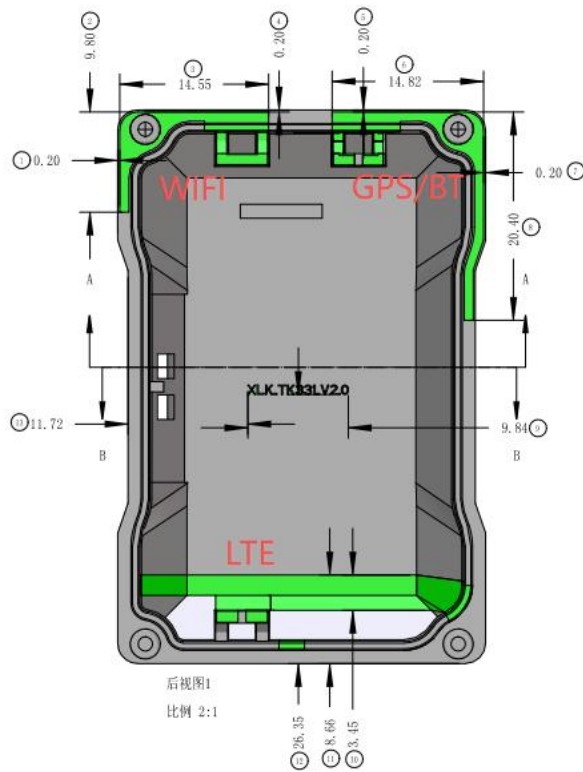


3.2environmental treatment (whole machine environmental treatment)

nothing

4、 Antenna size diagram

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Unit : mm		Lipeng	
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5、 salt spray test report

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产品编号：		客户名称：	
送样日期：		订单号：（NO.）： /	
喷雾时间：次/5s			
收集溶液PH值：6.8			
试验时间：48 H			
盐雾 实验 结果 描述		产品表面经48小时试验后，有轻微变色，但无腐蚀不良。	
判定： ☒ ACC ☐ REJ ☐ UAI			
试验员：谢红艳		试验日期：	
最终结果		样件测试合格。	
审核：慕亚娟		日期：	
备注：			

ZDS-E-QER-009/A.0

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出货检验报告

客 户				出货日期	
客户型号				内部型号	
出货数量				抽样数	
周 期				订单号	
抽样标准		AQL0.65 II 级标准			
检验项目		要求	实际	判定	备注
1	膜厚	Cu: - um, Ni: - um, Au: - um	Cu: Ni: Au:		
2	尺寸	根据图纸要求	与图纸一致	OK	
3	外观	图形是否完整	图形完整	OK	
		有无毛边、渗镀、变色、氧化	无外观不良	OK	
		有无压伤、破损等	无外观不良	OK	
4	导通测试	是否导通	导通	OK	
5	RF测试	是否PASS	PASS		
6	百格测试	划百格, 3M胶连续3次无脱落	无脱落	OK	
7	盐雾测试	时间: 24H, 可有轻微变色, 但无腐蚀不良(可根据客户要求)	无变色腐蚀	OK	
8	最终判定	最终不合格处理方式:	/		
	☐ 合格	☐ 知会客户挑选出货		合格数量	
	☐ 不合格	☐ 知会客户退货返工		不良数量	/

审核:

检验员:

KPTD-Q-QER-031/A.0

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