

深圳市新领科技有限公司

Shenzhen New Lingk Technology Co.,Ltd

天线规格书

ANTENNA SPECIFICATION

客户：中磁

Customer: centromagnetic

项目：Z92

Project:

料号 Part number		审核 Audit	
射频工程师 RF Engineer		结构工程师 Structural Engineer	
地址 address	深圳南山区高新科技园北区第五工业区办公大楼五楼 The fifth floor of the office building of the Fifth Industrial Zone, North District, High-tech Park, Nanshan District, Shenzhen		
电话 Phone	13902948715	网站 site	www.kpantenna.com
公司邮箱 Company email address	sales@kpanenna.com	联系人 Contact	李鹏 Li Peng

客户硬件 Customer hardware		客户项目 Customer projects	
客户结构/MD Customer Structure/MD		客户品质 Customer quality	

project: : Z92		write: Zhang hai dong	file name: centromagnetic Z92 Antenna specification
Antenna model:			
date: 2026.03.06			
version	V1	to examine: liufang	
Mold products			
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1.概述 Overview

此报告主要描述新领科给中磁调试机器的天线性能。中磁 Z92 美版项目为直板机型，使用频率范围为 G4P WCDMA W1/W5/W8 LTE 1/3/5/7/8/20/40 ， GPS/2.4G/5GWIFI/BT 该机天线为 PIFA 形式，位于机器内部。

This report details the antenna performance of the machine calibrated by Xinlingke for Zhongci. The Zhongci Z92 US version is a straight-body model supporting frequency bands including G4P, WCDMA, W1/W5/W8 LTE (1/3/5/7/8/20/40), GPS, 2.4G,5G Wi-Fi, and Bluetooth. Its antenna is a PIFA type, housed internally.

2.详细介绍 Detailed introduction

2.1 匹配电路 （匹配未改动） Matching circuit (matching unchanged)

3.调试设置 Debug the settings

发射功率(TX Power)和接收灵敏度(RX Sensitivity)。 TX Power and RX Sensitivity

发射功率和接收灵敏度是使用 CMW500/8960 在微波暗室(6m*3m*3m)里测得的 3D 结果

The transmit power and receive sensitivity are 3D results measured using the CMW500/8960 in a microwave anechoic chamber (6m*3m*3m).

3.1 天线有源数据 antenna active data

Band	Channel	TRP	TIS
B2	L	18.3	
	M	18.4	
	H	18.2	-90.8
B3	L	16.7	
	M	17.8	
	H	18.1	-92.4
B4	L	16.8	
	M	17.9	
	H	18.2	-93.5
B5	L	15.1	
	M	15.2	
	H	15.2	-90.6

Band	Channel	TRP	TIS
B7	L	17.6	
	M	17.6	
	H	17.7	-90.6
B8	L	15.3	
	M	15.4	
	H	15.4	-91.5
B17	L	15.1	
	M	15.7	
	H	14.7	-88.3
B40	L	16.7	
	M	17.2	
	H	17.1	-90.6

Band	Channel	TRP	TIS
850	L	24.8	
	M	24.7	
	H	24.5	-101.7
900	L	25.3	
	M	25.8	
	H	25.4	-103.4
1800	L	24.1	
	M	24.8	
	H	25.5	-103.1
1900	L	25.2	
	M	25.6	
	H	25.5	-103.6

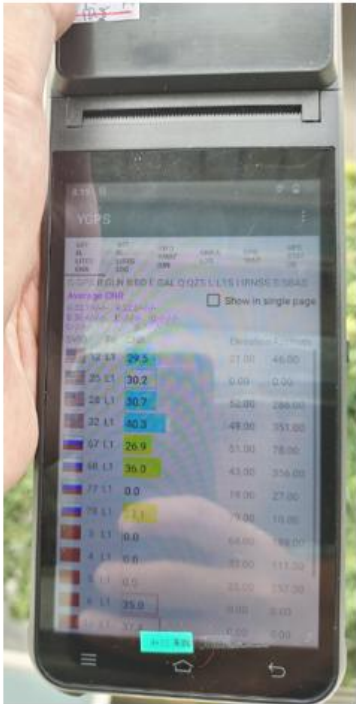
Band	Channel	TRP	TIS
W2	L	17.4	
	M	17.9	
	H	17.8	-104.3
W4	L	17.4	
	M	17.6	
	H	17.9	-104.6
W5	L	15.3	
	M	15.4	
	H	15.3	-102.5
W8	L	15.3	
	M	15.5	
	H	15.5	-102.2

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2.4GWIFI		802.11b (11M)		
channel		1	7	13
TRP		11.6	12.1	11.6
TIS				-76.2

5GWIFI		802.11a (54M)		
channel		36	149	165
TRP		9.7	7.3	6.2
TIS				-67.6

3.2 GPS/BT 实测数据
GPS/BT measured data



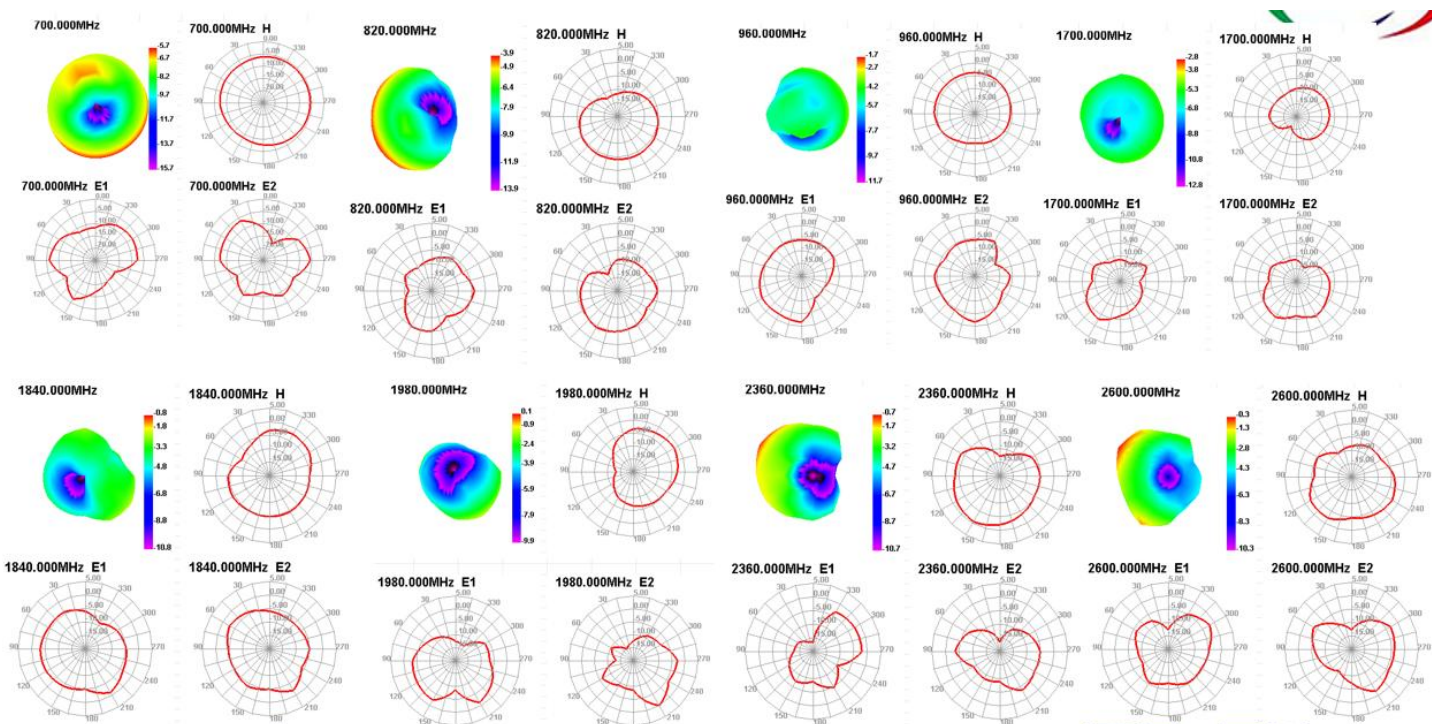
GPS signal acquisition at our company’s window, positioning time: 1 minute. Bluetooth connection without obstruction up to 12 meters, allowing for seamless music playback.

3.3 天线增益 antenna gain

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4G

Freq (MHz)	Gain (dBi)	Freq (MHz)	Gain (dBi)	Freq (MHz)	Gain (dBi)
700	-5.67	1700	-2.77	2180	-0.17
710	-5.75	1720	-2.46	2190	0.06
720	-5.42	1740	-2.76	2200	-0.89
730	-4.84	1760	-2.73	2300	-2.14
740	-5.09	1780	-2.09	2310	-2.05
750	-4.64	1800	-2.51	2320	-1.52
760	-4.76	1820	-1.46	2330	-0.89
770	-5.44	1840	-0.84	2340	-0.75
780	-5.69	1860	-0.63	2350	-0.66
790	-4.55	1880	1.13	2360	-0.66
800	-4.19	1900	-0.02	2370	-0.91
810	-4.03	1920	2.15	2380	-1.02
820	-3.94	1940	0.85	2390	-0.63
830	-3.27	1960	0.66	2400	-0.98
840	-2.97	1980	0.09	2500	0.1
850	-2.46	2000	1.9	2520	1.33
860	-2.04	2040	2.75	2540	1.08
870	-1.6	2060	2.6	2560	0.58
880	-2.16	2080	1.8	2580	0.93
890	-2.02	2100	1.88	2600	-0.28
900	-1.34	2110	2.74	2620	0.42
910	-1.21	2120	1.36	2640	-0.68
920	-1.12	2130	0.72	2660	-0.58
930	-1.48	2140	1.73	2680	-1.02
940	-1.29	2150	1.21	2700	-1.39
950	-2.04	2160	-0.38		
960	-1.71	2170	-0.25		



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GPS

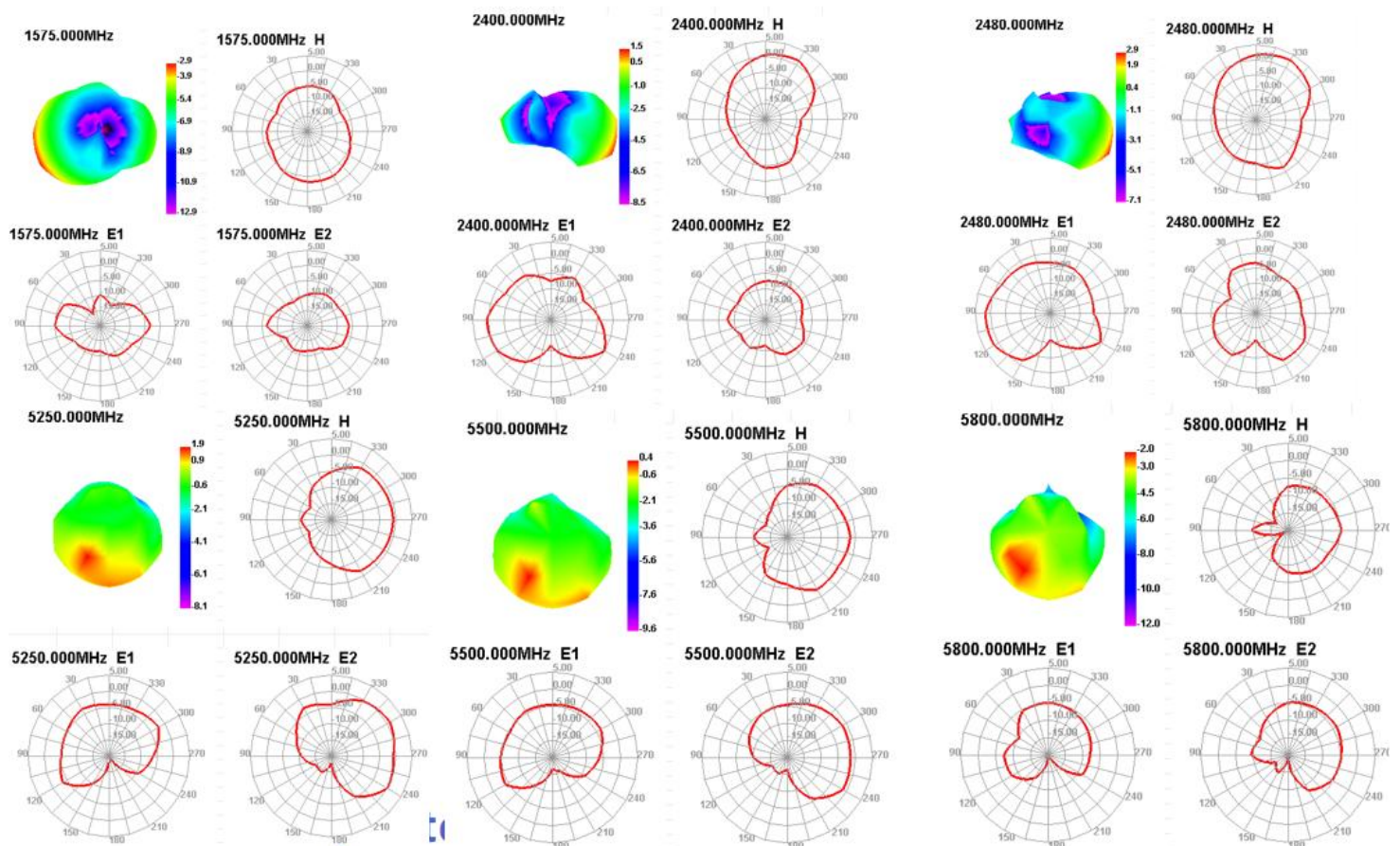
Freq (MHz)	Gain (dBi)
1550	-2.2
1555	-2.31
1560	-2.68
1565	-2.74
1570	-2.85
1575	-2.86
1580	-2.6
1585	-2.65
1590	-2.94
1595	-2.83
1600	-2.33

2.4G

Freq (MHz)	Gain (dBi)
2400	1.5
2410	1.87
2420	2.23
2430	2.48
2440	2.16
2450	2.19
2460	2.97
2470	2.53
2480	2.93
2490	2.6
2500	2.47

5.8G

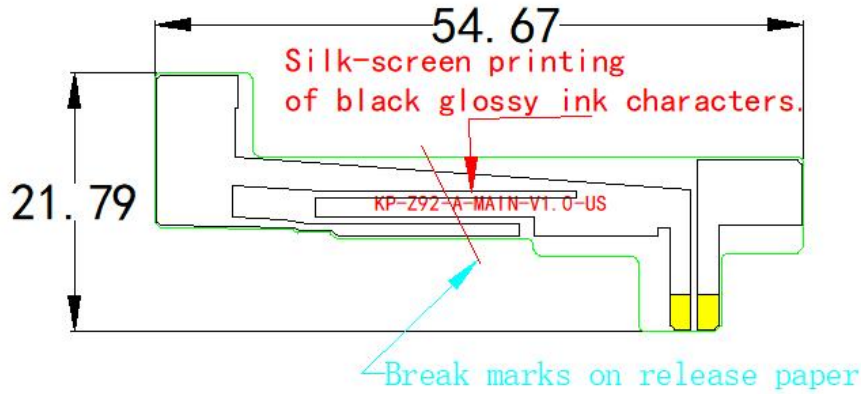
Freq (MHz)	Gain (dBi)
5150	1.39
5200	1.39
5250	1.93
5300	1.19
5350	1.5
5400	1.2
5450	1.16
5500	0.41
5550	-0.36
5600	-0.18
5650	-1.21
5700	0.07
5750	-0.71
5800	-2
5850	-1.82



4.结构图 Structural diagram

project: : Z92	write: Zhang hai dong	file name:
Antenna model:		centromagnetic Z92 Antenna
date: 2026.03.06		specification
version V1	to examine: liufang	
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Item number: B. MK. 0080017



Technical Requirements:

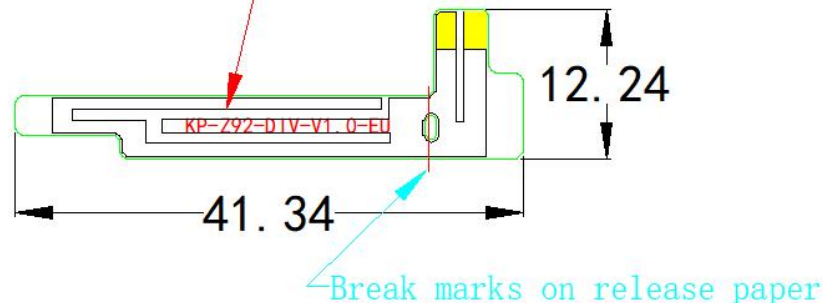
1. Material: FPC (black oil, half-electrolytic copper substrate), $T < 0.15$ mm; reverse adhesive type: 3M9471 (adhesive properties require thermal shock testing).
2. Dimensions marked with an asterisk (*) are subject to special control measures. If no tolerance is specified, it will be governed by the free tolerance within the drawing frame. Dimensions not specified will be verified based on the film inspection (electrical performance must be tested and confirmed as satisfactory).
3. The gold fingers are nickel-plated. The thickness of the nickel coating on the surface of the gold fingers is 0.5μ ". There must be no instances of the nickel coating breaking or peeling easily after plating, poor electrical conductivity, or breaks in the circuitry.
4. The surface ink on the FPC must be uniform, free of contaminants, scratches, black spots, wrinkles, and other defects such as poor nickel plating.
5. The product complies with the ROHS standard.

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Third-person perspective view	entry name:	date	2022-10-19
	Z92	Design	Zsb
	Product name:	To	MD
	MIAN	examine	RF
	Product part number:	Approval	
	B. MK. 0080017	unit:mm	proportion: FIT
	Material Science:		
	FPC		
Page 1 of 1			

Item number: B. MK. 0080008

Silk-screen printing of black glossy ink characters.



Technical Requirements:

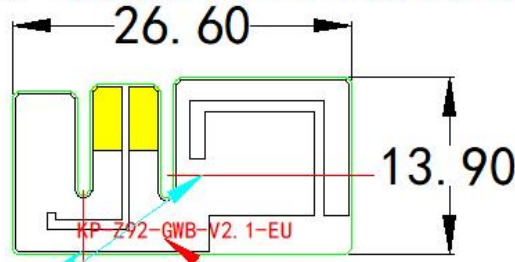
1. Material: FPC (black oil, half-electrolytic copper substrate), $T < 0.15$ mm; reverse adhesive type: 3M9471 (adhesive properties require thermal shock testing).
2. Dimensions marked with an asterisk (*) are subject to special control measures. If no tolerance is specified, it will be governed by the free tolerance within the drawing frame. Dimensions not specified will be verified based on the film inspection (electrical performance must be tested and confirmed as satisfactory).
3. The gold fingers are nickel-plated. The thickness of the nickel coating on the surface of the gold fingers is 0.5μ ". There must be no instances of the nickel coating breaking or peeling easily after plating, poor electrical conductivity, or breaks in the circuitry.
4. The surface ink on the FPC must be uniform, free of contaminants, scratches, black spots, wrinkles, and other defects such as poor nickel plating.
5. The product complies with the ROHS standard.

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Third-person perspective view	entry name:	date	2023-10-19
	Z92	Design	Zsb
	Product name:	To	MD
	DIV	examine	RF
	Product part number:	Approval	
	B. MK. 0080008	unit:mm	proportion: FIT
	Material Science:		
	FPC		
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project: : Z92		write: Zhang hai dong	file name: centromagnetic Z92 Antenna specification
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Item number: B. MK. 0080010



Technical Requirements:

1. Material: FPC (black oil, half-electrolytic copper substrate), T < 0.15 mm; reverse adhesive type: 3M9471 (adhesive properties require thermal shock testing).
2. Dimensions marked with an asterisk (*) are subject to special control measures. If no tolerance is specified, it will be governed by the free tolerance within the drawing frame. Dimensions not specified will be verified based on the film inspection (electrical performance must be tested and confirmed as satisfactory).
3. The gold fingers are nickel-plated. The thickness of the nickel coating on the surface of the gold fingers is 0.5μm. There must be no instances of the nickel coating breaking or peeling easily after plating, poor electrical conductivity, or breaks in the circuitry.
4. The surface ink on the FPC must be uniform, free of contaminants, scratches, black spots, wrinkles, and other defects such as poor nickel plating.
5. The product complies with the ROHS standard.

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Third-person perspective view	entry name:	date	2023-10-19
	Z92	Design	Zsb
	Product name:	To	MD
	GWB	examine	RF
	Product part number:	Approval	
	B. MK. 0080010	Material Science:	unit:mm proportion:FIT
	FPC		
Page 1 of 1			

5.盐雾检测报告 Structural diagram

产品型号 Product model	Z92			测试数量 Number of tests	5PCS		
测试标准 Test Standards	GB2423.17			货品素材 Product materials	FPC		
测试项目 Test items	要求标准 Requirement Standards	实际数值 Actual values	判定 decision	测试项目 Test items	要求标准 Requirement Standards	实际数值 Actual values	判定 decision
测试仪器规格 Test Instrument Specifications	KD-60	KD-60	OK	测试时间 Test time	24H	24H	OK
盐雾测试类型 Types of salt spray tests	NSS 中性 NSS neutral	NSS 中性 NSS neutral	OK	盐雾箱温度 Salt spray box temperature	35°C	35°C	OK

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盐水 PH 值 SALINE PH	6.5-7.2	6.8	OK	盐雾沉降量 (H.80C) Salt spray sedimentation	1-2ml	1.8ml	OK
喷雾方式 Spray method	连续喷雾 Spray continuously	连续喷雾 Spray continuousl y	OK	货品材质 Material of the goods	FPC	FPC	OK
盐水成份 Brine ingredients	5%/NaCL	5%/NaCL	OK	压缩空气节压 力 Compressed air section pressure	1 ± 0.1KG/CM2	1	OK
饱和温度 Saturation temperature	47℃	47℃	OK	试样放置角度 Specimen placement angle	90°	90°	OK
测试观察时间 Test observation time	观察现象 Observe the phenomenon						
4H	无异常 No anomalies						
12H	无异常 No anomalies						
24H	无异常 No anomalies						

判定标准：依国标 5944-86 评级方法判定，9 级以上为合格
Judging criteria: According to the national standard 5944-86 rating method, grade 9 or above is qualified

最终判定结果 Final Judgment	合格√ Eligible √			不合格 Unqualified	
测试人员 Tester	何本源 He Yuanyuan	审核 Audit	王爱兵 Wang Aibing	审批 Approval	

备注：常用的盐雾试验方法有：NSS 中惦盐雾试验，AASS 乙酸盐雾试验，CASS 铜乙酸加速试验。
Note: The commonly used salt spray test methods are: NSS medium salt spray test, AASS acetate spray test, CASS copper acetic acid accelerated test.

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OQC 检验测试报告

OQC inspection and test report

订单号 report		客户料号 Customer part number		检测 项目 Detection items	抽样计划 Sampling plan		AQL	AC	RE	判定 decision
客户型号 Customer model	Z92			外观 appearance	CR	0.15	0.15	0	1	
数量 quantity	出货数量 : Pcs Shipment quantity				MAJ	0.4	0.4	2	3	合格 qualifi ed
	抽样数量: Pcs Number of samples				MIN	0.65	0.65	3	4	
1. 开路 Open		NIL	10.凹坑/压伤 Pits/crushes		NIL	19.离型纸未切断 The release liner is not cut			NIL	
2. 短路 short circuit		NIL	11.电镀粗脏、金面水印 Plating coarse and dirty, gold watermark		NIL	20.金面氧化 Oxidation of the gold surface			NIL	
3. 线路起翘 The line is warped		NIL	12.金面针孔、缺口 Gold pinholes, notches		NIL	21.冲偏/露铜 Offset / exposed copper			NIL	
4. 线路损坏 Damaged lines		NIL	13.胶层气泡 Glue line bubbles		NIL	22.未冲断 Not broken			NIL	
5. 擦/刮花 Rub/scratch		NIL	14.油墨颜色 Ink color		NIL	23.掉金/甩金 Drop gold/throw gold			NIL	
6. 露铜/镍 Exposed copper/nickel		NIL	15.字符不清 Unclear characters		NIL	24.弯曲/变形 Bending/deformation			NIL	
7. 掉油 Lose oil		NIL	16.垃圾/异物 Garbage/foreign objects		NIL	25.外形缺口 Form factor notch			NIL	
8. 氧化/变色 Oxidation/discoloration		NIL	17 溢胶/流胶 Overflowing/flowing glue		NIL	26.堆胶/缺胶 Glue stacking/lack of glue			NIL	
9. 表面脏污 The surface is dirty		NIL	18.皱褶 pucker		NIL	27.补强不良 Poor reinforcement			NIL	
判定: Decision:		√合格 □不合格 □特采出货 √ qualified □ unqualified □ special picking								

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备注：请将本产品储存在低温、低湿（温度 18-28℃，湿度 35%-75%RH）无腐蚀性气体的环境下，建议开包后一周内使用完。

Note: Please store this product in a low temperature, low humidity (temperature 18-28℃, humidity 35%-75%RH) non-corrosive gas environment, it is recommended to use it within one week after opening.

可靠性测试 Reliability testing		
项目名称 The name of the project	要 求 requirements	实 测 Measurements
热冲击实验 Thermal shock experiments	288℃*10S'*3 次	288℃*10S'*3 次无分层、起泡 288℃*10S'*3 times without delamination and blistering
抗剥离实验 Anti-peel experiment	≥1.0 kg f/c m²	1.112 kg f/c m²
油墨拉力测试 Ink pull test	3M600 胶带垂直拉起 The 3M600 tape is pulled up vertically	无掉油墨现象 No ink dropping
生产及检测设备清单 List of production and testing equipment		
生产设备 Production equipment	检测设备 1 Testing equipment 1	检测设备 2 Testing equipment 2
蚀刻外形机 Etching profile machine	二次元摄影机 Two-dimensional camera	千分尺 micrometer

检验员：
Inspectors:

审核：
Audit:

材料成份宣告表

Material Composition Declaration Form

序号 serial num ber	材料名称 The name of the material	材料型号 Material type	材料供应商 Material Suppliers	环保报告或声明编号 Environmental report or declaration number	报告日期 Report date	备注 remark
1	基材 substrate	一对一材料 One-to-one materials	蔡伦格蒂 Cailenghetti	SHAEC23001049106	2023/2/15	1-9 页 Pages 1-9
2	背胶 Adhesive backing	3M9471LE	3M	SHAEC2217569205	2023/1/04	1-9 页 Pages 1-9

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3	油墨 printing ink	黑色 BLACKINK Black BLACKINK	优立 Youli	CANEC23009939703	2023/09/20	1-11 页 Pages 1-11
4	电金 Electricity gold	检测 detect	乾圣 Qiansheng	A2230512090101002C	2023/10/11	1-4 页 Pages 1-4

出货方式

Shipping method

物料类别 The item category	包装方式 Packing	举例图示 Illustration of an example
FPC	1、 PET 塑胶袋包装 1、 PET plastic bag packaging	

备注：请将本产品储存在低温、低湿（温度 18-28℃，湿度 35%-75%RH）无腐蚀性气体的环境下，建议开包后一周内使用完,使用中请尽量不要让产品 3M 胶有指纹，以免影响粘着力。

Note: Please store this product in a low temperature, low humidity (temperature 18-28 °C, humidity 35%-75%RH) non-corrosive gas environment, it is recommended to use it within a week after opening the package, please try not to let the product 3M glue have fingerprints during use, so as not to affect the adhesion.

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