

HONANT 产品承认书

HONANT Product Approval Sheet

客户名称 Customer name:	华创智联科技有限公司
产品机型 Product Model:	HB10
客户料號 Customer P/N:	F00027
版本 Version :	V1.0
零件料号 Part Number:	HCZL-HB10-01
产品描述 Description:	FPC 内置 BT 天线/18*13.7*0.10/半对半电解铜+3M 背胶+表面黑色油墨+镀金/单面板
日期 Date:	2026/6/10

结构工程师 ME	品质工程师 QE	射频工程师 RF	审核 Checked by	批准 Approved by

客户承认 (盖章) Approved by customer (Stamp)	测试工程师 TE	品质工程师 QE	研发工程师 RD	审核 Checked by	批准 Approved by

鸿基无线通信(深圳)有限公司

HONANT Wireless Communication (Shenzhen) Co., Ltd.

地址: 深圳市 光明区 华强科技生态园 8栋B西座 12楼

Add.: 12th Floor, West Block, Building 8B, Hua qiang Technology Ecological Industrial Park,
Guang ming District, Shenzhen City, Guangdong Province, China

邮编(Postal Code):518107 电话(Tel.):0755-28700082 网址(Web): www.honant.com

版本履历表
Revision History

版本号 REV NO.	内容描述 Description	变更人 Modify	审批 Approval	变更时间 Date
V1.0	新版发行 NEW			

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1.概述 Scope

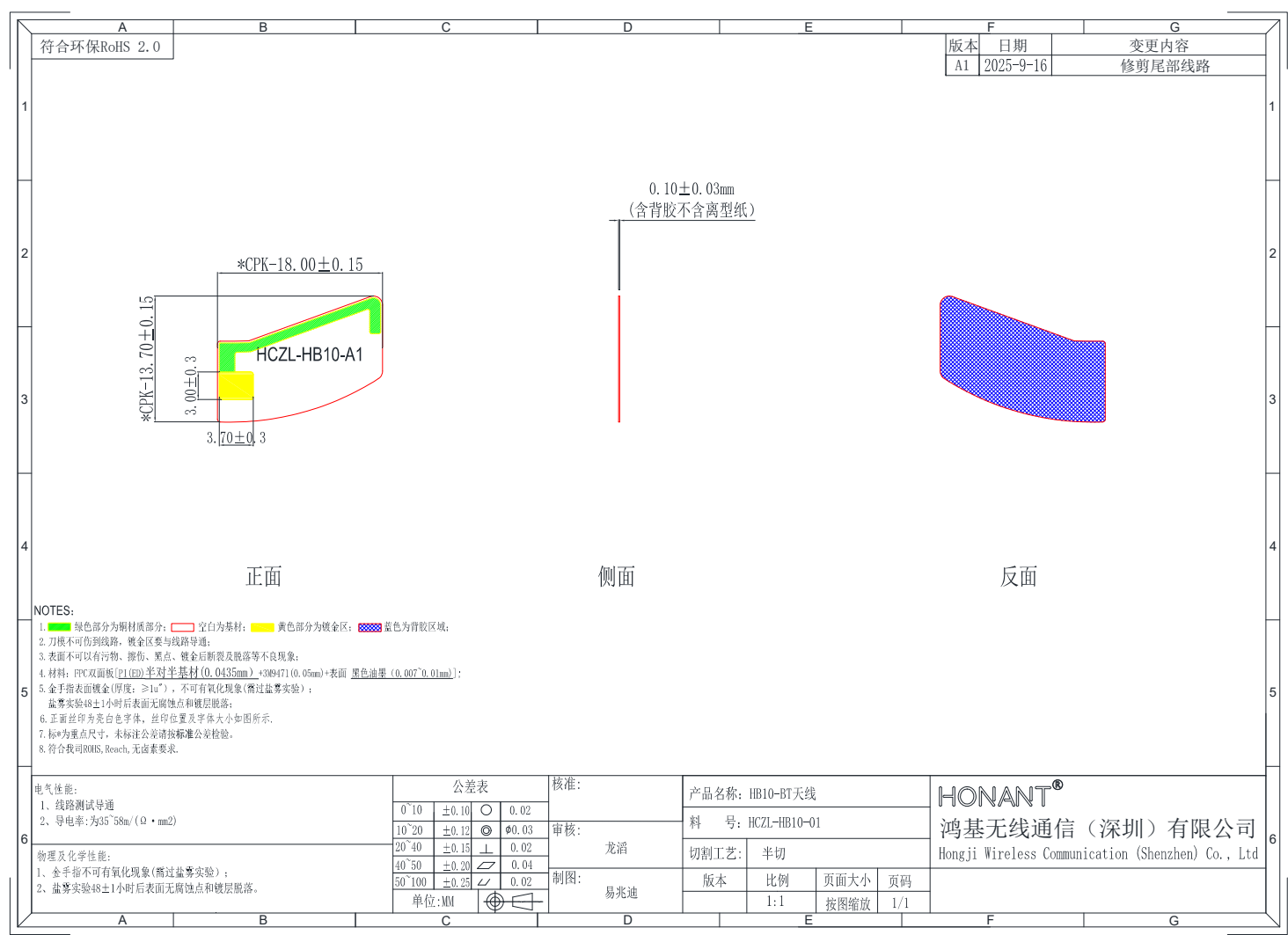
本产品承认书应用于HB10 BT款天线，它是产品设计、生产和检验的依据，其作用是让客户了解产品的特性及质量标准。

HB10 BT款天线设计具有轻巧且柔韧的特点，能够弯曲和折叠，适用于多种频段和场景，易于安装，并具有良好的环境适应性。

This product acknowledgment is applied to the HB10 BT model antenna. It serves as the basis for product design, production, and inspection, and its purpose is to let customers understand the product's characteristics and quality standards.

The HB10 BT antenna design is lightweight and flexible, capable of bending and folding, suitable for multiple frequency bands and scenarios, easy to install, and has good environmental adaptability.

2.天线工程图纸 Antenna Mechanical Drawing



3. 天线特性 Antenna Characteristics Q

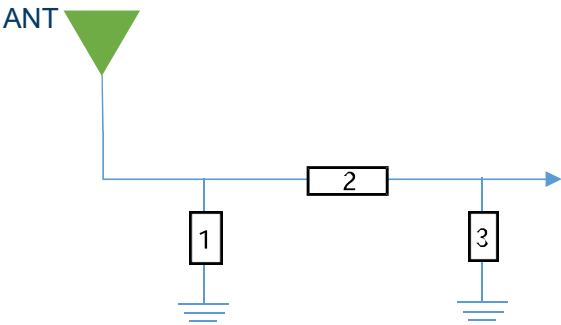
3.1 尺寸特性 Dimension Characteristics

3.1.1 全尺寸量测 FAI

全尺寸测量报告														
	编码	HCZL-HB10-01		零件名称	FPC 天线			规格	18*13.7*0.1				材料	半对半电解铜+黑色油墨
	供应商	鸿基		测量工具	二次元、千分尺			测量单位	MM				测量日期	2026/6/10
NO.	尺寸 DIMENSI	上限	+ TOL.	- TOL.	下限	实测 1	实测 2	实测 3	实测 4	实测 5	实测 6	实测 7	UPPER≤100%	LOWER≤100%
1	18.00	18.15	0.15	0.15	17.85	18.033	18.024	18.011	17.988	17.979	17.982	18.026	22%	14%
2	13.70	13.85	0.15	0.15	13.55	13.718	13.702	13.688	13.695	13.711	13.709	13.677	12%	15%
3	3.70	4.00	0.30	0.30	3.40	3.708	3.714	3.686	3.688	3.673	3.664	3.725	8%	12%
4	3.00	3.30	0.30	0.30	2.70	3.011	3.025	2.981	2.977	2.969	3.018	3.035	12%	10%
5	0.10	0.13	0.03	0.03	0.07	0.101	0.100	0.101	0.099	0.100	0.101	0.099	3%	3%
备注 Remarks		CPK详情见附件（一） The CPK details are listed at the attachment （一）												
拟制：易兆迪								审核:李富伦			日期:2026/6/10			

3.2 电气性能 Electrical Characteristics

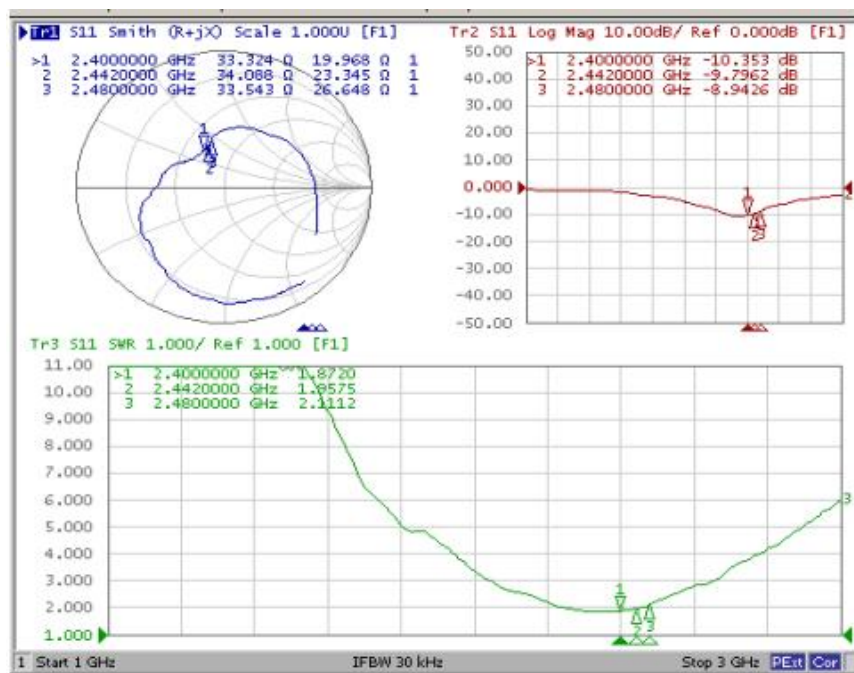
3.2.1 匹配线路图 Matching circuit diagram



Main Antenna Element:

位置 Location	描述 Description	品牌 Vendor
1	N/C	
2	0 Ω	
3	N/C	

3.2.2 射频阻抗与反射特性RF Impedance & Reflection Characteristics (S11&Smith Chart)

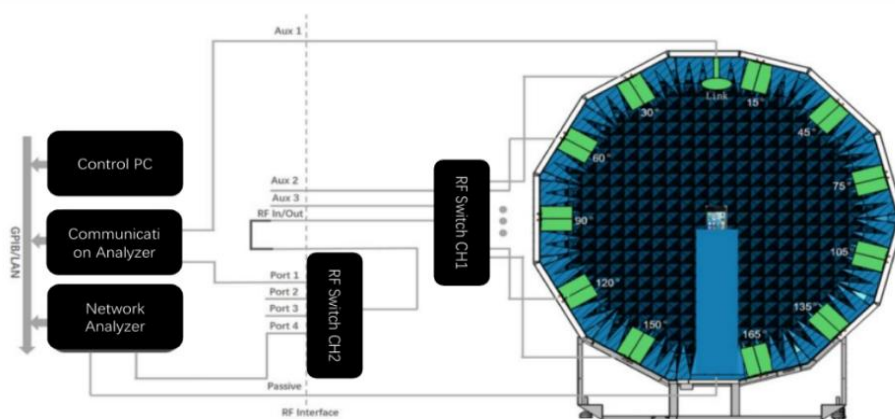


频率 Frequency (MHz)	回波损耗 Return Loss(dB)	驻波比 SWR
2400	-10	1.87
2440	-9.7	1.95
2480	-8.9	2.11

3.2.3 辐射特性(辐射模式与增益) Radiation Characteristics (Radiation Pattern & Gain)

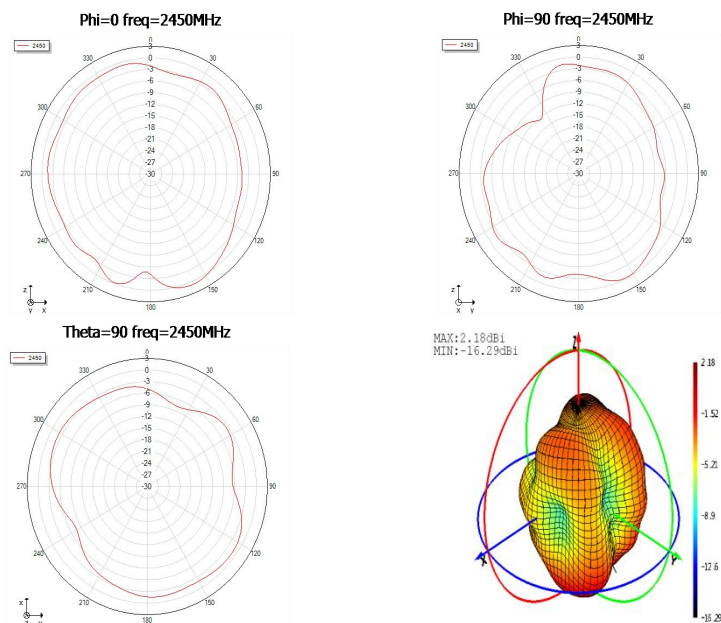
增益方向图在HONANT的远场暗室中测量。待测设备置于转台上，使用标准喇叭天线和矢量网络分析仪进行数据采集。

The Gain pattern is measured in HONANT' s FAR-field chamber. DUT is placed on the table of rotator , a standard horn antenna and Vector Network Analyzer is used to collect data.



3.2.3.1 无源数据 Passive Data

2400MHz



频率 Frequency (MHz)	增益 Gain (dBi)	效率 Efficiency (dB)	效率 Effi (%)
2400	2.56	-2.45	56.9
2410	2.4	-2.47	56.6
2420	2.35	-2.45	56.92
2430	2.15	-2.68	53.95
2440	2.14	-2.58	55.18
2450	2.18	-2.75	53.11
2460	2.24	-2.72	53.44
2470	2.32	-2.58	55.26
2480	2.06	-2.85	51.93

3.2.3.2 有源数据 Active Data

自由空间 Free Space:

OTA-FS		
信道 Channel	TRP (dBm)	TIS (dBm)
CH 0	9.84	-93.88
CH 39	9.52	-94.45
CH 78	9.12	-92.45

头模状态 BH:

OTA-BH		
信道 Channel	TRP (dBm)	TIS (dBm)
CH 0	7.44	-91.42
CH 39	7.3	-92.78
CH 78	7.27	-90.35

3.2.3.3 装机注意事项 Installation matters

天线实物图片 Antenna physical picture	天线装机注意事项Antenna Installation Matters
见纸档承认书所提供签样样品	无

4. 信赖性测试Reliability Test

1.盐雾测试 Salt Spray Test	测试结果 Test Result: Pass
测试条件: Test conditions:	将被测产品置入含有5%±1%NaCl溶液的盐雾试验机中进行测试, 实验室温度35°, 压力桶温度47°, 压力1kgf/cm ² , 试验48时。产品要求45°摆放, 试验后, 取出产品, 洗干净后晾干检验外观。 The tested product is placed in a salt spray test machine containing a 5% ± 1% NaCl solution for testing. The laboratory temperature is 35°, the pressure tank temperature is 47°, the pressure is 1 kgf/cm ² , and the test lasts for 48 hours. The product is required to be placed at a 45° angle. After the test, the product is taken out, washed, dried, and inspected for appearance.
判断依据: Pass criteria:	外观完整无损, 无明显变化。镀层: 无剥落、无锈蚀。表面喷涂、丝印: 无脱落、无气泡 The appearance is intact without any obvious changes. Coating: No peeling or rusting. Surface spraying and screen printing: No detachment or bubbles.

2.冷热冲击测试 Thermal shock test	测试结果 Test Result: Pass
测试条件: Test conditions:	将试验产品平放于试验机中, 设置试验条件, 高温为85°C, 一个循环试验24小时; 低温为-30°C, 试验2个循环, 设定后开始试验。试验结束, 恢复2小时, 将产品取出检验。 Place the test product horizontally in the testing machine, set the test conditions, with the high temperature at 85°C and one cycle lasting for 24 hours; the low temperature is -30°C, and the test is conducted for 2 cycles. After setting, start the test. After the test is completed, let it rest for 2 hours, then remove the product for inspection.
判断依据: Pass criteria:	颜色, 光泽, 表面外观, 硬度无变化, 无刮花, 无裂纹, 无起翘及电性能方面损坏。 The color, luster, surface appearance, hardness remain unchanged, without scratches, cracks, curling or damage to electrical properties.

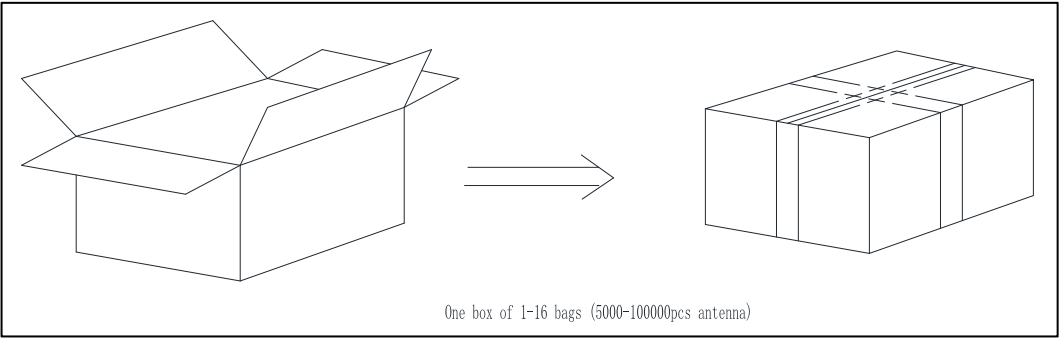
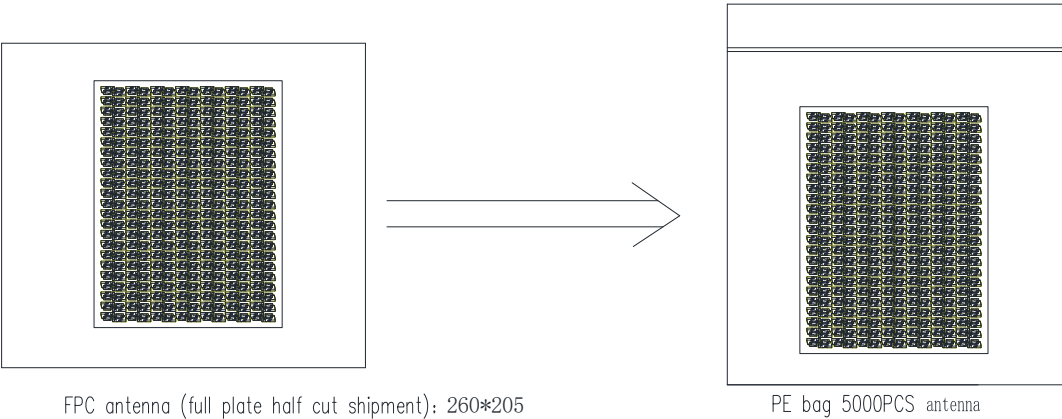
5.环保特性 The Environmental Characteristics

本产品严格遵循环保标准，满足ROHS2.0和HF要求，环保管理物质表详情见附件（二）。

The FPC Antenna strictly adheres to environmental protection standards and meets the standards of ROHS 2.0 and HF. The details of Environmental Management Substance are listed at the attachment （二）

6.包装规范 Package Specification

料号: Part No.:	HCZL-HB10-01	产品名称: Part Name:	FPC 天线 FPC Antenna
产品规格: product specification:	18*13.7*0.1	包装材料: Packing Material	封口袋、纸箱 Sealed bags, Cardboard box
包装数量: Package quantity	5000pcs/包 5000pcs/Bag	包装方式: Manner Of Packing	5000pcs/包,一箱 1-16 包 5,000 pcs/bag, 1-16 bags per carton.
装箱数量: Quantity in Box	80000pcs		



附件（一） Attachment（一）

CPK 报告

CPK Report

Project name(项目)	HB10				Customer(客户)	华创智联科技有限公司				
Part Number(零件料号)	HCZL-HB10-01									
Material(材质)	半对半电解铜+黑色油墨				Inches/MM (英寸/毫米)		mm			
Revision(版本)	A1				Date(日期)		2026/6/10			
Dim. Designator(尺寸序号)	①	②								
Normal dimensions (标准尺寸)	18.00	13.70								
Upper Limit(规格上限)	18.15	13.85								
Lower Limit(规格下限)	17.85	13.55								
1	18.026	13.726								
2	18.053	13.752								
3	17.998	13.697								
4	18.039	13.738								
5	18.064	13.763								
6	18.007	13.706								
7	18.032	13.731								
8	18.058	13.757								
9	18.019	13.781								
10	18.049	13.738								
11	17.992	13.691								
12	18.028	13.727								
13	18.071	13.771								
14	18.012	13.711								
15	18.044	13.743								
16	18.061	13.716								
17	18.024	13.723								
18	18.001	13.704								
19	18.066	13.765								
20	18.021	13.722								
21	18.041	13.743								
22	18.074	13.773								
23	18.004	13.702								
24	18.031	13.729								
25	18.051	13.752								
26	18.045	13.714								
27	18.036	13.735								
28	18.068	13.735								
29	17.995	13.694								
30	18.023	13.724								
31	18.047	13.726								
32	18.076	13.775								
MAX.	18.08	13.78								
MIN.	17.99	13.69								
AVERAGE	18.04	13.73								
STDEV	0.02	0.02								
CP	2.03	2.00								
Cpk	1.54	1.56								
TOOLING(测量工具)	二次元	二次元								

拟制：易兆迪

审核：李富伦

核准：杨进

附件（二） Attachment（二）

环境管理物质部件展开表																								
The Parts List of Enviromental Management Substances																								
产品讯息 Product Information				供应商讯息 Supplier Contact Information						报告类型				确认结果										
零件名称 Part name		HB10 FPC天线		公司名称 Compony Name		鸿基无线通信（深圳）有限公司				☉		RoHS 2.0		☉										
物料编号 Risuntek P/N		F00028		填表人/职称 Contact Name/Title		杨进				☉		HF		☉										
供应商物料编号 Supplier's P/N		HCZL-HB10-01		填表日期 Date:YY/MM/DD		2026/6/10				➔		CP65		/										
制造地点 Manufacturering site		东莞		电子邮件 E-mail address		/				☉		REACH		☉										
总重量 Total weight (g)		/		电话 Tel. No.		13714345069				➔		其它（ ）		/										
											☉	MSDS		☉										
编号 No.	客户料号 Customer item number	原材料供应商	均质材料 Homogeneous material	测试报告编号 Test Report No.	测试日期 Test Date (YY/MM/DD)	测试结果 Test result (ppm)												测试报告 Test report	MSDS					
						Pb	Cd	Hg	Cr6+	PBB	PBDE	Cl	Br	DEHP	DBP	BBP	DIBP							
1	F00028	富邦	基材	A2260058847101004E	2026/2/4	ND	ND	ND	ND	ND	ND	95	ND	ND	ND	ND	ND							
2		3M	3M9471LE背胶	SHAEC25032493501 SHAEC25032493503	2025/12/12	ND	ND	ND	ND	ND	ND	124	ND	ND	ND	ND	ND	 						
3		优立	黑色阻焊油墨 PSM-800	ETR26403059M01 ETR26403060	2026/5/12 2026/4/24	ND	ND	ND	ND	ND	ND	427	ND	ND	ND	ND	ND	 						
4		川裕	白色文字油墨 INK (ZSR-150) W	ETR25901252M01 ETR25901254M01	2025/9/11	4.78	ND	ND	ND	ND	ND	625	ND	ND	ND	ND	ND	 						
5		金源星辉	电镀镍金	A2250732863101001	2025/10/13	ND	ND	ND	ND	ND	ND	64	ND	ND	ND	ND	ND							