



客戶名稱 : **SUNMI**
CUSTOMER

Document No.: ENS000212680

Approval Sheet Rev.: P0

Spec. Rev. : P0

承認書

APPROVAL SHEET

產品品名/Product Model No. : **NF-F-F0-R0-04-008**

料號/ Part No. : **H00000012053**

專案名稱/Project Name: **SD09**

發行日期/ Issue Date : **2025/09/16**

承認日期/ Approved Date :

Approved by customer: (signing or stamping here)



目 录catalogue

- 1、 封面 (cover)
- 2、 目录 (catalogue)
- 3、 2D图纸 (Drawing)
- 4、 规格书 (specification)
- 5、 品质控制计划 (quality control plan)

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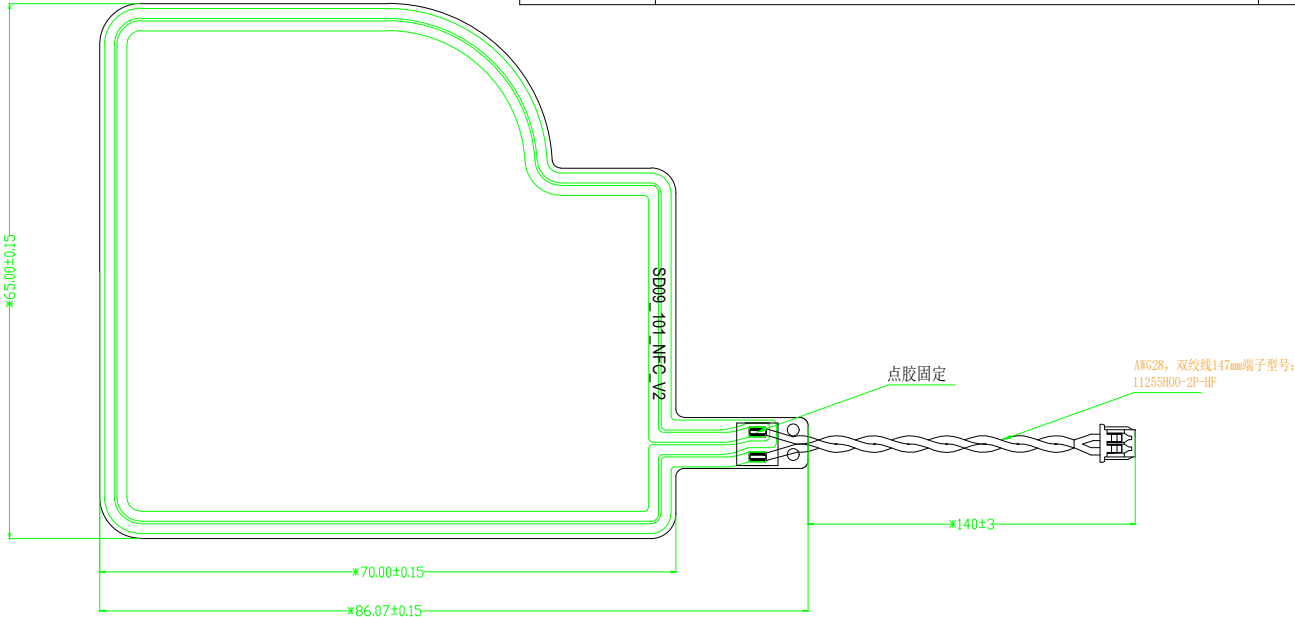
Reversion	Engineering Change Description	Date	Owner
P0	临时发行	2025/03/21	Eason
V2	临时发行	2025/08/06	Eason

离型纸分割线

铜箔部分

漏铜

丝印



NOTE:

- 单面板
- $T=0.2\pm0.05\text{mm}$,
 - 材质: 背胶Tesa68537; 铜箔: ED铜0.5oz
PAD点镀 $\text{Ni}2\sim7\mu\text{m}$, $\text{Au}\geq0.05\mu\text{m}$, 盐雾48H
基材: 基材PI 0.5mil有胶基材, 黑色油墨
 - 电性规格: **LS: 850nH±5% 100KHz/1.0V; DCR: 550mΩ 正负10% 25℃** ;
 - 未注公差 $\pm0.15\text{ mm}$, 走线公差 $\pm0.05\text{mm}$
包装与外观要求: 需完整无破损, 不可有脏污、皱胶、溢胶、气泡等情形。
 - 产品符合RoHS2.0+HF+TSCA+REACH要求, 符合禾邦《I-WI-21-01 HSF技術標準》的要求。
 - 球标尺寸为FAI管控尺寸; #号为CPK管控尺寸; *号重点尺寸; REF. 为参考尺寸

RoHS 2.0 要求:

镉, Cd
汞, Hg
铅, Pb
六价铬, Cr (VI)
多溴联苯, PBBs
多溴二苯醚, PBDEs
邻苯二甲酸二(2-乙基己基)酯
邻苯二甲酸甲苯基丁酯
邻苯二甲酸二丁基酯
邻苯二甲酸二异丁酯
管控标准: 参照《I-WI-21-01 HSF技術標準》

HSF要求:

BR
CL
BR+CL
管控标准: 参照《I-WI-21-01 HSF技術標準》

TSCA
管控标准: 参照《I-WI-21-01 HSF技術標準》

INDEX	PART No.	DESCRIPTION	MATERIAL	QTY
2	CABLE	AWG28, 双绞线,线长147mm, 端子型号: 11255H00-2P-HF		1
1	FPC	单面板, ED铜箔0.5oz, PI 0.5 mil有胶; 表面黑色油墨, 白色字符; 漏铜区域镀金处理 (Ni: $2\sim6\mu\text{m}$, Au: $\geq0.05\mu\text{m}$)		1
PARTS LIST				

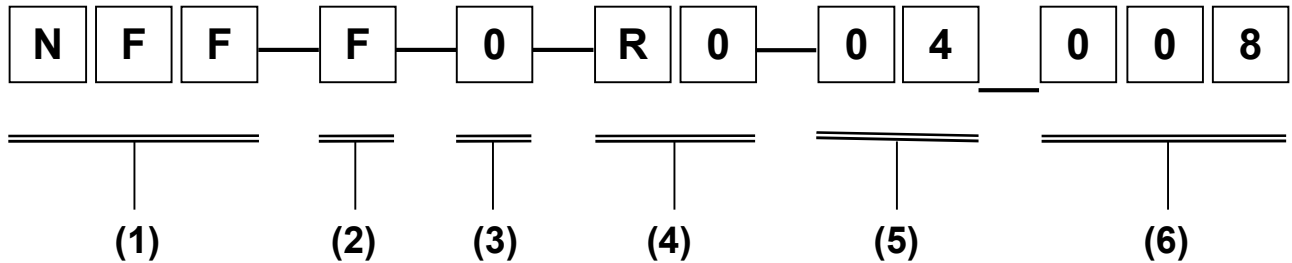
SELECT	V	A	B	C	D
SPEC. CLASS					
< 8mm	0.05	0.1	0.1	0.2	
8~25mm	0.08	0.15	0.15	0.3	
25~80mm	0.12	0.2	0.25	0.4	
80~250mm	0.25	0.3	0.4	0.5	
ANGLE	0.5				
MATERIAL:	SEE NOTE				
FINISH:	SEE NOTE				

CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE	
DRAWN	Eason
DESIGNED	Eason
APPROVED	Eason
3RD ANGLE	

	佳邦科技股份有限公司 INPAQ Technology Co.,Ltd.		
SIZE A4			
PART No.:		DWG. No.:	
UNIT	MM	SCALE : 1 : 1	SHEET 1 OF 1

NF-F-F0-R0-04-008 暂规

1. Explanation of Part Number:



- (1) Product type: NF-Near Field Communication
- (2) Material: FPC+双绞线
- (3) Substrate: F0
- (4) Frequency: R0-13.56MHz (RFID, HF Band)
- (5) Suffix : Serial number 008

2. Electrical Specification:

Test Item	Test Condition	Specification
Inductance	100K Hz, 1V	850±10%nH
DCR	@25℃	495mΩ±10%

Ps：根据试做的测试数据，进行更新

UNLESS OTHER SPECIFIED TOLERANCES ON :

X = ± X.X = ± X.XX =
ANGLES = ± HOLE DIA = ±



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

UNIT : mm

DRAWN BY: 陈永亮

CHECKED BY: 何幼青

DESIGNED BY: 张学宏

APPROVED BY: 何幼青

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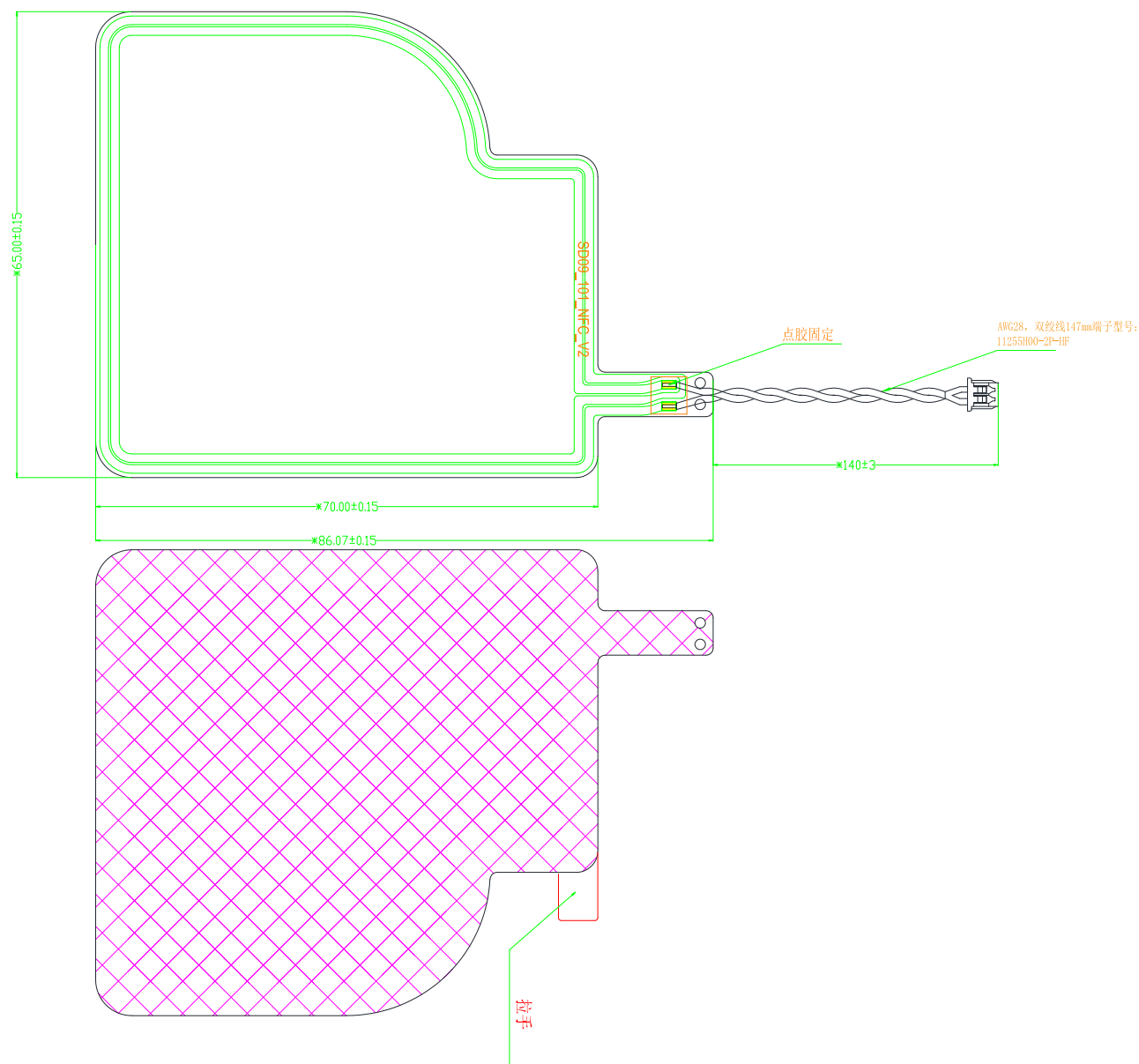
TITLE : NFF-F0-R0-04-008 暂规

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P0	

3. Assemble Dimension:



4. Operating & Storage Condition:

- OPERATING TEMPERATURE RANGE: $-25^{\circ}\text{C} \sim +75^{\circ}\text{C}$
- STORAGE TEMPERATURE RANGE: $-20^{\circ}\text{C} \sim +75^{\circ}\text{C}$; HUMIDITY: 50% MAX.

UNLESS OTHER SPECIFIED TOLERANCES ON :

X = $\pm$ X.X = $\pm$ X.XX =
ANGLES = $\pm$ HOLE DIA = $\pm$



INPAQ TECHNOLOGY CO., LTD.

SCALE : N/A

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TITLE : NFF-F0-R0-04-008 暂规

DOCUMENT
NO.

ENS000212680

SPEC REV.
P0

管制计划

(CONTROL PLAN)

原型品(PT)		量產前(PP)		V	生產(MP)		聯絡人: 英昌东 (Key Contact)		E-mail: Eason.ying@inpaqgp.com				日期(原版): A5 Date(Orig.) 2022/10/26		頁次 Page.	
管制計劃編號: CPN000005360 (Control Plan Number)				版別: A6 (Rev.)		電話: 0512-65719988-38403 (Phone)		傳真: 0512-65719988 (Fax)				日期(更版): A6 Date(Rev.) 2024/11/23		1of8		
專案/產品編號: GSM FPCB系列 (Part Number)						(Project leader): 曹吉 小組成員(Core Team):		PE:曹吉、汤俊杰 QE: 吴巍君 制造: 时丕强				客戶工程承認/日期(如有要求) (Customer Engineering Approval/Date(If Req' d))				
專案/產品名稱: GSM FPCB系列 (Part Name)						供應商/工廠承認/日期: (Supplier/Plant Approval/Date)						客戶品質承認/日期(如有要求) (Customer Quality Approval/Date(If Req' d))				
供應商/工廠: (Supplier/Plant) Inpaq (Suzhou) Electronic Co., Ltd 禾邦电子(苏州)有限公司				代碼: (Supplier Code)		其它承認/日期(如有需要): (Other Approval/Date(If Req' d))				客戶其它承認/日期(如有要求) (Customer Other Approval/Date(If Req' d))						
製造流程/編號 Part/ Process Number	製程作業名稱敘述 Process Name/Operation Description	材料名稱 BOM Material	生產設備 /治具/模具 Machine Device/Jig /Tools For Mfg.	管制特性 Characteristics			管制等級 Class	產品或製程 規格/公差 Product /Process / Specification / Tolerance	方法 Methods				處置計劃 Reaction Plan			
									評估方式 Evaluation Technique		抽 樣 Sample			管制方式或記錄 Control Method		
				編號 No.	產品 Product	製程 Process			監測 Monitor	量測 Measurement	數量 Size	頻率 Freq				
P-01	Incoming inspection 进料检验 IQC	All material s 所有物料	——	1	appearanc e 外观	——	——	Incoming Inspection Base & Material Specification &SIP 进料檢查基準書&材 料规格书&SIP	——	Visual (10x magnifying glass, CCD depends on the product) 目视 (10倍放大镜 、CCD具体依产 品而定)	MIL-STD-1916 Level II	Incoming Inspection Record Form 进料检验记录表 H-FM-10-37	Opening 〈Non-conforming Product Notification〉 开立 〈不合格品通知单〉 I-FM-13-01			
				2	size 尺寸	——	——	Material Specifications 材料规格书	——	Vernier caliper/quadr atic element/steel ruler, etc. (depending on the product) 游标卡尺/二次 元/钢直尺等 (具体依产品 而定)	MIL-STD-1916 Level II	Incoming Inspection Record Form 进料检验记录表 H-FM-10-37	Opening 〈Non-conforming Product Notification〉 开立 〈不合格品通知单〉 I-FM-13-01			

				3	Material properties 材料特性	---	---	Incoming Inspection Benchmark & Material Specification 進料檢查基準書&材料規格書	---	Incoming Material Inspection Standard Document 進料檢查基準書		Incoming Inspection Record Form 進料檢驗記錄表 H-FM-10-37	Opening 《Non-conforming Product Notification》 开立 《不合格品通知單》 I-FM-13-01
				4	HSF test HSF測試	---	---	Refer to the "UPY-6800 Analyzer Operating Method" H-WI-10-49 参考《UPY-6800分析儀作業辦法》H-WI-10-49	---	UPY	Refer to the "UPY-6800 Analyzer Operating Method" H-WI-10-49 参考《UPY-6800分析儀作業辦法》H-WI-10-49	Incoming Inspection Record Form 進料檢驗記錄表 H-FM-10-37	Opening 《Non-conforming Product Notification》 开立 《不合格品通知單》 I-FM-13-01
P-02	Warehousing 倉儲	All materials 所有物料	---	1	carry 搬運	---	---	Methods of handling, storage and preservation 搬運、儲存與保存作業辦法 I-WI-15-01	---	---	---	---	Opening 《Abnormal Notification Form》 开立《異常通知單》 I-FM-09-20
				2	stockpile 儲存	---	---	Methods of handling, storage and preservation 搬運、儲存與保存作業辦法 I-WI-15-01	---	---	---	---	Opening 《Abnormal Notification Form》 开立《異常通知單》 I-FM-09-20
				3	Temperature & Humidity 溫度&濕度	---	---	Methods of handling, storage and preservation 搬運、儲存與保存作業辦法 I-WI-15-01	---	Thermohygrometer 溫濕度計	2次	Day	Temperature and humidity record sheet 溫濕度記錄表 H-FM-10-03
嚴重特性 (C.C) : !! 重要特性 (S.C) : #				I-FM-04-07									

I-FM-04-07

製造流程/編號 Part/ Process Number	製程作業名稱敘述 Process Name/Operation Description	材料名稱 BOM Material	生產設備 /治具/模具 Machine Device/Jig /Tools For Mfg.	管制特性 Characteristics			管制等級 Class	產品或製程 規格/公差 Product /Process / Specification / Tolerance	方法 Methods					處置計劃 Reaction Plan		
									評估方式 Evaluation Technique		抽 樣 Sample		管制方式或記錄 Control Method			
				編號 No.	產品 Product	製程 Process			監測 Monitor	量測 Measurement	數量 Size	頻率 Freq				
P-04	Electrical test (if requested) 電性測試 (如有要求)	Antenna semi- finished products 天线半成品	Electrical inspection test load/fixtu re 電性檢驗測 試載/治具	1	——	Compariso n of electrica l standard parts 电性标准 件比对	——	——	Electrica l standard parts 电性标准 件	——	1	Before the initial set- up/paramete r change/prod uct changeover 初始调机设 置/参数变更 /产品换线前	Network Analyzer Calibration Record Sheet 网络分析仪校正记录表 H-FM-09-290	Adjust the machine 调整机器 H-FM-09-43		
				2	Electrica l 电性	——	#	Refer to the work instructions for each product (Depends on the product) 参照各产品作业指导 书 (具体依产品而定)	——	Network analyzers 网络分析仪	5pcs	First/last piece 首/末件	"Preparation of the second part - first article inspection record form" 《制二部-首件检查记录表》 H-FM-09-88	scrap 报废 H-WI-09-2775		
					Continuit y test 导通测试	——	#	Refer to the work instructions for each product (Depends on the product) 参照各产品作业指导 书 (具体依产品而定)	——	multimeter 万用表	5pcs	First/last piece 首/末件	"Preparation of the second part - first article inspection record form" 《制二部-首件检查记录表》 H-FM-09-88	scrap 报废 H-WI-09-2775		
				3		——	Life control of test probes, etc 测试探针 等寿命管 控	——	100K	Form records 表单记录	——	1次	End of lot	Test the service life statistics table of consumables 测试耗材使用寿命统计表 H-FM-09-349	scrap 报废 H-WI-09-2775	
					嚴重特性 (C.C) : !! 重要特性 (S.C) : #											I-FM-04-07

製造流程/編號 Part/ Process Number	製程作業名稱敘述 Process Name/Operation Description	材料名稱 BOM Material	生產設備 /治具/模具 Machine Device/Jig /Tools For Mfg.	管制特性 Characteristics			管制等級 Class	產品或製程 規格/公差 Product /Process / Specification / Tolerance	方法 Methods					處置計劃 Reaction Plan
									評估方式 Evaluation Technique		抽 樣 Sample		管制方式或記錄 Control Method	
				編號 No.	產品 Product	製程 Process			監測 Monitor	量測 Measurement	數量 Size	頻率 Freq		
P-05	appearance 外觀	Antenna semi- finished products 天線半成品	——	1	appearanc e 外觀	——	——	The appearance standard shall be implemented with reference to the "GSM Finished Product Inspection SIP and Appearance Golden Sample"; Number (S191) 外觀標準參照《GSM 成品檢驗SIP及外觀 Golden Sample》執 行； 編號〈S191〉	——	目視	5pcs	First/last piece 首/末件	"Preparation of the second part - first article inspection record form" 《制二部-首件检查记录表》 H-FM-09-88	Repair/Scrapping 維修/报废 H-WI-09-2775
										all	lot	Manufacturing Process Sheets 製造流程單 I-FM-08-01		
P-06	FQC1	Antenna semi- finished products 天線半成品	——	1	Electrica l 電性	——	——	Refer to the work instructions for each product (Depends on the product) 參照各產品作業指導 書 （具體依產品而定）	——	Network analyzers (depending on the product) 网络分析仪 （具体依产品 而定）	MIL-STD-1916 Level II		FQC electrical test record form FQC電性檢驗记录表 H-FM-10-26	Opening 〈Non-conforming Product Notification〉 开立 〈不合格品通知單〉 I-FM-13-01
				2	appearanc e 外觀	——	——	Refer to the FQC1 operating method 參照FQC1作業办法 H-WI-10-09	——	Visual or CCD (depending on the product) 目視或CCD（具 体依产品而 定）	MIL-STD-1916 Level II		FQC Inspection Record Form FQC檢驗记录表 H-FM-10-33	Opening 〈Non-conforming Product Notification〉 开立 〈不合格品通知單〉 I-FM-13-01
				3	size 尺寸	——	——	Refer to the size mechanism diagram of the working specification 參照工規尺寸机构图	——	Vernier caliper, steel ruler, two- dimensional (depending on the product) 游标卡尺, 钢 尺, 二次元 （具体依产品 而定）	5	lot	FQC Dimensional Inspection Record Form FQC尺寸檢驗记录表 H-FM-10-27	Opening 〈Non-conforming Product Notification〉 开立 〈不合格品通知單〉 I-FM-13-01
嚴重特性（C.C）： !! D			重要特性（S.C）： #			I-FM-04-07								

製造流程/編號 Part/ Process Number	製程作業名稱敘述 Process Name/Operation Description	材料名稱 BOM Material	生產設備 /治具/模具 Machine Device/Jig /Tools For Mfg.	管制特性 Characteristics			管制等級 Class	產品或製程 規格/公差 Product /Process / Specification / Tolerance	方法 Methods					處置計劃 Reaction Plan
									評估方式 Evaluation Technique		抽 樣 Sample		管制方式或記錄 Control Method	
				編號 No.	產品 Product	製程 Process			監測 Monitor	量測 Measurement	數量 Size	頻率 Freq		
P-07	Finished product packaging 成品包裝	Finished antennas 天线成品	——	1	Packing specifica tions 包裝規格	——	——	Please refer to the production specifications for details 具体参照生产规格	——	Visual 目视	5pcs	First piece 首件	“Preparation of the second part – first article inspection record form” 《制二部-首件检查记录表》 H-FM-09-88	Heavy industry 重工 H-WI-09-140
											All	Lot	Manufacturing Process Sheets 制造流程单 I-FM-08-01	
			——	2	quantity 数量	——	——	Please refer to the production specifications for details 具体参照生产规格	——	Visual 目视	All	Lot	Manufacturing Process Sheets 制造流程单 I-FM-08-01	Heavy industry 重工 H-WI-09-140
											——	3	Label (content, location) Label (内 容、位 置)	
All	Lot	Manufacturing Process Sheets 制造流程单 I-FM-08-01												
嚴重特性 (C.C) : !! 重要特性 (S.C) : #				I-FM-04-07										

嚴重特性 (C.C): !! D	重要特性 (S.C): #	I-FM-04-07
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製造流程/編號 Part/ Process Number	製程作業名稱敘述 Process Name/Operation Description	材料名稱 BOM Material	生產設備 /治具/模具 Machine Device/Jig /Tools For Mfg.	管制特性 Characteristics			管制等級 Class	產品或製程 規格/公差 Product /Process / Specification / Tolerance	方法 Methods				處置計劃 Reaction Plan	
				編號 No.	產品 Product	製程 Process			評估方式 Evaluation Technique		抽 樣 Sample			管制方式或記錄 Control Method
									監測 Monitor	量測 Measurement	數量 Size	頻率 Freq		
P-10	OQC	——	——	1	wrap 包裝	——	——	As OQC SOP &LPRS	——	——	Draw 2 boxes 抽2箱	lot	Outgoing inspection 出货检验H-FM-10-13	Opening 〈Non-conforming Product Notification〉 开立 〈不合格品通知單〉 I-FM-13-01
			——	2	quantity 數量	——	——	As OQC SOP &LPRS	——	——	Draw 2 boxes 抽2箱	lot	Outgoing inspection 出货检验H-FM-10-13	Opening 〈Non-conforming Product Notification〉 开立 〈不合格品通知單〉 I-FM-13-01
			——	3	label 标签	——	——	As OQC SOP &LPRS	——	——	Draw 2 boxes 抽2箱	lot	Outgoing inspection 出货检验H-FM-10-13	Opening 〈Non-conforming Product Notification〉 开立 〈不合格品通知單〉 I-FM-13-01
			——	4	report 報告	——	——	As OQC SOP &LPRS	——	——	Draw 2 boxes 抽2箱	lot	Outgoing inspection 出货检验H-FM-10-13	Opening 〈Non-conforming Product Notification〉 开立 〈不合格品通知單〉 I-FM-13-01
嚴重特性 (C.C) : !!			重要特性 (S.C) : #			I-FM-04-07								