



產品承認書

Specification for Approval

客戶 (Customer): 光寶科技股份有限公司

Customer Part No.: 20301-001110A000

Product Description: 802.11 a/b/g/n/ac AP Router embedded antenna

Lynwave Part No.: ALX18F-222AA3-01

客戶簽核 (Customer Approval)

客戶承認 Customer Approval	核准 (Authorized)	檢驗 (Approved)
	日期： 年 月 日	
內部簽核 (Signature) 日期： 2025 年 03 月 11 日		
Approved by	Checked by	Tested by
Tino Wu	Eva Chiu	Zero Chen

綠億科技股份有限公司

Lynwave Technology Ltd.

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E-mail: service@lynwave.com

Contents

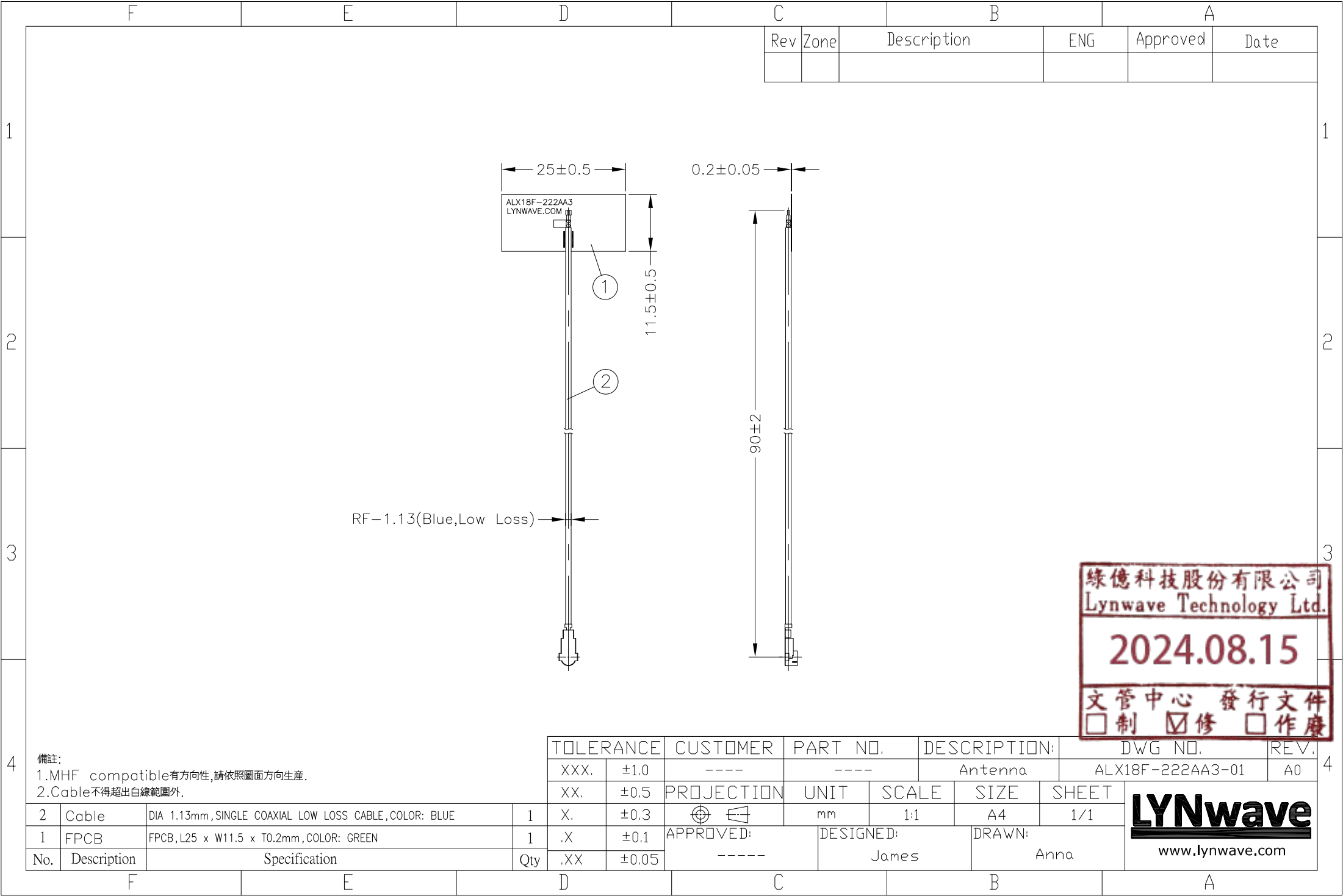
Item	Description	Page
1.	Cover	1
2.	Contents	2
3.	Specification	3
4.	Drawing	4
5.	Test report	5~10
6.	Other	11~13

Specification

Physical Properties :

1. Operation temperature : $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
2. Storage temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
3. Storage period: 2years
4. Weight: 0.465g

Antenna	Brand Name	Model Name	Ant. Type	Connector	Frequency	Max Peak Gain	Note
Specification	Lynwave Technology Ltd.	ALX18F-222AA3-01	Dipole	IPEX	2.4G + 5G	2.4G: 3.5 dBi	Provided antenna gain includes cable loss
	(新北市三峽區學成路327號3樓之6)					5G: 5.5 dBi	

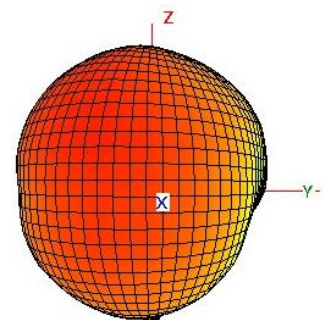
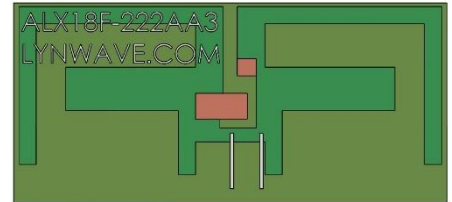


Features

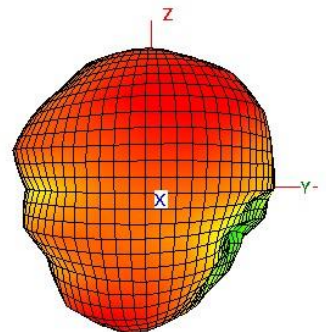
- Dual band IEEE 802.11 a/b/g/n/ac standard
- Case mounting
- High efficiency
- Quick integration

Specification

Frequency (MHz)	2412 ~ 2484	5150 ~ 5825
Peak Gain (dBi)	3.5	5.5
VSWR	2.0:1	2.0:1
Power (Watts)	1	1
Impedance (Ohms)	50	50
Dimension (mm)	25 x 11.5 x 0.2	
Connector	MHF compatible	
Cable length (mm)	90	
Operating Temp (°C)	-40°C ~ +85°C	

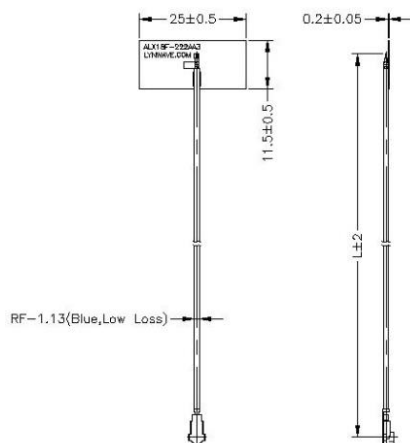


2.45GHz



5GHz

Mechanical Dimensions



綠億科技股份有限公司
LYNwave Technology , Ltd.

Reliability Test Report

Model : Antenna

Customer Part No: 20301-001110A000

Lynwave Part No: ALX18F-222AA3-01

Frequency : 2G&5G

VSWR : 2.0 : 1 Max

2G Gain : 3.5 dBi

5G Gain : 5.5 dBi

Test Results: ☒ PASS ☐ NG

Approved By : Yungming Hsu
2024/7/8

Prepared By: Lisa Wei
2024/7/8

1. Test Item : High Temperature test

1.1 Test equipment :

JD-8001-80L Temperature-Humidity chamber

1.2 Test ambience :

Temperature : $70 \pm 5^{\circ}\text{C}$

Humidity(RH) : $60 \pm 15\%$

1.3 EUT's Model & Quantity :

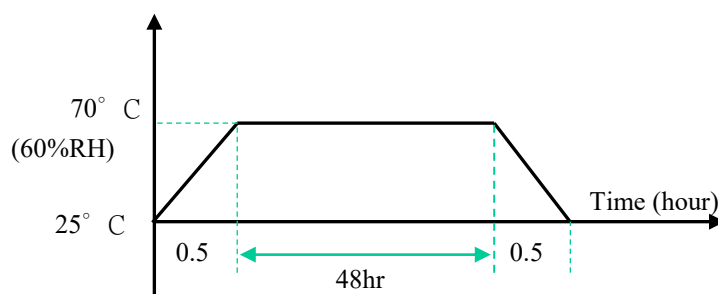
Model : Antenna

Quantity : 3 sets



1.4 Test conditions : Non Operation

1.5 Test method : Refer IEC-68-2-2



1.6 Test results :

test frequency range(U) (GHZ)	3.20		6.50	
Spec.	VSWR < 2.4		VSWR < 1.9	
sample	test after	test before	test after	test before
1	1.92	1.96	1.78	1.78
2	1.96	1.90	1.81	1.79
3	1.90	1.96	1.86	1.83
Judg.	OK	OK	OK	OK

(1).Visual inspection as normal.

(2).Function test as normal during the test.

2. Test Item : Cold test

2.1 Test equipment :

JD-8001-80L Temperature-Humidity chamber

2.2 Test ambience :

Temperature : $-10 \pm 5^{\circ}\text{C}$

Humidity(RH) : $60 \pm 15\%$

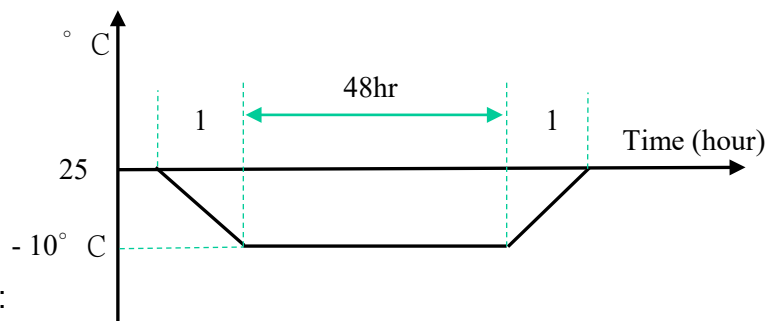
2.3 EUT's Model & Quantity :

Model : Antenna

Quantity : 3 sets

2.4 Test conditions : Non Operation

Test method : Refer IEC-68-2-1



2.5 Test results :

test frequency range(U) (GHZ)	3.20		6.50	
Spec.	VSWR < 2.4		VSWR < 1.9	
sample	test after	test before	test after	test before
1	1.96	1.96	1.85	1.80
2	1.92	1.90	1.89	1.84
3	1.91	1.89	1.84	1.80
Judg.	OK	OK	OK	OK

(1). Visual inspection as normal.

(2). Function test as normal during the test.

3. Test Item : Composite temperature / humidity cycling test

3.1 Test equipment :

JD-8001-80L Temperature-Humidity chamber

3.2 Test ambience :

Temperature : -40~85°C ±2°C

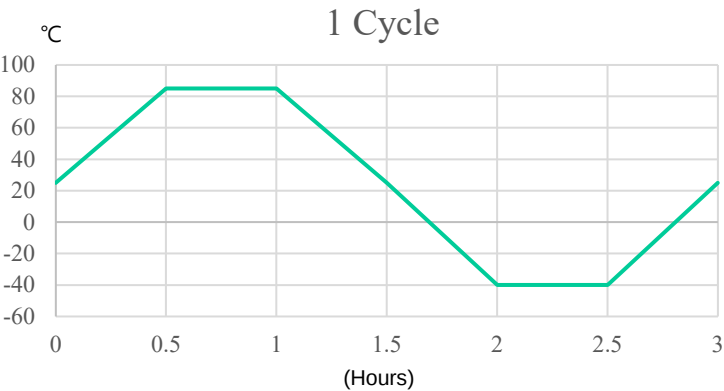
Humidity(RH) : 0~90%

3.3 Model : 20 Cycle

Quantity : 3 sets

3.4 Test conditions : Non Operation

Test method : Refer IEC 68-2-30



3.5 Test results :

test frequency range(U) (GHZ)	3.20		6.50	
Spec.	VSWR < 2.4		VSWR < 1.9	
sample	test after	test before	test after	test before
1	1.95	1.97	1.78	1.87
2	1.88	1.89	1.83	1.82
3	1.89	1.89	1.88	1.83
Judg.	OK	OK	OK	OK

(1).Visual inspection as normal.

(2).Function test as normal during the test.

4. Test Item : Salt-fog test

4.1 Test equipment :

JD-60A

4.2 EUT's Model & Quantity :

Model :Antenna

Quantity : 3 sets

4.3 Test conditions : Non Operation

4.4 Test method : Refer MIL-STD-810E

4.5 Humidity(RH) : $60 \pm 15\%$

4.6 Test chamber temperature : $35^{\circ}\text{C} \pm 1^{\circ}\text{C}$

4.7 Salt concentration : $5\% \pm 1\%$

4.8 Salt solution pH value : 6.5 ~ 7.2

4.9 Duration of exposure : 48 hrs

4.10 Test result: Visual inspection as normal.





Certificate of Conformance for Safety Material

符合安規材料證明

To Whom It May Concern,

Lynwave Technology Ltd. (Supplier Name) as a supplier to Liteon Technology Corp ,this is to certify that the safety parts can conform to all safety requirement of applicable drawings or characteristics in approval sheet. If any deviation with the requirement, the material supplier will be responsible for the cost incurred.

綠億科技股份有限公司作為光寶科技股份有限公司供應商,這是證明所提供安規材料能符合到承認書中的工程圖面和物質特性描述的安規要求,如果所提供材料與這些安規要求有不一致,供應商是有責任接受由此產生的成本轉嫁。

Purchase Order number: _____

訂單號碼:

Shipment Date: _____

出貨時間:

Molding Date: _____

生產日期:

Supplier Part number: ALX18F-222AA3-01

供應商料號:

Liteon Part number: 20301-001110A000

光寶料號:

Part Name: Antenna

品名:

Quantity: _____

數量:

Material supplier & material designation 物料供應商与 指定物料: (分別原料供應商):

(1)FPC: 九江, (2)Cable:神宇, (3)ADHESIVE:3M, (4)Connector: 彩美

Material Characteristics 物料特性: (物質成分及分別之百分比) :

FPC:13.4%, Cable:48.6%, Connector:15.9%, ADHESIVE:8.5%, Solder:13.6%

Min thickness: 0.1 mm

產品主體最小的厚度:

Safety Rating 安規等級:

Safety File Number: 安規文件號碼: (1)FPC: E192337,(2)Cable: E318898,(3) ADHESIVE:MH26206

(4)Connector: E107536

Authorized company official Name &Title: 徐永銘 / 處長

公司授權的人名/職位

Company Chapter:

公司章

Date(Y/M/D): 2024/0708

日期(年/月/日)



SOP-RD-003-FORM20-C

MATERIAL COMPOSITION DECLARATION

Ver.D

材料成份表

Supplier name (供應商): 綠德科技

Date (日期): 2024/07/08

Part No. (光寶料號): 20301-001110A000

Description (料稱): ALX18F-222AA3-01



Composition part	Material name	Material mass (mg)	Material mass (%)	Element name composition	CAS No.	Element % (by weight)	ICP Test data												是否為EU RoHS 指令零件, 如 是, 請註明符 合EU RoHS 之無害限制款
構成部件	部件材質名	材質重量	材質重量百分比	構成之元素名稱	CAS 編號	元素百分比 (以重量計)	Cd (ppm)	Pb (ppm)	Hg(ppm)	Cr+6(ppm)	PBBs	PHDEs	DEHP	DBP	BBP	DBP	Br	Cl	
FPCB_板材	LPI-HF	10.8	2.32	聚醯亞胺薄膜	25038-81-7	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_板材	LPI-HF	3.6	0.77	環氧樹脂	25036-25-3	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_板材	LPI-HF	0.72	0.15	阻燃劑	225789-38-8	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_板材	LPI-HF	1.8	0.39	橡膠	9003-18-3	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_板材	LPI-HF	55.08	11.85	銅箔	7440-50-8	76.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_膠	3M 467MP	0.8	0.17	Acrylate Polymer	26265-08-7	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	0.6	0.13	甲酚酚酸環氧樹脂	29690-82-2	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	1	0.22	環氧丙烯酸	9003-19-4	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	0.2	0.04	光引發劑	71868-10-5	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	0.2	0.04	高沸點溶劑 (DBE)	95481-62-2	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	0.2	0.04	顏料(靛青藍)	147-14-8	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	0.2	0.04	顏料(芥川喹吖嗪黃)	36888-99-0	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	1	0.22	硫脲銅	7727-43-7	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	0.2	0.04	表面助劑 (聚二甲基硅氧烷)	9016-00-6	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	0.2	0.04	无机填料 (二氧化硅)	14464-46-1	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_SOLDER MASK(GREEN)	KSM-S6189EG02	0.2	0.04	三聚氰胺	108-78-1	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	476	
FPCB_COATING	防氧化膠液DX-808HT	0.008	0.00	苯并噁唑	95-14-7	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
FPCB_COATING	防氧化膠液DX-808HT	0.024	0.01	甲腈	64-18-6	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
FPCB_COATING	防氧化膠液DX-808HT	0.0004	0.00	添加劑	Not applicable	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
FPCB_COATING	防氧化膠液DX-808HT	0.7676	0.17	DI 水	7732-18-5	95.95	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
FPCB_TEXT INK(WHITE)	KTM-150F WM	0.528	0.11	聚脲樹脂	7308-30-1	22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_TEXT INK(WHITE)	KTM-150F WM	0.528	0.11	混合溶劑	0 : 1119-40-0 : 0	22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_TEXT INK(WHITE)	KTM-150F WM	0.792	0.17	二氯化砒	13463-67-7	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_TEXT INK(WHITE)	KTM-150F WM	0.288	0.06	填充料	14807-96-6	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_TEXT INK(WHITE)	KTM-150F WM	0.192	0.04	六亞甲基二異氰酸酯低聚物	21093-51-6	8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
FPCB_TEXT INK(WHITE)	KTM-150F WM	0.072	0.02	乙酸丁酯	627-93-0	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
CABLE_鍍銀銅線基材	Silver plated copper wire	23.4	5.03	銅	7440-50-8	90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
CABLE_鍍銀銅線鍍層	鍍銀軟銅線	2.6	0.56	銀	7440-22-4	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
CABLE_塑膠絕緣	NEOFLOX FEP NP-101	39	8.39	Perfluoro(ethylene-propene) copolymer	25067-11-2	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
CABLE_銅箔金屬	PET4CU8	35.56	7.65	Cu	7440-50-8	88.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
CABLE_銅箔膠	PET4CU8	2	0.43	Resin	Not applicable	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
CABLE_銅箔MYLAR	PET4CU8	2.44	0.52	Polyethylene terephthalate	25038-59-9	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
CABLE_鍍銀銅線基材	鍍銀線	90.0809	19.37	Cu	7440-50-8	98.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
CABLE_鍍銀銅線鍍層	鍍銀線	0.91	0.20	Sn	7440-31-5	1	ND	34	ND	ND	ND	ND	ND	ND	ND	ND			
CABLE_鍍銀銅線鍍層	鍍銀線	0.0091	0.00	OTHERS	Not applicable	0.01	ND	34	ND	ND	ND	ND	ND	ND	ND	ND			
CABLE_塑膠外被(BLU)	NEOFLOX FEP NP-101	93.6	20.13	FEP	25067-11-2	90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
CABLE_塑膠外被(BLU)	NP-101 Masterbatch high strength	10.4	2.24	ious heavy metal free organic and inorganic pigments. Undangerous subst	Not applicable	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT鍍線	Nickel Plating	1.289355	0.28	Ni	7440-02-0	99.95	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT鍍線	Nickel Plating	0.000129	0.00	S	63705-05-5	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT鍍線	Nickel Plating	0.000129	0.00	C	7440-44-0	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT鍍線	Nickel Plating	0.000387	0.00	Cu	7440-50-8	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT鍍金	無鉛電鍍金層	0.20937	0.05	Au	7440-57-5	99.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT鍍金	無鉛電鍍金層	0.000315	0.00	Co	7440-48-4	0.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT鍍金	無鉛電鍍金層	0.000315	0.00	其他	Not applicable	0.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT	CS2100(不含紅磷)	27.4245	5.90	Cu	7440-50-8	91.415	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT	CS2100(不含紅磷)	2.355	0.51	Sn	7440-31-5	7.85	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT	CS2100(不含紅磷)	0.105	0.02	P	7723-14-0	0.35	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT	CS2100(不含紅磷)	0.06	0.01	Zn	7440-66-6	0.2	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT	CS2100(不含紅磷)	0.006	0.00	Pb	7439-92-1	0.02	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT	CS2100(不含紅磷)	0.03	0.01	Fe	7439-89-6	0.1	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT	CS2100(不含紅磷)	0.018	0.00	Ni	7440-02-0	0.06	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT	CS2100(不含紅磷)	0.0006	0.00	Al	7429-90-5	0.002	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_CONTACT	CS2100(不含紅磷)	0.0009	0.00	Si	7440-21-3	0.003	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT鍍線	Nickel Plating	0.85957	0.18	Ni	7440-02-0	99.95	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT鍍線	Nickel Plating	0.000086	0.00	S	63705-05-5	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT鍍線	Nickel Plating	0.000086	0.00	C	7440-44-0	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT鍍線	Nickel Plating	0.000258	0.00	Cu	7440-50-8	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT鍍金	無鉛電鍍金層	0.13958	0.03	Au	7440-57-5	99.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT鍍金	無鉛電鍍金層	0.00021	0.00	Co	7440-48-4	0.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT鍍金	無鉛電鍍金層	0.00021	0.00	其他	Not applicable	0.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT	CS2100(不含紅磷)	5.941975	1.28	Cu	7440-50-8	91.415	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT	CS2100(不含紅磷)	0.51025	0.11	Sn	7440-31-5	7.85	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT	CS2100(不含紅磷)	0.02275	0.00	P	7723-14-0	0.35	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT	CS2100(不含紅磷)	0.013	0.00	Zn	7440-66-6	0.2	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT	CS2100(不含紅磷)	0.0013	0.00	Pb	7439-92-1	0.02	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT	CS2100(不含紅磷)	0.0065	0.00	Fe	7439-89-6	0.1	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Connector 1.13_GROUND CONTACT	CS2100(不含紅磷)	0.0039																	



綠億科技股份有限公司

包裝規範書

產品名稱	天線	客戶名稱	光寶	版次	A
綠億料號	ALX18F-222AA2-01 ALX18F-222AA3-01	客戶料號		製作日期	2020/12/24

產品包裝說明

產品包裝圖示

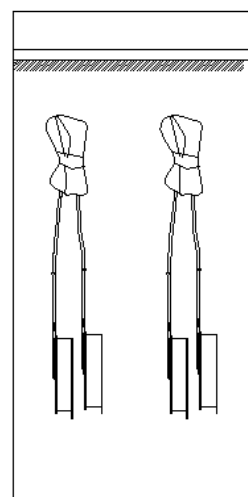
一、包裝：

(1)每25PCS/束、50PCS / 小袋

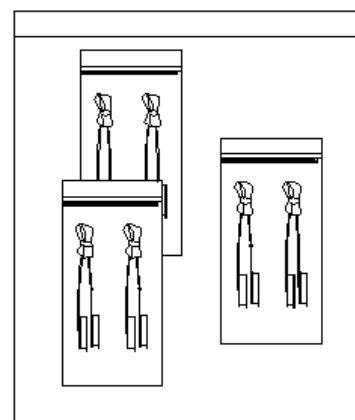
二、裝箱：

每箱16袋，共8000pcs

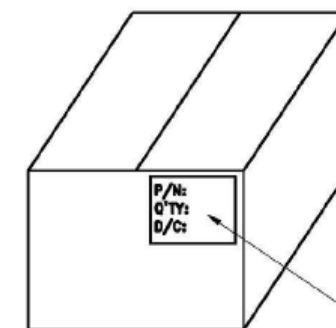
註: 以實際裝箱數量為準



50pcs/小袋



500pcs/大袋



8000pcs/16袋/箱

Label
標籤Label貼於外箱側面

核准：徐永銘

審核：張良鉅

製表：魏詩怡