產 品 承 認 書

Specification for Approval

客戶 (Customer): 凱碩科技股份有限公司

Customer Part No.: 2AN-C901WE01RFR

Product Description: IPEXφ1.13/115mm WHITE 2.4G+5G/2.0/2.5dBi RoHS

Lynwave Part No.: ALX21P-221AAH-00

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： 2023 年 09 月 28 日	
Approved by	**Checked by**	**Tested by**
YungMing	*Lisa Wei*	*Zero Chen*

綠億科技股份有限公司

Lynwave Technology Ltd.

Taiwan: 新北市樹林區學成路 655 號 5 樓

5F., No.655, Xuecheng Rd., Shulin Dist., New Taipei City 238701,

Taiwan Tel: 02-35018700 Fax: 02-35019833

E-mail: service@lynwave.com

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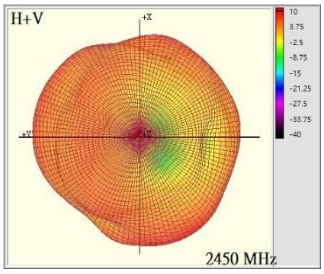
ALX21P-221AAH-00

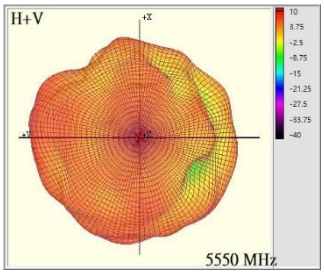
Features

- Dual band IEEE 802.11 a/b/g/n/ac/ax standard
- 2+5GHz indoor embedded Omni-directional antenna
- High efficiency and quick integration with MHF compatible connector mounting
- Available in customized cable lengths and connectors

Applications

- Cable Modem



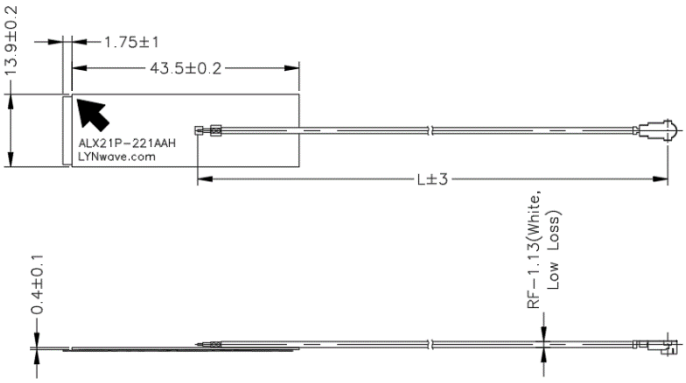


Electrical Specification

Category	Specification	
Frequency (MHz)	2400 - 2500	5150 - 5825
Peak Gain (dBi)	2	2.5
VSWR	2.0 : 1	
Polarization	Linear	
Power (Watts)	1	
Impedance (Ohms)	50	
Type	DIPOLE	

Mechanical Specification

Category	Specification
Dimension (mm)	43.5 x 13.9
Thickness (mm)	0.4
Weight (g)	1.09
Connector	MHF compatible
Cable	Low Loss RF-1.13
Cable Length (mm)	115
Material	PCB (FR4)
Operating Temp (°C)	-40°C ~ +85°C
Storage Temp (°C)	23 ± 5°C
Storage Humidity (%)	30% ~ 70%



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Email: service@lynwave.com

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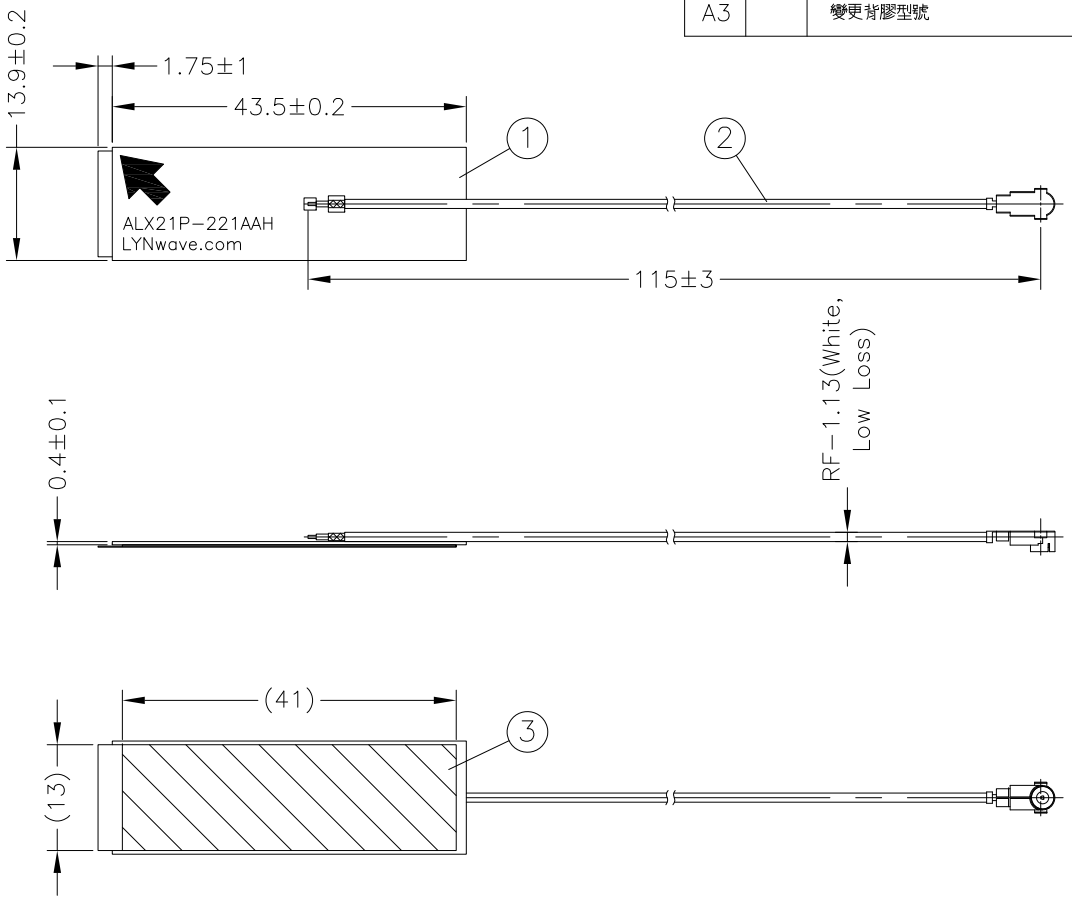
Rev	Zone	Description	ENG	Approved	Date
A1		PCB修改印刷與表面處理，由綠漆改為黑漆			2022/03/23
A2		PCB修改印刷			2022/04/25
A3		變更背膠型號			2022/09/27



備註:
1.MHF compatible有方向性,請依照圖面方向生產.
2.背膠不得超出板邊.

TOLERANCE		CUSTOMER	PART NO.	DESCRIPTION:	DWG NO.	REV.
XXX.	±1.0	----	----	Antenna	ALX21P-221AAH-00	A3

No.	Description	Specification	Qty	.XX	±0.05
3	Adhesive	3M 9888T,L41 x W13 x T0.15mm	1	XX.	±0.5
2	Cable	DIA 1.13mm,SINGLE COAXIAL LOW LOSS CABLE,COLOR: WHITE	1	X.	±0.3
1	PCB	FR4,L43.5 x W13.9 x T0.4mm,COLOR: BLACK	1	.X	±0.1

PROJECTION	UNIT	SCALE	SIZE	SHEET
	mm	1:1	A4	1/1

APPROVED:	DESIGNED:	DRAWN:
Alex Lee	Alex Huang	Reila

LYNwave
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LYNwave Technology

Antenna & Thermal solution provider

2022

www.lynwave.com

Antenna Test Report

Project Name: EBM522C-X54

Model Name:

Feature: 2.4G+5G

Application: AP

Date	Owner	Revision
12/22	Zino	1. S-Parameter Measurement 2. Antenna Passive Measurement
05/03	Alon	1. S-Parameter Measurement

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2. S-Parameters/Isolation
3. Equipment
4. Gain Table
5. The Antenna Characteristics
6. 2D/ 3D Radiation Pattern
7. Summary

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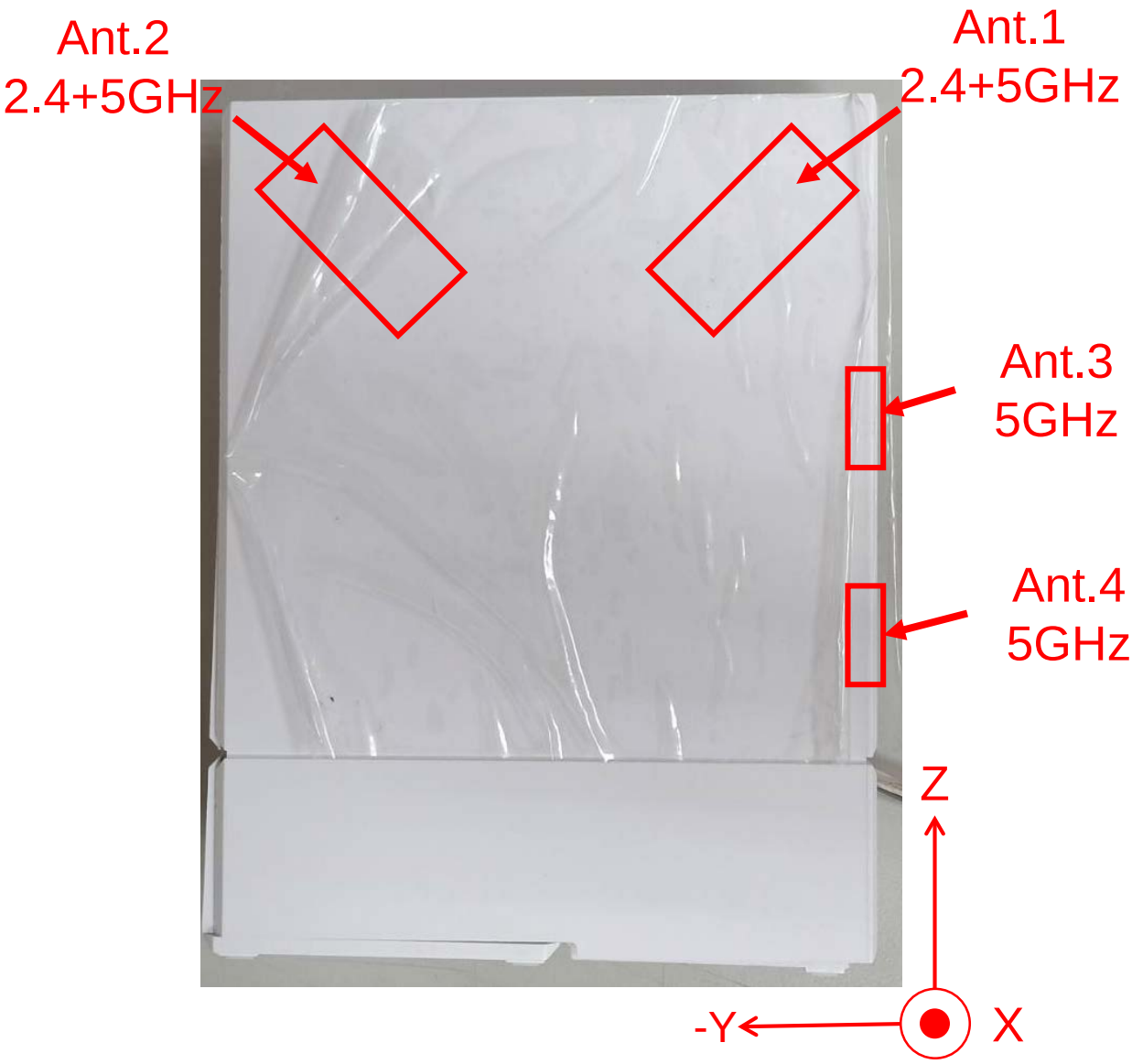
Antenna Placement

Antenna	Description	Frequency
Ant.1	Dual Band	2400~2500 MHz ; 5150 ~ 5825 MHz
Ant.2	Dual Band	2400~2500 MHz ; 5150 ~ 5825 MHz
Ant.3	Singe 5G	5150 ~ 5825 MHz
Ant.4	Singe 5G	5150 ~ 5825 MHz



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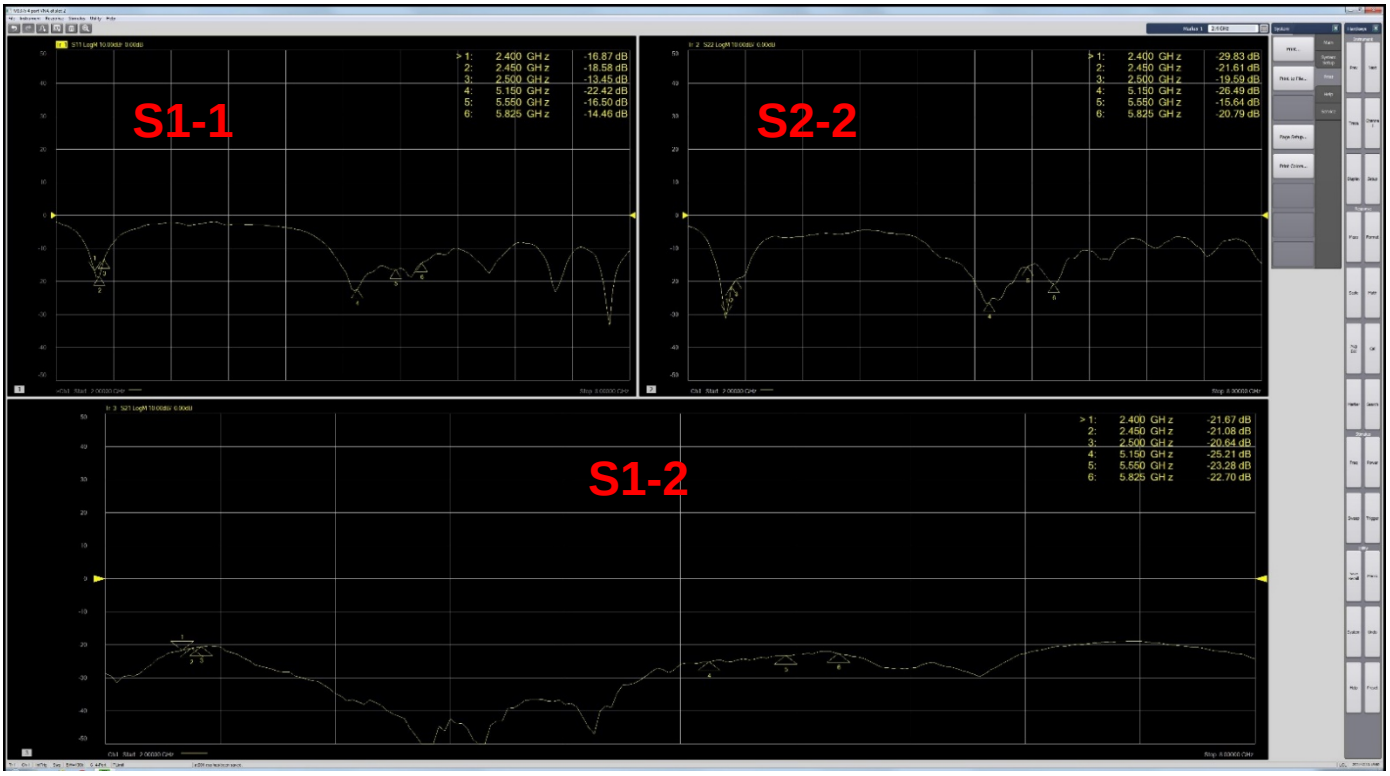
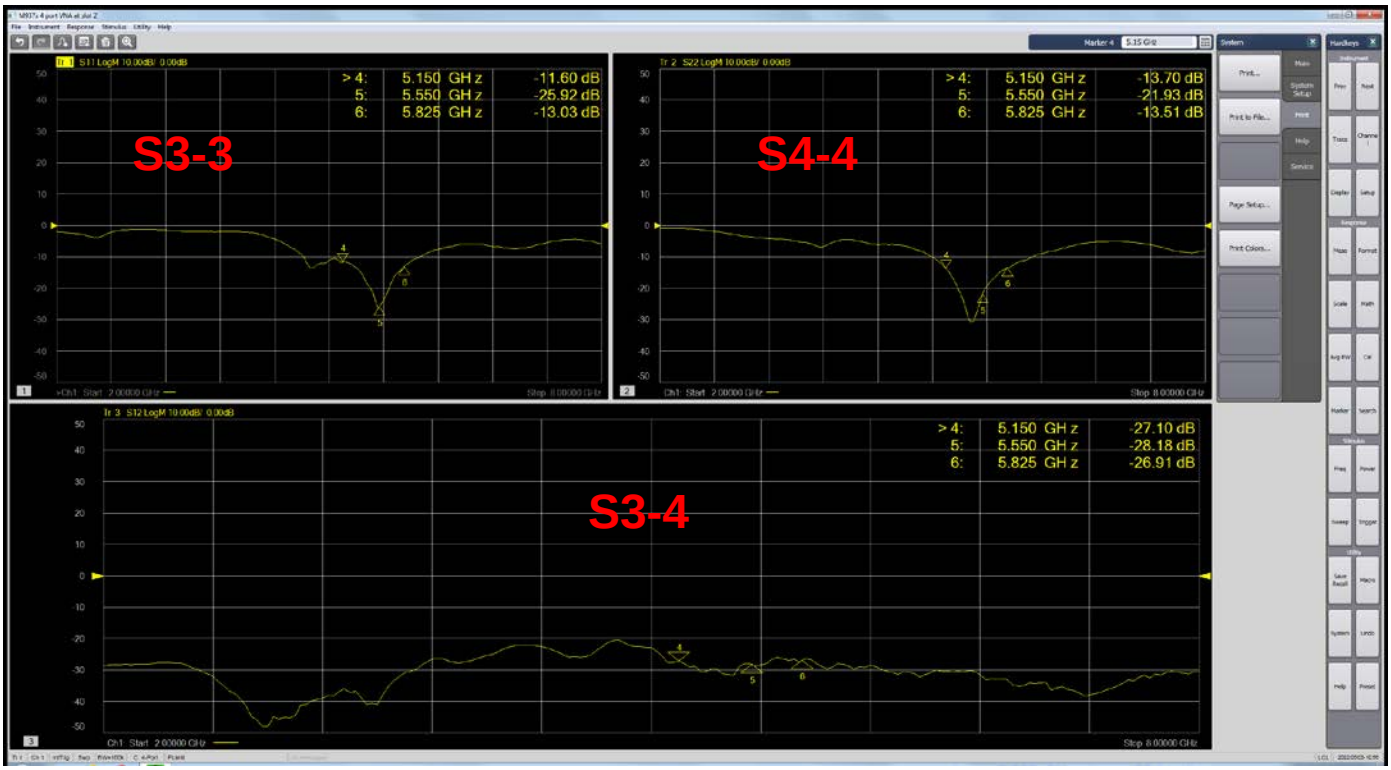
S-Parameters





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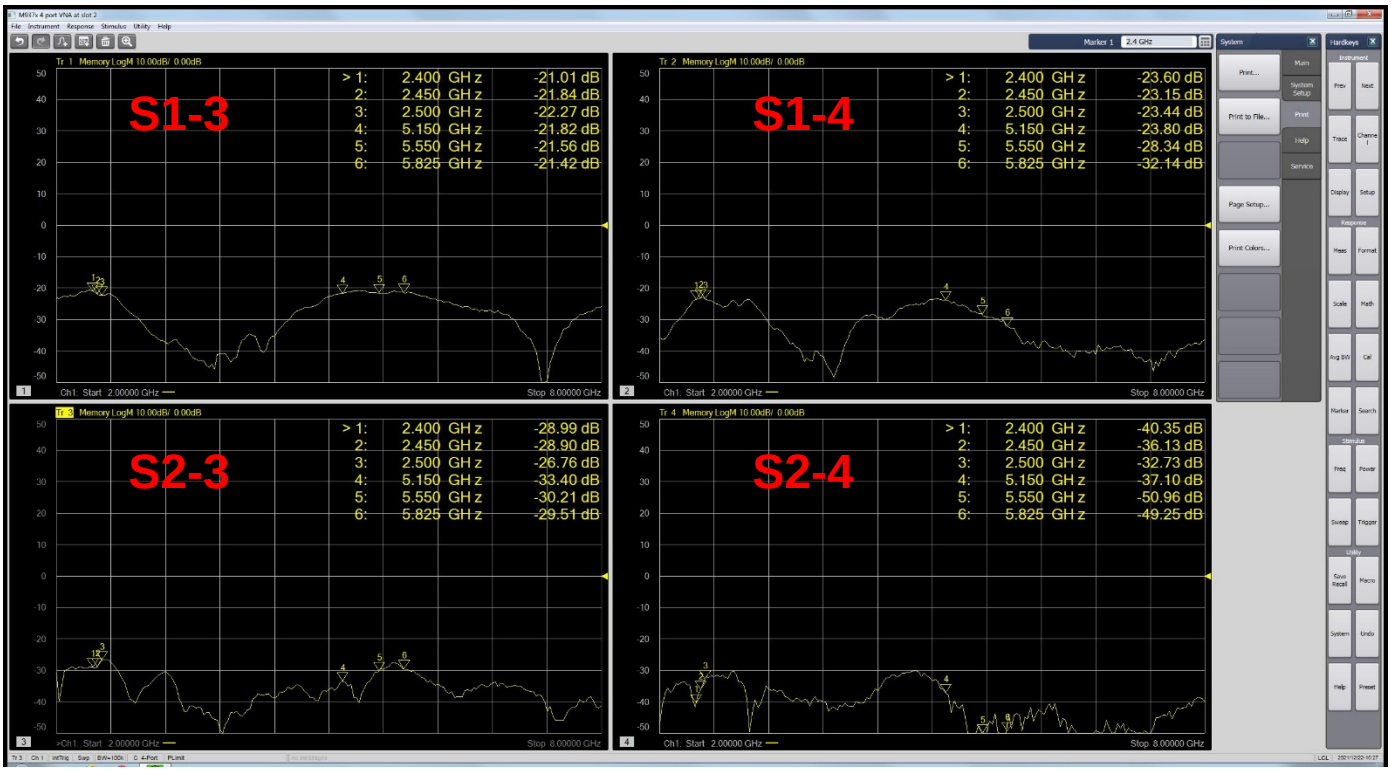
Isolation



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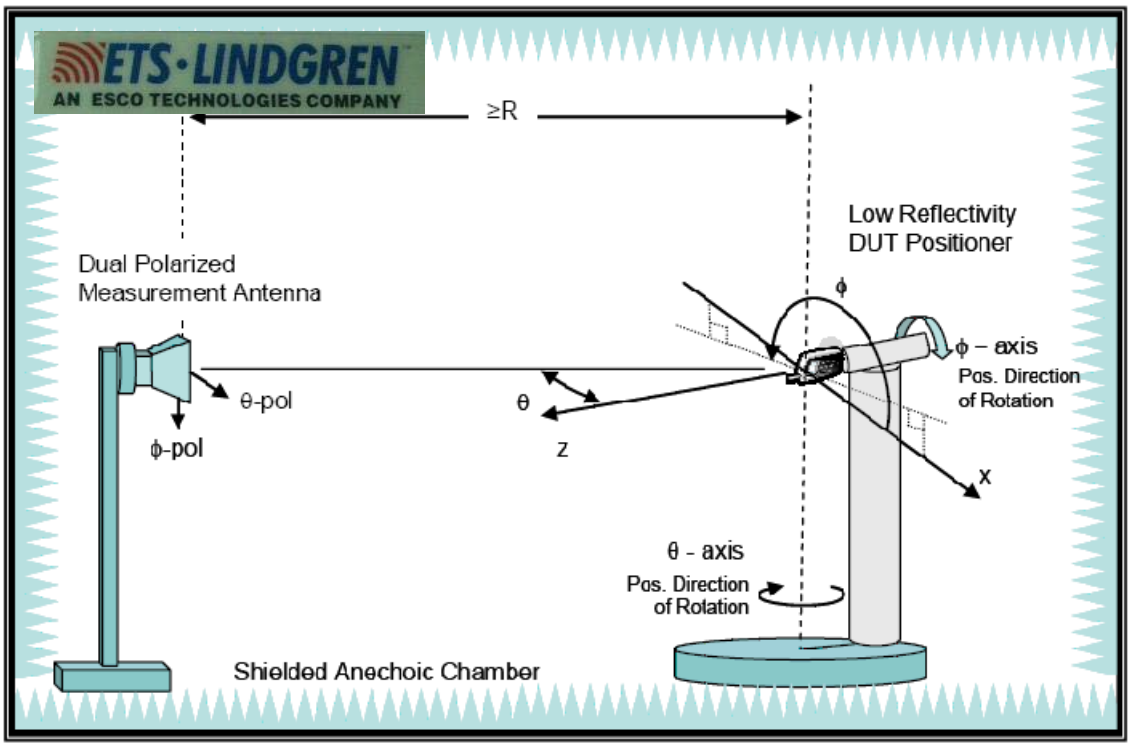
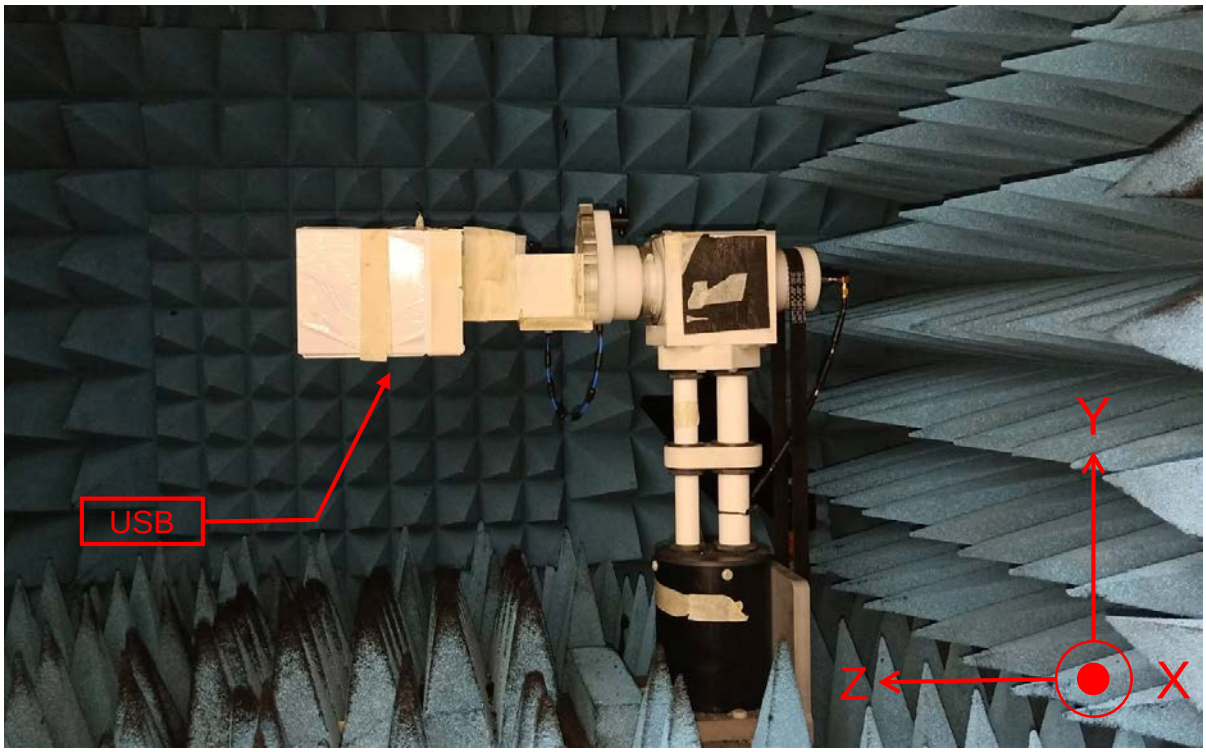
Equipment :
ETS Chamber





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Gain Table

Ant.1						
Frequency (MHz)	2400	2450	2500	5150	5550	5825
Efficiency(%)	64	68	71	66	67	63
Peak Gain(dBi)	2.6	3.0	2.9	2.4	2.5	2.3
Ant.2						
Frequency (MHz)	2400	2450	2500	5150	5550	5825
Efficiency(%)	62	68	65	63	65	65
Peak Gain(dBi)	2.3	2.4	2.1	2.3	2.5	2.2
Ant.3						
Frequency (MHz)	5150	5550	5825			
Efficiency(%)	68	70	66			
Peak Gain(dBi)	3.8	4.3	3.7			
Ant.4						
Frequency (MHz)	5150	5550	5825			
Efficiency(%)	67	71	69			
Peak Gain(dBi)	4.4	4.3	4.5			

The Antenna Characteristics

- Gain
  - 2.4GHz band : 2.1~3dBi
  - 5GHz band : 2.2 ~4.5dBi
- Efficiency
  - 2.4GHz band > 60%
  - 5GHz band > 60%
- Isolation
  - All band >20dB
- Return loss :
  - Dual band 2.4&5 GHz < -10dB

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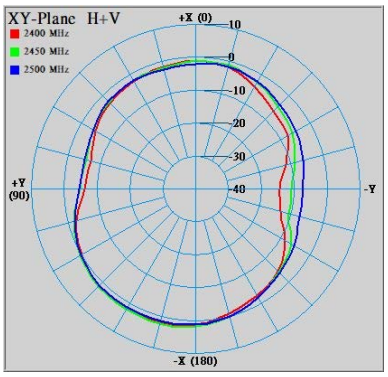
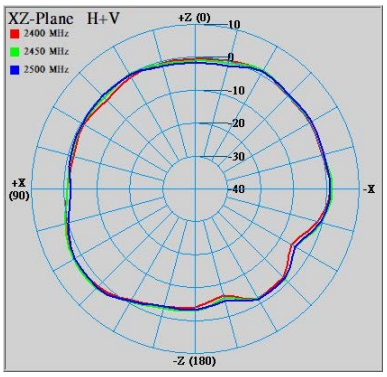
Ant.1_2.4GHz 2D.3D Radiation Pattern
Frequency(MHz) : 2D. 2400~2500
3D. 2450

Radiation Pattern :

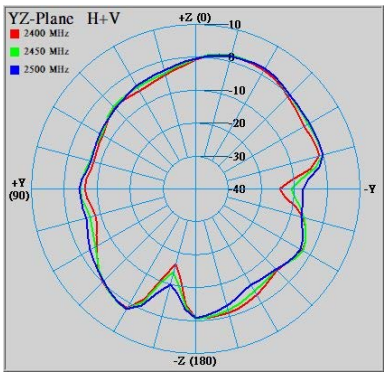
Azimuth Plane

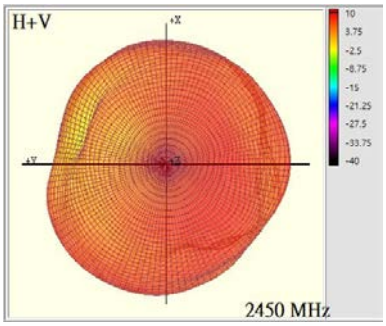


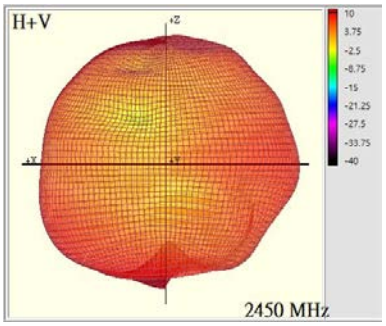
Elevation Plane phi = 0

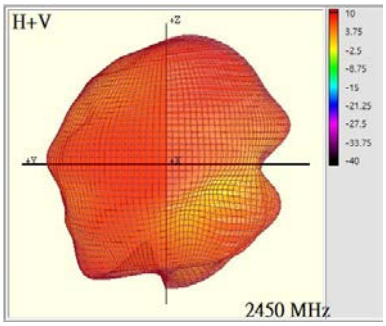


Elevation Plane phi = 90









Setup :

X

Y

Z

X

Z

Y

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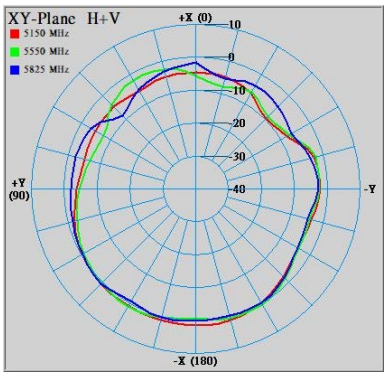
Ant.1_5GHz 2D.3D Radiation Pattern
Frequency(MHz) : 2D. 5150~5825
3D. 5550

Radiation Pattern :

Azimuth Plane



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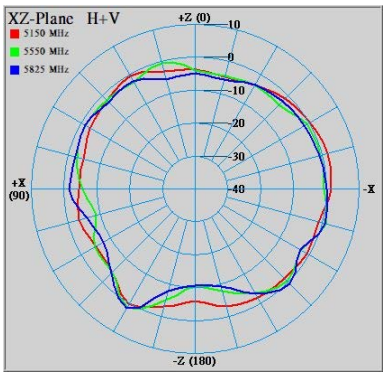
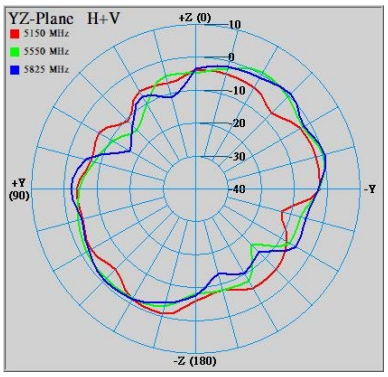
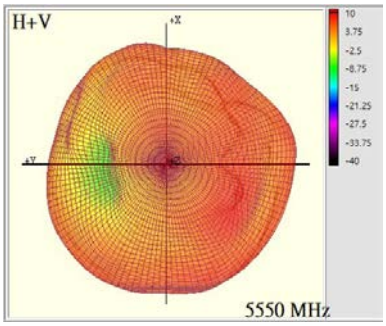
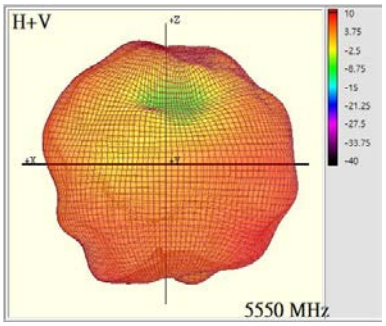
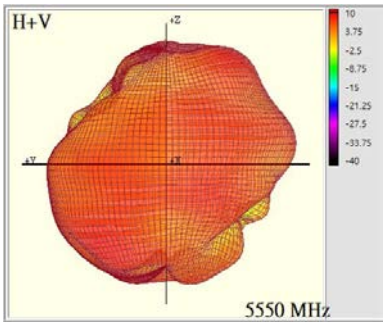


Elevation Plane phi = 90









Setup :

X

Y

Z

X

Z

Y

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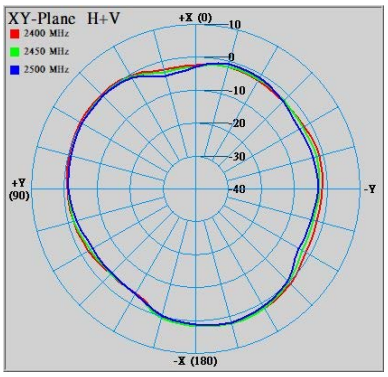
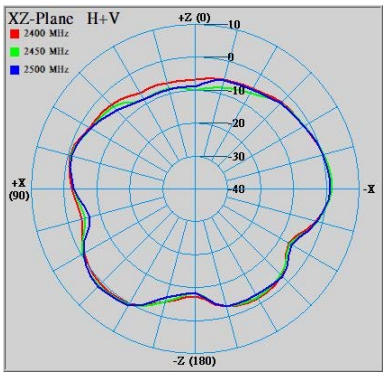
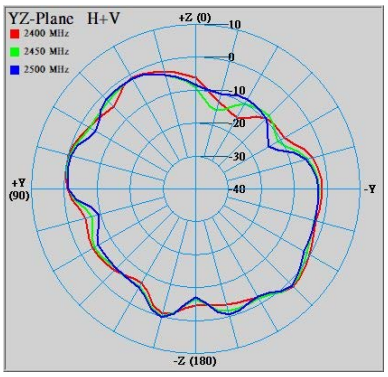
Ant.2_2.4GHz 2D.3D Radiation Pattern
Frequency(MHz) : 2D. 2400~2500
3D. 2450

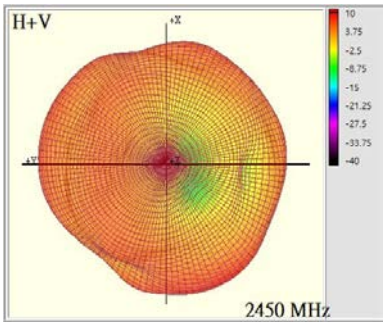
Radiation Pattern :

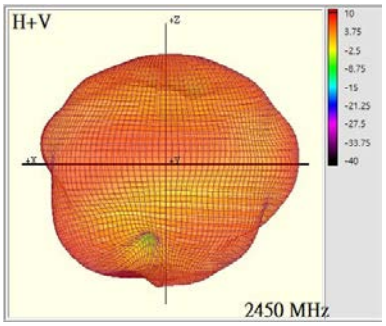
Azimuth Plane	Elevation Plane phi = 0	Elevation Plane phi = 90

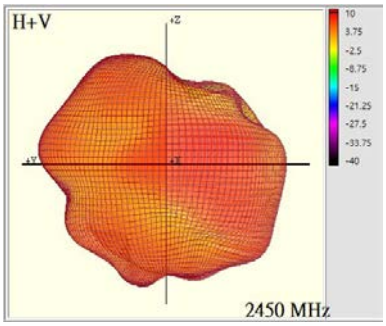












Setup :

X

Y

Z

X

Z

Y

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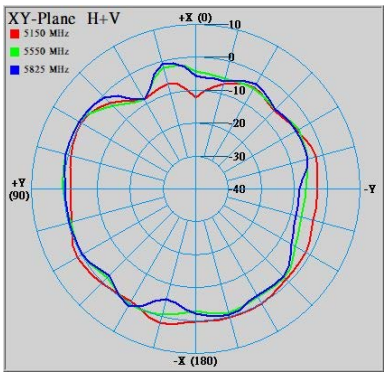
Ant.2_5GHz 2D.3D Radiation Pattern
Frequency(MHz) : 2D. 5150~5825
3D. 5550

Radiation Pattern :

Azimuth Plane



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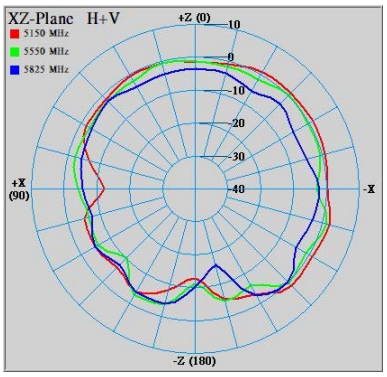
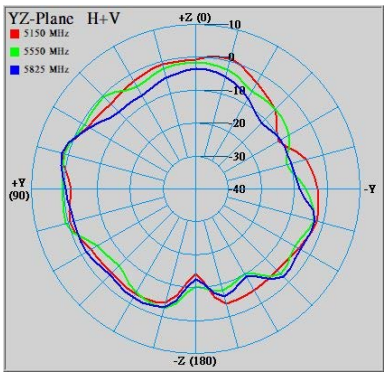
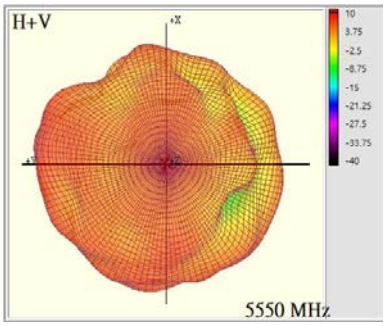
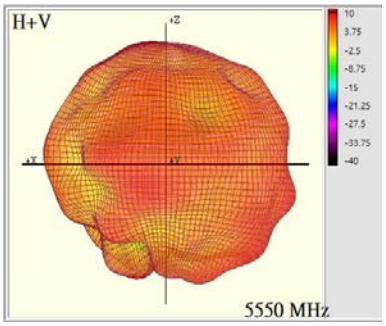
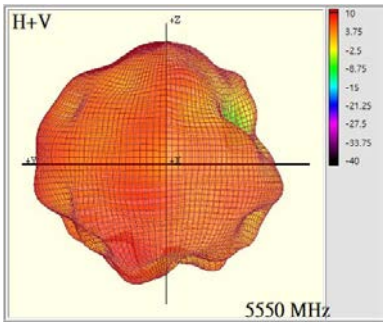


Elevation Plane phi = 90









Setup :

X

Y

Z

X

Z

Y

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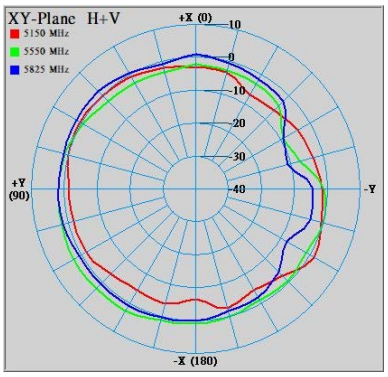
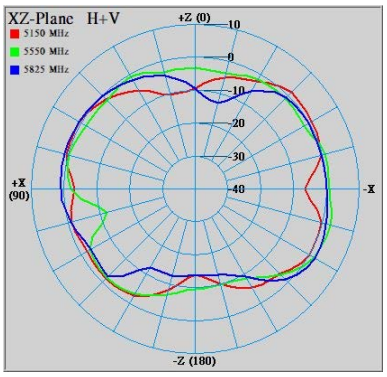
Ant.3_5GHz 2D.3D Radiation Pattern
Frequency(MHz) : 2D. 5150~5825
3D. 5550

Radiation Pattern :

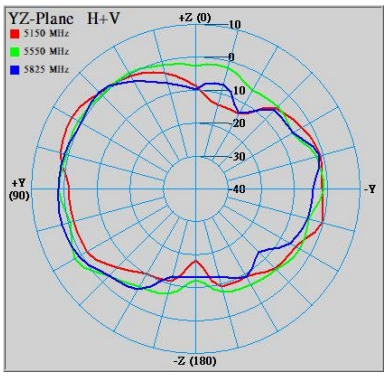
Azimuth Plane

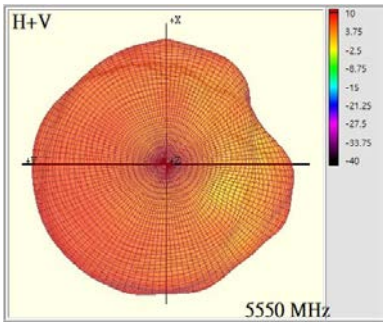


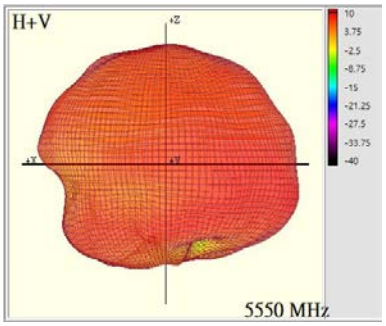
Elevation Plane phi = 0

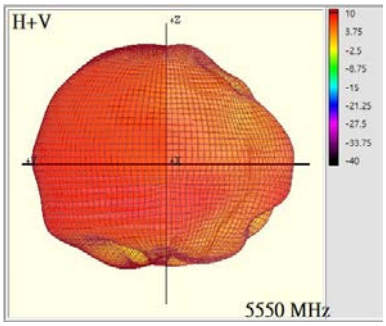


Elevation Plane phi = 90









Setup :

X

Y

Z

X

Z

Y

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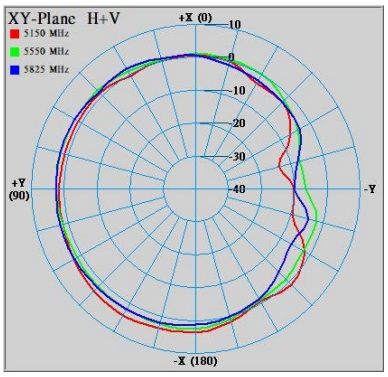
Ant.4_5GHz 2D.3D Radiation Pattern
Frequency(MHz) : 2D. 5150~5825
3D. 5550

Radiation Pattern :

Azimuth Plane



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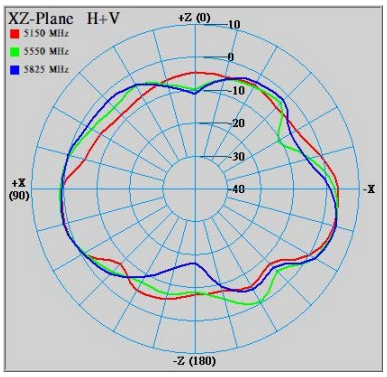
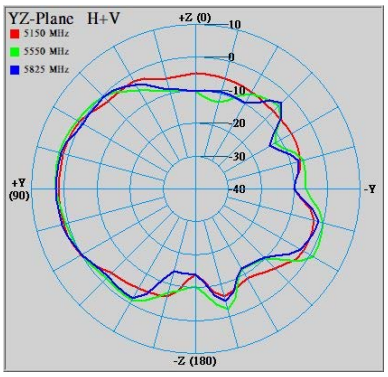
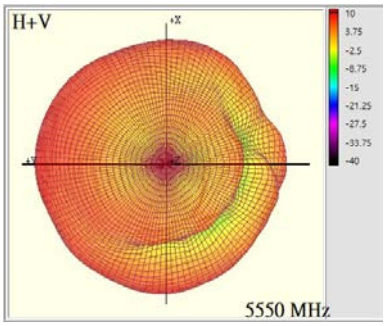
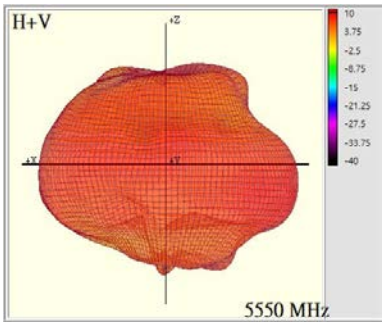
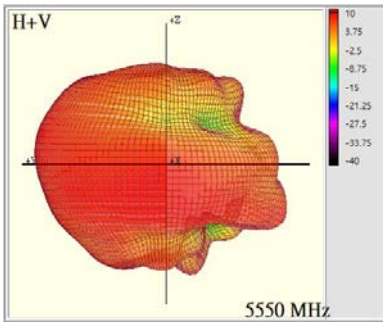


Elevation Plane phi = 90









Setup :

X

Y

Z

X

Z

Y

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Summary

- The antenna have good performance in this condition.

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LYNWAVE TECHNOLOGY LIMITED

日期: 2022/11/4	試驗報告		
試驗項目	**試驗條件**	**試驗紀錄(放入時間: 2022年11月4日)**	
		(11月4日14時25分) 0小時檢查	(11月6日14時30分) 48小時檢查
鹽水濃度	5%	5%	5%
試驗室溫度	35˚C±1˚C	35	35
飽和空氣桶檢驗	47˚C±1˚C	47	47
試驗室相對濕度	80%以上	82%	82%
壓縮空氣壓力	1 kg/cm²±0.1	1.075	1.075
鹽水溶液PH值	6.50~7.50	7.2	7.21
試驗照片			
判定標準	經過48小時測試後，成品表面未發現有腐蝕現象且電特性測試符合規格。		
判定結果	☑ 合格 ☐ 不合格		

審核：王金明　　試驗員：江鴻富

A3 级覆铜箔板质量技术指标

试验项目	试样处理	标准值	典型值
1.抗剥强度 磅/英寸，最小值 A 1/2 盎司铜箔 接收状态 热应力 提高温度下 暴露于工艺溶液后 B 1 盎司铜箔 接收状态 热应力 提高温度下 暴露于工艺溶液后	 A A 125℃ 125℃ A A 125℃ 125℃	 ≥6.0 ≥6.0 ≥4.0 ≥4.5 ≥8.0 ≥8.0 ≥6.0 ≥7.0	 6.0-8.0 6.0-8.0 7.0 7.0 8.0-10.0 8.0-10.0 9.0 9.0
2.体积电阻，最小值，MΩ.CM 在提高温度下	E-24/125	$\geqslant 10^3$	10^6
3.表面电阻，最小值，MΩ 在提高温度下	E-24/125	$\geqslant 10^3$	10^6
4.吸水性,最大值(%)	E-1/105+des	≤0.80	0.18-0.35
5.击穿电压,最小值(KV),步进(厚度≥0.50 mm)	D-48/50 D-0.5/23	≥35	38
6.抗弯强度，最小值(N/mm^2) (厚度≥0.50 mm) 经向 纬向	 A A	 ≥415 ≥345	 495 405
7.抗电弧性,最小值，秒	D-48/50 D-0.5/23	≥60	75
8.阻燃性	A	UL94V0	UL94V0
9.可焊性	A	可焊	可焊
10.介电常数,1MHZ 下	A	≤ 5.4	4.7-4.9
11.损耗角正切,1MHZ 下	A	≤0.045	0.020-0.035
12.弯曲和翘曲,最大(%) 双面（厚度大于 0.78mm；尺寸 300mm×300mm） 单面（厚度大于 0.78mm；尺寸 300mm×300mm） 双面（厚度 0.5~0.78 mm；尺寸 300mm×300mm） 单面（厚度 0.5~0.78 mm；尺寸 300mm×300mm）	 A A A A	 ≤1.0 ≤1.5 ≤1.5 ≤2.0	 0.20-0.50 0.30-0.70 0.30-0.50 0.35-0.70
13.热应力,288℃,漂锡 10 秒 未蚀刻试样	A	NO DEFECT	55-80 Sec
14.玻璃化转变温度,TG(DSC，℃)	A	≥125	135
15.适用范围：家电行业、电脑周边产品、普通电子产品。不适用于计量用仪表。			
16.适用线路：最小孔径＞0.3mm，最小孔间距＞0.8mm。			

备注:1、处理方法中字母及数值的含义

A-板材交货阶段

D-恒温水浴 E-高温烘培 数 1/数 2：1-时间(小时) 2-温度(℃) des-干燥 10 分钟以上或干燥状态下冷却至室温。

2、上表所定翘曲度标准仅适用于覆铜箔板交货验收。若以成品 PCB 板作为检验样品，一般要求 PCB 两面布线基本均匀，最大尺寸不大于 12″，且在 140℃热风循环烤箱中，保持承载板水平，烘烤 2 小时，自然冷却至室温的试验测试值为准。

ONLINE CERTIFICATIONS DIRECTORY

QMTS2.E330731
Polymeric Materials - Filament-wound Tubing, Industrial Laminates, Vulcanized Fiber, and Materials for Use in Fabricating Recognized Printed Wiring Boards - Component

For enhanced search functionality, please visit UL's iQ™ Family of Databases.
Click on a product designation for complete information.

Page Bottom

Polymeric Materials - Filament-wound Tubing, Industrial Laminates, Vulcanized Fiber, and Materials for Use in Fabricating Recognized Printed Wiring Boards - Component

See General Information for Polymeric Materials - Filament-wound Tubing, Industrial Laminates, Vulcanized Fiber, and Materials for Use in Fabricating Recognized Printed Wiring Boards - Component

GOLDENMAX INTERNATIONAL TECHNOLOGY (ZHUHAI) LTD E330731
8 QINSHI RD QINSHI INDUSTRIAL PARK
SANZAO TOWN
JINWAN DIST
ZHUHAI, GUANGDONG 519040 CHINA

Industrial laminates:

			Build up		R.T.I.				H		
Mtl Dsg	**ANSI Type**	**Color**	**Min Thk (mm)**	**Flame Class**	**Elec (°C)**	**Mech (°C)**	**HWI**	**HAI**	**VTR**	**CTI**	**Meets 746E DSR**
Industrial laminates, furnished as sheets, rods or tubes.											
GDM-C3, ILM-C3											
	CEM-3	NC (WT)	0.63	V-0	130	140	0	2	4	-	Yes
			1.6	V-0	130	140	0	2	4	3	Yes
GDM-R1, ILM-R1											
	FR-4	NC,YL	0.38	V-0	130	130	0	3	4	-	Yes
			0.63	V-0	130	140	0	3	4	-	Yes
			1.40	V-0	130	140	0	2	4	3	Yes
Industrial laminates.											
GF432	FR-4	NC (YL)	0.38	V-0	130	130	0	0	-	-	Yes
			0.63	V-0	130	140	0	0	-	-	Yes
			1.40	V-0	130	140	0	0	-	3	Yes

Ultrathin build ups:

Build Up					Laminate			Prepreg		
Mtl Dsg	**ANSI Type**	**Min Thk (mm)**	**TI Elec**	**TI Mech**	**Mtl Dsg**	**Thk (mic)**	**TI Elec**	**Mtl Dsg**	**Thk (mic)**	**TI Elec**
Ultrathin industrial laminates and bonding layers, furnished in sheet form, for use in multilayer printed wiring boards where the thickness is built up to the minimum specified.										
GDM-U1, ILM-U1	FR-4	0.38	130	130	GDM-U1, ILM-U1	100	120	GDM-P1, ILM-P1	100	120

		0.63	130	140	GDM-U1, ILM-U1	100	120	GDM-P1, ILM-P1	100	120
GF432	FR-4	0.38	130	130	GF432	155	120	GF432-PP	75	90
		0.63	130	140	GF432	155	120	GF432-PP	75	90

Metal clad industrial laminates:

				Bld up	Clad Cond Thk			Max		Max	Solder Lts	
Metal Clad Dsg	**Lam-inate Dsg**	**Pre-preg Dsg**	**ANSI Type**	**Min Thk (mm)**	**Min Ext (mic)**	**Max Ext (mic)**	**Max Int (mic)**	**Area Dia (mm)**	**Flame Class**	**Oper Temp (°C)**	**Temp (°C)**	**Time (sec)**
Metal clad multilayer package (mass laminate) with internal circuitry and solid copper on outside surfaces, furnished as sheets.												
GDM-ML1, ILM-ML1												
	GDM-U1, ILM-U1	GDM-P1, ILM-P1	FR-4	0.38	17	102	68	50.8	V-0	130	288	20
Metal clad industrial laminates for use in multilayer printed wiring boards with copper on one or both sides, furnished as sheets.												
GDM-U1, ILM-U1												
	GDM-U1, ILM-U1	GDM-P1-ILM-P1	FR-4	0.38	17	102	68	50.8	V-0	130	288	20
Metal clad industrial laminates for use in multilayer printed wiring boards with copper on one or both sides.												
GF432	GF432	GF432-PP	FR-4	0.38	17	102	68	50.8	V-0	130	288	20
Metal clad industrial laminates for use in single layer printed wiring boards with copper on one or both sides, furnished as sheets.												
GDM-C3, ILM-C3												
	GDM-C3, ILM-C3	-	CEM-3	0.63	17	102	-	12.7	V-0	130	288	10
GDM-R1, ILM-R1												
	GDM-R1, ILM-R1	-	FR-4	0.38	17	102	-	50.8	V-0	130	288	20
Metal clad industrial laminates for use in single layer printed wiring boards with copper on one or both sides.												
GF432	GF432	-	FR-4	0.38	17	102	-	50.8	V-0	130	288	20

Marking: Company name or trademark GDM , ILM and material designation on container or wrapper.
Last Updated on 2013-10-31

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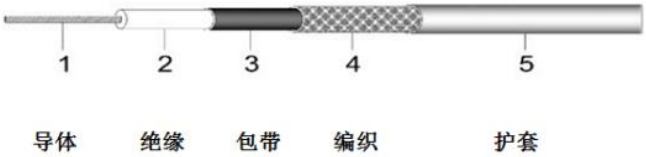
Date:2021-09-08

规　格　书
Specification

系列：　RF1.13 LOW LOSS
Series　（50Ω）银锡白

料号(P/N)：　KB113L/50-002D

1.结构图/Configuration



2.结构/Construction:

项目/Item		详细资料/Details
①内导体 Inner conductor	材料/Material	镀银铜线/Silver plated Copper
	构成(根/mm)/Composition(No./mm)	7/0.08±0.005
	标称直径/NOM.O.D	0.24±0.01
②绝缘层 Insulation	材料/Material	聚全氟乙丙烯/FEP
	标称外径/NOM.O.D	0.715±0.03
	颜色/Color	Natural
③包带 Tape	材料/Material	Copper PET Tape
④外导体 Outer conductor	材料/Material	镀锡铜线 Tinned copper
	形式 Type	编织/Weaving
	构成/Composition	16/4/0.05±0.005
	遮蔽率/ Shielding rate	90±5%
	标称直径/NOM.O.D	0.95±0.05
⑤护套层 Jacket	材料/Material	聚全氟乙丙烯/FEP
	标称外径/NOM.O.D	1.15±0.05
	颜色/Color	白/White

3.性能特性 Performance characteristics

项目/Item	单位/Unit	详细资料/Details	
电容/Capacitance	pF/m	98	
特性阻抗/Conductor Resistance	Ω	50±3.0	
耐压强度/Dielectric Strength	A.C V/1min	1000	
衰减/Attenuation	/	频率/Frequency	dB/1m
		1GHz	≤1.7
		2GHz	≤2.5
		3GHz	≤3.1
		4GHz	≤3.5
		5GHz	≤4.0
		6GHz	≤4.5
		7GHz	≤5.2
		8GHz	≤5.4
驻波比/Standing wave(0-6GHz)	/	≤1.3	
驻波比/Standing wave(6-8GHz)	/	≤1.4	

4.机械性能特性 Mechanical characteristics

项目 Item	单位 Unit	详细资料/Details
最小弯曲半径(一次) Min.bending radius static	mm	4
工作温度范围 Operating temperature	℃	-55to125

5.使用提示 Use tips

存储环境 Storage environment	温度：30℃以下；湿度：20%~65%
最佳保存周期 The best save cycle	2 个月，2 个月以上锡效果变差,但电性能不受影响，夏季高温高湿环境开剥后需尽快流转
加工温度 Processing temperature	250℃~260℃的情况下，可短时间承受；300℃以上会出现热分解现象
铁氟龙收缩 Teflon Shrink	绝缘层收缩≦0.2mm；护套层收缩≦0.3mm

6.包装 Packing

标准单位包装长度为1000米/盘,每盘最多允许5个接头,接头最短长度10米,在搬运过程中不能损坏包装。

Standard unit for the 1000m/reel length of packaging, each set up to allow 5 joints,the joint shortest length of 10m,The finished cable shall be packed not be damaged during transportation。

7.其他 Other

特殊加工工艺，请与供方协商后使用。

Special processing technology, please use after consultation with the supplier。

规格书完

End of specification

UL Product iQ™

Style 1354 - APPLIANCE WIRING MATERIAL

APPLIANCE WIRING MATERIAL

Subj.758
Section 1
Page 1354

Issued: 1964-02-19
Revised: 2012-04-26

Style 1354 Coaxial Cable.

RATING	60, 80 deg C, 30 Vac, Horizontal flame.
CONDUCTOR	44 AWG min., material not specified.
INSULATION	2 mils minimum at any point, 125 mils maximum. The insulation may be: Extruded solid or cellular PE, FRPE, PP, PFA, FEP, ECTFE, PTFE, ETFE, or combination thereof with or without irradiation; or tape wrapped solid or cellular PTFE, PFA, or FEP. Applied as a spiral wrapped thread (5 mils minimum, 40 mils maximum) and enclosed in a tube of insulation.
ASSEMBLY	Insulated conductor with optional inner covering, optional inner shield, optional middle covering, required outer shield and required outer covering.
SHIELD	Optional. Outer Shield required.
COVERING	

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Optional Inner Covering - Extruded PVC, PFA, Polyamide, Polyester, PVDF, FEP, PTFE, ECTFE, ETFE, PE, XLPE, XLFRPE or FRPE; lacquered braids; heat sealed PTFE, PFA or FEP tape; Polyester or Polyester-Polyethylene film. Thicknesses not specified. Optional Middle Covering - Extruded PVC, PFA, PP, Polyamide, Polyester, PVDF, FEP, PTFE, ECTFE, ETFE, PE, XLPE, XLFRPE or FRPE; lacquered braids; heat sealed PTFE, PFA or FEP tape; Polyester or Polyester-Polyethylene film. Thicknesses not specified. Required Outer Covering - Extruded Irradiated PE, Irradiated PVC, Polyurethane, PVC, PFA, PP, Polyamide, Polyester, PVDF, FEP, PTFE, ECTFE, ETFE, PE, XLPE, XLFRPE or FRPE; lacquered braids; heat sealed PTFE, PVC, PFA or FEP tape; Polyester or Polyester-Polyethylene film. Thicknesses not specified.

STANDARD	Appliance Wiring Material UL 758.
MARKING	General.
USE	Internal wiring of Class 2 circuits of electronic equipment or as insulated single in jacketed multiconductor cables.

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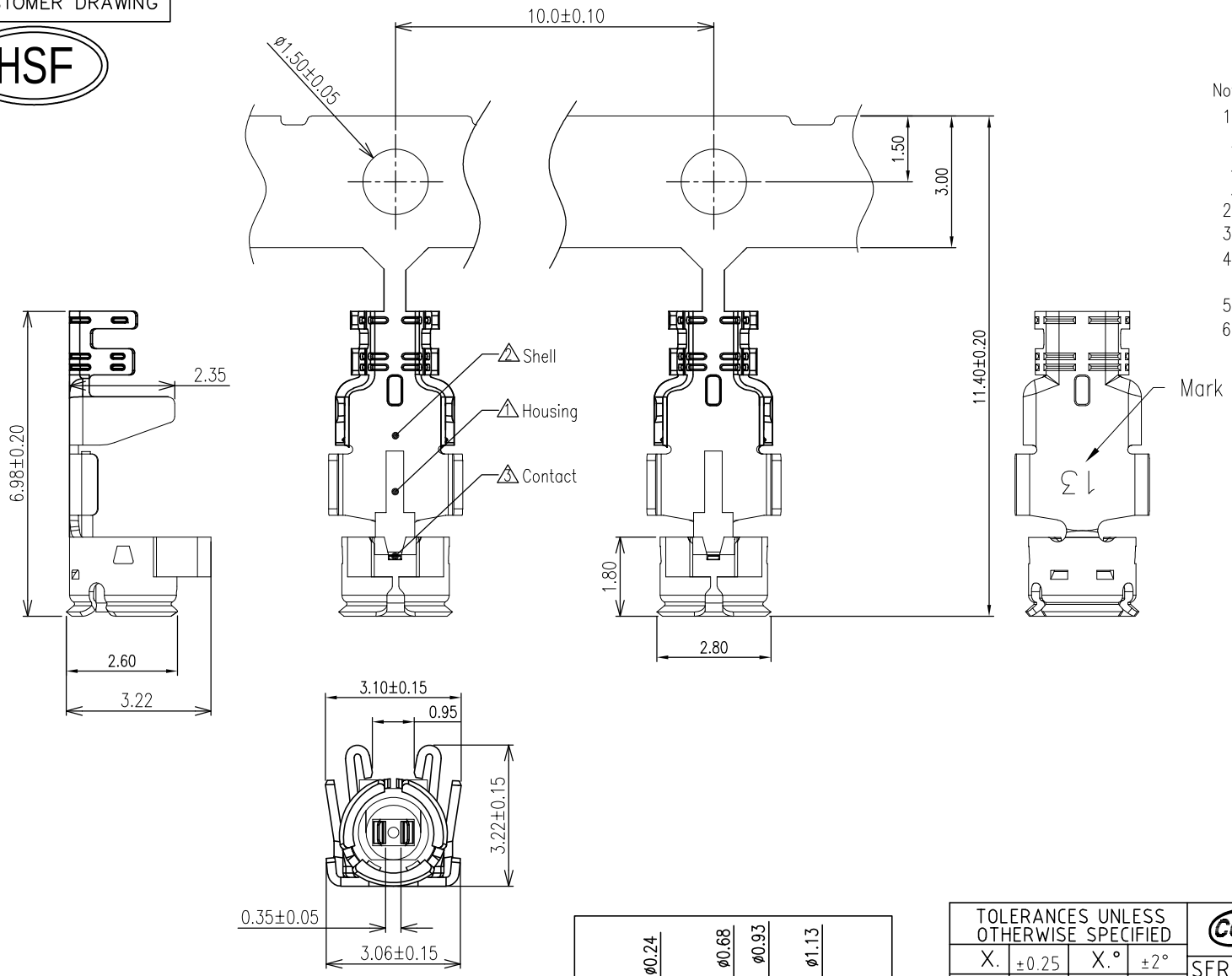
CUSTOMER DRAWING

HSF

Rev.	ECN No.	DESCRIPTION
A	ECN180502-001	NEW RELEASE
B	ECN180610-001	ADD "HSF"



Notes:

1: Material and finish(Plating)
- 1 Housing PBT (Black), UL94V-0.
- 2 Shell Phosphor bronze: Au over Ni
- 3 Contact Phosphor bronze: Au over Ni

2: Impedance: 50 OHM Nominal
3: Frequency Rating: DC TO 6 GHZ
4: VSWR: DC -- 3GHz 1.3max.
3GHz -- 6GHz 1.5max.
5: Cable retention force 10N min.
6: The harmful material of this part should be compliance with CCT document QW-QA-10.

PRODUCT NUMBER ORDER

ANC Z 113 * - 1 C 1
① ② ③ ④ ⑤ ⑥ ⑦

① Production Code :
ANC: ANTENNA PLUG for cable

② Height after mated broad end :
Z: Special SPEC. CCT PATENTED

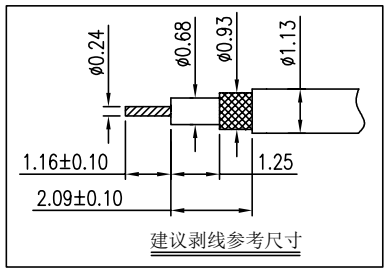
③ Match Cable ø :
113: Cable ø 1.13mm

④ Shell Gold Plating Thickness :
L: Plating Gold 0.5u" min.
1: Plating Gold 1.0u" min.

⑤ Product design generation:
1: First generation.

⑥ Customer identification code:
1: CUS is Another
C: 1.13 CCT shell mark "13"

⑦ Color of Housing:
1: Black



TOLERANCES UNLESS OTHERWISE SPECIFIED			
X.	±0.25	X.°	±2°
.X	±0.20	.X°	±1°
.XX	±0.15	.XX°	±0.5°

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科信成精密科技（江苏）有限公司
COCENTRA PRECISION TECHNOLOGY (JIANGSU) Co. LTD.

SERIES: RF CABLE PLUG CONN.

TITLE: RF1代 PLUG 1.13 C TYPE

APPD: 王宁 2018/06/10

CKD: 段国强 2018/06/10

DR: 段国强 2018/06/10

PART No.: ANCZ113×-1C1

DWG No.: 307-0000-0183

UNITS	MAT'L	FINISH	SCALE	SHEET	REV.
MM	N/A	N/A	1:1	1/1	B

Component - Plastics

UL 档案号: E107536

SHINKONG SYNTHETIC FIBERS CORP

223 YEN PING RD SEC 3, PIN CHENG TAOYUAN HSIEN 324 TW

F202G15

Polybutylene Terephthalate (PBT), pellets

可燃性	Value	测试方法
UL 阻燃等级		UL 94 IEC 60695-11-10, -20
1.50 mm, ALL	V-0	
3.20 mm, ALL	V-0	
灼热丝易燃指数		IEC 60695-2-12
1.50 mm	800 °C	
3.20 mm	960 °C	
热灯丝点火温度		IEC 60695-2-13
1.50 mm	750 °C	
3.20 mm	725 °C	
电气性能	**Value**	**测试方法**
热丝引燃 (HWI)		UL 746
1.50 mm	PLC 0	
3.20 mm	PLC 0	
高电弧燃烧指数(HAI)		UL 746
1.50 mm	PLC 0	
3.20 mm	PLC 0	
相比耐漏电起痕指数(CTI)	PLC 0	UL 746
介电强度	24 kV/mm	ASTM D149 IEC 60243-1
高电压电弧起痕速率 (HVTR)	PLC 1	UL 746
体积电阻率	1.0E+15 ohm·cm	ASTM D257 IEC 60093
耐电弧性	PLC 5	ASTM D495
热性能	**Value**	**测试方法**
RTI Elec		UL 746
1.50 mm	75.0 °C	
3.20 mm	75.0 °C	
RTI Imp		UL 746
1.50 mm	75.0 °C	
3.20 mm	75.0 °C	
RTI Str		UL 746
1.50 mm	75.0 °C	
3.20 mm	75.0 °C	

Form Number: E107536-546816

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Report Date: 7/13/1987
Last Revised: 11/28/2006

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Double Coated Tissue Tapes

9810T, 9888T

Technical Data **August, 2018**

Product Description

3M™ Double Coated Tissue Tape 9810T and 9888T feature a tissue carrier for dimensional stability and improved handling with ease of die cutting and laminating. Double-coated acrylic adhesive is suitable for various surface, and possess good performance. 3M™ Product 9810T and 9888T could control adhesive flow into open cell foam and controlled caliper for bond to application surface. For foam laminating, it provides excellent foam stability to reduce stretching and allows to more precise alignment during application. The high-density and high-strength paper liner is excellent for converting process.

3M™ 9888T is UL recognized (File MH28421). Please see the UL listing for details.

Constructions

Product Number	Adhesive Type/ Color[1]	Adhesive Thickness (mm)	Liner Color, Type, Print	Liner Caliper
3M™ 9810T	Acrylic Translucent	0.10 mm	White PE coated paper	0.10mm
3M™ 9888T	Acrylic Translucent	0.15 mm	White PE coated paper with red 3M logo printing	0.15mm

[1]The adhesive color is translucent with a very slight yellow cast. The yellow cast is not typically visible in a single adhesive layer.

3M™ Double Coated Tissue Tapes
9810T • 9888T

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

I. Adhesion to Surfaces (Unit: kgf/in)

ASTM D3330 modified (180° peel, 2 mil aluminum foil backing)

Dwell	9810T	9888T
15min RT SUS	1.9	2.9
72 hour RT SUS	2.3	3.2
15min RT ABS		2.2
72 hour RT ABS		2.4
15min RT PC		2.6
72 hour RT PC		2.7
15min RT PP		1.9
72 hour RT PP		2.2

II. Relative High Temperature Operating Ranges

Short term (minutes/hours)	120°C
Long term (days/weeks)	80°C

III. Static Shear

Modified ASTM D3654 - 1" x 1" sample area - aluminum foil to stainless steel

		Minutes to Failure	
Temperature	**Load**	**9810T**	**9888T**
23°C	1Kg	10000+	

Application Techniques

For maximum bond strength (during installation of the final part) the surface should be thoroughly cleaned and dried. Typical cleaning solvents are heptane* (for oily surfaces) or isopropyl alcohol* for plastics. Use reagent grade solvents since common household materials like rubbing alcohol frequently contain oils to minimize the drying affect on skin and can interfere with the performance of a pressure-sensitive adhesive.

It is necessary to provide pressure during lamination (1.5-20 pli recommended) and during final part installation (10-15 psi) to allow the adhesive to come into direct contact with the substrate. Using a hard-edged plastic tool, which is the full width of the laminated part, helps to provide the necessary pressure at the point of lamination. Heat can increase bond strength when bonding to metal parts (generally this same increase is observed at room temperature over longer times, weeks). For plastic parts, the bond strength is not enhanced with the addition of heat.

The ideal adhesive application temperature range is 60°F (15.6°C) to 100°F (38°C). Application is not recommended if the surface temperature is below 50°F (10°C) because the adhesive becomes too firm to adhere readily. Once properly applied, at the recommended application temperature, low temperature holding is generally satisfactory.

Application Ideas

- Long term bonding of graphic nameplates and overlays ("subsurface" printed polycarbonate or polyester) to metal and high surface energy plastics in the aerospace, medical and industrial equipment, automotive, appliance and electronic markets.
- Bonding metal nameplates and rating plates in the aerospace, medical and industrial equipment, automotive, appliance and electronic markets.
- Bonding graphic overlays for membrane switches and for bonding the complete switch to the equipment surface.
- High speed processing of parts in the medical, telecommunications and electronics markets (medical components, durable labels, flexible circuits).
- Lamination to industrial foams for rotary die-cutting of small gaskets for industrial and electronics markets.

3M™ Double Coated Tissue Tapes
9810T • 9888T

Product Use	Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.
Warranty, Limited Remedy, and Disclaimer	Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.
Limitation of Liability	Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

ISO 9001: 2015

This EDB product was manufactured under a 3M quality system registered to ISO 9001: 2015 standards.

3M

Electric Device Bonding
3M Taiwan

www.3mtape.com.tw

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Marking and Labeling System Materials - Component

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Marking and Labeling System Materials - Component

See General Information for Marking and Labeling System Materials - Component

3M TAIWAN LTD MH28421
13TH FL
LOTUS BLDG
136 JEN AI RD, SEC 3
TAIPEI, 106 TAIWAN

Pressure-sensitive laminating adhesives

"Double Coated Tissue Tape 9888T". For bonding aluminum (0.050 - 0.200 mm.) to aluminum and galvanized steel, maximum temperature 150 C (302 F), minimum temperature -40 C (-40 F); acrylonitrile butadiene styrene (ABS) and polypropylene, maximum temperature 80 C (176 F), minimum temperature -40 C (-40 F); polystyrene, maximum temperature 60 C (140 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water. Also suitable where exposed outdoors when affixed to the surfaces mentioned above except for acrylonitrile butadiene styrene (ABS).

"Double Coated Tissue Tape 9888T". For bonding polycarbonate (0.125 - 0.500 mm.) to aluminum and galvanized steel, maximum temperature 100 C (212 F), minimum temperature -40 C (-40 F); acrylonitrile butadiene styrene (ABS) and polypropylene, maximum temperature 80 C (176 F), minimum temperature -40 C (-40 F); polystyrene, maximum temperature 60 C (140 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water. Also suitable where exposed outdoors when affixed to the surfaces mentioned above except for acrylonitrile butadiene styrene (ABS) and aluminum.

"Double Coated Tissue Tape 9888T". For bonding polyester (0.050 - 0.100 mm.) to aluminum and galvanized steel, maximum temperature 100 C (212 F), minimum temperature -40 C (-40 F); acrylonitrile butadiene styrene (ABS) and polypropylene, maximum temperature 80 C (176 F), minimum temperature -40 C (-40 F); polystyrene, maximum temperature 60 C (140 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water. Also suitable where exposed outdoors when affixed to the surfaces mentioned above except for acrylonitrile butadiene styrene (ABS).

D/C PET Tape 8008PT, D/C PET Tape 8008DL, D/C PET Tape 8018PT, D/C PET Tape 8018DL, D/C PET Tape 8408PT, D/C PET Tape 8408DL, D/C PET Tape 8608PT, D/C PET Tape 8608DL and D/C PET Tape 8006PT. For bonding aluminum (0.050 - 0.200 mm.) to aluminum, galvanized steel, stainless steel and acrylonitrile butadiene styrene (ABS), maximum temperature 100 C (212 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water.

D/C PET Tape 8008PT, D/C PET Tape 8008DL, D/C PET Tape 8018PT, D/C PET Tape 8018DL, D/C PET Tape 8408PT, D/C PET Tape 8408DL, D/C PET Tape 8608PT, D/C PET Tape 8608DL and D/C PET Tape 8006PT. For bonding polycarbonate (0.125 - 0.508 mm.) to aluminum, galvanized steel, stainless steel and acrylonitrile butadiene styrene (ABS), maximum temperature 100 C (212 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water.

D/C PET Tape 8008PT, D/C PET Tape 8008DL, D/C PET Tape 8018PT, D/C PET Tape 8018DL, D/C PET Tape 8408PT, D/C PET Tape 8408DL, D/C PET Tape 8608PT, D/C PET Tape 8608DL and D/C PET Tape 8006PT. For bonding polyester (0.050 - 0.100 mm.) to aluminum, galvanized steel, stainless steel and acrylonitrile butadiene styrene (ABS), maximum temperature 100 C (212 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water.

WSP-1 . For bonding polycarbonate (0.125 - 0.500 mm.) to aluminum, galvanized steel, acrylonitrile butadiene styrene (ABS), polycarbonate and polymethyl methacrylate (PMMA), maximum temperature 100 C (212 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water. Also suitable where exposed outdoors when affixed to the surfaces mentioned above except for polymethyl methacrylate (PMMA).

WSP-1 . For bonding polyester (0.050 - 0.100 mm.) to aluminum, galvanized steel, acrylonitrile butadiene styrene (ABS), polycarbonate and polymethyl methacrylate (PMMA), maximum temperature 100 C (212 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water. Also suitable where exposed outdoors

when affixed to the surfaces mentioned above except for polymethyl methacrylate (PMMA).

Marking: Company name and product designation on roll core or packaging of product.
Last Updated on 2005-12-09

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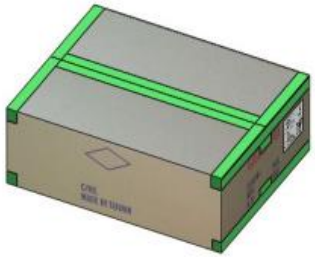
包裝規範書

產品名稱	天線	客戶名稱		版次	A
綠億料號		客戶料號		製作日期	2022/4/11

產品包裝說明	產品包裝圖示
一、包裝： (1)20~30pcs/束，出線尾端使用珍珠棉包紮好 (2)2~10束/袋 二、裝箱： 每箱10~100袋 註: 1.線長50mm以下,接頭端不包珍珠棉 2.以實際裝箱數量為準 3.存儲條件:溫度23±5˚C濕度30~70% 保存期限一年	束 PE袋  紙箱

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