

# 承 認 書

## APPROVAL SHEET

CUSTOMER: 連宇股份有限公司


CUSTOMER MODEL NO.:

JOYMAX MODEL NO.: CBF-A045MPXX-167

DESCRIPTION #A045 PCB Antenna

REV.: 03

DATE 2014/9/24

Customer Approval	Joymax Approval
	

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## Index.

Item
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### 1. Drawing

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### 2. Test report

- Electrical test
  - Pattern test
- 

### 3. Specification

- Connector
  - Cable
- 

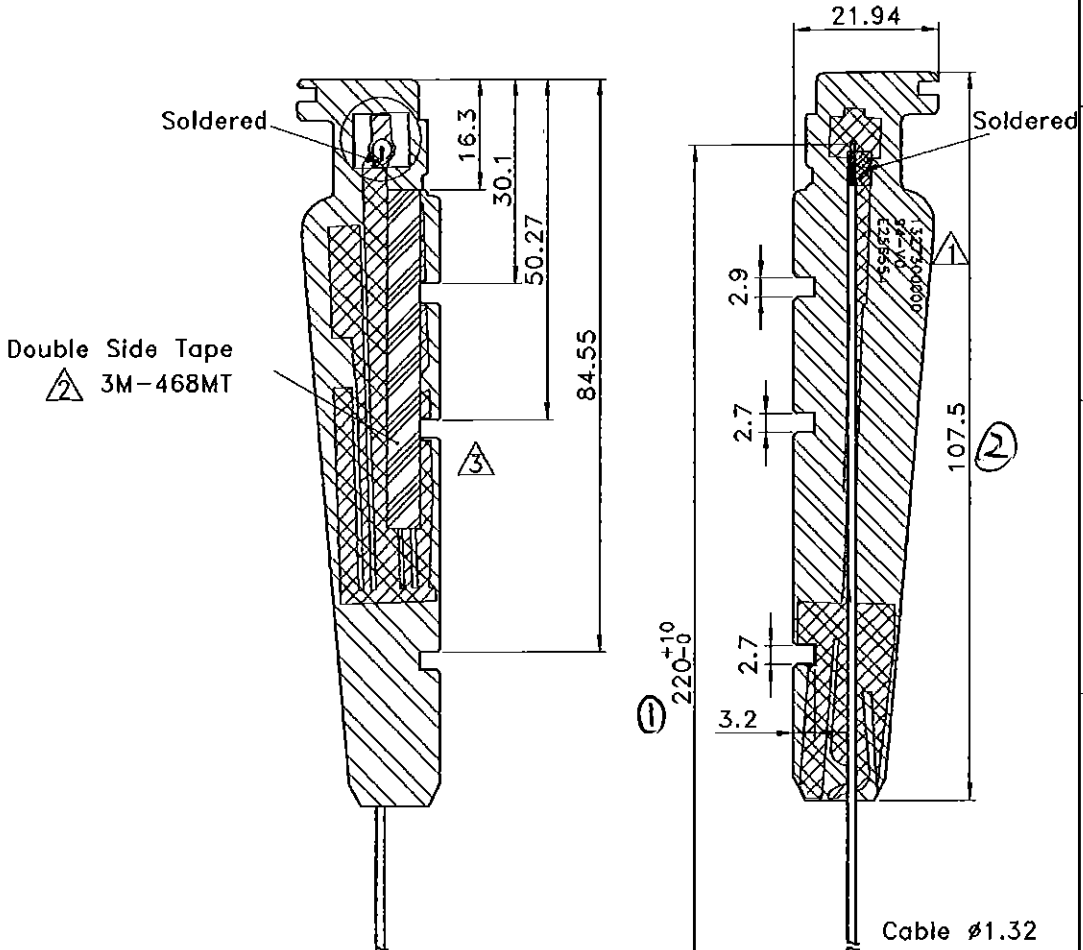
### 4. Packing

- PE Bag
  - Carton
- 

### Modification History:

Rev.	Date	Content
00	2012/9/18	
01	2013/3/22	
02	2013/7/22	增加雙面膠材質標示
03	2014/9/24	修改雙面膠位置

REV	ZONE	DESCRIPTION	ECN NO.	ENG	APPROVED	DATE
①	1E	增加UL標示	102012902	KAY	KYLIU	2013/4/2
②	4E	增加雙面貼材質標示	102071903	Ruth	Kyllu	2013/7/23
③	3D	修改雙面膠位置	103091001	Sara	Eric	2014/9/12



Electrical Properties	
Frequency Range	824~960MHz/ 1710~2170MHz
Impedance	50Ω
V.S.W.R.	≤3.0
Radiation	Omni
Gain	2dBi
Polarization	Vertical
Mechanical Properties	
Body Material	FR4 0.8T
Connector	Phosphor Bronze
Weight	4 g (est.)
Operating Temp	-20°C ~ +65°C

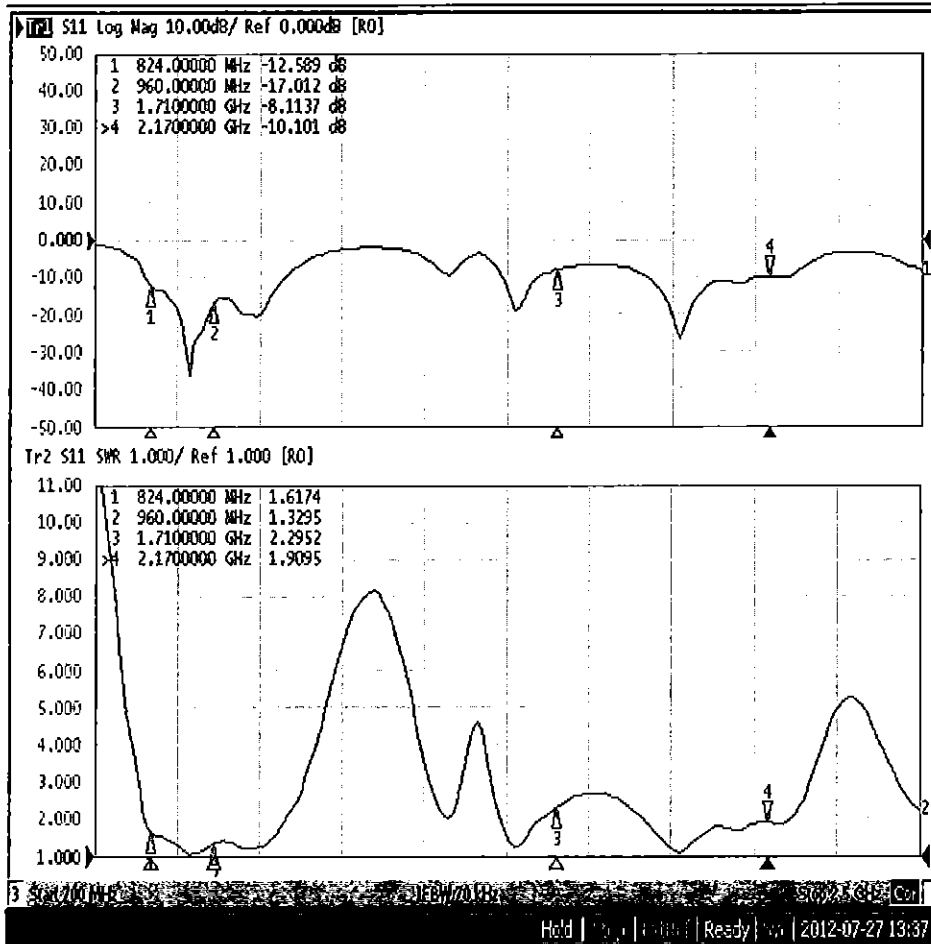
UNLESS OTHERWISE SPECIFIED TOLERANCES ON: X ± 1 XX ± 0.5 XXX ± 0.25 ANG. ± 2.0° THIRD ANGLE PROJECTION	DRAWN BY: CXLIU	MATERIAL:	TITLE : #A045 PCB Antenna
	DESIGNED BY: RUTH	FINISH:	DRAW NO. :
	CHECKED BY:	SCALE:1/1;UNIT:mm	PART NO. : CBF-A045MPXX-167
	APPROVED BY: KYLIU	DATE:2012/9/19	JOYMAX ELECTRONICS CO.,LTD.
THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO JOYMAX AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.		REV: 03	

Model. CBF-A045MPXX-167

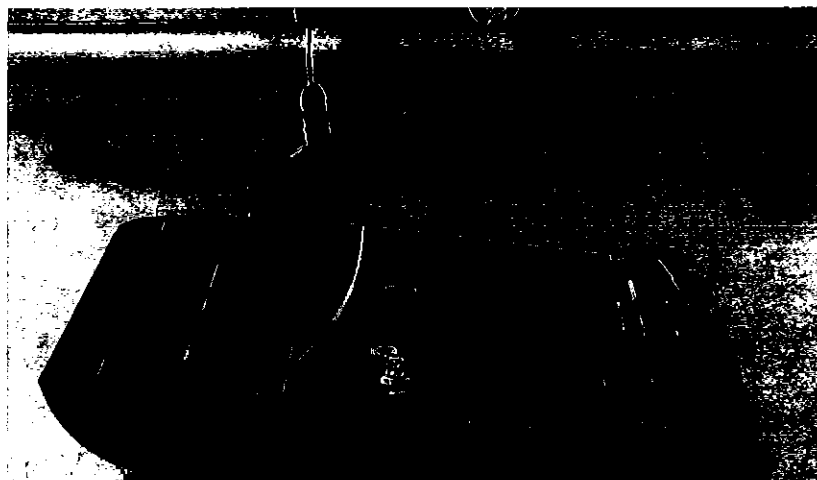
Test Report

Return loss/V.S.W.R

Return loss 1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State



V.S.W.R.

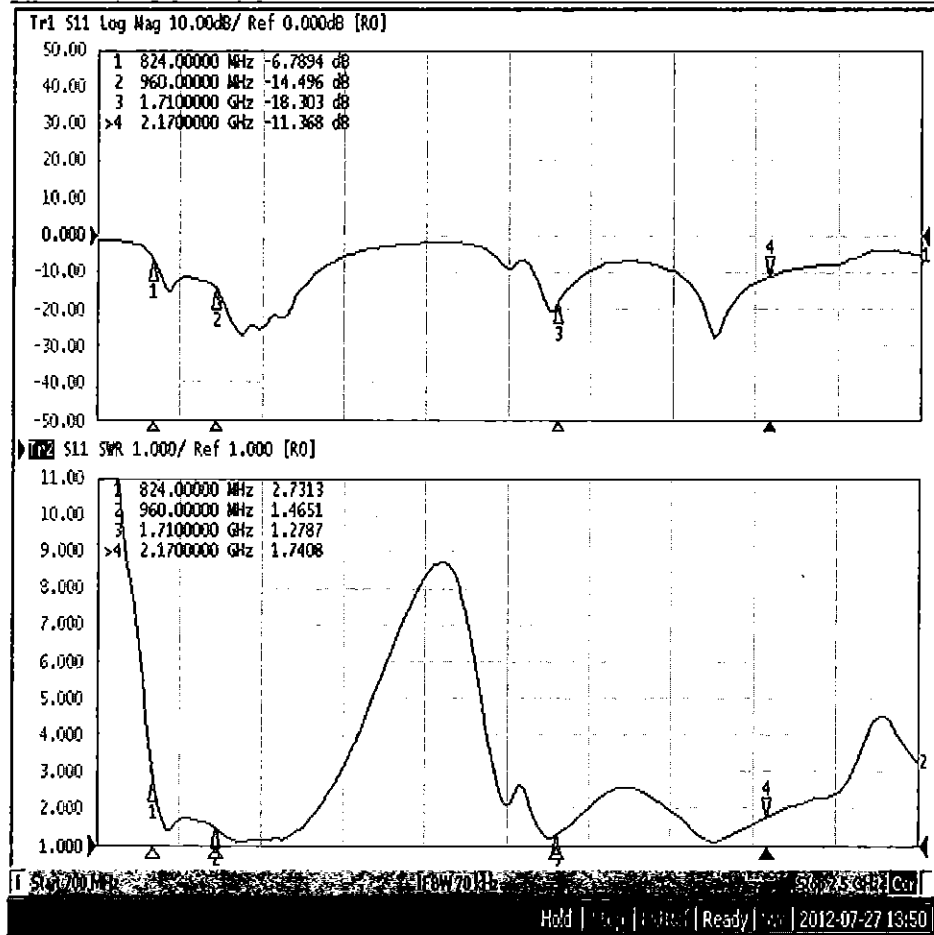


Model. CBF-A045MPXX-167

Test Report

Return loss/V.S.W.R

Return loss 1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkz/Analysis 5 Instr State



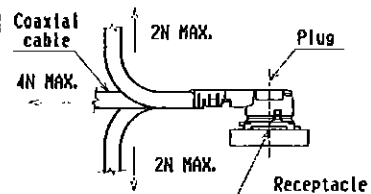
## Connector

## Mini PCI Conn

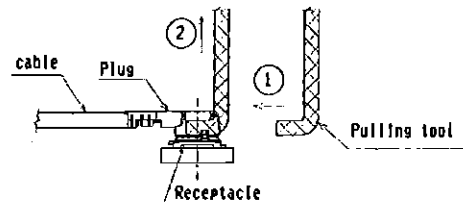
Specification Data	1) Impedance	$50 \pm 2 \Omega$ (TDR)
	2) Frequency Range	0~6GHz
	3) V.S.W.R.	1.3Max.(DC0.1~3GHz), 1.5Max.(3~6GHz)
	4) Insulation resistance	$\geq 500 M\Omega \cdot km$
	5) Dielectric withstanding voltage	AC1000V, 1 minute No creeping discharge

Environmental Data 1) Operating Temperature  $-40^{\circ}\text{C} \sim +90^{\circ}\text{C}$

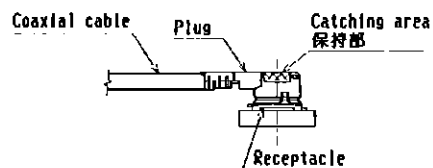
2) Permissible load of cable at mating:



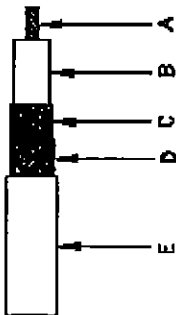
3) In case of unmating by pulling tool : Please use the pulling tool as the following drawing and please pull plug to vertical direction as directly as possible



4) In case of unmating directly by hand: Please catch the catching area of plug, and please pull plug to vertical direction as directly as possible.



Material Specifications	Material Data	Material
1) Body		Phosphor Bronze
2) Contact		Phosphor Bronze
3) Insulator		PBT (UL94-V0)



**Construction:**

A) Center Conductor:  
Mat: 32 AWG(7/.0031") SPCWS  
OD .0093" ± .0005"

B) Dielectric:  
FEP  
OD: .025" +/- .002

C) Shield:  
44 AWG SPC\*  
90% Min. Coverage  
OD .034" Nom.

D) Shield:  
44 AWG SPC\*  
90% Min. Coverage  
OD .043" Nom.

E) Jacket:  
Fluorinated Ethylene Propylene(FEP)  
OD .062" ± .003 (1.52mm)

**Electrical Properties:**

Impedance: 50 ± 2 Ohms  
Capacitance: 28.9 pF/ft Nom.  
Velocity of Propagation: 70 % Nom.  
VSWR(.10 - 6.0GHz) - 1.25:1 Mean  
Ramp Function: 1.1D:1  
Start: .10GHz  
End: 6.00GHz  
Mean: 1.40:1

Attenuation @	Mean	Max.
.10 GHz	17.9	20.6 dB/100ft.
.40 GHz	36.4	41.9 dB/100ft.
.90 GHz	54.0	62.1 dB/100ft.
1.00 GHz	58.6	67.4 dB/100ft.
2.00 GHz	84.5	97.1 dB/100ft.
2.45 GHz	90.3	103.9 dB/100ft.
3.00 GHz	105.0	120.7 dB/100ft.
4.00 GHz	122.7	141.1 dB/100ft.
5.00 GHz	138.7	159.5 dB/100ft.
6.00 GHz	153.4	176.4 dB/100ft.

**Mechanical Properties:**

Operating Temperature Range: -55°C to +200°C  
 Minimum Bend Radius: 3 inches  
 Weight: 3.0 lbs/100ft  
 Conductor Break Strength: 2.7 lbs  
 UL Cable Style: UL Rating 105deg c 30V AC

\* Silver plating thickness is a minimum of 40 nL  
 Per MIL-C-17 and ASTM B296.

TABLE II - BASE MATERIALS

Type	Base Material &								Total Build-Up Thk. (mm)	Conductor Thk. # (mic)	PWB Mfg. Proc.	Meets UL 746E DSR	CTI (PLC)
	Individual Laminate Matl.				Individual Bonding Sheet Matl.								
	UL/ANSI Grade	Mfr. +	Grade	Min. Thk. (mic)	UL/ANSI Grade	Mfr. +	Grade	Min. Thk. (mic)					
X	FR-4	NY	FR-4-86, UV Block FR-4-86	100	FR-4	NY	NP-140B	50	0.38	E:17 I:68	A-M	Yes	-
	FR-4	NY	NP-140R, NP-140TL	100	FR-4	NY	NP-140B	50	0.38	E:17 I:68	A-M	Yes	-
	FR-4	TL	LS-4Y	100	FR-4	NY	NP-140B	50	0.38	E:17 I:68	A-M	Yes	-

- & - Recognized Component, (QMTS2)
- - NY: Nan Ya (E98983); TL: Taiwan Leader (E176891).
- # - I = Maximum internal thickness; E = Minimum external thickness

SOLDER RESISTS

Types	Process	Solder Resists <sup>a</sup>
M	A-M	1, 2, 3, 4

<sup>a</sup> - Solder Resist Grades (Recognized Component, QMJU2):

No.	Solder Resist		
	Manufacturer	Grade	File Number
1.	Taiyo	PSR-2000AM/CA-25 (GN, BL)	E69262
2.	Taiyo	PSR-2000AN/CA-25AA (GN, RD, BL, YL, WT)	E69262
3.	Taiyo	PSR-2000BK/CA-25BK (GN)	E69262
4.	Taiyo	PSR-4000CD/CA-40CB (BK)	E69262
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			



TABLE II - BASE MATERIALS

Type	Base Material &			Min. Thk. (mm)	Min. Copper Thk. (mic)	SS/DS <sup>o</sup>	PWB Mfg. Process	Meets UL 746E DSR	CTI (PLC)
	UL/ANSI Grade	Mfr +	Grade						
DS-1	FR-4	NY	FR-4-86, UV Block FR-4-86	0.18	33	DS	A-D	Yes	-
DS	FR-4	NY	FR-4-86, UV Block FR-4-86	0.30	17	DS	A-D	Yes	-
	FR-4	NY	NP-140TL	0.38	17	DS	A-D	Yes	-
	FR-4	TL	LS-4Y	0.38	17	DS	A-D	Yes	-

& - Recognized Component, (QNT82)

<sup>o</sup> - SS - Single Sided; DS - Double Sided or Single Sided

+ - NY: Nan Ya (E98983); TL: Taiwan Leader (E176891).

## SOLDER RESISTS

Types	Process	Solder Resists <sup>o</sup>
DS-1	A-D	1, 3
DS	A-D	2, 4, 5, 6

<sup>o</sup> - Solder Resist Grades (Recognized Component, QMJU2):

No.	Solder Resist		
	Manufacturer	Grade	File Number
1.	Taiyo	PSR-2000AM/CA-25 (BL)	E69262
2.	Taiyo	PSR-2000AM/CA-25 (GN, BL)	E69262
3.	Taiyo	PSR-2000AN/CA-25AA (GN)	E69262
4.	Taiyo	PSR-2000AN/CA-25AA (GN, RD, BL, YL, WT)	E69262
5.	Taiyo	PSR-2000BK/CA-25BK (GN)	E69262
6.	Taiyo	PSR-4000CD/CA-40CB (DK)	E69262
7.			
8.			
9.			
10.			
11.			
12.			



**ZPMV2.E256554**  
**Wiring, Printed - Component**

Enhanced searching capability for this category can be found in UL's iQ Family of Databases ([iq.ul.com](http://iq.ul.com)).

[Page Bottom](#)

**Wiring, Printed - Component**

[See General Information for Wiring, Printed - Component](#)

**TURBOARD TECHNOLOGICS INC**  
 107 SEC 1 CHANGXING RD  
 LUZHU SHIANG  
 TAOYUAN HSIEN, 338 TAIWAN

E256554

Type	Cond Width		Cond Thk	SS/DSO	Max Area		Max Solder		Meets UL796 DSR	C	
	Min	Min Edge			Area	Solder	Oper Temp	Flame Class			
	mm(In)	mm(In)			mm(In)	mm(In)					C
<b>Multilayer printed wiring boards.</b>											
M	0.07 (0.003)	0.10 (0.004)	17 (0.67) Int:68	DS	76.2 (3.0)	288	10	130	V-0	All	*
<b>Single layer printed wiring boards.</b>											
DS	0.07 (0.003)	0.10 (0.004)	17 (0.67)	DS	76.2 (3.0)	288	10	130	V-0	All	*
DS-1	0.07 (0.003)	0.07 (0.003)	33 (1.30)	DS	76.2 (3.0)	280	10	105	V-0	All	*

\* - CTI PLC is marked on individual board.



Marking: Company name or trademark factory identification.

and type designation. May be followed by a suffix to denote

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