

## ***Blade 2 Antenna Regulatory Infomation***

**Description :** Triple-band Antenna(Main+Aux)  
**Samsung Electronics CO., LTD P/N:** BA42-00045A / BA42-00047A  
BA42-00046A/ BA42-00048A

**Wistron NeWeb P/N:** 81.CAO15.001/81.CAO15.005  
81.CAO15.002/ 81.CAO15.006  
81.CAO15.003/81.CAO15.007  
81.CAO15.004/81.CAO15.008

### **Wistron NeWeb Corporation**

No. 10-1,Li-hsin Road I,  
Science-base Industrial Park,  
Hsinchu 300,Taiwan, R.O.C.  
Tel: 886-3-6667799#6545  
Fax: 886-3-6667711

Provided by Wistron NeWeb Corp.	Reviewed by Wistron NeWeb Corp.
<i>Justin Chang</i>	<i>Weili Cheng</i>

## I. Antenna Type

Position	Main Antenna (Right-side Antenna)	Aux Antenna (Left-side Antenna)
Antenna Type	PIFA	PIFA
Material	Metal sheet	Metal sheet

## Peak Gain

Antenna Gain		2G4 ISM (2.400 GHz - 2.4835 GHz)			U-NII (4.90 GHz - 5.350 GHz)			HyperLAN (5.470 GHz - 5.825 GHz)		
		2.40 GHz	2.45 GHz	2.50 GHz	4.9 GHz	5.15 GHz	5.35 GHz	5.47 GHz	5.6475 GHz	5.825 GHz
Aux	Peak dBi	1.22	1.03	1.03	1.52	1.35	1.34	2.36	1.76	1.48
	Avg dBi	-1.44	-1.67	-1.43	-2.03	-2.75	-2.61	-2.00	-2.16	-2.04
Main	Peak dBi	1.04	1.04	1.15	2.64	2.43	2.22	3.20	3.07	2.20
	Avg dBi	-1.45	-1.54	-1.39	-1.77	-1.59	-2.04	-1.17	-1.24	-1.38

## II. Antenna Model Number

Model number: CAO-S

## III. Manufacturing Info

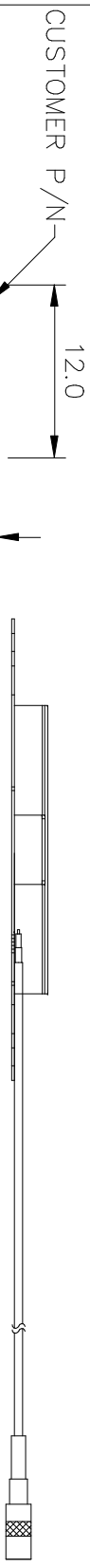
Wistron NeWeb Corporation  
No. 10-1, Li-hsin Road I,  
Science-base Industrial Park,  
Hsinchu 300, Taiwan, R.O.C.

## IV. Antenna Dimensions (Mechanical drawings)

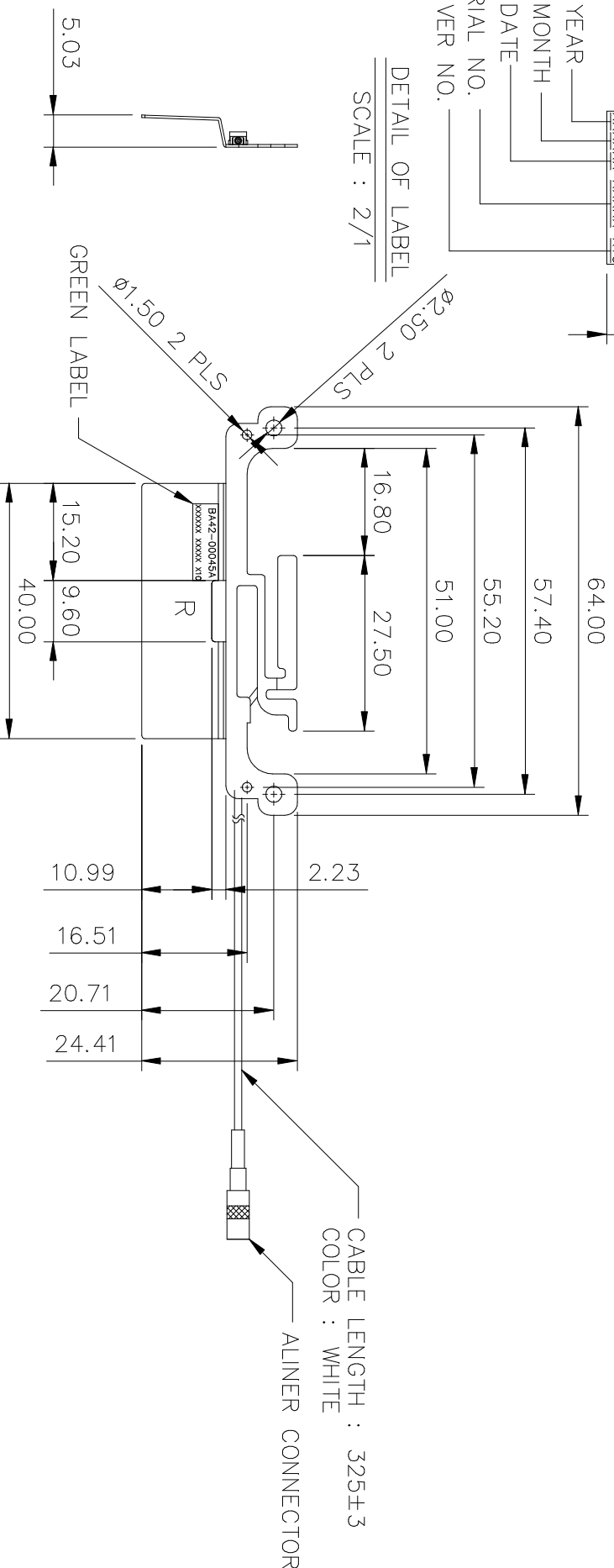
(See Next 8 Pages)

PART NUMBER BLOCK	
PART NUMBER	REV
57.CA015.001	0A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0A	APPROVE SHEET	04/15/03	



DETAIL OF LABEL  
SCALE : 2/1



UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm AND TOLERANCES ARE:  
 INTEGRAL DIMENSIONS ±0.2  
 1 PLACE DECIMAL ±0.15  
 2 PLACE DECIMALS ±0.10  
 ANGULAR DIMENSIONS ±1°  
 HOLES UNDER Ø5.00 ±0.05

**Wistron** 啟豐科技股份有限公司  
**Wistron NewWeb Corp.**  
 No. 10-1, Li-Hsin Road 1, Science-based Industrial Park,  
 Hsinchu 300, Taiwan, R.O.C. Fax: 886-3-6667711  
 Tel: 886-3-6667799

DWG TITLE  
 OUTLINE, RIGHT, CAO-S

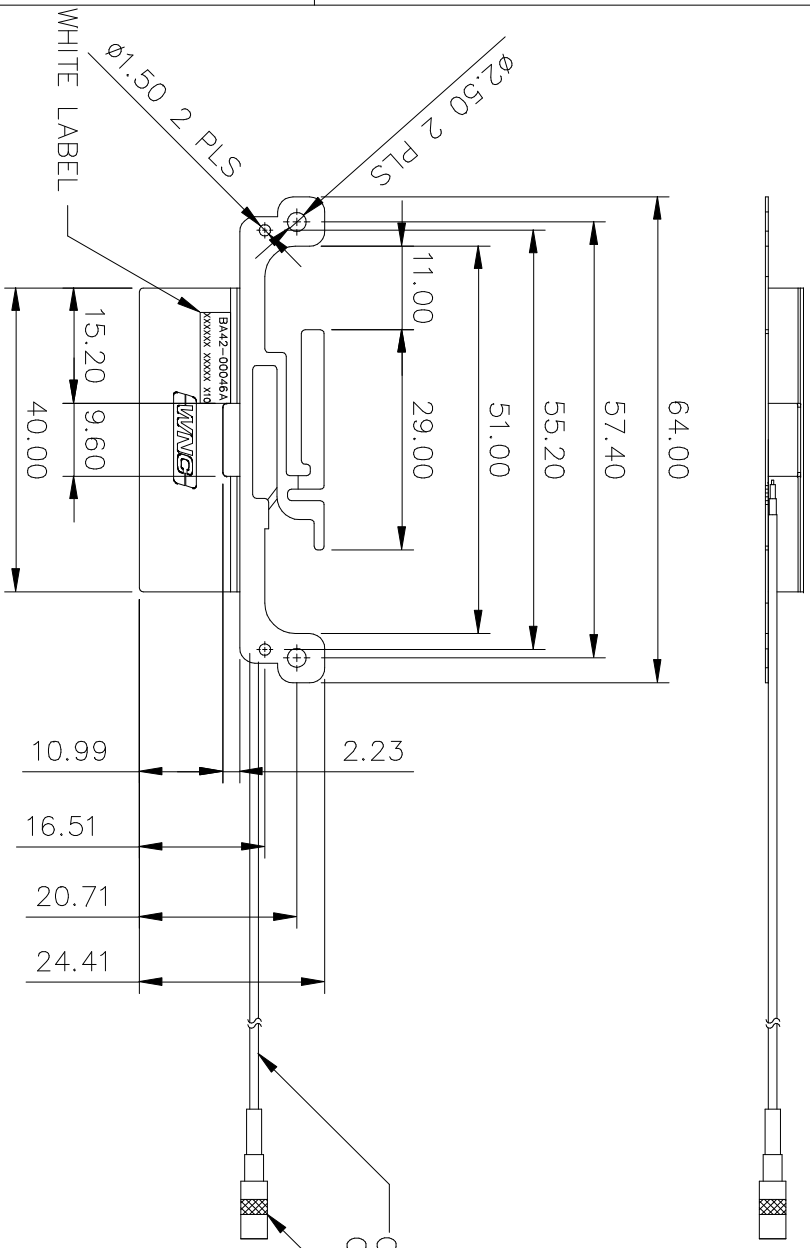
91.CA015.001	CAO-S
NEXT ASSY	USED ON
APPLICATION	

FINISH: NA	
THIRD ANGLE PROJECTION	
DRAWN	ARSENE YU
ENGR	ARSENE YU
APVD	

SIZE	DWG NO.	REV
A4	57.CA015.001	0A
SCALE	1/1	SHEET 1 OF 1

PART NUMBER BLOCK	
PART NUMBER	REV
57.CA015.002	0A

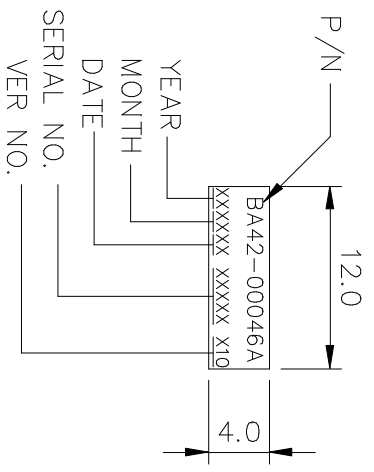
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0A	APPROVE SHEET	04/15/03	



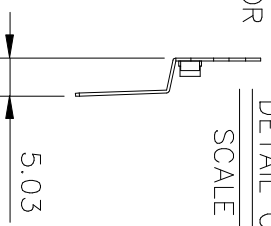
CABLE LENGTH : 490±3  
 COLOR : BLACK

ALINER CONNECTOR

CUSTOMER P/N \_\_\_\_\_



DETAIL OF LABEL  
 SCALE : 2/1



UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm AND TOLERANCES ARE:  
 INTEGRAL DIMENSIONS ±0.2  
 1 PLACE DECIMAL ±0.15  
 2 PLACE DECIMALS ±0.10  
 ANGULAR DIMENSIONS ±1'  
 HOLES UNDER ø5.00 ±0.05

MATERIAL: NA  
 FINISH: NA

91.CA015.002	CAO-S
NEXT ASSY	USED ON
APPLICATION	

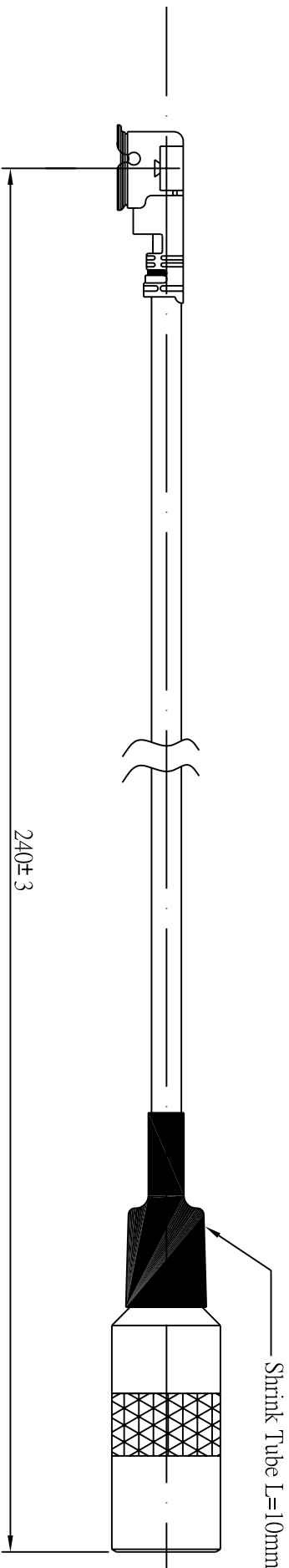
THIRD ANGLE PROJECTION	DRAWN	ARSENE YU	04/15/03
	ENGR	ARSENE YU	04/15/03
	APVD		

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 Hsinchu 300, Taiwan, R.O.C. Fax: 886-3-6667711  
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DWG TITLE	OUTLINE, LEFT, CAO-S
SIZE	DWG NO.
A4	57.CA015.002
SCALE	1/1
SHEET	1 OF 1
REV	0A

單位: mm

Item	Parts Description	Material	Vendor	Item	Parts Description	Amount	Material	Color	P/N	Vendor
A	助焊劑	NC--700	旺興達	C	0.88D $\phi$ 1.37mm	1	Cable	White	J12B1481-3	Junkosha
B	錫條	Sn63/37	星光	D	MMCX Jack connector	1	銅鍍金	Golden	25-122A (第二代)	Aliner
				E	$\phi$ 2.5mm Shrink Tube	1	橡膠	Black		長葆
				F	Connector	1	銅鍍金	Golden	20278-101R-32	I-PEX



注: 1. 加裝連接器時需準確對齊使用專用治具嵌合、在治具上需探知

中心導體位置是否正確.

2. 外觀上不允許有割痕、被覆脫落...等現象發生.

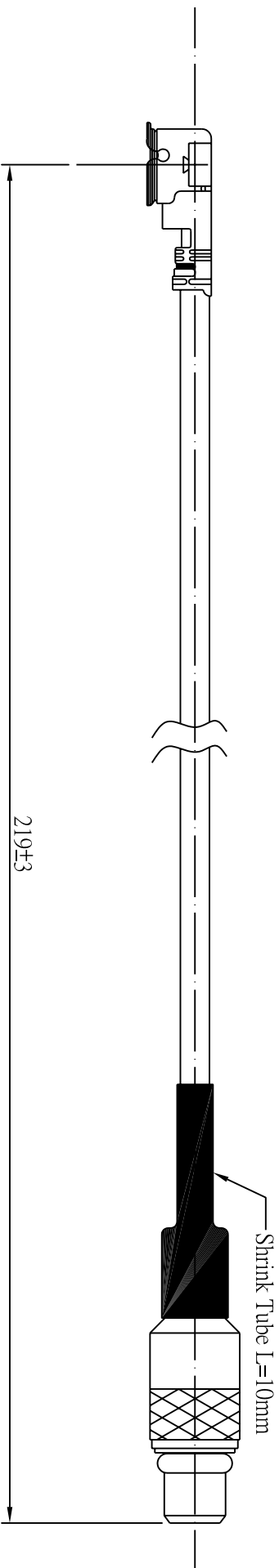
記號	變更內容	年月日	氏名	檢印

品名	WN-MMCX(母)-1.37W-IPEx-240mm-015			圖番	WN-MMCX(母)-1.37W-IPEx-240mm-015		
客戶	Wistron NeWeb Corp.			料號			
設計	制圖	驗圖	承認	材料	Coaxial Cable		
啓基	曹敏			顏色	White		
				日期	2003.03.27		
版本號: A.0				副本號:			

單位: mm

Item	Parts Description	Material	Vendor	Item	Parts Description	Amount	Material	Color	P/N	Vendor
A	助焊劑	NC-700	旺興達	C	0.88D $\phi$ 1.37mm	1	Cable	Black	J12B1481-3	Junkosha
B	錫條	Sn63/37	星光	D	MMCX Plug connector	1	銅鍍金	Golden	25-122A (第二代)	Ailiner

E	$\phi$ 2.5mm Shrink Tube	1	橡膠	Black		長葆
F	Connector	1	銅鍍金	Golden	20278-101R-32	I-PEX



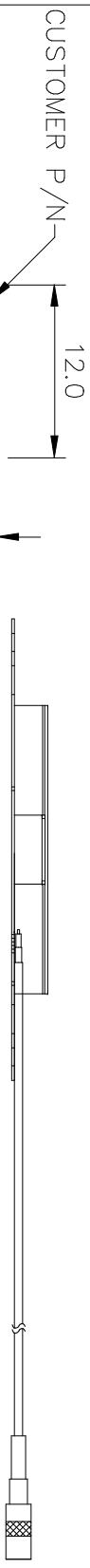
- 注: 1. 加裝連接器時需準確對齊使用專用治具嵌合、在治具上需探知中心導體位置是否正確.  
 2. 外觀上不允許有割痕、被覆脫落...等現象發生.

記號	變更內容	年月日	氏名	檢印

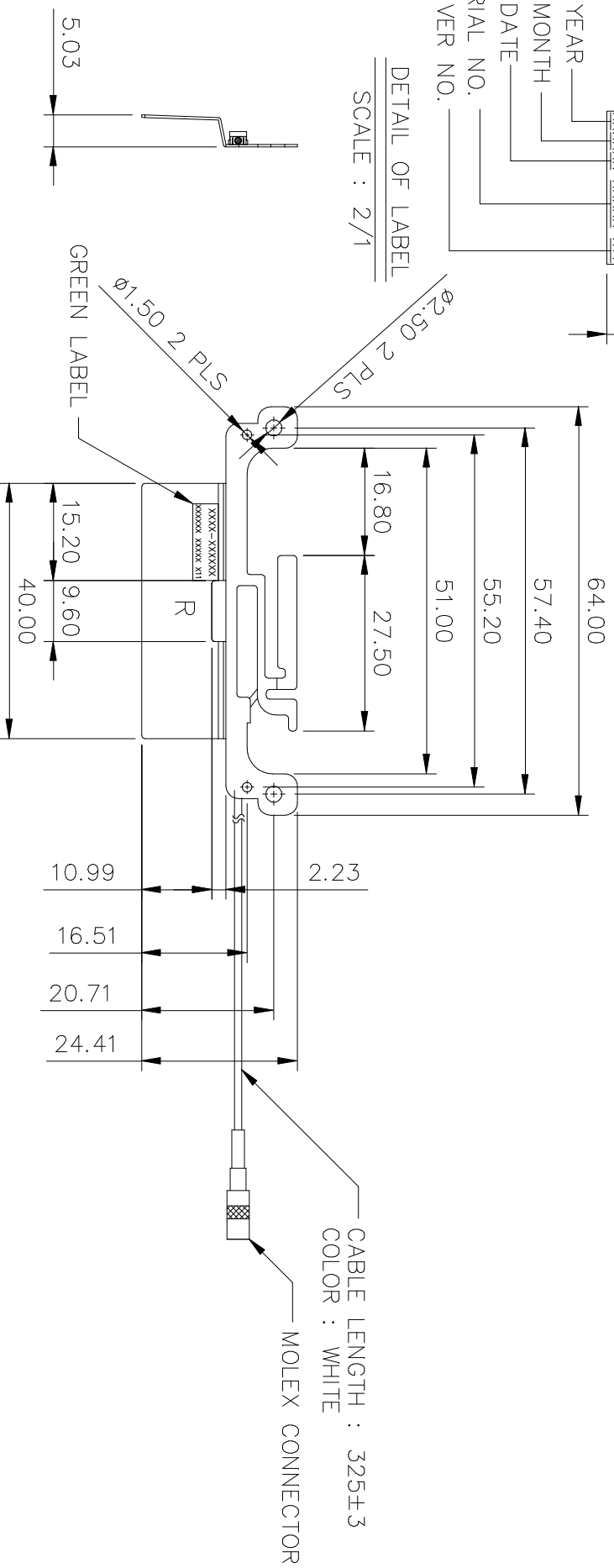
品名	WN-MMCX(子)-1.37B-IPEX-219mm-016		圖番	WN-MMCX(子)-1.37B-IPEX-219mm-016	
客戶	Wistron NetWeb Corp.		料號		
設計	制圖	驗圖	承認	材料	Coaxial Cable
啓碁	曹敏			顏色	Black
				日期	2003.03.27
版本號:	A.0		副本號:		

PART NUMBER BLOCK	
PART NUMBER	REV
57.CAB015.003	0A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0A	APPROVE SHEET	04/15/03	



DETAIL OF LABEL  
SCALE : 2/1



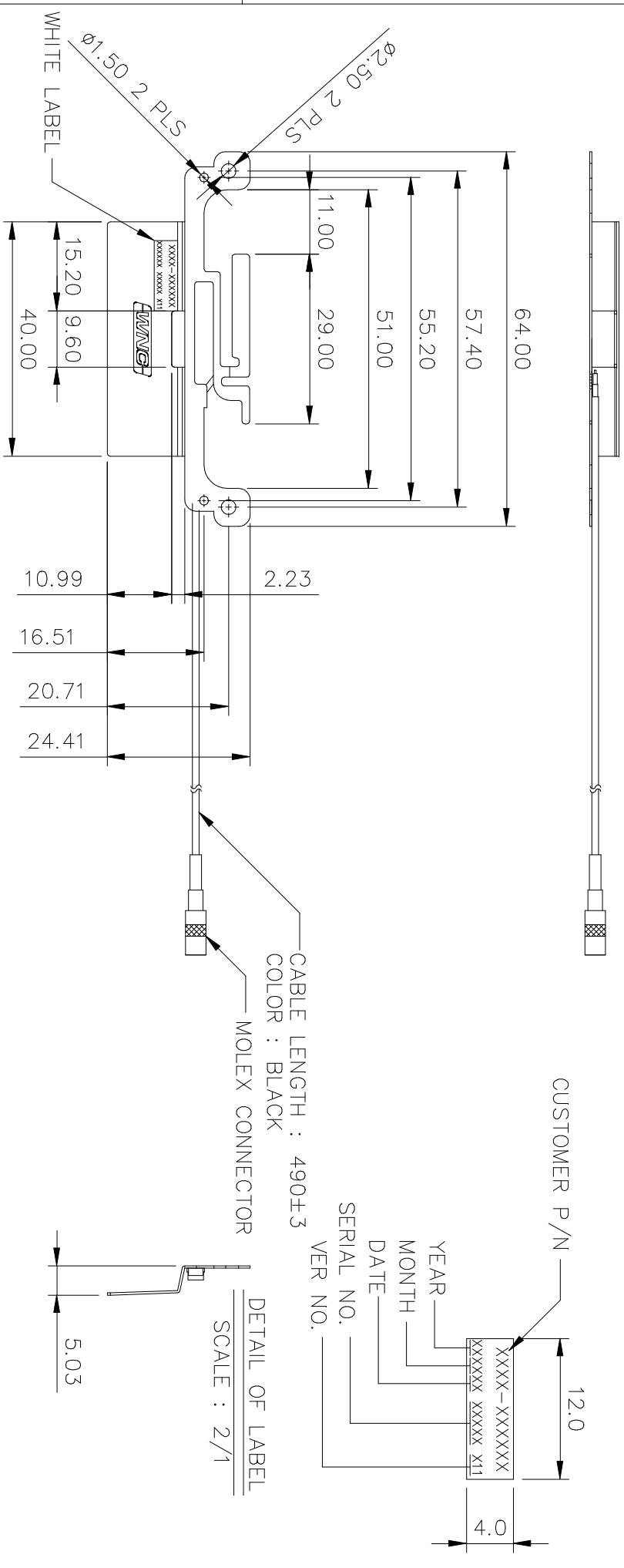
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm AND TOLERANCES ARE:  
 INTEGRAL DIMENSIONS ±0.2  
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 2 PLACE DECIMALS ±0.10  
 ANGULAR DIMENSIONS ±1°  
 HOLES UNDER Ø5.00 ±0.05

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**Wistron NewWeb Corp.**  
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 Hsinchu 300, Taiwan, R.O.C. Fax: 886-3-6667711  
 Tel: 886-3-6667799

FINISH: NA		DRAWN		DATE		SIZE		DWG NO.		REV	
MATERIAL: NA		ARSENE YU		04/15/03		A4		57.CA015.003		0A	
THIRD ANGLE PROJECTION		ARSENE YU		04/15/03		SCALE		1/1		SHEET 1 OF 1	
APPLICATION		USED ON		CAO-S		NEXT ASSY		91.CA015.003			

PART NUMBER BLOCK	
PART NUMBER	REV
57.CA015.004	0A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0A	APPROVE SHEET	04/15/03	



UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm AND TOLERANCES ARE:  
 INTEGRAL DIMENSIONS ±0.2  
 1 PLACE DECIMAL ±0.15  
 2 PLACE DECIMALS ±0.10  
 ANGULAR DIMENSIONS ±1'  
 HOLES UNDER Ø5.00 ±0.05

91.CA015.004	CAO-S
NEXT ASSY	USED ON
APPLICATION	

FINISH: NA		DRAWN		ARSENE YU		04/15/03	
THIRD ANGLE PROJECTION		ENGR		ARSENE YU		04/15/03	
MATERIAL: NA		APVD					

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**Wistron NewWeb Corp.**  
 No. 10~11, 1st~3rd Floor, Science-based Industrial Park,  
 Hsinchu 300, Taiwan, R.O.C. Fax: 886-3-6667711  
 啟豐科技股份有限公司

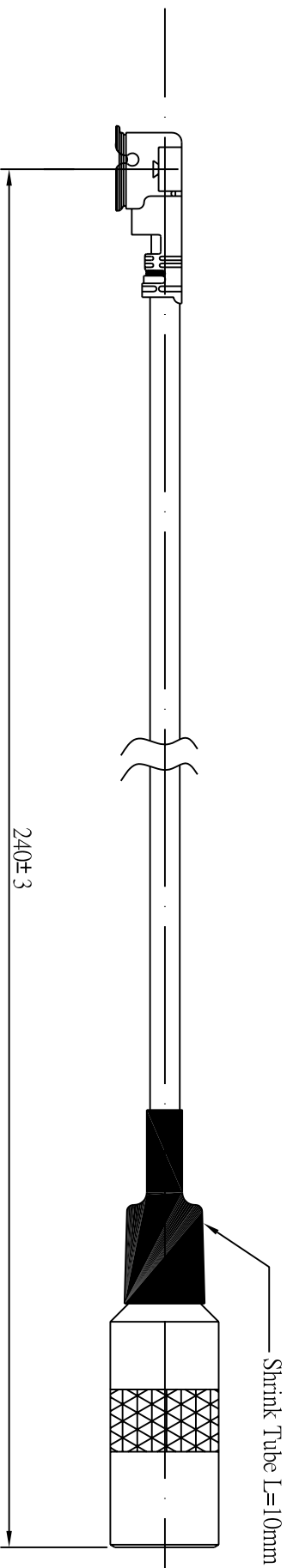
DWG TITLE: OUTLINE, LEFT-2, CAO-S

SIZE: A4  
 DWG NO.: 57.CA015.004  
 SCALE: 1/1  
 SHEET: 1 OF 1



單位: mm

Item	Parts Description	Material	Vendor	Item	Parts Description	Amount	Material	Color	P/N	Vendor
A	助焊劑	NC-700	旺興達	C	0.88D $\phi$ 1.37mm	1	Cable	White	J12B1481-3	Junkosha
B	錫條	Sn63/37	星光	D	MMCX Jack connector	1	銅鍍金	Golden	25-122A (第二代)	Molex
				E	$\phi$ 2.5mmShrink Tube	1	橡膠	Black		長葆
				F	Connector	1	銅鍍金	Golden	20278-101R-32	I-PEX

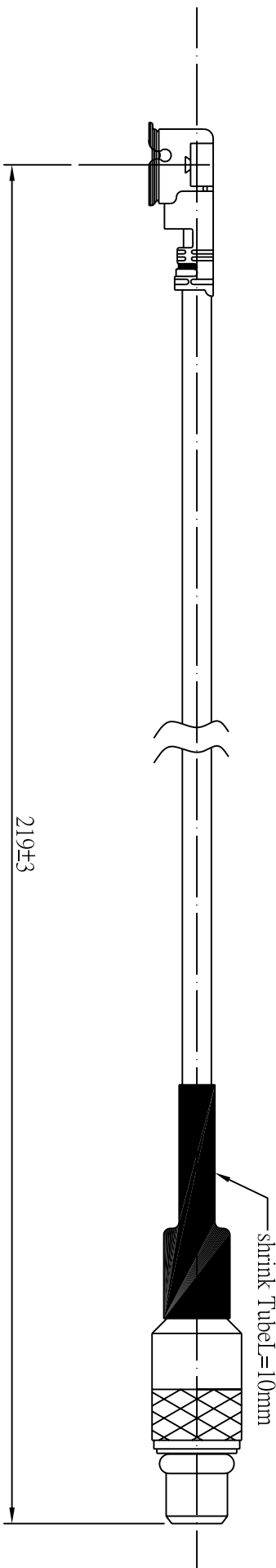


- 注: 1. 加裝連接器時需準確對齊使用專用治具嵌合、在治具上需探知中心導體位置是否正確。  
 2. 外觀上不允許有刮痕、被覆脫落...等現象發生。

品名	圖番		記號	變更內容	年月日	氏名	檢印
WN-MMCX(母)-1.37W-IPEX-240mm-026	WN-MMCX(母)-1.37W-IPEX-240mm-026						
客戶	Wistron NeWeb Corp.						
設計	制圖	驗圖	承認	材料	Coaxial Cable		
啓碁				顏色	White		
				日期	2003.04.15		
版本號: A.0				副本號:			

單位: mm

Item	Parts Description	Material	Vendor	Item	Parts Description	Amount	Material	Color	P/N	Vendor
A	助焊劑	NC-700	旺興達	C	0.88D $\phi$ 1.37mm	1	Cable	Black	J12B1481-3	Junkosha
B	錫條	Sn63/37	星光	D	MMCX Plug connector	1	銅鍍金	Golden	25-122A (第二代)	Molex
				E	$\phi$ 2.5mmShrink Tube	1	橡膠	Black		長葆
				F	Connector	1	銅鍍金	Golden	20278-101R-32	I-PEX



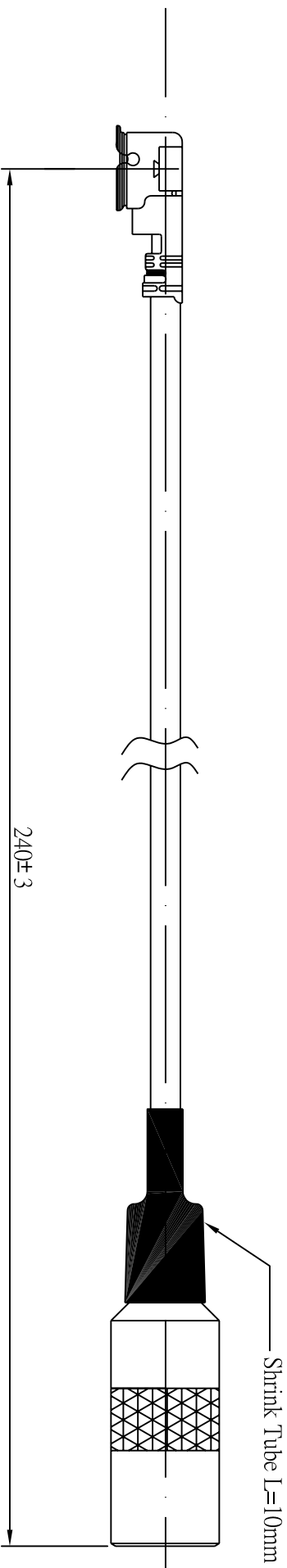
圖番	變更內容	年月日	氏名	檢印
	記號			

品名	WN-MMCX(子)-1.37B-IPEX-219mm-025			圖番	WN-MMCX(子)-1.37B-IPEX-219mm-025		
客戶	Wistron NetWeb Corp.			料號			
設計	制圖	驗圖	承認	材料	Coaxial Cable		
啓基	曹敏			顏色	Black		
				日期	2003.04.15		
版本號: A.0				副本號:			

注: 1. 加裝連接器時需準確對齊使用專用治具嵌合、在治具上需探知中心導體位置是否正確。  
 2. 外觀上不允許有割痕、被覆脫落...等現象發生。

單位: mm

Item	Parts Description	Amount	Material	Color	P/N	Vendor
C	0.88D $\phi$ 1.37mm	1	Cable	White	J12B1481-3	Junkosha
D	MMCX Jack connector	1	銅鍍金	Golden	25-122A (第二代)	Aliner
E	$\phi$ 2.5mm Shrink Tube	1	橡膠	Black		長葆
F	Connector	1	銅鍍金	Golden	U.FL-JP-088-A-240	HRS

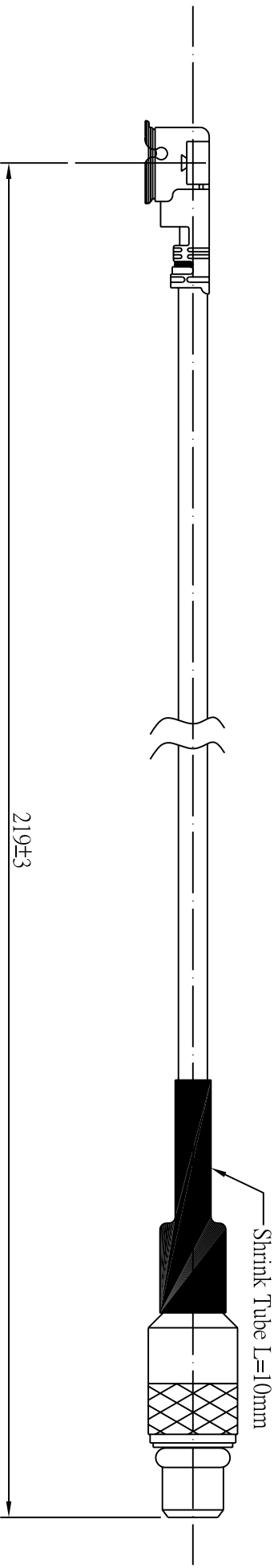


記號	變更內容	年月日	氏名	檢印

品名	C A9106157		圖番	C A9106157	
客戶	Wistron NeWeb Corp.		料號		
設計	制圖	驗圖	承認	材料	Coaxial Cable
啓基	曹敏			顏色	White
				日期	2003.03.27
版本號: A.0					副本號:

單位: mm

Item	Parts Description	Amount	Material	Color	P/N	Vendor
C	0.88D $\phi$ 1.37mm	1	Cable	Black	J12B1481-3	Junkosha
D	MMCX Plug connector	1	銅鍍金	Golden	25-304B (第二代)	Aliner
E	$\phi$ 2.5mm Shrink Tube	1	橡膠	Black		長葆
F	Connector	1	銅鍍金	Golden	U.FL-LP-088-A-560	HRS

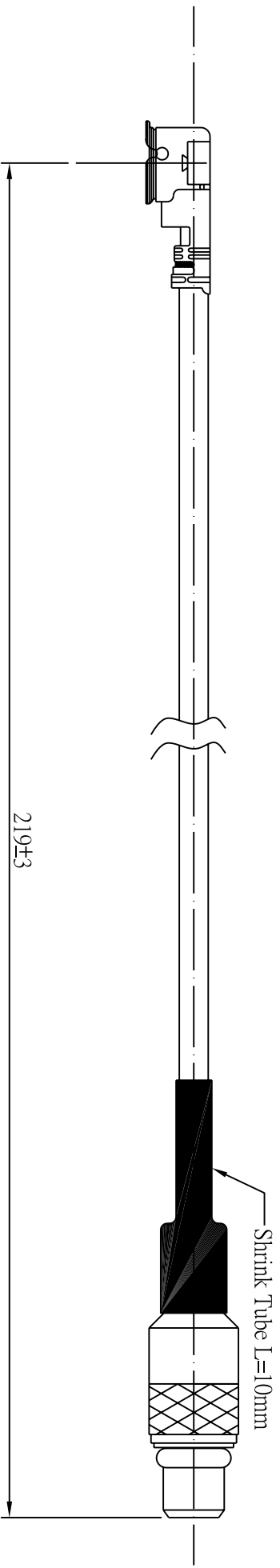


記號	變更內容	年月日	氏名	檢印

品名	C A9106156	圖番	C A9106156		
客戶	Wistron NeWeb Corp.	料號			
設計	制圖	驗圖	承認	材料	Coaxial Cable
啓基	曹敏	顏色	Black	日期	2003.03.27
版本號: A.0					副本號:

單位: mm

Item	Parts Description	Amount	Material	Color	P/N	Vendor
C	0.88D $\phi$ 1.37mm	1	Cable	Black	J12B1481-3	Junkosha
D	MMCX Plug connector	1	銅鍍金	Golden	73415-4650 (第二代)	Molex
E	$\phi$ 2.5mm Shrink Tube	1	橡膠	Black		長葆
F	Connector	1	銅鍍金	Golden	U.FL-LP-088-A-560	HRS

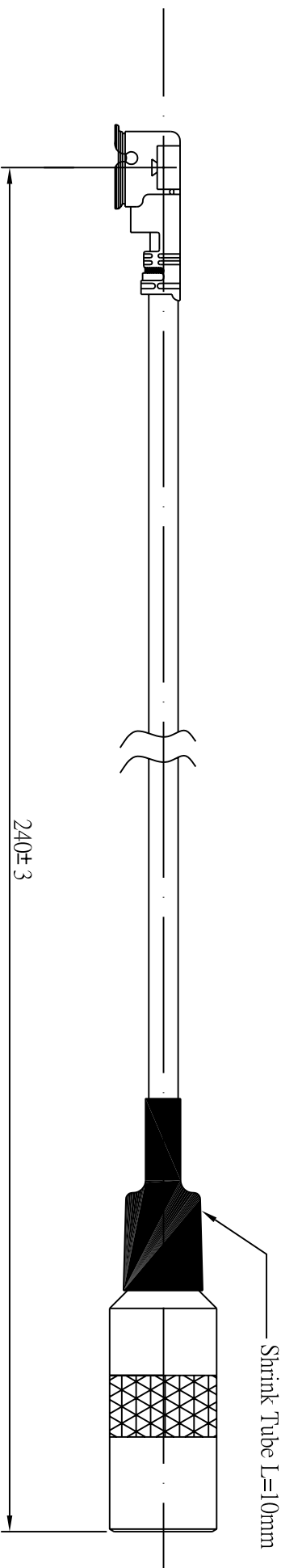


記號	變更內容	年月日	氏名	檢印

品名	C A9106157		圖番	C A9106157	
客戶	Wistron NeWeb Corp.		料號		
設計	制圖	驗圖	承認	材料	Coaxial Cable
啓基	曹敏			顏色	
版本號:	A.0			日期	2003.03.27
				副本號:	

單位: mm

Item	Parts Description	Amount	Material	Color	P/N	Vendor
C	0.88D $\phi$ 1.37mm	1	Cable	White	J12B1481-3	Junkosha
D	MMCX Jack connector	1	銅鍍金	Golden	73415-4640 (第二代)	Molex
E	$\phi$ 2.5mm Shrink Tube	1	橡膠	Black		長葆
F	Connector	1	銅鍍金	Golden	U-FL-LP-088-A-240	HRS



記號	變更內容	年月日	氏名	檢印

品名	C A9106157			圖番	C A9106157	
客戶	Wistron NeWeb Corp.			料號		
設計	制圖	驗圖	承認	材料	Coaxial Cable	
啓基	曹敏			顏色	White	
				日期	2003.03.27	
版本號: A.0					副本號:	

## V. Pictures of Antennas

Aux Antenna (LCD Side)	Main Antenna (LCD Side)
	
Aux System Cable	Main System Cable
	

## VI. Cable Length

Left-side antenna(Aux): 490mm $\Phi$ 1.37mm(LCD Side)+219mm $\Phi$ 1.37mm(System Side)  
Right-side antenna(Main): 325mm $\Phi$ 1.37mm(LCD Side)+240mm $\Phi$ 1.37mm(System Side)  
(From the center of connector to the end of cable)

## VII. Cable Loss (including connector)

Unit: dB	2G4 band	U-NII band	HyperLAN band
Left Side	2.12	3.34	3.64
Right Side	1.73	2.75	2.92

## XI. Antenna Material

Main antenna	Aux antenna
<ol style="list-style-type: none"> <li>1. Stamped metal</li> <li>2. Junkosha cable and MMCX connector</li> <li>3. Junkosha cable and IPEX connector (Junkosha cable and HRS connector)</li> </ol>	<ol style="list-style-type: none"> <li>1. Stamped metal</li> <li>2. Junkosha cable and MMCX connector</li> <li>3. Junkosha cable and IPEX connector (Junkosha cable and HRS connector)</li> </ol>

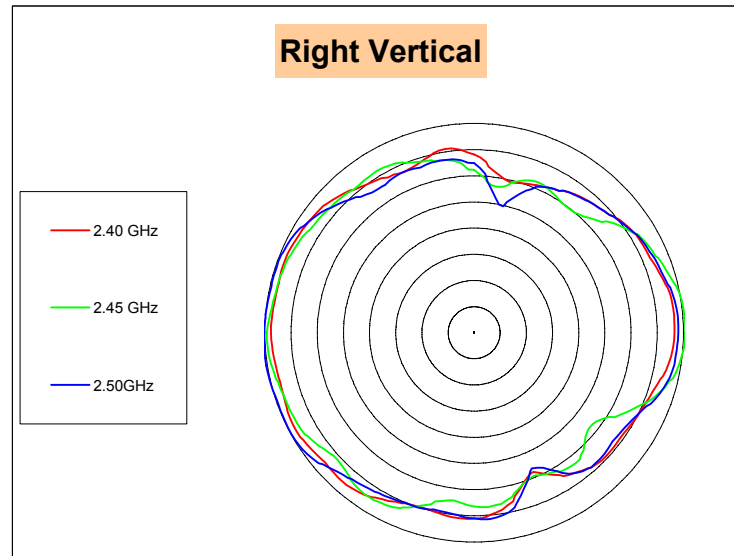
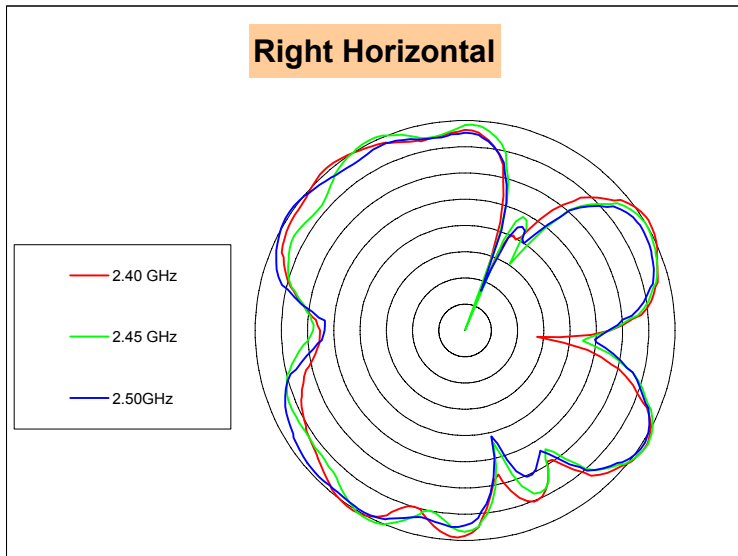
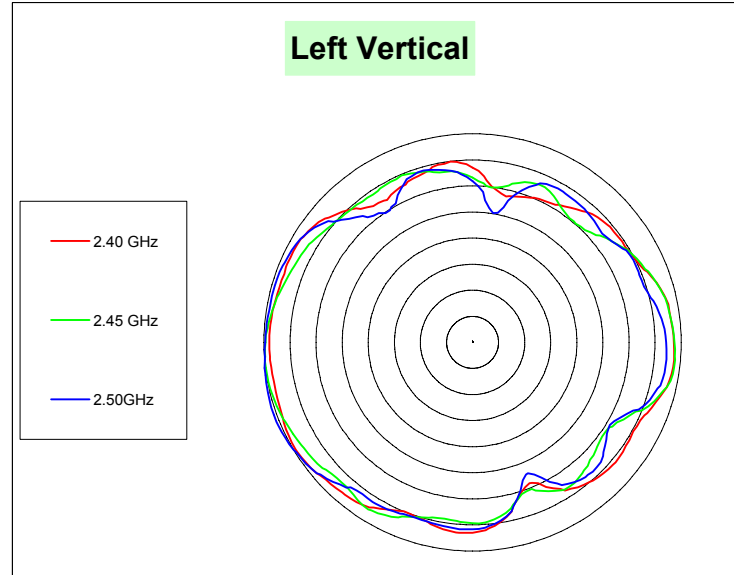
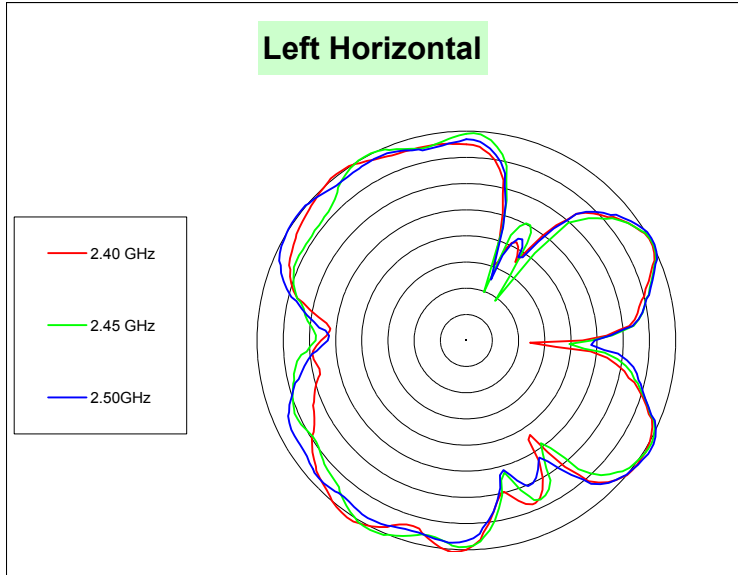
## X. Connector Info (general description)

<b>Description (Cable)</b>	Inner Conductor: AWG#30(7/0.102), Silver plating annealed copper wire Dielectric core: D0.88mm Outer conductor: 16/5/0.05 D1.13mm, Silver plating annealed copper wire Jacket: D1.37mm		
<b>Requirements</b>	Characteristic impedance: 50(+2,-2)ohm Nominal capacitance: 97pF/m Conductor resistance of inner conductor at 330K(20 ): 1000ohm/km MAX Insulation resistance: 1000mega-ohm.km MIN Dielectric withstand voltage: no breakdown at AC1000V for 1min.		
<b>Ratings</b>	Rated voltage: AC60Vrms Nominal characteristics impedance: 50ohm VSWR: 1.3MAX DC~3GHz, 1.7MAX 3~6GHz		
<b>Electric characteristics</b>	Contact resistance	10mA MAX(DC or 1000Hz)	Center contact 74mohm MAX. Outer contact 27mohm MAX.
	Insulation resistance	100V DC	500Mohm MIN
	Voltage proof	200V AC for 1 min. Current leakage 2mA MAX	No flashover or breakdown

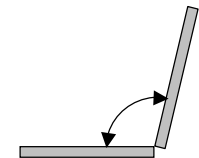


Platform: BladII-Latitude LCD module  
 Supplier: Wistron NeWeb coporation  
 Date: 2003/4/15

## 2G4 ISM (2.400 GHz - 2.4835 GHz) Antenna Radiation Patterns



2G4 ISM (2.400 GHz - 2.4835 GHz)			
CONFIG	FREQ GHz	Avg dBi	Pk dBi
Left Horz	2.4	-3.22	0.77
	2.5	-3.01	1.01
Left Vert	2.4	-3.59	-0.34
	2.5	-3.88	0.58
Right Horz	2.4	-2.96	0.90
	2.5	-3.01	0.45
Right Vert	2.4	-3.75	-1.13
	2.5	-3.37	0.26

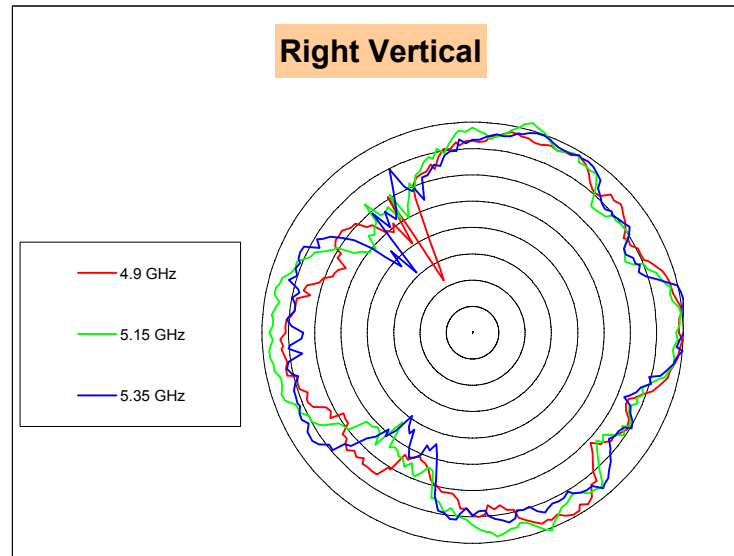
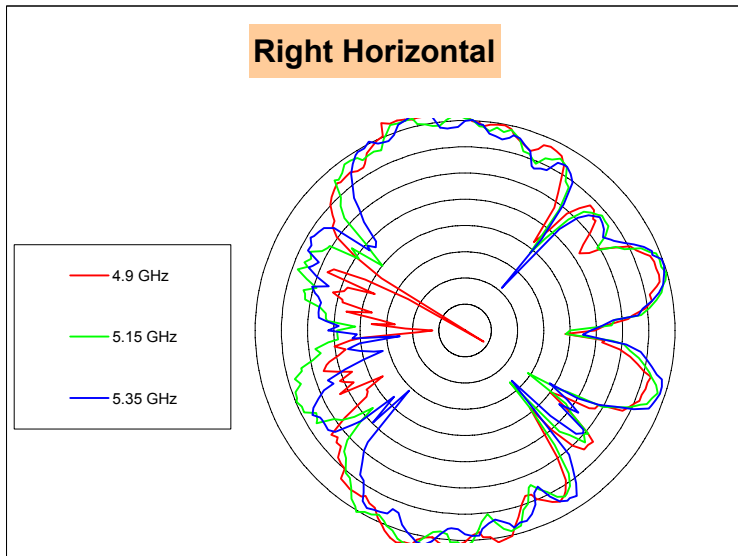
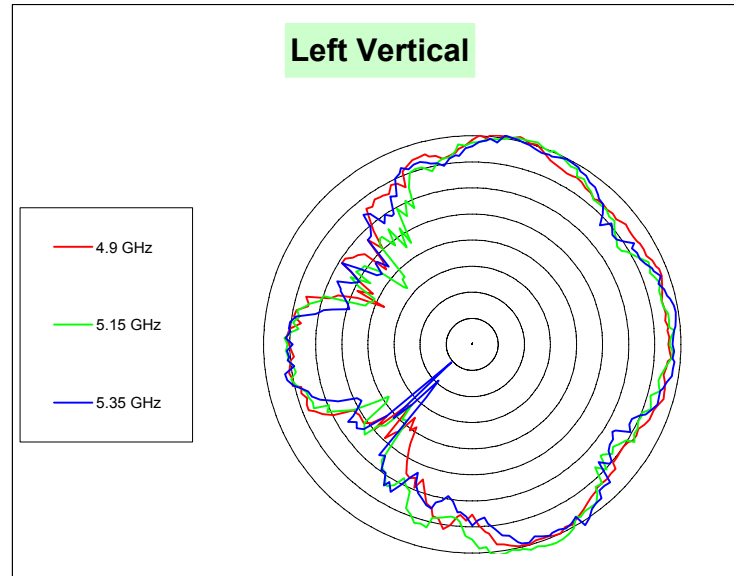
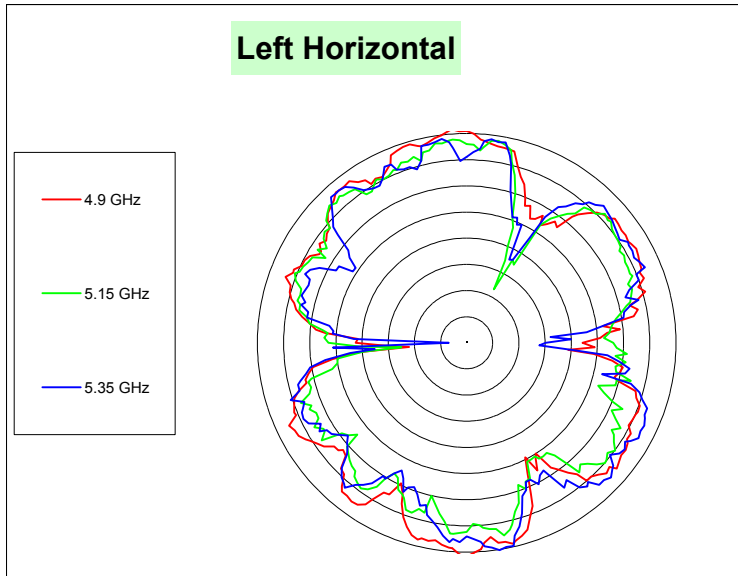


VSWR open = lid/keyboard angle 110°

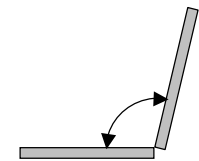
Note: The outer circle approximately represents the 0 dBi gain circle.

Platform: BladII-Latitude LCD module  
 Supplier: Wistron NeWeb coporation  
 Date: 2003/4/15

## U-NII (5.150 GHz - 5.350 GHz) Antenna Radiation Patterns



U-NII (4.90 GHz - 5.350 GHz)			
CONFIG	FREQ GHz	Avg dBi	Pk dBi
Left Horz	4.9	-4.18	0.94
	5.35	-5.33	0.10
Left Horz	4.9	-3.85	0.80
	5.15	-3.79	1.34
Right Horz	4.9	-4.05	0.87
	5.35	-3.36	2.64
Right Horz	4.9	-3.47	2.41
	5.15	-3.89	2.20
Right Horz	4.9	-3.36	-0.09
	5.15	-3.86	1.41
	5.35	-3.36	0.55



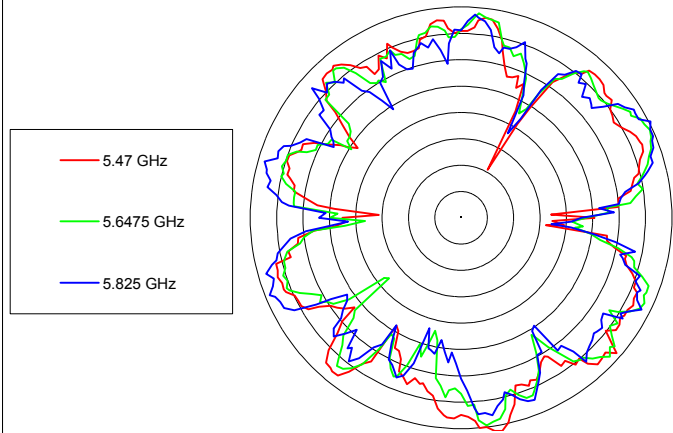
VSWR open = lid/keyboard angle 110°

Note: The outer circle approximately represents the 0 dBi gain circle.

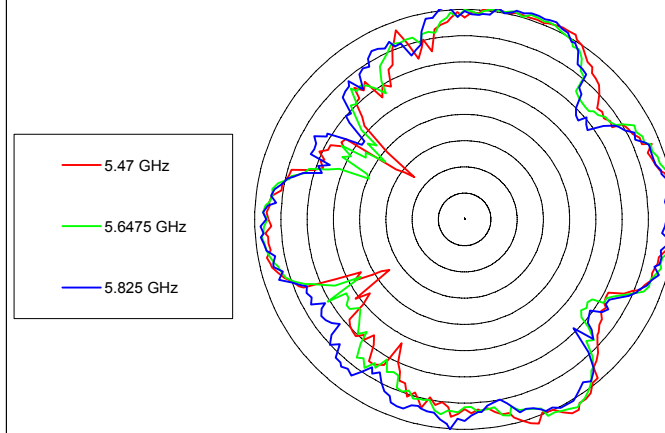
Platform: BladII-Latitude LCD module  
 Supplier: Wistron NeWeb coporation  
 Date: 2003/4/15

## HyperLAN (5.470 GHz - 5.725 GHz) Antenna Radiation Patterns

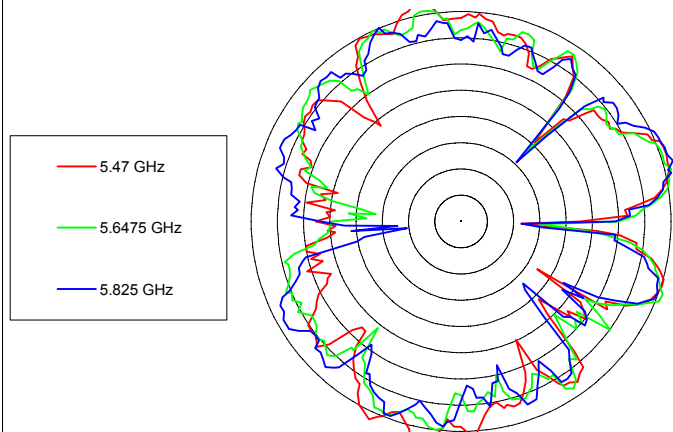
**Left Horizontal**



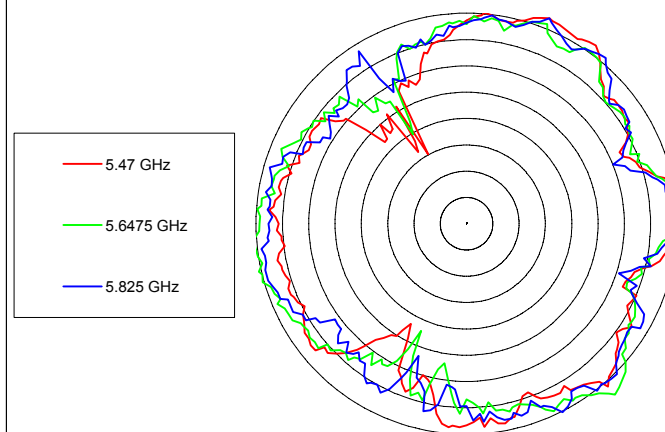
**Left Vertical**



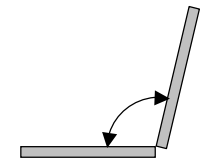
**Right Horizontal**



**Right Vertical**



HyperLAN (5.470 GHz - 5.825 GHz)			
CONFIG	FREQ GHz	Avg dBi	Pk dBi
Left Horz	5.47	-5.23	1.14
	5.6475	-5.53	-0.30
	5.825	-5.62	0.31
Left Horz	5.47	-3.14	2.35
	5.6475	-3.19	1.76
	5.825	-3.01	1.48
Right Horz	5.47	-3.31	3.19
	5.6475	-3.87	1.25
	5.825	-4.02	2.01
Right Horz	5.47	-3.22	2.05
	5.6475	-2.74	3.06
	5.825	-2.91	2.08



VSWR open = lid/keyboard angle 110°

Note: The outer circle approximately represents the 0 dBi gain circle.