

# 承認書

## APPROVAL SHEET

客戶名稱：精英電腦股份有限公司  
CUSTOMER  
品名：CABLE.ANTENNA L...400.VSO  
DRAWING NAME  
鴻呈料號：82-101-01210120  
VSO PART NO.  
客戶料號：14-211-F66041  
CUSTOMER PART NO.

APPROVAL BY

業務部門  
SALES DIV.:

品管部門  
QC DIV.:

工程部門  
TECHNIQUE DIV.:

採購部門  
PURCHASE DIV.:

簡祥銓



吳淑美

洪麗雯

CUSTOMER APPROVEAL

業務部門  
SALES DIV.:

品管部門  
QC DIV.:

工程部門  
TECHNIQUE DIV.:

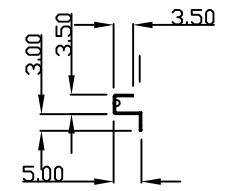
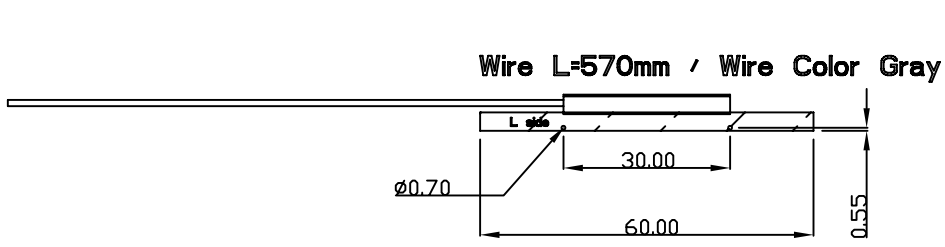
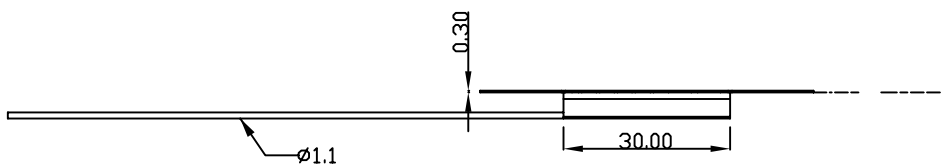
採購部門  
PURCHASE DIV.:

鴻呈實業股份有限公司

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HISTORY			
REV.	DESCRIPTION	Date(YY/MM/DD)	BY
	ORIGINAL DRAWING		Minnie
△	Formal Release		*



1	TBD	*	model name	
ITEM	PART NO.	CUSTOMER NO.	DESCRIPTION	REMARK

*ECS CORPORATION*

MODEL	TBD			APPROVAL
NAME	ANTENNA_330-L_400			Peter
MATERIAL	TBD	UNIT	mm	PROJECT LEADER
FINISH	TBD	SCALE	1.000	SH
	THE 3RD PROJECEION			CHECK
	DON'T SCALE DRAWING			Minnie
DWG. NO.	TBD	DATE	13-Sep-05	REVISION
				0.1
				SHEET
				1/1

TOLERANCE TABLE	
ANGLE	±1/4°
DIM.	TOL. ±
0-10	0.05
10-50	0.10
50-100	0.15
100 ↗	0.20

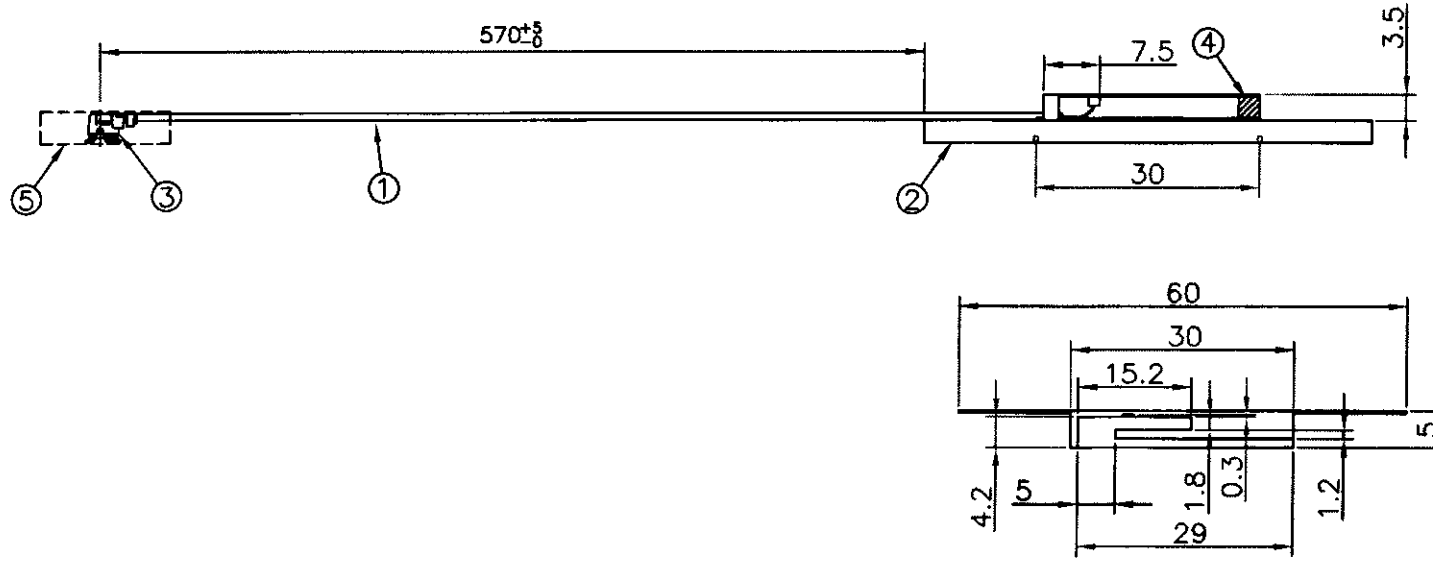
Stage  
design\_01

DRAW ID  
CD

THIS DRAWING IS CONTROLLED DOCUMENT FOR VSO LTD IT IS SUBJECT TO CHANGE AND THE CONTROLLING ENGINEERING ORGANIZATION SHOULD BE CONTACTED FOR THE LATEST REVISION

THIS INFORMATION IS CONFIDENTIAL AND IS DISCLOSED TO YOU ON CONDITION THAT NO FURTHER DISCLOSURE IS MADE BY YOU TO OTHER THAN VSO LTD PERSONNEL WITHOUT WRITTEN AUTHORIZATION FROM VSO LTD

REVISION			
REV.	DESCRIPTION	APPROVAL	DATE
B	變更產品長度及裁線尺寸		05.11.09



NOTE: 用網絡分析儀測試

⑥	雙面膠	雙面膠:L60*W3.3*T0.05mm	1PCS
⑤	TUBE	PVC透明套管:φ3.1*20mm	1PCS
④	支撐膠	EVA支撐膠, BLACK	1PCS
③	CONN	I-PEX TERM GOLD-PLATED	1PCS
②	PIFA BODY	洋白銅, 左	1PCS
①	RF CABLE	CABLE:φ1.13 COAXIAL CABLE,COLOR:GRAY	1PCS
ITEM		DESCRIPTION	Q'TY

XX.	±0.5	CUST. PN: 精英 14-211-F66041	DRAW.:
X.	±0.3		
.X	±0.1	TITLE: PIFA ANTENNA	ENGIN:
.XX	±0.05	VSO PN: 82-101-01210120	CHECK: 李智海
		UNITS mm	DWG. NO.: RF0003
		PAGE: 1/3	REV. B
		APPR.:	

4

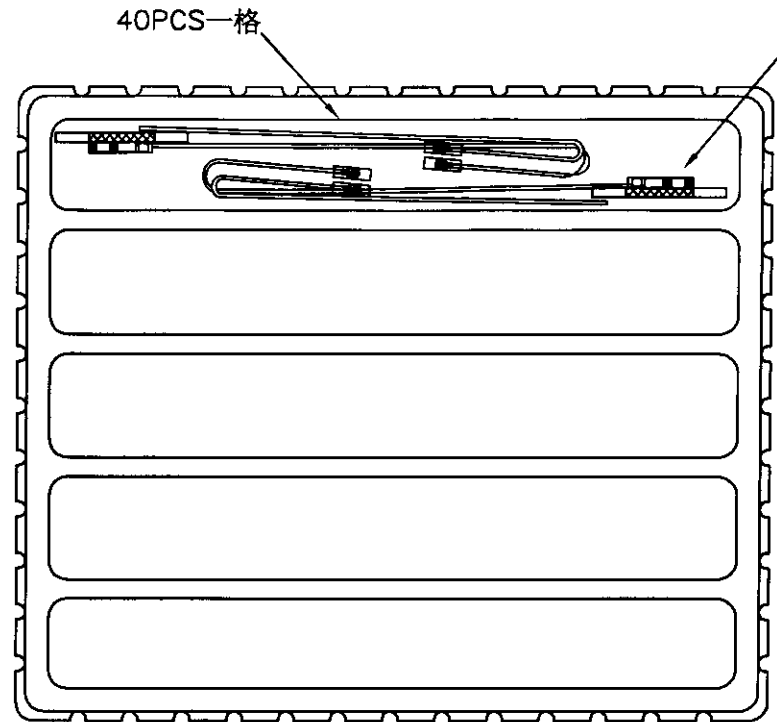
3

2

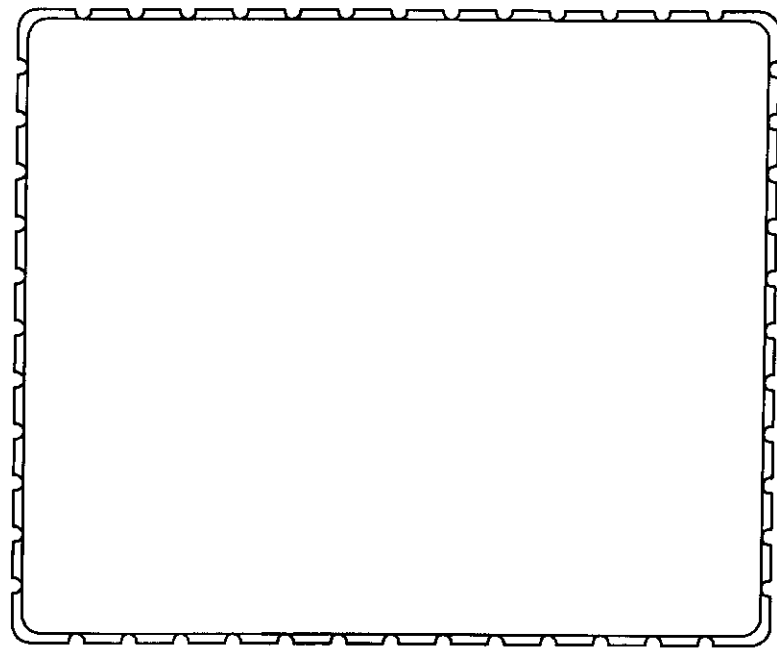
1

THIS DRAWING IS CONTROLLED DOCUMENT FOR VSO LTD IT IS SUBJECT TO CHANGE AND THE CONTROLLING ENGINEERING ORGANIZATION SHOULD BE CONTACTED FOR THE LATEST REVISION  
  
 THIS INFORMATION IS CONFIDENTIAL AND IS DISCLOSED TO YOU ON CONDITION THAT NO FURTHER DISCLOSURE IS MADE BY YOU TO OTHER THAN VSO LTD PERSONNEL WITHOUT WRITTEN AUTHORIZATION FROM VSO LTD

REVISION			
REV.	DESCRIPTION	APPROVAL	DATE



吸塑盤底盤



吸塑盤上蓋

NOTE:

1. 吸塑盤規格:L380\*W320\*H40mm,紙箱規格:L390\*W330\*H240mm
2. 20PCS用橡皮筋捆成一把,一格可放2把40PCS成品
3. 一個吸塑盤分五格,可放200PCS成品,一箱放五個吸塑盤可裝1000PCS成品

**VSO ELECTRIC CO.,LTD.**

XX.	±0.5	CUST. P/N: 精英 14-211-F66041	DRAW: <i>Jonny</i>
X.	±0.3		
.X	±0.1	TITLE: 包裝圖	ENGIN:
.XX	±0.05	VSO P/N: 82-101-01210120	CHECK: <i>劉子</i>
		UNITS mm	DWG. NO.:
		PAGE: 3/3	REV. A
			APPR.: <i>Jonny</i>

4

3

2

1

ECSM P/N : 14-211-F66041

## Specification

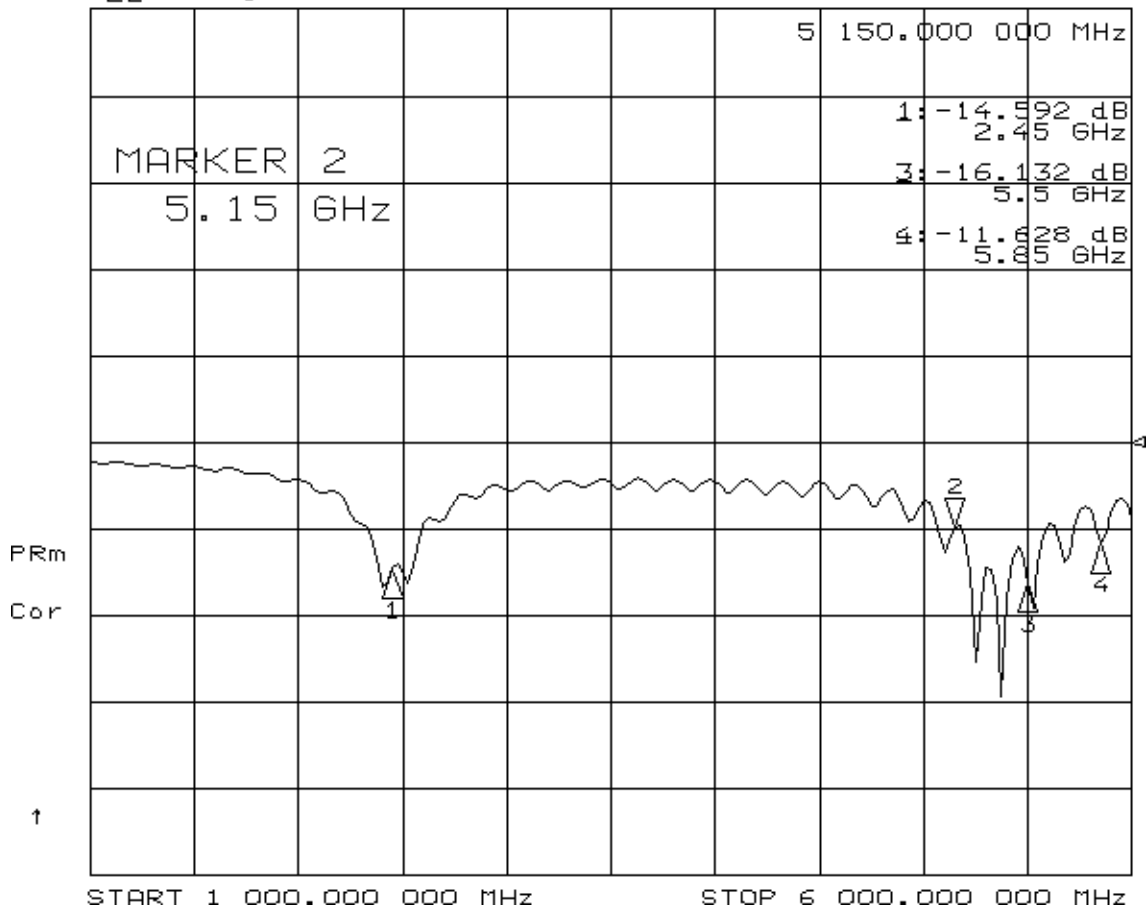
### 1. Electrical Properties

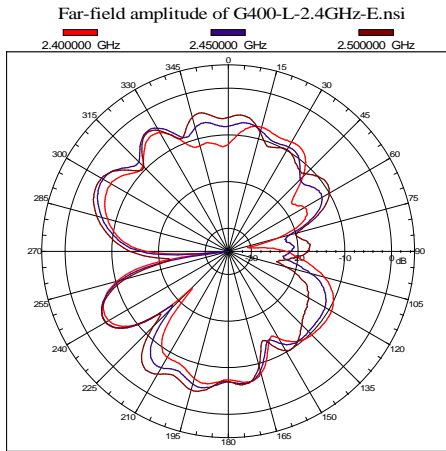
- 1.1 Frequency Range ..... 2.4~2.5GHz ; 5.15~5.85GHz  
1.2 Impedance ..... 50  
1.3 VSWR ..... 2.0 max  
1.4 Return Loss ..... -10 dB max  
1.5 Gain

Pattern 頻率	Average			Peak		
	Ex	Ey	Ex+Ey	Ex	Ey	Ex+Ey
2.40 GHz	-6.12	-10.16	-4.68	-1.86	-5.19	-0.20
2.45 GHz	-5.87	-9.26	-4.23	-1.55	-3.90	0.44
2.50 GHz	-5.93	-8.88	-4.15	-1.58	-3.39	0.62
5.15 GHz	-8.75	-9.29	-6.00	-2.33	-0.85	1.48
5.55 GHz	-7.61	-9.42	-5.41	-2.57	-4.07	-0.25
5.85 GHz	-11.44	-11.6	-8.51	-5.79	-5.93	-2.85

### 2. Physical Properties

- 2.1 Cable Type .....  $\phi$  1.13 Coaxial ; L : 545 mm  
2.2 Cable Color ..... Gray  
2.3 Cable Attenuations ..... 1.8 dB/m @1.0GHz  
2.6 dB/m @2.0GHz  
3.7 dB/m @3.0GHz  
4.8 dB/m @4.0GHz  
5.2 dB/m @5.0GHz  
6.4 dB/m @6.0GHz  
2.4 Cable Connector ..... I-PEX  
2.5 PIFA Metal ..... 洋白銅  
2.6 Operating Temperature ..... -20°C ~ +65°C  
2.7 Storage Temperature ..... -30°C ~ +75°C





Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = -5.19471 dBi  
 Max far-field (global) = -51.85083 dB, Max far-field (plot) = -51.85084 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -34.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

G400-L-2.4GHz-E

NSI2000 V4.0.116, Filename:C:\K\KUO\New Folder\G400-L-2.4GHz-E.nsi  
 Measurement date/time: 9/30/2005 12:09:26 PM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -10.158 dB  
 -3. dB beam width: 18.43 deg  
 -6. dB beam width: 63.61 deg  
 -10. dB beam width: 136.66 deg  
 Left Sidelobe: -0.75 dB at -59.666 deg  
 Right Sidelobe: -2.24 dB at 14.540 deg

Far-field display setup

Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 361  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 1.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 3

Beam	Frequency	Azimuth	Elevation	Pol
1	2.400 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = -3.89814 dBi  
 Max far-field (global) = -51.06732 dB, Max far-field (plot) = -51.06734 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -33.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

G400-L-2.4GHz-E

NSI2000 V4.0.116, Filename:C:\K\KUO\New Folder\G400-L-2.4GHz-E.nsi  
 Measurement date/time: 9/30/2005 12:09:26 PM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -9.264 dB  
 -3. dB beam width: 17.52 deg  
 -6. dB beam width: 118.79 deg  
 -10. dB beam width: 153.98 deg



Left Sidelobe: -0.03 dB at -61.671 deg  
Right Sidelobe: -3.04 dB at -11.532 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 361  
Start= -180.00001 deg, Stop = 180.00001 deg, Delta = 1.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 3

Beam	Frequency	Azimuth	Elevation	Pol
2	2.450 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = -3.38882 dBi  
Max far-field (global) = -50.80662 dB, Max far-field (plot) = -50.80664 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: -63.00001 deg, Vpeak at: 0.000 deg  
Plot centering: On

G400-L-2.4GHz-E

NSI2000 V4.0.116, Filename:C:\KURO\New Folder\G400-L-2.4GHz-E.nsi  
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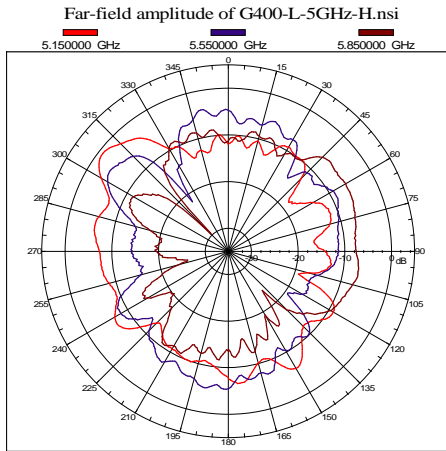
Far-field Cut Analysis:

Avg value: -8.878 dB  
-3. dB beam width: 24.14 deg  
-6. dB beam width: 35.52 deg  
-10. dB beam width: 156.33 deg  
Left Sidelobe: -1.15 dB at -117.827 deg  
Right Sidelobe: -0.74 dB at -33.593 deg

Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 361  
Start= -180.00001 deg, Stop = 180.00001 deg, Delta = 1.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 3

Beam	Frequency	Azimuth	Elevation	Pol
3	2.500 GHz	Azimuth	Elevation	Single-pol



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = -0.84897 dBi  
 Max far-field (global) = -56.67969 dB, Max far-field (plot) = -56.67972 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -52.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

G400-L-5GHz-H

NSI2000 V4.0.116, Filename:C:\KURO\New Folder\G400-L-5GHz-H.nsi

Measurement date/time: 9/30/2005 12:30:13 PM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -9.286 dB  
 -3. dB beam width: 21.57 deg  
 -6. dB beam width: 31.90 deg  
 -10. dB beam width: 107.73 deg  
 Left Sidelobe: -4.98 dB at -78.719 deg  
 Right Sidelobe: -11.68 dB at -14.540 deg

Far-field display setup

Azimuth (deg)  
 Span = 360.000 deg, Center = 0.000 deg, #pts = 361  
 Start = -180.000 deg, Stop = 180.000 deg, Delta = 1.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 8

Beam	Frequency	Azimuth	Elevation	Pol
1	5.150 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = -4.06577 dBi  
 Max far-field (global) = -61.07156 dB, Max far-field (plot) = -61.07156 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -11.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

G400-L-5GHz-H

NSI2000 V4.0.116, Filename:C:\KURO\New Folder\G400-L-5GHz-H.nsi

Measurement date/time: 9/30/2005 12:30:13 PM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -9.423 dB  
 -3. dB beam width: 25.68 deg  
 -6. dB beam width: 60.19 deg  
 -10. dB beam width: 68.71 deg

Left Sidelobe: -1.46 dB at -47.632 deg  
Right Sidelobe: -0.48 dB at -0.501 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.000 deg, Center = 0.000 deg, #pts = 361  
Start= -180.000 deg, Stop = 180.000 deg, Delta = 1.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 8

Beam	Frequency	Azimuth	Elevation	Pol
5	5.550 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = -5.92536 dBi  
Max far-field (global) = -63.0876 dB, Max far-field (plot) = -63.08769 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 59.99999 deg, Vpeak at: 0.000 deg  
Plot centering: On

G400-L-5GHz-H

NSI2000 V4.0.116, Filename:C:\KURO\New Folder\G400-L-5GHz-H.nsi  
Measurement date/time: 9/30/2005 12:30:13 PM, Filetype: NSI-97

Far-field Cut Analysis:

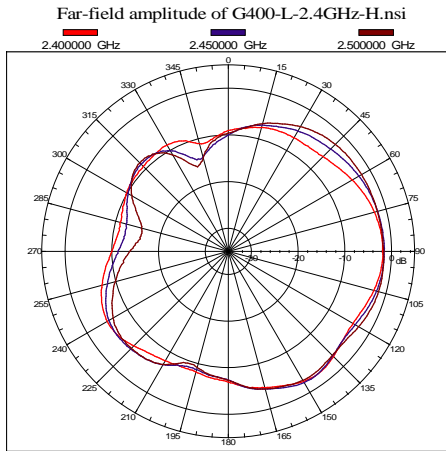
Avg value: -11.600 dB  
-3. dB beam width: 75.05 deg  
-6. dB beam width: 98.38 deg  
-10. dB beam width: 174.21 deg  
Left Sidelobe: -3.14 dB at 20.557 deg  
Right Sidelobe: -0.88 dB at 101.783 deg

Far-field display setup

Azimuth (deg)  
Span = 360.000 deg, Center = 0.000 deg, #pts = 361  
Start= -180.000 deg, Stop = 180.000 deg, Delta = 1.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 8

Beam	Frequency	Azimuth	Elevation	Pol
8	5.850 GHz	Azimuth	Elevation	Single-pol



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = -1.86413 dBi  
 Max far-field (global) = -48.52025 dB, Max far-field (plot) = -48.5203 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: 90.99999 deg, Vpeak at: 0.000 deg  
 Plot centering: On

G400-L-2.4GHz-H

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-L-2.4GHz-H.nsi  
 Measurement date/time: 9/30/2005 11:54:47 AM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -6.123 dB  
 -3. dB beam width: 109.48 deg  
 -6. dB beam width: Not Found  
 -10. dB beam width: Not Found  
 Left Sidelobe: -6.75 dB at -31.588 deg  
 Right Sidelobe: -0.63 dB at 143.900 deg

Far-field display setup

Azimuth (deg)  
 Span = 360.000 deg, Center = 0.000 deg, #pts = 361  
 Start = -180.000 deg, Stop = 180.000 deg, Delta = 1.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 3

Beam	Frequency	Azimuth	Elevation	Pol
1	2.400 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = -1.54486 dBi  
 Max far-field (global) = -48.71404 dB, Max far-field (plot) = -48.7141 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: 88.99999 deg, Vpeak at: 0.000 deg  
 Plot centering: On

G400-L-2.4GHz-H

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-L-2.4GHz-H.nsi  
 Measurement date/time: 9/30/2005 11:54:47 AM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -5.874 dB  
 -3. dB beam width: 128.05 deg  
 -6. dB beam width: Not Found  
 -10. dB beam width: Not Found

Left Sidelobe: -7.05 dB at -38.607 deg  
Right Sidelobe: -0.90 dB at 144.903 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.000 deg, Center = 0.000 deg, #pts = 361  
Start= -180.000 deg, Stop = 180.000 deg, Delta = 1.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 3

Beam	Frequency	Azimuth	Elevation	Pol
2	2.450 GHz	Azimuth	Elevation	Single-pol\

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = -1.57962 dBi  
Max far-field (global) = -48.99742 dB, Max far-field (plot) = -48.99744 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 98.99999 deg, Vpeak at: 0.000 deg  
Plot centering: On

G400-L-2.4GHz-H

NSI2000 V4.0.116, Filename:C:\K\KUO\New Folder\G400-L-2.4GHz-H.nsi  
Measurement date/time: 9/30/2005 11:54:47 AM, Filetype: NSI-97

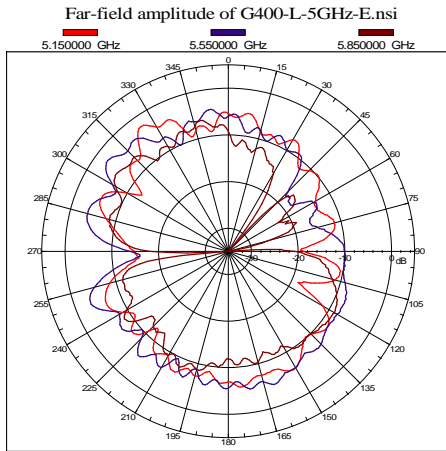
Far-field Cut Analysis:

Avg value: -5.925 dB  
-3. dB beam width: 139.07 deg  
-6. dB beam width: Not Found  
-10. dB beam width: Not Found  
Left Sidelobe: -6.58 dB at -41.616 deg  
Right Sidelobe: Not Found

Far-field display setup  
Azimuth (deg)  
Span = 360.000 deg, Center = 0.000 deg, #pts = 361  
Start= -180.000 deg, Stop = 180.000 deg, Delta = 1.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 3

Beam	Frequency	Azimuth	Elevation	Pol
3	2.500 GHz	Azimuth	Elevation	Single-pol



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = -2.33203 dBi  
 Max far-field (global) = -58.16275 dB, Max far-field (plot) = -58.16278 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -35.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

G400-L-5GHz-E

NSI2000 V4.0.116, Filename:C:\K\KUO\New Folder\G400-L-5GHz-E.nsi

Measurement date/time: 9/30/2005 12:42:33 PM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -8.747 dB  
 -3. dB beam width: 18.37 deg  
 -6. dB beam width: 32.58 deg  
 -10. dB beam width: 112.86 deg  
 Left Sidelobe: -3.09 dB at -67.688 deg  
 Right Sidelobe: -5.09 dB at -12.535 deg

Far-field display setup

Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 361  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 1.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 8

Beam	Frequency	Azimuth	Elevation	Pol
1	5.150 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = -2.56781 dBi  
 Max far-field (global) = -59.5736 dB, Max far-field (plot) = -59.57373 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -53.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

G400-L-5GHz-E

NSI2000 V4.0.116, Filename:C:\K\KUO\New Folder\G400-L-5GHz-E.nsi

Measurement date/time: 9/30/2005 12:42:33 PM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -7.605 dB  
 -3. dB beam width: 23.61 deg  
 -6. dB beam width: 59.71 deg  
 -10. dB beam width: 131.04 deg

Left Sidelobe: -1.15 dB at -73.705 deg  
Right Sidelobe: -3.23 dB at -16.546 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 361  
Start= -180.00001 deg, Stop = 180.00001 deg, Delta = 1.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 8

Beam	Frequency	Azimuth	Elevation	Pol
5	5.550 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = -5.79289 dBi  
Max far-field (global) = -62.95513 dB, Max far-field (plot) = -62.95514 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: -56.00001 deg, Vpeak at: 0.000 deg  
Plot centering: On

G400-L-5GHz-E

NSI2000 V4.0.116, Filename:C:\KURO\New Folder\G400-L-5GHz-E.nsi  
Measurement date/time: 9/30/2005 12:42:33 PM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -11.444 dB  
-3. dB beam width: 22.77 deg  
-6. dB beam width: 87.32 deg  
-10. dB beam width: 119.19 deg  
Left Sidelobe: -2.73 dB at -72.702 deg  
Right Sidelobe: -2.78 dB at -32.591 deg

Far-field display setup

Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 361  
Start= -180.00001 deg, Stop = 180.00001 deg, Delta = 1.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 8

Beam	Frequency	Azimuth	Elevation	Pol
8	5.850 GHz	Azimuth	Elevation	Single-pol